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Research Program

TROPICAL ECOSYSTEMS *hub*

Technical Report

The Social and Economic Long Term Monitoring Program (SELTMP) 2014

Commercial Fishing in the Great Barrier Reef



Renae Tobin, Erin Bohensky, Matt Curnock, Jeremy Goldberg,
Margaret Gooch, Nadine Marshall, Bernadette Nicotra,
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Reef &
Rainforest
RESEARCH CENTRE

The Social and Economic Long Term Monitoring Program (SELTMP) 2014

Commercial Fishing in the Great Barrier Reef

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2014

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

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An introduction to the SELTMP for the Great Barrier Reef

The Social and Economic Long Term Monitoring Program (SELTMP) for the Great Barrier Reef describes conditions and trends of the human dimension of the Great Barrier Reef (GBR) using both existing datasets (known as secondary data) and primary data obtained through social surveys. It was set-up in 2011 following repeated calls from managers of the Great Barrier Reef World Heritage Area for stronger and comprehensive social science data that could be used to assist managers in their day-to-day duties.

Long-term monitoring offers GBR managers, industries and communities the opportunity to understand the current status of Marine Park users, industries and communities, including those potentially impacting on the ecological components of the system. Long-term monitoring offers the opportunity to assess the future of each industry and community in the face of climate change impacts and other drivers of change such as environmental degradation, regulatory change, cultural change and short-term impacts. It provides the potential to evaluate the effectiveness of management interventions and to assess equity dimensions within the region. Long-term monitoring offers the best research approach available for refining theory and methods for conceptualizing and assessing how people are prepared for change and adapt.

The success of a programme such as the SELTMP can only occur with well-translated cutting-edge social and economic science data and knowledge that directly feeds into current management processes. The science must be excellent, collaborative and must itself adapt as learnings from the monitoring datasets are developed. Hence, the SELTMP is governed by a Steering Committee and an Advisory Panel (See Figure 1, next page). The design and working model for the SELTMP occurs through working groups. Each working group is led by a core researcher and comprises members from industry, government and community. Some 100 individuals are involved in this process.

The SELTMP is strongly guided by the scientific literature. Deciding ‘what should be monitored’ was both a “bottom-up” and “top-down” process. The variables chosen to represent and monitor the human dimension through time were identified by working group members and by modifying and referring to a well-known science framework (the ‘Millennium Ecosystem Assessment’ model). The resulting SELTMP framework provides a conceptual understanding of how the human dimension connects with the GBR. The variables chosen to support the framework were Specific (S), Measureable (M), Actionable (A), Relevant (R) and Timely (T) (SMART). The SELTMP for the Great Barrier Reef represents one of the first in the world to comprehensively identify and measure the important components of the human dimension of a natural resource system and that are useful for resource management.

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Introduction to the SELTMP contd.

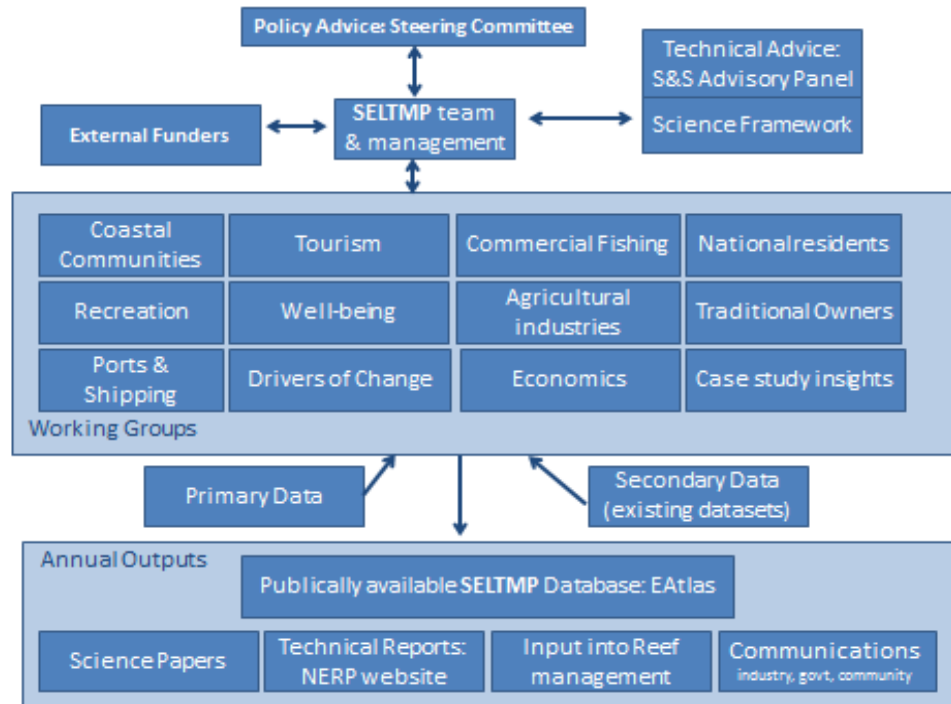


Figure 1. The operational structure of the SELTMP and its key outputs

Through monitoring existing regional datasets and undertaking survey work in the region, the SELTMP presents annual snapshots of coastal communities, national residents, recreational users, the marine tourism industry, the **commercial fishing industry**, Traditional Owners, ports and shipping, catchment industries and mining. The SELTMP monitors human use of and dependency on the GBR, human and community well-being (as they relate to the GBR), as well as a range of socio-cultural drivers such as perceptions, values, attitudes and behaviours .

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Introduction to the SELTMP contd.

Annual snapshots of the human dimensions of the Reef and learnings will be communicated via four main outputs:

(i) A web-based database. Each year, the SELTMP web-based database will be updated to reflect the most up-to-date knowledge of the human condition of the GBR and its catchment. Through web-based facilities, researchers will be able to access data for research purposes, industry will be able to use data to inform their planning and management, and GBR and regional managers will be able to better understand the complex social and economic environment within which they operate and use the data in their day-to-day decision-making processes. The current database, held within the eAtlas (<http://seltmp.eatlas.org.au/>) contains survey results from over 8,000 individuals across each of the following user-groups: commercial fishers, tourism operators, tourists, local residents, and Australians.

(ii) Technical reports. Each year a series of technical reports are published that reports on conditions for that year based on both primary and secondary data. The SELTMP 2011 was the inaugural year in which the design and conceptual model were developed. It assembled and presented data from a range of existing sources relevant to people and industries in the GBR and catchment. The SELTMP 2012 was refined in terms of its design and included updated secondary data. The SELTMP 2013 was the first year in which data gaps were addressed and primary data collected to add to the secondary data. **This report represents Commercial Fishing within the “SELTMP 2014 Technical Report Series” and includes any additional updates from existing datasets.**

(iii) Science papers. Human trends are analysed and communicated through science papers that showcase the science value and management application of the SELTMP. The SELTMP is currently in its design and implementation phase, and hence has limited longitudinal value at this stage. Science papers in the immediate term are drawn from the comprehensive baseline dataset for science and policy relevance and value.

(iv) Communications for industry, government and community. Key findings will be highlighted through annual media campaigns in which communication products such as ‘key findings booklets’, press-releases, popular media articles, seminars and conferences, will be developed.

The framework chosen to guide the choice of indicators was based on the Millennium Ecosystem Assessment (2003, 2005), which established a ‘big picture’ conceptual overview of the relationship between people and natural resources for the purposes of assessing ecosystem condition. The Millennium Ecosystem Assessment conceptual framework was developed in consultation with over 2,000 scientists. It is based on the “DPSIR” model which focuses on drivers, pressures, states, impacts on and responses of systems. Human use and dependency, community wellbeing, and the direct and indirect drivers of change can influence the GBR ecosystem and its services at multiple spatial scales, from local to global. For more information on the SELTMP monitoring framework, please see the *SELTMP 2014 Key Findings Technical Report*, available via the NERP website.

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Data presented in this Report

This technical report presents a snapshot of socio-economic data and indicators relevant to the current state of **commercial fishing** in the Great Barrier Reef region (i.e. Natural Resource Management (NRM) areas adjacent to the GBR). A wide range of secondary data and statistics are compiled from publicly available reports plus unpublished data provided by management agencies. Little interpretation is provided of these secondary data; however, sources are shown with links to online reports where available. Primary data are presented from the SELTMP surveys conducted over mid-2013 (described next). Indicators without available data are still included here, in the hope that data will be available in the future – the lack of data is denoted by ‘xx’. Data from all sources are presented under the following framework:

i) Use and Dependency

How people use and depend on the GBR. Components include:

- Use of the Environment: Where, When, How, How Much
 1. Activities (*what, how, how much*)
 2. Spatial and temporal patterns of use (*where and when*)
- Social Relationship with the Environment: Who and Why
 3. Cultural, spiritual and intellectual inspiration and experiences (*place, identity, aesthetics, satisfaction*)
- Economic Relationship with the Environment (What is the relationship like?):
 4. Employment, value and investment

ii) Human and Community Well-being

Societal benefits derived from the environment. Components include:

- Security (e.g. for livelihoods and lifestyles); • Opportunities (e.g. for access and development);
- Empowerment (e.g. in determining future outcomes)

Adaptive Capacity to change

iii) Drivers of Change

Includes direct and indirect drivers, including (but not limited to):

- Employability
- Environmental stewardship
- Information and Networks
- Sector-specific drivers

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2013 SELTMP Survey methods

Primary data were collected via semi-quantitative fisher surveys, to fill multiple gaps in the secondary data available. Surveys were designed with input from key end-users and industry representatives. The commercial fisher surveys were conducted on the phone, with survey staff completing the survey on ipads during July and August 2013. Surveys were anticipated to take approximately 15 minutes, however many took over 30 minutes or even an hour due to fishers wanting to share experiences and opinions.

To contact the fishers we obtained the publicly available list of current (2013) commercial fishery and harvest licence holders from Fisheries Queensland, within the Department of Agriculture, Fisheries and Forestry (DAFF) – this list included each licence holders' name and home address. Introductory letters were sent to all relevant licence holders (i.e. those holding symbols that allowed access to the GBR) two weeks prior to starting the surveys to alert fishers to the upcoming surveys. Phone numbers for these fishers were sourced from previous James Cook University (JCU) and CSIRO research projects where fishers had given explicit permission to be re-contacted for future research. Remaining phone numbers were sourced from the electronic white pages, via snow-ball sampling from contacted fishers, and directly from fishers who contacted the project team after receiving the introductory letter.

A total of 303 licence holders were contacted. Of those, 26 claimed they did not fish in the GBR and hence did not continue the survey, and 67 fishers refused to participate. Some licence holders referred surveyors to their licence operator, where appropriate. A total of 210 fishers completed the survey, giving a response rate of 75% of relevant contacted fishers. Given an estimate of 750 active licences in the GBR, held by approximately 567 individuals / businesses (based on 'best guesses' of duplicates of names and/or addresses), (DAFF unpublished data, 2014), the surveys sampled at least 37% of active GBR licence holders. Respondents were spread throughout the GBR catchment, included some licence holders residing outside of the catchment (but fishing in the GBR), and included fishers from all fishery types.

Data presentation

Most data are presented as % of respondents. Where 10-point scales were used to elicit agreement with statements (where 1 = strongly disagree, 10 = strongly agree), we display the mean score (+/- SE) and the % of respondents who agreed with the statement (i.e. scored a 6 or above). Where it was considered easier to understand or portray a point, negatively worded questions were reversed.

All survey related data are referenced as "SELTMP Survey 2013"



CRC Reef Research Centre

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

Introduction to Commercial Fishing on the GBR

People from all over the world, including those living in Queensland and Australia, enjoy eating quality fresh seafood from the Great Barrier Reef World Heritage Area. The seafood comes from one of the “best managed marine parks in the world”, and with almost 1790 licences that are allowed access to the GBR (750 were active in the GBR 2013 (DAFF, unpublished data, 2014)), and a Gross Value of Production of \$122.9 million in 20011/12 (DAE, 2013), the industry is particularly important for the region. The industry is managed by the Queensland government through Fisheries Queensland within the Department of Agriculture, Fisheries and Forestry (DAFF). The Great Barrier Reef Marine Park Authority (GBRMPA) is a federal agency that also contributes to fisheries management through restricting fishing activities by zoning within the Great Barrier Reef Marine Park (GBRMPA, 2014a).

The commercial fishing industry is managed by constraints (or ‘input controls’) on the number of vessels (limited entry), time and place of fishing and/or the type and specification of both vessel and gear. There are also controls on what can be harvested (‘output controls’) such as the level of catch (e.g. total allowable commercial catch, TACC), spawning closures, restrictions on the length and the sex or maturity of stages that can be taken. Fisheries Queensland collect catch and effort data from each fishing operation through the use of compulsory logbooks, which commenced as a voluntary program in 1988. The data are used to assess the status of fisheries in Queensland as well as to assist in the management process. Commercial fishing is also restricted via marine park zoning legislated by the GBRMPA and the Department of Environment (DoE).

Fishing operations range in size from small, family operated businesses with a single licence and vessel, to larger, investment businesses with multiple licences and vessels, employing skippers and crew, with many sizes and configurations in between. There are a few overseas investors in fishing licences, but most are Australian owned and owner-operated. Some fishers operate by leasing licences and/or quota from licence owners, with an unknown number of lease arrangements made informally.

There are multiple commercial fisheries within the GBRWHA, broadly defined by the type of gear they use, the habitats they access and/or the species they harvest. Fisheries are generally managed as commercial fishing licences or commercial harvest licences. Within the SELTMP, commercial fisheries are grouped as **trawl**, **line**, **pot**, **net** and **harvest** fisheries. These fisheries access inshore, shoal, inter-reef, reef and pelagic waters. Many fishers hold a multiple endorsed licence (i.e. a licence with multiple ‘symbols’) which means that a line fisher, for instance, may also trawl or net.

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Introduction continued

Trawl fisheries capture primarily prawns, bugs and scallops, but also cuttlefish, squid and octopus via Beam trawls (within the River and Inshore Beam Trawl Fishery, RIBTF) (DEEDI, 2011a) or Otter trawls (within the East Coast Otter Trawl Fishery) (DAFF, 2013b). The Beam Trawl fishery only makes up a small component of the trawl fisheries in the GBRWHA, however the Otter Trawl fishery is the largest Queensland fishery in terms of product volume and economic value. Data for the Beam Trawl fishery are combined with Otter Trawl in this report, collectively termed as “Trawl”.

Line fishers access multiple fin fish species by line, particularly species managed by quota allocations for which fishers require an additional Reef Quota (RQ) symbol for the Coral Reef Fin Fish Fishery (CRFFF) (DAFF, 2013c), or a Spanish Mackerel (SM) (DEEDI, 2012a) symbol for the East Coast Spanish Mackerel Fishery. The CRFF uses single hook handlines on reef and shoal habitats to harvest bottom dwelling reef fish including coral trout (primarily sold live), red throat emperor, and other reef associated species. The SM fishery harvests Spanish mackerel trolling line fishing gear near offshore shoals and reefs. Both are combined here as “Line”.

Net fishers operate within the East Coast Inshore Fin Fish Fishery (ECIFFF) (DEEDI, 2011b), which is the largest fishery in terms of numbers of operators, and most diverse in terms of species harvested. Fishers primarily use set gillnets (some species in the ECIFF are taken by hook and line – these are included in the *line* fishery description from here) in inshore creeks, estuaries and bays, to harvest multiple inshore fin fish (such as barramundi, some mackerels and threadfin salmon) and shark species. Shark are also managed via a quota, for which fishers need a dedicated symbol (S).

Pot fishers utilise crab pots within the Mudcrab Fishery (DAFF, 2013d) – the main crab fishery in the GBRHWA – and the much smaller Blue Swimmer Crab Fishery (DAFF, 2013e). They harvest male crabs within inshore areas. Both fisheries are combined in this report as “Pot”.

Harvest fisheries, where species are harvested by hand, are commonly listed separately to the previous fisheries, although harvest fisheries are also diverse. Harvest fisheries include primarily the Crayfish and Rocklobster Fishery (DAFF, 2012a), the Marine Aquarium Fish Fishery (MAFF) (DAFF, 2013f), the East Coast Bêche-de-mer (BDM) Fishery (DAFF, 2012b), the Coral Fishery (DEEDI, 2012c), and the East Coast Pearl Fishery (DEEDI, 2012b). There is also an East Coast Trochus Fishery (DEEDI, 2010), however it has not recorded catch in recent years. There are fewer operators in the harvest fisheries, however some fisheries are of high value, with much of the product targeted to export market. All are combined here as “Harvest”.



SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – WHAT are people doing?

License Number

Held# vs Active* in GBR

Cape York	: 39 vs 21
Wet Tropics	: 306 vs 193
Burdekin	: 143 vs 97
Mackay-Whit	: 104 vs 60
Fitzroy Basin	: 178 vs 107
Burnett-Mary	: 290 vs 125
Total GBR based	
	: 1060 vs 603
Intrastate	: 613 vs 126
Interstate	: 102 vs 20
International	: 4 vs 1

TOTAL held licences =
1779 with symbols that
allow GBR access
(1430 fishing & 349 harvest)

TOTAL active in GBR =
750 (670 fishing & 80
harvest)
= 42% of potential licences
which were active in GBR

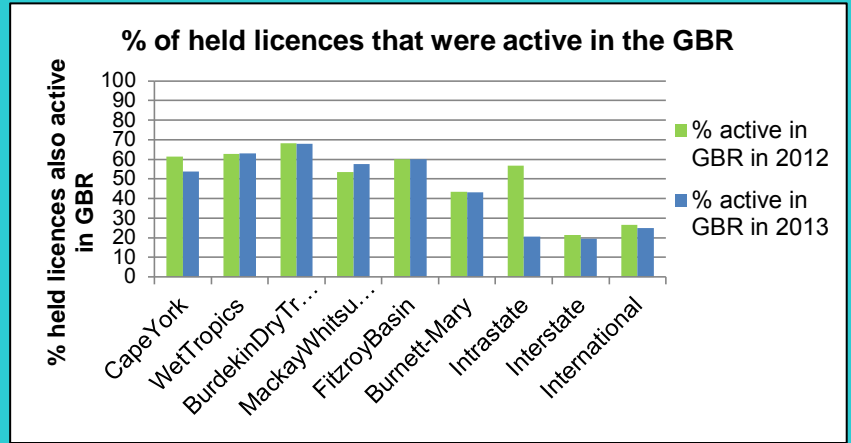
Ref: DAFF, unpublished data (2014)

License Holders**

Holder# vs Active* in GBR

Cape York	: 35 vs 20
Wet Tropics	: 186 vs 137
Burdekin	: 107 vs 82
Mackay-Whit	: 77 vs 50
Fitzroy Basin	: 112 vs 74
Burnett-Mary	: 213 vs 95
Intrastate	: 432 vs 93
Interstate	: 68 vs 16
International	: 2 vs 0
TOTAL	: 1232 vs 567

Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2013, 2014)

While there are 1779 licences (held by 1232 fishers) with symbols that allow access to the GBR, only half of these are used in the GBR itself, primarily by those who also live in the GBR region. Many symbols that allow access to the GBR also allow access to SEQ and the Gulf of Carpentaria.

There were fewer intrastate licences active in the GBR in 2013, than in 2012.

#Licences (or those holding licences) registered as 'active' (rather than suspended/surrendered) with symbols that allow access to the GBR. Location based on home address of licence owner as at August 2014. *ACTIVELY fishing in the GBR in the 2013 calendar year. **Licence holders roughly determined based on duplication of name and/or address.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – WHAT are people doing?

of licenses# per owner

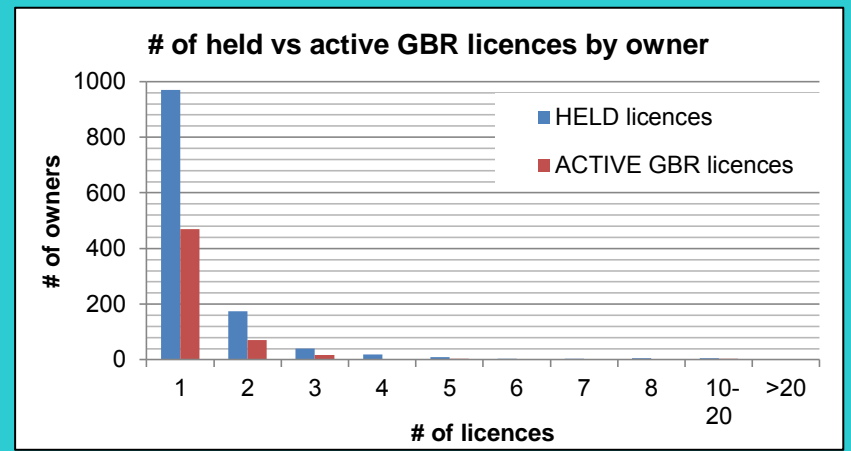
Cape York	: 1.2 (+/-0.06)
Wet Tropics	: 1.6 (+/-0.18)
Burdekin	: 1.3 (+/-0.08)
Mackay-Whit	: 1.4 (+/-0.10)
Fitzroy Basin	: 1.6 (+/-0.13)
Burnett-Mary	: 1.3 (+/-0.06)
Intrastate	: 1.4 (+/-0.10)
Interstate	: 1.5 (+/-0.22)
International	: 2.0 (+/-1.00)
OVERALL	: 1.4 (+/-0.05)
Min = 1; Max = 38	

Ref: DAFF, unpublished data (2014)

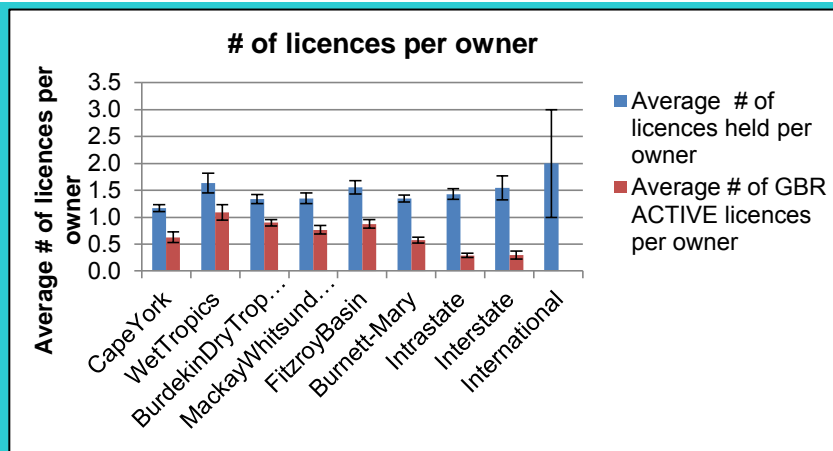
ACTIVE* licences per owner (see Fig)

Cape York	: 0.6 (+/-0.10)
Wet Tropics	: 1.1 (+/-0.15)
Burdekin	: 0.9 (+/-0.06)
Mackay-Whit	: 0.8 (+/-0.08)
Fitzroy Basin	: 0.9 (+/-0.08)
Burnett-Mary	: 0.6 (+/-0.05)
Intrastate	: 0.3 (+/-0.04)
Interstate	: 0.3 (+/-0.08)
OVERALL	: 0.6 (+/-0.03)
Min = 0; Max = 22	

Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)

Most licence owners (79%), and most of the owners accessing the GBR (83%), hold only 1 licence.

Most of the owners who hold licences with symbols that allow access to the GBR, do not fish in the GBR.

*Licences (or those holding licences) registered as 'active' (rather than suspended/surrendered) with symbols that allow access to the GBR. Location based on home address of licence owner as at August 2014. *ACTIVELY fishing in the GBR in the 2013 calendar year. **Licence holders roughly determined based on duplication of name and/or address.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – WHAT are people doing?

Active licences

Marine regions#	Fishery + Harvest*
Far Northern	: 65 + 23
Northern	: 92 + 28
Wet Tropics	: 228 + 18
Burdekin	: 174 + 10
Mackay-Whit	: 159 + 16
Fitzroy	: 260 + 27
Burnett-Mary	: 141 + 10
TOTAL (GBR)	: 670 + 80

Ref: DAFF, unpublished data (2014)

Active Line licences

Marine regions#	
Far Northern	: 24
Northern	: 49
Wet Tropics	: 116
Burdekin	: 84
Mackay-Whit	: 37
Fitzroy	: 74
Burnett-Mary	: 31
TOTAL (GBR)	: 257
	(209 wi CRFF; 144 SM)

Ref: DAFF, unpublished data (2014)

Active Trawl licences

Marine regions#	(otter + beam)
Far Northern	: 38 + 0
Northern	: 33 + 0
Wet Tropics	: 54 + 0
Burdekin	: 48 + 0
Mackay-Whit	: 46 + 6
Fitzroy	: 86 + 20
Burnett-Mary	: 69 + 2
TOTAL (GBR)	: 172 + 26

Ref: DAFF, unpublished data (2014)

Active Net licences

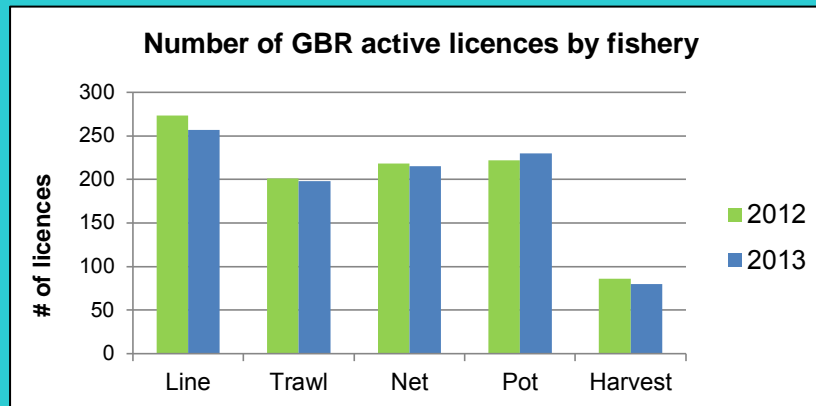
Marine regions#	
Far Northern	: 3
Northern	: 10
Wet Tropics	: 66
Burdekin	: 50
Mackay-Whit	: 58
Fitzroy	: 67
Burnett-Mary	: 23
TOTAL (GBR)	: 215

Ref: DAFF, unpublished data (2014)

Active Pot licences

Marine regions#	
Far Northern	: 0
Northern	: 10
Wet Tropics	: 44
Burdekin	: 37
Mackay-Whit	: 63
Fitzroy	: 81
Burnett-Mary	: 35
TOTAL (GBR)	: 230
	(210 mudcrab; 21 BS crab)

Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2013, 2014)

#Licences listed as actively fishing these fisheries in the GBR in 2013 calendar year. Location based on SELTMP marine regions fished. Licences may operate in more than one marine region. *See next page for harvest breakdown.

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i) Use of the Environment: 1. Activities – WHAT are people doing?

Active marine aquarium fish harvest licences

Marine regions#	
Far Northern	: 1
Northern	: 8
Wet Tropics	: 16
Burdekin	: 3
Mackay-Whit	: 7
Fitzroy	: 4
Burnett-Mary	: 2
TOTAL (GBR)	: 25

Ref: DAFF, unpublished data (2014)

Active Bêche-de-mer licences

Marine regions#	
Far Northern	: 3
Northern	: 4
Wet Tropics	: 2
Burdekin	: 4
Mackay-Whit	: 3
Fitzroy	: 2
Burnett-Mary	: 0
TOTAL (GBR)	: 5

Ref: DAFF, unpublished data (2014)

Active Lobster licences

Marine regions#	
Far Northern	: 7
Northern	: 1
Wet Tropics	: 0
Burdekin	: 0
Mackay-Whit	: 0
Fitzroy	: 0
Burnett-Mary	: 0
TOTAL (GBR)	: 7

Ref: DAFF, unpublished data (2014)

Active Coral licences

Marine regions#	
Far Northern	: 0
Northern	: 5
Wet Tropics	: 16
Burdekin	: 3
Mackay-Whit	: 13
Fitzroy	: 16
Burnett-Mary	: 0
TOTAL (GBR)	: 32

Ref: DAFF, unpublished data (2014)

Active Pearl licences

Marine regions#	
Far Northern	: 0
Northern	: 0
Wet Tropics	: 0
Burdekin	: 0
Mackay-Whit	: 0
Fitzroy	: 0
Burnett-Mary	: 0
TOTAL (GBR)	: 0

Ref: DAFF, unpublished data (2014)

Active worm and yabby licences

Marine regions#	
Far Northern	: 0
Northern	: 0
Wet Tropics	: 0
Burdekin	: 0
Mackay-Whit	: 0
Fitzroy	: 6
Burnett-Mary	: 1
TOTAL (GBR)	: 6

Ref: DAFF, unpublished data (2014)

Active adult eel licences

Marine regions#	
Far Northern	: 0
Northern	: 0
Wet Tropics	: 0
Burdekin	: 0
Mackay-Whit	: 2
Fitzroy	: 1
Burnett-Mary	: 0
TOTAL (GBR)	: 3

Ref: DAFF, unpublished data (2014)

Active juvenile eel licences

Marine regions#	
Far Northern	: 0
Northern	: 0
Wet Tropics	: 0
Burdekin	: 0
Mackay-Whit	: 0
Fitzroy	: 2
Burnett-Mary	: 0
TOTAL (GBR)	: 2

Ref: DAFF, unpublished data (2014)

#Licences listed as actively fishing these fisheries in the GBR in 2013 calendar year. Location based on SELTMP marine regions fished.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – WHAT are people doing?

Licence turnover (sales)

Cape York	: xx^
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx
TOTAL GBR	: 160
(146 fishery, 14 harvest)	
TOTAL Qld	: xx

Ref: DAFF, unpublished data (2014)

Formal leases*

Fishery	: 172
Harvest	: 14
TOTAL	: 186
Quota (all types):	1636

Ref: DAFF, unpublished data (2014)

There is a lack of detailed data publicly available on formal transfers and sales of licences, symbols and quota. Some information would be available from brokers, but it is difficult to ensure it is comprehensive and consistent between years, so it is not included here as yet.



Peter Shanks. ©Creative Commons

^'xx' is listed where there are no data available, but the indicator was still considered important to seek data for the future. This rule applies throughout. *Known as temporary transfers within DAFF. There are also unknown number of informal leases / transfers.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW are they doing it?

Vessel length*

Average main vessel length

Cape York	: 9.4m +/-0.69
Wet Tropics	: 11.6m +/-0.40
Burdekin	: 10.3m +/-0.50
Mackay-Whit	: 8.9m +/-0.56
Fitzroy Basin	: 8.3m +/-0.38
Burnett-Mary	: 12.2m +/-0.49
Intrastate	: 10.9m +/-0.49
Interstate	: 12.1m +/-1.10
Overseas	: xx

Line fishers	: 10.6m +/-0.29
Trawl	: 16.4m +/-0.25
Net	: 7.7m +/-0.29
Pot	: 7.1m +/-0.22
Harvest	: 10.4m +/-0.72

GBR overall	: 10.7m +/-0.19
Min:	3.9m; Max: 22.0m

Number of tenders*

Average # of tenders¹

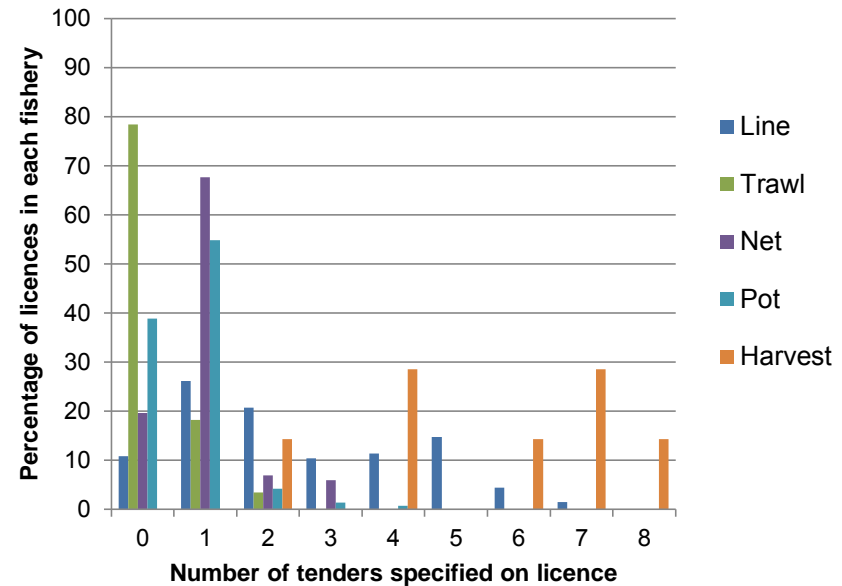
Cape York	: 1.4 +/-0.22
Wet Tropics	: 2.0 +/-0.16
Burdekin	: 1.3 +/-0.17
Mackay-Whit	: 1.7 +/-0.29
Fitzroy Basin	: 1.1 +/-0.14
Burnett-Mary	: 0.7 +/-0.10
Intrastate	: 1.1 +/-0.15
Interstate	: 1.9 +/-0.43
Overseas	: xx

Average # of tenders¹

Line fishers	: 2.5 +/-0.13
Trawl	: 0.3 +/-0.04
Net	: 1.0 +/-0.07
Pot	: 0.7 +/-0.06
Harvest	: 5.4 +/-0.55

GBR overall	: 1.4 +/-0.07
Min:	0; Max: 8

Maximum number of allocated tenders per licence



Tidbit:

1 main vessel is allowed per licence
 Many net / pot fishers operate with their “tender” as their “main vessel”²
 Most large line boats (CRFF) typically use 5 tenders / “dories” from their main vessel³

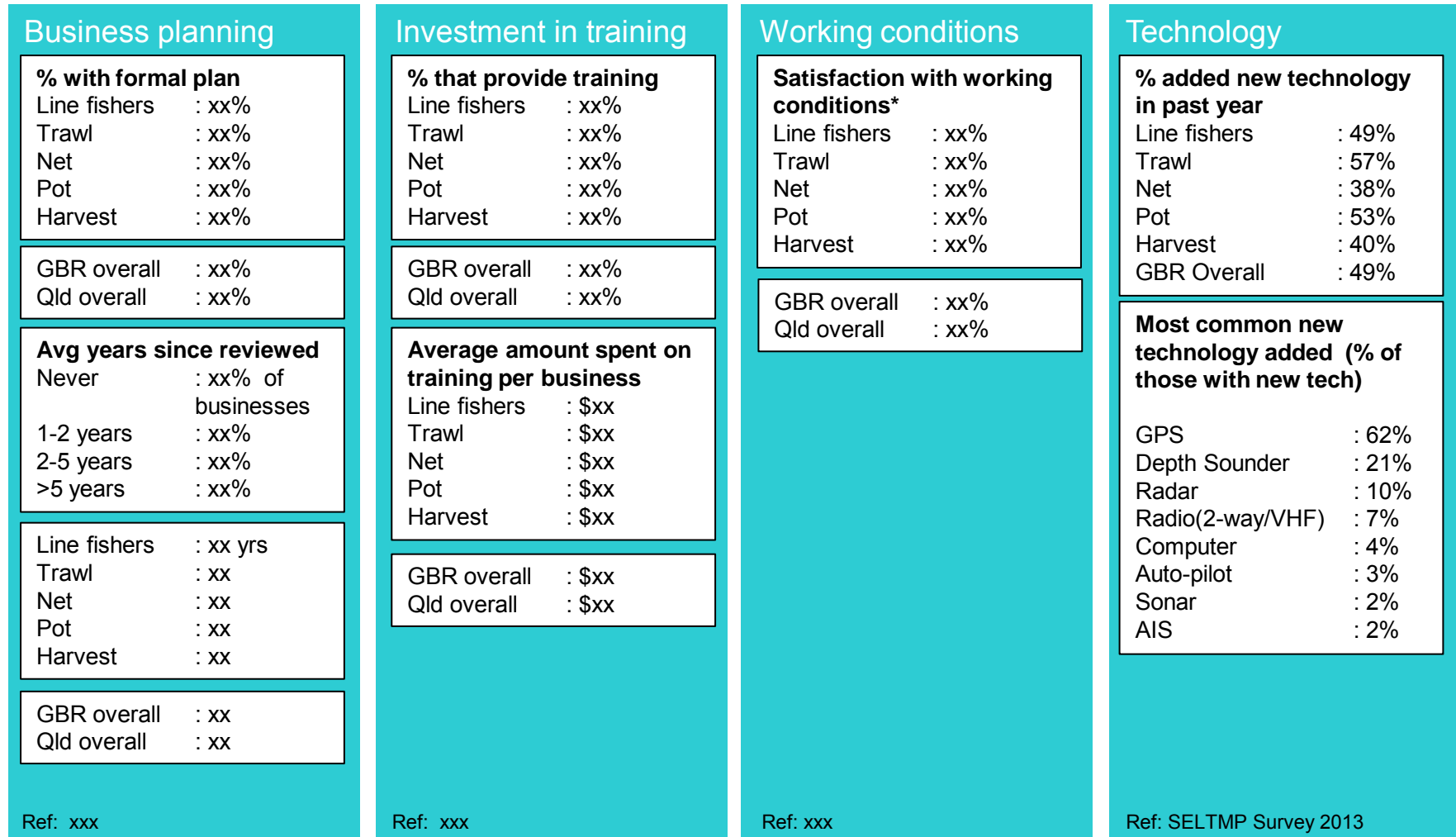
Ref: DAFF, unpublished data (2014)

Ref: ¹DAFF, unpublished data (2014); ²Tobin R et al. (2010a); ³Tobin A et al (2010)

*Vessels attached to licences ACTIVELY fishing in the GBR in the 2013 calendar year. No vessel length information for harvest vessels (except Rocklobster). Location based on home address of licence owner as at August 2014.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW are they doing it?



*Recent suggestion by a working group member. To consider for future data collection.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW are they doing it?

Operator types

% of each type surveyed

Owner-operator	: 92%
Owner-non-operator:	4%
Lessee	: 3%
Other	: 5%

% owner-operators^

Cape York	: 100%
Wet Tropics	: 91%
Burdekin	: 97%
Mackay-Whit	: 83%
Fitzroy Basin	: 92%
Burnett-Mary	: 97%

Line fishers	: 90%
Trawl	: 91%
Net	: 100%
Pot	: 97%
Harvest	: 81%

GBR overall	: 92%
Qld overall	: xx

Ref: SELTMP Survey 2013

of fishery types* per licence#

Average fishery type # DAFF¹ vs SELTMP^{2^A}

Cape York	: 1.38 ¹ ; 1.38 ²
Wet Tropics	: 1.21 ¹ ; 1.63 ²
Burdekin	: 1.49 ¹ ; 1.82 ²
Mackay-Whit	: 1.43 ¹ ; 1.38 ²
Fitzroy Basin	: 1.59 ¹ ; 1.62 ²
Burnett-Mary	: 1.22 ¹ ; 1.57 ²
Intrastate	: 1.12 ¹ ; 1.38 ²
Interstate	: 1.10 ¹ ; -
Overseas	: xx ¹ ; -

By main fishery~

Line fishers	: 1.17 ; 1.30 ²
Trawl	: 1.03 ; 1.33 ²
Net	: 1.72 ; 2.14 ²
Pot	: 1.61 ; 2.26 ²
Harvest	: 1.00 ; 1.15 ²

GBR overall : 1.31¹ ; 1.57²

Ref: ¹DAFF, unpublished data (2014); ²SELTMP Survey 2013

% licences in # of fishery types DAFF¹ vs SELTMP²

1 fishery type:	75% ¹ ; 60% ²
2 type	: 19% ¹ ; 24% ²
3 type	: 5% ¹ ; 13% ²
4 type	: 0.4% ¹ ; 2% ²
5 types	: 0% ¹ ; 0% ²

It is most common for fishers to be owner-operators rather than 'investors', and for licences to operate in one broad fishery type (classified broadly into line, trawl, net, pot and harvest.

The slight difference between the DAFF and SELTMP data may reflect that more active fishers participated in the survey.

See next page for figures showing fishery diversification by region and main fishery type

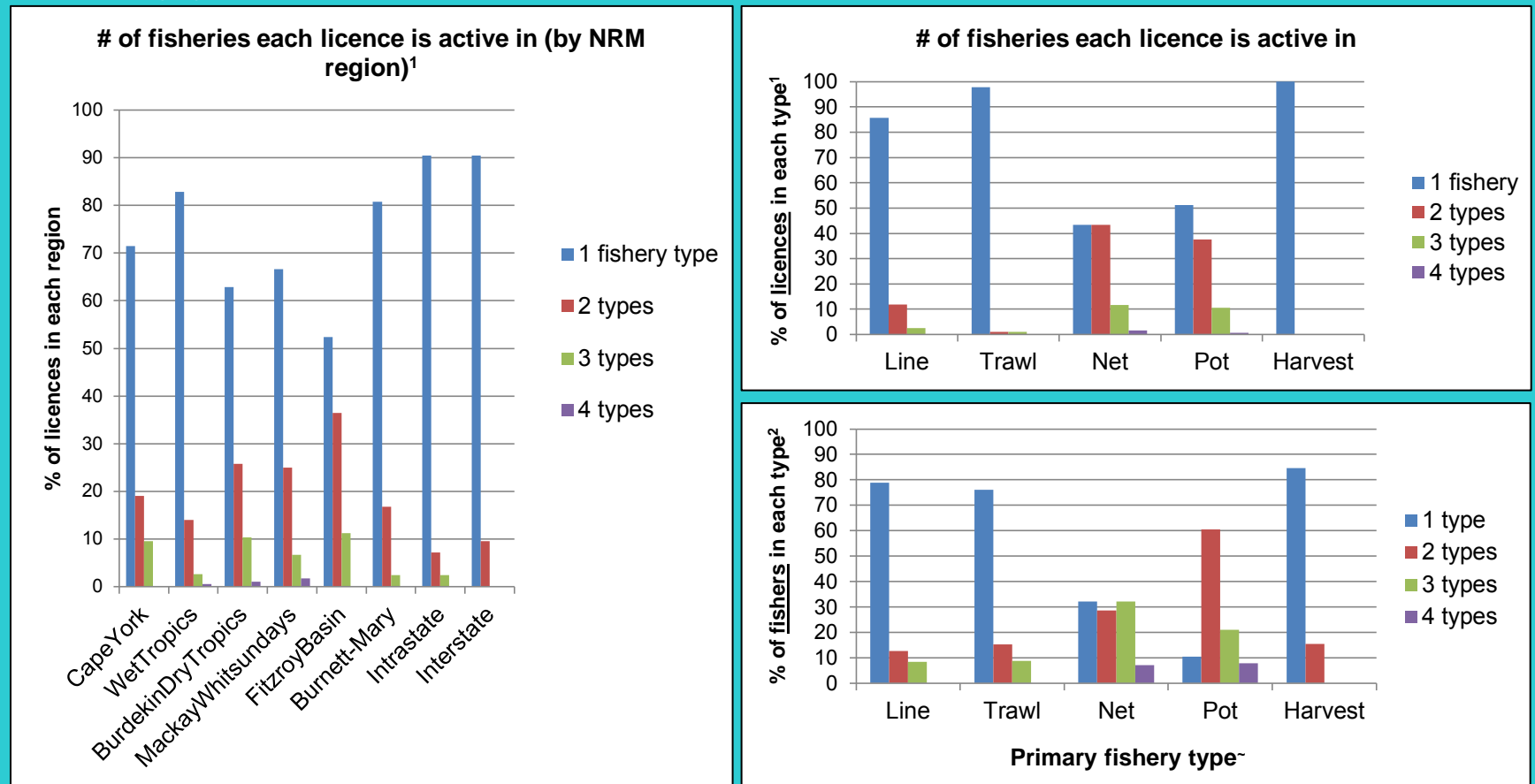
*Fishery types by broad categories of line, trawl, net, pot and harvest that licences were active in – there is internal diversification in each of these types. #Licences listed as actively fishing these fisheries in the GBR in 2013 calendar year. Location based on NRM location of home address of licence owner as at August 2014

~Main fishery type determined as the one from which the most income was made.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW are they doing it?

of fishery types* per licence



Ref: ¹DAFF, unpublished data (2014); ²SELTMP Survey 2013

*Fishery types by broad categories of line, trawl, net, pot and harvest that licences were active in – there is internal diversification in each of these types. #Licences listed as actively fishing these fisheries in the GBR in 2013 calendar year. Location based on NRM location of home address of licence owner as at August 2014 ~Main fishery type determined as the one from which the most income was made.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW are they doing it?

Product type*

Fishery	Species	Live	Whole / Dead	Trunked	Gill/gutted	Fillet
Line ¹	Coral Trout	85%	9%	-	3%	3%
	Red Throat Emperor	-	35%	-	0.60%	64%
Net ¹		0.1%	74%	15%	8%	3%
Pot ¹		27%	73%			
Trawl		Raw	Processed	Cooked		
		xx	xx	xx		
		Whole	Tails			
Harvest ^{2^}	Rocklobster	88%	12%			



A. Tobin



A. Tobin

Diversity of product

% of fishers who market >1 product type

Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%



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Ref: xxx

Ref: ¹DAFF, unpublished data (2014); ²Luke Bekker, Fisheries Qld Quota Monitoring Team, pers. comm. (2013). [^]Not updated for this report from previous.

*For CRFF and Rocklobster, data are from Catch Disposal Records so should be accurate reflection of 1st point of sale. For Pot and Net, product from as it is harvested, not necessarily how it is sold, due to limitations in current data recording (by catch logbook). It may be useful to consider market-level reporting in the future.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW MUCH are they fishing?

Total effort days

Marine regions

	Fishing + Harvest	
Far Northern	: 2,726	+ 207
Northern	: 4,203	+ 779
Wet Tropics	: 11,773	+ 534
Burdekin	: 11,044	+ 59
Mackay-Whit	: 10,329	+ 88
Fitzroy	: 19,309	+ 561
Burnett-Mary	: 3,998	+ 706
TOTAL (GBR)	: 63,635	+ 2,933

Line fishers:	: 13,682
Trawl:	
Beam	: 837
Otter	: 15,966
Net:	: 9,376
Pot:	: 24,783
Harvest :	
Aquarium fish:	596
Rocklobster	: 711
BDM	: 479
Coral	: 819
Pearl	: NR (<5 boats)
Worms and Yabbies	: 292

Ref: DAFF, unpublished data (2014)*

Average effort days/licence#

Marine regions

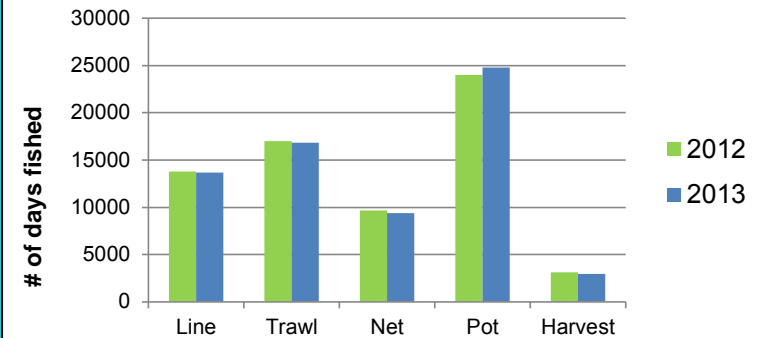
	Fishing + Harvest	
Far Northern	: 42	+ 9
Northern	: 46	+ 28
Wet Tropics	: 52	+ 30
Burdekin	: 63	+ 6
Mackay-Whit	: 65	+ 6
Fitzroy	: 74	+ 21
Burnett-Mary	: 28	+ 71
TOTAL (GBR)	: 95	+ 37

(88 days overall)

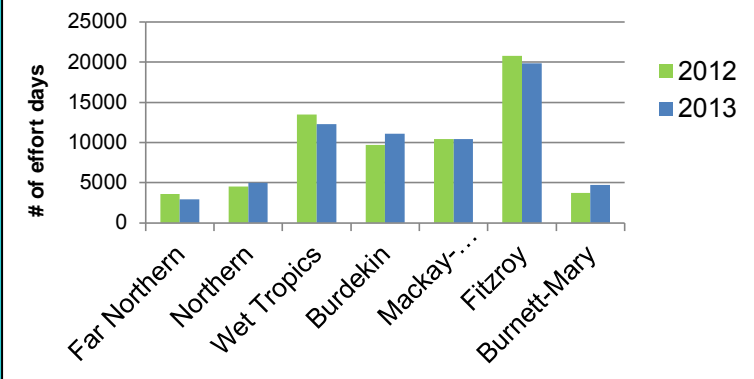
Line fishers:	: 53
Trawl:	
Beam	: 32
Otter	: 93
Net:	: 44
Pot:	: 108
Harvest :	
Aquarium fish:	24
Rocklobster	: 102
BDM	: 96
Coral	: 26
Pearl	: NR (<5 boats)
Worms and Yabbies	: 49

Ref: DAFF, unpublished data (2014)*

of GBR active effort days by fishery



of effort days by SELTMP marine region



Ref: DAFF, unpublished data (2013, 2014*)

*ACTIVE licence data for 2013 calendar year for GBR area only; #Crude estimate based on licence number and days per region / fishery.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW MUCH are they harvesting?

of harvest species

Line:	
CRFF	: 3 sp grps**1
SM	: 1 sp ²
Trawl:	
Beam	: 4 sp ³
Otter	: 7 sp ⁴
Net:	: 10 grps ⁵
Pot:	: 2 sp ^{6,7}
Harvest:	
Rocklobster	: 1 sp ⁸
MAFF	: 47 grps ⁹
Bêche-de-mer	: 2 sp ¹⁰
Other	: multiple

Ref: ¹DAFF (2013c); ²DEEDI (2012a); ³DEEDI (2011a); ⁴DAFF (2013b); ⁵DEEDI (2011b); ⁶DAFF (2013d); ⁷DAFF (2013e); ⁸DAFF (2012a); ⁹DAFF (2013f); ¹⁰DAFF (2012b)

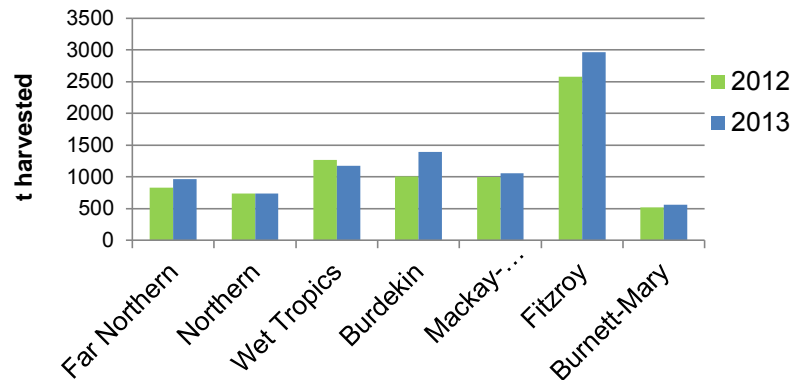
Harvest amount by region

Marine regions

	fishing + harvest (#s) + harv (wts)^		
Far Northern	: 787.47 t	3,203	174.18 t
Northern	: 737.19 t	1,225,987	5.21 t
Wet Tropics	: 1105.61 t	88,437	67.56 t
Burdekin	: 1391.60 t	107,054	NA (<5boats)
Mackay-Whit	: 1047.81 t	249,424	8.35 t
Fitzroy	: 2561.93 t	131,482	16.74 t
Burnett-Mary	: 559.21 t	NA (<5boats)	-

TOTAL (GBR) : 8,572.09 t 1,839,738 272.31 t

GBR harvest (t) by SELTMP marine region^



Ref: DAFF, unpublished data (2014)*

Harvest varies by marine region, though note these are not of equal size / area. Some marine regions had higher harvest amounts in 2013 than in 2012 (particularly the Fitzroy).

See later grid maps for more detail by region and fishery for the 2013 calendar year.

**Some fisheries are managed by species groups (e.g. 'other species' which includes multiple species), rather than individual species; *GBR only, 2013 calendar year; ^Weight unavailable for harvest fisheries monitored by number (i.e. MAFF, BDM, Worm)

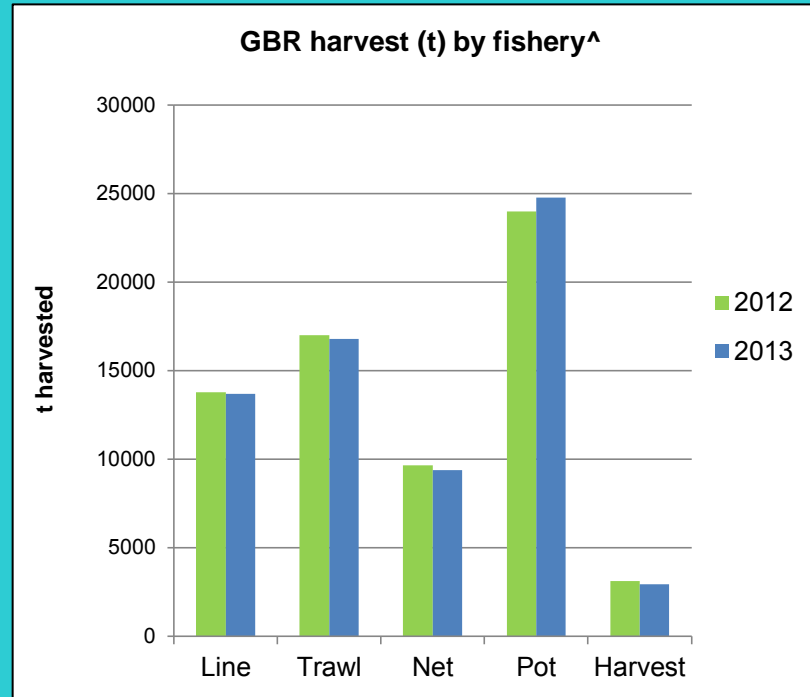
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 1. Activities – HOW MUCH are they harvesting?

Harvest amount by fishery

By method:

Line:	: 1,933.87 t
CRFF	: 1,484.51 t
SM	: 249.17 t
Trawl:	
Beam	: 45.07 t
Otter	: 3,988.24 t
Net:	: 1,512.88 t
Pot:	: 1,092.02 t
Mudcrab	: 794.50 t
Blueswimmer:	3.41 t
Harvest :	
Aquarium fish:	55,244 individ
Bêche-de-mer	
:	1,749,780 ind.
Rocklobster	: 177.46 t
Coral	: 93.70 t
Pearl	: NR (< 5 boats)
Worms and yabbies	
:	34,714 ind.



Harvest by fishery type varied little from the previous year, although there was a slight increase in crab harvest.

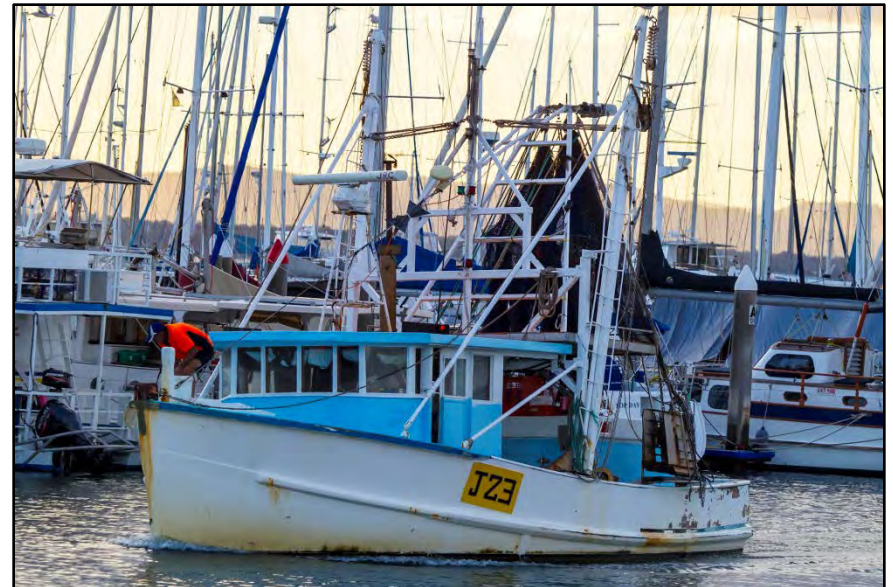
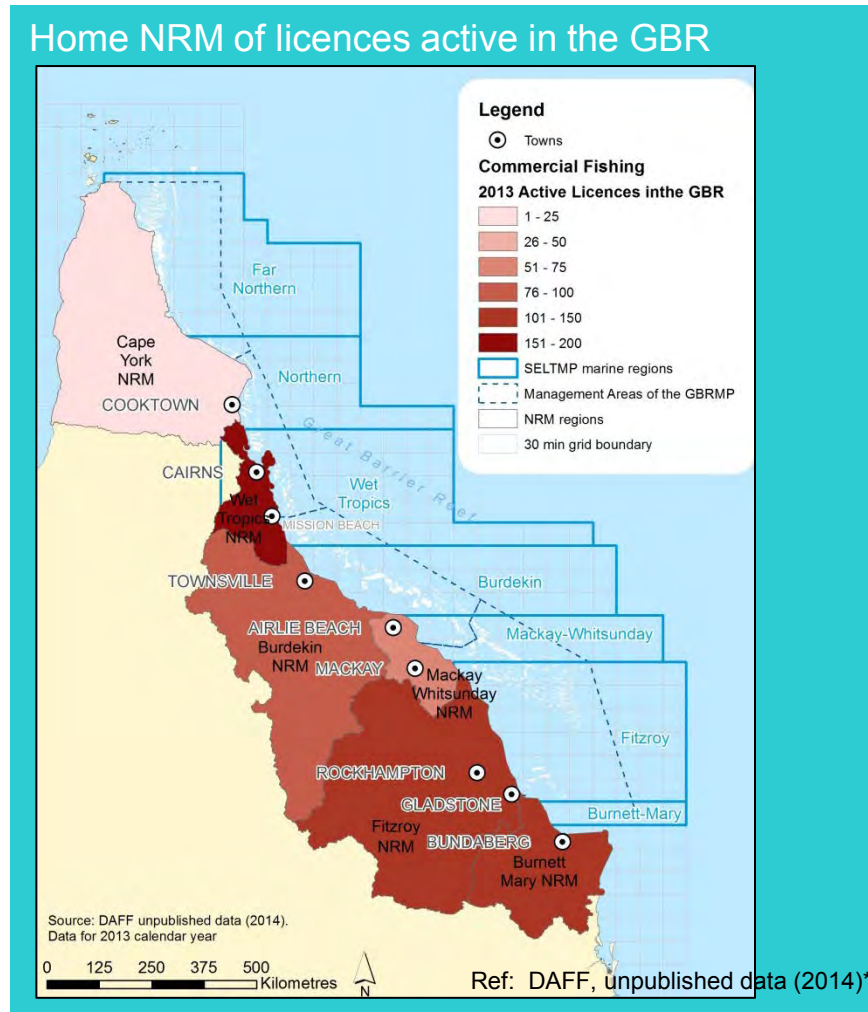
See later grid maps for more detail by region and fishery for the 2013 calendar year.

Ref: DAFF, unpublished data (2014)*

*GBR only, 2013 calendar year; ^Weight unavailable for harvest fisheries monitored by number

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they from?



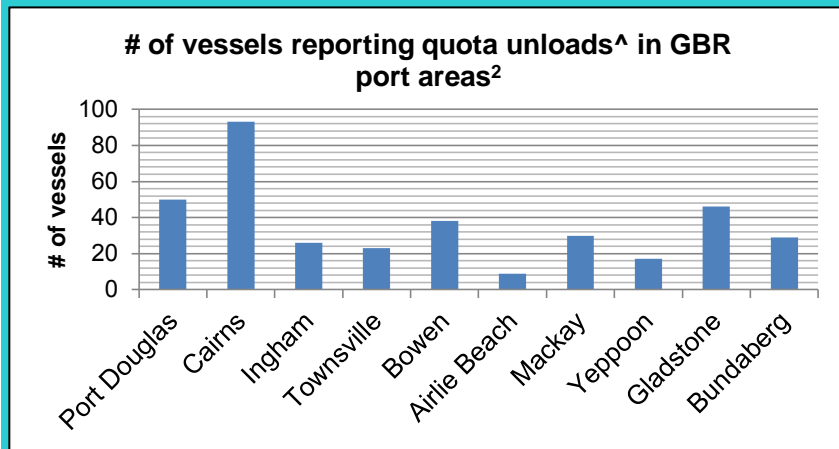
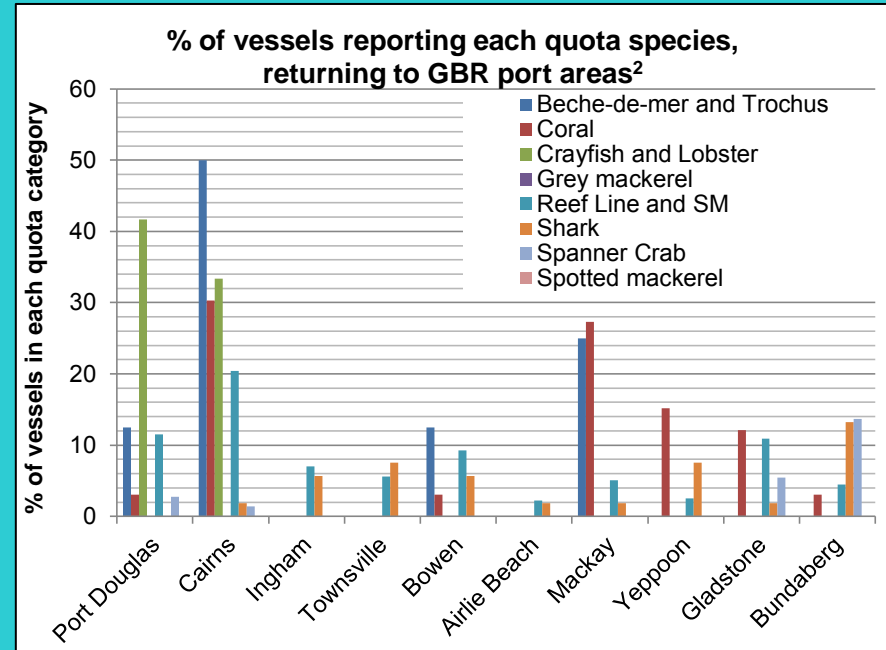
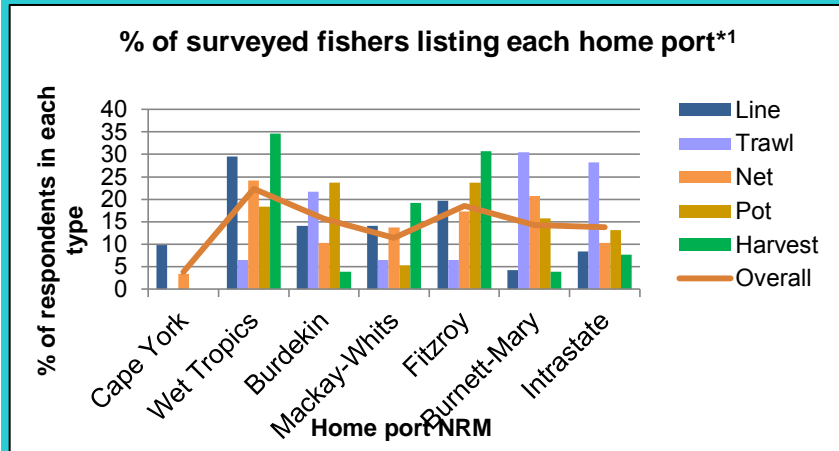
'John'. © Creative Commons

*Based on 2014 licence holder home address for those licences active in the GBR for the 2013 calendar year. Does not include licence owners based outside the GBR region

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they accessing it?

Key home ports* and 'return' ports^ by fisher / vessel



Home port use varies by fishery and quota type, according to both the SELTMP and DAFF data. Harvest fisheries concentrate in the Wet Tropics and Fitzroy regions, likely due to their allocated fishing regions.

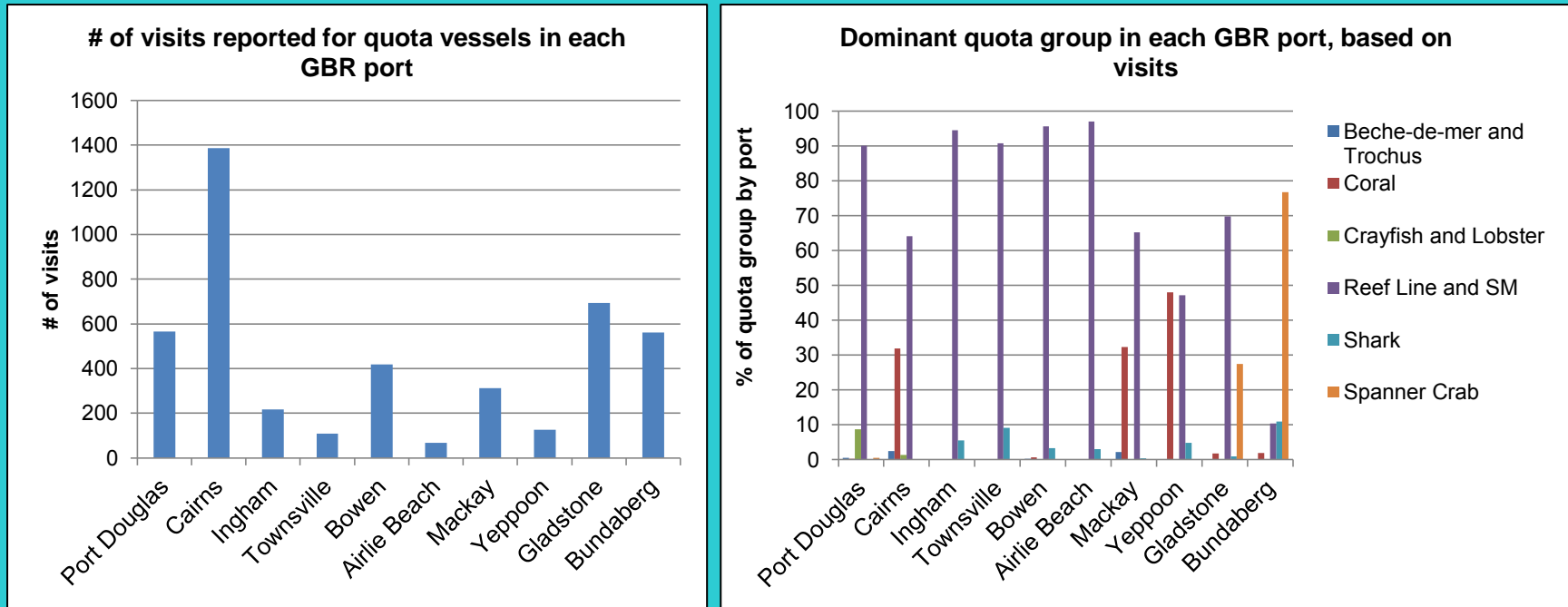
Ref: ¹SELTMP Survey 2013; ²DAFF, unpublished data (2014)

*Based on home PORT NRM listed in survey rather than home address of licence holder; ^These are the prior landing locations which show the 'port area' where the quota is being landed. Ports outside of GBR not shown here, but are present in the data.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they accessing it?

Key 'returning' ports^ by # of visits



Cairns is the most highly used GBR port for quota species, mainly driven by Reef line and SM (which dominates in most ports) plus Coral harvest vessels.

Ref: DAFF, unpublished data (2014)

^These are the prior landing locations which show the 'port area' where the quota is being landed. Ports outside of GBR not shown here, but are present in the data.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they accessing it?

Diversity of access points

% fishers using 1 port only^{1*}

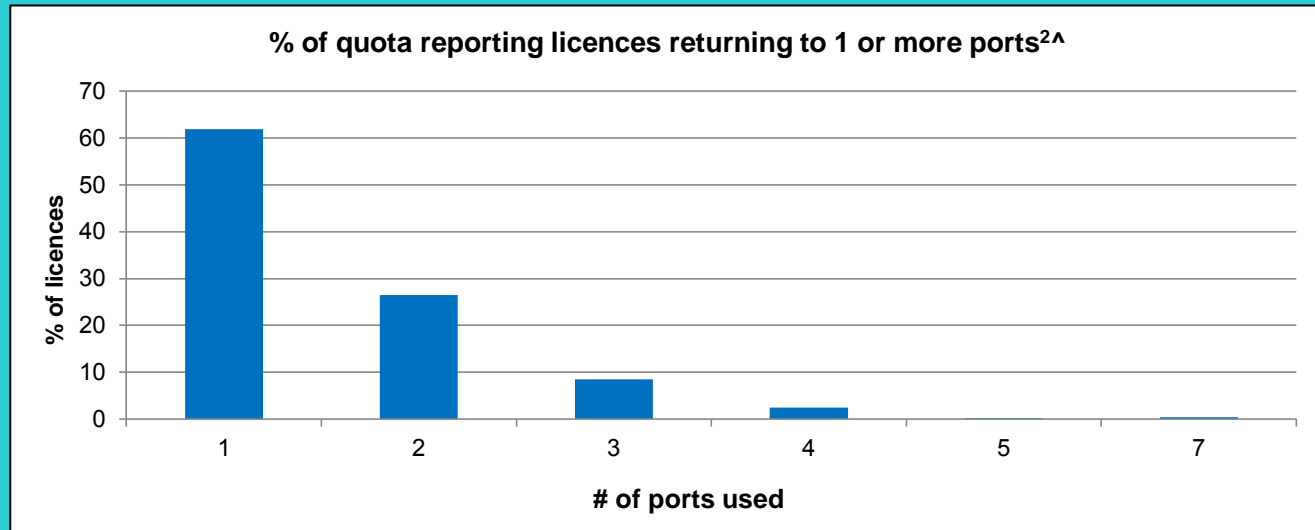
Cape York	: 75%
Wet Tropics	: 55%
Burdekin	: 52%
Mackay-Whit	: 71%
Fitzroy Basin	: 56%
Burnett-Mary	: 50%
Intrastate	: 31%

Line fishers	: 55%
Trawl	: 43%
Net	: 48%
Pot	: 55%
Harvest	: 69%

GBR overall	: 53%
Qld overall	: xx%

Distance between multiple ports:

Range	: x-xx km
Average	: xx km
Median	: xx km



Most fishers / licences are accessing only one port, except perhaps for trawl and net fishers (based on SELTMP surveys). Unload port data is not available for non-quota species from DAFF.

Ref: ¹SELTMP Survey 2013; ²DAFF, unpublished data (2014)

*Based on home PORT NRM listed in survey rather than home address of licence holder; ^Return ports listed for those unloading quota species. Port count includes those outside the GBR area.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Distance operating from home port

1-50 km	: 30% of operators ¹
51-100 km	: 29% ¹
101-200 km	: 18% ²
201-500 km	: 21% ²
501-1000 km	: 4% ²
>1000 km	: 3% ²

Average distance

Cape York	: xxkm
Wet Tropics	: xxkm
Burdekin	: xxkm
Mackay-Whit	: xxkm
Fitzroy Basin	: xxkm
Burnett-Mary	: xxkm

Line fishers	: xxkm
Trawl	: xxkm
Net	: xxkm
Pot	: xxkm
Harvest	: xxkm

GBR overall : 216km⁺/ 29²

Ref: ¹ SELTMP Survey 2013;
² Marshall and Tobin (2012)*

Roamers vs locals

% operators who fish Very local (<50km) Close (50-100km) Roamer (>100km)

Home PORT NRM

Cape York	: 0%	38%	63%
Wet Tropics	: 40%	21%	38%
Burdekin	: 21%	36%	42%
Mackay-Whits	: 29%	33%	38%
Fitzroy	: 39%	21%	39%
Burnett-Mary	: 27%	40%	33%
Intrastate	: 24%	24%	52%

Fishery type

Line fishers	: 17%	35%	48%
Trawl	: 13%	27%	60%
Net	: 52%	21%	28%
Pot	: 55%	26%	18%
Harvest	: 35%	27%	38%

% operators who fish Very local (<50km) Close (50-100km) Roamer (>100km)

GBR overall	: 30%	29%	41%
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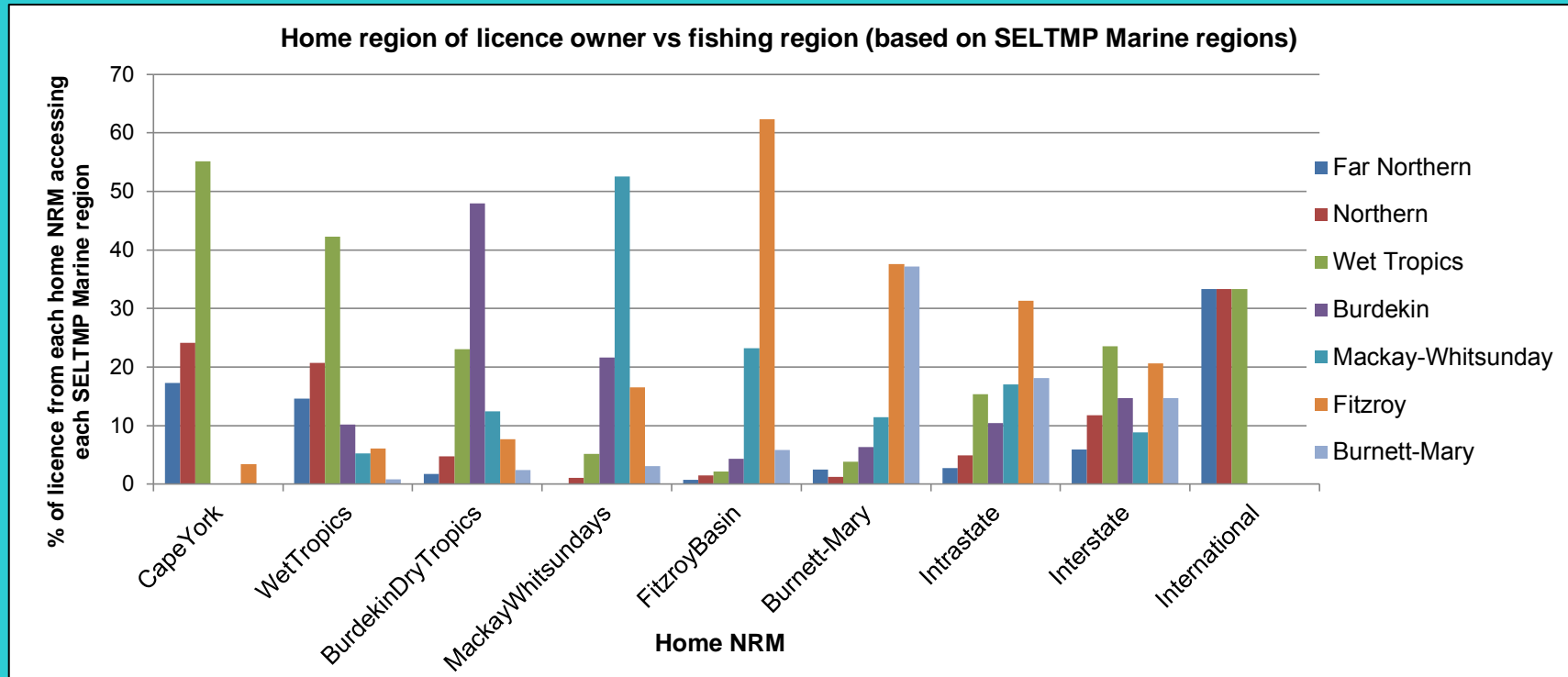
Ref: SELTMP Survey 2013

*Sample of 145 fishers, including multiple types. Sample sizes not large enough to warrant further analysis by region or type

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Distribution of home NRM of licence owners and where those licences fished in the GBR



Most fishers from the Wet Tropics to the Burnett-Mary are accessing waters adjacent to the NRM their licence is held in.

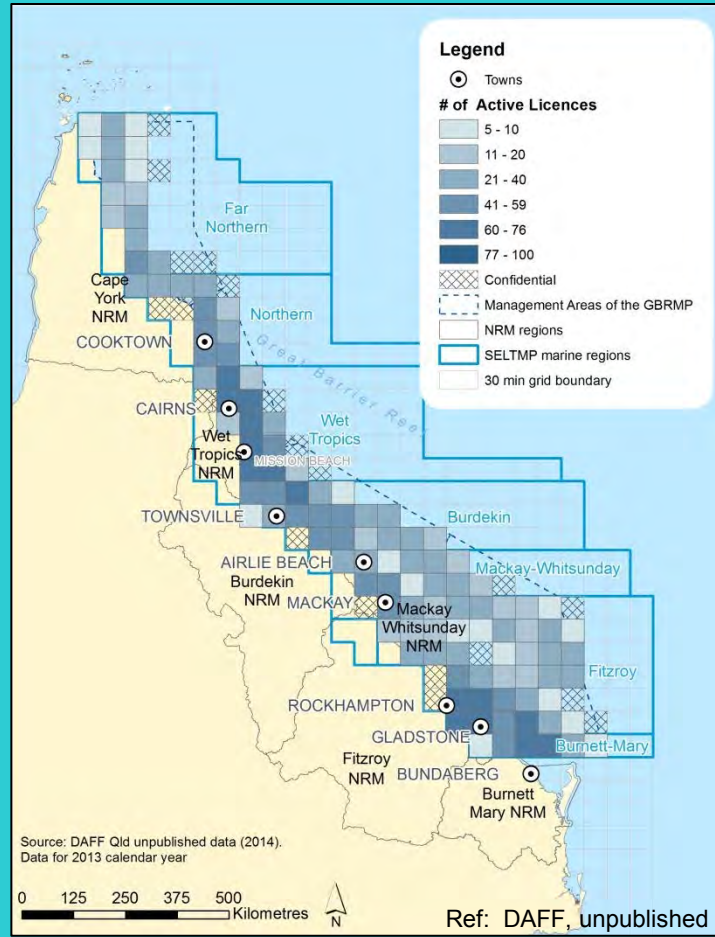
Ref: DAFF, unpublished data (2014)*

*Based on 2014 licence holder home address for those licences active in the GBR for the 2013 calendar year. Individual licences may have accessed >1 marine region.

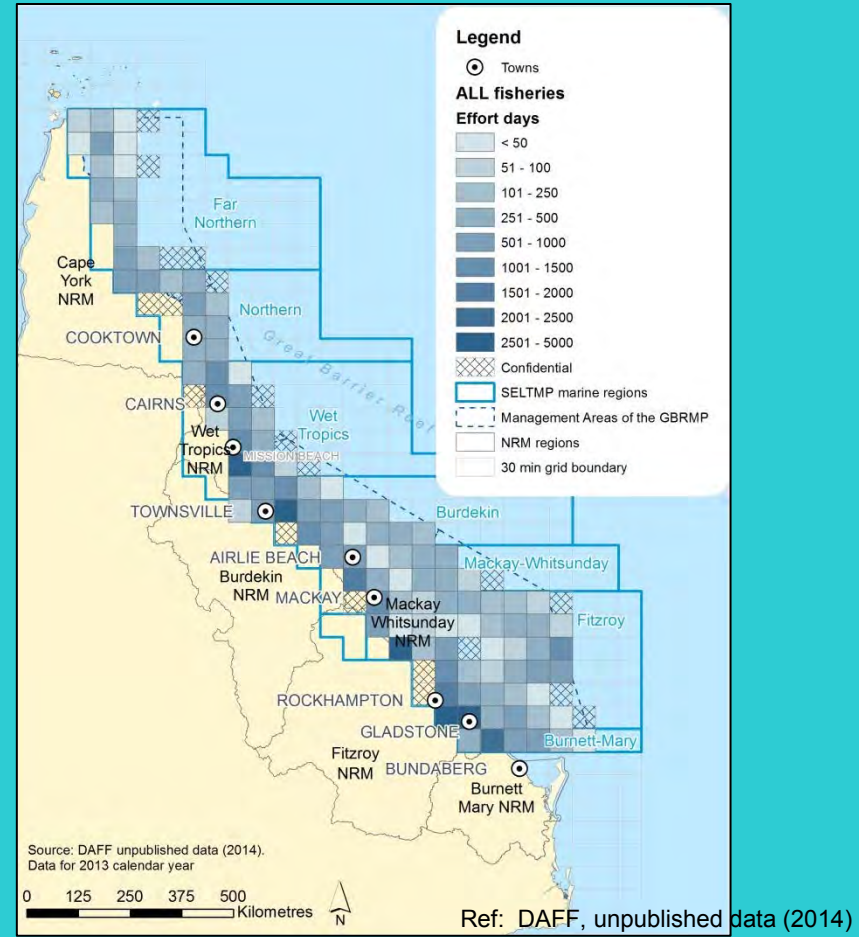
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – ALL Fisheries



Number of Effort days – ALL Fisheries*

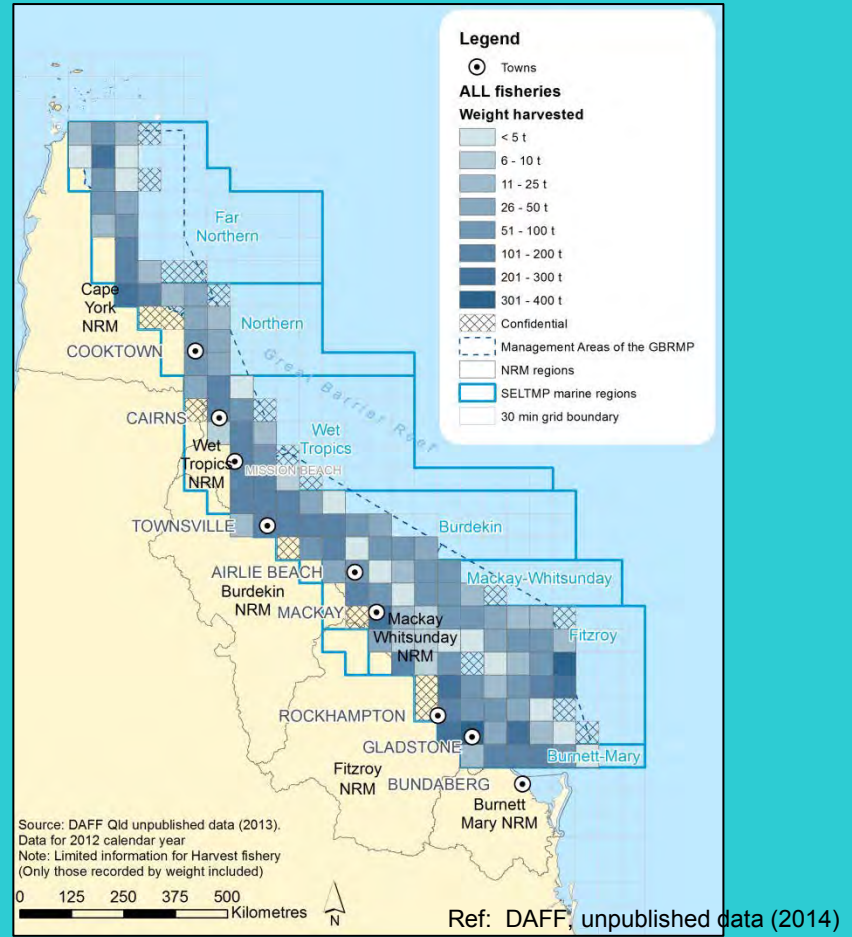


*Note effort days may not be equivalent between different fishery types. See following maps for details of each fishery.

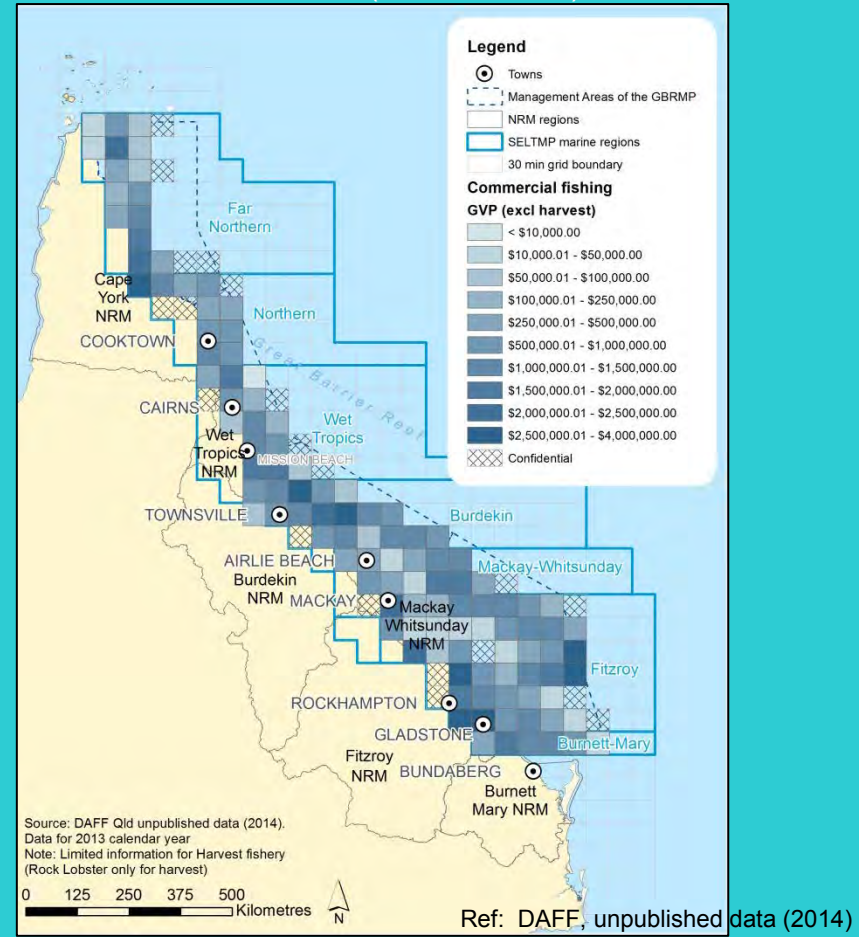
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Weight harvest – ALL Fisheries (excl. some harvest*)



GVP – ALL Fisheries (excl. harvest*)

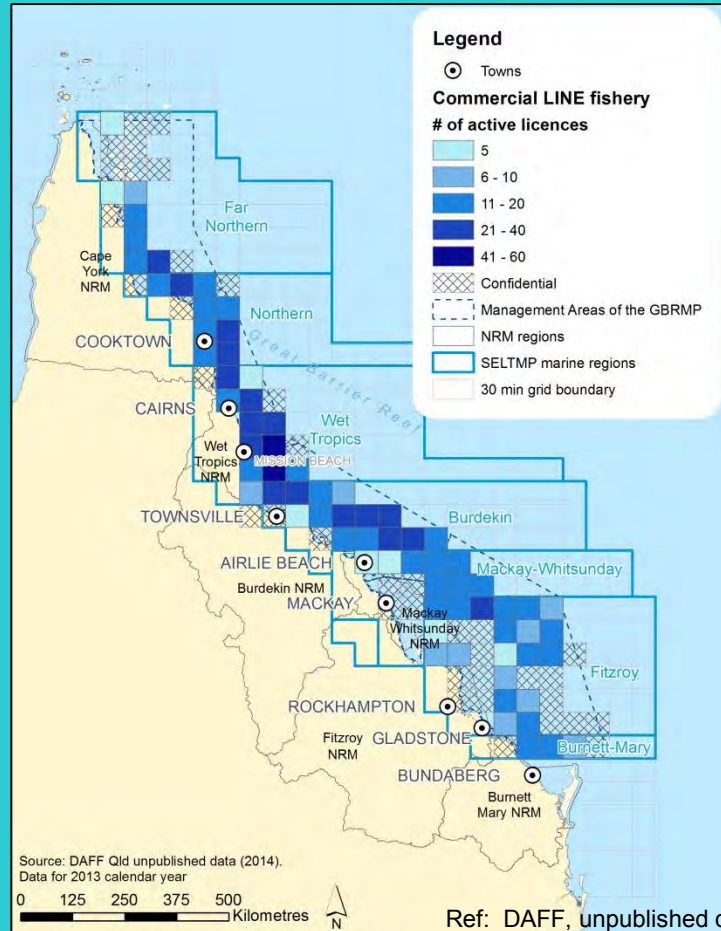


*Weight unavailable for harvest fisheries monitored by number (MAFF, BDM, Worm); GVP unavailable for harvest fisheries (except rocklobster)

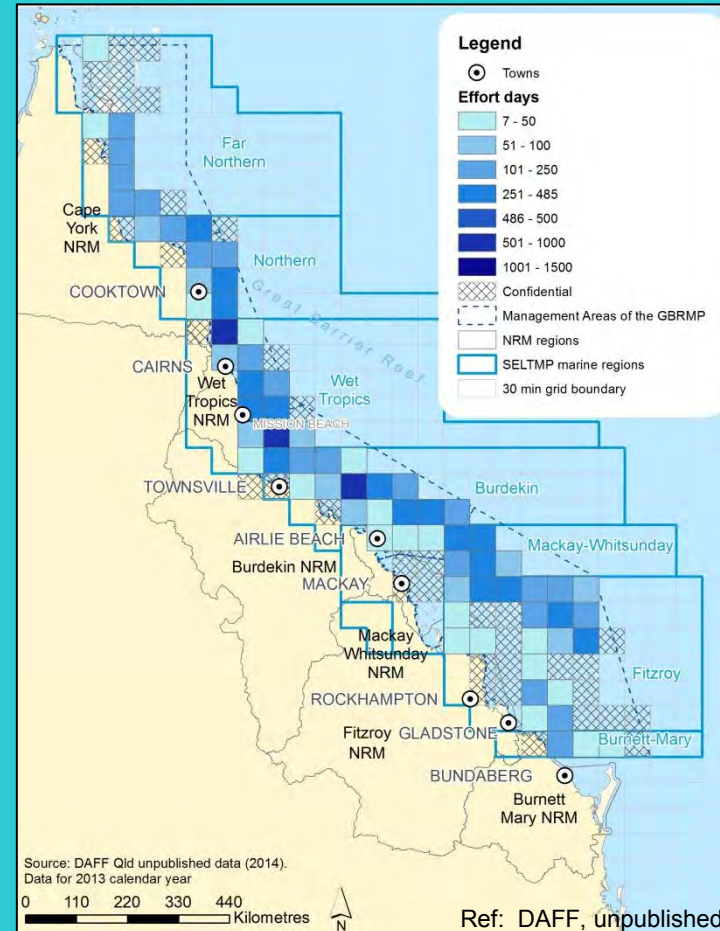
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – LINE Fisheries



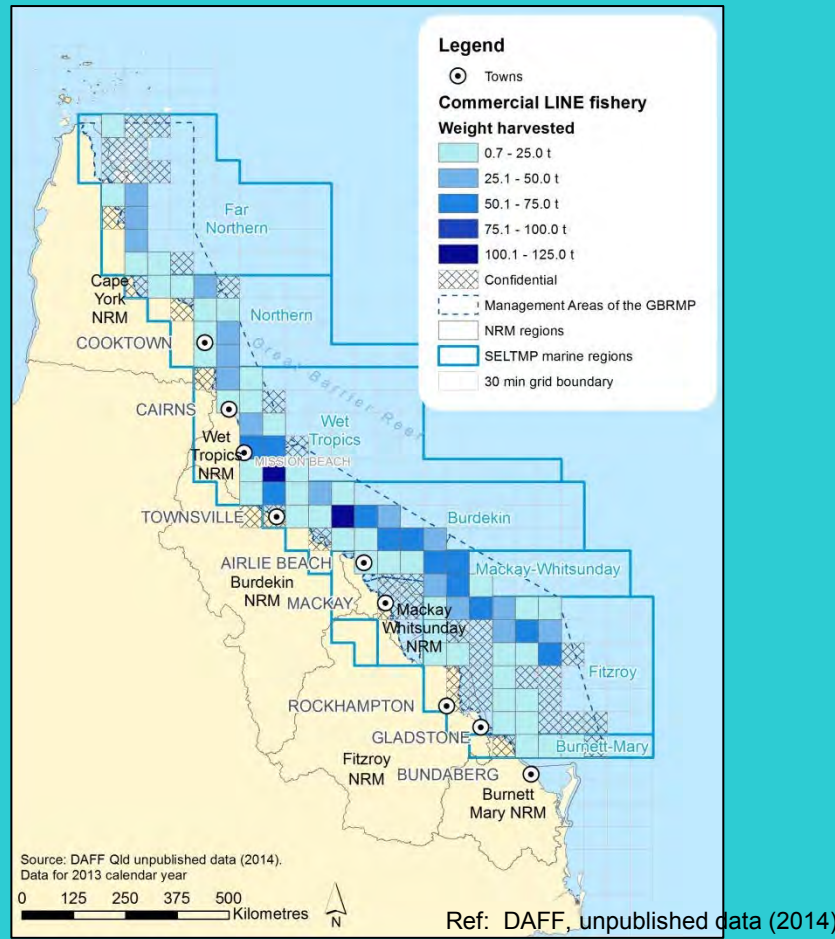
Number of Effort days – LINE Fisheries



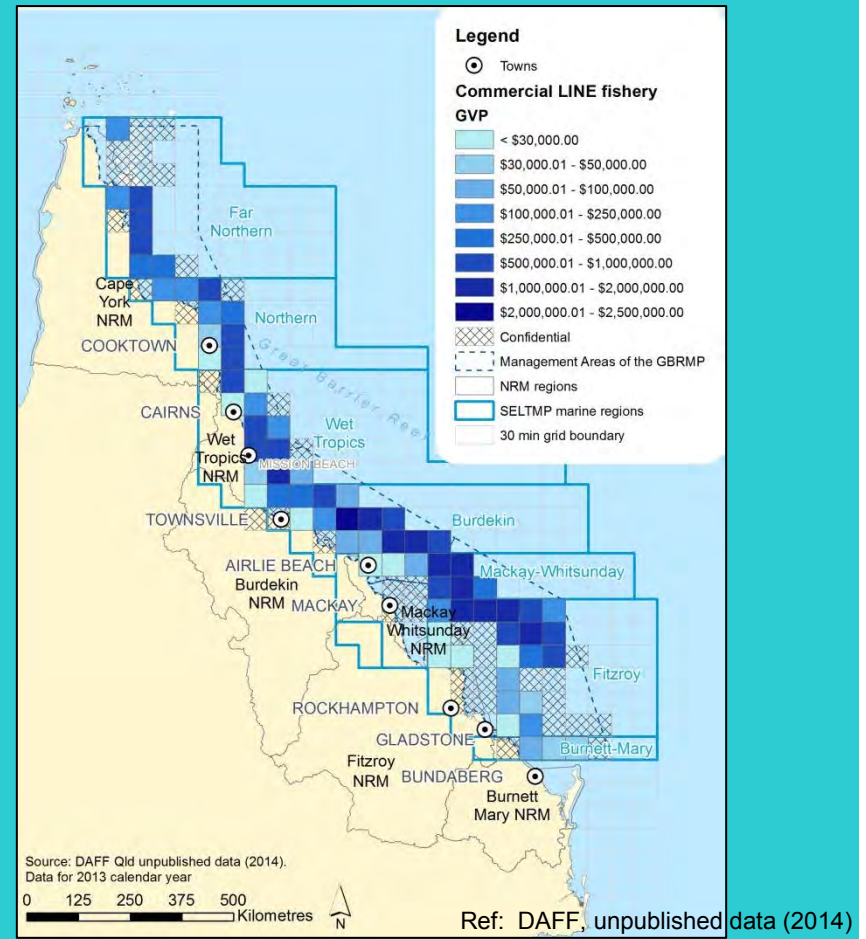
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Weight harvest – LINE Fisheries



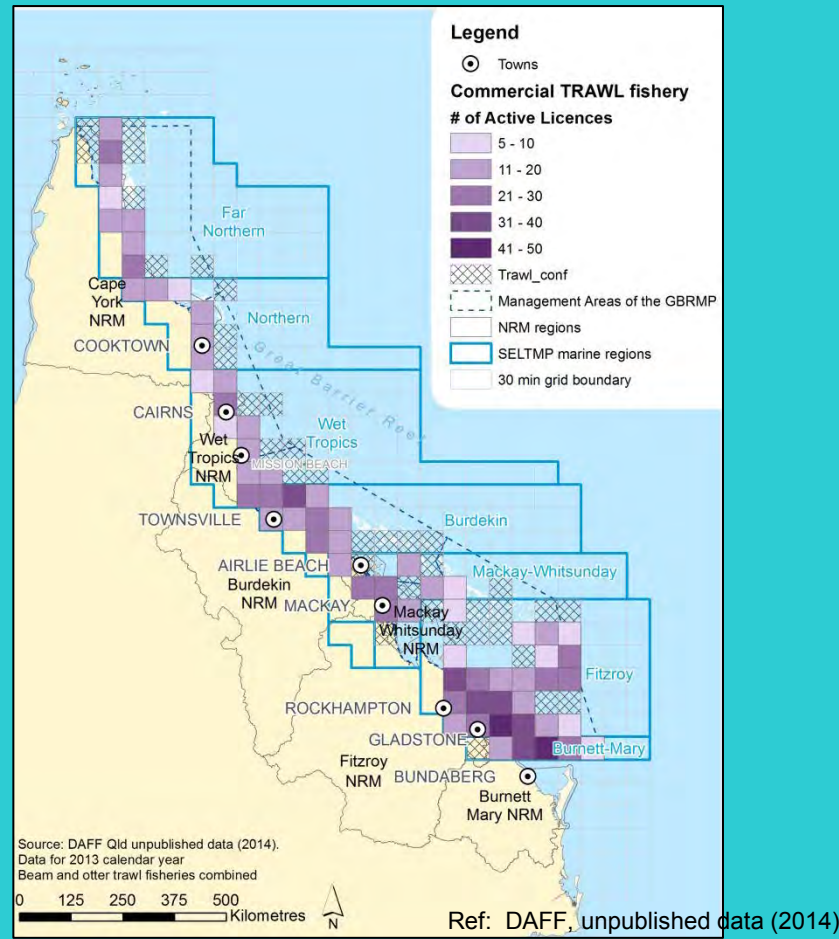
GVP – LINE Fisheries



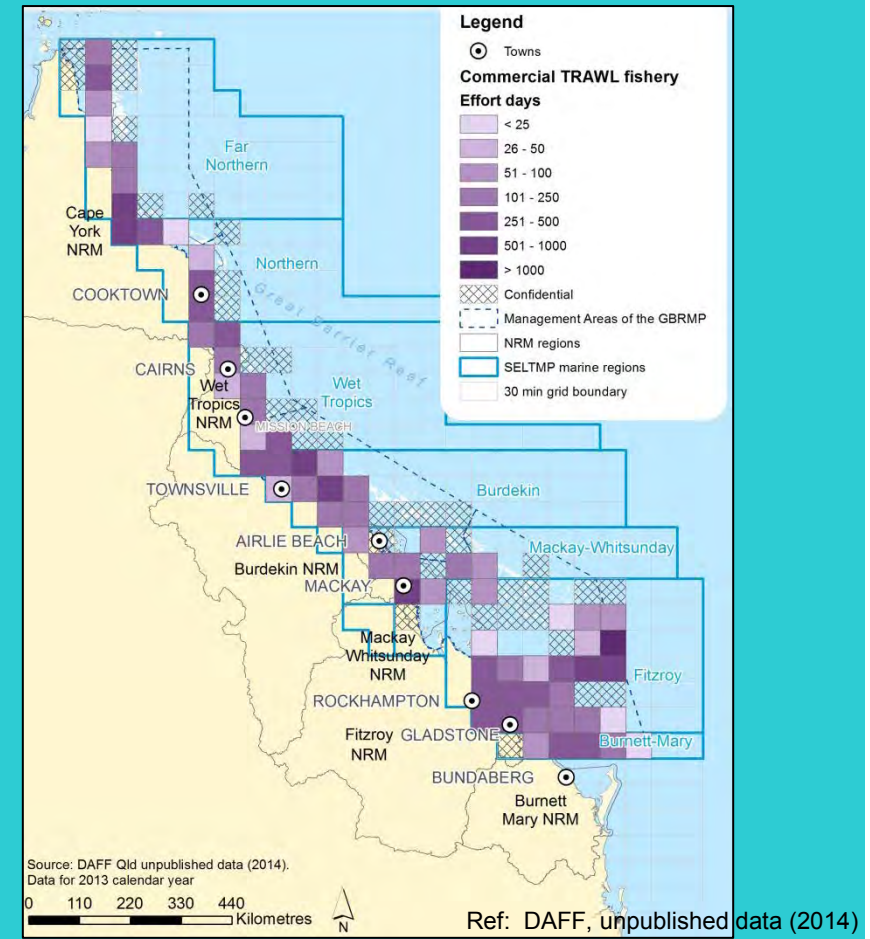
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – TRAWL Fisheries



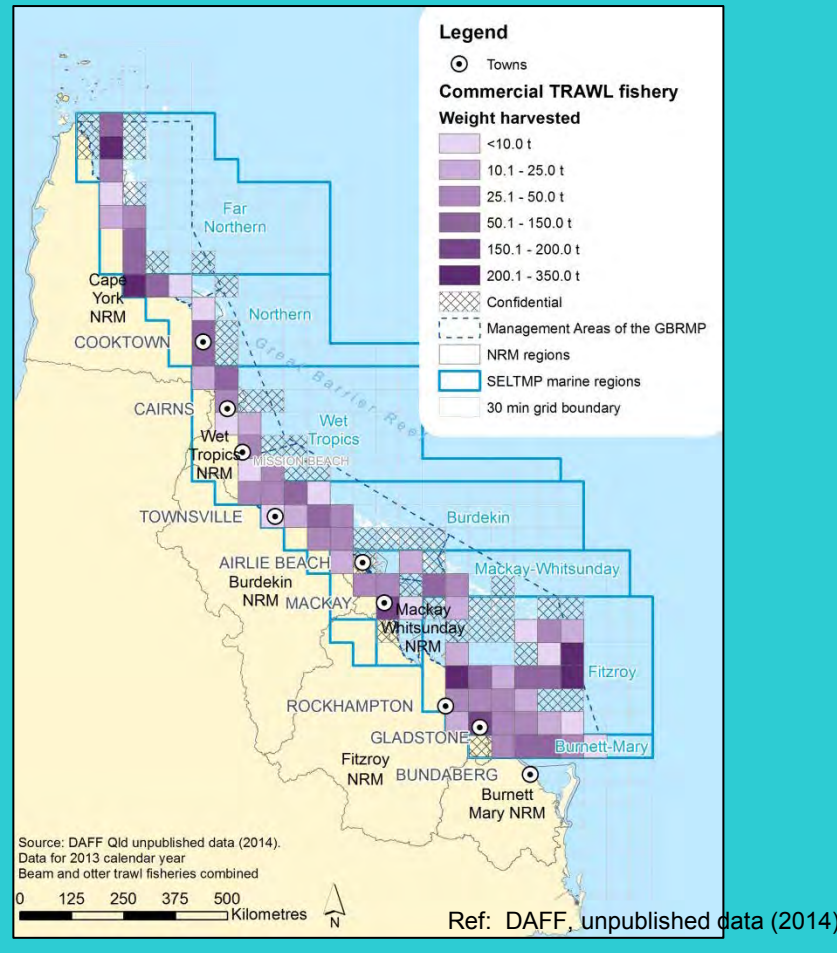
Number of Effort days – TRAWL Fisheries



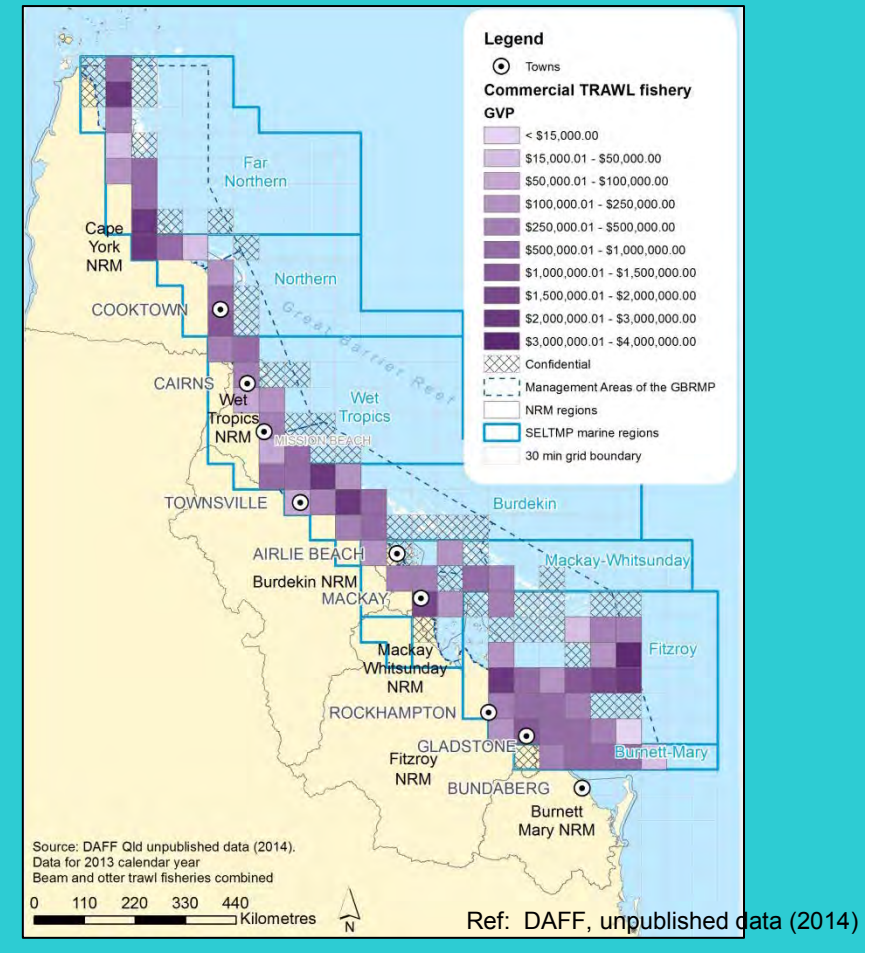
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Weight harvest – TRAWL Fisheries



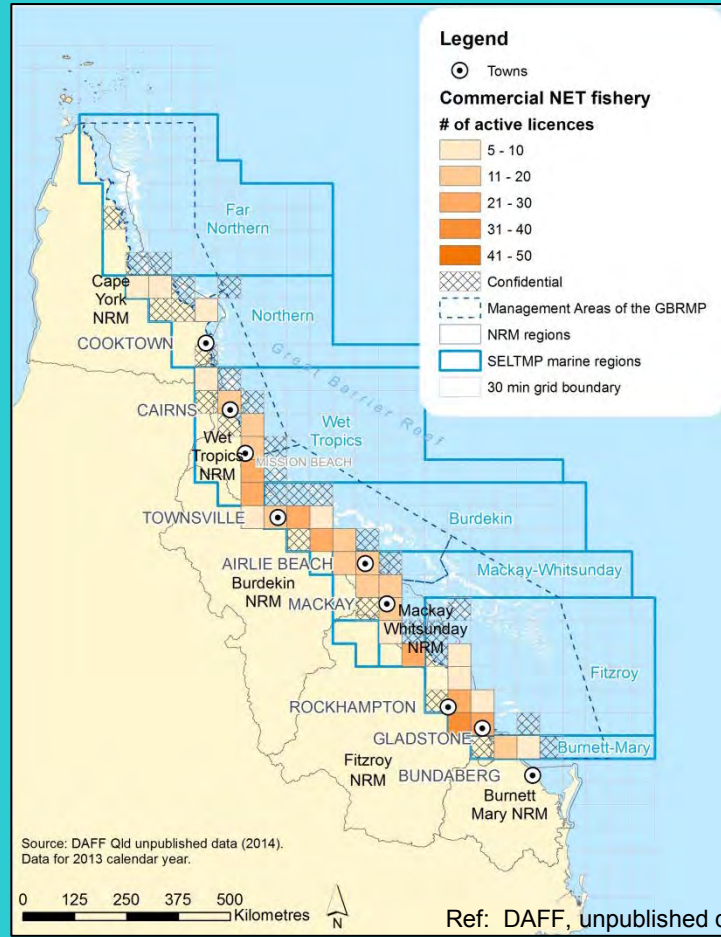
GVP – TRAWL Fisheries



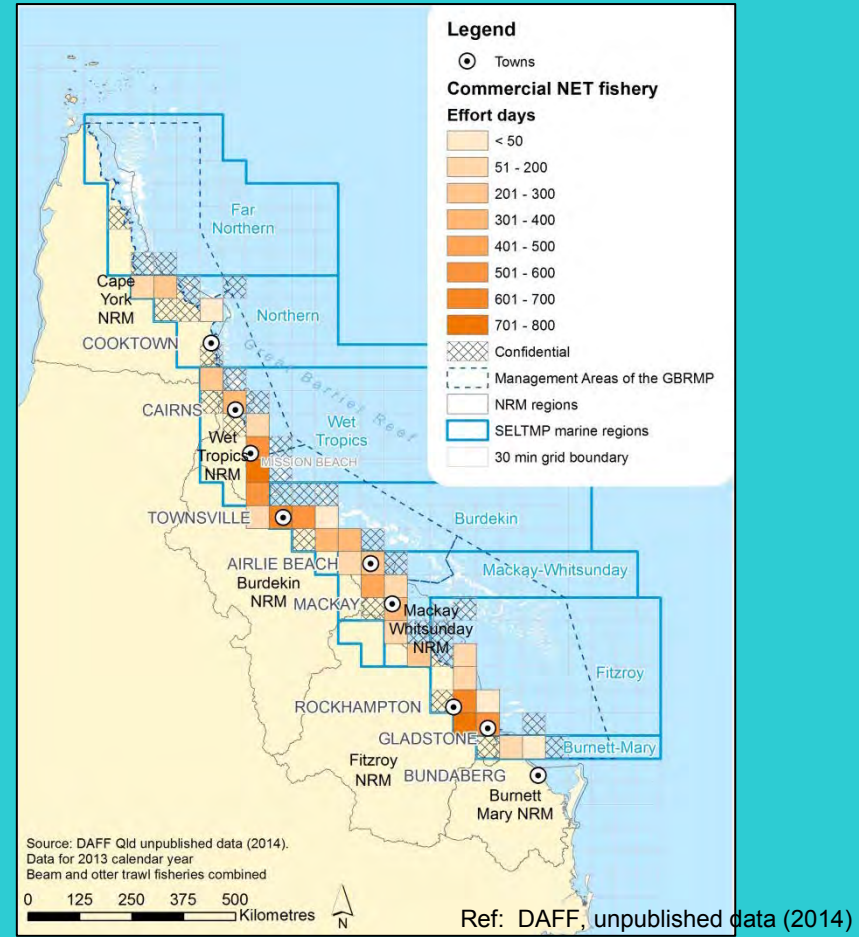
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – NET Fisheries



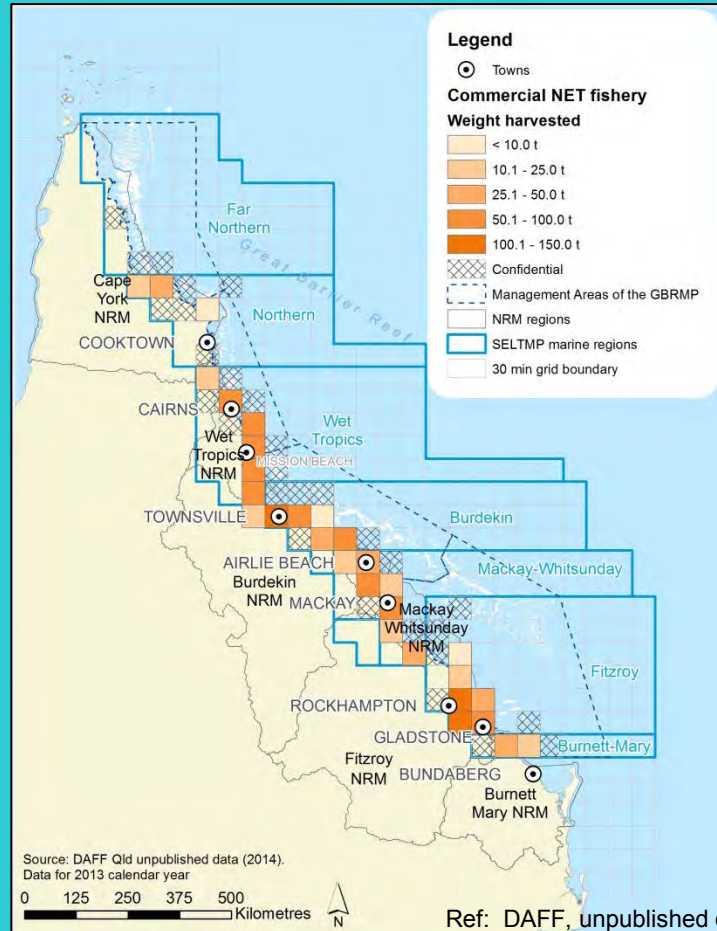
Number of Effort days – NET Fisheries



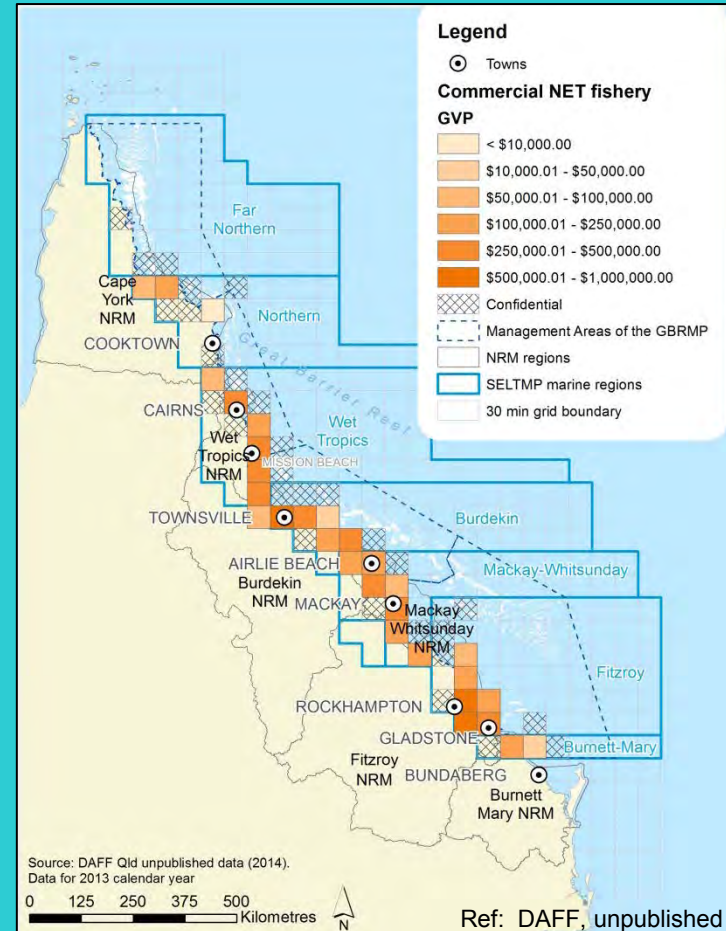
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Weight harvest – NET Fisheries



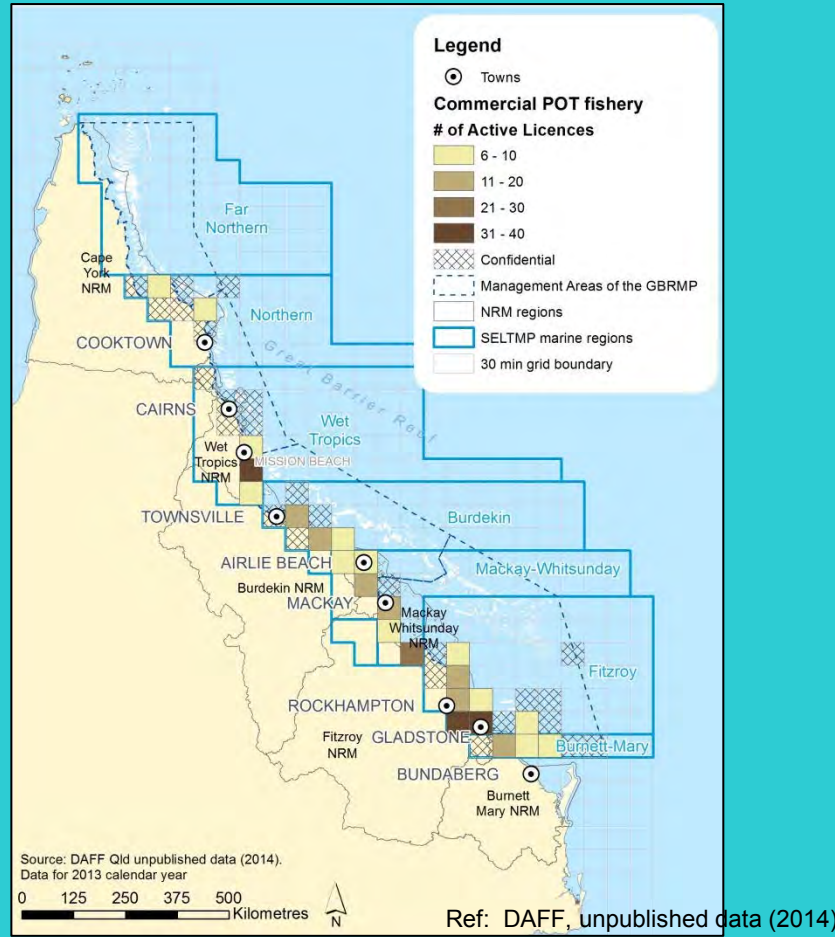
GVP – NET Fisheries



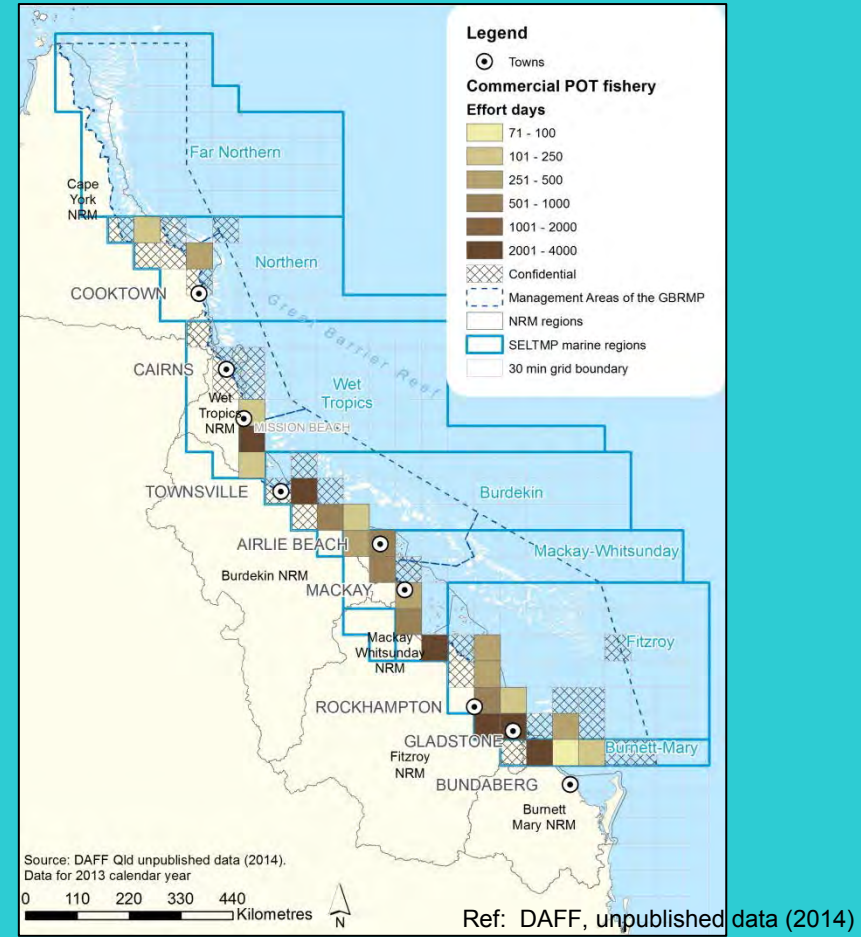
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – POT Fisheries



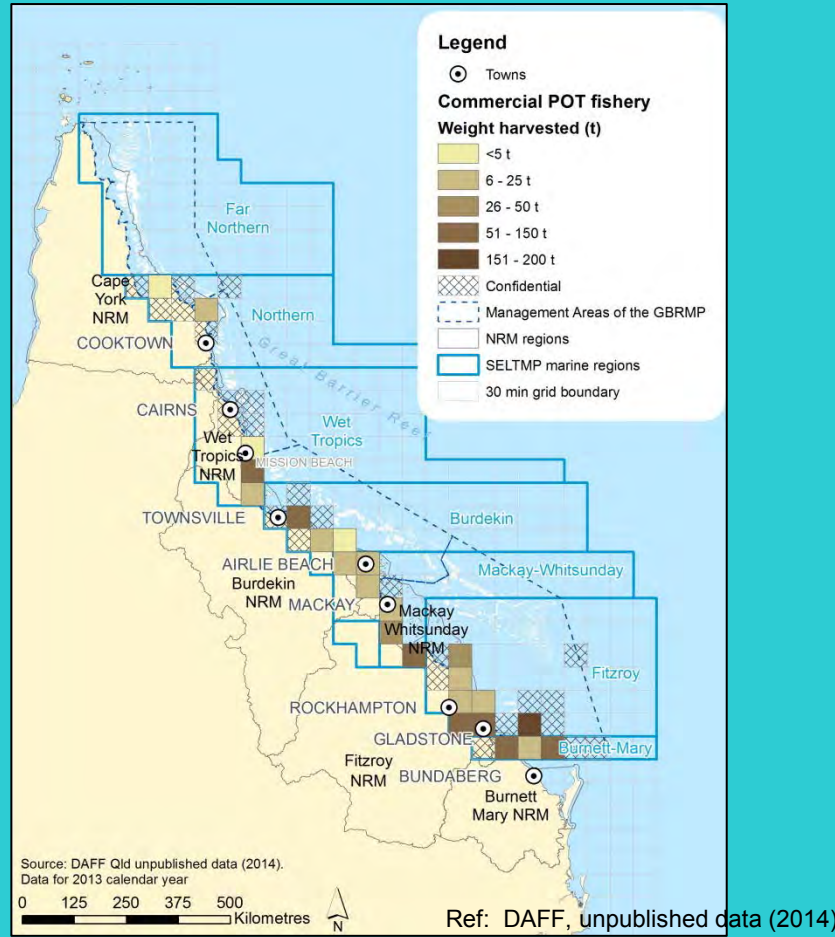
Number of Effort days – POT Fisheries



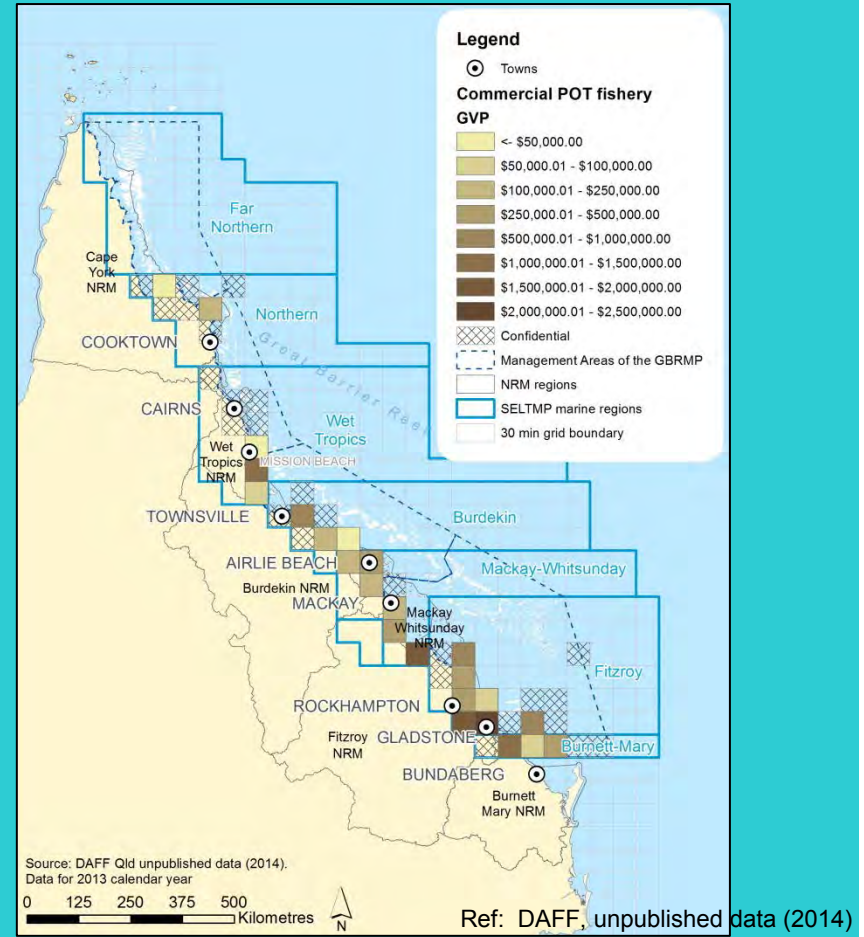
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Weight harvest – POT Fisheries



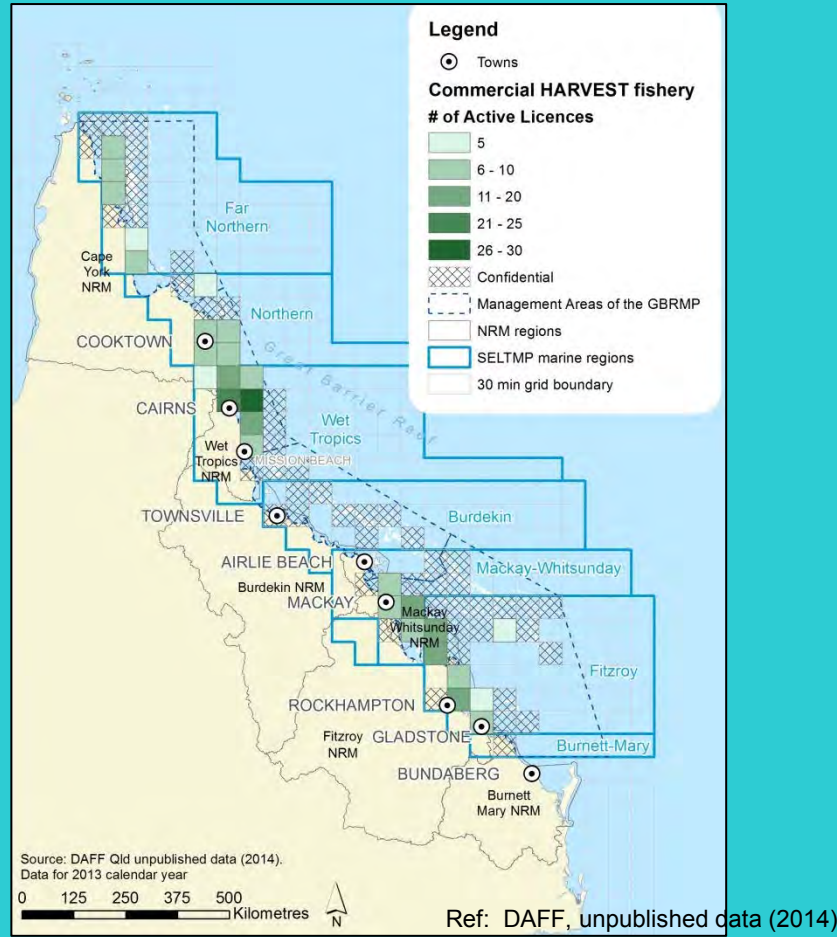
GVP – POT Fisheries



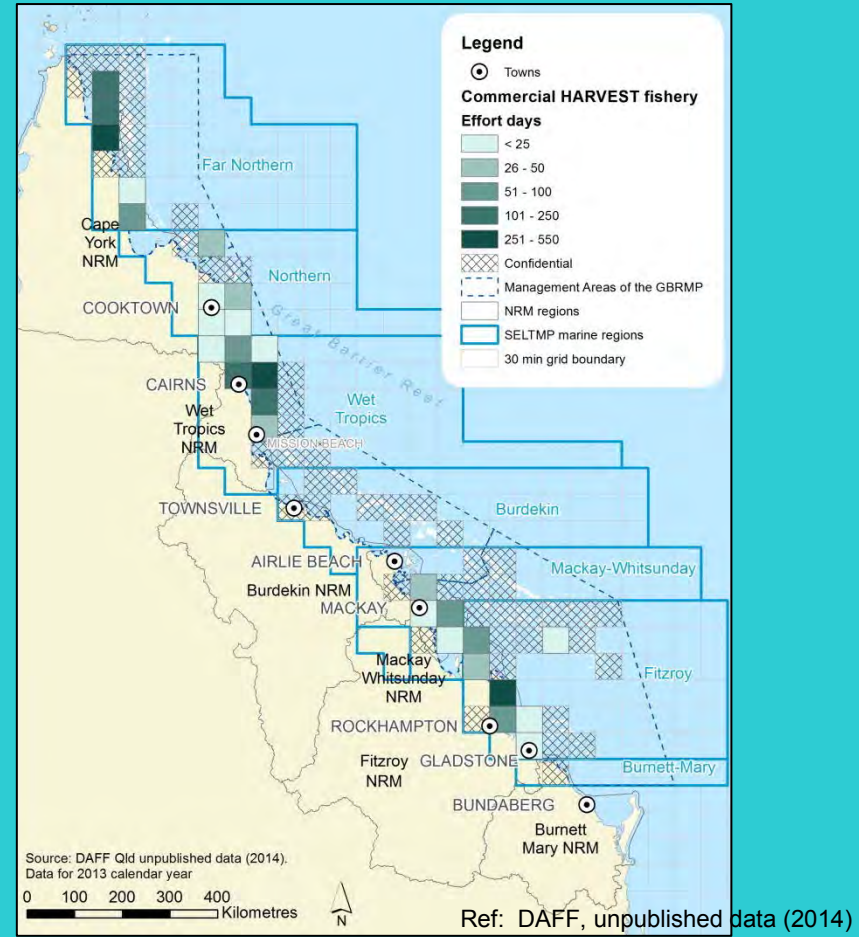
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?

Number of active licences – HARVEST Fisheries

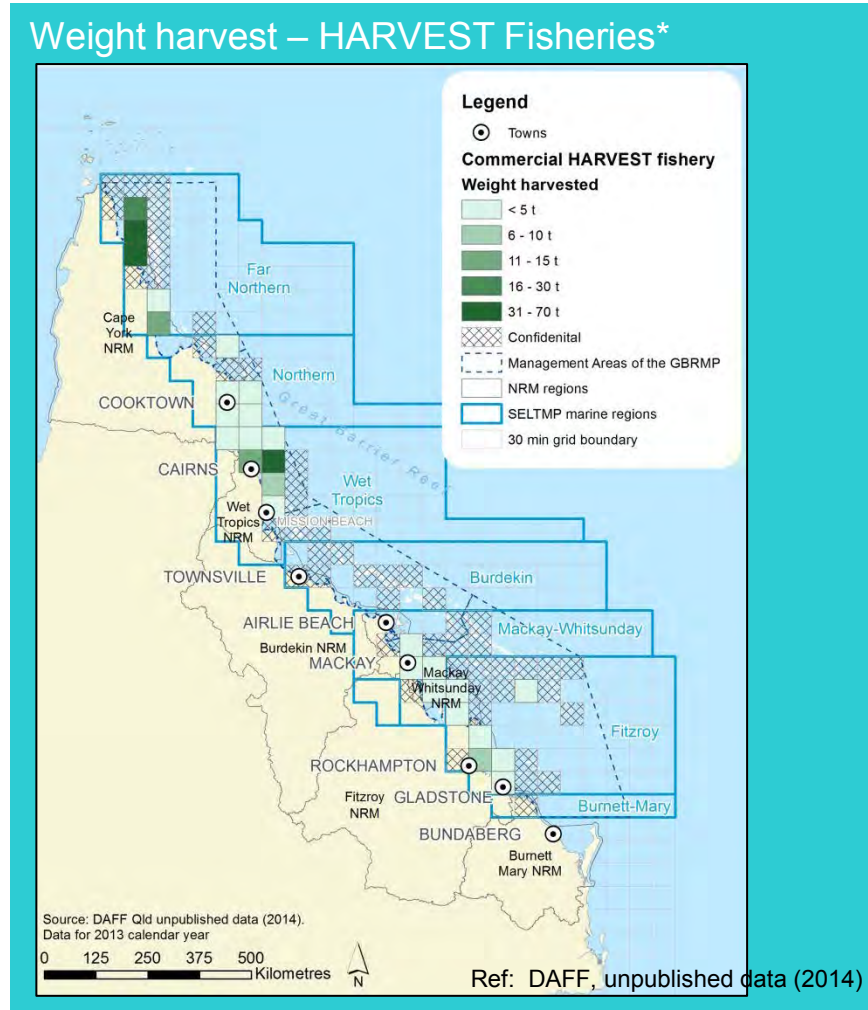


Number of Effort days – HARVEST Fisheries



SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they going?



Richard Ling. © Creative Commons

*Does not include those species recorded by number of individuals harvested.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Spatial patterns – WHERE are they selling?

Fisher utilised markets

**Market type : Avg% (median%) of product sold there;
+ % fishers who sell all there**

Local market	: 61% (85%)	; 45% sell all here
Intrastate	: 13% (0%)	; 4% sell all here
Interstate	: 13% (0%)	; 3% sell all here
Overseas	: 13% (0%)	; 2% sell all here

Sell direct to...

Wholesalers	: 81% (100%)	; 59% sell all here
Retailers	: 9% (0%)	; 4% sell all here
Restaurants	: 2% (0%)	; 1% sell all here
Public	: 7% (0%)	; 3% sell all here

While we now have some idea of where fishers are selling to, there is limited information about where that product goes and in what form.

Ref: SELTMP Survey 2013

Flow-on markets

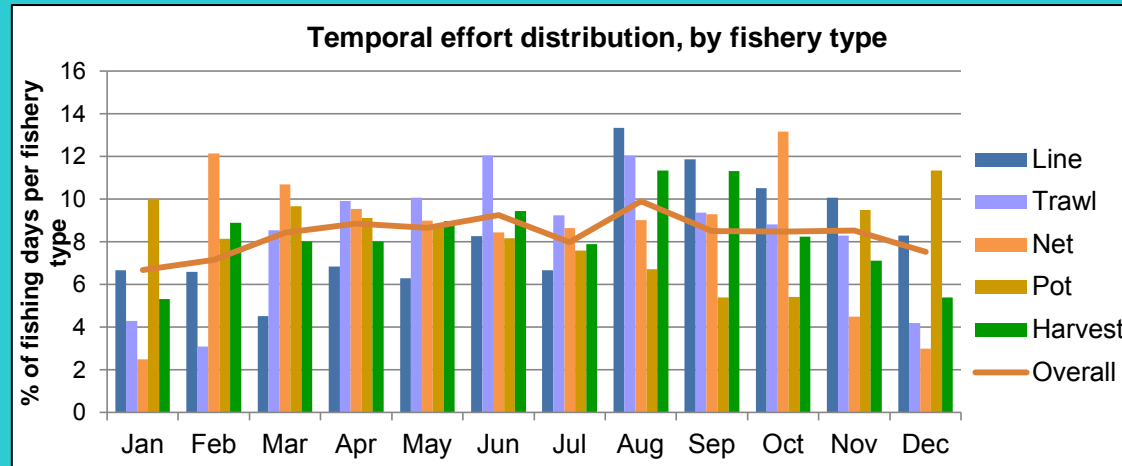
Line fishery:	
CRFFF	95% CT Exported live. Most RTE and OS sold domestic whole / fillet ¹
SM	Exports negligible ²
Trawl fisheries:	
Otter	Accredited to export to USA ³
Beam	Exports negligible ⁴
Net fisheries:	Export mullet roe, shark & small mackerel. (No estimate). Remainder domestic ⁵
Pot fisheries:	Sold local + interstate ^{6,7}
Harvest fisheries:	
MAFF	58% Export ⁸
Coral	xx
Rocklobster	sold as whole live animals or as frozen tails on export & domestic markets ⁹
BDM	Exports primarily to China ¹⁰

Ref: ¹DAFF (2012c); ²DAFF (2012a); ³DAFF (2012b); ⁴DEEDI (2011a); ⁵DEEDI (2011b); ⁶DAFF (2013d); ⁷DAFF (2013e); ⁸DAFF (2013f); ⁹DAFF (2012a); ¹⁰DAFF (2012b)

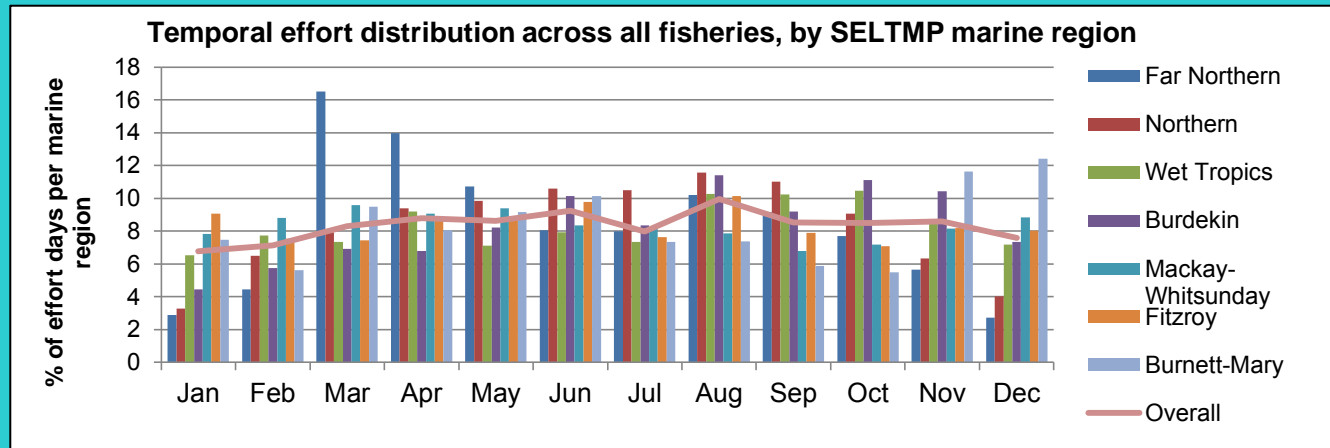
SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Use of the Environment: 2. Temporal patterns – WHEN are they fishing?

Effort distribution over the year*



While overall effort appears stable throughout the year, temporal effort peaks vary by fishery type and region. E.g. there are peaks in net fishing effort before and after the barramundi spawning closure, and peaks for line fishing from August. Regionally, effort peaks in March and April are apparent for the Far Northern region, while effort is higher in November and December in the Burnett-Mary region.



Ref: DAFF, unpublished data (2014)

*ACTIVE licence data for 2013 calendar year for GBR area only

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Cultural, spiritual, intellectual connection

What are the first words that come to mind when GBR commercial fishers think about the GBR?



Fish	16%
Beautiful	15%
Coral	13%
Pristine	9%
Fishing	8%
Workplace	5%
Wonder-of-the-world	2%
Closures	2%
Overprotected	2%
Amazing	2%

17% mentioned 'negative' words. The majority had to do with issues related to the management of the Reef, bureaucracy, lack of access, and the condition of the Reef

of commercial fishers surveyed= 210
Total # of words/phrases listed = 329
Total # of distinct words/phrases = 138

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Connection in terms of 'place'

Mean length of residence in GBR

Home NRM

Cape York	: 45 years
Wet Tropics	: 37
Burdekin	: 38
Mackay-Whit	: 44
Fitzroy Basin	: 39
Burnett-Mary	: 36

Line fishers	: 33
Trawl	: 32
Net	: 40
Pot	: 37
Harvest	: 34

GBR overall[^] : 36
(median 36)

Ref: SELTMP Survey 2013

Years fishing commercially in GBR

0-1 year	: 1% ¹ of fishers
2-5 years	: 5% ¹
6-10 years	: 12% ¹
10-20 years	: 34% ¹
>20 years	: 47% ¹

Average # of yrs (median) Home PORT NRM

Cape York	: xx (xx)
Wet Tropics	: xx (xx)
Burdekin	: xx (xx)
Mackay-Whit	: xx (xx)
Fitzroy Basin	: xx (xx)
Burnett-Mary	: xx (xx)

Line fishers	: xx (xx)
Trawl	: xx (xx)
Net	: xx (xx)
Pot	: xx (xx)
Harvest	: xx (xx)

GBR overall : 23 +/- 1.0^{2*}

Ref: ¹Marshall and Tobin, unpubl. data (2012); ²Marshall and Tobin (2012)

The GBR is part of my identity

Mean score (% agree)¹

Home NRM

Cape York	: 8.4 (91%)
Wet Tropics	: 6.8 (72%)
Burdekin	: 7.4 (76%)
Mackay-Whit	: 7.5 (73%)
Fitzroy Basin	: 7.0 (65%)
Burnett-Mary	: 6.8 (74%)

Line fishers	: 8.1 (86%) ¹
Trawl	: 5.9 (59%) ¹
Net	: 7.3 (76%) ¹
Pot	: 5.9 (51%) ¹
Harvest	: 6.8 (72%) ¹

GBR overall : 7.0 (71%)¹
Aus residents~ : 7.4 (79%)²

Ref: ¹SELTMP Survey 2013;
²Goldberg et al. (2014)

Proud that the GBR is a WHA

Mean score (% agree)¹

Home NRM

Cape York	: 8.7 (64%)
Wet Tropics	: 5.6 (45%)
Burdekin	: 7.2 (70%)
Mackay-Whit	: 6.8 (70%)
Fitzroy Basin	: 7.6 (71%)
Burnett-Mary	: 7.0 (73%)

Line fishers	: 7.2 (70%) ¹
Trawl	: 6.3 (64%) ¹
Net	: 6.7 (68%) ¹
Pot	: 6.8 (57%) ¹
Harvest	: 8.6 (81%) ¹

GBR overall : 7.0 (68%)¹
Aus residents : 8.2 (87%)²

Ref: ¹SELTMP Survey 2013;
²Goldberg et al. (2014)

[^]GBR overall refers to commercial fishers only for the SELTMP Survey data. Applies throughout. *Sample of 145 fishers of various types; ~'Aus residents' refers to results from the SELTMP survey of National residents. Applies throughout.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Connection in terms of 'place'

GBR is the best place for the fishing I do

**Mean score (% agree)
Home NRM**

Cape York	: 7.9 (82%)
Wet Tropics	: 8.1 (79%)
Burdekin	: 8.4 (84%)
Mackay-Whit	: 9.3 (100%)
Fitzroy Basin	: 8.2 (80%)
Burnett-Mary	: 8.3 (83%)

Line fishers	: 8.5 (85%)
Trawl	: 7.9 (77%)
Net	: 8.1 (89%)
Pot	: 8.2 (84%)
Harvest	: 8.5 (92%)

GBR overall : 8.3 (85%)

Ref: SELTMP Survey 2013

Live in the region because of the GBR

**Mean score (% agree)
Home NRM**

Cape York	: 8.7 (100%)
Wet Tropics	: 6.9 (64%)
Burdekin	: 7.4 (75%)
Mackay-Whit	: 7.4 (70%)
Fitzroy Basin	: 7.3 (80%)
Burnett-Mary	: 4.9 (40%)

Line fishers	: 7.7 (80%)
Trawl	: 5.1 (45%)
Net	: 6.7 (67%)
Pot	: 6.0 (53%)
Harvest	: 6.7 (73%)

GBR overall : 6.6 (65%)

Ref: SELTMP Survey 2013

Plan to remain in current town for next 5 years

**Mean score (% agree)
Home NRM**

Cape York	: 9.8 (100%)
Wet Tropics	: 9.8 (100%)
Burdekin	: 9.6 (100%)
Mackay-Whit	: 9.6 (100%)
Fitzroy Basin	: 9.0 (93%)
Burnett-Mary	: 9.0 (92%)

Line fishers	: 9.7 (100%)
Trawl	: 9.1 (93%)
Net	: 9.4 (96%)
Pot	: 9.5 (100%)
Harvest	: 9.4 (96%)

GBR overall : 9.4 (97%)

Ref: SELTMP Survey 2013

Plan to remain despite more frequent extreme events

**Mean score (% agree)
Home NRM**

Cape York	: 9.4 (100%)
Wet Tropics	: 9.7 (97%)
Burdekin	: 9.3 (94%)
Mackay-Whit	: 8.7 (90%)
Fitzroy Basin	: 9.2 (94%)
Burnett-Mary	: 8.6 (93%)

Line fishers	: 8.7 (91%)
Trawl	: 9.5 (100%)
Net	: 9.0 (93%)
Pot	: 9.4 (97%)
Harvest	: 8.8 (96%)

GBR overall : 9.1 (94%)

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Connection in terms of 'identity'

Years in fishing industry (anywhere)

Average # of years (median)

Home NRM

Cape York	: 31 (30)
Wet Tropics	: 29 (26)
Burdekin	: 27 (30)
Mackay-Whit	: 31 (31)
Fitzroy Basin	: 24 (22)
Burnett-Mary	: 32 (30)
Intrastate	: 30 (xx)
Interstate	: 29 (xx)

Line fishers	: 29 (27)
Trawl	: 34 (35)
Net	: 29 (30)
Pot	: 34 (30)
Harvest	: 24 (20)

GBR overall : 29 (30)

Ref: SELTMP Survey 2013

Industry of choice

Mean score (% agree) that they wouldn't want to be anything else...

Home NRM

Cape York	: 7.7 (64%)
Wet Tropics	: 6.6 (59%)
Burdekin	: 7.2 (51%)
Mackay-Whit	: 6.7 (36%)
Fitzroy Basin	: 8.1 (74%)
Burnett-Mary	: 6.9 (67%)

Line fishers	: 7.1 (67%)
Trawl	: 7.1 (63%)
Net	: 7.8 (72%)
Pot	: 7.1 (61%)
Harvest	: 6.9 (67%)

GBR overall : 7.2 (66%)

Ref: SELTMP Survey 2013

Industry as lifestyle

Mean score (% agree) that fishing industry is a lifestyle, not just a job

Home NRM

Cape York	: 9.4 (100%)
Wet Tropics	: 8.6 (87%)
Burdekin	: 8.7 (94%)
Mackay-Whit	: 7.9 (83%)
Fitzroy Basin	: 8.7 (90%)
Burnett-Mary	: 8.8 (98%)

Line fishers	: 8.9 (96%)
Trawl	: 8.7 (93%)
Net	: 8.3 (86%)
Pot	: 8.3 (84%)
Harvest	: 8.1 (84%)

GBR overall : 8.6 (90%)

Ref: SELTMP Survey 2013

Plan to remain in industry in 5 years

Mean score (% agree)

Home NRM

Cape York	: 9.4 (91%)
Wet Tropics	: 8.0 (82%)
Burdekin	: 8.1 (79%)
Mackay-Whit	: 6.4 (57%)
Fitzroy Basin	: 8.1 (84%)
Burnett-Mary	: 8.5 (84%)

Line fishers	: 8.2 (83%)
Trawl	: 8.0 (78%)
Net	: 8.7 (90%)
Pot	: 8.1 (84%)
Harvest	: 7.7 (77%)

GBR overall : 8.1 (82%)

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Connection in terms of 'identity'

Family involvement

% with family members who are also commercial fishers

Home NRM

Cape York	: 64%
Wet Tropics	: 59%
Burdekin	: 18%
Mackay-Whit	: 30%
Fitzroy Basin	: 42%
Burnett-Mary	: 55%
Intrastate	: 37%
Interstate	: 75%

Line fishers	: 48%
Trawl	: 48%
Net	: 28%
Pot	: 34%
Harvest	: 58%

GBR overall : 44%

Ref: SELTMP Survey 2013

New entrants (0-5 yrs)

% of respondents with 0-5 years experience

Home Port NRM

Cape York	: 0%
Wet Tropics	: 2.1%
Burdekin	: 9.1%
Mackay-Whit	: 0%
Fitzroy Basin	: 10.3%
Burnett-Mary	: 0%
Intrastate	: 0%

Line fishers	: 5.6%
Trawl	: 0%
Net	: 3.4%
Pot	: 0%
Harvest	: 11.5%

GBR overall : 3.8%
Aus overall : xx

Ref: SELTMP Survey 2013

'Identity' within the commercial fishing industry is strong, with fishers having been in the industry for a long time, viewing it as a lifestyle as well as a job, and intending to remain in the industry at least in the near-future.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Connection in terms of 'aesthetics' and 'values'

The aesthetic beauty of GBR is outstanding

Mean score (% agree)

Home Port NRM

Cape York	: 8.4 (100%)
Wet Tropics	: 9.0 (91%)
Burdekin	: 9.2 (94%)
Mackay-Whit	: 9.0 (96%)
Fitzroy Basin	: 8.9 (92%)
Burnett-Mary	: 9.0 (97%)

Line fishers	: 9.1 (96%)
Trawl	: 8.7 (96%)
Net	: 9.4 (97%)
Pot	: 8.5 (87%)
Harvest	: 9.2 (96%)

GBR overall : 9.0 (94%)

Ref: SELTMP survey 2013

Value the GBR for biological diversity

Mean score (% agree)

Line fishers	: 9.2 (100%)
Trawl	: 9.2 (100%)
Net	: 9.0 (93%)
Pot	: 8.3 (84%)
Harvest	: 9.3 (100%)

GBR overall : 9.0 (96%)

Ref: SELTMP Survey 2013

Value the GBR for attracting people from all over the world

Mean score (% agree)

Line fishers	: 7.1 (69%)
Trawl	: 6.6 (70%)
Net	: 8.0 (82%)
Pot	: 5.5 (53%)
Harvest	: 6.8 (73%)

GBR overall : 6.8 (68%)

Ref: SELTMP Survey 2013

Value the GBR for lifestyle (desirable and active way of life)

Mean score (% agree)

Line fishers	: 9.1 (100%)
Trawl	: 8.2 (91%)
Net	: 8.7 (93%)
Pot	: 8.2 (84%)
Harvest	: 9.0 (96%)

GBR overall : 8.7 (94%)

Ref: SELTMP Survey 2013

Value the GBR for the economy of region

Mean score (% agree)

Line fishers	: 9.2 (96%)
Trawl	: 8.8 (96%)
Net	: 9.6 (100%)
Pot	: 8.2 (87%)
Harvest	: 9.0 (96%)

GBR overall : 9.0 (95%)

Ref: SELTMP Survey 2013

Value the GBR for learning about the env through science

Mean score (% agree)

Line fishers	: 7.6 (80%)
Trawl	: 6.9 (73%)
Net	: 7.8 (82%)
Pot	: 6.6 (68%)
Harvest	: 7.8 (77%)

GBR overall : 7.3 (76%)

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Social relationship: 3. Satisfaction with GBR experiences

The habitats I fish are NOT in great condition

Mean score (% agree)

Home Port NRM

Cape York	: 2.0 (0%)
Wet Tropics	: 2.9 (15%)
Burdekin	: 3.9 (30%)
Mackay-Whit	: 3.4 (30%)
Fitzroy Basin	: 3.2 (26%)
Burnett-Mary	: 3.5 (23%)

Line fishers	: 3.6 (29%)
Trawl	: 2.4 (7%)
Net	: 3.1 (24%)
Pot	: 3.5 (24%)
Harvest	: 3.1 (19%)

GBR overall	: 3.2 (22%)
-------------	-------------

Ref: SELTMP survey 2013

Optimistic about the future of the GBR

Mean score (% agree)

Home Port NRM

Cape York	: 7.9 (88%)
Wet Tropics	: 7.3 (74%)
Burdekin	: 6.4 (64%)
Mackay-Whit	: 8.0 (88%)
Fitzroy Basin	: 7.5 (74%)
Burnett-Mary	: 6.2 (71%)

Line fishers	: 7.3 (79%) ¹
Trawl	: 6.8 (76%) ¹
Net	: 6.8 (67%) ¹
Pot	: 7.1 (67%) ¹
Harvest	: 7.9 (81%) ¹

GBR overall	: 7.1 (75%) ¹
Aus residents	: 5.9 (55%) ²

Ref: ¹SELTMP survey 2013;
²Goldberg et al. (2014)

Optimistic about the future of my business

Mean score (% agree)

Home Port NRM

Cape York	: 4.6 (50%) ¹
Wet Tropics	: 5.3 (45%) ¹
Burdekin	: 4.5 (36%) ¹
Mackay-Whit	: 6.0 (52%) ¹
Fitzroy Basin	: 5.5 (51%) ¹
Burnett-Mary	: 4.7 (41%) ¹

Line fishers	: 5.1 (46%) ¹
Trawl	: 5.0 (45%) ¹
Net	: 5.3 (54%) ¹
Pot	: 4.8 (35%) ¹
Harvest	: 6.0 (54%) ¹

GBR overall	: 5.2 (46%) ¹
GBR Tourism operators	: 7.1 (77%) ²

Ref: ¹SELTMP survey 2013;
²Curnock et al. (2014)

Business has performed at least as well as previous year

Mean score (% agree)

Home Port NRM

Cape York	: 4.7 (38%) ¹
Wet Tropics	: 5.2 (52%) ¹
Burdekin	: 5.6 (58%) ¹
Mackay-Whit	: 6.8 (64%) ¹
Fitzroy Basin	: 5.9 (59%) ¹
Burnett-Mary	: 5.7 (48%) ¹

Line fishers	: 4.9 (56%) ¹
Trawl	: 7.0 (67%) ¹
Net	: 5.7 (48%) ¹
Pot	: 5.2 (53%) ¹
Harvest	: 5.8 (57%) ¹

GBR overall	: 5.0 (56%) ¹
GBR Tourism operators	: 6.3 (62%) ²

Ref: ¹SELTMP survey 2013;
²Curnock et al. (2014)

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Employment...

of direct staff in industry (FTE)

Cape York	: 125 ¹
Wet Tropics	: 59 ¹
Burdekin	: 139 ¹
Mackay-Whit	: 80 ¹
Fitzroy Basin	: 98 ¹
Burnett-Mary	: 33 ¹

Line fishers	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: 533 ¹
Qld overall	: 1460 ²

Tidbit:

By State, Queensland employed the largest number of people in the wild-catch fisheries sector²

Ref: ¹DAE (2013)*; ²ABARES (2011)

indirect staff in industry (FTE)

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: 171 ¹
Rest of Qld (GBR related)	: 29 ¹
Rest of Aus (GBR related)	: 242 ¹
Qld overall	: 1037 ²
wholesale; 273 processing	

Ref: ¹DAE (2013)*; ²ABARES (2011)

FTE staff per business

0 extra staff	: 48%
1 staff	: 20%
2-5 staff	: 20%
>5 staff	: 11%
Range	: 0-50 staff

Avg # (median) staff employed per business Home Port NRM

Cape York	: 1.6 (0.5)
Wet Tropics	: 3.8 (0.0)
Burdekin	: 1.3 (1.0)
Mackay-Whit	: 3.1 (3.1)
Fitzroy Basin	: 1.4 (1.4)
Burnett-Mary	: 1.4 (1.4)

Line fishers	: 2.1 (0.0)
Trawl	: 2.4 (1.0)
Net	: 0.8 (0.0)
Pot	: 0.7 (0.0)
Harvest	: 6.0 (3.0)

GBR overall	: 2.2 (1)
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Ref: SELTMP Survey 2013

Staff turnover

Average staff employment duration (yrs)

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx

Reason for turnover:

...

Ref: xxx

*Includes aquaculture

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Value...

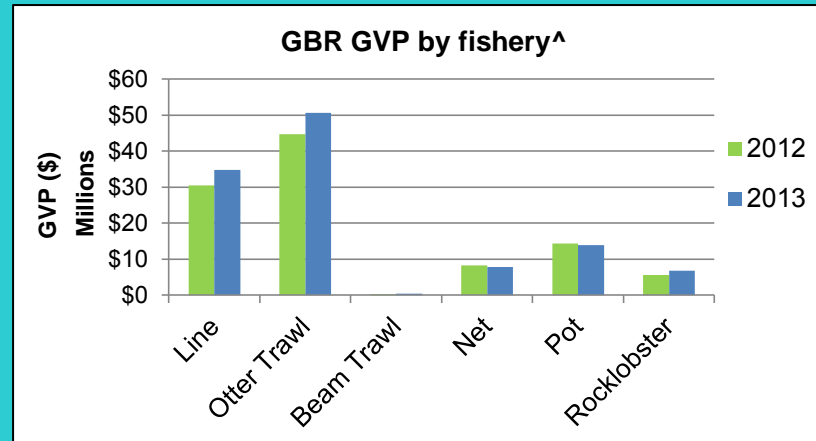
Gross Value of Production

Cape York	: \$31.8m ¹
Wet Tropics	: \$15.1m ¹
Burdekin	: \$15.6m ¹
Mackay-Whit	: \$20.7m ¹
Fitzroy Basin	: \$35.0m ¹
Burnett-Mary	: \$4.6m ¹

Line, Trawl, Pot, Net combined	: \$97.4m ¹
Line fishery:	\$34,841,140 ²
Trawl:	
Beam	: \$364,943 ²
Otter	: \$50,666,866 ²
Net:	: \$7,847,140 ²
Pot:	: \$13,945,796 ²
Harvest combined:	
\$25.5m ¹	
Rocklobster:	\$6,788,044 ²
MAFF	: \$10-12m ³
Bêche-de-mer:	\$5.4 ⁴
Other	: \$xx

GBR overall : \$122.9m¹

Ref: ¹DAE (2013)[^]; ²DAFF, unpublished data (2014); ³DAFF (2013f); ⁴DAFF (2012b)



Ref: DAFF, unpublished data (2013, 2014)

Direct economic contribution (expenditure)

Cape York	: \$45.0m
Wet Tropics	: \$21.3m
Burdekin	: \$50.3m
Mackay-Whit	: \$27.8m
Fitzroy Basin	: \$35.3m
Burnett-Mary	: \$11.8m

GBR overall : \$192.5m

Ref: DAE (2013)*

Value added estimate

Cape York	: \$21.6m
Wet Tropics	: \$10.3m
Burdekin	: \$24.2m
Mackay-Whit	: \$13.8m
Fitzroy Basin	: \$17.0m
Burnett-Mary	: \$5.7m
Indirect catchment:	\$30.3m
Rest of Qld	: \$4.4m
Rest of Aus	: \$33.2

GBR overall : \$92.5m
Australia : \$160.3m

Ref: DAE (2013)*

GVP increased slightly in 2013 from 2012 for line and otter trawl – both of which dominate the GVP value – but remained stable for the other fisheries.

Estimates of GVP for Harvest fisheries are lacking, except for Tropical Rocklobster

Estimates of GVP are the main method used to estimate economic value. However, research is ongoing to develop a more accurate picture of the economic contribution of commercial fisheries to local communities, beyond GVP.

(see FRDC Project 2013/301, led by Dr. Sean Pascoe, CSIRO)

[^]Aquaculture removed from these DAE estimates of GVP; *Includes aquaculture.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Value...

Prices for key species (per kg)

Average prices received*

Line fishery:

CT : \$32.71¹ (\$48 live; \$28.75 fillet; \$16 whole in 2012²)

RTE : \$6.73¹

SM : \$7.00¹ (\$8 whole; \$6 fillet in 2012²)

Mixed Reef a: \$5.00¹

Mixed Reef b: \$4.00¹

Trawl:

Prawns : \$9.88¹ (multiple sp and grades, from \$5-\$20/kg)

Bugs : \$11.20¹ (mixed sp)

Scallop : \$14.05¹ (mixed sp)

Net:

Barramundi : \$9.17¹

Shark : \$3.00¹

Pot:

Mudcrab : \$16.00¹

Blueswimmer: \$9.13¹

Harvest:

Rocklobster : \$38.25 for Rocklobster (\$22.08 mixed/
unspecified)¹; (\$49 live; \$38 frozen tails in 2012²)

MAFF : \$xx

Bêche-de-mer : \$xx

Fish prices, which drive estimates of GVP, in the past were collected by the Queensland Seafood Marketers Association (QSMA). However, the Queensland Government ceased funding for the QSMA in 2012.



A. Tobin

Ref: ¹DAFF unpubl. data (2014); ²M. Perkins, QSMA, pers. comm., (2012)

*Data received from DAFF for multiple species – only key species included here. DAFF data are averages across all product types.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Value...

Licence sale values

Average per licence

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Average per symbol

Line fishery:	
L2	: \$xx
L3	: \$xx
RQ	: \$xx
SM	: \$xx
Trawl:	
T1	: \$xx
T2	: \$xx
Net:	
N1	: \$xx
N2	: \$xx
N4	: \$xx
Pot (C1):	: \$xx
Harvest:	
Rocklobster	: \$xx
MAFF	: \$xx
BDM	: \$xx

Ref: 1xxx

Licence lease price

Average

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$ xx
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: 1xxx

Quota sale values

Average per unit

Line fishery:	
RQ	: \$xx
SM	: \$xx
Trawl:	: \$xx
Net (S):	: \$xx
Pot:	: N/a
Harvest:	: ?

Ref: 1xxx

Quota lease values

Average per unit

Line fishery:	
RQ	: \$xx
SM	: \$
Trawl:	: \$xx
Net (S):	: \$xx
Pot:	: N/a
Harvest:	: ?

Ref: 1xxx

There is a lack of detailed data publicly available on formal prices for transfers and sales of licences, symbols and quota. Some information would be available from brokers, but it is difficult to ensure it is comprehensive and consistent between years, so it is not included here as yet.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Value...

Management fees

Fee type	Cost in 2014	Unit of measure	Inflation since prev year
New/returning fisher licence fee	\$ 91.40	Licence	3.5%
Licence registration fees	\$ 285.50	Licence	5.2%
Commercial fisher / harvest licence	\$ 285.50	Licence	5.2%
Commercial fishing / harvest boat licence			
Fishery access fees	\$ 331.20	Licence (ea. type)	5.2%
Qld Line (L1 / L2)			
Line Quota Symbols	Nil	Symbol	N/A
CT units	\$ 0.34	Unit	5.0%
RTE / OS / SM unit	\$ 0.17	Unit (each type)	6.6%
East Coast Trawl Quota Symbols (T1, T2, M1)	Nil	Symbol	N/A
Trawl Effort Units (T1, T2)	\$ 0.34	Unit	5.0%
Beam Trawl (T5-9)	\$ 331.20	Symbol	5.2%
Net: East coast net (N1)	\$ 331.20	Licence	5.2%
East Coast Set Net (N2)	\$ 662.35	Licence	5.2%
East Coast Net (N4)	\$ 2,512.35	Licence	Unknown*
Commercial bait net (N11)	\$ 171.30	Licence	Unknown*
Shark and Ray	\$ 662.35	Symbol	Unknown*
Pot: Qld Crab (C1)	\$ 331.20	Licence	5.2%
Harvest: Rocklobster (R)	\$ 0.34	Unit	5.0%
MAFF (A1)	\$ 331.20	Licence	5.2%
MAFF limited (A2)	\$ 108.50	Licence	Unknown*
BDM	\$ 11.42	Unit	5.2%
Worm (beach / blood) / Shell grit / Sand star / Shell	\$ 108.50	Licence (ea. type)	Unknown*
Oyster harvesting	\$ 57.10	Area	Unknown*
Coral	\$ 5.71	Unit	Unknown*

Ref: Queensland Government (2014)

*Unknown only because we did not record it last year.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Investment...

Revenue

Average revenue per vessel per year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$80,600 ^{1*}
Trawl	: \$91,100 ¹
Net	: \$87,750 ^{2*}
Pot	: \$xx
Harvest	: \$xx

GBR overall : \$xx (most turnover \$51-150K / yr)³

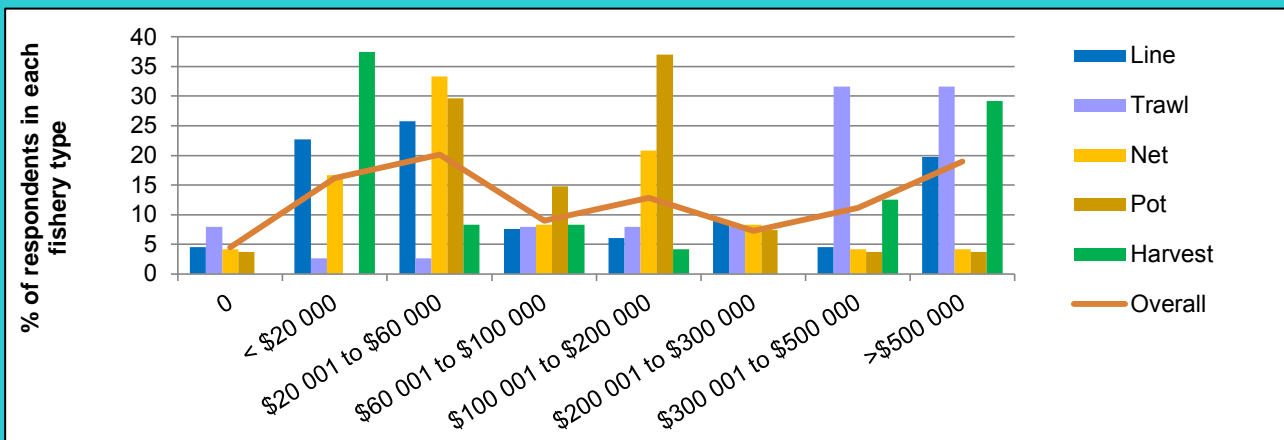
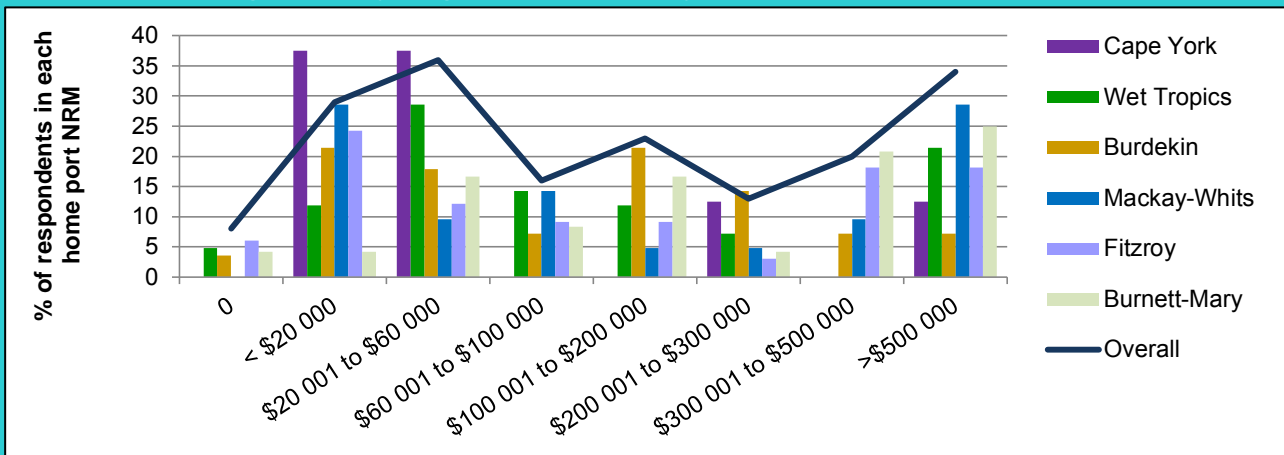
Tidbit:

For CRFF, in 2010, most northern fishers received <\$50K, southern fishers received >\$300K revenue⁴

Ref: ¹Sutton et al. (2010); ²Tobin R et al. (2010a); ³Marshall and Tobin (2012); ⁴Tobin A et al. (2010)

*Surveys completed in 2008.

Revenue categories by region and fishery



SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Investment...

Costs

Avg costs of production[^]

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$54,500 ¹
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: ¹Tobin R et al. (2010a)

Profit-Loss estimates

Average

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: ¹xxx

Cost and Profit-Loss estimates are at times available through targeted research projects – they are currently be collected through FRDC Project 2013/301: “Beyond GVP” (Pascoe et al.), and will be available next year.

Similarly, vessel prices and investment estimates (next page) are being collected through this project, and FRDC Project 2013/210: “Adapt or Fail” (led by Dr Renae Tobin, JCU), and will be available next year.

These pages provide examples of situations where indicators are included despite a lack of current data, with the intention of adding data when it is available.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Investment...

Vessel value

Average per main vessel

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: 1xxx

Capital investment

Average per business

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$206K ¹
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: 1Tobin R et al. (2010a)

Shore based storage value

Average per business

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: 1xxx

Shore based equipment value

Average per business

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall	: \$xx
Qld overall	: \$xx

Ref: 1xxx

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

i) Economic relationship: 4. Investment...

Age of vessel (years)

Average (and median) Home Port NRM

Cape York	:16.4 (20)
Wet Tropics	:19.4 (20)
Burdekin	:22.1 (25)
Mackay-Whit	:21.7 (20)
Fitzroy Basin	:18.9 (20)
Burnett-Mary	:22.9 (10)

Line fishers	: 21 (20)
Trawl	: 28 (31)
Net	: 15 (15)
Pot	: 17 (13)
Harvest	: 15 (10)

GBR overall : 20 (20)

Ref: SELTMP Survey 2013

Time since vessel purchase (years)

Average (and median) Home Port NRM

Cape York	: 10.1 (8)
Wet Tropics	: 11.1 (13)
Burdekin	: 7.7 (4.5)
Mackay-Whit	: 9.2 (8)
Fitzroy Basin	: 8.6 (7)
Burnett-Mary	: 11.1 (10)

Line fishers	: 11 (11)
Trawl	: 12 (10)
Net	: 10 (10)
Pot	: 8 (7)
Harvest	: 9 (5)

GBR overall : 10 (8)

Ref: SELTMP Survey 2013

Research and Development - industry

Amount invested this year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall : \$xx
Qld overall : \$xx

Ref: xxx

R&D - FRDC

Amount invested this year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett-Mary	: \$xx

Line fishers	: \$xx
Trawl	: \$xx
Net	: \$xx
Pot	: \$xx
Harvest	: \$xx

GBR overall : \$xx
Qld overall : \$xx

Ref: xxx

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being

The SELTMP program has developed a framework to assess human well-being in relation to the Great Barrier Reef (see Sherl et al., 2014), considering well-being in terms of the dimensions 'opportunity', 'empowerment', and 'security'; each of which are inter-linked, can affect each other and sometimes be overlapping.

Opportunity refers to the perceived range of options that are related to access to the natural environment for different purposes, the development and maintenance of reef-dependant industries, direct employment in these industries and GBR management, including the building of skills and capacity for management and sustainable use of marine resources.

Empowerment refers to perceptions that the needs of a range of different stakeholders are acknowledged and have been taken into account, avoiding exclusion and strengthening the ability of people to contribute to decision-making processes.

Security refers to perceptions of stability, sustainability and environmental quality that the GBR and its management provides to individuals and communities, which in turn contribute to reduce vulnerability, to health, to a sense of pride and identity and to social engagement, cohesion and cultural practices' opportunities surrounding the GBR and its management.

The indicators for each of these dimensions are in many cases replicated in other parts of this report, but are shown again here within the well-being framework (these are also included in the report "SELTMP 2013: Human and Community Well-being", Sherl et al. 2014).

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being

GBR contributes to quality of life and well-being

Mean score (% agree)

Home Port NRM

Cape York	: 8.8 (100%)
Wet Tropics	: 8.2 (85%)
Burdekin	: 8.6 (91%)
Mackay-Whit	: 8.2 (87%)
Fitzroy Basin	: 8.9 (97%)
Burnett-Mary	: 8.0 (90%)

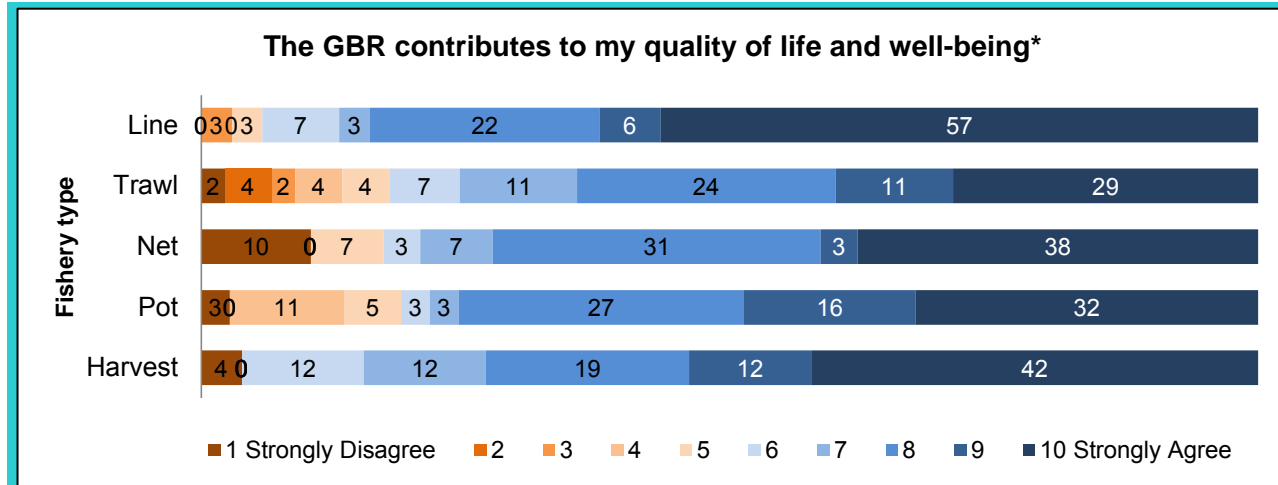
Mean score (% agree)

Line fishers	: 8.8 (94%)
Trawl	: 7.6 (82%)
Net	: 7.7 (83%)
Pot	: 7.9 (81%)
Harvest	: 8.3 (96%)

(See figure)

GBR overall : 8.2 (88%)

Ref: SELTMP Survey 2013



Simply based on this one indicator alone, the GBR (including inshore areas out to the edge of the reef) contributes to the quality of life and well-being of most fishers across all regions and fisheries.

The following pages provide more complexity within the three well-being dimensions.

*Percentage of respondents in each fishery type who chose each 1-10 level of agreement are shown within the bars.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being - OPPORTUNITY

INDICATOR*	AVERAGE SCORE	PERCENTAGE AGREE
There are [NOT] many other places that are better than the GBR for the commercial fishing I do	8.3	85%
I live in this region because of the GBR	6.6	65%
The GBR contributes to my quality of life and well-being	8.2	88%
The GBR is a valuable asset for the economy of this region	9.0	95%
I value the GBR because It supports a desirable and active way of life	8.7	94%
I feel optimistic about the future of my business in the GBR	5.2	46%
My business has not performed as well this year as it did last year	6.0	56%

Ref: SELTMP Survey 2013

*Negatively worded questions in the survey are reversed here, with changes indicated in red.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being - EMPOWERMENT

INDICATOR*	AVERAGE SCORE	PERCENTAGE AGREE
I do NOT have fair access to the GBR compared to other user groups	5.8	59%
I support the current rules and regulations that affect access and use of the GBR	4.7	39%
Industry rules and regulations [DO NOT] create too great a burden on my time	3.8	29%
I would like to do more to protect the GBR	6.7	68%
I try to encourage other people to reduce their impacts on the GBR	6.9	69%
I value the GBR because we can learn about the environment through scientific discoveries	7.3	76%
I regularly get involved in research and/or management activities for the GBR	5.2	51%
I CANNOT make a personal difference in improving the health of the GBR	6.5	67%

Ref: SELTMP Survey 2013

*Negatively worded questions in the survey are reversed here, with changes indicated in red.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being - EMPOWERMENT

INDICATOR*	AVERAGE SCORE	PERCENTAGE AGREE
I have the knowledge and skills to reduce any impact that my business might have on the GBR	8.1	85%
I do NOT have the time and opportunity required to reduce any impact that I might have on the GBR	7.6	78%
It is too NOT too expensive for me to reduce any impact I might have on the GBR	6.6	64%
It is NOT my responsibility to protect the GBR	8.7	90%
Commercial fishers should take steps to reduce impacts on the GBR	5.6	57%
Industry expectations are that commercial fishers should reduce their impacts on the GBR	5.5	53%
Other commercial fishers think that I should reduce impacts on the GBR.	2.7	15%
It is the responsibility of all Australians to protect the GBR	8.3	86%

Ref: SELTMP Survey 2013

*Negatively worded questions in the survey are reversed here, with changes indicated in red.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being - SECURITY

INDICATOR*	AVERAGE SCORE	PERCENTAGE AGREE
I would NOT be personally affected if the health of the GBR declined	8.9	94%
The GBR is part of my identity	7.0	71%
I wouldn't want to be anything other than a commercial fisher	7.2	66%
The fishing industry to me is not just a job – it is my lifestyle	8.6	90%
I plan to still be a commercial fisher in 5 years time	8.1	82%
I value the GBR because it attracts people from all over the world	6.8	68%
I value the GBR because it supports a variety of life such as fish, corals	9.0	96%

Ref: SELTMP Survey 2013

*Negatively worded questions in the survey are reversed here, with changes indicated in red.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being - SECURITY

INDICATOR*	AVERAGE SCORE	PERCENTAGE AGREE
I feel proud that the GBR is a World Heritage Area	7.0	68%
The aesthetic beauty of the GBR is outstanding	9.0	94%
The habitats that I fish the most are not in great condition	7.8	78%
I feel confident that the GBR is well managed	5.0	46%
I am optimistic about the future of the GBR	7.1	75%
I am un certain how to plan for changes in the GBR that may affect me such as floods, cyclones or financial crises	4.8	37%
I am interested in learning how to better prepare for significant events, such as the global financial crisis, cyclones and floods	6.7	70%

Ref: SELTMP Survey 2013

*Negatively worded questions in the survey are reversed here, with changes indicated in red.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 1. Human well-being

OH&S – boating accidents & fatalities*

Commercial vessel statistics**

	# of incidences^;	Hospitalisations;	Fatalities ¹
Cairns	: 77 (15 CF vessels)	2	1
Townsville	: 16 (7 CF vessels)	0	1
Mackay	: 26 (6 CF vessels)	4	1
Gladstone	: 133 (15 CF vessels)	2	1
Brisbane	: 137 (23 CF vessels)	4	6

Commercial Fishing specific statistics

Line fishery	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

Commercial Fishing specific statistics

GBR overall	: xx
Qld overall	: 66 CF vessels involved in 56 incidents 34 vessels damaged: including 9 vessels lost; 4 with major damage; 10 with moderate damage 4 hospitalisations; 3 fatalities ¹

Qld-wide work related claims in Agriculture, forestry and fisheries : 2,145²

Ref: ¹TMR (2014); ²WorkCover Qld (2014)

Occupational health and safety (OH&S) is also potentially an important aspect of well-being, although there is a lack of awareness of OH&S issues in the fishing industry (Brooks, 2011).

Claims for non-fatal injuries in Australian marine fisheries are apparently increasing (Brooks, 2011).

MSQ provide details of boat related accidents for commercial, recreational and hire vessels. Commercial fishing vessels accounted for 7% of all incidents in 2013. The most common incidents for fishing vessels were collisions and groundings. (TMR, 2014). Non-boat related accidents, and information at a fishery level is lacking, however.

The only fishery specific information found through WorkCover Queensland (previously Workplace Health and Safety Qld, WHSQ) was a call for fishers to ensure they are correctly covering their crew for workers compensation (WorkSafe Qld, 2014)

*Data available at broad regional scales defined by Maritime Safety Queensland. Brisbane included for comparison, and to show proportional spread of incidences overall. Data are for the 2013 calendar year. ^Includes ALL commercial vessel incidences, which including fishing, passenger and non-passenger commercial vessels. **CF= commercial fishing vessels.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 2. Adaptive Capacity

Adaptive Capacity is another element of well-being, of particular relevance for those in industries dependent on the GBR (e.g. commercial fishing, tourism operators). Adaptive Capacity relates to how dependent an individual is on the GBR, and the financial buffers they have to cope with change. It also relates, importantly, to an individual's perceived adaptive capacity within four dimensions (as described by Marshall and Marshall, 2007):

- i) Attitude towards risk;**
- ii) Perceived ability to plan, learn and reorganise;**
- iii) Perceived psychological and financial buffers; and**
- iv) The level of interest in adapting to change.**

These are outlined in the following pages, with results so far revealing a high financial dependency on fishing in the GBR, a relatively poor perceived attitude towards risk, but a medium to high perceived ability to plan, learn and reorganise, as well perceived buffers and a level of interest in adapting to change.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 2. Adaptive Capacity

Diversity of income - household

Average% (median%) HH income from fishing Home Port NRM

Cape York	: 77.5% (100%)
Wet Tropics	: 61.2% (70%)
Burdekin	: 58.8% (66%)
Mackay-Whit	: 66.8% (85%)
Fitzroy Basin	: 63.1% (80%)
Burnett-Mary	: 78.9% (80%)

Line fishers	: 57.3% (70%)
Trawl	: 75.3% (100%)
Net	: 65.2% (75%)
Pot	: 60.3% (80%)
Harvest	: 87.2% (100%)

GBR overall : 65% (80%)
(41% wi 100% dependence)
Qld overall : xx

Ref: SELTMP Survey 2013

Partners

% with partners Home Port NRM

Cape York	: 80.0%
Wet Tropics	: 85.1%
Burdekin	: 81.8%
Mackay-Whit	: 95.8%
Fitzroy Basin	: 82.1%
Burnett-Mary	: 80.0%

Line fishers	: 82%
Trawl	: 91%
Net	: 83%
Crab	: 84%
Harvest	: 85%

GBR overall : 85%
Aus residents : xx

Ref: SELTMP Survey 2013

Dependents

% with dependents Home Port NRM

Cape York	: 62.5%
Wet Tropics	: 31.9%
Burdekin	: 57.6%
Mackay-Whit	: 41.7%
Fitzroy Basin	: 51.3%
Burnett-Mary	: 50.0%

Line fishers	: 46%
Trawl	: 50%
Net	: 45%
Crab	: 42%
Harvest	: 42%

GBR overall : 46%
Aus residents : xx

Ref: SELTMP Survey 2013

Household financial dependency on the fishing industry is high. While most do have partners, we do not know what proportion are also dependent on the industry.

Most fishers do not have dependent children, which reduces dependency.



A. Tobin

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 2. Adaptive Capacity

Financial buffer

% with planned financial buffer or income protection

Cape York	: xx%
Wet Tropics	: xx%
Burdekin	: xx%
Mackay-Whit	: xx%
Fitzroy Basin	: xx%
Burnett-Mary	: xx%

Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%

GBR overall : xx%

Ref: xxx

Income protection insurance

Home Port NRM

Cape York	: 0% yes
Wet Tropics	: 17.8%
Burdekin	: 18.2%
Mackay-Whit	: 12.5%
Fitzroy Basin	: 10.3%
Burnett-Mary	: 13.3%

Line fishers	: 9%
Trawl	: 9%
Net	: 17%
Pot	: 24%
Harvest	: 16%

GBR overall : 14% yes
Qld population : xx%

Average value

: \$xx +/- xx

Ref: SELTMP Survey 2013

Vessel insurance

Home Port NRM

Cape York	: 62.5% yes
Wet Tropics	: 52.2%
Burdekin	: 57.6%
Mackay-Whit	: 56.5%
Fitzroy Basin	: 61.5%
Burnett-Mary	: 65.5%

Line fishers	: 60%
Trawl	: 77%
Net	: 31%
Pot	: 50%
Harvest	: 72%

GBR overall : 59% yes
Qld overall : xx%

Average value of insured for : \$xx +/- xx

Ref: SELTMP Survey 2013

Few have income protection insurance, but most do insure their vessel. The level of insurance is as yet unknown.



Len Matthews. © Creative Commons

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 2. Adaptive Capacity

Attitude towards risk

Confident things will turn out well regardless of events / change...

Mean score (% agree)

Home Port NRM

Cape York	: 5.5 (50%)
Wet Tropics	: 5.4 (47%)
Burdekin	: 4.4 (30%)
Mackay-Whit	: 5.5 (46%)
Fitzroy Basin	: 5.4 (41%)
Burnett-Mary	: 5.6 (57%)

Certain of how to plan for changes in the GBR that may affect me...

Mean score (% agree)

Home Port NRM

Cape York	: 3.5 (13%)
Wet Tropics	: 4.5 (31%)
Burdekin	: 4.4 (31%)
Mackay-Whit	: 5.8 (55%)
Fitzroy Basin	: 5.1 (45%)
Burnett-Mary	: 4.4 (24%)

Line fishers	: 5.0 (38%)
Trawl	: 5.4 (51%)
Net	: 5.5 (48%)
Pot	: 5.6 (49%)
Harvest	: 5.7 (50%)

Line fishers	: 4.3 (72%)
Trawl	: 4.4 (76%)
Net	: 4.8 (56%)
Pot	: 5.4 (51%)
Harvest	: 5.8 (46%)

GBR overall : 5.4 (46%)

GBR overall : 4.8 (37%)

Combined score : 5.8 (+/- 0.15)

Ref: SELTMP Survey 2013

Ability to plan, learn and re-organise

Good at developing scenarios of the future and planning for them...

Mean score (% agree)

Home Port NRM

Cape York	: 6.3 (63%)
Wet Tropics	: 6.8 (63%)
Burdekin	: 6.6 (71%)
Mackay-Whit	: 6.7 (64%)
Fitzroy Basin	: 7.3 (72%)
Burnett-Mary	: 5.9 (67%)

Discuss new ways of solving problems associated with my business with others...

Mean score (% agree)

Home Port NRM

Cape York	: 8.8 (100%)
Wet Tropics	: 6.8 (71%)
Burdekin	: 7.5 (76%)
Mackay-Whit	: 7.2 (71%)
Fitzroy Basin	: 7.1 (67%)
Burnett-Mary	: 6.4 (64%)

Line fishers	: 6.1 (58%)
Trawl	: 7.0 (77%)
Net	: 7.1 (75%)
Pot	: 6.8 (67%)
Harvest	: 7.0 (69%)

Line fishers	: 7.1 (74%)
Trawl	: 7.2 (72%)
Net	: 6.9 (78%)
Pot	: 7.4 (76%)
Harvest	: 6.6 (64%)

GBR overall : 6.7 (68%)

GBR overall : 7.1 (73%)

Combined score : 6.9 (+/- 0.14)

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

ii) Well-being: 2. Adaptive Capacity

Psychological and financial buffers

More likely to adapt to changes compared to other coastal residents I know...

Mean score (% agree)

Home Port NRM

Cape York	: 6.1 (50%)
Wet Tropics	: 7.8 (88%)
Burdekin	: 7.7 (84%)
Mackay-Whit	: 7.8 (82%)
Fitzroy Basin	: 7.7 (79%)
Burnett-Mary	: 6.9 (72%)

Have planned for my financial security...

Mean score (% agree)

Home Port NRM

Cape York	: 6.9 (%)
Wet Tropics	: 6.2 (%)
Burdekin	: 6.9 (%)
Mackay-Whit	: 6.9 (%)
Fitzroy Basin	: 6.9 (%)
Burnett-Mary	: 6.9 (%)

Line fishers	: 6.7 (67%)
Trawl	: 7.8 (89%)
Net	: 8.2 (88%)
Pot	: 7.3 (72%)
Harvest	: 8.1 (91%)

Line fishers	: 6.4 (67%)
Trawl	: 6.8 (73%)
Net	: 6.0 (61%)
Pot	: 7.2 (71%)
Harvest	: 7.2 (76%)

GBR overall : 7.4 (78%)

GBR overall : 6.7 (69%)

Combined score : 7.0 (+/- 0.13)

Ref: SELTMP Survey 2013

Interest in adapting to change

Interested in learning how to better prepare by business for significant events...

Mean score (% agree)

Home Port NRM

Cape York	: 6.9 (63%)
Wet Tropics	: 6.4 (65%)
Burdekin	: 6.6 (69%)
Mackay-Whit	: 7.3 (79%)
Fitzroy Basin	: 7.5 (75%)
Burnett-Mary	: 6.7 (75%)

Line fishers	: 7.2 (73%)
Trawl	: 7.1 (78%)
Net	: 6.4 (65%)
Pot	: 5.6 (50%)
Harvest	: 7.0 (80%)

GBR overall : 6.7 +/- 0.21 (70%)

Ref: SELTMP Survey 2013

The industry generally has a poor attitude towards risk, but a moderate to high perceived ability to plan, learn and reorganise, moderate to good psychological and financial buffers, and a moderate interest in adapting to change. This varies across fishery type.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 1. Employability

Age

Average (median) years Home Port NRM

Cape York	: 58 (60)
Wet Tropics	: 57 (58)
Burdekin	: 51 (51)
Mackay-Whit	: 56 (57)
Fitzroy Basin	: 52 (52)
Burnett-Mary	: 55 (54.5)

Line fishers	: 55 (xx)
Trawl	: 57 (xx)
Net	: 55 (xx)
Pot	: 55 (xx)
Harvest	: 51 (xx)

GBR overall	: 55 (55)
GBR Residents:	44 (43) ²
Aus residents	: xx +/- xx

Ref: SELTMP Survey 2013

Education

% with > high school education

Home Port NRM

Cape York	: 50.0%
Wet Tropics	: 39.1%
Burdekin	: 51.5%
Mackay-Whit	: 33.3%
Fitzroy Basin	: 46.2%
Burnett-Mary	: 51.5%

Line fishers	: 45%
Trawl	: 30%
Net	: 41%
Crab	: 45%
Harvest	: 60%

GBR overall	: 44%
Aus residents	: xx

Ref: SELTMP Survey 2013

Employment options

% with other training / experience

Cape York	: xx%
Wet Tropics	: xx%
Burdekin	: xx%
Mackay-Whit	: xx%
Fitzroy Basin	: xx%
Burnett-Mary	: xx%

Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%

GBR overall	: xx%
Aus residents	: xx%

Ref: xxx

Together these indicators, along with earlier indicators of identity (p45-46), reveal an aging industry, highly attached to fishing. Most have education levels that do not extend beyond high school (except for those in the Harvest fishery). Whether fishers have training or experience they could rely on outside of the industry is being explored in current FRDC research due to be released next year.

These indicators suggest employability (or desire for employability) outside of the industry is likely to be low.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Confident the GBR is well managed

Mean score (% agree) ¹

Home Port NRM

Cape York	: 2.8 (13%)
Wet Tropics	: 5.2 (57%)
Burdekin	: 5.2 (48%)
Mackay-Whit	: 4.7 (42%)
Fitzroy Basin	: 5.0 (37%)
Burnett-Mary	: 5.1 (55%)

Line fishers	: 4.5 (40%) ¹
Trawl	: 5.4 (53%) ¹
Net	: 4.7 (45%) ¹
Pot	: 4.8 (35%) ¹
Harvest	: 6.4 (65%) ¹

GBR overall	: 5.0 (46%) ¹
Aus residents	: 5.9 (53%) ²

Ref: ¹SELTMP survey 2013;
²Goldberg et al. (2014)

Support current rules and regulations

Mean score (% agree)

Home Port NRM

Cape York	: 4.5 (38%)
Wet Tropics	: 4.9 (45%)
Burdekin	: 4.7 (33%)
Mackay-Whit	: 3.6 (27%)
Fitzroy Basin	: 5.6 (49%)
Burnett-Mary	: 4.0 (33%)

Line fishers	: 4.7 (41%)
Trawl	: 4.2 (31%)
Net	: 4.9 (36%)
Pot	: 4.0 (24%)
Harvest	: 6.4 (72%)

GBR overall	: 4.7 (39%)
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Ref: SELTMP survey 2013

Rules and regulations are burden on my time

Mean score (% agree)

Home Port NRM

Cape York	: 7.8 (75%)
Wet Tropics	: 7.0 (64%)
Burdekin	: 7.1 (61%)
Mackay-Whit	: 7.6 (78%)
Fitzroy Basin	: 6.1 (62%)
Burnett-Mary	: 7.4 (73%)

Line fishers	: 7.7 (79%)
Trawl	: 7.6 (73%)
Net	: 7.4 (72%)
Pot	: 6.3 (55%)
Harvest	: 6.0 (64%)

GBR overall	: 7.2 (71%)
-------------	-------------

Ref: SELTMP survey 2013

Perceptions of fair access compared to others

Mean score (% agree)

Home Port NRM

Cape York	: 7.0 (88%)
Wet Tropics	: 4.4 (67%)
Burdekin	: 5.5 (63%)
Mackay-Whit	: 5.0 (41%)
Fitzroy Basin	: 6.1 (62%)
Burnett-Mary	: 5.5 (57%)

Line fishers	: 6.5 (61%)
Trawl	: 5.7 (53%)
Net	: 5.5 (48%)
Pot	: 6.1 (65%)
Harvest	: 6.5 (64%)

GBR overall	: 5.8 (59%)
-------------	-------------

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

New fisheries regulations 2014

Mudcrab pot limit changed from 50 to 100 pots for licences with more than 1 "C1" symbol¹

Fisheries Regulations under review, with public meetings held along the coast, and submissions sought to an independent review panel²

Statutory review of the Trawl Plan began in 2010, continued to 2013³. Stalled in 2014 with the Fisheries Regulations review underway.

Crab Fishery Review commenced in 2012⁴. Stalled in 2014 with the Fisheries Regulations review underway.

Ref: ¹Fisheries Legislation Amendment Regulation (No. 1) 2014; ²DAFF (2014a); ³DAFF (2013b); ⁴DAFF (2013d)

Sustainability status

Fishery		Status
Line	CT	Uncertain ¹
	RTE	Not fully utilised ¹
	OS	1 sp sustainably fished (stripey snapper) ¹
	SM	6 species Undefined ¹ Sustainably Fished ²
Trawl	Otter	9 sp sustainably fished ³ 8 sp undefined ³
	Beam	Banana prawns sustainably fished ⁴ 3 sp 'undefined' ⁴
Net	Barramundi	Sustainably Fished ²
	Treadfin, blue	Sustainably Fished ²
	Mackerel, grey	Sustainably Fished ²
		Another 6 sp, sustainably fished ⁵
	Shark	Uncertain ²
	Threadfin, king	Undefined ²
Pot	Mudcrab	Uncertain ²
	Blueswimmer	Uncertain ²
Harvest	Rocklobster	Sustainably Fished ²
	MAFF	Not assessed – below stock status assessment minimum level requirements ⁶
	BDM	Sustainably Fished ²
	Coral	Sustainable ⁷

Ref: ¹DAFF (2013c); ²DAFF (2013a); ³DAFF (2013b); ⁴DEEDI (2011a); ⁵DEEDI (2011b); ⁶DAFF (2013f); ⁷DEEDI (2012c)

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Biosecurity issues

Issues arising this year:

Nil noted

% fishers concerned:

Line fishers : xx%
Trawl : xx%
Net : xx%
Pot : xx%
Harvest : xx%

Tidbit:

Renewed commitment to biosecurity by Australian Government.¹
Biosecurity reform commenced in 2011.²

Ref: ¹DAFF (2011a); ²DAFF (2011b)

Export certification

Approval expiry date

Line fishers:

CRFF : 06/05/16

SM : 14/07/17

Trawl:

Beam : 10/04/15

Otter : 26/11/16

Net: : 27/02/15

Pot:

Mudcrab : 20/02/15

Blueswimmer: 14/10/15

Harvest:

Rocklobster: 17/12/15

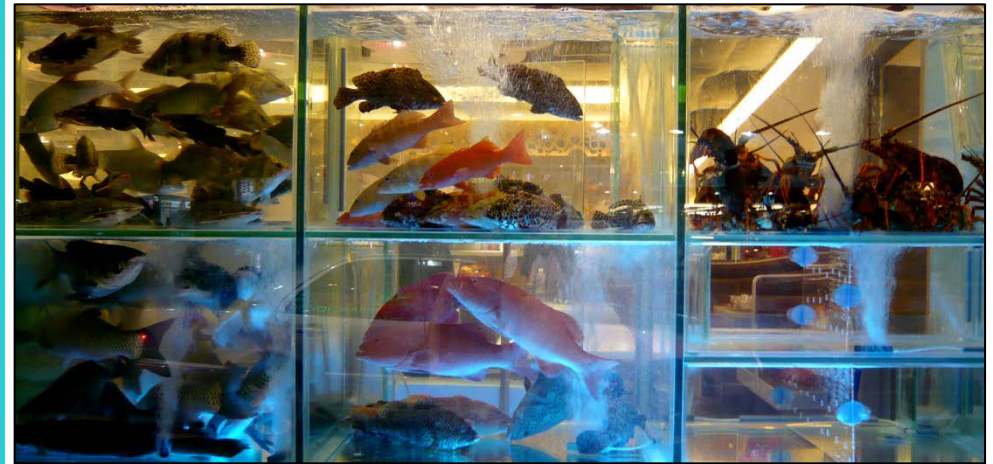
MAFF : 21/11/14

Coral : 26/06/15

Bêche-de-mer: 13/07/17

Pearl : 20/01/15

Ref: Department of Environment (n.d.)



Doctorhandshake © Creative Commons

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Bycatch reduction technology

Line fishers: Nil
 Trawl: BRDs and TEDs (introduced pre-2011)
 Net: SOCI escape hatches being tested through FRDC funded research¹ + Burdekin Sustainable Seafood Alliance (BSFA) introduced region-specific net design limitations to reduce dugong interactions²
 Pot: Dillie pots for blue swimmer crabs removed to reduce turtle bycatch (2010)³
 Harvest: ...

Ref: ¹D.Welch, pers. comm. (2011); ²BSFA pers. comm (2011); ³DAFF (2013d)

Species of Conservation Interest (SOCI)

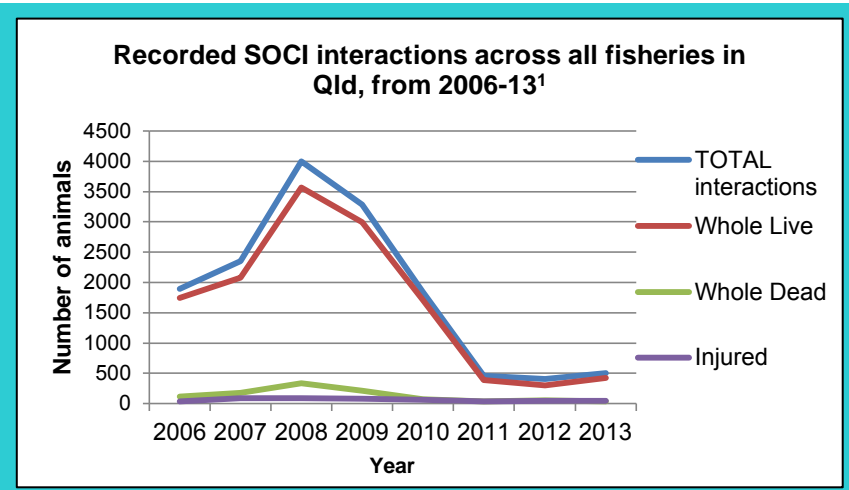
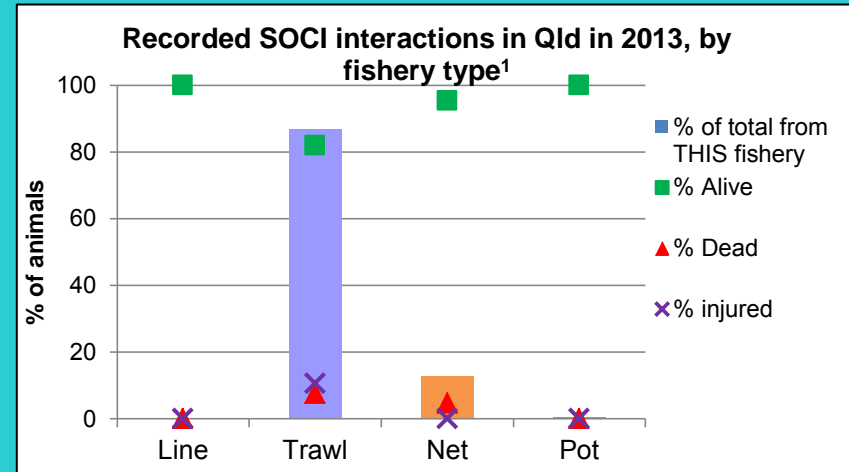
Recorded interactions^{1*}

Line : 1
 Trawl : 435
 Net : 64
 Pot : 2
 Harvest : Nil[^]

Most common species listed in interactions^{1*}

Line : Sea snake
 Trawl : Sea snake
 Net : Sawfish;
 Green turtle
 Pot : Sea snake;
 Green turtle
 Harvest : N/A

Ref: ¹Queensland Government (2014)



*Data is for the 2013 calendar year, for the whole of Qld fishery. It is not clear if this does or does not include interactions with charter or recreational fisheries. [^]Also not clear if harvest is included in this database or not.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Compliance rates

% compliance

SELTMP Marine regions

Far Northern	: 75%
Northern	: 88%
Wet Tropics	: 91%
Burdekin	: 92%
Mackay-Whit	: 92%
Fitzroy Basin	: 88%
Burnett-Mary	: 86%

GBR overall	: 91%
Qld overall	: 91%

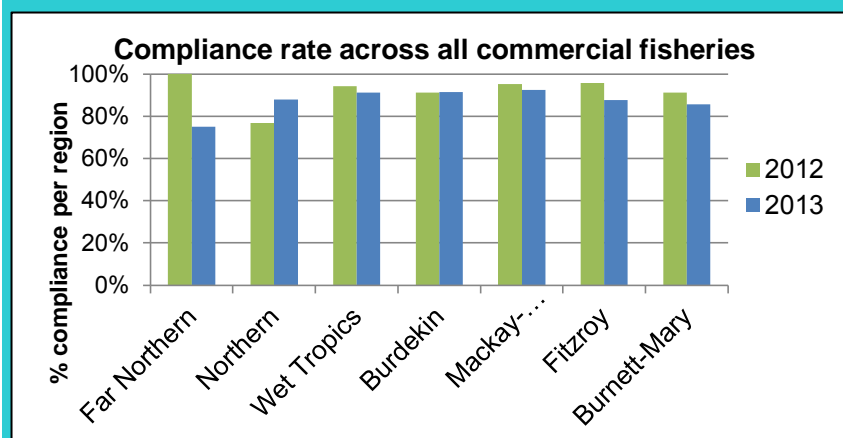
of inspections

SELTMP Marine regions

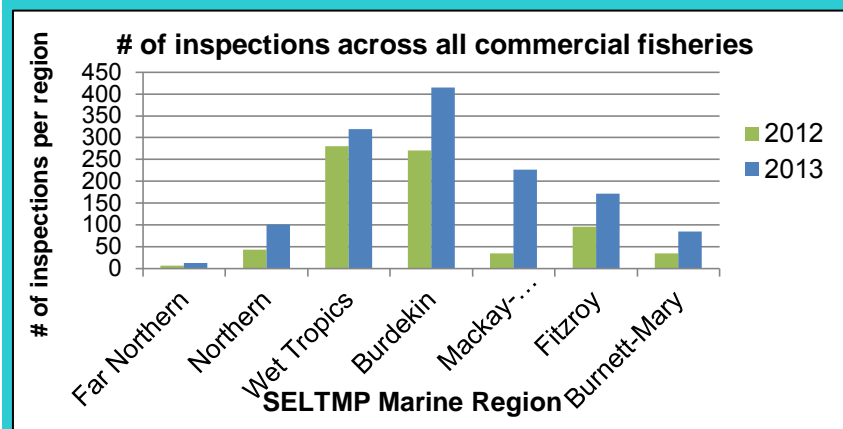
Far Northern	: 12
Northern	: 100
Wet Tropics	: 319
Burdekin	: 415
Mackay-Whit	: 226
Fitzroy Basin	: 171
Burnett-Mary	: 84

GBR overall	: 1119
Qld overall	: 2224

Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)

Compliance rate increased or was stable across most regions between 2012 and 2013, with the main exception being the Far Northern marine region (although this should be treated with caution given the low number of inspections, and hence the ability of few non-compliance instances to impact the % compliance rate).

The number of inspections increased across all regions from 2012 to 2013.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Compliance rates

% compliance

Fishery type

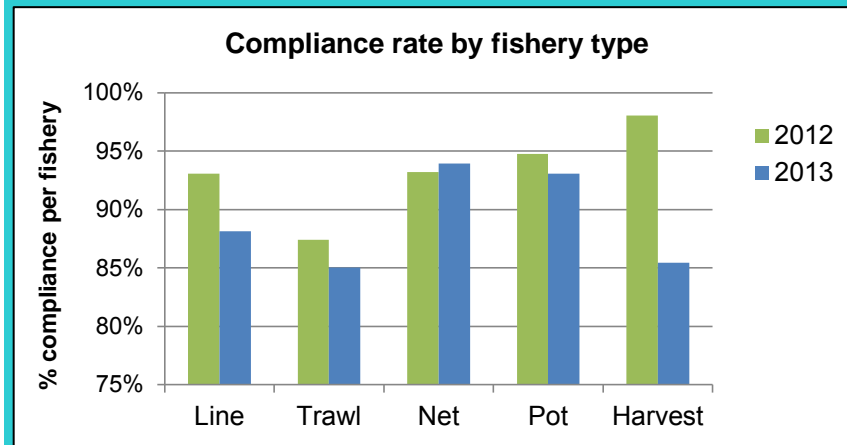
Line	: 93%
Reef	: 87%
SM	: 95%
Trawl	: 85%
Otter	: 87%
Beam	: 70%
Net	: 94%
Pot	: 93%
BSwimmer	: 92%
Mudcrab	: 95%
Harvest	: 85%
Rocklobster	: 100%
MAFF	: 93%
BDM	: 100%

of inspections

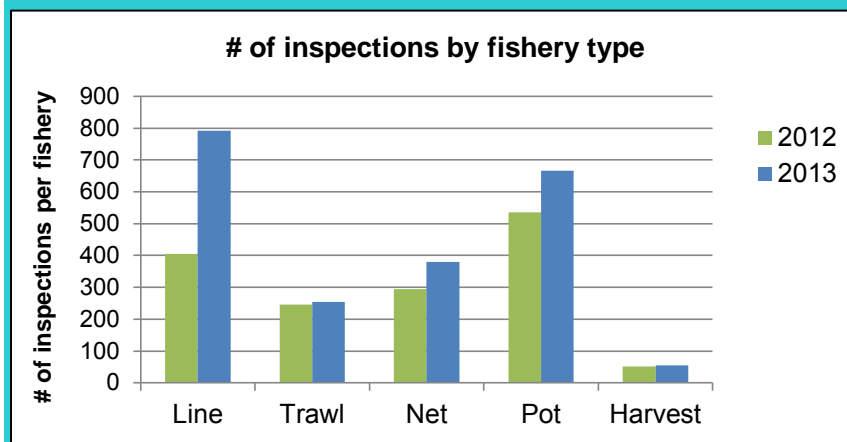
Fishery type

Line	: 792
Trawl	: 25
Net	: 380
Pot	: 666
Harvest	: 55

Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)



Ref: DAFF, unpublished data (2014)

Compliance rate increased slightly for Net fisheries, but decreased for all others between 2012 and 2013, particularly for harvest (although again, note the small number of inspections, which allows greater influence of a few non-compliance instances on the % compliance rate)

The number of inspections increased from 2012 to 2013, particularly for the Line, Net and Pot fisheries. 'In port' RQ and SM quota inspections increased in 2014 (DAFF, 2014d)

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

I would like to do more to protect the GBR

Mean score (% agree)

Home Port NRM

Cape York	: 6.5 (63%)
Wet Tropics	: 6.5 (67%)
Burdekin	: 7.0 (67%)
Mackay-Whit	: 7.3 (67%)
Fitzroy Basin	: 7.2 (74%)
Burnett-Mary	: 6.4 (71%)

Line fishers	: 7.5 (81%)
Trawl	: 6.0 (57%)
Net	: 6.8 (68%)
Pot	: 5.6 (50%)
Harvest	: 7.6 (80%)

GBR overall	: 6.7 (68%)
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Ref: SELTMP Survey 2013

Would be personally affected if health of GBR declined

Mean score (% agree)

Home Port NRM

Cape York	: 9.2 (100%)
Wet Tropics	: 9.1 (96%)
Burdekin	: 8.7 (91%)
Mackay-Whit	: 9.3 (100%)
Fitzroy Basin	: 8.9 (92%)
Burnett-Mary	: 8.9 (97%)

Line fishers	: 9.2 (97%) ¹
Trawl	: 8.9 (98%) ¹
Net	: 8.4 (86%) ¹
Pot	: 8.4 (87%) ¹
Harvest	: 9.1 (96%) ¹

GBR overall	: 8.9 (94%) ¹
Aus residents	: 6.2 (92%) ²

Ref: ¹SELTMP Survey 2013;
²Goldberg et al. (2014)

Regularly participate in research and management

Mean score (% agree)

Home Port NRM

Cape York	: 6.5 (63%)
Wet Tropics	: 5.8 (60%)
Burdekin	: 5.8 (42%)
Mackay-Whit	: 4.7 (43%)
Fitzroy Basin	: 5.4 (51%)
Burnett-Mary	: 3.7 (33%)

Line fishers	: 5.4 (57%)
Trawl	: 4.7 (42%)
Net	: 6.8 (69%)
Pot	: 4.1 (34%)
Harvest	: 5.6 (56%)

GBR overall	: 5.2 (51%)
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Ref: SELTMP Survey 2013

Green labelling

% of fishers utilising 'green' labels

Line fishery	: 0
Trawl	: 0
Net	: 0
Pot	: 0
Harvest	: 0

Tidbit:

There is no official "green" labelling in use. However the QSIA has been promoting the "Queensland Catch" brand to encourage consumers to buy local.¹ Trawlers are also accredited with the USA through the approved use of TEDs.²

Ref: ¹Tobin R et al. (2010a); ²DAFF (2013b)

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

MOUs and Codes of Conduct

MOU # that exist:

Cape York : xx
 Wet Tropics : xx
 Burdekin : xx
 Mackay-Whit : xx
 Fitzroy Basin : xx
 Burnett-Mary : xx

COC # that exist:

Cape York : xx
 Wet Tropics : xx
 Burdekin : xx
 Mackay-Whit : xx
 Fitzroy Basin : xx
 Burnett-Mary : xx

% fishers who claim participation

Home Port NRM

Cape York : 88%
 Wet Tropics : 85%
 Burdekin : 75%
 Mackay-Whit : 77%
 Fitzroy Basin : 76%
 Burnett-Mary : 83%

Line fishers : xx
 Trawl : xx
 Net : xx
 Pot : xx
 Harvest : xx

Line fishers : xx
 Trawl : xx
 Net : xx
 Pot : xx
 Harvest : xx

Line fishers : 76%
 Trawl : 91%
 Net : 86%
 Pot : 68%
 Harvest : 95%

GBR overall : xx%

GBR overall : xx%

GBR overall : 81%

There are a number of Memorandums of Understanding (MOUs) and Codes of Conduct (COCs) in use, however formal information about them is lacking. There is no formal, publicly available database of those that are active or have been active in the past.

Ref: SELTMP Survey 2013

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Personal motivation / strength of belief in action

'I can make a personal difference in improving GBR health'

Mean score (% agree)

Line fishers	: 6.2 (71%)
Trawl	: 6.7 (68%)
Net	: 7.3 (79%)
Pot	: 5.3 (51%)
Harvest	: 6.2 (62%)

GBR overall : 6.5 (67%)

'I try to encourage others to reduce impacts on the GBR'

Mean score (% agree)

Line fishers	: 7.4 (77%)
Trawl	: 6.5 (64%)
Net	: 6.9 (69%)
Pot	: 5.9 (51%)
Harvest	: 7.3 (85%)

GBR overall : 6.9 (69%)

Social norms

'It is my responsibility to protect the GBR'

Mean score (% agree)

Line fishers	: 9.1 (96%) ¹
Trawl	: 7.8 (80%) ¹
Net	: 9.6 (100%) ¹
Pot	: 8.0 (82%) ¹
Harvest	: 8.9 (92%) ¹

GBR overall : 8.7 (90%)¹
Aus residents : 6.5 (68%)²

'Commercial fishers should take steps to reduce their impacts...'

Mean score (% agree)

Line fishers	: 5.7 (56%) ¹
Trawl	: 5.4 (62%) ¹
Net	: 6.2 (65%) ¹
Pot	: 5.2 (56%) ¹
Harvest	: 6.0 (58%) ¹

GBR overall : 5.6 (57%)¹

'Industry expects fishers to reduce their impacts...'

Mean score (% agree)

Line fishers	: 5.5 (53%) ¹
Trawl	: 4.9 (50%) ¹
Net	: 6.3 (62%) ¹
Pot	: 4.8 (35%) ¹
Harvest	: 6.6 (75%) ¹

GBR overall : 5.5 (53%)¹

'Other fishers think I should reduce my impacts...'

Mean score (% agree)

Line fishers	: 2.7 (13%) ¹
Trawl	: 2.4 (10%) ¹
Net	: 3.6 (28%) ¹
Pot	: 2.2 (9%) ¹
Harvest	: 3.4 (26%) ¹

GBR overall : 2.7 (15%)¹

'It is the responsibility of all Australians to protect the GBR'

Mean score (% agree)

Line fishers	: 8.5 (88%) ¹
Trawl	: 7.9 (84%) ¹
Net	: 9.0 (93%) ¹
Pot	: 8.3 (84%) ¹
Harvest	: 7.5 (77%) ¹

GBR overall : 8.3 (86%)¹
Aus residents : 7.7 (80%)²

While most believe it is their responsibility and they can make a personal difference in protecting the GBR, perhaps this is based on their own norms rather than what they believe the industry thinks they should do.

Ref: SELTMP Survey 2013

Ref: ¹SELTMP Survey 2013; ²Goldberg et al. (2014)

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Barriers to action to reduce impacts on the GBR

I have the knowledge and skills...

Mean score (% agree)

Line fishers	: 8.1 (84%) ¹
Trawl	: 7.4 (74%) ¹
Net	: 8.8 (97%) ¹
Pot	: 8.7 (89%) ¹
Harvest	: 7.8 (88%) ¹

It is not too expensive...

Mean score (% agree)

Line fishers	: 6.4 (65%)
Trawl	: 6.4 (58%)
Net	: 7.4 (77%)
Pot	: 6.5 (59%)
Harvest	: 7.0 (65%)

GBR overall	: 8.1 (85%) ¹
GBR residents	: 6.4 (63%) ²

GBR overall	: 6.6 (64%)
GBR residents	: 7.6 (82%)

I have the time and opportunity...

Mean score (% agree)

Line fishers	: 7.7 (80%) ¹
Trawl	: 8.0 (80%) ¹
Net	: 8.0 (85%) ¹
Pot	: 6.8 (64%) ¹
Harvest	: 7.6 (80%) ¹

GBR overall	: 7.7 (78%) ¹
GBR residents	: 6.8 (69%) ²

Commercial fishers in general do not feel constrained in taking action to reduce their impacts on the GBR. Of all constraints, expense appears to be the biggest issue as opposed to the GBR Coastal residents (shown here for comparison).



CRC Reef Research Centre

Ref: ¹SELTMP Survey 2013; ²Tobin et al. (2014)

*Negatively worded questions in the survey are reversed here, to show lack of barriers, where appropriate.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

iii) Indirect Drivers: 2. Environmental Stewardship

Use of environmentally friendly technology / behaviours (% Yes responses)

Fuel efficient engines

Line fishers	: 89%
Trawl	: 84%
Net	: 93%
Pot	: 100%
Harvest	: 80%

Emissions calculator

Line fishers	: 16%
Trawl	: 14%
Net	: 3%
Pot	: 16%
Harvest	: 8%

Carbon offsets

Line fishers	: 7%
Trawl	: 7%
Net	: 3%
Pot	: 3%
Harvest	: 0 %

GBR overall : 89%

GBR overall : 13%

GBR overall : 5%

Green energy (e.g. solar panels) on vessel

Line fishers	: 27%
Trawl	: 16%
Net	: 34%
Pot	: 32%
Harvest	: 17%

Alternative fuels (e.g. biodiesel, ethanol)

Line fishers	: 6%
Trawl	: 7%
Net	: 7%
Pot	: 5%
Harvest	: 9%

Participate in GBRMPA Reef Guardian fisher program

Line fishers	: 19%
Trawl	: 26%
Net	: 29%
Pot	: 27%
Harvest	: 45%

GBR overall : 25%

GBR overall : 6%

GBR overall : 26%

Reef Guardian fishers

listed formally¹

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: 8
Trawl	: xx
Net	: 5
Pot	: xx
Harvest	: 4

GBR overall : 17

% claim to be involved

Line fishers	: 19% ²
Trawl	: 26% ²
Net	: 29% ²
Pot	: 27% ²
Harvest	: 45% ²

GBR overall : 26%²

Ref: ¹R. Owens, GBRMPA, pers. comm. (2014); ²SELTMP Survey 2013

Ref: SELTMP Survey 2013

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iii) Indirect Drivers: 2. Environmental Stewardship

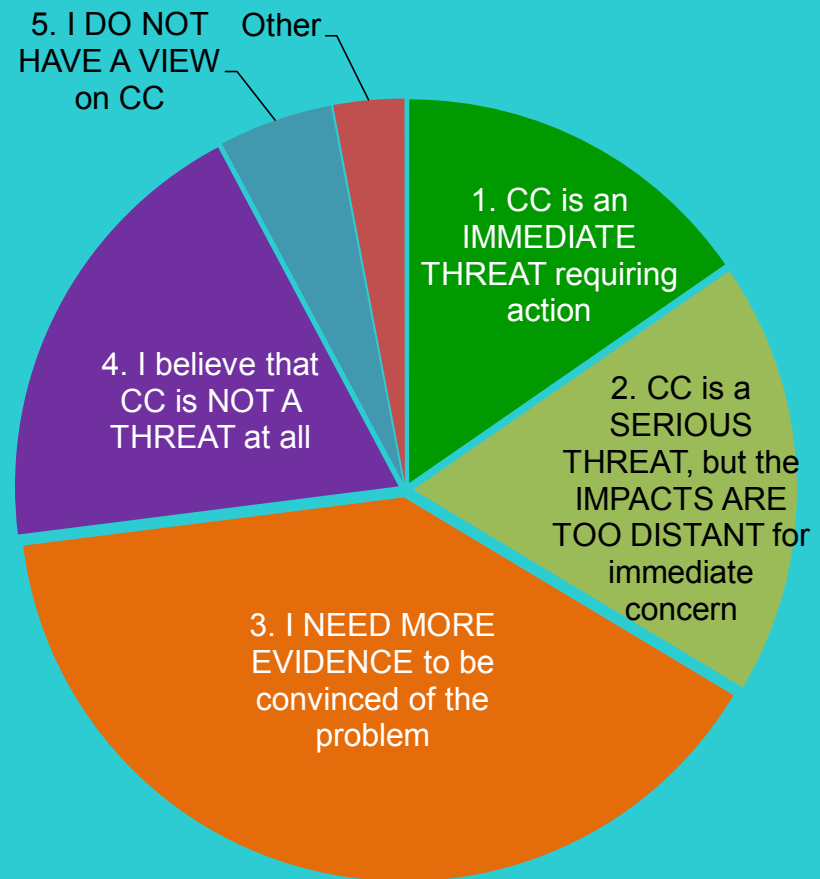
Perceptions about climate change (CC)

% who agree with statement (see figure for statements)*:

	1	2	3	4	5	Other
Cape York:	38	13	25	25	0	0
Wet Tropics:	11	20	35	22	6	7
Burdekin:	21	18	36	15	9	0
Mackay-Whit:	21	17	38	21	4	0
Fitzroy:	15	21	38	26	0	0
Burnett-Mary:	7	27	47	10	7	3

	1	2	3	4	5	Other
Line fishers:	20	23	3	20	7	0
Trawl:	9	22	40	18	7	4
Net:	17	14	45	17	0	6
Pot:	8	13	47	26	3	3
Harvest:	24	12	44	12	4	4

GBR Comm. fishers overall ¹ :	15	18	39	19	5	3
GBR Tourism operators ² :	50	18	23	3	0	6
GBR Coastal residents ³ :	53	15	22	5	4	1



Ref: ¹SELTMP Survey 2013; ²Curnock et al. (2014); ³Tobin et al. (2014)

*Most common responses are shown in **bold**.

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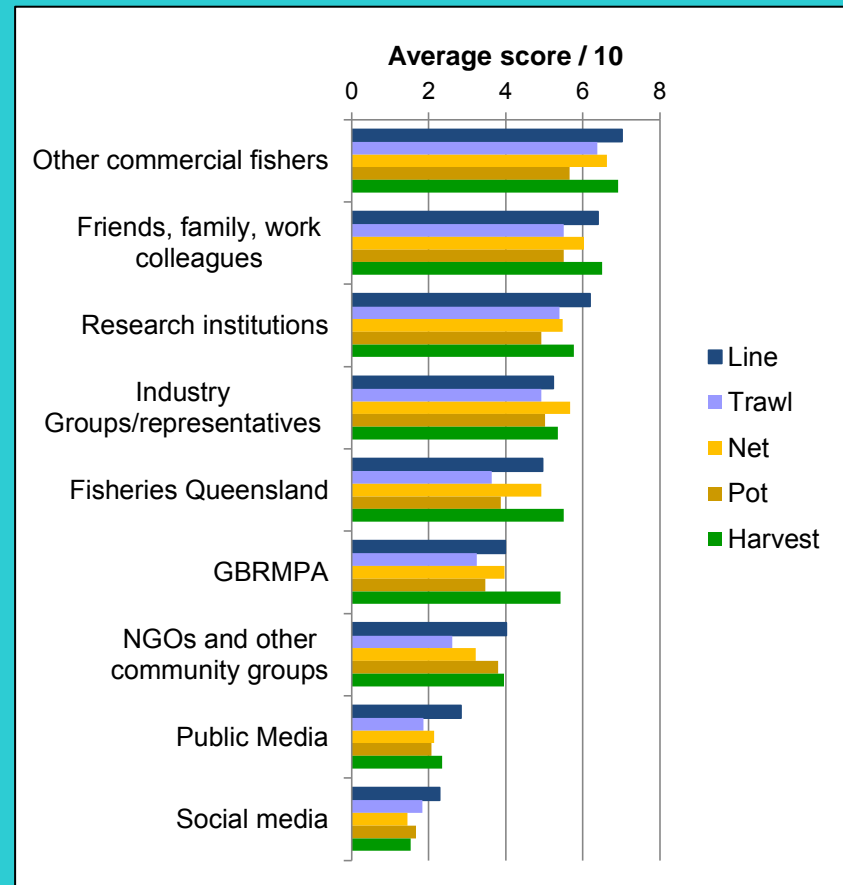
iii) Indirect Drivers: 3. Information and Networks

Trusted information sources for information received about the GBR

Information source	mean score (% who trust them)
Friends, family and colleagues	: 6.0 (55%)
GBRMPA	: 3.9 (29%)
Fisheries Qld	: 4.5 (35%)
Research institutions	: 5.6 (50%)
Industry groups / representatives	: 5.2 (45%)
NGOs / community groups	: 3.6 (16%)
Media (TV, radio, newspapers)	: 2.3 (6%)
Social media (facebook, twitter)	: 1.9 (1%)
Other commercial fishers	: 6.6 (69%)

Ref: SELTMP Survey 2013

Trusted information sources by fishery type



Ref: SELTMP Survey 2013

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iii) Indirect Drivers: 3. Information and Networks

Informal Networks

% who actively network with other fishers

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: 20%*
Qld overall	: xx

Ref: Marshall and Tobin (2012)

Formal Networks

% who actively network with management agencies / representative bodies

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: 60%
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx

Ref: Tobin A et al. (2010)

Although network information is currently lacking, it is considered important for learning, and adaptive capacity.



Pedro Ribeiro Simões. © Creative Commons

*Sample of 145 fishers in 2011, including multiple types

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iii) Indirect Drivers: 3. Information and Networks

QSIA membership

% members

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett-Mary	: xx

Line fishers	: xx
Trawl	: xx
Net	: xx
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: 231
financial members at end of 2013/14 ¹	

Dominant information source = QSIA representatives²

Ref: ¹S. Wiseman, QSIA, pers. comm. (2014); ²Tobin R et al. (2010a)

Alternative organisation membership

of members of ...

Cape York	: xx in ...
Wet Tropics	: xx in ...
Burdekin	: xx in ...
Mackay-Whit	: xx in ...
Fitzroy Basin	: xx in ...
Burnett-Mary	: xx in ...

Line fishers	: xx in ...
Trawl	: xx in ...
Net	: xx in ...
Pot	: xx in ...
Harvest	: xx in ...

GBR overall	: xx in ...
	: xx in ...
	: xx in ...

Information regarding organisational membership is expected to be forthcoming in the current FRDC project 2013/210: "Adapt or Fail"

Ref: xxx



Commercial fishing rep. R. Tobin

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iii) Indirect Drivers: 4. Sector specific drivers

Economic drivers

Changes to international market price

Key changes:

- None noted

Fisheries impacted:

- N/A

Key impacts:

- No data

Changes to domestic market price

Key changes:

- Decrease in domestic price due to increased imported product driving price down (anecdotal), ongoing

Fisheries impacted:

- Line, net, trawl

Key impacts:

- No data

Tidbit:

*"The changing value of the Australian dollar against our major trading currencies has been the largest single factor influencing the value of Australian fisheries in the last decade."*¹

Ref: ¹Ridge Partners (2010)

Social acceptability of commercial fishing

Key information:

- 31% GBR coastal residents believe 'fishing' (including commercial fishing) is one of the 3 biggest threats to the GBR¹
- 73% GBR consumers concerned about long-term sustainability of commercial fisheries²
- 26% Australians believe Australia's commercial fishing industry was not sustainable; 37% not sure³

Key impacts: / concerns:

- Potential impact on local seafood demand
- Potential for public to drive management change through political arena
- challenge to better inform, educate and influence community perceptions about the long-term sustainability of the fishing industry³

Related information:

- FRDC study completed, assessing the social acceptability of the wild-catch commercial fishing industry (positive, but conditional) and demonstrate that societal judgements influence decisions about the sector's access to fish resources. They recommended developing an industry-wide engagement strategy that focuses on improving trust by influential decision makers and interest groups in the wild-catch sector.⁴

Ref: ¹Tobin et al. (2014); ²Tobin et al. (2010b); ³Sparks (2011); ⁴Mazur et al. (2014)

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iii) Indirect Drivers: 4. Sector specific drivers

Consumer acceptance and demand

Demand vs Labelling and Price

Key information:

- 78% of GBR coastal residents value the GBR for the fresh seafood it provides¹
- Despite concerns about sustainability, 91% of GBR coastal consumers prefer to buy Qld caught seafood²
- 70% of consumers in Melbourne, Sydney and Perth prefer Australian seafood to imported seafood products³
- But 64% of GBR consumers believe it is not labelled clearly enough for them to recognise local product²
- and 61% believe it is too expensive to buy as often as they would like²

Key impacts:

- Labelling important so that consumers can make an informed choice
- Actual demand affected by price in market dominated by cheap imports

Related information:

- Qld's DAFF encouraged consumers to buy local seafood⁴
- FRDC instigated a "Common Language Group" to develop consensus positions on a range of important issues affecting the seafood supply chain, issues around the definition of sustainability, and common labelling of seafood⁵
- 2014 SBS TV series "What's the Catch" highlights the importance of this issue for Australian seafood⁶



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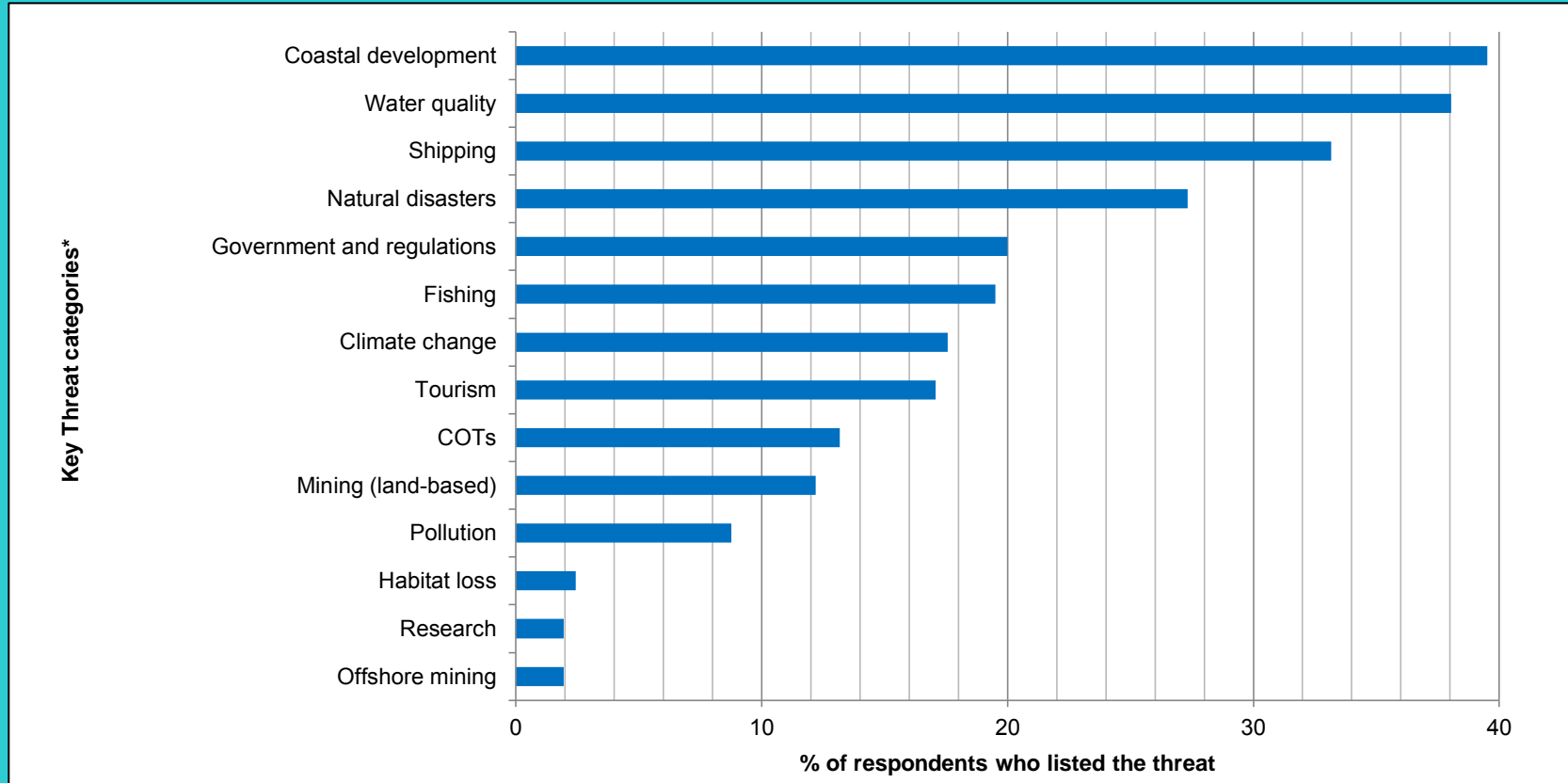
Ref: ¹Tobin et al. (2014); ²Tobin et al. (2010b); ³Ridge Partners (2010); ⁴DAFF (2014c); ⁵FRDC (2014); ⁶SBS (2014)

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iii) Direct Drivers: 4. Sector-specific drivers – Threats to the GBR

Perceived threats to the GBR

“What do you think are the THREE most serious threats to the GBR?” (Commercial fishers)



Ref: SELTMP Survey 2013

*Grouped responses – See table on next page for detail of what is included in these key threat categories

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iii) Direct Drivers: 4. Sector-specific drivers – Threats to the GBR

Perceived threats to the GBR*

Level 1: Key threat group	Level 2: Threats within group	% of respondents
Coastal development	GROUPED	39.5
	Coastal development (general)	13.2
	New ports and expansions	30.7
	Dredging	3.4
	Overpopulation	1.5
Water quality	GROUPED	38.0
	Water quality	6.8
	All/General run-off	2.4
	Agricultural run-off	32.7
	Urban run-off (incl. sewage & stormwater)	4.4
	Mining run-off	1.5
Shipping	GROUPED	33.2
	Shipping	30.2
	Oil spills	2.9
Natural disasters	GROUPED	27.3
	Natural disasters (unspecified)	2.0
	Cyclones	20.5
	Floods	7.3
	Earthquakes	1.0
	Storm damage	0.5
Government and regulations	GROUPED	20.0
	Government / departments	2.4
	Mis-/poor-/over-management	7.3
	Green zones (incl. effort concentration)	6.3
	Beauracracy / politics	3.4
	Enforcement / policing	0.5
	Conservationists	2.9
	Other (could not categorise)	0.5

Level 1: Key threat group	Level 2: Threats within group	% of respondents
Fishing	GROUPED	19.5
	Recreational fishing	16.1
	Commercial fishing	3.9
	Unspecified / all fishing	1.5
	Illegal (including foreign) fishing	1.5
Climate change	GROUPED	17.6
	Climate Change	10.2
	Global Warming	7.3
	Rising water temperature	0.5
Tourism	Tourism (unspecified)	17.1
Crown of Thorns	COTs (general)	13.2
Mining (land-based)	Mining (land-based)	12.2
Pollution	GROUPED	8.8
	Pollution (general / unspecified)	4.4
	Marine debris / beach littering	4.9
Habitat loss	GROUPED	2.4
	Loss of trees / mangroves	1.0
	Damming of rivers	1.5
	Others (uncategorised)	
	Offshore mining	2.0
	Research	2.0

Ref: SELTMP Survey 2013

*Only those listed by 2% or more respondents are included here.

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iii) Direct Drivers: 4. Sector-specific drivers

Licence buy back

Queensland East Coast Commercial Net Fishing Reduction Scheme

The net buy back process began in 2012 as a \$9m election promise.

After 3 rounds, within 2 schemes, 36 licences and 146 N symbols were surrendered.

Ref: DAFF, unpublished data (2014)

Uncertainty of management

Queensland Fisheries Review

The Queensland Government is reviewing fisheries management across all fisheries to “deliver a better system”, aiming to reduce complexity, regulatory burden and cost, and improve consistency. An independent consultancy group (MRAG Asia Pacific) has been appointed to undertake the review, and a Fisheries Review Committee has been formed to guide it.¹ Consultation has included public meetings for recreational and commercial fishers along the coast, and invitations for written submissions.²

The review has halted the review of the crab fishery, but elements of the trawl fishery review will still be considered to maintain Commonwealth export accreditation.

While the review may result in a better management system, anecdotal evidence suggests it also causing uncertainty and feelings of insecurity within the industry.

Current investment warnings

All Queensland Commercial Fisheries, as of 6 March, 2014, due to the review of the management of Queensland's fisheries³

Ref: ¹DAFF (2014a); ²MRAG Asia Pacific (2014); ³DAFF (2014b);

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iii) Direct Drivers: 4. Sector-specific drivers

Resource access

Port development

Abbott Point

NRMs impacted: Burdekin and Mackay-Whitsundays
Fisheries impacted: Primarily Net

Issues: Federal approval to dump of dredge spoil from the planned port expansion in adjacent waters¹. Queensland government later endorsed a new plan to dump the spoil on land².

Key potential impacts: Habitat loss, and affects on water clarity, which may influence pelagic fish movement.

Gladstone Harbour Bund Wall failure

NRMs impacted: Fitzroy and Burnett-Mary
Fisheries impacted: Primarily net. Also line and pot

Issues: Federal Minister ordered an inquiry to investigate the failure of a 'bund' wall, designed to contain dredge spoil, dating back to 2011³. Anecdotal claims suggest that it may relate to previous concerns about contamination of water from dredge spoil affecting fish and fisher health, for which no link was confirmed.

Ref: ¹GBRMPA (2014b); ²ABC (2014); ³DoE (2014)

Perceptions of fair access compared to other groups

Mean score (% agree)

Home PORT NRM

Cape York	: 7.0 (88%)
Wet Tropics	: 6.6 (67%)
Burdekin	: 5.5 (63%)
Mackay-Whit	: 5.0 (41%)
Fitzroy Basin	: 6.1 (62%)
Burnett-Mary	: 5.5 (57%)
Intrastate	: 5.0 (42%)

Line fishers	: 6.5 (61%)
Trawl	: 5.7 (53%)
Net	: 5.5 (48%)
Pot	: 6.1 (65%)
Harvest	: 6.5 (64%)

GBR overall	: 5.8 (59%)
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Ref: SELTMP Survey 2013

Fishers whose home port is in the Mackay-Whitsundays region, as well as Net fishers overall, are the least likely to agree that they have fair access to the GBR compared to other user groups.

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References

ABARES (2011). Australian Fisheries Statistics 2010, Canberra.

Australian Broadcasting Corporation (2014). *Abbot Point dredging: Spoil to be dumped on land, not in Great Barrier Reef waters*. URL: <http://www.abc.net.au/news/2014-09-08/abbot-point-dredge-material-to-be-dumped-inland/5727960>

Australian Bureau of Statistics (2012). 2011 Census QuickStats. Queensland. URL: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/3

Brooks, K (2011). *Health and Safety in the Australian Fishing Industry*. RIRDC Publication No. 11/021. RIRDC Project No. PRJ-005591, Rural Industries Research and Development Corporation

Burdekin Sustainable Fisheries Alliance (BSFA), pers. comm. November 2011.

Curnock, M., Marshall, N., Tobin, R., Stone-Jovicich, S., Bohensky, E., Pert, P., Goldberg, J., Gooch, M., Gillet, S., Scherl, L. (2014) *The Social and Economic Long Term Monitoring Program (SELTMP) 2013, Tourism in the Great Barrier Reef*. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (55pp.).

Deloitte Access Economics (2013). Economic Contribution of the Great Barrier Reef. Great Barrier Reef Marine Park Authority, Townsville.

Department of Agriculture, Forestry and Fisheries (2011a). Biosecurity Bulletin - Winter 2011. <http://www.daff.gov.au/aqis/about/reports-pubs/biosecurity-bulletin/2011/biosecurity-bulletin-winter-2011>

Department of Agriculture Forestry and Fisheries (2011b). Annual Report 2010-11, Australian Government. Department of Agriculture, Forestry and Fisheries.

Department of Agriculture, Fisheries and Forestry (2012a). *Commercial Crayfish and Rocklobster Fishery: 2011 fishing year report*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/97011/AFR-CRLF2011.pdf

Department of Agriculture, Fisheries and Forestry (2012b). *East Coast Bêche-de-mer Fishery: 2010-11 fishing year report*. The State of Queensland.

Department of Agriculture, Fisheries and Forestry (2013a). *Stock Status of Queensland's fisheries resources 2012*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0007/99610/qld-fisheries-stock-status-report-12.pdf

Department of Agriculture, Fisheries and Forestry (2013b). *East Coast Otter Trawl Fishery. 2011 and 2012 fishing years interim report*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0005/66938/ASR_ECOTF2011.pdf

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

References

- Department of Agriculture, Fisheries and Forestry (2013c). *Coral Reef Fin Fish Fishery. 2011-12 fishing year report*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0019/114616/AFR-CRFFF2011-12.pdf
- Department of Agriculture, Fisheries and Forestry (2013d). *Mud Crab Fishery. 2011 fishing year report*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0009/87363/AFR-MCF2011v2.pdf
- Department of Agriculture, Fisheries and Forestry (2013e). *Blue Swimmer Crab Fishery: Annual fishery report 2011*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0019/92602/AFR-BSCF2011.pdf
- Department of Agriculture, Fisheries and Forestry (2013f). *Marine Aquarium Fish Fishery. 2012 fishing year report*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0005/96944/AFR-MAFF2012.pdf
- Department of Agriculture, Fisheries and Forestry (2014a). *Fisheries Management Review*. Queensland Government. Business and Industry Portal. URL: <http://www.daff.qld.gov.au/fisheries/consultations-and-legislation/reviews-surveys-and-consultations/fisheries-management-review>
- Department of Agriculture, Fisheries and Forestry (2014b). *Investment and increased fishing effort warnings*. Queensland Government. Business and Industry Portal. URL: <http://www.business.qld.gov.au/industry/fisheries/commercial-fishing/commercial-fisheries-profiles/investment-increased-fishing-warnings>
- Department of Agriculture, Fisheries and Forestry (2014c). *Buy Queensland for the best seafood these holidays*. Queensland Government News Release. URL: <http://www.daff.qld.gov.au/services/news-and-updates/fisheries/news/buy-queensland-for-the-best-seafood-these-holidays>
- Department of Agriculture, Fisheries and Forestry (2014d). *QBFP ramps up inspections to safeguard fishing industry*. News release. 31-Jul-2014. <http://www.daff.qld.gov.au/services/news-and-updates/fisheries/news/qbfp-ramps-up-inspections-to-safeguard-fishing-industry>
- Department of Employment, Economic Development and Innovation (2009). *Annual Status Report 2009: Marine Specimen Shell fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0020/66035/2009-MSSCF-ASR.pdf
- Department of Employment, Economic Development and Innovation (2010). *Annual status report 2010: East Coast Trochus Fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0004/63499/Trochus-ASR-2010-Final.pdf
- Department of Employment, Economic Development and Innovation (2011a). *Annual Status Report 2011. River and Inshore Beam Trawl*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0019/65701/RIBTF-ASR-2011.pdf

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

References

- Department of Employment, Economic Development and Innovation (2011b). *Annual status report 2010: East Coast Inshore Fin Fish Fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0006/65382/2010_ECIFFF_ASR_Final.pdf
- Department of Employment, Economic Development and Innovation (2012a). *Annual status report 2011: East Coast Spanish Mackerel Fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0008/63998/ASR_ECSMF2011.pdf
- Department of Employment, Economic Development and Innovation (2012b). *Annual status report 2011: East Coast Pearl Fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0004/56794/ASR_ECPF2011.pdf
- Department of Employment, Economic Development and Innovation (2012c). *Annual status report 2011: Queensland Coral Fishery*. The State of Queensland. URL: http://www.daff.qld.gov.au/_data/assets/pdf_file/0010/76978/ASR_QCF2011.pdf
- Department of the Environment (2014). *Independent Review of the Bund Wall at the Port of Gladstone - Report on Findings*. URL: <http://www.environment.gov.au/marine/gbr/publications/independent-review-bund-wall-port-gladstone-report-findings>
- Department of Environment (n.d.) Queensland Managed Fisheries. Fishery assessments under the EPBC Act. Commonwealth of Australia. URL: <http://www.environment.gov.au/topics/marine/fisheries/qld-managed-fisheries>
- Fisheries Research and Development Corporation (2014). *Common Language Group*. URL: http://frdc.com.au/knowledge/common_language/Pages/default.aspx
- Goldberg, J, Bohensky, E, Curnock, M, Gooch, M, Marshall, N, Parry-Husbands, H, Pert, P, Stone-Jovicich, S, Tobin, RC, Villani, C. (2014). *The Social and Economic Long Term Monitoring Program (SELTMP) 2013, The Great Barrier Reef National Survey*. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (43pp.)
- Great Barrier Reef Marine Park Authority (2014a). *Great Barrier Reef Outlook Report 2014*. Great Barrier Reef Marine Park Authority, Townsville, Qld, Australia.
- Great Barrier Reef Marine Park Authority (2014b). *Abbot Point capital dredging project*. URL: <http://www.gbrmpa.gov.au/about-us/consultation/current-proposals-completed-assessment/abbot-point-capital-dredging-project>
- Marshall, NA and Marshall, PA (2007). Conceptualizing and Operationalizing Social Resilience within Commercial Fisheries in Northern Australia. *Ecology and Society*. **12**(1): 1. [online]. URL: <http://www.ecologyandsociety.org/vol12/iss1/art1/>
- Marshall, NA and Tobin, RC (2012). *“More Than What Meets the Eye”: The Social and Economic Impacts of Recent Natural Disasters on Marine Resource Dependent Industries of the Great Barrier Reef Region*. A Report for the Great Barrier Reef Marine Park Authority.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

References

- Mazur, N, Curtis, A and Bodsworth, A (2014). *Let's Talk Fish. Assisting industry to understand and inform conversations about the sustainability of wild-catch fishing*. Project No. 2012/301, Fisheries Research and Development Corporation. URL: <http://frdc.com.au/research/final-reports/Pages/2012-301-DLD.aspx>
- MRAG Asia Pacific (2014). *Queensland Fisheries Review*. URL: <http://www.mragasiapacific.com.au/Queensland-Fisheries-Review>
- Queensland Government (2014). *Queensland commercial fishing fees*. Queensland Government Business and industry portal. <http://www.business.qld.gov.au/industry/fisheries/commercial-fishing/licences-and-fees/commercial-fishing-fees-forms/commercial-fishing-fees>
- Ridge Partners (2010). *Overview of the Australian Fishing and Aquaculture Industry: Present and Future*. A report supporting the development of Working Together: The National Fishing and Aquaculture RD&E Strategy, Fisheries Research and Development Corporation and Ridge Partners.
- SBS (2014). *What's The Catch*. URL: <http://www.sbs.com.au/programs/whats-the-catch/learn>
- Scherl, L, Bohensky, E, Curnock, M, Gillet, S, Goldberg, J, Gooch, M, Marshall, N, Pert, P, Stone-Jovicich, S, Tobin, R. (2014). *The Social and Economic Long Term Monitoring Program (SELTMP) 2013, Human and Community Well-being*. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns
- Sparks, M (2011). *Community perceptions of the sustainability of the fishing industry in Australia*. Report Prepared for the Fisheries Research and Development Corporation, Intuitive Solutions.
- Sutton, SG, Lédée EJ, Tobin, RC, de Freitas, D. (2010). *Impacts of the 2004 Rezoning of the Great Barrier Reef Marine Park on Commercial Line, Trawl, and Charter Fishers*. MTSRF Project 4.8.5. Draft Report. Fishing and Fisheries Research Centre, James Cook University.
- Tobin, A, Schlaff, A, Tobin, R, Penny, A, Ayling, T, Ayling, A, Krause, B, Welch, D, Sutton, S, Sawynok, B, Marshall, N, Marshall, P and Maynard, J (2010). *Adapting to Change: Minimising Uncertainty about the Effects of Rapidly-Changing Environmental Conditions on the Queensland Coral Reef Fin Fish Fishery*. Final Report to the Fisheries Research & Development Corporation, Project 2008/103. Fishing and Fisheries Research Centre Technical Report No. 11, James Cook University, Townsville, Australia.
- Tobin, RC, Sutton, SG, Penny, A, Williams, L, Maroske, J and Nilsson, J (2010). *Baseline Socio-Economic Data for Queensland East-Coast Inshore and Rocky Reef Fishery Stakeholders. Part A: Commercial Fishers*. Technical Report No. 5. FRDC Project No. 2007/048, Fishing and Fisheries Research Centre, Townsville, Australia.

SELTMP 2014: Commercial Fishing in the Great Barrier Reef

References

Tobin, RC, Beggs, K, Sutton, SG and Penny, A (2010b). *Baseline Socio-Economic Data for Queensland East-Coast Inshore and Rocky Reef Fishery Stakeholders. Part D: Seafood Consumers*. Technical Report No. 8. FRDC Project No. 2007/048, Fishing and Fisheries Research Centre, Townsville, Australia.

Tobin, R, Bohensky, E, Currnock, M, Goldberg, J, Gooch, M, Marshall, N, Nicotra, B, Pert, P, Scherl, L, Stone-Jovicich, S. (2014) *The Social and Economic Long Term Monitoring Program (SELTMP) 2013, Recreation in the Great Barrier Reef*. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (76pp.)

Transport and Main Roads (2014). *Marine Incidents in Queensland 2013*. Queensland Government. URL: <http://www.msg.qld.gov.au/~media/msginternet/msgfiles/home/about%20us/marineincidentsinquensland2013.pdf>

WorkCover Queensland (2014). *2013-2014 Annual Report*.

WorkSafe Queensland (2014). *Covering the crew of a fishing vessel for workers' compensation*. <https://www.worksafe.qld.gov.au/agriculture/articles/covering-the-crew-of-a-fishing-vessel-for-workers-compensation>

Appendix: SELTMP Commercial fisher survey, 2013

Telephone survey

Date _____

Interviewer _____

Hello! My name is _____

You may remember receiving a note from CSIRO and JCU about the Social and Economic Long Term Monitoring Programme currently underway in the Great Barrier Reef?

If so, just to remind you:

We are hoping to interview you about your connection with the Great Barrier Reef. Your participation is entirely voluntary and you are free to leave any questions that you would prefer not answer. I will give you the contact details for Nadine Marshall and Renae Tobin, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry. Do you have any questions at this stage? Would you be happy to participate in this survey?"

If not:

in conjunction with the Great Barrier Reef Marine Park Authority and the fisheries research centre at James Cook University, CSIRO is leading a Social and Economic Long Term Monitoring Programme in which a snapshot of the GBR community and industries such as commercial fishing, marine tourism, recreation and ports and shipping are developed. In this snapshot, we are hoping to inform all stakeholders of the GBR region about the social and economic connection that each group has with the Great Barrier Reef. This includes how each industry uses the Reef, when, where, how and why. The up-to-date knowledge that is gained through the monitoring report will help Reef managers to make more informed and transparent decisions about use and access of the Great Barrier Reef. As part of the monitoring programme, we hope to interview as many fishing operators such as yourself every few years to understand how fishers and their businesses change. The interview will generally only take about 15 mins. All of your responses would remain confidential and would be collated in an anonymous way with everyone else's, and you would be able to access the report online. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Renae Tobin, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?

Let's start...

1. Please list the first words that come to mind when you think of the Great Barrier Reef? (*list as many words as you like*) _____

In this section we would like to know a little bit about your operation:

2. Are you a: licence owner – operator
licence owner but non-operator; OR
operator using someone else’s licence? *(circle one)*
Other _____
3. Do you *(or your licence(s))*, operate in the GBR region (i.e. on Qld’s east coast from Cape York south the Bundaberg, including inshore and offshore areas)? Y *(continue)* / N *(STOP – Check definition of region. thank you for your time. This is a survey for those fishers using the GBR region)*
4. How long have you been in the commercial fishing industry? _____ yrs
5. About how many days in the previous 12 months were you operating in the GBR? _____ days
6. Where is your home port (where you operate from, not necessarily where you live)? *(drop down list of major towns/ports – Cooktown down to Bundaberg please)*
7. How far, on average, do you travel from your home port? *That is: do you typically fish very close to your home port or do you tend to roam across the region?*
 - very local to home port (i.e. <50km)
 - close to my home port (50-100km)
 - I roam quite some distance from my home port (>100km)
8. Do you use multiple ports? Y/N
9. Which fisheries do you operate in? *(drop down: trawl – prawn, bugs, scallop, squid, Crab – mud, sand, Harvest - coral collection, aquarium fish, sea cucumber (), rocklobster (crayfish), Line - Spanish mackerel, reef line; Net - inshore net, offshore net, shark ; other, Can select >1)*
10. Which fishery contributes the most to your income? *(drop down same: one only)*

SECTION B. *In this section we would like to know a bit more about your relationship with the GBR*
When I refer to “the Great Barrier Reef”, or “GBR” for short, I mean all land and water from the beaches on the coast, the bays and creeks, the shoals, the open waters, and of course the coral reefs.

For the next group of questions, I’ll read out a list of statements, and I’d like you to rate your agreement or disagreement with each statement, using a ten-point scale; where 1 = Very Strongly Disagree and 10 = Very Strongly Agree.

How much do you agree or disagree with each of these statements:

GBR as part of personal identity

11. There are many other places that are better than the GBR for the commercial fishing I do
12. I feel proud that the GBR is a World Heritage Area
13. The GBR is part of my identity

GBR as part of occupational identity

14. I wouldn’t want to be anything other than a commercial fisher
15. The fishing industry to me is not just a job – it is my lifestyle
16. I plan to still be a commercial fisher in five years time

Attachment to place (GBR as place, community as place), Personal attachment

17. I live in this region because of the GBR
18. I do not plan to be a resident of this region in the next 5 years
19. I am not likely to remain operating in this region if events such as cyclones and floods occur more frequently

Values

20. I value the GBR because it supports a variety of life such as fish, corals
21. I value the GBR because it supports a desirable and active way of life
22. I value the GBR because we can learn about the environment through scientific discoveries
23. I value the GBR because it attracts people from all over the world
24. The GBR is a great asset for the economy of this region.

Wellbeing (see also behaviours, values, perceptions)

25. The GBR contributes to my quality of life and well-being.

Perception of Environmental Condition

26. The aesthetic beauty of the GBR is outstanding
27. The habitats that I fish the most are not in great condition
28. I feel optimistic about the future of the GBR

Perceptions of threats/understanding

29. What do you think are the THREE most serious threats to the GBR? *(drop down: Mining (land-based), Cyclones, Floods, Coastal development, Tourism, Crown of Thorns Starfish (COTS), New ports and port expansions, Marine debris/beach littering, Commercial fishing, Recreational fishing, Shipping, Agricultural run-off, Climate change, Global warming, Water quality)*

Perceptions of GBR management

30. I feel confident the GBR is well managed
31. I support the current rules and regulations that affect access and use of the GBR
32. I am optimistic about the future of my business in the GBR
33. My business has not performed this year as well as it did last year

Access to Reef resources/perceptions of equity

34. I do not have fair access to the GBR compared to other user groups
35. The rules and regulations that apply to my main fishery create too great a burden on my time

Stewardship

36. I would like to do more to help protect the GBR
37. I would NOT be personally affected if the health of the GBR declined
38. I regularly get involved in research and / or management for the GBR

Strength of belief in an action/ Motivation to change

39. I cannot make a personal difference in improving the health of the GBR
40. I try to encourage other people to reduce their impacts on the GBR

Norms

41. It is NOT my responsibility to protect the GBR
42. Commercial fishers should take steps to reduce their impacts on the GBR
43. Other fishers think that all fishers should reduce their impacts on the GBR
44. Other commercial fishers think that I should reduce impacts on the GBR.
45. It is the responsibility of all Australians to protect the GBR.

Control belief/barriers

46. I have the knowledge and skills to reduce any impact that I might have on the GBR
47. I do NOT have the time and opportunity to reduce any impact that my business might have on the GBR
48. It is too expensive for me to reduce any impact I might have on the GBR

Adaptive capacity

Risk

49. I am confident things will turn out well for me regardless of future events such as floods, cyclones or management change
50. I am uncertain how to plan for changes in the GBR that may affect me such as floods, cyclones, or management change

Planning, shared learning, experimenting, reorganising

51. I am good at developing scenarios of the future of my business and planning for them
52. I discuss new ways of solving problems associated with my business with others

Psychological and financial buffers

53. I am more likely to adapt to changes as a result of floods or cyclones compared to other coastal residents I know.
54. I have planned for my financial security

Interest in adapting to change

55. I am interested in learning how to better prepare my business for significant events, such as management change, cyclones and floods.

Behaviours

56. Do you (YES/NO)
- a. have fuel efficient engines
 - b. use an emissions calculator to plan your business operations
 - c. use Carbon offsets to counter emissions
 - d. have green energy, such as solar panels, for your vessel
 - e. use alternative fuels such as biodiesel and ethanol
 - f. participate in industry best practices via a code of practice, or MOU
 - g. participate in GBRMPA's Reef guardian fisher program
57. Please indicate which of these statements best describes your beliefs about climate change
(Please READ all statements; CHOOSE ONE)
- a. Climate change is an **immediate threat** requiring action
 - b. Climate change is a **serious threat**, but the impacts are too **distant** for immediate concern
 - c. I **need more evidence** to be convinced of the problem
 - d. I believe that climate change is **not a threat** at all
 - e. I **do not have a view** on climate change

How networks shape/inform decision-making and appreciation of GBR

58. On a scale of 1-10, how much do you trust the information you receive about the GBR from the following groups?
- A. Friends, family and colleagues
 - B. GBRMPA
 - C. Fisheries Queensland (not QBFP) Research institutions (e.g. CSIRO, Universities)
 - D. Industry Groups/representatives (e.g. from QSIA, RLC...)
 - E. NGOs and other community groups such as NRM agencies
 - F. Media (i.e. radio, newspapers, TV)
 - G. Social media (e.g. facebook, twitter)
 - H. Other commercial fishers

Demographics

59. Would you mind telling me...

- a. What year were you born? 19 _____
- b. What is your current home postcode? _____
- c. How many years have you lived in the GBR region (i.e. from Cape York to Bundaberg)? _____
- d. How many years have you operated in the GBR region? _____ yrs
- e. Are you currently married or have a partner? Y / N
- f. Do you have any dependent children? Y / N
- g. Do you have university or tafe education (i.e. beyond highschool)? Y / N
- h. What proportion of your **household** income came from commercial fishing in the last financial year? ___ %
- i. what proportion of your fishing income was from the GBR region? ___ %

Business related information

60. Do you mind telling me your business turnover (entire revenue), for the past 12 months, in broad categories? (*read out*)

- | | |
|------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> < \$20 000 | <input type="checkbox"/> \$100 000 to \$200 000 |
| <input type="checkbox"/> \$20 000 to \$60 000 | <input type="checkbox"/> \$200 000 to \$300 000 |
| <input type="checkbox"/> \$60 000 to \$100 000 | <input type="checkbox"/> \$300 000 to \$500 000 |
| | <input type="checkbox"/> > \$500 000 |

61. How many employees (full time equivalents) did your fishing business employ over the previous 12 months? _____

62. How many of your family members are also commercial fishers? _____

63. Do you have income protection insurance? Y / N

64. Do you have vessel insurance? Y / N

65. How old is your main vessel? ___ yrs

66. When did you purchase your main vessel? ___ yrs

67. a) Did you buy any form of technology for your vessel in the previous 12 months? Y/N

68. What proportion of your product do you sell in:

- | | |
|---------------------------|---------------------------|
| a. the local region: ___% | b. elsewhere in Qld: ___% |
| c. Interstate: ___% | d. Overseas: ___% |

69. What proportion of your product do you sell directly to different market types such as:

- | | |
|----------------------|--------------------------------|
| a. Wholesalers: ___% | b. Retailers: ___% |
| c. Restaurants: ___% | d. Members of the public: ___% |
| e. Other _____: ___% | |

70. *If you are a non-operator*, Do you mind if we also contact the person who is operating your licence, so their views can also be included? (*get contact details, including boat mark / licence number they're using*)

71. a) Finally – would you mind if we were to contact you again for future surveys? Y/N

b) Please confirm contact details. _____

72. *Would you like Nadine's contact details? Nadine 0439 073 010*

THANK YOU FOR YOUR TIME!



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