

Sustainable Fisheries Strategy

2017–2027

East Coast Otter Trawl Fishery Scoping Study

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Summary

Feature	Details
Targeted species	<p>Whole-of-fishery (Principal species): Prawns, scallops, bugs and squid.</p> <p>Primary regional Target / Tier 1 species as per the harvest strategies:</p> <ul style="list-style-type: none"> - <i>Northern Trawl Region</i>: Tiger prawns (brown and grooved) and endeavour prawns. - <i>Central Trawl Region</i>: Tiger prawns (brown and grooved) prawns. - <i>Southern Inshore Region</i>: Saucer scallops.¹ - <i>Southern Offshore Region</i>: Eastern king prawns. - <i>Moreton Bay Trawl Region</i>: Multi-species complex (greasyback prawns, brown tiger prawns, eastern king prawns).
Fishery symbols	<p><u>Otter trawl fishing</u></p> <ul style="list-style-type: none"> - T1: Trawl Fishery - T2: Trawl Fishery (Concessional) - M1: Moreton Bay Trawl - M2: Moreton Bay Trawl <p>* Note – The River and Inshore Beam Trawl Fishery (RIBTF) is managed under the T5–T9 fishery symbols. RIBTF activities are not considered as part of this Scoping Study.</p>
Relevant fisheries legislation	<p><i>Fisheries Act 1994; Fisheries (General) Regulation 2019; Fisheries (Commercial Fisheries) Regulation 2019; Fisheries Declaration 2019; Fisheries Quota Declaration 2019.</i></p>
Other relevant legislation	<p><i>Great Barrier Reef Marine Park Act 1975 and Great Barrier Reef Marine Park Regulations 2019 (Cwlth); Marine Parks Act 2004; Environment Protection and Biodiversity Conservation Act 1999; and the Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth).</i></p>
Working group	<p>Trawl Fishery Working Group</p>
Harvest strategies	<p>The East Coast Otter Trawl Fishery is managed by five regional harvest strategies including the following:</p> <ul style="list-style-type: none"> - <i>Northern region</i> - <i>Central region</i> - <i>Southern Inshore region</i> - <i>Southern Offshore region</i> - <i>Moreton Bay region</i> <p>All five harvest strategies are available at: https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy</p>
Gear	<p>The following apparatus are currently permitted for use within the ECOTF:</p>

¹ Stock classified as Depleted and is species classified as no-take as part of a broader stock rebuilding strategy (correct as of 1 July 2023).

Feature	Details
	<ul style="list-style-type: none"> - Otter trawl nets - Turtle Excluder Device - Bycatch Reduction Device <p>For a full description of permitted apparatus for each fishery symbol, refer to the <i>Fisheries (Commercial Fisheries) Regulation 2019</i>.</p>
Main management methods	<p>Core management arrangements for the ECOTF include:</p> <ul style="list-style-type: none"> - Harvest strategies with regional effort caps - Effort units - Permanent and seasonal spatial/temporal closures - Regional limitations of permitted species - Limited Access - Vessel restrictions - Gear restrictions - Mandatory turtle excluder and bycatch reduction devices
Fishing year	<p>Fishing year as defined in the five regional harvest strategies:</p> <ul style="list-style-type: none"> - <i>Northern and Central regions</i>: 1 March – end of February - <i>Southern Inshore region</i>: 20 November – 23 December and 3 January – 19 November - <i>Southern Offshore region</i>: 20 October – 19 October - <i>Moreton Bay region</i>: 1 November – 31 October
Commercial fishery symbols	<p><i>Number of Trawl symbols: T1 (365); T2 (16); M1 (46*); M2 (24) correct as of 1 July 2023</i></p> <p><i>*M1 licences also require a T1 symbol, therefore are considered to be dual-endorsed licences.</i></p>
Total annual harvest	Commercial: 5,642 tonne in 2021
Gross value of production (GVP)	<p>Approximately \$95 Million in 2019/2020*</p> <p><i>*GVP is indicative for the entire East Coast Trawl Fishery which includes the River and Inshore Beam Trawl Fishery</i></p>
Stock status	<p>Ballot's Saucer Scallop – Depleted</p> <p>Blue & Red Endeavour Prawns – Sustainable</p> <p>Moreton Bay Bugs – Sustainable</p> <p>Brown & Grooved Tiger Prawns – Sustainable</p> <p>Western King Prawns – Sustainable</p>
Approvals under the EPBC Act (Part 13 and 13A)	<p>Part 13: Accredited</p> <p>Part 13A: Declared <i>Wildlife Trade Operation</i> (expires 17 December 2024)</p>

1 Overview

1.1 Commercial Fishery

The *East Coast Otter Trawl Fishery* (ECOTF) operates in all tidal waters extending from the tip of Cape York through to the Queensland—New South Wales border. It incorporates a diverse range of fishing operations targeting prawns, scallops, bugs and squid under the T1, T2, M1 and M2 fishery symbols. These symbols, in effect, govern the type of gear that can be used and the area of operation (Appendix A). The above complexities are reflected in the broader ECOTF management regime which needs to account for regional nuances e.g. the areas being fished, species being targeted and gear restrictions (Appendix B).

Historically, the ECOTF was managed as a single, diversified fishing entity. In 2021, the ECOTF transitioned to a regional management framework as part of a broader reform agenda (Department of Agriculture and Fisheries, 2017a; 2020). In line with these reforms, management of the ECOTF is now guided by five regional harvest strategies: the *Northern Trawl Region*, *Central Trawl Region*, *Southern Inshore Trawl Region*, *Southern Offshore Trawl Region*, and *Moreton Bay Trawl Region* (Fig. 1; Department of Agriculture and Fisheries, 2021a; b; c; d; g).

The majority of the ECOTF catch and effort is recorded under the T1 and T2 fishery, with smaller proportions coming from Moreton Bay (M1 and M2). Management arrangements for these symbols are not uniform and accommodate regional operational variability (State of Queensland, 2019a). This is most evident within legislative provisions describing gear configurations, target species, vessel restrictions and geographical constraints (Appendix B). This regional variability has also been accommodated within the broader ECOTF harvest strategy program (Department of Agriculture and Fisheries, 2021g; a; c; d; b).

Full copies of the regional harvest strategies can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>.

1.2 Non-commercial Fishing

As trawl fishing is restricted to commercial operations, the ECOTF does not have a corresponding recreational or charter fishing sector. However, both recreational and charter fishers will retain some principal (*i.e.* prawns) and byproduct species (*i.e.* blue swimmer crabs; Department of Agriculture and Fisheries, 2021f; 2022). While not specifically targeted, the ECOTF also interacts with a range of recreationally important species (Courtney *et al.*, 2007; Department of Agriculture and Fisheries, 2021f; Teixeira *et al.*, 2021). These species cannot be retained for sale and are discarded as bycatch.

In addition to the commercial fishing sector, species targeted in the ECOTF may be harvested by Aboriginal peoples and Torres Strait Islanders. Data on catch and effort levels for Aboriginal peoples and Torres Strait Islanders is limited. However, it is anticipated that effort levels are comparatively low, with fishing activities aligning closely with the recreational fishing sector.

Additional information regarding the *Statewide Recreational Fishing Surveys* can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data>.

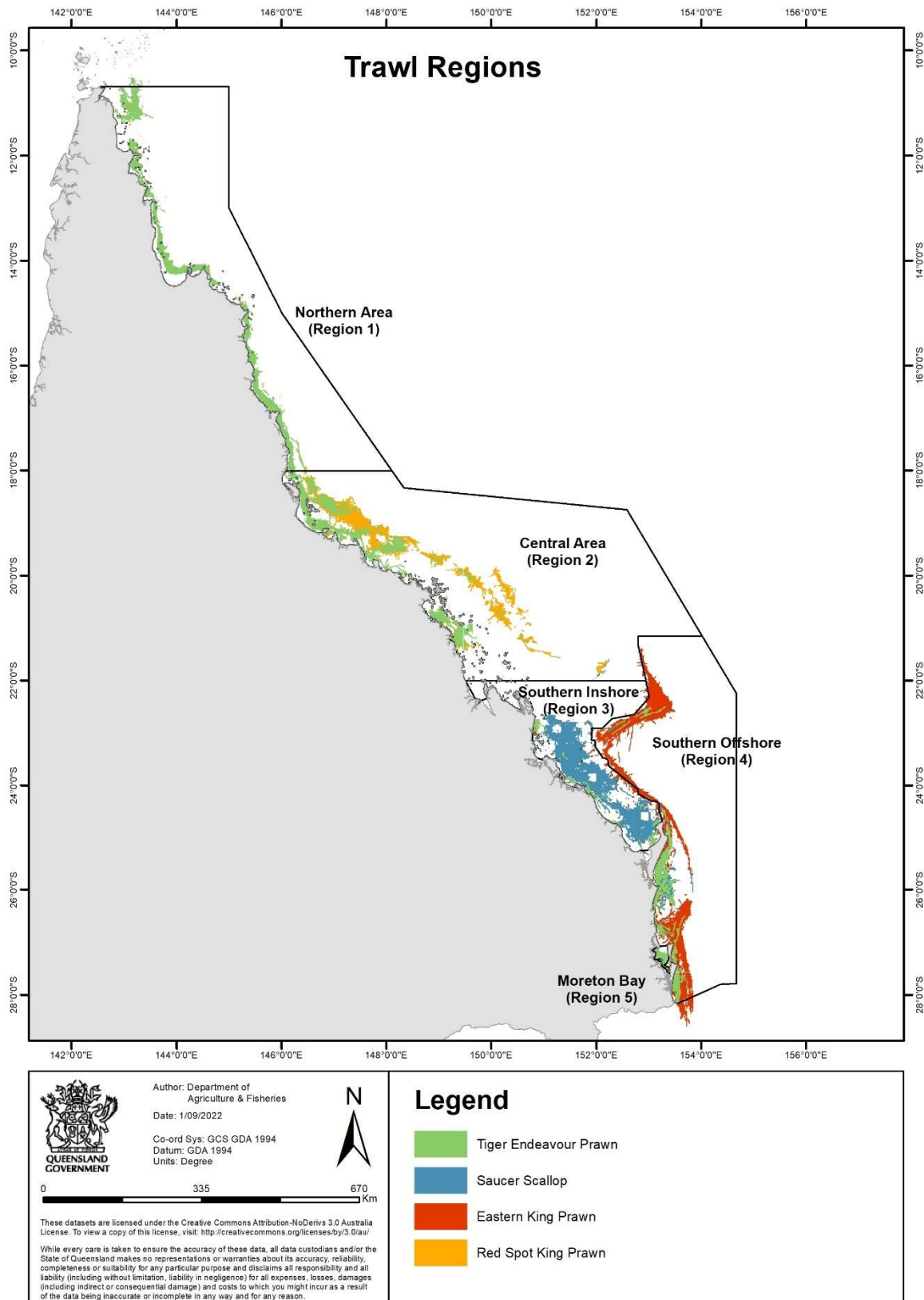


Figure 1. Regional management boundaries for the East Coast Otter Trawl Fishery (ECOTF) including harvest distributions for key species / species complexes. For a more detailed overview of the regional boundaries, consult the regional specific harvest strategies and relevant legislation.

2 Legislation and Advisory Bodies

The ECOTF is managed in accordance with the broader objectives of the *Fisheries Act 1994* and the subordinate legislation. Historically, trawl activities were regulated through a fishery-specific management plan, namely the *Fisheries (East Coast Trawl) Management Plan* (1999 & 2010; State of Queensland, 1999; 2010). In January 2011, the Management Plan was repealed and consolidated into the broader *Fisheries Regulation 2008*. The regulations underwent further review in the post-2011 period and the ECOTF is now managed in accordance with the *Fisheries Act 1994*, the *Fisheries (Commercial Fisheries) Regulation 2019*, *Fisheries (General) Regulation 2019*, and *Fisheries Declaration 2019*.

The *Queensland Sustainable Fisheries Strategy 2017–2027* (the Strategy) was implemented in 2017 and outlined the government's reform agenda for the following decade. The Strategy contains 33 actions that are to be delivered across 10 reform areas including (among others) harvest strategies, sustainable catch limits, improved monitoring and research, compliance, improved engagement, resource allocation and impacts on non-target species (Department of Agriculture and Fisheries, 2017a). The Trawl Fishery Working Group (TFWG) was established as part of the Strategy and provides operational advice on the management of the fishery. The TFWG includes representatives from the commercial and recreational fishing sectors, indigenous stakeholders, seafood marketers and processors, the scientific community, management agencies and environmental non-government organisations (Department of Agriculture and Fisheries, 2021j).

Further information on the TFWG including Communiqués can be accessed at:

<https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>. The complete Strategy has been made publicly available and can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable>.

3 Key Management Controls

The management regime for the ECOTF is complex and incorporates multiple fine-scale operational aspects. The following provides a brief overview of management arrangements used in this fishery. While this information is not exhaustive, it provides insight and examples of management initiatives being used in this fishery. Consult the *Fisheries Act 1994* and subordinate legislation for a full account of management arrangements used in the ECOTF. Harvest strategies providing guidance on how ecological, economic and social objectives are being achieved can also be accessed at:

<https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>.

3.1 General Management Control

The management regime for the ECOTF relies on a range of input and output controls to restrict catch and effort. This includes the implementation of a limited licencing policy, effort caps, gear/vessel restrictions and regional management (Department of Agriculture and Fisheries, 2021g; a; c; d; b). These restrictions are applied at a whole-of-fishery level (e.g. *Vessel Tracking*), symbol level (e.g. boat length restrictions) and regional level (e.g. harvest strategies, mandated Bycatch Reduction Device configurations).

The broader management regime for the ECOTF is underpinned by an effort unitisation system. Effort levels are capped at a whole-of-fishery and regional level, with a supplementary effort cap applied to trawl fishing activities in the Great Barrier Reef Marine Park. Effort units are calculated using the

formula: $EU = 1 \times EUCF$, where 'EU' is defined as the number of effort units used on the day and 'EUCF' is a conversion factor linked to the size (hull units) of the primary vessel. For further information on the conversion factor and definitions, refer to the *Fisheries (Commercial Fisheries) Regulation 2019* (State of Queensland, 2019a). Information on regional total allowable effort caps has been provided in each of the respective harvest strategies.

Outside of effort caps and harvest strategies, some of the more significant management arrangements relate to the spatial/temporal management of effort and bycatch minimisation. The fishery operates with an expansive system of spatial, temporal and seasonal closures. These closures are outlined in fisheries legislation and other instruments governing the use of marine resources in commonwealth and state-based marine parks e.g. the *Moreton Bay Marine Park*, the *Great Sandy Marine Park* and the *Great Barrier Reef Marine Park* (Department of Environment and Science, 2020b; a; Great Barrier Reef Marine Park Authority, 2022). These closures are implemented for a range of reasons and help the fishery achieve a diverse range of objectives.

In addition to spatial/temporal closures, all otter trawls acting under a T1, T2, M1 and M2 fishery symbol must be fitted with compliant bycatch reduction devices (BRDs) and turtle excluder devices (TEDs). While configuration of these devices can vary, they share the same purpose, to increase the escape potential for bycatch species. For symbol specific trawl net configuration and design requirements, consult the relevant sections of the *Fisheries (Commercial Fisheries) Regulation 2019*.

A general overview of the symbol-specific restrictions is provided in Appendix B. Refer to the *Fisheries Act 1994* and its subordinate legislation for a full account of the rules governing the use of the ECOTF fishery symbols (available at: <https://www.legislation.qld.gov.au/>).

3.2 Harvest Strategy Management Controls

In June 2021, harvest strategies were approved for five regions of the ECOTF: *Northern*, *Central*, *Southern Inshore*, *Southern Offshore* (A and B combined), and *Moreton Bay* (Fig. 1). A central feature of all five harvest strategies is the establishment of regional effort caps. While more nuanced, regional effort caps were based on proportional historic catch levels and are adjusted periodically using fishing power estimates and stock assessments (Department of Agriculture and Fisheries, 2021b). These regional restrictions improve the responsiveness of the trawl management system and assist the fishery to meet long-term biomass objectives outlined in the Strategy (Department of Agriculture and Fisheries, 2017a).

In addition to effort caps, harvest strategies manage regional harvest rates for target (*Tier 1*) and by-product (*Tier 2 & 3*) species (Table 1). *Tier 1* species are managed against key performance indicators and reference points (B_{target} , target reference point; B_{lim} , limit reference point). Performance indicators and sustainability reference points are informed by stock assessments and supported by decision rules / trigger limits that reduce the overexploitation risk for regional stocks.

Tier 2 and *Tier 3* species are managed under less prescriptive management regimes (Table 1). The management framework applied to *Tier 2* and *Tier 3* species is commensurate with current rates of harvest and targeting capabilities. These strategies include measures to safeguard the complex from substantive increases in harvest and (if applicable) decision rules requiring management intervention and the development of stock assessments (Department of Agriculture and Fisheries, 2020). These measures are supported by improved catch monitoring protocols which require fishers to complete catch disposal records (Department of Agriculture and Fisheries, 2021e).

Table 1. Target (Tier 1), secondary (Tier 2) and permitted species as outlined in the regional East Coast Otter Trawl Fishery (ECOTF) harvest strategies ² All five regional harvest strategies can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>.

	Region				
	Northern trawl region	Central trawl region	Southern inshore trawl region	Southern offshore trawl region	Moreton Bay trawl region
Target species (Tier 1)	Brown tiger prawns (<i>Penaeus esculentus</i>) Grooved tiger prawns (<i>Penaeus semisulcatus</i>)	Brown tiger prawns (<i>Penaeus esculentus</i>) Grooved tiger prawns (<i>Penaeus semisulcatus</i>)	Saucer scallops (<i>Ylistrum balloti</i>). ³	Eastern king prawns (<i>Melicertus plebejus</i>)	Brown tiger prawns (<i>Penaeus esculentus</i>) Greasyback prawns (<i>Metapenaeus bennettiae</i>) Eastern king prawns (<i>Melicertus plebejus</i>)
Secondary species (Tier 2)	Endeavour prawns (<i>Metapenaeus endeavouri</i>) Banana prawns (<i>Penaeus indicus</i> and <i>Penaeus merguensis</i>) Moreton Bay bugs (<i>Thenus</i> spp.)	Endeavour prawns (<i>Metapenaeus endeavouri</i>) Banana prawns (<i>Penaeus indicus</i> and <i>Penaeus merguensis</i>) Moreton Bay bugs (<i>Thenus</i> spp.) Red spot king prawns (<i>Melicertus longistylus</i>) Saucer scallops (<i>Ylistrum balloti</i>)	Brown tiger prawns (<i>Penaeus esculentus</i>) Grooved tiger prawns (<i>Penaeus semisulcatus</i>) Moreton Bay bugs (<i>Thenus</i> spp.) Banana prawns (<i>Penaeus indicus</i> and <i>Penaeus merguensis</i>)	Brown tiger prawns (<i>Penaeus esculentus</i>) Grooved tiger prawns (<i>Penaeus semisulcatus</i>) Moreton Bay bugs (<i>Thenus</i> spp.) Saucer scallops (<i>Ylistrum balloti</i>) Balmain bug (<i>Ibacus</i> spp.)	Blue swimmer crabs (<i>Portunus armatus</i>) Banana prawns (<i>Penaeus indicus</i> and <i>Penaeus merguensis</i>) Moreton Bay bugs (<i>Thenus</i> spp.) Squid (<i>Photololigo</i> spp.)
Permitted species	Balmain bugs and blue swimmer crabs	Balmain bugs and blue swimmer crabs	Balmain bugs and blue swimmer crabs	Blue swimmer crabs	Balmain bugs
	Cuttlefish, mantis shrimps, octopus, pipefish (Dunckers and Pallid), red champagne lobsters, slipper lobsters, threadfin bream and three-spotted crabs.				

² Unless otherwise specified, regional harvest strategies will classify permitted species as Tier 3 species/complexes.

³ Stock classified as Depleted and is species classified as no-take as part of a broader stock rebuilding strategy (correct as of 1 July 2023).

Table 1 provides a general overview of the species classifications for the five regional harvest strategies. Complete harvest strategies including decision rules and trigger limits can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>.

4 Licence and Symbol Summary

4.1 Commercial fishing authorities / fishery symbols

Access to Queensland's commercial fisheries is managed using fishery symbols. These symbols define what gear can be used in each fishery (e.g. N = Net, L = line, T = trawl), and/or the area of operation (e.g. M1 & M2 = Moreton Bay). While operators can have multiple fishery symbols (e.g. N1, N2 and L1 or an L3 and T1) attached to their commercial fishing boat licence, only one fishery symbol can be used at a time. Some notable exceptions being a) the crab (C1) fishery symbol that can be used in conjunction with a line (L) and net (N) fishery symbol; and b) fishing symbols related to quota such as those used in the *Reef Line Fishery* and the *East Coast Spanish Mackerel Fishery* (Business Queensland, 2016). In each fishery, the total number of symbols represents the number of fishers that could potentially access the fishery at any given time. This differs from data on the number of 'active' licences which represents the number of operators that have used their symbol to access the fishery at some point over a 12-month period (Table 2).

The majority of catch and effort reported from the ECOTF is recorded against the T1 and T2 fishery symbols. While not universal, T1 and T2 operations tend to be larger in terms of the size of the vessel and the size of the apparatus used. The two remaining symbols, M1 and M2, are used exclusively in the Moreton Bay region and make a smaller contribution to overall catch and effort levels. These operational differences extend to the species being targeted across the Moreton Bay region and the broader ECOTF (Table 1).

A fifth licencing symbol, the T3, was previously used in the ECOTF. This symbol was introduced in 1995 and was officially phased out in 2002. As the T3 symbol is no longer active, historic information will be absorbed into the total data and observations will not be made about the stand-alone data for this symbol.

4.2 Trends in commercial fishing authorities

Since a state-wide peak in 1999, the number of fishing symbols available for use within the ECOTF has progressively declined. A range of social, economic and operational factors would have contributed to the observed decline. This includes licence consolidations or surrenders, marine park expansions (e.g. *Great Barrier Reef Marine Park Representative Areas Program*, *Moreton Bay Marine Park* and *Great Sandy Marine Park*) and the introduction of management reforms to reduce latent effort / fishing symbol numbers. For example, a voluntary licence buy back / surrender program removed around 260 fishing symbols between 1999 and 2001 (Zeller, 2002; Department of Climate Change Energy the Environment and Water, 2021). While not specifically targeted at the trawl fishery, ancillary programs like the *Fisheries Queensland East Coast Net Buy-back Program* made smaller contributions to the observed decline (Brown & Ham, 2015; Department of Agriculture and Fisheries, 2016a; b). For reference and context, the total number symbols available for use in the ECOTF declined by around 42% between 1999 and 2021 (Table 2, Fig. 2).

Active licence⁴ data tracks the number of symbols being used in the fishery and is an indicator of annual participation rates. Observed trends in active licence data were comparable to that reported for fishing symbols. Proportionately though, the decline in active licence numbers was more pronounced. For example, the number of licences (symbols) accessing the fishery within a given year declined from around 650 in 1999 to less than 300 in the post-2020 period (Table 2, Fig. 2). The catalyst for these declines will be the same as that reported for fishing symbols e.g. management interventions and reforms, fishery restructures and direct/indirect impacts of ancillary programs (marine park expansions etc).

Without management intervention, the number of fishing symbols available for use in the ECOTF is expected to remain at or around 2017 levels (Table 2, Fig. 2). This is because Queensland operates under a limited entry policy that prevents new licences being issued for the fishery. While this does not prevent the re-activation of underutilised licences, it will prevent licence numbers expanding into the future. It is anticipated that the total ECOTF symbols will continue to decrease through time due to natural attrition (i.e. surrenders).

Table 2. An overview of the total number of trawl fishery symbols (T1, T2, M1 and M2) available for use and the number of active licences between 1999–2021. This period was aligned with the introduction of the first iteration of the now repealed Fisheries (East Coast Trawl) Management Plan. Introduced in 1999, this plan provides a reasonable reference point to review the catch and effort trends for this fishery.

Year	No. Symbols					Active licences
	T1	T2	M1	M2	Total	
1999	758	33	-	-	791	648
2000	750	33	-	-	783	689
2001	545	32	56	37	670	581
2002	501	31	53	38	623	521
2003	472	30	55	38	595	508
2004	448	30	53	38	569	486
2005	440	29	52	38	559	449
2006	425	19	52	38	534	422
2007	415	28	50	38	531	377
2008	413	27	50	38	528	342
2009	397	26	47	25	495	347
2010	397	26	47	25	495	333
2011	397	26	47	25	495	331
2012	396	26	47	25	494	311
2013	395	26	47	25	493	301
2014	389	21	47	25	482	288
2015	383	19	47	25	474	293
2016	375	17	47	25	464	296
2017	370	16	47	25	458	307
2018	370	16	47	25	458	308
2019	370	16	47	24	457	299
2020	369	16	47	24	456	287
2021	368	16	47	24	455	297

⁴ Monitoring systems used by DAF classifies any licence as 'active' if the operator has reported catch from that fishery in a given year; irrespective of the size of the catch or the fishing frequency.

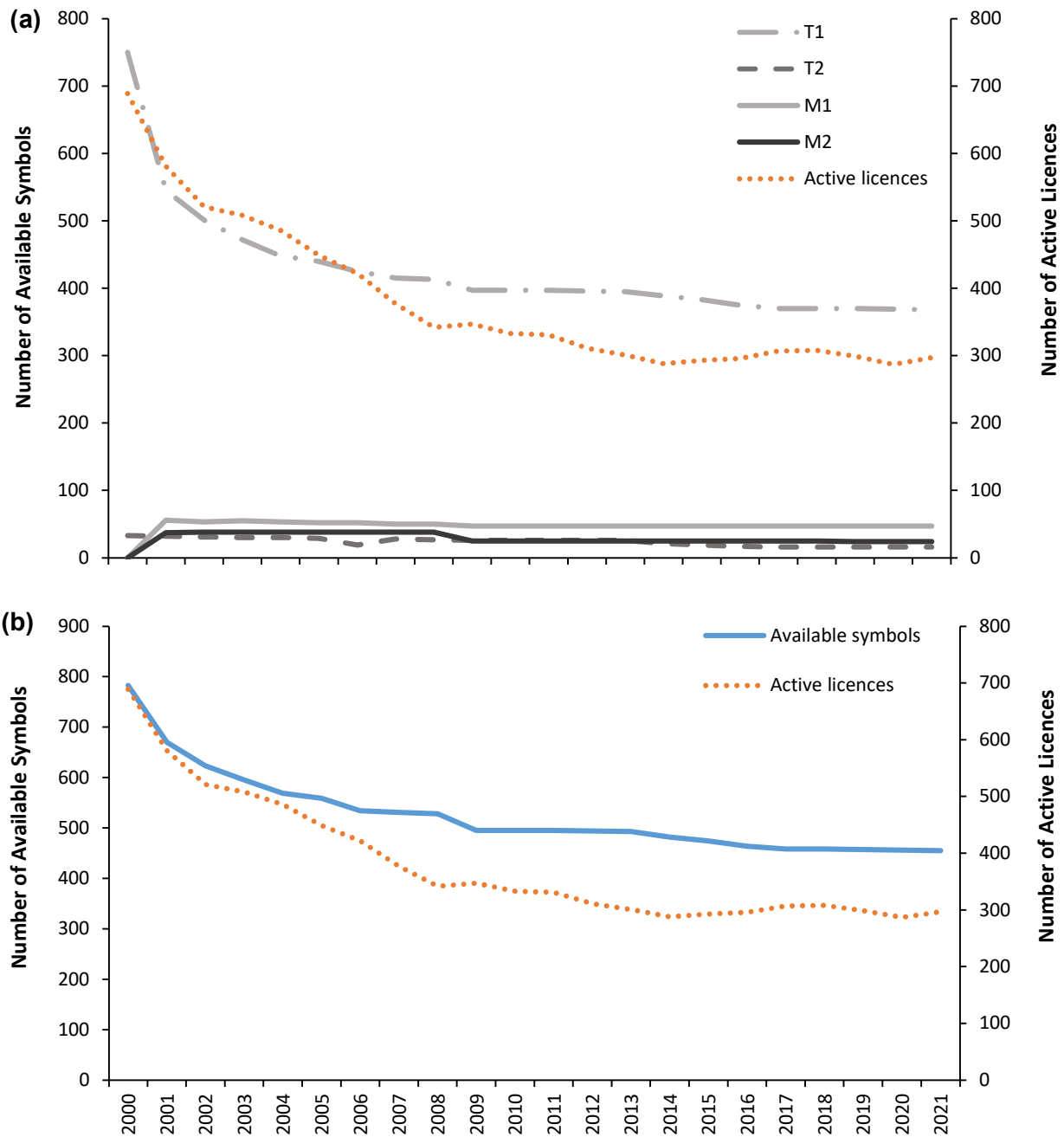


Figure 2. Licence summaries depicting (a) the number of available symbols for the T1, T2, M1 and M2 fisheries, compared to the total active licences, and (b) the total number of available symbols compared to the total active licences.

5 Commercial Catch and Effort

For this Scoping Study, timeframes for the catch and effort review were largely restricted to the post-1998 period. This period was aligned with the introduction of the first iteration of the now repealed *Fisheries (East Coast Trawl) Management Plan*. This plan was introduced in 1999 and established the broader management framework for the fishery. To this extent, 1999 provides a reasonable point to review the catch and effort trends for this fishery. QDAF notes though that the management framework for the fishery has been reviewed, reformed and built on in the pursuing years including as

part of the *Queensland Sustainable Fisheries Strategy 2017–2027* (Department of Agriculture and Fisheries, 2017b; c; a).

A more detailed review of catch and effort trends prior to 1999 can be accessed via QFish, the *Department of Agriculture and Fisheries* publicly accessible database (available at: <https://qfish.fisheries.qld.gov.au/>).

5.1 Effort

While the post-1998 period remains the focus of this report, the two largest effort years for the ECOTF occurred just before the introduction of the trawl management plan. Effort levels for the ECOTF peaked over the 1997–1998 period with the fishery reporting 107,867 and 104,449 days fished respectively (Table 3). This compares with just 33,004 days fished in the 2021 season; the last season with a full year of available data (Table 3; Fig. 3a). After the 1997 peak, annual effort levels experienced a period of progressive declines before stabilising at or around 35,000 days fished (Table 3; Fig. 3). While not universal, this decline in effort will be intimately linked to declining symbol numbers and participation rates (Table 2).

Effort in the ECOTF is dispersed across a broad expanse of the Queensland east coast. Most of the effort is concentrated between Cooktown and Townsville in Far North Queensland, and between the Gold Coast and Rockhampton (Appendix C). Trawling typically occurs between a depth range of 10–250 m; although some licence holders may operate outside this range (*pers. comm.* D. Roy). While operations can extend into deeper waters, trawl fishing will be limited by the physical constraints of the fishing apparatus.

Under the previous management regime, operators had a high degree of flexibility in terms of where effort could be used in the ECOTF. This system was reviewed as part of the *Queensland Sustainable Fisheries Strategy 2017–2027* and reformed as part of the harvest strategy development process. Central to this was the establishment of a regional management system supported by regional effort limits. Going forward, these limits will have a bearing on where effort is utilised, limit effort usage at a regional level and reduce the likelihood (risk) of trawl effort increasing beyond an acceptable level (Department of Agriculture and Fisheries, 2021g; a; c; d; b).

Descriptions for the five respective harvest strategy regions and effort caps employed in each can be accessed at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>.

5.2 Catch

While historic catch levels peaked between 14,000 and 16,000 t (1995–1996; Department of Agriculture and Fisheries, 2022), long-term (annual) harvest rates for the ECOTF sit well below this level (Table 3). Annual harvest rate data demonstrated a declining trend from 1997, before stabilising between 5,500 t and 7,500 t in 2006 (Table 3, Fig. 3a). This decline mirrors observed trends in the effort data and will be influenced by a range of factors including, management reforms and social, economic and environmental factors. While the situation is more nuanced, the rebuilding strategy employed for saucer scallops (*Ylistrum balloti*) provides a good example of how these factors contribute to inter-seasonal catch variability in the ECOTF (Department of Agriculture and Fisheries, 2021h; Wortmann, 2022).

Table 3. Annual effort levels for the ECOTF and catch (tonnes) at the whole-of-fishery level and for key target species. Additional information on commercial catch and effort levels in the ECOTF can be accessed from QFish (<https://qfish.fisheries.qld.gov.au/>).

Year	Effort (Total days fished)	Catch (t)					
		Whole of fishery	Eastern king prawn	Tiger prawns	Endeavour prawn	Banana prawn	Saucer scallop
1998	104,449	13,686	<1	2,595	1,356	862	953
1999	98,781	10,750	2	2,464	1,535	664	769
2000	90,525	8,387	1,043	1,588	1,494	285	852
2001	68,328	8,124	1,987	1,436	1,073	232	718
2002	67,415	8,531	1,982	1,813	1,014	258	354
2003	66,270	8,769	2,612	1,992	1,099	342	386
2004	63,884	9,062	2,496	2,110	999	729	639
2005	54,357	7,812	2,324	1,834	886	317	705
2006	46,616	7,048	2,142	1,831	883	229	511
2007	39,974	5,864	2,128	827	424	243	901
2008	36,091	6,189	2,409	975	603	484	593
2009	38,969	8,152	2,989	1,316	641	704	761
2010	38,035	7,204	2,679	1,291	590	678	429
2011	36,064	6,459	2,002	1,233	520	1,179	275
2012	34,217	6,536	2,613	834	458	227	738
2013	33,064	7,775	2,924	986	508	1,027	486
2014	34,972	6,703	2,571	1,300	463	505	334
2015	33,825	6,483	2,362	1,352	541	519	230
2016	36,460	6,198	2,208	1,455	526	315	201
2017	37,788	7,462	2,973	1,628	401	649	252
2018	35,009	6,296	2,427	1,271	443	550	357
2019	35,772	5,987	2,523	1,157	447	360	209
2020	32,828	6,666	2,717	1,309	361	499	262
2021	33,004	5,513	2,205	1,172	449	184	53

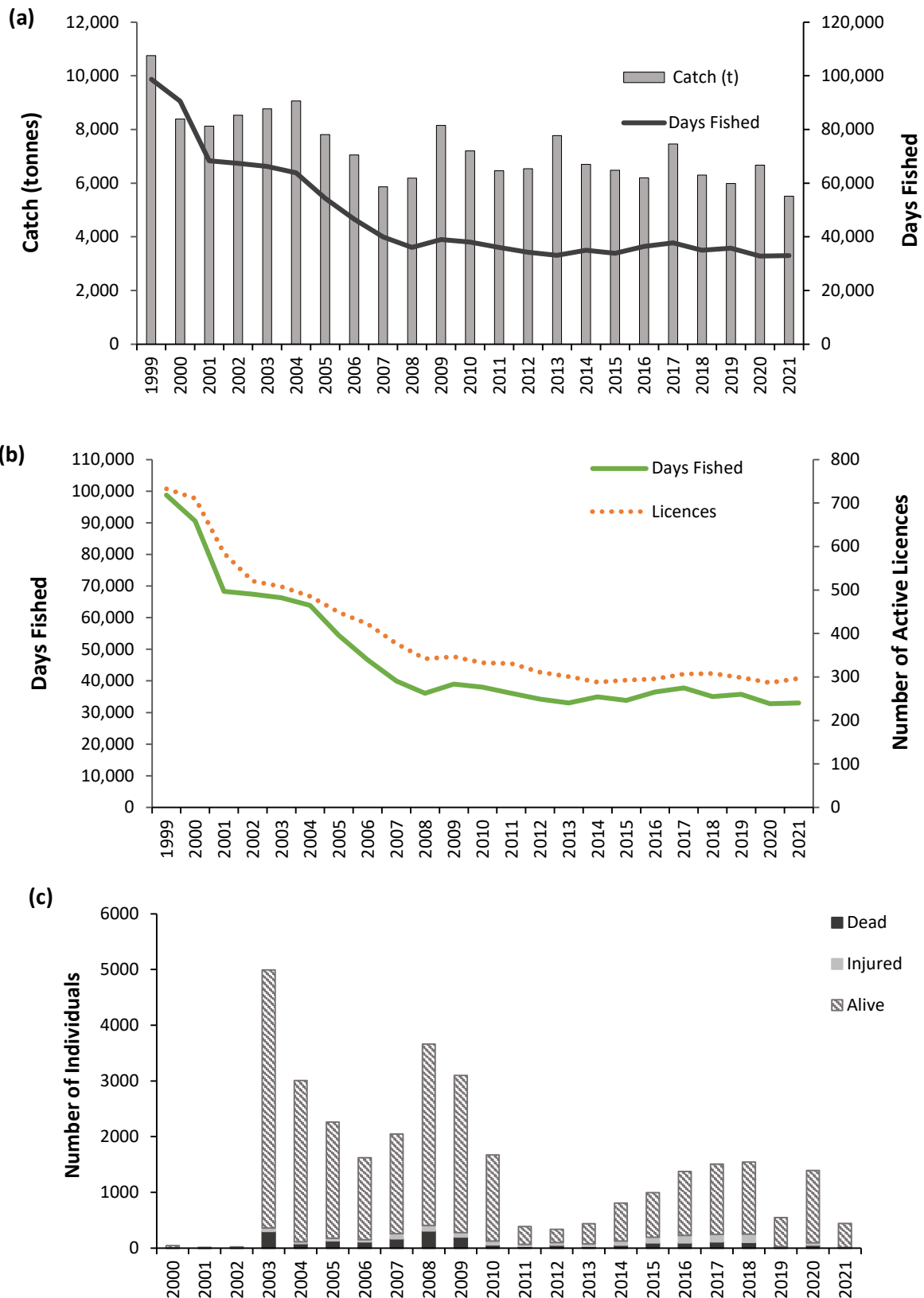


Figure 3. Summaries for the ECOTF from 1999–2021: (a) catch and effort (days fished) trends; (b) effort (days fished) and active licence trends; (c) Species of Conservation Concern summary for the ECOTF from 2000–2021 depicting the release state of individuals.

Catch compositions in the ECOTF are limited in legislation to *principal fish* and a list of byproduct species. *Principal fish* include prawns, bugs (other than Balmain bugs), scallops and squid, with byproduct (formally known as *permitted species*) incorporating Balmain bugs, blue swimmer crabs, cuttlefish, mantis shrimps, octopus, pipefish (restricted to the Duncker's pipehorse, *Solegnathus dunckeri* and the Pallid pipehorse *S. hardwickii*), red champagne lobsters, slipper lobsters, threadfin bream and three-spotted crabs. Species not included in the *principal fish* and byproduct species definitions cannot be retained for sale and must be discarded as bycatch.

Over the years, the list of permitted species has been reduced and refined to address changing fishing patterns and prevent the targeting of more valuable species. Management regimes for secondary species have also been strengthened to minimise risks posed by cumulative fishing pressures and increasing catch rates. For example, all five harvest strategies contain decision rules and reference points to manage long-term harvest trends for byproduct species (Department of Agriculture and Fisheries, 2021a; b; c; d; g). While not universal, historical reforms have resulted in a general contraction in the number of species that can be retained in this fishery (Appendix D).

While the ECOTF has a smaller list of principal and permitted species, operators still report a diverse range of catch categories. For example, the broader ECOTF retained 42 different species or species complexes across the 2021 fishing season (Appendix D). A high percentage of these catch categories were retained in smaller quantities. Of the prawn species retained in this fishery, eastern king prawns (*M. plebejus*), tiger prawns (*P. esculentus / semisulcatus*) and endeavour prawns (*M. endeavouri*) account for around 70% of the retained catch (Table 3 & 4; Appendix D).

Outside of the prawn complex, saucer scallops (*Y. balloti*) made up the largest component of the historical ECOTF catch (Table 3). Research including stock assessments have shown that a) the Queensland east coast saucer scallop stock has been the subject of an extended period of overfishing and b) biomass levels have failed to rebound to a level that would adequately support larger-scale fishing activities (Wortmann *et al.*, 2020; Kangas & Roelofs, 2021). In response to these findings, the management regime for scallops on the Queensland east coast was reviewed and significant reforms undertaken. These reforms commenced prior to the introduction of the harvest strategy and include a complete closure of the fishery in areas where the majority of the catch is reported (Fig. 1).

Of the remaining species/complexes, Moreton Bay bugs and blue swimmer crabs are two of the more notable components of the ECOTF catch (Table 4). Harvest rates for the remaining species varies between seasons and, in the case of byproduct, may be subject to more stringent in-possession limits (Table 4; Appendix D).

Provisions governing the take of *principal fish* and byproduct are contained within the *Fisheries Act 1994*, *Fisheries (General) Regulation 2019* and the *Fisheries (Commercial Fisheries) Regulation 2019*. Trip limits applied to byproduct species are listed in the *Fisheries Declaration 2019* (<https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/legislation>) with decision rules, trigger limits and reference points guiding the long-term management of key species outlined in the regional harvest strategies (Department of Agriculture and Fisheries, 2021a; g; c; d; b).

Table 4. A general overview of the key components of the reported East Coast Otter Trawl Fishery (ECOTF) catch from 2000–2021 inclusive. A more comprehensive overview of the reported catch is provided in Appendix D.

Species	Catch (t)																					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Prawn - eastern king	1043	1987	1982	2612	2496	2324	2142	2128	2409	2989	2679	2002	2613	2924	2571	2362	2208	2973	2427	2523	2717	2205
Prawn - tiger	1588	1436	1813	1992	2110	1834	1831	827	975	1316	1291	1233	834	986	1300	1352	1455	1628	1271	1157	1309	1172
Prawn - endeavour	1494	1073	1014	1099	999	886	883	424	603	641	590	520	458	508	463	541	526	401	443	447	361	449
Bugs - Moreton bay	334	226	370	466	488	477	483	429	375	422	461	300	468	502	570	527	539	561	536	515	489	376
Prawn - red spot king	2	37	62	744	497	391	271	232	290	352	348	114	263	220	168	148	222	206	99	128	243	215
Bugs - sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185
Prawn - banana	285	232	258	342	729	317	229	243	484	704	678	1179	227	1027	505	519	315	649	550	360	499	184
Squid (<i>unspecified</i>)	176	118	126	139	156	186	90	58	27	62	81	70	97	83	65	65	69	83	84	125	155	162
Prawn - blue leg king	3	11	14	241	220	197	164	202	111	155	153	76	137	144	178	151	181	176	145	127	219	83
Prawn - school	1	3	-	2	27	5	10	1	2	243	55	4	1	4	1	1	2	2	5	<1	10	76
Bugs - Balmain	72	61	53	91	108	108	128	101	85	127	85	101	102	69	89	84	68	47	54	64	71	63
Scallop - saucer	852	718	354	386	639	705	511	901	593	761	429	275	738	486	334	230	201	252	357	209	262	53
Cuttlefish	62	63	33	37	32	26	21	26	19	29	27	25	39	26	41	38	41	43	37	45	36	44
Crab - blue swimmer	130	146	96	87	107	76	59	62	41	65	51	33	48	42	48	38	34	46	26	35	44	44
Prawn - bay	140	87	84	74	139	90	85	93	68	119	130	284	238	472	170	232	145	199	103	101	77	29
Other	2206	1926	2272	457	317	188	140	140	107	168	144	243	274	282	202	197	193	197	159	149	174	173

5.3 Bycatch

As ECOTF operators retain a wide range of species, the definition of byproduct and bycatch may vary between operations. For the purpose of this scoping study, bycatch refers to the portion of catch that is returned to the water and can include non-target species, unwanted retainable product (*i.e.* less marketable species or due to damage) and product that must be returned due to legislative requirements (*e.g.* no-take provisions and in-possession limits).

Outside of the target species, operators in the ECOTF will interact with a wider array of non-target species. These species cannot be retained for sale and will be discarded as bycatch. Trawl bycatch encompasses a wide range of species and consists of invertebrates, teleosts and marine megafauna such as sea snakes, marine turtles, syngnathids, sharks and rays. Information on bycatch compositions will vary by regions but Courtney *et al.* (2007), Pitcher *et al.* (2007), Courtney *et al.* (2010) and Campbell *et al.* (2017) provide some good examples of the types of species that are caught in this fishery.

5.4 Species of Conservation Interest

All operators in the ECOTF are required to report interactions with species classified as *Threatened*, *Endangered* and *Protected* (TEP). Under the current definition an interaction incorporates both the fishing apparatus and the vessel.

Operators have historically reported interactions with TEP species through the *Species of Conservation Interest* (SOCI) logbook. In 2021, Fisheries Queensland conducted a review of the SOCI program and its ability to meet the core objective of reporting interactions with species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In response to this review, reporting requirements were refined and the SOCI logbook replaced with the *Threatened, Endangered and Protected Animals* (TEPA) logbook. All data compiled through the TEPA logbook and the previous SOCI logbook has been presented as part of this Scoping Study. The TEPA logbook can be accessed at: <https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/reporting-requirements/logbooks>.

While the ECOTF reported interactions with a diverse array of TEP species, the overwhelming majority were with sea snakes (Table 5). Syngnathids and marine turtles also make notable contributions to the total number of interactions reported from this fishery (Table 5). While most TEPA interactions were recorded as live discards (Fig. 3c), the fishery does not have a mechanism in place to monitor catch rates in real or near-real time. This makes it difficult to validate catch rates and/or the accuracy of data submitted through the TEPA logbook. These deficiencies are now being actively addressed as part of the *Data Validation Plan* (Department of Agriculture and Fisheries, 2018). A key focus of this plan being field trials of onboard cameras, control systems and software to detect interactions with threatened, endangered and protected species during commercial trawl fishing activities (Queensland Government, Undated).

A summary of the data submitted through the TEPA logbook and the former SOCI logbook has been provided in Table 5. A full account of the species data including their release states has been provided in Appendix E.

Table 5. Summary of interactions reported in the Threatened, Endangered and Protected Animals (TEPA) logbook by fishers operating in the ECOTF between 2006–2021. Note: this table also includes data collected through the previous Species of Conservation Interest (SOCI) logbook which was superseded by the TEPA logbook.

Species	Year																Total
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Dolphins	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
Marine turtles	14	7	2	3	3	3	1	4	4	3	8	12	5	0	0	4	73
Sharks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Sawfish and rays	6	4	3	6	2	0	1	2	5	4	8	23	23	0	0	3	90
Seabirds	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hydrophiinae	1,594	2,024	3,643	3,089	1,661	385	336	431	797	988	1,359	1,470	1,513	549	1,395	431	21,665
Syngnathidae	4	12	13	0	4	0	1	1	0	0	0	0	0	0	0	5	40

6 Assessment History

The assessment history of the ECOTF (and broader ECTF) is expansive, with multiple studies being undertaken over the years including three comprehensive ecological risk assessments (ERA). The first ERA was completed in 2012 and examined the risk posed by trawl fishing activities within the Great Barrier Reef Marine Park (Pears *et al.*, 2012). This assessment was followed by a complimentary ERA examining the risk posed by trawl fishing in southern Queensland and the River and Inshore Beam Trawl Fishery (Jacobsen *et al.*, 2015). Both of these assessments were based on a more conservative qualitative ERA methodology (Astles *et al.*, 2006).

The third trawl ERA examined the risk posed to elasmobranchs in southern Queensland using the *Sustainability Assessment for Fishing Effects* or SAFE (Zhou & Griffiths, 2008; Zhou *et al.*, 2011; Campbell *et al.*, 2017). SAFE is a fully quantitative assessment with higher data requirements; particularly when compared to the qualitative method used by Pears *et al.* (2012) and Jacobsen *et al.* (2015). Research has shown that SAFE produces fewer false positives when compared to semi-quantitative ERA methods like the *Productivity & Susceptibility Analysis* (PSA; Zhou *et al.*, 2016).

More broadly, the ECOTF has been the subject of several detailed assessments examining the impact of the fishery on target and non-target species. These assessments include but are not limited to, stock assessments for key species (*e.g.* Tanimoto *et al.*, 2006; Helidoniotis, 2020; 2021; Wortmann, 2022), bycatch quantification studies (*e.g.* Courtney *et al.*, 2007; Wang *et al.*, 2019) and bespoke assessments on the effects of bycatch mitigation strategies (Courtney *et al.*, 2010; Campbell *et al.*, 2017; Campbell *et al.*, 2018). A number of target species have also been assigned an indicative sustainability status through the *National Status of Australian Fish Stocks* (SAFS) processes (Fisheries Research and Development Corporation, 2021). A full list of the species with stock status assessments have been provided in Appendix F. This list is expected to expand through time in line with a broader SAFS objective to increase the overall number of assessments.

Individual stock status assessments completed by SAFS and stock assessments undertaken by DAF are publicly available through the Department's *Fisheries Data and Reporting* page (<https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data>) and the SAFS reporting portal (<https://fish.gov.au/>). Reports pertaining to research undertaken in the ECOTF including bycatch weights and compositions can be accessed through the *Department of Agriculture and Fisheries eResearch Archive* (<https://era.daf.qld.gov.au/>).

7 Wildlife Trade Operation Approval

As the ECOTF is export approved, the fishery undergoes broad-scale sustainability assessments as part of the *Wildlife Trade Operation* (WTO) approval process (Department of Agriculture and Fisheries, 2021i). A WTO approval is issued under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is a requirement for all fisheries exporting products derived from native species caught and retained in Australian waters. The WTO approval effectively signifies that a fishery is being managed sustainably and can be accessed at:

<https://www.dcceew.gov.au/environment/marine/fisheries/qld>.

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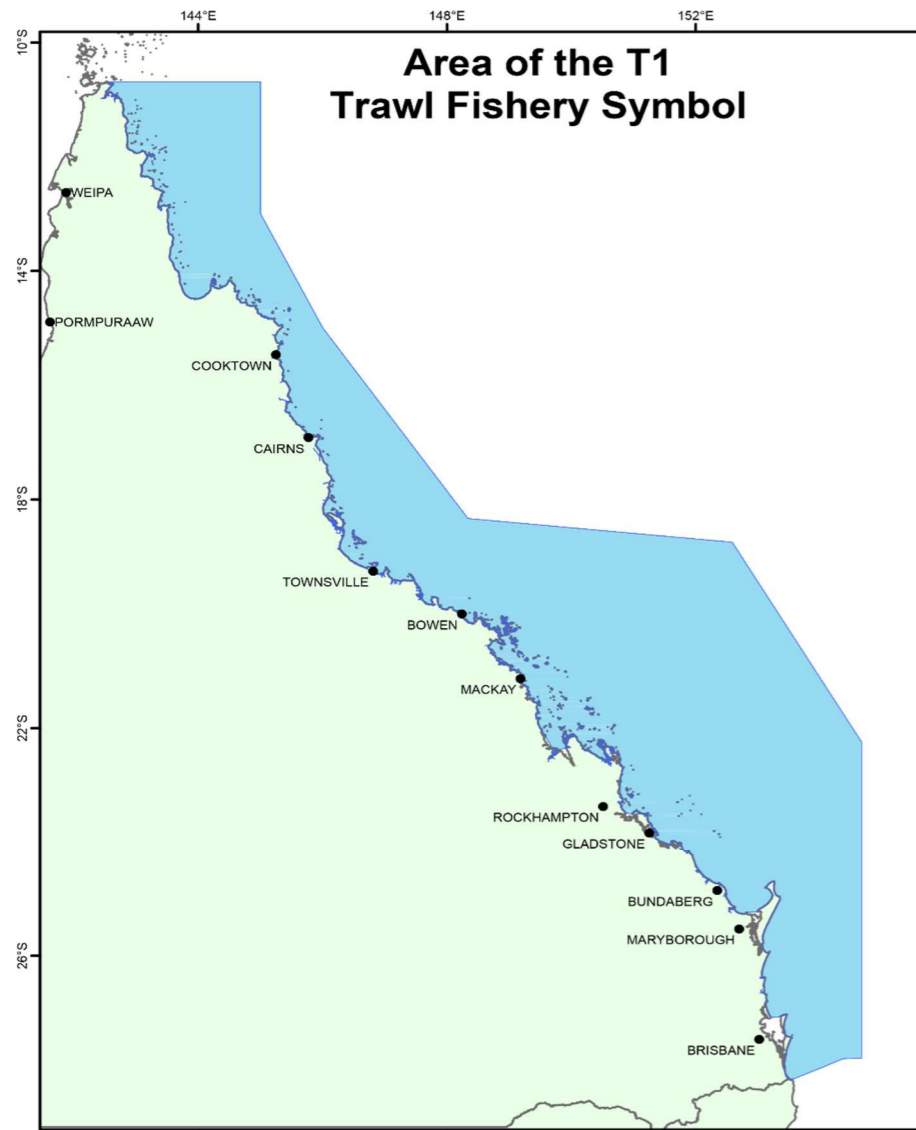
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9 Appendices

- *Appendix A—Geographic boundaries for the fishery symbols permitted for use in the ECOTF.*
- *Appendix B—Summary of provisions relating to each of the key trawl fishing symbols permitted for use in the ECOTF.*
- *Appendix C—Effort distribution for the ECOTF for the 2017, 2018, 2019, 2020 and 2021 fishing seasons.*
- *Appendix D—Complete overview of the ECOTF catch from 2000–2021.*
- *Appendix E—Detailed overview of the TEPA interactions reported from the ECOTF.*
- *Appendix F—Summary of species retained in the ECOTF that were assessed as part of the National Status of Australian Fish Stocks (SAFS).*

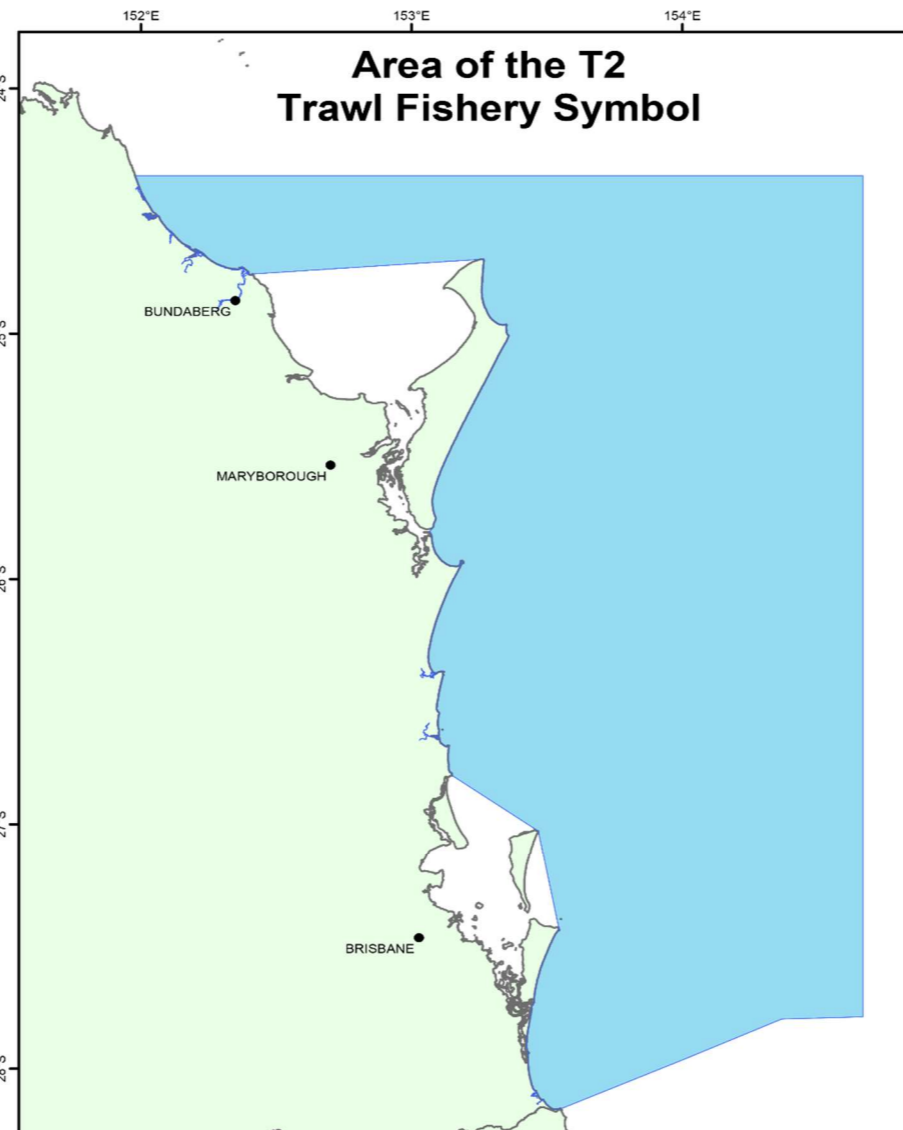
APPENDIX A—Geographic boundaries for the fishery symbols permitted for use in the ECOTF.



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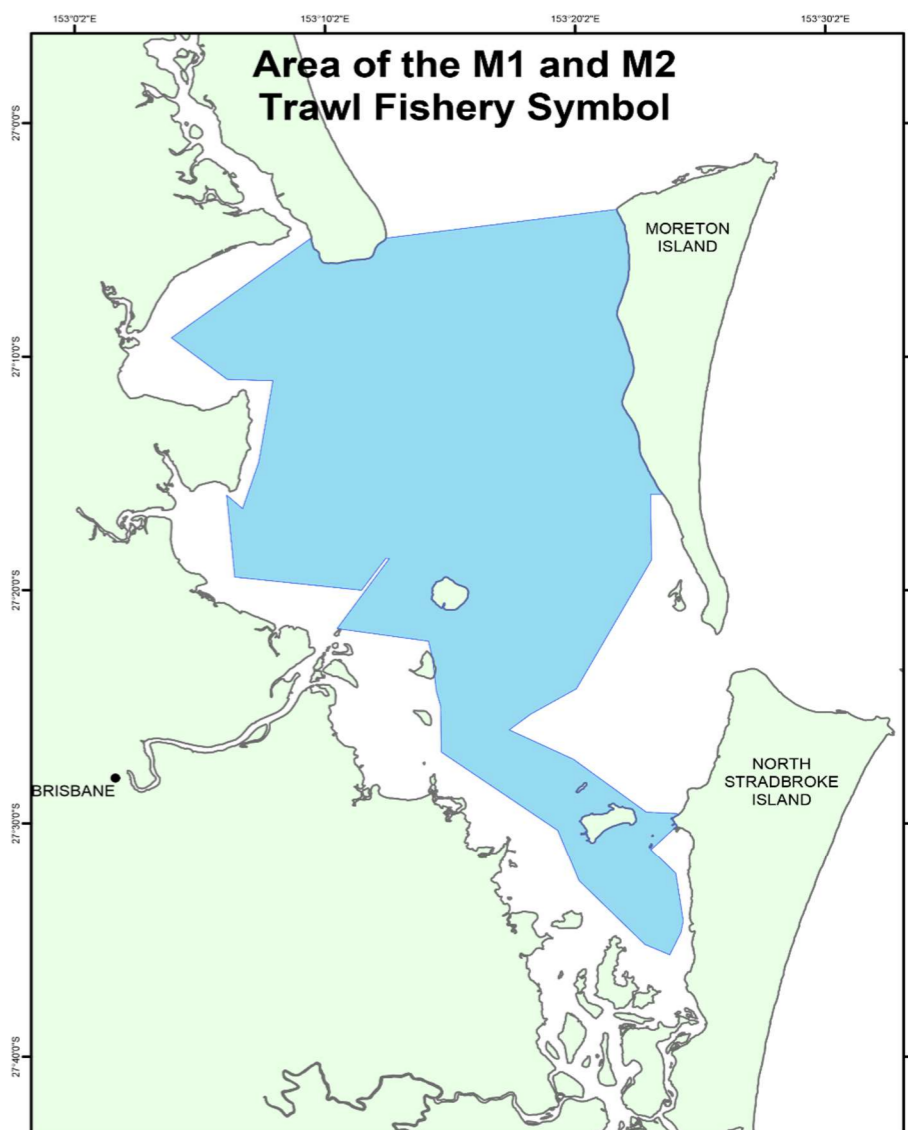
This map represents the approximate fishery area where fishing operations are permitted under the fishery symbol. Please refer to the relevant fisheries legislation (eg Regulation or Management Plan) for the exact boundaries of an area.



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This map represents the approximate fishery area where fishing operations are permitted under the fishery symbol. Please refer to the relevant fisheries legislation (eg Regulation or Management Plan) for the exact boundaries of an area.

APPENDIX B—Summary of provisions relating to each of the key trawl fishing symbols permitted for use in the ECOTF.

T1 Fishery Symbol Trawling Provisions

General target species

Only the following fish may be taken under the (T1 fishery symbol) licence—(a) prawns; (b) scallops; (c) bugs; and (d) squid.

Use of a trawl

- 1) Permitted fish may be taken only by using otter trawl nets.
- 2) Permitted fish may be taken by a net only if:
 - a) The net is used for the primary purpose of taking principal fish.
 - b) The net and its use comply with Part 9, Division 2 of the relevant legislation (State of Queensland, 2019b).

General restrictions on trawl nets

- 1) General restrictions apply to the use of mesh nets, chains, head ropes and other apparatus attachments. These restrictions vary depending on the geographical locations for both beam and otter trawls. While the T1 licence includes provisions for beam trawling, this Scoping Study solely observes otter trawls. For further information regarding specific gear restrictions of a T1 licence, refer to Part 9, Division 2 of the relevant legislation (State of Queensland, 2019a).

Use of a Bycatch Reduction Device & Turtle Excluder Device

- 1) A net, other than a try net, must be fitted with a recognised / approved Bycatch Reduction Device (BRD) and Turtle Excluder Device.
- 2) The apparatus 'must achieve the purpose' of a BRD and TED as outlined in *Fisheries (Commercial Fisheries) Regulation 2019*.

T2 Fishery Symbol Trawling Provisions

General target species

Only the following fish may be taken under the (T2 fishery symbol) licence—(a) prawns; (b) scallops; (c) bugs; and (d) squid.

Use of a trawl

- 1) Permitted fish may be taken only by using otter trawl nets.
- 2) Permitted fish may be taken by a net only if the net and its use comply with Part 9, Division 3 of the relevant legislation (State of Queensland, 2019b).

General restrictions on trawl nets

T2 Fishery Symbol Trawling Provisions

- 1) General restrictions apply to the use of mesh nets, chains, head ropes and other apparatus attachments. These restrictions vary depending on the geographical locations for both beam and otter trawls. While the T2 licence includes provisions for beam trawling, this Scoping Study solely observes otter trawls. For further information regarding the specific gear restrictions of a T2 licence, refer to Part 9, Division 3 of the relevant legislation (State of Queensland, 2019a).

Use of a Bycatch Reduction Device & Turtle Excluder Device

- 1) A net, other than a try net, must be fitted with a recognised / approved Bycatch Reduction Device (BRD) and Turtle Excluder Device.
- 2) The apparatus 'must achieve the purpose' of a BRD and TED as outlined in *Fisheries (Commercial Fisheries) Regulation 2019*.

M1 and M2 Fishery Symbol Trawling Provisions

General target species

Only the following fish may be taken under the (M1 and M2 fishery symbols) licence—(a) prawns; (b) scallops; (c) bugs; and (d) squid.

Use of a trawl

- 1) Permitted fish may be taken only by using a trawl in the Moreton Bay trawl region.
- 2) Permitted fish may be taken only by using beam trawl nets or otter trawl nets.
- 3) However, scallops may be taken only by using otter trawl nets.
- 4) Permitted fish may be taken by a net only if the net and its use comply with Part 9, Division 1 of the relevant legislation (State of Queensland, 2019b).

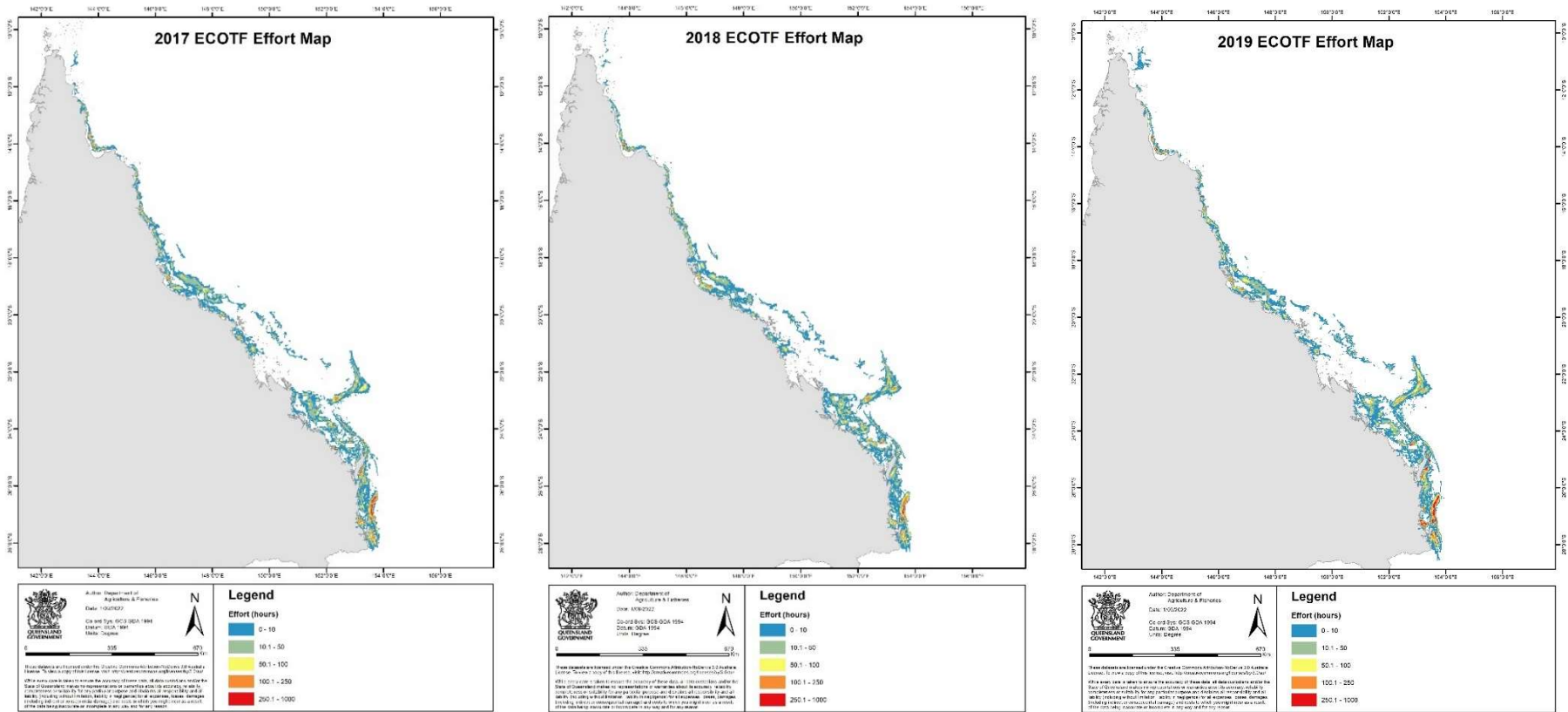
General restrictions on trawl nets

- 1) General restrictions apply to the use of mesh nets, chains, head ropes and other apparatus attachments. These restrictions vary depending on the geographical locations for both beam and otter trawls. While the M1 and M1 licences include provisions for beam trawling, this Scoping Study solely observes otter trawls. For further information regarding specific gear restrictions of an M1 and M2 licence, refer to Chapter 4, Division 2 of the relevant legislation (State of Queensland, 2010).

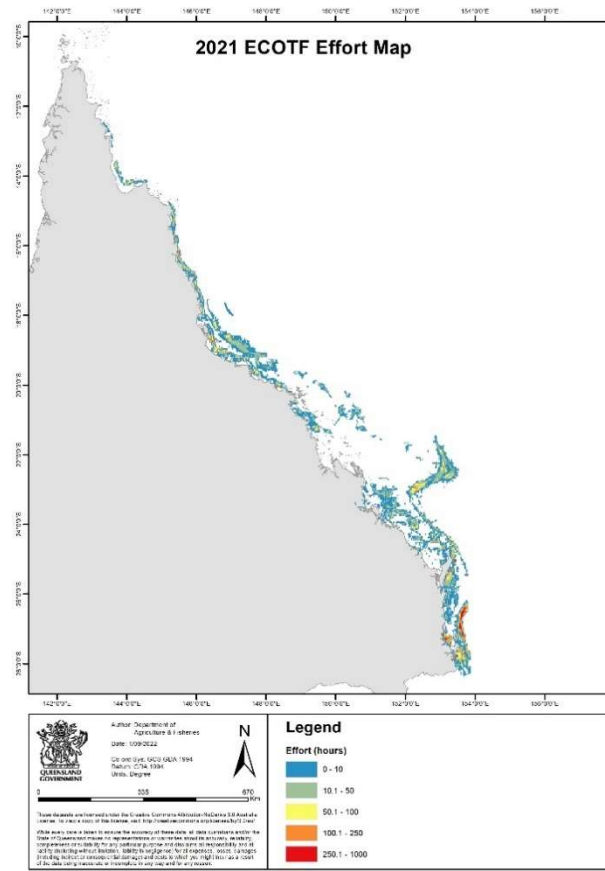
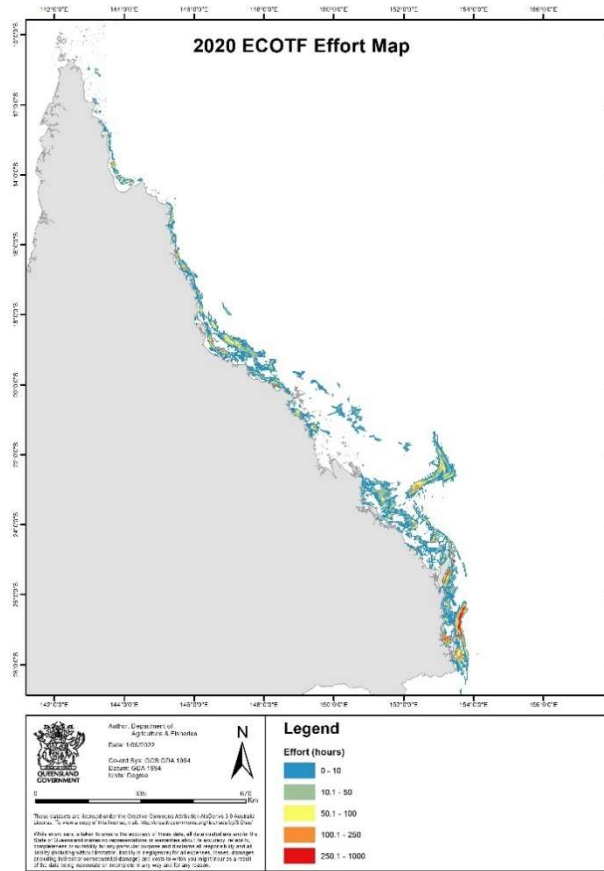
Use of a Bycatch Reduction Device & Turtle Excluder Device

- 1) A net, other than a try net, must be fitted with a recognised / approved Bycatch Reduction Device (BRD) and Turtle Excluder Device.
- 2) The apparatus 'must achieve the purpose' of a BRD and TED as outlined in *Fisheries (Commercial Fisheries) Regulation 2019*.

APPENDIX C—Effort distribution for the ECOTF for the 2017, 2018, 2019, 2020 and 2021 fishing seasons.



APPENDIX C cont.



APPENDIX D—The total annual catch (t) for the ECOTF from 2000–2021 fishing seasons (inclusive).

Note—Catch compositions in the ECOTF are limited by legislation to *principal fish* and a list of byproduct species. *Principal fish* in the ECOTF are confined to prawns, bugs (other than Balmain bugs), scallops and squid. The list of byproduct species (formally known as *permitted species*) includes Balmain bugs, blue swimmer crabs, cuttlefish, mantis shrimps, octopus, pipefish (restricted to the Duncker’s pipehorse, *Solegnathus dunckeri* and the Pallid pipehorse *S. hardwickii*), red champagne lobsters, slipper lobsters, threadfin bream and three-spotted crabs. ‘Tier 1’, ‘Tier 2’ and ‘byproduct’ represents the classifications assigned to each species or species complex under the current harvest strategies. Species listed as principal or permitted have altered throughout the history of the ECOTF, and historic catch is not reflective of the current legislative requirements. However, this information was included to provide further context on the evolution of the ECOTF management regimes. See table footnotes for caveats denoted by ‘*’ and ‘**’.

Species	Catch (t)																					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Target (Tier 1) species*																						
<i>Prawn - eastern king</i>	1,043.3	1,987.2	1,981.6	2,611.6	2,496.3	2,324.2	2,142.1	2,127.9	2,408.8	2,989.3	2,679.5	2,002.4	2,613.1	2,923.9	2,570.7	2,361.9	2,208.4	2,973.0	2,427.4	2,522.9	2,716.8	2,204.8
<i>Prawn - greasy</i>	21.9	53.5	48.1	39.8	91.8	37.0	25.5	29.3	32.0	52.5	53.7	185.1	135.9	188.3	69.4	100.6	81.3	93.0	65.4	45.1	55.6	16.2
<i>Prawn - tiger</i>	1,587.8	1,436.0	1,812.9	1,992.4	2,110.3	1,834.2	1,831.1	826.8	974.8	1,315.8	1,291.3	1,233.5	833.9	986.3	1,300.1	1,351.6	1,454.7	1,628.1	1,271.3	1,157.3	1,308.6	1,172.3
<i>Scallop - saucer</i>	851.6	718.5	354.0	386.3	639.0	705.0	511.2	901.4	593.0	761.2	429.1	274.7	737.7	485.6	333.5	229.5	200.6	251.7	356.7	209.4	261.8	53.4
Secondary (Tier 2) species*																						
<i>Bugs - Balmain</i>	72.5	61.3	52.7	91.2	108.1	107.7	128.2	100.5	84.6	126.9	85.4	101.3	102.1	69.4	88.7	84.1	67.8	46.9	54.0	64.4	71.4	62.6
<i>Bugs - Moreton bay</i>	334.2	226.1	370.0	466.1	487.8	477.3	483.1	428.8	375.4	422.2	460.6	300.4	468.4	502.0	570.1	527.0	539.2	561.2	535.7	515.4	489.0	375.8
<i>Prawn - banana</i>	284.6	232.4	258.1	341.8	728.8	317.3	229.3	242.9	483.8	703.7	678.4	1,179.5	226.7	1,027.4	504.8	519.3	315.4	648.9	550.4	359.6	498.7	183.9
<i>Prawn - endeavour</i>	1,494.0	1,072.7	1,013.8	1,098.6	998.8	886.0	882.5	423.7	603.4	640.9	590.3	519.6	457.7	507.6	462.8	540.6	526.0	400.9	442.8	447.0	360.7	448.9
<i>Prawn - red spot king</i>	2.2	37.0	62.5	744.4	496.7	391.2	271.5	231.9	290.0	351.9	348.2	113.8	263.2	219.6	167.7	147.9	221.8	206.3	98.9	127.9	243.3	214.9
<i>Squid - unspecified</i>	175.7	117.8	126.2	138.7	156.0	185.6	90.1	58.0	26.6	61.7	80.9	70.3	97.4	83.3	65.1	64.6	68.7	82.6	83.9	125.5	155.4	162.1
Permitted / Byproduct species**																						
<i>Bait fish</i>	0.1	0.3	0.1	<0.1																		
<i>Bug - deepwater</i>																						0.2
<i>Bug - garlic</i>																						12.9
<i>Bug - honey</i>												1.3	0.2	0.1	0.7	2.2	0.2	0.5	1.3	0.7	4.0	6.1
<i>Bugs - mud</i>																						21.2
<i>Bugs - sand</i>																						184.6
<i>Bugs - unspecified</i>	63.8	99.4	116.2	15.5	5.6	1.8	2.3	0.5		1.1	0.1	0.1	1.7	0.2	0.2							
<i>Catfishes</i>	0.3	<0.1	0.3																			
<i>Champagne lobster</i>																						4.0
<i>Cod - unspecified</i>	0.2																					
<i>Coral trout</i>	0.1																					
<i>Crab - blue swimmer</i>	129.9	145.9	95.7	86.8	106.9	76.2	59.3	61.9	40.7	64.7	51.0	32.6	47.8	42.0	47.7	37.6	34.0	45.5	25.8	35.3	44.0	43.7
<i>Crab - coral</i>						<0.1	0.2	0.1	<0.1		<0.1											
<i>Crab - mud</i>	0.5			<0.1	<0.1		0.1	0.1	0.1													
<i>Crab - three spot</i>	22.6	17.2	28.6	22.3	37.6	27.1	22.3	18.3	7.9	14.7	17.0	10.7	5.4	9.0	14.9	10.9	8.1	12.7	8.8	7.6	10.7	14.9
<i>Crab - unspecified</i>	17.2	0.4		<0.1																		
<i>Cuttlefish</i>	62.1	62.5	33.0	37.0	31.5	26.4	21.3	25.6	19.1	28.7	27.4	24.7	38.9	26.4	41.1	38.2	40.8	43.5	36.6	45.2	36.1	44.3

Species	Catch (t)																						
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
<i>Emperor - red throat</i>	<0.1																						
<i>Emperor - unspecified</i>	<0.1																						
<i>Fish - mixed reef</i>	<0.1	<0.1		<0.1																			
<i>Fish - mixed reef a</i>	<0.1																						
<i>Fish - unspecified</i>	5.7	0.4																					
<i>Flathead - unspecified</i>	0.1		<0.1																				
<i>Flounder - unspecified</i>	0.1		<0.1																				
<i>Garfish - unspecified</i>	0.5																						
<i>Goat fish</i>	5.0	8.2	1.6	<0.1																			
<i>Grinners</i>	<0.1																						
<i>Herring - wolf</i>	<0.1																						
<i>Jew fish - unspecified</i>	0.1																						
<i>Jobfish - rosy</i>	<0.1																						
<i>Lobster - champagne (red)</i>	102.1	50.5	15.1	29.8	36.6	10.3	8.7	17.6	17.1	12.4	9.9	8.5	5.6	9.4	18.2	31.7	19.8	5.8	17.6	4.5	20.0	5.4	
<i>Lobster - slipper</i>										<0.1	<0.1		0.2	0.7	2.0	0.9	1.9	3.8	1.9	2.2	0.9	2.4	
<i>Lobster - unspecified</i>	1.1		<0.1																				
<i>Mantis shrimp - unspecified</i>	3.4	2.8	2.6	2.3	1.9	1.9	1.9	2.2	0.4	1.5	0.6	1.4	2.4	9.8	7.4	2.0	4.7	6.2	7.8	6.5	9.1	7.5	
<i>Mackerel - unspecified</i>	0.3																						
<i>Mullet - unspecified</i>	<0.1																						
<i>Nannygai - large mouth</i>	<0.1	<0.1																					
<i>Octopus - unspecified</i>	20.1	28.6	22.4	13.4	13.3	14.1	14.5	9.8	6.2	11.9	8.9	7.2	12.6	10.0	20.2	12.3	14.8	16.7	11.1	21.9	24.8	23.6	
<i>Perch - pearl</i>	0.1																						
<i>Pipehorse - dunckers</i>			<0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
<i>Pipehorse - pallid</i>			<0.1	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.3	0.3	1.3	
<i>Pipefish/seahorses</i>	0.5	0.5	0.3	<0.1		<0.1	<0.1						<0.1		<0.1								
<i>Prawn - bay</i>	139.7	86.7	84.3	73.8	139.0	89.9	84.9	92.6	68.1	118.6	129.7	283.7	237.5	471.9	169.7	232.3	144.7	198.9	103.3	100.6	77.4	28.9	
<i>Prawn - blue leg king</i>	3.3	10.9	14.1	241.0	219.7	197.5	163.8	202.1	111.1	154.7	152.9	75.8	136.6	143.8	177.9	150.6	181.4	175.9	145.3	126.6	218.7	83.5	
<i>Prawn - clicker</i>	0.7	0.2	<0.1				<0.1	<0.1	0.1	<0.1		<0.1	0.1	<0.1	<0.1								
<i>Prawn - coral</i>	107.6	65.1	46.3	64.4	34.8	18.1	12.3	17.4	13.5	11.1	9.5	8.1	11.1	4.5	10.0	14.1	10.6	8.0	10.5	16.6	8.4	12.1	
<i>Prawn - greasy and school</i>																						0.2	
<i>Prawn - hardback</i>	0.1				<0.1		1.9	1.8	<0.1		3.4	0.6		6.5	0.6								
<i>Prawn - Japanese king</i>		<0.1		0.8	1.2	0.3	0.1	3.6	4.9	0.3	1.9	0.8	0.3	0.8								0.1	
<i>Prawn - king</i>	1,147.2	644.4	688.2	120.8	13.4	2.7	<0.1	1.9	3.1	0.9	0.4	0.4	0.3	0.4	0.2	0.6	0.4	0.4	0.5	0.5	0.4	0.1	
<i>Prawn - king tiger</i>	0.9	1.1										0.6			1.1								
<i>Prawn - leader</i>	11.0	14.9	13.9	21.7	30.1	26.4	5.7	1.5	2.1	2.7	0.6	1.5	0.7	2.3	1.8	0.3	0.4	0.9	0.4	0.6	0.4	1.6	
<i>Prawn - mixed bait</i>	1.1			0.3	1.1	0.4	1.2	1.2	0.3		0.6	0.1	0.1	0.2	1.4								
<i>Prawn - red</i>																	0.3	0.1	0.1	0.1		<0.1	

Species	Catch (t)																					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<i>Prawn - pink tailed</i>																	<0.1	<0.1	1.7		2.7	<0.1
<i>Prawn - red spot and blue leg k</i>	285.6	418.6	894.7	49.8	1.8	4.8	11.2	7.9	5.9	0.8	3.3	0.8	2.4	8.0	4.2			0.6				
<i>Prawn - royal red</i>	<0.1	0.1															<0.1	<0.1	<0.1			0.1
<i>Prawn - scarlet</i>		<0.1					0.1				0.5		<0.1		<0.1		0.1	0.1	4.2	7.2	3.0	
<i>Prawn - school</i>	0.7	2.6	-	1.6	26.6	5.3	9.6	0.6	1.7	243.3	55.2	4.1	1.2	4.2	0.9	1.2	1.5	1.7	4.9	<1	10.1	76.3
<i>Prawn - unspecified</i>	92.1	138.5	120.8	15.2	5.6	2.3	1.3	0.4	0.5	1.0	<0.1	0.1	<0.1		2.8							11.1
<i>Ray - sting unspecified</i>	<0.1	<0.1	<0.1																			
<i>Scallop - mud</i>	61.2	77.5	44.3	33.3	34.4	19.6	14.2	19.8	5.3	37.2	26.4	8.9	78.0	23.6	12.7	9.4	26.3	33.9	15.0	11.8	13.3	6.4
<i>Scallop - queen</i>							5.3						0.1		23.1							
<i>Scallop - unspecified</i>	64.1	254.6	166.2	17.1	0.1	10.4	2.7	1.6	0.5	9.0	<0.1		7.9	<0.1	0.1				0.2	4.8	0.6	3.0
<i>Scampi</i>																						
<i>Seahorse - unspecified</i>							<0.1						0.2	0.1								
<i>Shark - fins unspecified</i>	0.3	<0.1	<0.1																			
<i>Shark - unspecified</i>	41.7	21.6	6.6																			
<i>Shark - wobbegong</i>		<0.1																				
<i>Snapper (squire)</i>	0.1																					
<i>Threadfin - blue</i>	0.5																					
<i>Threadfin bream</i>	13.3	13.5	8.3	9.9	6.5	10.4	8.3	4.6	7.5	10.5	6.8	6.6	7.9	7.4	10.0	11.4	23.8	13.8	12.4	18.8	19.8	22.2
<i>Threadfin bream - unspecified</i>																						0.2
<i>Trevally - unspecified</i>	<0.1																					
<i>Tuna - albacore</i>	<0.1	<0.1																				
<i>Tuna - unspecified</i>	1.6																					
<i>Tusk fish - unspecified</i>	<0.1																					
<i>Whiptail - false</i>	0.9	0.4	0.2																			
<i>Whiting - stout</i>	9.5	<0.1																				
<i>Whiting - trumpeter</i>	96.5	13.8	46.8	0.3																		
<i>Whiting - unspecified</i>	3.8		<0.1	<0.1																		

“ * ” denotes that the principal (target) and secondary (permitted) species for at least one of the fishing sectors that operate under a T1, T2, M1 or M2 licence in the ECOTF (Pears et al., 2012; State of Queensland, 2019a).

“ ** ” If not classified as a Tier 1 or Tier 2 species/complex, the harvest strategies will classify permitted species / byproduct as Tier 3 (refer Table 1).

APPENDIX E—Interactions reported in the TEPA logbook by fishers operating in the ECOTF between 2000–2021.

Species	2000				2001				2002				2003				2004				2005				2006				2007					
	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured		
Dolphin																																		
Off-shore bottlenose																																		
Short-beaked common																																		
Unspecified																																		
Marine turtle																																		
Green	12	12	0	0	4	4	0	0	16	13	3	0	5	5	0	0	164	163	1	0	3	2	1	0	7	7	0	0	1	1	0	0		
Flatback	16	15	1	0	2	2	0	0	1	1	0	0	3	3	0	0	3	3	0	0	6	6	0	0	2	2	0	0	6	6	0	0		
Pacific ridley					1	1	0	0					1	1	0	0																		
Loggerhead	8	6	2	0	6	5	1	0	1	1	0	0	1	1	0	0	4	4	0	0	1	1	0	0										
Hawksbill	5	4	1	0	1	1	0	0	2	2	0	0	3	3	0	0	10	10	0	0														
Leatherback	4	4	0	0					1	1	0	0																						
Saltwater turtle - unspecified									1	1	0	0	2	2	0	0	1	1	0	0	1	1	0	0	5	5	0	0						
Sharks and rays																																		
Bentfin devilray																																		
Japanese devilray																																		
Pygmy devilray																																		
Manta ray																																		
Whale shark																																		
Guitarfishes - shovelnose unspecified													1	1	0	0																		
Estuary stingray																																		
Sawfish																																		
Green													1	1	0	0									1	1	0	0						
Narrow													4	3	0	1	7	3	4	0	1	0	0	1	4	3	1	0	3	0	1	2		
Wide																	9	0	9	0														
Dwarf													1	1	0	0									1	1	0	0	1	1	0	0		
Freshwater																	1	1	0	0														
Hydrophiinae																																		
Sea snake													4,753	4,598	97	58	2,791	2,698	64	29	2,240	2,068	129	43	1,594	1,447	111	36	2,024	1,767	168	89		
Syngnathids																																		
Pipe fish / seahorses													202	1	201	0																		
Seahorse - unspecified													7	7	0	0	7	5	1	1	6	5	1	0	4	4	0	0	12	12	0	0		
Dugongidae																																		
Dugong																	3	1	2	0														
Seabirds																																		
Darters													1	1	0	0																		
Gannets and Boobies													1	0	1	0									1	1	0	0						
Terns													2	2	0	0																		
Cormorant - unspecified																	1	1	0	0	1	1	0	0										
Gull - unspecified																					1	0	1	0	1	0	1	0	1	0	1	0		
Seabird - unspecified													1	1	0	0																		
Other																																		
Saltwater crocodile																	4	3	1	0														
Crown of thorns													2	2	0	0																		

Species	2008				2009				2010				2011				2012				2013				2014				2015			
	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured
Dolphin																																
Off-shore bottlenose																																
Short-beaked common																																
Unspecified																																
Marine turtle																																
Green																				1	1	0	0									
Flatback	2	2	0	0	3	3	0	0	3	3	0	0	3	3	0	0				3	3	0	0	4	4	0	0	3	3	0	0	
Pacific ridley																																
Loggerhead																1	1	0	0													
Hawksbill																																
Leatherback																																
Saltwater turtle - unspecified																																
Sharks and rays																																
Bentfin devilray																																
Japanese devilray																																
Pygmy devilray																																
Manta ray																																
Whale shark																																
Guitarfishes - shovelnose unspecified																																
Estuary stingray																																
Sawfish																																
Green					1	0	0	1																								
Narrow	3	3	0	0	5	2	0	3	2	2	0	0				1	1	0	0	2	1	1	0	5	3	0	2	4	2	1	1	
Wide																																
Dwarf																																
Freshwater																																
Hydrophiinae																																
Sea snake	3,643	3,239	311	93	3,089	2817	199	73	1,661	1,536	59	66	385	316	32	37	336	234	52	50	431	353	32	46	797	673	53	71	988	793	92	103
Syngnathids																																
Pipe fish / sea horses																																
Seahorse - unspecified	13	13	0	0					4	4	0	0					1	1	0	0	1	1	0	0								
Dugongidae																																
Dugong																																
Seabirds																																
Darters																																
Gannets and Boobies																																
Terns																																
Cormorant - unspecified																																
Gull - unspecified																																
Seabird - unspecified																																
Other																																
Saltwater crocodile																																
Crown of thorns																																

Species	2016				2017				2018				2019				2020				2021							
	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured	Total	Disc. Alive	Disc. Dead	Injured				
Dolphin																												
Off-shore bottlenose					1	0	1	0																				
Short-beaked common									1	1	0	0																
Unspecified	1	0	1	0																								
Marine turtle																												
Green	4	4	0	0	10	8	0	2																	3	3	0	0
Flatback	4	4	0	0	1	1	0	0	3	2	1	0																
Pacific ridley					1	1	0	0																				
Loggerhead									2	2	0	0													1	0	0	1
Hawksbill																												
Leatherback																												
Saltwater turtle - unspecified																												
Sharks and Rays																												
Bentfin devilray					4	4	0	0																				
Japanese devilray					3	3	0	0																				
Pygmy devilray					6	6	0	0																				
Manta ray					2	2	0	0																				
Whale shark					1	1	0	0																				
Guitarfishes - shovelnose unspecified																												
Estuary stingray																									3	3	0	0
Sawfish																												
Green	2	1	0	1	5	5	0	0	5	5	0	0																
Narrow	6	4	0	2	2	1	1	0	18	14	1	3																
Wide					1	0	0	1																				
Dwarf																												
Freshwater																												
Hydrophiinae																												
Sea snake	1,359	1,137	94	128	1,470	1230	111	129	1,513	1266	103	144	548	522	25	1	1,395	1299	53	43	431	418	8	5				
Syngnathids																												
Pipe fish / sea horses																									5	5	0	0
Seahorse - unspecified																												
Dugongidae																												
Dugong																												
Seabirds																												
Darters																												
Gannets and Boobies																												
Terns																												
Cormorant - unspecified																												
Gull - unspecified																												
Seabird - unspecified																												
Other																												
Saltwater crocodile																												
Crown of thorns																												

APPENDIX F—Summary of species retained in the ECOTF that were assessed as part of the National Status of Australian Fish Stocks (SAFS).

Species	SAFS Stock name	2014 SAFS status	2016 SAFS status	2018 SAFS status	2020 SAFS Status
Ballot's Saucer Scallop	ECOTF	Sustainable	Overfished	Depleted	Depleted
Blue and Red Endeavour Prawns	ECOTF	Sustainable	Sustainable	Sustainable	Sustainable
Moreton Bay Bug	ECOTF	Sustainable	Sustainable	Sustainable	Sustainable
Brown and Grooved Tiger Prawns	ECOTF	Sustainable	Sustainable	Sustainable	Sustainable
Western King Prawns	ECOTF	Sustainable	Sustainable	Sustainable	Sustainable

Note: Additional information regarding the status of the ECOTF species is publicly available through (<https://www.fish.gov.au/>).