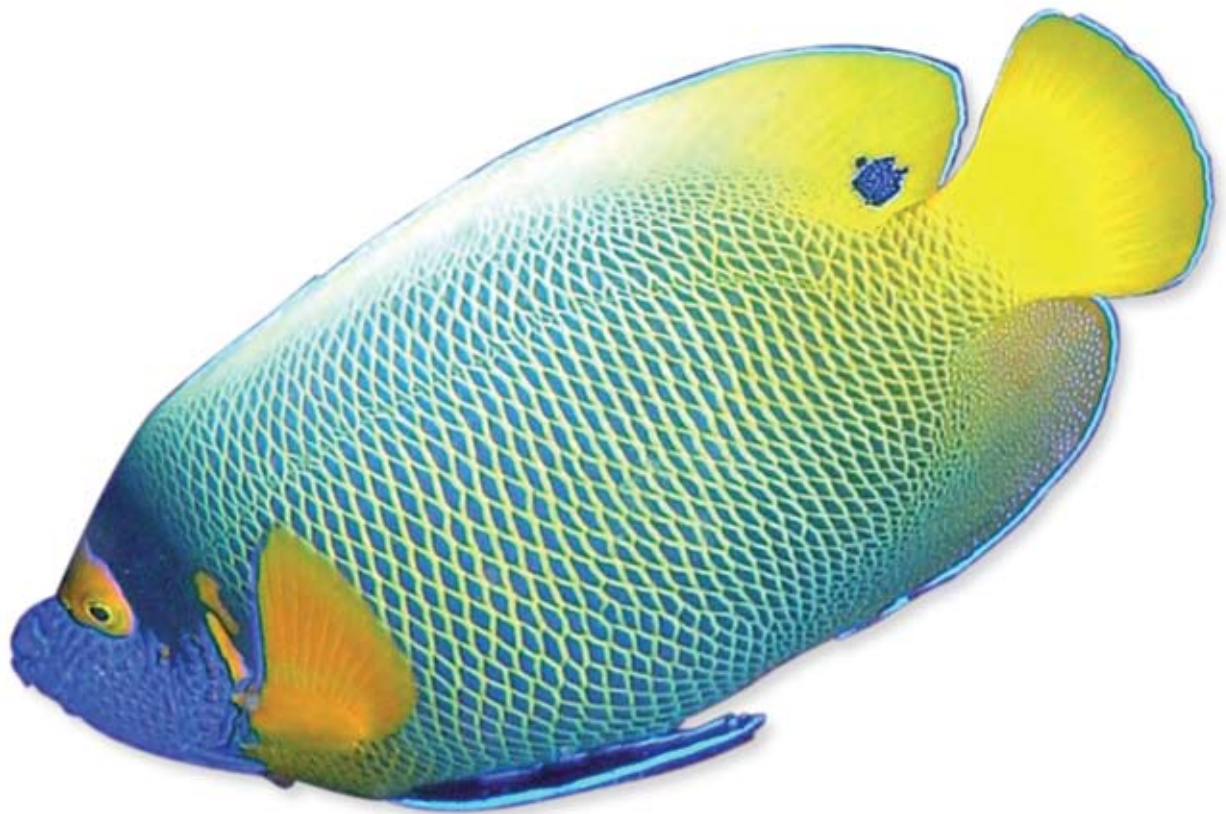


Annual status report 2011

Marine Aquarium Fish Fishery



Photograph courtesy of Helen Taylor

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Fishery Profile 2010

<p>Key species</p> <p>Majority of targeted fish species belong to the following families; Pomacentridae, Pomacanthidae, Labridae, Chaetodontidae and Gobiidae. Invertebrate species are also commonly harvested.</p>	<p>Total number of commercial licences in 2010</p> <p>44 A1 licences and 4 A2 licences.</p>
<p>Total harvest from all sectors</p> <p>134 206 individual fish from 47 species groups.</p>	<p>Commercial licences accessing the fishery in 2010</p> <p>34 (A1 and A2 combined).</p>
<p>Commercial harvest</p> <p>134 206 individual fish from 47 species groups.</p>	<p>Fishery season</p> <p>All year (however two five-day closures applied for coral reef fin fish in October and November 2010).</p>
<p>Recreational harvest</p> <p>No estimate level of harvest for 2010.</p>	<p>Fishery symbols</p> <p>A1 or A2.</p>
<p>Indigenous harvest</p> <p>No estimate level of harvest for 2010.</p>	<p>Monitoring undertaken</p> <p>Commercial logbooks (CFISH).</p>
<p>Charter harvest</p> <p>Not applicable to the fishery.</p>	<p>FOP days monitored in 2010</p> <p>Nil.</p>
<p>Allocation between sectors</p> <p>Predominantly commercial.</p>	<p>Accreditation under the EPBC Act</p> <p>Wildlife Trade Operation expires 25 November 2011.</p>
<p>Total exports</p> <p>No estimate for 2010. 94 000 live fish, valued at \$2.8 million in 2008–09.</p>	<p>Logbook validation</p> <p>Yes—completed May 2007.</p>
<p>Commercial Gross Value of Production (GVP)</p> <p>No estimate for 2010. The GVP for the Marine Aquarium Fish Fishery and the Queensland Coral Fishery (QCF) (combined) was estimated to be \$10–12 million in 2008–09.</p>	<p>Quota managed</p> <p>No.</p>

Introduction

The Queensland Marine Aquarium Fish Fishery (MAFF) is one of a range of harvest (hand collection) fisheries managed by the Fisheries Queensland. The commercial fishery is focused on the collection of marine aquarium fish and invertebrates that are marketed both domestically and internationally. Specimens can also be collected recreationally for display in home aquaria.

This report covers fishing activity during the 2010 calendar year.

Fishery description

The MAFF harvests from a diverse suite of marine fish and invertebrate species, most of which are associated with shallow and deeper water coral reef and inter-reef habitats. MAFF authority holders are permitted to collect fish and invertebrates species only for display purposes and not for human consumption.

The MAFF operates under an 'A1' or an 'A2' fishery symbol. Fishers endorsed with an A2 fishery symbol have possession limits of ten fish comprising not more than two fish of the same species. Introduced in September 2003, the fishery symbols and associated regulations addressed latent effort for the fishery and issues of localised concentration of effort and its potential effects on ecological sustainability.

Marine aquarium fish and invertebrates are also collected by recreational fishers for personal home aquaria. Recreational fishers are limited by all existing in-possession and size limits and apparatus restrictions for fisheries, as outlined in the Queensland Fisheries Regulation 2008. Recreational fishers are not permitted to sell their catch.

Collection and trade levels in the MAFF are small compared to the global aquarium trade which ranges from 20–24 million individuals annually (Wabnitz et al. 2003).

The fishery operates along the east coast of Queensland within the bounds of the Offshore Constitutional Settlement (Figure 1). Operators in the MAFF are permitted to harvest aquarium fish and invertebrates along the entire Queensland east coast in areas that are not closed through general fisheries closures or marine parks zoning under the *Commonwealth Great Barrier Reef Marine Park Act 1975* and the *Queensland Marine Parks Act 1982*.



Figure 1: Queensland Marine Aquarium Fish Fishery area.

The fishery area also comprises five Special Management Areas (SMAs) that can only be accessed by certain holders of an A1 symbol. Allocation of access to these areas was undertaken in 2003 based on a licensee's historic participation in the region. The remainder of the fishery area is open to both A1 and A2 authority holders. The majority of commercial aquarium fish collecting occurs in coastal and reef waters in northern Queensland.

This MAFF exported a total of 94 000 live fish, valued at \$2.8 million in 2008–09 (Donnelly In prep). Live Australian species of ornamental fish (excluding syngnathids) comprise the majority of these exports. No export figures were available for 2010.

Fishing methods

Commercial harvesters in the MAFF are permitted to harvest fish and invertebrate species using a range of gear types, including fishing lines, cast scoop and seine nets with the assistance of SCUBA or hookah equipment. A single barbless hook must be used when using a fishing line and a herding device may be used when taking fish. Attendance rules and size restrictions govern the use of nets.

Recreational harvesters are not permitted to use SCUBA or hookah gear.

Key species

The following is an overview of biology and life cycle information (taken from Randall et al. 1990) of the main family groups in the MAFF.

- Pomacentridae—damsel fish and anemone fish¹
- Pomacanthidae—angelfish
- Labridae—wrasses
- Chaetodontidae—butterflyfish
- Gobiidae—gobies.

Invertebrate species are also commonly harvested include: coral shrimp, small non-commercial colourful sea cucumbers², nudibranchs, gastropods and other molluscs, sponges and ascidians.

Damsel fish and anemone fish belong to the Family Pomacentridae. Damsel fish engage in active courtship displays of rapid swimming and fin extension, around constructed nest sites on the sea floor. Males typically guard the eggs which are attached to the sea floor by adhesive strands. Eggs hatch within one week and larvae rise to the surface where they are transported by ocean currents. After travelling, the transparent young settle to the bottom where they develop their juvenile colouration; juveniles grow at a rate of approximately 5–15 mm per month. Damsel fish feed on either algae or plankton. Anemone fish occur exclusively with large tropical sea anemones. Anemone fish display sex reversal where they change from male to female as they grow.

Many species of angelfish inhabit shallow, while other species are restricted to deeper waters to at least 75 m depth. Angelfish are mainly found around coral reefs in sheltered boulders, caves or coral crevices and may occur solitarily or in aggregations. Angelfish are territorial and are active during the day searching for food. Their diet varies depending on species; some feed on algae and detritus and others on sponges and benthic invertebrates.

Species belonging to the Family Labridae vary in size from 5 cm to just over 2 m in length. Many labrids undergo sex reversal, where fish start their adult life as

females and then later change to male. Species undergo either group spawning or individuals spawning dependant on the life cycle phase of the particular individual. All wrasses are carnivores, but depending on the species food items may include zooplankton, coral polyps, worms, small fish, molluscs, crustaceans and sea urchins. Wrasses are most active during the day and retire to an inactive state on the sea floor at night.

Most of the species belonging to the Family Chaetodontidae inhabit depths of less than 20 m. Butterflyfishes are active during the day and seek shelter in the reef at night. Most species are restricted to a relatively small area of the reef, but travel throughout their home range foraging for food. Many butterflyfishes feed on coral polyps; others feed on small benthic invertebrates and algae.

The Family Gobiidae includes all species of gobies; which are generally under 10 cm in length. Some species of goby can be extremely difficult to identify, due to their small size and the presence of many closely related species with similar appearances. Gobies are found in a variety of habitats residing in the benthic zone; dwelling on the bottom or hovering just above sea floor. Gobies are generally carnivorous, their diet consisting of crabs, prawns, small crustaceans, molluscs, sponges and various small invertebrates.

There are differences in the population abundance, characteristics of spawning and other life history parameters that impact on biological diversity and reproductive success of MAFF species.

Main management methods used

Under Offshore Constitutional Settlement (OCS) arrangements between the Commonwealth and Queensland governments, management of aquarium fish species adjacent to the east coast of Queensland falls under Queensland law. Fisheries in the Coral Sea (outside of the OCS) are managed by the Commonwealth Government.

The MAFF has been subject to a limited entry policy (no new licences issued) since 1997.

A variety of input and output controls are used to manage harvest in the MAFF (see Ryan & Clarke 2005), including the following:

- Commercial fishing controls—limited entry, limits on the number of operators under an authority, gear restrictions (type and dimensions), in-possession

¹ The majority of anemone fish traded are aquacultured.

² Sea cucumber species collected in the MAFF are not the same commercial species harvested in the East Coast Beche-de-mer Fishery.

limits (for A2 symbol holders) and size limits for particular species, Special Management Areas, and spatial and seasonal closures.

- Recreational fishing controls—gear restrictions (type and dimensions), in-possession and size limits for certain species, and spatial and seasonal closures.

Catch statistics

The MAFF is considered to be a predominantly commercial fishery. There are no quantitative data available on the level of take for the recreational harvest of marine aquarium species. Hobby aquarists are known to harvest some marine aquarium species; however, the scale is believed to be negligible relative to the number of fish harvested commercially.

Collecting ornamental marine fish and invertebrate species is not considered to be a part of traditional or customary fishing practice by Indigenous fishers (Ryan & Clarke 2005) and will not be reported on further in this report.

Commercial

The 2010 total annual reported commercial harvest of specimens collected in the MAFF decreased 10% over the average annual catch from 2007–09 (Figure 2). Fisheries Queensland closely monitors collection levels in the MAFF through a Performance Measurement System (PMS) (see Table 1). The review reference point for total catch has not been triggered since the PMS was implemented.

Catch rates in 2010 (102 individuals/day) were similar to the ten year average (2000–2009) of 100 individuals/day. Collection of damselfish from the Family Pomacentridae continues to dominate the harvest (Figure 3). Collection levels for the other major groups in 2010 were similar to the previous three years to 2007. Total effort in 2010 was approximately 1300 days; this is around 200 days lower than the previous two years.

Notable decreases in the collection levels occurred in the Cairns SMA (-30%) and the Moreton Bay SMA (-75%) (Figure 4). The changes in the Cairns SMA can be attributed to one of the major operators transferring effort to the Australian government managed Coral Sea Fishery in 2010. Moreton Bay was subject to a licence buyout as part of the marine park zoning process in 2010 and the reduction in effort and catch levels was not unexpected. The Keppel SMA contributes the least number of individuals to the overall fishery harvest.

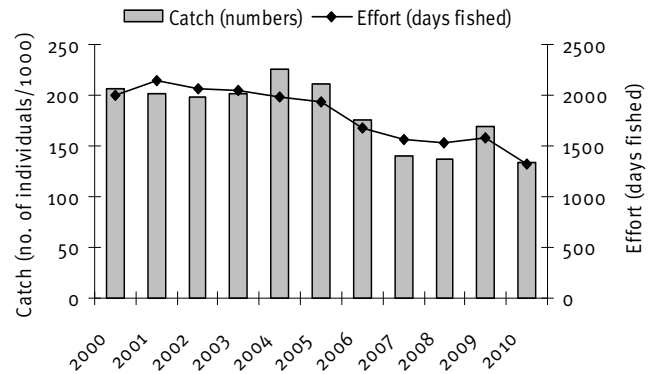


Figure 2: Commercial catch and effort for the Queensland Marine Aquarium Fish Fishery, 2000–10 (Source: Fisheries Queensland CFISH database, 25 July 2011).

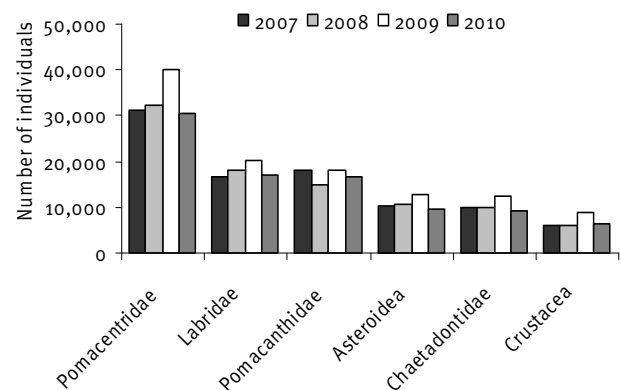


Figure 3: Composition of the top six phyla/families collected in the Queensland Marine Aquarium Fish Fishery, 2007–10 (Source: Fisheries Queensland CFISH database, 25 July 2011).

Figure 4: Total commercial harvest (all species combined) in the Queensland Marine Aquarium Fish Fishery separated into the major management regions, 2006–10 (Source: Fisheries Queensland CFISH database, 25 July 2011).

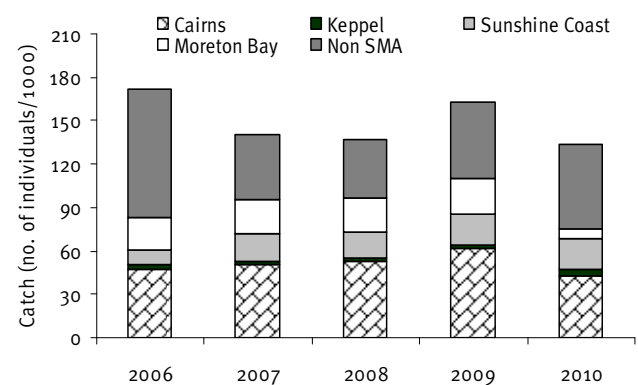


Figure 4: Total commercial harvest (all species combined) in the Queensland Marine Aquarium Fish Fishery separated into the major management regions, 2006–10 (Source: Fisheries Queensland CFISH database, 25 July 2011).

The 2009 Annual Status Report reported an increase in the collection of unspecified species of fish (rise from 2% of harvest in 2007 to 5% in 2009). This trend reversed in

2010 with 3% of the harvest reported as unspecified fish. The issue of unspecific reporting remains of interest given the MAFF is considered a highly selective fishery where individuals in general are knowingly chosen for their marketability. Fisheries Queensland will maintain a watching brief on this matter and consider further improvements to the level of reporting in the MAFF. Fisheries Queensland regularly reviews fishery specific logbooks to ensure the information collected is appropriate for sustainability assessments and fishery performance measurement. This includes investigating the feasibility of adoption of 'e-logbooks' across a variety of commercial fisheries including the MAFF.

Special Management Areas

Five Special Management Areas (SMA) are monitored annually through the Performance Measurement System (PMS) for indications of unsustainable harvest levels brought about by localised concentration of effort (Figures 4 and 5). There were no indications of unsustainable fishing occurring in the SMAs in 2010.

Non SMA areas had the highest collection numbers in 2010 at about 60 000 individuals (Figure 5). The next highest catches were collected in the Cairns SMA. Catches decreased in the Cairns SMA in 2010. This is in contrast to the steady increase evident for Cairns from 2006 to 2009. The decrease is likely due to one of the major operators in the region diverting more collection effort to the adjacent Coral Sea Fishery. Increased catch rates were also reported in the Keppel and Sunshine Coast SMAs while Moreton Bay decreased.

Recreational

Recreational aquarium fishers generally take only a few specimens of each species for personal displays. Recreational collection of fish while using scuba or hookah is prohibited so harvest is effectively limited to shallow areas accessible by free-diving (generally no deeper than five metres). There are limits placed on a variety of species caught by recreational fishers as prescribed under the *Fisheries Act 1994* and subordinate legislation and through zoning in the Great Barrier Reef Marine Park. The take of hump-headed Maori wrasse, potato cod, barramundi cod, Queensland groper, red bass, Chinaman fish and paddletail is prohibited within Queensland waters under the Fisheries Regulation 2008. Under the regulation and in addition to individual take and possession limits, all coral reef fin fish species have a combined take and possession limit of 20.

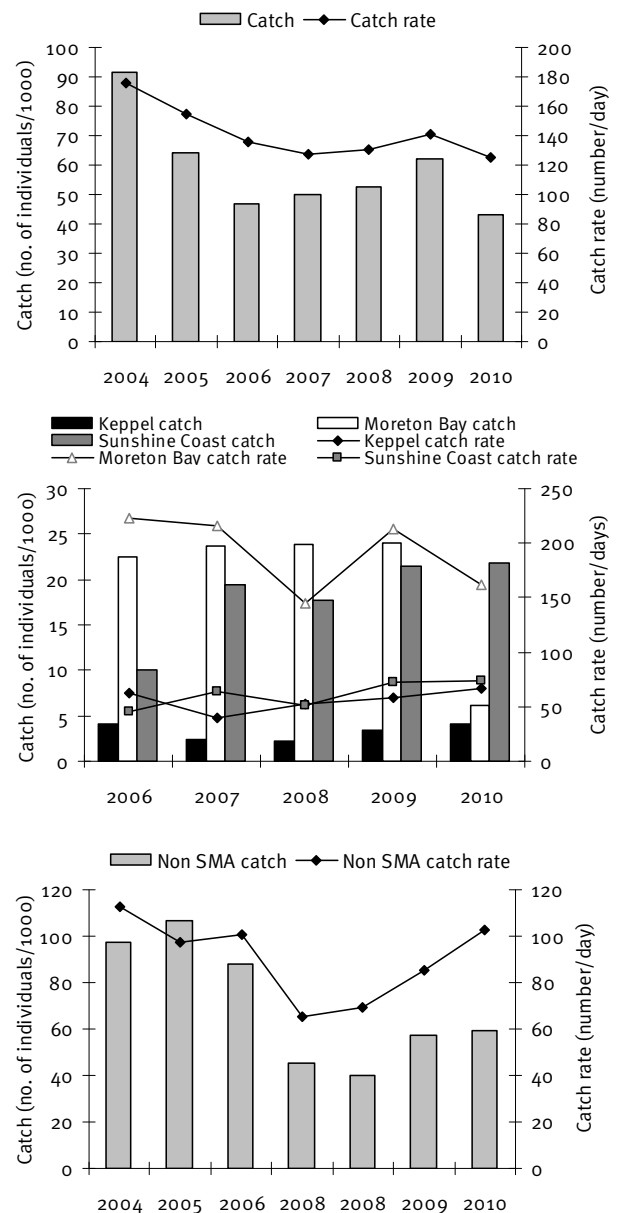


Figure 5: Commercial collection (all species combined) and catch rates in the Queensland Marine Aquarium Fish Fishery separated into the major management regions: Cairns and non SMA (2004–10); Keppel, Sunshine Coast and Moreton Bay (2006–10) (Source: Fisheries Queensland CFISH database, 25 July 2011).

At present there are no data available on the level of recreational harvest of marine aquarium species. Fisheries Queensland commenced the next state-wide recreational fishing survey in 2010 to provide an updated estimate of recreational fishing participation and catch estimates. The state-wide survey uses an improved methodology which will result in recreational catch estimates with higher levels of precision and accuracy. Although not a focus of the survey, the methodology allows for the recording of a wide range of species including the recreational take of aquarium fish. Results are expected to be available in 2012.

Charter

Not applicable to the MAFF.

Indigenous

There are no data available on the indigenous harvest of marine aquarium species. Marine aquarium species are not believed to be of high value to indigenous fishers (Ryan & Clarke 2005).

Spatial issues/trends

There have been no changes to the general spatial trends in collection in 2010. Commercial catch and effort in the MAFF continues to be concentrated in waters off Cairns and South East Queensland. These population centres have good, close access to fishing grounds and domestic and international airports.

Socio-economic characteristics and trends

There were 34 commercial MAFF licences active in 2010 compared to 35 licences in 2009.

The Great Barrier Reef Marine Park Authority recently funded the preparation of a Climate Change Vulnerability Assessment (CCVA) for the aquarium supply sector. A draft assessment report has been prepared which represents the first stage of a Climate Change Adaptation Plan (Donnelly, In prep). The Plan is designed to assist the sector in understanding the potential impacts to the biological and economical sustainability of the industry. Assessed across a broad range of vulnerabilities including, climate change impacts on coral reef, industry fossil fuel reliance, sensitivity to international market access and currencies, and institutional frameworks governing fishery access, the aquarium sector is believed to be well positioned to adapt to predicted range of climate change scenarios. The CCVA report is due for release in 2011.

A comprehensive supply chain analysis of the aquarium supply sector complemented the CCVA. The preliminary findings estimated the gross value of production of the aquarium fishery (MAFF and Coral Fishery combined) to be roughly \$10 to \$12 million dollars per annum. The assessment concludes that the industry as a whole is highly profitable.

Biological and ecological information

Monitoring programs

No monitoring is currently being undertaken in the MAFF.

Interactions with protected species

Commercial operators record interactions with protected species in a Species of Conservation Interest (SOCl) logbook. Because of the selective harvesting method and high attendance of fishing gear, operators pose negligible risk to protected species. There have been no reported interactions with SOCl during this reporting period.

Ecosystem impacts

The physical impact on the broader ecosystem is considered negligible as a result of the selective fishing method and the small number of individual animals that are collected relative to the available resource. The findings of a comprehensive ecological risk assessment of the MAFF provide evidence for the low impact nature of the fishery (Roelofs 2008; Roelofs & Silcock 2008)

Sustainability Assessment

Performance against fishery objectives

A Performance Measurement System (PMS) for the MAFF (Table 1) was developed in collaboration with the Harvest Management Advisory Committee (Harvest MAC) and other stakeholders, including members of the commercial fishing sector, fishery managers, researchers and assessment and monitoring staff. The PMS was finalised in April 2009 and provides meaningful, defensible, precautionary and measurable objectives.

Fisheries Queensland investigated two incidences of triggered performance measures relating to reported catch and effort in 2009. It was assessed that both incidents were minor and not requiring further management action. Continued monitoring through the PMS was recommended.

Assessment of fishing activity in 2010 against the PMS indicated that only the measure related to catch of one medium risk species and one low risk species had triggered. The collection of scribbled angelfish increased beyond the 50% threshold in the Keppels SMA. This species has seen steady catch levels subsequent to 2010. Harlequin tuskfish increased by greater than 50% in the Moreton Bay and Sunshine Coast SMAs in 2010. This is the second year in a row that the trigger has been reached in the Sunshine Coast.

Fisheries Queensland has analysed the data and determined that no further management action is necessary in these instances. Continued monitoring of

catches of these species is sufficient at this stage. Analyses and discussions with industry have resulted in the following synopsis:

- Recorded catches of scribbled angel fish in the Keppels have shown high interannual variability, matching observations by collectors of cyclical abundance. Recorded catches of this species in 2010 were between 30% and 40% higher than the previous high catches recorded in 2006 and 2003 respectively. While the catch increased in 2010, effort has been relatively constant since 2005.
- While scribbled angelfish are of high demand, prices have been stable and the juveniles of the species are targeted. The Ecological Risk Assessment has placed this species as medium risk.
- Harlequin tuskfish are also a species of high demand, particularly the US market. Prices for this species have also increased over the previous year reflecting increased costs of fishing and exchange rate fluctuations rather than market demand driven increases. Larger specimens of this species, as market preferred, are taken in the Sunshine Coast and Moreton Bay compared with other areas.
- While numbers of this species taken in Moreton Bay are relatively low (<100 specimens taken annually between 2001 and 2009), the catch of specimens in 2010 was nearly 70% higher than the previous highest recorded in 2008, with effort decreasing in 2010. The take of aquarium fish in Moreton Bay is being phased out under the *The Marine Parks (Moreton Bay) Zoning Plan 2008*.
- While the number of collectors taking harlequin tuskfish in the Sunshine Coast has been stable, effort has increased with the take in 2010 the highest at 513 specimens and approximately 70% higher than the previous year.
- The Ecological Risk Assessment has placed harlequin tuskfish as low risk. Closer monitoring of the take of this species is warranted.

Table 1: Performance measures and outcomes for the Marine Aquarium Fish Fishery.

Performance measure	Performance
<i>Target species</i>	
A 30% increase or decrease in total annual catch compared with the average annual catch over the previous 3 years.	<p><i>Not triggered</i></p> <p>The 2010 total annual catch decreased 10% over the average annual catch from 2007–09.</p>

Performance measure	Performance
<p>More than a 50% change in annual catch (of a species in the list below and where the difference is greater than 100 individuals) per SMA compared with the previous year.</p> <p>Medium risk</p> <p>Personifer angelfish (<i>Chaetodontoplus meredithi</i>)</p> <p>Scribbled angelfish (<i>Chaetodontoplus duboulayi</i>)</p> <p>Low risk</p> <p>Tomato anemonefish (<i>Amphiprion melanopus</i>)</p> <p>Wideband anemonefish (<i>Amphiprion latezonatus</i>)</p> <p>Ocellaris anemonefish (<i>Amphiprion ocellaris</i>)</p> <p>Percula anemonefish (<i>Amphiprion percula</i>)</p> <p>Harlequin tuskfish (<i>Choerodon fasciatus</i>)</p> <p>Blue tang (<i>Paracanthurus hepatus</i>)</p> <p>Pineapplefish (<i>Cleidopus gloriamaris</i>)</p>	<p><i>Triggered in 2010</i></p> <p>The following species annual catch by SMA exceeded the review reference point in 2010 due to a change from the previous year (2009) by more than 50%.</p> <ul style="list-style-type: none"> • Scribbled angelfish (increased in the Keppels) • Harlequin tuskfish (increased in Moreton Bay) • Harlequin tuskfish (increased in Sunshine Coast) <p>Fisheries Queensland investigated these matters and found no significant sustainability issues that warranted further action (see above).</p> <p><i>Triggered in 2009</i></p> <p>The following species annual catch by SMA exceeded the review reference point in 2009 due to a change from the previous year (2008) by more than 50%.</p> <ul style="list-style-type: none"> • Blue tang (decreased in Cairns) • Harlequin tuskfish (increased in Sunshine Coast) <p>Fisheries Queensland investigated these matters and found no significant sustainability issues that warranted further action.</p>
<p>More than 20% increase in annual fishing days in a SMA compared with the average annual number of fishing days over the previous 3 years in that SMA since 1 January 2004.</p>	<p><i>Not triggered</i></p> <p>The Keppel region reported a slight increase (11%) in the annual fishing days compared to the previous 3 year average. Decreases were observed for the Cairns, Sunshine Coast and Moreton Bay SMAs.</p>
<p>Bleaching severity and interaction with fishery is greater than Level 2 as defined in Fisheries Queensland Coral Stress Response Plan.</p>	<p><i>Not triggered</i></p>
<i>Ecosystem</i>	
<p>Less than 80% of active operators have adopted best practice protocols*</p> <p>*Measure reflects the protocols formalised in the industry developed Stewardship Action Plan (SAP) implemented in 2009. Membership of the peak industry representative body, Pro-vision Reef, includes a signed commitment to the SAP.</p>	<p><i>Not triggered</i></p> <p>Membership statistics show that the indicator was not triggered in 2009–10 with the 83% of active A1 licences members of Pro-vision Reef.</p>

Performance measure	Performance
<i>Species of Conservation Interest</i>	
<p>(i) Total harvest of syngnathids exceeds 25 in any calendar year.</p> <p>(ii) Total harvest of Maori wrasse taken under the General Fisheries Permit issued to an operator in the MAFF exceeds 30 during the period 11/5/2007 to 11/5/2012.</p> <p>(iii) Total harvest of the sawfish <i>Pristis microdon</i> taken under the General Fisheries Permit issued to an operator in the MAFF exceeds 75 during the period 11/5/2007 to 11/5/2012.</p>	<p><i>(i) Not triggered</i></p> <p>No syngnathids were reported caught during the 2010 calendar year.</p> <p><i>(ii) Not triggered</i></p> <p>No Maori wrasses were reported harvested during the 2010 calendar year. The total number of Maori wrasse harvested under a General Fisheries Permit to date is three (from 11/5/2007 to 31/12/2011).</p> <p><i>(iii) Not Triggered</i></p> <p>No sawfish (<i>Pristis microdon</i>) were reported harvested during the 2010 calendar year. The total number of sawfish (<i>Pristis microdon</i>) harvested under a General Fisheries Permit to date is eight (from 11/5/2007 to 31/12/2011).</p>
<i>Social</i>	
More than five Ministerial Letters are prepared per calendar year.	<p><i>Not triggered</i></p> <p>No Ministerial Letters were prepared during the 2010 calendar year.</p>
More than 10% of the active vessels in the fleet are used to commit an offence under the Fisheries Regulation 2008.	<p><i>Not triggered</i></p> <p>One commercial offence relating to the MAFF was detected by compliance officers during 2010. This equates to less than the 10% trigger threshold.</p>
<i>Economic</i>	
A 20% decrease in the number of active licences compared to the previous year.	<p><i>Not Triggered</i></p> <p>The number of active licences decreased by one in 2010 compared to 2009*. A total of 34 licences reported catch in the MAFF during 2010.</p> <p>* note that the 2010 ASR reported that 34 licences were active in 2009. This was increased to 35 with the addition of late submission of a logbook in 2009.</p>

Current sustainability status and concerns

Fisheries Queensland is satisfied that there are no resource concerns in this fishery at the current participation levels and with the suite of management controls that are in place. Natural catastrophic events such as coral bleaching and cyclones are likely to have

more localised impact on the coral communities that support the majority of fish species collected than the present level of effort in this fishery. The Coral Stress Response Plan and industry commitment to sustainable fishing practices through their Stewardship Action Plan provide confidence that should these impacts arise, responsible and sustainable fishing will ensue.

Fisheries Queensland decided that the key aquarium species in the MAFF will not be assessed under the Stock Status Assessment Program. The *Framework for Defining Stock Status* contains a list of general principles that guides the choice of species for inclusion in the annual status determination process. Key species in the MAFF only meet the first of the general principles (Principle 1 – the species is considered a key commercial target and by-product species). Fisheries Queensland considers this insufficient justification for inclusion. Monitoring of aquarium species that are greater than negligible risk from the fishery through the PMS and the regular review of the ERA will continue to ensure species in the MAFF are managed in an ecological sustainable manner.

Research

Recent research and implications

The Climate Change Vulnerability Assessment has been the recent focus of the MAFF and provides an excellent synthesis of research on climate change and the implications this has on the future management of the fishery. The key draft findings indicate that the MAFF does not focus collection on species likely to be vulnerable under climate change scenarios. It also found that the fishery is unlikely to significantly impact on species performing critical functional roles in the event of predicted negative changes to the coral reef habitat that supports much of the fishery (e.g., herbivorous fishes). The report is due for release in 2011.

Collaborative research

There has been no collaborative research this year.

Fishery management

Compliance report

During 2010, 22 units, including 18 commercial fishing vessels, were inspected in the MAFF. One offence was detected during the course of these inspections corresponding to a compliance rate of 95% on units inspected (Table 2).

Offences are reported as either a Fisheries Infringement Notice (FIN); Caution (FIN Caution or official caution issued by Legal); or Prosecution (to proceed by complaint summons).

Table 2: Marine Aquarium Fish Offence in 2010

Offence	FIN Caution
Fail to obtain or keep required information in the approved form (logbook).	1

Changes to management arrangements in the reporting year

There have been no changes to the management arrangements in the reporting year.

Communication and education

The efficacy of communication networks in the fishery was put to the test in 2011 following significant flooding of the Fitzroy River into the Keppels region. Following community advice of flooding impacts in the Keppels, Fisheries Queensland commenced discussions with Coral Taskforce members in January 2011 culminating in a specified no-take response strategy that was voluntarily implemented by industry. The Taskforce comprised of Fisheries Queensland, the Great Barrier Reef Marine Park Authority (GBRMPA), Department of Environment and Resource Management (DERM) and Provision Reef (industry organisation) as set out under the Coral Stress Response Plan. Information flow to and from the Taskforce was facilitated by communication networks of the GBRMPA, DERM and Provision Reef.

Education forms an important component of the compliance strategy for all of Queensland's fisheries. QBFP are proactive in their education programs which include attending events, such as boating and fishing shows and Seafood Industry events, to liaise with fishers, delivering lectures, utilising various forms of media to release important information, answering enquiries and conducting extensive one on one education with both commercial and recreational fishers during the course of field patrols and inspections. During inspections officers hand out recreational fishing guides and flyers which contain information on size and in-possession limits and answer queries from commercial fishers on an ad hoc basis. Education plays a particularly important role when new legislation is implemented and QBFP make every effort to ensure that all fishers have a good understanding of their rights and responsibilities.

Complementary management

Complementary management in the MAFF is delivered through the institutional and non-institutional frameworks implemented in 2008–09. Industry and government agency involvement in decision making processes extends from the commitment by all parties to the Coral Bleach Response Plan and the Coral Stress Response Plan as well as industry commitment to best practice standards in the Stewardship Action Plan. While formal, strategic level engagement and consultation with the MAFF is through the Queensland Fisheries Advisory Committee, there is currently no formal mechanism for engagement and consultation at an operational level. Fisheries Queensland can however convene a Coral and Aquarium Working Group on as needs basis to review and provide advice on management matters related to the industry. This group has a defined list of members sourced from industry, the scientific community, conservation groups and management agencies.

References

- Donnelly, R In prep, *Climate Change Vulnerability Assessment for the Queensland Marine Aquarium Supply Industry 2010*, Cairns.
- Roelofs, A 2008, *Ecological Risk Assessment of the Queensland Marine Aquarium Fish Fishery*, Department of Primary Industries & Fisheries, Brisbane.
- Roelofs, A & Silcock, R 2008, *A sustainability assessment of marine fish species collected in the Queensland marine aquarium trade*, Department of Primary Industries & Fisheries, Brisbane.
- Ryan, S & Clarke, K 2005, *Ecological assessment of the Queensland Marine Aquarium Fish Fishery. A report to the Australian Government Department of Environment and Heritage on the ecologically sustainable management of the Queensland marine aquarium harvest fishery*, Department of Primary Industries and Fisheries, Brisbane, Australia.
- Wabnitz, C, Taylor, M, Green, E & Razak, T 2003, *From Ocean to Aquarium. The global trade in marine ornamental species*, UNEP-WCMC, Cambridge, United Kingdom.

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Yellowface Angelfish (*Pomacanthus xanthurus*)—photo courtesy of Helen Taylor.

