



ORNAMENTAL
AQUATIC TRADE
ASSOCIATION



Wild caught ornamental fish

The trade, the benefits, the facts



Foreword

Keith Davenport
Chief Executive

Ornamental Aquatic Trade
Association

*The 'voice' of the ornamental
aquatic trade in the UK*



Ornamental fish are caught in very small volumes but command high prices relative to other local uses of the same species. Demand will always be limited because not everyone wants to keep an aquarium.

It's estimated that more than 90% of ornamental marine fish and invertebrates, like coral, and between five and 10% of freshwater fish entering the ornamental fish trade are caught in the wild for aquarium keepers to enjoy in their homes.

Fishermen earn a living from their local rainforest rivers, rift valley lakes or coral reefs in some of the most remote countries in the world and are directly dependent on these habitats remaining healthy. Habitats can be protected because communities rely on them.

The industry's reach is almost global and not only provides benefits to fishermen by giving them a sustainable livelihood, but benefits many others besides. Exporting countries earn important foreign currency which trickles down throughout their economy, supporting a myriad of other businesses that provide goods and services to all the people involved.

We should also recognise there are benefits for those who keep fish. They become knowledgeable about the species they keep and grow more empathetic about the conservation of the eco-systems they come from. They contribute to saving species from extinction by maintaining captive populations even when extinct in the wild (no wild caught species of ornamental fish has ever been made extinct by collection alone). And aquarists in (usually) developed countries gain health benefits by just watching aquariums. But to me these are not the benefits we should focus on.

I believe it is the important benefits in the country of origin that are so often missed in the debate about wild caught fish. People, not fish, really lie at the heart of this issue. We need to ask ourselves what other livelihoods are open to them to feed their families if they cannot catch the species on their doorstep – and keep them alive to supply to our industry. And are those alternatives really 'better' – for either them or the environment?

We acknowledge that a small industry like ours cannot create perfect equity in areas where long established social structures exist determining who gets what. And like any industry of our size extending into remote areas of the world, best practice may not be used everywhere. Where it isn't we will continue to push for improvement. But I believe good practice is the 'norm' in this industry and fundamentally wild caught fish are a good news story.

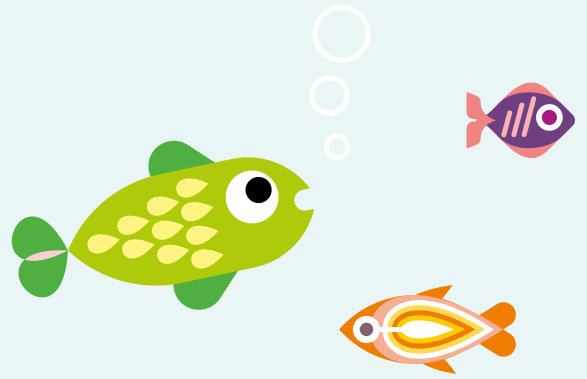
This industry can also play its part in meeting the UN 2030 Sustainable Development Goals. It provides livelihoods to sustainable artisanal fisheries and thus avoids poverty, by providing income from exports and income to feed, clothe and provide education for families, and it can help to avoid climate change by maintaining pristine rainforests and the carbon fixed in them.

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Wild caught fish: key facts



Benefits of the industry



It provides **vital livelihoods** for tens of thousands of fishermen & communities in remote areas that have fewer employment opportunities & less welfare provision



Local people use and **maintain local resources** to make a living

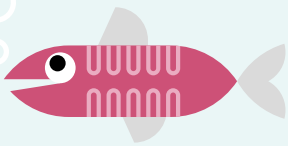


The **source country benefits** are monetary, technological and information-based

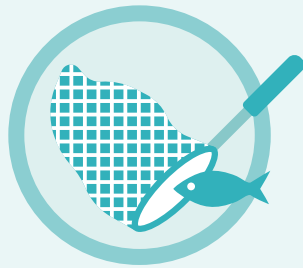


Fishkeepers are knowledgeable of habitats like reefs and rainforests and are **empathetic to** their **conservation** needs

Fish welfare



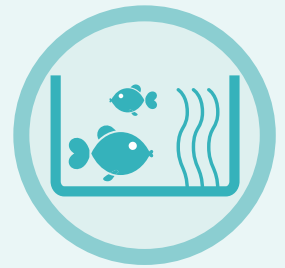
Fish are collected with the sole aim of **keeping them alive**



Fish are caught with **very small nets** compared to trawlers (for food fishing)

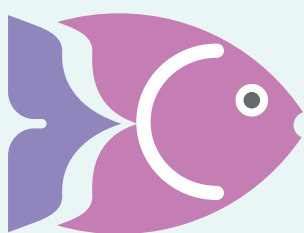


It is a targeted catch – with **virtually no bycatch**

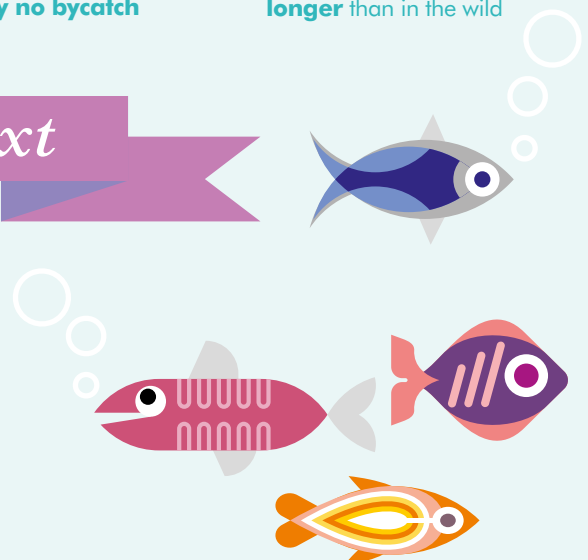


Fish in aquariums **can live longer** than in the wild

The hobby in context

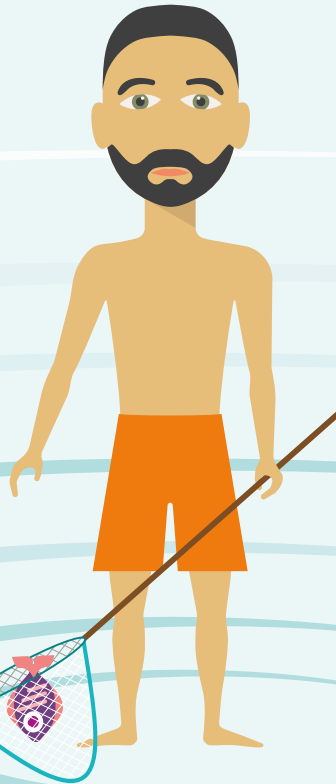


IT IS A LOW VOLUME, **HIGH VALUE HOBBY**, WITH LIMITED DEMAND ON RESOURCES



Trade not Aid

Wild caught ornamental fish are most often caught in coastal and riverine communities where opportunities to earn a living are limited. Buying one wild fish is like a ripple on the water – your money supports not just the fisherman but also many other businesses along the supply chain within the country of origin. After all, you can't catch fish without nets and you can't export without packaging and airports.



COLLECTING



- Diving equipment manufacturers/retailers
- Net makers
- Boats and motors manufacturers and retailers
- Fuel oil
- Repairs

FAMILY



- Housing
- Food
- Clothing
- Education
- Healthcare
- Mosquito nets
- Household fuel

ACCESSORIES



- Plastic bags
- Metal rings
- Rubber bands
- Box (cardboard and polystyrene) manufacturers
- Oxygen
- Knives/machetes

TAXES & PERMITS



Country's government (& employees) also benefit as taxes will be paid and some certificates, licences, health permits, and documents incur charges to the exporter

INFRASTRUCTURE



Contribution to:

- Access roads
- Airports
- Schools
- Utilities: water & electricity

HOLDING SYSTEMS



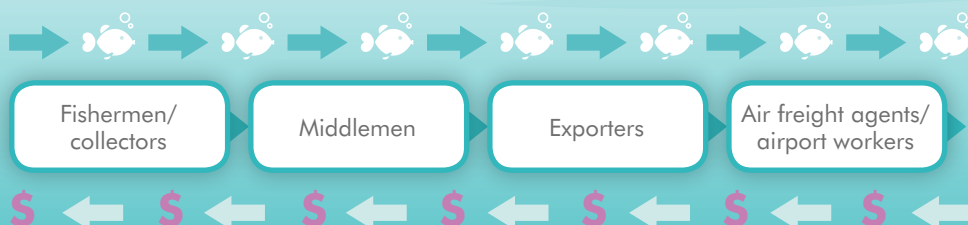
- Holding tanks
- Filters & heaters
- Pipework
- Air & water pumps

TRANSPORTATION



- Van drivers
- Vehicle parts, repairs and maintenance
- Fuel

The trade benefits a host of people & sectors in the country of origin



Wild caught ornamental fish

- *An A-Z of global trade*

From Argentina to Zambia, over 50 countries spread across 5 continents participate in the collection and export of wild caught ornamental fish, corals and invertebrates. This truly global trade supports many small Pacific islands and countries that are recognised as having otherwise limited economic opportunities.



Freshwater fish F

Papua New Guinea and Myanmar fishermen catch fish but these are transported to market through neighbouring countries, mainly because the infrastructure is not there to support direct export.

Marine fish M

A significant number of these are small countries – often in the Pacific Ocean – where there are limited economic opportunities.

Countries in CAPITALS are Small Island Developing States (SIDS). These are low-lying coastal countries which face significant sustainable development challenges.

KEY

- Classified by the United Nations as 'countries with low human development', measured by life expectancy, adult literacy and standard of living
- Classified by the UN as 'least developed countries' in terms of their low gross national income, weak human assets and high degree of economic vulnerability
- Countries are on both these UN lists
- Countries not on these UN lists
- Main markets where the fish are sold - USA, Canada, Europe, China & Japan



Who's buying them?

Ornamental fish are enjoyed by people across the globe but the main markets are undoubtedly in North America, Europe and Japan. China also has a long tradition of keeping fish and, with an expanding middle class, this looks set to increase. There is also seems to be an emerging trend within India of producing ornamental fish both for export and to satisfy a rising interest in keeping fish, although there are no reliable statistics for this.

How are fish caught?



Catching wild fish for aquariums is mainly done by hand, using a minimum of equipment. This allows fishermen to carefully select how and what they catch – often targeting the species of interest they have orders for. This causes a minimum of damage to the habitats where fish live. And of course great care has to be taken because the fish need to be alive and in good condition in order to travel around the world and be healthy when sold.



Natural objects

Fish, like catfish and cichlids, hide in submerged wood, rocks and shells which can be picked up and gently shaken over nets to catch them.

Chase & net

Fish are shepherded into a handheld net using a paddle in both freshwater rivers, like the cardinal tetra in Brazil, and on coral reefs. Stop nets, usually a couple of metres long, are also used by reef divers. Fish caught up in them are picked out by hand, causing little disturbance to the reef.

Hand picked

Usually sedentary fish, starfish, crustaceans and sea cucumbers at the seashore, along with freshwater fish caught in muddy floodplains, are caught by hand, mostly by women as a subsistence activity to bring in a bit of extra income as they fish for food.

Traps

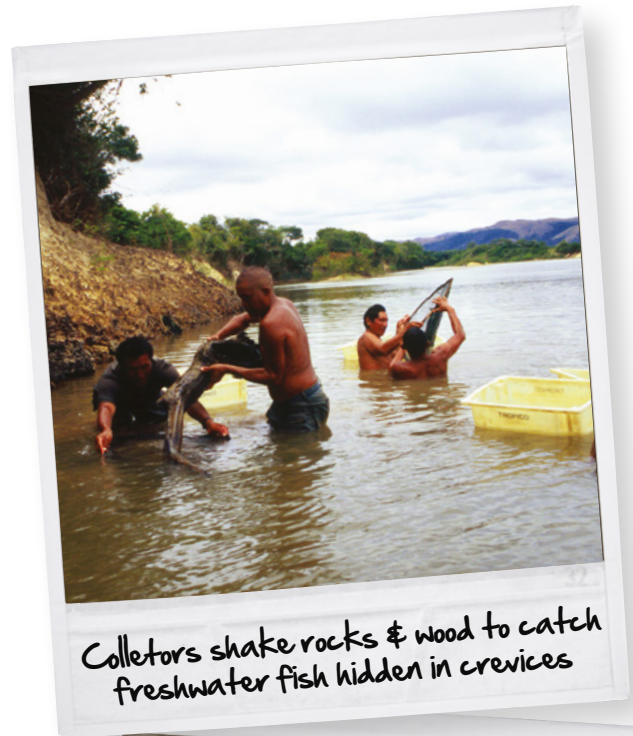
Traps are set either with bait to lure fish into them or to capitalise on the fish's natural behaviour, like clown loach which naturally live in hollow wood so fishermen place bundles of bamboo pipes on the river bottom. Traps are widely used in Africa, although research shows only a small range of fish is caught this way.

Active netting

Seine nets (larger nets pulled in by hand) are not widely used for catching ornamental fish although sometimes nets are used to sweep up woody debris where discus hide. Nets are also used to catch adult arowana fish to harvest fingerlings before the adult fish are released back into the water.

Diving

Snorkelling requires little investment but fishing is restricted to hand picking or hand nets. At slightly greater depths, hookah and scuba diving are the main ways to catch fish, again with hand-held or larger nets, or to collect corals by hand. This is expensive equipment so often it's the wealthier fishermen who do this or it's supplied by a middleman/exporter.



Collectors shake rocks & wood to catch freshwater fish hidden in crevices



A collector shepherds freshwater fish into a handheld net in the Amazon

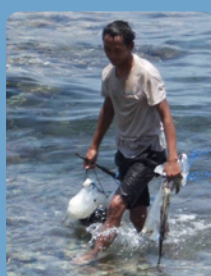
The ornamental marine industry represents at most

0.0001%

of the fish caught from the sea globally

Typical harvesting methods used by collectors in Bali

A free-diver returns to the shore with his catch for the morning.



Hookah diving requires much more equipment and is generally used by wealthier collectors.

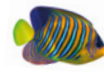


From the wild to a UK home aquarium

The Fish's Journey



1



Catching the Fish

Fish that can be sold are caught by hand or net, then bagged or put into containers and then landed.



On Arrival

5

On arrival in the UK, the fish and their paperwork are inspected by customs and border inspection officers, including vets, in the Border Inspection Posts run by the Animal & Plant Health Agency. When cleared, the import companies take them straight to their facilities.



The Border Inspection Post where paperwork is checked

4



Fish are examined ready for their plane journey

Ready for Export

The fish are examined by government officials then doubled-bagged, placed into specialised containers, then boxed and clearly labelled with packing dates & advisory notes before leaving the country.

6



Some retailers choose fish direct from the wholesalers

7



Retailers often undertake specialist training to sell fish

Acclimatisation

The fish must be rested and acclimatised by wholesalers and/or retailers before being put on sale.

Ready to Sell

Retailers ensure care information is given to customers and the fish are suitably packed for their journey to their new home.

On Shore

The fish either go direct to the exporter or are stored for the agent to collect to take there.



Family catching tropical freshwater fish in Brazil

2



Marine fish checked and bagged ready for collection

3

Good Husbandry

The fish are rested & acclimatised in special tanks, and prepared for overseas export, ensuring they have the right permits and licences.



UK companies invest in state of the art facilities overseas

8



Marine aquariums represent a great deal of investment

Into your Aquarium

Aquarium owners in the UK do a lot of careful research before adding fish, corals & invertebrates to their tanks.

Did you Know?

Fish must have internationally recognised health certificates, export/import permits or licences, and any necessary CITES documents to travel.

To ensure good conditions on the flight, bags contain 1/3 water and 2/3 oxygen; heat or ice packs are put in the containers to ensure suitable temperatures are maintained.

Over 99% of all ornamental fish exported survive the journey to the UK.

OATA, along with other international pet trade bodies, campaign to make sure people understand they should never release ornamental fish & plants into the wild.



How fish are protected by regulations

Unlike food fishing, the aquarium industry is based on catching and selling live fish, so it's in the best interests of all involved, and commercially prudent, to keep them healthy and as stress-free as possible at every stage of their journey. This is a global trade that is regulated at every stage of the fish's journey, from the country of origin, through the complete transport chain to the point of purchase in the UK.



Did you know?

UK fish in home tanks are protected by animal welfare legislation.



Country of origin

Fisheries Law

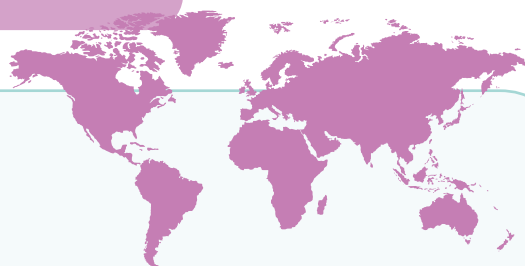
Countries supplying ornamental fish will often have their own fisheries laws/regulations that may set strict quotas on certain species that can be caught, outline the areas where livestock can and cannot be collected and even ban certain species from being exported.

Species Protection

Some species are also protected by CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora). This international agreement between governments aims to ensure the international trade in specimens of wild animals and plants (such as hard corals, seahorses, clams and Asian arowana), does not threaten their survival. To get an export permit for any listed species to be traded, CITES requires that 'a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species.'

Fish Health

Shipments are inspected and must have an internationally recognised health certificate.



Did you know?



Green chromis are a popular marine aquarium fish but are banned from export from the Maldives because they are used as bait for tuna fishing.

Did you know?

The European Union sometimes puts further restrictions on some CITES species which means they cannot be imported into any EU country even if they have a CITES export permit from the country of origin.



In the air

Safe Transportation

The International Air Transport Association (IATA) is a trade association of around 260 airlines which has set internationally recognised standards on the transportation of animals in a safe and humane manner, with airlines open to prosecution if they contravene those rules. In addition, exporter consignments not meeting IATA packing standards should be rejected by airlines. Transport packaging is designed to protect the animals

inside. If a badly packed consignment reaches the UK it may result in a prosecution for animal cruelty.

Did you know?

IATA rules state that all aquatic organisms must be packed so that they will survive at least 48 hours from the time of their acceptance by an airline.

On arrival into the UK

Border Inspections

Live animals must enter the EU through a designated Border Inspection Post (BIP), which in the UK are supervised by the Animal and Plant Health Agency (APHA). The containers which arrive are distinctive, clearly labelled that they contain live fish and are well-documented with fish health certificates, CITES import permits, export permits and customs declarations, as required. Each consignment is checked by both Customs officials and APHA vets. Between them, they make sure there are no illegal species, any animals have the necessary health certificates and CITES permits and that animal health and welfare standards have been met.



Biosecurity

Preventing the spread of aquatic diseases is also crucial. Fish importers must register with the Fish Health Inspectorate (FHI) as an Aquaculture Production Business and are subject to inspection. EU law also states that countries of origin must be members of the World Organisation of Animal Health, an intergovernmental organisation responsible for improving animal health worldwide.

Invasive Species

A number of EU and UK Acts exist to control the import of invasive species. As well as The EU Invasives Regulation, the Import of Live Fish Act also governs those species that can be imported into the UK.

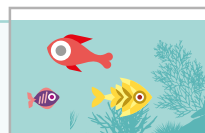
After arrival

In the UK, the Welfare of Animals (Transport) (England) Order 2006 (WATO) protects animals as they are transported to wholesalers or retailers as they leave the airport.

In the pet shop

Animal Welfare

All 2,000 pet shops that sell fish in the UK must apply for a pet shop licence which is issued annually by their local authority. They are also subject to the Animal Welfare Act 2006, which makes it a criminal offence to compromise the welfare of or cause cruelty to vertebrates e.g. fish.



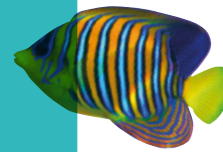
Did you know?

75% of pet shops in the UK sell fish. No other animal husbandry system has the same level of public scrutiny because of the footfall of customers visiting pet shops.



What would collectors do if they couldn't catch wild fish?

In many places, collecting ornamental fish may not be the sole way a collector makes a living for their family but it often provides a significant portion of their total income.



So what would happen if they couldn't collect fish for the aquarium industry any more? Would alternative livelihoods be as economically productive and as sustainable as this low volume, high value practice? And could the alternatives actually prove environmentally damaging?

Alternative livelihoods will obviously vary depending on local conditions but examples might include:

Fishing for food

Live fish caught for aquariums are worth much more than fish caught for food or bait.

In 2007 the Maldives' tuna exports (caught with bait fish) averaged

USD \$1,583
a tonne

whilst their exported live ornamental fish were worth an estimated

USD \$590,000
a tonne
372 times the value by weight of fish

Capture and use of other wildlife species

Collectors in coastal areas might turn to harvesting turtle eggs for food or may collect other wildlife species for the same purpose. These may be endangered or protected species which may suffer as a consequence.



Logging, ranching and slash & burn agriculture

Crops, like soy beans or palm oil, and grazing cattle need clear ground so trees are chopped down to accommodate them. The effects of deforestation are devastating and well-known and affect not only aquatic species – such as in the Amazon – but also land animals through loss of habitat, one of the leading causes of species extinction. Deforestation also contributes to erosion, increased runoff and pollution of waterways as well as increased flooding and climatic change by the release of carbon into the atmosphere.

Tourist hotspots

Whilst potentially boosting the local economy, increased tourism can also bring negative impacts from construction activities (like dredging for ports) and operations, such as sewer discharges, fertiliser runoff, groundwater extraction and pollution, increased waste and impacts associated with increased numbers of visitors (like noise, trampling and breaking corals, littering, CO₂ emissions from increased vehicle use, etc). Local fishermen may also catch more fish for food for restaurants and also collect and sell corals, shells, echinoderms (e.g. starfish) and dried seahorses as souvenirs.

Coral mining

Despite being sometimes illegal, coral can be used as aggregate in infrastructure projects, like roads and hotels. If unable to be sold live, more of the reef could be broken up and sold for building materials with much less care taken over its removal.



Tourism with a sting in the tail

The trade in freshwater stingrays for the ornamental trade in South America is tightly regulated with some species banned from export and others subject to a strict quota. Yet one study found that some Brazilian ecotourism resorts were killing stingrays to reduce the risk of visitors being stung. This activity is totally unregulated and was reported to be responsible for the killing of around 21,000 stingrays, more than the 15,000+ export quota for the ornamental trade.

From rural homes to city slums

With fewer economic opportunities people are driven to cities in the hope of finding stable (or any) employment. Unfortunately, this seldom happens and people are left to settle in marginal areas that lack sanitation and basic services such as electricity, healthcare services and education. This, more often than not, creates overcrowding in vulnerable areas which become focal points for transmission of diseases and other social issues.

Carbon
Locking
vs
Climate
Change

The UK's greenhouse
gas emissions in 2014
totalled just over

514
million tonnes

67
billion tonnes
of carbon are locked in the
Amazonas where ornamental
fish are collected

8 key benefits of wild caught fish



1 Habitat Conservation

People take greater care of the coral reefs, rainforests and Rift Valley lakes that give them a livelihood



2

Employment



Provide livelihood through housing, social care in retirement AND individual

3

Infrastructure

Fish transportation leads to improvement in roads, utilities and even airports



4

Taxes & Foreign Exchange

Import and export activities bring tax, profits and foreign exchange into the country of origin



5

Environmental Sustainability

Marine aquarium fishing

vs

Food fishing in the sea

Fewer fish taken for a higher price

Live fish
70 tonnes

Worth
**\$500
PER KG**

Little by catch



Worth
**\$6
PER KG**

80.9 million tonnes
By catch 7-33M tonnes

dead fish

6

Education, Training & Technology

The companies which buy fish share knowledge & technology to help improve catching skills & further reduce fish mortalities

7

SPECIES CONSERVATION

Commercial breeders & hobbyists breed threatened and endangered fish and fund conservation schemes

8

Knowledge is Key

Aquarium owners are more knowledgeable about reefs, rivers and rainforest and are empathetic to their conservation



Case study

Peru



Jose and the 'deal with the water dragon'



Jose is a small boy who lives with his family in San Martin de Tipishca, which is located within the National Reserve Pacaya-Samiria in Peru. It is here that he and his family gather the 'dragon of the Amazon', the arowana.

"People say we have a deal with the dragon, we take care of them during the whole year and once a year we catch them in return. My father always says the male takes care of the fingerlings, putting them in his mouth and that one of the most important things they have achieved with the management plan is the release of the males back into the lagoon. Some time ago they used to sell the males at the market. We feel proud to release them now. That's the deal we have with the water dragon."

A freshwater fish originally caught for food, the arowana is now highly prized by aquarists, particularly in Asia where they are seen as symbols of good luck and prosperity.

This popularity had led to a worrying decline in fish numbers, after outsiders came to the region to exploit large forest areas with little control.

During the year, the fishermen of San Martin de Tipishca spend time taking care of the arowanas, estimate the number of breeding specimens there are and calculate the number of offspring ('fingerlings') that can be safely collected each season.

Male arowanas mouthbrood these fingerlings. Previously fishermen would harvest the fry and then kill the male and sell it for food. But now the males are put back into the water to breed again. And, if it goes back into the water alive it will reproduce year after year.

An adult arowana can weigh up to 1.5kg which would fetch \$1 per kilogram for food, earning the fishermen just \$1.50 per fish. However, the same specimen can produce 150 fingerlings which each sell for \$1.50 which means the income from one fish is now worth \$275 per year.

Now, because of its earning potential as an ornamental species, and due to the adequate management of the fish populations, its value has increased and brings benefits to both the local population and the ecosystem. And, by buying fish that use sustainable management plans, aquarists can play their part in conserving the Amazon and supporting the communities who live there.

For Jose's story visit www.youtube.com/watch?v=Bvv951YwTFw

“ Work with organisations, like SERNANP Peru and Fundamazonia, has shown local fishermen that by protecting and managing how they collect arowana they can preserve this globally significant ecosystem and maintain their future livelihoods. ”



Live
Breeding plan

\$275
Per fish per year

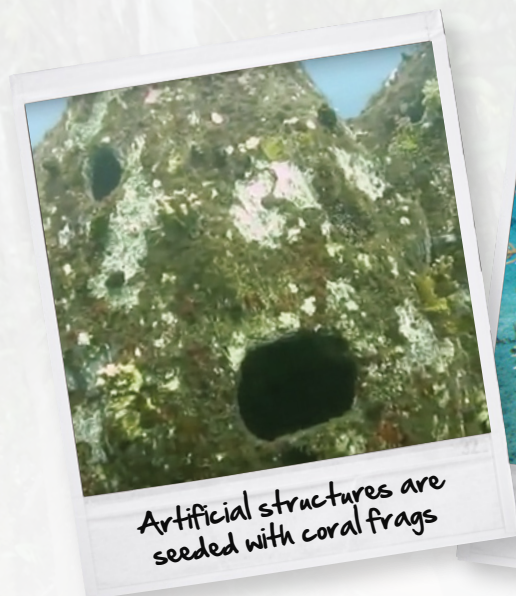
Caught for
Food

\$1.50
Per fish



Case study

Bali



Artificial structures are seeded with coral frags



Fish domes after 3 years in the sea

Fishermen rebuild reefs and their livelihoods

Les village is located in North Bali. The fishermen from Les are among the main suppliers of ornamental fish from Bali for the marine aquarium industry that started in the 1980s. About 40 fishermen from the village collect more than 200 species of aquarium fish and other marine organisms on the nearby coral reefs.

The ornamental fish industry is an important source of income for many fishing villages throughout Indonesia. And, like the fishermen in Les village, fish collectors everywhere are becoming increasingly concerned about the sustainability of the resources they depend upon and are taking action to protect their environment.

In the early days the fishermen collected many fish – regardless of species – using homemade goggles and hand woven nets. Today, using fins, masks and factory-produced netting that they can adapt, they only collect the fish specifically ordered by buyers. Since 2010 LINI, a non-governmental organisation based in Bali, has also been helping the Les fishermen to restore their reefs using artificial structures, fish domes and shrimp pots which are placed in the sea to provide habitats and help restore populations of fish and ornamental shrimps.

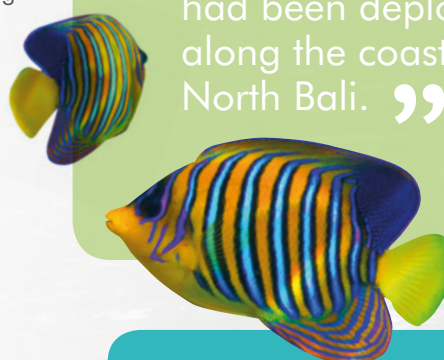
Maday is an experienced 35 year old Balinese fisher from Les village; who has been collecting for the trade since 1997.

“Today I received an order via text message from a fish exporter from a village two kilometres from my house. I start my activity by preparing my equipment... Today I started in the morning and finished at noon but unfortunately I wasn’t able to fulfil the order because the current was strong and the visibility was not good so it was difficult to look for fish.”

Now, working with LINI, he is helping to build an artificial reef in the seas bordering Les village which is now sustaining his livelihood. “Ornamental fish are my main source of income so it’s important to have good fishing areas for the future. As a result of this work we’ve created a sustainable source of fish that enables me to send my children to school, have my own house and provide for my family’s daily needs.”

For more on Maday’s story and the Les village collectors, watch the video here: youtu.be/HDxKefqc3w

“The artificial reefs which are also made by the local fishers, provide alternative collection areas to reduce the pressure on natural reefs. By December 2014 more than 1,800 artificial reef structures had been deployed along the coast in North Bali.”



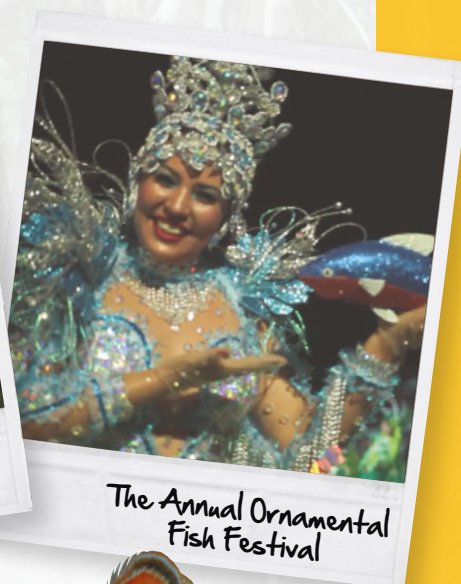
Best Practice



In the late 1980s cyanide was introduced to the fishers in North Bali, who were unaware of its impact on the ecosystem. In 2000, realising the damage it was causing the reefs they began a far more environmentally friendly fishing method, helped by LINI, using mainly barrier and scoop nets - and worked to build artificial reefs.



Case study *Brazil*



Celebration and Conservation



The lower and middle Rio Negro in the state of Amazonas launched the ornamental fish trade in Brazil when cardinal tetras were discovered in the 1950s. These tiny fish contributed 65% to the town of Barcelos economy and, in its heyday, the trade employed at least 1,000 families directly – not counting supporting industries.

These families rely on this vital income and preserve vast tracts of the Amazon (sometimes described as the 'lungs' of the earth) to maintain the pristine conditions these fish need to flourish. It's estimated that 67 billion tonnes of carbon are fixed in the areas of the Amazonas where cardinal tetra are collected. That's an area about the size of England and Wales – but with a population of just 40,000.

Every year they celebrate the trade with a huge fiesta – the annual Ornamental Fish Festival – at the specially built PiabaDome in Barcelos. It's a dazzling explosion of dancing, colourful costumes, fireworks and music. Thousands gather to watch the competition between the tetra and discus which tells the story in song and dance of the role these two precious fish play in this region. Judges are flown in to declare the winner based on choreography, costume, music and floats. This is not a spectacle put on for tourists - few foreigners visit the region – but a very public celebration by the community of the importance this trade has for them.

But farmed varieties from the Far East, United States and Czech Republic, as well as competition from other South American countries, coupled with a lack of year-round availability because of the flooding of the river and the natural lifecycle of the fish, means there has been a steady decline in the trade of wild caught fish from Manaus.

This community has worked hard to build a global appetite for this colourful fish and is being supported by a non-profit organisation called Project Piaba to ensure its survival. It recently gained Geographic Indication status for ornamental fish from the Rio Negro area as another way of trying to protect this sustainable form of fishing.

“When fishers are asked what they would do if they could not sell fish, the most common answers are: timber harvest, cattle ranching, gold mining, or urban migration.”

Project Piaba website



In just August/September 2014 the Amazon Deforestation Alert System detected a deforestation area of 838km² in Amazonia

191%

increase on the previous year



That's an area half the size of Greater London...

Visit vimeo.com/124670986 to watch the video.

How a company in Malawi is providing livelihoods far beyond those of fish collectors themselves

Lake Malawi in Africa helped to establish a global appetite for tropical freshwater cichlids from Rift Valley lakes. Companies could command high prices during the 1970s & 1980s because the country was the main source of these beautiful fish.



But demand declined in the face of farmed fish from the Far East and Florida, which were one-tenth of the price. At one point just one company - Stuart Grant Ltd - remained in business in Malawi and it is still the main exporter today.

In 1992 the company employed 101 workers, from boatmen and divers to fish house and support staff. Their average wage was four Malawian Kwacha - more than double the national average wage of MWK 1.8. Currently, staff are salaried and get free housing and other benefits so it's a very good job to have. The collecting station also supports an additional 461 people through family and dependents and the company pays substantial taxes on its profits. By the company being there, the community also benefits from electricity and the chance for casual labour.

The demand for wild cichlids continues to decline so this entrepreneurial company is now looking at alternative ways to provide its staff with a living. It has built a visitor centre with 20 guest rooms to accommodate the increasing numbers of aquarists who want to see these lovely fish in their natural habitat.

Visit www.bbc.co.uk/news/business-33476396 to see a BBC report on Stuart Grant Ltd.

Case study *Malawi*



“Facing a fall in demand for wild caught cichlids, the innovative company has built a 20-room visitor centre for aquarists who want to see these lovely fish in their natural habitat.”



The collecting station also supports an additional

461 PEOPLE

through family and dependents and the company pays substantial taxes on its profits.



One of the Stuart Grant employees tends the storage tanks



Some facts about the global ornamental fish industry



Marine

Ornamental fish are collected from across the Pacific and Indian Oceans, the Caribbean and the north east coast of Brazil - a vast area. The most popular species in trade have a wide geographic distribution, are abundant in many areas and are very fecund. Their populations are very resilient.



Annual global catch of fish from the sea

80.9m tonnes



Fish discarded dead or dying

7-33m tonnes



Sold alive in the aquarium trade

70 tonnes



Did you know?



At least **15-20 million** seahorse are by-catch.

At least **3 million** are caught for the dried international trade e.g. for Chinese medicine.

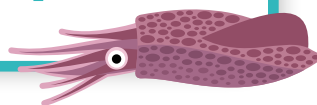
3,200 are wild caught for the ornamental trade.

Did you know?



Tropical prawn trawlers throw away

95% of what they catch



Why aren't more marine fish captive reared?

Many have complex life cycles where their eggs and larvae spend time floating in the ocean, conditions that are difficult to replicate in hatcheries. Most species are only traded in very small numbers - say 1,000 or less from any source - making it a very small market.

WANTED! *Alive*

Coral carefully harvested and kept alive for the ornamental fish industry is worth 100 times more than the same coral mined and burnt to create lime for building.

REWARD X100

Freshwater

Annual global catch of freshwater fish

11,700,000 tonnes

Fish caught for food annually in the state of Amazonas

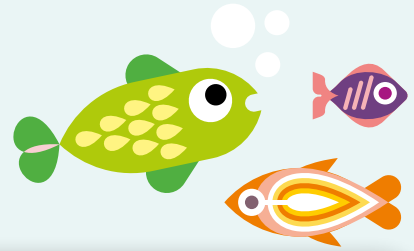
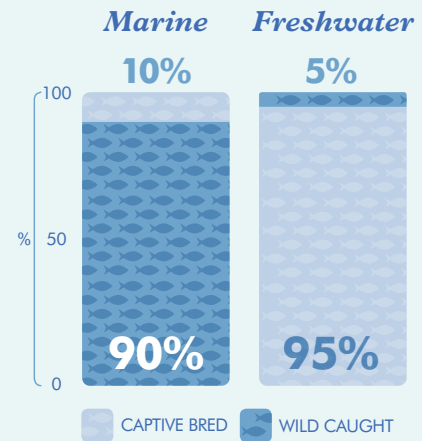
60,000 to 70,000 tonnes

Did you know?



Live ornamental fish exported from Brazil

6.5m fish (weighing under 10 tonnes) was worth over **\$13m** in 2014



Tropical rivers like the Amazon flood the surrounding forest annually. This has several impacts:



- For large parts of the year no collection of fish is possible
- As the flooding recedes billions of fish die as they become stranded in pools which dry out

Alive & Kicking



The collection of fish destined for aquariums has never caused a species to become extinct in the wild.



Did you know?

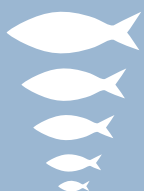
There are more than

10,000

ornamental fish collectors in Peru and Colombia



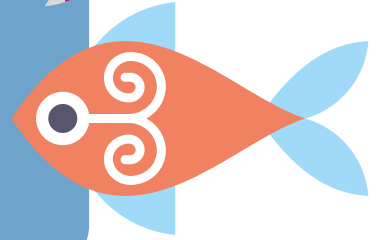
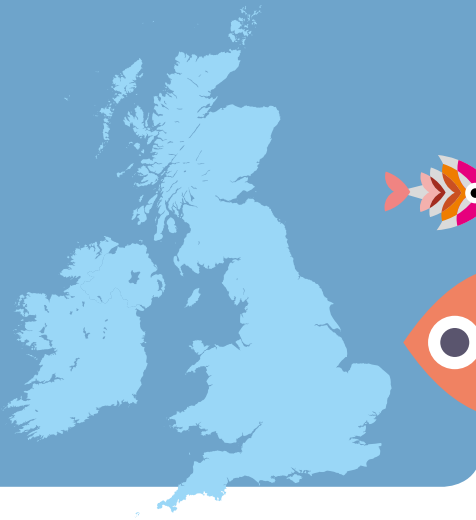
Catch cardinals or release carbon



The number of ornamental fish exported from Amazonas has reduced substantially over the last **10 years**. The amount of rainforest cleared to use for agriculture has increased during that period

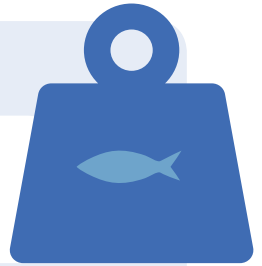


The UK industry in context



Catch from fishing boats landed in the UK

379,000 tonnes



We Buy **382 million** portions of fish and chips a year

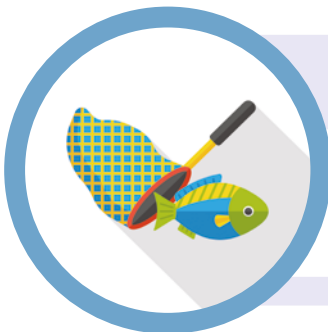
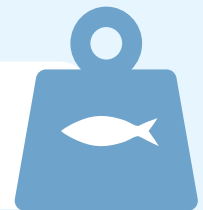


That's **80,000 tonnes** of filleted fish



Catch from recreational anglers in the UK of just 2 species

960 tonnes



Marine ornamental fish landed by plane in the UK

4 tonnes



Marine ornamental imports in the UK in 2014:

NUMBER OF FISH 
1.4 million

VALUE: £3.212 million | £2.29 per fish (£800,000 per tonne)



The worth of the UK industry

The Retail sector

OVER

3,000

pet shops
in the UK

APPROXIMATELY

2,000

of these sell
ornamental fish

12,000

EMPLOYED IN
THE INDUSTRY

The Fishkeepers

4 million

UK households
own fish: 
14% of the population

100+
MILLION
FISH KEPT

**FISHKEEPERS SPEND OVER
£400 million** per year on their hobby

Nb: As well as the retailers, the industry includes a multitude of manufacturers, aquatic plant growers/sellers, fish breeders, importers & consolidators, wholesalers, pond & aquarium contractors

Knowing your ornamental fish

Freshwater Fish



The vast majority of fish sold in the UK, such as goldfish, platies, mollies and danios are freshwater fish that are captive bred. Even tetras and angel fish – which can come from the wild – are most often captive reared.

Marine Fish (salt water)

The UK marine ornamental fish industry is far smaller by volume than that of freshwater species. Because the fish are largely wild caught (90%) and therefore imported, the cost of the fish as well as the set up and maintenance of a marine aquarium is significantly higher than for aquarists keeping freshwater fish.



Did you know?

Pets are good for our health, and are estimated to **save the NHS £1.6 billion every year**. Watching fish in an aquarium leads to reduced blood pressure and reduces anxiety.

The cost of setting up a marine aquarium



TANK

£500

ACCESSORIES

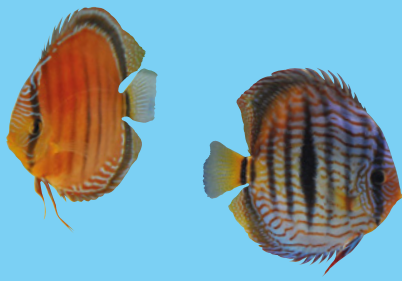
£300

FISH

£200

Running costs: Up to £200 per year

The cost of setting up and keeping either a marine or tropical freshwater tank will always mean the demand for wild caught fish will be limited.



Best Practice

– always improving

This report concentrates on the positive stories in our industry. But, as is the case in any industry, issues do arise that have, and are, being addressed.



We are not a perfect industry - current best practice is unfortunately not used by all businesses. But best practices themselves are continually getting better and certainly we know that many UK companies do their best to do business with the best overseas providers.

Some of the issues the industry is addressing are outlined below. But we do not believe these characterise the industry as a whole. Nevertheless it is important for us to acknowledge where there are issues, although we think this report illustrates there are many more examples of our industry bringing positive benefits to people and places across the globe.

The use of chemicals

Problem:

The practice of squirting cyanide to stun hiding fish to ease collecting started in the Philippines in the 1980s and spread to other countries. This destructive practice is widely condemned by the industry because it damages coral reefs and leads to high fish mortality rates along the supply chain.

Best Practice

The development of reliable, easy-to-use, non-lethal field tests would be very welcome. But reputable UK companies have already worked for decades to make sure fish caught in this way do not enter the market, even without a field test, by working closely with their suppliers and with local charities, like LINI in Indonesia.

See our Bali case study on page 17 for more information

Fish welfare and mortality

Problem:

Like any trade that exports and imports live flora and fauna, the welfare and mortality rates of exported ornamental fish is a highly emotive issue, and rightly so. There is an oft quoted statistic of 73% cumulative mortality rates for exported fish, as used in *Olivier 2001* for example. This figure however is not only over 20 years old, and unsubstantiated at that, but ignores the reality that no industry could survive with such a poor rate of return. Ours is a low volume, high value industry that relies on the provision of LIVE and HEALTHY stock.

Best Practice

Where best practice is followed, mortalities at all stages along the supply chain have been reduced to very low levels, often achieving mortalities below 1% from exporters to importers, as confirmed by a Ministerial statement in the UK. A recent report examined fish collection in the Federated States of Micronesia, a set of small islands in the Pacific. These collectors and exporters had all received training in best practice in collection, handling, transport, holding and shipping from the Secretariat of the Pacific Communities (SPC), an international development organisation. It reported mortalities of less than 1% from collection to export and less than 1.4% at the importer in the United States. There's no reason to believe this level of survivability can't be achieved across the globe if best practice methods are routinely followed. In the UK companies such as Maidenhead Aquatics and Tropical Marine Centre work with their supply chains to provide this training.

Online sales

Problem:

The internet offers new ways for dealers to ply their trade, e.g. in corals and clams. And it can offer opportunities to circumvent international controls. Closed Facebook groups and online sites offer new ways to reach customers who may not be familiar with the need for CITES permits or with the welfare needs of particular species.

Best Practice

OATA (through its own sources and via its members) reports these traders to HM Customs and local trading authorities. We also supported the Government's 2015 Hidden Economy consultation and support the Pet Advertising Advisory Group regarding the sale of pets online to help ensure good practice.

Welfare in the aquarium

Problem:

There are often criticisms about animal welfare levelled at the industry. Inappropriate advice and sales undoubtedly harm our reputation.

Best Practice

There continues to be huge improvements in the equipment and food available to fish-keepers to help them replicate reefs and riverbeds. There is also a wealth of information available, from care leaflets and books to videos and forums on the internet as well as specialist magazines.

Definitions



Wild caught/wild taken

Fish, corals or other animals that are caught from the sea or natural freshwater bodies.

Captive bred/captive reared

Fish reared commercially on fish farms; mostly freshwater but some marine species such as clownfish.

CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement between governments aimed at ensuring international trade in specimens of wild animals and plants does not threaten their survival. For the ornamental fish trade, it most affects hard corals, clams and seahorses that can be traded.

Exotic species

Any species of flora or fauna that is not native to the country it's in. In the UK, all ornamental fish in the hobby are exotic.

Wild animal

The UK Zoo Licensing Act 1981 has a definition for 'normally domesticated' and 'not normally domesticated' which gives an indication of what the Act defines as a wild animal. Pond & aquarium fish are defined as wild although goldfish, koi, golden orfe and tench are seen as 'normally domesticated'.

Exotic pets

Any exotic species kept as a companion animal. As ornamental fish are exotic they could be defined as an exotic pet, along with reptiles and birds.

By-catch

Unwanted fish/other species trapped by commercial fishing nets while fishing for a different species, and then thrown back often dying as a result of capture.

Marine fish

Fish caught from the sea.

Freshwater fish

Fish caught in rivers and lakes.

Coral

A marine invertebrate - hard corals use calcium to create an external skeleton while soft corals do not. They live in colonies that create reefs which can then become home to other marine organisms.

Live rock

A conglomerate of coral skeletons and calcareous algae that has living organisms thriving on it and which is used to help maintain healthy water quality in marine/saltwater aquariums.

Ornamental invertebrates

Species without a backbone that are also kept in aquariums, such as shrimps and snails. Corals are also classed as invertebrates.

IATA

International Air Transport Association – it has regulations about how fish can travel on airlines.

Sustainable fishing

A balance between losses caused by human and natural growth, and the gains due to reproduction and growth, in such a way that the abundance of a species in a given area remains constant through time.



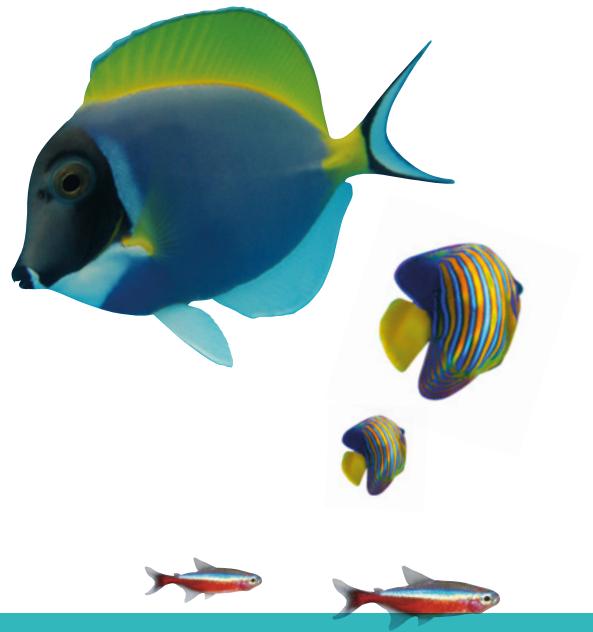
Ornamental Aquatic Trade Association Ltd

The voice of the ornamental fish industry

“Many outside the trade would find it surprising to learn that there are examples where the aquarium trade is a positive force in some of the world's biggest problem areas: poverty alleviation in developing countries, preserving our remaining areas of biological importance and critically endangered species, and even climate change.”

Michael Tlusty, Andrew Rhyne, Scott Dowd,
Les Kaufman

Controlling the destiny of the trade: OFI Journal Issue 75



For a fully referenced version of this report visit
www.ornamentalfish.org

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Ornamental Aquatic Trade Association Ltd
Wessex House, 40 Station Road,
Westbury, Wiltshire, UK BA13 3JN

Tel: 01373 301352
Email: info@ornamentalfish.org
www.ornamentalfish.org

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