Chapter 29
Joint authority fisheries

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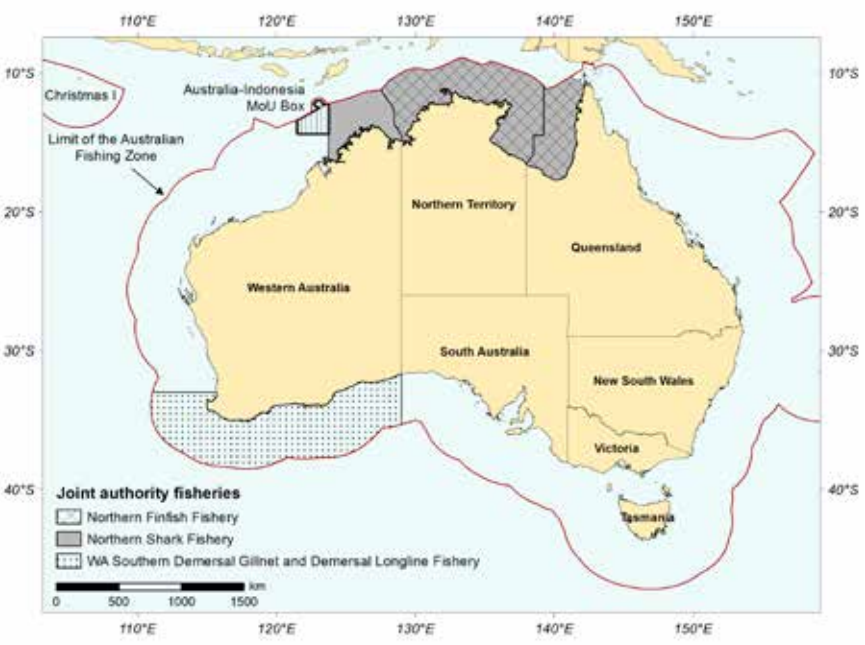
FIGURE 29.1 Geographic extent of the joint authority fisheries



The Australian Government is a party to several fisheries managed under joint authority arrangements with state governments or the Northern Territory Government. These arrangements are species or area based, and recognise that stocks are likely to be shared with adjacent national or international jurisdictions. In northern Australian waters, several shark and finfish joint authority fisheries (JAFs) are collectively referred to as the Northern Shark Fishery and the Northern Finfish Fishery (Figure 29.1). This chapter reports on these northern fisheries and on the Western Australian Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Western Australian JAF). In each case, strategic directions are provided by members of the joint authority, while the day-to-day management of the fishery is undertaken by the relevant state or territory government, under its legislation. The relevant jurisdictions assess and report on the management and status of the fisheries. The stocks harvested in these fisheries are not formally classified in this report.

Since 1988, the Western Australian Government has managed the Western Australian JAF on behalf of a joint authority comprising the Western Australian and Australian governments. In 1995, under the Offshore Constitutional Settlement (OCS), jurisdiction of the finfish resources (except for tuna and tuna-like species) in the waters off northern Western Australia, west of 123°45'E, was passed to the Western Australian Government. These resources are not further addressed here.

Also in 1995, under the OCS, the Northern Territory Fisheries Joint Authority (NTFJA) and the Queensland Fisheries Joint Authority (QFJA) were given jurisdiction to manage northern finfish (except for tuna and tuna-like species) and sharks in waters adjacent to each jurisdiction out to the boundary of the Australian Fishing Zone (AFZ; Figure 29.1).

Torres Strait fisheries are managed under different arrangements by the Protected Zone Joint Authority established under the *Torres Strait Fisheries Act 1984* (Cwlth) (see Chapter 15).

29.1 Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries

Currently, two shark fisheries operate off the south and west coasts of Western Australia: the Western Australian JAF (Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery) and the state-managed West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WCDF). Collectively, these fisheries are managed as the Temperate Demersal Gillnet and Demersal Longline Fisheries. The Western Australian JAF extends south-east from south of Cape Bouvard (just north of Bunbury on the southern west coast) to the Western Australia – South Australia border (Figure 29.1); it had 21 active vessels in 2015 (Marton et al. 2016a). The WCDF, which is managed under a complementary management plan, extends north from Cape Bouvard and catches many of the same species; it had 5 active vessels in 2015 (Marton et al. 2016a). The status of species taken in these two fisheries is determined by the Western Australian Department of Fisheries, using catch-and-effort information from both fisheries. Statistics provided here are from either Marton et al. (2016a) or Braccini and O'Malley (2017).

The principal species targeted in the Western Australian JAF are gummy shark (*Mustelus antarcticus*), dusky shark (*Carcharhinus obscurus*), whiskery shark (*Furgaleus macki*) and sandbar shark (*C. plumbeus*). Another 25 species of shark and scalefish are also caught regularly, the most common being hammerhead sharks (Sphyrnidae), spinner shark (*C. brevipinna*) and wobbegong sharks (Orectolobidae) (McAuley et al. 2015). School shark (*Galeorhinus galeus*) was historically targeted in the south-eastern region of the fishery but is currently only taken incidentally as a minor byproduct species. Principal target species in the WCDF are dusky shark, sandbar shark and whiskery shark.

Combined 2014–15 logbook data for the Western Australian JAF and the WCDF indicated a total shark and ray catch of 1,040 t (an increase from 994 t in 2013–14), comprising mostly gummy shark (492 t), dusky shark (197 t), sandbar shark (46 t) and whiskery shark (147 t) (Braccini & O'Malley 2017). Catches of scalefish in both fisheries totaled 156 t in 2014–15 (a decrease from 192 t in 2013–14). The catch included blue groper (*Achoerodus gouldii*), queen snapper (*Nemadactylus valenciennesi*), pink snapper (*Chrysophrys auratus*) and dhufish (*Glaucosoma hebraicum*) (McAuley et al. 2015).

Status of stocks

The fishery is managed primarily by setting maximum fishing effort levels. These are intended to achieve acceptable catches and maintain biomass at greater than 40 per cent of initial unfished levels for the key target species (gummy, whiskery and dusky sharks) (Braccini & O'Malley 2017). The time frame for achieving the target biomass varies from species to species, and some species are already considered to have reached this target (McAuley et al. 2015).

The last formal stock assessment of Western Australian gummy shark was in 1997–98. It indicated that biomass was 43 per cent of the initial unfished level, slightly above the target level of 40 per cent of unfished biomass. Combined total catch in the Western Australian JAF and the WCDF in 2014–15 was 492 t. An increase in catch-per-unit-effort (CPUE) between the mid 1990s and the mid 2000s is thought to have resulted from reduced fishing effort from 1992 onwards, leading to increases in breeding stock biomass (Braccini & O'Malley 2017). Although CPUE has fluctuated in recent years following a peak in 2007–08, the breeding stock biomass is considered to be adequate (Braccini & O'Malley 2017).

Previous stock assessments of whiskery shark indicate that biomass declined significantly from the 1980s to less than 40 per cent of the unfished level in the early 1990s. Recent modelling, however, suggests that biomass may have fallen only as low as 45 per cent by 1995–96 and that a modest recovery has taken place, resulting in a biomass of 52 per cent of unfished levels in 2009–10, which is above the target level of 40 per cent of unfished biomass. Catches since the late 2000s have been at levels that would allow gradual recovery of the breeding stock biomass, so the stock is considered to be adequate (Braccini & O'Malley 2017).

Most dusky sharks taken in the Western Australian JAF are neonates (the young of the year) and 1–2-year-old fish. Demographic analyses, updated in 2005, estimated that the current fishing mortality on these age classes was sustainable, but that a very low level of fishing mortality (1–2 per cent per year) for older dusky sharks (>10 years) would result in negative rates of population growth. Although spatial closures have been implemented to protect adult dusky sharks, they continue to be captured in fisheries within and outside Western Australia's jurisdiction (such as the Commonwealth Western Tuna and Billfish Fishery and the South Australian Marine Scalefish Fishery). Previous estimates indicated that the breeding stock had been depleted by low, but poorly quantified, levels of fishing mortality. However, management changes since 2006 are considered suitable to allow gradual recovery of the breeding stock. The recent declines in CPUE will be considered in more detail during the development of new stock assessment models (Braccini & O'Malley 2017).

School shark is taken as byproduct in the Western Australian JAF. Management of this species takes into account its overfished status in the Southern and Eastern Scalefish and Shark Fishery (SESSF; Chapter 8). Assessments of school shark in the SESSF incorporate catch information from the JAF. Combined catch of school shark in the Western Australian JAF and the WCDF in 2015 was 1.2 t (Marton et al. 2016b).

29.2 Northern Shark Fisheries

Australian gillnetters began fishing in northern Australian waters in about 1980, although there was fishing from foreign vessels before then, and gillnetting by foreign vessels continued until 1986. The Northern Shark Fisheries were developed during the 1980s and 1990s, and transferred to the relevant joint authorities in 1995. They include the Northern Territory Offshore Net and Line Fishery, the Queensland Gulf of Carpentaria Inshore Fin Fish Fishery and the Western Australia Joint Authority Northern Shark Fishery (WANSF). These fisheries cover waters off Australia's northern coast, encompassing the Gulf of Carpentaria, the Timor and Arafura seas, Joseph Bonaparte Gulf, and the north-east coast of Western Australia (Figure 29.1).

The primary fishing methods are gillnetting and longlining, with most activity and catch occurring in waters off the Northern Territory. Historically, the main commercial species have been blacktip sharks (Australian blacktip—*Carcharhinus tilstoni*, and common blacktip—*C. limbatus*), spot-tail shark (*C. sorrah*) and grey mackerel (*Scomberomorus semifasciatus*). The Australian and common blacktip sharks are difficult to differentiate and so have been treated as a species complex, with the assumption that most are Australian blacktip, although genetic analyses have challenged this assumption (discussed in 'Status of stocks', below). Other shark species, including hammerheads (*Sphyrna* spp.), bull shark (*C. leucas*), pigeye shark (*C. amboinensis*) and tiger shark (*Galeocerdo cuvier*), are also caught. Sharks are also taken as bycatch and byproduct in other fisheries in the area.

Northern Territory Offshore Net and Line Fishery

This fishery is managed by the NTFJA, in accordance with the *Fisheries Act* (NT, 1988). Most fishing in the waters off the Northern Territory occurs in inshore waters (less than 12 nautical miles [nm] from the coast), targeting blacktip sharks and grey mackerel. Catch-and-effort data for 2016 were provided directly to ABARES from the Northern Territory Department of Primary Industry and Resources. Pelagic gillnets (limited to 2,000 m net length) are the main gear. Although longlines can also be used, they have not been used in the fishery since 2013 (Northern Territory Government 2015). Of the 17 licences currently issued for the fishery, 11 were active in 2016. A total of 555 boat-days were recorded during 2016, well below the peak of 1,801 boat-days in 2003.

The highest domestic catch was reported in 2003 (1,687 t), including 899 t of shark (of which 501 t was blacktip shark) and 766 t of grey mackerel. Total landings have decreased since 2003, to a total catch of 465 t in 2016 (a decrease from the 2015 catch of 530 t). The 2016 catch included 36 t of blacktip shark and 332 t of grey mackerel. Export accreditation was reassessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2012, and the fishery was declared an approved Wildlife Trade Operation until 27 October 2017.

Queensland Gulf of Carpentaria Inshore Fin Fish Fishery

The QFJA manages shark fishing in Gulf of Carpentaria waters off Queensland as part of the Gulf of Carpentaria Inshore Fin Fish Fishery. An annual summary of this fishery is provided by the Queensland Department of Agriculture and Fisheries (QDAF 2017). The fishery has two sectors: an offshore sector (7–25 nm) that targets tropical sharks and grey mackerel, and an inshore sector (within 7 nm of the shore) that targets barramundi (*Lates calcarifer*), threadfins (Polynemidae) and sharks. The main gear used is gillnets; operators in the offshore sector are limited to a maximum net length of 1,800 m. In 2016, 4 licences were issued in the offshore sector (3 licences for operation beyond 7 nm from shore and within the AFZ, and 1 licence for operation beyond 25 nm from shore and within the AFZ) and 85 licences in the inshore sector (QDAF 2017). Of these 89 licences, 77 were active in 2016. In 2016, reported catch of blacktip sharks was 210 t (an increase from 100 t in 2015; QDAF 2017).

Queensland considers most barramundi stocks to be 'sustainable', except for the southern Gulf of Carpentaria stock, which is classified as 'transitional depleting'. The east coast stock of king threadfin (*Polydactylus macrochir*) is considered 'sustainable'; however, the Gulf of Carpentaria stock is considered 'transitional depleting' (QDAF 2016). No concerns for harvest of shark species were identified in reviews by Holmes et al. (2013). Export accreditation has been granted under the EPBC Act until 7 September 2017.

Western Australia Joint Authority Northern Shark Fishery

The Western Australian Government manages the WANSF. For reporting and assessment purposes, this fishery is combined with the adjacent Western Australia North Coast Shark Fishery (WASF) and reported as part of the 'northern shark fishery'. The WANSF extends from longitude 123°45'E to the Northern Territory border, and the WASF extends from longitude 114°06'E to 123°45'E. Western Australia reported on the status of these fisheries in McAuley and Rowland (2012), and Molony et al. (2013); however, the WANSF and the WASF are no longer included in the Western Australian state of the fisheries report. Since 2005, demersal gillnets and longlines have been permitted in both fisheries, with longlines being the main gear used. Fishing activity has not been reported in the northern shark fishery since 2008–09.

An increase in effort occurred in this fishery between 1999–2000 (less than 100,000 hook-days) and 2004–05 (1.2 million hook-days). The total catch showed a corresponding increase, from approximately 100 t (1999–2000) to 1,294 t (2004–05). Fishing practices also changed, with a shift from primarily gillnetting in the north-eastern region of the fishery to increased demersal longline effort in the south-western region (McAuley & Baudains 2007). The changes reflected increased targeting of sandbar shark and other large species.

The stock assessment for sandbar shark, which considers all take of the species across Western Australian fisheries, suggested that cumulative levels of fishing mortality were increasingly unsustainable between 2001 and 2004, and had probably been unsustainable since at least 1997–98 (McAuley et al. 2015). Three-quarters of the total catch in 2004–05 was from the northern shark fishery alone. A decline in breeding stock abundance has been inferred from fishery-independent survey data from the north-coast region (McAuley et al. 2015).

Management measures to prevent targeting of sandbar shark in the WASF were put in place in 2005; these included closure of about 60 per cent of the fishery to protect breeding stock and limits on the permitted number of fishing days. At the same time, management arrangements to limit effort were established in the WANSF. These measures resulted in a substantial decline in total fishing effort and an associated decrease in total reported catch.

In 2008, the WANSF's Wildlife Trade Operation approval under the EPBC Act was revoked because a formal management plan had not been finalised. The WASF's approval expired in early 2009 and has not been renewed. Therefore, product from these fisheries cannot be exported.

Other catches, including illegal fishing

Across the area of the Northern Shark Fisheries, sharks are caught as bycatch and byproduct in other Commonwealth, state and territory fisheries. In Western Australia, the 2014–15 catch of sharks by other state-managed fisheries was negligible—less than 10 t (it peaked at 31 t in 2005–06)—as a result of a ban on retention in all but three non-shark fisheries (McAuley & Baudains 2007; Molony et al. 2013). The Northern Territory Government estimates that incidental catch in other Northern Territory fisheries is around 1 per cent of the total combined fisheries shark catch; retention is banned in some fisheries and limited by byproduct limits in others (Martin & McKey 2012). Retention of any shark product has been banned in the Northern Prawn Fishery since 2001.

Under a memorandum of understanding (MOU), Australia allows access by traditional Indonesian fishers to a limited area of the AFZ, off north-western Western Australia, known as the 'MOU Box'. Operation Snapshot is an ongoing activity that aims to estimate catches by traditional Indonesian fisheries operating in these waters (Marshall et al. 2016). In 2015, genetic analysis of 152 shark fins from nine fishing vessels identified 16 species belonging to the families Carcharhinidae (whaler sharks) and Sphyrnidae (hammerhead sharks). The two most abundant species by number were sandbar shark and tiger shark, which made up 43.4 per cent and 29.6 per cent of the catch, respectively, followed by spinner shark (*Carcharhinus brevipinna*; 7.2 per cent) and grey reef shark (*Carcharhinus amblyrhynchos*; 5.3 per cent) (Marshall et al. 2016). The observed species composition was similar to that found on other Indonesian vessels fishing in northern Australian waters; however, there was a notable absence of smaller inshore shark species (Marshall et al. 2016).

Illegal foreign fishing in northern waters is generally conducted by small vessels that target a range of species, including shark, reef fish and sedentary species, such as sea cucumber and trochus (Vince 2007). A large number of foreign fishing vessels were caught in Australian waters in 2015–16 (20) compared with 2014–15 (6), but numbers are well down relative to 2005–06 (367) because of enforcement measures and collaborative programs in Indonesia (AFMA 2016). The estimated total catch from illegal fishing in 2006 was 290–1,071 t (Marshall 2011). A study of illegal, unreported and unregulated catch in northern Australian waters indicated that illegal catches by Indonesian and Taiwanese vessels included seven high-risk shark species, with these species constituting more than half the total catch (Marshall 2011). A number of sharks listed in 2014 under the Convention on International Trade in Endangered Species of Wild Fauna and Flora were caught on Indonesian and/or Taiwanese vessels in the Marshall (2011) study, including scalloped hammerhead shark (*Sphyrna lewini*), great hammerhead shark (*S. mokarran*), smooth hammerhead shark (*S. zygaena*) and oceanic whitetip shark (*Carcharhinus longimanus*).

Status of stocks

The Northern Territory Government updated a stock assessment of common blacktip shark and Australian blacktip shark in 2013 (Grubert et al. 2013). The assessment indicated that the species had recovered from depletion associated with the historically high catches of the 1970s and 1980s, when foreign-flagged vessels operated in Australian waters. Fishing mortality for both species was estimated to be below the level that produces maximum sustainable yield (MSY; 19 per cent of MSY for common blacktip shark and 12 per cent of MSY for Australian blacktip shark), and the current level of fishing effort was sustainable. Current biomass is estimated to be at 81 per cent of unfished biomass for common blacktip shark and 90 per cent for Australian blacktip shark.

Genetic studies (Ovenden et al. 2009) of spot-tail and Australian blacktip sharks show little genetic variation in either species across the north, suggesting that it may be appropriate to manage each species as a single stock across the region. In contrast, common blacktip shark may have genetic subdivisions in Australian waters (Ovenden et al. 2009). Genetic studies also detected an apparent change in the relative proportion of common and Australian blacktip sharks in the catch. In the 1980s, Australian blacktip shark was understood to be the major component of the catch, and common blacktip shark was caught in much lower numbers (the ratio of Australian to common blacktip shark was estimated to be 300:1; Stevens & Davenport 1991). More recent studies have indicated a ratio closer to 1:1 (Morgan et al. 2012). In 2011, genetic research demonstrated that hybridisation was occurring between the species (Morgan et al. 2012). The results have increased the uncertainty in the status of the stocks, and the implications have yet to be fully assessed.

29.3 Northern Finfish Fishery

Foreign pair and stern trawlers (Japanese, Taiwanese, Thai and Chinese) have fished waters off northern Australia periodically since the 1930s. After the AFZ was declared, foreign trawlers were licensed to fish in the northern AFZ until 1990. The main regions fished were the Timor and Arafura seas, and the North West Shelf off Western Australia. The foreign fleets' highest catches were 37,100 t on the North West Shelf (1973), 9,100 t in the Timor Sea (1974) and 10,000 t in the Arafura Sea (1983). Australian trawlers started fishing in the area in 1985; a domestic trap-and-line fishery began on the North West Shelf in 1984, and droplining in the Timor Sea began in 1987.

The main species targeted are large red snappers (saddletail snapper—*Lutjanus malabaricus,* and crimson snapper—*L. erythropterus*) and goldband snappers (primarily *Pristipomoides multidens*, but also *P. typus* and *P. filamentosus*). The joint authorities include trawl, dropline and trap fisheries, which have developed differently over time.

Northern Territory

The NTFJA manages two fisheries targeting tropical snappers: the Timor Reef Fishery and the Demersal Fishery. The Timor Reef Fishery operates offshore north-west of Darwin in a specific area of the Timor Sea. The Demersal Fishery operates in waters from 15 nm out to the AFZ boundary, excluding the area of the Timor Reef Fishery. Until recently, the NTFJA also managed a third snapper fishery, the Finfish Trawl Fishery, but, in February 2012, this was amalgamated into the Demersal Fishery under a new management framework (Saunders et al. 2014). In February 2011, the Northern Territory implemented quota management in the Timor Reef Fishery to better use the offshore snapper stocks and provide increased flexibility to operators (NT DoR 2011; Saunders et al. 2014). Individual transferable quotas were introduced into the new management framework of the Demersal Fishery in 2012.

Vessels in the Demersal and Timor Reef fisheries use vertical droplines and baited traps to target goldband snappers, but also catch red snappers (Lutjanidae), red emperor (*Lutjanus sebae*) and cods (*Epinephelus* spp.). The Demersal Fishery also permits semipelagic finfish trawl gear in two multigear areas. Dropline fishing takes mostly goldband snappers, whereas traps catch nearly equal proportions of goldband snappers and red snappers. Trawl vessels mainly target saddletail snapper and crimson snapper. The status of these fisheries is reviewed in Martin and McKey (2014a, b). Catch-and-effort data for 2016 were provided directly to ABARES from the Northern Territory Department of Primary Industry and Resources.

In 2016, four vessels were active in the Timor Reef Fishery, recording 605 vessel-days, and seven vessels were active in the Demersal Fishery, recording 1,297 vessel-days. The Timor Reef Fishery reported a total catch of 948 t in 2016 (an increase from 737 t in 2015), including 221 t of goldband snappers and 407 t of red snappers. The Demersal Fishery reported a total catch of 3,463 t in 2016, including 2,510 t of red snappers and 318 t of goldband snappers. The Timor Reef Fishery was reassessed in 2013 and was granted an exemption from export restrictions under the EPBC Act for five years, until 2018. The Demersal Fishery has been granted an exemption from export restrictions until 27 October 2017.

Queensland

The QFJA manages the Gulf of Carpentaria Developmental Fin Fish Trawl Fishery, which targets red snappers (Keag 2013). The fishery, which commenced in 1998, operates from 25 nm out to the AFZ boundary. A summary of this fishery is provided by the Queensland Department of Agriculture and Fisheries (QDAF 2017). Three fishing permits are issued for access to the fishery; however, logbook returns indicate that no fishing activity was reported between April 2013 and June 2015. Following the recommencement of fishing, two vessels were active, with an effort level of 60 vessel-days in 2015–16. The total catch in 2015–16 was 231 t, of which 173 t was red snappers (104 t of crimson snapper and 69 t of saddletail snapper) and 19 t was goldband snappers (QDAF 2017). Catch and effort in this fishery have declined substantially from 2009–10, when total catch was reported to be 781 t from 389 vessel-days. The fishery has been granted export approval until 22 November 2019.

The Queensland Gulf of Carpentaria Line Fishery is primarily a troll fishery for Spanish mackerel (*Scomberomorus commerson*). Red snappers are not considered to be target species for the fishery. There are 46 licences in the fishery; 15 were active in 2016. Total catch in 2016 was 177 t, with an effort level of 587 vessel-days. Spanish mackerel accounted for 99 per cent of the catch in 2016 (QDAF 2017).

Other catches, including illegal fishing

Queensland and the Northern Territory collect catch data for target species taken by recreational fishers and charter vessels. The Northern Prawn Fishery also takes some red snappers as byproduct.

Fishing for red snappers occurs in Indonesia's waters, particularly trawling in the Arafura Sea (Blaber et al. 2005). Saddletail snapper is the dominant red snapper caught in this area. An Australian–Indonesian project in 1999–2000, supported by the Australian Centre for International Agricultural Research (ACIAR), examined the connectivity between Australian and Indonesian stocks. The project found that catch levels of red snappers at that time would be unsustainable in the longer term, and that data collection and licensing systems in Indonesia were inadequate. The project provided a catalyst for changes to management arrangements in Australia and Indonesia.

Quantities of red snappers have been documented on Indonesian vessels that have been apprehended fishing illegally in northern Australian waters (Mckey 2008). Illegal fishing has decreased, but the extent of catch and the impact on Australian stocks have not been fully quantified. A more recent ACIAR-supported project used data and modelling outcomes from the northern Australian harvest strategy for tropical snappers (O'Neill et al. 2011) to develop new fisheries policy and management frameworks, fishery-specific stock assessment processes, and improved frameworks for managing red snapper stocks in Indonesia that include the control and management of illegal, unreported and unregulated fishing. The outcomes of this project are reported in West et al. (2013).

Status of stocks

In 2015, the commercial catch of goldband snappers in the Northern Territory was 501 t; 19 t was caught in Queensland (Martin et al. 2016a). While there is no total allowable commercial catch (TACC) for goldband snappers in Queensland because of relatively low catches, the Northern Territory has a TACC of 1,300 t (900 t in the Timor Reef Fishery and 400 t in the Demersal Fishery).

The northern Australian goldband snapper stock was assessed in 2011 and 2013 using a stochastic stock reduction analysis model. Egg production was estimated to be around 65 per cent of production before the start of the fishery, and the current harvest rate was estimated to be below that required to achieve MSY (Martin et al. 2016a). The goldband snapper stocks in the Timor Sea may be shared by Indonesia and Australia (Ovenden et al. 2002); however, understanding of the Indonesian catch and its implications for the stock assessment is limited.

In 2015, the commercial catch of red snappers was 2,454 t (1,756 t of saddletail snapper and 698 t of crimson snapper) in the Northern Territory and 167 t (67 t of saddletail snapper and 100 t of crimson snapper) in Queensland (Martin et al. 2016b). In Queensland, the Gulf of Carpentaria Developmental Fin Fish Trawl Fishery operates under a TACC of 450 t for quota species (crimson snapper, saddletail snapper and other tropical snappers; QDAF 2017). This is based on a 1994 assessment that estimated an annual sustainable yield for the total Gulf of Carpentaria of 2,900–9,000 t (Leslie & Roelofs 2011). In the Northern Territory, crimson and saddletail snappers are managed together as 'red snappers' (Martin et al. 2016b) with a combined TACC of 3,800 t.

The northern Australian saddletail snapper stock was assessed in 2013 using a stochastic stock reduction analysis model. Egg production was estimated to be around 80 per cent of production before the start of the fishery, and the current harvest rate for red snappers was estimated to be below that required to achieve MSY (Martin et al. 2016c).

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