Sustainable Fisheries Strategy 2017–2027

Discussion paper

Reform of the East coast otter trawl fishery

Why is reform needed?

The Queensland Government released the *Sustainable Fisheries Strategy* 2017 – 2027 (the strategy) in June 2017, paving the way for Queensland to have a world-class fisheries management system. The strategy recognises that Queensland's current fisheries management system is cumbersome, costly to administer, inflexible and increasingly ineffective at ensuring sustainability of our fisheries. It is not keeping up with community expectations, supporting viability of Queensland's commercial fisheries or modern fisheries management practices.

A key action is to implement harvest strategies that manage at the stock level and are based on sustainable catch limits for all Queensland fisheries by 2020, with a priority on east coast inshore, trawl and crab fisheries. A harvest strategy is a framework that specifies pre-determined management actions for a defined species necessary to achieve the agreed ecological, economic and/or social objectives (e.g. how much catch quota or bag limits should go up or down depending on the biomass of the fish stock).

Positives for the fishery

- already managed via effort units and good VMS tracking in place
- catches under current effort levels are good for most stocks
- gear technology has improved over the last 15 years – Turtle excluder devices (TEDs) and bycatch reduction devices (BRDs)
- improved community acceptance and support over last decade
- important source of local seafood.

Issues

- unused effort units (in 2017 about 38 per cent of effort units were not used and could be activated to put pressure on stocks)
- serious sustainability concerns for scallops
- pressure on eastern king prawn stock
- inability to make changes to protect a stock or region – need to change the scale of management and associated effort controls
- protected species interactions (e.g. sea snakes).

The east coast otter trawl fishery is an important contributor to Queensland's economy. It supports more than 400 trawl fishers and onshore processors in fishing ports extending the entire east coast to supply a range of prawns, bugs, blue swimmer crab and saucer scallop products to markets. Unfortunately the fishery does not have the right management structure to allow a harvest strategy that will respond to changes in stock abundance or other circumstances to be developed.

In 2016, a scallop stock assessment advised that the biomass was as low as 5-6% of unfished biomass. In most fisheries, a biomass of 20% or less is serious and management action to close the fishery would be considered to remove fishing pressure and rebuild the stock to sustainable levels of around 40-50% biomass. The problem with the trawl fishery is that the management unit is set at the fishery scale, meaning

it applies to all fishers and all stocks rather than just, for example, scallops. The only current management tool available that can influence the impact of fishing on scallops is additional closures. Subsequently, urgent management action was taken across the entire fishery in 2016 to reduce scallop catch by implementing a six month no-take closure across the entire fishery. However, this also creates uncontrolled pulse fishing when the closure ends. This situation remains a concern and is a good example of why management reform is required before effective harvest strategies can be developed.

Over time, the fishery has evolved through a range of management and economic changes to a situation where effort units are in surplus. As at the end of 2017, unused effort units represented approximately 38% of the total effort units within the fishery. Compounding this is the ability for effort to be transferred to any part of the fishery at any time with limited management options available. This represents a serious risk to sustainability within the fishery. For the trawl fishery a change in the scale of the management region and/or the control that can be applied is required to be able to manage effort at the stock/sector level under a harvest strategy.

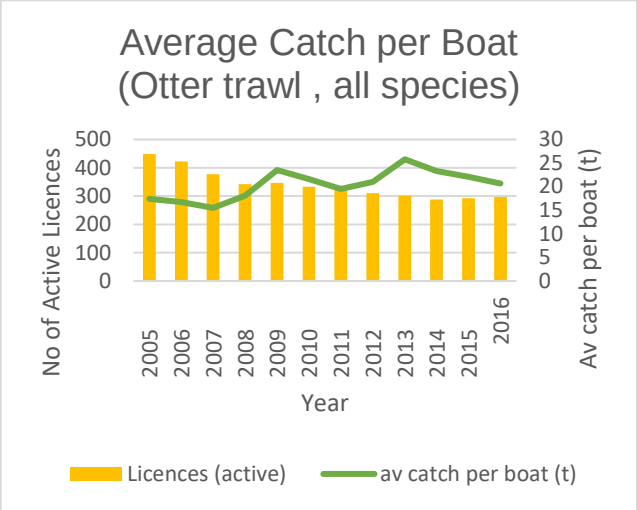
Current management arrangements are based on a combination of input controls (gear and spatial closures) and effort units (nights fished) set at the fishery level which have a limited capacity to direct the fishery towards any specific management targets. Splitting the fishery into smaller management regions and moving to harvest strategies will provide an opportunity to review the existing input controls and where there is no sustainability risks, allow amendments to be progressed to improve economic value and encourage fishing efficiency.

While the trawl fishery has done a lot in recent times to reduce its impact on the broader ecosystem through the use of turtle excluder devices (TEDs) and bycatch reduction devices (BRDs), there is ongoing concern about the impacts of trawling on the broader ecosystem, the level of bycatch and interactions with threatened, endangered and protected species. It is important that future management arrangements demonstrate that the fishery poses no unacceptable risks through a range of mechanisms like data validation, gear technology and innovation. This will also be critical to maintaining Commonwealth *Environment Protection and Biodiversity Act 1999* approvals that enable product export and exempt fishers from prosecution for interactions with protected species.

Community support and confidence in the management of this fishery is required to ensure ongoing access to fisheries resources by all sectors, particularly commercial fishers and their customers. Better management at the stock or regional level and improved data validation of the impacts of fishing is needed to build confidence in the fishery. It is important to set a clear vision for the future of this fishery to effectively and sustainably manage catch and ensure the ongoing viability of industry.

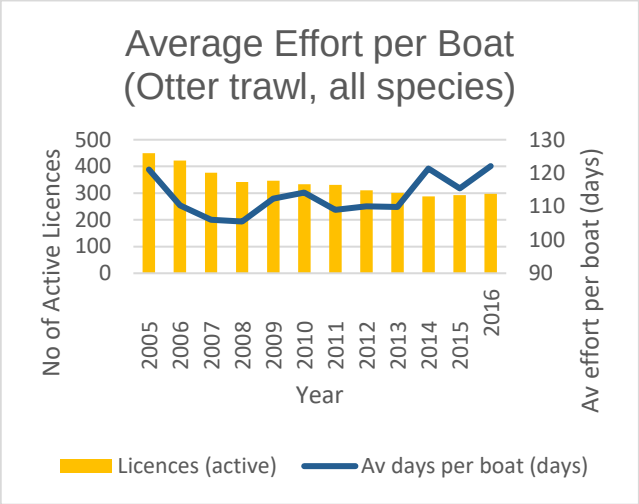
About the Queensland east coast trawl fishery

The trawl fishery is Queensland's largest commercial fishery, producing up to 6100 tonnes of product worth $79.9 million each year. Refer to the Table 1 below. Over the last few years the prawn and bug components of the fishery have been performing well with catch rates generally good and product prices slightly elevated.



In 2017, about 62% of effort units were used in the fishery by 297 active vessels. On average, each boat in the fishery is catching about 23 tonnes of product over 131 days each year. Refer to the average catch and effort graphs.

A large portion of this fishery operates within the Great Barrier Reef World Heritage Area. There is a comprehensive range of measures including limits on operating time, area closures, boat size, gear restrictions and catch limits currently in place to regulate the trawl fishery. In addition there are a range of bycatch reduction devices and turtle excluder devices required to be used to minimise ecological impacts of trawling.



The fishery in the southern area has been impacted by the White Spot Disease outbreak in prawns in Moreton Bay, which has restricted movement of uncooked prawns. The southern area has also been impacted by the closure of the scallop replenishment areas in 2016 and the introduction of a winter closure. Both issues remain a concern for the fishery.

Feature	2010	2011	2012	2013	2014	2015	2016
Total catch (t)	7201	6459	6536	7774	6703	6481	6154
Total effort (days)	38 027	36 064	34 220	33 065	34 975	33 820	36 265
Licences (active)	333	331	311	301	288	293	297
GVP ($A million)	90.5	76.3	83.3	93.2	86.3	82.1	79.9
Species Totals							
Banana prawn (t)	678	1179	227	1027	505	519	311
Balmain bug (t)	85	101	102	69	89	84	67
Blue-leg king prawn (t)	153	76	137	144	178	149	181
Eastern king prawn (t)	2679	2002	2613	2924	2571	2362	2197

Endeavour prawn (t)	590	520	458	508	463	540	524
Greasy prawn (t)	183	469	373	660	239	333	217
Moreton bay bug (t)	461	300	468	502	570	527	537
Red spot king prawn (t)	348	114	263	220	168	148	220
Saucer scallop (t)	429	275	738	486	334	230	199
Tiger prawn (t)	1291	1233	834	986	1300	1351	1446

Table 1: Fishery summary information 2010-2016 for otter trawl vessels (Source: Queensland fisheries summary report)

Draft fishery objectives – where we want the fishery to be

Fishery objectives are designed to set out the direction and aspirations for the fishery. These objectives would be used to guide the implementation and decision making around the development of harvest strategies for key stocks in the future. Effective harvest strategies rely on ecological, social and economic objectives that have been set in consultation with stakeholders to determine what the harvest strategy is trying to achieve. While each fishery is different, the strategy and the *Fisheries Act 1994* (the Act) specify certain policy objectives and targets that must be achieved. Ecological objectives will have priority over socio-economic objectives. The draft fishery objectives have been developed with advice from the trawl working group.

Ecological objectives	Socio-economic objectives	Management objectives
• achieve Sustainable Fisheries Strategy 2017 – 2027 biomass objectives for target and by-product species • understand fishery interactions and impacts on bycatch, threatened, endangered and protected (TEP) species • demonstrate there is no unacceptable risk to bycatch, TEP species and the ecosystem • actively pursue testing and implementation of new and effective technologies to minimise ecological risks.	• maximise commercial economic benefits • maximise value of the commercial product (e.g. fish, crab, prawn) • improve the social benefits of the fishery to the community • reduce waste and bycatch.	• ensure fisheries management is meeting the expectation of sectors and the community • improve data and undertake more regular stock assessments to inform management decisions • manage excess capacity to improve socio-economic benefits and minimise the risk of overfishing.

Ecological objectives

Achieve Sustainable Fisheries Strategy 2017 - 2027 biomass objectives for target and by-product species

This objective is identified in the strategy to achieve specific biomass targets for stocks. The aim is to achieve at least 40-50% of the original unfished biomass by 2020 and 60% by 2027. The specific targets for each target and by-product species will be outlined in the operational components of the harvest strategy. While biomass estimates can be obtained for many species, direct estimates of biomass may be more difficult for many other species and proxies (such as catch rates) may need to be used.

Note: Further explanation of objectives and biomass targets is outlined in the Queensland Harvest Strategy Policy and Guidelines available online at daf.qld.gov.au/fisheries/sustainable-fisheries-strategy/harvest-strategy

Understand fishery interactions and impacts on bycatch, threatened, endangered and protected (TEP) species

This objective recognises that continuous improvement is required to better understand fishing interactions with bycatch and TEP species. A key information source will be environmental risk assessments, a commitment under the strategy, which will identify fishing risks that require further management. This objective is necessary to provide community confidence that fishing is a low risk. It also addresses the *Environment Protection and Biodiversity Conservation Act 1999* and current wildlife trade operation conditions for improved reporting and data validation.

Demonstrate there is no unacceptable risk to bycatch, TEP species and the ecosystem

The fishery has significant bycatch and TEP issues that are well recognised and they must be actively managed within community expectations to ensure sustainability and ongoing access to the fishery. A key component is the need for validating relevant data and information (catch logbooks, SOCI logbooks) to demonstrate there are no unacceptable risks to bycatch, TEP species and the ecosystem from fishing. The continuation of vessel tracking along with the implementation of a data validation plan and investigation of novel technologies (e.g. cameras / digital observers) under the strategy will be a critical to achieving this objective.

Actively pursue testing and implementation of new and effective technologies to minimise ecological risks

This objective is about minimising the risk of fishing and actively seeking and promoting solutions to minimise bycatch and avoid interactions with TEP species through gear and management innovation, education and novel technologies. Innovation should be encouraged in terms of gear technology to improve bycatch reduction devices. Maintaining United States' accreditation of the east coast otter trawl fishery will contribute to achieving this objective.

Socio-economic objectives

Maximise commercial economic benefits

This fishery is economically important, particularly in regional communities where other employment opportunities may be limited. This objective recognises that commercial fishers provide the public with access to Australian wild caught seafood and supports regional economies and onshore businesses such as net makers, repairers and facilities. Maximising commercial economic benefits is linked to the target to build fish stocks to around 60% of the original unfished biomass by 2027. A higher biomass not only supports resilience, it also supports optimal fishing efficiency. The intent being that fishers can get a better rate of return for their effort that is only possible when a larger biomass of fish is available.

There should also be sufficient return on investment to encourage commercial fishers to improve their operations and innovate. Ensuring flexibility so fishers can respond to the availability of fish at different times, environmental conditions and market issues is important in supporting the return on investment and viability of the fishery (e.g. seafood wholesalers and retailers).

Maximise value of the commercial product (e.g. fish, crab, prawn)

This objective is intended to encourage the highest value of the commercial product, by ensuring it is caught at the best size for market preferences and in the best condition. A clean, green, sustainable image of the fishery will also promote higher value.

Improve the social benefits of the fishery to the community

This objective aims to recognise the flow-on effects and benefits for regional communities from fishing. These include direct employment as well as a range of support services that might otherwise cease to exist if fishing were not present. This is particularly important in regional areas where many diversified small businesses rely on income generated by fishers during quieter times of the year. Other social benefits include the supply of fresh seafood to local communities and markets, building better resource stewardship to promote a professional sector and improve community perceptions and improving opportunities to maximise lifestyle outcomes of fishers.

Reduce waste and bycatch

This objective aims to maximise the value and improve social perceptions by reducing waste and bycatch. It recognises that the management of a fishery can have undesirable outcomes for waste and bycatch if it is not actively monitored and management adjusted to change fisher behaviour.

Management objectives

Ensure fisheries management is meeting the expectation of sectors and the community

The community want to have confidence in the management of the fishery. This includes appropriate monitoring, stakeholder engagement, compliance and responsive management. The community also expect that government agencies will work together on shared issues like ecosystem health, which is critical to productive fisheries.

Improve data and undertake more regular stock assessments to inform management decisions

This objective is identified in the strategy and is intended to improve the accuracy, reliability and timeliness of data and stock assessments to support sustainable fisheries management. The monitoring and research plan will be critical to achieving this objective.

Manage excess capacity to improve socio-economic benefits and minimise the risk of overfishing

This objective recognises that from time to time excess capacity within a fishery will have adverse impacts on sustainability as well as achieving the socio-economic objectives for the fishery. To achieve this objective latent effort and fishing effort creep must be managed and based on sustainable limits.

Matters to consider

Do you agree with the proposed fishery objectives?

Would you recommend any changes? If yes, what and why?

Splitting the fishery up – proposed management regions

The strategy requires that fisheries be divided into management "units". A management unit may be the target species, biological stock boundaries, a geographical boundary related to the fishery, gear or combination of these. In most but not all cases the unit will be based on specific geographical regions that allow for management arrangements to be applied at the appropriate scale. The strategy states that the preference is to manage the stock level. Setting the management regions to the appropriate scale is important to ensure that future management actions are responsive to changes at a scale that limits the need for broad scale changes across an entire fishery rather than on a particular stock. The management region will become the scale at which harvest strategies are set up and the fishery is structured. This avoids blunt management changes like closing the entire fishery if there is concerns about a particular species in a particular area.

Management regions based strictly on a single species stock boundary are not practical for this fishery because of the distribution of stocks and limited ability to target species with trawl gear. Most options for the trawl fishery include a regionalised approach which are used to represent the different 'stocks' within the fishery. The proposed management regions for the trawl fishery are based on input from the Trawl Working Group (Table 1). They were drafted by looking at the stock boundaries for various species, overlayed with practical considerations associated with the existing licensing and gear rules.

A map is at **Attachment 1** displaying the possible boundaries.

Management region	Region	Possible boundary	Key species covered
Northern trawl	1	Cape York - 18 degrees south	Tiger
Central trawl	2	18 – 22 degrees south	Tiger

Southern offshore trawl	3	Eastern king prawn grounds excluding scallop fishery area but includes Hydrographers Passage	Eastern king prawn
Southern inshore trawl	4	Excludes eastern king prawn grounds off Fraser Island	Scallop
Moreton Bay trawl	5	Moreton Bay grounds as currently defined	Multispecies
Beam trawl	To be reviewed as part of a separate harvest strategy development process.	Beam trawl area as currently defined	Multispecies

The table below shows the distribution of catch and effort for the proposed management regions, based on data collected in 2017. Generally, catches are below the most recent maximum sustainable yield (MSY) estimate for the species where a stock assessment is available. This indicates that catch may not need to be reduced in most regions, except scallop where there are significant sustainability concerns.

Table 2: Catch and effort for the proposed trawl fishery draft management regions (2017 data)

Northern Trawl (18 degrees)	No of active licences (T1)	Days fished	Catch (t)	Effort unit (EU) used	Maximum sustainable yield (MSY) estimate
Tiger Prawn	63	5495	863.66	332 339	1108 tonnes (north 16°) assessed in 2013
All species	67	5696	1230.68		

Central Trawl	No of active licences (T1)	Days fished	Catch (t)	Effort unit (EU) used	MSY estimate
Tiger prawn	82	2977	345.87	369 904	728 tonnes (south 16°) assessed in 2013
Red spot king	61	2289	168.02		716 tonnes (East Coast) assessed in 2013
All species	100	6273	1077.28		

Southern inshore Trawl	No of active licences (T1)	Days fished	Catch (t)	Effort unit (EU) used	MSY estimate
Scallop	63	1361	68.51	196 441	Biomass estimate across the whole fishery is 6% biomass
Eastern king prawn	69	803	60.32		

Banana prawn	35	819	182.97		802 tonnes (East Coast) assessed in 2006
All species	90	3015	530.96		

Southern offshore Trawl	No of active licences (T1 +T2)	Days fished	Catch (t)	Effort unit (EU) used	MSY estimate
Eastern king prawn	134	11 908	2424.4	868 988	3 100 tonnes (Qld + NSW) assessed in 2010. 28 000 - 38 000 effort days
Scallop	78	941	118.21		Biomass estimate across the whole fishery is 6% biomass
All species	138	14 266	2747.28		

Moreton Bay Trawl	No of active licences (M1 +M2)	Days fished	Catch (t)	Effort unit (EU) used	MSY estimate
Tiger prawn	34	1823	123.2	65 118	
Greasy	20	246	36.57		
Banana	33	1086	130.44		
Eastern king prawn	27	563	10.42		
All species	35	2093	438.2		Research paper multispecies estimate 2500 – 11 500 effort days assessed in 2014

Matters to consider

Do you agree with the draft management regions?

Do you think there is a better way to establish the management regions? If yes, what and why?

Draft management options

The trawl fishery does not have the right management structure in place to allow for a harvest strategy that responds to changes in stock abundance or other circumstances. Collectively, the fishery objectives, management regions and management options will set up the fishery for a harvest strategy. The strategy clearly states the preference is to move to output controls, like quota, wherever possible.

For the trawl fishery, consideration needs to be given to the existing system of individually transferable effort units and how it would fit with any future management options along with the highly variable nature of the stocks in this fishery. The options below have been formulated with input from the trawl working group and suggestions from fishers. Options that would not achieve the objectives of the strategy, for example do

nothing, have not been included. Respondents are encouraged to provide alternatives in their feedback should they feel another idea would be better for the fishery and delivers on the objectives of the strategy.

Option 1: individual transferable catch quota

Total allowable commercial catches (TACCs) would be set for key species or groups of multiple species and individual quota units allocated to individual commercial fishers. The benefits of this system are that by using an output control (e.g. catch) fishing efficiency can be encouraged and the existing system of input controls could be reviewed.

However, the east coast otter trawl fishery is not particularly suited to the use of individual transferable catch quotas (ITQ) because many of the species targeted are short lived species (e.g. prawns, scallops) with highly variable recruitment, often driven by environmental conditions which make it difficult to set robust TACCs. Under-estimation of TACCs can result in significant loss of profits to the fishery and the community. Conversely over-estimation of TACCs can result in stock depletion and overfishing. ITQs are also often problematic in multi-species fisheries as they can result in managing to the 'lowest common denominator'. Most ITQ managed fisheries are still subject to some input controls (closures, limited entry etc.) which are effective for improving stock and/or eco-system sustainability but impose additional costs and reduce economic returns for commercial fishers.

Benefits	Issues	Ideas to consider
– greater certainty for commercial fishers – tradeable – may work for some by-product species (e.g Moreton Bay bug) – constrains the catch more than effort units – less risk of a race to fish – can adjust the total allowable catch up and down by adjusting the value of a quota unit.	– difficult to set quota for species that are highly variable based on environmental drivers (rainfall, riverflow) – getting the TACC adjustment right - under-estimation of TACC can result in significant loss of profit while over-estimation can result in stock depletion – potential to increase bycatch once quota is reached – would require in-season monitoring which is expensive – Moreton Bay is a multispecies fishery that would be very difficult to manage using a quota – questions exist around how to allocate quota.	Do you support this option? Could quota work in the trawl fishery? Could quota work for some species (eg blue swimmer crab, Moreton Bay bug)? How would you avoid waste and bycatch once quota is exhausted in a multispecies fishery?

Option 2: individual transferable effort units (ITEs) allocated to management regions

Existing effort units or individual transferable effort units (ITEs) would be allocated to each of the proposed management regions, creating a pool of effort units in each region. In each management region a total allowable commercial effort (TACE) would be set based on biomass targets for key stocks. This sets the total number of effort units that can be used for each management region.

Where there are more than the sustainable level of effort units allocated to a region, a conversion factor would need to be applied to ensure fishing effort does not exceed the TACE. The conversion factor would also allow the amount of fishing effort to be adjusted with stock availability to keep the fishing within sustainable limits and/or build up stocks to higher biomass levels. While this is the most complex of the options, it best meets the objectives of the strategy and provides more flexibility in developing effective harvest strategies. It requires a number of steps to implement, which are included at Attachment 2 in more detail.

Benefits	Issues	Matters to consider
– removes risk of reaching the effort cap prior to the season finishing – provides certainty to fishers about nights and platforms that can be fished in each region – allows flexibility as fishers could hold effort units in multiple regions – can adjust total allowable effort up and down as required. In response the conversion factor would vary to prevent overfishing – removes latent effort (if all existing units are allocated) using a conversion factor for each region – allows input controls to be reviewed – improves engagement and stewardship in each region.	– questions around how to allocate the existing effort units to each region – fishers would need to own or lease effort units in each region they want to fish – fishers that hold just enough effort units now may need to acquire additional effort units depending on the scale of the conversion factor.	Do you support this option? Should all (active and inactive) effort units be allocated or just active effort units? The conversion factor for each region will be different and based on sustainable effort levels. Do you agree with this approach? Which allocation option do you prefer? Are there other allocation options that could be considered? Trawl has had vessel monitoring systems (VMS) in place for 14 years. Is there any reason that this is not a suitable option for allocation in this fishery? If yes, provide examples and why. Some people are concerned about consolidation of quota or effort units. Should holdings by individuals or companies be restricted in some way? If yes, provide examples and why.

Option 3: Regional total allowable effort caps

In each of the proposed management regions the TACE would be set based on biomass targets. The existing effort unit system would remain in place so no allocation process is required. The benefits of this option are that effort units could be used in any management region, however this is also a disadvantage in that effort between regions cannot be controlled to limit competition should it be required. Under this option the only change to the current management system would be that some regions may reach the TACE cap prior to the fishing season finishing and would be closed to fishing. A harvest strategy may improve stocks under this option, however the benefits may be diluted if pulse fishing occurs in response.

To reduce the risk of a TACE cap being reached early, the harvest strategy could set effort triggers once significant levels of effort have been reached (but below the TACE) to slow effort in a particular management region by restricting access in some way.

Benefits	Issues	Matters to consider
limits excessive effort in each region. can adjust total allowable effort (TAE) up and down. no allocation process is required. provides flexibility to fish across regions without the need to acquire effort units. use vessel monitoring systems (VMS) to determine and advise fishers when close to TAE.	a region may reach the TAE prior to the fishing season finishing, resulting in it being closed to fishing. doesn't control or limit effort transfer so competition is likely to be an issue. harvest strategy may improve stocks but the benefits are diluted if pulse fishing occurs. requires a significant amount of input controls to remain in place. can create a race to fish. diminishes engagement and stewardship because the benefits of improved regional practices have to be shared any efficiency improvements would increase the risk of hitting the cap prior to season finishing.	Do you support this option? Does this option give you enough certainty or does the race to fish undermine this option? Could the use of appropriate effort triggers help manage the effort usage in areas and slow the race to fish?

Option 4: Allocate individual licences to a management region

This option would involve permanently allocating individual licences (T1, T2, M1) to each of the proposed management regions (rather than allocating effort units) based on where fishers want to fish. Effort units would remain unchanged and a TACE cap would be applied in each region. To fish multiple regions a fisher would need to hold licences between each management region they wish to fish in. Fishers would be able to use their existing effort units in any management regions they hold a licence to fish in.

This option attempts to address the issue of effort transfer between regions by limiting where licences can be used. Whilst it will achieve this to some degree, the main risk is that the excess effort capacity within each management region will still exist and the TACE cap may be reached early, resulting in restrictions like closures to fishing and competition at certain times of the seasons may still be uncontrolled, resulting in a race to fish. For example, if a licence attached to a large pool of effort units fishes in one management region then the effort cap could be reached prior to the season finishing. This risk could be minimised through effort triggers in the harvest strategy.

In considering this option, it is important to be aware of the total numbers of licences that currently exist (both active and inactive) which are; T1–376; T2–18; M1–47; M2–25. Of the 411 licences that can access the fishery only 297 were active in 2017.

Benefits	Issues	Matters to consider
– no allocation of effort units (or nights) is required – fishers could nominate what region/s they wanted their licence/s allocated to – effort units could be used in any region accordingly but you would need to have a licence allocated to the region to fish in it – could address effort transfer risks by limiting where licences can be used – effort triggers could be used to limit risk of reaching effort caps early	– reduced flexibility as fishers would be locked into one region to fish – multiple T1s would be required to access other regions to fish – could still create a race to fish scenario – may not address competition issues if fishers have multiple licences to allocate to multiple regions – does not address excess effort units (or latent effort) issue in this fishery – a region may reach the TACE cap prior to the fishing season finishing, resulting in it being closed to fishing.	Do you support this option? Is this a viable option given it significantly restricts where you can fish? Could the use of appropriate effort triggers help manage the effort usage in areas and slow the race to fish? Should all (active and inactive) symbols be allocated or just symbols associated with vessels?

Option 5: Limit the allowable nights per month a boat can fish in each region

Under this option, each licence would be limited to a maximum number of nights the licence can fish in each region no matter how many effort units they hold. In each management region a total allowable commercial effort (TACE) would be set based on biomass targets. This option would mean that any number of vessels are able to fish in a management region each month provided they don't exceed the number of allowed nights. The number of nights allowed per vessel has no relationship to the TACE cap for a management region.

Benefits	Issues	Matters to consider
– provides flexibility to fish across regions – no allocation process needed – use vessel monitoring systems (VMS) to determine and advise fishers when individual limit reached.	– effort transfer would still occur and may result in excess competition in certain regions and times. – does not control competition on a stock e.g. there are no controls on how many boats fish in a region each month. – could still create a race to fish scenario. – a region may reach the TACE prior to the fishing season finishing, resulting in it being closed to fishing (e.g. too many vessels fish their nights in a given region each month). – Diminishes engagement and stewardship because the benefits of improved regional practices have to be shared.	Is this a fair approach if people have effort units that can't be used?

Allocation method options

When introducing catch or effort-based quota management to a fishery, allocation is usually one of the most contentious issues facing managers and industry. This is because it is about 'who gets what'.

Historically, initial commercial fishing allocations in Queensland and other Australian jurisdictions have relied on administrative methods based on catch history. Experience has shown that catch history methods are resource intensive (requiring decision makers, catch history verification), lengthy (due to opportunities for formal appeal) and problematic (as fishers have doubted the integrity of the catch history used).

In considering management options it is also important to consider allocation methods. The following allocation methods are commonly used by fisheries managers both in Australian and internationally:

- nomination
- historical catch
- auctions
- mixture of above options

The trawl working group discussed a range of allocation options that included a mixture of catch history and nomination or equal allocation of unused units. In this case of the trawl fishery, vessel monitoring systems (VMS) has been in place for more than 10 years which provides a sound basis for history–based allocation. This could be blended with nominating which regions fishers want inactive effort units in, allocating inactive units equally between regions or nominating which years catch history they would prefer to use (e.g. choose three preferred years from last 10).

Matters to consider

Which allocation option do you prefer?

Are there other allocation options that could be considered?

Some people are concerned about consolidation of effort units (or quota if there is a change to this system for this fishery). Should holdings by individuals or companies be restricted in some way (e.g. to people with a symbol; or maximum holdings)? If yes, provide examples and why.

Next steps

While there have been initial discussions on management and allocation method options for the priority fisheries, no decisions have been made. This discussion paper is the basis for the initial round of engagement on the reform of the east coast otter trawl fishery. If you have additional ideas that have not been considered in the discussion paper we would encourage you to submit these as part of the feedback process.

The feedback from this discussion paper will be provided to the working group to provide advice on a preferred management option and develop a draft implementation plan, including allocation, for review by the Sustainable Fisheries Expert Panel in July 2018. The expert panel communique is made available online to all stakeholders and will outline the result of their review.

If the preferred management option and draft implementation plan is endorsed by the expert panel, the working group will commence work on the harvest strategy.

There will be plenty of opportunity for you to provide further input over the next 12 months, including:

In mid-2018: Discussion paper on proposed changes to modernise the Act, provide for more responsive decision making and address issues like black marketing.

In late 2018: Consultation on draft harvest strategies which will set out the pre-determined management actions for a defined species necessary to achieve the agreed ecological, economic and/or social objectives. This will include an implementation plan on how harvest strategies can be operationalised and for commercial fishers will outline any allocation processes.

In early 2019: Consultation on proposed changes to the fisheries regulation to implement the proposed management options that have been in consultation with stakeholders and reflect the new approach using harvest strategies

How to provide feedback

This discussion paper is designed to provide all stakeholders with the opportunity to have a say about the future management of the trawl fishery. Once feedback has been received, Fisheries Queensland will collate all responses for consideration by the trawl fishery working group.

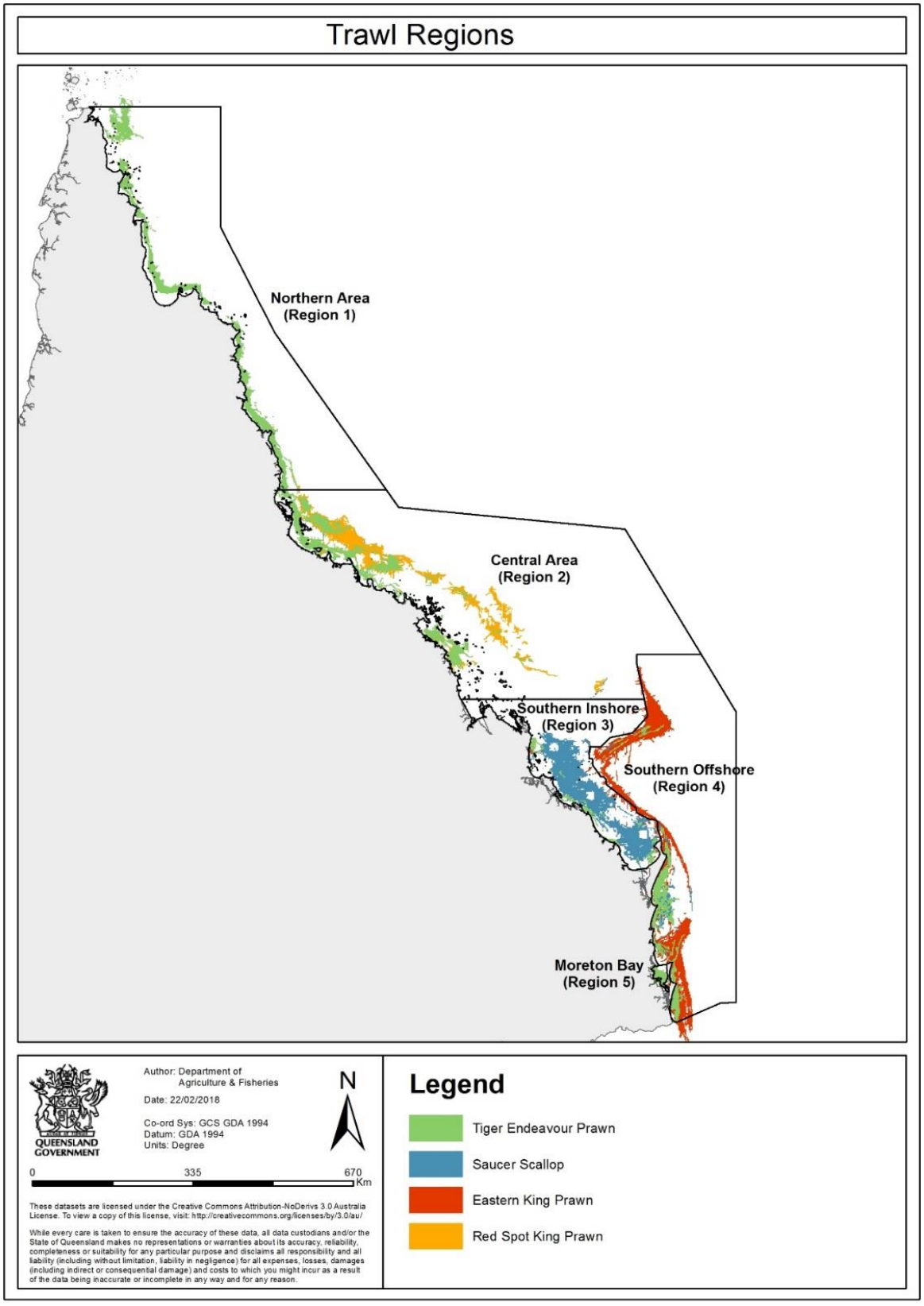
You can provide feedback by completing the online survey at daf.qld.gov.au/sustainablefisheriesstrategy

Submission of feedback closes **Sunday 10 June 2018**.

Stakeholders can also give feedback when Fisheries Queensland staff visit regional centres in April and May.

For more information, visit daf.qld.gov.au/fisheries or call 13 25 23.

Attachment 1: Proposed trawl management regions



Attachment 2: Details of individual transferable effort units allocated to management regions

Once the existing effort units are allocated amongst each of the proposed management regions, commercial fishers would need to hold effort units that have been allocated to that management region. Effort units within each management region would remain tradeable.

To implement this option, consideration will need to be given to how the existing effort units could be allocated. Things to consider include deciding whether to allocate just active unit or all units along with deciding the method of allocation, including VMS history, nominating where to allocate or using a mixed approach whereby the active units are allocated based on history and the inactive units are allocated based on either an average fleet vessel, by nomination or using an even split amongst the regions.

	Northern area	Central area	Southern inshore	Southern offshore	Moreton Bay	Total
5 year VMS History (2012 - 2016) Annual average usage	3806	1235	4392	318	0	9751
Individual % per zone (2012 -2016)	39.03%	12.66%	45.04%	3.26%	0.00%	100.00%
10 year VMS history (2007 - 2016) Annual average usage	6054	768	3795	175	0	10,792
Individual % per zone (2007 -2016)	56.10%	7.12%	35.16%	1.62%	0.00%	100.00%
Quota Held (EU)						18620
A. Fleet % per zone (2012 - 2016) - T1	19.15%	16.26%	17.36%	47.24%	0.00%	100.00%
B. Fleet % per zone (2007 - 2016) - T1	19.11%	16.66%	17.47%	46.75%	0.00%	100.00%
Option A - Individual allocated EU (5yr)	5504	2677	5932	4508	0	18 620
Option B - Individual allocated EU (10yr)	7550	2072	5163	3835	0	18 620
Option C – Equal allocation of unused effort units	8011	2725	5752	2132	0	18 620

Table 1: How to consider individual fisher history for allocation

In the example in Table 1, the fisher owns 18 620 effort units (yellow). Their average annual 10 year usage is around 10 792 effort units (blue). The 'unused' part of the quota is allocated using the average fleet percentages. The 10 year history based allocation (orange) would result in this fisher getting well in excess of their current annual usage in each region (green). Individual history information will be available via individual FishNet accounts.

It should be noted that Moreton Bay vessels with a M2 symbol do not currently use an effort unit management system. This option would require M2 vessels to transition to the same system as the T1 vessels, including the use of VMS. To allocate effort units to M2 vessels one option could be to allocate the amount of effort units M2 vessels are currently permitted to fish e.g. 260 days x hull units of current vessel.

In the examples shown through this section this is what has been applied for the Moreton Bay region. The downside of this approach is that the number of effort units in the region is high and hence the conversion factor ends up being high. One alternative is to allocate effort based on logbook history for the M2 fleet.

T2 symbols will continue to only allow the owner to hold effort units from the southern offshore regions.

Establishing the effort cap for each region

In each region a total allowable effort (TAE) figure for the main species in the region would be calculated from stock assessments and would be based on the objectives of the harvest strategy (e.g. achieve biomass associated with maximum sustainable yield). This would set the total number of effort units that could be expended in a region. The examples below estimate an effort cap (in effort units) based on a maximum sustainable yield (MSY) target for a region. The effort cap was estimated by calculating the proportion of the MSY value represented by the current catch.

	Northern trawl	Central trawl	Southern inshore trawl	Southern offshore trawl	Moreton Bay trawl
Total effort units used (active) in 2017[1]	290 873	340 276	182 253	789 727	103 685
MSY effort unit estimate[2]	500 000	550 000	N/A	1 000 000	100 000

Table 2: Estimate of Effort Caps. [1] Current usage in Moreton Bay includes both M1 and M2 vessels with M2 vessels being converted to effort units based on days x hull units of current vessel. [2] Estimate is a guide only. It is based on applying existing stock assessments to the draft management regions and would need to be updated as part of developing the harvest strategy

Applying the conversion factor

A conversion factor is the relationship between the total allowable effort (TAE) cap in a region and the total effort units that have been allocated to a region. The conversion factors would ensure that if all effort units are used in a region the fishery would not exceed the effort cap.

For example if the TAE for the southern offshore region is 1 million, effort units and the total allocated units in the region is 1.25 million then the conversion factor would be 1.25. If the effort cap is reduced then the conversion factor would increase thus reducing total effort in a region.

Conversion factors apply when effort units are used making it more or less costly to fish per night. A conversion factor is applied to the current effort unit conversion factor calculation e.g. a conversion factor of two would mean a 50 hull unit vessel would use 100 effort units per night to fish.

Example 1:

Allocation estimate using 5 year history[2]	459 742	471 545	354 183	1 256 636	218 992
Conversion Factor Estimate[2]	0.91	0.85	N/A	1.25	2.18

Example 2:

Allocation Estimate using 10 year history[2]	478 130	471 067	374 906	1 215 853	221 144
Conversion Factor Estimate[2]	0.95	0.84	N/A	1.21	2.21

Example 3:

Allocation Estimate using equal allocation of unused[2]	572 744	565 098	511 624	960 841	150 787
Conversion Factor Estimate[2]	1.14	1.02	N/A	0.96	1.50

Table 3: Estimate of conversion factor. [2] Estimate is a guide only. It is based on the estimate of MSY (see note 1 above) divided by the number of active effort units that fished in this area in 2017. This would need to be updated as part of developing a harvest strategy