

**Final Public Benefit Test report for the
*Marine Parks (Moreton Bay) Zoning Plan 2008***

Prepared by the Environmental Protection Agency

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1 Executive summary

The current *Marine Parks (Moreton Bay) Zoning Plan 1997* was reviewed by the Environmental Protection Agency (EPA) under the *Statutory Instruments Act 1992*, which requires that subordinate legislation be reviewed every ten years. The zoning plan contributes to achieving the object of the *Marine Parks Act 2004*, that being the conservation of the marine environment. The drivers of the review process are primarily environmental and social, with the State recognising the need to ensure effective management arrangements for the marine park, particularly in the face of increasing pressure from population growth in south-east Queensland.

In reviewing the zoning plan, the EPA undertook extensive data collection and engaged an independent Expert Advisory Panel (refer to Appendix 1) to develop a set of 13 Scientific Guiding Principles to underpin the review and development of a new zoning plan (refer to Appendix 2). In addition, extensive information was gathered from the community through 6500 responses to an online survey, more than 100 face-to-face meetings with key stakeholders, workshops with over 100 participants, 16 community information and display sessions and through receipt of over 8000 public submissions in response to the release of the draft zoning plan, Regulatory Impact Statement and Public Benefit Test.

The provisions of the new zoning plan have not changed substantially from those existing under the current zoning plan. However, the increase in the extent of zones which are restrictive has increased significantly. Marine national park, or “green zones”, have increased from 0.5 per cent to 16 per cent of Moreton Bay Marine Park, to address the significant deficiencies of the current zoning plan with regard to meeting current standards for marine conservation in marine parks. This increase means around 540km² of the 3400km² marine park allows uses that are non-extractive in nature, leaving the remaining 2860km² or 84 per cent with zoning arrangements that provide for a range of extractive uses.

Green zones are non-extractive areas which preclude all forms of take. This arrangement is consistent with marine park’s in other states; for example in New South Wales the Cape Byron Marine Park protects 27.5 per cent in green zones, Jervis Bay Marine Park protects 20 per cent, Solitary Islands protects 12 per cent; in Western Australia Ningaloo Marine Park protects 34 per cent; and in South Australia the Encounter Marine Park proposes protecting 13 per cent. In Moreton Bay Marine Park, the area of conservation park (yellow) zone and habitat protection (dark blue) zone has also increased. These areas also place restrictions on commercial fishing activities, with yellow zones precluding most forms of commercial fishing and dark blue zones restricting trawling activities.

The new zoning plan results in a smaller area being available to be fished by the 410 boats in commercial fishing industry in the marine park. If nothing were done to address this matter, there would likely be severe user conflicts, competition between operators over the available fish resources and unsustainable fishing effort in the remaining areas available to be fished, and/or difficulties in maintaining viable commercial fishing operations. These restrictions affect commercial fishers operating in the trawl, net, line, crab and aquarium fish fisheries to a varying degree. A number of these operators also derive income from fishing in waters external to the marine park, particularly those in the trawl industry.

Alternate options considered during the review included maintaining the existing zoning arrangements for Moreton Bay Marine Park or allowing the zoning plan to expire, leaving the marine park completely unzoned. Further discussion of these options is contained in this report.

There is a range of costs and benefits associated with rezoning the marine park. As discussed, the primary section of the community to bear these costs is the commercial fishing industry. Some social costs will likely be sustained by the recreational fishing industry through the loss of some fishing locations in marine national park (green) zones, and there will be costs to government for implementation, compliance and monitoring programs for the zoning plan.

Costs are also associated with implementing a structural adjustment of the commercial fishing industry, providing an artificial reef program to provide new recreational fishing opportunities and operating a scientific monitoring program. Many of these costs have already been recognised by government through provision of \$15 million for structural adjustment of the commercial fishing industry, \$1 million to establish a trial artificial reef program and \$500 000 per year for a five-year scientific monitoring program in the marine park.

The benefits of increased protection of the marine park include the likelihood of an increase in biomass associated with marine national park (green) zones where extractive uses are prevented – this is also likely to result in benefits for adjacent areas of the marine park. Additional benefits for the Queensland community and the broader society in general include conserving a proportion of marine habitats at a time when increasing population growth and demand for resources has the potential for increased impacts on these environments which, if lost, would be significantly more costly and difficult to rehabilitate in the future.

As a signatory to the international Convention on Biological Diversity, the increased protection of biodiversity achieved through the rezoning directly contributes to Australia's obligations under the agreement to establish protected areas to conserve biological diversity. The rezoning also contributes directly to the Queensland Government's priority of *Managing Climate Change and Protecting the Environment*.

In addition to protecting biodiversity, benefits will also accrue to the broader community by having a zoning plan in place for Moreton Bay to manage the multiple uses of the marine park in a way that is consistent with the sustainable development principle; that is, areas of high conservation within the marine park are highly protected and conserved for the future, while other areas of the marine park are managed to provide for sustainable use. Zoning plans are the best coordinated mechanism available to government to manage the conservation values of Moreton Bay Marine Park and ensure the area's values will be maintained and enhanced over the next 10 years.

Finally, the review allows the zoning plan to be updated to reflect recent amendments to the *Marine Parks Act 2004* which will result in improved consistency with other Queensland and Commonwealth zoning plans in place in, and adjacent to, Queensland.

The key impacts arising during the zoning plan review were identified and addressed by government as follows.

- Impacts on the commercial fishing industry in Moreton Bay of 17 per cent or \$4.1 million of the \$24 million industry in the marine park. These impacts have been recognised by government and a \$15.1 million Structural Adjustment Package has been provided.
- Impacts of around 68 per cent or \$570 000 of the income generated by nine of the 44 commercial aquarium fish collectors throughout the state. In addition to having the opportunity to apply to have their licences bought out under the Structural Adjustment Package, amendments to the zoning plan will provide for a transitional period of four years during which those fishers wanting to remain in the industry can continue to operate. The four-year period will allow time for fishers to relocate their operations, retrain or develop new business opportunities.
- The impacts on the Bay Islands Transit System ferry operations of *go slow areas* implemented to reduce boat strike risks on endangered dugong on the. These impacts include increased travel times and resultant effects on mainland public transport connections for commuters, as well as potential increased fuel costs. These impacts will be mitigated through an exemption provided to these operators and the development of a risk mitigation strategy aimed at reducing dugong mortality from boat strike.
- Impacts on commercial and recreational fishing activities. Modifications were made to 26 zones to provide for some commercial and recreational fishing activities as a result of feedback from the community on the draft plan.

2 Background

2.1 Reasons for the review

The current *Marine Parks (Moreton Bay) Zoning Plan 1997* was reviewed by the Environmental Protection Agency (EPA) as a requirement of the *Statutory Instruments Act 1992*, which requires that subordinate legislation be reviewed every ten years.

South-east Queensland is the most heavily urbanised and populated area of the state and is the third most populous metropolitan area in Australia. In 1986 the population of south-east Queensland stood at 1.67 million people and by 2006 had grown to over 2.8 million. It is the fastest growing region in the country and Moreton Bay Marine Park is located right on the doorstep of this popular capital city. In light of this growth, the zoning plan review offers an opportunity to ensure that arrangements for future management of the marine park are appropriate for the future challenges posed not only by the expanding population and the associated increase in use of Moreton Bay and its natural resources, but also the uncertainty surrounding the impacts of climate change over the next decade.

The current zoning plan for Moreton Bay Marine Park is 10 years old and no longer adequately addresses recognised standards for marine conservation. Changes have taken place over the last decade in the way the marine park is being used, the importance placed on conserving the marine environment and the level of understanding of how the marine environment functions. In particular:

- There are increased pressures on the marine park's natural environment as a by-product of continued and sustained high population growth in south-east Queensland since the 1980s.
- The level and complexity of human use occurring in the marine park has increased compared to 10 years ago.
- There is a much greater understanding of the marine environment including its species, habitats and their interrelationships - allowing issues, such as protecting endangered species in the marine park, to be better managed.
- There is more comprehensive reporting and information on commercial and recreational activities, for example through the Department of Primary Industries and Fisheries (DPIF) Recreational Fisheries Information System (RFISH) and the Commercial Fisheries Information System (CFISH) databases. This allows for better planning, with more detailed information on use patterns.
- There is greater scientific rigour in the principles for marine park design based on a growing body of national and international evidence, allowing for a more effective marine park to be developed.

A range of other legislation also delivers conservation benefits for Moreton Bay Marine Park. For example:

- The DPIF manages fisheries in the marine park. It has introduced a number of fisheries closures to protect the grey nurse shark as well as fish breeding and nursery areas. The DPIF has also introduced specific measures to reduce the capture of turtles in trawling operations in the marine park.
- The Department of Transport regulates sewage discharge and other forms of pollution from vessels into the marine park and can regulate vessel speeds in response to safety considerations.
- The EPA and local councils implement legislation to minimise impacts of stormwater discharge into Moreton Bay.
- Healthy Waterways SEQ is a government/community collaboration working to improve the health of waterways and catchments in south-east Queensland.
- Thousands of community volunteers are revegetating riparian areas in the marine park's catchment area to stabilise riverbanks and reduce run off, and the government controls the removal of vegetation from such areas.

2.2 Review process

The process for reviewing the zoning plan involved three key stages, focusing on data collection and analysis, releasing the draft zoning plan for public comment and finalising the zoning plan.

Under stage one of the review process the EPA, with advice from an independent Expert Advisory Panel, developed a methodology for analysing all information and data gathered during the review. The methodology is underpinned by 13 Scientific Guiding Principles recommended by the Expert Advisory Panel and based on international best practice for marine park design. These recommendations included that a minimum of 10 per cent of each of the 16 different habitat types in Moreton Bay Marine Park be protected in marine national park (green) zones and that zoning arrangements should endeavour to minimise impacts on marine park users.

The bio-physical principles are based on the “CAR” (comprehensive, representative and adequate) approach to marine park design which guides the identification, selection and design of “no take” zones around the world.

Some of the biggest challenges for Moreton Bay Marine Park include achieving long-term sustainable use of a heavily used area next to Queensland’s thriving capital city, and recovering species at risk of extinction, such as the dugong. To address challenges such as these it has been vital to consider comprehensive environmental as well as social, cultural and economic data.

2.3 Stakeholder and community involvement

The EPA worked with other government agencies, peak industry bodies, marine park users and various community groups to collect and verify as much information as possible during the review. More than 200 data sets of relevant information have been collected and used to develop the zoning plan.

To collect information and promote community involvement in the information gathering process, the EPA:

- established a Stakeholder Reference Group of over 35 people to receive input and provide feedback to all major stakeholder groups. A complete list is shown in Appendix 3
- held more than 75 face to face meetings with key stakeholders to receive input and assistance in developing the draft zoning plan
- developed an online survey to gather information from the community about how they use and value the marine park. More than 6500 responses were received between February and November 2007
- held nine stakeholder workshops with more than 100 participants to discuss and refine the EPA’s candidate areas for higher protection
- responded to over 400 public enquiries through a freecall number and public email address
- hosted 10 community display sessions from Caloundra to the Gold Coast with information about the review
- mailed information packs to more than 3000 stakeholders and interest groups
- produced a series of 13 information and fact sheets, and released seven Ministerial media statements about different aspects of the project
- received over 8000 submissions in response to the release for public comment of the draft zoning plan.

A number of stakeholder groups also held their own forums to collect industry information relating to the zoning plan review. The local tourism industry, commercial fishing industry, conservation groups, boating groups, recreational fishing groups, the Moreton Bay Access Alliance, charter fishing operators, dive operators, local councils and Traditional Owners all provided information collected through these forums, which was considered during the review process.

Data about Moreton Bay Marine Park’s major habitat types is another key piece of information that the EPA collected and analysed. This information was a critical component in developing a zoning

plan related to habitat protection. The major habitat types within the marine park were identified and classified (refer to Appendix 4) by a working group comprising members of the Expert Advisory Panel. The habitat map identified the marine park's broad-scale habitat types using data sets acquired by the EPA, pre-existing habitat research of the marine park, and mapping commissioned by the EPA in offshore waters specifically for this review.

The method for analysing datasets used a process of continual review and refinement to ensure all social, economic, cultural and environmental information were considered against the Scientific Guiding Principles. The location of proposed zones was directly influenced by existing socio-economic activities in the marine park, as well as environmental (or "biophysical") requirements. Mapping these activities was a major task during the information-gathering stage of the review. Examples of these activities include shipping channels, boat ramps, anchorages, dredge disposal sites, sand extraction sites, major fishing grounds (both recreational and commercial) and aquaculture sites. These activities have been mapped to highlight areas where increased protection would be difficult to achieve because significant economic costs would be passed on to the community or because of existing environmental conditions.

The remaining areas in the marine park were then investigated to determine how each of the 16 broad-scale habitat types could be best protected while limiting the impacts to users. The EPA analysed this information to produce 35 candidate areas for higher protection, which were used to consult with key stakeholders at a series of workshops. Through these workshops, stakeholders provided information about how each candidate area would affect their particular interests. The workshops also provided stakeholder groups with the opportunity to propose alternative or modified candidate areas that they believed delivered better environmental or social outcomes. The EPA used this feedback, together with the Scientific Guiding Principles, to add and remove candidate areas and to redefine the areas' boundaries to improve environmental outcomes or reduce the impacts on existing user groups as far as possible.

The refined list of candidate areas was then analysed to determine the percentage of each habitat type that was represented in marine national park (green) zones. The remaining area of the marine park was then reviewed to determine what level of zoning would best connect these zones or protect ecological processes while also seeking to minimise impacts on users.

The outcome of this data collection and analysis process was the draft zoning plan. The draft plan proposed that 15 per cent of the marine park be protected in marine national park (green) zones, achieving strong conservation outcomes. It protected all broad-scale habitat types in the marine park, with particular emphasis on habitats that support threatened species, such as turtles and dugong. The draft plan also reflected the extensive stakeholder feedback the EPA received, ensuring that the impacts on marine park users are minimised to the greatest possible extent.

The draft zoning plan, Public Benefit Test and Regulatory Impact Statement were released for formal public consultation on 3 December 2007 until 7 March 2008. Over 8000 submissions were received in response to the draft zoning plan. Approximately 6000 submissions supported the draft zoning plan, with around 4500 of these calling for greater protection than the 15 per cent proposed in the plan. Information from these submissions was assessed and considered against the Scientific Guiding Principles used for the review to develop the final zoning plan – the *Marine Parks (Moreton Bay) Zoning Plan 2008*.

2.4 Background of key users in the Moreton Bay Marine Park

2.4.1 Commercial fishing

Commercial fishing inside Moreton Bay Marine Park has an extensive history, with many operators able to trace their families' involvement in the industry back several generations. On average, 410 commercial fishing licences were used to access the marine park annually during the three-year period to the end of 2006. These vessels landed approximately \$24.1 million gross value of product ("GVP", or the wharf price paid to commercial fishers) from within the marine park each

year. These vessels also land an additional \$22.6 million each year from fishing operations outside of Moreton Bay Marine Park.

Commercial fishing activities undertaken in the marine park include, trawling, netting, spanner, mud and blue-swimmer crab fishing, line fishing and collection fisheries, harvesting species such as bait and aquarium fish. Within the collection fisheries, aquarium fish collection has the highest GVP, generating approximately \$800 000 each year in the marine park.

2.4.2 Recreational fishing

Recreational fishing is an important activity in the Moreton Bay Marine Park. Recreational fishing in the marine park includes shore and boat based line fishing, crabbing and bait gathering. Around 60 per cent of Queensland's recreational anglers live in the Moreton Bay region, with 432 000 anglers or 18.4 per cent of the south-east Queensland population aged over 15 years harvesting approximately 3500 tonnes of fish, crabs and prawns each year. Recreational fishing was reported to have generated \$194 million in related expenditure in south-east Queensland annually in 2000-2001.

The recreational fishery in Queensland is undergoing a rapid transformation with participation rates declining since monitoring commenced in 1996. Participation rates in southeast Queensland have declined at a faster rate than the state average, with a net decrease of approximately 90 000 anglers between 1996 and 2004. The decline is most significant in anglers aged under 30 years of age. Research conducted by James Cook University has identified a lack of time and income as being major constraints for this age group.

Unlike the commercial fishery where the objective is to maximise the catch, recreational anglers have a range of objectives or motives to go fishing; such as escaping routine, experiencing nature, or for rest and relaxation. The diverse motives mean that recreational anglers may be more likely to find substitute locations that fulfil both their catch and non-catch related motives.

2.4.3 Recreational boating

Recreational boating is an increasingly popular activity in south-east Queensland. The Department of Transport reports that the number of vessels registered in the region has increased by 45 per cent in the last eight years from 72 000 registrations in 1999 to more than 105 000 in 2006. Boating is particularly popular in the southern parts of Moreton Bay Marine Park, with one quarter of all registered recreational vessels in south-east Queensland located on the Gold Coast. Members of the boating industry have highlighted that healthy and well functioning marine environments are essential to the continued success of the industry.

2.4.4 Tourism and recreational activities

Moreton Bay is an emerging tourism market and the marine park is seen by the industry as an undervalued tourism and ecological asset. Tourism Queensland has advised that visitors to the Moreton Bay and islands region spent an estimated \$500 million in 2006, contributing to around 5500 jobs. The marine park's proximity to Queensland's capital city also provides significant recreational opportunities for local residents, including boating activities, nature watching, including whale watching, and the ability to escape from residential surroundings.

2.4.5 Commercial shipping and port activities

Commercial shipping and port activities occur within and adjacent to Moreton Bay Marine Park involving the transport of goods in and out of south-east Queensland. A number of key sites which support Port activities, including shipping channels, spoil disposal sites and ship mooring areas, were identified and provided for in the zoning plan.

2.5 Regulatory restrictions and objectives of the zoning plan

2.5.1 Marine national park zones

Marine national park (green) zones provide the highest level of protection in Moreton Bay Marine Park. These are areas where all forms of extractive use, direct disposal into the area, coastal development and most maritime infrastructure are prohibited to provide whole-of-ecosystem protection.

Marine national park (green) zones form the core of Queensland's marine protected area estate in the same way that National Parks, under the *Nature Conservation Act 1992*, form protected area estate on land. The primary objective is to protect and conserve the biodiversity within the zones and prevent extractive uses, while still providing for passive uses such as boating, snorkelling and scuba diving.

The marine national park (green) zones in the expiring zoning plan are small and widely separated areas which are largely confined to coral reefs and mangrove habitats. Under this plan, only five of the sixteen broad-scale habitat types occurring in Moreton Bay Marine Park are protected in green zones and only one of these (inshore reef habitat) has more than 10 per cent of the habitat type represented in these zones (refer to table 1).

Table 1 – Habitat types and percentage protected in marine national park (green) zones

Zone type	% in green zone under existing zoning plan
Bioturbated mud	0.0
Bioturbated sand	0.0
Diverse sandy	0.0
High energy coastal	0.0
Inshore reef	10.7
Inshore, algae/sponge habitat	0.0
Mangrove/intertidal habitat	3.6
Offshore deep	0.0
Offshore reef	0.4
Offshore sandy	0.0
Riverine/estuarine	0.8
Rocky headland	0.0
Rocky shores	0.0
Sand/rubble	0.0
Sandy channels	3.4
Seagrass	0.0

There are 34 marine national park (green) zones under the new zoning plan. There is no significant difference between the restrictions that apply to these zones under the existing and new zoning plan. The key change is the increased number and coverage of marine national park (green) zones, which provide greater habitat protection (refer to Table 1).

2.5.2 Conservation park zones

Conservation park (yellow) zones are areas where most forms of large scale extractive use, direct disposal into the area, private structures and development are prohibited. These zones emphasise protection of the area's natural integrity, however limited recreational and commercial line fishing and crabbing may still occur. Yellow zones, like green zones, form part of Queensland's marine conservation estate in the same way that Conservation Parks, under the *Nature Conservation Act 1992*, contribute to protected area estate on land.

Under the existing zoning plan, a relatively high proportion of the marine park is designated as yellow zone. However, the zone name and restrictions applying to these areas under the existing zoning plan needed to be updated to comply with the *Marine Parks Act 2004* and *Marine Parks Regulation 2006*.

Currently, yellow zones in Moreton Bay Marine Park have similar restrictions to dark blue zones in other Queensland marine parks. This has caused public confusion over the status and restrictions applying to yellow zones. For example, under the existing zoning plan yellow zones in Moreton Bay Marine Park are called “conservation zones” while in all other Queensland marine parks they are called “conservation park zones”. Similarly, commercial netting may occur in Moreton Bay Marine Park’s current yellow zones while elsewhere in Queensland only bait netting is allowed in these zones.

There are 10 conservation park (yellow) zones under the new zoning plan. The entry and use provisions applying to these zones have been updated to comply with the *Marine Parks Act 2004* and *Marine Parks Regulation 2006* and are now consistent with yellow zones in all other Queensland marine parks.

2.5.3 *Habitat protection zones*

Habitat protection (dark blue) zones are areas where the protection of sensitive habitats is emphasised and threatening processes, in particular activities that disturb the seabed, are prohibited. These areas are compatible with fish habitat areas declared under the *Fisheries Act 1994* and are important areas for wildlife residence, breeding and maturation.

Under the existing zoning plan, a substantial percentage of the marine park is designated as dark blue zone. The zone name, objectives, and entry and use provisions applying to the areas in Moreton Bay Marine Park differ from those in all other Queensland marine parks. This has caused public confusion over the status and appropriate use of these areas. For example, dark blue zones are called “habitat zones” in Moreton Bay Marine Park and “habitat protection zones” elsewhere. There are also key differences in what may and may not occur within these zones between Moreton Bay Marine Park and all other Queensland marine parks

There are 12 habitat protection (dark blue) zones under the new zoning plan. The entry and use provisions applying to these zones have been updated to comply with the *Marine Parks Act 2004* and *Marine Parks Regulation 2006* and are now consistent with dark blue zones in all other Queensland marine parks.

2.5.4 *General use zones*

General use (light blue) zones are areas where most activities can occur with or without a permit under an ecologically sustainable management framework. These zones are called “general use zones” in Moreton Bay Marine Park as well as in all other Queensland marine parks.

General use (light blue) zones comprise all areas that are not designated marine national park (green), conservation park (yellow) or habitat protection (dark blue) zones.

3 Options

3.1 Arrangements in other states

The zones used in other state and Commonwealth marine parks are generally consistent with the zonings in Moreton Bay Marine Park, as outlined in this report. The use of zoning to protect marine biodiversity by prohibiting or limiting extractive activities or disposal activities is not only consistent across Australia, but consistent with international methods for marine conservation. For example, zoning underpins all of Australia's state and Commonwealth marine parks, with "no take" zones commonly implemented. The Great Barrier Reef Marine Park protects 30 per cent of its habitats in no take zones, in New South Wales, the Cape Byron Marine Park protects 27.5 per cent, Jervis Bay Marine Park protects 20 per cent, Solitary Islands protects 12 per cent, in Western Australia Ningaloo Marine Park protects 34 per cent and South Australia the Encounter Marine Park proposes protection of 13 per cent.

3.2 Description of realistic alternatives

A number of regulatory and non-regulatory mechanisms are available to manage Moreton Bay Marine Park. Codes of conduct and community awareness programs are two non-regulatory alternatives to legislation. Some examples of non-regulatory management mechanisms currently being used in the marine park include training programs for tourist operators, the Moreton Bay Seafood Industry Association's Environmental Management System, monitoring programs such as Seagrass Watch and other educational activities.

Non-regulatory mechanisms are not enforceable. Use of these mechanisms alone is considered too great a risk to the effective management of Moreton Bay Marine Park and is not a viable alternative.

3.3 Options considered under the review

The following options for reviewing the Moreton Bay Marine Park Zoning Plan were considered when developing the new zoning plan.

- *Option one: Comprehensive review of the existing zoning plan*
 - Develop a new zoning plan based on internationally recognised standards for marine park design and extensive consultation with stakeholders and the public.
- *Option two: Partial review of the existing zoning plan*
 - Develop a new zoning plan that largely retains the current level of protection but adopts zone names and objectives that are consistent with other Queensland marine parks.
- *Option three: No review of the existing zoning plan*
 - Allow the existing zoning plan to expire and Moreton Bay Marine Park to become an unzoned marine park.

3.3.1 *Option one: Comprehensive review of existing zoning plan*

The independent Expert Advisory Panel advised EPA that the existing level of green zones does not adequately protect Moreton Bay Marine Park's biodiversity values or provide a solid basis for sustainable management in the future. The panel based this advice on a number of reasons.

- The existing green zones are small (accounting for only 0.5 per cent of the marine park), widely separated and largely confined to coral reefs and mangrove habitats.
- The existing level of green zoning falls well short of internationally accepted standards for marine reserve design.
- The existing zoning plan protects only five of the marine park's 16 broad-scale habitat types.

The advisory panel also advised that a comprehensive review of Moreton Bay Marine Park would be necessary for a number of reasons.

- To ensure a minimum of 10 per cent of each of the marine park's 16 broad-scale habitat types is protected in green zones.
- There is now greater understanding of the importance of marine species, marine habitats and how they interact than when the current zoning plan commenced in 1997, allowing better marine planning to be undertaken.
- The dramatically increasing and changing use of the marine park over the last decade needs to be reflected in a revised zoning plan to assist with the conservation and sustainable management of Moreton Bay, particularly in light of the increased pressure placed on the marine park from the significant population growth occurring in SEQ.
- The entry and use provisions for some activities (such as extraction of materials, anchoring, mooring, development and collection fisheries) are ambiguous under the current zoning plan and need revision.
- The need to address future climate change impacts by building resilience of Moreton Bay's ecosystems by reducing human impacts and increasing the connectivity between areas given total protection.

Option one delivers strong environmental outcomes while minimising the impacts on marine park users.

3.3.2 *Option two: Partial review of the existing zoning plan*

Reinstating the *Marine Parks (Moreton Bay) Zoning Plan 1997* with minimal changes was also considered. Under this option the only change would be to update the current zones names and objectives and make them consistent with the *Marine Parks Act 2004* and *Marine Parks Regulation 2006*. This would mean that marine park zones would be consistent across all Queensland marine parks, therefore improving compliance, administration and public awareness.

Under this option the distribution of existing use and the coverage of green zones in Moreton Bay Marine Park would be largely unchanged. The consequences of this option are outlined below.

- The majority of the marine park's 16 broad-scale habitat types would remain unprotected from all forms of extraction, disposal or coastal development.
- The existing level of green zones would not satisfy Australia's international obligations to establish protected areas to conserve biological diversity while promoting environmentally sound development around these areas and meet the commitment under the international Convention on Biological Diversity to provide effective protection for at least 10 per cent of each habitat type by 2010.
- Many problems associated with the rapidly increasing use of the marine park would remain unaddressed, such as a lack of areas where ecosystem processes can proceed without the impacts of human extraction.
- Habitats and species of special interest or significance would be inadequately protected.
- The overall level of protection currently provided to the marine park would be reduced. This is because to make zones consistent with other marine parks in Queensland, and to accommodate existing use, most current yellow zones would be downgraded to dark blue zones and most current dark blue zones would be downgraded to light blue zones.

Option two fails to adequately meet the objectives of the *Marine Parks Act 2004* and *Marine Parks Regulation 2006*, does not consider new information and research, fails to meet international obligations, and does not follow best practice standards for marine reserve size and design to effectively conserve marine environments. Option two is therefore not a viable option.

3.3.3 Option three: No review of the existing zoning plan

If the existing zoning plan expired, Moreton Bay Marine Park would be managed as a large unzoned marine park under the *Marine Parks Regulation 2006*. The consequences of allowing the *Marine Parks (Moreton Bay) Zoning Plan 1997* to expire are outlined below.

- The current zones and designated areas under the existing zoning plan would expire and no longer apply, therefore removing any existing protection.
- Measures such as *go slow areas*, put in place under the existing zoning plan to protect specific wildlife such as dugong and turtles, would no longer apply.
- Moreton Bay Marine Park's habitats would remain unprotected from all forms of extraction, disposal or coastal development. These activities could resume in all areas currently zoned green or yellow, subject to restrictions in place under other legislation.
- Fishing closures implemented under the *Fisheries Act 1994* to protect the grey nurse shark would remain, however, restrictions under the current zoning plan on diving activities in designated grey nurse shark areas would be removed.
- While the existing zoning plan allows most commercial fishing to be conducted without a marine parks permit, all forms of commercial fishing would require a permit in an unzoned marine park. This would increase costs for industry and government to complete and assess applications for marine park permits.
- The differences between an unzoned Moreton Bay Marine Park and marine parks elsewhere in Queensland would cause confusion for users.
- An unzoned marine park would not help Australia meet its targets and obligations as a signatory to the Convention on Biological Diversity.
- The broad community expectations for adequate protection and management of Moreton Bay Marine Park would not be met.

Option three would greatly reduce the current level of protection for the marine park and substantially increase permit and administration requirements and costs. In some cases it could also result in permit duplication; for example, requiring multiple permits to undertake fishing activities in the marine park. As outlined in option one, the current level of protection is already considered to be scientifically and socially inadequate. Option three is therefore not a viable option.

Based on this analysis of options for reviewing the Moreton Bay Marine Park Zoning Plan, option one is the preferred approach. This new zoning plan has therefore been developed based on option one.

3.4 Process for locating zones under the new zoning plan

3.4.1 Placement of marine national park (green) zones

The size, shape and location of the marine national park (green) zones has been guided by the Scientific Guiding Principles outlined in Appendix 2. Feedback from stakeholder groups and the community has also been considered to minimise impacts arising from the placement of these zones.

In general, marine national park (green) zones have been designated over areas to:

- protect the full range of habitat types and other biodiversity features
- maintain the ecological viability and integrity of populations, species and communities
- protect an example of each biodiversity feature
- protect species of conservation concern as well as species vulnerable habitats and life stages
- protect the natural values of the marine environment to ensure greater resilience against future changes
- provide for adaptive management through assessment of effectiveness of zoning.

Key differences between the existing zoning plan and the new zoning plan:

- There is no significant difference between the restrictions that apply to marine national park (green) zones under the existing and new zoning plan.

- The key change is the increased number and coverage of these zones, which provide greater habitat protection.

3.4.2 *Placement of conservation park (yellow) zones*

The size, shape and location of the conservation park (yellow) zones have been guided by the Scientific Guiding Principles outlined in Appendix 2. Feedback from stakeholder groups and the community has also been considered to minimise impacts arising from the placement of these zones.

In general, conservation park (yellow) zones have been designated over areas to:

- broadly complement the level of protection provided to adjacent marine and terrestrial national parks, while supporting existing recreational use and some limited commercial fishing
- protect special and unique areas (including dugong and turtle habitats) where inclusion of these areas in green zones would have resulted in unacceptable social or economic impacts
- allow continued entry and use of areas of high recreational value, in particular for recreational fishing.

Key differences between the existing zoning plan and the new zoning plan:

- Commercial netting is reduced to bait netting in conservation park (yellow) zones in line with restrictions applying to yellow zones in all other Queensland marine parks.
- Commercial crabbing is limited to four pots per person, in line with restrictions that also apply to recreational fishing.
- Commercial and recreational line fishing is restricted by the number of lines able to be used.
- Dredging and trawling are prohibited in these zones.

3.4.3 *Placement of habitat protection (dark blue) zones*

The size, shape and location of the proposed habitat protection (dark blue) zones have been guided predominantly by feedback from the stakeholder groups and the community. In general, these zones have been designated over the following areas:

- significant habitat, especially those supporting threatened species (such as dugong and turtle habitat at Moreton Banks)
- existing dark blue zones not designated as either marine national park (green) or conservation park (yellow) zones
- existing yellow zones where substantial economic impacts would result from phasing out commercial netting
- areas adjacent to marine national park (green) or conservation park (yellow) zones, or areas adjacent to land based national parks, to complement land based conservation measures
- areas supporting low levels of trawling or existing areas that are closed to trawling.

Key differences between the existing zoning plan and the new zoning plan:

- As outlined above, the key change between the existing and new zoning plan for habitat protection (dark blue) zones is the removal of trawling.

3.4.4 *Placement of general use (light blue) zones*

General use zones are predominately located in the central and offshore sections of the marine park. They are areas where a higher level of protection could not be achieved or was not required given the percentage of each habitat type protected in other zones.

Key differences between the existing zoning plan and the new zoning plan:

- There is no significant difference between restrictions applying to general use (light blue) zones under the current and new zoning plan. However, aquaculture involving the addition

of feed (fish farms) will be prohibited, consistent with existing government policy in Moreton Bay.

4 Issues identified during the review process

4.1 Discussion

The key issues associated with any marine park rezoning are typically associated with implementing measures to achieve marine conservation and the associated impacts of some of these measures on the fishing industry. The restrictions on recreational and commercial fishing industries resulting from expanding or creating new green, yellow and dark blue zones are generally well known in the Queensland fishing community, particularly following the relatively recent rezoning of the Great Barrier Reef Marine Park by the Commonwealth Government.

Both the Commonwealth and New South Wales governments provided financial packages to address impacts associated with recent the implementation of new marine park arrangements in the Great Barrier Reef and in marine parks throughout New South Wales.

The Queensland Government recognised that, while there were long-term public benefits to the broad community of improving conservation and management of the Moreton Bay Marine Park, there would be specific impacts on some sections of the community, particularly on the commercial fishing industry. As a result work was undertaken using information from the Department of Primary Industries and Fisheries (DPIF) to calculate the impacts on the commercial fishing industry of the rezoning process and establish a \$15 million dollar Structural Adjustment Package. This package was supported by the Treasury Department and is consistent with approaches used by both the Commonwealth and New South Wales Governments. The estimated impact of the rezoning is 17 per cent of the \$24 million industry in the marine park, which equates to just over \$4 million. The total structural adjustment fund (\$15million) is reflective of the price generally paid under such programs for the purchase of fishing licences..

As outlined previously, marine national park (green) zones prohibit all forms of fishing, conservation park (yellow) zones prohibit commercial fishing, but allow limited recreational fishing, and habitat protection (dark blue) zones prohibit trawling but allow other forms of commercial fishing and all forms of recreational fishing.

Minimising the impacts of the rezoning process on the fishing community was identified as a key issue prior to the draft zoning plan being developed and the draft Public Benefit Test being released. As discussed previously the zones in the draft zoning plan were developed following extensive data collection and consultation with a wide variety of stakeholders, including the commercial and recreational fishing industry peak bodies, and after analysis of extensive data sets provided by DPIF on detailed information such as locations fished and catch and effort in the Moreton Bay Marine Park.

This information was used to inform decision making on the locations of zones, to balance the environmental and bio-physical guiding principles adopted in the planning process with the socio-economic principles, particularly of seeking to minimise impacts on users of the marine park.

Other issues identified and addressed during the development of the draft zoning plan include identifying key marine transport corridors such as shipping channels, port expansion areas, existing dredge spoil disposal grounds and sand nourishment areas, existing and planned mooring areas, and existing fisheries closures.

Nevertheless, the release of the draft zoning plan, accompanied by the Regulatory Impact Statement and draft Public Benefit Test for public consultation in December 2007 did result in some additional issues being identified, and the opportunity for further comment on fisheries related issues.

4.2 Results of public consultation

The draft zoning plan, Public Benefit Test and Regulatory Impact Statement were released to the community in December 2007 for public comment for more than three months. Over 8000 submissions were received in response to the release. Approximately 6000 submissions supported the draft zoning plan, with around 4500 of these calling for greater protection than the 15 per cent proposed in the draft plan. Submissions ranged in their level of detail and a summary of the issues raised is outlined below:

4.2.1 Restrictions on commercial fishing

The rezoning process aimed to minimise the impacts on the commercial fishing industry by directly consulting on defined “areas of interest” identified by the EPA prior to developing the draft zoning plan. A number of candidate areas were identified as potential green zones, with these locations shown on maps which were used to conduct direct stakeholder consultation with industry nominated experts for each fishery.

The information provided by industry through this process was used to develop the green zones in the draft zoning plan – with boundaries of many marine national park (green) zones modified and a number of candidate green zones removed as a result of this advice from fishers. Commercial catch data recorded daily by commercial fishers and provided by the Department of Primary Industries and Fisheries was also analysed to avoid, where possible, placing restrictive zones over areas of high commercial catch and effort. Fine resolution satellite tracking information was also used to assist minimise impacts to the trawl fishery, which generates over 43 per cent of the total commercial fishing income for the marine park.

While the rezoning process made every effort to minimise the size of the impact on the various commercial and recreational fisheries operating within the marine park, impacts to fishers were inevitable given:

1. the need to include a representative example of each habitat type in a green zone
2. the number of fishers operating in each fishery
3. the use of different habitats by the different fisheries.

In recognition of this impact, the government has provided a \$15 million Structural Adjustment Package to purchase licences from commercial fishers operating in Moreton Bay and from fishers currently operating elsewhere on the east coast to reduce the risk of effort transferring back into Moreton Bay following restructure payments under the program.

The restructure package was welcomed by the commercial industry, however there were some requests made through submissions to modify some zones in the plan to accommodate commercial fishing. In some circumstances these requests could be accommodated, however in others the zones could not be changed due to there being no suitable alternative which would achieve the desired conservation objectives. For example, nine of the 48 commercial aquarium fishers in the state operate in Moreton Bay. Consultation feedback confirmed that elements of this fishery were heavily impacted by the new zoning plan (refer section 5.1.3), given the extremely limited occurrence of emergent reef habitat available within the marine park upon which a number of operators depend. These matters are discussed further under the conclusions and recommendations section of this report.

4.2.2 Restrictions on recreational fishing

Feedback from the recreational fishing community comprised two general types of submissions: those opposed to any rezoning of the marine park and those who provided specific requests to modify particular zones to accommodate recreational fishing activities. Similar to commercial fishing submissions, in some circumstances these requests could be accommodated while in others the zones could not be changed due to there being no suitable alternative which would achieve the desired conservation objectives.

The government has recognised that zoning some areas of the marine park as green zones will result in lost recreational fishing opportunities and displaced fishing effort moving to other areas of the marine park. Consequently, \$1 million has been provided to establish a trial artificial reef program to provide new recreational fishing opportunities in Moreton Bay Marine Park.

4.2.3 Bay Islands Transit System

One of the new issues that emerged through the consultation process was the impact of introducing several new *go slow areas* for boats to reduce the risk of boat strike and resulting mortality on dugong. The population of dugong in Moreton Bay is estimated to be between 600 – 800. They are an endangered species, with more than five deaths a year considered to be unsustainable for the population.

The *go slow areas* proposed in the southern area of Moreton Bay aim to reduce boat speeds in areas known to be high-risk areas for boat strike of dugong. These locations coincide with the route taken by the Bay Islands Transit System (BITS) company, which is contracted by Queensland Transport to provide public ferry transport between the southern bay islands and the mainland.

As a result of the consultation process, BITS identified a number of operational impacts of complying with these *go slow areas*, including increased travel times with consequences for integration with mainland transport networks, increased fuel costs resulting in a likely increase in passenger fares, and safety concerns regarding the inability to safely navigate vessels at the reduced speed of 10 knots which applies in the *go slow areas*.

Alternate options have been examined to address this matter which will be discussed further in the next section of this report.

5 Summary of Public Benefit Test analysis

5.1 Costs and benefits for affected groups

5.1.1 Commercial fishing – potential costs

Commercial fishing occurs across all 16 broad-scale habitat types in Moreton Bay Marine Park. As a result, it is the industry most affected by the new zoning plan. Commercial logbook data has been used to calculate the potential impacts of the draft zoning plan on commercial fisheries. This modeling indicates a total potential impact of 17 per cent, or \$4 million of the \$24.1 million annual average GVP generated within the marine park.

These impacts vary across different commercial fisheries sectors depending on the types of habitats they use and the presence of existing fisheries closures in these habitat types. Also, the number of active participants in each fishery operating within Moreton Bay Marine Park varies, as outlined in Table 2. The table highlights the highest number of active licences is held in the trawl industry, followed by the crab pot fishery, the net fishery, the line fishery and the fewest held in the beam trawl sector. In addition there are 11 DPIF “A1” aquarium fish licences with licence conditions that entitle them to fish in Moreton Bay Marine Park.

Table 2 – No. of licences operating in different fisheries in Moreton Bay Marine Park

Year	Number of active licences in each fishery				
	Trawl	Net	Pot	Line	Beam trawl
2003 - 04	175	142	157	73	36
2004 - 05	166	125	146	67	32
2005 - 06	164	115	140	78	34
<i>Average boats over three years</i>	168	127	147	72	34

The income generated by individuals operating within each fishery is shown in Table 3. The variation shown between the maximum and minimum income earned by individual participants is generally the result of multiple endorsements being held on a single fishing licence, which entitles operators to fish in a number of fisheries. This enables operators to be either specialists in a single fishery or operate a mixed portfolio of fishing activities throughout the year. Additionally, the figures indicate that fishing is not undertaken at maximum capacity by all licence holders, rather some individuals participate only part time in some fisheries.

Table 3 – Spread of annual gross value of produced landed by operators in each fishery between 2003 – 06

Fishery type	Minimum	Maximum	Average
Trawl	\$140	\$274,956	\$62 583
Net	\$46	\$622 487	\$50 958
Pot	\$10	\$322 646	\$32 420
Line	\$14	\$122 199	\$10 937
Beam trawl	\$75	\$312 427	\$42 361

The best available information was used to determine the fishing activities conducted in the marine park and analyse the potential impacts of the rezoning. For example, catch records provided through the DPIF commercial logbook program at six nautical mile resolution were scaled appropriately to include the small amount of information reported at the higher 30 nautical mile resolution. For the trawl fishery, Vessel Monitoring System satellite positions were used to further refine the spatial extent of this fishery’s operations. Catch reports were refined to reflect the actual fishing locations used by fishers within the six nautical mile site reported in the logbooks. A number of steps were included in this process to estimate the available fishing area for each six nautical mile site.

- Land areas, such as the mainland and islands, were excluded.
- Areas currently zoned under EPA or DPIF as permanent fisheries closures for the individual fisheries were excluded.
- Areas outside the marine park were excluded (that is, most river systems and state and commonwealth waters bordering the marine park).
- The remaining available area to fish was calculated for each fishery.
- Catches were allocated proportionally to the areas inside and outside the marine park.

Reduction in the areas available to each of the main fishing methods under the zoning plan were calculated using geographical information system mapping and analysis tools. The proportion of lost fishing area was then used to calculate a proportional direct impact on fish production for each fishery for each 6 nautical mile site within the marine park. The total impact was then calculated for each fishery by summing the lost production for each site within the marine park. The results from these calculations are outlined in table 4.

Income estimates for the aquarium fish fishery are estimated differently as DPIF does not use GVP to measure the value of the fishery because of the diversity of species caught, which range in value from \$4.00 to over \$800 for individual fish specimens. The fishery in Moreton Bay is dominated by one full-time operator who relies on the marine park for his income from the fishery. Three other operators generate approximately 10 per cent each of the total income, with these operators deriving significant aquarium fish fishery income from operations outside of Moreton Bay Marine Park.

Table 4 – Calculated fishery and individual incomes and impacts of the zoning plan by sector

	Trawl	Net	Pot	Line	Beam trawl
Total average fishery income (GVP)	\$10.53M	6.49M	\$4.79M	\$0.79M	\$1.44M
Average annual licence income (GVP)	\$62 000	\$51 000	\$32 000	\$11 000	\$42 000
Estimated zoning plan impact by fishery	6.7%	37.2%	17.6%	9.6%	2.9%

The direct cost of the draft zoning plan on these individual commercial fishing sectors' GVP is estimated to be 68 per cent for aquarium fish collectors, 37.2 per cent for net, 17.6 per cent for pot, 9.6 per cent for line and 6.7 per cent for trawl and 2.9 per cent for beam trawl.

As previously discussed, the government is implementing the Moreton Bay Marine Park Structural Adjustment Package (MBMP SAP) to minimise the costs of the zoning plan on commercial fisheries. To reduce issues arising from displaced commercial fishing effort, this package will be implemented prior to the new zoning plan commencing.

The MBMP SAP will aim to maintain the levels of effort in areas outside the closures to the same levels reported under the current zoning plan. This will maintain the level of competition between commercial fishers in the marine park. Without the MBMP SAP commercial fishers would experience increased competition in the marine park, leading to unsustainable fishing effort and, in some cases, difficulty in maintaining business viability. It is also important to note that there is generally no spatial restriction on fishers operating in Queensland, with most fishing endorsements providing access to the entire east coast of Queensland – the zoning plan will not change this situation.

The MBMP SAP will use a competitive offer process similar to that employed by DPIF during the introduction of effort units under the *Fisheries (East Coast Trawl) Management Plan 1999*. The MBMP SAP will contain two components. The main component is designed to reduce effort from within Moreton Bay Marine Park. Holders of a commercial fishing licence or commercial harvest fishery licence with proven history of fishing activities within the marine park are eligible to apply for this component of the MBMP SAP.

The second component is intended to reduce the potential for currently under-utilised east coast fishing licences entering Moreton Bay Marine Park after the new zoning plan commences. Holders of a Queensland commercial fishing boat licence or a commercial harvest fishery licence with fishing symbols that could be used within the marine park are eligible for this component of the MBMP SAP.

The MBMP SAP will be used to purchase entire licence packages; that is, the current commercial fishing boat licence or commercial harvest fishery licence, all associated fishery symbols and, where appropriate, quota and effort units. It will not purchase fishing vessels or fishing related equipment.

The targets for removing licences and effort across the fishery will be consistent with the information contained in tables 2 – 4. These targets aim to address the impacts of the zoning plan across the different fisheries, as shown in Table 5.

Table 5 – Effort reduction targets for the SAP

	Trawl	Net	Pot	Line	Beam trawl
Effort reduction targets (licences)	11	47	28	7	1
Annual effort reduction targets (GVP)	\$0.7M	\$2.4M	\$0.8M	\$0.07M	\$0.04M

The size of the Structural Adjustment Package represents three times the GVP of the annual impact of the zoning plan. The multiplier of three was selected as it approximates the figures used for a number of other commercial structural adjustment packages recently conducted in Australia. In the mid 1990s a multiplier of three was used by DPIF to reduce net fishing operations in dugong protection areas. In 2004 the Commonwealth spent \$32.9 million in a competitive tender process to purchase licences equivalent to effort reduction targets of approximately \$17 million – which

equates to a 1.95 multiplier. Recently the NSW government offered fishers a value determined by the average annual value of each fisher's personal catches for their best three consecutive years for the period 1986 to 2005, multiplied by two, plus up to \$20,000 for retraining and depreciation costs of fishing equipment – which equates to a multiplier of approximately three times recent GVP. DPIF recently introduced compensation clauses into the *Fisheries Act (1994)* which entitles fishers up to three times their net income from fishing related activities for changes to fisheries regulations for purposes other than fisheries sustainability purposes.

There are expected to be minimal flow-on costs to businesses such as boat brokers and chandleries in south-east Queensland as a result of the new zoning plan. This is because of the relatively high importance of recreational boating activities to these businesses compared to commercial fishing. Downstream effects on seafood wholesalers and retailers are also expected to be minor compared to the natural annual fluctuations in market supply and the potential for increased catches from the remaining commercial operators.

5.1.2 Commercial fishing – potential benefits

The benefit of marine parks, particularly from green zones, on fish stocks has been widely studied and reported in numerous scientific articles and texts. There is increasing evidence that green zones replenish fish populations regionally. This has been observed in increasing fish density, size, biomass or abundance, and “spillover” of species into adjacent fished areas.

Commercial fishing are expected to benefit from increased levels of protection to some habitat types and their fauna in the marine park, such as algal sponge beds and reef areas – some of which are critical for fisheries species. The fishers remaining in the marine park after the MBMP SAP are also likely to experience greater catches in the long term as migratory fish species move across the boundaries of areas within the marine park closed to commercial fishing.

The benefits of marine parks and their zoning are also recognised in state and federal government ecological assessments. These ecological assessments identify marine parks as a management tool for minimising and managing interactions with species of conservation interest, such as turtles, dugong and sea snakes. They also recognise that having areas where fisheries operations are prohibited, including as part of marine park zoning, contributes to the sustainability of fisheries by protecting marine species and habitats.

5.1.3 Commercial collection fisheries – potential costs

Commercial collection fisheries (such as aquarium, bait and developmental sea cucumber collection) are relatively small-scale operations compared to the major commercial fisheries operating in Moreton Bay Marine Park. These fisheries rely on manual collection activities that are generally very selective in the species they target and retain. The aquarium fish fishery produces the largest estimated GVP from this group. There are nine of the 48 aquarium fishers across the State operating in Moreton Bay Marine Park. Based on estimates provided by aquarium fishers consulted following the release of the draft plan the GVP is approximately \$800,000 each year in the marine park.

The aquarium fish fishery is restricted in its area of operation because of physical diving constraints and the limited number of preferred habitat types, predominately offshore reef habitat, that provide the majority of fish catches. The most productive aquarium fish collectors in the marine park can currently operate within the Flinders Reef buffer zone (which is closed to other forms of extractive use) using a non-conforming use permit. These collectors can also operate within the existing DPIF grey nurse shark closures which restrict most other forms of fishing activities. Under the new zoning plan these areas have been classified as green zones because they are important reef habitats and, given they currently exclude most forms of commercial and recreational fishing, this type of zoning will have a relatively low economic impact.

Approximately 42 per cent of the aquarium fish fishery GVP is generated from the Flinders Reef and Flat Rock areas. When all proposed green zones are considered this equates to a potential loss of 68 per cent of the total GVP for this fishery. In recognition of these impacts on the sector, a

number of actions will be implemented to help the aquarium fish fishery adapt to the changes associated with the zoning plan.

- Aquarium fish fishery licence holders are eligible to apply for the MBMP SAP outlined above.
- The introduction of restrictions for aquarium fish collectors in green zones will be delayed by four years to provide this industry time to modify its operations or develop new fishery-based or other sources of income.
- Aquarium fisher's licences will be transferable within the four-year entitlement period in response to requests from the industry.

The zoning plan will not have any major impacts on the commercial bait collection fisheries because zones that would restrict commercial collection activities do not overlap significant bait collection areas.

5.1.4 Commercial collection fisheries – potential benefits

Spatial restrictions on the commercial blood worming areas have been removed from the new zoning plan, providing more flexibility for operators to conduct their activities over a larger area of the marine park.

5.1.5 Recreational fishing – potential costs

The EPA collected and analysed information from a range of sources to ensure that the potential impacts of green zones on the recreational fishing sector were minimised. An analysis of this information showed that the draft zoning plan had a direct impact on approximately five per cent of recreational fishing trips conducted inside the marine park.

Various types of recreational fishing occur throughout Moreton Bay Marine Park, however effort is clearly concentrated in areas with easy accessibility. A wide range of easily accessible alternative fishing locations is still available under the zoning plan, therefore it is anticipated that the direct impact will be replaced by effort shifting to substitute fishing locations near proposed green zones. Moving to alternative fishing locations is not expected to add appreciable costs to recreational fishing trips or reduce the overall recreational fishing that occurs adjacent to communities that rely substantially on recreational fishing related trade.

5.1.6 Recreational fishing – potential benefits

As previously outlined, the benefit of marine parks, particularly from green zones, on fish stocks has been widely studied and reported in numerous scientific articles and texts. There is increasing evidence that green zones replenish fish populations regionally. This has been observed in increasing fish density, size, biomass or abundance, and “spillover” of species into adjacent fished areas. These benefits are expected to be available to recreational fishers as a result of the new zoning plan.

Several submissions from the recreational fishing sector highlighted the lack of accessible reef habitats in Moreton Bay Marine Park. The government has provided \$1 million to establish a trial artificial reef program for Moreton Bay to provide additional habitat for reef species, which are commonly key target species for the recreational fishery. Artificial reefs may have a number of short-term benefits to the recreational fishery, including reducing crowding at fishing locations and boat ramps, providing alternative fishing opportunities, reducing pressure on natural areas within the marine park, reducing vessel operating costs, and increasing stewardship of marine resources.

In addition, there will be a reduction in the approvals needed to apply for mooring sites within the marine park under the new zoning plan. This will also benefit recreational anglers wishing to moor fishing vessels within the marine park.

5.1.7 *Recreational boating – potential costs*

There are no significant costs to recreational boating activities in the marine park because the zoning plan does not prevent recreational boating access. *Go slow areas* for turtles and dugong areas have been expanded and new areas added to minimise the risk of boat strike – one of the key threatening processes to dugong and turtle populations. This will increase travel times for people traversing these areas, however alternative routes are available to minimise time costs. The costs associated with speed restrictions in *go slow areas for natural values* are minor because these areas are located away from main navigation areas and within green zones.

It is not expected that any downstream impacts on the boating industry will occur as a result of the new zoning plan. According to the Department of Transport, boat registration figures for regions adjacent to the Great Barrier Reef (GBR) Marine Park did not show a significant decline in the number of vessels registered when the GBR was rezoned, even though 33 per cent of the marine park was closed to recreational fishing. A similar result is expected for the Moreton Bay Marine Park region if external forces such as interest rate rises and the price of fuel do not impact on people's discretionary spending on boating.

5.1.8 *Recreational boating – potential benefits*

The zoning plan reduces the number of approvals needed to apply for mooring sites in the marine park, which will benefit recreational boaters wishing to moor a vessel. Recreational boaters may benefit from plans to establish artificial reefs in Moreton Bay Marine Park. These reefs will provide alternative fishing locations for boaters who are also involved in recreational fishing and is likely to reduce effort at key locations like Peel Island where overcrowding has been identified as a major issue. Appropriately placed artificial reefs are also expected to reduce boating traffic in some of the more confined areas of the marine park, such as the channel areas south of Jumpinpin.

Information collected during the first stage of the zoning plan review highlighted that *no anchoring areas* are needed to protect areas susceptible to anchor damage. Additional mooring facilities will be installed in these *no anchoring areas* to allow continued access to these sites. The zoning plan also clarifies the types of boating activities that can occur in different zones in the marine park. This will benefit some sectors of the boating industry, for example Personal Water Craft, such as jet skis and wave runners, which are prevented from entering green zones under the current zoning plan will be allowed to navigate throughout the whole marine park.

5.1.9 *Tourism and recreational activities – potential costs*

Under the new zoning plan all commercial tourism operators in the marine park are required to hold a marine park permit by the end of a transitional period of 120 days following commencement of the plan. This permit system will help to manage the expected increase in commercial tourism operators in the marine park over the next ten years. There are no fees attached to this permit, except for whale watching operations to which fees already apply.

5.1.10 *Tourism and recreational activities – potential benefits*

There are significant benefits to the tourism industry from the new zoning plan. Greater public awareness of the marine park's unique values is expected to lead to greater use of the marine park as a potential tourism destination. The awareness of eco-tourism opportunities within easy travel of Brisbane will become increasingly important for the tourism market.

Other benefits to the tourism industry come from protecting the marine park's unique habitat types and species that rely on these habitats. In particular, growth is expected in interstate and international tourism markets relating to viewing wildlife such as dugong, grey nurse sharks and migratory shorebirds. Growth in this tourism market is expected to deliver strong growth to the local businesses that service these industries and increase related local economies.

Under the existing zoning plan tourism permissions vary between each zone, leading to difficulty in interpretation and compliance. The new zoning plan simplifies permissions for a tourist program by adopting a single permission that will apply across the entire marine park. This provides greater

security for tourist program operators and enables operators to establish a history of using and monitoring their operations in the marine park.

6 Conclusions and recommendations

6.1 Conclusions

There is a clear public benefit to undertaking option one and producing a new zoning plan which seeks to protect a minimum of 10 per cent of each habitat type in green zone and better conserve the state's marine biodiversity. The new zoning plan provides the framework for conserving and managing the common property resources and natural values of the marine park on behalf of the community.

The approach taken in option one results in 16 per cent of the marine park being set aside on behalf of the community from extractive uses to ensure long term protection. This means that 84 per cent or 2860km² of the marine park is still available for multiple extractive uses to various degrees. Given the increasing pressures of population growth in south-east Queensland, uncertainties associated with climate change and the enormous costs and practical difficulties associated with rehabilitating degraded habitats once natural values and ecosystem functions have been impeded, the new zoning plan represents a practical and cost effective response by government on behalf of the community to manage Moreton Bay Marine Park over the next decade.

The following paragraphs are taken from the Commonwealth National Strategy for the Conservation of Biological Diversity and provide a coherent summary of the benefits of undertaking action to conserve biological diversity through instruments such as the Moreton Bay Marine Park Zoning Plan.

An environment rich in biological diversity offers the broadest array of options for sustainable economic activity, for nurturing human welfare and for adapting to change. Benefits arising from the conservation of Australia's biological diversity are not, however, restricted to the continued harvest of resources - they include the provision and maintenance of a wide array of ecological services. The maintenance of hydrological cycles (groundwater recharge, watershed protection and buffering against extreme events), climate regulation, soil production and fertility, protection from erosion, nutrient storage and cycling, and pollutant breakdown and absorption are some of the services. They are fundamental to the quality of our life and our economy, but they are often grossly undervalued.

The loss of biological diversity cannot be slowed effectively unless its underlying causes are directly confronted. These underlying causes are extremely complex; they include the size and distribution of the human population, the level of resource consumption, market factors and policies that provide incentives for biological diversity depletion, undervaluation of environmental resources, inappropriate institutions and laws, ignorance about the importance and role of biological diversity, underinvestment in biological diversity conservation, and inadequate knowledge of our biological diversity and the rate at which it is being lost.

Another benefit of conservation is avoidance of the rising costs incurred through degradation of ecological systems. Although measurement is difficult, the CSIRO estimates that land degradation costs about \$1 billion annually (arising from lost production and ongoing nutrient losses valued at replacement cost). Redressing environmental degradation can be prohibitively expensive.

While there are costs with implementing the new zoning plan, the long term benefits of conserving and managing the biological diversity in the marine environment of Moreton Bay Marine Park outweigh these costs. As discussed above, these benefits are difficult to quantify and are often grossly undervalued.

As outlined previously, direct costs on the community, such as the fishing sectors, have been recognised through the review process and funds have been allocated by the state to minimise the impacts of these costs. This includes providing funding to restructure the commercial fishing industry and to establish new recreational fishing opportunities under a trial artificial reef program. The state has also borne costs associated with ongoing monitoring of the marine park to inform future management (\$2.5 million over five years), as well as funding the implementation and ongoing management of the marine park (\$3 million with around \$1.5 million ongoing). These costs have been accepted on behalf of the community and contribute directly to the Queensland Government's priority of *Managing Climate Change and Protecting the Environment*.

6.2 Recommendations

As a result of the review and the comments received on the draft plan, Public Benefit Test and Regulatory Impact Statement, the following recommendations and changes were incorporated into the final zoning plan.

- 23 modifications were made to zones to provide for a range of commercial and recreational fishing issues.
- 28 zone modifications were made to improve conservation or marine park management.
- A four-year transitional period was introduced to provide aquarium fishers with the opportunity to continue fishing in their current locations while they relocate, retrain or move into other areas of fisheries business.
- An amendment was made to exempt BITS from the *go slow* to address issues of safety, increased fuel costs and impacts for commuters resulting from increased travel times such as missing connections with mainland public transport services. The EPA and Queensland Transport will work together over 12 months to develop options to mitigate the impacts of ferry operations on dugong mortality.

7 Implementation issues

7.1 Community education

The implementation of the new zoning plan will be supported by a detailed community education and information campaign. The commencement of the zoning plan will be delayed several months to allow this campaign to be conducted to raise awareness of the new zoning plan.

The education and information campaign will involve:

- newspaper and magazine advertising
- television and radio advertising
- installing new in-water and land-based signs and markers
- notices enclosed with boat registration renewal notices
- notifications through the Department of Transport "Notice to Mariners" system
- information packs including information sheets, user guides and other maps
- mailed information packs to stakeholders
- maintenance of a 1800 free call number
- maintenance of information on the EPA website
- maps and navigational information

7.2 Operational matters

The government will examine funding options to support the recruitment of additional staff, purchase new vessels and replace and/or install new signs, marker buoys and moorings across the marine park. This work will be undertaken prior to commencement of the new zoning plan to assist the community to understand, interpret and navigate their way around the marine park.

7.3 Monitoring and reporting

Monitoring of the marine park will also be undertaken over the next five years, with baseline monitoring already commencing across in partnership with CSIRO, the University of Queensland and Griffith University. The government has committed \$2.5 million over five years to support and fund this monitoring program. The objectives of the program will include detecting changes as a result of the new zoning arrangements over time, and to gather biological and socio-economic information which will support ongoing management of the marine park.

7.4 Timing, adjustment problems and transitional arrangements

As discussed above, the commencement of the new zoning arrangements will be delayed several months after the announcement of the new plan to allow community information and education to occur and on ground implementation works, such as installation of new signs to be completed.

The Structural Adjustment Package for the commercial fishing industry will also be undertaken following announcement of the new zoning plan. In addition, transitional arrangements are being provided for the commercial aquarium fish industry. A four-year period is being provided to allow them to continue to access reef sites that they currently fish through a non-conforming use provision in the zoning plan. It is expected that this time will allow operators sufficient time to relocate their operations, retrain or move into a different area of fisheries harvesting.

8 Appendices

Appendix 1 – Expert Advisory Panel members

Appendix 2 – Scientific Guiding Principles used in the review of the marine park

Appendix 3 – Stakeholder Reference Group members

Appendix 4 – Broad scale habitat map of Moreton Bay Marine Park

8.1 Appendix 1 - Expert Advisory Panel members

- Professor Paul Greenfield (Chair), University of Queensland
- Dr Eva Abal, Healthy Waterways
- Dr Russ Babcock, CSIRO Division of Marine and Atmospheric Research
- Dr Rodrigo Bustamante, CSIRO Division of Marine and Atmospheric Research
- Associate Professor Rod Connolly, School of Environmental and Applied Sciences, Griffith University
- Geoff Dews, Consultant
- Dr Peter Isdale, Institute for Molecular Bioscience (IMBcom), University of Queensland
- Dr Sean Pascoe, CSIRO Division of Marine and Atmospheric Research
- Professor Hugh Possingham, The Ecology Centre, University of Queensland
- Professor Russell Reichelt, Great Barrier Reef Marine Park Authority
- Dr Jackie Robinson, School of Economics, University of Queensland
- Professor Helen Ross, School of Natural and Rural Systems Management, University of Queensland

8.2 Appendix 2 – Scientific Guiding Principles

Bio-physical Guiding Principles

The Bio-physical Guiding Principles are based on the CAR principles:

- *Comprehensive*: includes the full range of habitat types (and other biodiversity features like species) in no-take areas recognised at an appropriate scale;
- *Adequate*: protects enough area to maintain the ecological viability and integrity of populations, species and communities;
- *Representative*: ensures that the examples of each biodiversity feature included in no-take areas are typical of that feature.

Criteria	Principle	Explanation
Habitat representation	1. Represent a minimum amount of each 'habitat type' in no-take areas	<p>Protect examples of each habitat type to ensure maintenance of habitats and associated biodiversity within the marine park.</p> <p>The Expert Advisory Panel has emphasised the need to set realistic targets based on International mandates, such as the Convention on Biological Diversity (CBD). Australia has signed up to the CBD which states at least 10 per cent of each habitat type should be protected in a system of no-take areas. The Panel recommends that the CBD 10 per cent minimum target be adopted in the Moreton Bay Marine Park Zoning Plan review. The Panel also notes the importance of continuing off-reserve management (e.g. fisheries management and water quality strategies) to protect marine habitats.</p> <p><i>*Biodiversity is described as the variety of life forms and the habitats that make up a region.</i></p>
Size and replication	2. Include adequate size and replication of 'habitat types' in no-take areas	<p>Each habitat type should be protected in more than one no-take area in a reserve network to protect the full range of habitat types as a precaution against major localised damage. Reserves should be large enough to adequately protect relevant species within habitats. Therefore, where possible larger reserves are preferred to smaller reserves to minimise edge effects .</p> <p><i>*Edge effects are defined as the change in species composition, physical conditions, or other ecological factors at the boundary between two ecosystems.</i></p>
Connectivity	3. Provide connectivity within the network of no-take areas	<p>Reserves in a network should be adequately spaced to ensure the movement of species ensuring 'safe' distances in various ranges are included within the network design. 'Safe' distances, those that provide sufficient connectivity to support populations in reserves, increase with reserve size.</p> <p><i>*Connectivity is defined as the transfer of organisms (offspring, juveniles, adults) and genetic exchange between populations in different places.</i></p>
Vulnerable habitats	4. Protect in no-take areas an adequate amount of vulnerable habitats	<p>Vulnerable marine and coastal habitats and associated animals and plants need to be effectively protected in no-take areas. These habitat types are defined as 'vulnerable' as they typically are easily disturbed or transformed by human actions and recovery is slow (e.g. coral reefs and seagrass beds). The extent of protection depends on the degree of vulnerability of the habitat and may exceed the minimum 10 per cent target.</p>

Criteria	Principle	Explanation
Vulnerable life stages	5. Adequately protect species' vulnerable life-stages in no-take areas	Vulnerable life stages of species need to be effectively protected in no-take areas. The inclusion of localities where a species becomes especially vulnerable, or which are vital for completion of their life cycle (such as critical nursery areas, spawning or nesting sites), adds value to a candidate area.
Species and areas of special interest	6. Include species, populations and areas of special interest in no-take areas	Species and populations of conservation concern such as threatened, rare, endangered or restricted-range species need to be effectively protected in no-take areas. Areas of special interest, such as areas with particular geomorphologic features; naturalness, amenity or cultural values; or areas of conservation concern need to be effectively protected in no-take areas. The inclusion of species/populations and areas of special interest may heighten the need to protect a candidate area.
Ecosystem linkages	7. Include consideration of ecosystem links among habitats and of sea and adjacent land uses in determining no-take areas	Areas that support other habitats (ecosystem links), or are dependent on other habitats, need to be protected. Past and present uses may have influenced the integrity of biological communities, and need to be considered when choosing no-take areas. For example, existing no-take areas and areas adjacent to terrestrial protected areas are likely to have greater biological integrity than areas that have been used for resource exploitation. Building upon these areas is a good starting point for a marine reserve network.
Resilience	8. Provide for future resilience against natural or human-induced changes or threatening processes	Areas that are less likely to be subject to impacts and have a high degree of naturalness (i.e. less exploited) need to be considered for no-take areas to ensure greater resilience against future change or threats.
Adaptive management	9. Design a reserve network to provide for scientific assessment of zoning effectiveness	Queensland legislation provides for the review of the zoning plan every 10 years. Decisions about revision of the zoning should be soundly based on scientific evidence of the effectiveness with which they serve the governing principle of the marine park. Design of the zoning should therefore take into account scientific best practice in experimental design and monitoring.

Socio-economic Guiding Principles

The Socio-economic Guiding Principles are based on an *efficient* approach in which zoning should:

- meet conservation goals while minimising the impact on other users; and
- be compact, not fragmented, to ensure efficient management and enforcement.

Criteria	Principle	Explanation
Balancing conservation and sustainable use	1. Ensure the final selection of zones recognises social, economic, cultural and environmental costs and benefits	The final zoning selection needs to be made recognising the costs and benefits to the community. This acknowledges the objective to achieve a balance between conservation goals and the need for continued sustainable use.
Minimise impacts	2. Minimise the impact of zoning on human interactions with the Marine Park including access, activities, values and aspirations	Any proposed zoning should minimise impacts on users of the marine park. For example, fishing and boating should remain a significant and integral activity within the marine park and Traditional Owners' aspirations for their sea country and the importance of the marine park should be recognised. Engagement of stakeholders and the community in a participatory process that is open and transparent should be ongoing throughout the review process.
Management complementarity	3. Complement, where possible, other management mechanisms and arrangements that affect the Marine Park	In considering zoning options, other arrangements that may protect and/or manage the marine environment should be taken into account to minimise conflict and provide greater operational clarity. As part of the review other environmental conservation legislation, management of use and major initiatives to protect the marine park's values should be considered. For example, policies and strategies dealing with marine pollution, international wetlands, national parks, fisheries management, water quality and coastal development all have some relevance to marine park management. During the review, information about these issues is to be provided to the agencies and organisations that manage them. Native title claim areas will be acknowledged.
Efficient and practical	4. Maximise the understanding of the Marine Park and the manageability of zones	The final zoning plan should consider operational and implementation issues to help provide for efficient management and enforcement. Uses in the marine park should be consistent, where practicable, with other State marine parks to help the community understand and appreciate conservation and use of the marine environment. An awareness campaign to maximise the understanding of the marine park should also be conducted.

8.3 Appendix 3 – Stakeholder Reference Group members

<u>Member</u>	<u>Group(s)</u>
• Brad Kitchen	Port of Brisbane Corporation
• Brendan McKenna	Brisbane Backpacker and Adventure Association
• Brian McRae	Maritime Safety Queensland, Department of Transport
• Bruce Alvey	Moreton Bay Access Alliance
• Craig Bohm	Australian Marine Conservation Society
• Dayle Smith	Yachting Queensland
• Eddie Venturini	Redcliffe City Council
• Gavin Costelloe	Traditional Owner
• Grant Bennett	Moreton Bay Access Alliance
• Greg Savige	Queensland Seafood Industry Association
• James Cullen	Moreton Bay Access Alliance
	Boating Industry Association Queensland
• Jane Clout	Queensland Aquaculture Industries Federation
• John Dobson	Queensland Conservation Council
• John Johnston	Sunfish Queensland
• John Page	Moreton Bay Access Alliance
	Moreton Bay Seafood Industry Association
• Kathy Townsend	University of Queensland marine research station (Dunwich)
• Keith Hall	Moreton Bay Access Alliance
• Kellie Williams	Moreton Bay Access Alliance
	Moreton Bay Seafood Industry Association
• Kevin Chard	Australian Underwater Federation
• Mark Olsen	Tourism Queensland
• Nathan Waltham	Gold Coast City Council
• Paul McAntee	Brisbane City Council
• Peter McCulkin	Department of State Development
• Phillip Gaffney	Department of Primary Industries and Fisheries
• Richard Leck	World Wildlife Fund (WWF) Australia
• Rob Lowe	Queensland Aquarium Supply Divers Association
• Simon Baltais	Wildlife Preservation Society of Queensland
• Tony Dillon	Traditional Owner
• Tony Slocombe	Maritime Safety Queensland, Department of Transport

* The EPA also acknowledges the involvement of the late Tom Burns

8.4 Appendix 4 – Broad scale habitat map of Moreton Bay Marine Park

