Stock status of Queensland’s fisheries resources 2011
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<td>Sea cucumber–burrowing blackfish</td>
<td>East Coast</td>
</tr>
<tr>
<td>Sea mullet (<em>Mugil cephalus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Shark (<em>Elasmobranchii</em>)</td>
<td>East Coast and Gulf of Carpentaria</td>
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<tr>
<td>Snapper (<em>Pagrus auratus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–crimson (<em>Lutjanus erythropterus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–crimson (<em>Lutjanus erythropterus</em>)</td>
<td>Gulf of Carpentaria</td>
</tr>
<tr>
<td>Snapper–goldband (<em>Pristipomoides multidens</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–hussar (<em>Lutjanus adetii and L. vittā</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–Moses (<em>Lutjanus russellii</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–saddletail (<em>Lutjanus malabaricus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Snapper–saddletail (<em>Lutjanus malabaricus</em>)</td>
<td>Gulf of Carpentaria</td>
</tr>
<tr>
<td>Snapper–stripey (<em>Lutjanus carponotatus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Squid–pencil (<em>Uroteuthis</em> spp.)</td>
<td>East Coast</td>
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<tr>
<td>Squid–tiger (<em>Sepioteuthis lessonana</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Tailor (<em>Pomatomus saltatrix</em>)</td>
<td>East Coast</td>
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<tr>
<td>Teraglin (<em>Atractoscion aequidens</em>)</td>
<td>East Coast</td>
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<tr>
<td>Threadfin–blue (<em>Eleutheronema tetradactylum</em>)</td>
<td>East Coast</td>
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<tr>
<td>Threadfin–blue</td>
<td>Gulf of Carpentaria</td>
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<tr>
<td>Threadfin–king (<em>Polydactylus macrochir</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Threadfin–king (<em>Polydactylus macrochir</em>)</td>
<td>Gulf of Carpentaria</td>
</tr>
<tr>
<td>Trevally (<em>Carangidae</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Trochus (<em>Trochus niloticus</em>)</td>
<td>East Coast</td>
</tr>
<tr>
<td>Tropical rock lobster (<em>Panulirus omatus</em>)</td>
<td>East Coast</td>
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<tr>
<td>Tusksfish (<em>Choerodon</em> spp.)</td>
<td>East Coast</td>
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<tr>
<td>Whiting–sand (<em>Sillago ciliata</em>)</td>
<td>East Coast</td>
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<tr>
<td>Whiting–stout (<em>Sillago robusta</em>)</td>
<td>East Coast</td>
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<tr>
<td><strong>Glossary</strong></td>
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<td>--------------------------------------------------</td>
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<tr>
<td><strong>Annual status report (ASR)</strong></td>
<td>Annual reports developed for each of Queensland’s major fisheries</td>
</tr>
<tr>
<td><strong>Commercial catch</strong></td>
<td>The retained portion of a commercial fishers’ catch, which is recorded in a daily logbook for that fishery. Sometimes referred to as the harvested or landed component.</td>
</tr>
<tr>
<td><strong>Catch rate</strong></td>
<td>The weight of fish retained (catch) by unit of effort. Sometimes referred to as catch per unit effort (CPUE).</td>
</tr>
<tr>
<td><strong>Ecological risk assessment (ERA)</strong></td>
<td>A tool commonly used in fisheries management that identifies the issues or source of the risk which could impact on objectives (e.g. in a fisheries context, overfishing), assesses the consequence and likelihood associated with the issue, and then determines the relative risk (in a fisheries context, this could be risk to target and bycatch species, as well as the habitat). Can be qualitative or quantitative, and generally done in a workshop format involving multiple stakeholders. This process enables management to identify priorities for monitoring and management action.</td>
</tr>
<tr>
<td><strong>ECOTF ecological risk assessment findings</strong></td>
<td>Two ecological risk assessment workshops were held in 2010–11 to consider the level of trawl related risk to the sustainability of species interacting with the East Coast Otter Trawl Fishery (ECOTF). Stringent management settings and near to record low levels of effort in the fishery have ensured that species are currently being harvested sustainably both within the Great Barrier Reef Marine Park and in the remainder of the ECOTF south of the GBRMP. The assessments found that no ECOTF harvested species is at high risk of becoming overfished by trawling under current and likely future management and effort level scenarios.</td>
</tr>
<tr>
<td><strong>Fishery dependent data</strong></td>
<td>Data (e.g. biological information on length and age) collected from commercial and recreational fishing activities. Includes that collected by long-term Fisheries Queensland monitoring programs.</td>
</tr>
<tr>
<td><strong>Fishery independent data</strong></td>
<td>Data collected from scientific surveys or by other means which are not associated with commercial, recreational or charter fishing.</td>
</tr>
<tr>
<td><strong>Performance Measurement System (PMS)</strong></td>
<td>A document developed for each fishery to monitor and measure fishery performance against a range of operational objectives. It explains the objectives, indicators and performance measures for that fishery.</td>
</tr>
<tr>
<td><strong>Performance measure</strong></td>
<td>Turns an indicator into something that can be measured. Generally a limit performance measure, which indicates a state which is undesirable and requires further investigation and/or management action. For example, a 30% decrease in catch rate.</td>
</tr>
<tr>
<td><strong>L1, L2, L3 and L8 fishery symbols</strong></td>
<td>The type of commercial line fishery symbol that indicates where a commercial fisher is able to fish, the regulated apparatus and what they are able to retain. Refer to the Fisheries Queensland website for the full description of fisheries symbols in Queensland <a href="http://www.dpi.qld.gov.au/28_15452.htm">http://www.dpi.qld.gov.au/28_15452.htm</a></td>
</tr>
<tr>
<td><strong>Minimum legal size (MLS)</strong></td>
<td>For a given species, this minimum size that can be retained. This is set in legislation and applies to commercial and/or recreational harvest.</td>
</tr>
<tr>
<td><strong>Maximum sustainable yield (MSY)</strong></td>
<td>Largest catch that can be harvested each year without impacting on the long-term productivity of the stock.</td>
</tr>
<tr>
<td><strong>Biomass at MSY (Bmsy)</strong></td>
<td>Stock size that can produce maximum sustainable yield when it is fished at a level equal to fishing mortality rate at MSY.</td>
</tr>
<tr>
<td><strong>‘Other species’ quota (OS)</strong></td>
<td>Refers to the quota for coral reef fin fish other than coral trout and redthroat emperor. Coral reef fin fish are outlined in the Fisheries Regulation 2008.</td>
</tr>
<tr>
<td><strong>Queensland Fisheries Joint Authority (QFJA) permits</strong></td>
<td>The harvest of certain species in the Gulf of Carpentaria is managed jointly by the State and Commonwealth governments through the Queensland Fisheries Joint Authority (QFJA). Fishing licences operating in a fishery over which the QFJA has authority must have an endorsement from the QFJA to take those species.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
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<td>-------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Recruitment</td>
<td>Fisheries population term relating to the youngest age at which fish enter the fishery; that is, able to be caught.</td>
</tr>
<tr>
<td>Recreational harvest estimate</td>
<td>Retained (harvested) portion of the recreational catch estimated from information submitted by a group of representative recreational fishers.</td>
</tr>
<tr>
<td>Total allowable catch (TAC)</td>
<td>Total quantity of a given fish stock that the fishing industry are permitted to retain in a given year. Usually a total allowable commercial catch (TACC).</td>
</tr>
<tr>
<td>Total mortality estimate (Z)</td>
<td>The rate of mortality for a given stock, including both natural (M) and fishing induced (F) causes.</td>
</tr>
</tbody>
</table>

**Fishery acronyms**

- BSCF—Blue Swimmer Crab Fishery
- CRFFF—Coral Reef Fin Fish Fishery
- DWFFF—Deep Water Fin Fish Fishery
- ECIFFF—East Coast Inshore Fin Fish Fishery
- ECOTF—East Coast Otter Trawl Fishery
- ECSMF—East Coast Spanish Mackerel Fishery
- FFTF—Fin Fish (Stout Whiting) Trawl Fishery
- GOCDFFTF—Gulf of Carpentaria Developmental Fin Fish Trawl Fishery
- GOCIFFF—Gulf of Carpentaria Inshore Fin Fish Fishery
- GOCLF—Gulf of Carpentaria Line Fishery
- MCF—Mud Crab Fishery
- QEF—Queensland Eel Fishery
- Rec—recreationally targeted species
- RIBTF—River and Inshore Beam Trawl Fishery
- RRFFF—Rocky Reef Fin Fish Fishery
- SCF—Spanner Crab Fishery
**Introduction**

In November 2009, Fisheries Queensland (part of the Department of Employment, Economic Development and Innovation) embarked on a process to assess the exploitation status (stock status) of Queensland’s key fish stocks¹. Aimed at addressing increasing levels of stakeholder interest in the sustainability of Queensland fisheries, the process provides a comprehensive assessment of the status of our key stocks.

To facilitate the process, Fisheries Queensland developed the Stock Status Assessment Framework. The framework documents the transparent and consistent process used to determine a concise and agreed statement of the status of key fish stocks in Queensland waters. The process builds on a wide range of assessment tools already used by Fisheries Queensland in reviewing the sustainability of fishing activities on fish stocks and the broader ecosystem.

In a workshop, an expert panel of departmental scientists and managers assigned an appropriate exploitation category for a given species using a weight-of-evidence approach² by reviewing available biological and fishery information and guided by a set of exploitation criteria (refer to Stock Status Assessment Framework for detailed explanation of the criteria). Information sources reviewed included biological monitoring data (e.g. length and age), commercial catch and effort data from logbooks, recreational catch diaries, at-sea observer data, quantitative stock assessment results, research data, ecological risk assessments and performance indicator results. The assessment of the status of each stock also considered a wider range of factors including market drivers, fisher behaviour and weather effects. Table 1 summarises the exploitation categories.

The 2011 report outlines the results of the second round of stock status assessments conducted in 2010–11.

**Table 1: Description of exploitation categories used in the Queensland stock status assessment process**

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overfished</strong></td>
<td>Harvest levels may be exceeding sustainable levels and/or yields may be higher in the long term if the effort levels are reduced. The stock may still be recovering from previous excessive fishing pressure. Recovery strategies will be developed for all overfished stocks to reduce fishing pressure within prescribed timeframes.</td>
</tr>
<tr>
<td><strong>Sustainably fished</strong></td>
<td>Harvest levels are at, or close to, optimum sustainable levels. Current fishing pressure is considered sustainable.</td>
</tr>
<tr>
<td><strong>Not fully utilised (NFU)</strong></td>
<td>Resource is underutilised and has the potential to sustain harvest levels higher than those currently being taken.</td>
</tr>
<tr>
<td><strong>Uncertain</strong></td>
<td>There are inconsistent/contradictory signals in the information available that preclude determination of exploitation status with any degree of confidence.</td>
</tr>
<tr>
<td><strong>Undefined (*)</strong></td>
<td>Some information is available but no reasonable attempt can been made to determine exploitation status at this time. This may be due to the need for additional information or analyses to adequately determine stock status against the criteria. It should be noted that for this report, this category also includes stocks assessed under the version 1 of the framework as ‘No assessment made’. These are asterisked (*) throughout this report.</td>
</tr>
</tbody>
</table>

¹ Throughout this document the term ‘stock’ can represent a single species, a separate genetic or geographical stock or a group of species used for fisheries management purposes.

² A ‘weight-of-evidence’ approach assesses a species based on the evidence considered and meeting agreed criteria, decided by workshop participants with expertise in biology and/or the fishery for the species.
Changes in 2011

The ‘uncertain’ category was redefined to include those species where there were inconsistent/contradictory signals in the information available that preclude determination of exploitation status with any degree of confidence.

A new category of ‘undefined’ was included to capture those other species for which some information was available but no reasonable attempt could be made to determine exploitation status at the time of the workshop. This change is reflected in version two of the Stock Status Assessment Framework.

Key outcomes in 2011

Fisheries Queensland conducted four workshops in 2010–11 to determine the status of key stocks harvested in the line, pot, net, trawl and hand-harvest fisheries. The key outcomes were:

- 78 stocks were considered in total (68 east coast and 10 Gulf of Carpentaria stocks), compared to 62 in 2009–10.
- 24 stocks were considered ‘sustainably fished’, compared to 18 in 2009–10.
- 4 stocks were considered ‘not fully utilised’.
- 30 stocks did not have enough information available to be assessed against the criteria and were ‘undefined’.
- 19 stocks were considered ‘uncertain’. This was down from 25 in 2009–10 due to:
  - ten stocks moving from the ‘uncertain’ to ‘undefined’ status based on the revised definitions,
  - one stock (Moreton Bay bugs) being now considered sustainably fished in review of its status, and
  - a number of additional stocks (four) being considered for the first time.
- Only one stock was considered ‘overfished’ against the criteria – snapper. The Queensland Government implemented new management arrangements in September 2011 to address these issues. An updated quantitative stock assessment for snapper is planned for 2014.

A number of recreationally important species remained either ‘uncertain’ or ‘undefined’ due to the lack of recent statewide recreational fishing estimates. This information gap is being addressed in the Statewide Recreational Fishing Survey in 2010–11, with the results to be publically available in 2012. This survey will provide reliable catch estimates at a state and regional level for fish species commonly caught by Queensland’s recreational anglers.

Note on stocks classified as ‘uncertain’ or ‘undefined’

It is important to note that an ‘uncertain’ or ‘undefined’ status does not necessarily mean that the stock is at high risk from fishing activities. Rather it highlights where additional information is required to reduce uncertainty or make an assessment. Fisheries Queensland can now confidently prioritise future data collection activities to reduce uncertainty in stock status and ensure that fishery resources are harvested sustainably now and in the future.

Stock status of Queensland’s fisheries resources in 2011 – summary table

The outcomes of the 2010–11 stock status workshops are summarised in Table 2. More information regarding how the stock status exploitation status was determined for each stock is detailed in the following page/s dedicated to each species.

A number of stocks were considered initially in this year’s process but when reviewed during the workshop the expert panel decided that no assessment would be made as the stocks did not meet the initial criteria for inclusion (Table 3). These stocks will continue to be monitored each year and added back into the process if catches increase above defined levels.
<table>
<thead>
<tr>
<th>Species</th>
<th>Stock</th>
<th>Principal fishery</th>
<th>Stock Status</th>
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</thead>
<tbody>
<tr>
<td>Snapper (Pagrus auratus)</td>
<td>East coast</td>
<td>RRFFF/ Rec</td>
<td>Rec</td>
</tr>
<tr>
<td>Barramundi (Lates calcarifer)</td>
<td>East coast</td>
<td>ECIFFF/ Rec</td>
<td>Rec</td>
</tr>
<tr>
<td>Barramundi (Lates calcarifer)</td>
<td>Gulf of Carpentaria</td>
<td>GOCIFFF</td>
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<tr>
<td>Bream–yellowfin (Acanthopagrus australis)</td>
<td>East coast</td>
<td>ECIFFF/ Rec</td>
<td></td>
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<tr>
<td>Bugs–Moreton Bay (Thenus australiensis and T. parindicus)</td>
<td>East coast</td>
<td>ECOTF</td>
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<tr>
<td>Coral trout (Plectropomus and Variola spp.)</td>
<td>East coast</td>
<td>CRFFF/ Rec</td>
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<tr>
<td>Crab–blue swimmer (Portunus armatus)</td>
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<td>BSCF/ Rec</td>
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<tr>
<td>Crab–mud (Scylla spp.)</td>
<td>Gulf of Carpentaria</td>
<td>MCF</td>
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<td>Crab–three-spotted (Portunus sanguinolentus)</td>
<td>East coast</td>
<td>ECOTF / BSCF</td>
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<td>Flathead–dusky (Platycephalus fuscus)</td>
<td>East coast</td>
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<td>QEF</td>
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<td>Mackerel–Spanish (Scomberomorus commerson)</td>
<td>East coast</td>
<td>ECSMF/ Rec</td>
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<td>Mackerel–spotted (Scomberomorus munro)</td>
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<td>Prawn–banana (Fenneropenaeus merguiensis)</td>
<td>East coast</td>
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<td>Tropical rock lobster (Panulirus ornatus)</td>
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<td>Snapper–crimson (Lutjanus erythropterus)</td>
<td>Gulf of Carpentaria</td>
<td>GOCDFTF / GOCFL</td>
<td></td>
</tr>
<tr>
<td>Snapper–goldband (Pristipomoides multidens)</td>
<td>East coast</td>
<td>CRFFF / DWFFF</td>
<td></td>
</tr>
<tr>
<td>Snapper–hussar (Lutjanus adetii and L. vitta)</td>
<td>East coast</td>
<td>CRFFF</td>
<td></td>
</tr>
<tr>
<td>Snapper–rosy (Pristipomoides filamentosus)</td>
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<td>CRFFF / DWFFF</td>
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<tr>
<td>Snapper–saddletail (Lutjanus malabaricus)</td>
<td>East coast</td>
<td>CRFFF / DWFFF / Rec</td>
<td></td>
</tr>
<tr>
<td>Snapper–saddletail (Lutjanus malabaricus)</td>
<td>Gulf of Carpentaria</td>
<td>GOCDFTF / GOCFL</td>
<td></td>
</tr>
<tr>
<td>Squid–pencil (Uroteuthis spp.)</td>
<td>East coast</td>
<td>ECOTF/Rec</td>
<td></td>
</tr>
<tr>
<td>Threadfin–king (Polydactylus macrochir)</td>
<td>Gulf of Carpentaria</td>
<td>GOCIFFF</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Stock</td>
<td>Principal fishery</td>
<td>Stock Status</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Tuskfish (Choerodon spp.)</td>
<td>East coast</td>
<td>CRFFF / Rec</td>
<td></td>
</tr>
<tr>
<td>Amberjack (Seriola dumerili)</td>
<td>East coast</td>
<td>RRFFF/Rec</td>
<td></td>
</tr>
<tr>
<td>Bonito (Sarda spp.)</td>
<td>East coast</td>
<td>RRFFF / ECIFFF</td>
<td>*</td>
</tr>
<tr>
<td>Bugs–Balmain (Ibacus chacei and I. brucei)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Cobia (Rachycentron canadum)</td>
<td>East coast</td>
<td>RRFFF / Rec</td>
<td></td>
</tr>
<tr>
<td>Cuttlefish (Sepia spp.)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Emperor–grass (Lethrinus laticaudis)</td>
<td>East coast</td>
<td>RRFFF/Rec</td>
<td></td>
</tr>
<tr>
<td>Groper–bass (Polyprion americanus)</td>
<td>East coast</td>
<td>DWFFF</td>
<td>*</td>
</tr>
<tr>
<td>Javelin (Pomadasys spp.)</td>
<td>East coast</td>
<td>ECIFFF/Rec</td>
<td></td>
</tr>
<tr>
<td>Javelin (Pomadasys spp.)</td>
<td>Gulf of Carpentaria</td>
<td>GOCIFFF / Rec</td>
<td></td>
</tr>
<tr>
<td>Kingfish–yellowtail (Seriola lalandi)</td>
<td>East coast</td>
<td>RRFFF/Rec</td>
<td></td>
</tr>
<tr>
<td>Lobster–red champagne (Linuparus trigonus)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Mackerel–grey (Scomberomorus semifasciatus)</td>
<td>East coast</td>
<td>ECIFFF</td>
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</tr>
<tr>
<td>Octopus (Octopus spp.)</td>
<td>East coast</td>
<td>ECIFFF / FFTF</td>
<td></td>
</tr>
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<td>Prawn–coral (Metapenaeopsis spp.)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Prawn–greasyback (Metapenaeus bennetae)</td>
<td>East coast</td>
<td>ECOTF / RIBTF</td>
<td></td>
</tr>
<tr>
<td>Prawn–northern king (redspot and blue leg) (Melicertus longistylus and M. latisulatus)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Prawn–school (Metapenaeus macleayi)</td>
<td>East coast</td>
<td>ECOTF / RIBTF</td>
<td></td>
</tr>
<tr>
<td>Rockcod–goldspotted (Epinephelus coioides)</td>
<td>East coast</td>
<td>Rec</td>
<td>*</td>
</tr>
<tr>
<td>Scallop–mud (Amusium pleuronectes)</td>
<td>East coast</td>
<td>ECOTF</td>
<td></td>
</tr>
<tr>
<td>Sea cucumber–white teatfish (Holothuria fuscogilva)</td>
<td>East coast</td>
<td>ECBDMF</td>
<td></td>
</tr>
<tr>
<td>Sea cucumber–burrowing blackfish (Actinopyga spinea)</td>
<td>East coast</td>
<td>ECBDMF</td>
<td></td>
</tr>
<tr>
<td>Sharks</td>
<td>East coast &amp; Gulf</td>
<td>ECIFFF / GOCIFF</td>
<td>*</td>
</tr>
<tr>
<td>Snapper–moses (Moses perch) (Lutjanus russelli)</td>
<td>East coast</td>
<td>Rec</td>
<td>*</td>
</tr>
<tr>
<td>Squid–tiger (Sepioteuthis lessoniana)</td>
<td>East coast</td>
<td>ECIFFF / RIBTF / Rec</td>
<td></td>
</tr>
<tr>
<td>Teraglin (Atractoscion aequidens)</td>
<td>East coast</td>
<td>RRFFF / Rec</td>
<td></td>
</tr>
<tr>
<td>Threadfin–king (Polydactylus macrochin)</td>
<td>East coast</td>
<td>ECIFFF</td>
<td></td>
</tr>
<tr>
<td>Trevally (Carangidae)</td>
<td>East coast</td>
<td>ECIFFF/ RRFFF / Rec</td>
<td>*</td>
</tr>
</tbody>
</table>

**Notes:**
- **Overfished**
- **Sustainably fished**
- **NFU**
- **Not fully utilised**
- **Uncertain**
- **Undefined**
- * Stocks assessed under version one of the framework as ‘No assessment made’
- **Not assessed**
Table 3: Species examined but not considered further

<table>
<thead>
<tr>
<th>Species (all east coast stocks)</th>
<th>Reason for not being considered further</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prawn–tiger (black) (<em>Penaeus monodon</em>)</td>
<td>Less than 10 t was harvested in 2010 and 10 t in 2009. Harvest of black tiger prawns will be monitored annually and included in stock status process if catches by commercial fishers increase beyond 10 t.</td>
</tr>
<tr>
<td>Bream complex (other than yellowfin bream) (<em>Acanthopagrus spp.</em>)</td>
<td>The Queensland commercial fishery mainly harvests yellowfin bream although pikey bream (<em>A. berda</em>) is a major component of recreational and commercial catches in north Queensland. Should commercial or recreational interest in other bream species increase significantly, these may be considered in future assessments of stock status.</td>
</tr>
<tr>
<td>Flathead complex (other than dusky flathead) (<em>Platycephalidae</em>)</td>
<td>The commercial fishery mainly harvests dusky flathead. Should commercial or recreational catches of other flathead species increase significantly, these may be considered in future assessments of stock status.</td>
</tr>
<tr>
<td>Whiting complex (*Sillago spp. other than *S. robusta and <em>S. ciliata</em>)</td>
<td>The commercial fishery mainly harvests sand whiting. Should commercial or recreational interest in other whiting species increase significantly, these may be considered in future assessments of stock status.</td>
</tr>
<tr>
<td>Sea cucumber–black teatfish (<em>Holothuria whitmaei</em>)</td>
<td>The fishery for black teatfish is effectively closed with the total allowable catch currently set at zero tonnes. The species will not be assessed through the stock status process until it is scientifically demonstrated that stocks can sustain a commercial harvest and fishing for black teatfish recommences.</td>
</tr>
<tr>
<td>Sea cucumber–sandfish (including <em>Holothuria scabra</em>)</td>
<td>Sandfish, as identified by fishers in compulsory daily logbooks, represents a suite of species. There has been a varying level of reporting accuracy for sandfish in recent years and fishers have been unable to separate the harvest at the species level. Nonetheless, the combined harvest has not reached any of the sustainability reference points for the individual species in recent years. Fisheries Queensland will consider inclusion of sandfish species in the stock status assessment process should these thresholds be reached and when there is evidence that reporting at the species level has improved.</td>
</tr>
<tr>
<td>Dart complex (<em>Trachinotus spp.</em>)</td>
<td>Reported commercial catches are low, however the recreational fishing survey indicated about 120 t of dart were harvested in 2005. Catches of dart will be monitored and a threshold harvest level be developed for inclusion in the performance measurement system for the East Coast Inshore Fin Fishery.</td>
</tr>
<tr>
<td>Garfish complex (<em>Hemiramphidae</em>)</td>
<td>The complex comprises five distinct species across a number of different regions. No reasonable assessment of stock status could be made for the complex given this diversity. Attempts will be made to separate the commercial and recreational reporting of these species with a view to assessing individual species in future stock status workshops.</td>
</tr>
</tbody>
</table>
Stock background and status determination

The following stock status summary pages outline the following:

**Stock status 2011** – stock status in 2011

**Stock status 2010**– stock status in 2010 (previously reported as 2009–10)

**Principal fishery** – the Queensland fishery in which the stock is primarily harvested

**Justification** – short justification of why the stock was considered a particular status

**Information sources** – documents the information/data used by the workshop panel to determine status

**Comments** – outcomes of the workshop and provides background for the stock status classification. Some graphs detailing commercial catch and catch rates, and some biological data have been included. It is important to note that these graphs reflect only a small portion of the information considered at the workshop and have been included here to support comments provided on each page.

**Future assessment needs** – details future information inputs which would support current or future stock status assessments. Fisheries Queensland would need to consider the priority, costs and benefits of collecting additional information in the context of reducing uncertainty and demonstrating the sustainable management of fishery resources.

**Management response** – for stocks that are considered overfished or where management issues have been identified, a management response to address this will be provided. Fisheries Queensland plans to review and report on the status of Queensland’s key fish stocks on an annual basis.
Amberjack (*Seriola dumerili*)  
East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fish Fishery (RRFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches have been variable since 2004, ranging from 10–20 t per year. Commercial fishing appears to be market driven. Fisheries Queensland has collected limited length data but this may not be representative of the population. Recreational catch is not reported to species level (samsonfish/kingfish/amberjack grouping), but majority likely made up of amberjack (based on creel surveys). Charter catches also variable. No immediate sustainability concerns and therefore not a priority species for monitoring.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch
- Recreational catch estimates
- Charter logbook catch
- Performance measures

### Comments
Since 2004 commercial catches of have increased from around 5 t per year to around 15 t per year (Figure 1).

Commercial catches are likely to be market driven, and therefore sporadic in targeting behaviour. There may be the potential for high fishing pressure on local populations. The recent drop in the size limit for amberjack (from 75 cm to 50 cm) means that smaller fish recruited to the fishery may still be immature.

Recreational estimates for amberjack (from the 2005 survey) are grouped with samsonfish and kingfish due to problems with accurate identification of the three species. There were 24 000 fish reportedly harvested from this category. Charter catches in 2010 were around 7 t. Although there are no sustainability concerns for this stock currently, it was considered ‘undefined’ against the criteria.

### Future assessment needs
Amberjack will continue to be monitored through the annual stock status process, and through the annual performance measures calculations. An updated recreational estimate will be available in 2012.

For more information see the latest ASR for the RRFFF.

Figure 1: Commercial catch (t) and catch rate (kg/day) of amberjack, reported in logbooks 2000–10.
Barramundi (Lates calcarifer)  

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
</tbody>
</table>

**Principal fishery**
East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational

**Justification**
Commercial catches are stable and within historical levels. Catch and catch rate performance measures were not triggered in 2010. There is a good range of fish lengths and ages across several years of sampled populations. Strong recruitment is evident in the northern genetic stock. Studies of barramundi in the Fitzroy catchment indicate harvest levels are healthy and below sustainable yield estimates.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Fishery dependent length and age information (2007–10)
- Published local biological information

**Comments**
In 2010 approximately 254 t of barramundi was harvested in the ECIFFF. Commercial catches and catch rates to 2010 were stable (Figure 2), and the performance measures did not trigger.

The Long Term Monitoring Program (LTMP) routinely collects fishery dependent samples for ageing from regions that correspond to the genetic and catchment related distribution of barramundi along the east coast. Assessment of barramundi population age structures indicated strong recruitment into the fishery in the north east region in 2009 and the central region in 2010. A good range of fish lengths and ages across several years was also evident in the sampled populations. These data will be considered in future stock assessments of east coast barramundi.

**Future assessment needs**
The following information needs will improve stock status certainty:
- annual estimates of fingerlings stocked within impoundments/open systems and quantifying this into commercial and recreational catches
- regional separation of catch and catch rates to better match genetic regions
- new performance measures developed at appropriate spatial scales
- a stock assessment of east coast barramundi
- regionally separated estimates of recreational harvest of barramundi. The statewide recreational fishing survey results will be available in 2012.

For more information see the latest ASR for the ECIFFF.

**Further reading**

![Figure 2: Commercial net catch (t) and catch rates (kg/day and kg/100 m net/day) reported in logbooks 2002–10.](image)
**Barramundi (Lates calcarifer)**

**Gulf of Carpentaria**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches are stable and within historical levels. Catch and catch rate performance measures were not triggered in 2010. Strong recruitment is evident in southern stocks but less so in northern stocks. There has been no significant change in the range of fish lengths and ages in several years of sampled populations.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort data
- Recreational catch estimates
- Charter logbook catch and effort data
- Fishery dependent length and age information (2007–10)
- Performance measures

**Comments**
Current information suggests that barramundi stocks in the Gulf of Carpentaria are healthy. Commercial harvest of barramundi in the GOCIFFF decreased slightly in 2010 to 730 t (Figure 3). Catch rates also decreased slightly, however, performance measures were not triggered.

There is evidence supporting the existence of two main genetic stocks in the Gulf of Carpentaria fishery with the north-south separation point at about Aurukun. Despite there being no data to suggest that an unsustainable level of fishing pressure is being placed on these areas and their fish stocks, future assessments will be stratified to account for stock differentiation and performance measures developed for these meta-populations.

**Future assessment needs**
The following information needs will improve stock status certainty:
- Regional separation of catch and catch rates to better match genetic regions.
- New performance measures developed at appropriate spatial scales.
- A stock assessment of GOC barramundi.

- Regionally separated estimates of recreational harvest of barramundi. The statewide recreational fishing survey results will be available in 2012.
- Annual estimates of fingerlings stocked within impoundments/open systems and quantifying this into commercial and recreational catches.

For more information see the latest ASR for the GOCIFFF.

**Further reading**

![Figure 3: Commercial catch (t) and catch rate (kg/100 m net/day) reported in logbooks 2000–10. Minimal catches reported from Queensland Fisheries Joint Authority (QFJA) permits.](image)

Stock status of Queensland's fisheries resources 2009–10
Blue eye trevalla (*Hyperoglyphe antarctica*)

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Deep Water Fin Fishery (DWFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Blue eye trevalla comprises the highest catch (36 t) of any species in the deep water fishery in 2009–10. No local biological information is available. The species is at its northern limit in Queensland, and it should be noted that New South Wales (NSW) has assigned a status of ‘fully fished’ to their stocks. More information on catch and effort details will be gathered through the observer program in 2011.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Published international biological information
- NSW stock status results

**Comments**

Blue eye trevalla (*Hyperoglyphe antarctica*) is considered a primary commercial species in the DWFFF. The majority of commercial harvest occurs in the southern part of the state, with southern Queensland considered the northern limit of the species. In 2009–10, 36 t of blue eye trevalla was reported in the DWFFF (L8) logbook (Figure 4).

There is currently no information available regarding the level of recreational take for this species. This will be rectified in the Statewide Recreational Fishing Survey, which is currently collecting updated recreational fishing information on blue eye trevalla catch. In 2009–10, NSW fisheries resource assessment results listed blue eye trevalla as ‘fully fished’ and in the Commonwealth Trawl and Scalefish Hook sectors it is considered ‘not overfished/not subject to overfishing’. In Queensland waters, blue eye trevalla was considered ‘uncertain’ due to a lack of localised biological information to assess against the criteria.

**Future assessment needs**

The current commercial fisher logbook for the deep water fishery was only introduced in 2007. Better estimates of species specific catch and effort in the DWFFF are now being collected.

In 2011, the Fisheries Observer Program has focused its efforts on Queensland’s line fisheries to better quantify catch composition and effort in deeper waters. Results will be available for consideration in the next stock status assessment.

For more information see the latest ASR for the DWFFF.

**Further reading**


Figure 4: Commercial catch (t) of blue eye trevalla, reported in logbooks 1999–00 to 2009–10.
**Bonito (Sarda spp.)**

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>No assessment made</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fish Fishery (ECIFFF) / Rocky Reef Fin Fish Fishery (RRFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>South East Queensland is the northern extent of the species range. A better understanding of recreational catch component for this species is required, which may be significant. There is potential for it to be misreported as mackerel tuna.</td>
</tr>
<tr>
<td>Species complex</td>
<td>Australian bonito (<em>Sarda australis</em>), leaping bonito (<em>Cybiosarda elegans</em>), striped bonito (<em>Sarda orientalis</em>)</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch
- Charter logbook catch
- NSW stock status results

**Comments**

The bonito species complex is considered to be primarily a recreational species, although in 2010 commercial catches recorded an all time high of 40 t (Figure 5). Approximately half was line caught (L1 symbol) with the other half reported by net fishers. The bonito stock are believed to be at their most northern range in south east Queensland.

There is currently no recreational estimate as the species catch information was not previously recorded. The new statewide recreational fishing survey to be completed in 2012 will provide the first estimate of recreational catch for this species complex, which is likely to include other small scombrids including mackerel tuna.

In 2009–10, NSW fisheries resource assessment results listed Bonito (*Sarda australis*) as ‘fully fished’. There are no sustainability concerns relating to this species complex.

**Future assessment needs**

A recreational estimate for bonito will be available in 2012 and will be considered at the next stock status workshop for this species complex.

For more information see the latest [ASR](#) for the RRFFF and the ECIFFF.

![Figure 5: Commercial catch (t) of bonito by line (L1, L2 and L3 symbols) and by net, reported in logbooks 2000–10.](#)
**Bream–yellowfin** (*Acanthopagrus australis*)  
*East Coast*

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fishery (ECIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches decreased while catch rates increased. Performance measures triggered in 2010. The Minimum Legal Size (MLS) increase from 23 cm to 25 cm coupled with the closure to fishing of parts of the Moreton Bay region are the likely causes for the lower catches. Sampled populations have displayed a good representation of ranges of fish lengths and ages over time. Total mortality estimates are below upper limits. Precautionary management arrangements introduced on 1 March 2010 increased the proportion of female fish that are likely to have spawned before recruiting to the fishery.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent length and age information (2007–10)
- Published local biological information

**Comments**
Yellowfin bream is considered a secondary commercial species in the ECIFFF, but is also a very popular recreational species. The majority of commercial and recreational harvest of yellowfin bream occurs south of Baffle Creek near Bundaberg.

The performance measure relating to catch was triggered in 2010 with a large decrease in commercial catch (Figure 6). This is likely due to a combination of the recently increased MLS and closures associated with the Moreton Bay Marine Park where much of the commercial harvest of yellowfin bream occurred.

Long term biological monitoring of commercial and recreational catches indicates yellowfin bream populations are healthy with good representation of ranges of fish lengths and ages (Figure 7) in the sampled populations over time and derived estimates of total mortality below upper threshold limits.

Female yellowfin bream reach maturity at 24 cm while males mature at a slightly smaller size. The recent increase (1 March 2010) to the minimum legal size of 25 cm improves the chances of fish reproducing before they are legally allowed to be retained.

**Future assessment needs**
The following information needs will improve stock status certainty:
- Separation of yellowfin bream from other bream in commercial fisher logbooks.
- Separation of catch and catch rates to account for suggested regional differences.
- More accurate, regionally separated estimates of recreational harvest of yellowfin bream. A statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

For more information see the latest **ASR** for the ECIFFF.
Further reading


Figure 7: Relative abundance of yellowfin bream in different age groups, 2008 to 2010.
Bugs–Balmain (*Ibacus chacei* and *I. brucei*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Two species were considered in the assessment but landings are dominated (80%) by <em>I. chacei</em>. Conservative minimum legal sizes allow spawning to occur before harvest; however, there is insufficient biological information and reliable catch rate information to classify the sustainability status of Balmain bugs.</td>
</tr>
</tbody>
</table>
| Species complex  | Smooth bug (*Ibacus chacei*)  
Shovel-nosed bug (*Ibacus brucei*) |

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

**Comments**

Balmain bugs are taken by commercial fisheries in Queensland and New South Wales (NSW). Landings of Balmain bugs and nominal catch-per-unit-effort are variable and fluctuate with effort in the deepwater eastern king prawn trawl sector, where Balmain bugs are predominantly taken. Since 2001 Queensland landings have ranged from 56–142 t. Almost all Balmain bugs landed in Queensland are taken in the ECOTF which harvested 96 t of Balmain bugs in 2010 (Figure 8). Negligible quantities (<0.5 t per year) are also landed from the Fin Fish (Stout Whiting) Trawl Fishery. In 2008–09, NSW Balmain bug landing levels were about 25% of Queensland levels.

Currently there is insufficient biological information to classify the stock status of Balmain bugs as anything other than ‘undefined’. However, the risk of overfishing Balmain bugs is considered to be low in waters south of the Great Barrier Reef Marine Park where the majority of these species are taken.

**Future assessment needs**

Collection and analysis of length-frequency data and catch and effort data from high catching areas is required to effectively assess the sustainability status of Balmain bugs.

For more information see the latest ASR for the ECOTF.

**Further reading**


![Graph showing commercial catch (t) and catch rate (kg/day) of Balmain bugs, reported in logbooks 2001–10.](image-url)
Bugs—Moreton Bay
(*Thenus australiensis* and *T. parindicus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
</tbody>
</table>

**Principal fishery**
East Coast Otter Trawl Fishery (ECOTF)

**Justification**
Two species were considered in this assessment. Great Barrier Reef Marine Park (GBRMP) closures act to protect Moreton Bay bug biomass. Introduction of a minimum legal size (MLS) based on yield-per-recruit modelling and the use of square-mesh cod-ends has reduced the risk of overfishing small bugs. Turtle excluder devices have reduced the risk of overfishing large bugs. Landings are steady while catch rates are increasing due to a reduction in effort in the fishery.

**Species complex**
Reef bug (*Thenus australiensis*), mud bug (*Thenus parindicus*)

**Information sources**
- Commercial logbook catch and effort
- Great Barrier Reef Seabed Biodiversity Study biomass estimates
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

**Comments**
The majority of the Moreton Bay bug harvest is taken in the ECOTF. Landings have been steady in recent years, ranging from 317–486 t. In 2010, 436 t of Moreton Bay bugs were harvested (Figure 9). Performance measures were not triggered in 2008 and 2009.

Catch rate is increasing possibly due to more efficient targeting by fewer vessels and reducing effort in the fishery. Preliminary risk assessment findings determined that the risk of overfishing is considered low in the GBRMP, where most of the Moreton Bay bug harvest is taken.

Moreton Bay bugs are considered ‘sustainably fished’ based on stable total landings over the last eight years, and the protection of the stock afforded by the suite of management arrangements in place.

**Future assessment needs**
Length frequency data is required to assess the effect of management changes to the stock. Additional analysis of catch and effort data from historically high catch areas off Gladstone and Townsville would enable development of improved performance measures. For more information see the latest ASR for the ECOTF.

**Further reading**


![Graph](image_url)

**Figure 9:** Commercial catch (t) and catch rate (kg/day) of Moreton Bay bugs reported in the logbook.
Cobia (*Rachycentron canadum*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
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</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fish Fishery (RRFFF) / Recreational / East Coast Inshore Fin Fish Fishery</td>
</tr>
<tr>
<td>Justification</td>
<td>Historical catch rates are variable. Limited biological information has been collected for this species, however, there is low sustainability concern due to fast growth of juveniles—fish recruit to the fishery within 12 months. An updated recreational harvest estimate is also needed to make a more informed decision.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent length information (2006–10)
- Performance measures

**Comments**
Commercial cobia catch has increased since 2001, with peak catches in 2006 and 2008 (37 t and 39 t respectively, Figure 10). Catch in 2010 decreased to around 24 t, corresponding with an effort decrease from 51 days in 2009 to 21 days in 2010. Cobia catches (by weight) make up the third biggest component of the commercial RRFFF, after snapper and pearl perch. Charter catch is around 11 t per year. The harvest estimate for recreationally caught cobia from the 2005 survey was approximately 283 t, using an average weight of 9.15 kg per fish, based on 2007 unvalidated size structure estimates from Fisheries Queensland fishery dependent sampling. The minimum legal size for cobia is 75 cm. Cobia attracts a beach price of around $6/kg.

Analysis of fishery dependent length information indicated a fair representation of size classes present in the catch from the commercial, recreational and charter sectors, and did not indicate any concerns for the stock (Figure 11). However, due to the small number of samples collected each year for this species (between 18 and 147 fish per sector, per year), it was noted that the data may not be truly representative of the whole stock.

No sustainability concerns have been raised regarding cobia, particularly given the fast growth of juveniles, which recruit to the fishery within approximately 12 months. Cobia was considered ‘undefined’ in the 2008–09 NSW stock status assessment. The status of this stock moved from ‘uncertain’ last year to ‘undefined’ based on the new criteria (see Framework for Defining Stock Status, Version 2 April 2011).

**Future assessment needs**
Fisheries Queensland collects cobia otoliths opportunistically as part of its fishery dependant sampling (targeting other species). Considering the small number of samples collected and the low sustainability concerns for cobia, it is unlikely these otoliths will be aged in the immediate future. The Statewide Recreational Fishing Survey will provide an updated catch estimates for the species in 2012.

For more information see the latest ASR for the RRFFF.

**Figure 10:** Commercial catch (t) and catch rate (kg/day) of cobia, reported in logbooks 2000–10.
Further reading


Figure 11: Length frequencies of cobia retained by different groups, 2008–10. Fish included in ‘charter’ are fish caught recreationally on charter vessels.
**Coral trout (Plectropomus spp. and Variola spp.)**  
East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Catch decreased from 1110 t in 2008–09 to 922 t in 2009–10, possibly reflecting a delayed response to impacts following Tropical Cyclone Hamish in March 2009. Performance measures relating to catch, catch rate and mortality were not triggered. Long term monitoring data indicates good recruitment of two-year-olds to the fishery.</td>
</tr>
<tr>
<td>Species complex</td>
<td>Common coral trout (Plectropomus leopardus), barcheek coral trout (Plectropomus maculatus), bluespotted coral trout (Plectropomus laevis), passionfruit coral trout (Plectropomus areolatus), yellowedge coronation trout (Variola louti), white-edge coronation trout (Variola albimarginata).</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Coral trout quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery independent length and abundance information (2005–09)
- Mortality estimates
- Performance measures
- Published local biological information

**Comments**

The annual catch and catch rates of coral trout have increased gradually since quota was introduced in 2004–05, with almost 100% of the 1350 t quota being utilised each year (Figure 12). However, in 2009–10, only 80% of the available quota was utilised. Recent cyclonic events are believed to be responsible for damage to fishing grounds and subsequent reduction in fishing effort.

The coral trout stock is considered to be sustainably fished based on the results of monitoring activities undertaken by Fisheries Queensland. Performance measures relating to total mortality did not trigger in 2009–10. Age data indicated good recruitment of two-year-olds to the fishery (Figure 13). Population structure indices all reflected good stock conditions.

**Future assessment needs**

The estimates of natural mortality (M) for coral trout are based on the estimate used by Little et al. (2008) from age-based catch curves. Refinement of this estimate from cohort-specific age-based catch curves is expected in future.

A three-year Fisheries Research and Development Corporation (FRDC) funded project relating to defining the monitoring and management requirements for coral trout is being developed, called ‘Evaluating Candidate Monitoring Strategies, Assessment Procedures and Harvest Control Rules in the Spatially Complex Queensland Coral Reef Fin Fish Fishery’.

The research will use the ELFSim (Effects of Line Fishing Simulation) tool developed under previous FRDC projects to identify the input data needed to develop a harvest strategy for the fishery and develop a cost-effective monitoring program. The outputs will be used by Fisheries Queensland to develop a coral trout harvest strategy for the commercial sector. For more information see the latest ASR for the CRFFF.

**Figure 12: Commercial catch (t) and catch rate (kg/boat day and kg/dory day) of coral trout reported in the logbook.**
Further reading


Figure 13: Relative abundance of common coral trout in different age groups, from 2008–09 and 2009–10.
Crab—blue swimmer (*Portunus armatus*)

**Stock status 2011**: Sustainably fished

**Stock status 2010**: Sustainably fished

**Principal fishery**: Blue Swimmer Crab Fishery (BSCF) / Recreational

**Justification**

The lowest reported annual catch in over a decade was reported in 2010. Catch rates also fell significantly with a decrease in the number of operators and fishing effort days. Analysis of fishery independent blue swimmer crab pre-recruit survey data is expected to further assist in the determination of the resource status assessment. A more reliable index of commercial effort would result in a more confident catch rate estimate, as will an updated recreational catch estimate (available mid 2012). There are currently no sustainability concerns for this species given the management arrangements, which protect a large proportion of the stock.

**Information sources**

- Commercial logbook catch and effort
- Recreational catch estimates
- Charter catch estimates
- Fishery dependent data (1997–2001)
- Performance measures
- Published local biological information

**Comments**

The annual commercial catch of blue swimmer crabs decreased significantly from 778 t in 2009 to 512 t in 2010 (pot and trawl combined, Figure 14). Fishing effort also decreased between 2009 and 2010 with fishing effort days dropping 23% and 18% in pot and trawl fisheries respectively (Figure 14). Data indicates that the increase of in-possession limits for trawlers outside of Moreton Bay did not affect the already existing fluctuations in trawl fishery catch and effort.

Regional breakdown of logbook data continues to identify two high catch and effort regions—Sunshine Coast to Fraser and Moreton Bay (refer to the Annual Status Report for regional map). Harvest in these regions contributed over 96% of the annual blue swimmer crab catch for the east coast.

Fishery dependent size frequency data collected between 1997 and 2001 shows a consistent distribution of individuals across carapace width classes within the Moreton Bay region. Regional breakdown also confirms the migration of larger crabs offshore to locations such as Hervey Bay.

In 2010, performance measures detected changes in catch associated with the whole fishery, North Queensland, Capricorn and the Sunshine Coast to Fraser regions. Triggered performance measures resulted from lower than average catch in 2010. There is no evidence to suggest any chronic or incremental changes, which would indicate sustainability concerns for blue swimmer crab stock. The presence of strict management arrangements including conservative MLS and prohibition on the harvest of females reinforces the current sustainability status.

A recent taxonomic revision of the blue swimmer crab species complex *Portunus pelagicus* has lead to the recognition of four separate species. The species of blue swimmer crab harvested in Queensland waters is now recognised as *P. armatus* (formerly *P. pelagicus*) (Lai et al. 2010).

**Future assessment needs**

An improved index of effort is required to strengthen the reliability of catch rate and existing trends illustrated in BSCF. This task is directly linked to logbook reporting and Fisheries Queensland is yet to investigate the cost-effectiveness of undertaking this initiative.
A credible index of abundance would further strengthen the assessment of the status of the resource. Analysis of the Fisheries Queensland fishery independent blue swimmer crab pre-recruit data from Moreton Bay (2007 onwards) has been postponed in order to expand the time series of data, ensuring the most robust outcome possible.

As with many fisheries, a current accurate recreational catch estimate would be valuable in determining the overall removals of the blue swimmer crab resource. A revised recreational catch estimate will be available in 2012 and considered at the next stock status workshop. This survey will provide regionally separated estimates for the east coast and Gulf of Carpentaria.

For more information see the latest ASR for the BSCF.

Further reading


![Figure 14: Total commercial pot and trawl catch (t) and catch rates (kg/day) of blue swimmer crabs reported in logbooks 2000–10.](image-url)
Crab—mud (*Scylla* spp.)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Mud Crab Fishery (MCF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>In 2010, 1015 t of mud crabs were commercially harvested on the Queensland east coast, which is the second highest annual catch reported in the last decade. Commercial catch has steadily increased since 2005 and catch rate continues to increase with the highest catch per day reported in 2010. Population size frequency seems stable but show a smaller number of males present in the larger size classes over time. A more reliable index of commercial effort would result in a more confident catch rate estimate and strengthen any identified trends in the data, as will an updated recreational harvest estimate (available 2012).</td>
</tr>
</tbody>
</table>
| Species complex | Mud crab (*Scylla serrata*)
Orange mud crab (*Scylla olivacea*) |

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter catch estimates
- Fishery independent data (2000–09)
- Performance measures
- Published local biological information

**Comments**
Commercial catches and catch rates of mud crabs have been increasing steadily since 2005 (Figure 15). In 2010, the east coast component of the MCF recorded increases of 16% for total annual catch and catch rate (Figure 15)—suggesting a larger abundance of legal size males and/or an increase in the catchability of individuals. The majority of Queensland’s mud crab harvest is caught from the east coast (85%), with the remainder harvested in the Gulf of Carpentaria. Regional breakdown of logbook data identifies east coast South Central as the highest catch and effort region in the east coast component of the MCF (see Annual Status Report for regional map).

Fishery independent monitoring data collected between 2000 and 2009 indicates that while there are stable size distributions (carapace width classes) of mud crabs on the east coast and a high proportion of recruits entering the fishery each year, there is also loss of male mud crabs in the larger size classes (Figure 16). The South East Queensland region in particular recorded a lower proportion of crabs in larger size classes—a result of high fishing pressure associated with high population centres.

In 2010, performance measures detected changes in catch and catch rate for the east coast South Central region. The triggered performance measures resulted from higher than average catch and catch rates in 2010. Anecdotal evidence from fishers supports the commercial logbook data suggesting that 2010 was one of the best years for mud crab catches.

Although there is no evidence to suggest any chronic or incremental changes, which would indicate sustainability concerns for mud crabs, the east coast stock is considered ‘uncertain’ given the high catches and fishing pressure on the east coast and unreliable index of abundance due to poor effort reporting in logbooks.

**Future assessment needs**
An improved index of effort is required to strengthen the reliability of catch rate and existing trends illustrated in the MCF. Issues have been identified with the quality of logbook data. More accurate and meaningful recording of effort in the commercial logbooks is important for the east coast component of the MCF due to the high number of operators and fishing pressure.
The east coast mud crab stock is being monitored in 2011 as part of the Fisheries Observer Program, which will provide a means of validating commercial logbook data. Analysis of the Fisheries Queensland Fisheries Observer Program may aid the resource status assessment.

A credible indicator of abundance resulting from reliable effort figures would also help to confirm the status of the east coast mud crabs stock in areas of high commercial and recreational fishing pressure.

A current and accurate recreational catch estimate is necessary to determine the overall removals of the mud crab resource as the extent of fishing pressure being exerted by high population centres on the east coast is currently unknown. A revised recreational catch estimate will be available in 2012. This survey will provide regionally separated estimates for the east coast and Gulf of Carpentaria.

For more information see the latest ASR for the MCF.

Figure 15: Total commercial catch (t) and catch rate (kg/day) of east coast mud crabs reported in logbooks, 2000–10.

Figure 16: Number of mud crabs caught from each size group in 2006, 2008 and 2009 by independent sampling. This distribution pattern was reflected in the previous sampling years (2001–08, not shown).
Crab—mud (*Scylla* spp.)

**Gulf of Carpentaria**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Mud Crab Fishery (MCF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Historical commercial catch levels and catch rates are variable. Between 2008 and 2010 the harvest of mud crabs in the Gulf of Carpentaria (GOC) was high, but within historically sustained levels. Catch rates continue to illustrate fluctuating trends. Size frequencies show no significant change in the distribution of individuals across size classes and consistently show a high representation of large males. Improved total and regional recreational catch estimates, which will discriminate between the GOC and the east coast, will provide more confidence in total harvest estimates and stock status (available 2012).</td>
</tr>
<tr>
<td>Species complex</td>
<td>Mud crab (<em>Scylla serrata</em>), orange mud crab (<em>Scylla olivacea</em>)</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter catch estimates
- Fishery independent data (2000–09)
- Performance measures
- Published local biological information

**Comments**
Commercial catch and catch rate of mud crabs in the GOC has been variable over the long term (Figure 17). In recent years (2008–10) total annual catch has been high but within historically sustained levels (Figure 17)—potentially resulting from an increase in fishing effort, a larger abundance of legal size males and/or an increase in the catchability of individuals. In 2010, mud crab catch in the GOC contributed less than 15% to the total Queensland catch. Less than 18% of active Queensland licences operate within this area. Regional breakdown of the GOC logbook data identifies the GOC South as the high catch region, more than doubling the catch per day produced by the neighbouring GOC North region.

Fishery independent monitoring data collected between 2000 and 2009 indicates that there has been no significant change in the size distributions (carapace width classes) of mud crabs in the GOC (Figure 18). The GOC shows a higher proportion of males in the larger size classes than the east coast, which may be due to lower fishing pressure in the area. Fishery independent catch rate has been variable over time, which may reflect environmental factors such as river/freshwater flows or consistency in sampling.

In 2010, performance measures detected changes in catch for the GOC North region. The triggered performance measure resulted from higher than average catch. There is currently no evidence to suggest any chronic or incremental changes occurring in the fishery reinforcing the sustainability of the stock.

**Future assessment needs**
A current and accurate recreational catch estimate would add value by determining the overall removals of the mud crab resource. A revised recreational catch estimate will be available in 2012, providing regionally separated estimates required to make comparisons between high population centres along the east coast and effort pulses associated with remote areas of the GOC.

If an improved index of effort is being developed for the east coast component of the MCF, outcomes will certainly benefit the GOC stock although there is no evidence to suggest any uncertainty in logbook analysis.

For more information see the latest [ASR](#) for the MCF.
Figure 17: Total commercial catch (t) and catch rate (kg/day) of mud crabs (east coast stock), reported in logbooks 2000–10.

Figure 18: Number of mud crabs (GOC stock) caught from each size class in 2006, 2008 and 2009 by independent sampling. This distribution pattern was reflected in the previous sampling years (2001–08, not shown).
Crab–spanner (*Ranina ranina*)

**East Coast**

<table>
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<tr>
<th>Stock status 2011</th>
<th>Not fully utilised</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not fully utilised</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Spanner Crab Fishery (SCF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Current commercial catch levels are significantly less than historically sustained levels. Fishers are catching spanner crabs to meet the current market demand, which is lower than in previous years. Size frequency graphs show a broad distribution of individuals across size classes, with a higher representation of females during the 2010 survey than in previous years. Total allowable catch (TAC) is currently underutilised. In 2010 the annual commercial catch equated to less than 59% of the available quota; the lowest proportion of the TAC caught since the TAC Review introduced the 1923 t quota in 2006. There are currently no sustainability concerns for this species.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Quota usage
- Stock indicators and Total Allowable Catch (TAC) review reports
- Recreational catch estimates
- Fishery independent data (2000–10)
- Performance measures
- Published local biological information

**Comments**

The SCF TAC has not been reached in the past decade. In 2010, the commercial harvest of spanner crabs was less than 59% of the available quota. Recent decreases in catch are associated with a decrease in market demand, resulting in reduced saleable quantities of spanner crabs by the fleet. In 2010 catch rate increased slightly following the significant drop in catch per dilly reported between 2008 and 2009 (Figure 19). Regional breakdown of logbook data continues to identify Region 4 as the highest catch and effort location in the SCF (refer to ASR for regional breakdowns and management areas).

Fishery independent monitoring data collected annually between 2000 and 2010 indicates stable size distributions. Catch rates during the 2010 survey were higher than those of the previous year in all management regions.

Performance measures were not triggered for this species during 2010. There is currently no evidence to suggest any chronic or incremental changes occurring in the SCF, hence there are no sustainability concerns for this species.

For more information see the latest ASR for the SCF.

**Further reading**


**Figure 19**: Total commercial catch (t) and catch rate (kg/dilly lift) of spanner crabs reported in logbooks.
### Crab—three-spotted (*Portunus sanguinolentus*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF) / Blue Swimmer Crab Fishery (BSCF)</td>
</tr>
<tr>
<td>Justification</td>
<td>A minimum legal size (MLS) based on yield-per-recruit modelling and a prohibition on take of females protects undersized and spawning females. Risk of overfishing in the ECOTF is considered low. ECOTF landings in 2010 increased from previous historical low catches in 2008 and 2009. The three-spot crab is considered sustainably fished due to protection afforded by management arrangements. These arrangements, which maintain the spawning stock, ensure it is not targeted. Ecological risk assessments suggest low risk from trawling.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

### Comments

The commercial three-spotted crab harvest is a by-product species in the ECOTF and the BSCF. Landings have been increasing in recent years, but were at historically low levels in the ECOTF in 2008 and 2009. In 2010, 32 t of three-spotted crabs were harvested, 17 t in the ECOTF and 15 t in the BSCF (Figure 20). Catch rates in the ECOTF are steady while in the BSCF they are increasing (Figure 20).

Three-spotted crabs are resilient to capture by trawling and survive discarding well. Since 2002, a 10 cm carapace width MLS based on yield-per-recruit modelling and a prohibition on take of females has protected undersized and spawning stocks of three-spotted crabs and reduced the risk of overfishing to a low level.

For more information see the latest ASR for the ECOTF.

### Further reading


Figure 20: Total commercial pot and otter trawl catches (t) and catch rates (kg/day) of three-spot crabs, reported in logbooks 2001–10.
# Cuttlefish (*Sepia* spp.)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal Fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Several cuttlefish species are harvested commercially in Queensland by trawling. Since 2002, harvest levels have been steady. Lower cuttlefish commercial catches in 2008 were followed by higher catch levels and catch rates in 2009 and 2010. Biological information for cuttlefish is lacking, however ECOTF ecological risk assessment results indicate a low risk to the sustainability of cuttlefish.</td>
</tr>
<tr>
<td>Species complex</td>
<td><em>Sepia opipara</em>, <em>S. plangon</em>, <em>S. roSELLA</em>, <em>S. whitleyana</em> and <em>S. papuensis</em></td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local and non-local biological information
- Scientific research
- ECOTF ecological risk assessment findings

**Comments**
Approximately 93% of the commercial cuttlefish harvest is taken in ECOTF and the remainder in the Fin Fish (Stout Whiting) Trawl Fishery and the River and Inshore (Beam Trawl) Fisheries. At least three cuttlefish species taken in the ECOTF are also taken in the NSW Ocean Trawl Fisheries. Queensland landings have been steady in recent years, averaging 32 t since 2002. In 2010, 28 t of cuttlefish were harvested commercially in Queensland. Catch rates in the ECOTF increased between 2009 and 2010 (Figure 21). In general, years with lower cuttlefish landings are related to lower cuttlefish retention rates when the target species, eastern king prawn landings are higher.

The recent ECOTF ecological risk assessment determined that the risk of overfishing cuttlefish at the 2010 effort levels is low. Widespread adoption of effective bycatch reduction devices (square mesh codends) should further reduce risk to the sustainability of cuttlefish. Research has found that catch rates of small (15–40 mm mantle length) cuttlefish are significantly lower in square mesh codends, while large (81–159 mm mantle length) size classes are unaffected, compared to a standard diamond mesh codend (T. Courtney, pers. comm.).

For more information see the latest ASR for the ECOTF.

**Further reading**


![Graph](image-url)  
**Figure 21:** Total commercial catch (t) and catch rate (kg/day) landed from otter trawling, reported in logbooks.
Freshwater Eel

*(Anguilla australis and A. reinhardtii)*

<table>
<thead>
<tr>
<th><strong>Stock status 2011</strong></th>
<th><strong>Sustainably fished</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stock status 2010</strong></td>
<td><strong>Sustainably fished</strong></td>
</tr>
<tr>
<td><strong>Principal fishery</strong></td>
<td>Queensland Eel Fishery (QEF)</td>
</tr>
<tr>
<td><strong>Justification</strong></td>
<td>Recent commercial catch and catch rates of adult eels are less than historically sustained levels. Juvenile eel data continues to illustrate fluctuating trends. The harvest of both life cycle stages are heavily dependant on environmental factors and market driven forces. Adult and juvenile eel commercial catch and catch rate performance measures were not triggered in 2010. Length frequency graphs show healthy distribution of individuals across length classes for nine consecutive years. Current fishing pressure is considered sustainable under the current management regime, particularly due to strict conditions related to permitted fishing areas.</td>
</tr>
<tr>
<td><strong>Species complex</strong></td>
<td>Longfin eel (<em>Anguilla reinhardtii</em>), southern shortfin eel (<em>Anguilla australis</em>)</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local and non-local biological information

**Comments**

The freshwater eel stock is unique in that both adult and juvenile life cycle stages are harvested by the QEF. The adult eel fishery is the larger of the two components with the juvenile eel fishery typically harvesting less than 1% of the total harvest (by weight). Both the adult and juvenile eel data sets have been combined for the purpose of assigning a single stock status. Both species are reported through the commercial logbook as a species complex.

The longfin eel, caught by majority in the QEF, are believed to be panmictic, belonging to a single genetic stock. Panmixia means that the stock-recruitment relationship is likely to be weak and that recruitment of juveniles into individual river systems is highly variable and random.

The commercial catch of juvenile and adult eels is variable over time and current total annual catches are within historical levels (Figure 22).

Inter-annual variability in catch and effort is a result of market driven forces and natural fluctuations in populations resulting from environmental factors such as drought.

Fishery independent monitoring data over nine years indicates stable length distributions in adult eels. There is no current evidence of an overall decline in adult eel abundance in any of the Queensland rivers sampled. Commercial catch and catch rate performance measures were not triggered for the adult or juvenile eel fishery during 2010.

For more information see the latest ASR for the QEF.

![Figure 22: Commercial catch (t) and catch rate (kg/day) of adult eels reported in logbooks, 2001–10. Due to confidentiality reasons there is no catch and effort graph for the juvenile eel fishery.](image-url)
Emperor–grass (*Lethrinus laticaudis*)  
East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fish Fishery (RRFFF) / Recreational</td>
</tr>
</tbody>
</table>

**Justification**

Since quota was introduced to the reef line fishery in 2004, commercial catches of grass emperor have increased from approximately 3 t per year to around 20 t per year. This species is considered a key species for some fishers. Commercial harvest occurs more in the state’s north, whereas recreational harvest occurs more in the south. No biological information on age or length frequencies is available; however there are currently no sustainability concerns.

**Information sources**

- Commercial logbook catch
- Recreational catch estimates
- Charter logbook catch

**Comments**

Since quota was introduced in the Coral Reef Fin Fish Fishery (CRFFF) in 2004, targeting of non-quota species has increased. Grass emperor harvest has increased from approximately 3 t per year to approximately 20 t per year (Figure 23). Charter catches in 2010 were around 4 t. Grass emperors are considered to be a key species for some fishers. Since 2007, commercial and charter spatial harvest has alternated between the north and south of the state, whereas recreational harvest consistently occurs more in the south. The minimum legal size for grass emperor is 30 cm with a bag limit of 10 fish for recreational fishers.

Recreational harvest estimates for the species was around 153 000 fish (from the 2005 survey). An updated statewide recreational fishing survey will provide new catch estimates for this species in 2012.

**Future assessment needs**

Grass emperor will continue to be monitored through the annual stock status process. New performance measures are being developed for the RRFFF, which will include grass emperor.

For more information see the latest [ASR](#) for the RRFFF.

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*Figure 23: Commercial catch (t) and catch rate (kg/day) of grass emperor reported in logbooks, 2000–10.*
Emperor–red (*Lutjanus sebae*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF)/Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches are increasing steadily since the introduction of quota in 2003–04. Catch rate has remained relatively stable over the past decade. Minimum legal size (MLS) of 55 cm total length has been in place for seven years and should now be resulting in increased spawning biomass. Increased specificity in commercial logbooks implemented in 2007 will help to determine status, but more information is required on age structure and recreational catch to confirm resource status.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published local biological information

**Comments**
In 2004, a quota system was introduced for ‘other’ coral reef fin fish (OS quota), which includes red emperor. This quota is shared among commercial fishers through individual transferable quotas. Red emperor consistently makes up around 10% of the OS component in the CRFFF. Red emperor attracts a beach price of between $8–10/kg. Commercial catch in 2009–10 (60 t) was similar to the previous year (Figure 24). Recreational harvest declined from 393 t in 2002 to 232 t in 2005 (east coast and Gulf of Carpentaria combined). Charter catch has also remained historically stable at around 20 t. The performance measure for red emperor did not trigger in 2010–11.

**Future assessment needs**
Red emperor is a key species that requires more biological data to be collected on the abundance and length structure in regions where the fishery operates to provide greater certainty about the stock. The Fisheries Observer Program is monitoring the line fisheries again in 2011, which will aid in the validation of commercial fisher logbooks.

An updated recreational estimate which separates the east coast from the Gulf of Carpentaria recreational catches will be available in 2012.

For more information see the latest ASR for the CRFFF.

![Figure 24: Commercial catch (t) of red emperor in the CRFFF reported in logbooks, 2000–10.](image)
Emperor–red (*Lutjanus sebae*)

**Gulf of Carpentaria**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
</tbody>
</table>

**Principal fishery**
Gulf of Carpentaria Line Fishery (GOCLF) / Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (GOCDFFTTF)

**Justification**
Commercial catches and catch rates have increased since 2007. There is limited data available on the distribution and abundance of red emperor in the Gulf of Carpentaria (GOC). Queensland fishers in the GOC take a small proportion of a stock shared by Western Australia and the Northern Territory. Red emperor status is ‘uncertain’ until information on the level of exploitation by these jurisdictions is gathered.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published local biological information

**Comments**
There is currently no restriction on the commercial take of red emperor in the GOC. Red emperor commercial harvest in the GOCLF was <100 kg in 2009; while harvest in the GOCDFFTTF increased to a historical high of 12 t in 2009 (Figure 25). Red emperor attracts a beach price of between $8–10/kg. Recreational harvest estimates declined from 393 t in 2002 to 232 t in 2005 (east coast and GOC combined).

**Future assessment needs**
Red emperors are part of a shared stock that may be heavily utilised by Western Australia and the Northern Territory (risk assessment from 2006). Red emperor is a key species that requires more biological data to be collected on the abundance and length/age structure in regions where the fishery operates.

Fisheries Queensland commenced the one-year Fisheries Research and Development Corporation project 2009/037 ‘Sustaining productivity of tropical red snapper using new monitoring and reference points’ in late 2009.

The project is reviewing and developing methods and data tools required for monitoring and managing fishing activity according to the biological and economic conditions of the red snapper (i.e. crimson snapper, saddletail snapper and red emperor) fisheries. The recommendations from this project will be considered by Fisheries Queensland in conjunction with the WA and NT fisheries agencies in 2011–12.

For more information see the latest ASR for the GOCLF and GOCDFFTTF.

![Figure 25: Commercial catch (t) of red emperor in the GOCDFFTTF (trawl) and GOCLF (line) reported in logbooks, 2000–09.](image-url)
Emperor–redthroat (*Lethrinus miniatus*)

**Stock status 2011**  Not fully utilised

**Stock status 2010**  Not fully utilised

**Principal fishery** Coral Reef Fin Fishery (CRFFF)

**Justification**
In 2009–10 only 43% of available quota was taken. The 2006 stock assessment estimated the population biomass to be around 70% of unfished biomass, indicating that the commercial TAC is set at an appropriate level. Performance measures relating to catch and effort in the commercial and charter sectors were not triggered in 2009–10.

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**Information sources**
- Stock assessment (data up to 2004)
- Commercial logbook catch and effort
- Redthroat emperor quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery independent data (2005–09)
- Performance measures

**Comments**

Since the quota introduction in 2004, the catch and catch rate of redthroat emperor (RTE) have remained stable. In 2009–10, only 43% of the RTE quota was caught (271 t, Figure 26). Recreational catches have declined from 206 t in 2002 to 118 t in 2005. Charter catch has remained historically stable at around 70 t.

Estimated rates of total mortality (Z) and diversity indices calculated from fishery independent data did not trigger performance measures in 2009–10. Current age data indicates a peak in recruitment of four-year-olds in 2007–08 through to six years of age in 2009–10 (Figure 27).

---

**Future assessment needs**

The Fisheries Observer Program is monitoring the line fisheries in 2011, which will aid in the validation of commercial fisher logbooks. An updated stock assessment for redthroat emperor is planned for 2012.

For more information see the latest ASR for the CRFFF.

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**Figure 26:** Commercial catch and catch rates of RTE 1999–00 to 2009–10.

**Figure 27:** Relative abundance of RTE in different age groups, 2007–08 to 2009–10.
Emperor–spangled (*Lethrinus nebulosus*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Catches have been returning to pre-quota levels recently, with increases in some specific northern fishing grids. Although there are no current indications of sustainability issues, some biological data and updated recreational catch information would assist in confidently assigning a status.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published local biological information

**Comments**
In 2004, a quota system was introduced for ‘other’ coral reef fin fish (OS quota), which includes spangled emperor. This quota is shared among commercial fishers through individual transferable quotas. Spangled emperor consistently makes up around 15% of the OS component in the CRFFF. Commercial catches returned to pre-quota levels (Figure 28). Better recreational harvest estimates are needed to quantify total harvest of this species. Charter catch has remained historically stable at around 12 t.

**Future assessment needs**
There are no indications of sustainability issues for this species; however spangled emperor is a key species that requires more biological data on the abundance and length structure in regions within which the fishery operates before an assessment of status can be made. The fishery-independent structured line surveys conducted by Fisheries Queensland from 2004 are currently on hold pending the outcome of the coral trout ELFsim module project (see coral trout for more information on the ELFsim project).

Figure 28: Commercial catch (t) of spangled emperor reported in logbooks, 1999–00 to 2009–2010.
Flathead–dusky (*Platycephalus fuscus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches and catch rates are stable. Catch related performance measures did not trigger in 2010. The fishery predominantly harvests female fish. Nearly all male and large fecund female fish are protected by minimum and maximum size limits. Conservative bag limits are also in place. Age and length information indicate healthy stocks.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent data (2007–10)
- Performance measures

**Future assessment needs**
Separation of dusky flathead from other flathead in commercial logbooks is required. Regionally separated estimates of recreational harvest would be beneficial. The current statewide recreational fishing survey results will be available in 2012.

**Comments**
Dusky flathead is both a recreationally and commercially important species. Commercial catch and catch rates decreased slightly in 2010 (Figure 29), however harvest is considered sustainable. The current MLS (40 cm) protects most male fish while the maximum legal size (75 cm) protects large fecund female fish. Combined with an in-possession limit of five the species is conservatively managed. Long term monitoring of age and length data for dusky flathead indicates healthy stocks (Figure 30). For more information see the latest [ASR](#) for the ECIFFF.

![Figure 29: Commercial catch (t) and catch rate (kg/day) by net and line, reported in logbooks 2002–10.](#)

![Figure 30: Length frequencies sampled from commercial and recreational fishers between 2008 and 2010.](#)
**Groper–bass (Polyprion americanus)**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Deep Water Fin Fishery (DWFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Catch in 2009–10 decreased to 4 t from approximately 10 t the year before. There are possible misidentification issues with hapuka. There is no biological information or local research for the species. The status of ‘undefined*’ is assigned until more information on the harvest of this species is available.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Published international biological information

**Comments**
Bass groper is considered a target species in the Queensland DWFFF, although catches remain relatively small (~5 t in 2009–10, Figure 31). This drop in catch from 11.2 t the previous year equated to a 56% reduction which triggered the performance measure designed to monitor this species. This was concurrent with a reduction in effort in the fishery. There is currently no information available regarding the level of recreational take for this species. In Queensland waters, bass groper was considered ‘undefined’ due to limited local and recent biological information available to assess against the criteria.

**Future assessment needs**
The current commercial fisher logbook for the deep water fishery was only introduced in 2007. Better estimates of species specific catch and effort in the DWFFF are now being collected.

In 2011, the Fisheries Observer Program has focused its efforts on Queensland’s line fisheries to better quantify catch composition and effort in deeper waters. Results will be available to consider in the next stock status assessment. A new research project aimed at collecting more biological information of deep water fish species and completing an updated risk assessment for the fishery has also commenced. For more information see the latest ASR for the DWFFF.

Figure 31: Commercial catch (t) of bass groper reported in logbooks. Note that the current logbook for the DWFFF was only introduced in 2007.
Javelin (*Pomadasys spp.*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational</td>
</tr>
</tbody>
</table>

**Justification**

Javelin (barred and spotted) is a complex of important recreational species, especially in North Queensland. Although commercial catches and catch rates are steady, the magnitude of the recreational catch on a regional basis is not known at this stage. No reasonable attempt to assess stock status can be made until updated recreational harvest estimates are available in 2012.

**Species complex**

Barred javelin (spotted grunter)–*Pomadasys kaakan*, silver javelin (small spotted grunter)–*Pomadasys argenteus*

**Information sources**

- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort

**Comments**

Commercial catches and catch rates of javelin remain relatively stable, with around 20 t harvested in 2010 (Figure 32). Javelin are more likely to be targeted by the recreational sector than the commercial sector. Credible estimates of recreational harvest, which differentiate between Gulf of Carpentaria and east coast catches, are not yet available. There is also anecdotal evidence of increased pressure on this popular species from interstate visitors in particular locations.

**Future assessment needs**

More accurate, regionally separated estimates of recreational harvest of javelin will improve stock status certainty. A statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

For more information see the latest ASR for the ECIFFF.
Javelin (*Pomadasys* spp.)

**Gulf of Carpentaria**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Inshore Fin Fishery (GOCIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Javelin (barred and spotted) is a complex of important recreational species. Although javelin is considered a by-product commercial species only, catches were at the lowest level since 2000. Recreational fishing is focused in the southern Gulf of Carpentaria (GOC) around Karumba where a (non-DEEDI) survey estimated annual catch levels between 100–118 t in 2006. No reasonable attempt to assess stock status can be made until updated recreational harvest estimates are available in 2012.</td>
</tr>
</tbody>
</table>
| Species complex | Barred javelin (spotted grunter)– *Pomadasys kaakan*  
Silver javelin (small spotted grunter)– *Pomadasys argenteus* |

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort

**Comments**
Commercial catches in 2010 were the lowest recorded since 2000 (Figure 33). Javelin are more likely to be targeted by the recreational sector than the commercial sector. Recreational fishing for javelin is focused in the southern GOC around Karumba and the bulk of the catch is taken by tourists. A survey conducted by River Consulting Pty Ltd suggested that tourists caught approximately 100–118 t of javelin in 2006 while Karumba residents harvested less than 1 t. Credible estimates of recreational harvest, which differentiate between the GOC and east coast catches are not yet available.

**Future assessment needs**
More accurate, regionally separated estimates of recreational harvest of javelin will improve stock status certainty. A statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

For more information see the latest ASR for the GOCIFFF.

**Further reading**

![Figure 33: Commercial catch (t) and catch rate of javelin (GOC) caught by net, line and Queensland Fisheries Joint Authority (QFJA) permits (minimal), reported in logbooks 2000–10.](image)

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Stock status of Queensland’s fisheries resources 2011 42
Kingfish–yellowtail (*Seriola lalandi*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fish Fishery (RRFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catch has been variable since 2006 but is relatively low compared to other species. Catch rates are stable. The recreational harvest estimate in 2005 grouped yellowtail kingfish with samsonfish and amberjack. The status of yellowtail kingfish will remain as 'undefined' until improved species-specific estimates can be obtained. No biological information on age or length is available.</td>
</tr>
</tbody>
</table>

**Information sources**

- Commercial logbook catch
- Recreational catch estimates
- Charter logbook catch
- Performance measures

**Comments**

Since quota was introduced in the Coral Reef Fin Fish Fishery (CRFFF) in 2004, targeting of non-quota species has increased. Yellowtail kingfish harvest increased from 4 t in 2004 to 14 t in 2009. Catch rates have remained stable since 2006 (Figure 34). Charter catches in 2010 were around 4 t. Commercial catches may be market driven, and therefore sporadic in targeting behaviour. There may be the potential for high fishing pressure on local populations. The recent drop in the size limit for yellowtail kingfish (from 70 cm to 60 cm) means that smaller fish recruited to the fishery may still be immature. Commercial harvest in New South Wales (NSW) fisheries for yellowtail kingfish is higher (between 80–160 t in recent years), and the NSW fisheries stock status for yellowtail kingfish is currently ‘growth overfished’.

Recreational estimates for the species are grouped with samsonfish and kingfish, with 24 000 fish reported as harvested (from the 2005 survey). Given the relatively low commercial harvest rate of yellowtail kingfish in Queensland there are currently no sustainability concerns. However, the status of yellowtail kingfish will remain as 'undefined' until improved species-specific recreational harvest estimates can be obtained.

**Future assessment needs**

Yellowtail kingfish will continue to be monitored through the annual stock status process and through the annual performance measures calculations when catch reaches above 10 t. An updated recreational estimate will be available in 2012.

For more information see the latest ASR for the RRFFF.

**Figure 34:** Commercial catch (t) and catch rate (kg/day) of yellowtail kingfish reported in logbooks, 2000–10.
Lobster—red champagne (*Linuparus trigonus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Red champagne lobsters are permitted to be taken incidentally in the East Coast Otter Trawl Fishery (ECOTF) as defined in the management plan for the fishery. A 7.5 cm carapace length minimum legal size and a prohibition on taking berried females protect immature and spawning lobsters. Landings and catch rates are variable and a recent ecological risk assessment determined that there is an intermediate risk of red champagne lobster stocks being overfished at 2010 effort levels.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local and non-local biological information
- Scientific research
- ECOTF ecological risk assessment findings

**Comments**

Red champagne lobsters are harvested as by-product in the ECOTF. Like other crustaceans, discard mortality is considered to be low. A ban on taking berried females introduced in 2002 and a 7.5 cm minimum legal size for carapace length from 2009, gives protection to immature and spawning lobsters. Waters deeper than the maximum depth in which otter trawlers operate (~300 m) may also act as refugia for young lobsters.

Adults are captured by trawling adjacent to the central and southern Great Barrier Reef. Landings and catch rates have been variable but are generally lower since 2005, although are still within historical limits (Figure 35).

The recent ecological risk assessment determined that there is an intermediate risk of red champagne lobster stocks being overfished at 2010 effort levels.

For more information see the latest [ASR](#) for the ECOTF.

**Further reading**


![Figure 35: Commercial catch (t) and catch rate (kg/day) of red champagne lobsters reported in logbooks, 2001–10.](#)
Mackerel–grey (*Scomberomorus semifasciatus*)  East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fishery (ECIFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches decreased in 2009–10 due to a combination of introducing a 250 t quota, poor weather and limited targeting of grey mackerel in the northern section of the fishery. Catch rates are within historical bounds. Only two years of routine biological data were available, which is insufficient to assess trends.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent length information (2008–10)
- Performance measures
- Published local biological information

**Comments**
Commercial catches decreased markedly in 2009–10 (211 t, Figure 36) due to the combined effects of the introduction of a new conservative commercial 250 t quota, poor weather restricting offshore fishing, and limited targeting of grey mackerel in the northern section of the mixed species fishery.

Long term monitoring of biological information derived from commercial and recreational catches of east coast grey mackerel commenced in 2008–09. The requisite three years of data necessary to assess trends in length and age composition of the two meta-populations on the east coast are therefore not available. Preliminary assessment for the last two years is presented below for commercially caught fish (Figures 37 and 38).

No reasonable attempt could be made to assess the status of grey mackerel beyond ‘undefined’ until a longer time series of commercial catch history (from 2008–09 to 2010–11) and fishery dependent monitoring data (stratified for the two stocks) are available for assessment.

**Figure 36**: Commercial catch (t) and catch rates of grey mackerel (east coast) caught by net and line, reported in logbooks 2001–02 to 2009–10.

**Future assessment needs**
The following information needs will improve stock status certainty:
- a minimum three years of analysed commercial catch history (from 2008–09 to 2010–11) and fishery dependent monitoring data (stratified for the two stocks)
- further stock discrimination studies conducted for grey mackerel south of Mackay
- a stock assessment of east coast grey mackerel
- more accurate, regionally separated estimates of recreational harvest of grey mackerel - a statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

For more information see the latest ASR for the ECIFFF.
Further reading


Figure 37: Length frequencies of commercially caught grey mackerel (north east coast region), from 2008–09 and 2009–10.

Figure 38: Length frequencies of commercially caught grey mackerel (south east coast region), from 2008–09 and 2009–10.
Mackerel–grey (Scomberomorus semifasciatus)

Stock status 2011: Uncertain
Stock status 2010: Uncertain
Principal fishery: Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)

Justification: Commercial catches and catch rates were the highest for ten years (since 2000) and triggered performance measures. There is uncertainty as to whether these catches indicate increased fishing pressure on stocks or simply fishers taking advantage of a highly variable resource. Anecdotal reports suggest 2010 was a particularly good year for grey mackerel catches. The Gulf of Carpentaria (GOC) stock is shared between Queensland and the Northern Territory. Results of a recent resource assessment of grey mackerel in the GOC concluded that fishery logbook data gave poor resolution of population dynamics and cannot provide abundance estimates. New precautionary management arrangements governing the harvest of grey mackerel are expected to be introduced for the 2012 season.

Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Ecological risk assessment (2004 & 2010 review)
- Published local biological information

Comments
The commercial catch of grey mackerel in 2010 was the highest in the decade (882 t, Figure 39). Net catch rates also peaked in 2010. Catch related performance measures in the GOCIFFF were triggered by these peaks. There is anecdotal evidence that the large catches in 2010 resulted from an exceptional year for grey mackerel abundance, rather than from increasing fishing pressure. Catches were similar in 2007; however, approximately half of that total was harvested from GOC waters beyond 25 nautical miles (nm) from the coast by Queensland Fisheries Joint Authority (QFJA) permitted net vessels.

The review by Fisheries Queensland in 2010 of the 2004 ERA (Zeller & Snape 2006) downgraded grey mackerel from a high to a moderate risk due to the outcomes of research on the stock differentiation across northern Australia (Welch et al. 2009). This research found some evidence, although inconclusive, that multiple localised adult sub-stocks of grey mackerel (meta populations) may exist within the GOC.

Results of a recent resource assessment of grey mackerel in the GOC concluded that fishery logbook data gave poor resolution of population dynamics and could not provide abundance estimates (DEEDI unpublished report). The resource assessment also considered that the GOC contained a single stock that is shared between Queensland and the Northern Territory. However, rather than being equally dispersed between the jurisdictions, the stock tends to migrate en masse from east to west, and vice versa, depending on prey availability and circulation patterns of the Gulf. Northern Territory catch information was not considered in this stock status determination. The stock status of grey mackerel remains ‘uncertain’ until the causes of catch variability, and how these relate to population levels, is better understood.

Figure 39: Commercial catch (t) and catch rate of grey mackerel (GOC) caught by net, line and QFJA permits, reported in logbooks 2000–10.
Future assessment needs

The following information needs will improve stock status certainty:

- grey mackerel catch levels for Northern Territory waters in the GOC
- long term, fishery dependent monitoring of grey mackerel stocks in the GOC
- a stock assessment of GOC grey mackerel
- more accurate, regionally separated estimates of recreational harvest of grey mackerel—the latest statewide recreational fishing survey in Queensland commenced in 2010 with results available in 2012

For more information see the latest ASR for the GOCIFFF.

Further reading


Mackerel–school  
(*Scomberomorus queenslandicus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fishery (ECIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catch levels are stable and within historical levels for the net and line sectors. Catch and catch performance measures were not triggered. While it is likely that the school mackerel harvest is sustainable, estimates of recreational harvest are needed to corroborate this assumption. The status of school mackerel is ‘undefined’ until recreational harvest can be better quantified.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published local biological information

**Comments**
Commercial net and line catches have been steady in recent years and are within historical levels (Figure 40). Performance measures were not triggered. While there are no concerns for sustainability, the commercial line and net sectors showed different trends in catch rates: catch rates for the net sector are rising while the line sector suggests catch rates are declining (Figure 40). The magnitude of the recreational harvest for school mackerel is unknown. Previous recreational catch estimates (2002 and 2005) may not be entirely accurate as not all fishers were able to report mackerel catch to the species level. The status of school mackerel is ‘undefined’ until recreational harvest can be better quantified.

**Future assessment needs**
More accurate, regionally separated estimates of recreational harvest of school mackerel will improve stock status certainty. The latest statewide recreational fishing survey in Queensland commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFFF.

**Further reading**
Cameron, D & Begg, G 2002,'Fisheries biology and interaction in the northern Australian small mackerel fishery', final report to Fisheries Research and Development Corporation, Projects 92/144 and 92/144.02, Queensland Department of Primary Industries, Brisbane.

**Figure 40:** Commercial catch (t) and catch rates of school mackerel caught by net and line, reported in logbooks 2001–02 to 2009–10.
### Stock status 2011
**Uncertain**

### Stock status 2010
No assessment made

### Principal fishery
East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational

### Justification
Commercial catch was 50 t in 2009–10. Shark mackerel reported in the recreational surveys was allocated on a proportional basis from the unspecified mackerels. As a result, there is limited confidence in recreational harvest estimates. No biological information is available.

#### Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures

#### Comments
The commercial catch of shark mackerel has exhibited a variable trend over the last ten years (Figure 41). Annual reported charter catches of shark mackerel on the east coast have decreased from 7 t in 2008–09 to approximately 4 t in 2009–10.

Recreational catches for shark mackerel from the 2005 assessment were estimated as a proportion of the ‘mackerel–unspecified’ component, and is therefore not a robust assessment of recreational take. The updated statewide recreational fishing survey currently underway should provide more accurate estimates in 2012.

#### Future assessment needs
There is currently no dependent or independent fisheries monitoring for this by-product species, and sustainability concerns are low. Shark mackerel will continue to be monitored through the annual stock status process and performance measures.

For more information see the latest ASR for the ECIFFF.

Figure 41: Commercial catch (t) of shark mackerel caught by line and net in the ECIFFF, reported in logbooks 1999–00 to 2009–10.
Mackerel–Spanish (*Scomberomorus commerson*)

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
</tbody>
</table>

**Principal fishery**

East Coast Spanish Mackerel Fishery (ECSMF) / Recreational

**Justification**

At current fishing levels the fishery is considered sustainably fished. Results of the recent 2011 stock assessment indicate that the stock is in good condition. Strong recruitment of one-year-old fish in 2008–09 is still evident in 2009–10 (as two-year-olds). New research conducted by the Fishing and Fisheries Research Centre at James Cook University (JCU) on spawning aggregations will provide important data to consider for stock status in the next two years, as will an updated recreational harvest estimate (available 2012).

**Information sources**

- Stock assessment (2011, data up to 2009)
- Commercial logbook catch and effort
- Spanish mackerel ‘SM’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent data (2004–10)
- Performance measures
- Published local biological information

**Comments**

The commercial nominal catch rate (kg/day) of Spanish mackerel has been stable since quota was introduced in 2004, despite inter-annual variability in total catch. Catch increased from 308 t in 2008–09, to 384 t in 2009–10 (Figure 42a). The number of vessels accessing the fishery increased from 172 to 180. The catch rate also increased from 66 kg/day to 73 kg/day (Figure 42a).

As Spanish mackerel is a schooling species and is known to aggregate for spawning, there is potential for catch rates to be hyperstable (i.e. declines in stock size without apparent changes in catch rate). The stock assessment for east coast Spanish mackerel (Campbell et al. 2011) uses an age-structured model and incorporates a hyperstability-sensitive variant of the catch rate standardisation to account for this potential. The results indicate that the stock is in good condition, noting the uncertainty around the outputs of the preferred models used.

Annual reported charter catches on the east coast have increased from 31 t in 2008–09 to around 44 t in 2009–10. The nominal catch rate increased from 18 kg/day to 22 kg/day. Monitoring data indicates that 2009–10 was a strong year for recruitment of two-year-old fish to the fishery (Figure 42b). There were no triggers to the performance measures assessed in 2009–10. Revised and improved performance measures will be reported against in 2010–11.

Recreational catch conversions for Spanish mackerel were amended in 2008 from 12.2 kg to 9.2 kg/fish. Total harvest increased from 347 t in 2002 to 415 t in 2005 (east coast and Gulf of Carpentaria combined).

**Future assessment needs**

Fisheries Queensland will continue to collect fishery dependent data on the age and length of Spanish mackerel for the purpose of performance measures and future stock assessments. For more information see the latest ASR for the ECSMF.

**Further reading**

Figure 42b: Relative abundance of Spanish mackerel (east coast) in different age groups from retained a) commercial and b) recreational catches, 2006–07 to 2009–10.
Mackerel–Spanish  
(*Scomberomorus commerson*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
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<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Line Fishery (GOCLF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Only partially assessed in 2011 due to a lack of data demonstrating temporal trends in length or age frequencies. Commercial catch and catch rates increased slightly in 2010 and remain within historical harvest levels. The 'uncertain' stock status of Spanish mackerel is unchanged for 2011.</td>
</tr>
</tbody>
</table>

**Information sources**

- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent biological length data (2007–09)
- Performance measures
- Published local biological information

**Comments**

Commercial catch and catch rates increased slightly in 2010 and remain within historical harvest levels (Figure 43). The ‘uncertain’ status for gulf Spanish mackerel is unchanged for 2011 given the lack of data demonstrating temporal trends in length or age frequencies. It is expected that this biological information will be available for the next stock status assessment in 2012.

**Future assessment needs**

The following information needs will improve stock status certainty:

- time-series of length and age data for Spanish mackerel in the Gulf of Carpentaria. It is anticipated that three years of length and age data will be available for the next stock status determination
- more accurate, regionally separated estimates of recreational harvest of Spanish mackerel. The latest statewide recreational fishing survey in Queensland commenced in 2010 with results available in 2012.

For more information see the latest [ASR](#) for the GOCLF.
Mackerel–spotted (*Scomberomorus munroi*)

### Stock status

<table>
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<th>Stock status 2011</th>
<th>Sustainably fished</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
</tbody>
</table>

### Principal fishery

- East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational

### Justification

Predominantly a line-fished species since 2004. Age, length, sex structure and mortality estimates indicate a healthy stock. Historic species-specific recreational estimate is also available. Estimated total mortality in 2010 was below the threshold level of twice the natural mortality.

### Information sources

- Commercial logbook catch and effort
- Competitive total allowable catch (TAC) quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent biological length and age data (2004–10)
- Performance measures
- Published local biological information

### Comments

The commercial catch of spotted mackerel increased from 2008–09 to around 100 t in 2009–10, which was still below the TAC of 140 t (Figure 44). Recreational catch estimates of 305 t from the 2005 survey were calculated based on the 2005–06 Fisheries Queensland Long Term Monitoring Program estimate of 2.7 kg/fish. An updated statewide recreational estimate will be available in 2012.

The annual age structures of the spotted mackerel catch for each sector are similar (Figure 45a) but the length structure information indicates that fish less than 65 cm were more prevalent in the commercial catch than the recreational catch (Figure 45b).

Assuming that the combined commercial and recreational catch is indicative of the spotted mackerel population, the population appears to be predominantly comprised of young fish (mainly within the one to four-year-old age groups).

### Figure 44: Commercial catch (t) of spotted mackerel caught by line and net in the ECIFFF, reported in logbooks 1999–00 to 2009–10.

![Commercial catch (t) of spotted mackerel caught by line and net in the ECIFFF, reported in logbooks 1999–00 to 2009–10.](image1)

### Figure 45a: East coast spotted mackerel age frequencies from 2007–08 to 2009–10.

![East coast spotted mackerel age frequencies from 2007–08 to 2009–10.](image2)
Spotted mackerel minimum legal size changed from 50 to 60 cm in 2002. At this time, a TAC of 140 t was also introduced.

The performance measure was not triggered, with the estimated total mortality in 2010 being below the threshold level of twice the natural mortality.

Fisheries Queensland will monitor total catch and catch rates through performance measures as they have been variable in the last five to ten years.

Fisheries Queensland continues to monitor age and length (Figure 45b) through fishery dependent data collection and is considering the need to undertake a stock assessment for this species.

**Future assessment needs**

Given that spotted mackerel is a historically important and targeted species in the recreational sector, an updated recreational catch estimate will improve stock status certainty. A statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

For more information see the latest [ASR](#) for the ECIFFF.

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Figure 45b: Length frequencies of east coast spotted mackerel from retained commercial and recreational catches, 2007–08 to 2009–10.
**Mahi mahi** (*Coryphaena hippurus*)

**East Coast**

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<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
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</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fishery (RRFFF)/Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Catch is historically variable between 1 and 12 t since 2000. Predominantly caught in the L1 fishery, but increasing in the L8 deep water fishery in recent years. Charter catches are &lt;2 t, and currently there is no recreational estimate. The updated statewide recreational fishing survey, which began in 2010, will provide the first ever recreational estimate for this species. Despite limited biological information available for this species, currently there are no sustainability concerns due to the low targeting behaviour of fishers.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures

**Comments**
Historically the catch of mahi mahi has been varied, ranging from <1 t to over 12 t in the commercial sector. In 2008 and 2009, the majority of the ~10 t catch was taken in the L8 deep water fishery, but in 2010, this catch decreased dramatically predominantly due to the lack of effort applied in the L8 fishery (Figure 46). Annual catches by L1 fishers in the south of the state remain consistent at around 2–3 t. There is currently no recreational estimate for the species; however this will be rectified as part of the current statewide recreational fishing survey that is underway, with results expected in 2012.

Charter catches are historically low at around 2 t. As mahi mahi are a truly pelagic and migratory species, there are currently no sustainability concerns for the stock given the low capacity to target the species.

However, there is limited information available locally on length and age structure, or mortality estimates. The minimum legal size for mahi mahi is 50 cm with a bag limit of five fish for recreational fishers.

**Future assessment needs**
The commercial catch of mahi mahi will continue to be assessed through performance measures when there is more than 10 t of catch per year. Obtaining a recreational estimate by region in 2012 will also aid in understanding the total take of the species in east coast waters. Given that Fisheries Queensland has identified other species as higher priorities, it is unlikely that further monitoring or research will be considered for mahi mahi in the foreseeable future.

For more information see the latest ASR for the RRFFF.
Octopus (*Octopodidae*)

**Stock status 2011**: Undefined

**Stock status 2010**: Not assessed

**Principal fishery**: East Coast Otter Trawl Fishery (ECOTF) / Fin Fish (Stout Whiting) Trawl Fishery (FFTF)

**Justification**: There are several octopus species which are permitted to be taken incidentally in the ECOTF. In-possession limits apply to octopus based on the number of days fished. Landings and catch rates are variable, but within historical levels. There is evidence to suggest that octopuses may survive discarding well. The recent ecological risk assessment found that at current fishing levels, there is a low to intermediate risk of octopus stocks becoming overfished. This species complex is undefined due to a lack of information.

**Species complex**: *Octopus australis, Callistoctopus dierinthenraeus, Callistoctopus graptus, Amphioctopus marginatus, Amphioctopus of kagoshimensis*

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local and non-local biological information
- ECOTF ecological risk assessment

**Comments**
Several species of octopus are commercially harvested as by-product in the ECOTF and the FFTF, with approximately 94% taken in the ECOTF. Most Queensland octopus are tropical species, but southern octopus (*Octopus australis*) is a temperate species taken during eastern king prawn trawls in southern Queensland and is the most common octopus species taken in NSW. The Queensland harvest was about 20% of the NSW octopus harvest in 2008–09.

The 66 litre in-possession limit on octopus, introduced in 2002, was changed in 2008—where fishing trips extend beyond 7 or 14 consecutive days, fishers are entitled to retain greater quantities of octopus.

In 2010, 10 t of octopus were harvested commercially in Queensland indicating that the change to management arrangements in 2008 did not result in an increased take of octopus. Queensland octopus landings have decreased since 2001 but remain within historical limits (Figure 47).

The recent ECOTF ecological risk assessment found a low to intermediate risk of octopus stocks being overfished at 2010 effort levels. Overall, there are no sustainability concerns with regards to octopus; however, this species complex is undefined due to an overall lack of information.

For more information see the latest ASR for the ECOTF.

![Figure 47: Commercial catch (t) and catch rate (kg/day) of octopus, reported in logbooks 2000–10.](image_url)
**Pearl perch (Glaucosoma scapulare)**

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fishery (RRFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Currently there is not enough historical commercial catch data (non-specific recording until 2004) and highly variable catch rates. There are inconsistent signals in the age and length data, with a lack of post eight-year-old fish identified. This species is currently being assessed as part of a Fisheries Research Development Corporation (FRDC) project on the fishery.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent length and age information (2007–09)
- Performance measures
- Published local biological information

**Comments**

Since quota for reef fish species was introduced in 2004, the catch of pearl perch (non-quota) increased from around 20 t in 2002 to 97 t in 2005 (Figure 48). The commercial catch in 2010 dropped back to around 32 t. Recreational catch reported in the statewide recreational fishing surveys increased from 50 t in 2002 to 123 t in 2005. Pearl perch attracts a beach price of around $6/kg.

Age information from the Long Term Monitoring Program was considered for the first time in 2011. Age frequencies were considered from 2007, 2008 and 2009 and showed a lack of fish older than eight years old (Figure 49). The 2010 data is currently being compiled and should provide a better understanding of the age of the east coast stocks at the next assessment.

**Future assessment needs**

The 2010 age structure information may assist in clarifying the current stock status. Up to date age information will also allow for the calculation of a total mortality estimate in performance measures.

A three year FRDC funded project began in early 2009 to address some of the knowledge gaps in the rocky reef fishery. The research is examining the important areas of juvenile habitat of rocky reef fish species in southern Queensland as well as assessing various harvest strategies for the fishery. Key growth, reproductive, and other fisheries parameters are being derived for pearl perch and teraglin.

For more information see the latest ASR for the RRFFF.

**Figure 48: Commercial catch (t) and catch rate (kg/day) of pearl perch, reported in logbooks 2000–10.**
Figure 49: Relative abundance of pearl perch in different age groups from retained recreational, commercial and charter (recreational catches from charter vessels) catches, 2007 to 2009.
Prawn—banana (*Fenneropenaeus merguiensis*)

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
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<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF) / River and Inshore Beam Trawl Fishery (RIBTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Catch rates in 2009 and 2010 were high, but total commercial harvest levels were similar to 2004 levels, which were considered sustainable. The ECOTF ecological risk assessment determined that there was a low risk of banana prawns being overfished. Finer scale analysis may be needed to rule out the possibility of depletion in some regions.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Regional monthly age-structured model outputs (using data to 2004)
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment

**Comments**
Approximately 80% of commercial landings are taken by otter trawl and 20% are taken by beam trawling. Otter trawl catch rates were steady from 2001–07 and then increased to their highest levels in 2008 and 2009 before decreasing in 2010 (Figure 50). Beam trawl catch rates have been steady over the 2001–10 time series. Estimates of recreational landings by fishers using cast nets are significant (200 t in 2005).

An assessment of the east coast stock indicated that in 2004 biomass was well above the level required for maximum sustainable yield (Bmsy); and as such, the level of harvest was considered sustainable. In 2009 and 2010, the commercial harvest was less than the 2004 level, indicating that recent harvest levels are also sustainable. Recreational landings appear to be increasing and could be placing additional pressure on the stocks in some locations. The recent ECOTF ecological risk assessment determined that there is a low risk of banana prawns being overfished at 2010 effort levels.

**Future assessment needs**
Catch rate standardisation was carried out on 1988–2004 trawl catch and effort data in the most recent stock assessment. It took into account likely differences between boats catching banana prawns and other prawn species but not the possibility that the fishing power of individual boats could be increasing through time (as demonstrated for other east coast trawl fishery sectors). This could affect banana prawn catchability and potentially gear selectivity. Determination of changes in fishing power in the fleet and standardisation of catch rate at a regional scale is needed for years subsequent to 2004 for accurate interpretation of recent trends in commercial catch rate. It will also validate catch rate as a consistently reliable indicator of relative abundance of sub-stocks. For more information see the latest ASR for the ECOTF and RIBTF.

**Further reading**


![Figure 50: Commercial catch (t) and catch rates (kg/day) of banana prawns by otter and beam trawl, reported in logbooks 2001–10.](image)
Prawn–tiger (brown and grooved) (Penaeus esculentus and P. semisulcatus)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Brown tiger prawn and grooved tiger prawn landings are marketed generically as ‘tiger prawns’. Closures, rising fuel and infrastructure costs contributed to a major decrease in boats and effort targeting tiger prawns in 2007. Increased competition from other Australian fisheries and the high foreign exchange rate have also reduced tiger prawn prices and profitability. Since 2007, tiger prawn landings have been at historically low levels ranging from 827–1309 t. A previous stock assessment determined the effort levels which would achieve maximum sustainable yield (Emsy). Since 2007, effort has been steady and below Emsy, indicating that this stock is sustainably fished.</td>
</tr>
</tbody>
</table>

Information sources
- Commercial logbook catch and effort
- Fishery independent abundance information
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

Comments
When combined, the brown tiger prawn and grooved tiger prawn are the second most economically valuable trawl fishery resource in Queensland. These species are similar in appearance, are caught in similar areas and catches are recorded and marketed generically as ‘tiger prawns’. In Queensland, the majority of tiger prawns are harvested in the ECOTF. A minor part of the harvest (<0.5%) is taken in the River and Inshore Beam Trawl Fishery (RIBTF). Tiger prawns are also landed in other Australian fisheries including the Northern Prawn Fishery (in similar quantities), the Torres Strait Prawn Fishery (~30% of the ECOTF landings) and the NSW Ocean Trawl Fishery (~1% of ECOTF landings).

From 2001–06, tiger prawn landings ranged from 1435–2113 t (Figure 51). Closures, rising fuel and infrastructure costs contributed to a major decrease in boats and effort targeting tiger prawns in 2007. Since 2007, tiger prawn landings have been at historically low levels ranging from 827–1309 t. Catch rates also fell in 2007 but only temporarily and have been increasing from 2008–10.

While the ECOTF tiger prawn catch rates are increasing, returns on sale of tiger prawns are not high enough to encourage fishers to increase targeting them. Since 2010, a high foreign currency exchange rate has reduced export demand for tiger prawns. Tiger prawns sourced from the Gulf of Carpentaria, that would normally be exported, are being sold on the domestic market in competition with ECOTF harvested prawns, reducing returns to ECOTF fishers and providing a disincentive to targeting tiger prawns.

Effort required to achieve maximum sustainable yield (Emsy) for tiger prawns in the ECOTF has been estimated at between 15 800 and 23 637 days (Turnbull & Gribble 2004). From 2001–07, trawling effort for tiger prawns decreased by 75%, leading to a reduction in fishing pressure on the east coast stocks. Since 2007 effort has been steady at sustainable levels (i.e. less than Emsy).

The recent ECOTF ecological risk assessment found that there is a low risk of brown tiger prawns being overfished at 2010 effort levels. The risk of overfishing grooved tiger prawns has decreased substantially since 2005 when the Great Barrier Reef Seabed Biodiversity Study (Pitcher et al. 2007) found that the species was exposed to high levels of trawl effort. However, during 2005–10, trawl effort on tiger prawns, which includes the grooved tiger prawn, has decreased by 55%. A recent ecological risk assessment determined that this has reduced the risk of grooved tiger prawns being overfished to a lower (intermediate) risk.
**Future assessment needs**

Maximum economic yield (MEY) is an important indicator of a fishery stock’s economic sustainability. Tiger prawns are major fishery stocks in Queensland, supporting more than 200 fishing operations annually. Assessment of the MEY of tiger prawn stocks would provide a valuable performance measure for continued conservative management of these stocks.

For more information see the latest ASR for the ECOTF.

**Further reading**


Prawn–coral (*Metapenaeopsis* spp.)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
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<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Coral prawns are permitted to be taken as target species in the East Coast Otter Trawl Fishery (ECOTF) as defined in the management plan for the fishery. From 2001–10, effort and landings have decreased when smaller boats targeting coral prawns left the fishery. The coral prawn harvest continued to fall from 2005–10 and in 2010 was at its lowest recorded level. Catch rates have been steady since 2002. There are no sustainability issues for this complex of species; however, there is limited information available on the biology of coral prawns, which has resulted in an ‘undefined’ status.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort

**Comments**

Coral prawns are by-product species taken during trawling for red spot king prawns in the ECOTF. Coral prawns are also caught during trawling for scallops, tiger prawns and endeavour prawns in the ECOTF and in the Torres Strait Prawn Fishery. From 2001–10, effort and landings decreased, particularly following rezoning of the Great Barrier Reef Marine Park in 2004 when smaller boats targeting coral prawns left the fishery.

In 2010, the number of otter trawlers reporting coral prawn landings was 32% of those reporting landings in 2003 (Figure 52). The coral prawn harvest continued to fall from 2005–10 and in 2010 was at its lowest recorded level. Catch rates have been steady since 2002. There are no sustainability issues for this complex of species; however, there is limited information available on the biology of coral prawns which has resulted in an ‘undefined’ status.

**Future assessment needs**

Given that coral prawn commercial catches are declining with trawling effort, this is not a priority species for collecting more information.

For more information see the latest [ASR](#) for the ECOTF.

**Further reading**


![Figure 52](#) Commercial catch (t) and catch rate (kg/day) of coral prawns caught by otter trawl and beam trawl (combined), reported in logbooks 2001–10.
Prawn—eastern king (*Melicertus plebejus*)

<table>
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<th>Stock status 2011</th>
<th>Sustainably fished</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
</tbody>
</table>

**Justification**

The eastern king prawn (EKP) is the most economically valuable trawl fishery resource in Queensland. In recent years, the combined Queensland and NSW landings have been greater than 3000 t, exceeding the maximum sustainable yield (MSY), even though effort (boat-days) has been decreasing and is less than the effort required to achieve MSY (Emsy). Long-term increase in fishing power has more than offset the effect of this decrease, leading to higher catch rates and record harvests in recent years. EKP are considered growth overfished (i.e. harvested at sizes that are sub-optimal for maximising the EKP catch or its economic value) in Moreton Bay and in NSW. However, the recent ecological risk assessment determined that at 2010 effort levels there is low risk of EKP being recruitment overfished (i.e. reduction of the breeding stock to a level that cannot maintain the population at an acceptable level).

**Information sources**

- Commercial logbook catch and effort
- Fishery independent abundance information
- Performance measures
- Published local biological information
- Quantitative stock models (2005)
- ECOTF ecological risk assessment findings

**Comments**

Eastern king prawns (EKP) are harvested in both Queensland and in NSW. The Queensland EKP harvest is about four times larger than the NSW harvest. EKP is the most economically valuable trawl fishery resource in Queensland and is harvested almost exclusively in the ECOTF with a negligible part of the harvest taken in the River and Inshore (Beam Trawl) Fishery in some years.

Since 2001, Queensland EKP landings have been maintained in the 2000–3000 t range (Figure 53). The highest and equal second highest EKP catching years on record are 2009 and 2010. Otter trawl catch rates were steady from 2001–06 and then increased to their highest levels in 2007–10. The 2010 catch rate was slightly lower than in 2009. Recreational, indigenous and charter landings are uncertain but are likely to be negligible.

The most recent quantitative stock assessment undertaken on the entire Queensland and NSW EKP fishery estimated MSY at 2612 t and Emsy at 25 664 boat-nights (O’Neill et al. 2005). From 2008–10, total landings from the fishery exceeded MSY. Recent record landings in Queensland are probably due, at least in part, to reduced catch and effort in NSW resulting in more EKP migrating northward into Queensland waters, and hence more prawns being available for harvest in the ECOTF.

The overall trend in nominal trawl effort in both Queensland and NSW has been one of marked decline in recent years from around 30 000 boat-days and above Emsy before 2000, to less than 20 000 boat-days and less than Emsy in 2009–10. However, fishing power of vessels has increased in the order of 50% over the last two decades (O’Neill & Leigh 2006). This means that the decline in nominal effort has been more than offset by the increase in fishing power, and therefore standardised effort in the fishery has likely increased.

**Future assessment needs**

A recent assessment of the sustainability of the ECOTF indicates that there is low risk of EKP being recruitment overfished at 2010 effort levels. However, EKP are considered growth overfished in Moreton Bay and in NSW. A stock assessment for the combined Queensland and NSW EKP fishery is being undertaken in 2011 as part of an externally funded research project. Bio-economic modelling of the EKP fishery is also underway and will determine optimum yield and effort for maximum profitability of the resource. This will assist management to further
To protect EKP from growth overfishing while harvesting the resource in an economically efficient manner.

For more information see the latest ASR for the ECOTF.

**Further reading**

O’Neill, MF, & Leigh, GM 2006, ‘Fishing power and catch rates in the Queensland east coast trawl fishery’, Department of Primary Industries and Fisheries, Brisbane, Australia.


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**Figure 53:** Commercial catch (t) and catch rate (kg/day) of eastern king prawns caught by otter trawl, reported in logbooks 2001–10.
Prawn–endeavour
(Metapenaeus endeavouri and M. ensis)

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<tbody>
<tr>
<td>Stock status 2010</td>
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<tr>
<td>Principal fishery</td>
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</tr>
<tr>
<td>Justification</td>
<td>Two species were considered in this assessment but landings are dominated (~80%) by blue endeavour prawns (Metapenaeus endeavouri). Current harvest levels are significantly lower than 2001–06 levels when an assessment concluded that endeavour prawns were sustainably fished. Stock status of not fully utilised remains unchanged from 2009–10.</td>
</tr>
</tbody>
</table>
| Species complex  | Blue endeavour prawn (Metapenaeus endeavouri)
|                   | Red endeavour prawn (Metapenaeus ensis) |

**Information sources**
- Commercial logbook catch and effort
- Fishery independent abundance information
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment

**Comments**
Commercial effort directed at endeavour prawns has stabilized at historically low levels after a series of effort declines that began in 1997. Since 2007, landings have been lower than from 2001–06, when an assessment concluded that endeavour prawns were sustainably fished (Turnbull and Gribble 2004) (Figure 54). While catch rate is increasing, returns on sale of endeavour prawns are not high enough to encourage fishers to increase targeting them in preference to more economically valuable species e.g. tiger prawns.

The recent ECOTF ecological risk assessment found that there is a low risk of endeavour prawns being overfished at 2010 effort levels. Stock status remains unchanged from 2009–10. It was again determined that endeavour prawn stocks are not fully utilised.

**Future assessment needs**
Uncertainty exists regarding endeavour prawn species composition in the ECOTF as the species are not separated in the logbook. Preliminary data from fishery independent monitoring indicates that blue endeavour prawns are more abundant (~90%) in more northerly waters (Torres Strait to Cape Flattery) while red endeavour prawns are more abundant (~60%) in more southerly waters (Ca irns to Cape Bowling Green). Further biological data collection would be of value to interpret with greater certainty the composition of endeavour prawn species harvested at different locations and times.

For more information see the latest ASR for the ECOTF.

**Further reading**

**Figure 54**: Commercial catch (t) and catch rates of endeavour prawns caught by otter trawl, reported in logbooks 2001–10.
Prawn–greasyback (*Metapenaeus bennettae*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal Fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF) / River and Inshore Beam Trawl Fishery (RIBTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Greasyback prawns are the main species marketed as ‘bay prawns’ and are harvested commercially in both Queensland and NSW trawl fisheries. The current harvest level is the highest since 2004 and catch rates are increasing. Recent assessment determined that the risk of this species being overfished in Queensland is low. In NSW the status of this species is ‘undefined’. A detailed study of bay prawn stock status in Moreton Bay is under way.</td>
</tr>
</tbody>
</table>

**Information sources**

- Commercial logbook catch and effort
- Fishery independent abundance information
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

**Comments**

The greasyback prawn (or ‘bay prawn’) is harvested commercially in both Queensland and NSW trawl fisheries. The Queensland harvest was about six times greater than the NSW harvest in 2008–09. The term ‘bay prawn’ is a generic marketing term for a mixture of mainly greasyback prawns and a minor component of other penaeid prawn species. On average 54% of bay prawns are harvested in the River and Inshore Beam Trawl Fishery (RIBTF) and 46% are harvested in the East Coast Otter Trawl Fishery (ECOTF), mainly in Moreton Bay.

From 2001–10, landings of bay prawns have generally been steady in the 250–350 t range (Figure 55), but are occasionally taken at higher levels (e.g. 441 t in 2004). RIBTF and ECOTF catch rates were variable from 2001–05 but have generally increased since 2005. In 2010, bay prawn catch rates were at their highest recorded levels. Abundance of this species is likely to also be driven by environmental factors such as rainfall.

The recent ECOTF ecological risk assessment found that bay prawns are at low risk of being overfished at 2010 effort levels. Although there are no sustainability concerns regarding this stock, the greasyback prawn is considered ‘undefined’ until the species composition of bay prawn catches is confirmed, particularly in Moreton Bay catches.

**Future assessment needs**

A project is currently under way to develop a reliable index of abundance and stock assessment model from commercial trawl fishery catch and effort data (‘Harvest strategy evaluations and co-management for the Moreton Bay trawl fishery’, CRC Project 2009/774). This work is based on Moreton Bay catches where the majority of bay prawn landings occur.

For more information see the latest ASR for the ECOTF.

![Figure 55: Commercial catches by beam and net trawl from 2001–10 that includes catch reported in logbooks as both ‘bay’ and ‘greasyback’ prawns. Catch rates represent ‘bay’ prawns only (as reported in the logbook), but are also indicative of the catch rate for greasyback prawns.](image-url)
Prawn—northern king (redspot and blue-legged)  
East Coast  
(*Melicertus longistylus* and *M. latisulcatus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Trawl effort targeting northern king prawns has decreased since 2003. Landings decreased from 2003–07 but have stabilised from 2008–10. Catch rates have been variable since 2001 but in 2010 were at or near to the highest catch rates recorded for these species. Future assessment of the status of individual northern king prawn species requires current species catch composition reported in logbooks to be verified.</td>
</tr>
<tr>
<td>Species complex</td>
<td>Redspot prawn (<em>Melicertus longistylus</em>), blue-legged king prawn (<em>Melicertus latisulcatus</em>)</td>
</tr>
</tbody>
</table>

Information sources

- Commercial logbook catch and effort
- Performance measures
- Published local biological information
- ECOTF ecological risk assessment findings

Comments

Northern king prawn landings (i.e. north of ~21°S) are predominantly red spot king and blue-legged king prawns (*M. latisulcatus*). The majority of northern king prawn landings recorded prior to 2003 included both redspot king and blue-legged king prawns, but have since been recorded separately in logbooks as redspot king prawns and blue-legged king prawns.

Fishing effort for northern king prawns have been in decline for most years since 1996. Since 1990, landings have been variable for most of the time series until they declined from 2003–07 before stabilising in 2008–10 (Figure 56). Catch rates have been variable since 2001 but in 2010 were at or near to the highest catch rates recorded for northern king prawns.

The recent ECOTF ecological risk assessment found that there is a low risk of northern king prawns being overfished at 2010 effort levels. Although there are no sustainability concerns regarding these species, they are considered ‘undefined’ as the species-level breakdown of logbook data is unvalidated.

Future assessment needs

Uncertainty exists as to whether blue-legged king prawns are an increasing proportion of the catch. Species composition of landings reported as one or the other could be more precisely defined through validation by fishery observers or market sampling. With accurate species composition information, separate assessment of the status of individual northern king prawn stocks may be possible. For more information see the latest ASR for the ECOTF.

Further reading


Figure 56: Commercial catch (t) and catch rates of redspot and blue-legged king prawns caught by otter trawl, reported in logbooks 2003–10.
### Prawn—school (*Metapenaeus macleayi*)

#### East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF) / River and Inshore Beam Trawl Fishery (RIBTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>School prawns are an important species in the River and Inshore Beam Trawl Fishery (RIBTF) and occasionally in the East Coast Otter Trawl Fishery (ECOTF) south of Tin Can Bay. From 2001–10, total landings of school prawns have been variable. Catch rates have been steady in the RIBTF, but variables in the ECOTF. A recent ecological risk assessment indicated that there is low risk of school prawns being overfished under current management arrangements, but little is known of this species’ biology, local distribution and the fishery harvest levels that can be sustained by the Queensland stock.</td>
</tr>
</tbody>
</table>

#### Information sources
- Commercial logbook catch and effort
- Published local biological information
- ECOTF ecological risk assessment findings

#### Comments
School prawns are an important species in the RIBTF and occasionally in the ECOTF south of Tin Can Bay. School prawns are also harvested commercially in NSW fisheries, which landed more than three times the Queensland school prawn harvest in 2008–09. In most years, the RIBTF harvests an average of 95% of total school prawn landings. However, in 2009 ECOTF effort increased to historically high levels and landings increased to 80% of total school prawn landings and 32% in 2010 (Figure 57). From 2001–10, total landings of school prawns have been variable (Figure 57). RIBTF catch rates have been steady while ECOTF catch rates have been variable.

The recent ECOTF ecological risk assessment found that school prawns are at low risk of being overfished at 2010 effort levels. The status of the school prawn in NSW is ‘fully fished’. While there are no sustainability concerns, there is relatively little known about this species and as such, it is classified as ‘undefined’.

#### Future assessment needs
Research in NSW found that school prawn migration and harvests vary with high rainfall and stream flow events. Circumstantial evidence exists that school prawns in Queensland respond to environmental changes in a similar manner. Information about local distribution, biology and sustainable harvest levels for this species in Queensland is lacking.

For more information see the latest ASR for the ECOTF.

#### Further reading

![Figure 57: Commercial landings/catch (t) and catch rates of school prawns caught by otter and beam trawl, reported in logbooks 2001–10.](image-url)
Rockcod–bar

(*Epinephelus ergastularius* and *E. septemfasciatus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal Fishery</td>
<td>Deep Water Fin Fish Fishery (DWFFF) / Coral Reef Fin Fish Fishery (CRFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Reported commercial catches decreased from approximately 40 t to 20 t in 2009–10, with the majority of the catch reported from the CRFFF. A time series of age and length data is required to provide more certainty in status. A small number of bar rockcod collected from the commercial fishing sector have been aged and macroscopically sexed as females, with a maximum age of between 40–50 years. A new DEEDI research project aimed at collecting more biological data and completing an updated risk assessment for the fishery has commenced.</td>
</tr>
<tr>
<td>Species complex</td>
<td>Banded rockcod (<em>Epinephelus ergastularius</em>), convict grouper (<em>Epinephelus septemfasciatus</em>)</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Ecological risk assessment (2005)

**Comments**

Bar rockcod are the dominant species caught by the New South Wales deep water line fishery and make up a significant proportion of the catch in the Queensland fishery. Bar rockcod commercial catch (CRFFF and DWFFF) increased from <1 t in 2004–05 to approximately 44 t in 2008–09 (Figure 58). In 2009–10 catches decreased to around 20 t. Recreational catch estimates are not available for the species, although they are likely to be low due to the depths and offshore locations that bar rockcod are found. However new technology, including electric fishing reels, is allowing anglers to fish deeper waters and the impact this may have on bar rockcod will need to be considered in the future. There are some concerns regarding fishers with an L1 licence (CRFFF) targeting the deeper waters more regularly with mechanical reels to catch large cods, have attracted good prices at the fish markets.

**Future assessment needs**

Currently, there is limited information on the biological characteristics of this species. Age and length data would provide a better understanding of the population characteristics; however this information is not currently collected routinely for this species. Such information would be of value in order to determine stock status in the future. This species will be assessed through an updated ecological risk assessment in 2012, and is already monitored through performance measures.

The Fisheries Observer Program targeted L1 boats in 2009 to obtain better information on the catch of bar rockcod in the reef line fisheries. The line fisheries are again being focussed on in 2011. Results will be incorporated into the stock status process in the future. For more information see the latest ASR for the DWFFF and CRFFF.

![Figure 58: Commercial catch of bar rockcod, reported in logbooks 1999–00 to 2009–10.](image)
Rockcod–goldspotted (*Epinephelus coioides*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>No assessment made</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>This species is predominantly a recreational species, more commonly known as estuary cod. No reasonable assessment of stock status could be made as recreational catch estimates are not directly attributable to this species (only recorded as ‘cod’). Updated estimates of recreational catches may assist in determining stock status in 2012 at the completion of the updated statewide recreational fishing survey.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Charter logbook catch and effort
- Recreational catch estimates

**Comments**

Goldspotted, or estuary rockcod is a popular recreational species that is easily accessible as they inhabit inshore waters and estuaries. Currently, the 2005 recreational fishing estimate for species of rockcod was recorded as ‘cods–unspecified’, meaning that a specific estimate for this species is not available. The new statewide recreational fishing survey, which began in 2010, will provide updated estimates of rockcod catch, but not at the species-specific level. This is due mainly to issues in accurate identification by recreational fishers of cods.

Commercial catch of estuary cod has increased from approximately 2 t in 2006 to 10 t in 2007 and 2008 (Figure 59). Large cods have attracted good prices at the fish markets. Charter catch is negligible at around 1 t, however, inshore operators (fishing in ≤2 m of water) are not required to complete charter logbooks. Therefore the catch is likely to be higher than reported here.

**Future assessment needs**

There is no recent local information available on the biological characteristics of this species. However, there are also no current sustainability concerns for estuary rockcod.

![Figure 59: Commercial catch of estuary rockcod and number of days fished, reported in logbooks 2003–09.](image)
Scallop–mud (*Amusium pleuronectes*)

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Otter Trawl Fishery (ECOTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>The mud scallop is taken mainly as by-product in the tiger/endeavour prawn sector of the ECOTF. Since 2001, effort and landings have been decreasing, while catch rates have been variable. Little is known of this species’ biology and sustainable harvest levels. However, the recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of mud scallops being overfished at 2010 effort levels.</td>
</tr>
</tbody>
</table>

Information sources
- Commercial logbook catch and effort
- ECOTF ecological risk assessment findings

Comments
The mud scallop is a tropical Indo-West Pacific species of shellfish taken mainly as by-product in the tiger/endeavour prawn sector of the ECOTF. Since 2001, effort and landings have been decreasing, while catch rates have been variable (Figure 60). Little is known of this species’ biology and sustainable harvesting levels and as such it was considered ‘undefined’. However, the recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of mud scallops being overfished at 2010 effort levels.

Future assessment needs
Assessment of trends of mud scallop harvest and trawl effort in areas that have high densities of mud scallop is required to improve reliability of fishery indicators as a measure of mud scallop abundance.

For more information see the latest ASR for the ECOTF.
Scallop–saucer (*Amusium balloti*)

**Stock status 2011**: Sustainably fished

**Stock status 2010**: Not assessed

**Principal fishery**: East Coast Otter Trawl Fishery (ECOTF)

**Justification**: Harvested in the ECOTF, the saucer scallop is the third most economically valuable trawl fishery resource in Queensland. Landings and catch rates are variable. In 2010, the ECOTF saucer scallop harvest was 411 t. Recent stock modelling indicates that recent levels of saucer scallop fishing effort and harvest have been within sustainable limits. The recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of saucer scallops being overfished at 2010 effort levels.

---

**Information sources**
- Commercial logbook catch and effort
- Performance measures
- Published local biological information
- Quantitative stock assessment (2010)
- Preliminary ecological risk assessment findings

**Comments**

Harvested in central and southern Queensland waters less than 30 m deep, the saucer scallop is the third most economically valuable trawl fishery resource in Queensland. In 2010 the ECOTF saucer scallop harvest was 411 t (Figure 61).

Record high saucer scallop catch rates in Queensland during the 1980s were followed by very low catch rates in the early to mid-1990s, where overfishing was likely to be occurring. Stock biomass appears to have increased since 1997 when rotational closures were put in place and catch rates began to recover. From 2001–10, landings and catch rates have been variable. However, continued lower catch rates compared to historically higher levels indicate problems with stock production and possible habitat degradation.

Quantitative modelling of the stock has found that recent harvesting levels are likely to be within the estimated range for maximum sustainable yield (MSY) and effort is well below the estimated effort required to achieve MSY. Rotational closures of high density harvesting areas (scallop replenishment areas), an annual seasonal closure and a 90 mm minimum legal size are specific management settings that have been introduced to protect the stock from overfishing. The recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of saucer scallops being overfished at 2010 effort levels.

**Future assessment needs**

A scientifically rigorous estimate of stock MSY from quantitative modelling currently under way and recently completed standardisation of saucer scallop catch rates are providing reliable measures of sustainable saucer scallop harvesting in Queensland. These will be used in future stock status assessments of saucer scallops. For more information see the latest ASR for the ECOTF.

**Further reading**


**Figure 61**: Commercial saucer scallop catch (t) and catch rate (kg/day), reported in logbooks 2001–10.
### Sea cucumber–white teatfish

*(Holothuria fuscogilva)*

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Bêche-de-mer Fishery (ECBDMF)</td>
</tr>
<tr>
<td>Justification</td>
<td>White teatfish continues to be commercially harvested at, or near, the quota level. The rotational harvesting strategy in place for sea cucumber (other than burrowing blackfish) is ensuring catch and effort for white teatfish is effectively distributed throughout the fishery area. Catch rates and individual mean size are relatively steady. However, the stock status of white teatfish is undefined until an appropriate resource assessment for this species is conducted.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures

**Comments**

White teatfish (*Holothuria fuscogilva*) is the second most valuable commercial sea cucumber species next to black teatfish (*Holothuria whitmaei*). The species has been quota managed since 1999 and continues to be harvested close to the allowable level of take. Since 2004, the fishing industry has operated under a memorandum of understanding, which includes a voluntary rotational zoning scheme (RZS) where 154 nominated fishing zones may be fished for up to 15 days in one of every three years. Fisheries Queensland reviewed the effectiveness of the RZS in 2011 to ensure fishing operations were not tending towards localised unsustainable harvesting pressure on commercial sea cucumber species. It was noted that the RZS was particularly effective in maintaining catches at below quota levels for white teatfish.

Sea cucumber species are density dependent spawners and are susceptible to unsustainable localised depletion from commercial harvesting. No estimate of the total white teatfish resource or a sustainable yield estimate has been made for this species. The stock status of white teatfish will be undefined until an appropriate resource assessment is conducted and a sustainable yield estimate developed.

**Future assessment needs**

Stock status certainty will be improved by an appropriate resource assessment for white teatfish with industry involvement.

For more information see the latest [ASR](#) for the ECBDMF.
Sea cucumber–burrowing blackfish

*Actinopyga spinea*  

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Bêche de mer Fishery (ECBDMF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Most of the burrowing blackfish harvest comes from spatially discrete zones in the fishery called burrowing blackfish zones. Most zones have precautionary total allowable annual catch levels that have been developed through industry led resource assessments. However not all areas where harvest occurs have been surveyed. It is also a requirement that the existing resource assessments are repeated after three years to confidently demonstrate sustainable harvest levels. Fisheries Queensland is awaiting these results from industry. The stock status of burrowing blackfish is undefined until all zones are surveyed, the re-surveys have been completed and all results scientifically verified.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures

**Comments**
Separate management arrangements exist for burrowing blackfish in the ECBDMF. This species has discrete total allowable catch levels assigned to defined spatial areas (burrowing blackfish zones) that have been based on an industry initiative to provide scientifically verified resource assessments. While the sustainable yield estimates for these areas are believed to be conservatively set, allowing continued annual harvesting at the level is dependent on the resource assessments being repeated after three years to demonstrate no declines in the resource.

The stock status of burrowing blackfish is undefined until re-surveys of all separate burrowing blackfish zones have been completed and the results assessed by Fisheries Queensland.

**Future assessment needs**
Stock status certainty will be improved by an appropriate resource assessment for burrowing blackfish being completed for all burrowing blackfish zones. Certainty will also be improved when the results of the repeated industry surveys are available for assessment. For more information see the latest ASR for the ECBDMF.
Sea mullet (*Mugil cephalus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>The stock is shared with New South Wales (NSW). Queensland’s catches are below the long term average; however, they are within historical levels. Both length and age data have been fairly consistent over recent years. Sea mullet was assessed by NSW as ‘fully fished’ due to a long history of stable landings and catch rates for estuary and ocean fisheries in both jurisdictions.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Performance measures
- Fishery dependent length and age information
- Published local biological information

### Comments
Sea mullet comprise the largest catch by weight of species harvested by commercial net fisheries in Queensland (Figure 62). The sea mullet stock is shared with NSW. Monitoring of length and age information from both stocks indicate no sustainability concerns (Figure 63). Catches and catch rates have been stable for many years, although overall these are near the lower limits in the historical record dating back to the 1940s. Performance measures for sea mullet did not trigger in 2010.

Sea mullet was recently assessed by NSW as ‘fully fished’ due to a long history of stable landings and catch rates for estuary and ocean fisheries in both jurisdictions.

### Future assessment needs
Stock status certainty will be improved by a stock assessment (joint with NSW) of sea mullet; and more accurate estimates of recreational harvest of sea mullet. The next statewide recreational fishing survey commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFFF.

### Further reading


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**Figure 62**: Commercial net catch (t) and catch rate of sea mullet, reported in logbooks from 2002–10.
Figure 63: Length frequencies of estuarine and ocean beach-caught sea mullet from 2008 to 2010.
Shark (*Elasmobranchii*)  East Coast and Gulf of Carpentaria

**Stock status 2011**  Undefined  
**Stock status 2010**  No assessment made  
**Principal fishery**  East Coast Inshore Fin Fish Fishery (ECIFFF) / Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)  
**Justification**  Fisheries Queensland is undertaking a five year program of collecting and assessing the status of sharks harvested in Queensland. The major shark species are considered undefined until full stock assessments can be completed.

**Information sources**
- Commercial logbook catch and effort  
- Recreational catch estimates  
- Charter logbook catch and effort  
- Performance measures  
- Fishery dependent length and age information  
- Published local biological information  

**Comments**
New arrangements for shark harvest on the east coast have been in place since mid-2009, including a precautionary 600 t quota, an observer program, limits on incidental take and a species-specific shark logbook. In 2009–10, 501 t of the quota was taken in the ECIFFF. The shark fishery observer program has been in place in the ECIFFF since 2009 and preliminary findings indicate that a large portion of shark catch harvested has occurred when targeting more valuable species, such as mackerels. Detailed catch reporting of sharks has been in place in the Gulf of Carpentaria Inshore Fin Fish Fishery since 2006 in the N3 fishery and 2007 in the N9. Fisheries Queensland monitors annual catch and catch rate trends of 18 shark species and groups in the GOCIFFF to ensure that risks to the sustainability of these species are identified. Monitoring is through the GOCIFFF Performance Measurement System and reported annually. No concerns for harvest of shark species were identified in these reviews.

Fisheries Queensland is two years into a five year information collection and assessment phase for our major shark species. This information collection is being coordinated through the Shark Assessment Working Group. A *Plan for Assessment of Queensland East Coast Shark Resources 2009–14* has been developed. The plan documents the specific data needed for future stock assessments and describes Fisheries Queensland programs in place that address these needs. The list of major species in order of priority for stock assessment is as follows:
- Blacktip shark complex–*Carcharhinus tilstoni* and *C. limbatus*  
- Spot-tail shark–*C. sorrah*  
- Scalloped hammerhead shark–*Sphyrna lewini*  
- Milk shark–*Rhizoprionodon acutus*  
- Australian sharpnose shark–*R. taylori*  
- Spinner shark–*C. brevipinna*

It is expected that full stock assessments will commence for the major shark species in 2013. Results will be applied to east coast and GOC shark stocks where appropriate.

**Future assessment needs**
The plan that has been developed that sets out the strategies to be implemented by 2014 to assess the population status of the major shark species being taken in Queensland fisheries.

For more information see the latest *ASR* for the ECIFFF and the GOCIFFF.

**Further reading**
**Snapper (Pagrus auratus)**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Overfished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Overfished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Rocky Reef Fin Fish Fishery (RRFFF) / Recreational</td>
</tr>
</tbody>
</table>

**Justification**
The snapper stock is shared with New South Wales (NSW) and is considered 'overfished'. Stock assessment results indicated a high level of fishing pressure. Updated mortality estimates for 2010 together with decreasing commercial catch and no increase in catch rate suggest that stock status has not improved. Fisheries Queensland implemented new management arrangements in September 2011 with the objective of allowing for the rebuilding of the snapper stock to sustainable levels over the longer term.

**Information sources**
- Stock assessment (2009, using data to 2007)
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery-dependent age, length and mortality estimate information (2006–10)
- Performance measures
- Published local biological information

**Comments**
This is a shared stock with NSW; south east Queensland is considered the most northern limit of the species major distribution. Commercial catch has halved in weight since 2005 but the recreational estimate almost doubled from the 2002 to 2005 survey (due to the average weight of fish being landed increasing from 0.9 kg in 2002 to 1.6 kg in 2005 attributed to changes in minimum legal size limits). Commercial catch in 2010 continued to decline to a ten-year low of 79 t (Figure 64). Charter catches remained around 45 t. The stock assessment undertaken in 2009 indicated that the snapper exploitable biomass levels are approximately 35% of the virgin biomass and the stock requires rebuilding (see Campbell et al. 2009).

Fisheries Queensland has routinely monitored the size and age of snapper caught by all sectors of the fishery since July 2006, with the largest fish sampled measuring over a metre in length. These fishery-dependent monitoring programs have shown that snapper can live to more than 20 years of age in Queensland waters and may even live as long as 30 years (Figure 65). Snapper are recruited to the fishery at about four years of age under current management regulations (minimum size 35 cm) but the landed catch by all sectors of the fishery is dominated by fish less than 10-years-old (Figure 65).

Total mortality estimates calculated from fishery dependent monitoring data show that performance measures would have triggered for all sectors in 2010 (based on natural mortality–M of 0.15) and appear to be getting higher each year. Caution needs to be shown in interpreting fishing mortality estimates alone when recruitment may be increasing. However commercial catch has decreased and there is no clear catch rate increase which, together with the mortality estimate, provide no evidence to 2010 of stock recovery.

The current NSW stock status for east coast snapper is ‘growth overfished’.

**Future assessment needs**
Monitoring programs to collect length and age information on snapper being harvested by all sectors (commercial, recreational and charter) are ongoing and supplemented by fishery independent surveys for juvenile fish. These data are crucial for future stock assessments, and are used annually to monitor recruitment and estimate total mortality rate in the population. An updated recreational catch estimate will be available in 2012.

A revised quantitative stock assessment has been scheduled for 2014.
Management response

New management arrangements for snapper were introduced in September 2011. These included reducing the recreational bag limit for snapper from five to four, with a maximum of one fish with a total length over 70 cm. The minimum size limit for snapper remains at 35 cm. The objective of these changes is to allow for the rebuilding of the snapper stock to sustainable levels over the long term.

For more information see the latest ASR for the RRFFF.

Further reading


Figure 64: Commercial catch (t) and catch rate of snapper, reported in logbooks 2000–10.

Figure 65: Relative abundance of snapper in different age groups from retained recreational, commercial and charter (recreationally catches from charter vessels) catches, 2008 to 2010.
Snapper–crimson (*Lutjanus erythropterus*)

### Stock status

<table>
<thead>
<tr>
<th>Year</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Uncertain</td>
</tr>
<tr>
<td>2010</td>
<td>Uncertain</td>
</tr>
</tbody>
</table>

### Principal fishery
- Coral Reef Fin Fish Fishery (CRFFF) / Recreational

### Justification
- Commercial harvest is increasing to historical levels reported prior to the introduction of quota in 2003–04 (~20 t). There is some published information regarding length and mortality estimates from the Great Barrier Reef region from the late 1990s, however more age, sex and updated recreational catch information is required. Species-level recording of commercial catch was introduced in logbooks in 2007; however, the species is grouped with saddletail snapper in the current recreational fishing survey. There are suspected increases in catch efficiency with increasing affordability of advanced technology (sounders, GPS, radar and sonar). There is high discard mortality (60%) for this relatively long-lived species.

### Information sources
- Commercial logbook catch and effort
- Total allowable catch (TAC) for red snappers
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published local biological information

### Future assessment needs
- Currently, there is limited biological information available relating to crimson snapper on the east coast. More independent information is required to validate logbooks, which will occur in 2011 when fishery observers will be focusing on the east coast line fisheries.

For more information see the latest ASR for the CRFFF.

### Comments

In 2004, crimson snapper catch was included as part of the commercial other species 'OS' quota. Catch of crimson snapper in the east coast line fisheries has increased from 820 kg in 2005–06 to just over 20 t in 2009–10 (Figure 66). Since the introduction of the LF05 logbook in 2007, reporting of 'nannygai-unspecified' catches have decreased from approximately 20 t to less than 1 t. Crimson snapper attracts a beach price of between $8–10/kg.

Recreational catches for ‘nannygai (unspecified)’, which includes catch of saddletail snapper, show an increase in catch from 162 t in 2002 to 193 t in 2005 (east coast and Gulf of Carpentaria combined). An updated estimate for catches by species in the recreational fishing sector is expected in 2012. Although recreational anglers will still report ‘nannygai (unspecified)’, regional resolution will be available for the first time. Charter catch in 2009–10 was 7.5 t, down from 9 t in 2008–09.

**Figure 66:** Commercial catch (t) of crimson snapper (east coast), reported in logbooks 1999–00 to 2009–10. Prior to the introduction of the new logbook in 2007, some catch may be reported as ‘jobfish-unspecified’.
Snapper–crimson (*Lutjanus erythropterus*)  Gulf of Carpentaria

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (GOCDFFTF) / Gulf of Carpentaria Line Fishery (GOCLF)</td>
</tr>
<tr>
<td>Justification</td>
<td>There has been increased effort in the fishery with additional boats accessing the fishery, but catch rate has remained stable. The total mortality estimate (Z) is low but is reliant on small sample size at this stage. The Fisheries Observer Program has reported smaller fish being now caught in the Gulf. Stock status remains uncertain until the Fisheries Research and Development Corporation (FRDC) Gulf of Carpentaria red snapper monitoring project outcomes are released in 2011.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Total allowable catch (TAC) for red snappers
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Fishery dependent length and age information (2004–06)
- Published local biological information

**Comments**
Crimson snapper continues to be the main red snapper species harvested, comprising 46% of the total catch by weight (344 t in 2009) in the GOCDFFTF (Figure 67). It is also a by-product species in the Gulf of Carpentaria Line Fishery (GOCLF) (Figure 67).

Minimal local biological data was available. Age based catch curves were considered from Fry and Milton (2009), from fish collected 1990–2003. Length information is available from the Fisheries Observer Program (FOP) in the Gulf from north and south regions sampled between 2004 and 2006. The total mortality estimate (Z) is low but is reliant on a small sample size. Performance measures relating to incremental declines in catch rates for the species in the GOCDFFTF did not trigger in 2009.

**Future assessment needs**
Outcomes from the FRDC project 2009/037 ‘Sustaining productivity of tropical red snappers using new monitoring and reference points’ will be considered in future stock status assessments (see ’emperor–red’ for more information on this project).

For more information see the latest ASR for the GOCDFFTF.

**Further reading**

Figure 67: Commercial catch (t) and catch rates of crimson snapper (GOC) caught by trawl and line, reported in logbooks 1998–2009.
Snapper–goldband (*Pristipomoides multidens*)

**Stock status 2011**: Uncertain

**Stock status 2010**: Uncertain

**Principal fishery**: Coral Reef Fin Fish Fishery (CRFFF) / Deep Water Fin Fish Fishery (DWFFF)

**Justification**: Commercial harvest is historically between 30–60 t per year. No recreational estimate is available for this species. It is unknown if there is a single stock or separate stocks on the east coast. Some otoliths have been collected but have not been aged. Goldband snapper will be monitored as part of the Fisheries Observer Program (FOP) focus on line fisheries in 2011. This species is also currently monitored as a key ‘other species’ (OS) through the Performance Measurement System (PMS).

**Information sources**

- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Charter logbook catch
- Performance measures

**Comments**

Goldband snapper is predominantly a deep water species that may be targeted more readily in the future, with the potential for L1–L3 line fishers utilising mechanical reel technology to target deeper waters. Catches have increased steadily from 30 t in 2004–05 (when OS quota was introduced), to 58 t in 2009–10 (Figure 68). The species is potentially slow growing but information on its biology was considered limited at the time of assessment. It is also unknown if goldband snapper on the east coast is made up of a single stock or separate stocks.

Recreational catch is unquantifiable as catch was reported as ‘tropical snappers–unspecified’ in the last survey (2005). There have been some concerns about species identification over the minimal charter catch reported (<1 t in 2009–10) as the species is thought to be popular in the charter fishery. ‘Jobfish–unspecified’ catch reported in the charter fishery in 2009–10 was 4.5 t.

The FOP will be collecting species-specific catch and effort information from the east coast line fisheries in 2011. Results will provide a better understanding of the logbook reporting accuracy for the species, as well as provide length information for both retained and discarded fish.

Fisheries Queensland will continue to monitor this species through its PMS.

**Future assessment needs**

This species is unlikely to be a priority for specific monitoring at this stage, resulting in a likely ‘uncertain’ status for some time. There may be some potential for the collection of otoliths from the FOP to analyse fish age data.

For more information see the latest ASR for the CRFFF and DWFFF.

**Figure 68**: Commercial catch (t) of goldband snapper, reported in logbooks 1999–00 to 2009–10. Some catch of goldband snapper may be still reported as ‘jobfish–unspecified’ in the logbook.
Snapper–hussar (*Lutjanus adetii* and *L. vitta*)

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal Fishery</td>
<td>Coral Reef Fin Fishery (CRFFF)/Recreational</td>
</tr>
</tbody>
</table>

**Justification**
Commercial catches are currently well below long term average for this species group (~20 t in 2009–10), while recreational catches are thought to be substantial. A recently published local biological study from the Great Barrier Reef (Heupel et al. 2009) does not indicate any concerns about the stock between 1995 and 2005. Updated estimates of recreational catches may assist in determining stock status in 2012 at the completion of the statewide recreational fishing survey.

**Species complex**
Pink hussar (*Lutjanus adetii*)
Brownstripe hussar (*Lutjanus vitta*)

**Information sources**
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery independent length information
- Performance measures
- Published local biological information

**Comments**
Commercial catch levels have decreased dramatically since quota was introduced in 2004 (80 t to 20 t, Figure 69). There is potential for the commercial catch to increase if the ‘OS’ quota component is more fully utilised (currently 59% of quota). For the purpose of future reporting of status, the two species will remain grouped as *Hussarspp*.

Recreational catch estimates from 2005 indicate that approximately 430 t were harvested. An updated Statewide Recreational Fishing Survey is currently underway, with results expected in 2012.

**Future assessment needs**
This species is unlikely to be a priority for specific monitoring at this stage, resulting in a likely ‘uncertain’ category for some time.

There may be some potential for further assessment through research projects on lutjanids on the Great Barrier Reef.

For more information see the latest ASR for the CRFFF.

**Further reading**

![Figure 69: Commercial catch (t) and catch rate of hussar, reported in logbooks 1999–00 to 2009–10.](image)
### Snapper—Moses (Lutjanus russelli)  

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>No assessment made</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>This species is more commonly known as Moses perch. It has limited commercial catches and is predominantly a recreational species. Improved recreational estimates of harvest would be required to determine stock status.</td>
</tr>
</tbody>
</table>

#### Information sources
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort

#### Comments
Moses snapper is another popular recreational species that is easily accessible in inshore waters and estuaries. The 2005 recreational fishing estimate for moses perch was a harvest of around 71,000 fish. The updated statewide recreational fishing survey, which began in 2010, will provide revised estimates of moses perch harvest and release rates.

Since 2004, the commercial catch of Moses snapper has been stable at around 2 t (Figure 70). Charter catch is higher at around 6 t per year, although inshore charter operators (fishing in <4 m of water) are not required to complete charter logbooks. Therefore, this estimate is likely to be higher than reported here.

#### Future assessment needs
This species is unlikely to be a priority for specific monitoring in the foreseeable future. An updated recreational estimate will be available in 2012.

![Figure 70: Commercial catch (t) of Moses snapper, reported in logbooks 1999–00 to 2009–10.](image-url)
Snapper–rosy (*Pristipomoides filamentosus*)

**East Coast**

| Stock status 2011 | Uncertain |
| Stock status 2010 | Uncertain |
| Principal fishery | Coral Reef Fin Fish Fishery (CRFFF) / Deep Water Fin Fish Fishery (DWFFF) |
| Justification | Catch for this species remains low (<10 t), with some catch still likely reported in logbooks as ‘jobfish – unspecified’. Observers in the line fisheries in 2011 will aid in better defining the species composition of unspecified jobfish. This species is currently monitored as a key OS species through the Performance Measurement System (PMS). |

**Information sources**
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Charter logbook catch
- Performance measures
- Published international biological information

**Comments**

Rosy snapper (*Pristipomoides filamentosus*) are caught by handline and dropline in Queensland and, in some years, make up a significant proportion of the catch of the deep water fishery. The high catch rates of rosy snapper in particular areas might be due to their tendency to aggregate in large shoals in up-current localities (Mees 1993). The maximum reported length is 90 cm total length (TL) (maturing at 35–50 cm TL; Polovina & Ralston 1987) and the maximum reported age is 30 years. The potential vulnerability of rosy snapper to overexploitation has been shown in Samoa, where commercial development of a multiple hook fishery saw a subsequent depletion of rosy snapper over the seamounts and large fish (over 61 cm) had disappeared altogether in just nine years (Langi & Langi 1989).

There has been minimal commercial catch reported with much reduced effort in Queensland since 2005 (Figure 71) and as such, there are no sustainability concerns at present.

**Future assessment needs**

Observers in the line fisheries in 2011 will aid in better defining the species composition of unspecified jobfish. This species is currently monitored as a key OS species through the Performance Measurement System (PMS).

Although there is limited biological information available on this species, it is not considered a priority species for monitoring at this stage.

For more information see the latest ASR for the CRFFF and DWFFF.

**Further reading**


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**Figure 71: Commercial catch (t) of rosy snapper, reported in logbooks 1999–00 to 2009–10. Some catch of rosy snapper may be still reported as ‘jobfish-unspecified’ in the logbook.**
Snapper–saddletail (*Lutjanus malabaricus*)  
East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF) / Deep Water Fin Fish Fishery (DWFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial harvest remains about half that of pre-quota levels (~50 t). Similar to the crimson snapper, there is some older published information for this species, but current biological information is needed. This species is also grouped with <em>L. erythropterus</em> in the current recreational fishing survey due to difficulty in species identification. There is high discard mortality (60%) for this relatively long-lived species.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Other species ‘OS’ quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures

### Comments
Commercial saddletail snapper, ‘large mouth nannygai’ or ‘nannygai-unspecified’ catches are less than half of the pre-quota levels (115 t in 1999–00 to 51 t in 2009–10, Figure 72). Since the LF05 logbook was introduced to the CRFFF in 2007, reporting of ‘nannygai-unspecified’ has dropped from 18 t in 2006–07, to less than 100 kg in 2009–10. Saddletail snapper attracts a beach price of between $8–10/kg.

Recreational catches for ‘nannygai-unspecified’ show an increase in catch from 162 t in 2002 to approximately 193 t in 2005 (east coast and Gulf of Carpentaria combined). Results from the updated Statewide Recreational Fishing Survey are expected to be publicly available by mid 2012.

There is currently no fishery-dependent biological information available for the east coast.

### Future assessment needs
Basic biological information including length and age structures is needed to move this species out of an ‘uncertain’ category. Discard mortality is believed to be high for this species. Fishery Observer Program data would help to validate catches, including undersized bycatch, which is not reported in logbooks. This species is monitored as a key OS species in the performance measurement system.

For more information see the latest ASR for the CRFFF and the DWFFF.

Figure 72: Commercial catch (t) of saddletail snapper (east coast), reported in logbooks 1999–00 to 2009–10.
**Snapper—saddletail (Lutjanus malabaricus)**  
Gulf of Carpentaria

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (GOCDFFTF) / Gulf of Carpentaria Line Fishery (GOCLF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Similar characteristics to crimson snapper in the Gulf of Carpentaria (GOC)—increased effort in the fishery but catch rates have remained stable. Performance measures relating to incremental declines were not triggered. Biological information would assist in reducing the uncertainty associated with this stock.</td>
</tr>
</tbody>
</table>

**Information sources**

- Commercial logbook catch and effort
- Total allowable catch (TAC) for red snappers
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Fisheries Observer Program (FOP) data (2004–06)

**Comments**

In 2009, a record 229 t of saddletail snapper was reported in the GOCDFFTF (Figure 73). There was a significant decrease in catch in the GOCLF from 10 t in 2008 to 4 t in 2009 (Figure 73). Recreational catches for ‘nannygai-unspecified’ show an increase in catch from 162 t in 2002 to around 193 t in 2005 (east coast and Gulf of Carpentaria combined). Charter catch was 1 t in 2009.

Length information is available from the FOP in the Gulf from north and south regions sampled between 2004 and 2006. Performance measures relating to incremental declines in catch rates for the species in the GOCDFFTF did not trigger in 2009.

**Future assessment needs**

Other biological information including age, sex ratios and growth curves would assist in reducing the uncertainty associated with this species. Discard mortality is believed to be high for this species. Additional observer coverage would help to validate catches, including undersized bycatch which is not reported in the logbooks.

Outcomes from the FRDC project 2009/037 ‘Sustaining productivity of tropical red snappers using new monitoring and reference points’ will be considered in future stock status assessments (see ‘emperor—red’ for more information on this project).

For more information see the latest [ASR](#) for the GOCDFFTF and GOCLF.

![Figure 73: Commercial catch (t) and catch rate (kg/day) of saddletail snapper (GOC), reported in logbooks 1998 to 2009.](image)
Snapper–stripey (*Lutjanus carponotatus*)

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>There have been increased commercial landings of this species from 20 t in 2004–05 to 65 t in 2009–10, which could be reflective of shifts in fisher targeting behaviour. Available length and age distributions for stripey populations in the Great Barrier Reef do not indicate any sustainability concerns (Heupel et al. 2009). This species is generally not susceptible to hook and line until they reach larger legal sizes, when they are sexually mature. This species will continue to be monitored through the Performance Measurement System (PMS) for the CRFFF.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Other species (OS) quota usage
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery independent length information
- Performance measures
- Published local biological information

### Comments
Commercial catch levels have increased dramatically since quota was introduced in 2004 (5 t to 65 t, Figure 74), which may also be attributed to new logbooks specifying the species. Significant recreational catches estimates were observed in the 2005 survey (90 000 fish). Stripeys are likely to be caught when fishers target coral trout, which likely contributes to their high catches. Stripey snapper length, age, sex ratio and mortality estimate data from a Marine and Tropical Sciences Research Facility (MTSRF) project on lutjanids was considered, although information presented in the publication was grouped for the 11-year period.

### Future assessment needs
Further data collection should be conducted to obtain more recent length composition and age estimates by sector. This species will continue to be monitored through the PMS for the CRFFF. There will unlikely be any additional monitoring undertaken by Fisheries Queensland on the species at this stage.

For more information see the latest [ASR](#) for the CRFFF.

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**Figure 74:** Commercial catch (t) and catch rate (kg/day) of stripey snapper, reported in logbooks 1999–00 to 2009–10.

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**Further reading**
Stock status 2011 | Undefined
---|---
Stock status 2010 | Uncertain
Principal fishery | East Coast Otter Trawl Fishery (ECOTF) / Recreational

**Justification**
The commercial squid harvest, 95% of which is from trawling, is predominantly made up of pencil squid (*Uroteuthis* spp.). Some pencil squid may also be taken in the recreational fishery. Queensland and northern New South Wales fisheries catch the same pencil squid species. An estimate of the recreational squid catch composition is needed before a more definitive classification of Queensland pencil squid stocks can be made.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Published biological information
- ECOTF ecological risk assessment findings

**Comments**
Approximately 95% of the Queensland commercial squid landings are taken by trawling, mainly in the ECOTF; the other 5% is taken in other net and line fisheries. The Queensland east coast trawl harvest of squid is dominated by pencil squid (83 t in 2010). Pencil squid are also harvested in New South Wales, (25 t landed in 2008–09). Recreational squid harvest is currently unquantified. Reported charter boat catches of squid are negligible.

The number of ECOTF boats reporting squid landings has generally been in decline since 2003 (Figure 75). Landings increased steadily from 2001–05 but decreased by 50% from 2005–06 and have remained at historically low levels since. The RIBTF contributes little to overall landings (1 t from 12 boats in 2010). Squid are an incidental component of the trawl catch which are retained in greater quantities when the harvest of more valuable targeted species (e.g. eastern king prawns) is low.

The recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of pencil squid being overfished at 2010 effort levels.

**Future assessment needs**
The Queensland pencil squid harvest is composed of several species but two species dominate: broad squid in inshore waters and slender squid in mid shelf waters. Landings data have not been attributed to individual species. However, it may be possible to derive representative catch estimates for squid species in the ECOTF using observer information of species composition of the squid catch.

Collection and analysis of catch and effort data from high catching areas in the ECOTF would also be valuable to effectively assess and monitor the sustainability status of pencil squid species.

For more information see the latest ASR for the ECOTF.

![Figure 75: Total commercial catch (t) and number of boats reporting pencil squid (otter trawling), reported in logbooks 2001–10.](image)
Squid–tiger (Sepioteuthis lessoniana)  

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Undefined</th>
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<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast commercial net and line fisheries/ Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Most commercial inshore net and line-caught squid and some recreational squid landings are likely to be tiger squid (Sepioteuthis lessoniana). Recreational landings may be increasing. A better estimate of the recreational tiger squid catch is needed before a more definitive classification of tiger squid stocks can be made.</td>
</tr>
</tbody>
</table>

Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Published biological information

Comments
Approximately 5% of the Queensland commercial squid landings taken in inshore net, beam trawl and line fisheries are probably tiger squid (Sepioteuthis lessoniana). Tiger squid is a tropical species likely to be harvested from the Queensland east coast, the Gulf of Carpentaria, Northern Territory and Western Australia. The Queensland commercial harvest of tiger squid was 5 t in 2010 (Figure 76). Commercial catch rates are variable. Total harvest of this species could be much higher as it is a major likely squid species taken by recreational fishers, which is currently unquantified and not species specific. Reported charter boat catches of squid are negligible (averaging about 50 kg per year) and the indigenous catch is uncertain (but likely to be low).

The status of this species will be reviewed again when an updated estimate of recreational catch is available.

Future assessment needs
An updated estimate of recreational harvest of squid would be of value to determine recreational harvest of this species. A statewide recreational fishing survey commenced in 2010 and results will be available in 2012.

Further reading

Figure 76: Total commercial catch (t) and catch rates of tiger squid from net and line sectors, reported in logbooks 2001–10.
**Stock status 2011** | **Sustainably fished**
---|---
**Stock status 2010** | **Sustainably fished**
**Principal fishery** | East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational

**Justification**
The tailor stock is shared with New South Wales and is considered sustainably fished. Commercial catch and catch rates are stable and within historical bounds post management intervention in 2002. Age classes absent from the stock in the mid 2000s are present in recent age structures. Performance measures were not triggered in 2009–10. A recent stock assessment (2009) indicates that the combined Queensland–New South Wales total harvest of tailor is below the estimated maximum sustainable yield (MSY) and above 50% of virgin biomass.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Fishery dependent length and age information (1999–2010)
- Published local biological information
- Stock assessment (2009, data to 2008)

**Comments**
Commercial catch and catch rates are stable and within historical bounds post management intervention in 2002 (Figure 77). Long term monitoring of length and age composition information for tailor indicates the stock is rebuilding from the mid 2000s when older age classes were missing from catches. Continuation of monitoring has demonstrated that these age classes are once again present in the age structures (Figure 78). Performance measures were not triggered in 2009–10.

Fisheries Queensland completed an update of the Queensland–New South Wales stock assessment for tailor in 2009. The update incorporated additional data on catch sizes, catch rates and age-length frequency distributions from 2004 to 2008. Key findings included:
- The combined Queensland–New South Wales total harvest of tailor is below the estimated MSY and above 50% of virgin biomass.
- Current biomass of tailor is approximately 120% of the biomass corresponding to MSY for the combined stock.
- Recruitment has been below average in every year since 2001.
- There is uncertainty over the current magnitude of the recreational component of the tailor catch.

**Future assessment needs**
More accurate, regionally separated estimates of recreational harvest of tailor will improve stock status certainty. The latest statewide recreational fishing survey in Queensland commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFT.

![Figure 77: Commercial catch (t) and catch rates of tailor, reported in logbooks 2001–02 to 2009–10.](image-url)
Figure 78: Relative abundance of tailor in different age groups from retained commercial catches, 2007 to 2010.
Teraglin (*Atractoscion aequidens*)

**Stock status 2011**: Undefined

**Stock status 2010**: Uncertain

**Principal fishery**: Rocky Reef Fin Fish Fishery (RRFFF) / Recreational

**Justification**: Commercial catches have been relatively stable the last few years and the catch performance measure was not triggered. There is some concern over lack of older fish in the population based on fishery dependent sampling data. Teraglin is also subject to high discard mortality. Reliable estimates of recreational catch data may aid in better defining stock status. Teraglin is currently being assessed as part of a Fisheries Research and Development Corporation (FRDC) project on the fishery.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Fishery dependent length information (2006–10)
- Performance measures

**Comments**

The catch of teraglin increased substantially from <5 t to 29 t in 2005, which may be an artefact of logbook changes. The commercial catch has now stabilized to approximately 15–20 t over the past two years (Figure 79). Teraglin is consistently targeted in the charter fishery. There are some concerns from the fishery-dependent information collected in the commercial, charter and recreational sectors that many of the larger fish aren’t being seen anymore, but more long-term monitoring data is needed.

There is currently no reliable estimate of recreational take. New South Wales (NSW) has reported the species as ‘fully fished’, saying that the stock is susceptible to fishing from commercial fishers and there is a likely significant reduction in the stock, however, more information is required.

Length frequencies indicate that in 2011, some larger fish are starting to come through, but the catch is truncated at around 60 cm (Figure 80). The performance measure relating to teraglin catch was not triggered in 2009, indicating that there is no immediate threat to the sustainability of the stock in Queensland waters. Teraglin has a restricted range in southern Queensland, extending only from the NSW border north to Rainbow Beach.

**Future assessment needs**

An updated estimate of recreational catch data, available in 2012, may aid in better defining stock status. Otoliths have also been collected opportunistically as part of the fishery-dependent sampling, but have not been aged.

A three-year FRDC funded project to address some of the knowledge gaps in the rocky reef fishery began in early 2009. The research is examining the important areas of juvenile habitat of rocky reef fish species in southern Queensland as well as assessing various harvest strategies for the fishery. Key growth, reproductive, and other fisheries parameters are being derived for pearl perch and teraglin.

For more information see the latest ASR for the RRFFF.

**Figure 79**: Commercial catch (t) and catch rate (kg/day) of teraglin, reported in logbooks 2000–10.
Figure 80: Length frequencies of teraglin from retained recreational, commercial and charter (recreational catches from charter vessels) catches, 2008 to 2010.
Threadfin–blue (*Eleutheronema tetradaactylum*)

**Stock status 2011**  Sustainably fished
**Stock status 2010**  Sustainably fished

**Principal fishery**  East Coast Inshore Fin Fishery (ECIFFF)

**Justification**  Commercial catches and catch rates in 2010 were slightly lower than 2009 however these are still within historical levels. Life history characteristics for this species are resilient to fishing pressure. Minimum legal size (MLS) ensures a good proportion of the stock is protected from fishing. There are no indications of stock declines.

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures

**Comments**
Blue threadfin catches and catch rates have been relatively steady since 2002 (Figure 81). Assessment against performance measures in the Performance Measurement System (PMS) indicates that there are no declining sustainability trends evident for blue threadfin on the east coast.

Blue threadfin are fast growing and early maturing. These factors ensure the species receives adequate protection from fishing impacts through a 40 cm MLS and 10 fish in-possession limit for recreational fishers. Recent genetic studies have suggested there are multiple populations of blue threadfin on the east coast, however given its robust life history characteristics it is also likely to be resilient to localised fishing pressures.

**Future assessment needs**
More accurate, regionally separated estimates of recreational harvest of blue threadfin will improve stock status certainty. The current statewide recreational fishing survey commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFFF.

**Further reading**

![Figure 81: Commercial catch (t) and catch rates of blue threadfin (east coast) caught by net and line, reported in logbooks 2002–10.](image-url)
**Threadfin—blue**  
*(Eleutheronema tetractylum)*

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Inshore Fin Fishery (GOCIFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Life history characteristics of this species are resilient to fishing pressure. Minimum legal size (MLS) ensures a good proportion of the stock is protected from fishing. There are no indications of stock declines.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Ecological risk assessment (2004) and 2010 review

**Comments**
Commercial catches of blue threadfin were slightly lower in 2010 compared with 2009, although catch rates were similar (Figure 82). Catches remain within historical levels.

Blue threadfin are fast-growing and mature at a young age. These factors ensure the species receives adequate protection from fishing impacts through a 40 cm MLS and 20 fish in-possession limit for recreational fishers. Similar to the studies on the east coast, results of recent genetic studies of Gulf of Carpentaria blue threadfin have suggested the existence of multiple populations in the Gulf. However, once again, it is believed that the life history characteristics of blue threadfin are likely to increase their capacity to recover from localised fishing pressures.

**Future assessment needs**
The following information needs will improve stock status certainty:
- Spatially defined performance measures to be developed to provide early detection of unsustainable localised fishing pressures.
- More accurate, regionally separated estimates of recreational harvest of blue threadfin. The current statewide recreational fishing survey commenced in 2010 with results available in 2012.

The Fisheries Observer Program has collected length data of blue threadfin bycatch. When analysed, this data will be considered in stock status assessment.

For more information see the latest ASR for the GOCIFFF.

**Further reading**

The following figure shows the commercial catch (t) and catch rate of blue threadfin (GOC) caught by net, line and QJFA permit reported in logbooks 2000–10.
Threadfin–king (*Polydactylus macrochir*)

### East Coast

**Stock status 2011**  Undefined

**Stock status 2010**  Uncertain

**Principal fishery**  East Coast Inshore Fin Fish Fishery (ECIFFF)

**Justification**

Regional catches (north, central and south) decreased in 2010; however they are well within historical levels. The central region produces the highest catch rates while the north region had the highest catches. No trend indicating unsustainable harvest was evident in overall commercial catches and catch rates. Recent research suggests king threadfin may have highly localised populations and may be subject to high fishing pressure in some areas. The performance measure for this species is not monitored at a regional level so it is not possible to determine stock status at this time.

### Information sources

- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Recent research (see Further reading)
- Published local biological information

### Comments

Recent research suggests king threadfin may have highly localised populations and may be under increased fishing pressure in some areas. This is similar for blue threadfin, however, less resilient life history characteristics of king threadfin place this species at a higher risk from fishing impacts.

Commercial catches of east coast stocks are about half that of harvest in the Gulf of Carpentaria (133.7 t caught on the east coast in 2010, Figure 83). Catches were assessed from three regions based on the recent stock discrimination research. No trends indicating unsustainable harvesting were detected. The central region (from 21 to 24.5° S) included the Fitzroy River and consistently produced the highest catch rates while the northern region produced the highest catches (Figure 84).

New regionally scaled performance measures are to be developed and monitored to ensure timely detection of potentially unsustainable harvesting through the performance measurement system for the ECIFFF.

### Future assessment needs

The following information needs will improve stock status certainty:

- Spatially defined performance measures to be developed to provide early detection of unsustainable localised fishing pressures.
- More accurate, regionally separated estimates of recreational harvest of king threadfin. The current statewide recreational fishing survey commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFFF.

### Further reading


Figure 83: Commercial catch (t) and catch rate of king threadfin (east coast) caught by net and line, reported in logbooks 2002–10.

Figure 84: Commercial catch (t) and catch rate of king threadfin (east coast) caught by net and line as reported in logbooks 1990–2010, broken down into three regions.

Stock status of Queensland’s fisheries resources 2011
### Threadfin–king (*Polydactylus macrochir*) Gulf of Carpentaria

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Uncertain</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches and catch rates increased slightly over the last year. Recent research suggests king threadfin may have highly localised populations and there may be indications of high fishing pressure in the southern Gulf of Carpentaria (GOC). The study, however, was not designed to provide population level estimates. There is uncertainty in the research implications on the stock status of king threadfin given that the resource exhibits a stable catch history. Performance measures/thresholds will be established to measure sustainability at a scale appropriate to the regional stocks.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Ecological risk assessment (2004) and 2010 review
- Published local biological information
- Recent research

### Comments
King threadfin commercial catches and catch rates in 2010 were the highest since 2002 (Figure 85). Although catch statistics have been stable for some time, recent research suggests king threadfin may have highly localised populations and may be under increased fishing pressure in some areas (refer to Welsh et al. 2010 in further reading of east coast king threadfin). It is important to note that the research was designed to determine stock discrimination of king threadfin and not to provide an estimate of the resource in the GOC. The research does provide a good baseline for designing further studies and age and length monitoring programs for king threadfin.

The stock status was determined to be 'uncertain' given that there is conflicting information with research suggesting local population concerns while the stock continues to demonstrate a stable commercial catch history. Fisheries Queensland plans to monitor for local fishing impacts through new regionally scaled performance measures for the GOCIFFF.

### Future assessment needs
The following information needs will improve stock status certainty:
- A stock assessment.
- Spatially defined performance measures to be developed to provide early detection of unsustainable localised fishing pressures.
- More accurate, regionally separated estimates of recreational harvest of king threadfin. The next statewide recreational fishing survey is scheduled commenced in 2010 with results available in 2012.

For more information see the latest ASR for the GOCIFFF.

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**Figure 85: Commercial catch (t) and catch rate of king threadfin (GOC) caught by net, line and QFJA, reported in logbooks 2000–10.**
Trevally (*Carangidae*)

East Coast

| Stock status 2011 | Undefined * |
| Stock status 2010 | No assessment made |
| Principal fishery | Rocky Reef Fin Fishery (RRFFF) / Coral Reef Fin Fishery (CRFFF) / Gulf of Carpentaria Inshore Fin Fishery (GOCIFFF) / Recreational |
| Justification | Trevally species are often difficult to identify, resulting in ‘trevally–unspecified’ often reported through commercial logbooks and recreational diary returns. As such, it is likely that this group will remain as a species complex for some time. Commercial catches of trevally have remained relatively stable over the past decade in both the line and net fisheries. There is no current biological monitoring of trevally in Queensland. A new recreational estimate from the Statewide Recreational Fishing Survey will be available in 2012. |

### Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance Measurement System

### Comments
Given the difficulty in accurately identifying species of trevally, this group will likely remain as a species complex for some time. Commercially, trevally are caught in the line and net fisheries, with harvest of ‘trevally–unspecified’ collectively between 160–240 t per year (Figure 86). Trevally is also a popular recreational species, and new information is being collected through the current Queensland Statewide Recreational Fishing Survey, with results expected in 2012. It is anticipated however that limited species resolution will be obtained through the recreational survey also.

The stock status was determined as ‘undefined*’ given the species complex, which is most likely predominantly made up of four species, including (but not limited to) bigeye trevally (*Caranx sexfasciatus*), giant trevally (*Caranx ignobilis*), golden trevally (*Gnathanodon speciosus*) and silver trevally (*Pseudocaranx dentex*).

### Future assessment needs
The trevally (all species combined) net catch is currently monitored through the ECIFFF performance measurement system. Given that there are currently no sustainability concerns for trevally it is unlikely that any further monitoring will be undertaken in the foreseeable future.

For more information see the latest [ASR](#) for the RRFFF and CRFFF.

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Figure 86: Line (RRFFF and CRFFF) and net (ECIFFF) commercial catch of trevally, reported in logbooks 1999–00 to 2009–10.
**Trochus (Trochus niloticus)**

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Not fully utilised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Trochus Fishery (ECTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>Market demand for trochus shell and meat is very poor. Prices paid to the harvester barely meet the cost of production. Consequently commercial effort and catch levels in this fishery are extremely low with only 11% of the 250 t quota taken in 2009–10. Performance measures designed to detect localised depletion were not triggered. The fishery has a history of sustained higher catch levels. With such a low level of harvest in 2009–10, trochus is considered to be not fully utilised.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Performance measures

**Comments**
Trochus shell is utilised both domestically and internationally in the manufacture of jewellery, buttons, ornaments and cosmetics. Trochus meat is of secondary importance to the shell. Total annual harvest has remained below the commercial total allowable catch (TAC) of 250 t, with the greatest annual harvest of approximately 223 t in the 1997–98 financial year. Harvest levels in 2009–10 were extremely low at only 11% of the TAC (29 t, Figure 87). Participation rates (only one fisher in 2009–10) and catch levels reflect the depressed prices and decreased demand for trochus. Prices paid for landed product were close to or below the cost of production. The fishery is tracked annually through performance measures to ensure localised unsustainable harvesting is detected. This indicator did not trigger in 2009–10.

Trochus is also harvested in the adjacent, Commonwealth-managed Torres Strait fishery, where similar low levels of harvest were reported in 2009. In its recent stock status determination, the Commonwealth concluded that the overfished status for trochus was ‘uncertain’ while the stock was ‘not subject to overfishing’ (see Further reading).

With such low harvest levels in Queensland, trochus was considered to be not fully utilised in 2009–10.

**Future assessment needs**
There are no identified future assessment needs for the trochus resource while commercial interest, market demand and harvest levels remain low.

For more information see the latest ASR for the ECTF.

**Further reading**

![Figure 87: Commercial catch (t) and catch rate (kg/day) of trochus, reported in logbooks 2003–04 to 2009–10.](image-url)
Tropical rock lobster (Panulirus ornatus)  

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Tropical Rock Lobster Fishery (TRLF) / Recreational</td>
</tr>
</tbody>
</table>

Justification

Commercial harvest levels in 2010 were below the 195 t total allowable catch (TAC) introduced in 2009. Although the catch rate was trending down in 2010, it was well above the performance measure threshold level and the stock is considered 'sustainably fished'. The lower catch levels in 2010 are not a concern and resulted from lower participation levels. A proportion of the fleet moved north into the adjacent Australian Government-managed Torres Strait fishery to take advantage of better catch rates for tropical rock lobsters in 2010.

Information sources

- Commercial logbook catch and effort
- Recreational catch estimates
- Performance measures

Comments

Commercial catches and catch rates decreased in 2010; however this was well within threshold levels (Figure 88). Management of the TRLF underwent a major change in 2009 when it moved to a catch quota system. A TAC of 195 t was implemented under this system based on a conservative 80% of the estimated maximum sustainable yield (MSY) for the east coast resource. The TRLF is characterised by a highly mobile fleet with the majority of boats able to move between the east coast and the Australian government-managed Torres Strait fishery to take advantage of better catch rates as they arise. It is understood that a proportion of the east coast fleet fished the 2010 season in the adjacent Torres Strait. This would explain the reduced catches on the east coast that year. Given the lower catch levels were related to lower participation levels and the total harvest was below the TAC, tropical rock lobster is considered to be 'sustainably fished'. Tropical rock lobster in northern Australia, Torres Strait and Papua New Guinea are considered to comprise a single stock (see Pitcher et al. 2005).

Tropical rock lobster resources in the adjacent Torres Strait fishery were assessed as 'not overfished' and 'not subject to overfishing' in 2009 (see Further reading).

Future assessment needs

An integrated east coast and Torres Strait stock assessment has been identified as a high priority research need for the TRLF in Fisheries Queensland Harvest Fishery Research & Development Priorities (2008–2013). Additional improvements to the performance measures in lieu of an integrated stock assessment are also required. For more information see the latest ASR for the TRLF.

Further reading

Pitcher, CR, Turnbull, CT, Atfield, J, Griffin, D, Dennis, D & Skewes, T 2005, ‘Biology, larval transport modelling and commercial logbook data analysis to support management of the NE Queensland rock lobster Panulirus ornatus fishery’, report to Fisheries Research and Development Corporation, project 2002/008, CSIRO Marine Research, Cleveland.

Figure 88: Commercial catch (t) and catch rates (kg/tender day) of tropical rock lobster, reported in logbooks 2000–10.
Tuskfish (Choerodon spp.)

East Coast

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Coral Reef Fin Fish Fishery (CRFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Catches are returning to pre-quota levels recently (~23 t). There are no current indications of sustainability issues. The majority of tuskfish catch is recorded as tuskfish—unspecified in the logbooks. Identifying shifts in Other Species (OS) targeting would aid in calculating appropriate catch rate parameters. The updated recreational catch estimate (in 2012) may assist in confidently assigning a status.</td>
</tr>
</tbody>
</table>

Information sources
- Commercial logbook catch and effort
- Other species (OS) quota usage
- Recreational catch estimates
- Charter logbook catch
- Fishery independent length information (2005–09)
- Performance measures

Comments
Commercial catch levels decreased when quota was introduced in 2004 (27 t to 12 t). However, in 2009–10 catch levels returned to pre-quota levels of around 23 t (Figure 89). The majority of tuskfish is reported as ‘tuskfish—unspecified’, but small catches of Venus tuskfish and blue tuskfish are reported.

Charter catch has been historically stable at around 30 t for unspecified tuskfish, and 8 t for Venus tuskfish. Significant recreational catch estimates for unspecified tuskfish were observed in the 2005 survey (155 000 fish), and it is anticipated that with the release of the recreational species fishing guide in 2008, the new statewide recreational fishing survey will provide better species-specific resolution for tuskfish. There is limited local biological information available to calculate an accurate numbers-to-weights conversion for the recreational estimate. The Long Term Monitoring Program has collected and analysed some length frequency information for tuskfish since 2005, but sample sizes are small (<60 fish/year).

Although there are currently no sustainability concerns for these species, it has been noted that post-release mortality for tuskfish may be high. This species is not a priority for further independent monitoring, and will continue to be assessed through the performance measures and stock status process annually.

Future assessment needs
The updated recreational estimate is important to determine if further monitoring for this species is warranted in the future.

For more information see the latest ASR for the CRFFF.

Figure 89: Commercial catch (t) of tuskfish reported in logbooks, 1999–00 to 2009–10.
**Whiting–sand (Sillago ciliata)**

**East Coast**

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>East Coast Inshore Fin Fish Fishery (ECIFFF) / Recreational</td>
</tr>
<tr>
<td>Justification</td>
<td>Commercial catches and catch rates decreased slightly in 2010 but are within historical levels. There is a comprehensive span of ages and lengths in the sampled population and it is evident that reasonable recruitment is occurring. Estimated total mortality in 2010 was below the threshold level of twice the natural mortality. The minimum size limit is set at size-at-first maturity, which increases the opportunity for fish to spawn before recruiting to the fishery.</td>
</tr>
</tbody>
</table>

### Information sources
- Commercial logbook catch and effort
- Recreational catch estimates
- Charter logbook catch and effort
- Performance measures
- Fishery dependent length and age information (2008–10)
- Published local biological information

### Comments
Commercial catches and catch rates decreased slightly in 2010 (Figure 90), however catch-related performance measures were not triggered. Catches in Moreton Bay are likely to have been affected by marine park closures to fishing and may explain some of the reported decrease. Although sand whiting is caught along the Queensland coast, the majority of commercial harvest comes from south of Baffle Creek near Bundaberg. Fishery dependent monitoring of commercial and recreational catches in the main fishery area indicates that total mortality in 2010 was below the threshold level of twice the natural mortality. Age and length data indicates a stable stock with good recruitment (Figure 91). The combination of a stable commercial catch history, acceptable total mortality estimates and a precautionary minimum legal size indicates that the sand whiting resource is sustainably fished.

### Future assessment needs
The following information needs will improve stock status certainty:
- Separation of sand whiting from other whiting in commercial fisher logbooks.
- Separation of catch and catch rates to account for suggested regional differences.
- More accurate, regionally separated estimates of recreational harvest of sand whiting. The current statewide recreational fishing survey commenced in 2010 with results available in 2012.

For more information see the latest ASR for the ECIFFF.

### Further reading

![Figure 90: Commercial catch (t) and catch rates of sand whiting by net and line, reported in logbooks 2002–10.](image-url)
Figure 91: Length frequencies of sand whiting retained from commercial and recreational catches, 2008 to 2010.
**Whiting—stout (Sillago robusta)**  

<table>
<thead>
<tr>
<th>Stock status 2011</th>
<th>Sustainably fished</th>
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</thead>
<tbody>
<tr>
<td>Stock status 2010</td>
<td>Sustainably fished</td>
</tr>
<tr>
<td>Principal fishery</td>
<td>Fin Fish (Stout Whiting) Trawl Fishery (FFTF)</td>
</tr>
<tr>
<td>Justification</td>
<td>This is a single species stock shared with New South Wales (NSW), although Queensland takes the majority of the landings. Since 2005, total Queensland stout whiting landings have been substantially less than the predicted sustainable level upon which the annual total allowable catch (TAC) is based, largely due to economic drivers. Biological monitoring data and commercial landings data for the stock are relatively stable.</td>
</tr>
</tbody>
</table>

**Information sources**
- Commercial logbook catch and effort
- Charter logbook catch and effort
- Performance measures
- Fishery dependent length and age information (1992–2010)
- Stock assessment (2002)
- Preliminary ecological risk assessment findings

**Comments**
Stout whiting are shared with NSW although Queensland takes the majority share (90% in 2009–10). The NSW stock is considered to be ‘moderately fished’. Taking into consideration the status of the Queensland and NSW stock, the fishery is considered ‘sustainably fished’. In Queensland, stout whiting is a commercial species fished exclusively using trawl nets and, since 2006, Danish seine nets. Danish seine catch rates are higher than trawl catch rates (1.8 times higher in 2010).

An annual TAC for stout whiting is set before the start of each fishing year using standardised catch-rates, catch-at-age frequencies and formal decision rules. While the TAC has increased incrementally from 800 t to 1500 t since 2003, annual landings decreased from 2005–08 (Figure 92). This was due to limited effort in the fishery. In 2009 and 2010, 80% and 78% of the TAC were harvested in successive years in contrast to 53% in 2008. Stout whiting is a common bycatch species in the eastern king prawn sector of the East Coast Otter Trawl Fishery (ECOTF). However, the recent ECOTF ecological risk assessment found that there is not more than an intermediate risk of stout whiting being overfished at 2010 ECOTF effort levels.

**Future assessment needs**
Estimates of stout whiting mortality in the eastern king prawn sector of the ECOTF and increased fishing power associated with the recent adoption of Danish seine gear are being considered in a current reassessment of the stock.

For more information see the latest ASR for the FFTF.

**Further reading**


Figure 92: Commercial catch (t) of stout whiting by fish trawl and Danish seine, reported in logbooks 1999–2010.