



National Environmental
Research Program

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Interim Report

The Social and Economic Long Term Monitoring Program (SELTMP) 2011

Social and Economic Conditions Great Barrier Reef



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The Social and Economic Long Term Monitoring Program (SELTMP) 2011 Social and Economic Conditions Great Barrier Reef

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Australian Government

Department of the Environment

Supported by the Australian Government's National Environmental Research Program
Project 10.1: Social and Economic Long Term Monitoring Program (SELTMP)

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This report should be cited as:

Marshall, N., Bohensky, E., Goldberg, J., Gooch, M., Lankester, A., Pert, P., Scherl, L., Tobin, R. (2012) The Social and Economic Long Term Monitoring Program (SELTMP) 2011, Social and Economic Conditions Great Barrier Reef. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (414pp.).

Published by the Reef and Rainforest Research Centre on behalf of the Australian Government's National Environmental Research Program (NERP) Tropical Ecosystems (TE) Hub.

The Tropical Ecosystems Hub is part of the Australian Government's National Environmental Research Program. The NERP TE Hub is administered in North Queensland by the Reef and Rainforest Research Centre Limited (RRRC). The NERP Tropical Ecosystems Hub addresses issues of concern for the management, conservation and sustainable use of the World Heritage listed Great Barrier Reef (GBR) and its catchments, tropical rainforests including the Wet Tropics World Heritage Area (WTWHA), and the terrestrial and marine assets underpinning resilient communities in the Torres Strait, through the generation and transfer of world-class research and shared knowledge.

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This report is available for download from the NERP Tropical Ecosystems Hub website:

<http://www.nerptropical.edu.au/research>

Acknowledgements

The Social and Economic Long Term Monitoring Programme (SELTMP) for the Great Barrier Reef is the result of a massive regional level initiative funded by the National Environment Programme (NERP), CSIRO Wealth from Oceans, James Cook University and the Great Barrier Reef Foundation. We have worked with strategic and technical advisors across state and federal government as well as with traditional owners, private industry, community, non-government organisations and from within the research fraternity. In fact, because we are working across so many stakeholder groups within the Great Barrier Reef, we have relied on the advice and technical assistance from over 100 people. We are deeply appreciative of their help. We won't list their names in SELTMP 2011, because SELTMP 2011 is very much a "proof of concept" product, and not quite ready for release. Nonetheless, we take this opportunity to acknowledge the tremendous collaboration that has occurred in the synthesis of what we know of the social and economic dimension of the Great Barrier Reef.

As you read through each of the chapters within this report you will notice many boxes that should report data but are, in fact, blank spaces (or an 'x'). These spaces represent data gaps. The priority in this report has been to identify these data gaps and to highlight the data that needs to be collected in order to meet the goals of the monitoring program. We aim to fill these data gaps in future reports.



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Chapter One

Introduction

Welcome to SELTMP 2011!

In this inaugural edition, the SELTMP team has synthesized available data to recreate a 2011 snapshot of the social and economic dimension of the Great Barrier Reef and its catchments. We include Traditional Owners, the marine tourism industry, the commercial fishing industry, recreational users and coastal communities. We also include ports and shipping, catchment industries and mining. Our aim is to enable readers to feel that – to a greater extent - they understand the human dimension of the region and the capacity to undergo change. We hope that this knowledge provides policy makers and leaders with a little more confidence to make decisions – whether they be decisions about resource protection or better ways to manage an industry or a small scale enterprise.

One of the main uses for the SELTMP will be to assist reef managers in their quest to manage the Great Barrier Reef. Ultimately natural resource management is effected through influencing people and their behaviour. Restraints on human activities will be essential for the future effective functioning of the Great Barrier Reef and for the communities and industries dependent on it. Yet, the very same initiatives designed to sustain long term supply of the Reef's goods and services to reef-dependent people will also impose significant, and often immediate, pressures on coastal communities and reef-based industries. People with the capacity to adopt such measures may be able to support the resilience of the ecosystem and in turn address their own well-being. However those without this capacity are likely to resist. The SELTMP may assist managers to understand and support the capacity of reef-dependent people to undergo change and be resilient and this may be as important for effective reef management as are efforts to build resilience of the ecosystem.

The SELTMP offers an opportunity to understand and monitor the growing threat of human actions on the region and the corresponding capacity of industries and communities to support ecosystem resilience. It offers reef managers, industries and communities the opportunity to understand the human dimension of the region and its capacity to face climate change, environmental degradation, regulatory change, cultural change and other crises such as a Global Financial Crises. It provides the potential to evaluate the effectiveness of management interventions and to assess equity dimensions within the region.

Here, we present the initial efforts of a massive collaboration between government, industry, community and researchers as we work together to develop a product that can address our aims. The SELTMP 2011 represents a “proof of concept” that will be refined in 2012 and again in 2013, at which stage we expect to have a very well designed monitoring programme. We welcome all comments and suggestions (nadine.marshall@csiro.au).

Chapter one

An overview of the region

The Great Barrier Reef region is exquisite. It is the largest and most diverse coral reef ecosystem on Earth, spanning 2,300km along the east coast of Queensland, Australia. The Great Barrier Reef catchment covers 86,602.6 square kilometres (i.e. 5.0% of Queensland)². Landscapes within the catchment are enormously diverse, and many are stunning in terms of their size, complexity and beauty. They include wet tropical rainforests, forests dominated by hoop pines, eucalypts and/or melaleucas; vine thickets; palm groves; open woodlands; and grasslands. Rivers make their way from the western highlands of the catchment through floodplains to coastal areas including swamps, sand dunes, beaches and tidal flats, before emptying into the receiving waters of the Great Barrier Reef which supports thousands of marine species.

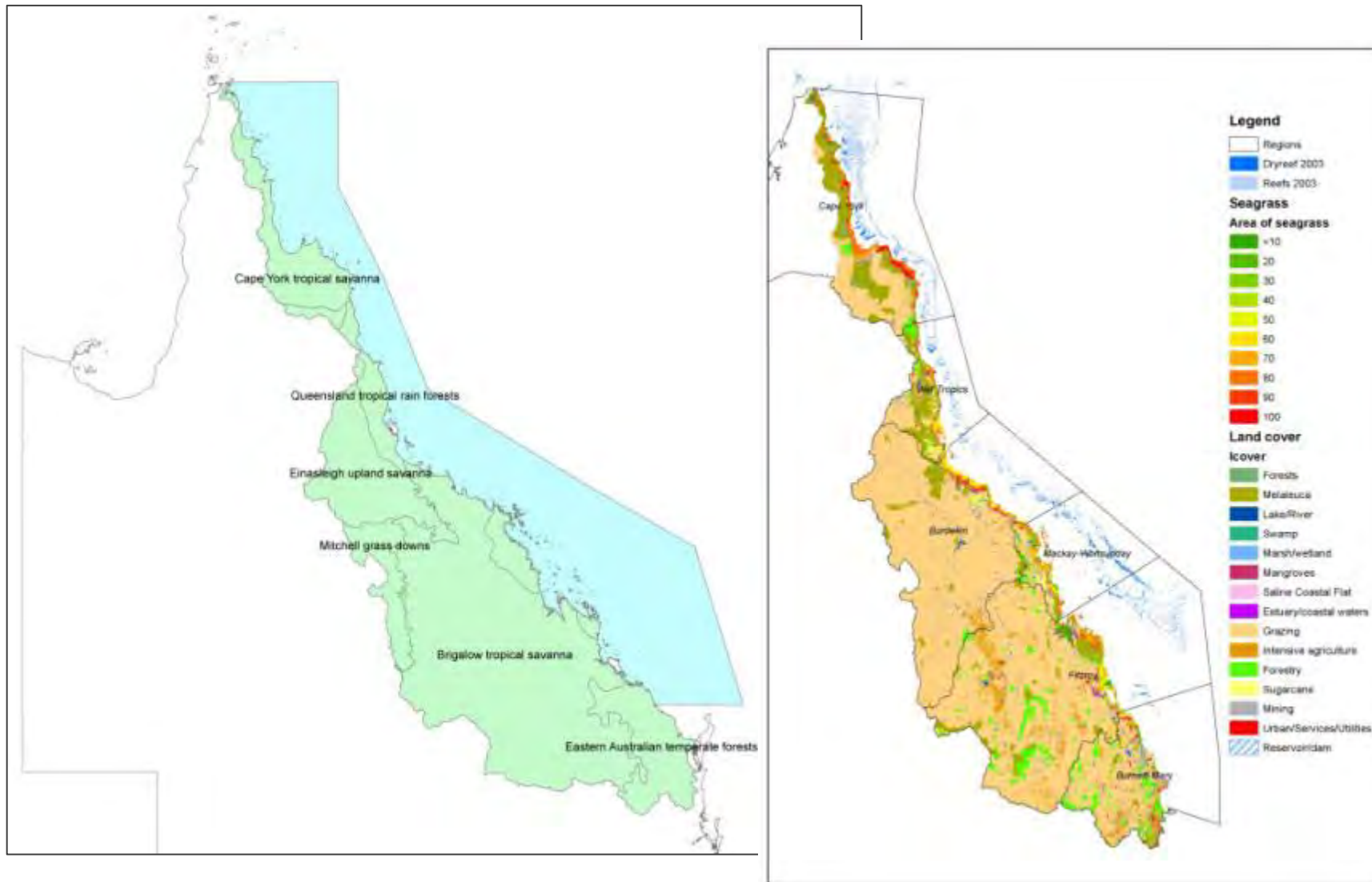
The Great Barrier Reef and its catchment have been enjoyed and exploited by people for a very long time. The region was first occupied thousands of years ago by several groups of Indigenous Australians who used marine and coastal resources for food, shelter and sites of cultural significance. Today over 940,000 people live, work and play in Great Barrier Reef coastal areas, islands, and waters.² The Reef provides local residents, tourists and visitors with a wealth of recreational opportunities including beach combing, snorkelling, diving, whale watching, yachting, fishing, reef-walking and island camping. The Reef brings \$5.1 billion into the Australian economy each year through reef-dependent industries such as tourism and commercial fishing, and provides jobs for over 50,000 people¹. In 1981 it was inscribed on the World Heritage List in recognition of its unique attributes. The Park is jointly managed by Commonwealth and Queensland governments¹. It is managed as a multiple use park, allowing a wide variety of human activities to occur including tourism, commercial fishing, recreation, ports and shipping, scientific research and Indigenous traditional use. A number of activities including oil drilling and mining are strictly prohibited in the Marine Park.

The far northern part of the catchment (from Cooktown to Cape York), supports two coastal communities. Cooktown has 2500 residents and Hopevale, 45km north of Cooktown, has a population somewhere between 1200 and 1500 permanent residents³. Road access to these remote settlements is limited, particularly in the wet season. Some 16% of the 4,222 people living in this far northern part of the catchment are Indigenous,³ and many maintain strong links to sea country. Because of the small population, industry is limited although about 1.7 million tonnes of silica sand are exported annually from Cape Flattery.⁴ The area also supports two small scale resorts and low intensity cattle grazing (50 to 60 hectares per animal).

The southern part of the catchment including the coastal areas from Cooktown to Bundaberg is much more heavily populated. This part of the catchment is largely cleared for agriculture including cattle grazing, cane growing and horticulture. There are currently 10 ports – mostly export bulk minerals/ coal and sugar. Urban centres are regularly spaced along coast from Cooktown to Bundaberg, and there are six larger centres on the coast with populations between 30,000 to 180,000 people. The largest of these urban settlements is Townsville. In Chapters Six to Sixteen we present a detailed picture of the human dimension within each of the six Natural Resource Management regions that comprise the coastline.

Chapter one

An overview of the region



Chapter One

The Design of SELTMP

SELTMP is a regional initiative involving a large number of representatives from Government, Industry, Community and Research. The design of the SELTMP has been divided into twelve working groups representing the major stakeholder groups and issues of the region. The working groups and the people that lead them are:

Coastal communities	Dr. Erin Bohensky	Traditional Owners	Dr. Petina Pert
Recreation	Dr. Renae Tobin	Marine Tourism	Jeremy Goldberg
Commercial fishing	Dr. Renae Tobin	Aquaculture	Dr. Renae Tobin
Catchment industries	Ally Lankester	Ports and shipping	Ally Lankester
Mining	Ally Lankester	Wellbeing	Dr. Lea Scherl
Drivers of Change	Dr. Erin Bohensky	Economics	Access Economics

Each working group is led by a researcher from CSIRO or James Cook University and comprises members from industry, government and community (including traditional owners). Some working groups have as little as five members within them, whilst others have over 25. These groups are focused on indentifying and meeting data needs. The SELTMP is also governed by a small steering committee and a large Stakeholder and Scientific Advisory Panel for “bigger picture” strategic direction. CSIRO, Wealth from Oceans, holds ultimate responsibility.

We anticipate that SELTMP will deliver an annual snapshot of the human dimension (SELTMP 2011, SELTMP 2012, etc.). Ultimately, future editions of SELTMP will comprise both primary and secondary datasets. (Primary datasets are collected for the purposes of the programme, whilst secondary datasets exist as publically available datasets).

This SELTMP 2011 edition refers only to currently available secondary datasets that have been collected within the region. Where 2011 data was not available, the most recent data is presented. Where no data is available, but deemed important in describing the human dimension, we have highlighted it as a priority for primary data collection (as “xx”). We hope to address these data points in the coming years.

Chapter One

Identifying Indicators

What should one report on in a social and economic long-term monitoring programme? Our approach has been to take a “bottom-up” approach and ask stakeholders, and to take a “top-down” approach and consult the scientific literature. We have been very much guided by the Millennium Ecosystem Assessment (2003, 2005), which established a big picture conceptual overview of the relationship between people and natural resources. The conceptual framework was developed in consultation with over 2,000 scientists, and offered an important starting point from which to understand the important elements within a linked social and ecological system such as the Great Barrier Reef.

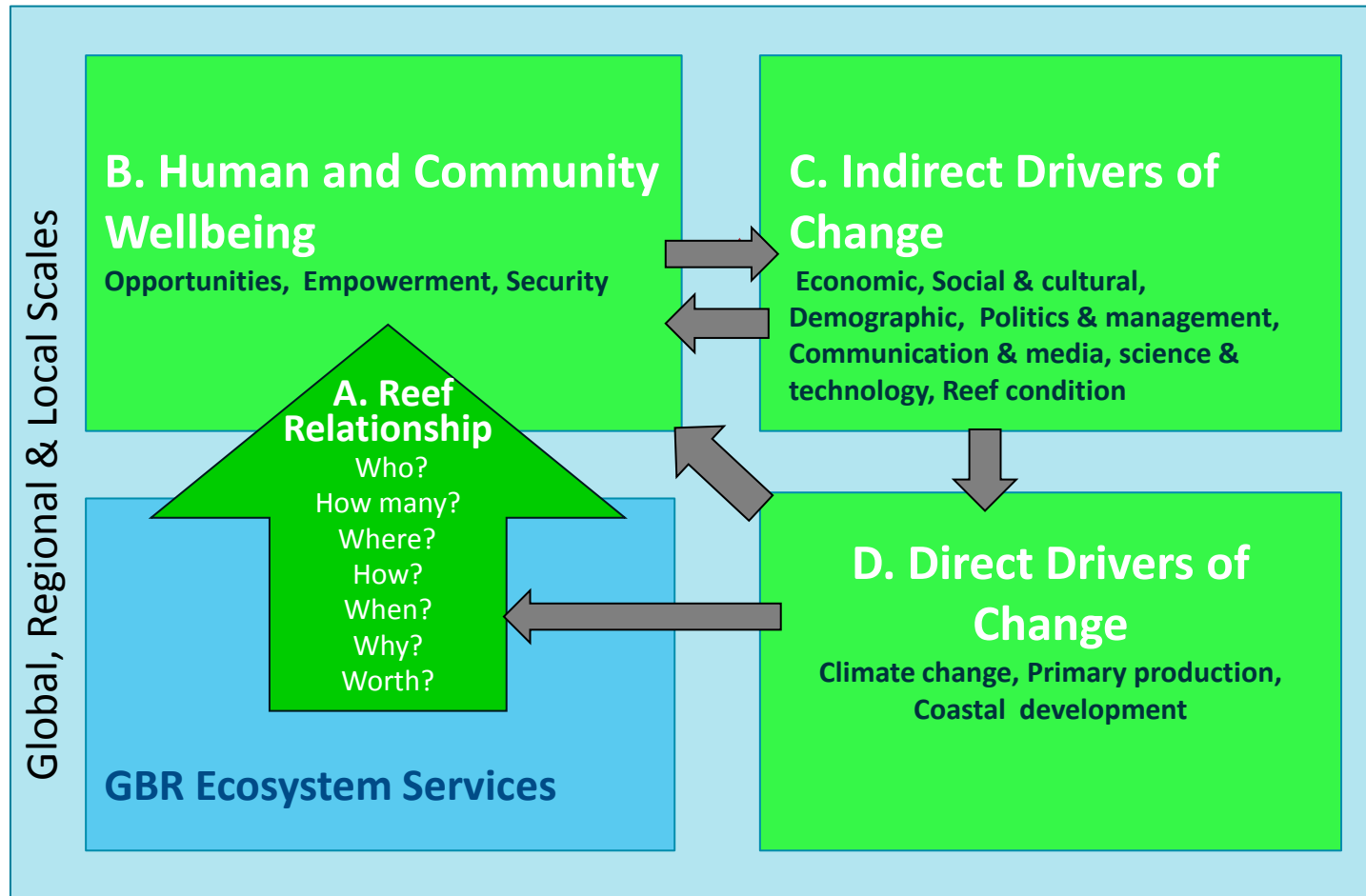
The conceptual framework for guiding the monitoring of the human dimension defines the relationships between *indirect drivers*, *direct drivers*, the *Great Barrier Reef ecosystem and its services*, and the *human well-being of end-user groups* at multiple spatial scales, from local to global, and multiple temporal scales, from short- to long-term. (see figure x).

An important premise of the SELTMP is that the social and ecological components of the Great Barrier Reef are intrinsically linked; the future of one depends on the future of the other. Human well-being is imparted to some extent through the goods and services provided by the Great Barrier Reef. The capacity of the Reef to provide goods and services is, correspondingly, determined by the wellbeing of humans and communities whom influence direct and indirect drivers of change on the ecosystem. Climate change, primary resource industry activities and coastal development are important examples of direct drivers of change within the region. Indirect drivers of change can affect the Great Barrier Reef’s ecosystems and end users indirectly through economic, demographic, social and cultural change, politics and management, communication and media, and science and technology. Indirect drivers can also affect human well-being directly (i.e., healthcare policies). Opportunities for strategies and interventions that can halt, reverse, or change a process exist at several points within the cycle.

Hence, the important components of the human dimension that SELTMP aims to monitor are; (A) the relationship between people in the region and the Great Barrier Reef (chapter two), (B) human wellbeing (chapter three), (C) indirect drivers of change (chapter four), and (D) direct drivers of change (chapter five).

Chapter One

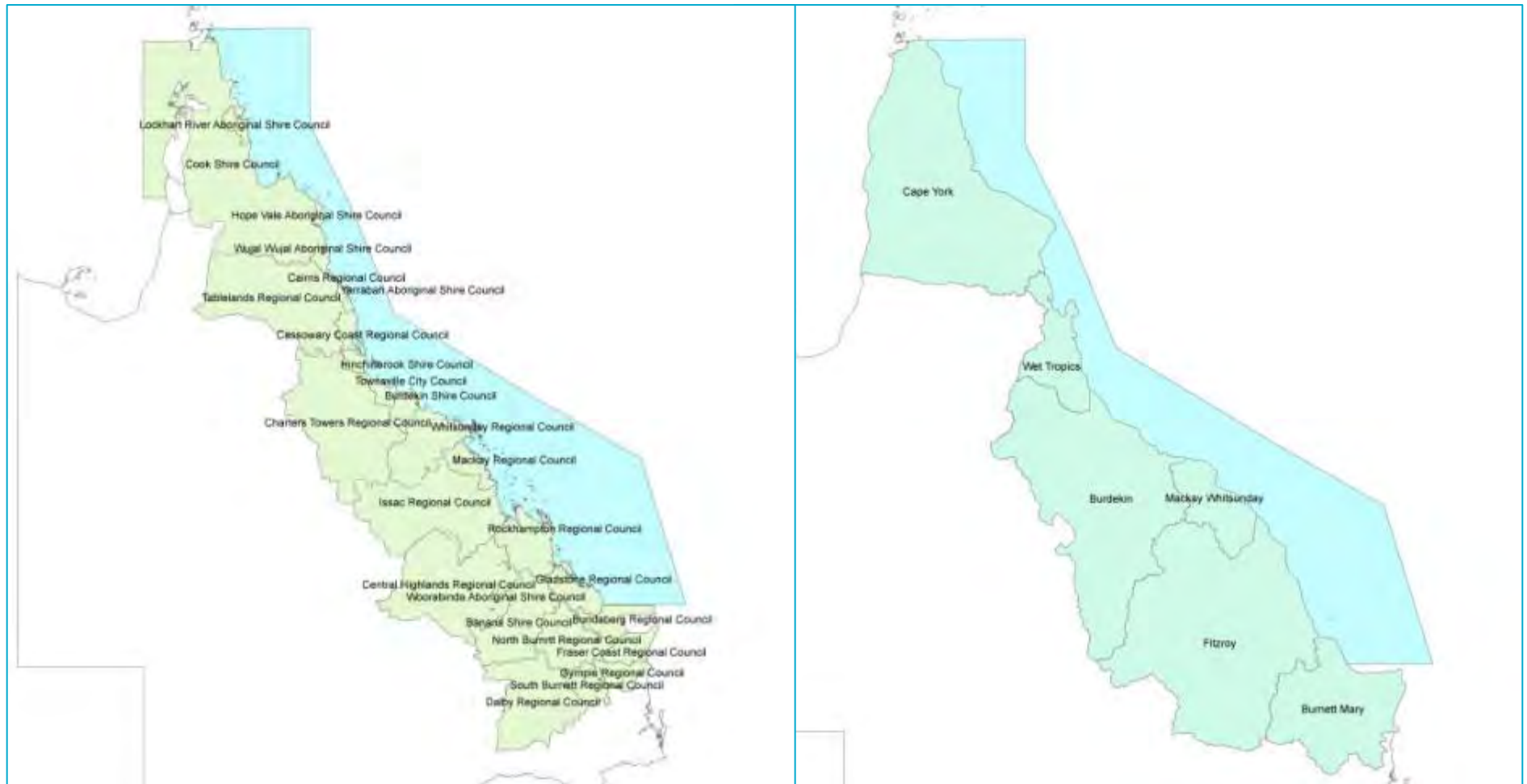
Conceptual framework



Green sections are monitored

Chapter One

Spatial units used in this Publication



Chapter One

How to Use this Publication

This publication is intended as a practical resource for coral reef and other tropical marine ecosystem managers, policy makers, conservation practitioners, academics, industry and community leaders, government employees, reef users and scientists in the tropical coastal region of the Great Barrier Reef. We describe the design for what we think makes an excellent social and economic long term monitoring program. We draw on the most up-to-date social and economic data available where possible. We have aimed to provide some background information for context and to support broad management decisions. However, the richness of this publication will grow through time as trends and historical information become incorporated. Readers interested in other aspects of the human dimension are directed to our working group members and the references cited for more information.

SELTMP 2011 is organized according to: (A) the relationship between people and the Great Barrier Reef, (B) human wellbeing, (C) indirect Drivers of change and (D) direct drivers of change. The guiding frameworks for data collection within each of these domains are described within each of the next four chapters (chapters 2-5). Chapters 6-10 describe the current status of each of the direct users of the Reef (marine tourism, commercial fishing, recreation, traditional owners and coastal communities). Chapters 11-19 describe the current status for each of the indirect users of the Reef (aquaculture, catchment industries, ports and shipping, and mining).

SELTMP 2011 is the inaugural year for what will hopefully be many more editions to come. As such, it is a single point in time and does not represent what future SELTMP editions will look like. The changes that we hope to make for subsequent years include the inclusions of: historical data; trends, interpretative material, and opportunities to recognize important changes.

References:

- Millennium Ecosystem Assessment, 2003: Ecosystems and human well-being: a framework for assessment. Island Press, Washington, D.C.
- Millennium Ecosystem Assessment, 2005. *Ecosystems and human well-being: synthesis*. Island Press, Washington, D.C.

Chapter Two

The Relationship between people and the Great Barrier Reef

People are dependent on natural resources in many ways. Understanding the nature and magnitude of this relationship is important for understanding how people might be sensitive to changes in that relationship. For example, resource-protection policies are frequently implemented so as to regulate the balance between resource access and use, however, they can inadvertently compromise the ability of resource-users to adapt and be resilient. Changes in the user-resource relationship can also be brought about changes in ecosystem condition either through an extreme event such as a cyclone or coral bleaching or through environmental degradation processes. An aim of the SELTMP is to provide readers with some understanding of how people relate to the Reef, so that readers might be better positioned to understand the likely consequences of changes to that relationship.

Understanding why and how people are dependent on a resource may provide insight into the ability of people to cope and adapt to changes in the user-resource relationship. It may assist resource-managers, communities and industries to design and implement resource-protection strategies that not only protect ecological values but also the social systems dependent upon them. Here, we present the key components that describe the relationship between resource-users and a resource with specific reference to Reef-users and the Great Barrier Reef. We combine practical needs of the stakeholders of the region with scientific thinking and refer to: who the Reef-users are, how many there are, where they are, where they go on the reef, when they go, how they go, how much they use the Reef, what do they do to/at the reef and why they go. We have developed the following Twelve-Point Framework that organizes these questions (the “Ws”) into social and economic factors and how the Reef is used. The framework guides the development and monitoring of indicators describing the relationship between people and the Reef.

Chapter Two

The SELTMP twelve point framework for describing the Reef Relationship

Social Relationship with the Environment: Who are the Reef users?

1. Place based factors
2. Identity based factors
3. Human capital factors (knowledge and adaptive capacity)
4. Social capital factors (networks and

Economic Relationship with the Environment: What is the relationship like?

5. Business approach: lifestyle versus production
6. Income and total value of industry
7. Financial dependency and investment in industry
8. Business size and employment in industry

Use of the Environment: Where, When, How, How Much, and Why

9. Environmental footprint
10. Spatial and temporal patterns of use
11. Activities and use
12. Environmental perceptions, stewardship and awareness

Chapter Two. The Reef Relationship

1. Place based factors

Indicators include:

- Attachment to place
- Perceptions of equity in access to Reef resources
- The different social, economic, heritage, cultural and aesthetic values attributed to different GBR locations
- Levels of visitor satisfaction and enjoyment associated with Reef experiences at specific Reef locations
- Identity created around a place
- Levels of understanding and appreciation of the natural, social, cultural and economic dimensions of the GBRWHA and specific locations within it held by Reef users and other stakeholders at local, regional, national and International levels

Important for: Spatial planning; understanding social impacts associated with moving place, likelihood that people will move elsewhere to maintain their income, the nature of engagement that could be employed, design of incentives, understanding the capacity to move elsewhere

For example: *Attachment to place*

“Attachment to place” is a concept that describes the level of connection that individuals have with their physical community or place. It provides meaning to comments such as, “I belong here” or “I live by the Great Barrier Reef”, the sense of pride associated with belonging to the town or region, and the strong friendships and networks that exist within it. The level of attachment that people have to their community may be an indicator of their willingness and ability to search for employment or lifestyle elsewhere as well as to undertake additional stewardship activities. The attachment that Reef-users have to their community may be an important predictor of how they might respond to a new policy and adapt.

Chapter Two. The Reef Relationship

2. Identity based factors

Indicators include:

- Personal connection to the GBR either through their employment (occupational identity), identity associated with stewardship activities, place of residence or recreational activities
- Importance of family and or spiritual connections or cultural ties associated with the GBR that reinforces the identity people create about themselves

Important for: designing buy-back schemes, closing down sectors, regulations that mean income might be compromised and people might need to consider alternative livelihoods, designing social incentives, understanding likely impacts associated with extreme events, understanding the capacity to work elsewhere

For example: Occupational Identity:

Resource-users can become especially dependent on a resource because of their level of attachment to their resource-based occupation. Resource-users can be affected by their work in such a way that their work relationships, interests and values permeate their non-working lives. An attachment to an occupation is usually developed and reinforced by interacting with others within the profession both during working hours and outside of working hours. The more firmly attached a person becomes to his/her occupation, the more traumatic and disorienting a change in occupation is likely to be.

Chapter Two. The Reef Relationship

3. Human Capital Factors

Indicators include:

- Levels of education, age and skills within the catchment population and within Reef-dependent industries
- Adaptive capacity which is defined here as: (i) how risk is perceived, (ii) strategic skills, (iii) psychologically coping with change and having a financial buffer, and (iv) interest in change, but also includes resources that are important for enabling change processes to occur such as emergency services) within the catchment population and within Reef-dependent industries
- The knowledge that people have about the Great Barrier Reef and phenomena such as climate change
- The extent to which Reef stakeholders, visitors, local residents and Traditional Owners use their Great Barrier Reef activities and experiences as a way of maintaining and enhancing their connections with family and friends.
- The extent and type of personal and community health benefits attributed to the Great Barrier Reef – eg opportunities for relaxation, stress-relief, Indigenous use of marine resources for health.

Important for: understanding the capacity for people to cope with change and adapt, the current level of knowledge pertaining to the GBR, understanding the cultural and spiritual connection that people have with the Great Barrier Reef

For example: The capacity to adapt

Individuals incorporate change into their lives for various reasons and with varying success. The capacity to adapt describes the potential of people to take advantage of opportunities and create a desirable future. Whilst resources are vitally important in assisting the adaptation process, they do not guarantee adaptive success. People that are more likely to be adaptive tend to possess the following four characteristics: (i) can manage the risks and uncertainty associated with change, (ii) have skills for planning, experimenting, reorganizing, (iii) have distant financial and psychological thresholds, and (iv) have an active interest in change.

Chapter Two. The Reef Relationship

4. Social capital factors

Indicators include:

- Quality and strengths of formal and informal networks
- Physical isolation from major centre
- Language spoken at home and computer literacy
- The norms, attitudes , values and perceptions that are created around behaviour that affects the GBR

Important for: understanding the capacity to receive information and respond, understanding the likely response to small regulatory or voluntary changes, engagement, understanding the collective knowledge developed about the GBR and the different values of the GBR region

For example: *Quality and strength of formal and informal networks*

Networks can be formal - through legal structures and government agencies, or informal – through friends, families and associates. Individuals with stronger, more informed and more effective networks have reciprocal connections of interactions, increased levels of trust and access to information that are exchanged for mutual benefit. The level of networks within a community provides some indication of the capacity for a community to cope with change and adapt. It helps to explain the ease with which change events are accepted and incorporated into people's lives. Individuals with stronger, more informed and more effective networks are generally more resilient than those with weaker ties.

Chapter Two. The Reef Relationship

5. Strategic approach

Indicators include:

- Business approach; lifestyle versus production orientation
- Extent of insurance
- Strategic access to markets, consumer choices, supply chain
- Access to finance
- Use of technology

Important for: understanding the extent that businesses will see opportunity in change and have the capacity to respond, considering compensation, designing financial incentives, buy-back schemes, understanding the capacity to absorb the costs of change

For example: *access to finance*

The extent to which people can access finance through networks and possess a financial buffer can significantly influence the extent to which they can effectively respond to change. People with a lower ability to access finance often lack the flexibility with which to successfully absorb the costs of change and are often reluctant to take on further risks. Having access to credit especially during crises times can significantly increase adaptive capacity.

Chapter Two. The Reef Relationship

6. Income, worth and economic value

Indicators include:

- The value of the income derived from both Reef-dependent and non-Reef dependent economic activities that occur in the Great Barrier Reef World Heritage Area and the GBR catchment.
- Income derived from Reef-dependent industries outside of the catchment

Important for: understanding the financial value or contribution that a stakeholder group makes to the region, the capacity to absorb the costs of change, the momentum created around an established initiative or industry

Chapter Two. The Reef Relationship

7. Financial dependency and investment

Indicators include:

- value of assets, mortgage levels
- diversity of household income
- employment by occupation
- sources of income

Important for: predicting likely social and economic impacts associated with change, resistance to change from industry, understanding likely impacts associated with change, the capacity to absorb the costs of change, understanding the flexibility to undergo change

For example: diversity of income:

In regions around the world where conditions are less stable, individuals tend to diversify their income sources to spread risk, manage seasonality, increase flexibility, achieve stability and better cope with shocks in any one system. These individuals can be expected to have more options for responding to management changes to key resources. However, diversity comes at a cost which is reflected in the development of specialist skills sets either within a household or community. Less diversity is associated with regions that are typically stable

Chapter Two. The Reef Relationship

8. Size and structure

Indicators include:

- Business size, number of employees, annual turnover of resource-dependent enterprises
- Employment levels in (a) Reef-dependent and non-Reef dependent economic activities that occur in the Great Barrier Reef World Heritage Area and its catchment; and (b) employment associated with Reef-dependent industries (ie commercial fishing, recreation and marine tourism) that occurs outside of the GBRWHA and catchment

Important for: predicting likely resistance to change from industry, understanding likely impacts associated with change, the capacity to absorb the costs of change

For example: Business size

The size of a resource-dependent enterprise can influence their level of dependency on the resource.

Business size is a potential indicator of the business skills that people possess, of their competitive advantage within the resource industry and their level of transferable skills outside of the resource industry. For example, larger businesses can buffer themselves from unpredictable problems such as mechanical breakdowns and fluctuations in the weather. They can take bigger risks and experiment with their options for the future. In addition, owners of larger companies are more likely to have the ability to motivate, plan, organize and act and are more likely to be driven by economic incentives to harvest the resource. Lifestyle operators on the other hand are less likely to be competitive in a business-sense.

Chapter Two. The Reef Relationship

9. Environmental footprint

Indicators include:

- Environmental footprint of marine, coastal and catchment industries including urban & industrial development and development on islands and reefs (eg pontoons)
- Population growth, population density, growth of industries (e.g. building approvals), number of buildings, sewage, electricity use, motor vehicles per dwelling, investment infrastructure, boats per dwelling, number of boats

Important for: understanding cumulative impacts and providing an impetus for change.
Also to understand the likely barriers to change and to appreciate the momentum already created along a development trajectory

Chapter Two. The Reef Relationship

10. Spatial and temporal patterns of use

Indicators include:

- Spatial and temporal use patterns of different types of Reef visitors and Reef users. E.g. where do people go, when and how often, key ports and ramps, distances travelled,
- Valuable places
- Location of people's homes and businesses

Important for: spatial and temporal planning, identifying spatial and temporal conservation options with least social impact

Chapter Two. The Reef Relationship

11. Activities and use of the Great Barrier Reef

Indicators include:

- Degree of specialization, gear used, diversity of gear used
- Technology used
- Tourism behaviour
- Consumer behaviour

Important for: understanding likely social impacts associated with change

For example: Specialization

Resource-users who are highly specialised can be severely restrained in their ability to be flexible and adapt to changes in the resource relationship. Specialisation often occurs as the result of capital being secured in special equipment. This increases the efficiency of the operation and decreases the price of the product and maintains social status; however, it increases dependency on current practices.

Chapter Two. The Reef Relationship

12. Environmental perceptions, norms, stewardship and awareness

Indicators include:

- The extent to which people (including stakeholders and the broader community) at local, regional, national and International levels are aware of the GBRWHA; appreciate its natural, historic and cultural values; and understand issues related to it.
- Local environmental knowledge of GBR region by resource-users as indicated by recognition of environmental feedbacks
- Environmental awareness of 'social norms',
- Compliance rates
- Subscription to voluntary schemes, Reef guardian membership, adoption of best practices, GBRMPA's Reef Guardian program, GBRMPA's community engagement program, GBRMPA's communications and education strategies

Important for: understanding the extent that new practices will be accepted

For example: Environmental awareness

Environmentally educated and resource-users that subscribe to social norms of environmental sustainability tend to be more flexible and supportive of resource-protection strategies. They can develop identities such as 'marine steward', which makes them less dependent on traditional resource management practices, and more willing to adapt new practices that enhances not only their own resilience to change, but that of the environment.

For example: Local environmental knowledge

Some individuals have invested substantially into developing local environmental knowledge and can detect subtle changes in resource condition over time. However, this investment usually means that individuals are less likely to move and develop it again elsewhere. While individuals with high levels of local knowledge are often

Chapter Three

Human and community well being

This chapter addresses the relationship between the Great Barrier Reef and Human and Community Wellbeing. To understand such a relationship it is important to reinforce the notion that the Great Barrier Reef (and its status as a Marine Park and World Heritage Area) exists within a social, cultural and economic context which is complex and is described in more detail through the different direct and indirect drivers of change chapters that follow in this report. Although conservation and natural resource management initiatives are not primarily set up to address human and community wellbeing, they are increasingly expected to be accountable with respect to these attributes. This is in part a legacy of the Millennium Ecosystem Assessment process and its resulting frameworks, which make it clear that there are connections between ecosystem goods and services and human wellbeing (Millennium Ecosystem Assessment 2005). In doing so, they also send a strong message that what takes place in the natural environment affects the wellbeing of people and communities. Moreover, there should be greater responsibility to incorporate such a relationship (i.e. ecosystem goods and services and human wellbeing) as integral to management interventions and that individuals and communities play an important role in supporting these interventions.

Chapter Three. Human and community well being

Why do we need to understand human & community wellbeing?

The status of the Great Barrier Reef as a World Heritage area brings along with it an added layer of responsibility with respect to its management. The World Heritage Convention obliges State Parties to the convention to identify, protect, conserve, rehabilitate, present and transmit to future generations the natural and cultural heritage of the World Heritage properties within its territory (Article 4). The convention also obliges State Parties to *'adopt general policies which [aim] to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programs'* (Article 5 (a), World Heritage Centre 2012). Understanding the links between environmental values and services and human and community wellbeing, as part of the SELTMP, will contribute towards the Australian Government and management agencies meeting their obligations with respect to the World Heritage Convention, i.e. with respect to the GBRWHA providing a 'function in the life of the community'.

In addition, there is a tremendous paucity of information through studies conducted within the GBR with respect to addressing these direct links between environmental values and services and human and community wellbeing. Whilst the topic of human wellbeing of residents of coastal communities adjacent to the GBR has received attention previously (e.g. Silva 2010), how much such human wellbeing is perceived to be directly related to or dependent upon the environmental goods and services provided by the GBR is still very much untapped research terrain. Nevertheless, there is ample acknowledgment that the GBR has a value that goes beyond any market or economic values (e.g. Stoeckl et al 2011). Many studies that address only selective facets of such values, such as the opportunities for recreation and tourism experiences, have been conducted previously (see other chapters in this report). There is also a growing movement linked to promoting the notion of 'Healthy Parks, Healthy People' that is exploring the many ways in which nature and parks significantly contribute to our health and wellbeing (Healthy Parks, Healthy People 2010). These reasons (identified in the paragraph above) are also important considerations for including a more holistic understanding of human and community wellbeing as a cross cutting theme within the SELTMP. Supporting such efforts here, are growing calls in the literature that wellbeing connections to nature need to be addressed in the context of marine and coastal strategies (e.g. Koss and [Kingsley](#) 2010) and that enhancement of health and human wellbeing is an important pillar of effective coral reef governance (Schuttenberg 2010). Some studies elsewhere have already been addressing these topics and their relevance to management in the marine environment (e.g. Gjertsen 2005; Koss and Kingsley 2010; Scherl 2008, van Beukering et al., in preparation).

Chapter Three. Human and community wellbeing

What is human & community wellbeing?

Human and community wellbeing refers to the goodness of a person or community's life, or to some aspect of it such as health, relationships with others and the environment, a sense of belonging to a place or a group, or spirituality. We make a distinction that there are two levels of wellbeing; one related to individuals and the other that encompasses community at large. The latter is often also referred to as 'quality of life' (Gasper 2010) with human wellbeing as the 'subjective' dimension of such quality of life (Cummins 2007). Human and community wellbeing is not only about individual or community needs that are being met but also about the freedom to exercise choice and the opportunity to have an influence on factors that affect one's life conditions (c.f. Coulthard et al 2011). The concept of wellbeing comprises both notions of feeling good and functioning well. "Feelings of happiness, contentment, enjoyment, curiosity and engagement are characteristic of someone who has a positive experience of their life. Equally important for well-being is our functioning in the world. Experiencing positive relationships, having some control over one's life and having a sense of purpose are all important attributes of wellbeing" (Aked et al., cited in White 2009b, p. 5). In summary, the notion of wellbeing provides a holistic and positive perspective to understand the connections between the GBR and individuals and communities.

Chapter Three. Human and community

A framework for monitoring human & community wellbeing

Social assessments of conservation initiatives, and approaches to undertake these assessments, are now receiving far more attention with a comprehensive global review conducted quite recently (Schreckenberg et al 2010). The overall framework proposed here is part of this review. It borrows from the development literature (the World Bank Attacking Poverty framework) and was first identified as a useful framework for the conservation and natural resource management (NRM) context by Scherl et al 2004 (noting here that the concept of poverty reduction is interchangeable with the concept of human wellbeing). It was then used to specifically address the relationship between marine protected areas and poverty reduction/human wellbeing (with indicators tailored to the marine environmental management context) in four countries (Scherl 2008, van Beukering et al., in preparation).

This framework portrays human and community wellbeing as a multi-dimensional and dynamic concept whereby the dimensions are inter-linked can affect each other and sometimes be overlapping; following from the holistic notion of wellbeing mentioned above. The generic human and community wellbeing framework, as a proposed component of the Socio-Economic Long-term Monitoring framework, is presented below in Figure x.

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A framework for monitoring human & community wellbeing

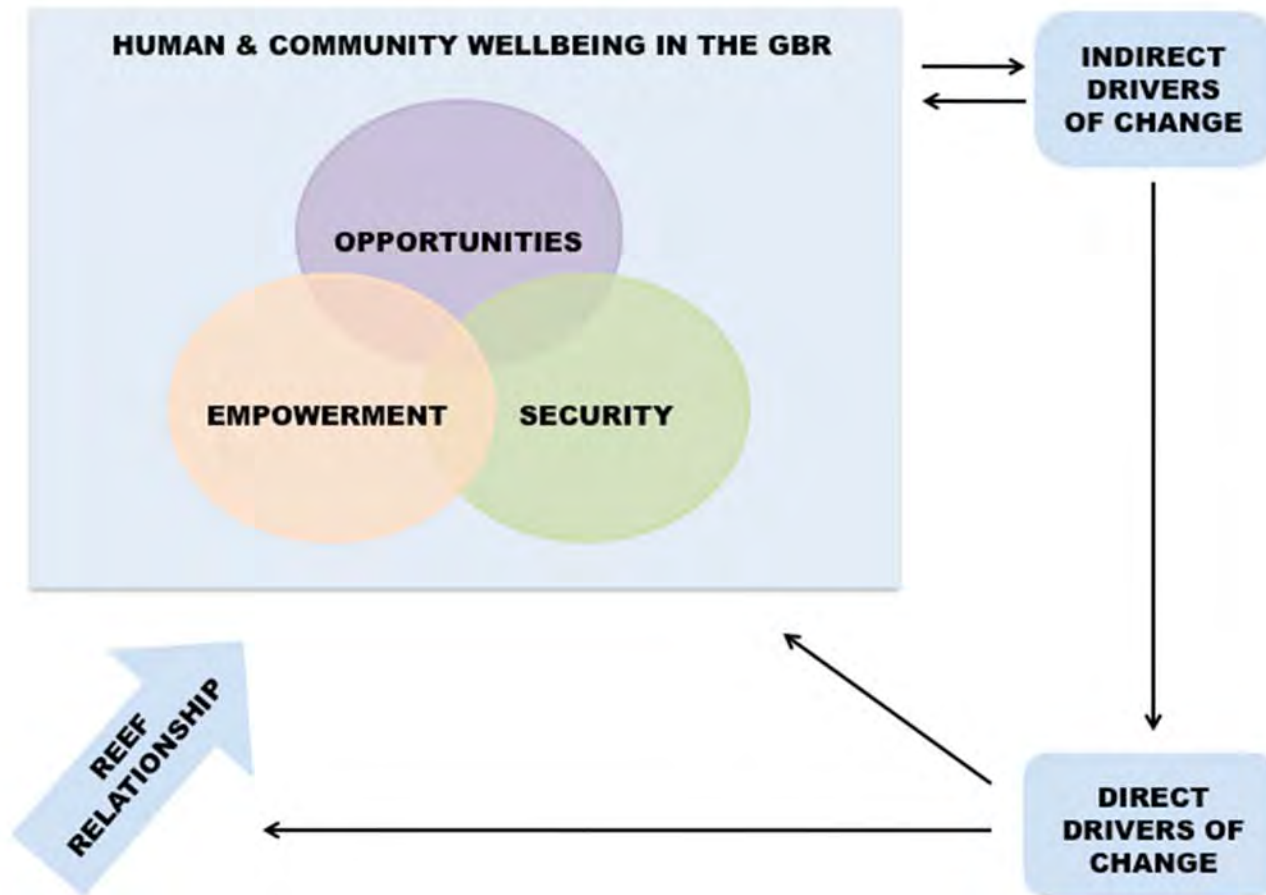


Figure x: Proposed Framework to Understand Human and Community Wellbeing in the GBR. The indirect and direct drivers of change and the range of reef relationships described in the next chapters all affect human and community wellbeing.

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A framework for monitoring human & community wellbeing

The indirect and direct drivers of change and the range of reef relationships described in the next chapters all affect human and community wellbeing.

The rationale and its relevance to the Great Barrier Reef Marine Park for each of the broader dimensions follow. They are addressed from the perspective of people, groups and industries associated with the GBR (i.e. what do opportunities, empowerment and security mean to people, groups and industries)?

Opportunities refers to 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. Whilst there can be conflict amongst opportunities, addressing those is part of maintaining a wide spectrum of such opportunities within a multiple use marine park like the GBR.

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. Multiple-use protected areas like the GBR are more than just a biophysical location wherein ecological integrity and ecosystems services are sustained. It is also the associated governance mechanisms including its cultural and social institutions, legal and policy frameworks and the partnerships and collaborations that have been established for effective management, and how people perceive these are functioning.

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.

Impacts on one dimension can potentially affect others, so it is important to look at the dimensions as an interconnected web. For instance, taking away opportunities for resource access without relevant user groups perceiving they can contribute to such a decision can have an impact on people's perceptions of stability, equity and ultimately pride that one or a group may feel in relation to the GBR. Being unaware of cultural traditions because of lack of empowerment of relevant groups can impact on opportunities and sense of belonging, and undermine social cohesion. Decisions related to development activities that impact on environmental quality can also impact on human health, sideline some user groups from a particular area and may erode confidence in the governance mechanisms that exist in the GBR.

Chapter Three. Human and community well being

Human & community wellbeing indicators

The indicators presented below are portrayed from the perspective of individuals, groups or industries (i.e. their perceptions of these indicators in relation to the GBR and its management). They are also meant to be cross cutting for a number of users of the GBR, but not all indicators will be suitable to every direct or indirect user group. They are derived from analysis of the following sources of material:

1. A *selective* literature review of both: (i) research and frameworks related to different types of uses, experiences within, and perceptions of, the GBRMP as well as management and governance practices (see other chapters in this volume); and (ii) research from elsewhere on the specific relationship between conservation and NRM programs and human and community wellbeing, particularly in marine environments (e.g. Gjertsen 2005; Scherl 2008; Schuttenberg 2010) and the growing literature showing interest in the identification of indicators to measure benefits of conservation initiatives and protected areas (e.g. Dudley and Stolton 2008, Pabon-Zamora et al 2008, Schreckenberget al 2010);
2. Information from stakeholder meetings that have been conducted over the past 12 months for development of the comprehensive SELTMP for the GBR;
3. Information which, at the time of writing, was just emerging through the process of the GBRMP Strategic Assessment and the accompanying stakeholder workshops that have taken place during the last 12 months and was shared within the SELTMP team; and
4. The practical knowledge and experiences of the SELTMP GBR team conducting relevant research.

There are three points worth noting in this first SELTMP GBR report:

Items b) and c) above provide a good basis and reality check, in the interim, from the perspective of users about the indicators (in the absence of much previous systematic research and the ability to conduct a multi-stakeholder workshop to validate such indicators thus far).

While a comprehensive list of human and community wellbeing indicators have been identified and are provided below, the SELTMP GBR will not be able to monitor all of these from the outset. A process for further definition and refinement of those indicators to be monitored is part of the next steps (see also chapter footnote).

The final Indicators that are chosen for long-term monitoring have to be relevant both across groups (at a broader level) and within each specific group (tailored for different groups at the more specific level). A nested approach for indicators of human and community wellbeing is recommended.

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Human & community wellbeing indicators

DIMENSIONS OF HUMAN AND COMMUNITY WELLBEING	RECREATION BROAD INDICATORS	RECREATION SPECIFIC INDICATORS
OPPORTUNITIES	<i>Employment, income, contribution to livelihoods</i>	<ol style="list-style-type: none"> 1. Direct employment in industry related to GBR 2. Contribution to livelihoods
	<i>Recreation, tourism and enjoyment</i>	<ol style="list-style-type: none"> 1. Recreation and sport 2. Maintenance of wide spectrum of uses and access
	<i>Skills and capacity building for management and stewardship</i>	<ol style="list-style-type: none"> 1. Skills and training to contribute to management available
EMPOWERMENT	<i>Contribution to decision-making</i>	<ol style="list-style-type: none"> 1. Direct contribution to decision-making and management 2. Integration of local and direct users' knowledge in management and decision-making
	<i>Collaborative and effective governance</i>	<ol style="list-style-type: none"> 1. Effective partnerships (to support management, sustain industries, maintain spectrum of opportunities) 2. Effective models for management (e.g.; co-management) 3. Promotion of mutual respect amongst stakeholder groups and knowledge holders 4. Clear and transparent policies, guidelines and management decisions and actions 5. Clear legal obligations 6. Equity (across groups and intra and inter generations)
	<i>Knowledge and stewardship</i>	<ol style="list-style-type: none"> 1. Knowledge, understanding and appreciation 2. Mechanisms and activities for promoting stewardship 3. Freedom of choice to act
	<i>Cultural respect and rights</i>	<ol style="list-style-type: none"> 1. Historical value and evolving cultures (stewardship, incorporation in management, respect)

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Human & community wellbeing indicators

SECURITY	<i>Health and quality of life</i>	<ol style="list-style-type: none"> 1. Overall quality of life (at the individual and community level) 2. Human and community health
	<i>Group, organization membership and relationships</i>	<ol style="list-style-type: none"> 1. Belongingness of a group, organization or networks 2. Social cohesion 3. Relationships (family, friends, community groups)
	<i>Environmental quality, amenity and aesthetics</i>	<ol style="list-style-type: none"> 1. Aesthetics/Visual amenity 2. Health of environmental values and services (water quality, reef abundance and health, diversity and abundance of marine life, condition of coastal beaches and islands)
	<i>Identity, sense of place, pride</i>	<ol style="list-style-type: none"> 1. Identity, sense of place and attachment, personal connection, pride 2. Cultural, spiritual connection
	<i>Sustainability and resilience</i>	<ol style="list-style-type: none"> 1. Sustainability of industries 2. Food provisioning 3. Management effectiveness 4. Climate change mitigation and adaptation efforts 5. Buffer to natural disasters

Note that this is only a preliminary assessment of the suitability of those indicators for those different user groups (needing further refinement subsequently) and primarily from the perception of those groups.

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Chapter Four.

Drivers of change in the GBR region

Identifying and monitoring drivers of change in the relationships between the Great Barrier Reef and end-users is essential for three reasons. First, to be able to interpret the data that we collect in SELTMP, we need to understand mechanisms of change in the variables of interest (Biggs et al. 2011, Ferreira et al. 2011). For example, if tourism numbers drop one year, we need to have a reasonable idea of possible causes. Second, as temporal datasets are developed, it becomes possible to anticipate outcomes, and possibly even enhance our predictive abilities – but this too is dependent on an understanding of drivers. Third, drivers are important to monitor in order to document the context or backdrop of change; in other words, in 25 years' time, what will we need to know about 2011 to interpret what happened in the variables we monitored that year? (see Figure 1. Snapshot of 2011: Top Stories in the News).

Monitoring is based in part on repeated measurements of the same variables. The challenge here is that the important drivers in a system themselves change over time. This highlights how crucial it is to practice adaptive monitoring. An adaptive monitoring framework enables monitoring programs to evolve iteratively as new information emerges and research questions change (Lindenmayer and Likens 2009). Key issues facing the Great Barrier Reef's managers have changed over time. In the 1970s, managers were concerned with limestone mining and oil drilling in the 1970s, then crown-of-thorns and increasing tourism in the 1980s, and climate change and increased risks from shipping today (GBRMPA 2012).

For SELTMP, our approach to identifying and monitoring drivers is two-fold. It includes a “bottom up”, inductive component in which we elicit expert opinion through end user workshops, and a “top down” deductive approach based on a review of existing conceptual frameworks and literature. Key among these frameworks is the Millennium Ecosystem Assessment (2003, 2005) conceptual framework, which distinguishes categories of direct and indirect drivers. Among the literature, we highlight the CSIRO *Our Future World* megatrends (published annually). We discuss each of these below.

Chapter Four. Drivers of change

Introduction

The Millennium Ecosystem Assessment (MEA) was a four-year international work program to bring scientific information about the relationships between ecosystems and human well-being to decision makers in government, academic and research institutions, communities, and private industry (MEA 2005). The conceptual framework that guided the program describes relationships between indirect and direct drivers of ecosystem change, ecosystem services, biodiversity, and human well-being. Indirect drivers identified by the MEA include demographics, economy, institutions, technology, and culture and religion. These can affect human well-being directly or indirectly via direct drivers, which include environmental processes such as land use, hydrological modification, and species introductions, which in turn affect ecosystem services and human well-being as a consequence. In summary, direct drivers can be thought of as the immediate pressures on the GBR and its users. Indirect drivers are the underlying causes of these pressures.

Other terms used to distinguish drivers are endogenous and exogenous (MEA 2003). An endogenous driver is one whose magnitude can be influenced by the decision-maker. The endogenous or exogenous characteristic of a driver depends on the organisational scale. Some drivers (e.g., prices) are exogenous to a decision-maker at one level (a farmer) but endogenous at other levels (the nation-state). An exogenous driver is a driver that cannot be altered by the decision-maker. This can be a useful way to think about drivers as it identifies the agents who currently are, or ideally should be, responsible for changing or mitigating drivers that have negative consequences for the GBR and end users. SELTMP drivers can also be described as region-wide or specific to an end-user group. The value of the Australian dollar against other major currencies, for example, affects nearly all end users, but it may have different consequences for tour operators and for communities where the manufacturing sector is a large contributor to the economy. There are complex inter-relationships between drivers; in fact, one group that uses the GBR and their activities may be considered a major driver of change for another user group. For example, ports and shipping are viewed as drivers by coastal communities and traditional owners.

Box 1. Definitions

Driver: Any natural or human-induced factor that directly or indirectly causes a change in an ecosystem.

Direct driver: A driver that unequivocally influences ecosystem processes and can therefore be identified and measured to differing degrees of accuracy.

Indirect driver: A driver that operates by altering the level or rate of change of one or more direct drivers.

Endogenous driver: A driver whose magnitude can be influenced by the decision-maker.

Exogenous driver: A driver that cannot be altered by the decision-maker.

Source: Millennium Ecosystem Assessment (MEA) 2003

Chapter Four. Drivers of change

Introduction

Among the literature we reviewed, a report called “Our Future World” that CSIRO will produce annually from 2012 was particularly informative for thinking about broad global and national trends. “Our Future World” describes a narrative of the future through six interlinked megatrends – defined as a significant shift in environmental, economic and social conditions that will play out over the coming decades (Hajkowicz et al. 2012). These trends are updated via a trends database and through broader public comment through forums such as online web blog The Conversation (<http://theconversation.edu.au/pages/our-future-world>). The five megatrends identified in the inaugural 2010 report are listed in Table 1 (no report was produced in 2011), and some of the data presented below draws on the 2012 update.

To help apply the MEA conceptual framework in a way that ensured its relevance to the GBR, we consulted other studies that identified drivers in the GBR. This included a synthesis of futures studies at global, national and regional (e.g., GBR) scales, representing several decades’ worth of research on drivers and trends (Bohensky et al. 2011), as well as a GBR scenario planning study that interviewed 47 leaders in academia, business and government about key drivers of change and their dynamics for the region (Bohnet et al. 2008), and more recent scenarios of climate change adaptation developed by Evans et al. (2011).

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A “snapshot” of 2011: defining events in the news



Figure 1. Source: *The Australian*. 2011: The Year in Review. www.theaustralian.com.au/in-depth/2011-year-in-review. See next page for details.

Chapter Four. Drivers of change

The Direct Drivers of Change for the GBR region

Table 2. Direct drivers of change in relationships between Great Barrier Reef and end users.

Driver Category	Influence (modified from Outlook Report 2009)	Drivers identified by working groups	Indicator(s)
Climate change	Change in climate can affect reef condition, aesthetics, productivity, and function.	Sea temperatures, ocean pH, greenhouse gas concentrations, climate change	Not monitored directly by SELTMP - see Outlook Report.
Primary resource industry activities	These activities include terrestrial and marine resource modification, extractive use, and runoff from catchment-based industries, and have a range of influences on the reef and its users.	Use of fertilisers and pesticides in farmlands, stocking rates of cattle, intensification agriculture, catchment runoff, extension of grazing/farming lands, sewerage treatment facilities, food security, remote-controlled mining, mining coal production, resource boom, tourist numbers	See <i>Catchment Industries, Commercial Fishing, Ports and Shipping, Mining and Marine Tourism</i> chapters.
Coastal development	An increasing coastal population is likely to increase the economic value of reef-based activities in the long-term. In addition, more people living close to the Great Barrier Reef implies higher levels of reef use and associated development impacts such as infrastructure and sewage.	Urban expansion, major infrastructure	See <i>Coastal Communities</i> chapter.

Direct drivers identified by SELTMP fall into three broad categories (Table 2).

Climate change. Change in climate can affect reef condition, aesthetics, productivity, and function. SELTMP will not monitor biophysical climate parameters and their direct effects on the Reef which are captured by other monitoring programs (see GBRMPA's Outlook Report, for example), but it will monitor climate-related events (such as extreme weather) and their impacts on end-user groups.

Primary resource industry activities. This broad category includes terrestrial and marine resource modification, extractive use, and runoff from catchment-based industries, and have a range of influences on the reef and its users. The *Catchment Industries, Commercial Fishing, Ports and Shipping, Mining and Marine Tourism* chapters elaborate on these activities and how they can be measured.

Coastal development. An increasing coastal population is likely to increase the economic value of reef-based activities in the long-term. In addition, more people living close to the Great Barrier Reef implies higher levels of reef use and associated development impacts such as infrastructure and sewage. These drivers and their impacts can be monitored by indicators of population growth and its impacts, infrastructure and coastal industries.

Chapter Four. Drivers of change

The Indirect Drivers of Change for the GBR region

Table 3 shows the major categories of indirect drivers, how they influence the relationship between the GBR and end users, and some of the indicators that SELTMP will use to monitor these drivers. Indirect drivers fall into seven major categories:

Economic. Economic drivers span various issues and scales, from global to local. Global economic growth and its distribution by country, sector, and individual affects relationships between people and the Reef. How growth is distributed determines the character of demand for ecosystem services (MEA 2003). The Drivers of Change working group identified a number of aspects of the economy that influence human-environment dynamics in the GBR, including strength of the Australian dollar (Figure 2), economic growth in Asia (Figure 3), sea food markets, fuel prices and housing prices.

Social and cultural. Culture refers to the values, beliefs, and norms that a group of people share. Culture conditions individuals' and societies' perceptions of the world, influences what they consider important, and suggests courses of action that are appropriate and inappropriate.

Demographic. Population size and other demographic variables influence the use of food, fiber, clean water, energy, shelter, transport, and a wide range of ecosystem services. Increases in population decrease the per capita availability of both renewable and non-renewable resources. Population structure (age and sex) is also a key variable (Figures 5 and 6).

Politics and management. These drivers affect the use of and access to reef resources. Includes management structures, frameworks, institutions and processes; legislation and regulation; decision-making and the role of public in decision-making processes.

Communication and media. Communication and media provide mechanisms for information flows among and between managers, resource users and public, and for reflecting and shaping public perceptions and opinion about the reef (Figures 7 and 8).

Science and technology. The development and diffusion of scientific knowledge and technologies can have significant implications for ecological systems and human well-being. Rates of investment in research and development, rates of adoption of new technologies, changes in the productivity and extractive capabilities of new technologies, and the access to and dissemination of information through new technologies all have profound implications.

Reef condition. Condition of the reef is an ecosystem "service" in its own right, but is also a driver, in that it can affect reef use (e.g., by primary resource industries) and well-being of populations and industries that use the reef. Reef condition can also drive management, legislation and societal values. This category of drivers also includes *perceived* reef condition; thus they can also be categorised as "social and cultural" drivers (see above).

Chapter Four. Drivers of change

The Indirect Drivers of Change for the GBR region

Table 1. Indirect drivers of change in relationships between Great Barrier Reef and end users.

Driver Category	Influence (modified from MA 2003)	Drivers identified by working groups	Indicator(s) – indicative only
Economic	Global economic growth and its distribution by country, sector, and individual affects relationships between people and the reef. How growth is distributed determines the character of demand for ecosystem services.	Housing prices, currency exchange rates (strength of Australian dollar), sea food markets, food and sea food prices, world agricultural markets, commodity prices, fertilizer costs, price of minerals, price of fuel oil for reef fisheries and tour operators, peak oil and energy, fuel prices, economic growth in Asia, economic growth, economic crisis, increasing wealth gap, negative ageing	<ul style="list-style-type: none"> Value of AUD/USD GDP growth rates Centre of world economic gravity Fuel prices Commodity prices House prices Input prices Fuel coefficient
Social and cultural	Culture refers to the values, beliefs, and norms that a group of people share. Culture (includes individuals' and societies' perceptions of the world, influences what they consider important, and suggests courses of action that are appropriate and inappropriate.	Change of value system related to nature, community participation in voluntary conservation and restoration, people going green in Europe and America, environmental awareness in the Australian community, environmental values, farmers' will to change their behaviour towards environment, sense of place, occupational identity, feeling of "legitimacy" of traditional owners, social attitudes and norms, public perception of reef condition, dependency of fishers and tourism operators and TOs on GBR	<ul style="list-style-type: none"> environmental awareness environmental values participation in environmental initiatives perceptions of reef condition resource dependency
Demographic	Population size and other demographic variables influence the use of food, fiber, clean water, energy, shelter, transport, and a wide range of ecosystem services. Increases in population decrease the per capita availability of both.	Sea and tree changes driving immigration to GBR, drought in southern Australia driving migration to the GBR, population growth in GBR catchment, urban values, population growth, change in number and in type of people, grey	<ul style="list-style-type: none"> Population age structure Population growth rate Number of migrants Source of migrants Employment

Suggested citation: Marshall, N., E. Bohensky, J. Goldberg, M. Gooch, A. Lankester, P. Pert, S. Stone-Jovicich, and R. Tobin. In preparation. SELTMP 2011.

	renewable and non-renewable resources	nomads and baby boomers, ageing population, mining boom fuelling labour immigration	driver migration
Politics and management	These drivers affect the use of and access to reef resources. Includes management structures, frameworks, institutions and processes; legislation and regulation; decision-making and the role of public in decision-making processes.	Political decisions, Queensland government funding for catchment water quality monitoring, federal government funding for agricultural Best Management Practices, funding for TOs through programs and initiatives, military expenditure, subsidies for fuel, fertilizers etc., state and federal political process, political priorities (national, state and regional levels), organized front of GBA, Sunfish, AMPFO etc., increasing influence of global corporations, politicisation of bureaucracy, NRM plans and consultation, strength of Queensland government legislation on mining and agriculture, legal and institutional changes, management processes, loss of skill base in governments, resource access	<ul style="list-style-type: none"> Financial resources allocated to reef management programs Subsidies Number of regulations passed Compliance with regulations Staff turnover in government agencies Ownership of regional businesses
Communication and media	Communication and media provide mechanisms for information flows among and between managers, resource users, and public, and for reflecting and shaping public perceptions and opinion about the reef.	Marketing and publicity, regional media (immediate local community impact), national media (broad Aussie public narrative), social media (of rising importance), image of the GBR given by the media, information abundance and overload, changes in internet technology and communication, education	<ul style="list-style-type: none"> Information campaigns Use of social media Media representations of GBR % of population using Internet for information Education levels
Science and technology	The development and diffusion of scientific knowledge and technologies can have	Discoveries in the biophysical sciences, research	<ul style="list-style-type: none"> Scientific advances Number and type

Suggested citation: Marshall, N., E. Bohensky, J. Goldberg, M. Gooch, A. Lankester, P. Pert, S. Stone-Jovicich, and R. Tobin. In preparation. SELTMP 2011.

	significant implications for ecological systems and human well-being. Rates of investment in research and development, rates of adoption of new technologies, changes in the productivity and extractive capabilities of new technologies, and the access to and dissemination of information through new technologies all have profound implications.		of scientific studies <ul style="list-style-type: none"> Number and type of research programs Government funding for research Private research investment
Reef condition	Condition of the reef can affect reef use (e.g., by primary resource industries) and well-being of populations and industries that use the reef. Reef condition can also drive management, legislation and societal values. This category of drivers also includes	Fishery productivity, availability of dugongs and turtles for traditional TO hunting, condition of seagrass, condition of coral reefs, destination appeal, tourism aesthetics of reefs, relative (global) condition of GBR	See Traditional Owners, Recreation, Marine Tourism chapters; other drivers not monitored directly by SELTMP - see LTMP or Outlook

Chapter Four. Drivers of change

Key indicators: Economy

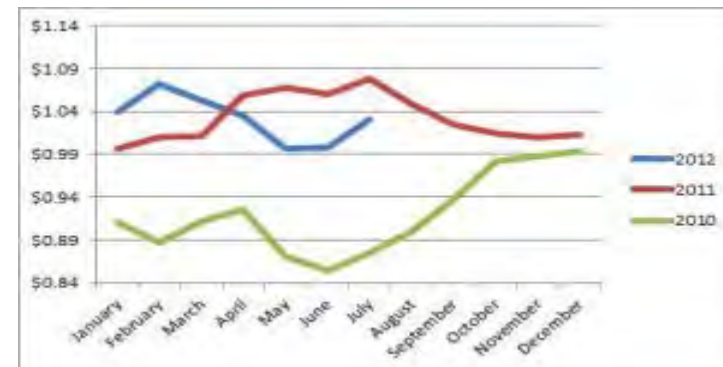
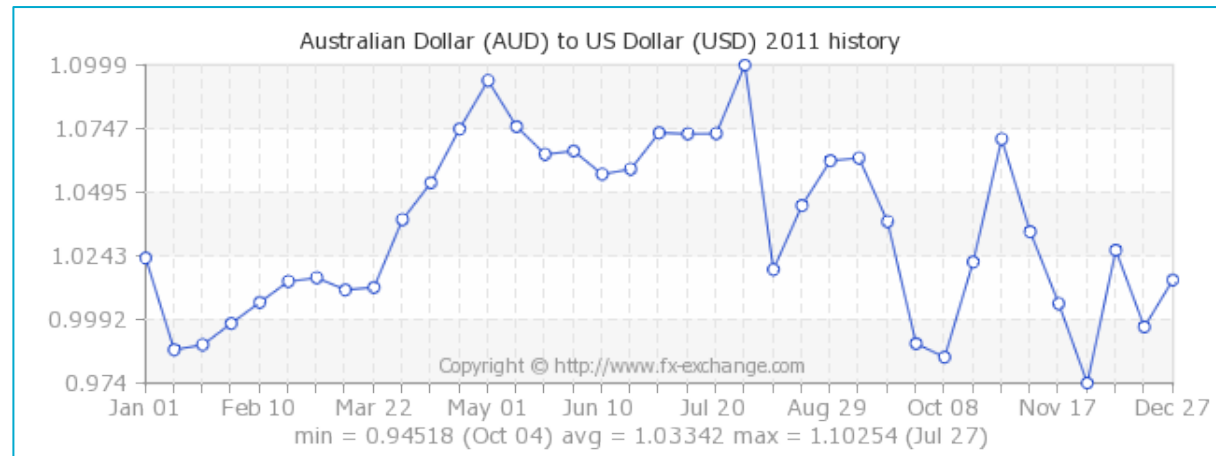


Figure 2. Economics: A key indicator is the value of AUD trading against the USD. Left: 2011 history; average for 2011 : 1.03342. Source: <http://aud.fx-exchange.com/usd/exchange-rates-history.html>. Right: Over the last 3 years the AUD against the USD has seen a yearly average improvement from 2010 to 2011 by 11% and remained constant from 2011 to 2012. Source: <http://www.worldfirst.com.au/blog/foreign-exchange-weekly-update/world-first-weekly-update-09-august-2012/>

Chapter Four. Drivers of change

Key indicators: Economy. GDP growth rates

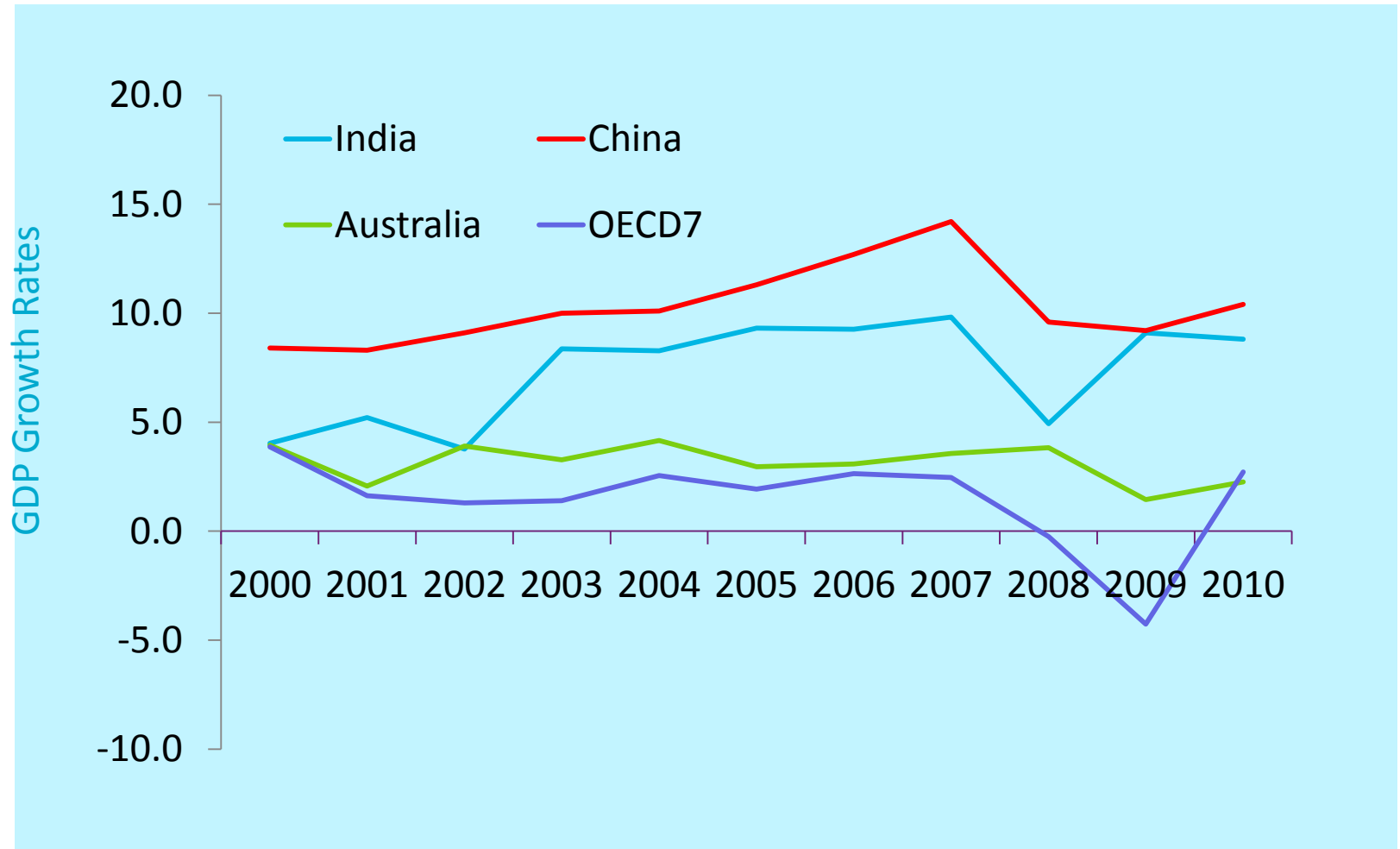


Figure 3. Economics. GDP growth rates, 2000-2010. Data source: World Bank in Hajkowicz et al. (2012).

Chapter Four. Drivers of change

Key indicators: Economy. A shifting world economy

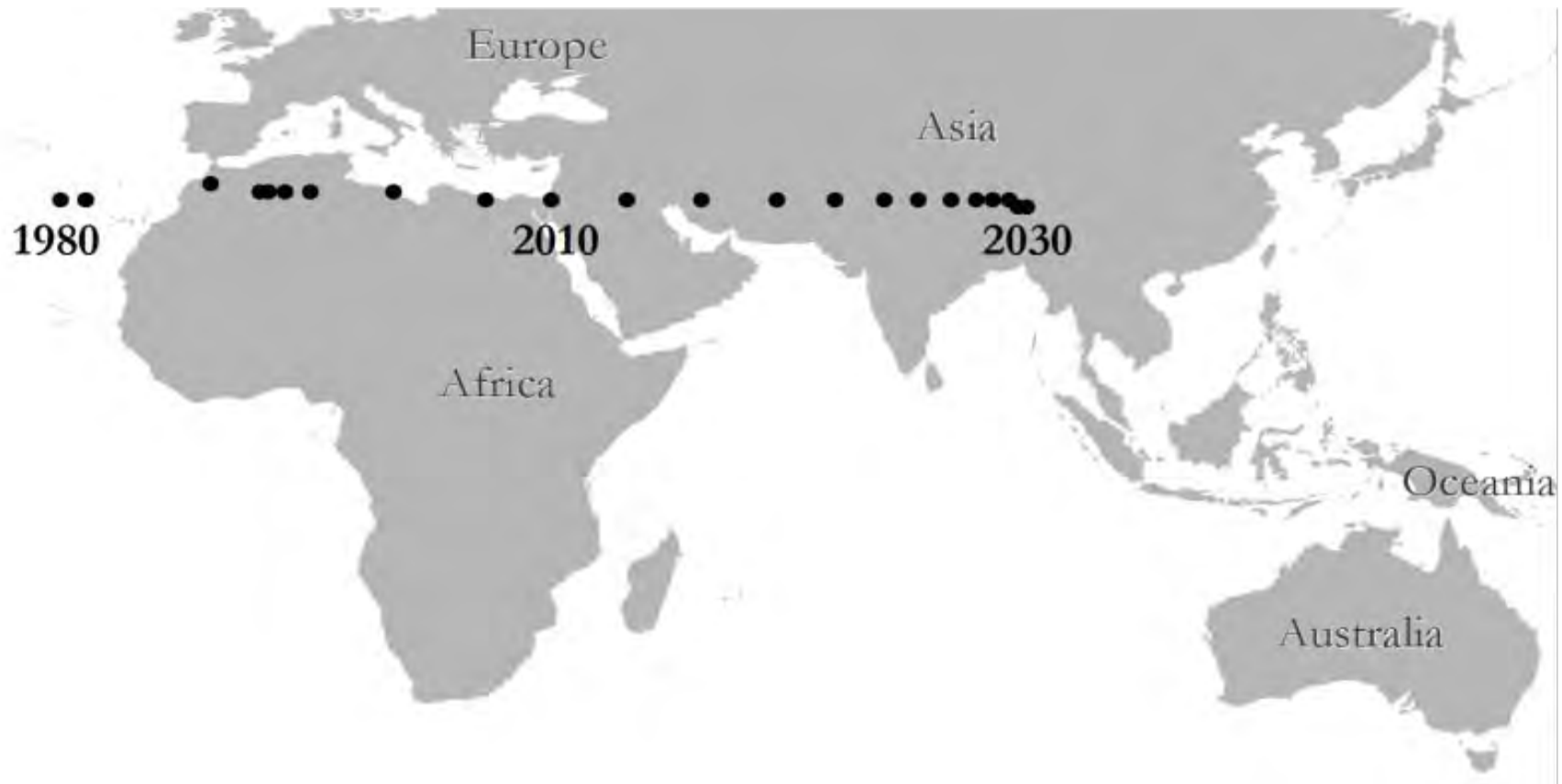


Figure 4. Economics. The centre of gravity of the world economy is the geographic hotspot of income generation based on the distance-weighted gross domestic product of 700 locations. Source: Quah 2011 *in* Hajkowicz et al. (2012).

Chapter Four. Drivers of change

Defining Events of 2011

- January 14:** Arab spring. Civil uprising in Tunisia leads to authoritarian president Zine El Abidine Ben Ali fleeing the country after 23 years in power, and a massive popular movement unleashing unrest across the Arab world follows.
- February 3:** Cyclone Yasi, Queensland and Victorian floods. Powerful Cyclone Yasi strikes the Queensland coast, the most destructive event in a summer in which Brisbane and parts of Victoria suffer massive flooding.
- February 22:** Christchurch earthquake. A devastating 6.3 magnitude earthquake strikes Christchurch, New Zealand, causing widespread damage and killing more than 200 people.
- March 11:** Japan's earthquake and tsunami. A massive earthquake and tsunami devastates northeastern Japan, leaving 20,000 people dead or missing and unleashing a nuclear crisis at the Fukushima plant.
- April 29:** Royal wedding. Prince William and Catherine Middleton marry with huge crowds and a global TV audience watching Britain's biggest royal celebration for three decades. They become the Duke and Duchess of Cambridge.
- May 2:** Death of Osama bin Laden. Al-Qa'ida chief Osama bin Laden, believed responsible for the September 11, 2001 attacks on the United States, is shot dead by US commandos in Pakistan after a 10-year manhunt.
- May 6:** Poker machines: A report proposing new ways to force gamblers to set betting limits reignites the debate over poker machine reforms, with clubs bitterly opposing the campaign by independent MP Andrew Wilkie.
- May 14:** IMF chief Dominique Strauss-Kahn, a high-profile figure in French politics and global economics, resigns and faces trial after being accused of a sexual assault on a maid in his hotel suite in New York.
- July 21:** Eurozone debt crisis. Eurozone leaders agree on a second bailout for Greece worth more than \$200 billion in a bid to prevent the country from going bankrupt, but the move fails to stem the crisis in the EU currency zone.

Chapter Four. Drivers of change

Defining Events of 2011

July 22: Norway massacre. Right-wing extremist Anders Behring Breivik kills 77 people in a twin bombing and shooting spree in Norway. He is later judged insane.

July 25: Cadel Evans. Evans wins Tour de France. He'd come close before, but finally the Victorian rider becomes the first Australian to win the cycling classic.

August 3: Collar-bomb hoax. A fake bomb is attached to the neck of Sydney schoolgirl Madeleine Pulver, prompting an investigation which leads to the arrest in the US of accused extortionist Paul Peters.

August 6: UK riots. In London and across England, riots break out in reaction to the police shooting of a 29-year-old black man in Tottenham, north London. Rampant looting and arson attacks reach unprecedented levels.

August 31: Asylum-seekers. The High Court rules invalid Labor's Malaysian Solution, forcing Australia to abandon plans to process asylum-seekers offshore and heralding a new wave of boat arrivals.

October 5: Death of Steve Jobs. Co-founder of Apple Inc. and pioneer of the personal computer revolution Steve Jobs dies following a long battle with pancreatic cancer.

October 20: Death of Muammar Gaddafi. Toppled Libyan leader Muammar Gaddafi is killed when forces loyal to the country's new rulers seize his hometown of Sirte after a seven-month-long campaign.

October 29: Qantas grounded. Qantas grounds its entire fleet during a bitter dispute with staff and unions, disrupting the travel plans of thousands.

November 8 : Carbon tax. Bitterly opposed by the Coalition, the Gillard government's carbon tax legislation is finally passed by both Houses of Parliament.

November 12: Silvio Berlusconi. Italian Prime Minister Silvio Berlusconi becomes the latest leader to lose his job over the Eurozone financial crisis, resigning amid Italy's 1900-billion-euro (A\$2473 billion) debt burden

November 24: Labor's minority government. Julia Gillard's slim hold on power is boosted when Peter Slipper quits the Liberal Party to accept the post of Speaker, giving her an additional vote in parliament.

Chapter Four. Drivers of change

Key indicators: Demographic. Population 65 years and over

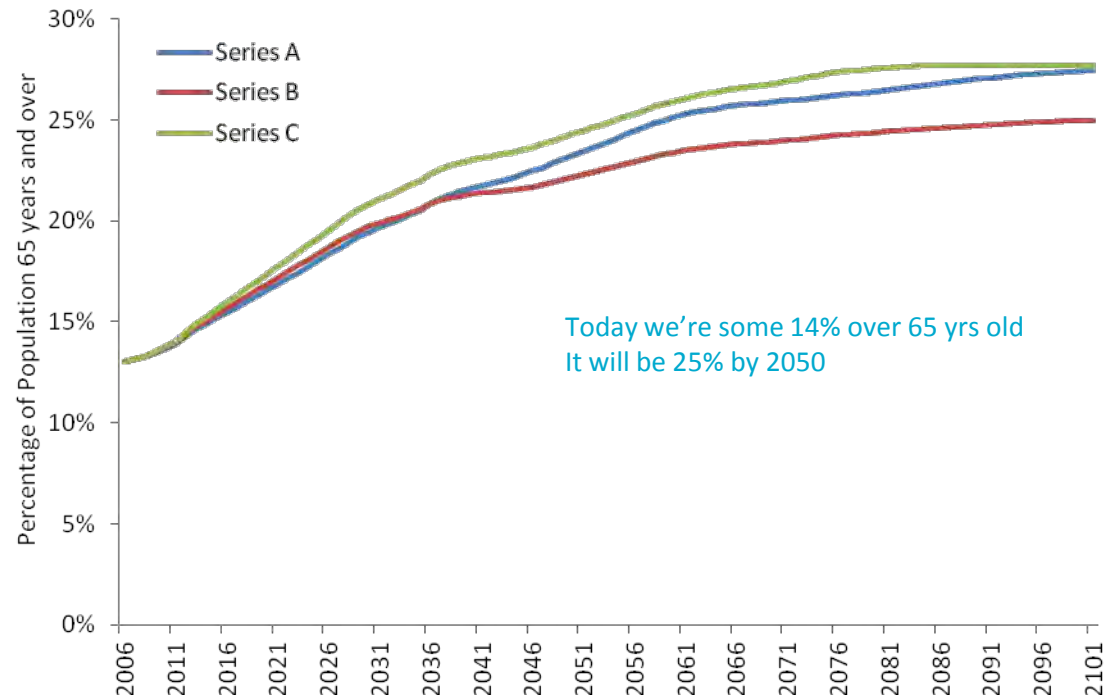


Figure 5. Demographics. The ageing population. Australian Bureau of Statistics 2011 in Hajkowicz et al. (2012).

Chapter Four. Drivers of change

Key indicators: Demographic. Population age structure

Year: 2011
Total: 22,620,554
Males: 11,260,747
Females: 11,359,807

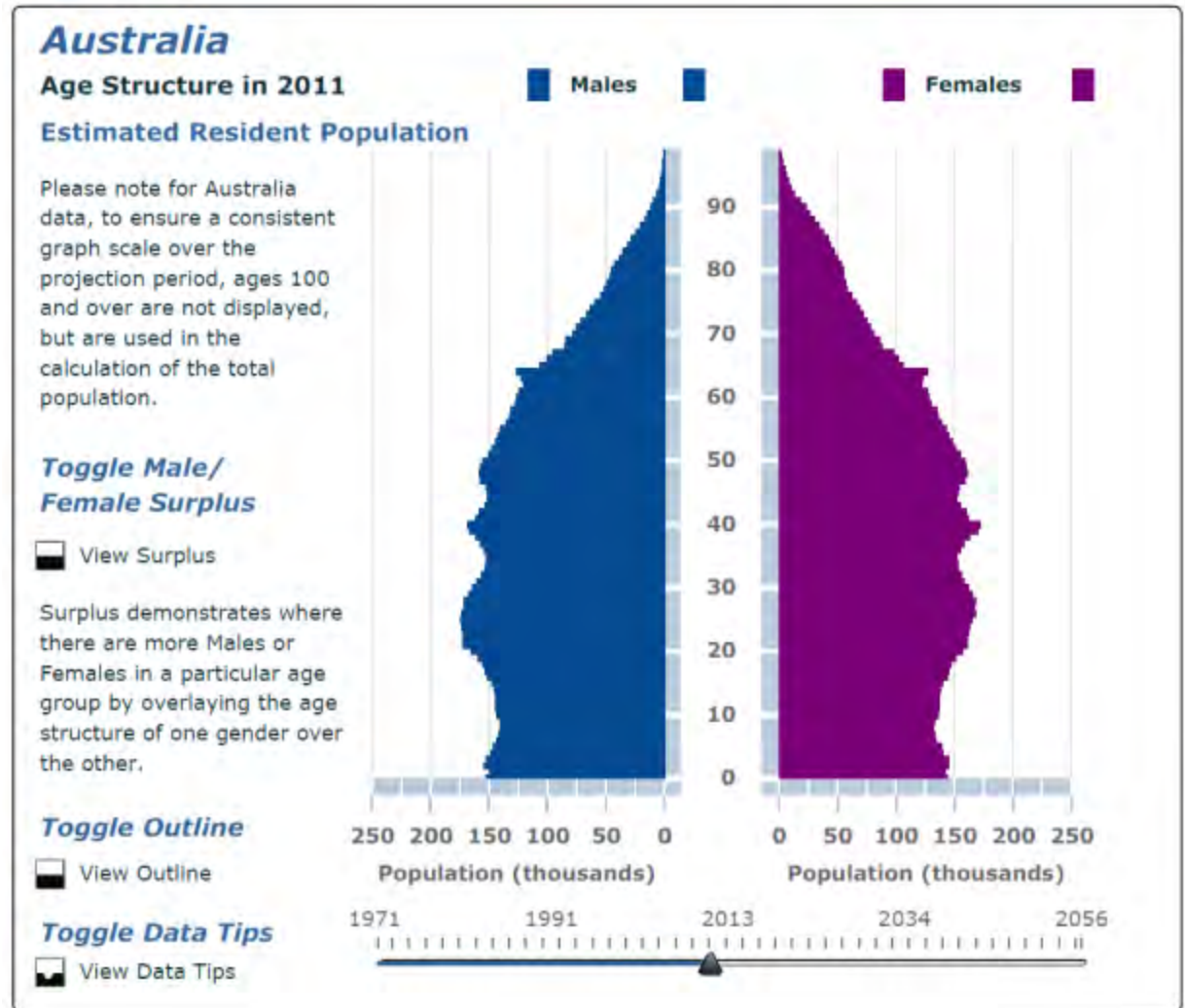


Figure 6. Demographics. Population age structure by gender for Australia, 2011. Source: Australian Bureau of Statistics website.

Chapter Four. Drivers of change

Key indicators: Media

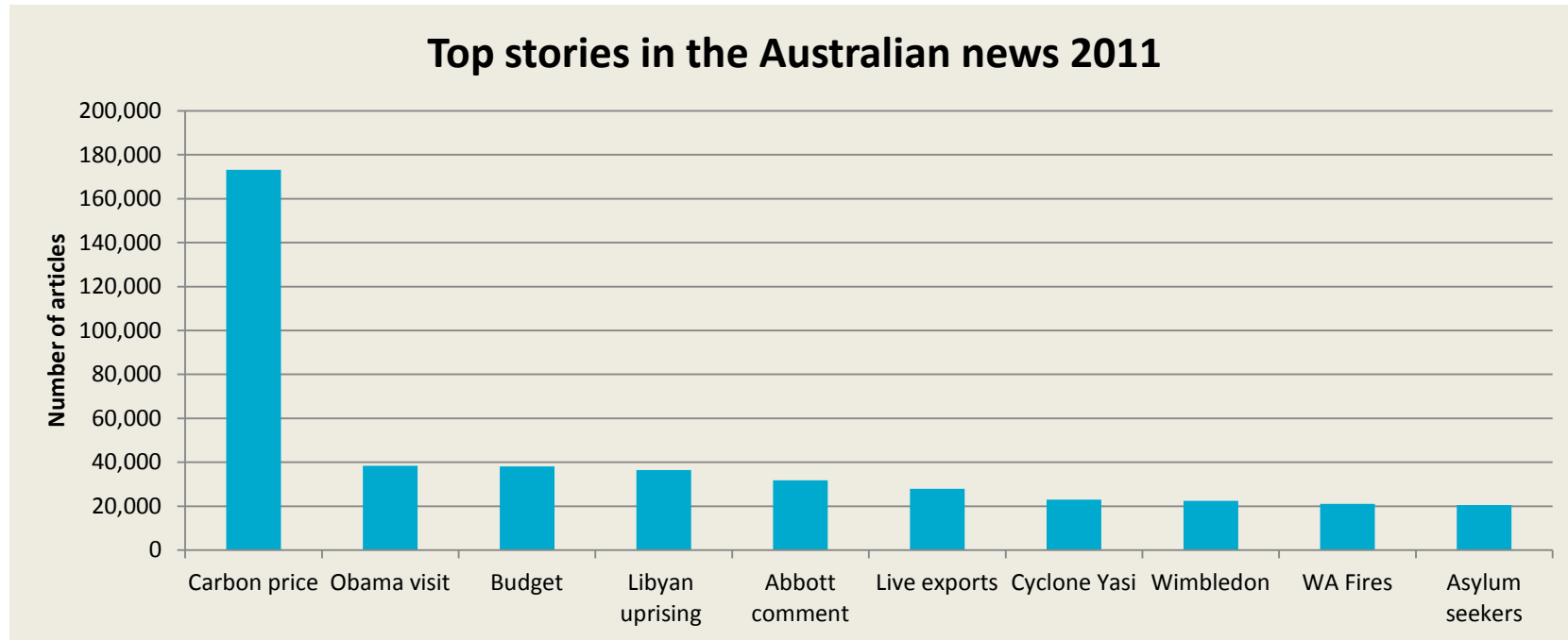


Figure 7. Top media stories in the Australian news 2011. Data compiled from “The Numbers” column in *The Australian* from 14 February - 21 November 2011. Data not available for all weeks. Source: Bohensky et al. *in prep.*

Chapter Four. Drivers of change

Key indicators: Media

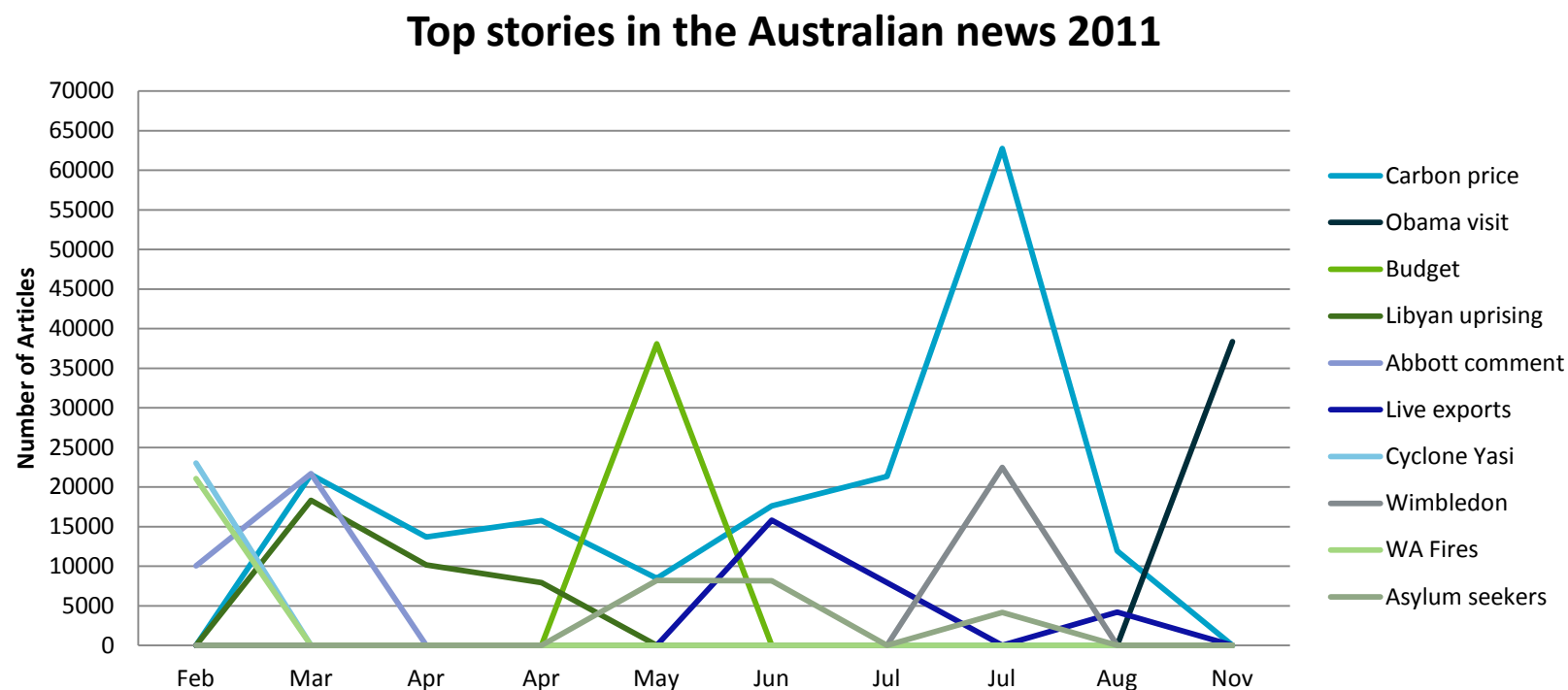


Figure 8. Top media stories in the Australian news 2011, by month. Data compiled from “The Numbers” column in *The Australian* from 14 February - 21 November 2011. Data not available for all weeks. “Abbott comment” was in relation to the death of Australian Lance Corporal Jared MacKinney in Afghanistan. Source: Bohensky et al. *in prep.*

Chapter Four. Drivers of change

Key issues, limitations and opportunities

The process of identification of drivers of change can be challenging – there is no real road-map although processes such as Millennium Ecosystem Assessment, Intergovernmental Panel on Climate Change, and State of the Environment Reporting (i.e. DPSIR) provide some guidance. Driver identification can be done from the “top-down” or “bottom-up” and there are scientific/technical and political pros and cons of each way. We used a process in which we did both iteratively with the ultimate goal to arrive at a shared conceptual model of the GBR. However this also gives us opportunity to compare views of different groups working with different framings of the question: “what drives change in the relationships between people and the GBR”?

There is much opportunity to learn from this process, as an input to a social and economic long term monitoring program, and which can also inform others working through similar processes.

Main issues emerging in the Working Group meeting were that:

- The objective of SELTMP needed to be clarified
- The driver identification/mapping exercise showed that everything is connected to everything else
- Sector-specific drivers in each WG need to be identified, then the list developed in this group (revisited (thus approach from “top down” and “bottom up”)
- All of this needs to be embedded in a conceptual framework that is also used by other working groups
- Prioritising and selecting indicators is not possible until these steps were completed

Chapter Five

Coastal Communities in the Great Barrier Reef

This chapter is focused on relationships between coastal communities and their relationship to the Great Barrier Reef (GBR); it concerns people as well as organisations and businesses that make up these communities. Coastal communities and the GBR have a mutually beneficial relationship: communities benefit from their proximity to the GBR, allowing easy access and a sense of connection to reef ecosystems. In deriving benefits from the GBR, these communities also have impacts on the reef, some of which are negative.

However, coastal residents and organisations are often best-placed to serve as the GBR's custodians. These different relationships are underpinned by community perceptions and motivations, as well as various drivers of change that are both internal and external to the community (Figure 1). Here we focus on the web of human-Reef relationships that are not unique to a particular end-user group, but rather to the community at large, such as conservation and stewardship, impacts, values and aspirations, and underlying perceptions and motivations.

Chapter Five. Coastal Communities

Overview

Communities can be defined in a number of ways. They may share a locality, a sense of belonging, or a social network (Taylor 2003; Blackshaw 2010). For this report, we define a coastal community as a Local Government Area (LGA) adjacent to the Great Barrier Reef. We chose this definition as LGAs are the analytical unit used by Australian Bureau of Statistics which is the source of some data needed to monitor coastal communities as well as by other agencies and research initiatives. We note all exceptions, such as where data are available at a different scale, or only for specific LGAs (see “Issues and Limitations”). Fifteen LGAs make up the GBR area (Figure X).

The communities inhabiting the coastal region adjacent to the GBR are notable in several ways: First, they exhibit high variability in nearly all dimensions: geographic, demographic, political, socio-economic and cultural. The fifteen Local Government Areas range greatly in spatial extent, from 11km² Wujal Wujal to the 23,871km² Whitsundays, and in population size, from only 292 in Wujal Wujal to more than 180,000 in Townsville. This has implications for governance structures, sense of belonging and closeness to neighbours, and availability of community resources. Differences also include the percentage of residents who identify as Indigenous; from 3.5% in the Gladstone LGA to 97.1% in Yarrabah. In addition, while the populations of some LGAs are growing (Gladstone’s growth rate was 2.3% in 2010-11) others are shrinking; Lockhart River recorded a -5.7% growth rate during the same year. The Socio-Economic Index of Disadvantage (SEIFA) reflects marked differences between LGAs also, with the entire population of six LGAs categorised as most disadvantaged, all with a significant Indigenous population (ABS 2006). This diversity implies a wide range of uses, values and dimensions of relationships with the Reef, and also implies the need for management of the GBR region to balance any trade-offs that may arise. Owing in part to its biophysical diversity, the GBR region supports numerous economic industries, some with a long history in the region and others relatively young, attracting workers from elsewhere in Australia and overseas. Health care and social assistance, retail trade and construction are the largest employers in the region, but are followed by a diverse list of employment sectors.

Chapter Five. Coastal Communities

Overview

Second, coastal communities demonstrate two-way relationships with the GBR. Individuals, families and businesses in the coastal zone appreciate and enhance the value of the GBR but also impact on it through their daily activities. For this reason especially it is essential to understand the dynamic connections between people and the Reef, including perceptions of threats to the GBR, and perceived efficacy and instrumentality – the roles that communities can actually play – as well as motivations for current behavior and behavioral change.

The status of coastal communities in 2011 needs to be considered in light of two major extreme events that occurred in the region, the Queensland floods and Cyclone Yasi (see “Drivers of Change” chapter). All but one LGA was declared a natural disaster zone due to floods and 9 received this declaration due to Cyclone Yasi. These events had far-reaching effects on telecommunications, transport systems, infrastructure and energy services in addition to the effects on commercial and residential property, councils and government services.

Coastal urban centers

Urban centres (population > 200) adjacent to the GBR coast: 72

Ref: GBRMPA Outlook Report 2009

Percent urban

Coastal LGAs considered to be at least small urban regional towns/cities: 50%

Ref: DLGP 2011b

Chapter Five

Where are the coastal communities?

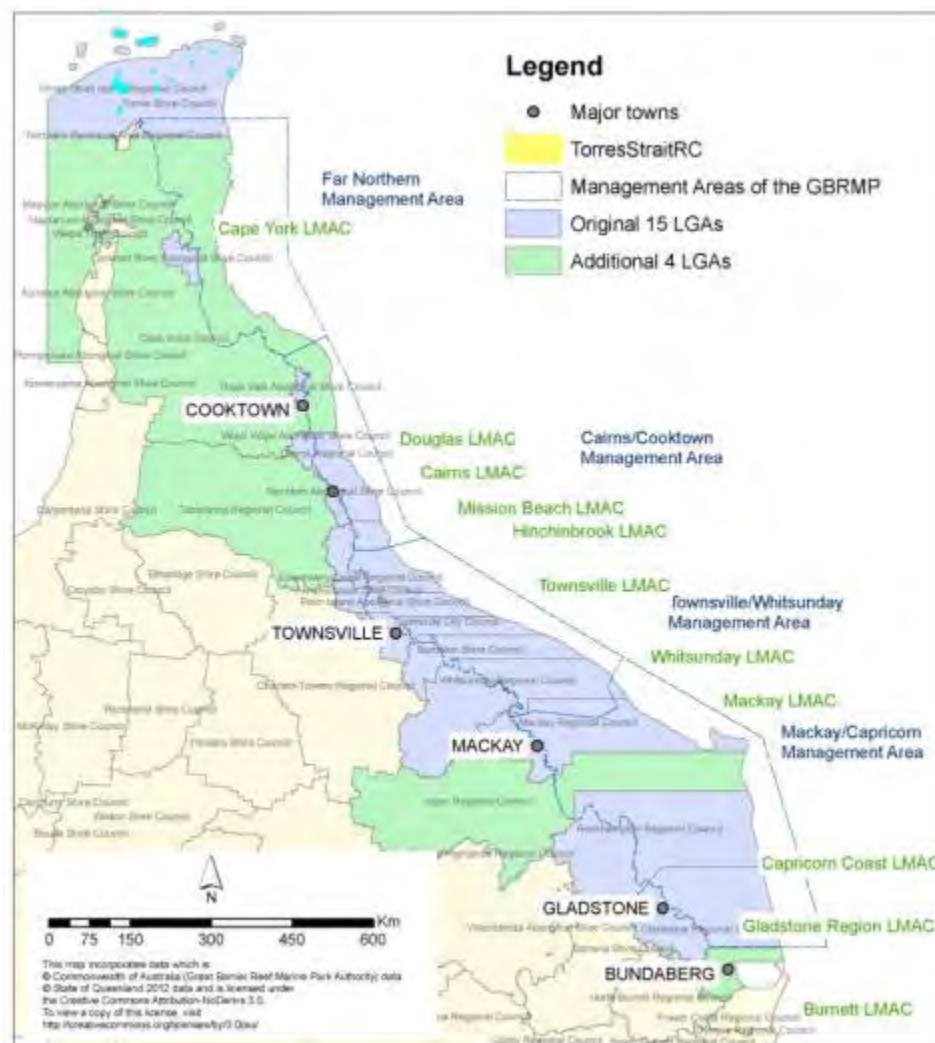


Fig. 1. Local Government Areas (LGAs) in the Great Barrier Reef; 16 coastal LGAs are included in this report:

Burdekin Shire
Cairns City Council
Cassowary Coast Regional Council
Gladstone Regional Council
Hinchinbrook Shire Council
Hope Vale Aboriginal Shire Council
Isaac Regional Council
Lockhart River Aboriginal Shire Council
Mackay Regional Council
Palm Island Aboriginal Shire Council
Torres Shire Council
Townsville City Council
Rockhampton Regional Council
Whitsunday Regional Council
Wujal Wujal Aboriginal Shire Council
Yarrabah Aboriginal Shire Council

Chapter Five

Who are the coastal communities? Place & identity based factors

Attachment to place

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Isaac:
Lockhart River:
Mackay:
Palm Island:
Rockhampton:
Torres:
Townsville:
Whitsunday:
Wujal Wujal:
Yarrabah:

Mean length of residence

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Isaac:
Lockhart River:
Mackay:
Palm Island:
Rockhampton:
Torres:
Townsville:
Whitsunday:
Wujal Wujal:
Yarrabah:

Strength of identity associated with GBR

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Isaac:
Lockhart River:
Mackay:
Palm Island:
Rockhampton:
Torres:
Townsville:
Whitsunday:
Wujal Wujal:
Yarrabah:

Plan to remain in region for next 5 years

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Isaac:
Lockhart River:
Mackay:
Palm Island:
Rockhampton:
Torres:
Townsville:
Whitsunday:
Wujal Wujal:
Yarrabah:

Chapter Five

Who are the coastal communities? Human capital

Gender

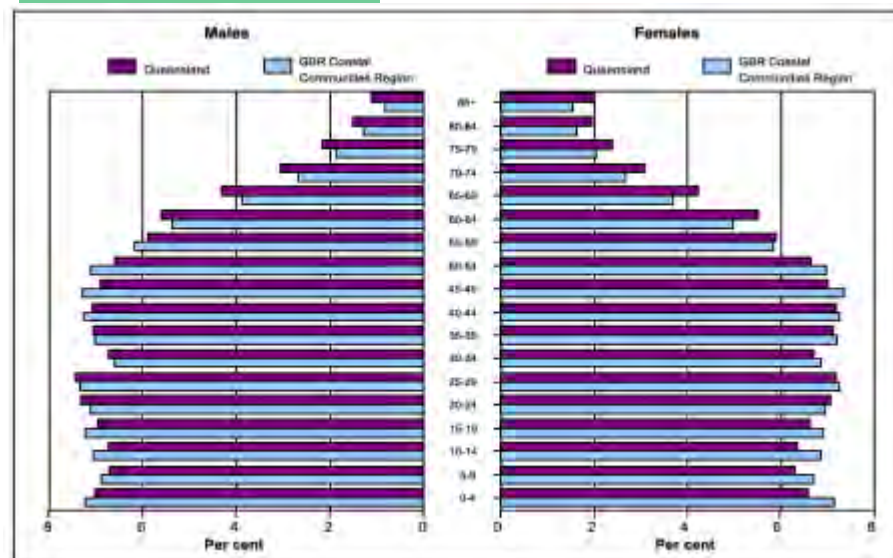


Figure 3. Population by age group and sex for GBR region and Queensland as at 30 June 2011. Gender differences in the region include more males in the 55-59, 60-64 and 65-69 age groups, and more women in age groups 75-79 and above (Fig. 3).

Ref: ABS, Population by Age and Sex, Regions of Australia 2011.

Age (total and %)

0-14:	153,157 (20.9)
15-24:	103,285 (14.1)
25-44:	207,930 (28.4)
45-64:	186,939 (25.5)
65+:	80,843 (11.0)

Median age range:

22.1 (Yarrabah) - 46.0 (Hinchinbrook)

Median Age and Change

Burdekin:	40.9 (1.0)
Cairns City:	36.0 (1.0)
Cassowary Coast:	41.8 (1.8)
Gladstone:	35.3 (0.6)
Hinchinbrook:	46.0 (2.7)
Hope Vale:	24.9 (-2.5)
Isaac:	31.5 (0.2)
Lockhart River:	27.2 (2.2)
Mackay:	35.8 (0.1)
Palm Island:	24.1 (1.7)
Torres:	27.8 (1.5)
Townsville:	33.2 (0.4)
Rockhampton:	37.0 (0.5)
Whitsunday:	37.6 (0.2)
Wujal Wujal:	23.9 (-0.4)
Yarrabah:	22.1 (1.0)

Ref: ABS 2011

Indigenous pop'n (%)

Aboriginal:	35,134
TSI:	10,274
Both :	6,326
Total :	51,734
	(7.3%)

Range: 3.5 (Gladstone) – 97.1 (Yarrabah)

Total indigenous persons

Burdekin:	892 (5.1%)
Cairns City:	14,390 (9.2)
Cassowary Coast:	2,593 (9.4)
Gladstone:	2,049 (3.5)
Hinchinbrook:	654 (5.7)
Hope Vale:	926 (94.1)
Isaac:	604 (2.7)
Lockhart River:	430 (89.0)
Mackay:	4,912 (4.4)
Palm Island:	2,201 (94.2)
Torres:	2,063 (63.3)
Townsville:	10,703 (6.1)
Rockhampton:	5,997 (5.5)
Whitsunday:	1,333 (4.2)
Wujal Wujal:	252 (93.7)
Yarrabah:	2,339 (97.1)

Ref: ABS 2011

Chapter Five

Who are the coastal communities? Social capital factors

Schools

Burdekin:	19
Cairns City:	58
Cassowary Coast:	27
Gladstone:	32
Hinchinbrook:	18
Hope Vale:	1
Isaac:	19
Lockhart River:	1
Mackay:	55
Palm Island:	2
Rockhampton:	58
Torres:	2
Townsville:	60
Whitsunday:	17
Wujal Wujal:	0
Yarrabah:	1

Ref: Department of Education
in ABS 2011

Highest level of schooling (%)

Year 8 or below (7): 38,318 (7.2)
Year 9 or 10 or equivalent: 173,294 (32.4)
Year 11 or 12 or equivalent: 268,223 (50.1)

Year 11 or 12 or equivalent

Burdekin: 5,113 (38.7)
Cairns City: 65,953 (56.2)
Cassowary Coast: 9,090 (42.4)
Gladstone: 20,741 (48.3)
Hinchinbrook: 3,646 (40.1)
Hope Vale: 279 (41.6)
Isaac: 8,202 (50.2)
Lockhart River: 125 (36.9)
Mackay: 39,777 (46.6)
Palm Island: 573 (36.8)
Torres: 1,149 (53.4)
Townsville: 72,659 (55.1)
Rockhampton: 37,333 (45.1)
Whitsunday: 11,091 (44.6)
Wujal Wujal: 89 (43.2)
Yarrabah: 605 (39.9)

Ref: ABS 2011

Post-school Qualification

Bachelor degree or higher: 64,085
Advanced diploma or diploma: 34,706
Certificate: 125,113
Persons with a qualification: 293,406 (52.6)

Persons with a qualification

Burdekin: 5,915 (43.0)
Cairns City: 70,111 (57.3)
Cassowary Coast: 10,432 (46.9)
Gladstone: 23,576 (52.8)
Hinchinbrook: 4,139 (43.5)
Hope Vale: 292 (42.4)
Isaac: 9,269 (54.9)
Lockhart River: 153 (43.5)
Mackay: 45,751 (51.5)
Palm Island: 440 (27.5)
Torres: 1,293 (56.6)
Townsville: 73,995 (53.8)
Rockhampton: 43,189 (49.9)
Whitsunday: 13,659 (53.3)
Wujal Wujal: 62 (29.2)
Yarrabah: 399 (25.2)

Ref: ABS 2011 (8)

Proficiency in Spoken English:

Speaks English only: 63,808 (66.2%)
Speaks other language at home (total): 32,208 (33.4%)
Speaks other language at home and speaks English...
...very well or well: 27,315 (28.4%)
...not well or not at all: 4,499 (4.7%)

Speaks other language at home (%)

Burdekin: 675 (46.2)
Cairns City: 11,121 (35.2)
Cassowary Coast: 1,559 (42.5)
Gladstone: 1,896 (26.4)
Hinchinbrook: 581 (47.5)
Hope Vale: 0 (0)
Isaac: 693 (31.0)
Lockhart River: 0 (0)
Mackay: 4,109 (31)
Palm Island: 0 (0)
Torres: 92 (37.9)
Townsville: 7,514 (32.4)
Rockhampton: 3,503 (34.7)
Whitsunday: 1,158 (26.1)
Wujal Wujal: 0 (0)
Yarrabah: 0 (0)

Ref: ABS 2011

Chapter Five

Who are the coastal communities? Social capital

Country of birth (%)

Born in Australia: 560,886 (79.2)
 Born in ESB Countries (4): 51,121 (7.2)
 Born in NESB Countries: 45,203 (6.4)
 Total born overseas: 96,324 (13.6)

Total born overseas

Burdekin: 1,458 (8.4)
 Cairns City: 31,597 (20.2)
 Cassowary Coast: 3,671 (13.3)
 Gladstone: 7,185 (12.4)
 Hinchinbrook: 1,225 (10.6)
 Hope Vale: 0 (0)
 Isaac: 2,232 (9.9)
 Lockhart River: 0 (0)
 Mackay: 13,243 (11.7)
 Palm Island: 0 (0)
 Torres: 238 (7.3)
 Townsville: 23,181 (13.3)
 Rockhampton: 10,088 (9.2)
 Whitsunday: 4,438 (14.1)
 Wujal Wujal: 0 (0)
 Yarrabah: 0 (0)

Ref: ABS 2011

Migration 1 Year Ago

Same address: 522,031
 Different address within Australia: 119,381
 Overseas: 7,567
 Total with different address: 128,755 (18.4%)

Proportion with different address

Burdekin:	12%
Cairns City:	20%
Cassowary Coast:	15%
Gladstone:	19.6%
Hinchinbrook:	11.5%
Hope Vale:	7.0%
Isaac:	25.3%
Lockhart River:	9.0%
Mackay:	17.6%
Palm Island:	5.1%
Torres:	16.9%
Townsville:	20%
Rockhampton:	17%
Whitsunday:	19.9%
Wujal Wujal:	7.5%
Yarrabah:	5.8%

Ref: ABS 2011 (5)

Migration 5 Years Ago

Same address: 313,742
 Different address within Australia: 260,272
 Overseas: 26,452
 Total with different address: 291,292 (44.3%)

Proportion with different address

Burdekin:	32%
Cairns City:	47.7%
Cassowary Coast:	35.9%
Gladstone:	45.4%
Hinchinbrook:	29.3%
Hope Vale:	12%
Isaac:	52.5%
Lockhart River:	13.8%
Mackay:	43.9%
Palm Island:	9.6%
Torres:	39.8%
Townsville:	47.8%
Rockhampton:	42.0%
Whitsunday:	43.7%
Wujal Wujal:	12.1%
Yarrabah:	8.9%

Ref: ABS 2011 (5)

Family composition (%)

Couple no children: 72,624 (39.3%)
 Couple with children: 79,146 (42.9%)
 One-parent family: 30,072 (16.3%)
 Total families: 184,659

Total families

Burdekin:	4,754
Cairns City:	40,236
Cassowary Coast:	7,448
Gladstone:	15,219
Hinchinbrook:	3,221
Hope Vale:	223
Isaac:	5,258
Lockhart River:	103
Mackay:	30,169
Palm Island:	443
Torres:	673
Townsville:	45,319
Rockhampton:	28,537
Whitsunday:	7,720
Wujal Wujal:	70
Yarrabah:	524

Ref: ABS 2011

Chapter Five

Who are the coastal communities? Social capital

Unemployment & Labour Force

Unemployed: 24,797
Labour Force: 419,727
Unemployment Rate: 5.9%

Unemployment Rate (%)

Burdekin: 5.3
Cairns City: 7.8
Cassowary Coast: 7.2
Gladstone: 4.0
Hinchinbrook: 6.2
Hope Vale: 18.8
Isaac: 1.1
Lockhart River: 16.1
Mackay: 3.6
Palm Island: 13.4
Torres: 8.9
Townsville: 5.9
Rockhampton: 5.9
Whitsunday: 5.7
Wujal Wujal: 19.1
Yarrabah: 5.9

Ref: DEEWR, various editions (4)

Socio-Economic Index of Disadvantage (SEIFA)

Quintile 1 (most disadvantaged): 24.3
Quintile 2: 24.2
Quintile 3: 21.2
Quintile 4: 17.1
Quintile 5: 13.1

Percentage of population in Quintile 1

Burdekin: 36.5
Cairns City: 23.6
Cassowary Coast: 42.9
Gladstone: 20.5
Hinchinbrook: 41.2
Hope Vale: 100.0
Isaac: n/a
Lockhart River: 100.0
Mackay: 14.9
Palm Island: 100.0
Rockhampton: 33.7
Torres: 100.0
Townsville: 15.2
Whitsunday: 27.8
Wujal Wujal: 100.0
Yarrabah: 100.0

Ref: ABS 2006. 2011 data available 28 March 2013.

Internet connections

No connection: 51,244
Broadband: 169,230
Dial-up: 7,740
Total: 187,781(75.5%)

Population with internet connection (%)

Burdekin: 65.5
Cairns City: 77.5
Cassowary Coast: 66.5
Gladstone: 79.2
Hinchinbrook: 63.5
Hope Vale: 38.2
Isaac: 83.8
Lockhart River: 24.5
Mackay: 76.5
Palm Island: 88.3
Rockhampton: 72.1
Torres: 56.3
Townsville: 78.6
Whitsunday: 73.1
Wujal Wujal: 43.1
Yarrabah: 25.8

Ref: QRP, OESR 2011

Chapter Five. Coastal Communities

Who are the coastal communities? Social capital

LGAs declared a natural disaster zone in 2011

Due to floods: 14
Due to Cyclone Yasi: 9

Ref: Disaster Assist (5),
Prime Minister of Australia
Press Office (6)

Sources of emergency information (Townsville)

TV or radio: 54.8%
Council website: 20%
Local newspaper: 18.2%
Experience and knowledge:
11%
State website: 7.7%
Word of mouth: 7.2%

Ref: Townsville City Council 2011

Telecommunications affected by cyclone/floods (7)

Telstra landline customers
affected: 94,000
ADSL broadband customers:
32,000
Telecommunications sites:
680+
Optus mobile stations: 87

Ref: Moon and Gooch 2011 (8)

Insurance claims due to cyclone/floods

QLD floods Total: 58,685
(\$1.75 billion paid as of
March 2012)
Residential: 26,818
Cyclone Yasi Total: 73,250
(\$1066 million paid as of
March 2012)
Residential: 41,242

Ref: Insurance Council of
Australia 2012

Transport links affected by cyclone/floods (7)

State road network: 27%
QLD Rail Network: 4750km
Rockhampton airport closure:
24 days
Bundaberg port closure: 9
weeks

Ref: Moon and Gooch 2011 (8)

Infrastructure and energy services affected by cyclone/floods (7)

Houses destroyed: 150
Houses damaged: 4000
Sewage schemes: 28 (Fig. 4)
Water treatment schemes:
32
Ergon customers affected:
200,000

Ref: Moon and Gooch 2011 (8)

Homeowner insurance

Fully insured: xx (%)
Partly insured: xx (%)
Uninsured: xx (%)

Ref: Insurance Council of Australia
- data available by state

Chapter Five

Who are the businesses in the coastal communities? Business approach

Registered businesses by employment size (1)

Small:	56,240
Medium:	2,809
Large:	357
Small businesses as % of total:	94.7

Small businesses as % of total

Burdekin:	95.6
Cairns City:	94.8
Cassowary Coast:	93.8
Gladstone:	94.8
Hinchinbrook:	97.2
Hope Vale:	100.0
Isaac:	n/a
Lockhart River:	n/a
Mackay:	95.3
Palm Island:	66.7
Rockhampton:	95.4
Torres:	91.4
Townsville:	93.5
Whitsunday:	93.9
Wujal Wujal:	100.0
Yarrabah:	100.0

Ref: ABS, 2007-2009

Registered businesses by turnover range

\$0 - <\$100k:	25,907
\$100k - < \$500k:	21,528
\$500k - <\$1M:	5,554
\$1M or more:	6,429
Businesses with turnover \$1M+ as a % of total:	10.8

Businesses with turnover \$1M+ as a % of total

Burdekin:	9.4
Cairns City:	10.4
Cassowary Coast:	9.4
Gladstone:	9.4
Hinchinbrook:	6.5
Hope Vale:	0.0
Isaac:	n/a
Lockhart River:	n/a
Mackay:	11.2
Palm Island:	66.7
Rockhampton:	10.7
Torres:	12.0
Townsville:	12.4
Whitsunday:	11.9
Wujal Wujal:	0.0
Yarrabah:	0.0

Ref: ABS, 2007-2009

Registered businesses by industry (%)

Largest industries by business count:
 Construction: 12,005 (20.2)
 Agriculture, forestry and fishing: 9,086 (15.3)
 Rental, hiring and real estate services: 6,229 (10.5)

Highest specialisation ratios (% for region/% for QLD):
 Mining: 1.62
 Agriculture, forestry and fishing: 1.38
 Other Services: 1.19

Ref: ABS, 2007-2009

Influential individuals

Individuals in private sector : xx
 In public sector : xx
 In science/research : xx
 In culture/arts : xx

Ref:

Chapter Five

Who are the coastal communities? Economic Values

Dwellings by tenure type (%) and dwelling structure

Fully owned: 68,278 (27.4)
Being purchased: 85,257 (34.3)
Rented: 86,657 (34.8)
Separate house: 201,976
Semi-detached: 12,653
Apartment: 29,380

Ref: ABS 2011

Average annual net residential rates and charges (\$)

Burdekin 2016.75
Cairns 2344.60
Cassowary Coast 3008.20
Cook 2253.48
Gladstone 1737.50
Hinchinbrook 2215.50
Mackay 2781.00
Rockhampton 2304.50
Townsville 2622.50
Whitsundays 2744.17

Ref: DLGP 2011b

Proportion that is residential (%)

Burdekin: 75.8
Cairns City: 59.5
Cassowary Coast: 83.5
Gladstone: 56.2
Hinchinbrook: 62.7
Hope Vale: 0
Isaac: 66.6
Lockhart River: 0
Mackay: 61.9
Palm Island: 0
Torres: 11.9
Townsville: 43.2
Rockhampton: 57.5
Whitsunday: 62.9
Wujal Wujal: 0
Yarrabah: 0

Ref: ABS 2011

Housing affordability

Median mortgage repayment (\$/month) : xx
Median rent (\$/week) : xx
Data available by SLA

Ref: ABS 2011

Median house prices

Burdekin: 235,000
Cairns: 348,000
Cassowary: 233,000
Gladstone: 446,000
Hinchinbrook: 252,000
Mackay: 407,000
Townsville: 355,000
Rockhampton: 327,000
Whitsunday: 340,000

Ref: Domain.com (2)

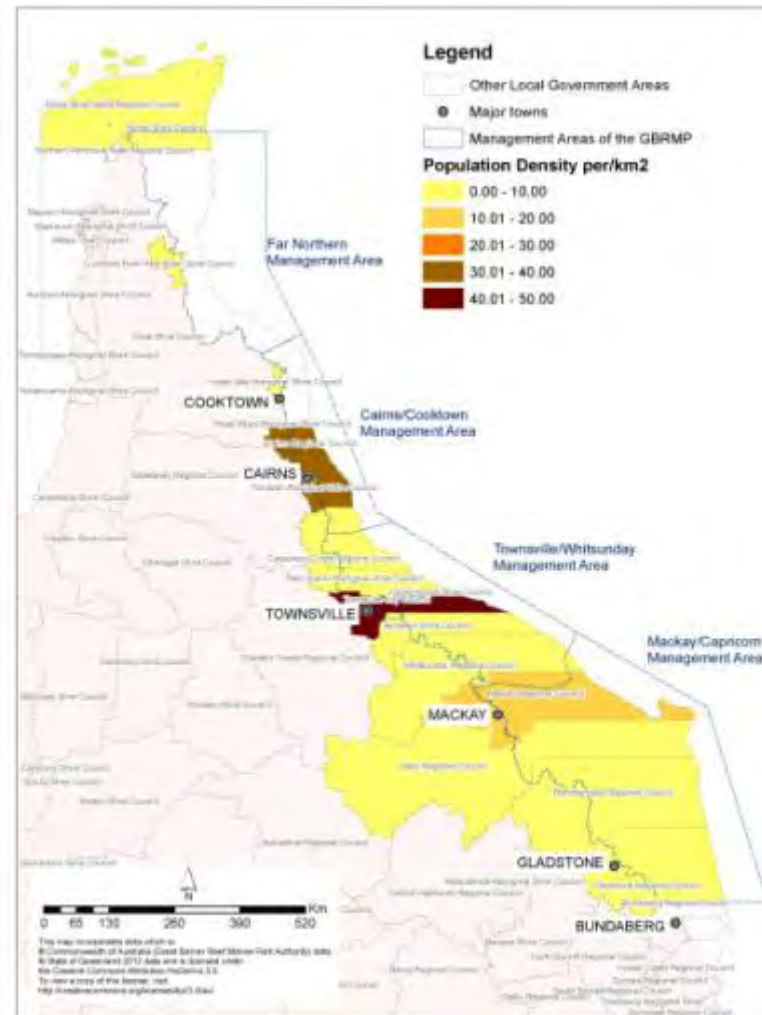
LGA Revenue ratios (1)

Burdekin - 68.29%
Cairns - 77.06%
Gladstone - 65.04%
Hinchinbrook - 49.43%
Mackay - 71.27%
Rockhampton - 69.95%
Townsville - 79.64%
Whitsunday - 47.90%

Ref: DLGP 2011b

Chapter Five

Who are the coastal communities? Size and structure



Chapter Five

Who are the coastal communities? Size and structure

Average annual population growth rate

2006-2011: 1.4
2010-2011: 0.9

Range: -5.7 (Lockhart River) – 2.3 (Gladstone)

2010-2011

Burdekin: -0.8
Cairns City: 0.8
Cassowary Coast: -1.4
Gladstone: 2.3
Hinchinbrook: -0.6
Hope Vale: 4.0
Isaac: 0.2
Lockhart River: -5.7
Mackay: 1.3
Palm Island: 4.5
Torres: -0.2
Townsville: 1.4
Rockhampton: 0.4
Whitsunday: 0.1
Wujal Wujal: -3.3
Yarrabah: 0.6

Ref: QLD Govt 2011 (2)

Population projections to 2031

2016: 863,759
2021: 953,315
2026: 1,043,958
2031: 1,135,217
Average annual growth rate, 2011-2031: 1.9%

Average annual growth rate, 2011-2031 (%)

Burdekin: 0.2
Cairns City: 1.7
Cassowary Coast: 0.5
Gladstone: 2.9
Hinchinbrook: 0.3
Hope Vale: 0.4
Isaac: 2.3
Lockhart River: 0.9
Mackay: 2.2
Palm Island: 1.4
Torres: 0.7
Townsville: 2.2
Rockhampton: 1.6
Whitsunday: 2.2
Wujal Wujal: 0.9
Yarrabah: 1.4

Ref: QLD Govt 2011 (2)

Natural increase

Natural increase: 7,617

Range: 1(Wujal Wujal) – 2,009 (Cairns)

Burdekin: 103
Cairns City: 2,009
Cassowary Coast: 229
Gladstone: 636
Hinchinbrook: 22
Hope Vale: 15
Isaac: 341
Lockhart River: 23
Mackay: 1,163
Palm Island: 33
Torres: 133
Townsville: 1,991
Rockhampton: 915
Whitsunday: 249
Wujal Wujal: 1
Yarrabah: 95

Ref: QLD Govt 2011 (2)

Assumed net migration

Assumed net migration: 4,898

Range: -82 (Torres) – 1,689 (Townsville)

Burdekin: -37
Cairns City: 1,576
Cassowary Coast: 13
Gladstone: -75
Hinchinbrook: -57
Hope Vale: -2
Isaac: -172
Lockhart River: -2
Mackay: 1,336
Palm Island: -3
Torres: -82
Townsville: 1,689
Rockhampton: 291
Whitsunday: 257
Wujal Wujal: 0
Yarrabah: -6

Ref: QLD Govt 2011 (2)

Chapter Five

Who are the coastal communities? Size and structure

Gross Individual Weekly income (%)

<\$400: 177,898 (31.9)
\$400-\$999: 174,141 (31.2)
\$1000-\$1999: 116,948 (21.0)
>:\$2000: 32,675 (5.9)

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Lockhart River:
Mackay:
Palm Island:
Torres:
Townsville:
Rockhampton:
Whitsunday:
Wujal Wujal:
Yarrabah:

Ref: ABS 2011

Sources of personal income (\$)

Wage and salary: 45,724
Unincorporated business:
16,844
Investment: 5993
Other: 5747

Ref: ABS 2008-9 (3)

Census night visitors

Mackay: 1,260 (15% of all
census night visitors in
Bowen Basin urban centres
and localities)
Rockhampton: 595
Gladstone: 206
Yeppoon: 206

Ref: ABS 2006(5)

Employment by Industry (%)

Health Care & Social Assistance:
37,291 (10.9)
Retail Trade: 36,396 (10.7)
Construction: 33,091 (9.7)
Manufacturing: 28,240 (8.3)
Accommodation & Food Services:
26,563 (7.8)
Public Administration & Safety:
25,558 (7.5)
Education & Training: 25,379 (7.4)
Transport, Postal & Warehousing:
20,852 (6.1)
Professional, Scientific & Technical
Services: 15,571 (4.6)
Mining: 15,284 (4.5)
Agriculture, Forestry & Fishing:
10,901 (3.2)
Wholesale Trade: 10,790 (3.2)
Administrative & Support
Services: 9,981 (2.9)
Rental, Hiring & Real Estate
Services: 5,762 (1.7)
Electricity, Gas, Water & Waste
Services: 5,205 (1.5)
Financial & Insurance Services:
5,126 (1.5)
Arts & Recreation Services: 3,657
(1.1)
Information Media &
Telecommunications: 2,976 (0.9)
Other Services: 14,067 (4.1)

Ref: ABS 2011

Employment by Occupation (%)

Technicians & trade workers:
60,767 (17.8)
Professionals: 51,550 (15.1)
Clerical & administrative
workers: 45,514 (13.3)
Labourers: 39,517 (11.6)
Managers: 36,919 (10.8)
Professionals: 51,550 (15.1)
Community & personal
service workers: 35,204
(10.3)
Sales workers: 32,074 (9.4)
Machinery operators &
drivers: 33,027 (9.7)

Ref: ABS 2011

Chapter Five. Coastal Communities

Who are the coastal communities? Size and structure

Police stations

Burdekin:	4
Cairns City:	7
Cassowary Coast:	7
Gladstone:	8
Hinchinbrook:	2
Hope Vale:	1
Isaac:	8
Lockhart River:	1
Mackay:	10
Palm Island:	1
Rockhampton:	10
Torres:	2
Townsville:	7
Whitsunday:	4
Wujal Wujal:	0
Yarrabah:	1

Ref: ABS 2011

Ambulance stations

Burdekin:	3
Cairns City:	7
Cassowary Coast:	6
Gladstone:	6
Hinchinbrook:	2
Hope Vale:	0
Isaac:	15
Lockhart River:	0
Mackay:	6
Palm Island:	1
Rockhampton:	7
Torres:	2
Townsville:	4
Whitsunday:	5
Wujal Wujal:	0
Yarrabah:	1

Ref: ABS 2011

Fire stations

Burdekin:	3
Cairns City:	8
Cassowary Coast:	6
Gladstone:	4
Hinchinbrook:	3
Hope Vale:	0
Isaac:	5
Lockhart River:	0
Mackay:	4
Palm Island:	0
Rockhampton:	6
Torres:	1
Townsville:	5
Whitsunday:	4
Wujal Wujal:	0
Yarrabah:	0

Ref: ABS 2011

Hospitals

Burdekin:	2
Cairns City:	8
Cassowary Coast:	2
Gladstone:	2
Hinchinbrook:	1
Hope Vale:	1
Isaac:	3
Lockhart River:	1
Mackay:	5
Palm Island:	1
Rockhampton:	7
Torres:	2
Townsville:	7
Whitsunday:	3
Wujal Wujal:	1
Yarrabah:	1

Ref: ABS 2011

Chapter Five

Who are the coastal communities? Environmental Footprint

Building Approvals

Dwelling units in new residential buildings: 5,157
Residential building value: 1,368,154
Total building value: 2,988,612
Proportion that is residential: 55.3%

Burdekin:
Cairns City:
Cassowary Coast:
Gladstone:
Hinchinbrook:
Hope Vale:
Isaac:
Lockhart River:
Mackay:
Palm Island:
Torres:
Townsville:
Rockhampton: Whitsunday:
Wujal Wujal:
Yarrabah:

Ref: ABS 2011

Residential sewage connections

Burdekin:	5243
Cairns :	63,334
Gladstone:	17,260
Hinchinbrook:	2052
Mackay:	32,029
Rockhampton:	32,514
Townsville:	59,767
Whitsundays:	8813

Ref: DLGP 2011b

Motor vehicles per dwelling (%)

None:	17,211 (7.7)
1:	79,288 (35.7)
2:	82,261 (37.0)
3 or more:	35,108 (15.8)

Ref: ABS 2006

Total tonnage of domestic waste

Burdekin:	17,500t
Cairns :	60,487t
Gladstone:	19,324t
Hinchinbrook :	3,409t
Mackay:	29,402t
Rockhampton:	37,351t
Townsville:	42,912t
Whitsundays:	12,520t

Ref: DLGP 2011b

Boats per dwelling

See "Recreation" Chapter

Electricity use (KWH)

Data available by state

Ref: Ergon, DCC, ABARES

Chapter Five. Coastal Communities

How do coastal communities impact the GBR? Environmental footprint

Coastal development

Number, type, size, cost of existing (As of 2011) developments : xx
Number, type, size, cost of proposed developments : xx
Number, type, size, cost of development focus areas : xx

GBRMPA (maps) of proposed devpts, key devpt focus areas*

Ports

See Fig 5, next page.
Also see “Ports” Chapter.

Ref: NQBP
<http://www.nqbp.com.au/index.cfm?contentID:5>; QLD ports structure website map 2010 ;
www.cairnsport.com.au

Depreciation expense for roads

Burdekin – \$3,341,000
Cairns - \$10,338,000
Cassowary Coast - \$5,465,000
Cook – \$3,664,000
Gladstone - \$11,812,000
Hinchinbrook - \$3,143,000
Mackay - \$12,714,000
Rockhampton - \$17,693,000
Townsville - \$20,325,000
Whitsunday - \$7,660,000

Ref: DLGP 2011b; QLD Infrastructure Plan, 2011

Infrastructure

Structure of infrastructure projects : xx
Decision-making mechanisms : xx
Proposals : xx

Ref: QLD Infrastructure Plan, 2011**

Source (s) and consumption of water

LGA/region 1 : xx
LGA/region 2 : xx
LGA/region 3 : xx

Source (s) and consumption of energy

LGA/region 1 : xx
LGA/region 2 : xx
LGA/region 3 : xx

Air quality

LGA/region 1 : xx
LGA/region 2 : xx
LGA/region 3 : xx

Water quality

LGA/region 1 : xx
LGA/region 2 : xx
LGA/region 3 : xx

Chapter Five

Who are the coastal communities? Environmental footprint

Spatial extent (km²)

Total Area **86,602.6**
(5.0% of QLD)

Burdekin:	5,058
Cairns City:	4,129
Cassowary Coast:	4,700
Gladstone:	10,489
Hinchinbrook:	2,810
Hope Vale:	1,109
Isaac:	58,870
Lockhart River:	3,592
Mackay:	7,622
Palm Island:	71
Rockhampton:	18,356
Torres:	886
Townsville:	3,739
Whitsunday:	23,871
Wujal Wujal:	11
Yarrabah:	159

Ref: OESR 2012 (1)

Resident population

Region: **732,154**
(16.4% of QLD)

Burdekin:	17,784
Cairns City:	162,740
Cassowary Coast:	28,627
Gladstone:	59,402
Hinchinbrook:	11,852
Hope Vale:	1,071
Isaac:	23,212
Lockhart River:	529
Mackay:	115,677
Palm Island:	2,651
Rockhampton:	112,383
Torres:	3,609
Townsville:	180,389
Whitsunday:	32,408
Wujal Wujal:	292
Yarrabah:	2,740

Ref: ABS 2011 (2)

Population density (persons/km²)

Region: **8.45**

Burdekin:	3.52
Cairns City:	39.41
Cassowary Coast:	6.09
Gladstone:	5.66
Hinchinbrook:	4.22
Hope Vale:	0.97
Isaac:	0.39
Lockhart River:	0.15
Mackay:	15.18
Palm Island:	37.39
Rockhampton:	6.12
Torres:	4.07
Townsville:	48.25
Whitsunday:	1.36
Wujal Wujal:	26.07
Yarrabah:	17.23

Ref: ABS 2011 (3)

Time since established

Burdekin*:	1903
Cairns City:	1885
Cassowary Coast:	
Gladstone:	1853
Hinchinbrook:	
Hope Vale:	
Lockhart River:	
Mackay:	1862
Palm Island**:	1918
Rockhampton:	
Torres:	
Townsville:	1866
Whitsunday:	2008
Wujal Wujal:	
Yarrabah:	

*became a shire on 31 March 1903. On 10 June 1982, it was renamed Burdekin.

** became a shire on 31 March 1903. On 10 June 1982, it was renamed Burdekin.

***merged with Thuringowa 2008

Ref: Townsville: Tyrell et al.
2009, QLD State Archives (6);
others: Wikipedia

Chapter Five. Coastal Communities

Environmental impact on the GBR



Fig. 4. Sewage supply schemes disrupted or affected following floods and cyclones (March 2011) Source: Queensland Reconstruction Authority.

Chapter Five. Coastal Communities

How do coastal communities look after the GBR? Stewardship

Protected Areas (km2)

National Park: 9,687.7
State Forest: 2,571.2
Timber Reserve: 633.4
Forest Reserve: 250.1

Total Protected Area (km2)

Burdekin: 202.0
Cairns City: 2,495.4
Cassowary Coast: 2,843.7
Gladstone: 1,783.3
Hinchinbrook: 984.4
Hope Vale: <0.1
Isaac: 2,570
Lockhart River: 0.1
Mackay: 1,630.6
Palm Island: 0.0
Torres: 53.7
Townsville: 925.7
Rockhampton: 1,186.5
Whitsunday: 1,037.1
Wujal Wujal: 0.0
Yarrabah: <0.1

Ref: DERM, QPWS

Volunteers aged 15 and older

Region: 18.4% of population
Burdekin: 22.1%
Cairns City: 17.8%
Cassowary Coast: 19.1%
Gladstone: 19.3%
Hinchinbrook: 23.1%
Hope Vale: 8.7%
Isaac: 20.4%
Lockhart River: 12.5%
Mackay: 15.9%
Palm Island: 7.7%
Torres: 15.5%
Townsville: 16.7%
Rockhampton: 18.1%
Whitsunday: 17.0%
Wujal Wujal: 12.3%
Yarrabah: 11.3%

Ref: ABS 2011

Reef Guardian program participants

Schools: Over 285
Councils: 13 (Fig. 5)
Farmers and Graziers: 17
Fishing operations: 7

Ref: GBRMPA, pers. comm. 2012

Participate in government incentive schemes (e.g. solar rebates)

Percent of coastal population

Region: 27
Cape York: 22
Far Northern: 14
Northern: 34
Central: 19
Southern: 35

Ref: Young and Mar 2010 (2)

Walk, cycle, car pool or use public transport rather than driving

Percent of coastal population

Region: 35
Cape York: 33
Far Northern: 30
Northern: 40
Central: 36
Southern: 35

Ref: Young and Mar 2010 (2)

Use green electricity (e.g. solar, wind, wave, nuclear)

Percent of coastal population

Region: 18
Cape York: 17
Far Northern: 24
Northern: 16
Central: 15
Southern: 17

Ref: Young and Mar 2010 (2)

Chapter Five. Coastal Communities

How do coastal communities value the GBR?

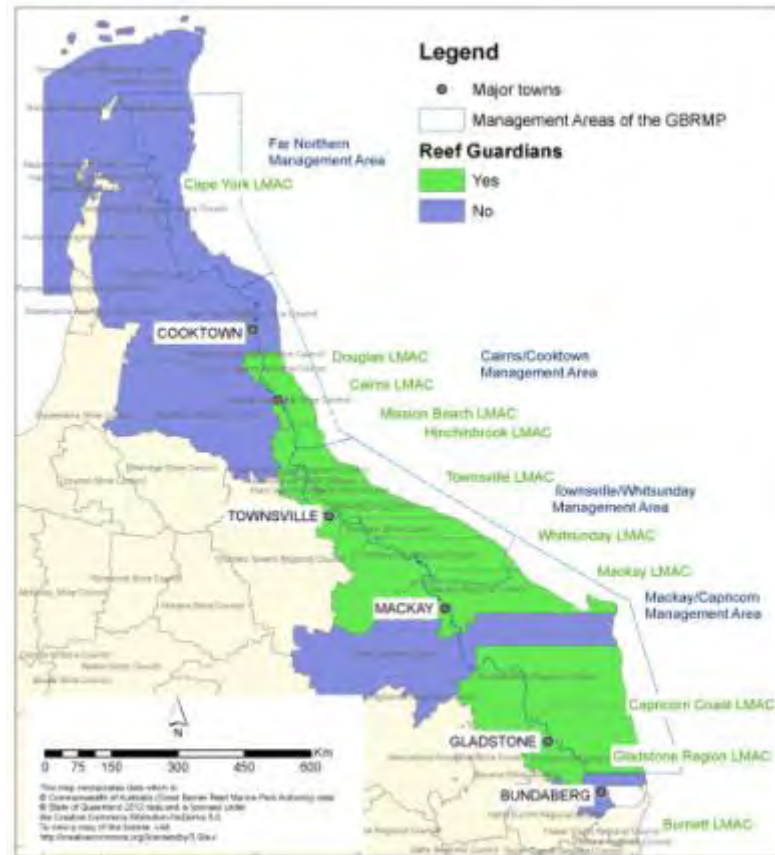


Fig. 5. Location of Reef Guardian Council Programs. Source: GBRMPA.



Fig X. Public Appreciation Sites. Source: GBRMPA.

Chapter Five. Coastal Communities

How do coastal communities look after the GBR?

Conservation & stewardship initiatives <div>Initiatives: xx</div>	Grassroots educational institutions <div>Institutions: xx</div>	Community sustainability initiatives <div>Initiatives: xx</div>	LGA resources available to enforce compliance <div>Resources: xx</div>
Type of conservation/stewardship organisation <div>Type: xx</div>	Purpose <div>Purpose: xx</div>	Area of influence <div>Area: xx</div>	Number of employees and staff turnover <div>Employees: xx Average retention time: xx</div>

Chapter Five

How do coastal communities value the GBR?

Enjoyment of nature

XX

Public appreciation sites (Fig. 6)

See also Perceptions & Motivations

Ref:

“Mansions on the beach”

Average house size : xx
Average lot size : xx
Average proximity to coast/beach : xx

Ref: ARIA (ABS)? (1)

Food supply / agricultural commodities consumed

Consumption of local produce : xx

See also “Catchment Industries” Chapter

Ref: Value of Agricultural Commodities, Small Area Data, 2005-06 (ASGC 06)?

Visitation to GBR

QLD Coastal Region* residents who have visited the GBR (%):

Within the last month: 20

Within the last 6 months: 12

Within the last 12 months: 10

1-2 years ago: 11

3-5 years ago: 9

More than 5 years ago: 26

Never: 11

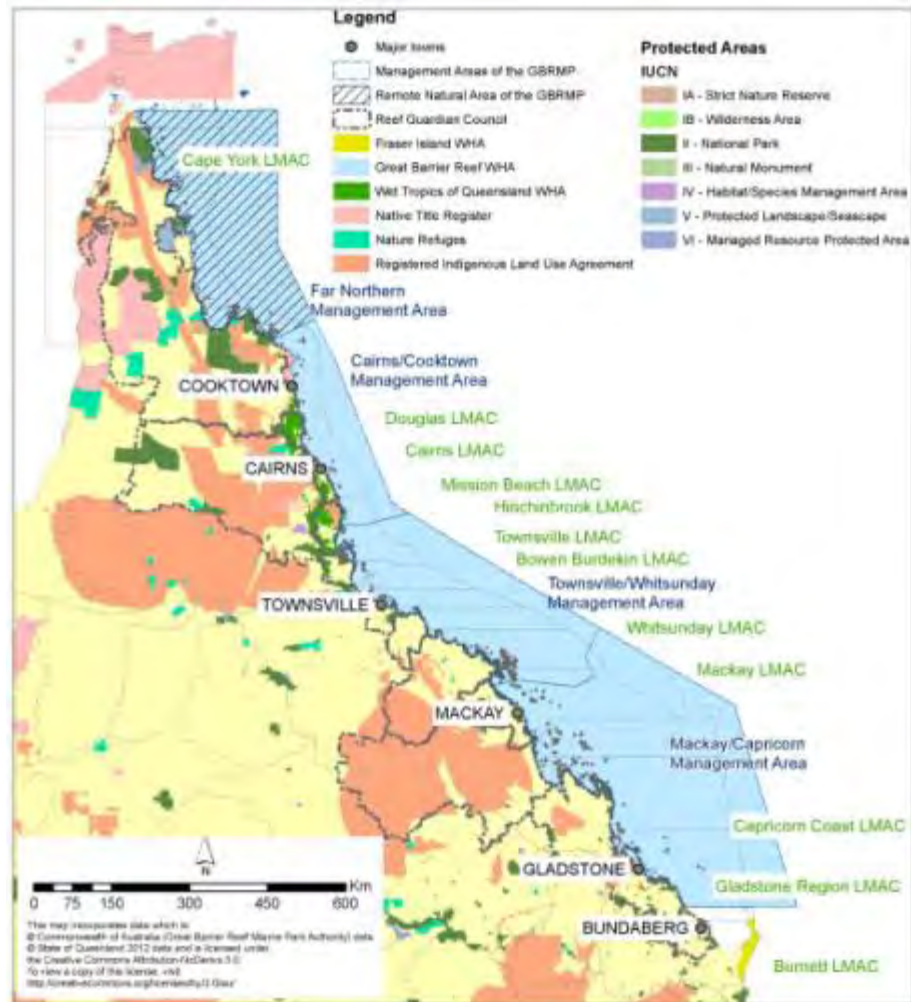
Don't know: 1

See also “Recreation” Chapter

Ref: Young and Mar 2010 (2); region includes coastal areas outside GBR

Chapter Five

How do coastal communities enjoy the GBR: Protected Areas



Chapter Five. Coastal Communities

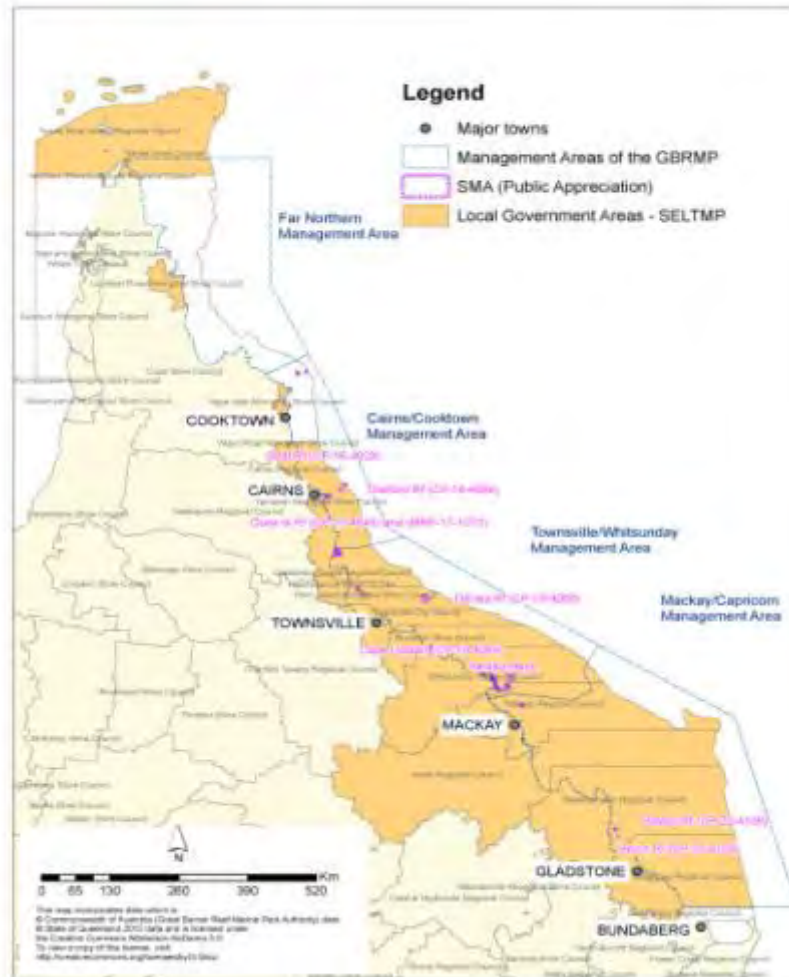


Fig. 6. Public appreciation areas.
Source: GBRMPA.

Chapter Five. Coastal Communities

Perceptions & Motivations of Coastal Communities

Perceptions of GBR protection (% of coastal population)

Believe that community has a role to play in protecting GBR: 94
Are satisfied that GBR is being protected: 41
Optimistic about future of GBR: 51
Believe that GBR is under threat: 50

Ref: Young and Mar 2010 (2)

Perceived change in level of threat to GBR (% of coastal population)

Increasing: 58
Remains the same: 35
Decreasing: 8

Ref: Young and Mar 2010 (2)

Perceptions of main threats to GBR, prompted (% of coastal population)

Shipping: 58
Water pollution: 54
Coastal development: 46
Climate change/global warming: 41
Rise in ocean temperature: 40
Water quality: 38
Increase ocean water acidity: 35
Commercial fishing: 33
Rise in sea levels: 28
Tourism: 27
Recreational activities: 18
Indigenous hunting: 18
Recreational fishing: 14

Ref: Young and Mar 2010 (2)

Believe that activities at home have an impact on the GBR (% of coastal population)

Region: 39
Cape York: 23
Far Northern: 47
Northern: 52
Central: 28
Southern: 31

Ref: Young and Mar 2010 (2)

Believe that activities at work have an impact on the GBR (% of coastal population)

Region: 23
Cape York: 22
Far Northern: 28
Northern: 20
Central: 23
Southern: 23

Ref: Young and Mar 2010 (2)

Top reasons for positive environmental behaviour (% of coastal population)

Turning off lights and appliances: to save money (75%)
Recycling: to protect the environment (41%)
Buying local produce: to support local farmers/industry (49%)
Using energy efficient products: to save money (60%)

Ref: Young and Mar 2010 (2)

Chapter Five. Coastal communities

Well-being of Coastal Communities: Opportunities

Satisfaction with income

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Vicarious enjoyment

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Spectrum of GBR uses and access

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Development & maintenance of GBR industries

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Economic contribution of GBR industries

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Payment for environmental services

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Contribution of GBR to livelihood

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Direct employment in GBR industry

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal communities

Well-being of Coastal Communities: Empowerment

Direct contribution to GBR management

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Integration of knowledge into GBR management

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Effective partnerships

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Effective models for management

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Promotion of mutual respect

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Clear and transparent policies

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Clear legal obligations

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Access equity

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal communities

Well-being of Coastal Communities: Empowerment

Knowledge of GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Mechanisms for promoting stewardship

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Freedom of choice to act

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Culture incorporated into management

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Respect incorporated into management

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal communities

Well-being of Coastal Communities: Security

Overall quality of life

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Health

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Belongingness to a group

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Social cohesion

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Quality of relationships

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Aesthetics of GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Health of GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Condition of beaches

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal communities

Well-being of Coastal Communities: Security

Contribution of GBR to identity

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Sense of place associated with GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Cultural connection with the GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Spiritual connection with GBR

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Sustainability of GBR industries

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Food provisioning

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Management effectiveness

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Buffer to natural disasters

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal communities

Well-being of Coastal Communities: Security

Climate change mitigation

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Climate change adaptation efforts

Region:
Cape York:
Far Northern:
Northern:
Central:
Southern:

Chapter Five. Coastal Communities

Direct drivers of change in coastal communities

Climate change and variability

Number, extent and severity of cyclone, flood and other climate events, cost of damage, insurance.

See Vulnerability and Adaptive Capacity

Ref:

Resource availability and quality

Public appreciation sites, satisfaction with sites, access

See Values, Perceptions and Motivations

Ref:

Coastal infrastructure

Number and type of developments, area of influence, and impacts.

See Figure 5 and "Ports" Chapter

Ref:

Chapter Five. Coastal Communities

Indirect drivers of change in coastal communities

Demographic

Population/size of community *See resident population*
 Population stability/spread *See migration*
 Ageing *See age*
 Population growth rate *See population projections*

Economic

Economic reliance of residents on and connection to place : xx
 Economic situation of GBR relative to southern Australia (e.g. jobs, house prices)
 International economic situation (value of AUD) *See "Drivers of Change" Chapter*

Governance and politics

Cohesive leadership : xx
 Federal political processes : xx
 Federal political processes : xx
 State government support and resources : xx
 Local government support and resources : xx

Regulation

Existing (as of 2011) legislation *See Table 1*
 Administering agency and level (e.g. Federal) *See Table 1*
 Regulatory changes during the 2011/12 financial year: 3*

Ref: GBRMPA 2012

Coastal Management Legislation in the Burdekin Dry Tropics NRM Region

Australian Government	Administered by
<ul style="list-style-type: none"> Environmental Protection and Biodiversity Conservation Act Great Barrier Reef Marine Park Act 	<ul style="list-style-type: none"> Australian Government Great Barrier Reef Marine Park Authority
Queensland Government	
<ul style="list-style-type: none"> Coastal Protection and Management Act Nature Conservation Act Marine Parks Act Environmental Protection Act Vegetation Management Act Integrated Planning Act Fisheries Act Transport Operations Act 	<ul style="list-style-type: none"> Department of Environment and Resource Management Department of Environment and Resource Management Department of Environment and Resource Management Department of Environment and Resource Management Department of Environment and Resource Management Department of Infrastructure and Planning Department of Employment Economic Development and Innovation Department of Transport and Main Roads
Local Government	
<ul style="list-style-type: none"> Local Government Act Local Laws and Planning Schemes 	<ul style="list-style-type: none"> Local Government Local Government

Table 1. Example of legislation relevant to coastal communities in the GBR region (for North Queensland (formerly Burdekin) Dry Tropics NRM Region; Allan and Barnett 2010).

Chapter Five. Coastal Communities

Indirect drivers of change in coastal communities

Main sources of information about GBR, 2011 (%)

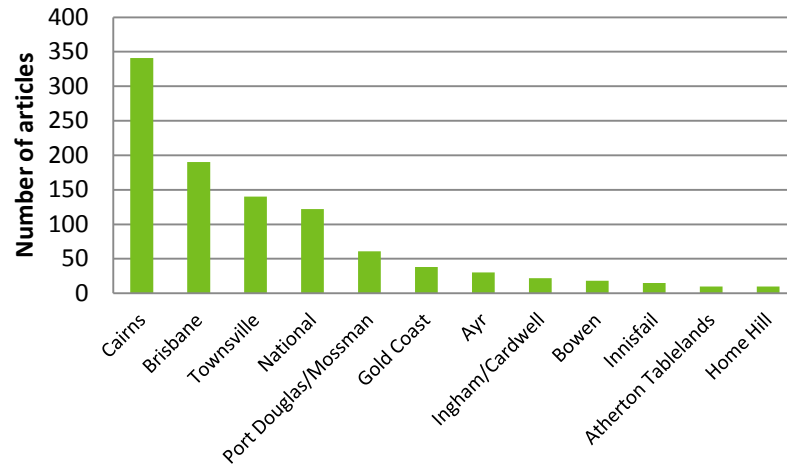
TV news: 60
 Newspapers: 40
 Internet (in general): 18
 TV ads: 14
 Radio: 12
 Word of mouth: 12
 TV documentaries: 11
 Magazines: 8
 Local tourism operator: 3

Ref: Murphy et al. 2012.

Media coverage of GBR

Number of news articles about GBR in 2011 by region: 1,560 **Figure 7**
 Number of news articles by topic & month **Figure 8**
 Comparative survey and newspaper data **Figure 9** (next slide)

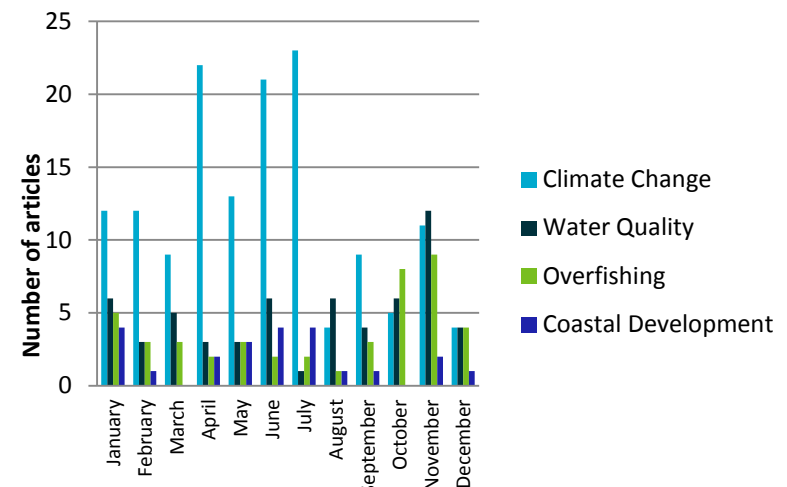
Ref: Bohensky et al. *in prep*, Thompson 2012.



Values, attitudes and experience

Personal experience related to GBR : xx
 Beliefs and attitudes about issues such as property rights : xx

Figure 7 (above). Articles about Great Barrier Reef in National and QLD newspapers, by community/region (2011).
 Figure 8 (right). Newspaper articles about main threats to GBR, by month (2011). Threats identified from GBRMPA Outlook Report (2009). See Methods for detail.



Chapter Five. Coastal Communities

Indirect drivers of change in coastal communities

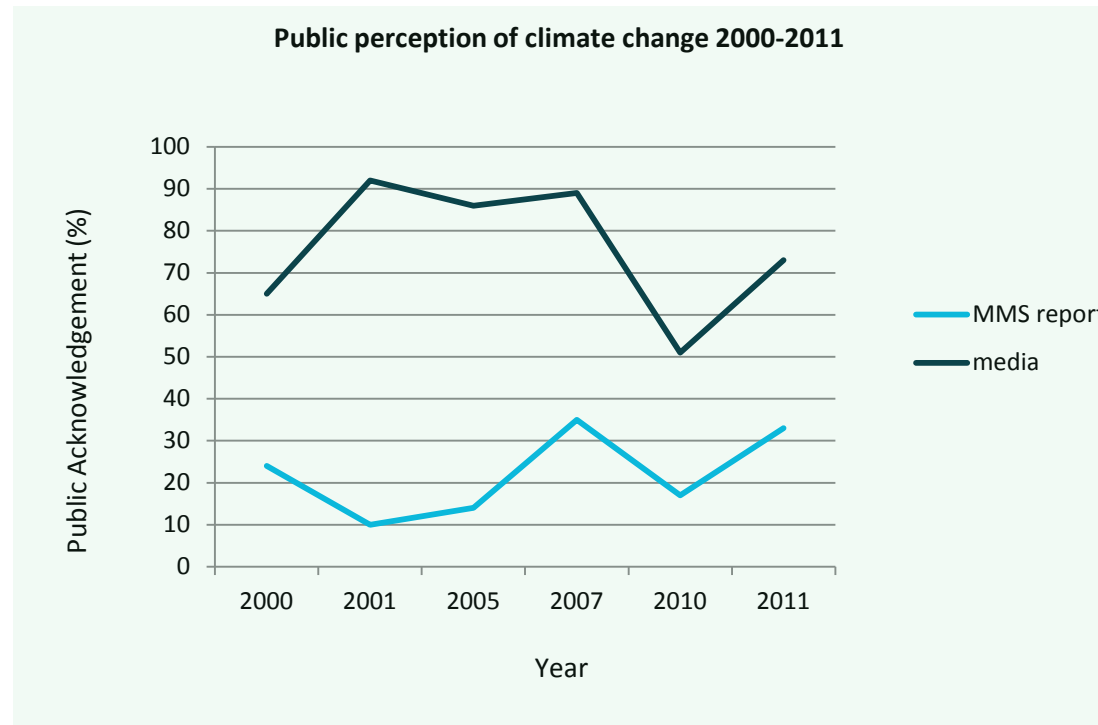


Figure 9. Public acknowledgement of climate change from 2000-2011 in survey data (MMS report) and newspaper reporting. Thompson 2012.

References

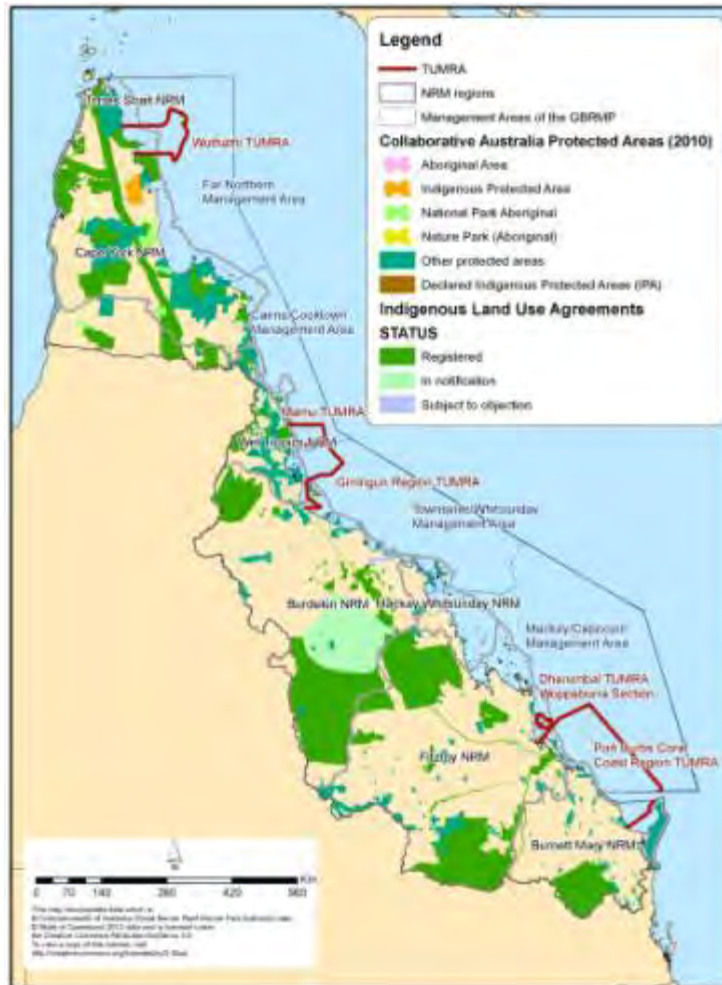
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Chapter Six

Traditional Owners

Chapter Six. Traditional Owners

Where are the Native Title Determinations?



Chapter Six. Traditional Owners

Where are the investments made?

Chapter Six. Traditional Owners

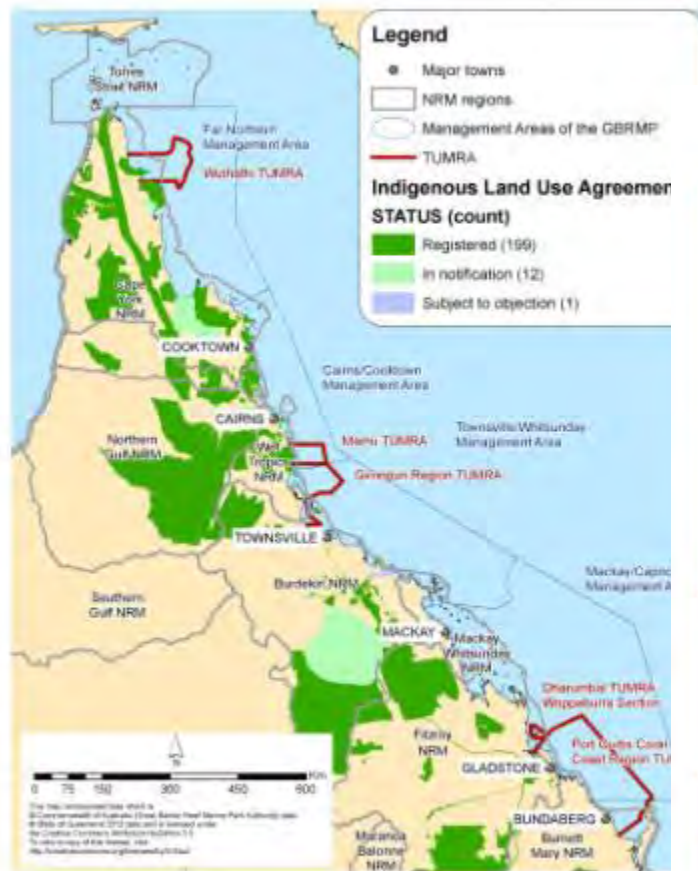
Where are the investments made?

Chapter Six. Traditional Owners

Where are the investments made?

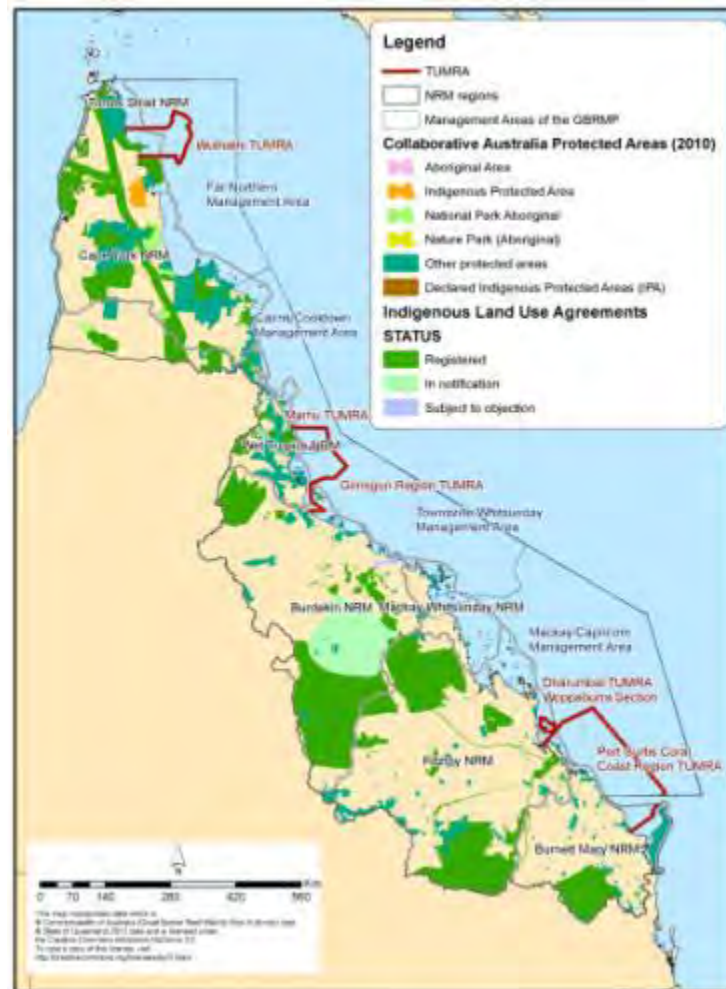
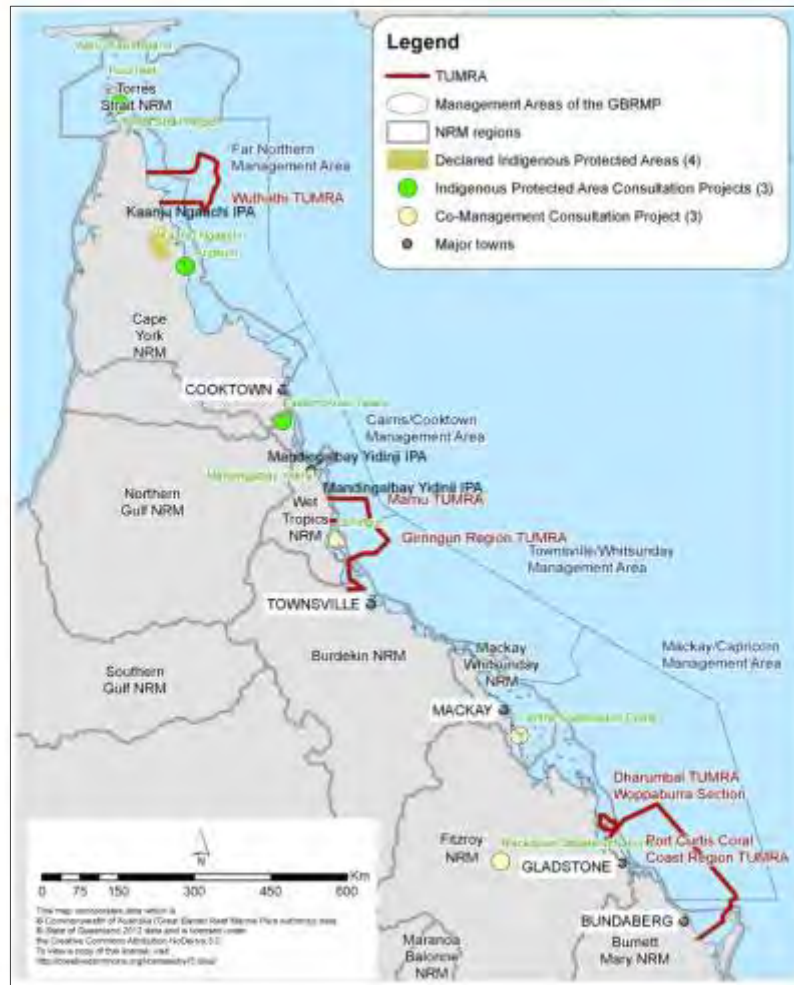
Chapter Six. Traditional Owners

Where are the Indigenous Land Use Agreements?



Chapter Six. Traditional Owners

Where are the Protected Areas?



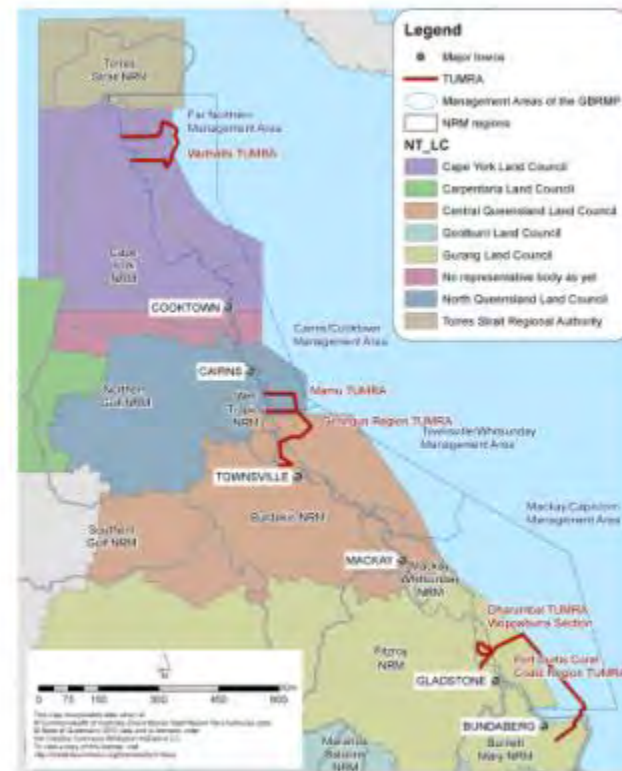
Chapter Six. Traditional Owners

Where are the Indigenous Ranger Groups?



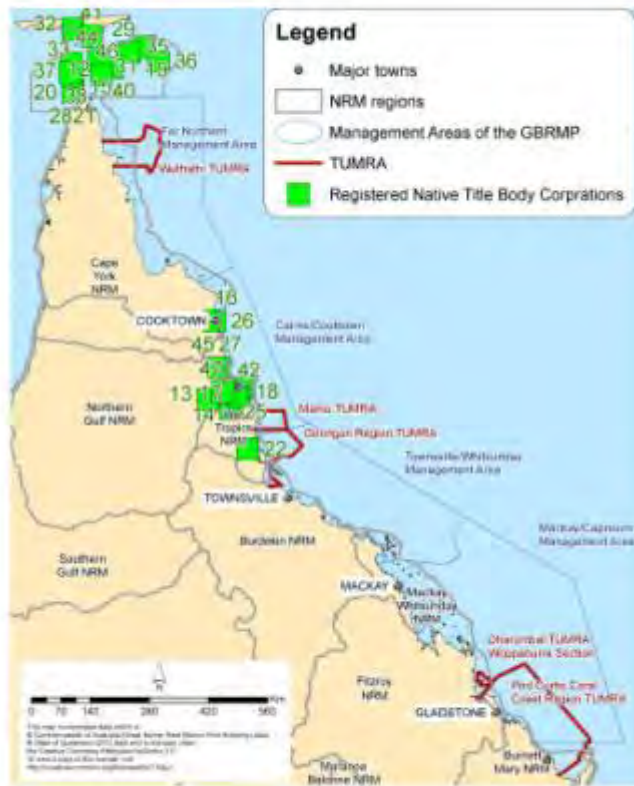
Chapter Six. Traditional Owners

Where are the Land Councils and Aboriginal Body Corporations?



Chapter Six. Traditional Owners

Where are the Native Title Body Corporations?



Chapter Six.

Who are the traditional owners?

How many
traditional owners
are there?

Groups : 70
TUMRA 1 : xx people
TUMRA 2 : xx
TUMRA 3 :
TUMRA 4 :
TUMRA 5 :

Ref: xxxx

No. of groups within
each TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx
TUMRA 5 :

Ref: xxxx

Age distribution

Old (X-Xyrs) : xx
Young (X-Xyrs) : xx
Children (X-Xyr) : xx

Ref: xxxx

Level of education
within each TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Level of health
indicator within each
TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Main identity for
each TUMRA

Type 1: xx
Type 2: xx
Type 3: xx

Ref: xxxx

Main activity for
each TUMRA

Type 1: xx
Type 2: xx
Type 3: xx

Ref: xxxx

Main marine
concerns for each
TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Identity

TUMRA 1 : xx*
TUMRA 2 : xx*
TUMRA 3 : xx*
TUMRA 4 : xx*

Ref: xxxx

Subsistence

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Traditional hunting

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Well-being

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source of income

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Environmental Knowledge

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Employment

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Place Attachment

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Fishing

Region 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Coastal activities

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Boating

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Hunting dugong

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Hunting Turtle

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Beach activities

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Tourism

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Xxx

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Projects completed in 2011

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Projects commenced in 2011

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Projects ongoing in 2011

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

List of main research institutions

University 1 : \$xx (xx%)
University 1 : \$xx (xx%)
University 1 : \$xx (xx%)
University 1 : \$xx (xx%)
University 1 : \$xx (xx%)

Ref: xxxx

TOs involved in NRM groups

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

TOs involved in TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

TOs involved in xxx

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

TOs involved in xxx

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Source 1

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

*see map

Ref: xxxx

Source 2

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 3

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 4

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 5

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 6

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 7

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Source 8

TUMRA 1 : \$xx (xx%)
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Commercial fishing

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Coastal Residents

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Marine tourists

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Commercial fishers

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Recreational fishers

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Mining

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Marine Management

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Agriculture

Perception 1 : xx%
Perception 2 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Perceptions of biggest risks

TUMRA 1 : xx*
TUMRA 2 : xx*
TUMRA 3 : xx*
TUMRA 4 : xx*

Ref: xxxx

Strategic support

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Financial support

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Formal Engagement

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Wellbeing

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Livelihoods

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Alternative livelihoods

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Adaptation Plans

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Trust with each other

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with xxx

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with State govt 1

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with State govt 2

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with Fed govt 1

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with Fed govt 2

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

NRMs

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with Researchers

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

TOs involved in Marine Tourism

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Type of TO Marine Tourism

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Training in TO Tourism

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Value of TO Tourism

TUMRA 1 : \$xx
TUMRA 2 : \$xx
TUMRA 3 : \$xx
TUMRA 4 : \$xx

Ref: xxxx

Tourists visiting each TUMRA

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Origin of tourists

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

xxx

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

xxx

TUMRA 1 : \$xx
TUMRA 2 : \$xx
TUMRA 3 : \$xx
TUMRA 4 : \$xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

TOs involved in Marine Management

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Type of TO Marine Management

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Training in TO Reef Management

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

TOs in Reef Research

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

TOs in Marine Plans

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

XXX

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

XXX

TUMRA 1 : xx
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

XXX

TUMRA 1 : \$xx
TUMRA 2 : \$xx
TUMRA 3 : \$xx
TUMRA 4 : \$xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Commercial fishing

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Coastal development

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Opportunities

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Mining

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Funding

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Trust with ...

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Supply chain

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Agriculture

TUMRA 1 : xx%
TUMRA 2 : xx
TUMRA 3 : xx
TUMRA 4 : xx

Ref: xxxx

Chapter Six.

Who are the traditional owners?

Ref: xxxx

Ref: xxxx

Ref: xxxx

Ref: xxxx

Ref: xxxx

Ref: xxxx

Ref: xxxx

Ref: xxxx

Chapter Seven

Recreation in the Great Barrier Reef

People love to spend their recreational time visiting the Great Barrier Reef World Heritage Area (GBRWHA), (GBRMPA, 2009). The majority of coastal residents adjacent to the Great Barrier Reef, as well as many other Australian and international visitors, participate in some form of recreation multiple times a year (GBRMPA, 2012; Lawrence et al., 2010). While recent estimates are lacking, residents of the GBRWHA catchment, alone, were estimated to make in excess of 14 million recreational visits to the Great Barrier Reef Marine Park in 2008 (Lawrence et al., 2010).

Recreation in the GBRWHA provides significant social and cultural benefits as well as many health and wellbeing benefits associated with the psychological interaction with nature (Synergies Economic Consulting, 2012). In economic terms, recreational use (including fishing), contributed \$153M to the Australian economy in 2006/07 (Access Economics, 2009), although the exact contribution from the non-fishing component is not currently known (GBRMPA, 2009).

Recreational activities include swimming and going to the beach, boating, sailing, jet skiing, paddling, fishing, camping and hiking (including in National Parks), snorkelling, scuba diving, and sightseeing. In 2008, the most common recreational activity was swimming (61% of visitors), followed by fishing (56%)³. Most visitors (59%) also accessed the Park using motorised vessels, for fishing or other activities such as relaxing, socialising and swimming (Lawrence et al., 2010). While an estimate of current vessel use is unavailable, vessel registration by coastal residents has increased substantially in recent years (Qld Department of Transport, unpublished data, 2011).

Chapter Seven

Recreation in the Great Barrier Reef

Recreational activities occur in diverse habitats including coastal beaches, on islands, in bays, on reefs, on inter-reef shoals, or open water (GBRMPA, 2009; 2012). Recreational visitors are currently very satisfied with their use of the Marine Park (GBRMPA 2009), and the vast majority (88%) of recreational visitors visited the Park more than once, with 43% visiting ten or more times (Lawrence et al., 2010).

Importantly, recreation differs from tourism, and is defined by the Great Barrier Reef Marine Park Authority as *an independent visit for enjoyment that is not part of a commercial operation* (GBRMPA, 2012).

There is potential for overlap between tourism and recreation in some instances; for example if a visitor to a GBR coastal region is staying within a caravan park, they are considered a tourist for that purpose; however when they make an independent visit to the region in their own boat, they are making an independent recreational visit. This issue will likely be debated in subsequent versions of the SELTMP while we seek clarity on specific examples. For SELTMP 2011, this chapter focuses on residents making recreational visits to the WHA, in part due to data availability at this time.

Recreation in the WHA is managed by the Great Barrier Reef Marine Park Authority (GBRMPA) in partnership with multiple state agencies including the Department of National Parks, Sports, Recreation and Racing (NPRSR), Fisheries Queensland within Queensland's Department of Agriculture, Fishing and Forestry (QDAFF), the Queensland Boating and Fisheries Patrol (QBFP), and Maritime Safety Queensland (MSQ). The Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) also assists with management of the WHA (GBRMPA, 2012). While many activities are subject to specific regulations (e.g. fishing, camping in national parks), others are not (e.g. visiting beaches, swimming), and aside from fishing, recreational activities can occur in almost all of the GBR region. Most non-extractive impacts from recreation are related to vessels, particularly inshore and close to population centres where use is highest (GBRMPA, 2009). The GBRMPA has developed a *Recreation Management Strategy* for the Marine Park, with the aim of providing an overarching framework for the management of recreation in the Park, and to facilitate coordination between agencies responsible (see GBRMPA, 2012). Their vision for recreation in the Park is: *Ecologically sustainable recreational use of the Great Barrier Reef Marine Park where the Great Barrier Reef is protected and where visitors can appreciate its values and enjoy recreational experiences, now and into the future*. This vision highlights the essential link between healthy ecosystems and enjoyable recreational use.

Chapter Seven. Recreation

Who are the recreational users? Place & identity based factors

Strength of identity associated with place

% with dependents

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: 40% of households with dependents participated ^{1*}
Qld population	: xx

Ref: ¹OESR (2008)

Current residence

% visitors living in GBRWHA

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Residence longevity

Average years in GBR region

Cape York	: xx
Cairns ¹	: 8.7
Townsville	9.3 ¹
Sarina	9 ¹
Fitzroy Basin	= 12 ¹
Burnett Mary	= 9.5 ¹

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Rolfe et al. (2011)^

Plan to remain in region for next 5 years

% originated in GBR region

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: xx
Qld population	: xx

Ref: xxx

Chapter Seven. Recreation

Who are the recreational users in the region? Human capital

Age

Average age (years)

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

Boaters	= xx
Sailers	= xx
Jetskiiers	= xx
Fishers	= Most 30-44 yrs ²
Divers	= xx
Campers	= Most campers 15-24 ³ / 25-44 ⁴ ; Most caravanners 25-44 yrs ⁴
Hiking	= xx
Beach/swimmers	= xx

GBR overall	= xx ⁺ / _xx
Most residents in 18-24, or 24-45	(57% of each age group) participated ^{1*}
Qld population	= xx ⁺ / _xx

Ref: ¹OESR (2008); ²Taylor et al. (2012); ³Synergies Economic Consulting (2012); ⁴Carter (2002)[^]

Gender

% of visitors who were males

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

Boaters	: 54% ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: 67% ²
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: 53% of males, 43% of females participated ^{3*}
Qld population	: xx

Ref: ¹Lawrence et al. (2010); ²Taylor et al. (2012); ³OESR (2008)

Education

% with > high school educ'n

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: 47.3% of residents who completed high school, and 63.3% of residents with university degree participated ^{1*}
Qld population	: xx

Ref: ¹OESR (2008)

Marital status

% with partner

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: 48.4% of coastal residents with a partner participated ^{1*}
Qld population	: xx

Ref: ¹OESR (2008)

* This is % of residents in these categories in the catchment that participated rather than a % of participants. This is not what was intended for this indicator, but is the only data available currently. [^]Australia-wide data from National Visitor Survey

Chapter Seven. Recreation

Who are the recreational users? Social capital

Region of origin

% originated elsewhere in

Australia

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: xx
Qld population	: xx

Ref: xxx

Region of origin

% originated overseas

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall	: xx
Qld population	: xx

Ref: xxx

Information sources

Primary information source about the GBRWHA

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: newspaper+ TV ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Sutton (2006)

Informal networks

% consider themselves well networked

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Formal networks

% who communicate regularly with managers

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Memberships

% who are members of peak bodies

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 3% ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Taylor et al. (2012)

Chapter Seven. Recreation

What is the economic value of recreation in the GBR?

Estimated value

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

Boating	: xx
Sailing	: xx
Jetskiing	: xx
Fishing	: 183 (per trip/pp for fishing, boating and sailing) ¹
Diving	= xx
Camping	= \$5b (to Aus economy – includes caravanning and camping) ²
Hiking	= xx
Beach/swimming	= \$35 for beaches ¹

GBR overall : \$153m³

Ref: ¹Rolfe et al (2011)*; ²Fincham, (2011); ³Access Economics (2008)

Expenditure

Average expenditure per trip per person

Boaters	= \$129 ¹
Sailers	= \$139 ¹
Jetskiers	= xx
Fishers	= \$99 ¹
Divers	= xx
Campers	= \$90/night (campers); = \$83/night (caravanners) ²
Hiking	= xx
Beach/swimmers	= xx

Median expenditure per trip per person

Boaters	= \$80 ¹
Sailers	= \$75 ¹
Jetskiers	= xx
Fishers	= \$65 ¹
Divers	= xx
Campers	= xx
Hiking	= xx
Beach/swimmers	= xx

GBR overall avg : xx+/_xx
GBR median : xx+/_xx

Ref: ¹Rolfe et al. (2011) ; ²Carter (2002)[^]

Investment in equipment

Average investment

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

Boaters	: vessels \$8,000 med, \$16K mean ¹
Sailers	: vessels \$20K med, \$55K mean ¹
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx+/_xx

Ref: ¹Rolfe et al. (2011)

Chapter Seven. Recreation

How many recreational users are there in the region? Size and structure

Total recreational visitation to the WHA

% of residents that have visited this year

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 48% of catchment residents ^{1,2} ; : 55% within 50km of coast ^{2*}

Ref: ¹OESR (2008); ²Lawrence et al (2010)

of visitors[^]

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: 348,505
Intrastate	: xx
Interstate	: xx
International	: xx

Proportion of residents motorised BOATING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 29.7%
**Prop'n of visitors	: 54%

Ref: Lawrence et al. (2010)

Proportion of residents SAILING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 3%
Prop'n of visitors	: 5%

Ref: Lawrence et al. (2010)

Proportion of residents JETSKIING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 0.5%
Prop'n of visitors	: 1%

Ref: Lawrence et al. (2010)

Proportion of residents PADDLING[#]

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 0.5%
Prop'n of visitors	: 1% (non-motorised boating)

Ref: Lawrence et al. (2010)

Proportion of residents FISHING[~]

Far north	: 22.6% ¹
Northern	: 19.6% ¹
Mackay	: 28.3% ¹
Fitzroy	: 20.8% ¹
Wide-Bay Burnett	: 26.2% ¹
TOTAL GBR	: 23.5% ²
TOTAL Qld	: 17% ¹
(i.e. 703,000 people) ¹	
Prop'n of visitors	: 56% ³

Ref: ¹Taylor et al. (2012);
²Fisheries Qld, unpubl. data (2012); ³Lawrence et al. (2010)

Proportion of residents SNORKEL/DIVING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 17%
Prop'n of visitors	: 5.5% snorkel; 26.6% scuba

Ref: Lawrence et al. (2010)

From a sample of 1139 residents within 50km of GBRMP coast. [^]i.e. 2011 catchment population (total 732,154, ABS (2011)) x participation rate, where appropriate). **Proportion of residential visitors doing each activity shown were available. Proportion of vessel based trips (66%) further extrapolated to vessel type here. 'Total GBR' extrapolated from % resident visiting x % visitors doing activity. [#]Paddling includes canoes and kayaks. [~]Note change in regions to those used by RFISH for this report.

Chapter Seven. Recreation

How many recreational users are there? Size and structure

Proportion of residents CAMPING*

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: xx

Ref: xxx

Proportion of residents visiting BEACHES~

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: xx

Ref: xxx

Proportion of residents SWIMMING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: 34%
Prop'n of visitors	: 61%

Ref: Lawrence et al. (2010)

Proportion of first time visitors

% first time visiting:	
Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: 75% ¹
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: xx
Intrastate	: xx
Interstate	: xx
International	: xx

Proportion of residents HIKING

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: xx
Intrastate	: xx
Interstate	: xx
International	: xx

Ref: xxx

Proportion of residents SIGHTSEEING^

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL GBR	: xx
Intrastate	: xx
Interstate	: xx
International	: xx

Ref: xxx

% first time doing this activity:

Boaters**	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers [#]	: xx
Campers	: xx
Hiking ^{##}	: xx
Beach/swimmers	: xx

Ref: ¹Falco-Mammone and King (2009)

*Camping includes caravanning, but predominantly relates to camping on islands and beaches. This comment relates to the issue of grey nomads – they are counted as tourists up until they participate in non-paying recreational activities (e.g. fishing, boating, etc). ~Beach visits includes swimming and walking on beach/islands. ^Sightseeing includes photography. ** Boaters : motor boats; [#]Divers includes snorkelers. ^{##}Hiking does NOT include walking

Chapter Seven. Recreation

What are recreational users doing? Activity and use

Primary activity

Most popular activity by region

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

GBR overall : xx

Ref: xxx

Secondary activity

2nd most popular activity by region

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

GBR overall : xx

Ref: xxx

Linked activities

Most common associations

1 ⁰		2 ⁰
Boating	+	Fishing ^{1,2,3}
Sailing	+	...
Jetskiing	+	...
Fishing	+	...
Diving	+	...
Camping	+	...
Hiking	+	...
Beach/swimming		+
		...

Ref: ¹Lawrence et al. (2010);

²Rolfe et al. (2011); ³MSQ (2007)

Key species of interest

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: coral trout, redthroat emperor, tropical snapper, morwong, sweetlip ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Taylor et al. (2010)

Diversity of activity

activity types per trip

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: xxx

Diversity of focus species

species of interest per trip

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Chapter Seven Recreation

What is the investment in recreation?

Cost recovery

Management fees

Boating	: \$17.75 from vessel registration to Fisheries Qld for enhancing recreational fishing ¹
Sailing	: xx
Jetskiing	: xx
Fishing	: xx
Diving	: xx
Camping	: xx
Hiking	: xx
Beach/swimming	: Nil

Ref: ¹MSQ (2012)

Research and Development

\$ invested in R&D in recreation in GBRWHA

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx

Ref: xxx

Technology

% vessels using GPS

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx
Qld overall	: ~60% fishing vessels ¹ ; 53% of Qld owned vessels ²

% vessels using AIS

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx
Qld overall	: xx

Ref: ¹Taylor et al. (2012); ²MSQ (2007)

% vessels using Echo sounder

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx
Qld overall	: xx

Chapter Seven Recreation

What is the investment in recreation?

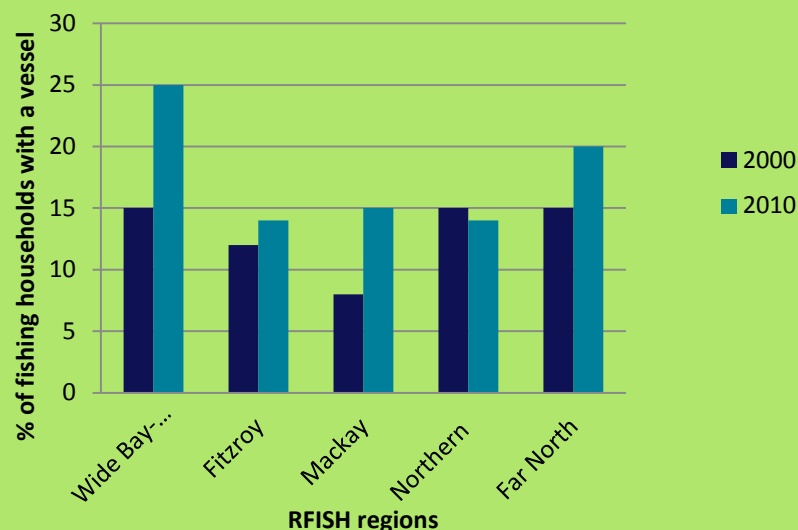
Boat ownership

% residents who own a boat

13% of Qld resident fishing households¹

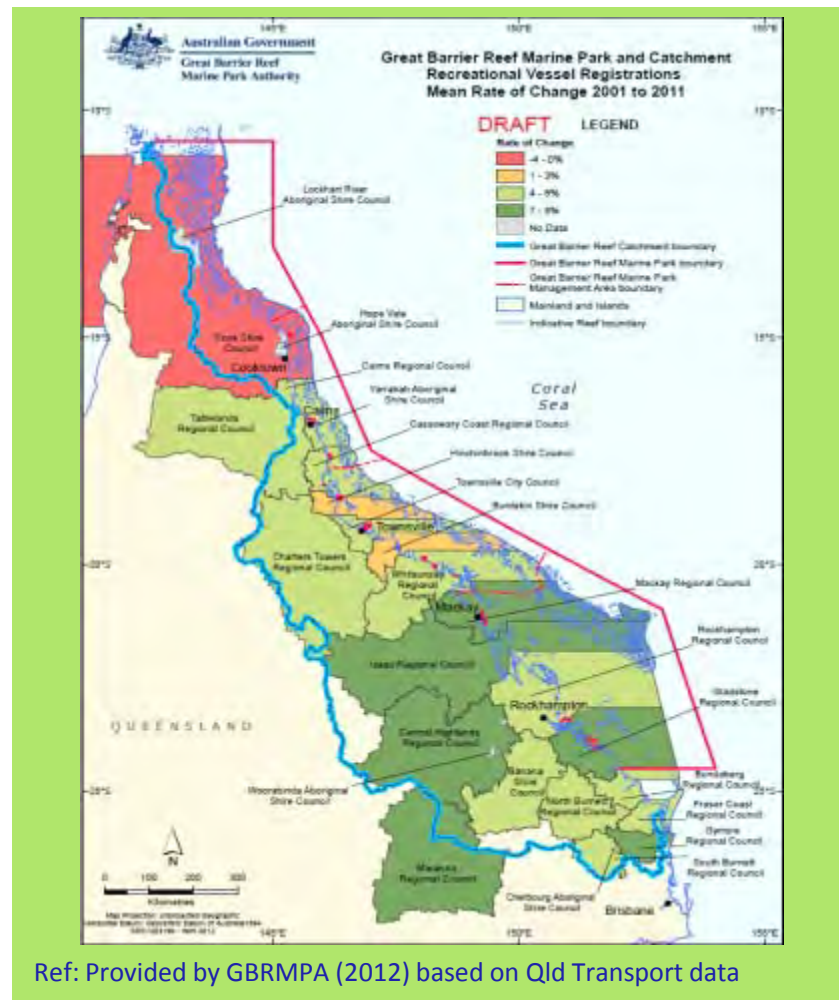
17% of households bw Bundaberg and Cairns – 14.9% own a motorboat, 2.7% own a sailboat²

Ref: ¹Taylor et al. (2012); Rolfe et al. (2011)



Ref: Modified from Taylor et al. (2012)*

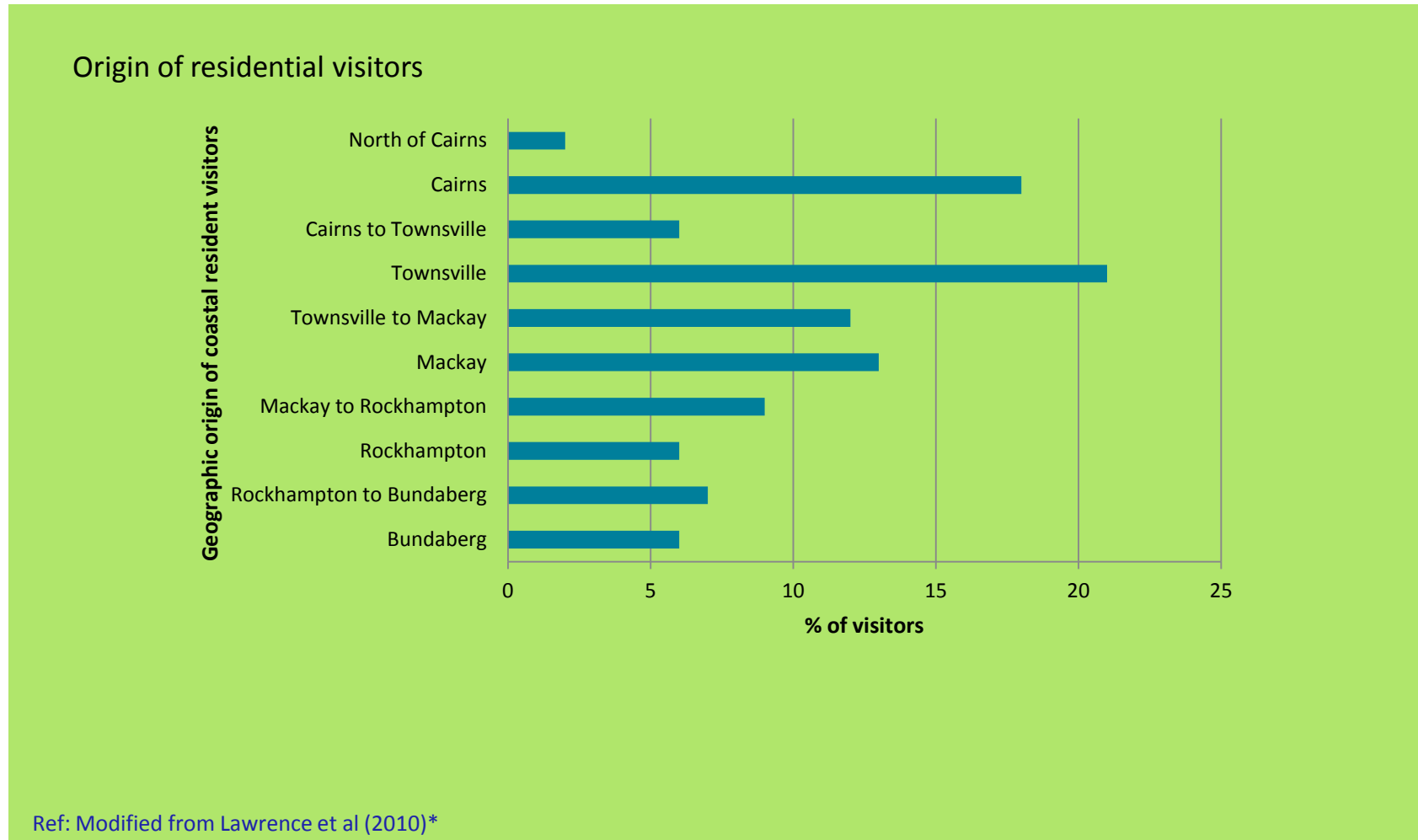
* Using RFISH regions



Ref: Provided by GBRMPA (2012) based on Qld Transport data

Chapter Seven. Recreation

Where are domestic recreational users from?



*2008 data from OESR (2008)

Chapter Seven. Recreation

Where are recreational users visiting?

Most popular locations

MAP of where people are visiting - overall trend

Chapter Seven. Recreation

From where are recreational users accessing the Marine Park?



Chapter Seven. Recreation

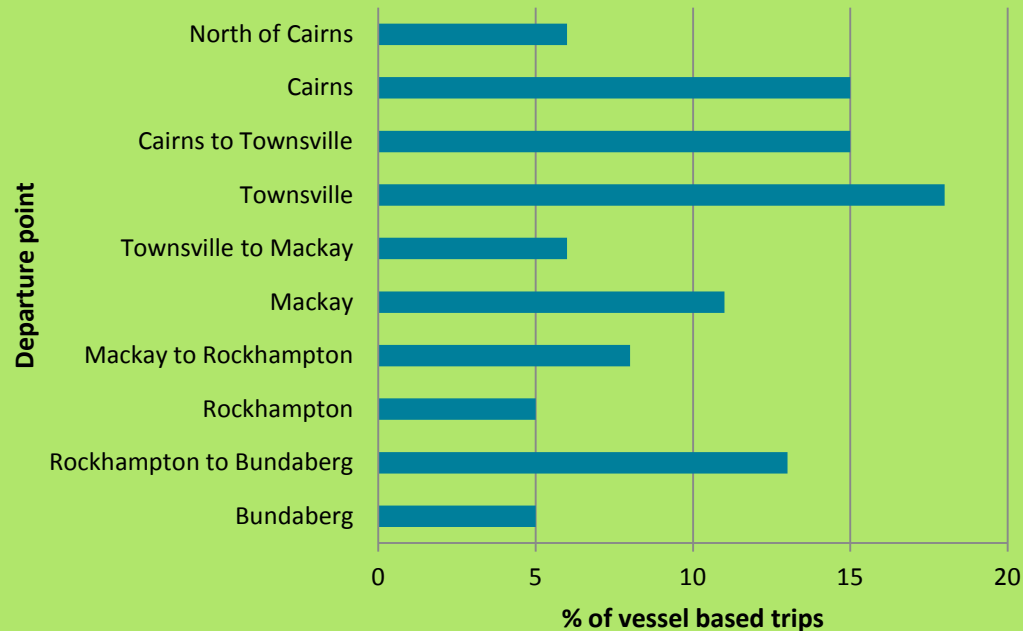
From where are recreational users accessing the Marine Park?



Chapter Seven. Recreation

From where are recreational users accessing the Marine Park?

Popular departure points – vessel-based trips



Ref: Modified from Lawrence et al (2010)*

*2008 data from OESR (2008)

Chapter Seven. Recreation

Where are recreational users visiting?

Number of locations per trip

Average # of locations per trip

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx+/_xx

Ref: xxx

Number of locations visited per person

Average # of locations per person for the year

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx+/_xx

Ref: xxx

Distance from home

Average distance from place of residence (km)

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

Boaters	: 43 ¹
Sailers	: 51 ¹
Jetskiiers	: xx
Fishers	: 36 ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: 33.4 (beach visits) ¹

GBR overall : xx+/_xx

Ref: ¹Rolfe et al. (2011)

Distance from port

Average distance travelled from launch site

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

Boaters	: Most (43%) ~10 km from launch ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx+/_xx

Ref: ¹MSQ (2007)

Chapter Seven. Recreation

From where are recreational users accessing the Marine Park?

% activity in each habitat type

% activity on beaches

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx

% activity inshore (bays, creeks)

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx

% activity on islands

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx

% activity on reefs

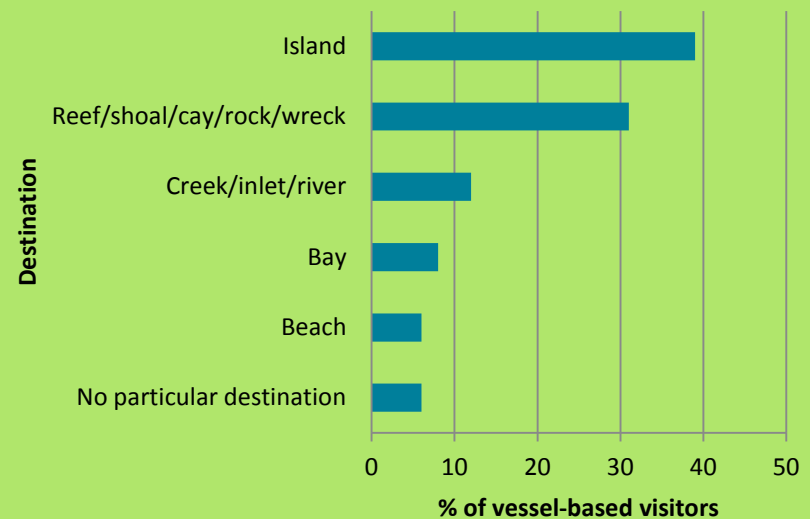
Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx

Tidbits:

- Of the coastal residents who went offshore in a vessel, an estimated 31% intended to go to a reef/ shoals/ cays/ rocks/ wrecks, and 28% intended to go to the islands¹.
- Boaters identify estuaries, rivers and bay (sheltered) waters as their preferred boating locations².

Ref: ¹OESR (2008); MSQ (2007)

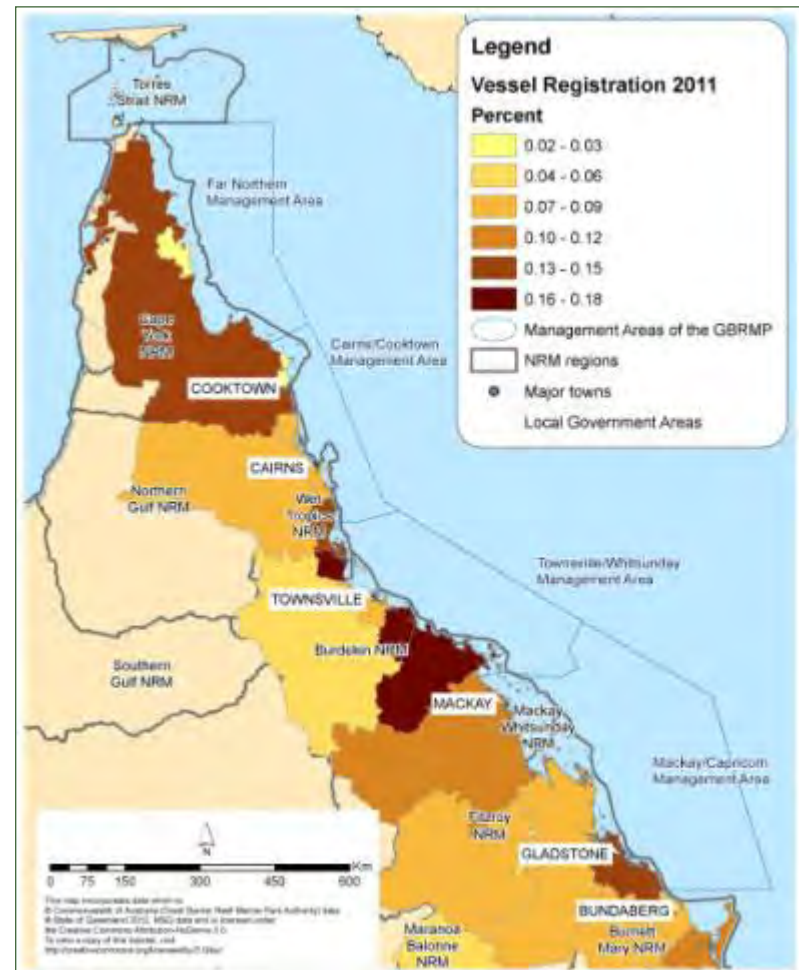
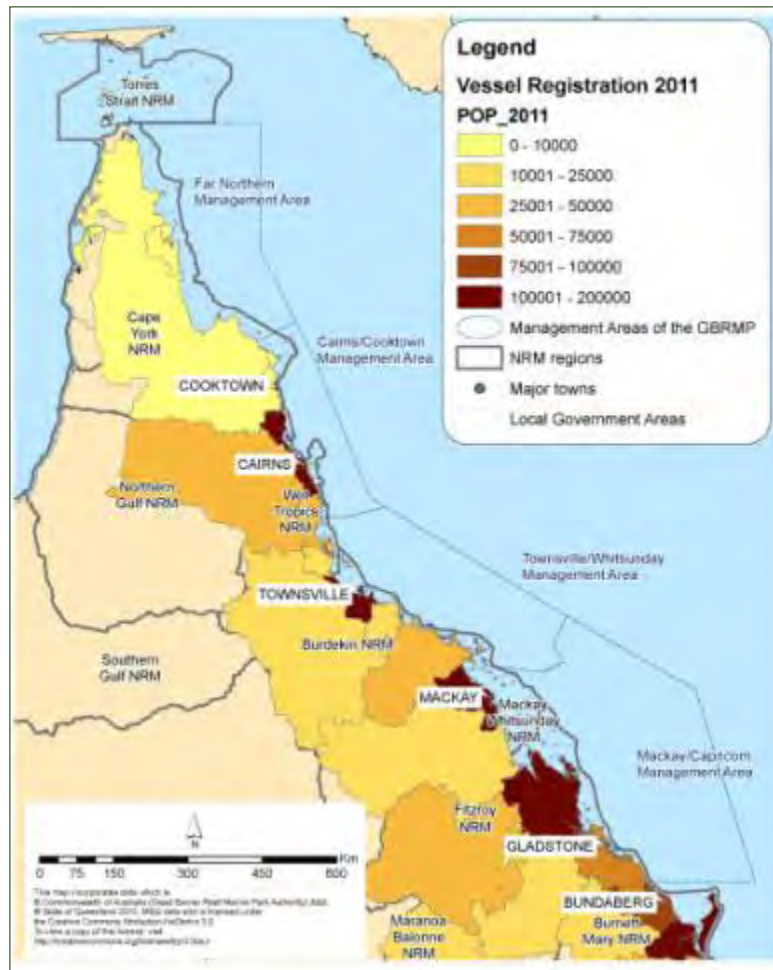
% activity in each habitat type – vessel based



Ref: Modified from Lawrence et al. (2010)*

Chapter Seven. Recreation

Where do recreational boaters live?



Chapter Seven. Recreation

Where do recreational boaters visit?

Most popular locations

MAP of where people are boaters are visiting –
break down by vessel type ideally (motor, sail, jetski,
paddle)

Chapter Seven. Recreation

Where do recreational fishers live?

Residence of fishers

MAP of proportion of fishers by NRM - RFISH

Chapter Seven. Recreation

Where are recreational fishers visiting?

Most popular fishing locations

MAP of where people are fishers are visiting - RFISH

Chapter Seven. Recreation

Where are recreational divers visiting?

Most popular diving locations

MAP of potential and most used dive sites (for
recretaion)

Chapter Seven. Recreation

Where are recreational caravanners living?

Residence of recreational vehicle owners in Queensland

MAP recreational vehicle residency – Qld Transport
and Main Roads

Chapter Seven. Recreation

Where are recreational campers visiting?

Most popular camping locations

MAP of potential and most used coastal and island
camping locations - QPWS

Chapter Seven. Recreation

Where do recreational users want to visit?

Most favoured locations

MAP of where people consider their FAVOURITE location (not necessarily most visited), by type of activity

Chapter Seven. Recreation

How are recreational users using the Great Barrier Reef?

Vessel vs shore

% of visits/access by vessel

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

Boaters	: n/a
Sailers	: n/a
Jetskiers	: n/a
Fishers	: 48% ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx+/_xx

Ref: ¹Taylor et al. (2012)

Access point type

% trips access WHA via boat ramps

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: 83% of vessel based fishers ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx+/_xx

Ref: ¹Taylor et al. (2012)

% trips access WHA via marinas

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx+/_xx

% trips access WHA via beaches

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx+/_xx

Chapter Seven. Recreation

How are recreational users using the Great Barrier Reef?

Public vs private access

% of trips via public access point

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 92% ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: ¹Taylor et al. (2012)

Trailer vs berth

% vessels 'trailerable'

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: n/a
Fishers	: xx
Divers	: xx
Campers	: n/a
Hiking	: n/a
Beach/swimmers	: n/a

GBR overall : xx

Ref: xxx

% vessels kept in marina

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: n/a
Fishers	: xx
Divers	: xx
Campers	: n/a
Hiking	: n/a
Beach/swimmers	: n/a

GBR overall : xx

Vessel types

motor boats registered

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: 7048 ¹

'speedboats' (<xxhp) registered

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: 78209 ¹

sailboats registered

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: 2292 ¹

Ref: ¹Qld Transport, unpubl. data (2011)

Chapter Seven. Recreation

How are recreational users using the Great Barrier Reef?

Vessel types contd..

jetskis registered

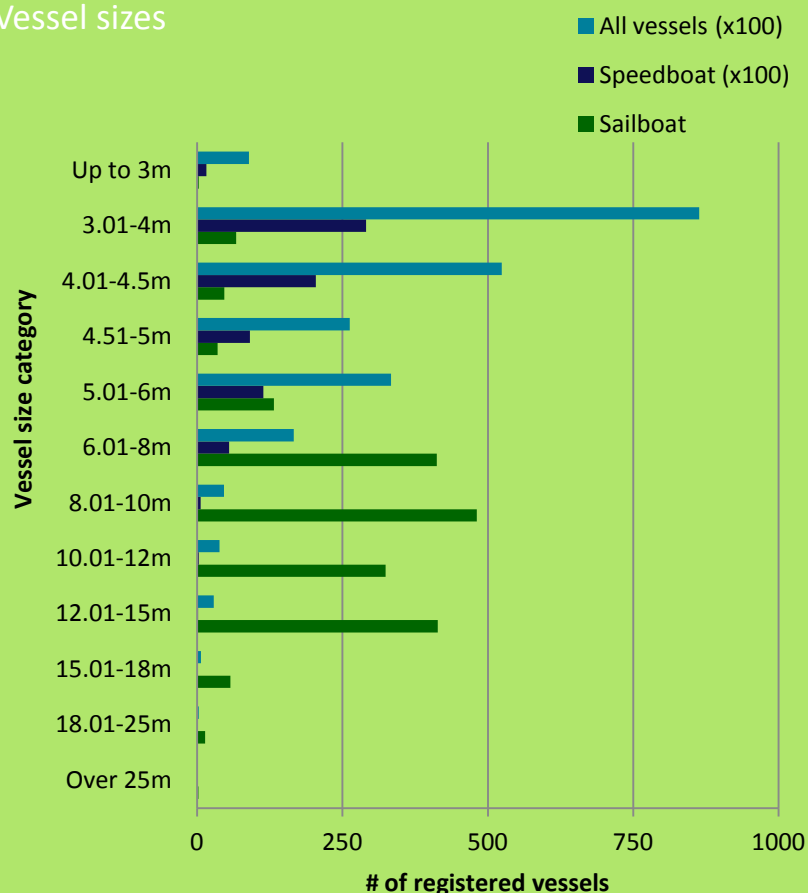
Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: 3207 ¹

Estimated # of canoes / kayaks

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR overall	: xx

Ref: ¹Qld Transport, unpubl. data (2011)

Vessel sizes



Ref: ¹Qld Transport, unpubl. data (2011)*

Motor power

Average hp of motor/speed boats

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

GBR overall : xx

Motor size of Qld registered vessels[^]

1-50 hp	: 55% ¹
51- 100 hp	: 20% ¹
101-150 hp	: 12% ¹
151+ hp	: 10% ¹
Non-response	: 3% ¹

Ref: ¹MSQ (2007)

*Note multipliers to apply for all vessels and speedboats (added to show trends in each type). Motorboats (small engines) and jet skis make up the remainder of 'all vessels'. [^]Opportunistically included due to data availability.

Chapter Seven. Recreation

How are recreational users using the Great Barrier Reef?

Party size

Most common number of people per trip

Boaters	: 4 ^{1,2}
Sailers	: 4 ²
Jetskiiers	: xx
Fishers	: 3 ²
Divers	: xx
Campers	: 2 ³
Hiking	: xx
Beach/swimmers	: 2 ² for beach visits

Ref: ¹OESR (2008); ²Rolfe et al. (2011); ³Carter (2002)*

Return vs through

% trips return to the access point they left from

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

Ref: xxx

Party make-up

% of trips with family only

Boaters	: 35.5% ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% of trips with friends only

Boaters	: 38.8% ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% of trips with family + friends

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% of trips with other groups (e.g. school)

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹OESR (2008)

*Australia wide data from National Visitor Survey

Chapter Seven. Recreation

What is the stewardship of recreational users?

Adoption of best practice

Activities with best practice policies?

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% participants adopting best practice policies

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Codes of practice

Activities with codes of practice?

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% participants signed code

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Perceptions of own impacts

% believe their activity has no / min impact on WHA

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 58%
believed their activity could
make a difference to the
environment¹

Ref: ¹Lawrence et al. (2010)

Compliance with regulations

% compliance

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

Ref: xxx

Stewardship

% believe they can take positive actions for GBR

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a
GBR overall	: 60% ¹

Ref: ¹OESR (2008)

Chapter Seven. Recreation

When are recreational users using the Great Barrier Reef?

Seasonality of activity

Graph of seasonality of visits by recreation type

Ref: xxx

Chapter Seven. Recreation

When are recreational-users using the Great Barrier Reef?

Number of trips

Total estimated trip number for 2011

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 14.6 million visits in 2008¹

Ref: ¹Lawrence et al. (2010)

Trip frequency

% who visited the WHA > once in 2011

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

Boaters	: 58% ³ ; 75% of Qld boat owners ⁴
Sailers	: 65% ³
Jetskiers	: xx
Fishers	: 82% ³
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 88% of visitors
(12% visited once,
57% visited 1-10 times;
43% visited > 10 times)¹

Ref: ¹Lawrence et al. (2010); ²Taylor et al. (2012); ³Rolfe et al. (2011);
⁴MSQ (2007)

Average number of trips per person per year

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 15.5¹

Trip duration

% of trips half-day or less

Boaters	: 41% ¹ ; 54% of Qld boat owners ²
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

% of trips full day

Boaters	: 37% ¹ ; 33% of Qld boat owners ²
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Lawrence et al. (2010);
²MSQ (2007)

Chapter Seven. Recreation

When are recreational users using the Great Barrier Reef?

Overnight trips

% of trips overnight

Boaters	: 10% ¹
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

% of trips >1 night

Boaters	: 11% ¹
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

Ref: ¹Lawrence et al. (2010)

Average trip length (hrs)

Boaters	: 8.7 ¹
Sailers	: 15.9 ¹
Jetskiers	: xx
Fishers	: 9.5 ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: 4.8 ¹

GBR overall : 80% of recreational visits are 1 day or less²

Ref: ¹Rolfe et al (2011); ²GBRMPA (2012)

Day type

% of trips on weekend days (including public holidays)

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx
GBR overall	: xx

% of trips on fine weather days

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx
GBR overall	: xx

Ref: xxx

Longevity of activity

Average years individuals have been participating in their 1^o activity

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: xxx

Chapter Seven. Recreation

Why are recreational users using the Great Barrier Reef?

Motivations

Key motive (listed by % of visitors)

Boaters	: xx (xx%)
Sailers	: xx (xx%)
Jetskiiers	: xx (xx%)
Fishers	: xx (xx%)
Divers	: xx (xx%)
Campers	: social (22% caravanners, 36% campers) ¹
Hiking	: xx (xx%)
Beach/swimmers	: Relaxation and to be with family and friends (95%) ²

Ref: ¹Carter (2002)*; ²Rolfe et al. (2011)

Expectations

Key expectation from a trip (listed by % of visitors)

Boaters	: xx (xx%)
Sailers	: xx (xx%)
Jetskiiers	: xx (xx%)
Fishers	: xx (xx%)
Divers	: xx (xx%)
Campers	: xx (xx%)
Hiking	: xx (xx%)
Beach/swimmers	: xx (xx%)

Ref: xxx

Satisfaction

% satisfied with most recent trip

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 63% ¹ (with ability to catch fish)
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: ¹Tobin et al. (2010)

Likelihood of returning

% who return to the same destination as most recent trip

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

Boaters	: 96% ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: ¹Lawrence et al. (2010)

*Australia wide data from National Visitor Survey

Chapter Seven. Recreation

Why are recreational users using the Great Barrier Reef?

Identity

% who consider their 1⁰ activity as essential to their identity

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Likelihood of continuing

% who will continue 1⁰ activity over next 3 years

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Relative importance

% who consider WHA recreation their most important recreation

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 38% ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Tobin et al. (2010)

Drop outs

people who used to participate, but not in past 12 mths

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 7.5% decrease in population % 1996-2004 ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Culture

% who consider their 1⁰ activity as essential to their culture

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Likelihood of change

% who are likely to change 1⁰ activity in next 12 mths

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

Constraints

Key constraints to frequency of participation

Boaters	: Work/business ¹
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: Weather ²

Ref: ¹Taylor et al. (2012); ²Rolfe et al. (2011)

Key reason for drop out

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: Lack of time / other commitments ²
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹McInnes 2006; ²Sutton et al. (2009)

Chapter Seven. Recreation

Why are recreational users using the Great Barrier Reef?

Attachment to place

% recreating in GBRWHA for >5 years

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: xxx

% recreational activity in GBRWHA

% of total rec days in WHA

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: 40% ^{1*}
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

Ref: ¹Lawrence et al (2010)

Attachment to GBRWHA

% visitors who disagree they could do their activity elsewhere if GBR was not available

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 55%¹

Ref: ¹OESR (2008)

Perceived quality of GBRWHA environment

% visitors who believe the WHA is in very good condition

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : xx

Ref: ¹Lawrence et al (2010)

Perception of GBRWHA as unique

% visitors who WHA is special / unique

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: xx

GBR overall : 98%¹

Ref: ¹Lawrence et al (2010)

*This is proportion of fishing in Qld occurring in GBRMP, according to 2008 OESR survey. To update with RFISH data when estimate available

Chapter Seven. Recreation

What is the well-being of recreational users? Opportunities

Satisfaction with recreational opportunities

% satisfied with activity

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

GBR overall : xx%

Ref: ¹xxx

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Conflict

% participants concerned about conflict with others

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

GBR overall : xx%

Ref: ¹xxx

Skills & training to contribute to management

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

GBR overall : xx%

Ref: ¹xxx

Access

% satisfied with access to activity

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

GBR overall : xx%

Ref: ¹xxx

Crowding

% participants NOT concerned about crowding

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

GBR overall : 87%¹

Ref: ¹Lawrence et al. (2010)

Contribution to livelihoods

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

GBR overall : xx%

Ref: ¹xxx

Chapter Seven. Recreation

What is the well-being of recreational users? Empowerment

Direct contribution to decision-making and management

% satisfied with activity

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

GBR overall : xx%

Ref: ¹xxx

Integration of local knowledge in management and

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Perceived effective partnerships

% participants concerned about conflict with others

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

GBR overall : xx%

Ref: ¹xxx

Effective models for management

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

GBR overall : xx%

Ref: ¹xxx

Mutual respect amongst stakeholders

% satisfied with access to activity

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

GBR overall : xx%

Ref: ¹xxx

Transparent policies

% participants NOT concerned about crowding

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

GBR overall : 87%¹

Ref: ¹Lawrence et al. (2010)

Clear legal obligations

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

GBR overall : xx%

Ref: ¹xxx

Perceived equity

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

GBR overall : xx%

Ref: ¹xxx

Chapter Seven. Recreation

What is the well-being of recreational users? Empowerment

Knowledge appreciated

% satisfied with activity

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

GBR overall : xx%

Ref: ¹xxx

Mechanisms for promoting stewardship

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Freedom of choice to act

% participants concerned about conflict with others

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

GBR overall : xx%

Ref: ¹xxx

Respect

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

GBR overall : xx%

Ref: ¹xxx

Chapter Seven. Recreation

What is the well-being of recreational users? Security

Overall quality of life

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Health

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Belongingness

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Social cohesion

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Relationships

% satisfied with access to activity

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Percieved health of the GBR

% participants NOT concerned about crowding

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

GBR overall	: 87% ¹
-------------	--------------------

Ref: ¹Lawrence et al. (2010)

Cultural connection

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

GBR overall	: xx%
-------------	-------

Ref: ¹xxx

Spiritual connection

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

GBR overall	: xx%
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Ref: ¹xxx

Chapter Seven. Recreation

What is the well-being of recreational users? Security

Perceived sustainability of GBR industries

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

GBR overall : xx%

Ref: ¹xxx

Perceived food provisioning

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

GBR overall : xx%

Ref: ¹xxx

Perceived management effectiveness

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

GBR overall : xx%

Ref: ¹xxx

Perceived climate change mitigation efforts

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

GBR overall : xx%

Ref: ¹xxx

Perceived climate change mitigation efforts

% satisfied with access to activity

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

GBR overall : xx%

Ref: ¹xxx

Perceived buffer to natural disasters

% participants NOT concerned about crowding

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

GBR overall : 87%¹

Ref: ¹Lawrence et al. (2010)

Perceived GBR diversity and abundance

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

GBR overall : xx%

Ref: ¹xxx

Spiritual connection Perceived condition of coastal beaches

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

GBR overall : xx%

Ref: ¹xxx

Chapter Seven. Recreation

What regulations apply to recreation? Wellbeing

of regulations affecting activity

Tidbit:

GBRMPA employs multiple management tools , ranging from the Great Barrier Reef Marine Park Act 1975 and its Regulations to partnership programs and education¹

Ref: ¹GBRMPA (2012)

of regulations affecting each activity

Boating	: xx
Sailing	: xx
Jetskiing	: xx
Fishing	: xx
Diving	: xx
Camping	: xx
Hiking	: xx
Beach/swimming	: Nil

Ref: xxx

Knowledge of regulations

% aware of regulations

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall	: xx
-------------	------

Ref: xxx

Participation in management

% participated / consulted

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

Boaters	: xx
Sailers	: xx
Jetskiers	: xx
Fishers	: 28% ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall	: xx
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Ref: ¹Sutton (2006b)

New regulations

Nil

Tidbit:

GBRMPA developed a Recreation Management Strategy this year¹

Ref: ¹GBRMPA (2012)

Level of complexity

Measure?

Tidbit:

There are 3 levels of government involved: Federal Gov (GBRMP), State Gov (NPs and State MP), Local govs (beaches, foreshore and recreation trails)¹

Ref: ¹Synergies Economic Consulting (2012)

Chapter Seven. Recreation

What regulations apply to recreation? Wellbeing

Perception of management agencies

% with positive opinion of GBRMPA

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: ~56% ¹ (44% did not trust GBRMPA to consider their needs) ¹
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx

% with positive opinion of QDAFF

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx

% with positive opinion of NPRSR

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: xx
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx

Ref: ¹Sutton (2008)

Perception of need for recreational regulations

% support for current regulations

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

Boaters	: xx
Sailers	: xx
Jetskiiers	: xx
Fishers	: 84% ¹ (believe regs are necessary)
Divers	: xx
Campers	: xx
Hiking	: xx
Beach/swimmers	: n/a

GBR overall : xx

Ref: ¹Sutton (2008)

Chapter Seven. Recreation

Indirect drivers of change on recreational users

Shifting demographics

Increasing coastal population

NRMs impacted:

All, (less so Cape York)
(see coastal communities chapter)

Key impacts/concerns:

- More people accessing the Marine Park¹
- More coastal marine facilities and access points¹
- Coastal marine facilities and access points in new areas¹
- Increasing vessel ownership^{1,2}
- Increasing user conflict¹
- increased crowding

Shift in demographic due to industry change (resource boom)

NRMs impacted:

Mackay Whitsunday and Fitzroy

Key impacts: / concerns:

- Increasing leisure time associated with expanding mining and exploration sector¹
- Increasing vessel ownership (including larger vessels)^{1,2} (see vessel registration data earlier)
- Potential changes in stewardship behaviour (no data)

Tidbit:

“Feedback from Local Marine Advisory Group members and the Reef Advisory Committees consistently identified increasing population and its flow-on effects as fundamental issues for future recreation management.”¹

Ref: ¹GBRMPA (2012); ²Qld Transport, unpubl data (2011)

Economic drivers

Fuel price

Key changes:

- Increased fuel price in recent years

Recreation affected:

- Boating, fishing

Key impacts:

- Potential impact on number of visits, distance travelled, and satisfaction with trip (no data)

Ref: xxx

Chapter Seven. Recreation

Direct drivers of change on recreational users

Resource access

Gladstone Port development

NRMs impacted:

Fitzroy and Burnett Bary

Key impacts:

- Physical loss of access to fishing and boating areas surrounding construction and dredging area
- Water quality issues potentially affecting fish health
- Potential impact on aesthetics of region affected

Ref: anecdotal / media based. No published reports

Chapter Seven. Recreation

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Chapter Eight

Tourism in the Great Barrier Reef

The Great Barrier Reef has always attracted both domestic and international visitors. A thriving, significant tourism industry has been a part of the Marine Park since the early 1930s when tourism resorts became popular. Since then, the industry has changed considerably. During the first half of the century limitations in transport and boating technologies meant that most tourism activities were restricted to inshore regions. Throughout the 1960s and 1970s visitor numbers steadily increased and then in the 1980s, with the advent of large and luxurious catamarans capable of carrying hundreds of visitors, there was explosive growth of at least 10% in visitor numbers per year. Day trips to the Reef are now common practice despite the long distances involved. As the market expanded to offer a variety of new products and experiences throughout the Great Barrier Reef, growth within the industry has remained strong.

The GBR tourism industry of today is diverse and constantly evolving. Numerous tourism activities are available including charter fishing operations, bareboat sailing, cruise shipping, helicopter rides, Reef walks, motorised water sports, super-yachts, whale watching and kayak tours as well as the plethora of SCUBA dive and snorkelling options for which the GBR is so renowned. The diverse ecology of the GBR provides tourism opportunities across numerous different environments including mangroves, islands and beaches as well as inner and outer Reef trips. With such a large variety of activities and experiences along the GBR, operators and managers have recognised the importance of providing tourists with a responsible, environmentally sustainable experience and managing accordingly.

The GBRMPA has managed tourism impacts along the GBR since 1975 and, together with the tourism industry, are constantly evolving strategies to ensure an ecologically sustainable visitor experiences that are both affordable and of high standard. For example, the GBRMPA has recently partnered with Ecotourism Australia to develop an independent certification program for the adoption and practice of high standard ecotourism operations. Additional conservation and management partnerships include the Eye on the Reef monitoring program as well as the Sightings Network. These programs receive considerable support from both managers and tourism operators and are a key part of the GBRMPA's education and awareness raising programs. There are now more than XXX industry partners.... with XXXXXX Sightings in the Network, XXXXX Reefs monitored, and XXXXX high standard operators transporting more than 1.5M people to the Reef each year.

Chapter Eight

Tourism in the Great Barrier Reef

Tourism is now the most significant industry operating along the Great Barrier Reef, annually providing more than five billion dollars and 54,000 full-time jobs to the Australian economy. While the majority of tourism activities (~85-90%) are concentrated in the regional hubs of Cairns and around the Whitsunday Islands, tourism occurs throughout the Marine Park and is particularly prevalent in several coastal towns including Townsville, Port Douglas, Cooktown and Mackay. In addition, the GBRMPA has also established four special Plans of Management areas for areas of the Marine Park that are intensively used or especially vulnerable: Cairns, Hinchinbrook, Shoalwater Bay and the Whitsundays. These plans complement existing management activities by providing more specific management detail, helping to foster a targeted, more localised approach to ensure the long-term sustainability of the industry. In addition, each of the more than 1.5 million Marine Park visitors in 2011 paid an Environmental Management Charge. Thus, these fees are vital contributions from a sustainable industry that directly finance the GBRMPA's day to day management efforts within the Marine Park.

The tourism industry is affected by many factors, though economic drivers are particularly influential. In 2011, global economic forces had significant impacts on both visitor numbers and revenue, resulting in more than a 20% decline in total GDP compared to 2006/7. Other important economic influences in 2011 included the relative strength of the Australian dollar as compared to other similar tourism destinations, the price of fuel, and airline costs and availability of flights. Additional influences on the industry in 2011 included the perception of the condition of the Great Barrier Reef following a major flooding event and Tropical Cyclone Yasi.

Chapter Eight

Tourism in the Great Barrier Reef

Readable definitions here:

Tourism expenditure covers actual expenditure by the visitor, or on behalf of the visitor, and is defined in the international standards as: '...the amount paid for the acquisition of consumption goods and services, as well as valuables, for own use or to give away, for and during tourism trips. It includes expenditures by visitors themselves, as well as expenses that are paid for or reimbursed by others.' ([International Recommendations for Tourism Statistics 2008, para 4.2](#))

State Marine Park Permit: In the Great Barrier Reef World Heritage Area, permits for activities which involve both the Commonwealth GBRMP and the State GBRCMP are issued under a joint permit assessment process administered by the Great Barrier Reef Marine Park Authority (GBRMPA) in consultation with QPWS. In this area, zoning is complementary, with matching requirements for both the State and Commonwealth marine parks. <http://www.derm.qld.gov.au/register/p00908aa.pdf>

Commercial Tour: A commercial tour is a tour conducted for gain. Tour includes any safari, scenic flight, cruise, excursion, visit, outing or journey. Retrieved from: <http://www.derm.qld.gov.au/register/p01086aa.pdf>

Marine Tourist: Any person travelling to a place other than that of his/her usual environment for less than 12 months and whose main purpose of trip is other than the exercise of an activity remunerated from within the place visited. Ref: ABS.

Chapter Eight. Tourism

How many tourism operators are there in the GBR?

Whale watching

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Motorised watersports

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Mega-yachts

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Diving & snorkeling operations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Kayak tours

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Bareboat companies

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Reef helicopter operations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Reef walking operations/other?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

How many people are there in the GBR?

Jobs

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Businesses

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Tourists

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Value of the tourism industry

Data are for 2010-11 and in millions

TNQ:	2,446
Northern :	631
Whitsundays :	619
Mackay :	370
Central Queensland :	751
Bundaberg :	309
TOTAL :	5,126

Ref: Deloitte Access
Economics

Visitor days (2010-11)

Cooktown	: 27,517
Far Northern	: 8,679
Cairns	: 869,125
Townsville	: 83,632
Whitsundays	: 676,622
Mackay	: 118,971
TOTAL	: 1,784,405

Ref: Deloitte Access Econ

Expenditure (2010-11)

Average domestic daily expenditure	: 259.81
Average international daily expenditure	: 167.23

Ref: Deloitte Access Econ

Total expenditure (2010-11) (millions)

Cooktown	: 5.62
Far Northern	: 1.77
Cairns	: 177.53
Townsville	: 17.08
Whitsundays	: 143.85
Mackay	: 28.79
TOTAL	: 374.64

Ref: Deloitte Access Econ

Chapter Eight. Tourism

Who are the tourism operators?

Nationality

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average age/distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Education levels

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Gender distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average household income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Environmental awareness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Industry knowledge – years of

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Family composition

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

How do tourism operators operate?

Large operations*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

No. specialised*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

No. high standard*

Far North :	5
Port Douglas :	9
Cairns :	9
Townsville :	3
Whitsundays :	22
Capricorn Coast :	
	2
Reef wide :	2
TOTAL :	52 CHECK

Extent of technology used*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Condition of infrastructure*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Trips per year

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Duration of trips*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Computer use and competency*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

How do tourism operators operate?

Number of private moorings

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of public moorings

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average Vessel size

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of permit offenses

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of operators in Sightings Network

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of operators accredited by Ecotourism Australia

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of operators in Eye on the Reef network

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Number of operators climate action certified

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

How do tourism operators operate?

Sources of income (%)

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Attachment to place

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Attachment to occupation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Level of stewardship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average distance travelled

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Growth of the industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Total asset value

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Business size

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

How do tourism operators operate?

Gear used

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Supply chain

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Footprint: number of buildings used

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Footprint: electricity usage

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Footprint: number of vehicles used/owned

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average length of reef trip

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average frequency of reef trips

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Who are the tourism operators?

Extent of formal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Trust in formal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Extent of informal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Quality of informal networks

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Strategic business planning evident*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Diversity of household income*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Years in industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Adaptive capacity of tourism operators?

Management of uncertainty/risk

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

History of adaptive business management*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Evidence of scenario planning

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Evidence of a financial buffer

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Extent of Insurance

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Psychological buffer*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Willingness to change

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Interest in long-term future

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Adaptive capacity of tourism operators?

Strategic skills

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Response to extreme events

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Wellbeing of tourism operators

Divorce rates

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Suicide rates

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Occupational health and safety

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Satisfaction with income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Life satisfaction

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Perception of GBR health

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Hope of GBR future

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Climate change beliefs

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Wellbeing of tourism operators

Ability to earn income on GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Ability to voice concerns to management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Perception of management transparency

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Perception of management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Perception of generational equity

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Recreational opportunities

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

State of mental health

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Interest in GBR health

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxix

Chapter Eight. Tourism

Wellbeing of tourism operators

Quality of personal relationships

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Identity associated with living near the

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Identity associated with occupation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Perception that GBR can sustain

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Happiness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Hopefulness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Safety in community

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Indirect drivers of change on the tourism industry

Prices of products

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Motivations for relationship with GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Values surrounding GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Beliefs surrounding GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Attitudes surrounding GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Sense of involvement in industry management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Value of Aussie dollar

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Perceptions of other stakeholders

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Indirect drivers of change on the tourism industry

What research is undertaken?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Commodity prices

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Subsidies available?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Direct drivers of change on the tourism industry

Best practice uptake

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Ocean condition

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Industry regulation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Amount of resources harvested

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Economic contribution of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Total value of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

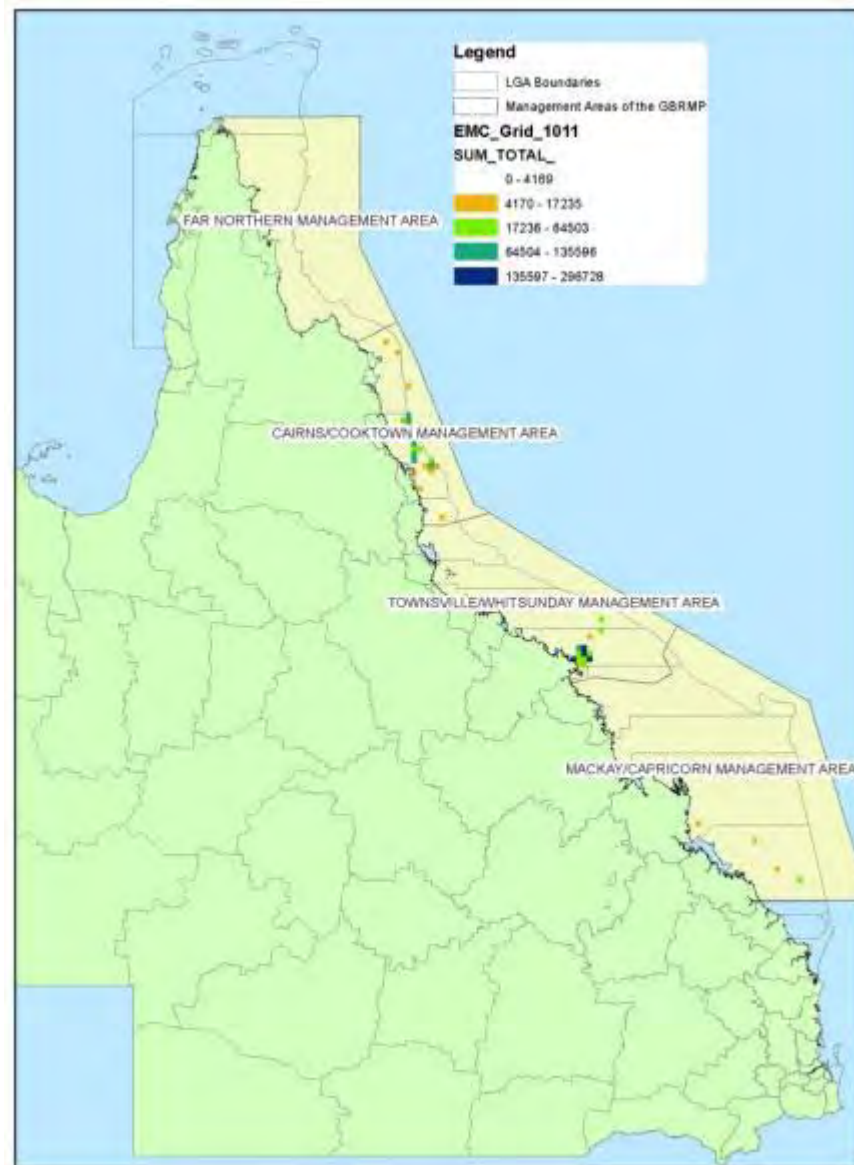
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New regulations introduced

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

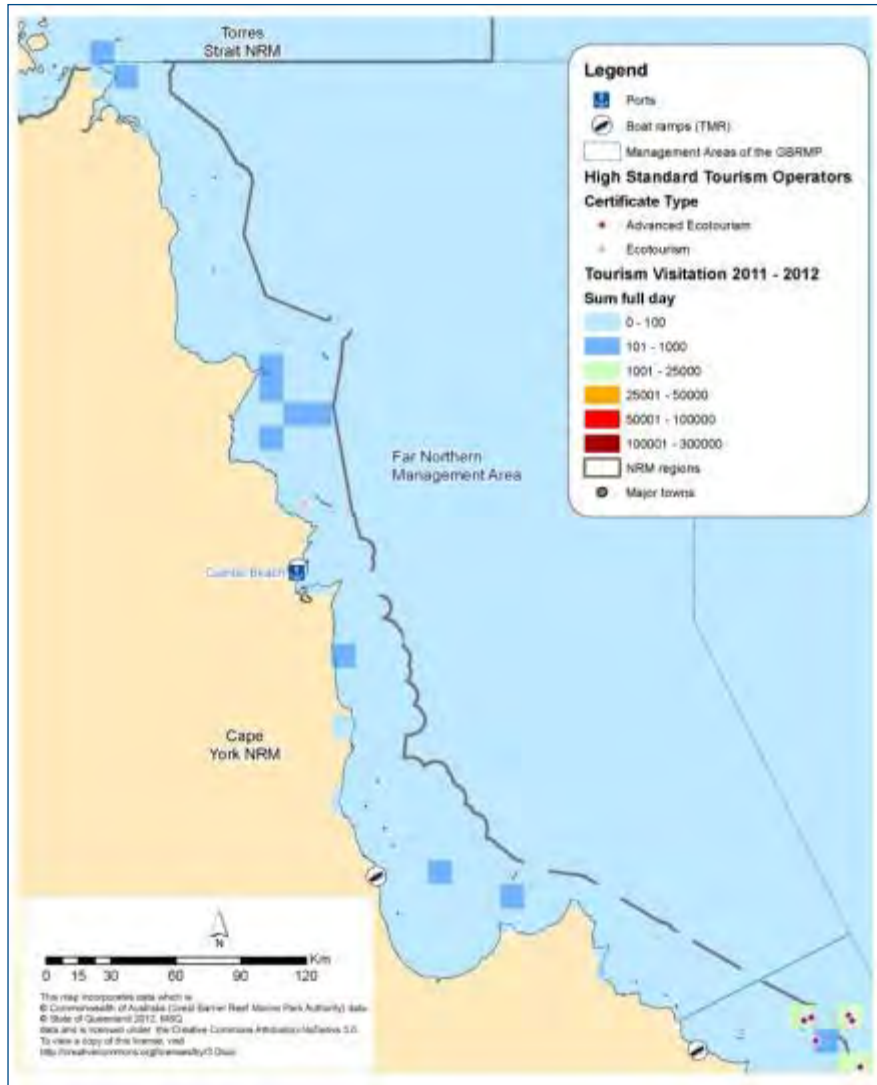
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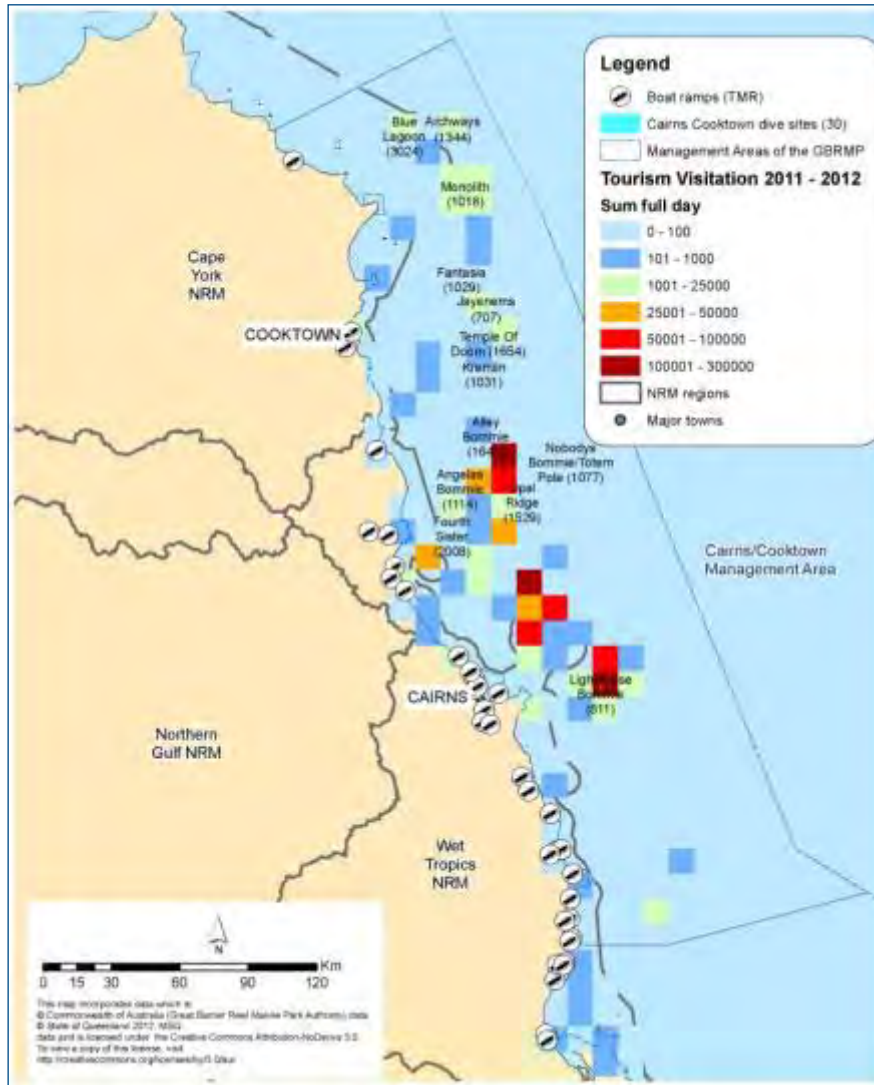
Chapter Eight. Tourism

Where is important for operators in COOKTOWN



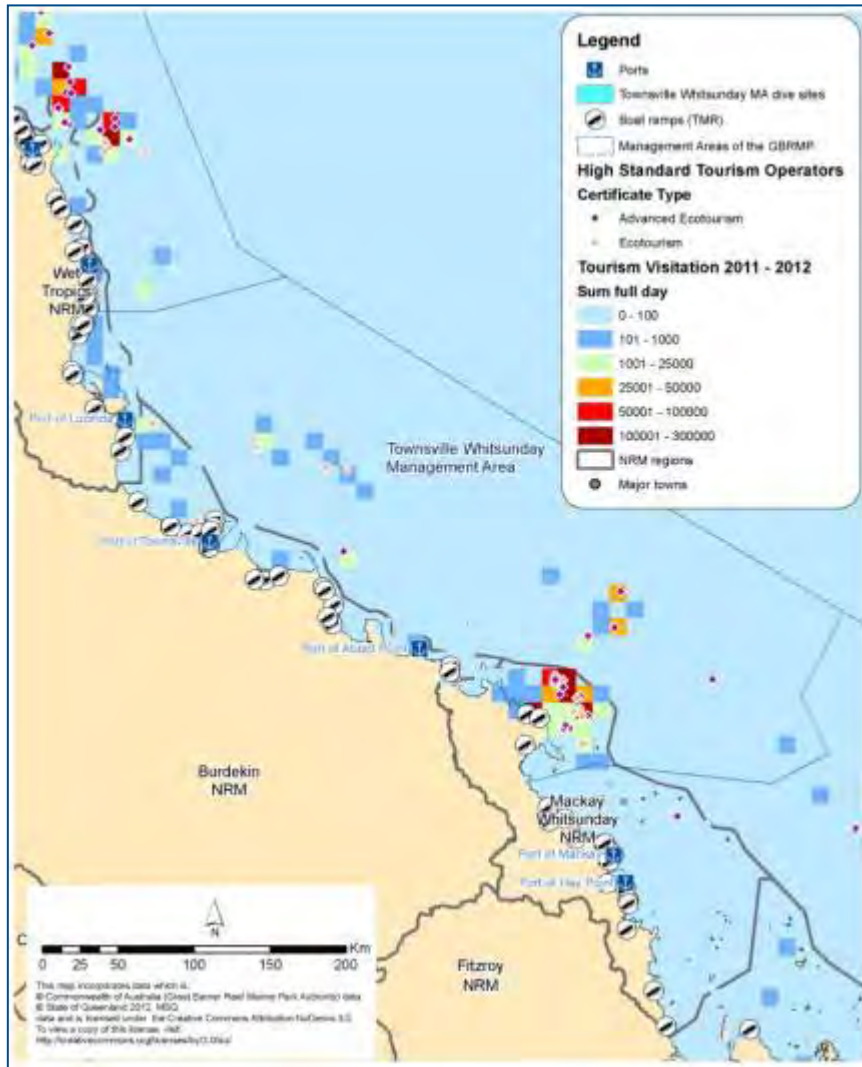
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Where is important for operators in CAIRNS(1)



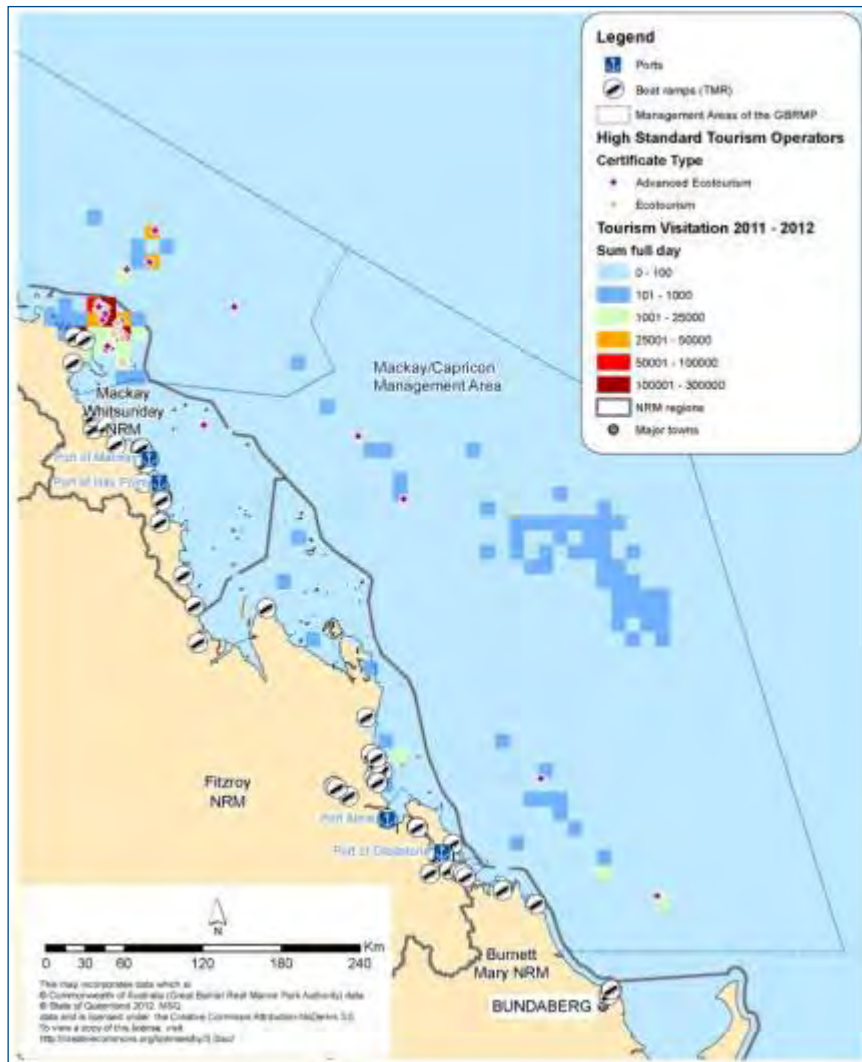
Chapter Eight. Tourism

Where is important for operators in TOWNSVILLE (1)



Chapter Eight. Tourism

Where is important for operators in AIRLIE BEACH (1)



Chapter Eight. Tourism

Where is important for operators in Mackay (1)

MAP of WHERE people go now....

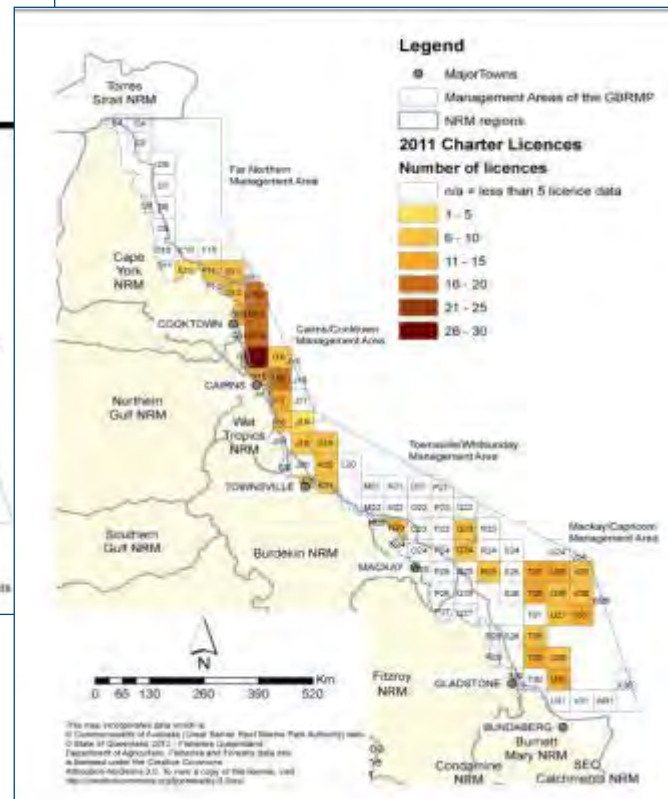
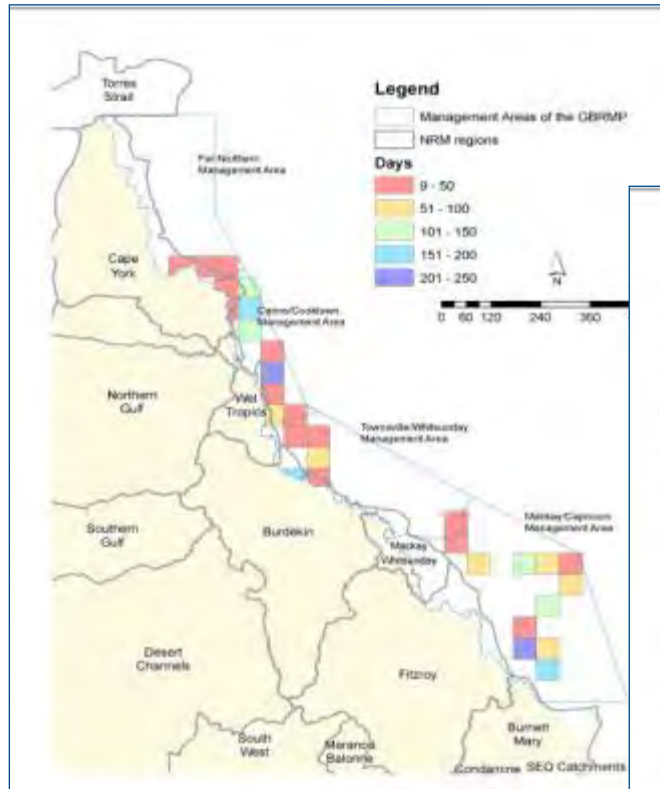
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Where is important for dive operators



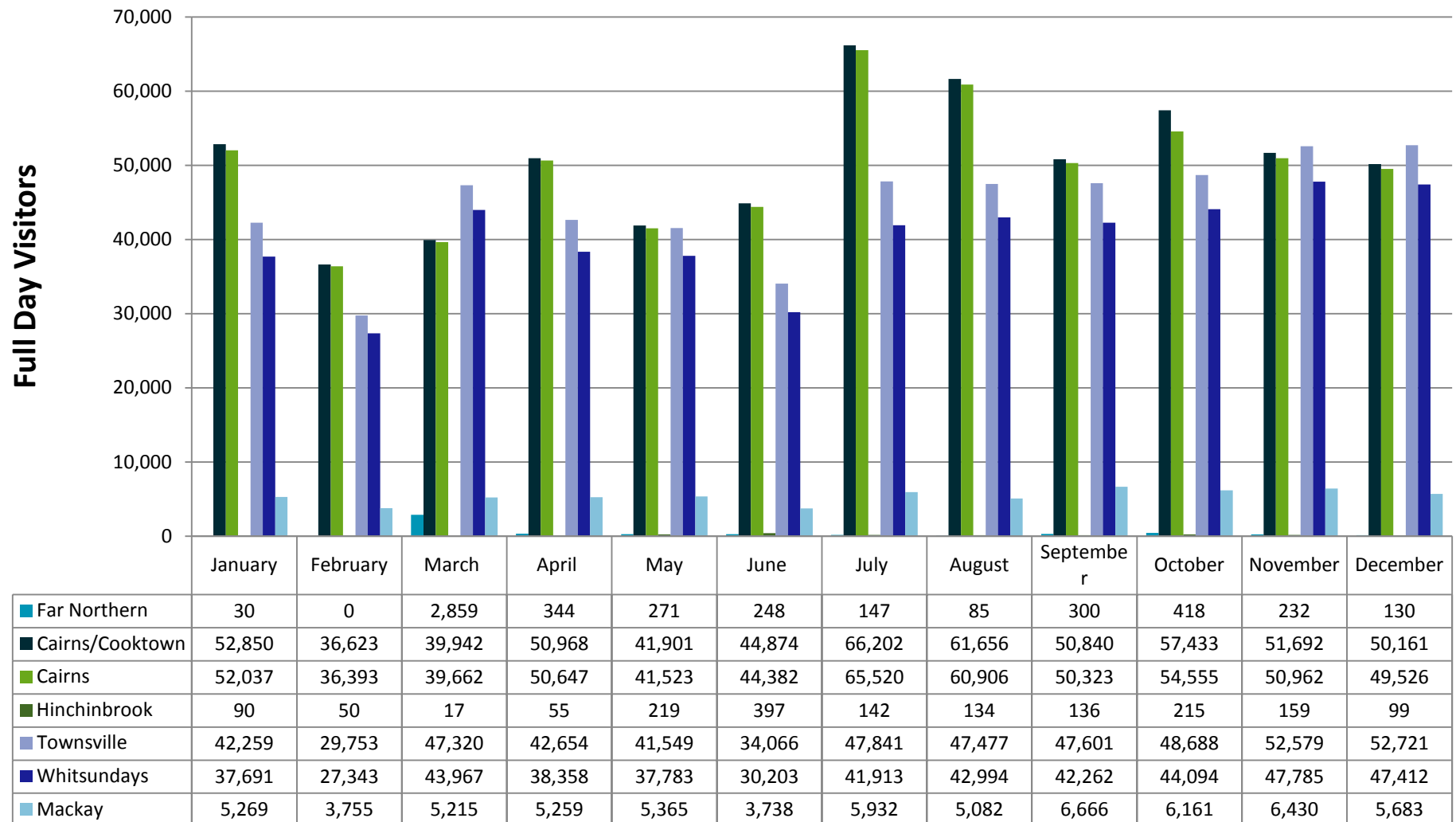
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Where is important for charter fishing operators



Chapter Eight. Tourism

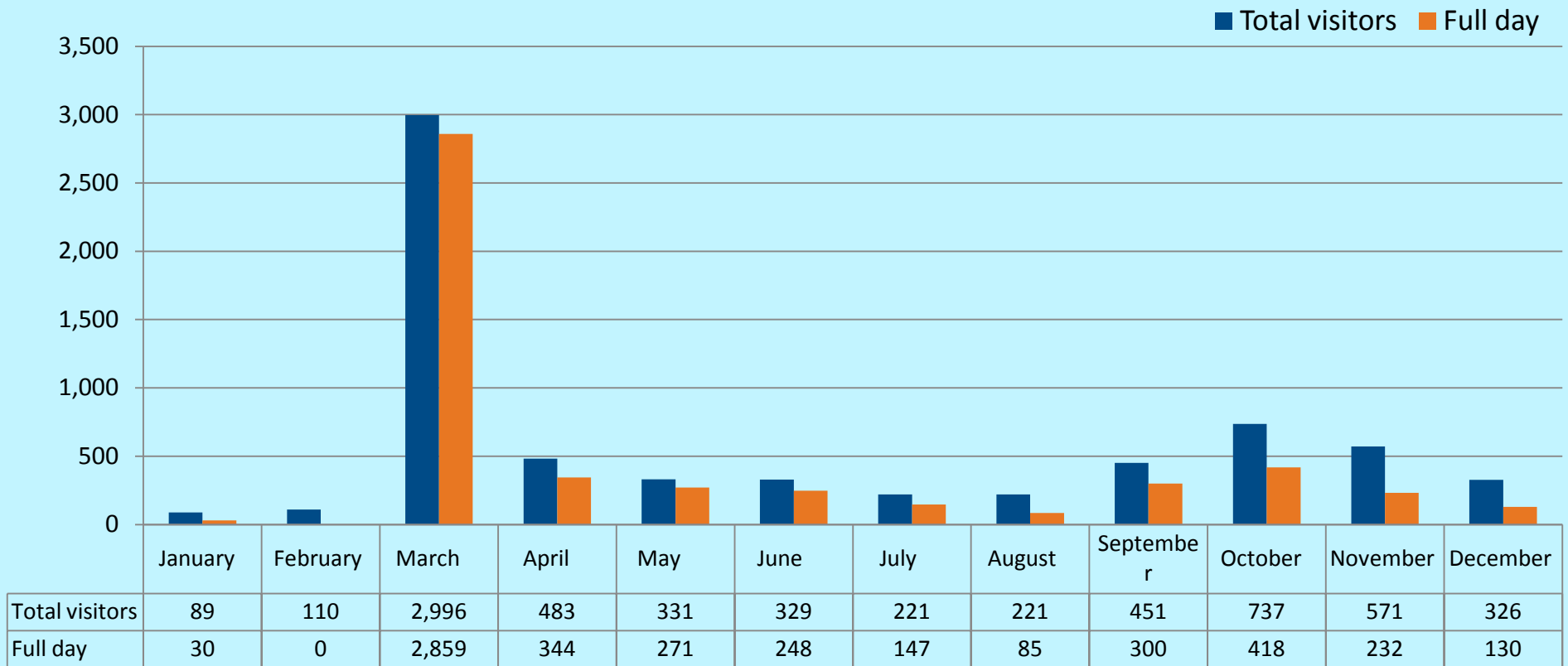
When is the reef used?



Chapter Eight. Tourism

When is the GBR used for tourism? 2011 EMC Data

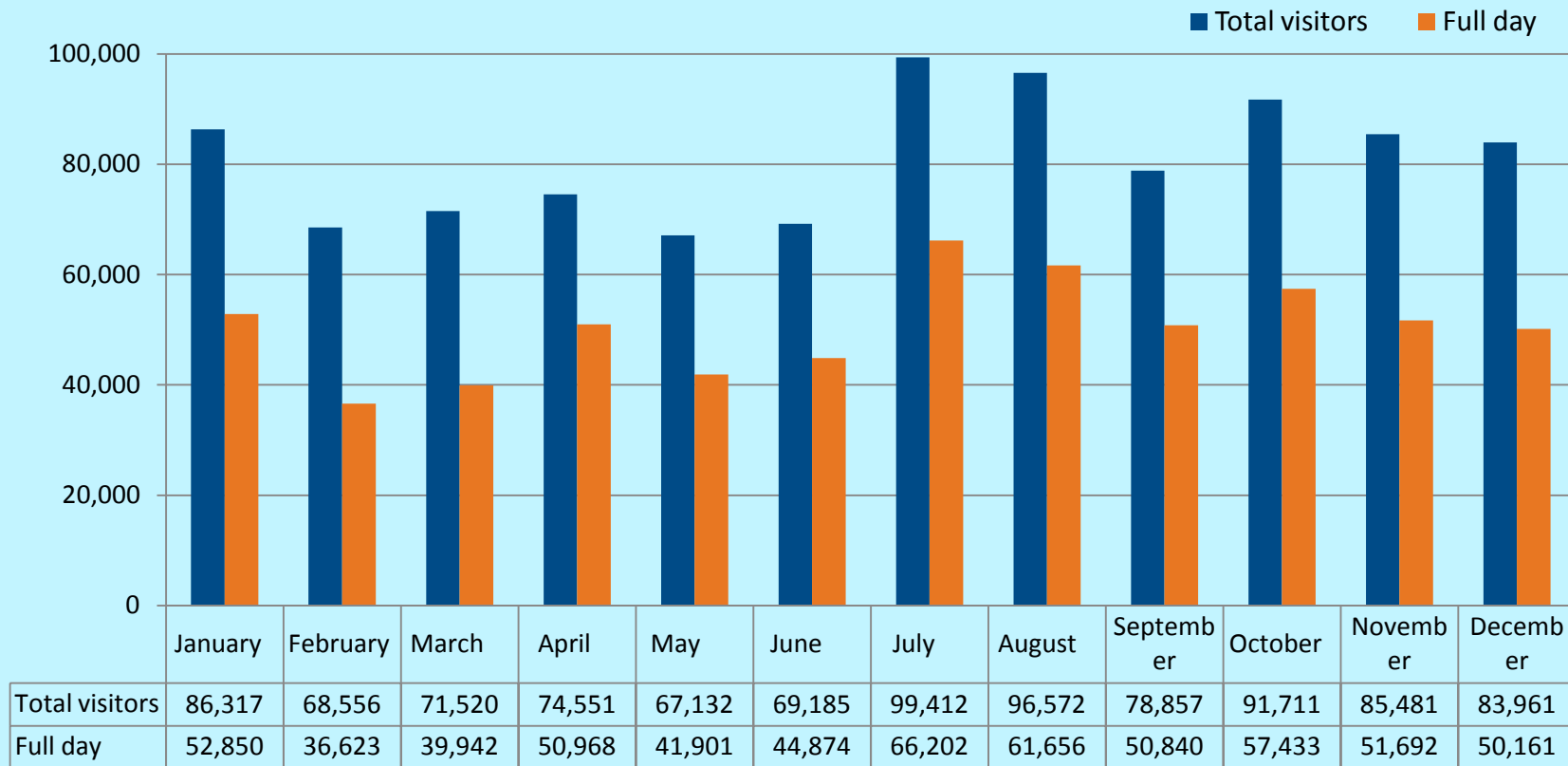
Far Northern Management Area



Chapter Eight. Tourism

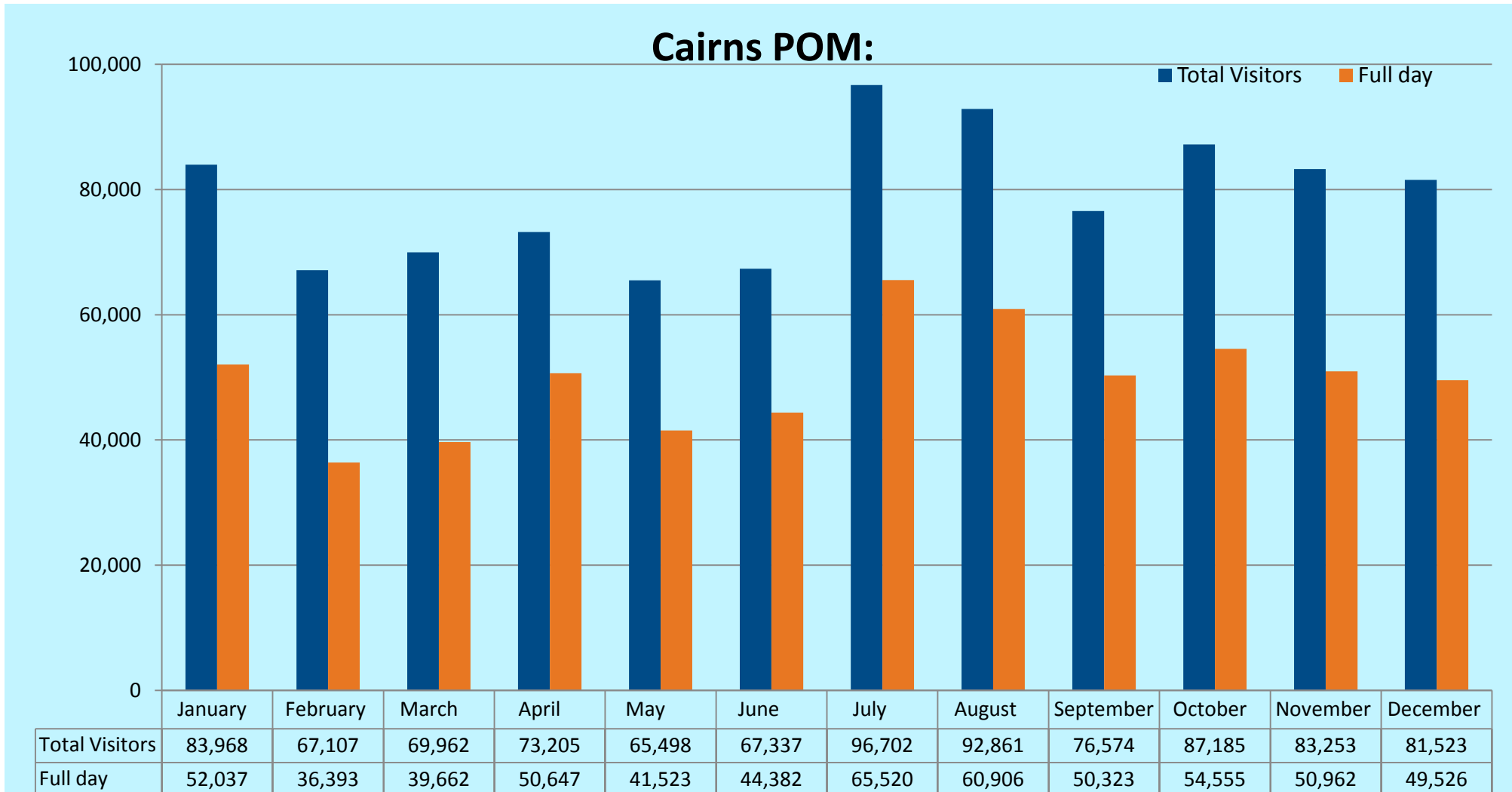
When is the GBR used for tourism? 2011 EMC Data

Cairns/Cooktown Management Area



Chapter Eight. Tourism

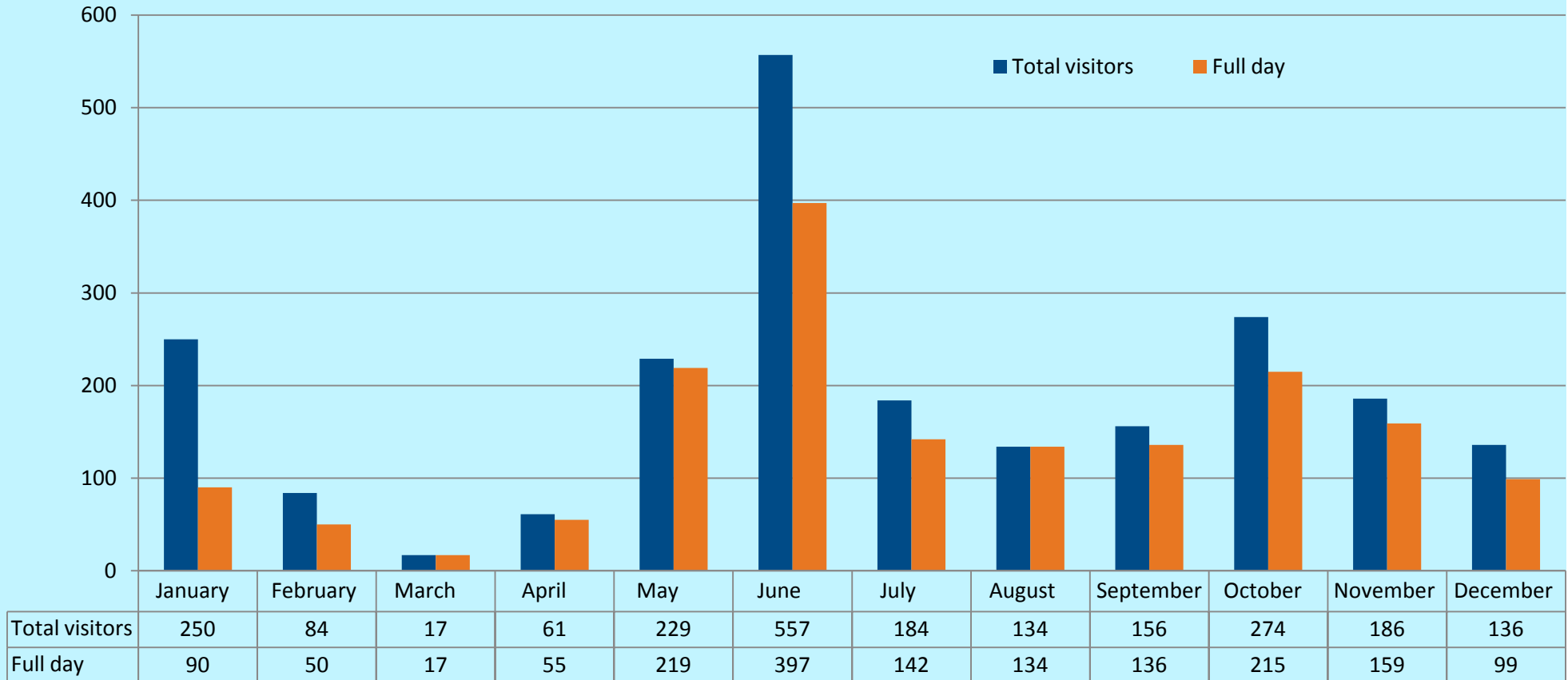
When is the GBR used for tourism? 2011 EMC Data



Chapter Eight. Tourism

When is the GBR used for tourism? 2011 EMC Data

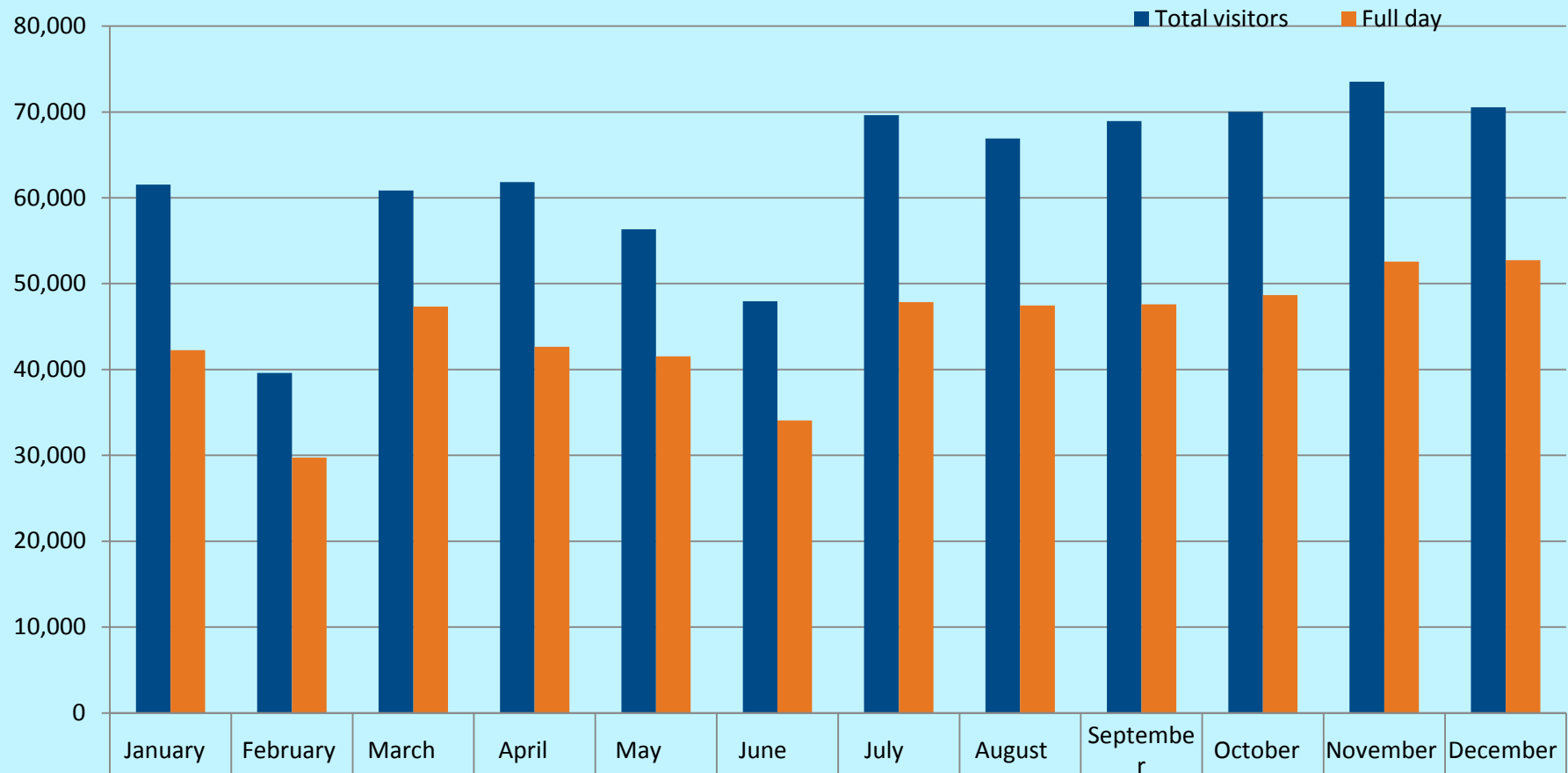
Hinchinbrook POM



Chapter Eight. Tourism

When is the GBR used for tourism? 2011 EMC Data

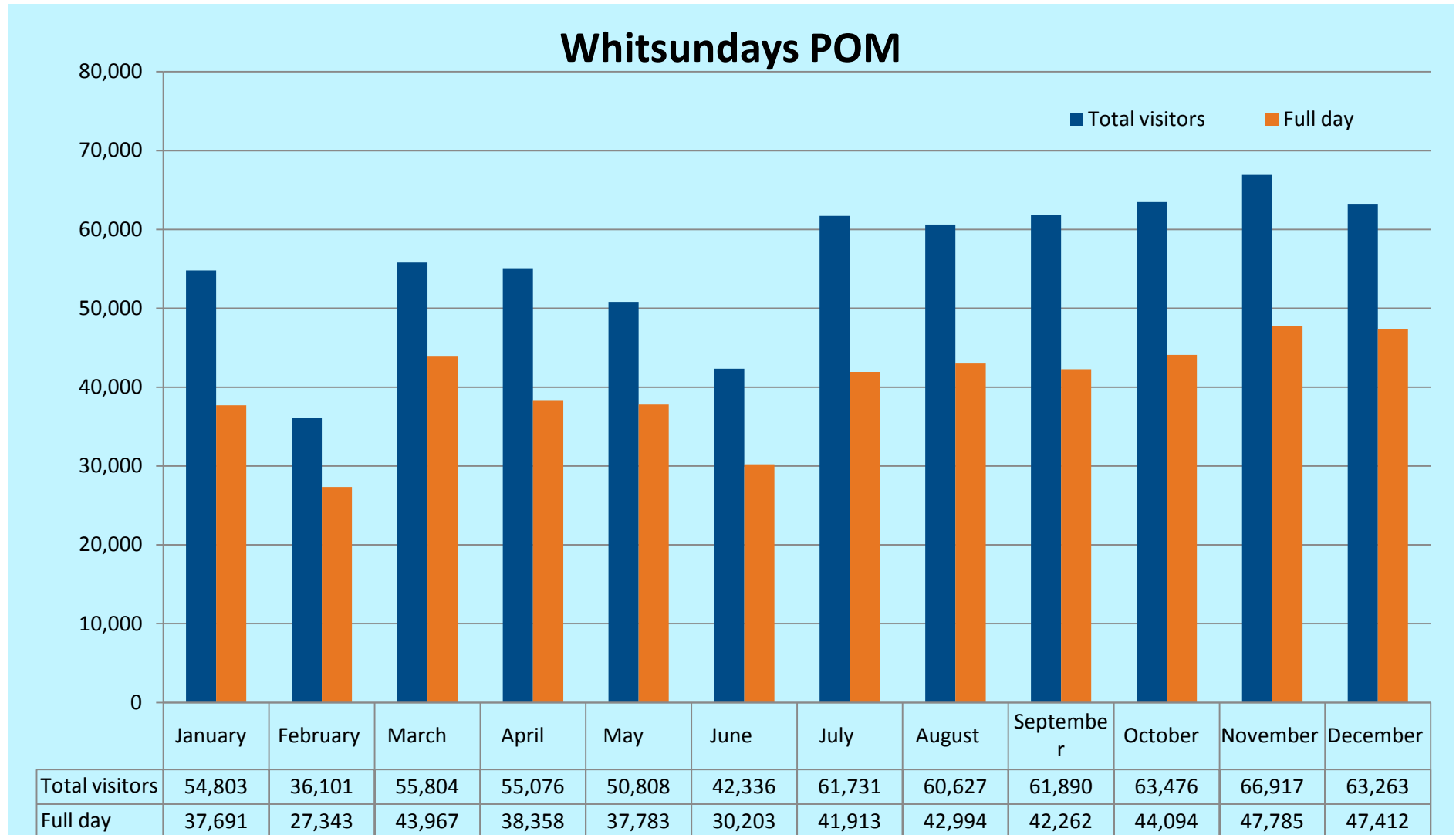
Townsville/Whitsunday Management Area



	January	February	March	April	May	June	July	August	September	October	November	December
Total visitors	61,538	39,591	60,836	61,831	56,345	47,946	69,611	66,897	68,943	70,021	73,523	70,557
Full day	42,259	29,753	47,320	42,654	41,549	34,066	47,841	47,477	47,601	48,688	52,579	52,721

Chapter Eight. Tourism

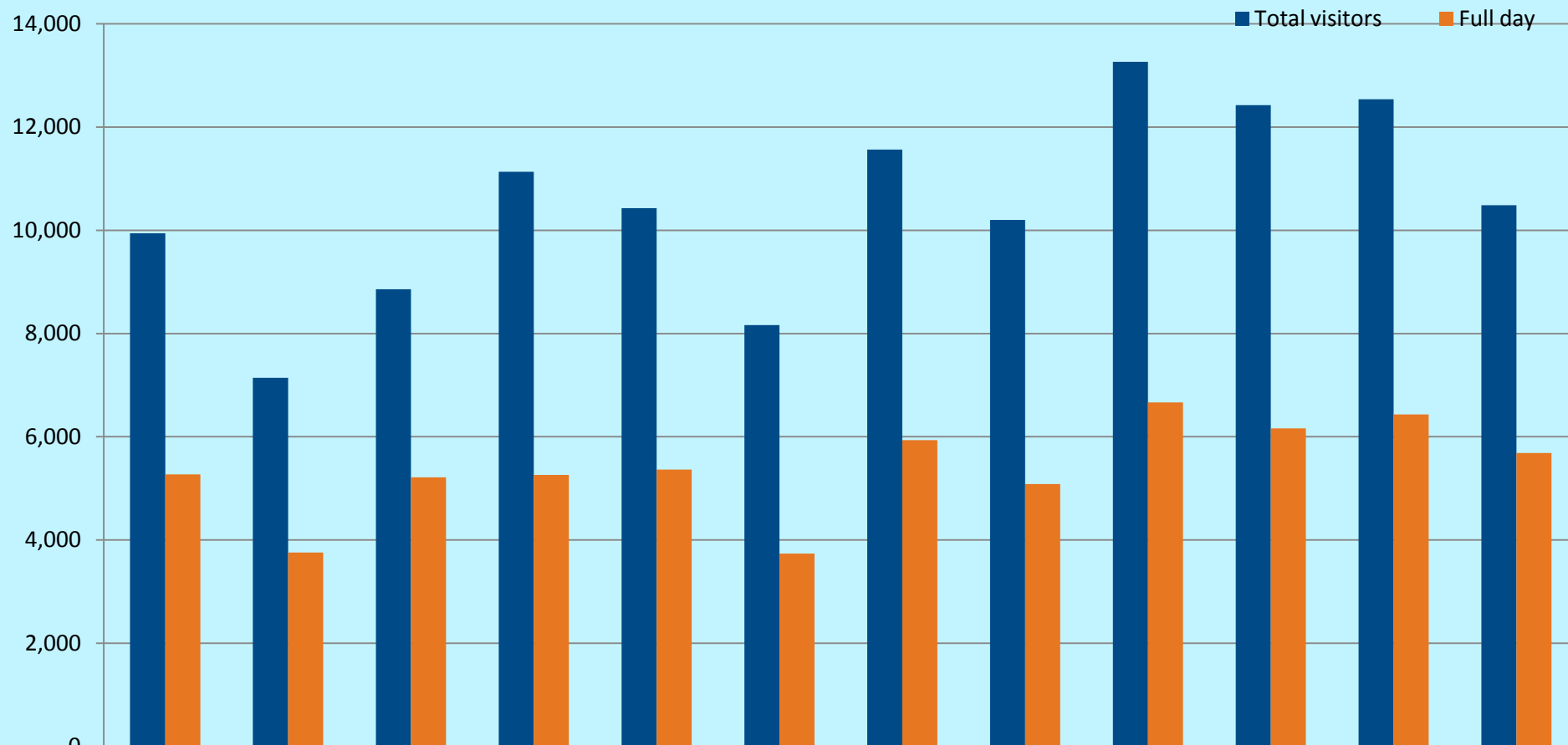
When is the GBR used for tourism? 2011 EMC Data



Chapter Eight. Tourism

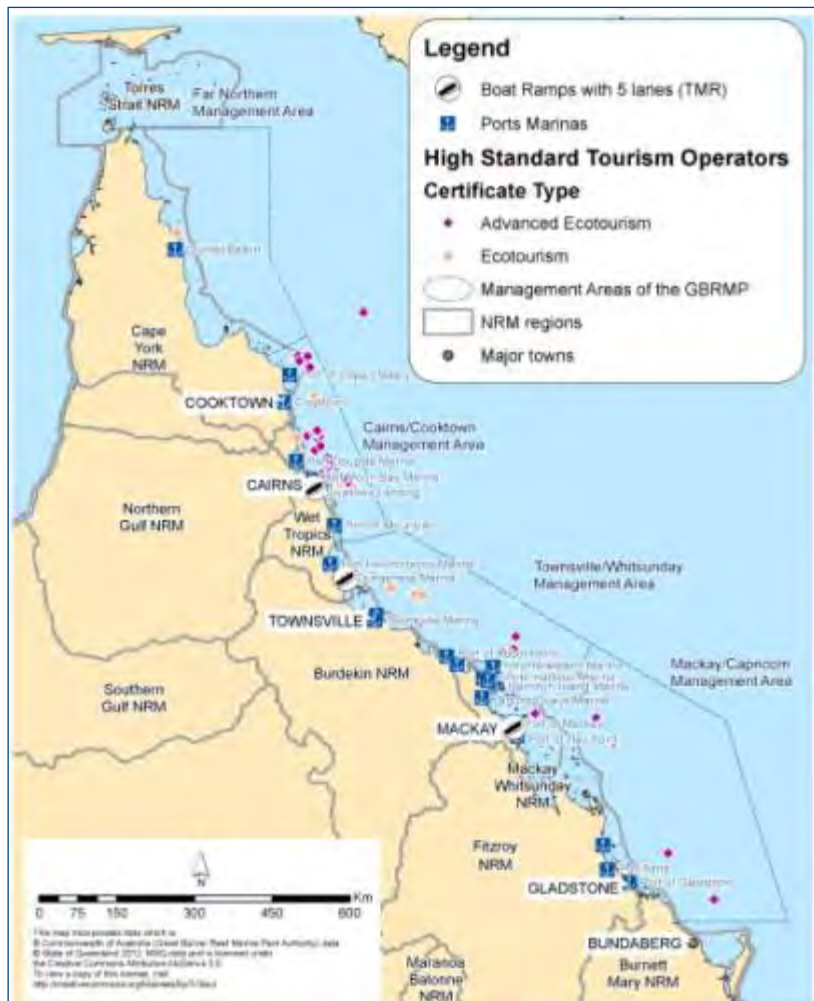
When is the GBR used for tourism? 2011 EMC Data

Mackay/Capricorn Management Area



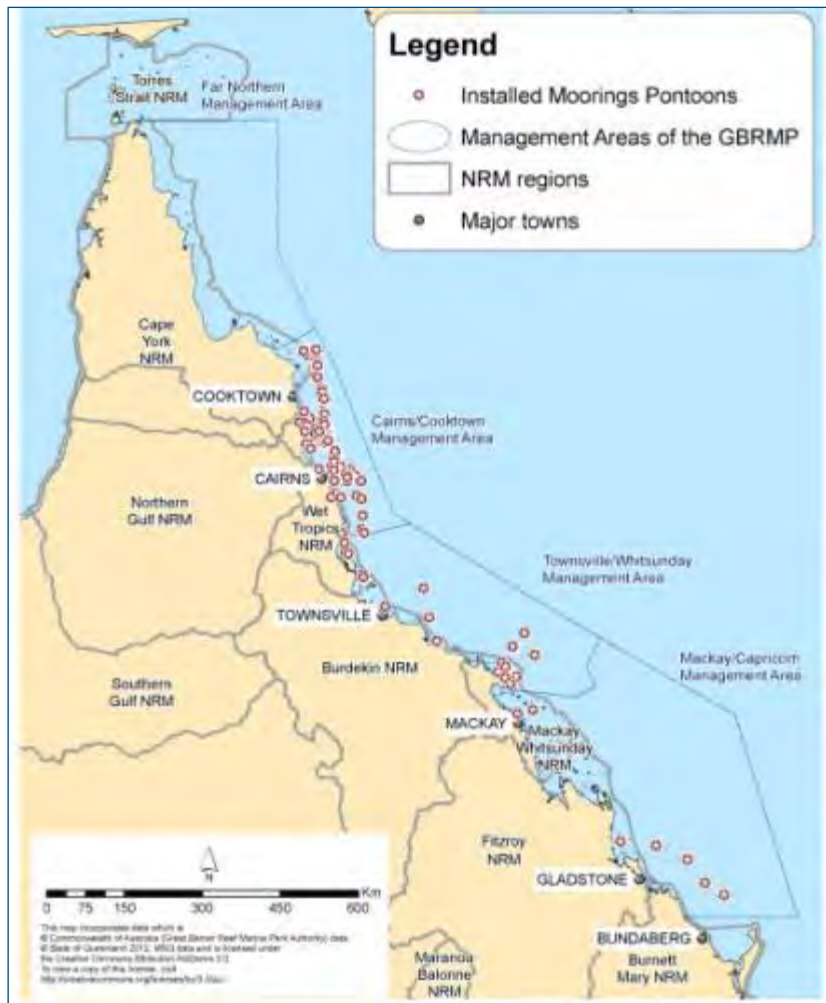
Chapter Eight. Tourism

Where is the stewardship within the GBR



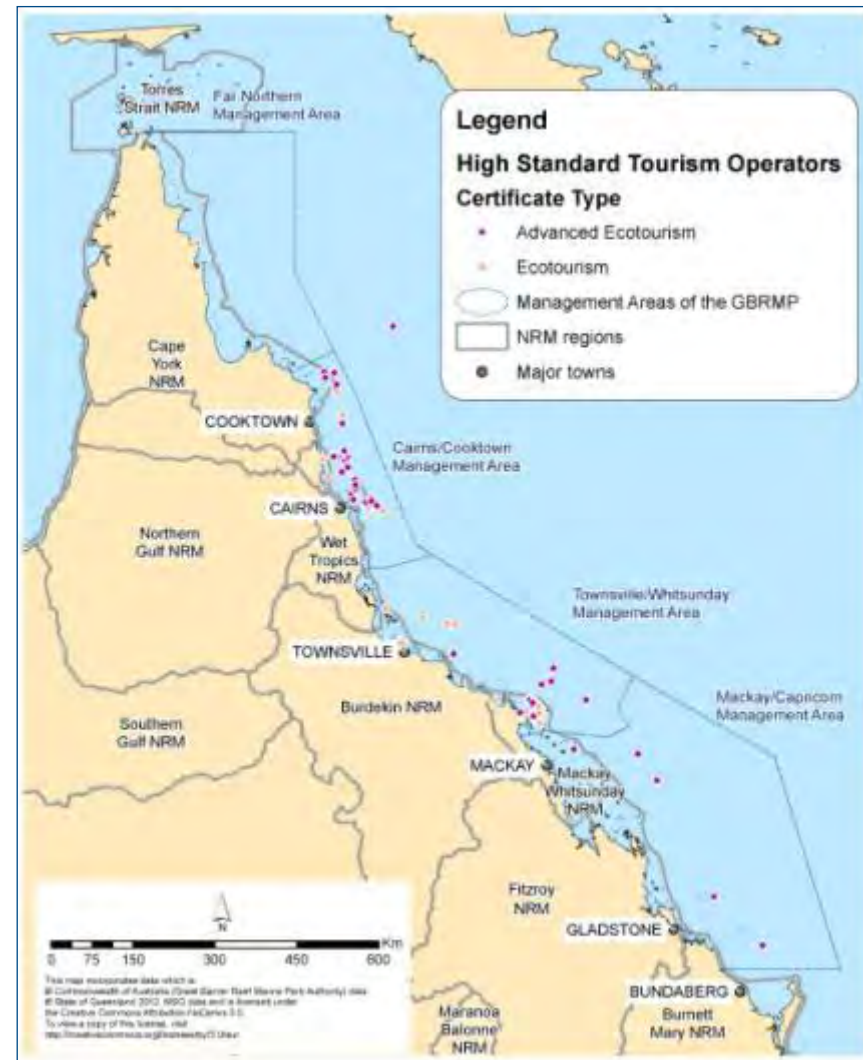
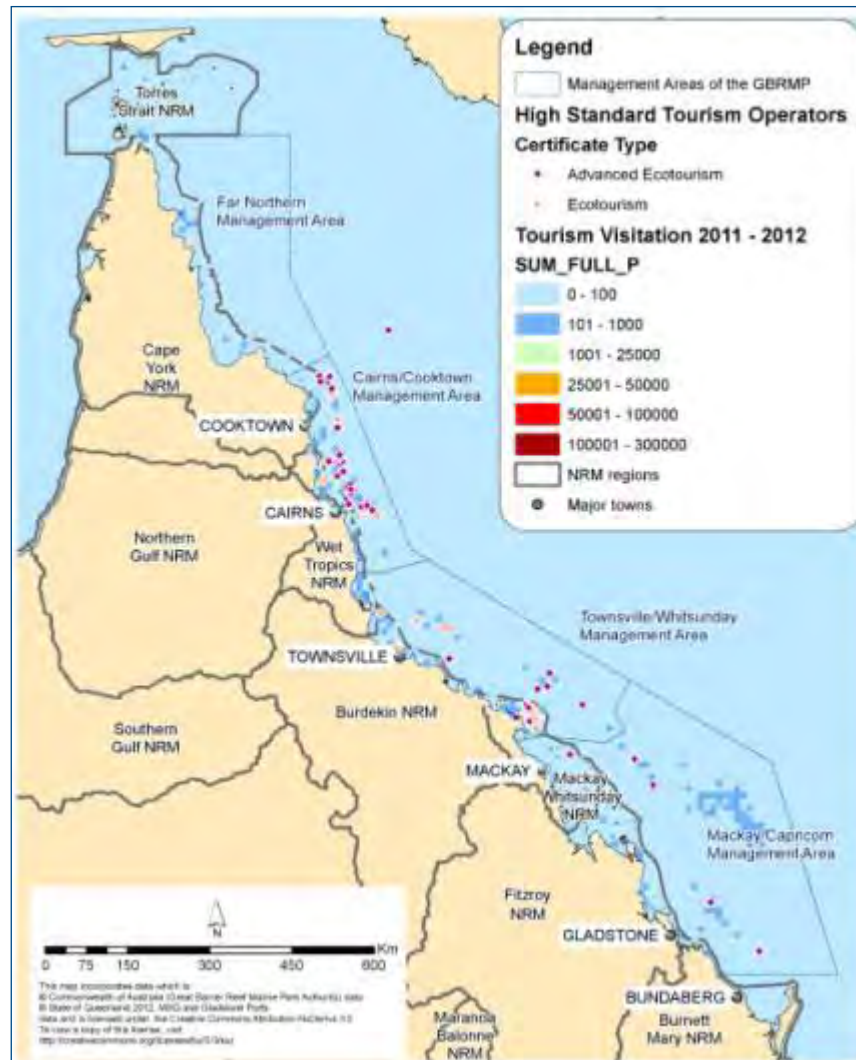
Chapter Eight. Tourism

What is the environmental footprint of tourism?



Chapter Eight. Tourism

What is the level of stewardship in tourism?



Chapter Eight. Tourism

What is the wellbeing of tourism operators: Opportunities

Direct employment in industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Contribution to livelihoods

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Satisfaction with income generation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Maintenance of access and use

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Development of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):xx

Economic contribution of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):xx

Payment for environmental services

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Skills & programs to contribute to management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Chapter Eight. Tourism

What is the wellbeing of tourism operators: Empowerment

Contribution to management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Integration of knowledge into management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Partnerships

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Effective models for management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) :

Promotion of respect

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):

Transparent policies and actions

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):

Clear legal obligations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Perceptions of equity

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Chapter Eight. Tourism

What is the wellbeing of tourism operators: Empowerment

Knowledge of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: x%

Activities for promoting stewardship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: %

Freedom of choice to act

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: %

Culture incorporated into management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	:

Promotion of respect

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR):	

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR):	

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	%

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: %

Chapter Eight. Tourism

What is the wellbeing of tourism operators: Security

Overall quality of life

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: %
-------------	-----

Perceived health

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Belongingness to industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Social cohesion

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	:
-------------	---

Quality of relationships

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	
-------------	--

Health of GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):	
--------------	--

Perceived GBR diversity and abundance

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Cultural connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Chapter Eight. Tourism

What is the wellbeing of tourism operators: Security

Sustainability of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: %
-------------	-----

Food provisioning

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Management effectiveness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Climate change mitigation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	:
-------------	---

Climate change adaptation efforts

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	
-------------	--

Buffer to natural disasters

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):	
--------------	--

Perceived water quality

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Spiritual connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR)	: xx%
-------------	-------

Chapter Eight. Tourism

How many tourists visit the GBR?

Whale watching

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Motorised watersports

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Mega-yachts

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Diving & snorkeling operations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Kayak tours

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Bareboat companies

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Reef helicopter operations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

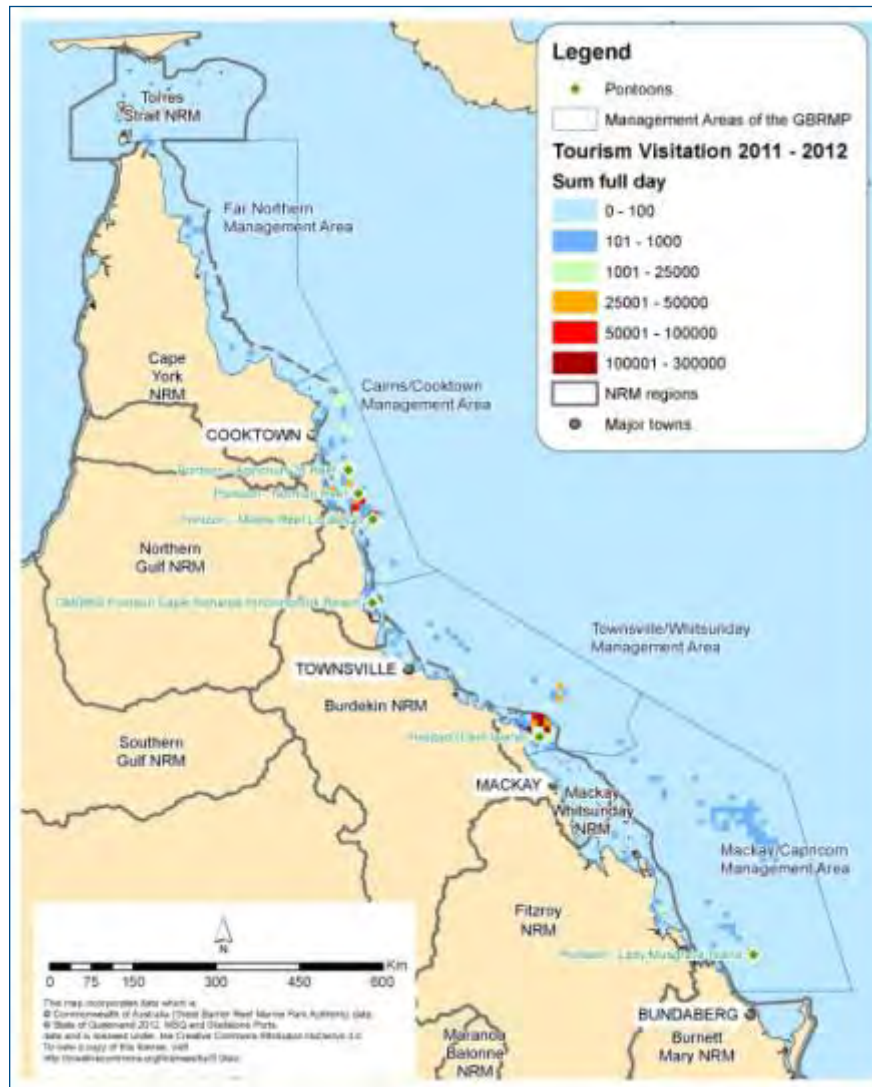
Reef walking operations/other?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Where do tourists visit?



Chapter Eight. Tourism

What types of tourists visit the GBR?

Backpacker

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

International

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Intra-state

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Inter-state

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Education

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Visiting friends/relatives

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Day trips

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Who are the tourists that visit the GBR?

Nationality

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average age/distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Education levels

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Gender distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Average household income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Environmental awareness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Level of stewardship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Computer competency

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Who are the tourists that visit the GBR?

Extent of formal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Trust in formal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Extent of informal networks*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Quality of informal networks

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Diversity of household income*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Adaptive capacity of tourists that visit the GBR

Perceptions of uncertainty/risk

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Psychological buffer

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Interest in long-term future

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Evidence of a financial buffer

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Sources of income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Willingness to change

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

Indirect Drivers on the Tourism industry

Factors - from Natalie Stoekl and Erin??

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Eight. Tourism

International visitors to Australia

Totals Visitors

Total Visitors aged >15
5,439,255
64% had been here before
Total visitor nights: 195 M
(+4%)
Total Inbound Economic
Value: \$24 million (+2.5%)

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Reason for visit

Holiday : 44%
Visit friends/relatives : 25%
Business : 17%
Education : 8%
Employment : 3%
Other : 4%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Source Countries

New Zealand - 1,066,018
(19.6%)
UK – 573,553 (10.5%)
China – 512,632 (9.4%)
USA – 428,976 (7.9%)

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Expenditures

Average trip expenditure:
\$3,396
Average nightly expenditure:
\$95
Total expenditure in Oz:
\$18.5 billion (+4%)

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Tours

Inclusive package travellers:
15%

Group tours: 8%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

States Visited

NSW :51%
Queensland :34%
Victoria :32%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Visitor Nights

NSW: :35%
Victoria: :22%
Queensland: :21%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Expenditures by region

Sydney 5.8 billion
Melbourne 4 billion
Perth 1.7 billion
Brisbane 1.5 billion
TNQ 735 million

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Chapter Eight. Tourism

International visitors to Australia

Totals Visitors

QLD	1,914,000
NSW	2,756,000
VIC	1,748,000
Other	1,427,000
Total	5,392,000

Reference: Tourism Queensland

Total Visitor Nights

QLD	40,997,000
NSW	67,139,000
VIC	43,940,000
Other	42,481,000
Total	194,557,000

Reference: Tourism Queensland

Average Length of Stay

QLD	:21.4
NSW	:24.4
VIC	:25.1
Other	:29.9
Total	:36.1

Reference: Tourism Queensland

Average length of stay by region

TNQ	:9.1
Townsville	:10.3
Whitsundays	:6.1
Mackay	:11.8
SGBR	:15.3
QLD Total	:21.4

Reference: Tourism Queensland

Total QLD visitors by type

Holiday	1,265,000
Visit friends and relatives –	
	482,000
Business	196,000
Other	191,000
Total	1,914,000

Reference: Tourism Queensland

Total QLD visitors nights by type

Holiday	17,990,000
Visit friends/relatives –	
	8,161,000
Business	1,591,000
Other	13,255,000
Total	40,000

Reference: Tourism Queensland

QLD Visitors by region

TNQ	:594,000
Townsville	:109,000
Whitsundays	:167,000
Mackay	:45,000
SGBR	:127,000

Reference: Tourism Queensland

QLD Visitor nights by region

TNQ	:5,394,000
Townsville	:1,123,000
Whitsundays	:1,011,000
Mackay	:530,000
SGBR	:1,937,000

Reference: Tourism Queensland

Chapter Eight. Tourism

International visitors to Australia

TNQ (visitors, visitor nights, average length of stay)

Holiday – (537,000; 4,077,000, 7.6)
 Visit friends/relatives – (28,000; 447,000; 15.9)
 Business – (17,000; 88,000; 5.2)
 Other – (23,000; 783,000; 34.3)

Reference: Tourism Queensland

Townsville (visitors, visitor nights, average length of stay)

Holiday – (84,000; 386,000, 4.6)
 Visit friends/relatives – (17,000; 276,000; 15.8)
 Business – (n/a; 34,000; 10.5)
 Other – (7,000; 426,000; 63)

Reference: Tourism Queensland

Whitsundays (visitors, visitor nights, average length of stay)

Holiday – (160,000; 845,000, 5.3)
 Visit friends/relatives – (5,000; 43,000; 7.9)
 Business – (n/a; 12,000; 5.4)
 Other – (n/a; 110,000; 54)

Reference: Tourism Queensland

Mackay (visitors, visitor nights, average length of stay)

Holiday – (29,000; 135,000, 4.6)
 Visit friends/relatives – (9,000; 130,000; 15.3)
 Business – (3,000; 78,000; 23.1)
 Other – (4,000; 187,000; 47.2)

Reference: Tourism Queensland

SGBR (visitors, visitor nights, average length of stay)

Holiday – (97,000; 1,219,000, 12.6)
 Visit friends/relatives – (15,000; 245,000; 16.4)
 Business – (8,000; 86,000; 11.5)
 Other – (10,000; 388,000; 37.9)

Reference: Tourism Queensland

Queensland Total (visitors, visitor nights, average length of stay)

Holiday – (1,265,000; 17,990,000, 14.2)
 Visit friends/relatives – (482,000; 8,161,000; 16.9)
 Business – (196,000; 1,591,000; 8.1)
 Other – (191,000; 13,255,000; 69.4)

Reference: Tourism Queensland

Chapter Eight. Tourism

Domestic visitors

Totals Visitors

Total Visitors: 69.8 million
aged 15 and over (+4%)

Total visitor nights: 263
million (+1%)

2/3 travelled within state or
territory of residence

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Reason for trip

Holiday	: 48%
Visit friends/relatives –	30%
Business	: 15%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Accommodation

Friends/relatives	:36%
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Hotel/resort/motel/motor inn	:27%
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<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Expenditure

Overnight	:\$43.5 billion (+1.6%)
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Day (+7%)	:\$16 billion
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<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Transportation

Private vehicle	:71%
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Air transport	:24%
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<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

States Visited

NSW	:34%
Queensland	:24%
Victoria	:24%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Visitor Nights

NSW	: 31%
Queensland	: 26%
Victoria	:20%

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Expenditure by domestic overnight visitors by region

Sydney	:\$4.8 billion
Melbourne	:\$4.8 billion
Sunshine Coast	:\$1.7 billion
TNQ	:\$1.6 billion

<http://www.ret.gov.au/tourism/Documents/tra/International%20Visitor%20Survey/InternationalVisitorsAustraliaDecember2011.pdf>

Chapter Eight. Tourism

Domestic visitors

Totals Visitors

QLD	:16,929,000
NSW	:24,542,000
VIC	:17,643,000
Other	:15,310,000
Total	:71,895,000

Reference: Tourism Queensland

Total Visitor Nights

QLD	:70,211,000
NSW	: 82,981,000
VIC	: 53,414,000
Other	: 63,968,000
Total	:270,573,000

Reference: Tourism Queensland

Average Length of Stay

QLD	: 4.1
NSW	: 3.4
VIC	: 3.0
Other	: 4.2
Total	: 3.8

Reference: Tourism Queensland

Average length of stay by region

SGBR	: 3.7
Mackay	: 3.2
Whitsundays	: 4.7
Townsville	: 3.6
TNQ	: 5.2
QLD Total	: 4.1

Reference: Tourism Queensland

Total QLD visitors by type

Holiday –	7,113,000
Visit friends/relatives –	5,779,000
Business –	3,377,000
Other –	1,038,000
Total –	16,929,000

Reference: Tourism Queensland

Total QLD visitors nights by type

Holiday –	33,333,000
Visit friends/relatives –	21,216,000
Business –	11,030,000
Other –	4,632,000
Total –	70,211,000

Reference: Tourism Queensland

QLD Visitors by region

SGBR –	1,575,000
Mackay –	624,000
Whitsundays –	527,000
Townsville –	898,000
TNQ –	1,487,000
Total	

Reference: Tourism Queensland

QLD Visitor nights by region

SGBR –	5,842,000
Mackay –	1,998,000
Whitsundays –	2,468,000
Townsville –	3,212,000
TNQ –	7,790,000
Total	

Reference: Tourism Queensland

Chapter Eight. Tourism

Domestic visitors

TNQ (visitors, visitor nights, average length of stay)

Holiday – (820,000; 4,889,000, 6.0)
 Visit friends/relatives – (245,000; 1,350,000; 5.5)
 Business – (340,000; 974,000; 2.9)
 Other – (94,000; 578,000; 6.1)

Reference: Tourism Queensland

Townsville (visitors, visitor nights, average length of stay)

Holiday – (269,000; 811,000, 3.0)
 Visit friends/relatives – (315,000; 1,341,000; 4.3)
 Business – (238,000; 648,000; 2.7)
 Other – (91,000; 412,000; 4.5)

Reference: Tourism Queensland

Whitsundays (visitors, visitor nights, average length of stay)

Holiday – (331,000; 1,580,000, 4.8)
 Visit friends/relatives – (110,000; 594,000; 5.4)
 Business – (n/a; 239,000; 3.4)
 Other – (n/a; n/a; 4.7)

Reference: Tourism Queensland

Mackay (visitors, visitor nights, average length of stay)

Holiday – (160,000; 491,000, 3.1)
 Visit friends/relatives – (203,000; 623,000; 3.1)
 Business – (195,000; 703,000; 3.6)
 Other – (81,000; 182,000; 2.2)

Reference: Tourism Queensland

SGBR (visitors, visitor nights, average length of stay)

Holiday – (649,000; 2,698,000, 4.2)
 Visit friends/relatives – (475,000; 1,759,000; 3.7)
 Business – (347,000; 1,014,000; 2.9)
 Other – (117,000; 372,000; 3.2)

Reference: Tourism Queensland

Queensland Total (visitors, visitor nights, average length of stay)

Holiday – (820,000; 4,889,000, 6.0)
 Visit friends/relatives – (245,000; 1,350,000; 5.5)
 Business – (340,000; 974,000; 2.9)
 Other – (94,000; 578,000; 6.1)

Reference: Tourism Queensland

Chapter Eight. Tourism

Domestic Flights to Queensland

2011 Domestic flights												
	January	February	March	April	May	June	July	August	September	October	November	December
Cairns												
Airlines/week	4	4	4	4	4	4	4	4	4	4	4	3
Flights/week	249	245	246	253	189	212	232	220	228	224	213	210
Seats/week	38,140	37,578	37,878	38,572	29,997	34,101	38,267	36,405	37,867	36,439	33,911	33,925
Townsville												
Airlines/week	3	3	3	3	3	3	4	4	4	3	3	3
Flights/week	114	111	111	110	82	72	110	88	101	100	91	95
Seats/week	16,411	16,256	16,693	16,394	12,250	10,650	17,142	13,407	15,791	15,330	14,042	15,107
Rockhampton												
Airlines/week	3	3	3	3	3	3	3	2	3	3	3	3
Flights/week	107	92	91	96	91	92	92	88	88	89	85	77
Seats/week	9,872	7,644	7,596	8,598	8,535	9,266	9,266	8,418	8,624	9,044	8,358	7,726
Hamilton Island												
Airlines/week	2	2	2	2	2	2	2	2	2	2	2	2
Flights/week	35	34	34	35	30	30	35	35	35	35	35	33
Seats/week	5,985	5,661	5,733	5,985	5,107	5,107	6,007	6,186	6,241	6,359	6,166	5,969
Proserpine												
Airlines/week	2	2	2	2	2	2	2	2	2	2	2	2
Flights/week	14	12	13	13	13	14	14	14	14	14	14	14
Seats/week	2,427	2,031	2,247	2,319	2,316	2,496	2,496	2,463	2,512	2,478	2,478	2,439
Mackay												
Airlines/week	4	4	4	4	4	4	4	3	4	4	4	4
Flights/week	107	104	104	104	97	89	96	94	94	94	88	88
Seats/week	12,758	12,512	12,508	12,468	11,761	11,684	12,944	12,593	12,610	12,580	11,456	11,074

Chapter Eight. Tourism

Passenger arrivals and departures

	Inbound	Outbound
Cairns	1,750,220	1,755,317
Townsville	836,232	838,033
Rockhampton	367,908	370,943
Hamilton Island	225,345	227,083
Proserpine	101,679	103,263
Mackay	571,997	573,554

Aviation Statistics, Bureau of Infrastructure, Transport and Regional Economics Department of Infrastructure and Transport

Chapter Eight. Tourism

Available accommodation

TNQ

Establishments – 173 (-3.9%)
 Room nights available – 4,021,484 (-4.0%)
 Room nights occupied – 2,290,386 (0.4%)
 Room Occupancy – 57.0% (2.5%)
 Takings - \$293 million (-1.9%)
 Average room rate - \$128.00 (-2.2%)
 Yield - \$72.90 (2.2%)

Reference: Tourism Queensland

Townsville

Establishments – 60 (1.7%)
 Room nights available – 1,053,585 (-2.5%)
 Room nights occupied – 693,066 (3.1%)
 Room Occupancy – 65.8% (3.6%)
 Takings - \$90 million (9.7%)
 Average room rate - \$129.95 (+6.4%)
 Yield - \$85.49 (12.5%)

Reference: Tourism Queensland

Whitsundays

Establishments – 36 (2.9%)
 Room nights available – 1,001,548 (-5.1%)
 Room nights occupied – 501,610 (-7.7%)
 Room Occupancy – 50.1% (-1.4%)
 Takings - \$114 million (-5.9%)
 Average room rate - \$226.51 (+1.9%)
 Yield - \$113.44 (-0.8%)

Reference: Tourism Queensland

Mackay

Establishments – 54 (-1.8%)
 Room nights available – 760,021 (-5.4%)
 Room nights occupied – 571,331 (+7.7%)
 Room Occupancy – 75.2% (+9.1%)
 Takings - \$90 million (+11.6%)
 Average room rate - \$158.37 (+3.6%)
 Yield - \$119.05 (+17.9%)

Reference: Tourism Queensland

SGBR

Establishments – 102 (-4.7%)
 Room nights available – 1,462,587 (0.0%)
 Room nights occupied – 963,275 (+18.6%)
 Room Occupancy – 65.9% (+10.3%)
 Takings - \$131 million (+29.2%)
 Average room rate - \$135.51 (+9.0%)
 Yield - \$89.25 (+29.2%)

Reference: Tourism Queensland

Queensland Total

Establishments – 1,121 (-1.8%)
 Room nights available – 22,241,477 (-1.3%)
 Room nights occupied – 14,248,100 (1.4%)
 Room Occupancy – 64.1% (1.7%)
 Takings - \$2,139 million (3.7%)
 Average room rate - \$150.09 (2.3%)
 Yield - \$96.15 (5.1%)

Reference: Tourism Queensland

Australia Total

Establishments – 4,216 (-1.5%)
 Room nights available – 82,691,584 (-0.3%)
 Room nights occupied – 53,667,500 (1.6%)
 Room Occupancy – 64.9% (1.2%)
 Takings - \$8,534 million (5.5%)
 Average room rate - \$159.01 (3.9%)
 Yield - \$103.20 (5.8%)

Reference: Tourism Queensland

Chapter Eight. Tourism

Inshore charter fishers in the GBR region

TNQ

Licenses	=199
Fishing days	=6,790
Total catch	=336,192 kg
Discard weight	=136,192 kg

Reference: Fisheries Queensland

Average income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Average vessel capacity

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: 6 people

Average distance of extreme fishing range

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: 263km

Rocky Reef fishery stakeholders. Part B: Charter fishers. Fishing and Fisheries Research Centre Technical Report No. 6.

Most commonly caught fish species

Barramundi
Trevally
Bream

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Most targeted fish species

Barramundi
Mangrove jack
Golden snapper

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average maximum distance from home port

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: 94 km

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average distance of fishing range

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: 72km

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Eight. Tourism

Wellbeing of tourists: Opportunities and Empowerment

Quality of experience

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Vicarious enjoyment

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Options available

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Payment for environmental services

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Research Centre Technical Report No. 6.

Promotion of mutual respect

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Activities for promoting stewardship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Respect of culture

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Historical value and culture

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Chapter Eight. Tourism

Wellbeing of tourists: Security

Overall quality of life

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Aesthetic quality of GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Perceived health of GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Perceived diversity and abundance of life in the GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Research Centre Technical Report No. 6.

Sense of place

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Spiritual connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Reinforcement of identity

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Historical value and culture

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx

Chapter Eight. Tourism

Wellbeing of tourists: Security

Cultural connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Climate change mitigation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Climate change adaptation efforts

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Buffer to natural disasters

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Research Centre Technical Report No. 6.

Chapter Eight. Tourism

Inshore charter fishers in the GBR region

Gender distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 92% male

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average age

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 44

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010)

Average vessel size

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 5.8 m

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average time in the industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 8.5 years

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Owner/operator distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 97%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average vessel age

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 9 years

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Have high school education?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 38%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Have trade training or experience?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 70%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Eight. Tourism

Inshore charter fishers in the GBR region

Fishing is sole source of income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 58%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

75-100% of income is from charter fishing

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 63%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Household income >\$100,000

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 42%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average estimate of operation value

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : \$166,500

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Owner/operator distribution

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 97% are both

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Average crew size

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 78% do not employ crew

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Have high school education?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 38%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Have trade training or experience?

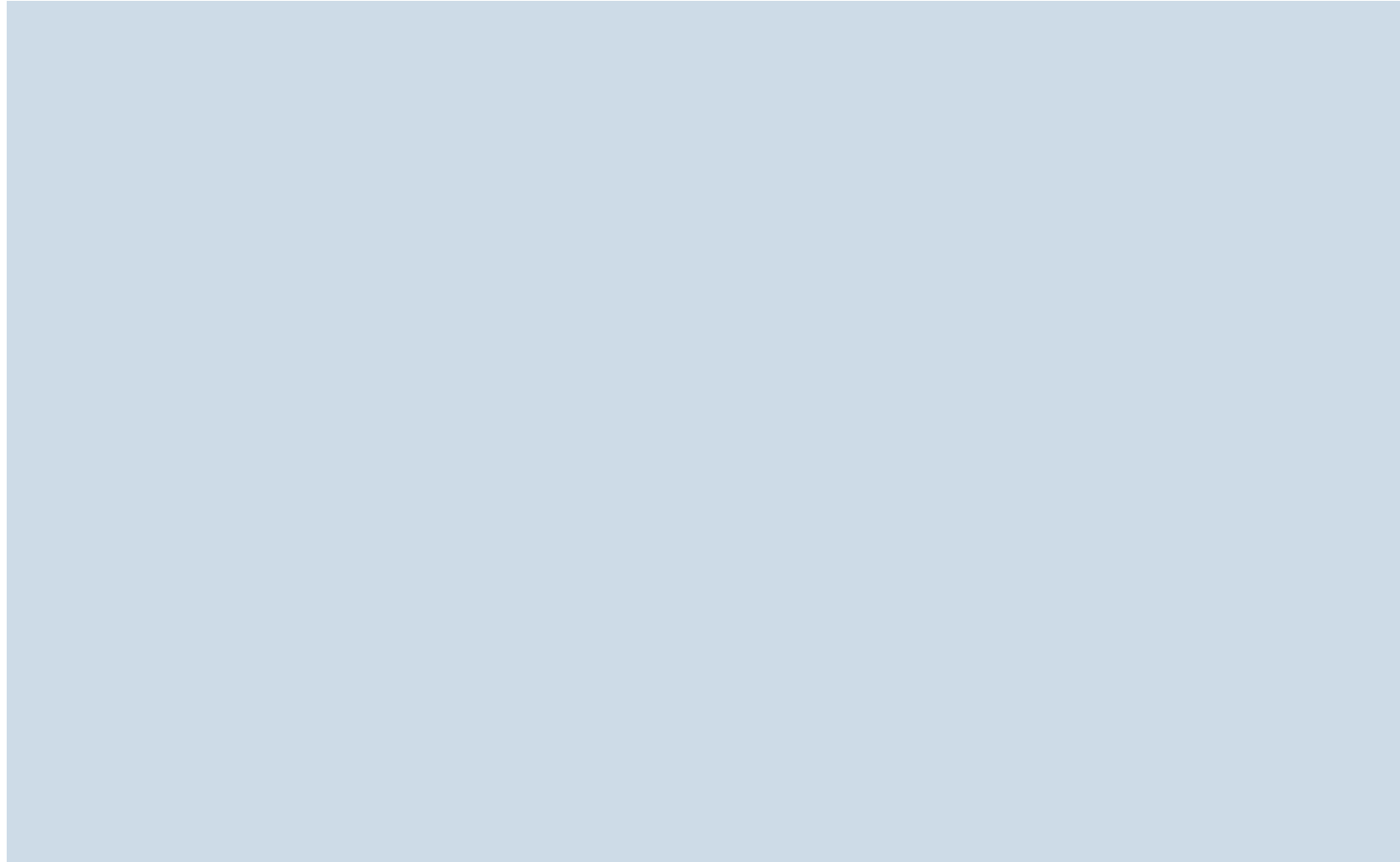
Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 70%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Eight. Tourism

References



Chapter Nine. Commercial Fishing

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 a fleet of over xxx people and a Gross Value of Production (GVP) of \$139m in 2006/07 (GBRMPA, 2009), 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 (QDAFF). 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, 2009).

Generally, 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 and Heritage Protection (DEHP).

Chapter Nine. Commercial fishing

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 license (i.e. A licence with multiple 'symbols') which means that a line fisher, for instance, may also trawl or net.

Trawl fisheries capture primarily prawns, bugs and scallops, but also cuttlefish, squid and octopus via Beam trawls (within the River and Beam Trawl Fishery) (DEEDI, 2011a) or Otter trawls (within the East Coast Otter Trawl Fishery) (QDAFF, 2012a). 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.

Line fishers access multiple finfish species by line, particularly species managed by quota allocations for which fishers require an additional Reef Quota (RQ) symbol for the Coral Reef Finfish Fishery (CRFF) (QDAFF, 2012b), or a Spanish Mackerel (SM) ((QDAFF, 2012c) 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.

Net fishers operate within the East Coast Inshore Finfish Fishery (ECIFF) (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 finfish (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 (DEEDI, 2011c) – the main crab fishery in the GBRHWA – and the much smaller Blue Swimmer Crab Fishery (DEEDI, 2011d). They harvest male crabs within inshore areas.

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 the Crayfish and Rocklobster Fishery (DEEDI, 2011e), the Marine Aquarium Fish Fishery (MAFF) (DEEDI, 2010a), the East Coast Bêche-de-mer (BDM) Fishery (DEEDI, 2010b), the Coral Fishery (DEEDI, 2012a), and the East Coast Pearl Fishery (DEEDI, 2012b). There is also an East Coast Trochus Fishery, however it has not recorded catch in recent years (QDAFF, 2012a). There are fewer operators in the harvest fisheries, however some fisheries are of high value, with much of the product targeted to export market.

Chapter Nine. Commercial fishing

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 few overseas investors in fishing licences, but most are Australian owned, and apparently owner-operated (although current information regarding operators is scarce). Some fishers operate by leasing licences from licence owners, with an unknown number of lease arrangements made informally.

The commercial fishing industry has recently undergone several social, cultural and economic changes. For example, prior to 2001 many fishers referred to themselves as 'lifestyle fishers', where they fished mostly by themselves, although the exact number of fishers falling into this category is unclear. In 2001 there were an estimated 2,444 active fishing business operators or 'Masters License holders' in Queensland with most businesses employing between two and three crew in addition to the Master Fisher. During the peak fishing season there were 7,088 full-time equivalent employees ('crew') whilst in the off-peak season these numbers were estimated at approximately 6,100 employees (Fenton and Marshall, 2001). Now, there are an estimated 1413 active licence holders, and xx crew. During this time, there have been numerous attempts to curb environmental impacts and ensure environmental sustainability through the implementation of policies that regulate the use of, or access to, the fisheries resource. Policy changes were introduced such as a license buy-back scheme, unit allocations based on previous fishing effort and boat size, expensive penalties, gear modifications (such as turtle-exclusion devices and by-catch reduction devices), and fees for unit trade, license transfer and the upgrading of vessels. In 2004 the Representative Areas Programme was introduced which reduced the area of 'no-take areas' (or highly protected areas, locally known as 'Green Zones'), in the World Heritage Area from 5% to 30%. The primary aim of the program was to better protect the range of biodiversity in the Great Barrier Reef across the range of 'representative' examples of all different habitat types (Fernandes et al., 2005).

Another significant change that has happened for the industry is cultural. There was a change in relationship between the commercial fishing industry and fisheries managers at the State and Federal level (the Great Barrier Reef Marine Park Authority). The commercial fishing industry is well and truly now regarded as a partner in Reef management. This change has occurred slowly but surely since the time when the Representative Areas Programme was implemented in 2005.

Chapter Nine. Commercial fishing

Who are the commercial fishers in the GBR? Place based factors

Attachment to place	Mean length of residence	Strength of identity associated with GBR	Plan to remain in region for next 5 years																																																		
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*Trawl and line combined. ^Sample of 145 fishers, of multiple fishing types

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Identity based factors

Family history

% >1st generation fishers

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

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

GBR overall	: xx
Qld population	: xx

Ref: xxx

Years in industry

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

Line fishers	: 22 ¹
Trawl	: 22 ¹
Net	: 24 ²
Pot	: xx
Harvest	: xx

GBR overall	: xx+/- xx
Qld overall	: xx +/- xx

Ref: ¹Sutton et al. (2010);
²TobinR et al. (2010);

New entrants (0-5 yrs)

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

Line fishers	: xx
Trawl	: xx
Net	: 7%
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx

Ref: TobinR et al. (2010)

Years FISHING in GBR Region

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

Avg # years

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

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

GBR overall	: 23+/- 1.0*
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Ref: ¹Marshall and Tobin, unpubl. data (2012); ²Marshall and Tobin (2012);

*Sample of 145 fishers, including multiple types.

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? Human capital

Age	Partners	Dependents	Education																																																		
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Crab	: xx																																																				
Harvest	: xx																																																				
<table><tr><td>GBR overall</td><td>: xx</td></tr><tr><td>Qld population</td><td>: xx</td></tr></table>	GBR overall	: xx	Qld population	: xx																																																	
GBR overall	: xx																																																				
Qld population	: xx																																																				
Ref: ¹ TobinA et al. (2010); ² TobinR et al. (2010); ³ Marshall and Tobin (2012);	Ref: ¹ TobinA et al. (2010); ² TobinR et al. (2010); ³ Sutton et al. (2010);	Ref: ¹ TobinA et al. (2010); ² TobinR et al. (2010); ³ Sutton et al. (2010);	Ref: xxx																																																		

*Trawl and line combined. ^Sample of 145 fishers, of multiple fishing types

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? Human capital

Education

% with > high school educ'n

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

Line fishers	: 25% ¹
Trawl	: xx
Net	: 21% ²
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx
Qld population	: xx

Ref: ¹Sutton unpubl. data (2009);
²TobinR et al. (2010)

Other training

% with other training

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

Line fishers	: 67% ¹
Trawl	: xx
Net	: 46% ²
Pot	: xx
Harvest	: xx

GBR overall	: xx
-------------	------

Dominant training type:
Trade^{1,2}

Ref: ¹TobinA et al. (2010);
²TobinR et al. (2010)

Previous occupation

% fishers with prior external work experience

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: 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

Diversity of income - personal

% PERSONAL income from fishing

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

Line fishers	: xx% ¹
Trawl	: xx% ¹
Net	: 82% ²
Pot	: xx%
Harvest	: xx%

GBR overall	: 82% ^{3*}
Qld overall	: xx

Ref: ¹Sutton unpubl. data (2009);
²TobinR et al. (2010); ³Marshall
and Tobin (2012);

*Sample of 145 fishers, including multiple types.

Chapter Nine. Commercial Fishing

What is their level of adaptive capacity?

Diversity within industry

% active in > fishery type

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

GBR overall : xx%

Ref: ¹xxx

Education

% with high school or above education level

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

GBR overall : xx%

Ref: ¹xxx

Attachment to occupation

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Financial buffer

% with planned financial buffer or income protection

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

GBR overall : xx%

Ref: ¹xxx

Diversity outside of industry

% with alternative HH income

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

GBR overall : xx%

Ref: ¹xxx

Employment options

% with other training / experience

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

GBR overall : xx%

Ref: ¹xxx

Attachment to place

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Networks

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Chapter Nine. Commercial Fishing

What is their level of adaptive capacity?

Attitude towards risk

% who view risk as opportunity

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

GBR overall : xx%

Ref: ¹xxx

Ability to plan

% who have high ability to plan

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

GBR overall : xx%

Ref: ¹xxx

Perceived options

% who believe they have other employment options

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

GBR overall : xx%

Ref: ¹xxx

Evidence of scenario planning

Measure?

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

GBR overall : xx%

Ref: ¹xxx

Willingness to learn

% willing to learn new skills

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

GBR overall : xx%

Ref: ¹xxx

Ability to cope

% with high perceived ability to cope with change

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

GBR overall : xx%

Ref: ¹xxx

Willingness for options

% willing to work outside industry

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

GBR overall : xx%

Ref: ¹xxx

Outlook

% with long-term business plan

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

GBR overall : xx%

Ref: ¹xxx

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? Vulnerability to change

Planned financial buffer

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

Line fishers	: 67%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	:xx%

GBR overall	: xx%
Qld overall	: xx%

Qld population	: xx%
----------------	-------

Ref: TobinA et al. (2010);

Income protection

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

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

GBR overall	: xx%
Qld overall	: xx%

Qld population	: xx%
----------------	-------

Average value : \$xx +/- xx

Ref: xxx

Vessel insurance

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

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

GBR overall	: xx%
Qld overall	: xx%

Qld population	: xx%
----------------	-------

Average value : \$xx +/- xx

Ref: ¹TobinR et al. (2010)

Government support

% who received support	
Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

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

GBR overall	: xx%
Qld overall	: xx%

Qld population	: xx%
----------------	-------

Amount available : \$xx
Avg amount received per fisher : \$xx +/- xx
Main reason: TC Yasi and Floods

Ref: xxx

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Social capital

Informal Networks

% who actively network with other fishers

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: 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 Whits	: 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: TobinA et al. (2010)

QSIA membership

% members

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

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

GBR overall	: xx
Qld overall	: 20% ¹

Dominant information source
: QSIA representatives²

Ref: ¹E.Perez, QSIA, pers. comm (2011); ²TobinR et al. (2010)

Reef Guardian fishers

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

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

GBR overall	: 17
Qld overall	: xx

Ref: GBRMPA unpublished data (2012)

*Sample of 145 fishers, including multiple types.

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? Economic dependency

Diversity of income - household

% HOUSEHOLD (HH) income from fishing

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

Line fishers	: 88% ¹
Trawl	: 92% ¹
Net	: 78% ²
Pot	: xx%
Harvest	:xx%

GBR overall	: 82% ^{3*}
Qld overall	: xx

Ref: ¹Sutton unpubl. data (2009);
²TobinR et al. (2010); ³Marshall
and Tobin (2012);

Alternative incomes

% with alternative HH income

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

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

GBR overall	: 43%*
Qld overall	: xx

Ref: Marshall and Tobin (2012);

Preferred industry

% likely to remain in next 3 years

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

Line fishers	: xx
Trawl	: xx
Net	: 70% ¹
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx

Ref: ¹TobinR et al. (2010)

Preferred industry

% likely to recommend fishing to others

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: 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

*Sample of 145 fishers, including multiple types.

Chapter Nine. Commercial Fishing

What is the value of commercial fishing? Economic value

Gross Value of Production*

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

Line fishery	: \$29,090,873
Trawl:	
Beam	: \$301,797 ¹
Otter	: \$44,367,642 ¹
Net	: \$9,854,333 ¹
Pot	: \$13,750,545 ¹
Harvest	
Rocklobster	: \$5m ²
MAFF	: \$ 12m ³
Bêche-de-mer	: \$5.38 ^{1~}
Other	: \$xx

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

Ref: ¹Fisheries Qld, unpubl. data (2012); ²DEEDI (2011f); ³DEEDI (2010a)

Prices for key species (per kg)

Average prices received

Line fishery:

CT	: \$48 live
	: \$28.75 fillet
	: \$16 whole
SM	: \$8 whole
	: \$6 fillet

Trawl:

Prawns	: \$11.50
	(multiple sp and grades)

Net:

Barramundi	: \$7 whole
	(no fillet price in Qld EC)
Shark	: \$4.20 trunk

Pot:

Mudcrab	: \$17 green
Blueswimmer	: \$xx

Harvest:

Rocklobster	: \$49 live
	: \$38 fr. tails
MAFF	: \$xx
Bêche-de-mer	: \$xx

Ref: Martin Perkins, QSMA, unpubl. data (2011)

Revenue

Average revenue per vessel per year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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, most northern fishers received <\$50K, southern fishers received >\$300K revenue⁴

Ref: ¹Sutton et al. (2010); ²TobinR et al. (2010); ³Marshall and Tobin (2012); ⁴TobinA et al. (2010)

Costs

Avg costs of production[^]

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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: ¹TobinR et al (2010)

*Sample of 145 vessels from various fishing types; ^includes fuel, oil, electricity, water, ice, etc – to DEFINE. ~2010-11 financial year

Chapter Nine. Commercial Fishing

What is the value of commercial fishing? Value

Profit-Loss estimates

Average

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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

Licence sale values

Average per licence

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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 Whits	: \$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	: \$
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

Chapter Nine. Commercial Fishing

What is the value of commercial fishing? Investment

Vessel value

Average per main vessel

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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 Whits	: \$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: ¹TobinR et al. (2010)

Shore based storage value

Average per business

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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

Chapter Nine. Commercial Fishing

What is the investment in the future?

Research and Development - industry

Amount invested this year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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

R&D - FRDC

Amount invested this year

Cape York	: \$xx
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$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

Chapter Nine. Commercial Fishing

How many commercial fishers are there? Size and structure

License Number

Torres Strait	: 0
Cape York	: 51
Terrain FNQ	: 314
Burdekin	: 141
Mackay-Whit	: 107
Fitzroy Basin	: 189
Burnett Mary	: 315
TOTAL (GBR)	: 1117

From

Intrastate	: 619
Interstate	: 115
International	: 3
Unknown	: 2

TOTAL licences : 1858
(1523 fishing; 336 harvest)

Ref: Fisheries Queensland,
unpublished data (2011)

License Owners

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx
TOTAL	: 1413 (1214 fishing; 199 harvest)

Ref: Fisheries Queensland,
unpublished data (2011)

Formal Lessees*

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx
TOTAL	: 165 (148 fishing; 17 harvest)

Ref: Fisheries Queensland,
unpublished data (2011)

ACTIVE licences

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx
TOTAL licences	: 746 (681 fishing; 65 harvest)

Ref: Fisheries Queensland,
unpublished data (2012)

Line fishers[#]

Cape York	: 41
Terrain FNQ	: 220
Burdekin	: 109
Mackay-Whit	: 63
Fitzroy Basin	: 122
Burnett Mary	: 241
TOTAL (GBR)	: 796 (262 wi RQ; 194 SM)
TOTAL licences	: 1287 ^{1~}
# active in GBR	: 270 ^{2~}

Ref: ¹ Fisheries Qld, unpubl. data (2011); Fisheries Qld, unpubl. data (2012)

Trawlers[#]

Cape York	: 3
Terrain FNQ	: 59
Burdekin	: 51
Mackay-Whit	: 21
Fitzroy Basin	: 44
Burnett Mary	: 113
TOTAL (GBR)*	: 291 (236 Otter; 57 Beam)
TOTAL licences	: 452 ^{1~}
#active in GBR	: 196 otter; 18 beam trawl ^{2~}

Ref: ¹ Fisheries Qld, unpubl. data (2011); Fisheries Qld, unpubl. data (2012)

Net fishers[#]

Cape York	: 4
Terrain FNQ	: 50
Burdekin	: 42
Mackay-Whit	: 23
Fitzroy Basin	: 56
Burnett Mary	: 77
TOTAL (GBR)*	: 252
TOTAL licences	: 327 ¹
(% with S symbol EC	: 42% ¹)
# active in GBR	: 224 ²

Ref: ¹ Fisheries Qld, unpubl. data (2011); Fisheries Qld, unpubl. data (2012)

*Does not include informal lease arrangements, of which there are an unknown number; ~2011 calendar year; ^2010-11 Financial year; #This is actual licence number. Which of these licences are ACTIVE is unknown at this stage

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? Size and structure

Pot fishers[#]

Cape York	: 17
Terrain FNQ	: 48
Burdekin	: 42
Mackay-Whit	: 17
Fitzroy Basin	: 69
Burnett Mary	: 73
TOTAL (GBR)	: 266
TOTAL licences	: 437 ^{1~}
# active in GBR	: 212 ^{2~}

Ref: ¹ Fisheries Qld, unpubl. data (2011);
Fisheries Qld, unpubl. data (2012)

Marine aquarium fish harvesters[#]

Cape York	: 0
Terrain FNQ	: 17
Burdekin	: 6
Mackay-Whit	: 5
Fitzroy Basin	: 0
Burnett Mary	: 3
TOTAL (GBR)	: 31
TOTAL	: 46 ¹
# active in GBR	: 27 ²

Ref: ¹ Fisheries Qld, unpubl. data (2011);
Fisheries Qld, unpubl. data (2012)

Bêche-de-mer harvesters[#]

Cape York	: 0
Terrain FNQ	: 9
Burdekin	: 0
Mackay-Whit	: 0
Fitzroy Basin	: 0
Burnett Mary	: 0
TOTAL (GBR)	: 9
TOTAL	: 18 ^{1*2}
# active in GBR	: 6 ³

Ref: ¹ Fisheries Qld, unpubl data (2011); ²DEEDI (2011e); ³Fisheries Qld, unpubl. data (2012)

Lobster harvesters[#]

Cape York	: 3
Terrain FNQ	: 21
Burdekin	: 1
Mackay-Whit	: 0
Fitzroy Basin	: 1
Burnett Mary	: 0
TOTAL (GBR)	: 26
TOTAL	: 28 ¹
# active in GBR	: 7 ²

Ref: ¹ Fisheries Qld, unpubl. data (2011);
Fisheries Qld, unpubl. data (2012)

Coral harvesters[#]

Cape York	: 0
Terrain FNQ	: 27
Burdekin	: 1
Mackay-Whit	: 5
Fitzroy Basin	: 0
Burnett Mary	: 7
TOTAL (GBR)	: 40 ¹
TOTAL licences	: 59 ¹
% active in GBR	: 43% ^{^2}

Ref: ¹ Fisheries Queensland, unpubl data (2011); ²DEEDI (2012a)

Eel harvesters[#]

Cape York	: 0
Terrain FNQ	: 1
Burdekin	: 0
Mackay-Whit	: 3
Fitzroy Basin	: 3
Burnett Mary	: 0
TOTAL (GBR)	: 4
TOTAL licences	: 6 ¹
% active in GBR	: xx

Ref: ¹ Fisheries Queensland, unpubl data (2011)

Oyster harvesters[#]

Cape York	: 2
Terrain FNQ	: 1
Burdekin	: 6
Mackay-Whit	: 27
Fitzroy Basin	: 49
Burnett Mary	: 0
TOTAL (GBR)	: 85
TOTAL licences	: 88
% active in GBR	: xx

Ref: Fisheries Queensland, unpubl data (2011);

~'Other' harvesters[#]

Cape York	: 0
Terrain FNQ	: 3
Burdekin	: 0
Mackay-Whit	: 3
Fitzroy Basin	: 9
Burnett Mary	: 19
TOTAL (GBR)	: 34
TOTAL licences	: 90
% active in GBR	: xx

Ref: ¹Fisheries Queensland, unpubl data (2011)

[#]Which of these are ACTIVE is unknown at this stage; *Held by 3 operators; ^2010-11 Financial year; ~includes pearl, eel, shell grit, trochus, and worms.

Chapter Nine. Commercial Fishing

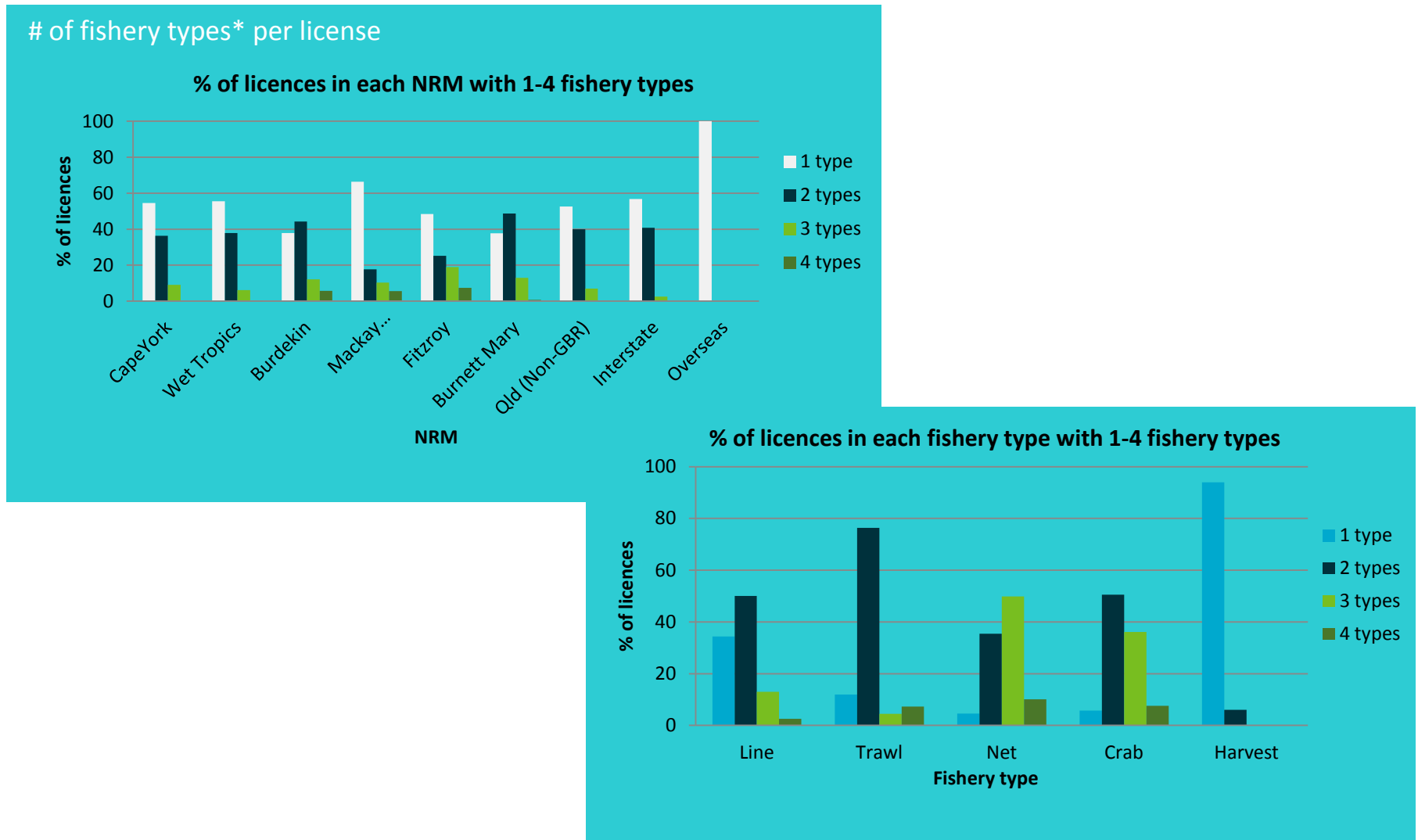
Who are the commercial fishers in the GBR? – Size and structure

Size of business	Duration of business operation	# of licences per owner	# of fishery types* per licence																																																		
<table><tr><td>"small"</td><td>: 70%</td></tr><tr><td>"medium"</td><td>: xx%</td></tr><tr><td>"large"</td><td>: xx%</td></tr></table>	"small"	: 70%	"medium"	: xx%	"large"	: xx%	<table><tr><td>0-1 year</td><td>: xx% of businesses</td></tr><tr><td>2-5 years</td><td>: xx%</td></tr><tr><td>6-10 years</td><td>: xx%</td></tr><tr><td>10-20 years</td><td>: xx%</td></tr><tr><td>>20 years</td><td>: xx%</td></tr></table>	0-1 year	: xx% of businesses	2-5 years	: xx%	6-10 years	: xx%	10-20 years	: xx%	>20 years	: xx%	<table><tr><td>Cape York</td><td>: 1.16</td></tr><tr><td>Wet Tropics</td><td>: 1.42</td></tr><tr><td>Burdekin</td><td>: 1.24</td></tr><tr><td>Mackay Whits</td><td>: 1.3</td></tr><tr><td>Fitzroy Basin</td><td>: 1.44</td></tr><tr><td>Burnett Mary</td><td>: 1.23</td></tr><tr><td>Intrastate</td><td>: 1.32</td></tr><tr><td>Interstate</td><td>: 1.41</td></tr><tr><td>Overseas</td><td>: 3 (n:1)</td></tr></table>	Cape York	: 1.16	Wet Tropics	: 1.42	Burdekin	: 1.24	Mackay Whits	: 1.3	Fitzroy Basin	: 1.44	Burnett Mary	: 1.23	Intrastate	: 1.32	Interstate	: 1.41	Overseas	: 3 (n:1)	<table><tr><td>1 fishery type</td><td>: 50% of licences</td></tr><tr><td>2 type</td><td>: 38%</td></tr><tr><td>3 type</td><td>: 10%</td></tr><tr><td>4 type</td><td>: 2%</td></tr><tr><td>5 types</td><td>: 0</td></tr></table>	1 fishery type	: 50% of licences	2 type	: 38%	3 type	: 10%	4 type	: 2%	5 types	: 0						
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*Fishery types defined as line (including those with and without RQ / SM), trawl, net, pot, harvest rather than specific symbols. Included only types that can access the GBRWHA. Unknown how many of these types are active on each licence

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Business structures



*Fishery types defined as line, trawl, net, pot, harvest rather than specific symbol. Unknown how many of these types are active on each licence. NRM location based on correspondence address of licence owner

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Business structures

# of direct staff in industry	# indirect staff in industry	# FTE staff per business	Staff turnover																																																
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*Sample of 145 fishers, including multiple types.

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Business structures

Family involvement

% with family involvement

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

Line fishers	: *65% ¹
Trawl	: *65% ¹
Net	: 39% ²
Pot	: xx
Harvest	: xx

GBR overall	: xx
Qld overall	: xx

Partner's role in business:

...

Ref: ¹Sutton et al. (2010); ²TobinR et al. (2010)

Income for operator

Cape York	: \$xx/week
Wet Tropics	: \$xx
Burdekin	: \$xx
Mackay Whits	: \$xx
Fitzroy Basin	: \$xx
Burnett Mary	: \$xx

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

GBR overall	: \$xx/week
Qld overall	: \$xx/week

Qld populaton average wage :
\$1,262 / week

Ref: OESR (2011)

Working hours: operator

Cape York	: xxhrs/wk
Wet Tropics	: xxhrs
Burdekin	: xxhrs
Mackay Whits	: xxhrs
Fitzroy Basin	: xxhrs
Burnett Mary	: xxhrs

Line fishers	: xxhrs
Trawl	: xxhrs
Net	: xxhrs
Pot	: xxhrs
Harvest	: xxhrs

GBR overall	: xxhrs
Qld overall	: xxhrs

Qld populaton average
working hours : xxhrs/wk

Ref: xxx

Working hours: staff

Cape York	: xxhrs/wk
Wet Tropics	: xxhrs
Burdekin	: xxhrs
Mackay Whits	: xxhrs
Fitzroy Basin	: xxhrs
Burnett Mary	: xxhrs

Line fishers	: xxhrs
Trawl	: xxhrs
Net	: xxhrs
Pot	: xxhrs
Harvest	: xxhrs

GBR overall	: xxhrs
Qld overall	: xxhrs

Qld populaton average
working hours : xxhrs/wk

Pay structures:

xx% on award rate
xx% on proportion catch rate

Ref: xxx

*Trawl and line were combined. Same figure stated here – unable to separate.

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Business structures

Business planning

% with formal plan

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

GBR overall	: xx%
Qld overall	: xx%

Avg years since reviewed

Never	: xx% of businesses
1-2 years	: xx%
2-5 years	: xx%
>5 years	: xx%

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

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Investment in training

% businesses that provide training

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

GBR overall	: xx%
Qld overall	: xx%

Average amount spent on training per business

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

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

Ref: xxx

Working condition policies

% that utilise OH&S policies

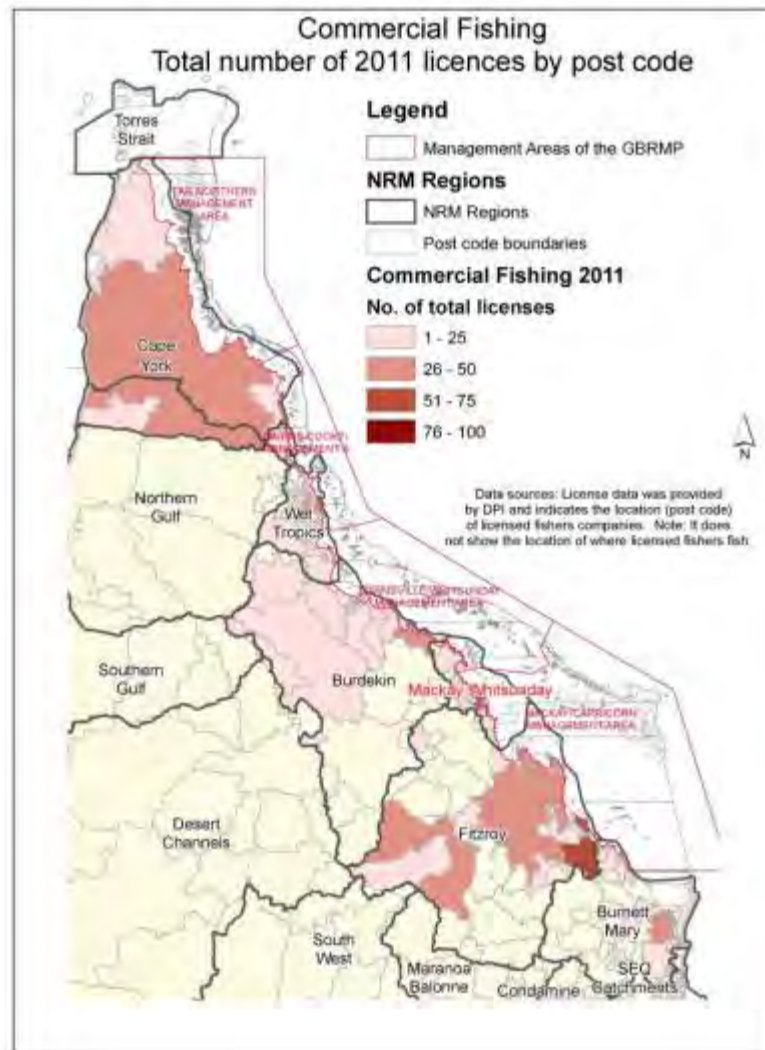
Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%

GBR overall	: xx%
Qld overall	: xx%

Ref: xxx

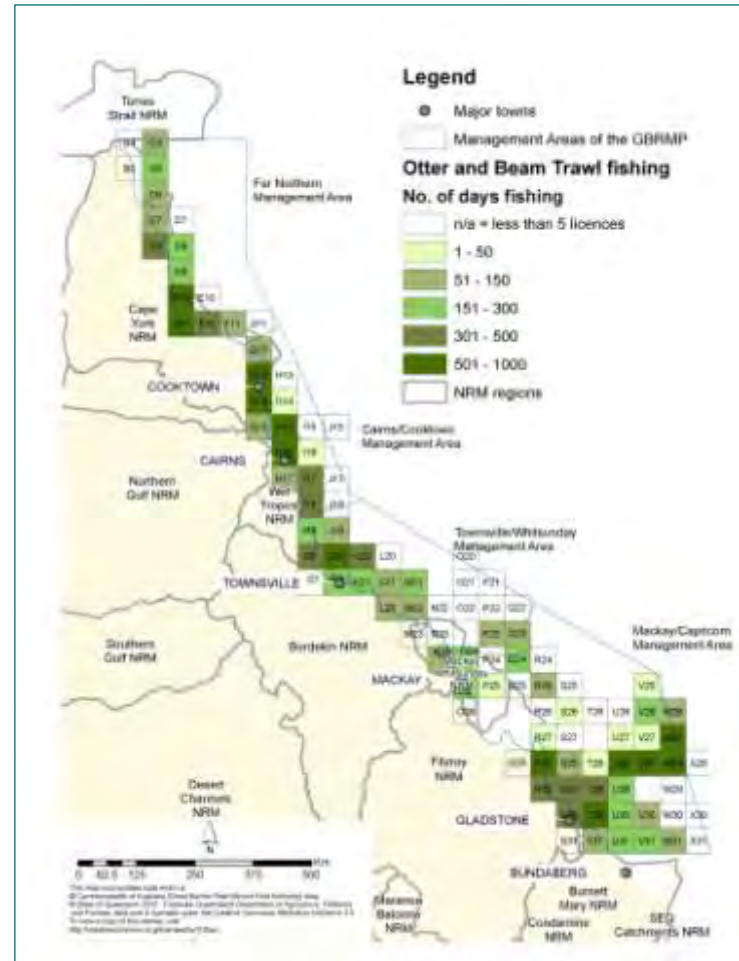
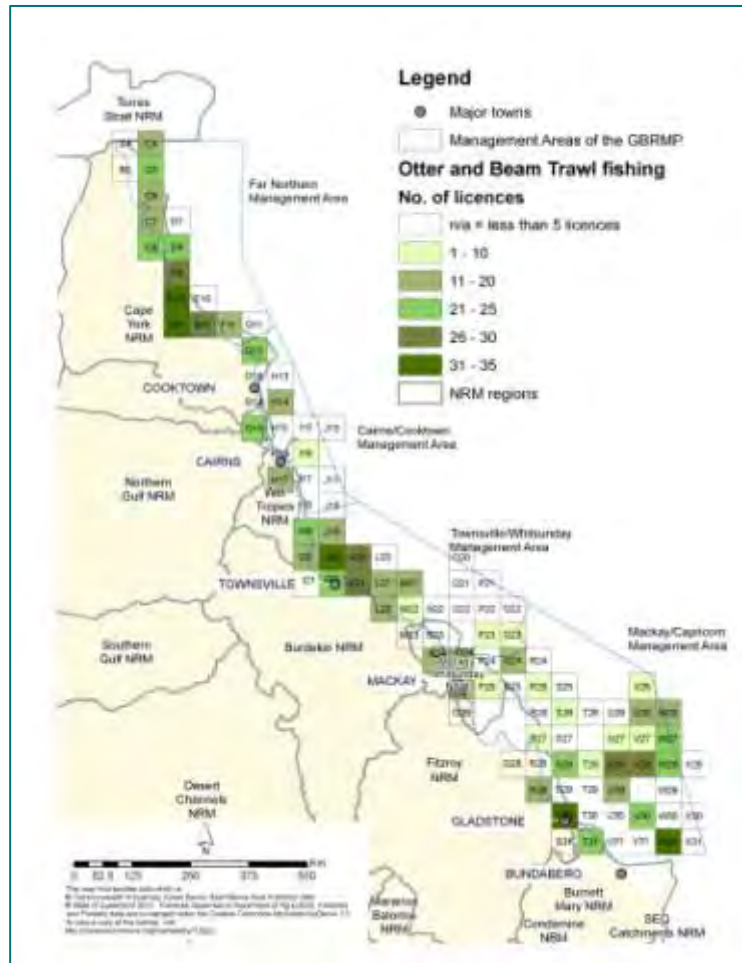
Chapter Nine. Commercial Fishing

Where do commercial fishers come from?



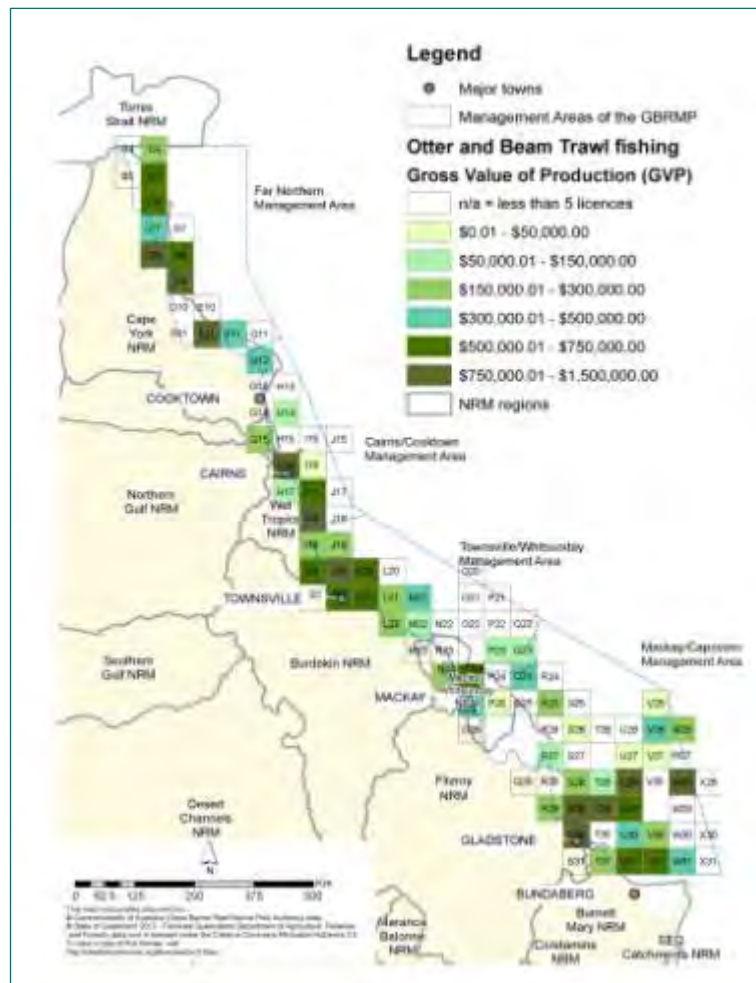
Chapter Nine. Commercial Fishing

Where is important for trawl fishing?



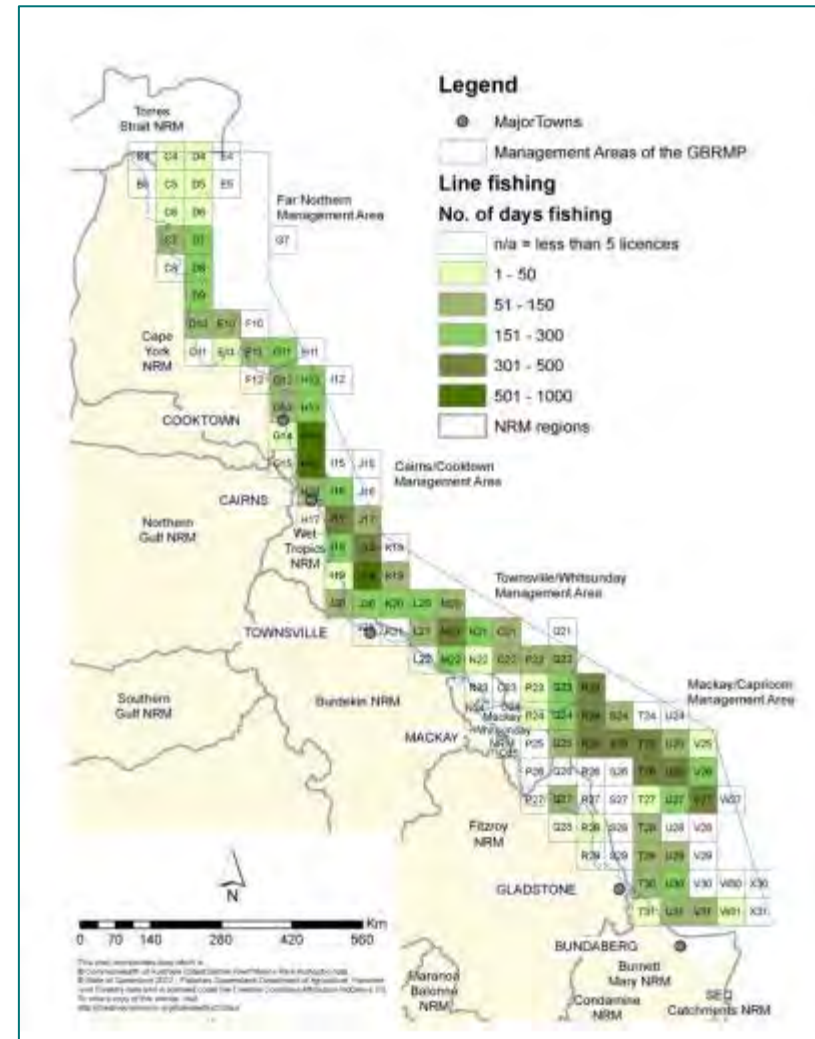
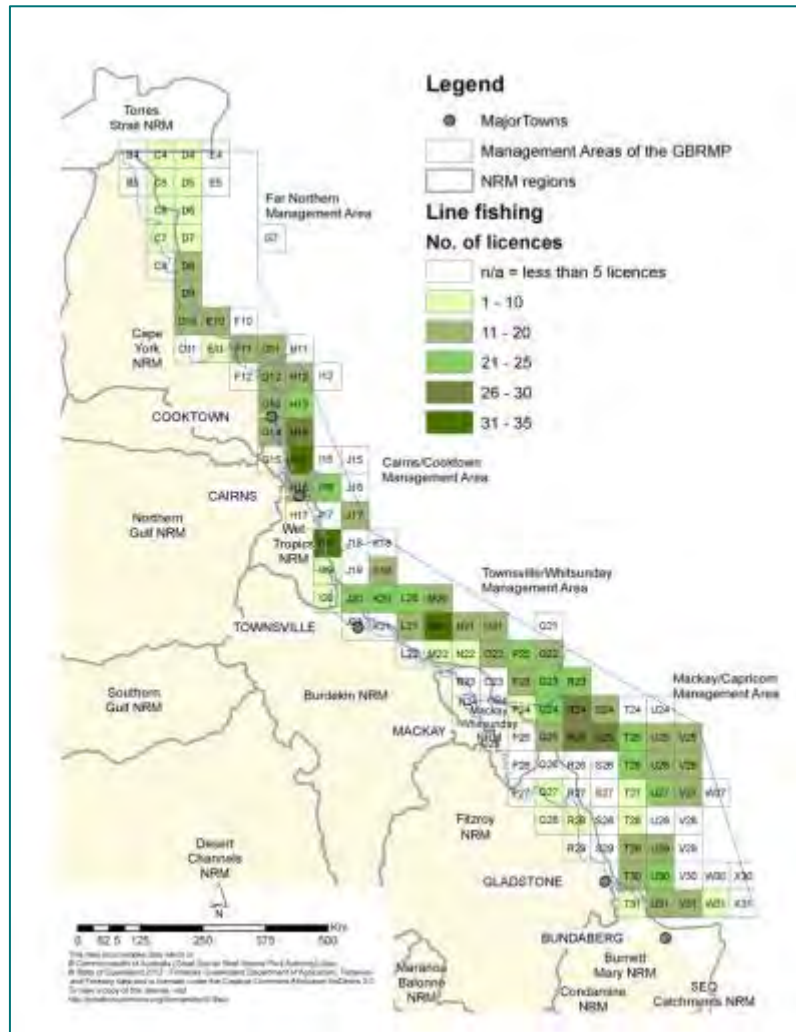
Chapter Nine. Commercial Fishing

Where is important for trawl fishing?



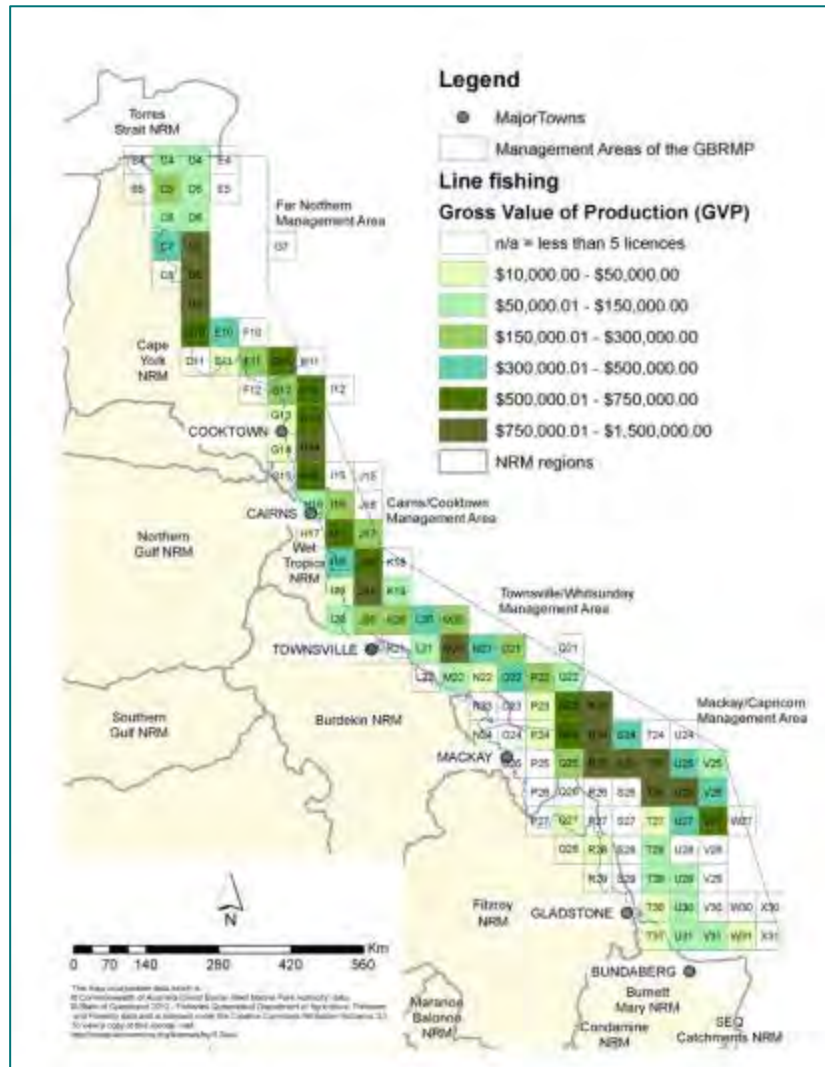
Chapter Nine. Commercial Fishing

Where is important for line fishing?



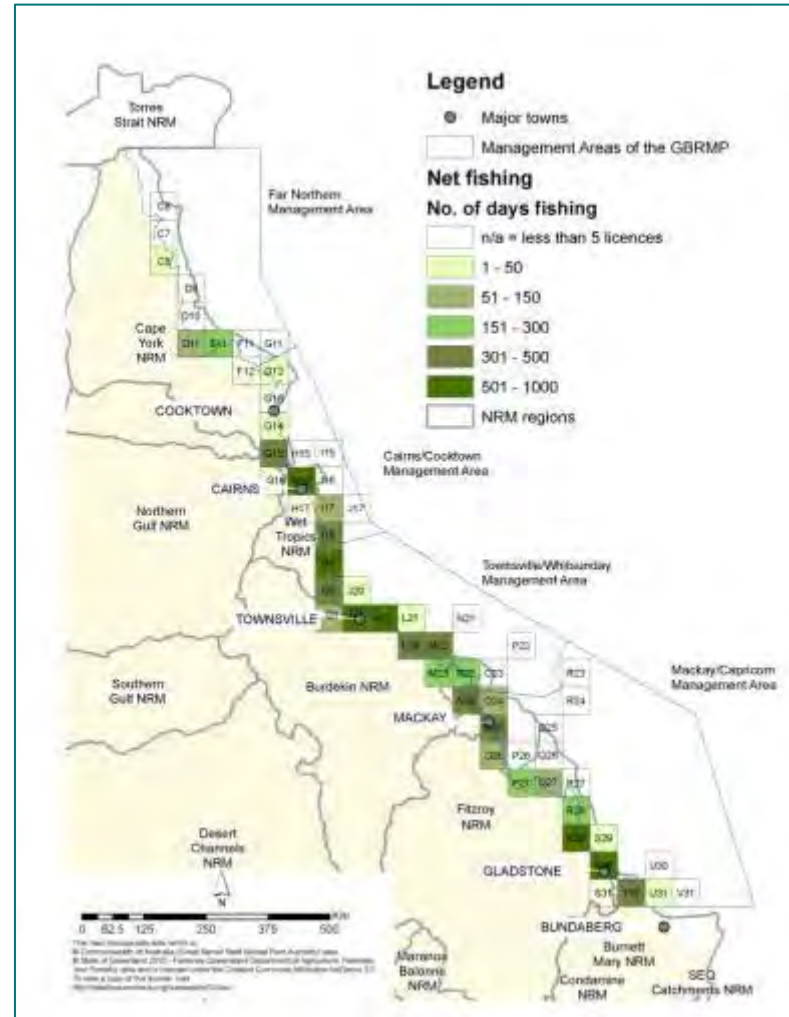
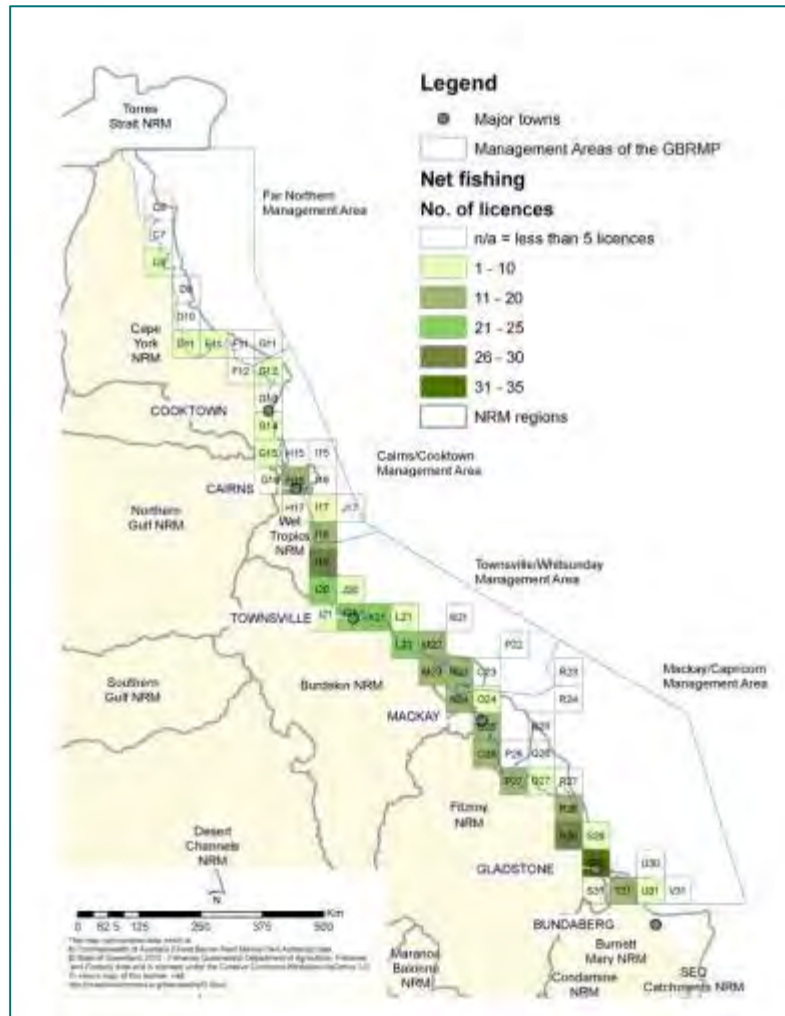
Chapter Nine. Commercial Fishing

Where is it economically important for line fishing?



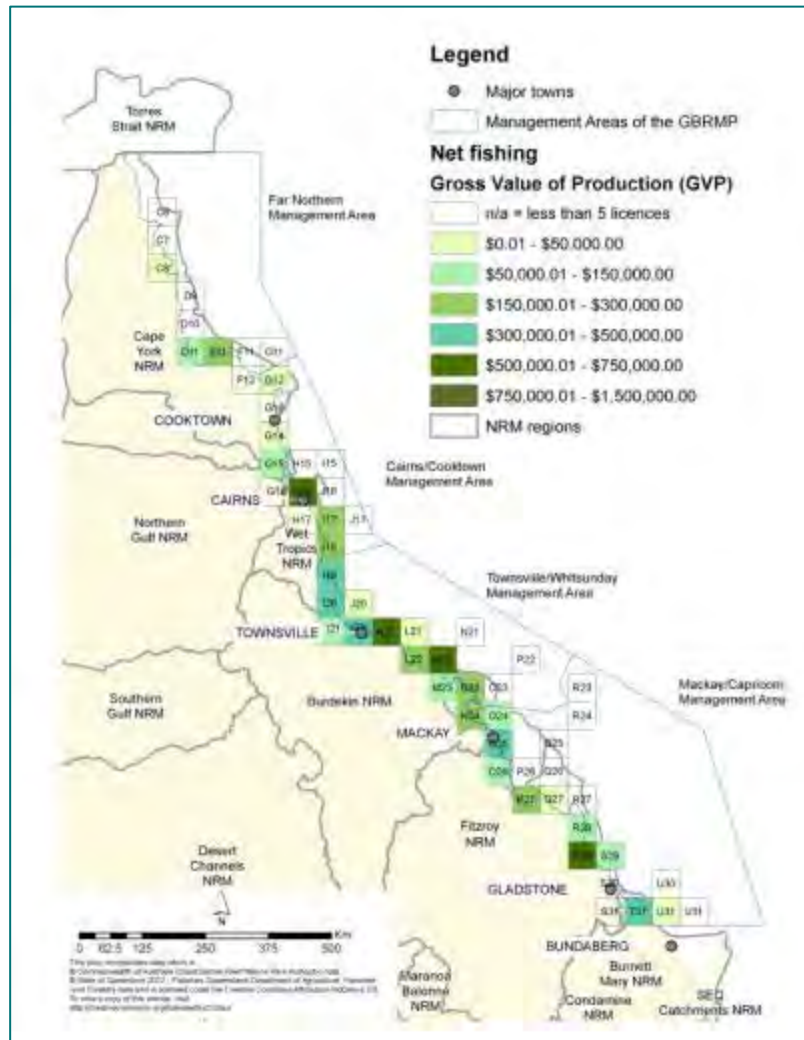
Chapter Nine. Commercial Fishing

Where is important for net fishing?



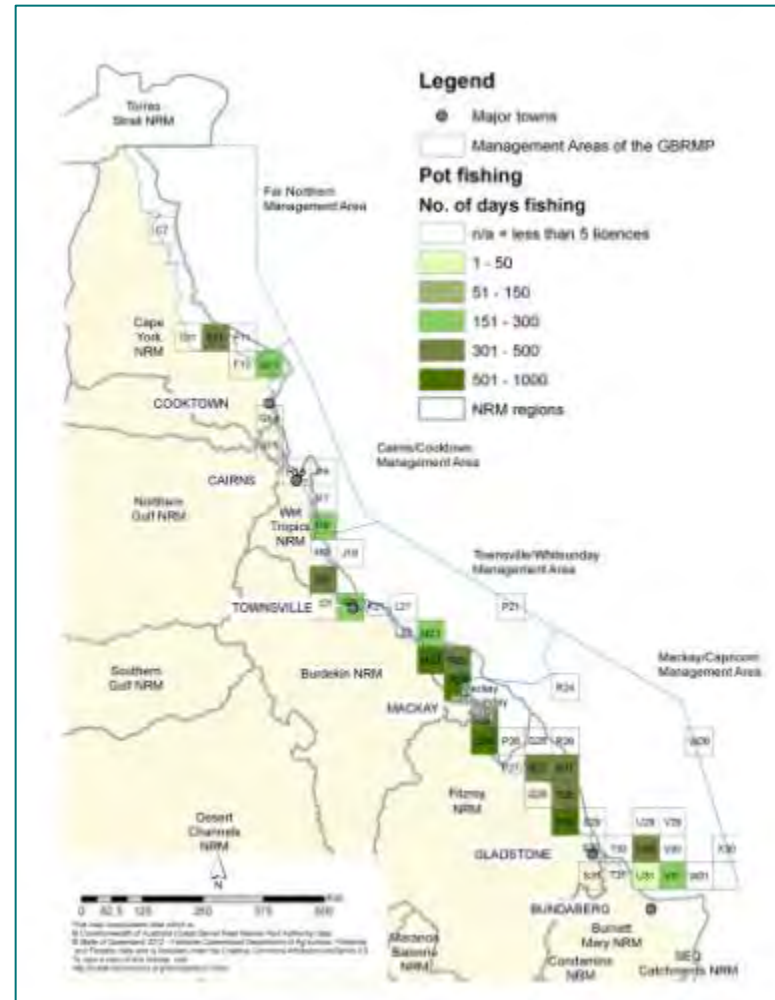
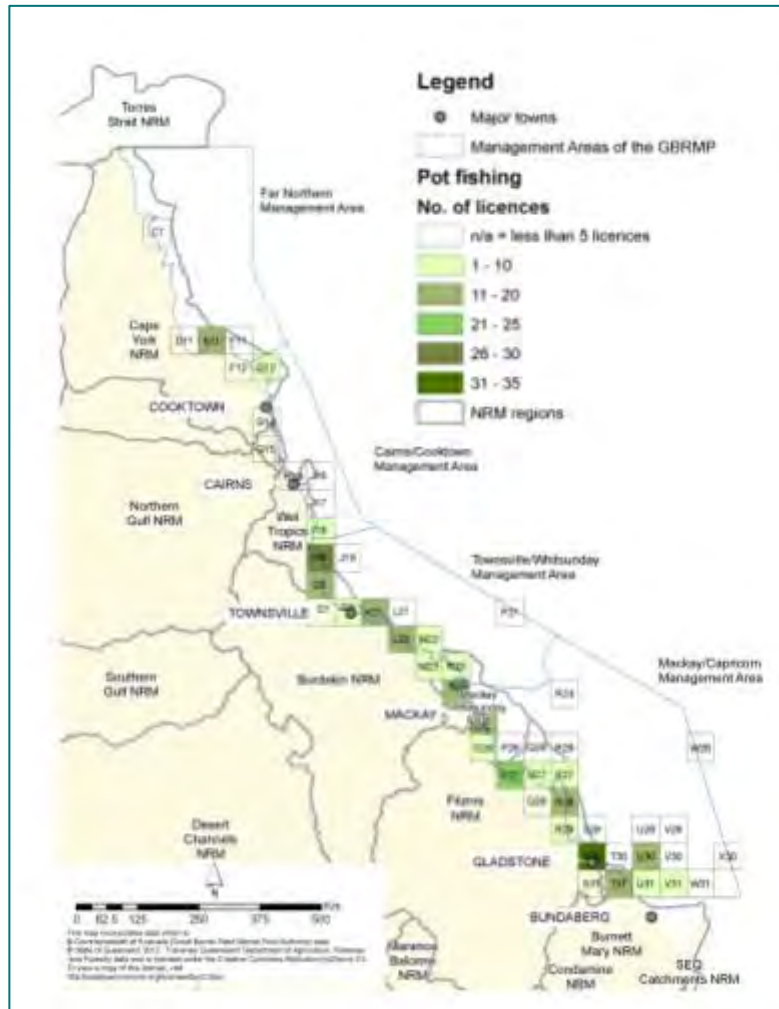
Chapter Nine. Commercial Fishing

Where is important for net fishing?



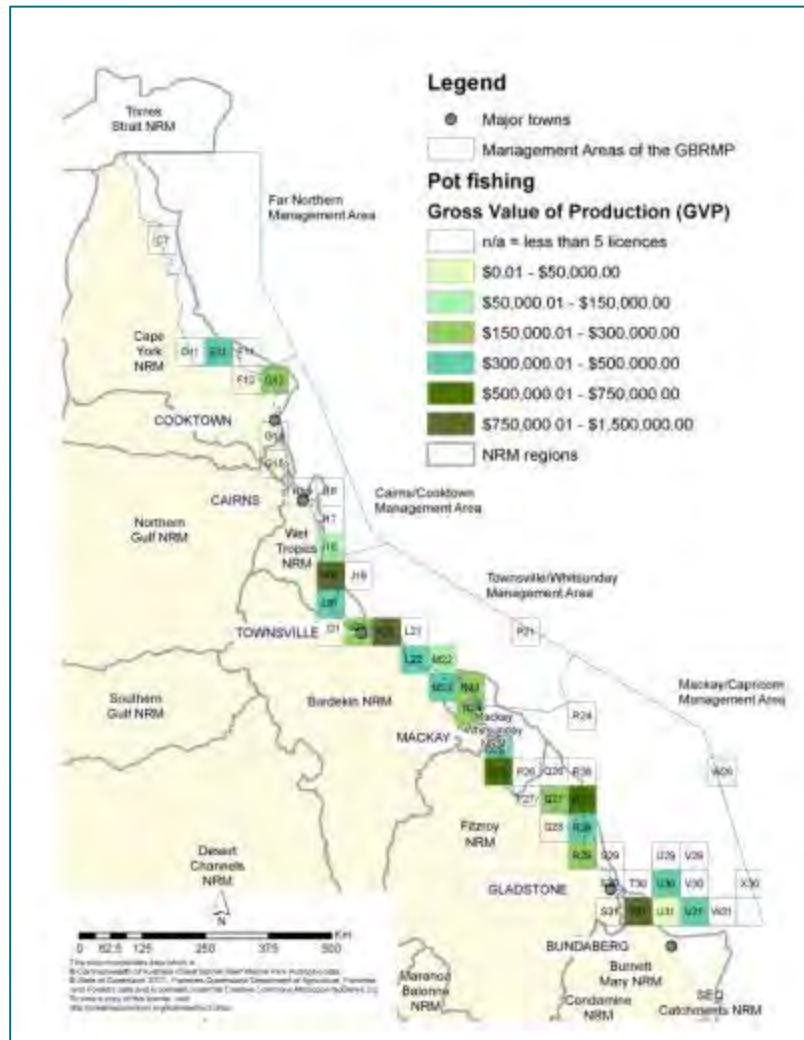
Chapter Nine. Commercial Fishing

Where is important for crab fishing?



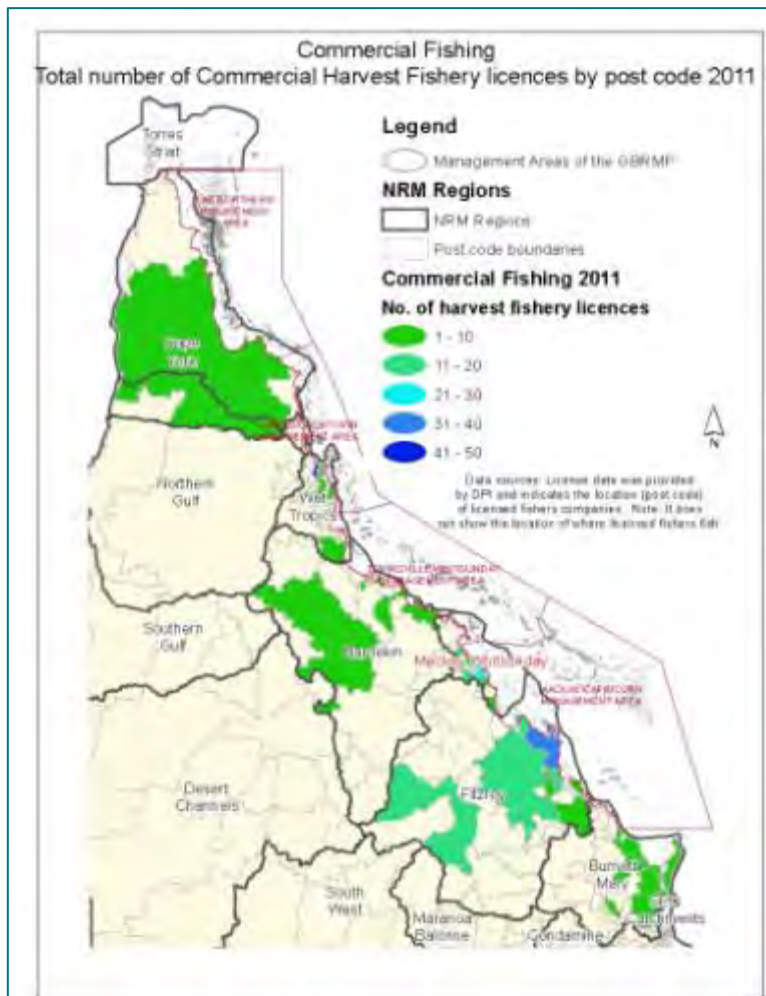
Chapter Nine. Commercial Fishing

Where is important for crab fishing?



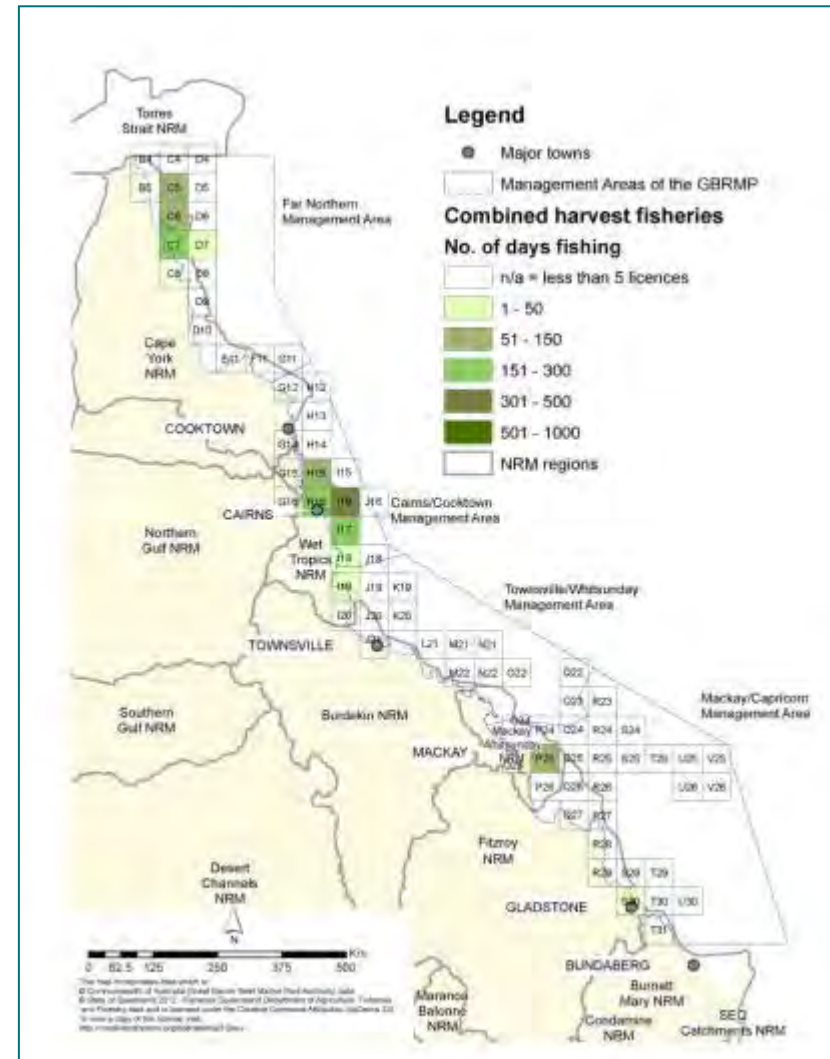
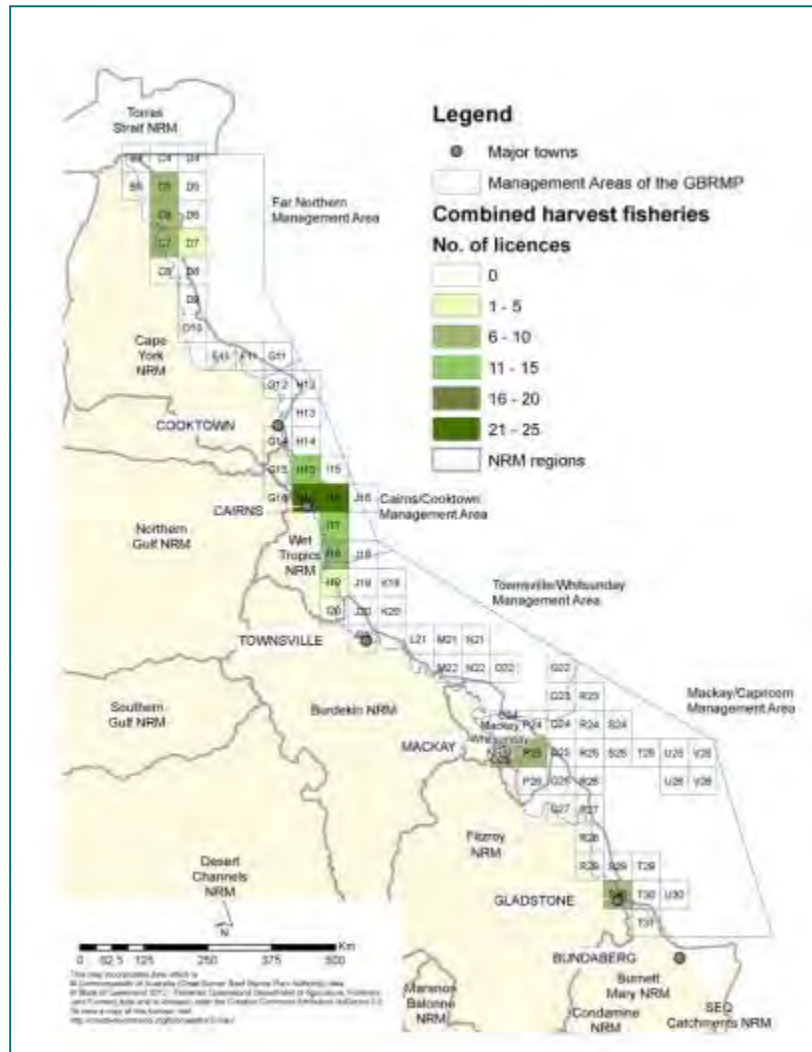
Chapter Nine. Commercial Fishing

Where do harvest fishers come from?



Chapter Nine. Commercial Fishing

Where is important for harvest fishing?



Chapter Nine. Commercial fishers

How far do fishers travel? Patterns of use

Diversity of access points

% fishers using 1 port

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

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

GBR overall	: xx%
Qld overall	: xx%

Distance between multiple ports:

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

Ref: xxx

Distance operating from home port

1-50 km	: 27% of operators
51-100 km	: 27%
101-200 km	: 18%
201-500 km	: 21%
501-1000 km	: 4%
>1000 km	: 3%

Average distance

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

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

GBR overall : 216km*/_ 29

Ref: Marshall and Tobin (2012)*

Roamers vs locals

% operators who fish within 200 km of port:

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

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

GBR overall	: 72%*
Qld overall	: xx%

Ref: xxx

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

Chapter Nine. Commercial Fishing

Where are commercial fishers selling their harvest?

Markets*

Market	Line		Trawl		Net	Pot	Harvest		
	CRFF	SM	Otter	Beam			MAFF	Rock lobster	Bêche-de-mer
Local region	xx%	xx%	xx%	xx%	xx% (62% fishers sell 100% in local LGA) ⁵	xx%	xx%	xx%	xx%
Intrastate	xx%	xx%	xx%	xx%	xx%	xx%	xx%	xx%	xx%
Interstate	xx%	xx%	xx%	xx%	xx%	xx%	xx%	xx%	xx%
Export	95% ¹ CT	~0% ²	xx%	~0% ⁴	xx%	0%	58% ⁹	xx%	xx%
Notes	Most CT exported live. Most RTE and OS sold domestic whole / fillet ¹	Exports negligible ²	Accredited to export to USA ³	Exports negligible ⁴	Export mullet roe, shark & small mackerel. (No estimate). Remainder domestic ⁶	(sold local + interstate) ^{7, 8}		sold as whole live animals or as frozen tails on export & domestic markets ¹⁰	Exports primarily to China ¹¹

Ref: ¹QDAFF (2012a); ²QDAFF (2012b); ³QDAFF (2012c); ⁴DEEDI (2011a); ⁵TobinR et al. (2010); ⁶DEEDI (2011b); ⁷DEEDI (2011c); ⁸DEEDI (2011d); ⁹DEEDI (2010a); ¹⁰DEEDI (2011f); ¹¹DEEDI (2011e)

*Fishery wide information - includes regions outside GBRWHA

Chapter Nine. Commercial Fishing

Where are commercial fishers selling their harvest?

Market types

% sold to wholesale

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

Ref: xxx

Market types

% sold direct to restaurants

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

Ref: xxx

Market types

% sold direct to retail

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

Ref: xxx

Market types

% sold to ... ?

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

Ref: xxx

Chapter Nine. Commercial Fishing

What do commercial fishers do? Harvest and product

of harvest species

Line fishers:	
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: ¹QDAFF (2012a); ²QDAFF (2012b); ³DEEDI (2011a); ⁴QDAFF (2012c); ⁵DEEDI (2011b); ⁶DEEDI (2011c); ⁷DEEDI (2011d); ⁸DEEDI (2011f); ⁹DEEDI (2010a); ¹⁰DEEDI (2011e)

Harvest amount

Line fishers:	: 1787 t ¹
CRFF	: ^1479 t ²
SM	: *278 t ³
Trawl:	
Beam	: 37 t ¹
Otter	: 3602 t ¹
Net	: 1787 t ¹
Pot	: 1012 t ¹
Mudcrab	: *1192t ⁴
Blueswimmer	: *512 t ⁵
Harvest :	
Rocklobster	: 141 t ¹
MAFF	: 78,207 individuals ¹
Bêche-de-mer :	
	1,308,875 individuals ¹
Other	: xx t

GBR overall	: xx
Qld overall	: xx

Ref: ¹Fisheries Qld, unpubl. data (2012); ²QDAFF (2012a); ³QDAFF (2012b); ⁴DEEDI (2011c); ⁵DEEDI (2011d)

Product type

Line fishers:	
CRFFF	
	95% CT sold live
	5% CT sold whole / fillet
	Most RTE & OS sold whole/fillet ¹
Trawl:	
	xx% sold fresh raw
	xx% sold cooked
	other?
Net	
	xx% sold whole
	xx% sold fillet
	other?
Pot	
	xx% sold live
	xx% sold cooked
	xx% sold chilled
Harvest	
Rocklobster	
	xx% sold whole live
	xx% sold as tails

Ref: ¹QDAFF (2012a);

Diversity of product

% of fishers who market >1 product type	
Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%

Ref: xxx

Niche markets

% of fishers wit niche markets	
Line fishers	: xx%
Trawl	: xx%
Net	: xx%
Pot	: xx%
Harvest	: xx%

Ref: xxx

*includes regions outside GBRWHA; ^2010-11 Financial year;

Chapter Nine. Commercial Fishing

How do fishers operate? Activity and use

Vessel length

Average main vessel length

Cape York	: xx m
Wet Tropics	: xx m
Burdekin	: xx m
Mackay Whits	: xx m
Fitzroy Basin	: xx m
Burnett Mary	: xx m

Line fishers	: 13.4m ¹
Trawl	: 15.1m ²
Net	: <7 m for most ³
Pot	: xx m
Harvest	: xx m

GBR overall	: xx m
Qld overall	: xx m

Ref: ¹Sutton et al. (2010);
²Fisheries Qld, unpubl. data
 (2011); ³TobinR et al. (2010);

Age of vessel

Average main vessel age

Cape York	: xx yrs
Wet Tropics	: xx yrs
Burdekin	: xx yrs
Mackay Whits	: xx yrs
Fitzroy Basin	: xx yrs
Burnett Mary	: xx yrs

Line fishers	: xx yrs
Trawl	: xx yrs
Net	: 15 yrs ¹
Pot	: xx yrs
Harvest	: xx yrs

GBR overall	: xx yrs
Qld overall	: xx yrs

Ref: ¹TobinR et al. (2010);

Number of tenders

Average # of tenders

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

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

Tidbit

1 main vessel allowed per
 licence
 Many net / pot fishers operate
 with their “tender” as their
 “main vessel”¹
 Most large line boats (CRFF)
 typically use 5 tenders /
 “dories” from their main
 vessel²

Ref: ¹TobinR et al. (2010); ²TobinA
 et al (2010)

Shore based storage

% business with shore based storage

Cape York	: xx%
Wet Tropics	: xx%
Burdekin	: xx%
Mackay Whits	: 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

Chapter Nine. Commercial Fishing

How do fishers operate? Activity and use

Technology

% fishers with ...

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

% fishers with ...

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

Average years since updating

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

Ref: ¹xxx

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); ³SEWPAC (2010)

Compliance rates

% compliance

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

GBR overall	: xx%
Qld overall	: xx %

Line fishers:

CRFF	: 91% ¹
SM	: 98% ²

Trawl:

Beam	: 94% ³
Otter	: 85% ⁴
Net	: 89% ⁵

Pot:

Mudcrab	: 97% ⁶
Blueswimmer	: 96% ⁷

Harvest

Rocklobster	: 93% ⁸
MAFF	: 100% ⁹
Bêche-de-mer	: 95% ¹⁰
Other	: multiple

Ref: ¹QDAFF (2012a); ²QDAFF (2012b); ³DEEDI (2011a); ⁴QDAFF (2012c); ⁵DEEDI (2011b); ⁶DEEDI (2011c); ⁷DEEDI (2011d); ⁸DEEDI (2011f); ⁹DEEDI (2010a); ¹⁰DEEDI (2011e)

Chapter Nine. Commercial Fishing

What management applies?

New fisheries regulations this year

Nil

Ref: xxx

Red vs green

'red': 'green regulations

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

Ref: xxx

Time spent fulfilling requirements

Line fishers	: xxhrs/wk
Trawl	: xxhrs
Net	: xxhrs
Pot	: xxhrs
Harvest	: xxhrs

GBR overall	: xxhrs/wk
-------------	------------

Ref: xxx

Management fees

New/returning fisher licence fee : \$85.30

licence registration fee : \$257.50

Fishery access fees:

Line:	: \$298.70
CT units	: \$0.31 ea
RTE units	: \$0.15 ea
OS units	: \$0.15 ea
SM units	: \$0.15 ea
Trawl: Beam	: \$298.70 / symbol
Otter units	: \$0.31 ea
Net: N1	: \$298.70
N2	: \$597.40
Pot	: \$298.70
Harvest : MAFF	: \$298.70
Rocklobster units	: \$0.31 ea
BDM units	: \$10.30ea
Other	: various

http://www.daff.qld.gov.au/28_15468.htm

Ref: QDAFF (2012e)

Investment warnings

Current warnings present?

Line fishery	: No
Trawl	: No
Net	: No
Pot	: Yes (mud and swimmer)
Harvest	: No

Ref: QDAFF (2012f)

Input vs output

Input:Output control ratio

Line fishery:	
CRFF	: xx:xx
SM	: xx:xx
Trawl:	
Beam	: xx:xx
Otter	: xx:xx
Net	: xx:xx
Pot	: xx:xx
Harvest	: xx:xx

Ref: xxx

Complexity

% fishers who think regulations easy to understand:

Line fishers	: xx%
Trawl	: xx%
Net	: 36%
Pot	: xx%
Harvest	: xx%

Ref: TobinR et al. (2010)

Chapter Nine. Commercial Fishing

What accreditations do they have?

Export certification

Approval expiry date

Line fishers:

CRFF : 03/05/13

SM : 14/07/17

Trawl:

Beam : 10/04/15

Otter : 27/11/13

Net : 27/02/15

Pot:

Mudcrab : 23/11/12

Blueswimmer :

14/10/15

Harvest

Rocklobster : 17/12/15

MAFF : 21/11/14

Bêche-de-mer :

17/07/14

Other : multiple

Ref: SEWPaC (2012)

Green labelling

% of fishers utilising 'green' labels

Line fishery : 0

Trawl : 0

Net : 0

Pot : 0

Harvest : 0

Tidbit

There is no official "green" labeling in use. However the QSiA is 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: ¹TobinR et al. (2010); ²QDAFF (2012c)

MOUs

% fisher who have signed

Line fishers : xx%

Trawl : xx%

Net : xx%

Pot : xx%

Harvest : xx%

GBR overall : xx%

Qld overall : xx%

Ref: xxx

Code of Conduct

% fisher who have signed

Line fishers : xx%

Trawl : xx%

Net : xx%

Pot : xx%

Harvest : xx%

GBR overall : xx%

Qld overall : xx%

Ref: xxx

Biosecurity

Issues arising this year:

Nil

% fishers concerned:

Line fishers : xx%

Trawl : xx%

Net : xx%

Pot : xx%

Harvest : xx%

Tidbit

Renewed commitment to biosecurity by Australian Government¹

Biosecurity reform commenced in 2011.²

Ref: ¹DAFF (2011a); ²DAFF (2011b)

Chapter Nine. Commercial Fishing

When do commercial fishers use the Great Barrier Reef?

Months per year by region

Chapter Nine. Commercial Fishing

When do commercial fishers use the Great Barrier Reef?

Months per year by type

Chapter Nine. Commercial Fishing

When do commercial fishers use the Great Barrier Reef?

Total effort days

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

Line fishers	: 13,773
Trawl:	
Beam	: 465
Otter	: 18,321
Net	: 9,380
Pot	: 20,814
Harvest :	
Rocklobster	: 542
MAFF	: 484
BDM	: 484
Other	: xx

GBR overall : xx

Ref: ¹Fisheries Qld, unpul. data (2012)

Average effort days per licence

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

Line fishers	: 42
Trawl:	
Beam	: 26
Otter	: 93
Net	: 42
Pot	: 98
Harvest :	
Rocklobster	: 77
MAFF	: 29
BDM	: 81
Other	: xx

GBR overall : xx

Ref: ¹Fisheries Qld, unpul. data (2012)

Average trip length (days)

Per licence	
Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Line fishers	: 42
Trawl:	
Beam	: 26
Otter	: 93
Net	: 42
Pot	: 98
Harvest :	
Rocklobster	: 77
MAFF	: 29
BDM	: 81
Other	: xx

GBR overall : xx

Ref: ¹Fisheries Qld, unpul. data (2012)

Chapter Nine. Commercial Fishing

When is best to sell their product?

Seasonality of price by type

Chapter Nine. Commercial Fishing

Who are the commercial fishers in the GBR? – Well-being

Divorce rate

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

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

GBR overall	: xx
Qld overall	: xx

Qld populaton : 9.1%¹

Ref: ¹ABS (2012)

Suicide rate

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

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

GBR overall	: xx
Qld overall	: xx

Qld populaton : xx%

Ref: xxx

OH&S - accidents

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

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

GBR overall	: 57
Qld overall	: xx

Qld-wide work related accidents : xx

Ref: TobinR et al. (2010)

OH&S - fatalities

Cape York	: xx
Wet Tropics	: xx
Burdekin	: xx
Mackay Whits	: xx
Fitzroy Basin	: xx
Burnett Mary	: 1*

Line fishers	: xx
Trawl	: xx
Net	: 1*
Pot	: xx
Harvest	: xx

GBR overall	: 1*
Qld overall	: xx

Qld-wide work related fatalities : 17

Ref: WHSQ (2011)

*This is the one event, repeated here in different categories.

Chapter Nine. Commercial Fishing

What is their level of well-being?

Perceived security in industry

% feel secure in 3 years time

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

GBR overall : xx%

Ref: ¹xxx

Factor...

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

GBR overall : xx%

Ref: ¹xxx

Factor ...

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

GBR overall : xx%

Ref: ¹xxx

Factor ...

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

GBR overall : xx%

Ref: ¹xxx

Satisfaction with fishing

% satisfied with fishing as current occupation

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

GBR overall : xx%

Ref: ¹xxx

Factor ...

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

GBR overall : xx%

Ref: ¹xxx

Factor ...

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

GBR overall : xx%

Ref: ¹xxx

Factor ...

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

GBR overall : xx%

Ref: ¹xxx

Chapter Nine. Commercial Fishing

Indirect drivers of change for commercial fishing

Economic drivers

Changes to international market price

Key changes:

- Lower price for coral trout exports (anecdotal)

Fisheries impacted:

- Line

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

Changes to domestic market price

Key changes:

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

Fisheries impacted:

- Line, net, trawl

Key impacts:

- No data

Public perception

Negative image of Australian seafood industry

Key information:

- 73% GBR consumers concerned about long-term sustainability of commercial fisheries¹
- 26% Australians believe Australia commercial fishing industry was not sustainable; 37% not sure²

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 industry²

Consumer demand

Key information:

- Despite concerns about sustainability, 91% of GBR coastal consumers prefer to buy Qld caught seafood¹
- 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 product¹
- and 61% believe it is too expensive to buy as often as they would like¹

Key impacts:

- Actual demand affected by price in market dominated by cheap imports
- Labelling important

Ref: ¹Ridge Partners (2010)

Ref: ¹Tobin et al. (2010b); ²Sparks (2011); ³Ridge Partners (2010)

Chapter Nine. Commercial Fishing

Direct drivers of change for commercial fishing

Extreme weather events

Cyclone Yasi (Category 5)
February 3rd, 2011^{1,2}

NRMs impacted:
Wet Tropics and Burdekin

% fishers impacted in these
NRMS : 81%¹

Key impacts:

- Decreased catch rate
- Inability to fish
- Vessel damage / loss
- Habitat damage
- Fishing gear loss
- Debris in water (access / ability to operate nets)
- Freshwater influx / turbidity¹

Changes made:

- Expanded / changed area
- Stopped temporarily
- Less frequent operation
- Improved preparation¹

Queensland floods
January 2011^{1,2}

NRMS impacted:
Burdekin, Mackay Whitsundays,
Fitzroy Basin, and Burnett Mary

% fishers impacted in these
NRMS : 78%¹

Key impacts:

- Decreased catch rate
- Inability to fish
- Freshwater influx / turbidity
- Loss of fishing access (road / waterways blocked)
- Market access blocked (roads)¹

Changes made:

- Expanded / changed area
- Considered exiting
- Stopped temporarily
- Improved preparation¹

Ref: ¹Marshall and Tobin (2012); ²Gooch et al. (2012)

Resource access

Gladstone Port development

NRMs impacted:
Fitzroy and Burnett Bary

Fisheries impacted:
Primarily net. Also line, pot

Key impacts:

- Physical loss of access to net and pot fishing areas surrounding construction and dredging area
- Water quality issues potentially affecting fish health
- Water turbidity affecting ability of live coral trout vessels to utilise water close to port
- Anecdotal evidence of influence on fishing effort and harvest

Ref: anecdotal / media based. No published reports

Chapter Nine. Commercial Fishing

Wellbeing: Opportunities

Direct employment in industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 58%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Contribution to livelihoods

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 63%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Satisfaction with income generation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 42%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Maintenance of access and use

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : \$166,500

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Development of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 97% are both

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Economic contribution of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 78% do not employ crew

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Payment for environmental services

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 38%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Skills & programs to contribute to management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 70%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Nine. Commercial Fishing

Wellbeing: Empowerment

Contribution to management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 58%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Integration of knowledge into management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 63%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Partnerships

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 42%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Effective models for management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : \$166,500

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Promotion of respect

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 97% are both

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Transparent policies and actions

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 78% do not employ crew

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Clear legal obligations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 38%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Perceptions of equity

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 70%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Nine. Commercial Fishing

Wellbeing: Empowerment

Knowledge of fishery

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 58%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Activities for promoting stewardship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 63%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Freedom of choice to act

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 42%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Culture incorporated into management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : \$166,500

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Promotion of respect

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 97% are both

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR): 78% do not employ crew

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 38%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : 70%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Nine. Commercial Fishing

Wellbeing: Security

Overall quality of life

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Perceived health

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Belongingness to industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Social cohesion

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) :

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Quality of relationships

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Health of GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Perceived GBR diversity and abundance

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Cultural connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Chapter Nine. Commercial Fishing

Wellbeing: Security

Sustainability of industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : %

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Food provisioning

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Management effectiveness

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Climate change mitigation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) :

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Climate change adaptation efforts

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Buffer to natural disasters

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR):

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Perceived water quality

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

Spiritual connection

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

TOTAL (GBR) : xx%

Reference: Tobin RC, Beggs K, Sutton SG, Penny A, Maroske J, Williams L (2010).

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Chapter Ten. Aquaculture

With rising populations and increasing demand for seafood globally, aquaculture production is considered vital to ensure ongoing seafood supply now and into the future, both on local and global markets. With a value of production of \$86.3 million in 2010-11, Queensland's aquaculture farms currently produce 31% of Queensland's overall seafood production. Queensland production is dominated by prawns, followed by and barramundi, both in quantity produced and resulting value. Some aquaculture farms produce hatchlings for other farms, fish for aquaria, or fingerlings for restocking impoundments. Aquaculture produced seafood is sold on both local and export markets (Wingfield, 2012), depending on the species and product.

The industry directly employs almost 580 FTE employees, although information about farmers, employees and secondary employment is currently lacking. Information about impacts on the industry and their capacity to cope with change is also scarce. What is known is that in 2011 the Queensland aquaculture industry was severely impacted by Cyclone Yasi in the north of the state and the Brisbane floods in the south. This reduced overall production in the affected areas. Fisheries Queensland's "Report to Farmers", however, states that the industry performed remarkably well under such challenging circumstances and still achieved high production: "2010-11 as the second most productive year ever" (Wingfield, 2012).

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Place based factors

Years RESIDENT in GBR region

0-1 year	: xx% of farmers
2-5 years	: xx%
6-10 years	: xx%
10-20 years	: xx%
>20 years	: xx%

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld population avg years residency in Qld	: xx

Ref: xxxx

Region of origin

GBR region	: xx%
Qld elsewhere	: xx%
Interstate	: xx%
Overseas	: xx%

Ref: xxxx

Family history

% > 1st generation farmers

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx +/- xx
Qld overall	: xx +/- xx

Ref: xxxx

Years in industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx +/- xx
Qld overall	: xx +/- xx

Ref: xxxx

Chapter Ten. Aquaculture

Who are the aquaculture farmers? Identity and place based factors

Motivations

% lifestyle vs % profit oriented

Cape York	: xx:xx%
Terrain FNQ	: xx:xx%
Burdekin	: xx:xx%
Mackay-Whit	: xx:xx%
Fitzroy Basin	: xx:xx%
Burnett Mary	: xx:xx%

Prawns	: xx%
Barramundi	: xx%
Redclaw	: xx%
Freshwater fish	: xx%
Hatchery and aquarium	: xx%
Oysters (edible)	: xx%
Eels	: xx%
Pearl	: xx %

GBR overall	: xx%
Qld overall	: xx%

Ref: xxx

Identity

% who strongly identify themselves as “fish farmers”

Cape York	: xx%
Terrain FNQ	: xx%
Burdekin	: xx%
Mackay-Whit	: xx%
Fitzroy Basin	: xx%
Burnett Mary	: xx %

Prawns	: xx%
Barramundi	: xx%
Redclaw	: xx%
Freshwater fish	: xx%
Hatchery and aquarium	: xx%
Oysters (edible)	: xx%
Eels	: xx%
Pearl	: xx %

GBR overall	: xx%
Qld overall	: xx%

Ref: xxx

Dependency

See earlier indicators:

- Age
- Years industry experience
- Education
- Prior employment
- HH income dependency
- Family structure

Attachment to place

See earlier indicators:

- Residency
- Years in region
- Family structure
- Age

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Identity based factors

Previous occupation

% with prior external work experience

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Preferred industry

% likely to remain in next 3 years

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx +/- xx
Qld overall	: xx +/- xx

Ref: xxxx

Preferred industry

% who state aquaculture is industry of choice

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Preferred industry

% likely to recommend industry to others

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Human capital

Gender

% male

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx +/- xx
Qld overall	: xx +/- xx
Qld population	: xx +/- xx

Ref: xxxx

Age

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx +/- xx
Qld overall	: xx +/- xx
Qld population	: xx +/- xx

Ref: xxxx

Partners

% with partners

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld population	: xx

Ref: xxx

Dependents

% with dependents

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld population	: xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Human capital factors

New entrants (0-5 yrs)

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Diversity of income - household

% HOUSEHOLD (HH) income from farming

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxxx

Education

% with > high school education

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx
Qld population	: xx

Ref: xxx

Other training

% with other training

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
-------------	------

Dominant training type:

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Adaptive capacity

Planned financial buffer

Prawns	: xx%
Barramundi	: xx%
Redclaw	: xx%
Freshwater fish	: xx%
Hatchery and	
aquarium	: xx%
Oysters (edible)	: xx%
Eels	: xx%
Pearl	: xx %

GBR overall	: xx%
Qld overall	: xx%
Qld population	: xx%

Average amount: \$xx+/_ xx

Ref: xxxx

Income protection

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and	
aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Qld population : xx

Average value : \$xx +/_ xx

Ref: xxx

Infrastructure insurance

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and	
aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Qld population : xx

Average value : \$xx +/_ xx

Ref: xxx

Government support

% who received support

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and	
aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Amount available : \$xx
Avg amount received per farmer : \$xx
Main reason:

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Social capital factors

Informal networks

% who actively network with other farmers

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Formal networks

% who actively network with management agencies / representative bodies

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Membership of peak bodies

% members

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Reef Guardian members

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Business approach

Formal business plan

% with formal plan

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Business plan review

Avg years since reviewed

Never	: xx% of businesses
1-2 years	: xx%
2-5 years	: xx%
>5 years	: xx%

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Investment in training

% businesses which provide training

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Avg amount spent on training per business

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Working condition policies

% that utilise OH&S policies

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Chapter Ten. Aquaculture

What is the value of aquaculture?

Value at farmgate*

Far Northern	: \$19.4m ¹
Northern	: \$34.7m ¹
Mackay	: \$8m ¹
Fitzroy	: \$0.3m ¹
Wide Bay	: \$7.2m ¹

Prawns	: \$56.9m ^{1^A}
Barramundi	: \$21.1m ^{1^A}
Redclaw	: \$0.9m ^{1^A}
Freshwater fish:	\$2.2m ^{1^A}
Hatchery and aquarium	: \$3.1m ^{1^A}
Oysters (edible):	\$0.5m ^{1^A}
Eels	: \$839m ^{1^A}
Pearl	: na

GBR overall	: \$69.6m
Qld overall	: \$86.3m

% of Qld fisheries production	: 30.6% ¹
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Ref: ¹Wingfield 2012

Production (tonnes)*

Far Northern	: 2115 ¹
Northern	: 2890 ¹
Mackay	: 501 ¹
Fitzroy	: 2 ¹
Wide Bay	: 425 ¹

Prawns	: 3822 ^{1^A}
Barramundi	: 2746 ^{1^A}
Redclaw	: 52 ^{1^A}
Freshwater fish	: 177 ^{1^A}
Hatchery and aquarium	: 9.85m fish ^{1^A}
Oysters (edible)	: 90,000 dozen ^{1^A}
Eels	: 63.3 ^{1^A}
Pearl	: xx

GBR overall	: 5933
Qld overall	: 6898

Ref: ¹Wingfield 2012

Average price (\$/kg)

Prawns	: \$14.54 ^{1^A}
Barramundi	: \$7.70 ^{1^A}
Redclaw	: \$17.58 ^{1^A}
Freshwater fish:	xx
Hatchery and aquarium	: xx
Oysters (edible)	: \$5.25/ dozen ¹
Eels	: \$13.28
Pearl	: xx

Ref: ¹Wingfield 2012

Average yields(kg/ha/crop)

Prawns	: 5803 ^{1^A}
Barramundi	: xx
Redclaw	: xx
Freshwater fish:	xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: ¹Wingfield 2012

Farm sale price (avg \$/ha)

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxx

Farm lease price (avg \$/ha)

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxx

*Note change of regions to fit Fisheries Qld reporting for this year. To rectify in following versions. ^Qld-wide data.

Chapter Ten. Aquaculture

What is the value of aquaculture?

Revenue

Avg revenue per year

Cape York	: \$xx
Terrain FNQ	: \$xx
Burdekin	: \$xx
Mackay-Whit	: \$xx
Fitzroy Basin	: \$xx
Burnett Mary	: \$xx

Prawns	: \$xx
Barramundi	: \$xx
Redclaw	: \$xx
Freshwater fish	: \$xx
Hatchery and aquarium	: \$xx
Oysters (edible)	: \$xx
Eels	: \$xx
Pearl	: \$xx

GBR Total	: \$xx
QLD Total	: \$xx

Ref: Wingfield and Willett 2011

Cost of production

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Average	: xx
Range	: xx-xx

Ref: Wingfield and Willett 2011

Profit-loss

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Average	: xx
Range	: xx-xx

Ref: Wingfield and Willett 2011

Chapter Ten. Aquaculture

What is the value of aquaculture?

Diversity of species

% farms which produce 1 species

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Diversity of species

% farms which produce 2-5 species

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Diversity of species

% farms which produce >5 species

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Diversity of product type

% hatchery to % grow-out

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% grow-out sold whole

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxx

Chapter Ten. Aquaculture

How does aquaculture operate? Investment

Age of Infrastructure

Avg age of equipment

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Infrastructure maintenance

Avg yrs since equipment was upgraded

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Investment in farm

Avg \$/ha investment

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Research and development

\$ invested by industry

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

\$ invested by FRDC

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Chapter Ten. Aquaculture

How does aquaculture operate? Investment

Technology

% with newly adopted technology

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Avg yrs since last upgraded

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxx

Farming methods - ponds

farms using ponds

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: 27 ^{1^}
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: ¹Wingfield 2012

Farming methods - tanks

farms using tanks

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: 3 ^{1^}
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: 1 ^{1^}
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: ¹Wingfield 2012

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Size and structure

How many farms with permits?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:521 ¹

Ref: ¹Wingfield 2012

Prawn farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:71 ^{1^}
# active	: 20 ^{1^}

Ref: ¹Wingfield 2012

Barramundi farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:305 ^{1^}
# active	: 30 ^{1^}

Ref: ¹Wingfield 2012

Redclaw farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:199 ^{1^}
# active	: 28 ^{1^}

Ref: ¹Wingfield 2012

Freshwater fish farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:273
# active	: 15
growout, 14 hatcheries ^{1^}	

Ref: ¹Wingfield 2012

Hatchery and aquarium farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:?
# active	: ?

Ref: Wingfield and Willett 2011

Oyster (edible) farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:98 ^{1^}
# active	: 26 ^{1^}

Ref: ¹Wingfield 2012;

Eel farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	:44 ^{1^}
# active	: 7 ^{1^}

Ref: ¹Wingfield 2012;

*Most data is Queensland-wide. Anything from pre-2011 is in grey.. ^ Qld-wide

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Size and structure

Pearl farms

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
GBR Total	: xx
QLD Total	: ?
# active	: 3 ^{1^}

Ref: ¹Wingfield 2012

active farms per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Average	: xx
Range	: xx

Ref: xxx

Business duration

0-1 year	: xx% of businesses
2-5 years	: xx%
6-10 years	: xx%
10-20 years	: xx%
>20 years	: xx%

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Size and structure

Staff employed

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: 221 perm., 216,600 cas. hrs ^{1^}
Barramundi	: 72 perm., 39,700 cas hrs ^{1^}
Redclaw	: 21 perm., 1,300 cas. hrs ^{1^}
Freshwater fish	: 14 perm, 8,270 cas. hrs ^{1^}
Hatchery and aquarium	: 46 perm., 16,100 cas hrs
Oysters (edible)	: 20.8 perm., 3,533 cas hrs ^{1^}
Eels	: 8.5 perm., 980 cas hrs ^{1^}
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: ¹Wingfield 2012

FTE employed*

Far Northern	: 131 ^{1^}
Northern	: 230 ^{1^}
Mackay	: 41 ^{1^}
Fitzroy	: 8 ^{1^}
Wide Bay	: 56 ^{1^}

Prawns	: 334 ^{1^}
Barramundi	: 92 ^{1^}
Redclaw	: 22 ^{1^}
Freshwater fish	: 18.5 ^{1^}
Hatchery and aquarium	: 55 ^{1^}
Oysters (edible)	: 22.6 ^{1^}
Eels	: 9 ^{1^}
Pearl	: xx

GBR overall	: 466
QLD overall	: 579

Ref: ¹Wingfield 2012

Proportion employed at each level

Investor

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Owner

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Manager

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Scientist

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

'Monkey'

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

TOTAL

Investor	: xx
Owner	: xx
Manager	: xx
Scientist	: xx
'Monkey'	: xx

Ref: xxx

*Note change of regions to fit Fisheries Qld reporting for this year. To rectify in following versions. ^Qld-wide data

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Size and structure

Working hours

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	:xx
QLD Total	: xx
Qld populaton average working hours	: xxhr/wk

Average	: xx
Range	: xx-xx

Ref: xxx

Pay structures

% on award rate	
Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

% on EBAs	
Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxxx

Wages relative to other sectors

Average wage per week

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

XX% of National avg
XX% of Qld average

Ref: xxx

Staff turnover

FT / casual staff lost per year

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Size and structure

Staff retention

Avg staff employment duration (yrs)

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Indirect employment

staff in secondary businesses

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Ref: xxx

Family involvement

% with direct family involvement

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxxx

Partner support

% with support from partner

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxxx

Chapter Ten. Aquaculture

How does aquaculture operate?

Farming methods - cages

farms using cages

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Farming methods

farms using >1 method

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Pond vs tank production

Kg/ha pond production vs kg/ha tank production

Prawns	: xx:xx
Barramundi	: xx:xx
Redclaw	: xx:xx
Freshwater fish	: xx:xx
Hatchery and aquarium	: xx:xx
Oysters (edible)	: xx:xx
Eels	: xx:xx
Pearl	: xx :xx

GBR overall	: xx:xx
Qld overall	: xx:xx

Ref: xxx

Hatchery only

% hatchery only

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Chapter Ten. Aquaculture

How does aquaculture operate?

Growout only

% growout only

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Combined hatchery and growout

% combined

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Total farmed area

Area farmed (ha) ; # tanks

Prawns	: 827 ha
Barramundi	: 180 ha; xx tanks
Redclaw	: 56 ha
Freshwater fish	: xx:xx
Hatchery and aquarium	: xx:xx
Oysters (edible)	: xx:xx
Eels	: xx:xx
Pearl	: xx :xx

GBR overall	: xx:xx
Qld overall	: xx:xx

Ref: Wingfield and Willett 2011

Chapter Ten. Aquaculture

Where does aquaculture operate?

Total ponded area (ha)*

Far Northern	: 238 ¹
Northern	: 264 ¹
Mackay	: 178 ¹
Fitzroy	: 5 ¹
Wide Bay	: 152 ¹

Prawns	: 610 ^{1^}
Barramundi	: 140 ^{1^}
Redclaw	: 53 ^{1^}
Freshwater fish	: xx
Hatchery and aquarium	: 53.6 for stocking and comm growout sp; 12.9 for aquarium sp ^{1^}
Oysters (edible)	: xx
Eels	: 10.5 ^{1^}
Pearl	: xx

GBR overall	: 837
Qld overall	: 1024

Ref: ¹Wingfield 2012

DRAFT map of distribution of farm types



*Note change of regions to fit Fisheries Qld reporting for this year. To rectify in following versions. ^Qld-wide data

Chapter Ten. Aquaculture

Where is important for aquaculture?



*Note change of regions to fit Fisheries Qld reporting for this year. To rectify in following versions. ^Qld-wide data

Chapter Ten. Aquaculture

How does aquaculture operate?

Diversity of markets

% sold in LGA

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% sold interstate

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% sold in Qld

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% exported

Prawns	: xx
Barramundi	: 0% ¹
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: ¹Wingfield 2012

Market types

% direct to wholesale

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% to restaurants

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% to retail

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

% to niche markets

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

Ref: xxx

Chapter Ten. Aquaculture

When does aquaculture operate?

Graph of seasonality of production by species group / farm type

Chapter Ten. Aquaculture

How is aquaculture managed?

new regulations this year

Ref: xxx

Time spent on regulatory paperwork

Prawns	: xx hrs/wk
Barramundi	: xx hrs/wk
Redclaw	: xx hrs/wk
Freshwater fish	: xx hrs/wk
Hatchery and aquarium	: xx hrs/wk
Oysters (edible)	: xx hrs/wk
Eels	: xx hrs/wk
Pearl	: xx hrs/wk

GBR overall	: xx hrs/wk
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Ref: xxx

Management fees

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

See Fisheries Qld website

Ref: xxx

Compliance rates

% compliance

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Chapter Ten. Aquaculture

How does aquaculture operate?

Participation in management

% participation involved in management process

Cape York	: xx%
Terrain FNQ	: xx%
Burdekin	: xx%
Mackay-Whit	: xx%
Fitzroy Basin	: xx%
Burnett Mary	: xx %

Prawns	: xx%
Barramundi	: xx%
Redclaw	: xx%
Freshwater fish	: xx%
Hatchery and aquarium	: xx%
Oysters (edible)	: xx%
Eels	: xx%
Pearl	: xx %

GBR overall	: xx%
Qld overall	: xx%

Ref: xxx

Satisfaction with participation

% satisfied with participation

Cape York	: xx%
Terrain FNQ	: xx%
Burdekin	: xx%
Mackay-Whit	: xx%
Fitzroy Basin	: xx%
Burnett Mary	: xx %

Prawns	: xx%
Barramundi	: xx%
Redclaw	: xx%
Freshwater fish	: xx%
Hatchery and aquarium	: xx%
Oysters (edible)	: xx%
Eels	: xx%
Pearl	: xx %

GBR overall	: xx%
Qld overall	: xx%

Ref: xxx

Chapter Ten. Aquaculture

Accreditations

Accreditations

% farms with export certification

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Understandings (MOU)

% farms with MOU

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Ref: xxx

Biosecurity

Presence of new disease this year:

% farmers who consider regulations effective

Prawns	: 2%
Barramundi	: xx
Redclaw	: 1%
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Renewed commitment to biosecurity by Australian Government¹
Biosecurity reform commenced in 2011.²

Ref: ¹DAFF 2011a, ²2011b

Chapter Ten. Aquaculture

Perceptions of aquaculture management

Who is shaping the industry

% feel it is being shaped by industry

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
-------------	------

Ref: xxx

Who is shaping the industry

% feel it is being shaped by government

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
-------------	------

Ref: xxx

Who is shaping the industry

% feel it is being shaped by outside influence

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
-------------	------

Ref: xxx

Chapter Ten. Aquaculture

Community perceptions of aquaculture

Community support for aquaculture

% community support for aquaculture in GBRWHA

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall : xx

Ref: xxx

Community support for accreditation

% community support for accreditation of aquaculture products

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall : xx

Ref: xxx

Recognition

Providers of secure food within National Food Plan

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall : xx

Ref: xxx

Chapter Ten. Aquaculture

Who are the aquaculture businesses? Wellbeing

Divorce rate

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld overall	: xx

Qld population	: 9.1% ¹
----------------	---------------------

Ref: ¹ABS (2012)

Suicide rate

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR overall	: xx
Qld population	: xx

Qld population	: xx
----------------	------

Ref: xxx

OH&S – workplace accidents

workplace accident claims

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Qld-wide work related accidents	: xx
------------------------------------	------

Ref: WorkCover Qld, unpublished data; WHSQ Rural Unit *pers. Comm.* April 2012C

OH&S - fatalities

fatalities

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Prawns	: xx
Barramundi	: xx
Redclaw	: xx
Freshwater fish	: xx
Hatchery and aquarium	: xx
Oysters (edible)	: xx
Eels	: xx
Pearl	: xx

GBR Total	: xx
QLD Total	: xx

Qld-wide work related fatalities	: xx
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Ref: WHSQ 2011

Chapter Ten. Aquaculture

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Chapter Eleven

Agricultural industries of the Great Barrier Reef

Agriculture is an important industry for Queensland. The region has a naturally rich environment and climate for growing crops, trees and supporting livestock. Agricultural industries in Australia have increased steadily over the 30 year period from 1974-75 to 2003-04 at an average rate of 2.8 percent [2]. The main agricultural land uses in the Great Barrier Reef Catchment area are grazing, sugarcane, horticulture, cotton and broadacre or grain. Cattle grazing is the main land use in upper catchment areas and sugar cane is dominant in lower areas of the catchment. Horticultural land uses, that include vegetables, bananas and fruit and nut trees, are the third most dominant land use in the catchment. Cotton production in the catchment is minor and mainly concentrated in the Fitzroy catchment area.

Agriculture, fisheries and forestry contributed three percent to Australia's GDP in 2010-11, with the gross value of Australian farm production estimated at \$48.7 billion [2, 3]. In Queensland, the top three agricultural commodities produced (ranked by gross \$ value) were: cattle and calves (\$3.2 billion), sugar cane for crushing (\$1.3 billion), and fruit and nuts (\$1.0 billion) [2]. Around 60% of Australia's agricultural product is exported, with South East Asia, China and Japan accounting for around 44 per cent of Australian agricultural exports [3]. The gross value of crops and livestock products to Australian farm production in 2011 was \$27,546M and 21,127\$M, respectively [4]. In 2011-12 sugarcane production outputs and returns were lower than the previous year; cotton prices were lower, but favourable; Australia's cotton industry recorded its highest production rates; beef production and exports increased although the price for beef fell [5]. The total value of Queensland's primary industry commodities in March 2011 was forecast at \$13.76 billion [6].

Chapter Eleven

Agricultural industries of the Great Barrier Reef

The industry has faced significant regulatory and cultural change in recent years as a result of efforts designed to improve the quality of water from agricultural lands entering the Great Barrier Reef lagoon. Runoff from agricultural land uses in catchments adjacent to the Great Barrier Reef Catchments has increased concentrations of nitrogen, phosphorous, sediment and chemicals entering the Reef to levels deemed to significantly impact on the resilience of near shore marine habitats [1]. In recent years primary producers have made voluntary and regulated efforts to improve land management practices and halt or reverse the decline in water quality entering the GBR. For example, water quality improvement plans have been developed for each NRM region adjacent to the GBR. These plans include a suite of activities, incentives and targets to reduce water pollution being released into aquatic ecosystems adjacent to the GBR [8]. The Reef Water Quality Protection Plan identifies land management and water quality actions and targets, and also aims to protect the Great Barrier Reef from upstream water pollutants [9, 10]. The first report card released in August 2011, as part of the Reef Water Quality Protection Plan shows that progress that has been made since 2003 to improve water quality [11]. In addition, Reef protection legislation has recently been introduced to regulate certain cattle grazing and sugarcane activities [12]. More efforts to curb the water quality problem are being considered [13].

Major events to affect Queensland's agricultural production rates in 2011 were floods and Cyclone Yasi. These events occurred in early 2011 and are estimated to have reduced agricultural production by at least \$500–600 million through significant impacts on the production of fruit and vegetables, cotton, grain sorghum and some winter crops [7].

Chapter Eleven

Who are the cattle producers of the region?

Number of business

Cape York	: 44
Terrain FNQ	: 681
Burdekin	: 585
Mackay-Whit	: 552
Fitzroy Basin	: 2,587
Burnett Mary	: 2,903
TOTAL (GBR)	: xx

Ref: Agricultural commodities
ABS 2009-10

Holdings- improved pasture

Cape York	: 29.5
Terrain FNQ	: 46.9
Burdekin	: 31.3
Mackay-Whit	: 27.8
Fitzroy Basin	: 54.2
Burnett Mary	: 57.4
TOTAL (GBR)	: xx

Ref: Land management and
farming ABS 2009-10

Holdings- other grazing land

Cape York	: 60.8
Terrain FNQ	: 30.5
Burdekin	: 63.1
Mackay-Whit	: 24.2
Fitzroy Basin	: 34.5
Burnett Mary	: 34.5
TOTAL (GBR)	: xx

Ref: Land management and
farming ABS 2009-10

Cattle Producers

Cape York	: xx
Terrain FNQ	: 446
Burdekin	: 961
Mackay-Whit	: 226
Fitzroy Basin	: 3,115
Burnett Mary	: 2,249
TOTAL (GBR)	: xx

Ref: Land management
practices in the GBR catchments
ABS 2008-9

Cattle produced

Cape York	: 65,266
Terrain FNQ	: 198,246
Burdekin	: 1,132,866
Mackay-Whit	: 161,020
Fitzroy Basin	: 2,415,716
Burnett Mary	: 366,322
TOTAL (GBR)	: xx

Agricultural Commodities
ABS 2009-10

Value of production

Cape York	: \$18.6M
Terrain FNQ	: \$60.9M
Burdekin	: \$324M
Mackay-Whit	: \$46.3M
Fitzroy Basin	: \$688.7M
Burnett Mary	: \$222.8M
TOTAL (GBR)	: xx

Gross Value of Agricultural
Product ABS 2009-10

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the sugar producers of the region?

Number of business

Cape York	: 0
Terrain FNQ	: 1,293
Burdekin	: 512
Mackay-Whit	: 1,141
Fitzroy Basin	: 13
Burnett Mary	: 494
TOTAL (GBR)	: xx

Ref: Agricultural commodities
ABS 2009-10

Holdings

Cape York	:
Terrain FNQ	: 1,527
Burdekin	: 39
Mackay-Whit	: 1321
Fitzroy Basin	: 0
Burnett Mary	: 747
TOTAL (GBR)	: xx

Ref: Land management practices in
the GBR catchments ABS 2008-9

Sugar Cane Growers

Cape York	:
Terrain FNQ	:
Burdekin	: 760
Mackay-Whit	: 1,235
Fitzroy Basin	: 35
Burnett Mary	: 580
TOTAL (GBR)	: xx

Ref: Land management practices in
the GBR catchments ABS 2008-9

Area under crop (ha)

Cape York	: 0
Terrain FNQ	: 125,019
Burdekin	: 58,705
Mackay-Whit	: 122,892
Fitzroy Basin	: 1,302
Burnett Mary	: 48,699
TOTAL (GBR)	: xx

ABS 2009-10 Water Use on
Australian Farms

Value of production

Cape York	:\$0.00M
Terrain FNQ	: \$417M
Burdekin	: \$257.2M
Mackay-Whit	: \$429.6M
Fitzroy Basin	: \$4.4M
Burnett Mary	: \$160.2M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of
Agricultural Product

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the sugar farmers of the region?

Number of business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Holdings

Cape York	:
Terrain FNQ	: 547
Burdekin	: 192
Mackay-Whit	: 32
Fitzroy Basin	: 106
Burnett Mary	: 793
TOTAL (GBR)	: xx

Ref: Land management practices
in the GBR catchments
ABS 2008-9

Farmers ²

Cape York	: 30 ²
Terrain FNQ	: 779 ¹ , 330 ²
Burdekin	: 290 ¹ , 192 ²
Mackay-Whit	: 41 ¹ , 32 ²
Fitzroy Basin	: 159 ¹ , 106 ²
Burnett Mary	: 958 ¹ , 280 ²
TOTAL (GBR)	: xx

¹ Ref: Land management
practices in the GBR catchments
ABS 2008-9

²Ref: RWQP 2011

No of fruit and nut tree businesses

Cape York	: 22
Terrain FNQ	: 263
Burdekin	: 166
Mackay-Whit	: 28
Fitzroy Basin	: 73
Burnett Mary	: 411
TOTAL (GBR)	: xx

Ref: Agricultural commodities
ABS 2009-10

Value of production

Cape York	:
Terrain FNQ	: \$60.9M
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Products

Cape York	:
	bananas, tropical fruit
Terrain FNQ	:
	vegetables, fruit berries, nuts
Burdekin	: tomatoes,
	mangoes, vegetables
Mackay-Whit	: lychees,
	mangoes, vegetables
Fitzroy Basin	: citrus, fruit
Burnett Mary	: xx
TOTAL (GBR)	: xx

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the fruit & nut industry like?

Number of business

Cape York	: 22
Terrain FNQ	: 263
Burdekin	: 166
Mackay-Whit	: 28
Fitzroy Basin	: 73
Burnett Mary	: 411
TOTAL (GBR)	: xx

Ref: Agricultural commodities
ABS 2009-10

Holdings*

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Residents

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Number of trees

Cape York	: 24,650
Terrain FNQ	: 558,962
Burdekin	: 269,830
Mackay-Whit	: 47,627
Fitzroy Basin	: 233,516
Burnett Mary	: 3,877,335
TOTAL (GBR)	: xx

ABS 2009-10 Agricultural
Commodities

Value of production

Cape York	:\$1.6M
Terrain FNQ	:\$493.4M
Burdekin	:\$30.8M
Mackay-Whit	:\$13.9M
Fitzroy Basin	:\$29.9M
Burnett Mary	:\$167M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of
Agricultural Product

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the banana industry like?

Number of business

Cape York	: 1
Terrain FNQ	: 217
Burdekin	: 0
Mackay-Whit	: 2
Fitzroy Basin	: 2
Burnett Mary	: 18
TOTAL (GBR)	: xx

Ref: Agricultural commodities
ABS 2009-10

Holdings*

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Residents

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Tonnes produced

Cape York	: 4t/ha
Terrain FNQ	: 29t/ha
Burdekin	: 0t/ha
Mackay-Whit	: 3t/ha
Fitzroy Basin	: 10t/ha
Burnett Mary	: 9t/ha
TOTAL (GBR)	: xx

ABS 2009-10 Agricultural
Commodities

Value of production

Cape York	: \$0.0M
Terrain FNQ	: \$440.1M
Burdekin	: \$0.0M
Mackay-Whit	: \$0.0M
Fitzroy Basin	: \$0.0M
Burnett Mary	: \$2.4M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of
Agricultural Product

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the vegetable industry like?

Number of business

Cape York	: 1
Terrain FNQ	: 153
Burdekin	: 155
Mackay-Whit	: 6
Fitzroy Basin	: 78
Burnett Mary	: 271
TOTAL (GBR)	: xx

Water use on Australian farms ABS 2009-10

Holdings*

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Residents

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Area under crop (ha)

Cape York	: 30
Terrain FNQ	: 2,322
Burdekin	: 4,537
Mackay-Whit	: 782
Fitzroy Basin	: 578
Burnett Mary	: 5,961
TOTAL (GBR)	: xx

ABS 2009-10 Agricultural Commodities

Value of production

Cape York	:\$0.7M
Terrain FNQ	:\$44.2M
Burdekin	:\$149.4M
Mackay-Whit	:\$18.6M
Fitzroy Basin	:\$13.3M
Burnett Mary	:\$171.8M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of Agricultural Product

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the cotton producers of the region?

Number of business

Cape York	: 0
Terrain FNQ	: 0
Burdekin	: 1
Mackay-Whit	: 0
Fitzroy Basin	: 41
Burnett Mary	: 2
TOTAL (GBR)	: xx

Water use on Australian farms 2009-10

Holdings*

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Residents

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Area under crop (ha)

Cape York	: 0
Terrain FNQ	: 0
Burdekin	:
Mackay-Whit	: 0
Fitzroy Basin	: 15,088
Burnett Mary	:
TOTAL (GBR)	: xx

ABS 2009-10 water Use on Australian farms

Value of production

Cape York	: \$0M
Terrain FNQ	: \$0M
Burdekin	: \$1.7M
Mackay-Whit	: \$0M
Fitzroy Basin	: \$46.7M
Burnett Mary	: \$0.5M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of Agricultural Product

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the producers of livestock products for the region?

Number of business-grain used for grazing

Cape York	: 40
Terrain FNQ	: 997
Burdekin	: 348
Mackay-Whit	: 573
Fitzroy Basin	: 2,630
Burnett Mary	: 3,209
TOTAL (GBR)	: xx

Ref: Land management practices in the GBR catchments ABS 2008-9

Number of business-grain cut for silage

Cape York	: 0
Terrain FNQ	: 24
Burdekin	: 8
Mackay-Whit	: 0
Fitzroy Basin	: 85
Burnett Mary	: 158
TOTAL (GBR)	: xx

Ref: Land management practices in the GBR catchments ABS 2008-9

Holdings that prepared land for broadacre*

Cape York	:
Terrain FNQ	: 37
Burdekin	: 192
Mackay-Whit	: 45
Fitzroy Basin	: 1,126
Burnett Mary	: 954
TOTAL (GBR)	: xx

Ref: Land management practices in the GBR catchments ABS 2008-9

Employees per business

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Residents

Cape York	: xx
Terrain FNQ	:
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Mean size of property

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Area under crop (ha)-grain used for grazing

Cape York	: 619,107
Terrain FNQ	: 466,025
Burdekin	: 2,749,620
Mackay-Whit	: 149,278
Fitzroy Basin	: 6,595,096
Burnett Mary	: 2,082,533
TOTAL (GBR)	: xx

Ref: Water use on Australian farms ABS 2009-10

Area under crop (ha)-grain cut for silage

Cape York	: 0
Terrain FNQ	: 691
Burdekin	: 824
Mackay-Whit	: 0
Fitzroy Basin	: 3,545
Burnett Mary	: 3,202
TOTAL (GBR)	: xx

Ref: Water use on Australian farms ABS 2009-10

Value of production-cereals for grain

Cape York	:\$0.3M
Terrain FNQ	:\$2.7M
Burdekin	:\$25.1M
Mackay-Whit	:\$0.0M
Fitzroy Basin	:\$100.8M
Burnett Mary	:\$11.5M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of Agricultural Product

Value of production-pasture and cereals cut for hay

Cape York	:\$0.1M
Terrain FNQ	:\$2.8M
Burdekin	: \$6M
Mackay-Whit	: \$5.2M
Fitzroy Basin	: \$19.1M
Burnett Mary	: \$27.7M
TOTAL (GBR)	: xx

ABS 2009-10 Gross Value of Agricultural Product

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the primary producers of the region?

Farmer's age (mean)	% with partners	% with dependents	% 2 nd generation or more in occupation																																																
<table><tr><td>Cape York</td><td>: xx</td></tr><tr><td>Terrain FNQ</td><td>: xx</td></tr><tr><td>Burdekin</td><td>: xx</td></tr><tr><td>Mackay-Whit</td><td>: xx</td></tr><tr><td>Fitzroy Basin</td><td>: xx</td></tr><tr><td>Burnett Mary</td><td>: xx</td></tr></table>	Cape York	: xx	Terrain FNQ	: xx	Burdekin	: xx	Mackay-Whit	: xx	Fitzroy Basin	: xx	Burnett Mary	: xx	<table><tr><td>Cape York</td><td>: xx</td></tr><tr><td>Terrain FNQ</td><td>: xx</td></tr><tr><td>Burdekin</td><td>: xx</td></tr><tr><td>Mackay-Whit</td><td>: xx</td></tr><tr><td>Fitzroy Basin</td><td>: xx</td></tr><tr><td>Burnett Mary</td><td>: xx</td></tr></table>	Cape York	: xx	Terrain FNQ	: xx	Burdekin	: xx	Mackay-Whit	: xx	Fitzroy Basin	: xx	Burnett Mary	: xx	<table><tr><td>Cape York</td><td>: xx</td></tr><tr><td>Terrain FNQ</td><td>: xx</td></tr><tr><td>Burdekin</td><td>: xx</td></tr><tr><td>Mackay-Whit</td><td>: xx</td></tr><tr><td>Fitzroy Basin</td><td>: xx</td></tr><tr><td>Burnett Mary</td><td>: xx</td></tr></table>	Cape York	: xx	Terrain FNQ	: xx	Burdekin	: xx	Mackay-Whit	: xx	Fitzroy Basin	: xx	Burnett Mary	: xx	<table><tr><td>Cape York</td><td>: xx</td></tr><tr><td>Terrain FNQ</td><td>: xx</td></tr><tr><td>Burdekin</td><td>: xx</td></tr><tr><td>Mackay-Whit</td><td>: xx</td></tr><tr><td>Fitzroy Basin</td><td>: xx</td></tr><tr><td>Burnett Mary</td><td>: xx</td></tr></table>	Cape York	: xx	Terrain FNQ	: xx	Burdekin	: xx	Mackay-Whit	: xx	Fitzroy Basin	: xx	Burnett Mary	: xx
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Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the primary producers of the region?

Education (% completed schooling)

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

Ref:

% with agriculture qualifications

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

% with previous occupation

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

% with diverse income

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the primary producers of the region?

Language spoken at home

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

Ref:

Computer literacy

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

New entrants

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

% likely to remain in industry in next three years

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:

GBR overall	: xx
Qld population	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

Who are the primary producers of the region?

Income from industry	Household income	Access to finance	Mean value of assets																																																
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Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the adaptive capacity of primary producers in the region?

Management of uncertainty	Perceived employment opportunities	Scenario skills	Strategic learning																																																
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Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the adaptive capacity of primary producers in the region?

Income Protection Insurance	Financial buffer	Willingness to change	Interest in long-term future																																																
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Qld population	: xx																																																		
Ref:																																																			

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the adaptive capacity of primary producers in the region?

Businesses that experienced adverse conditions

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	

GBR overall	: xx
Qld population	: xx

Ref:

Livestock best practices

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	

GBR overall	: xx
Qld population	: xx

Cropping best practices

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	

GBR overall	: xx
Qld population	: xx

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	

GBR overall	: xx
Qld population	: xx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the environmental footprint of agriculture in the region?

Extent of ground cover

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:
Grain producers	:

GBR overall	: xx
Qld population	: xx

Ref:

Pesticides

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:
Grain producers	:

GBR overall	: xx
Qld population	: xx

Fertilizers

% Agricultural businesses reporting fertilizer use

Cape York	: 46.5%
Terrain FNQ	: 74.7%
Burdekin	: 52.5%
Mackay-Whit	: 78.8%
Fitzroy Basin	: 16.4%
Burnett Mary	: 41.6%
GBR overall	: xx

Application rate t/ha

Cape York	: 0.22
Terrain FNQ	: 0.42
Burdekin	: 0.57
Mackay-Whit	: 0.77
Fitzroy Basin	: 0.40
Burnett Mary	: 0.51
GBR overall	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:
Grain producers	:
Fruit producers	:

GBR overall	: xx
Qld population	: xx

Ref: Land management and farming ABS 2009-10

Herbicides

% Holdings using herbicide

Cape York	: xx
Terrain FNQ	: 76.4%
Burdekin	: 68.2%
Mackay-Whit	: 79.4%
Fitzroy Basin	: 45.3%
Burnett Mary	: 54%
GBR overall	: xx

% Holdings using other chemicals

Cape York	: xx
Terrain FNQ	: 23%
Burdekin	: 24.5%
Mackay-Whit	: 21.2%
Fitzroy Basin	: 17.7%
Burnett Mary	: 23.9%
GBR overall	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists	:
Banana producers :	:
Vegetable producers:	:
Cotton producers :	:
Grain producers	:
Fruit producers	:

GBR overall	: xx
Qld population	: xx

Ref: Land management practices in the GBR catchment ABS 2008-09

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the environmental footprint of agriculture in the region?

Riparian management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	
Grain producers	

GBR overall	: xx
Qld population	: xx

Ref:

Water management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	
Grain producers	

GBR overall	: xx
Qld population	: xx

Ref:

Water allocations

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	
Grain producers	

GBR overall	: xx
Qld population	: xx

Ref:

Best practices

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx

Cattle producers	:
Sugar producers	:
Horticulturalists:	
Banana producers :	
Vegetable producers:	
Cotton producers :	
Grain producers	

GBR overall	: xx
Qld population	: xx

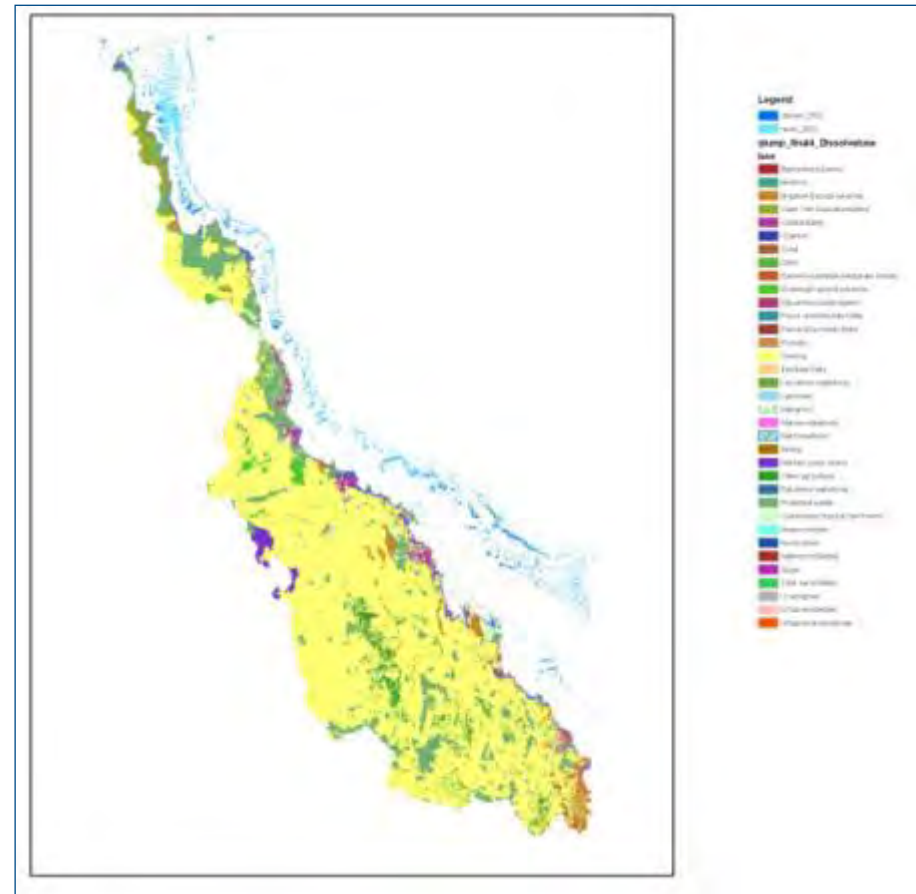
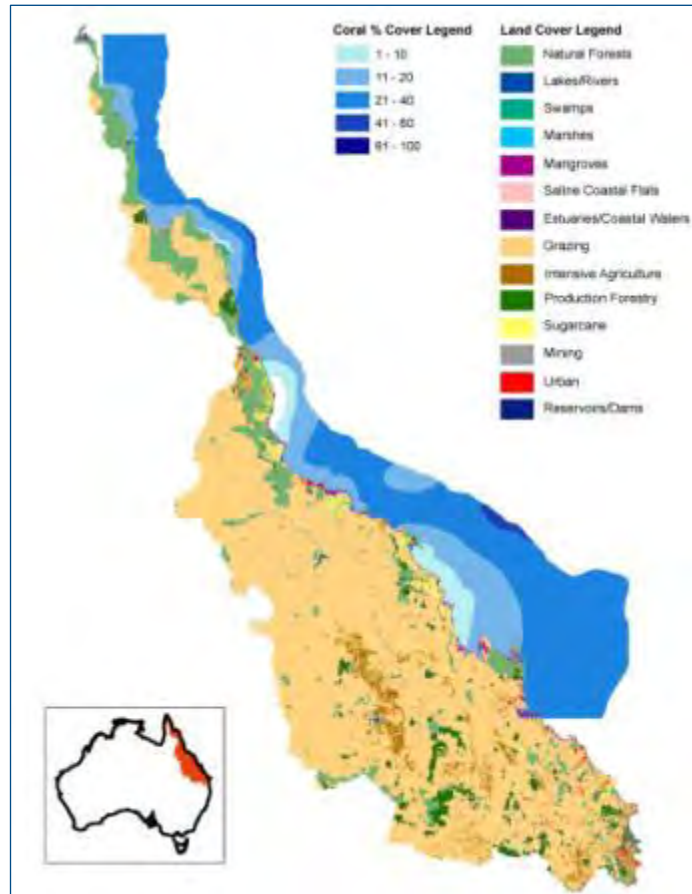
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Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the environmental stewardship of primary producers in the region?

Factor 1:	Factor 2:	Local environmental knowledge	Environmental awareness																																																
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Qld population	: xx																																																		
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Where does agriculture occur in the region?



Chapter Eleven. Agricultural industries of the Great Barrier Reef

When are agricultural products produced in the region?

Temporal graph showing months of year and production levels for each of

- Cattle
- Sugarcane
- Horticulture
- Bananas
- Vegetables
- Cotton i
- Cereal and grain
- Fruit and nut trees

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What is the wellbeing of primary producers in the region?

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL : 52

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor**

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What are the indirect drivers on agriculture in the region?

Factor *

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL : 52

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor*

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas: xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What are the indirect drivers on agriculture in the region?

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL : 52

Ref: xxxx

Factor *

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Factor*

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What are the local drivers on agriculture in the region?

Property prices

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Labour availability

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Annual Rainfall

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL : 52

Ref: xxxx

Road access

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

New regulations

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Condition of environment

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Water availability

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Cooktown : xx
Port Douglas:xx
Cairns : xx
Townsville : xx
Airlie Beach : xx
Mackay : xx
TOTAL :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What are the local drivers on agriculture in the region?

New regulation

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

Commodity prices

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

Demographic factors

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

Industry leadership factor

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

New technologies

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

New infrastructure

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

Research funding

Cattle producers :
Sugar producers :
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers :
Fruit producers :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

What are the global drivers on agriculture in the region?

Export amounts

Cattle producers
Sugar producers
Horticulturalists
Banana producers
Vegetable producers
Cotton producers
Grain producers
Fruit producers

Ref: xxxx

Commodity prices

Cattle producers
Sugar producers
Horticulturalists
Banana producers
Vegetable producers
Cotton producers
Grain producers
Fruit producers :

Ref: xxxx

Fuel prices

Cattle producers
Sugar producers
Horticulturalists
Banana producers :
Vegetable producers :
Cotton producers :
Grain producers
Fruit producers :

Ref: xxxx

New trade policies

Cattle producers
Sugar producers
Horticulturalists
Banana producers
Vegetable producers
Cotton producers
Grain producers
Fruit producers

Ref: xxxx

Exchange rates

Cattle producers
:
Sugar producers
:
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers
:
Fruit producers :

Consumer awareness

Cattle producers
:
Sugar producers
:
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers
:
Fruit producers :

Cattle producers
:
Sugar producers
:
Horticulturalists:
Banana producers :
Vegetable producers:
Cotton producers :
Grain producers
:
Fruit producers :

Ref: xxxx

Chapter Eleven. Agricultural industries of the Great Barrier Reef

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Chapter Twelve

Ports and Shipping in the Great Barrier Reef

Ports adjacent to the Great Barrier Reef are crucial for Australia's ability to maintain the economic viability of key domestic industries and trade and economic competitiveness with other countries. The value of Queensland's international seaborne trade is estimated to be \$69 billion per year [1]. There are twelve ports adjacent to the GBR: ten ports are outside the Great Barrier Reef Marine Park; two minor ports are within the Marine Park in far north Queensland; and, most ports are located within the world heritage area. These ports are managed by four port authorities, which are QLD Government owned corporations. The largest ports in size and capacity are Abbot Point, Gladstone, Hay Point and Townsville Ports. In 2010-11 approximately 200 mass tonnes of cargo passed through ports within the GBR [2].

The shipping industry that transits the Great Barrier Reef Marine Park contributes an estimated \$38 billion of Australia's export trade each year [3]. In the last decade there has been a steady increase in the number of individual ships and shipping movements. In 2001 there were 3,583 ship calls to ports within the Great Barrier Reef region [4]. In 2011 these ship movements are estimated at 5,404. This shipping activity is confined to designated shipping areas in the GBR region. The inner shipping route of the Great Barrier Reef is a vital part of the Queensland shipping industry [5].

The main risks to the GBR from ports and shipping relate to ship groundings and collisions, operational activities and port development. Ship groundings and collisions can cause habitat destruction, contamination from fuel and chemical spills, damaged cargo and the dispersants used to mitigate spills. Since 1985 an average of two major shipping incidents (such as collisions or groundings) has occurred in the Great Barrier Reef each year [6]. In April 2010 the grounding of the Shen Neng cargo ship resulted in significant habitat damage and antifoul contamination [7]. Operational impacts include introduced exotic marine pests via hull fouling or ballast water contaminants, ship strikes and underwater noise pollution for species of environmental significance, seabed disturbance and damage, waste disposal and anchor damage. Risks to the Marine Park from port development relate to infrastructure construction, dredging for port facilities and safe access channels for ships into ports, dredge material disposal and degradation of coastal habitat.

Chapter Twelve

Ports and Shipping in the Great Barrier Reef

Economic growth in countries such as China has led to a significant increase in global demand for coal and gas, leading to expansion of existing mines and plans for new mines in Queensland (see SELTMP mining chapter). In 2010-11 coal was the largest contributor to overseas exports worth 28\$m [8]. Total coal tonnage is proposed to increase more than six-fold, from a throughput of 156 million tonnes in 2011 to a capacity of 944 million tonnes in all ports in the Great Barrier Reef World Heritage Area by the end of the decade [9].

There are proposals to expand Hay Point, Abbot Point, Gladstone and Townsville ports adjacent to the GBR to cater for the coal and gas mine expansion in Queensland. There are also three new proposed ports: Wongai in the northern end of the Marine Park and Fitzroy and Island in the southern end of the Park. These proposed expansions will include new berths, jetties, trestles, dredge channels and land-based infrastructure [1]. Shipping activity as part of the mining and industrial expansion is also predicted to increase steadily over the next decades with ship call numbers forecasted for 2022 to be approximately 6100 [4]. It is estimated that, as part of the proposed port expansions, 4.5 million cubic metres of dredging will occur within the Marine Park: 164 million to occur within the GBRWHA, and an estimated 24 million cubic metres (equivalent to a 1m wide and 7m high wall stretching from Brisbane to Perth) of dredge material planned for disposal at existing disposal grounds within the Marine Park [7]. The increased risks to the Great Barrier Reef World Heritage area from the proposed port expansions and increases in shipping have contributed to escalated social and community concerns about the future of the GBR.

Chapter Twelve

Ports and Shipping in the Great Barrier Reef

Port and shipping activities are managed and regulated by local, state, national and international authorities and organisations. Most port activities are managed by the Queensland Government as they are outside the marine park, except for activities that trigger matters of national environmental significance under the Commonwealth EPBC Act [1]. There are stringent management arrangements to avoid shipping accidents in the waters of the Great Barrier Reef. These measures include: declaration in 1990 of the Great Barrier Reef as a Particularly Sensitive Sea Area by the International Maritime Organisation; implementation of a compulsory pilotage regime in 1991; establishment of a ship reporting system in 1997, where ships are mandatorily required to report their position; and, introduction of a coastal vessel traffic service in 2004 to allow near real time monitoring of ship traffic [7]. From the 1 July 2011, the REEFVTS (Great Barrier Reef and Torres Strait Vessel Traffic Service) reporting system was extended to the southern boundary of the Great Barrier Reef, following the bulk carrier *Shen Neng* grounding on Douglas Shoal in the Great Barrier Reef [10]. The introduction of REEFVTS has attributed to significantly reducing the number of groundings, from one per year between 1997 and 2003 to only one incident between the years 2004 and 2009 [10].

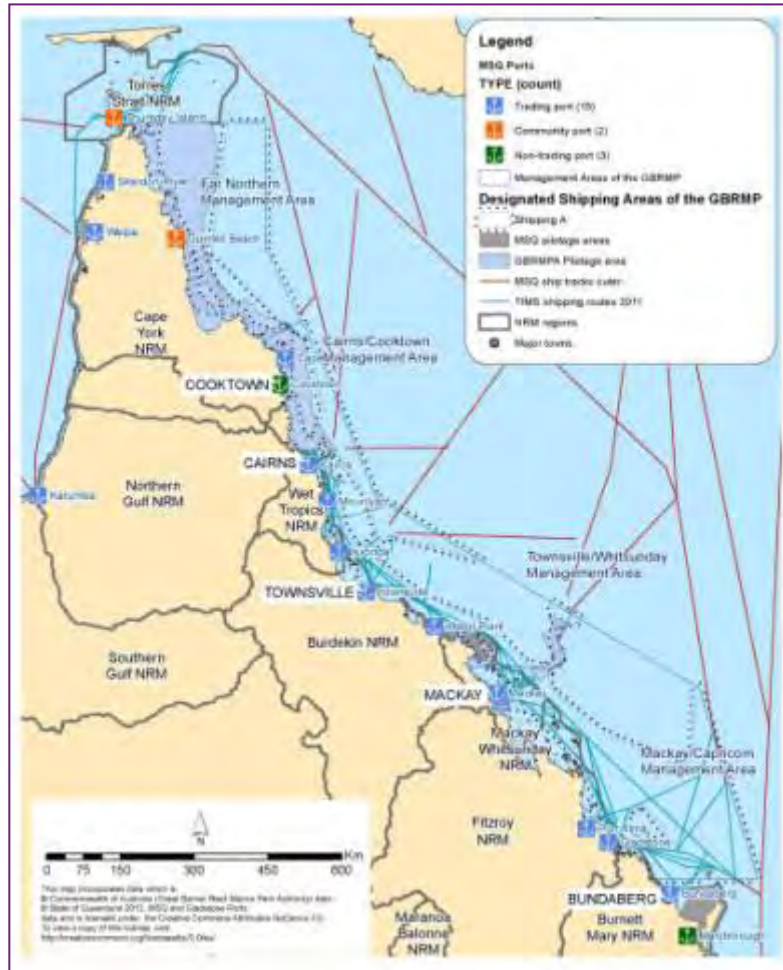
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Chapter Twelve

Where can ships travel in the Great Barrier Reef?



Chapter Twelve. Ports and Shipping

Ports and pilotage areas within the GBR



Chapter Twelve. Ports and Shipping

Which ships visited the Great Barrier Reef and when?

How many arrivals*?

January :	322
February :	344
March :	407
April :	411
May :	426
June :	437
July :	494
August :	547
September :	546
October :	562
November :	448
December :	460

TOTAL for 2011: 5404

Ref: Marine safety
Queensland

Gross tonnage of ships?

January :	9,823,673
February :	10,081,362
March :	12,914,701
April :	12,673,708
May :	12,479,118
June :	14,044,780
July :	13,583,253
August :	14,606,886
September :	14,222,057
October :	15,367,091
November :	14,044,058
December :	14,754,969

TOTAL : 158,601,060

Ref: Marine Safety
Queensland

No. piloted arrivals?

January :	262
February :	292
March :	340
April :	346
May :	355
June :	353
July :	376
August :	403
September :	400
October :	394
November :	377
December :	382

TOTAL : 4,280

Ref: Marine Safety
Queensland

Number of Crew

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL:

Ref: MSQ

Chapter Twelve. Ports and Shipping

What do ships transport in the Great Barrier Reef?

% containers

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

% gas

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

% livestock

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

% Bulk liquid

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

Chapter Twelve. Ports and Shipping

What do ships transport in the Great Barrier Reef?

% Dry Bulk

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

% mining products

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

%

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

%

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

Chapter Twelve. Ports and Shipping

Where do ships come from?

Nationality of vessel

Australian: xx %
USA :
Canada:
Russia:
India:
China:
Europe:
Asia:
Africa:
Etc:
Etc:

Ref: xxxx

Nationality of Captain

Australian: xx %
USA :
Canada:
Russia:
India:
China:
Europe:
Asia:
Africa:
Etc:
Etc:

Ref: xxxx

Nationality of Crew

Australian: xx %
USA :
Canada:
Russia:
India:
China:
Europe:
Asia:
Africa:
Etc:
Etc:

Ref: xxxx

Australian: xx %
USA :
Canada:
Russia:
India:
China:
Europe:
Asia:
Africa:
Etc:
Etc:

Ref: xxxx

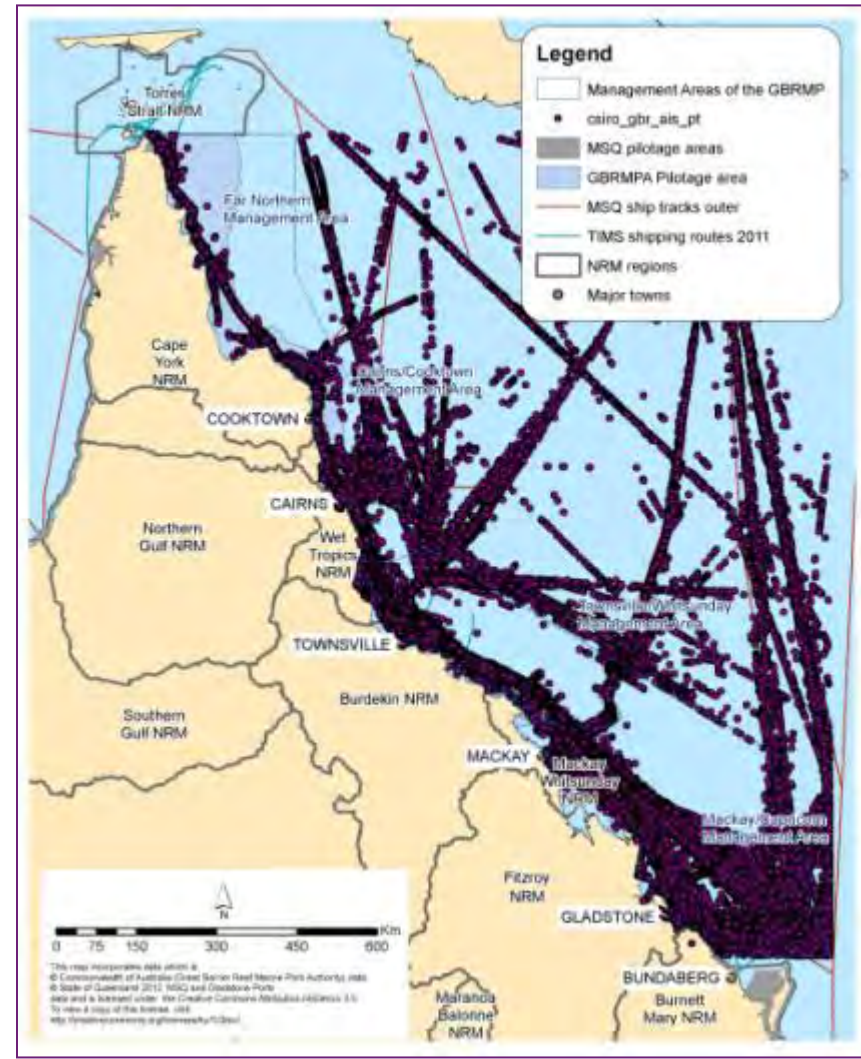
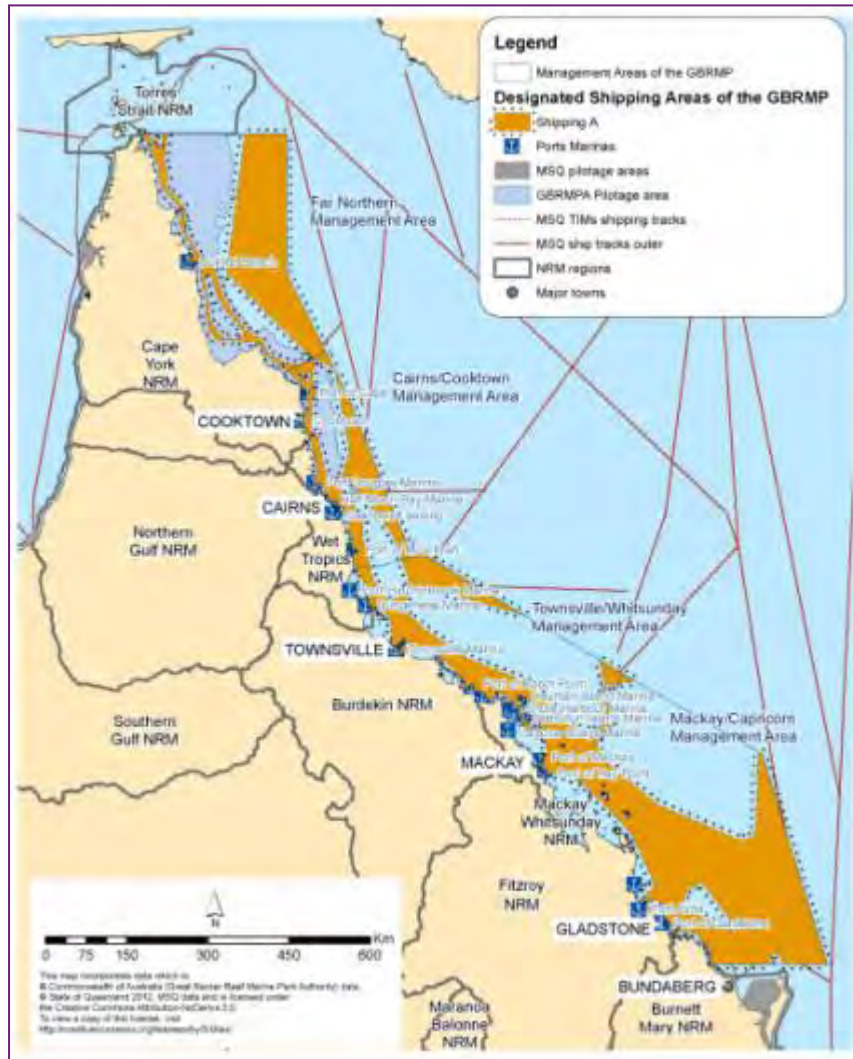
Chapter Twelve. Ports and Shipping

What were the environmental incidents for 2011?

<div>No. of groundings</div> <div>Incidents : Locations : Details :</div> <div>Ref: xxxx</div>	<div>No. spillages</div> <div>No. ships : % of total:</div> <div>Ref: xxxx</div>	<div>No. that adopt best practices (IMO)</div> <div></div> <div>Ref: xxxx</div>	<div>Ballast discharge details</div> <div></div> <div>Ref: xxxx</div>

Chapter Twelve. Ports and Shipping

Where do ships travel within the Great Barrier Reef?



Chapter Twelve. Ports and Shipping

When are the ships travelling in the Great Barrier Reef?

Graph of months for 2011



Chapter Twelve. Ports and Shipping

What is the value of shipping in the Great Barrier Reef?

<div>Imports</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>Exports</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>\$ Spent in Port</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>\$ spent in Shipping Yards</div> <div>\$XX :</div> <div>Ref: xxxx</div>
<div>\$ on Shipping GBR Fees ?</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>\$ on Ports Fees ?</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>\$ on other Fees ?</div> <div>\$XX :</div> <div>Ref: xxxx</div>	<div>xxx</div> <div>Xx%</div> <div>Ref: xxxx</div>

Chapter Twelve. Ports and Shipping

How is shipping perceived in the region?

Traditional Owners

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Recreational Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Commercial Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Port Towns (residents)

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Marine Tourists

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Mining

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Local Businesses

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

NGOs

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Chapter Twelve. Ports and Shipping

The major drivers of change on shipping in the Great Barrier Reef

<div>Australian \$</div> <div>See Erin</div> <div>Ref: xxxx</div>	<div>Capacity of Ports</div> <div>Port capacity of port 1 : Port capacity of port 1 : Port capacity of port 1 : Port capacity of port 1 : Port capacity of port 1 : Port capacity of port 1 :</div> <div>Ref: xxxx</div>	<div>Political Stability</div> <div>Election : yes/no</div> <div>Ref: xxxx</div>	<div>New regulations on industry</div> <div>Regulation : Regulation : Regulation : Regulation : Regulation :</div> <div>Ref: xxxx</div>
<div>Consumer Demand</div> <div>Consumer 1: Consumer 1: Consumer 1: Consumer 1: Consumer 1:</div> <div>Ref: xxxx</div>	<div>Mining</div> <div>Product 1 : Product 1 : Product 1 : Product 1 : Product 1 :</div> <div>Ref: xxxx</div>	<div>Local Support</div> <div>Perception : Perception : Perception : Perception :</div> <div>Ref: xxxx</div>	<div>XXX</div> <div>Xxx Xxx Xxx xxx</div> <div>Ref: xxxx</div>

Chapter Thirteen

Cruise shipping in the Great Barrier Reef

Globally, cruise shipping has experienced very strong growth in recent years. In 2011-2012, 239 cruise ships visited Queensland ports, contributing approximately \$588.8 million to the state's economy. The cruise shipping sector is also an important job creator, especially in regional areas, and supports more than 2000 jobs. The (now) 26 member lines within the Cruise Line International Association (CLIA) have shown an average annual passenger growth rate of 7.5% since 1980 and average yearly occupancy rates exceeding 100%. More than 220 million guests, mostly sourced from North America (188 million), have experienced cruises within the CLIA fleet during the past 22 years. With a variety of new ships, destinations, onboard facilities and available itineraries planned for the coming years, projections suggest an extended expansion of the industry for many years to come. More than 140 new ships were added since 2000-2011, including thirteen introduced in 2011 (12 new and one refurbished) providing an additional 14,886 beds. Further expansion is planned. Fourteen ships will be introduced in 2012, with an additional six planned for 2013, four in 2014 and two in 2015. These 26 new ships joining the CLIA fleet will cost more than \$10 billion in investment, bringing the 2015 CLIA capacity to 232 ships and 361,194 beds.

While the Caribbean and the Mediterranean regions continue to dominate the market, the global cruise industry remains extremely lucrative. Cruising globalisation is now a dominant industry theme as cruise lines seek to develop new areas and experiences for clients. The Australian cruise ship sector has benefited from this ongoing expansion and has seen tremendous growth within the past five years despite a wider extended period of stagnation within the general tourism sector, the ongoing global financial crisis and a strong Australian dollar relative to other destinations.

Chapter Thirteen

Cruise shipping in the Great Barrier Reef

Cruising is a significant contributor to Australia's tourism industry and strong rates of rapid growth are expected to continue for many years. During 2010-2011, visiting ships increased by 24% up to 42%, total passenger numbers increased by 34% up to 623,294 and approximately \$830 million was added to the economy; an increase of 12.8%. Average annual growth is projected to be more than 40% for the next two years, continuing upon the industry's significant growth over 2010-2011. This growth is likely to contribute significantly to state economies around Australia, as well as to associated industries and operations.

The cruise ship industry provided Queensland with \$166.4 million in 2011, an increase of 16.8% over the previous year. Further, 1,480 full time jobs were associated with the cruising industry, an increase of 14.2%. Queensland had more ship visit days (193) than any other state in Australia during the 2010-11 financial year. These visits included 328,863 days at port (an increase of 24.8%) and more than 63,900 crew days at port. Barring any unforeseen externalities, the outlook for the Australia cruise ship industry, and for Queensland in particular, is exceptionally bright for the next several years.

Chapter Thirteen . Cruise shipping

How many people are in cruise shipping?

Staff

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Wages per region

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Mega Cruises

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Adventure Cruises

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

No. passengers

Cooktown :	
Port Douglas :	
Cairns :	30,9428
Townsville :	
Hamilton Island :	
Total :	134,455*

Ports North Cruise Liner
Schedule
*Deedi (2010)

Economic benefit to Australia

\$830 million from 2010/2011
(based on Access Economics)

Total visitors: 623,294 (2011)

http://www.tq.com.au/resource-centre/cruise-shipping/cruise-shipping_home.cfm

Chapter Thirteen . Cruise shipping

Who are the people in cruise shipping?

Who are the owners of the Cruise Ships?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Experience of Captain

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Experience of Captain in GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Nationality of Capitan

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Nationality of Crew

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

PAX: Passenger capacity of vessels

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Who makes the bookings

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Nationality o Passengers

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Thirteen. Cruise shipping

Adaptive capacity of the industry

What risk precautions are in place?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

How is uncertainty managed

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Evidence of scenario planning

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Evidence of a financial buffer

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Level of insurance

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Interest in GBR management

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Networks within GBR

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Maintenance of vessels

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

Chapter Thirteen. Cruise shipping

Where are the cruise ships from?

<div>Australia</div> <div><div>QLD: SA: NT: WA: NSW: VIC: TAS:</div></div> <div>Ref: xxxx</div>	<div>America</div> <div>Xx%</div> <div>Ref: xxxx</div>	<div>India</div> <div>Xx%</div> <div>Ref: xxxx</div>	<div>China</div> <div>Xx%</div> <div>Ref: xxxx</div>
<div>Africa</div> <div>Xx%</div> <div>Ref: xxxx</div>	<div>Europe</div> <div>Xx%</div> <div>Ref: xxxx</div>	<div>Asia</div> <div>Xx%</div> <div>Ref: xxxx</div>	<div>Ballast Origin</div> <div><div>Type 1: xx Type 2: xx Type 3: xx</div></div> <div>Ref: xxxx</div>

Chapter Thirteen. Cruise shipping

Where are the cruise ships visiting?

Mean Ports visited per ship

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Mean time at each port

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Anchorage visited

Anchor1	: xx
Anchor2	: xx
Anchor3	: xx
Anchor4	: xx
Anchor5	: xx
Anchor6	: xx
Anchor7	: xx

Ports visited

Cooktown	: 4
Port Douglas	: 18
Cairns/Yorkey's Knob	: 33
Hamilton Island	: 21
Townsville	: 5

Ref: Ports North Cruise
Liner Schedule 2011

Routes Used

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Incidents at each anchorage

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Number of groundings

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Did crew leave port?

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Chapter Thirteen. Cruise shipping

Where do cruise ships go?

Map of cruise shipping for 2011

Chapter Thirteen. Cruise shipping

When are the cruise ships visiting?

Map of cruise shipping for 2011

Chapter Thirteen. Cruise shipping

What is the value of cruise shipping?

Economic Value

Large & Mega Cruise
Total output : \$300.9M
Expenditure : \$157.5M

Adventure Cruises
Total output : \$23.5M
Expenditure : \$12.6M

Ref: xxxx

Projected Growth

Expected by 2025:4%

Ref: DEEDI (2010)

\$ Spent in Port

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

\$ spent in Shipping Yards in GBR region

Cape York	: xx
Terrain FNQ	: xx
Burdekin	: xx
Mackay-Whit	: xx
Fitzroy Basin	: xx
Burnett Mary	: xx
TOTAL (GBR)	: xx

Ref: xxxx

\$ on Shipping GBR Fees ?

\$XX :

Ref: xxxx

\$ on Anchorage Fees ?

\$XX :

Ref: xxxx

\$ on other Fees ?

\$XX :

Ref: xxxx

Chapter Thirteen. Cruise shipping

How is cruise shipping perceived?

Traditional Owners

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Recreational Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Commercial Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Port Towns (residents)

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Marine Tourists

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Mining

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Local Businesses

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

NGOs

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Chapter Thirteen. Cruise shipping

Direct drivers of change on cruise shipping

Value of Australian \$

Graph showing fluctuations
over 2011

Ref: xxxx

Capacity of anchorage

Capacity 1 :
Capacity 1 :
Capacity 1 :
Capacity 1 :
Capacity 1 :
Capacity 1 :

Ref: xxxx

Local Support

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Regulations on industry

Regulation :
Regulation :
Regulation :
Regulation :
Regulation :

Ref: xxxx

Consumer Demand

Consumer 1:
Consumer 1:
Consumer 1:
Consumer 1:
Consumer 1:

Ref: xxxx

Mining

Product 1 :
Product 1 :
Product 1 :
Product 1 :
Product 1 :

Ref: xxxx

Chapter Thirteen. Cruise shipping

Drivers of change. Global values of cruise shipping

The CLIA fleet

Total ships: 211
Total beds: 325,400
Operating capacity (2010):
103.2%
Total guests from 1980-2012:
225 million (188 million from
North America)

Ref: [http://www.cruising.org/
sites/default/files/pressroom/2012Cr
uiseIndustryUpdateFinal.pdf](http://www.cruising.org/sites/default/files/pressroom/2012CruiseIndustryUpdateFinal.pdf)

New stuff

New ships since 2000: 143

New ships 2011: 13 (+12
new, +1 refurbished)

New beds 2011: 14,886

Total guests (2010): 14.82
million (72.8% North
American)
Australia Penetration: 2.1%

Ref: [http://www.cruising.org/
sites/default/files/pressroom/2012Cr
uiseIndustryUpdateFinal.pdf](http://www.cruising.org/sites/default/files/pressroom/2012CruiseIndustryUpdateFinal.pdf)

Chapter Thirteen. Cruise shipping

Drivers of change. Global values of cruise shipping

- Deployment by passenger bed days in geographic market (2011) – Top Markets

1. Caribbean: 36.2 million bed days (33.7 percent)
2. Mediterranean: 21.99 million bed days (20.44 percent)
3. Europe/Scandinavia: 8.47million bed days (7.9 percent)
4. Alaska: 6.65 million bed days (6.18 percent)
5. Bahamas: 6.5 million bed days (6.05 percent)
6. Mexico (West): 3.51 million bed days (3.27 percent)
7. Transatlantic: 3.1 million bed days (2.9 percent)
8. Australia/New Zealand/S. Pacific: 2.9 million bed days (2.7 percent)
9. Trans Canal: 2.69 million bed days (2.5 percent)
10. South America: 2.6 million bed days (2.4 percent)
11. Hawaii: 2.19 million bed days (2.14 percent)

5 Year Change in geographic deployment (2006-2011) bed day percent change /share shift

- Caribbean + 13.5 percent / -5.5 points
- Mediterranean + 109.38 percent / +7.5 points
- Europe/Scandinavia +24.61 percent / -.5 points
- Alaska + 4.66 percent / -1.62 points
- Bahamas +7.2 percent / -1.4 points
- Mexico (West): -32.6 percent / -3.1 points
- Transatlantic: +111.2% / +1.08 points
- Australia/New Zealand/S. Pacific: 101.2 percent / +.93 points
- Trans Canal: -3.91 percent/ -.94 points
- South America: +81.7 percent / +.67 points
- Hawaii: -23.9% percent / -1.5 points

Chapter Thirteen. Cruise shipping

Drivers of change. Australian values of cruise shipping

Totals

Cruise ship numbers: 42 (+24%)
Total visitors: XXXXXXXX
Total cruises: XXXXXXXX

Ref: Tourism Queensland

Crew

Crew capacity: 21,786 (+19%)
Crew days at port: 237,386 (0%)
Crew expenditure: \$43.5 million (+10%)

Ref: Tourism Queensland

Ports

Number of ports recording a visit: 29 (-1 port)
Cruise ship visits to Australian ports: 568 (-14)
- Queensland: 193
Total passenger days at port: 1,081,665 (~ same)

Ref: Tourism Queensland

Passengers

Total passenger numbers: 623,294 (+ 34%)
Passenger capacity: 49,254 (+18%)
Passenger expenditure: \$305.5 million (+10%)

Ref: Tourism Queensland

Economic Impacts

Total expenditure: \$974.7 million (+18.6%)
Total wages: \$254.5 million (+18.3%)
Full time positions: 4,270 (+17.6%)
Port-related expenditure: \$440.6 million (+21%)

Ref: Tourism Queensland

Penetration: 2.1%
Global rank: 3rd (USA – 3.26%; UK – 2.51%)

Ref: <http://www.cruising.org/sites/default/files/pressroom/2012CruseIndustryUpdateFinal.pdf>

Percentage of GDP for 2011: 0.05%.

Ref: xxxx

Main passenger countries

North America
UK
Europe
South America
Japan
China
India

Ref: Was simply listed, no data.

Chapter Thirteen. Cruise shipping

Drivers of change. Queensland values of cruise shipping

Total Economic Contribution

Value added: \$166.4 million
(+16.8%)

Labour income: \$92.7 million
(+16.8%)

Full-time Employment : 1,480
workers (+14.2%)

Ref: Deloitte Access Economics

Passenger Economic Contribution

Value added: \$66.1 million

Labour income: \$37.7 million

Full-time Employment : 684
workers

Ref: Deloitte Access Economics

Crew Economic Contribution

Value added: \$8.9 million

Labour income: \$5.2 million

Full-time Employment : 109
workers

Ref: Deloitte Access Economics

Operator Economic Contribution

Value added: \$91.4 million

Labour income: \$49.8million

Full-time Employment : 686
workers

Ref: Deloitte Access Economics

Cruise ship visit days

NSW: 164
QLD: 193
VIC: 39
WA: 68
TAS: 40
NT: 46
SA: 16

Total: 568

Ref: Deloitte Access Economics

Passenger days at port

NSW: 515,529 (+27.9%)
QLD: 328,863 (+24.8%)
VIC: 68,961 (+0.3%)
WA: 67,586 (+3.2%)
TAS: 45,681 (-13.1%)
NT: 40,056 (+29.2%)
SA: 13,205 (+13.4%)

Total: 1,081,665 (18.9%)

Ref: Deloitte Access Economics

Crew days at port

NSW: 110,474 (+2.5%)
QLD: 63,944 (-6.8%)
VIC: 16,264 (-22.9%)
WA: 18,785 (-15.7%)
TAS: 11,910 (-27.9%)
NT: 11,504 (-52.6%)
SA: 4,011 (-9.4%)

Total: 237,386 (-7.1%)

Ref: Deloitte Access Economics

Chapter Fourteen

Defence shipping in the Great Barrier Reef

People and Governance Goal: To maintain Defence's reputation for quality environmental stewardship with our personnel and external stakeholders and to establish effective training and governance procedures for environmental management (Department of Defence, Environmental Strategic Plan 2010-2014).

The Australian Defence Force has been operating in the Great Barrier Reef (GBR) region for many decades. During the Second World War military and merchant ships used the GBR region extensively for artillery, air bombing and gunnery practice. Cairns was used to resupply and refit ships before heading out to destinations in the Pacific [1,2]. Nowadays, the Great Barrier Reef Marine Park (GBRMP) is regularly used by the Australian Defence Force for training, research, development, trials of new technologies and operational procedures. Activities range from simple single unit based exercises to large complex exercises involving many air, sea and amphibious units spread over several days or weeks. Other Defence activities in the GBR area include hydrographic surveys, the rendering safe of explosives, search-and-rescue, border protection surveillance and response. Ongoing navy operations in the region also deter fishing, support the quarantine barrier that aims to stop the arrival of threatening pests and diseases into the country and remove 'ghost' nets [1].

Chapter Fourteen

Defence shipping in the Great Barrier Reef

The Great Barrier Reef is one of four Australian Particularly Sensitive Sea Areas (PSSA) that the Navy uses. The Great Barrier Reef Marine Park contains Navy, Army and Air Force bases, a Defence Science and Technology Organisation (DSTO) and a number of Defence Practice Areas (DPA) (see Map x). Defence has several important field training areas in the Marine Park including Shoalwater Bay, Halifax Bay and Cowley Beach. These training areas are regularly used by the Australian Defence Force and occasionally by other countries for land and sea based exercises including tactical manoeuvres, target firings, amphibious operations, mine hunting and support operations [3]. Since the 1980s, the Shoalwater bay training area has become a particular focus of Defence training activities, playing host to most of Australia's major amphibious exercises and other major naval exercises [4]. The islands of Townshend, Raynham, Triangular and Rattlesnake within the GBR area are also used by Defence for training activities and weapon impact testing (see Map x).

Most Defence activities undertaken in the Marine Park are environmentally benign or pose an extremely low risk of significant negative effects on the world heritage values of the area [2]. Potential risks to the GBR world heritage values include oil spills from ships, the introduction of exotic marine pests, contamination and death of marine wildlife from the debris and residues from explosives, vessel strikes to turtles and cetaceans and acoustic disturbance to marine wildlife from the use of explosives and low flying aircraft and sewage discharges from ships, particularly large amphibious units. Most of these activities are considered a low environmental risk because they are well managed and of a relatively low spatial and temporal extent [5]. Limiting public access and coastal developments in Defence areas can be considered a conservation benefit for the region [4].

A main driver of change for the Royal Australian Navy is the public perception of defence activities. Environmental issues associated with the GBR that have resulted in community concern include the impact of high explosives on marine life, use of sonar, clean-up of unexploded ordinance (UXO), boat strikes of endangered species or sensitive habitats, and pollution from rubbish, sewage discharge and oil spills [3]. Exclusion of civil activities during or arising from Defence activities and the operation of nuclear powered warships are other issues of potential community concern. Other drivers of change for defence which will have flow on effects for the GBR (with changes to shipping numbers, training activities and technologies) include Australia's changing security environment and demographic trends [6].

Chapter Fourteen

Defence shipping in the Great Barrier Reef

The Department of Defence and the GBRMPA are strongly committed to continuing to work closely together in a constructive and complementary way to ensure the protection, understanding and sustainable use of the Marine Park. To implement this commitment the GBRMPA and the Department of Defence have entered into a [Management Agreement on the Implementation of the Strategic Environment Assessment of Defence Activities in the Marine Park](#) [3].

The Australian Government allocated A\$24.2 billion to Defence in the 2012–2013 financial year. This level of expenditure is equivalent to approximately 1.56% of Australian Gross Domestic product and 6.65% of the Government's planned expenditure over the same financial year. In broad terms, 43% of the 2011–2012 Defence budget will be allocated to personnel expenses, 38% to operating costs and 19% to investment [6].

References

- [1] Royal Australian Navy. http://www.navy.gov.au/HMAS_Cairns#Cairns_Based_Fleet_Units
- [2] Directorate of Environmental Stewardship, 2006. Department of Defence. Strategic Environmental Assessment of Defence Activities in the Great Barrier Reef World Heritage Area. URS, Perth.
- [3] Great Barrier Reef Marine Park Authority 2011. <http://www.gbrmpa.gov.au/about-the-Reef/Managing-multiple-uses/defence>
- [4] Commonwealth of Australia, 2009. State of the Environment Report for Shoalwater Bay Training Area 2008. Department of Defence, Canberra.
- [5] Commonwealth of Australia. 2009. Great Barrier Reef Outlook Report 2009. Great Barrier Reef Marine Park Authority, Townsville.
- [6] Wikipedia: Australian Defence Force. http://en.wikipedia.org/wiki/Australian_Defence_Force

Chapter Fourteen.

The Ships that reside in the GBR

How many ships?

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

Tonnage of ships?

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

No. piloted

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

Number of Crew

Cooktown :
Daintree River:
Cape Flattery:
Port Douglas:
Cairns:
Mourilyn:
Lucinda:
Townsville:
Abbott Point :
Whitsundays:
Mackay :
Hay Point :
Bowen :
Rockhampton:
Port Alma :
Gladstone:
Bundaberg :
TOTAL: (NOT SUM of
visits to region)

Ref: MSQ

Chapter Fourteen.

Environmental Incidents

<div>No. of groundings</div> <div>Incidents : Locations : Details :</div> <div>Ref: xxxx</div>	<div>No. spillages</div> <div>No. ships : % of total:</div> <div>Ref: xxxx</div>	<div>No. that adopt best practices (IMO)</div> <div></div> <div>Ref: xxxx</div>	<div>Ballast discharge details</div> <div></div> <div>Ref: xxxx</div>
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Chapter Fourteen.

Where are the ships in the GBR?



Chapter Fourteen.

When are the ships visiting?



Graph of months for 2011

Chapter Fourteen.

The GBR Defence Ships

Number of vessels based in Cairns

Patrol Boats=	xx +4
Hydrographic survey=	2
Survey Motor =	4
Amphibious support=	4
Heavy Landing craft=	4

Length of vessels

Patrol Boats=	56.8m
Hydrographic =	71m
Survey Motor =	36m
Amphibious support=	
Heavy Landing craft=	45m

Size of vessel (tonnes)

Patrol Boats=	305t
Hydrographic =	2,550t
Survey Motor =	360t
Amphibious support=	
Heavy Landing craft=	323t

Age of vessels

Patrol Boats=	2007
Hydrographic survey=	1998
Survey Motor =	1990
Amphibious support=	
Heavy Landing craft=	1973

Crew capacity

Patrol Boats=	21
Hydrographic survey=	46
Survey Motor =	15
Amphibious support=	
Heavy Landing craft=	13

Chapter Fourteen.

How is the defence shipping industry perceived?

Traditional Owners

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Recreational Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Commercial Fishers

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Port Towns (residents)

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Marine Tourists

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Mining

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Local Businesses

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

NGOs

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

Chapter Fourteen. The GBR Defence Ships 2011 Operations

Operation RESOLUTE

- ADF's contribution to the whole-of-government effort to protect Australia's borders and offshore maritime interests
- Commenced on 17 July 2006 and consolidates previous SDF operations
- Covers Australia's exclusive economic zone, which includes the GBR
- Up to any one time 500 ADF personnel are assigned to this operation
- Includes at least 7 RAN patrol Boats operating daily throughout Australia's northern off-shore maritime areas
- There is also a standby Navy major fleet unit for northern waters response
- ADF units transiting the area of operations, whilst not assigned to operation RESOLUTE, also contribute to the overall surveillance and security effort

TALISMAN SABRE 2011

- A Biennial combined training activity, designed to train Australian and US forces in planning and conducting Combined Task Force operations
- Includes operations in the Naval Activities East area and Shoalwater Bay
- Includes these ships:
 - ANZAC Class frigate,
 - Adelaide Class Guided Missile Frigate, Huon Class Minehunter, Armidale Class Patrol Boat, Auxillary Oiler Replenishment (HMAS Sirius), Landing Craft heavy and Mechanised

Chapter Fourteen.

The major drivers of change

Australian \$

See Erin

Ref: xxxx

Capacity of Ports

Port capacity of port 1 :
Port capacity of port 1 :
Port capacity of port 1 :
Port capacity of port 1 :
Port capacity of port 1 :
Port capacity of port 1 :

Ref: xxxx

Political Stability

Election : yes/no

Ref: xxxx

New regulations on industry

Regulation :
Regulation :
Regulation :
Regulation :
Regulation :

Ref: xxxx

Consumer Demand

Consumer 1:
Consumer 1:
Consumer 1:
Consumer 1:
Consumer 1:

Ref: xxxx

Mining

Product 1 :
Product 1 :
Product 1 :
Product 1 :
Product 1 :

Ref: xxxx

Local Support

Perception :
Perception :
Perception :
Perception :

Ref: xxxx

XXX

Xxx
Xxx
Xxx
xxx

Ref: xxxx

Chapter Fifteen

Mining in the Great Barrier Reef region

The Great Barrier Reef catchment has vast mineral reserves that support a growing mining industry in Queensland. The mining industry has been central to the Queensland economy since gold mining started in the 1860s. Over the 150 years of mining in Queensland, 53 000 mining leases have been granted [1]. In 20010-11 the resources sector contributed an estimated \$25.2M in direct spending to the Queensland economy [2]. Mining in the GBR region is currently concentrated within the Fitzroy and Mackay statistical divisions, producing collectively more than 80 per cent of the GVP of mining for the GBR region [3]. The mining industry contributed over \$4,000M in direct spending, and 10,000 jobs, to the Mackay and Fitzroy regions in 2010/11 [2]. The third biggest area for mining in the GBR catchment area is the Burdekin or Northern region. Coal is the main resource mined and exported in Queensland, earning \$25,393M in 2011 [4]. There are more than 30 billion tonnes of identified resources of black coal in Queensland [5]. Queensland, in particular the North-West, is widely recognised for its world-class endowment of base metals. It is the world's second largest producer of lead (10.4% of global production), the third largest zinc producer (6.9%) and the fifth largest silver producer (7.60%) [6]. The largest onshore [oil](#) and gas potential in the country is also located in Queensland [7]. Prevention of contaminants from these current mining operations entering water bodies in the GBR catchment is part of the rehabilitation responsibilities of the mining industry, and an essential part of the industry's efforts to maintain its social license to operate [8].

Chapter Fifteen

Mining in the Great Barrier Reef region

Many of the mineral reserves within the Great Barrier Reef catchment are due to be mined as part of an unprecedented expansion of the resource sector in Queensland. This expansion or 'mining boom' will drive changes in the economies of sectors (i.e. coastal communities, tourism, fishing and agriculture) that use and benefit from the Great Barrier Reef. There is currently an investment of approximately AUD \$165 billion in large mining projects that are currently either under study, committed or under construction [9]. The current 'boom' is broad-based across a range of resources, but the core part centres on the large expansion in the iron ore, coal and gas industries, driven to a large degree by demand for resources by emerging economies, most notably China [10]. Queensland's coal seam gas (CSG) industry has grown rapidly over the past 15 years, with the annual number of wells drilled increasing from 10 in the early 1990s to almost 600 in 2010–11 [11]. The decade long ban on uranium mining in Queensland has also recently been overturned, as Australia's trade relations with economies such as India increase. This decision is likely to significantly shape the future of the Queensland mining industry, with the state's uranium reserves worth \$18 billion [12].

The expansion of the mining industry in Queensland has potential direct consequences for the Great Barrier Reef with new port and rail developments and increases in shipping activity. There are plans to expand the State's rail corridors and export capacity at major export ports including: Gladstone, Brisbane, Hay Point, Dalrymple Bay, Abbot Point and Townsville [13]. These developments create risks to the Great Barrier Reef through oil and chemical spills, introduction of exotic species, dredging and spoil disposal and destruction of coastal habitat [14]. Societal concern for the adequate protection of Great Barrier Reef world heritage values has prompted the Queensland and Australian Governments to announce a new strategic assessment aimed at protecting the unique environmental values of the World Heritage Area and the Great Barrier Reef coast [15].

Chapter Fifteen. Mining in the Great Barrier Reef region

Employment in the industry

Coal open cut/exploration mines

31 March 2011: 26,091
30 June 2011: 27,806
30 September 2011: 29,854

QLD Govt 2011

Coal underground

31 March 2011: 5,885
30 June 2011: 6,170
30 September 2011: 7,081

QLD Govt 2011

Metalliferous surface

31 March 2011: 5,586
30 June 2011: 6,261
30 September 2011: 6,586

QLD Govt 2011

Metalliferous underground

31 March 2011: 4,653
30 June 2011: 5,059
30 September 2011: 5,820

QLD Govt 2011

Quarries, petroleum and gases

30 June 2011: 1,593
30 September 2011: 1,418

QLD Govt 2011

Staff turnover

In case studies of 9 remote mining operations in QLD and WA :

- the average annual turnover of company employees was 21%
- the cost for an average rate of employee turnover at a mine with 300 employees was estimated to be \$2.8m/annum

Availability of labor

For different employment types/categories

Ref: xxxx

Working hours, pay structures, wages relative to other sectors, full and part time staff, numbers of different type of employees??

Xxx

Refs: xxxx

Chapter Fifteen. Mining in the Great Barrier Reef region

What was mined in the region?

Overview for Oct '11

- Advanced projects:
14 energy, 7 mineral, 8 infrastructure, 2 mineral and energy processing
- Less advanced projects:
59 energy, 29 mineral, 10 infrastructure, 2 mineral and energy processing

ABARE May 2011

Black Coal

- April 2011:¹
- 46 less advanced projects Oct 2011:²
 - Open-cut: 42
 - Underground: 13
 - 52 less advanced projects
- 9 Less advanced infrastructure projects in Apr 2011¹ and 7 in Oct 2012²

¹ABARE May 2011

²BREE Oct 2011

Coal seam

- Almost 600 wells drilled in 2010-11¹
- There are 4,243 wells in QLD in total²
- 2 less advanced mine projects in April 2011³ Oct 2011⁴

¹DEEDI Feb 2012

²Get Up 2011

³ABARE May 2011

⁴BREE Oct 2011

Bauxite/Aluminum/Alumina

- 4 Less advanced bauxite mine projects in Apr 2011¹ and 3 in Oct 2011²

¹ABARE May 2011

²BREE Oct 2011

Iron

- 1 crude iron and steel less advanced processing project in April 2011¹ and Oct 2011²

¹ABARE May 2011

²BREE Oct 2011

Copper

- 5 less advanced mine projects in Apr 2011¹ and 7 in Oct 2011²

¹ABARE May 2011

²BREE Cwlth of Aust Oct 2011

Lead/Zinc/Silver

- 2 less advanced mine projects in Apr 2011¹ and 1 in Oct 2011²

¹ABARE May 2011

²BREE Oct 2011

Chapter Fifteen. Mining in the Great Barrier Reef region

What was mined in the region?

<div>Gold</div> <div>6 less advanced mine projects in April 2011¹ and Oct 2011²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>	<div>Tin</div> <div>1 less advanced mine project in Apr 2011¹ and Oct 2011²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>	<div>Uranium</div> <div>2 less advanced mine projects in April 2011¹ and Oct 2011²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>	<div>Nickel</div> <div>5 less advanced mine projects in Apr 2011¹ and Oct 2011²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>
<div>Mineral sand</div> <div>No less advanced mine projects in April 2011¹ and 1 in Oct 2012²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>	<div>Petroleum</div> <div><ul style="list-style-type: none">•4 less advanced mine projects in April 2011¹ and 3 in Oct 2011²•3 petroleum pipelines and 1 petroleum processing project in Apr 2011¹ and Oct 2012²</div> <div>¹ABARE May 2011 ²BREE Oct 2011</div>	<div>Gases</div> <div>Pipeline and well data</div> <div>Ref: xxxx</div>	<div>Other</div> <div>xx</div> <div>Ref: xxxx</div>

Chapter Fifteen. Mining in the Great Barrier Reef region

What was mined in the region?

Coal

- Saleable raw coal production:
 - open cut: 15,822,244¹
 - underground: 2,834,667¹
- raw coal: March- 47.77 Mt, June 61.79 Mt, Sep 66.49 Mt, Dec 70.75 Mt²
- saleable coal: March 35.73 Mt, June 44.10 Mt, Sep 47.45 Mt, Dec 50.50 Mt²

¹ QLD Govt Apr 2011

² BREE Dec 2011

Coal seam

- Coal seam gas production- June 2011- 234 PJ, and 2P reserves 33 001 PJ
- Current infrastructure consists of more than 4000 kilometres of gas transmission pipelines

DEEDI Feb 2012

Bauxite/Aluminum /Alumina

Bauxite:
March- 4668 kt
June- 5061 kt
Sep- 5403 kt
Dec- 5600 kt

BREE Dec 2011

Zinc

Zinc content of all minerals produced:
Mar- 223kt
Jun- 268 kt
Sep- 255 kt
Dec- 262 kt

BREE Dec 2011

Iron

- Iron magnetite: 55,502 t¹

¹QLD Govt 2009-10

Copper

Copper content of all minerals produced Mar
Mar- 70 kt,
Jun- 75 kt
Sep- 81 kt
Dec- 75 kt

BREE Dec 2011

Silver

Silver content of all minerals produced:
Mar- 272t
Jun- 376t
Sep- 321 t
Dec- 384 t

BREE Dec 2011

Uranium Tin Mineral Sand Nickel

Tin concentrate for 2009-10 3 tonnes

QLD Govt 2009-10

Chapter Fifteen. Mining in the Great Barrier Reef region

What was mined in the region?

Lead

Lead content of all minerals produced:
Mar-97 kt
Jun- 121 kt
Sep- 110 kt
Dec- 117 kt

BREE Dec 2011

Gold

Gold content of all minerals produced for
Mar-Dec 2011: 4t

BREE Dec 2011

Condensate Gas

- Production: 107.1169 ML (2010-11)
- 2P Reserves: 909.94 ML (as at June 2011)

QLD Govt June 2011

Other...

- Zircon concentrate: Mar-Jun 2011- 10 kt, Sep-Dec 2011- 15 kt
- Titanium:
 - Ilmenite concentrate: Mar-Dec 2011- 47kt
 - Rutile concentrate: Mar-Dec 2011- 19 kt

BREE Dec 2011

LNG

LNG: 5Mt

ABARE March 2011

Conventional Gas

- Gas Production 2010-11: 1993.13 Mm3 (74.6Pj)
- Gas 2P Reserves as at 30 June 2011: 15077.16 Mm3 (564.6 Pj)

QLD Govt June 2011

Petroleum

- Oil production 2010-11: 370.7461 ML¹
- Oil 2P Reserves as at 30 June 2011: 5036.43 ML¹
- Crude oil- quantity 432,896 kilolitres³
- Crude oil and other refinery feedstock: 4029ML volume³
- Refinery products: 104ML²

¹QLD Govt June 2011

²ABARE March 2011

³QLD Govt 2009-10

LPG

- LPG production 2010-11: 123.5580 ML¹
- LPG 2P Reserves: 872.02 ML¹
- Liquefied petroleum gases- Butane- quantity 77,029 kilolitres²
- Liquefied petroleum gases- Propane- quantity 77,0292
- LPG: 534ML³

¹QLD Govt June 2011

²QLD GOVT 2009-10

³ABARE March 2011

Chapter Fifteen. Mining in the Great Barrier Reef region

What was the value of the resources?

Coal-Value

- Coal value production \$8.3M
- Thermal coal \$107/t¹
- Coal, Black (metallurgical): high quality- Mar 216.93, Jun 266.63, Sep 272.74, Dec 262.46 A\$/t
- Coal, Black thermal – Mar 99.35, Sep 107.21, Dec 113.33 A\$/t²

¹ QRC 2011

²BREE Dec 2011

Petroleum

- Dubai 100.26 US\$/bbl¹
- West Texas intermediate 94.41 US\$/bbl¹
- Brent 105.21 US\$/bbl¹
- Tapis 109.34 US\$/bbl¹
- World Trade weighted 100.78US\$/bbl
- Well-head value of petroleum production for 2009-10 A\$916.17 million²
- Crude oil- quantity 432,896 kilolitres, value \$ 158,566,602³

Bauxite/Aluminum/Alumina

- Alumina- Mar 335, Jun 341, Sep 337, Dec 356 A\$/t
- Aluminium LME cash: Mar 2503, Jun 2597, Sep 2400, Dec 2250 US\$/t resource price¹
- Aluminium Australia- Mar 2556, Jun 2547, Sep 2441, Dec 2224 A\$/t resource price¹
- \$AU336/t Aluminum²

¹BREE Dec 2011

²QRC 2011

Zinc

- LME cash: Mar 2393, Jun 2250, Sep 2224, Dec 1912 US\$/t resource price and
- Australia: Mar 2575, Jun 2387, Sep 2327, Dec 2112 A\$

BREE Dec 2011

Iron

- Japanese negotiated- Mar 183.62, Jun 248.28, Sep 248.60, Dec 211.18 US\$/dmtu

BREE Dec 2011

Copper

Copper resource price LME cash- Mar 9 651, Jun 9152, Sep 9120, Dec 7485 US\$/t and Australia- Mar 9 620, Jun 8649, Sep 8658, Dec 7407 A\$/t

BREE Dec 2011

Silver

- World- Mar 3186, Jun 3796, Sep 3898, Dec 3188 US\$/oz
- Australia- Mar 991, Jun 1178, Sep 1128, Dec 948 A\$/kg

BREE Dec 2011

Petroleum products

- LPG 46ML, Total 138ML
- Automotive gasoline- premium unleaded 120ML, regular unleaded 700ML, other unleaded 225ML,
- Aviation gasoline 6ML
- Aviation turbine fuel 386ML
- Kerosine 1ML
- Auto diesel oil 1619ML
- Fuel oil 56ML
- Lubricating oil 25ML
- Bitumen 85ML

Chapter Fifteen. Mining in the Great Barrier Reef region

Where are the mines in the GBR?



Chapter Fifteen. Mining in the Great Barrier Reef region

Where are the mines in the GBR?



Chapter Fifteen. Mining in the Great Barrier Reef region

What was the value of the resources?

Lead

- \$AU2,617/t¹
- LME cash- Mar 2776, Jun 2718, Sep 2617, Dec 2293 A\$/t²

¹QRC 2011

²BREE Dec 2011

Gold

- \$US1,701 per ounce¹
- Mar 1382, Jun 1425, Sep 1626, Dec 1666 A\$/oz²

¹QRC 2011

²BREE Dec 2011

Titanium, Zircon

- Zircon concentrate all grades bagged; Mar 1380, Jun 1585, Sep 2162, Dec 2488 A\$/t
- Rutile f avg export unit value: 945.63 A\$/t
- Titanium: Ilmenite concentrate bulk- Mar-Dec 110 A\$/t, Rutile concentrate bagged- Mar-Jun 624, Sep 685, Dec 638 A\$/t, Titanium dioxide pigment- Mar 2703, Jun 2850, Sep 3217, Dec 3134 A\$/t

Uranium

Uranium oxide:
industry spot- Mar 68.42, Jun 55.75, Sep 51.00, Oct 51.83 US\$/lb and Australia- Mar-Jun 92.57, Sep 103.70, Dec 108.47 A\$/kg

BREE Dec 2011

Nickel

- \$AU20,946/t¹
- LME Cash- Mar 26 824, Jun 22872, Sep 20946, Dec 18094 A\$/t²

¹QRC 2011

²BREE Dec 2011

Gases

- Natural gas condensate- quantity 93,373 kilolitres, value \$158,566,602.
- Natural gas- quantity 1,627,365,886 kilolitres, value 213,002,106.
- LPG -Butane- quantity 77,029 kilolitres, value 25,557,529. Propane-quantity 77,029, value \$25,557,529

QLD Govt 2009-10

Tin

LME: mar 24200, Jun 25400, Sep 23200, Dec 22100 US\$/t

Ref: Xx

Ref: Xx

Chapter Fifteen. Mining in the Great Barrier Reef region

Export figures

- In April 2011-Distribution and use interstate- 3,412 tonnes for non-ferrous metal production, 43,796 tonnes for 'others'
- Top ten countries by tonnes for all coals for each country in April 2011- Japan \$538,965,293 (3,110,121 tonnes), China \$106,959,761 (838,036 tonnes), India \$566,037,201 (2,384,650 tonnes), Korea \$254,240,660 (1,671,021 tonnes), Taiwan \$119,019,562 (877,557 tonnes), Brazil \$62,627,829 (366,974 tonnes), Netherlands \$42,927,927 (197,787 tonnes), United Kingdom \$83,700,195 (398,941 tonnes), France \$125,226,337 (610,058 tonnes), Italy \$11,405,991 (74,363 tonnes). Consolidated total- \$1,911,110,757 (10,529,508 tonnes)
- In April 2011 6,446,325 Tonnes of coking coal was exported, 1,836,299 of soft coking coal was exported and 3,320,88 of thermal coal was exported

QLD Govt Apr 2011

Chapter Fifteen. Mining in the Great Barrier Reef region

Destination of products

<div>Bauxite/Iron</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Coal seam</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Gold/silver</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Nickel/Copper</div> <div>xx</div> <div>Ref: xxxx</div>
<div>Lead, Zinc</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Petroleum</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Gases</div> <div>xx</div> <div>Ref: xxxx</div>	<div>Other</div> <div>xx</div> <div>Ref: xxxx</div>

Chapter Fifteen. Mining in the Great Barrier Reef region

Investment in industry. Exploration expenses.

Coal

- >34M tonnes of raw coal in-situ have been identified by drilling operations- coking coal amount to approx 8.7B tonnes, of which about 4B tonnes are suitable for open-cut mining¹
- Exploration expenditure for March 2011 90.1\$m²
- Exploration expenditure for June 2011 184.4\$m²

¹DEEDI July 2011

²ABS Dec 2011

Coal Seam Gas

- Of the 678 coal seam wells drilled, 243 were development wells, 227 were appraisal wells and 208 were exploration wells
- Exploration expenditure for the petroleum industry— including coal seam gas (CSG)— increased significantly with an expenditure of A\$480.5m

DEEDI Feb 2011

Petroleum and gas

- 708 petroleum wells spudded, made up of 678 CSG wells and 30 conventional petroleum wells¹
- 30 June 2010, 145 ATPs were granted, covering approx 370 000 sq km¹
- Petroleum exploration expenditure for March 2011 88.1\$m²
- Petroleum exploration expenditure for June 2011 104.6\$m²

Copper

- Exploration expenditure for March 2011 20.3\$m
- Exploration expenditure for June 2011 31.5\$m

ABS Dec 2011

Gold

- Exploration expenditure for March 2011 6.7\$m
- Exploration expenditure for June 2011 12.6\$m

ABS Dec 2011

Uranium

- Exploration expenditure for March 2011 np
- Exploration expenditure for June 2011 4.1\$m

ABS Dec 2011

Overall for QLD

Queensland is experiencing a boom in resource exploration and mining development. Total mineral and petroleum exploration expenditure in Queensland in the 12 months to March 2011 was a record \$1,008.3 million with exploration expenditure in the March quarter 2011 being \$201.7 million,

DEEDI Aug 2011

Chapter Fifteen. Mining in the Great Barrier Reef region

Human capital factors

Demographics

Employment type/skill
Mine where employed
Age
Gender
Partnered/single
Children- (non) dependent
Financial investments
Average income
Education levels
Etc..

Refs: xx

Where do the miners live?

Local to mine
Travel to mine- how far and how?
Etc..

Refs: xxx

How many rent and own property and where?

xxx

Refs: xxx

How long have people been working in the mines?

xxx

Refs: xxx

xxx

xxx

Refs: xx

xxx

xx

Ref: xxxx

xxx

xx

Ref: xxxx

xxx

xxx

xxx

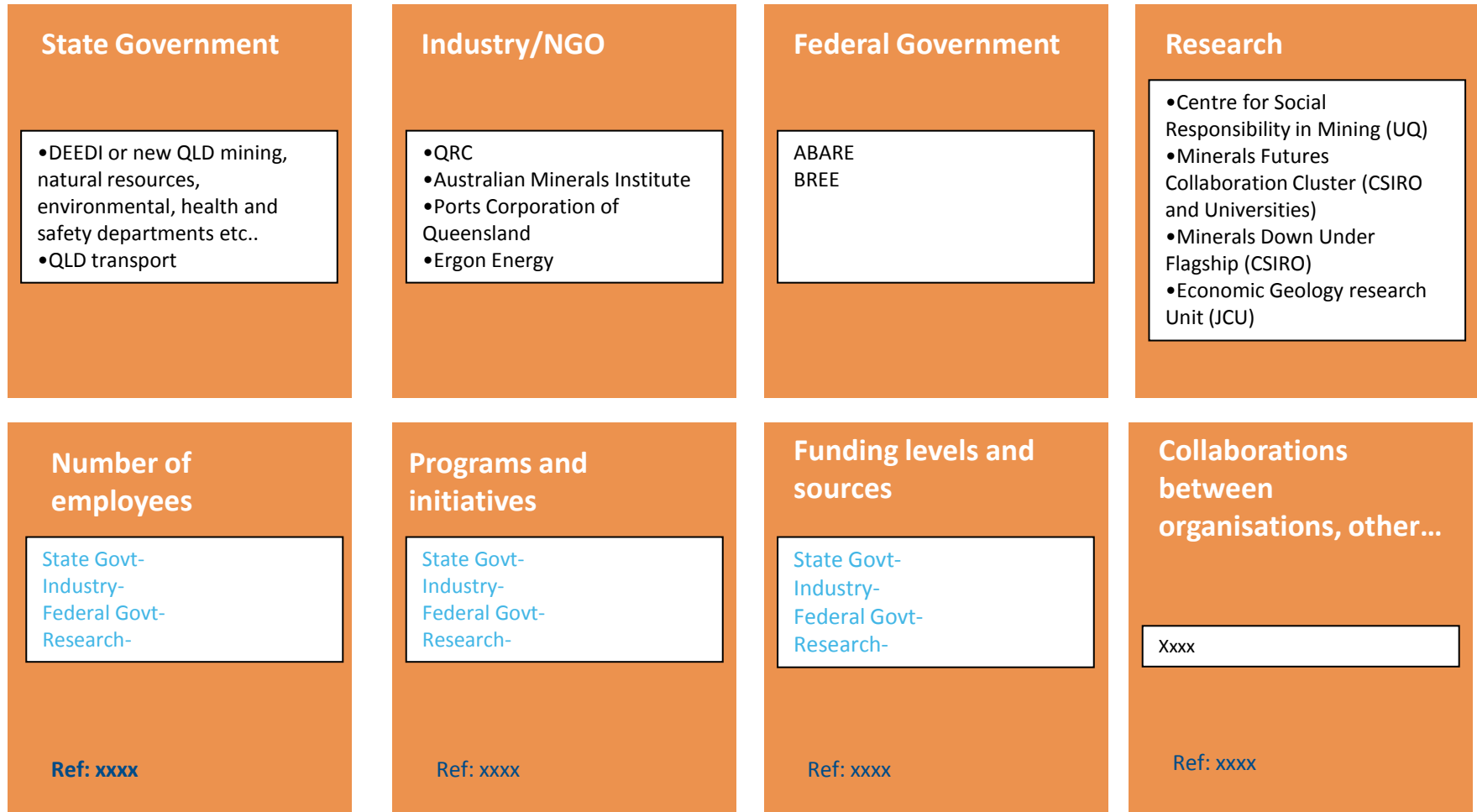
Chapter Fifteen. Mining in the Great Barrier Reef region

Human well-being

Fatal incidents <div>For each type of mine</div> Refs: Xxx	Injuries <div>Type and number of injury for each type of mine</div> Refs: Xxx	Divorce/ separation rate <div>xxx</div> Refs: Xxx	Suicide rate <div>xx</div> Refs: Xxx
Physical health statistics <div>xx</div> Refs: Xxx	Mental health plans <div>xx</div> Refs: Xxx	xx <div>xx</div> Refs: Xxx	xx <div>xx</div> Refs: Xxx

Chapter Fifteen. Mining in the Great Barrier Reef region

Social capital factors: Networks



Chapter Fifteen. Mining in the Great Barrier Reef region

Social capital factors: Networks

Coal

- Infrastructure used in local rural communities
- Infrastructure investment and programs with local rural communities
- Community involvement in mines
- School enrolments by mining families
- Number of locals employed/trained
- Number and type of agreements (and royalty figures) with rural landholders, native title owners, Aboriginal and Torres Strait islander communities etc..

Brereton and Evans 2005

Coal seam

- Infrastructure used in local rural communities
- Infrastructure investment and programs with local rural communities
- Community involvement in mines
- School enrolments by mining families
- Number of locals employed/trained
- Number and type of agreements (and royalty figures) with rural landholders, native title owners, Aboriginal and Torres Strait islander communities etc..

Brereton and Evans 2005

Bauxite/iron

Repeat..

Ref: xxxx

Nickel/copper

Repeat..

Ref: xxxx

Gases

Repeat..

xx

Other: Lead, zinc, petroleum etc.

Repeat..

xx

Chapter Fifteen. Mining in the Great Barrier Reef region

Adaptive capacity and vulnerability to change

Ability of miners to change occupations/other skills

Skills and experience in other occupations

Ref: xxxx

Community links/networks

Membership in groups and organizations

Ref: xxxx

Mines affected by natural disasters , including infrastructure, energy supply, telecommunications

It is estimated that the recent heavy rain, which caused damage to coal mines and associated infrastructure, could result in Queensland coal exports between December 2010 and March 2011 being 15 million tonnes lower than previously anticipated. It is estimated that the value of the lost exports could be in the order of \$2–2.5 billion.

ABARES Special Report 2011

Training and skill development

- Professional development
- On-job training
- Independent study undertaken by miners
- Investment in employee training
- Etc.

Ref: xxxx

Learning experiences

Sources of information or advice

Refs: xx

Organizations' programs to build adaptive capacity

Investment in training etc..

Ref: xx

Confidence in an ability of the self to adapt to change

xxx

Ref: xx

Chapter Fifteen. Mining in the Great Barrier Reef region

How does mining impact on the GBR?

Boat licenses for miners

xx

Ref: xxxx

Coastal development areas for mining

xx

Ref: xxxx

Ports used by mines and frequency and cargo of ships etc

Summary of shipping working group figures

Ref: xxxx

Coastal living

[Link to coastal communities and slide above on where miners live](#)

Ref: xxxx

Fish consumption

[How much fish is consumed by mines, what type and where does it come from?](#)

Refs:xxx

xxx

xxx

Refs:xxx

xxx

xxx

Refs:xxx

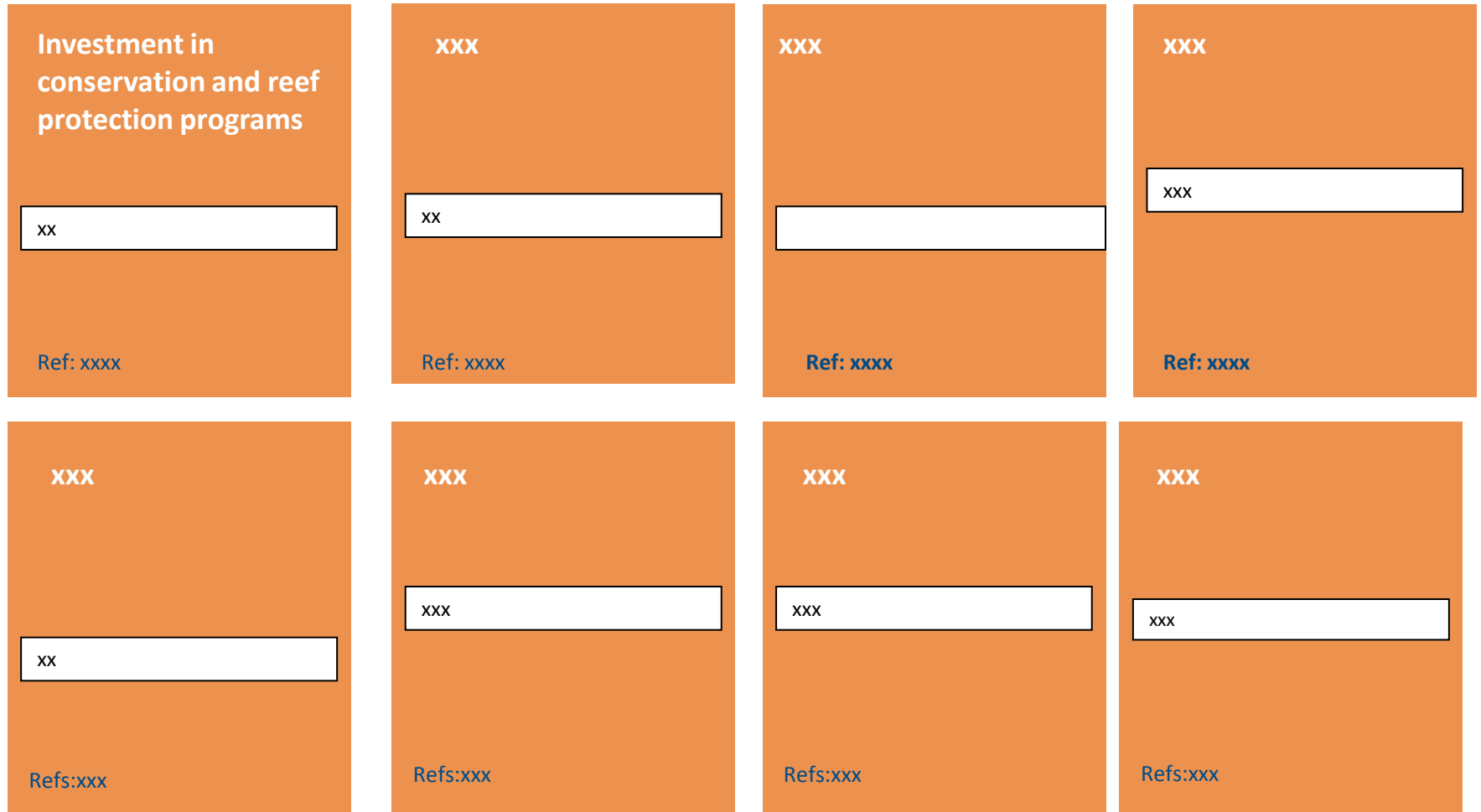
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Refs:xxx

Chapter Fifteen. Mining in the Great Barrier Reef region

How does the GBR benefit from mining?



Chapter Fifteen. Mining in the Great Barrier Reef region

What are community attitudes towards mining?

<p>Mining associated threats to the GBR</p> <p>xx</p> <p>Ref: xxxx</p>	<p>Local community relationship</p> <p>Local community, rural landholder, traditional owner perceptions of mines and mine development</p> <p>Ref: xxxx</p>	<p>xxx</p> <p>Ref: xxxx</p>	<p>xxx</p> <p>xxx</p> <p>Ref: xxxx</p>
<p>xxx</p> <p>xx</p> <p>Refs:xxx</p>	<p>xxx</p> <p>xxx</p> <p>Refs:xxx</p>	<p>xxx</p> <p>xxx</p> <p>Refs:xxx</p>	<p>xxx</p> <p>xxx</p> <p>Refs:xxx</p>

Chapter Fifteen. Mining in the Great Barrier Reef region

Drivers of change in the mining industry

Sustainability and ecosystem health

Ecosystem stress in mineral-rich regions influences societal support for degree of sustainability measures (i.e. weak or strong)- move to support for strong sustainability could impact on scale of production and consumption of and access to vital resources for mining

Risks associated with climate change

- Intergovernmental Panel on Climate Change 2007
- Impacts of climate change on the mining industry
- Impact of mitigation measures on mining

Environmental constraints, peak minerals and ore grade

- Environmental impact of processing mineral resources continues to increase as ore grades decline
- Impacts on ecological, social and economic health of industry-affected regional communities and other sectors

Resource depletion

Contested views on whether resources will be depleted

Peak oil and energy intensity of minerals production and transport

Australian fuel imports have already exceeded the monetary value of Australia's coal exports

Social license to operate and project financing

Support for mining from the local community and other stakeholders

Corporate sustainability reporting and corporate social responsibility

Standardization and reporting guidelines (i.e. the Global Reporting Initiative, minerals industry sustainability principles, Extractive Industry Transparency Initiative)

Eco-efficiency and dematerialization

Minimizing environmental impacts at the operational level

Chapter Fifteen. Mining in the Great Barrier Reef region

Drivers of change in the mining industry

Industry structure: consolidation and emerging players

- Fewer but larger mining and minerals processing corporations relative to other stakeholders
- Influence of companies from the 'emerging economies' (i.e. China, Russia, Brazil, Chile, South Africa and India)

Law and governance

- Formation of global, national and regional networks of communities and NGO's focused on mining and mineral issues
- Higher standards of environmental and social impact management and reporting
- Polluter pays (i.e. Federal government mining tax)
- Public participation
- Reef protection and risk prevention plans with ports

Chapter Fifteen. Mining in the Great Barrier Reef region

Future industry drivers ranked by Australian Institute of Mining and Metallurgy members (Moffat *et al.*, 2009)

Drivers	Mean
Economics of mining: cost and return on investment for Australian operations compared to elsewhere (<i>e.g.</i> , declining ore grades, availability and accessibility of new ore bodies)	6.17
Global context: economic stability, rates of growth, and consumption patterns in consumer economies (<i>e.g.</i> , USA, China)	6.08
Australian society: expectations around how the industry operates (<i>e.g.</i> , rehabilitation of mining operations) and treats its employees (<i>e.g.</i> , safety standards)	5.47
Substitution: availability of substitutes for mineral commodities in upstream production processes and end user preferences (<i>e.g.</i> , alternatives to coal for electricity, alternatives to aluminium for packaging)	5.21
Emissions trading: national and international frameworks that have the effect of imposing a price on carbon and/or greenhouse gasses	4.98
Environment: effects of increased climate variability and unforeseen extreme weather events (<i>e.g.</i> , drought, cyclones)	4.73

Chapter Fifteen. Mining in the Great Barrier Reef region

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