

**FINAL PUBLIC BENEFIT TEST  
REPORT FOR THE *MARINE PARKS*  
(*MORETON BAY*) ZONING PLAN  
2008**

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## 1.0 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 southeast Queensland.

In reviewing the zoning plan, the EPA undertook extensive data collection, and engaged an independent expert advisory panel (refer attachment 1) to develop a set of 13 scientific and socio economic guiding principles to underpin the review and development of a new zoning plan (refer attachment 2). In addition, extensive information was gathered from the community through 6500 online surveys, more than 75 face-to-face meetings with key stakeholders, workshops with over 100 participants, 10 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 restrictive 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% to 16% 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 540km<sup>2</sup> of the 3400km<sup>2</sup> Marine Park limits uses to those that are non-extractive in nature, leaving the remaining 2860km<sup>2</sup> or 84% with zoning arrangements, which provide for more multiple use arrangements.

Green zones are a non-extractive area 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% in green zones, Jervis Bay Marine Park protects 20%, Solitary Islands protects 12%, in Western Australia Ningaloo Marine Park protects 34% and South Australia the Encounter Marine Park proposes protection of 13%. In Moreton Bay, the area of conservation park zone (yellow zone) and habitat protection zone (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 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 or allowing the zoning plan to expire leaving the marine park completely unzoned. Further discussion of these options is contained in this report.

There are a range of costs and benefits associated with the rezoning of the marine park. As discussed, the primary section of the community to bear these costs is the commercial fishing industry. Some social costs will be likely sustained by the recreational fishing industry through the loss of some fishing locations in 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, the provision of 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 \$14 million for structural adjustment of the commercial fishing industry, \$1 million to establish a trail artificial reef program and \$500 000 per annum 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 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 more broadly society in general, include the protection of a proportion of marine habitats for conservation 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 the Conservation of Biological Diversity, the increased protection of biodiversity provided by the rezoning contributes directly to Australia's obligations to implement the component of the convention that commits to establishing 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 protection of biodiversity, benefits will also accrue to the broad community by having a zoning plan in place for Moreton Bay to manage the multiple uses of the Bay in a way that is consistent with the sustainable development principle, i.e. areas of high conservation within the Bay 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 and ensure the area's values will be maintained and enhanced over the next 10 years.

Finally, the review provides for the updating of the zoning plan to reflect recent amendments to the *Marine Parks Act 2004* and 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% or \$4.1 million of the \$24 million industry in the marine park. These impacts have been recognised by Government, and a \$14 million structural adjustment package has been provided to be administered by the Queensland Rural Adjustment Authority.
- Impacts of around 68% or \$570 000 of the income generated by 9 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 of go-slow zones implemented to reduce boat strike risks on the endangered dugong on the Bay Island Transport System ferry operations. 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. Modification to 26 zones occurred to make provision for some commercial and recreational fishing activities as a result of feedback from the community on the draft plan.

## 2.0 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.

Southeast Queensland (SEQ) is the most heavily urbanised and populated area of the State and is the third most heavily populous metropolitan area in Australia. In 1986 the population of SEQ stood at 1.67 million people and by 2006 had grown to over 2.8 million. SEQ is the fastest growing region in the country, and the Moreton Bay Marine Park is located right on the doorstep of this popular capital city. In light of this growth, the 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 1980's;
- 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 for an improved ability to manage issues such as protection of endangered species resident in the marine park;
- There is more comprehensive reporting and information gathering 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 much better planning to occur, with more detailed information on use patterns; and
- 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. 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 Moreton Bay;

- 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; and
- 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 has controls on removal of vegetation from such areas.

## **2.2 Review process**

The process for reviewing the zoning plan involved three key stages, focussing 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, and with advice from an independent expert advisory panel the EPA developed a methodology for analysing all information and data gathered during the review process.

The methodology is underpinned by 13 scientific bio-physical and socio economic guiding principles recommended by the Expert Advisory Panel, underpinned by international best practice for marine park design. The recommendations included that a minimum of 10% of each of the 16 different habitat types in Moreton Bay be protected in "no take" green zones, and that zoning arrangements should endeavour to minimise impacts on marine park users.

The bio-physical principles are based in the "CAR" (comprehensive, representative and adequate) approach to marine park design which guides the identification, selection and design of green 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 has 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 attachment 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 submissions 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 have 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 have all provided information collected through these forums, which has been considered during the review process.

Data about Moreton Bay Marine Park's major habitat types is another key piece of information that the EPA has collected and analysed. This information is a critical component in developing a zoning plan related to habitat protection. The major habitat types within the marine park have been identified and classified (refer to attachment 4) by a working group comprising members of the Expert Advisory Panel. The habitat map has 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 has used a process of continual review and refinement to ensure all social, economic, cultural and environmental information has been considered against the scientific guiding principles. The location of proposed zones has been directly influenced by existing socio-economic activities in the marine park, as well as environmental (or "biophysical") requirements. Mapping these activities has been 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 using the bio-physical and socio-economic guiding principles. The EPA analysed this information to produce 35 candidate areas for higher protection.

The EPA then conducted a series of workshops with key marine park user groups to determine how each candidate area would affect their particular interests. These 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 the comments from the workshops together with the scientific guiding principles to add or remove candidate areas, and to redefine the areas' boundaries to improve environmental outcomes or reduce impacts on existing user groups as much as possible.

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

The outcome of this data collection and analysis process was a draft zoning plan. The draft plan proposed 15 percent of the marine park be protected in 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, a PBT and RIS were released in December 2007 to the community for public comment for 3 months. Over 8000 submissions were received in response to the release. 6000 submissions supported the draft zoning plan, with 4500 of these calling for greater protection than the 15% proposed in the plan. The final zoning plan was developed after consideration of these submissions in conjunction with the established guiding principles established for the rezoning of the marine park.

## **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 during fishing operations outside of the 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 things such as bait species 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% of Queensland's recreational anglers live in the Moreton Bay region, with 432 000 anglers or 18.4% of the south east Queensland population aged over 15 years harvesting approximately 3 500 tonnes of fish, crabs and prawns each year. Recreational fishing was reported to have generated \$194 million in related expenditure in southeast Queensland annually in 200-2001.

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 southeast Queensland. The Department of Transport reports that the number of vessels registered in the region has increased by 45 percent 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 southeast 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 5 500 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 the Moreton Bay Marine Park involving the transport of goods in and out of SEQ. A number of key sites, which support Port activities, were identified and provided for in the zoning plan such as shipping channels, spoil disposal sites and ship mooring areas.

## 2.5 Regulatory restrictions and objectives of the zoning plan

2.5.1 *Marine National Park* or 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.

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 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 the Moreton Bay Marine Park are protected in green zones and only one of these (inshore reef habitat) contains more than 10 percent of the habitat type represented in green zones (refer to table 1).

Table 1 – Habitat types and percentage protected in 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 green zones proposed under the new zoning plan. There is no significant difference between the restrictions that apply to green zones under the existing and new zoning plan. The key change is the increased number and coverage of green zones, which provide greater habitat protection (refer to Table 1).

2.5.2 Conservation Park, or 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 the 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 current zoning plan need 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 (habitat protection zones) in other Queensland marine parks. This has caused public confusion over the status and restrictions applying to yellow zones. For example, under the current 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 proposed yellow zones under the new zoning plan. The entry and use provisions applying to proposed yellow 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* or 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 current zoning plan, a substantial percentage of the marine park has been 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 dark blue zones between Moreton Bay Marine Park and all other Queensland marine parks.

There are 12 dark blue zones proposed under the draft zoning plan. The entry and use provisions applying to dark blue 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* or light blue zones are areas where most activities can occur with or without a permit under an ecologically sustainable management framework. Light blue zones are called "general use zones" in Moreton Bay Marine Park as well as in all other Queensland marine parks.

General use zones comprise all areas that are not designated green zones, yellow zones and dark blue zones.

### **3.0 OPTIONS**

#### **3.1 Arrangements in other States**

Marine Park zones in other States and in Commonwealth marine parks generally reflect the zonings outlined in this report under the Moreton Bay zoning plan. The use of zoning to protect marine biodiversity through prohibition or limitation of extractive activities or disposal activities is not only consistent across Australia, but consistent with international methods for marine conservation, for example zoning arrangements underpin all of Australia's State and Commonwealth marine parks, with no take zones commonly implemented. For example the Great Barrier Reef Marine Park protects 30% of it's habitats in no take zones, in New South Wales, the Cape Byron Marine Park protects 27.5%, Jervis Bay Marine Park protects 20%, Solitary Islands protects 12%, in Western Australia Ningaloo Marine Park protects 34% and South Australia the Encounter Marine Park proposes protection of 13%.

#### **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 current 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 current green zones are small (accounting for only 0.5 percent of the marine park), widely separated and largely confined to coral reefs and mangrove habitats.
- The current level of green zoning falls well short of internationally accepted standards for marine reserve design.
- The current 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 is considered necessary for a number of reasons, including;

- To ensure a minimum of 10 percent of each of the marine park's 16 broad-scale habitat types be 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 current 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% 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 current 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 current 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 current 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 result in increased 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, and in some cases 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 proposed green zones has been guided by the scientific guiding principles outlined in attachment 2. Feedback from stakeholder groups and the community has also been considered to minimise impacts arising from the placement of green zones.

In general 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 or threats; and
- 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 green zones under the existing and draft zoning plan.
- The key change is the increased number and coverage of green zones, which provide greater habitat protection.

#### *3.4.2 Placement of conservation park (yellow) zones*

The size, shape and location of the proposed yellow zones have been guided by the scientific guiding principles outlined in attachment 2. Feedback from stakeholder groups and the community has also been considered to minimise impacts arising from the placement of yellow zones.

In general 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; and
- 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 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 yellow zones.

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

The size, shape and location of the proposed dark blue zones have been guided predominantly by feedback from the stakeholder groups and the community. In general, dark blue 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 green or yellow zones;
- existing yellow zones where substantial economic impacts would result from phasing out commercial netting;
- areas adjacent to green or yellow zones, or areas adjacent to land based national parks, to complement land based conservation measures; and
- 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 current and draft zoning plan for dark blue zones is the removal of trawling.

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

Proposed 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 light blue zones under the current and draft zoning plan. However,

aquaculture involving the addition of feed (fish farms) will be prohibited, consistent with existing Government policy in Moreton Bay.

#### **4.0 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 both the recreational and commercial fishing industries resulting from the expansion or creation of 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 Government's 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 of the new zoning plan, particularly on the commercial fishing industry. As a result work was undertaken using information from the Department of Primary Industries and Fisheries to calculate the impacts on the commercial industry of the rezoning process and establish a \$14 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 Government's in terms of calculating the amount to be funded. The estimated impact of the rezoning is 17% of the \$24 million industry in the marine park, which equates to just over \$4 million. The total structural adjustment fund (\$12 million) equates to three times this amount, which reflects the price generally paid under such programs i.e. 3 times the annual income of a fisher.

As outlined previously, green zones prohibit all forms of fishing, yellow zones prohibit commercial fishing, but allow limited recreational fishing, and 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 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 principles adopted in the planning process with the socio-economic principles, particularly the principle 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 the identification of 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 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, PBT and RIS were released to the community in December 2007 for public comment for 3 months. Over 8000 submissions were received in response to the release. 6000 submissions supported the draft zoning plan, with 4500 of these calling for greater protection than the 15% proposed in the plan. Submissions ranged in their level of detail, and the issues raised are outlined below:

##### *4.2.1 Restrictions on commercial fishing*

The rezoning process aimed to minimise impacts on the commercial fishing industry by directly consulting on defined areas of interest identified by the EPA prior to the development of 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 enabled direct input into the areas selected as green zones in the draft zoning plan – with boundaries of many green zones modified, and a number of candidate green zones removed, as a result of advice from fishers. Analysis of commercial catch data completed by commercial fishers on a daily basis and provided by the Department of Primary Industries and Fisheries, was also undertaken to seek to minimise the placement of 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 percent of the total commercial income for the marine park.

However 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; and, 3) the use of different habitats by the different fisheries. In recognition of this impact, the Government has provided a \$14 million dollar 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 transfer of effort back into Moreton Bay following restructure payments under the structural adjustment program.

The restructure package was welcomed by the commercial industry, however there were some requests made through submissions to make modifications to some zones in the plan to accommodate commercial fishing. In some circumstances these requests could be accommodated, in other circumstances the zones could not be changed due to there being no suitable alternative which would achieved the desired conservation objectives of the zoning plan. 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 will be discussed further under the conclusions and recommendations section of this report.

#### *4.2.2 Restrictions on recreational fishing*

The recreational fishing community feedback 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, in other circumstances the zones could not be changed due to there being no suitable alternative which would achieved the desired conservation objectives of the zoning plan.

The government has also recognised that zoning some areas of the marine park as green zones will result in the loss of recreational fishing opportunities and the displacement of fishing effort 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 the Moreton Bay Marine Park.

#### *4.2.3 Bay Islands Transport System*

One of the new issues identified as a result of the consultation process was the impact of the introduction of several new "go slow" areas for boats as a mechanism 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 and are an endangered species, with more than five deaths a year considered unsustainable for the population.

The "go slow" areas proposed in the southern area of Moreton Bay aimed to reduce boats speeds in areas known to be high-risk areas for boat strike of dugong. These locations also coincided with the route taken by the Bay Islands Transport System (BITS) Company who are 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 operational impacts of complying with these go slow zones, 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 their vessels at the reduced speed of 6 knots which applies in the go slow zones.

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

## 5.0 SUMMARY OF PBT 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 draft 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 percent, 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. There is also variation in relation to the number of active participants in each fishery within the fishing industry operating within the Moreton Bay Marine Park, as outlined in table 2. The table highlights the highest number of active licences are 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 DPI&F A1 aquarium fish licences with licence conditions that entitle them to fish within the MBMP, with only 9 of these licences currently holding a QPWS permit which is also required to operate within the 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 can generally be accounted for by the multiple endorsements held on a single fishing licence that entitles operators

to fish in a number of given 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 reflect fishing is not undertaken at maximum capacity by all licence holders reflecting part time participation by some individuals 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 analysis of the impact of the zoning plan used the best available information to determine the fishing activities conducted throughout the marine park. For example, catch records provided through the DPI&F commercial logbook program at six nautical mile resolution, 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 6 nautical mile site reported in the logbooks. A number of steps were included in this process to estimate the available fishing area for each 6 nautical mile site:

- Land areas were excluded (mainland and islands)
- Areas currently zoned under EPA or DPI&F as permanent fisheries closures for the individual fisheries were excluded.
- Areas outside of the marine park were excluded (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 of the marine park

Reduction in the areas available to each of the main fishing methods because of proposed changes to 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 DPI&F 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 % each of the total income; however, they also derive significant aquarium fish fishery incomes from operations conducted outside of Moreton Bay.

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

	Trawl	Net	Pot	Line	Beam trawl
<b>Total average fishery income (GVP)</b>	\$10.53M	6.49M	\$4.79M	\$0.79M	\$1.44M
<b>Average annual licence income (GVP)</b>	\$62 000	\$51 000	\$32 000	\$11 000	\$42 000
<b>Estimated zoning plan impact by fishery</b>	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 percent for net, 17.6 percent for pot, 9.6 percent for line and 6.7 percent for trawl and 2.9 percent for beam trawl.

As previously discussed, the Government will implement the Moreton Bay Marine Park Structural Adjustment Package (MBMP SAP) to minimise the costs of the zoning plan on commercial fisheries in recognition of the impacts of the changed zoning arrangements. To reduce issues arising from displaced commercial fishing effort, the MBMP SAP will be implemented prior to the new zoning plan commencing.

The 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 within the marine park. Without the SAP, commercial fishers would experience increased competition within 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 the Department of Primary Industries and Fisheries, 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 will be 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 utilised within the marine park will be 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 components of the fishery, as outlined in table 5.

Table 5 – Effort reduction targets for the SAP

	Trawl	Net	Pot	Line	Beam trawl
<b>Effort reduction targets (licences)</b>	11	47	28	7	1
<b>Annual effort reduction targets (GVP)</b>	\$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 1990's a multiplier of three was used by DPI&F to reduce net fishing operations within dugong protection areas. In 2004, the Commonwealth spent \$32.9 million via a competitive tender process to purchase licences equivalent to effort reduction targets of approximately \$17 million – this 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 – this equates to a multiplier of approximately three times recent GVP. DPI&F 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 southeast Queensland as a result of the draft 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 will 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 production. The fishers remaining in the marine park after the 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 the 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 DPI&F grey nurse shark closures which restrict most other forms of fishing activities. Under the draft zoning plan these areas have been classified as green zones because they are important reef habitats in the marine park and the current exclusion of most forms of commercial and recreational fishing means this type of zoning will have a relatively low economic impact.

Approximately 42 percent 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 percent 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 will be eligible to apply for the MBMP SAP outlined above.
- Alternatively, the introduction of restrictions for aquarium fish collectors in green zones will be delayed by four years to provide this industry with 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 draft 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 has a direct impact on approximately five percent 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 are 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 within the 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 associated with applying for mooring sites within the marine park under the new zoning plan. This will also provide benefits for 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 within 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 impacts of boating – one of the key threatening processes to dugong and turtle populations through boat strike. 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 proposed green zones.

It is not expected that any downstream impacts on the boating industry will occur as a result of the draft 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 percent of the GBR 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 associated with applying for mooring sites within the marine park, which will benefit recreational boaters wishing to moor a vessel within the marine park. 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.

This 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 has 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, which will allow continued access to these sites. The zoning plan also clarifies the types of boating activities that can occur in the different

zones within the marine park. This will benefit some sectors of the boating industry. In particular Personal Water Craft, such as jet skis and wave runner operators who 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 zoning plan all commercial tourism operators within 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 will allow management of the expected increase in commercial tourism operators across the marine park in 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 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 are associated with the protection of 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 current zoning plan tourism permissions vary between each zone, leading to difficulty in interpretation and compliance. The 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.

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Conclusions**

There is a clear public benefit in undertaking option one and producing a new zoning plan which seeks to protect a minimum of 10% of each habitat across the marine park in green zone and improved the conservation of biological diversity in the State's marine environment. 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% of the marine park being set aside on behalf of the community from extractive uses to ensure long term protection. However 84% or 2860km<sup>2</sup> of the marine park is still available for multiple extractive uses to various degrees. Given the increasing pressures of population growth in SEQ, the 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 managing 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 outweigh these costs – through the coordinated management by the State of marine conservation in the marine park over the next decade on behalf of the whole community. 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 allocated by the State to minimise the impacts of these costs - through provision of funding to restructure the commercial fishing industry and establishment of new recreational fishing opportunities under a trail 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 5 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, PBT and RIS, the following recommendations and changes were incorporated into the final zoning plan:

- 23 modifications of zones to provide for a range of commercial and recreational fishing issues.
- 28 zone modifications to improve conservation or management of the marine park.
- The introduction of a four year transitional period in the zoning plan to provide aquarium fishers the opportunity to continue fishing in their current locations while they relocate, retrain or move into other areas of fisheries business.
- Amendment of the zoning plan to allow for an exemption from the go slow provisions for the BITS ferry transport company 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 Transport will work together over 12 months to develop options to mitigate the impacts of ferry operations on dugong mortality.

## **7.0 IMPLEMENTATION ISSUES**

### **7.1 Media and community education**

The implementation of the new zoning plan will involve 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 advertisements particularly targeting publications such as boating, fishing and diving,
- extensive advertising in electronic and other print media,
- notices enclosed with boat registration renewal notices,
- the Department of Transport "notice to mariners" notification system,
- Information packs including info sheets, frequently asked question sheets and advice on how to obtain further information,
- maintenance of a 1800 free call number,
- maintenance of information on the EPA website and
- media releases.
- Maps and navigational information

## **7.2 Operational matters**

The Government will examine funding options to support the recruitment of additional staff, purchase of new vessels and replacement and/or installation of 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 the marine park 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 through 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 program 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 the provision of 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.

## **8.0 ATTACHMENTS**

Attachment 1 – Expert Advisory Panel members

Attachment 2 – Guiding principles used in the review of the marine park

Attachment 3 – Membership of the Stakeholder reference group.

Attachment 4 – Broad scale habitat map of Moreton Bay Marine Park.

## 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

## 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 percent of each habitat type should be protected in a system of no-take areas. The Panel recommends that the CBD 10 percent 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 percent 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.

## 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
Jane Clout	Boating Industry Association Queensland
John Dobson	Queensland Aquaculture Industries Federation
John Johnston	Queensland Conservation Council
John Page	Sunfish Queensland
Kathy Townsend	Moreton Bay Access Alliance
Keith Hall	Moreton Bay Seafood Industry Association
Kellie Williams	University of Queensland marine research station (Dunwich)
Kevin Chard	Moreton Bay Access Alliance
Mark Olsen	Moreton Bay Access Alliance
Nathan Waltham	Moreton Bay Seafood Industry Association
Paul McAtee	Australian Underwater Federation
Peter McCulkin	Tourism Queensland
Phillip Gaffney	Gold Coast City Council
Richard Leck	Brisbane City Council
Rob Lowe	Department of State Development
Simon Baltais	Department of Primary Industries and Fisheries
Tony Dillon	World Wildlife Fund (WWF) Australia
Tony	Queensland Aquarium Supply Divers Association
	Wildlife Preservation Society of Queensland
	Traditional Owner
	Slocombe Maritime Safety Queensland, Department of Transport

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

