### Fishery Profile 2010–11

<table>
<thead>
<tr>
<th><strong>Key species</strong></th>
<th><strong>Total number of commercial licences in 2010–11</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad range of species from the classes Anthozoa and Hydrozoa including live corals (anemones, soft and hard corals); ornamental corals; live rock; coral rubble and coral sand.</td>
<td>59 licences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Total harvest from all sectors</strong></th>
<th><strong>Commercial licences accessing the fishery in 2010–11</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>75 t (comprised of 34 t specialty coral and 41 t other coral [including 34 t live rock and 7 t ornamental])</td>
<td>25 licences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Commercial harvest</strong></th>
<th><strong>Fishery season</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>75 t (comprised of 34 t specialty coral and 41 t other coral [including 34 t live rock and 7 t ornamental])</td>
<td>1 July 2010 to 30 June 2011</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Recreational harvest (2005)</strong></th>
<th><strong>Fishery symbols</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No estimate level of harvest for 2010–11</td>
<td>D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Indigenous harvest</strong></th>
<th><strong>Monitoring undertaken</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No estimate level of harvest for 2010–11</td>
<td>Commercial logbooks and real time monitoring of quota usage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Charter harvest</strong></th>
<th><strong>FOP days monitored in 2010–11</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable to the fishery</td>
<td>Nil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Allocation between sectors</strong></th>
<th><strong>Accreditation under the EPBC Act</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial only fishery. The quantity of coral taken recreationally within the fishery is minimal considering:</td>
<td>Expires 1 July 2012</td>
</tr>
<tr>
<td>• collection is not permitted in State and Commonwealth marine parks (the majority of the fishery area);</td>
<td></td>
</tr>
<tr>
<td>• the limited known distribution of coral outside Marine Parks, and the;</td>
<td></td>
</tr>
<tr>
<td>• gear restrictions imposed on recreational collection.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Total exports</strong></th>
<th><strong>Logbook validation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>237 546 pieces of harvested coral exported from Queensland in 2010–11</td>
<td>Yes—completed in 2008</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Commercial Gross Value of Production (GVP)</strong></th>
<th><strong>Quota managed</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No estimate for 2010–11. The GVP for the Queensland Coral Fishery (QCF) and the Marine Aquarium Fish Fishery (combined) was estimated to be $10–12 million in 2008–09.</td>
<td>Yes—commercial Total Allowable Catch = 200 t [split between specialty coral (30%) and other coral (70%)]</td>
</tr>
</tbody>
</table>
Introduction

The Queensland Coral Fishery (QCF) is one of a range of harvest (hand collection) fisheries managed by the Fisheries Queensland, part of the Department of Employment, Economic Development and Innovation (DEEDI). Commercially collected coral taxa, coral rubble and sand, and live rock are marketed domestically and internationally. Coral taxa can also be collected recreationally from areas outside of State Marine Parks and the Great Barrier Reef Marine Park (GBRMP).

This report covers fishing activity during the 2010–11 financial year.

Fishery description

The QCF is a small scale, quota managed, hand harvest fishery (commercial Total Allowable Catch = 200 tonnes (t)) with 59 authorities. The quota is split between Specially coral (30%) and Other coral (Coral products consisting of live rock and coral rubble/ornamental coral/LC1/non-coral) (70%). The QCF commenced as a licenced fishery on 1 July 2006.

Licence holders can collect from all genera of hard and soft corals occurring in the fishery area (approximately 400 species/genera (Roelofs & Silcock 2008)), however choose to target small, vibrant varieties of coral and anemones (Order Actinaria). The collection is in response to the strong market demand for live corals for use in private aquaria. Live rock (i.e. dead coral skeletons with algae and other organisms living on them) is also a major component of the fishery, due to its suitability as a substrate for the smaller, brighter corals in aquarium tanks.

Recreational fishers can collect corals for personal home aquaria. Apparatus restrictions for the QCF (see Fishing methods) limit recreational fishing capacity and regulations imposed under Marine Parks’ legislation limit the fishable area for recreational fishers to waters outside of declared Marine Parks.

Fishing methods

The fishery operates along the east coast of Queensland within the bounds of the Offshore Constitutional Settlement (Figure 1). Commercial operators in the QCF collect coral from waters along the Queensland east coast between 10°41’ S and 24°30’ S (not including areas 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. There are two small collection areas south of 24°30’ S however access to these is restricted through licence conditions. The fishery area also comprises two spatially defined high use Coral Collection Areas (CCAs) at Cairns and around the Keppel group of islands.

Coral may only be taken by hand or by using hand-held non-mechanical implements, such as a hammer and chisel. Licence holders may also use underwater breathing apparatus (SCUBA or hookah) when taking coral. Where a chisel is used, divers endeavour to remove only the coral itself, taking great care to minimise the amount of substrate that is taken or damaged. These removal methods reduce freight costs (less weight and...
volume) and also limit the environmental footprint of their harvesting. Coral collectors have committed to best practice harvesting methods through the industry's Stewardship Action Plan (Donnelly 2009).

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

Key species

The commercial Coral Fishery is based on the collection of a broad range of species from the classes Anthozoa and Hydrozoa. The key components of the fishery are:

- Specialty live corals (includes anemones, soft and hard corals)
- Ornamental (non-living) corals
- Live rock (i.e. dead coral skeletons with algae and other organisms living on them)
- Coral rubble (i.e. coarsely broken up coral fragments)
- Coral sand (i.e. finely ground up particles of coral skeleton)—only taken as incidental catch and may not be targeted within Marine Park waters.

Coral taxa from over 36 families are harvested for the live aquarium trade. Recent years have seen a move away from coral collected for ornamental purposes (Families Acroporidae and Pocilloporidae) to colourful individual live corals for home aquaria, especially species with large polyps from the Families Mussidae and Faviidae.

Main management methods used

Under Offshore Constitutional Settlement (OCS) arrangements between the Commonwealth and Queensland governments, management of coral collection 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 following management measures are in place for the commercial fishery under legislation and policy:

- Limited entry: 59 Commercial Harvest Fishery Licences are endorsed for the coral fishery.
- Quota managed: 200 t commercial Total Allowable Catch [split between specialty coral (30%) and other coral (70%)]
- Limits on the number of boats and collectors operating under a licence at any one time.
- Collection by hand or hand-held implements only, with the aid of artificial breathing apparatus allowed.

Since 1 July 2006 the commercial coral fishery has operated under the Policy for the Management of the Coral Fishery (the Coral Policy). Fisheries Queensland implemented several changes to the operation and management of the fishery on 1 July 2009 following the review of the Coral Policy in 2008. The review outcomes were reported in the 2008 Annual Status Report.

It is important to note that the changes to the Policy for the Management of the Coral Fishery that commenced in 2009–10 directly affect the catch statistics in this year's Annual Status Report. As a result it is not possible to compare data to previous years in some cases. Where it has been possible to combine data in order to make comparisons to previous years, it will be stated as such. These changes are discussed in more detail further below in the 2010 Annual Status Report under the heading Changes to management arrangements in the reporting year.

Catch statistics

Commercial

Approximately 75 t, including 34.5 t of specialty coral (LC2–LC6), and 40.5 t of other coral including 34 t of live rock, coral rubble and LC1, and 6.5 t of ornamental coral was harvested in the QCF in 2010–11 (Figure 2). Overall the total harvest has been decreasing since 2007–08. The reduction in total harvest has been largely driven by decreases in the collection of coral products (Figure 2). Live rock is the main component of the coral product category and is typically only sold domestically. Industry representatives attribute the decrease to a depressed domestic market following the impacts of the Global Financial Crisis (GFC). Marine aquarium systems for the home are generally expensive to set up and to maintain. Industry contend that the effect of the GFC was for individuals to tighten personal budgets and to decrease spending on personal luxury items and minimise energy use in the household.
Contrasting the overall decreasing trend in total harvest, the collection of specialty corals increased in 2010–11 (Figure 2, Table 1). The driver of this change appears to be the increased collection of live Acroporid species (Tables 2–4). Recent advances in the husbandry of Acroporid species have led to greater success in specimen survival during transport and has resulted in a burgeoning export market. Acroporid coral are generally known to be fast growing. Fisheries Queensland is working with the industry to document the range of Acroporid species collected to ensure sustainable harvest is occurring.

The majority (51 t) of the total harvest (75 t) came from the Cairns Coral Collection Area (CCA), with less than 4 t from the Keppel CCA and approximately 20 t from the Other category in 2010–11 (Figure 3, Tables 2–4). Catches in the Keppel CCA did not exceed the annual review reference points (RRP) for specialty coral, ornamental coral and live rock. Collection of specialty coral (20 t) in the Cairns CCA exceeded the RRP of 13 t while the collection of live rock fell below the 30% trigger limit as well (the nature of these exceedances are discussed in the Performance against fishery objectives section of this report). The harvest of specialty coral increased from 10 to 13 t from 2009–10 to 2010–11 in the fishery outside of the two CCAs while the collection of coral products decreased from 8 to 3 t (Figure 3).
The number of individual pieces of Specialty Coral collected increased once more in 2010–11 (Table 1, Figure 4). The industry is developing markets and diversifying the species that are collected to meet the drop in domestic and export sales. The Queensland Coral Fishery is particularly resilient in this regard by having a diverse and extensive species base to choose from. Fisheries Queensland are working with industry to ensure that comprehensive lists of the species collected are maintained.

Acroporidae (14%), *Catalaphyllia jardinei* (7%) and *Euphyllia* spp. (6%) were the most collected groups/species (by number). A rise in the number of specimens reported under the undifferentiated ‘Other Hard Corals’ since 2009–10 has been observed. This lack of species detail may warrant a review of reporting requirements under the current Coral Policy to ensure that the species collected are identified and that their ecological risk from the fishery is assessed. Fisheries Queensland, the Great Barrier Reef Marine Park Authority (GBRMPA) and industry jointly developed the current logbook to ensure that collection of internationally important species and those at greater than negligible ecological risk from the fishery were reported in detail. Fisheries Queensland are confident that current reported harvest levels are sustainable given these current reporting arrangements, the monitoring of high use areas and the low level of quota being utilised; however the fishery is in the process of diversifying and a reassessment of management arrangements is timely.
### Table 2: Number of individual pieces and weight of coral species collected in the Cairns Coral Collection Area in the Queensland Coral Fishery for the quota years 2006–07 to 2010–11 (Source: Fisheries Queensland CFISH database, 2 February 2012). Note: shaded boxes identify reporting years when logbook categories did not exist for these species.

<table>
<thead>
<tr>
<th>Species or common name</th>
<th>Number of individual pieces</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthastrea lordhowensis</td>
<td>65</td>
<td>118</td>
</tr>
<tr>
<td>Acroporidae</td>
<td>384</td>
<td>553</td>
</tr>
<tr>
<td>Actinaria</td>
<td>766</td>
<td>1055</td>
</tr>
<tr>
<td>Agaricidae</td>
<td>127</td>
<td>103</td>
</tr>
<tr>
<td>Alcyoniidae</td>
<td>134</td>
<td>109</td>
</tr>
<tr>
<td>Antipathidae (black corals)</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Blastomussa merletti</td>
<td>113</td>
<td>134</td>
</tr>
<tr>
<td>Blastomussa spp. - unspecified</td>
<td>94</td>
<td>110</td>
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<tr>
<td>Blastomussa wellsi</td>
<td>143</td>
<td>139</td>
</tr>
<tr>
<td>Catalaphyllia jardinei</td>
<td>2542</td>
<td>3005</td>
</tr>
<tr>
<td>Caulastrea spp - unspecified</td>
<td>381</td>
<td>756</td>
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<tr>
<td>Clavulariidae</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td>Coral rubble</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Corallimorph</td>
<td>279</td>
<td>325</td>
</tr>
<tr>
<td>Cynarina lacrymalis (button coral)</td>
<td>351</td>
<td>1760</td>
</tr>
<tr>
<td>Dendrophylliidae</td>
<td>1308</td>
<td>2262</td>
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<tr>
<td>Entacmaea quadricolor</td>
<td>1016</td>
<td>1062</td>
</tr>
<tr>
<td>Euphyllia spp. - unspecified</td>
<td>2302</td>
<td>482</td>
</tr>
<tr>
<td>Euphyllia glabrescens</td>
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<td>2474</td>
</tr>
<tr>
<td>Faviidae</td>
<td>1042</td>
<td>2017</td>
</tr>
<tr>
<td>Fungiidae</td>
<td>1558</td>
<td>2575</td>
</tr>
<tr>
<td>Gardineroseris spp.</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Gonioporta/Alvepora</td>
<td>3877</td>
<td>4653</td>
</tr>
<tr>
<td>Gorgoniacea</td>
<td>1036</td>
<td>1169</td>
</tr>
<tr>
<td>Helioporidae</td>
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<td>37</td>
</tr>
<tr>
<td>Merulinidae</td>
<td>144</td>
<td>152</td>
</tr>
<tr>
<td>Milleporidae</td>
<td>71</td>
<td>30</td>
</tr>
<tr>
<td>Mussidae, excluding Blastomussa spp, Scolympia spp</td>
<td>3009</td>
<td>4361</td>
</tr>
<tr>
<td>Nephtheidae</td>
<td>2709</td>
<td>4649</td>
</tr>
<tr>
<td>Oculinidae</td>
<td>372</td>
<td>355</td>
</tr>
<tr>
<td>Other hard corals</td>
<td>4</td>
<td>482</td>
</tr>
<tr>
<td>Paraclydoniidae</td>
<td>486</td>
<td>77</td>
</tr>
<tr>
<td>Pectinidae</td>
<td>361</td>
<td>559</td>
</tr>
<tr>
<td>Pennatulacea-sea pens</td>
<td>62</td>
<td>15</td>
</tr>
<tr>
<td>Ploerynx spinosa</td>
<td>1861</td>
<td>1543</td>
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<tr>
<td>Polclorippidae</td>
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<td>924</td>
</tr>
<tr>
<td>Poritidae</td>
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<td>296</td>
</tr>
<tr>
<td>Sarcophyton spp.</td>
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<td>47</td>
</tr>
<tr>
<td>Scolymia spp. - unspecified</td>
<td>535</td>
<td>762</td>
</tr>
<tr>
<td>Scolomyia vitensis</td>
<td>855</td>
<td>615</td>
</tr>
<tr>
<td>Stylasteridae - lace coral</td>
<td>233</td>
<td>1079</td>
</tr>
<tr>
<td>Trachyphyllia geoffroyi</td>
<td>2739</td>
<td>2653</td>
</tr>
<tr>
<td>Tubipora musica</td>
<td>967</td>
<td>1119</td>
</tr>
<tr>
<td>Tubiporidae</td>
<td>47</td>
<td>25</td>
</tr>
<tr>
<td>Turbinaria spp.</td>
<td>371</td>
<td>623</td>
</tr>
<tr>
<td>Xeniidae</td>
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<td>4758</td>
</tr>
<tr>
<td>Zoanthidae</td>
<td>173</td>
<td>107</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>44308</td>
<td>64355</td>
</tr>
</tbody>
</table>
Table 3: Number of individual pieces and weight of coral species collected in the Keppel Coral Collection Area in the Queensland Coral Fishery for the quota years 2006–07 to 2010–11 (Source: Fisheries Queensland CFISH database, 2 February 2012). Note: shaded boxes identify reporting years when logbook categories did not exist for these species.

<table>
<thead>
<tr>
<th>Species or common name</th>
<th>Number of individual pieces</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthastrea lordhowensis</td>
<td>7473</td>
<td>5099</td>
</tr>
<tr>
<td>Acroporidae</td>
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<td>1595</td>
</tr>
<tr>
<td>Actinia</td>
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<td>26</td>
</tr>
<tr>
<td>Agariciidae</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td>Alcyonacea</td>
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<td>10</td>
</tr>
<tr>
<td>Alcyoniidae</td>
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<td>2280</td>
</tr>
<tr>
<td>Blastomussa spp. - unspecified</td>
<td>387</td>
<td>14</td>
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<tr>
<td>Blastomussa wellsi</td>
<td>43</td>
<td>355</td>
</tr>
<tr>
<td>Catalaphyllia jardinei</td>
<td>2378</td>
<td>2101</td>
</tr>
<tr>
<td>Caustastrea spp. - unspecified</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Coral rubble</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Corallimorph</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Cymatium lacrymalis (button coral)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dendrophylliidae</td>
<td>727</td>
<td>765</td>
</tr>
<tr>
<td>Duncanopsammia axifuga</td>
<td>1528</td>
<td>1296</td>
</tr>
<tr>
<td>Entacmaea quadricolor</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Euphyllia spp.</td>
<td>1025</td>
<td>596</td>
</tr>
<tr>
<td>Euphyllia glabrescens</td>
<td>245</td>
<td>93</td>
</tr>
<tr>
<td>Faviidae</td>
<td>2552</td>
<td>4107</td>
</tr>
<tr>
<td>Fungiidae</td>
<td>79</td>
<td>103</td>
</tr>
<tr>
<td>Goniopora/Alvepora</td>
<td>1469</td>
<td>2332</td>
</tr>
<tr>
<td>Gorgoniacea</td>
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<td>174</td>
</tr>
<tr>
<td>Milleporidae</td>
<td>18</td>
<td>1</td>
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<tr>
<td>Mussidae not Blastomussa spp, Scolymia spp</td>
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<td>5711</td>
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<tr>
<td>Nephtheidae</td>
<td>575</td>
<td>440</td>
</tr>
<tr>
<td>Oculinidae</td>
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<td>9</td>
</tr>
<tr>
<td>Other hard corals</td>
<td>1</td>
<td>206</td>
</tr>
<tr>
<td>Paracorallimorph</td>
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<td>25</td>
</tr>
<tr>
<td>Pectiniidae</td>
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<td>327</td>
</tr>
<tr>
<td>Pierogyra sinuosa</td>
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<td>170</td>
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<tr>
<td>Pocilloporidae</td>
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</tr>
<tr>
<td>Poritidae</td>
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<td>12</td>
</tr>
<tr>
<td>Scolymia spp. - unspecified</td>
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<td>326</td>
</tr>
<tr>
<td>Scolymia vitensis</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Stylophoridae - lace coral</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Trachyphyllia geoffroyi</td>
<td>104</td>
<td>39</td>
</tr>
<tr>
<td>Tubipora musica</td>
<td>619</td>
<td>738</td>
</tr>
<tr>
<td>Tubiporidae</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Turbinaria spp. - unspecified</td>
<td>237</td>
<td>330</td>
</tr>
<tr>
<td>Xeniidae</td>
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<td>1009</td>
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<tr>
<td>Zoanthidae</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20433</td>
<td>24504</td>
</tr>
</tbody>
</table>
Table 4: Number of individual pieces and weight of coral species collected outside of the Cairns and Keppel Coral Collection Areas in the Queensland Coral Fishery for the quota years 2006–07 to 2010–11 (Source: Fisheries Queensland CFISH database, 2 February 2012). Note: shaded boxes identify reporting years when logbook categories did not exist for these species.

<table>
<thead>
<tr>
<th>Species or common name</th>
<th>Number of individual pieces</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthastrea lordhowensis</td>
<td>8711</td>
<td>7776</td>
</tr>
<tr>
<td>Acroporidae</td>
<td>1237</td>
<td>5939</td>
</tr>
<tr>
<td>Actinaria</td>
<td>196</td>
<td>504</td>
</tr>
<tr>
<td>Agaricidae</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Alcyoniidae</td>
<td>476</td>
<td>308</td>
</tr>
<tr>
<td>Antipathidae (black corals)</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Blastomussa merletti</td>
<td>178</td>
<td>127</td>
</tr>
<tr>
<td>Blastomussa spp. - unspecified</td>
<td>63</td>
<td>649</td>
</tr>
<tr>
<td>Blastomussa wellsi</td>
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<td>1273</td>
</tr>
<tr>
<td>Catalaphyllia jardinei</td>
<td>835</td>
<td>6602</td>
</tr>
<tr>
<td>Caulastrea spp - unspecified</td>
<td>40</td>
<td>217</td>
</tr>
<tr>
<td>Clavulariidae</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coral rubble</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Corallimorph</td>
<td>47</td>
<td>105</td>
</tr>
<tr>
<td>Cymatinops Lacrymalis (button coral)</td>
<td>122</td>
<td>1304</td>
</tr>
<tr>
<td>Dendrophylliidae</td>
<td>118</td>
<td>521</td>
</tr>
<tr>
<td>Duncanopsammina axifuga</td>
<td>521</td>
<td>1967</td>
</tr>
<tr>
<td>Entacmaea quadricolor</td>
<td>2</td>
<td>462</td>
</tr>
<tr>
<td>Euphyllia spp. - unspecified</td>
<td>1080</td>
<td>1609</td>
</tr>
<tr>
<td>Euphyllia Glabrascens</td>
<td>609</td>
<td>1156</td>
</tr>
<tr>
<td>Faviidae</td>
<td>624</td>
<td>2081</td>
</tr>
<tr>
<td>Fungiidae</td>
<td>1010</td>
<td>1645</td>
</tr>
<tr>
<td>Goniopora/Alvepora</td>
<td>358</td>
<td>447</td>
</tr>
<tr>
<td>Gorgonacea</td>
<td>230</td>
<td>104</td>
</tr>
<tr>
<td>Heliopora coerula</td>
<td>118</td>
<td>136</td>
</tr>
<tr>
<td>Helioporidae</td>
<td>51</td>
<td>69</td>
</tr>
<tr>
<td>Merulinidae</td>
<td>73</td>
<td>97</td>
</tr>
<tr>
<td>Milleporidae</td>
<td>53</td>
<td>565</td>
</tr>
<tr>
<td>Musidae not Blastomussa spp, Scolymia spp</td>
<td>560</td>
<td>2258</td>
</tr>
<tr>
<td>Nephtheidae</td>
<td>355</td>
<td>487</td>
</tr>
<tr>
<td>Oculinidae</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Other hard corals</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Paracorallinidae</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Pectiniidae</td>
<td>140</td>
<td>632</td>
</tr>
<tr>
<td>Plerogyra sinuosa</td>
<td>473</td>
<td>813</td>
</tr>
<tr>
<td>Pocilloporidae</td>
<td>676</td>
<td>2448</td>
</tr>
<tr>
<td>Poritidae</td>
<td>21</td>
<td>58</td>
</tr>
<tr>
<td>Sarcophyton spp.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Scolymia spp. - unspecified</td>
<td>498</td>
<td>2484</td>
</tr>
<tr>
<td>Scolymia vitensis</td>
<td>522</td>
<td>178</td>
</tr>
<tr>
<td>Siderastrea</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Stylostereidae - lace coral</td>
<td>61</td>
<td>162</td>
</tr>
<tr>
<td>Trachyphyllia geoffroyi</td>
<td>117</td>
<td>4334</td>
</tr>
<tr>
<td>Tubipora musica</td>
<td>40</td>
<td>108</td>
</tr>
<tr>
<td>Tubiporidae</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Turbinaria spp.</td>
<td>714</td>
<td>1370</td>
</tr>
<tr>
<td>Xenidiidae</td>
<td>22</td>
<td>213</td>
</tr>
<tr>
<td>Zoanthidae</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11004</td>
<td>40539</td>
</tr>
</tbody>
</table>
**Research permits**

Fisheries Queensland issued seven General Fisheries Permits allowing the limited harvest of coral species for research purposes in 2010–11. The permit holders are required to submit annual reports summarising the collection that has occurred within the permit period. These indicate that there was minimal collecting during the reporting period. The quantities of each species collected will be considered during future sustainability assessments as required.

**Recreational**

The quantity of coral taken recreationally within the fishery is minimal considering the limited known distribution of coral outside Marine Parks and the gear restrictions imposed. At present there are no data available on the level of recreational harvest of coral species. Fisheries Queensland commenced the latest state-wide recreational fishing survey in 2010 using improved methodology to provide updated and improved estimates of recreational fishing participation and catch. Although the survey is not designed with a separate reporting category for coral, the survey methodology does allow for the reporting of a wider range of species including coral.

**Indigenous**

Indigenous use of corals has not been documented and any participation in the fishery is considered to be minimal (McCormack 2006).

**Spatial issues/trends**

Annual harvest levels are monitored for the two Coral Collection Areas through the Performance Measurement System (Table 5). Harvest in these areas did not exceed the review reference points.

Fisheries Queensland, the GBRMPA and the industry representative body, Pro-Vision Reef, developed an integrated action plan to manage spatial issues should they arise through bleaching, flooding or other extreme events leading to coral stress. This action plan relies on coordination of monitoring and assessment activities under the Coral Bleaching Response Plan (GBRMPA) and the Coral Stress Response Plan for Marine Aquarium Fish and Coral Fisheries (Fisheries Queensland) to predict/identify regions likely to experience stress. Depending on the level of risk to the coral communities, mitigation is actioned by industry through the Stewardship Action Plan (Pro-Vision Reef). Decisions as to the most appropriate response to alleviate collection pressure and give the coral ecosystem the best chance for recovery are made by a joint industry/government/community taskforce. The effectiveness of this coordinated approach was demonstrated in 2011 when flooding impacted on the Keppel region. A moratorium on collection was initiated by industry as the most appropriate response. Regular monitoring of the region through Reef Health Impact Surveys (RHIS) has occurred since the initial flooding to determine the rate of recovery. The taskforce has met twice since the commencement of the collection moratorium in July 2011 to consider the results of each survey. The taskforce decided to extend the moratorium to the end of April 2012 when the results of the next RHIS will be considered.

**Socio-economic characteristics and trends**

Collectors have indicated that domestic sales have been poor since the Global Financial Crisis in 2008. Marine aquaria are expensive to set up and maintain and provide further stress on already strained household budgets. The downward trend in domestic sales appears to have positively impacted exports from the fishery. The number of coral specimens exported from Queensland more than doubled from 104,075 specimens in 2009–10 to 237,546 in 2010–11. The majority of exports (83%) went to markets in France, United States of America and the United Kingdom.

**Biological and ecological information**

**Monitoring programs**

*Fishery dependent monitoring*

Logbook data provides Fisheries Queensland with detailed information on catch trends in the commercial fishery. No independent monitoring is currently being undertaken.

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2 These figures should not be directly compared with the collection figures from the commercial fishery logbook. Collectors are able to post-process (fragment) the collected specimens to meet specific market demands and attain maximum value for their product.
Commercial fishers working in catch-based quota fisheries (except trawl), are required to report catch via Fisheries Queensland’s Automatic Interactive Voice Recognition (AIVR) system. Fisheries Queensland uses notices given through the AIVR to monitor quota usage and uses a chain of auditable records to detect the possible development of a black market for illegally caught product.

There are two individual coral categories for the Coral Fishery: Other Coral and Speciality Coral that are managed through quota arrangements. To take coral commercially, fishers must obtain a coral licence, symbol endorsement and current quota units and must meet reporting arrangements. Currently the reporting requirements for the fishery include lodging a Prior Notice 3 or 6 hours (depending on location) prior to the fisher landing the product. The notice requires fishers to record a nominated landing time and location as well as the numbers of bins of coral on board the vessel. The total number of bins is calculated to a total weight via a set conversion figure and the weight is then deducted from their quota account.

Interactions with protected species

Due to the selective, relatively benign harvesting method and high attendance of fishing gear, operators pose negligible risk to protected species. Commercial operators report interactions with protected species in a Species of Conservation Interest (SOCI) logbook. There have been no reported interactions with SOCI during 2010–11.

Ecosystem impacts

The physical impact of the QCF on the broader ecosystem is considered negligible due to the selective fishing methods used and the small number of individual animals that are collected relative to the available resource.

The Ecological Risk Assessment (ERA) (Roelofs 2008) of the fishery indicated that QCF operations are not likely to negatively impact on natural food webs and critical predator/prey relationships. Broader ecosystem impacts from natural events, such as cyclone damage to reefs and coral bleaching are likely to have greater ecological impacts than the fishery operations. Donnelly (2011) incorporated the outputs of the 2008 ERA when assessing the likely risks to coral species collected in the QCF to impacts related to climate change. The assessment concluded that the overall risk to key species was low. Donnelly (2011) however also concluded that for the fishery to remain resilient and respond/adapt to likely climate change scenarios then a more rapid logbook information collection is urgently required. Fisheries Queensland will incorporate the conclusions by Donnelly (2011) in a review of the ERA planned for 2012. A copy of the Climate Change Vulnerability Assessment of the Queensland Marine Aquarium Supply Industry report can be downloaded from the GBRMPA website.


Sustainability Assessment

Performance against fishery objectives

Fisheries Queensland implemented the QCF Performance Measurement System (PMS) in 2009. Analysis of performance of the QCF against these measures indicated that three review reference points triggered during the 2010–11 reporting year (Table 5). Preliminary investigations of the underlying causes behind the triggered reference points have been made to determine cause and effect as well as timeframes for mitigation if deemed appropriate. In this regard, Fisheries Queensland plans to address matters relating to the triggered reference points for target species and Coral Collections Areas during the revision of the ERA for the QCF. The PMS will be reviewed to account for outcomes of the ERA and any new perceived risks from the fishery.

Several of the categories and species have changed in the manner they are reported in the logbook and as such it is not possible to compare them to the previous year’s data.
Table 5: Performance measures and outcomes for the Queensland Coral Fishery.

<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target species</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 1. Annual catch (kg) of species of greater than negligible ecological risk (listed below) is >30% higher or lower than mean catch over the previous 2 years Or 2. Greater than 80% of the annual catch of a species of greater than negligible ecological risk occurs in a single 6 x 6 nm logbook site. | 1. _Indicator partially measured_  
  **Triggered for:**  
  • Gorgonian corals (-53%)  
  • Acroporidae (+82%)  
  • Live rock—Cairns (-38%)  
  **Comment**  
  • Similar to 2009–10 the decline in harvest of Gorgonian corals in 2010–11 is attributed to a continued decrease in demand and decrease in effort.  
  • Acroporid coral harvest has increased in recent years, especially in the Cairns region. This appears due to improvements in husbandry techniques for live export of Acroporid corals and increased demand from export markets, particularly from the USA. Industry representatives have advised that they collect from a broad range of Acroporid species. Acroporid corals are generally known to be fast growing species. Fisheries Queensland will seek to document the full range of species collected from the Acroporid family which will be assessed in the 2012 revision of the fishery ERA.  
  • The domestic market for live rock collection was particularly affected by the economic impacts of the Global Financial Crisis with decreases in demand for fish, coral and live rock from domestic aquarists being noted since 2009–10. Some collectors have reported a 20–30% decrease in domestic sales in the reporting year. Fisheries Queensland is satisfied that the decrease in live rock collection in the Cairns region is not due to sustainability issues and does not intend to investigate this matter further.  
  **Not triggered for:**  
  • _Trachyphyllia geoffroyi_  
  • _Duncanopsammmia axifuga_  
  • _Euphyllia glabrascens_  
  • _Catalaphyllia jardinei_  
  • _Live rock (Keppel region only)_  
  **Not measured for the following:**  
  • _Acanthastrea lordhowensis_  
  • _Blastomussa merletti_  
  • _Blastomussa wellsi_  
  • _Scolymia vitensis_  
  • _Entacmea quadricolor_  
  • _Plerogyra spp._  
  • _Three years of data unavailable for analysis. Separate reporting for these species began in 2009–10._  
  2. _Not triggered_ |
Performance measure

Total annual catch in high use management areas (reported through logbooks)—the Review Reference Points are:

**Cairns**
- 80 t live rock (inc. rubble & LC1 rock)
- 13 t live coral (specialty coral)
- 5 t ornamental coral

**Keppel**
- 24 t live rock (inc. rubble & LC1 rock)
- 11 t live coral (specialty coral)
- 1 t ornamental coral

<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triggered for Cairns specialty coral by 7 t</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Catch component</strong></td>
<td><strong>Year</strong></td>
</tr>
<tr>
<td>Coral Products (live rock etc.)</td>
<td>2006-07</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
</tr>
<tr>
<td></td>
<td>2008-09</td>
</tr>
<tr>
<td></td>
<td>2009-10</td>
</tr>
<tr>
<td></td>
<td>2010-11</td>
</tr>
<tr>
<td>Ornamental</td>
<td>2006-07</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
</tr>
<tr>
<td></td>
<td>2008-09</td>
</tr>
<tr>
<td></td>
<td>2009-10</td>
</tr>
<tr>
<td></td>
<td>2010-11</td>
</tr>
<tr>
<td>Specialty Coral</td>
<td>2006-07</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
</tr>
<tr>
<td></td>
<td>2008-09</td>
</tr>
<tr>
<td></td>
<td>2009-10</td>
</tr>
<tr>
<td></td>
<td>2010-11</td>
</tr>
</tbody>
</table>

**Comment**

The majority of the increase in harvest in the Cairns CCA of specialty coral beyond the trigger comprised Acroporidae and unspecified coral species in the Other Hard Corals categories. As noted above, the harvest of Acroporid specimens has increased following advances in the husbandry that has resulted in a more viable live export product. Export markets have quickly grown to accommodate the greater potential in trade. Acroporid corals are diverse and Fisheries Queensland intends to investigate this harvest to determine the main species being collected. These species will be assessed in the next ERA planned to occur in 2012.

Fisheries Queensland intends to investigate further the increasing take of unspecified coral species under the Other Hard Corals. Of particular interest are the species that comprise this harvest and what the collection means to their sustainability. The ecological risk to these species will be assessed in the revision of the QCF ERA. Depending on the ERA revision outcomes, future iterations of the commercial coral fishery logbook may need adjusting to ensure the level of species detail being recorded is representative.

**Greater than 75% of quota used in <6 months**
- Not triggered

Only 33% of the Other Coral quota used in 2010–11.
Only 36% of the Specialty Coral quota used in 2010–11.
<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecosystem</strong></td>
<td></td>
</tr>
<tr>
<td>Bleaching severity &amp; interaction with fishery is $&gt; \text{Level 2}$ as defined in Fisheries Queensland Coral Stress Response Plan.</td>
<td><em>Not triggered</em></td>
</tr>
<tr>
<td>Proportion of industry adopting identified best practice protocols*</td>
<td><em>Not triggered</em></td>
</tr>
<tr>
<td>Greater than 80% of active operators have adopted best practice protocols</td>
<td>Membership statistics indicate that the indicator was not triggered in 2010–11 with the 81% of active D licences members of Pro-vision Reef.</td>
</tr>
<tr>
<td>*Measure reflects protocols formalised in the industry developed Stewardship Action Plan implemented in 2009</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Social</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of DEEDI ministerial letters referring to sustainability concerns with the Coral Fishery:</td>
<td><em>Not triggered</em></td>
</tr>
<tr>
<td>More than five Ministerial Letters are prepared per calendar year.</td>
<td></td>
</tr>
<tr>
<td>Greater than 10% of the active vessels in the fleet are used to commit an offence under the Fisheries Regulation 2008.</td>
<td><em>Not triggered</em></td>
</tr>
<tr>
<td>No commercial offences relating to the QCF were detected in 2010–11.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Economic</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quota usage</td>
<td></td>
</tr>
<tr>
<td>1. Less than 25% of fishery quota used in $&gt;6$ months.</td>
<td><em>1. Not triggered</em></td>
</tr>
<tr>
<td>2. More than 10 licence holders use $&lt;25%$ of their quota holding</td>
<td>Other Coral: 33% of the quota used in 2010–11 Specialty Coral: 36% of the quota used in 2010–11</td>
</tr>
<tr>
<td>2. Triggered</td>
<td></td>
</tr>
<tr>
<td>Other coral: 19 licence holders Specialty coral: 12 licence holders</td>
<td>Comment:</td>
</tr>
<tr>
<td>Extreme weather conditions (cyclones and floods) that occurred during the 2010–11 reporting period may have affected operators of smaller vessels by limiting accessibility to fishery habitats. Fisheries Queensland will liaise with industry members to investigate the reasons for low quota use in the reporting year and whether arrangements under the Policy for the Management of the Coral Fishery are contributing to the observed decline in commercial activity.</td>
<td></td>
</tr>
</tbody>
</table>

**Current sustainability status & 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 coral and anemone resources than fishery activity at the present level of effort in the 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 collected coral species in the QCF 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 QCF 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 is insufficient justification for inclusion in the stock status assessment program. Monitoring of coral 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 QCF are managed in an ecological sustainable manner.

Research
Recent research and implications
Harrison (2011) comprehensively summarised current knowledge of sexual reproduction in scleractinian (hard) corals and confirmed the knowledge that hermaphroditic broadcast spawning is the dominant pattern among coral species studied so far (about 444 species). The summarised information on reproductive behaviour will be used in the review of the ERA for the QCF planned for 2012.

Harrison (2011) also noted the timing and success of coral reproduction is particularly sensitive to environmental factors and that climate change will likely exacerbate these stress effects. A Climate Change Vulnerability Assessment has been the recent focus of the QCF and provides an excellent synthesis of research on climate change and the implications this has on the future management of the fishery (Roelofs 2008; Donnelly 2011). The next stage of this process is to develop adaptation strategies that aim to ensure industry is well placed to meet the challenges and opportunities anticipated to arise from climate change.

The importance of coral reef assemblages in supporting diverse and functional reef ecosystems was assessed by Pratchett et al. (2011). The authors concluded that extensive (>60%) loss of coral nearly always resulted in fish diversity declines. Generally speaking, the most affected fish group, in terms of ecosystem function, were corallivores and the least impacted were herbivores. These results will be considered in the review of the QCF and the Marine Aquarium Fish Fishery ERA planned for 2012.

Collaborative research
There has been no collaborative research this year.

Fishery management
Compliance report
During 2010–11, fourteen commercial fishing vessels were inspected in the QCF. No offences were detected during the course of these inspections corresponding to a compliance rate of 100% on units inspected.

Changes to management arrangements in the reporting year
There were no changes to management arrangements in 2010–11.

Communication and education
Stakeholders, industry members and Commonwealth and state natural resource management agencies are kept well informed of issues relating to the QCF through communication strategies incorporated within the Stewardship Action Plan and the Coral Stress Response Plan. The strategies were tested 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, GBRMPA, Department of Environment and Resource Management (DERM) and Pro-vision 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 Pro-vision Reef.

Promotion of regulations applying to both commercial and recreational fishers, including those relating to harvest fisheries, is an ongoing role for Fisheries Queensland.

Complementary management
There are no adjacent fisheries for coral however live rock can be collected in the Coral Sea Fishery managed by the Commonwealth. Given that live rock is locally generated there is no specific need to develop complementary management practices with the Coral Sea Fishery.
References


McCormack, C 2006, Ecological Assessment of the Queensland Coral Fishery. A report to the Australian Government Department of the Environment and Heritage on the ecologically sustainable management of the Queensland Coral Fishery, Department of Primary Industries and Fisheries, Brisbane, Australia.


Roelofs, A 2008, Ecological Risk Assessment of the Queensland Coral Fishery, Department of Primary Industries & Fisheries, Brisbane.


Information compiled by

Anthony Roelofs

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Front cover image

Diver collecting coral on the Great Barrier Reef.