

## **GREAT BARRIER REEF MARINE PARK AUTHORITY SUBMISSION TO THE QUEENSLAND PARLIAMENTARY COMMITTEE INQUIRY INTO AGRICULTURAL AND RESOURCE INDUSTRY REGULATION**

### **NOTES FROM PRESENTATION ON 17 SEPT 2012**

The Great Barrier Reef Marine Park Authority (the GBRMPA) was established to protect the Great Barrier Region (similar to the World Heritage Areas) through the care and development of the Great Barrier Reef Marine Park (the Marine Park) in 1975. The waters of the Marine Park and Queensland's coastal waters overlap and this has required the establishment of a strong working relationship between the GBRMPA and Queensland Government Agencies. This has been a 30 year partnership which is supported by the joint Field Management Program. This is approximately a \$16m per year program funded 50/50 by GBRMPA and Queensland.

The main object of the *Great Barrier Reef Marine Park Act 1975* (the GBRMPA Act) is "to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region. The other objects of this Act are to do the following, so far as is consistent with the main object:

- 1) Allow ecologically sustainable use of the Great Barrier Reef Region for purposes including the following:
  - a) Public enjoyment and appreciation.
  - b) Public education about and understanding of the Region.
  - c) Recreational, economic and cultural activities.
  - d) Research in relation to the natural, social, economic and cultural systems and value of the Great Barrier Reef Region.
- 2) Encourage engagement in the protection and management of the Great Barrier Reef Region by interested persons and groups, including Queensland and local governments, communities, Indigenous persons, business and industry.
- 3) Assist in meeting Australia's international responsibilities in relation to the environment and protection of world heritage (especially Australia's responsibilities under the World Heritage Convention)".

The Great Barrier Reef Region is a large ecosystem, about the size of Italy. The adjacent catchment to the Great Barrier Reef is about a third as big again and many agencies play a role in managing these areas. For example, the Australian Maritime Safety Authority (AMSA) and Maritime Safety Queensland (MSQ) play major roles in managing shipping. The GBRMPA's role in shipping is in identifying areas where shipping is inappropriate (for example coral reefs) or in the event of an incident, identifying critical environmental values to be protected.

The GBRMPA's other key role is to provide the foundation for use of the Marine Park's resources. This is done through the *Great Barrier Reef Marine Park Zoning Plan 2003* (the Zoning Plan), which is a legislative instrument under the GBRMPA Act. The Zoning Plan was extended in 2003 to cover the entire Great Barrier Reef Marine Park. Under the GBRMPA Act the Zoning Plan cannot be re-opened for a period of 7 years. The need for reviewing after 2011 is a decision for the Commonwealth Minister.

The Great Barrier Reef is comprised of much more than the shallow coral systems advertised in tourism promotions and for which it is rightly famous. The Great Barrier Reef Region includes mangroves and wetlands, large meadows of seagrass, patch reefs across most of the continental shelf and fringing reefs attached to the mainland and mainland islands along the coast. The shallow coral reef habitat is only about five per cent of the Great Barrier Reef region with large areas being open water ranging from shallow to deep abyssal plains.

The offshore, deep water regions are linked to shallow reefs, mangroves and wetlands through ecological functions such as nutrient flows and the movements of species through fish breeding and recruitment. For example we know that at least 78 marine fish species spent part of their life cycle in coastal wetlands. The shallow tropical systems in their natural state are adapted to thrive in waters with relatively low in nutrients with some periodic sediment runoff effects and no man-made chemicals.

Flooding causes runoff of sediment and some nutrients - with more frequent runoff in the wet tropics, and less frequent in the dry tropics. While a lot of work has been done on water quality decline and we have guidelines which identify trigger levels or thresholds for maintaining good water quality we still have little understanding of the thresholds for species and ecosystems with regard to changes brought about by human uses and development pressures.

With increasingly intensive farming come increases in pressure from runoff of nutrients (fertilizer), sediment (from erosion) and agricultural chemicals (pesticides) into the Great Barrier Reef lagoon. The decline in water quality in the region began when land was cleared in the 19th and 20th centuries for agriculture and forestry, and accelerated in the 1950's onwards. We also believe that during this period, up until around 2000, we lost significant areas of inshore fringing reef. Coastal ecosystems, under pressure from this expanding coastal population expansion, has also been lost and fragmented.

The effects on the Great Barrier Reef ecosystems of these pressures include:

- 1) Less light penetration in shallow seagrass areas for longer periods.
- 2) Covering corals and seagrass with mud and marine snow (flocs caused by bacteria and algal growth).
- 3) Reduced ability to plants and animals to regrow naturally after disturbances; either human caused or natural disturbance i.e. plants and animals cannot recolonise and grow in the disturbed patches.

The turbid water, excess mud deposition, and enhanced algal growth causes loss of physical structure (corals create niches) and loss of food for many species (including iconic ones such as turtles, dugongs, dolphins).

In addition, alteration of flood plains and wetlands through changing drainage and salt water flows, plus introduction of feral animals (pigs) and plants (pasture grasses) further degrades the natural capability for the system to create cleaner water and habitat for fish, birds and other species.

Recent assessments of Great Barrier Reef Region corals show the total coral cover has declined by about 50 per cent since monitoring began about 30 years ago. The causes of this decline are multiple, but major ones include Crown-of-thorns starfish (COTS), extreme weather events and decline in water quality.

This has also lead to chronic pressure on seagrass health which leaves them very vulnerable to acute impacts of natural events such as cyclones. This was manifested recently with the losses of seagrass after Cyclone Yasi in 2011.

Probably the biggest risk to the Great Barrier Reef is increasing temperatures which will affect reefs more and more into the future. Managing and improving water quality has been shown to improve the Great Barrier Reef's resilience to temperature increases.

With respect to regulation of these issues in the Great Barrier Reef, our GBRMPA-Queensland joint field management program minimises the issue of duplication of legislation as planning, regulation, permitting and compliance are complementary.

Lastly, we are working with Queensland in delivery of our Strategic Assessment, which will highlight the importance of integrating government planning and decision making on coastal management issues.

### **Specific Questions to the Great Barrier Reef Marine Park Authority (GBRMPA)**

#### **A. The risks to the Great Barrier Reef posed by Queensland's agriculture and resource industries and associated activities and future development, and how these risks compare to other risks to the reef.**

- 1) The Great Barrier Reef is under pressure and the Outlook Report in 2009 identified run-off from the land is resulting in a decline in water quality in the Great Barrier Reef lagoon. **Attachment A is on the accompanying CD (hard copy provided to the Committee) and available from the GBRMPA website at <http://www.gbrmpa.gov.au/outlook-for-the-reef/great-barrier-reef-outlook-report>.**

- 2) The best science available estimates that around 90 per cent of the loads of sediments, nutrients and toxic chemicals entering the Great Barrier Reef lagoon come from agricultural practices in the Great Barrier Reef catchment.
- 3) Water quality decline from catchment run-off is one of the four most significant risks to the long term health and resilience of the Great Barrier Reef. Specifically Outlook reported:
  - a) Particular concerns with the status of inshore reefs most affected by human activity.....which suggest that increased run-off from human activities in the wet tropics has led to declines in corals and replacement by algae (p 17).
  - b) Over the last 150 years sediment inflow to the Great Barrier Reef has increased four to five times and five to ten fold for some catchments (p 41).
  - c) Dissolved inorganic nitrogen (largely from fertilizers) and phosphorus continue to enter the Great Barrier Reef at greatly enhanced levels two to five times (natural levels) for nitrogen and four to ten times for phosphorus relative to pre European settlement (p 43).
  - d) Pesticides, including herbicides, insecticides and fungicides, are of concern because, by their very nature, are poisonous and there is no natural background exposure to them. Nearly one third of the Great Barrier Reef, especially inshore, is now exposed to herbicides (p 44).
  - e) The general scientific view is that occasional outbreaks of COTS are to some extent natural but the human impacts have increased their frequency and severity. Suggested impacts include improved survival of larvae due to increased nutrients (from agricultural run-off) and phytoplankton (p 52).
  - f) The assessment grade for the Great Barrier Reef's 'chemical processes' driven by the decline in water quality is 'poor' such that for much of the Great Barrier Reef the chemical environment has deteriorated significantly, especially inshore close to developed areas (p 55). This 'poor' rating was repeated for the 'physical processes' of sedimentation (p 54) and for 'outbreaks of disease, introduced species and pest species' especially with respect to COTS (p 56).
  - g) The nutrient load (entering the Great Barrier Reef) is derived from areas of high intensity land use (mainly sugar cane)....in the wet tropics area ...and the Mackay/Whitsunday region. Increased loads of particulate nitrogen are derived from intensive agriculture, as well as low intensity grazing and forestry (p 106 – figure 5.22). Increased concentrations of suspended sediments, nitrogen, phosphorous and agricultural chemicals are having significant effects on the ecosystems of the inshore Great Barrier Reef close to agricultural areas. Higher concentrations of ... nutrients potentially lead to a decrease in coral diversity and an increase in macro-algae abundance. Such a shift drastically affects the overall resilience of the ecosystem as a dominance of macro-algae reduces the chance for new hard corals to establish and grow. The increased concentrations of nitrogen in seawater after flood events induce rapid growth of planktonic algae, sometimes resulting in an algal bloom. If these conditions persist, such blooms can affect other species and the overall functioning of the ecosystem. If an algal bloom coincides with a release of COTS larvae, it greatly increase the latter's chances of survival (p 109).
  - h) Sediment inflow into the Great Barrier Reef has increased as a result of extensive forest clearing, especially lowland rainforest and wetlands for sugar cane and the clearing of dry land forest for grazing. The latter creates sheet erosion where the nutrient rich uppermost layer of soil is washed into rivers during heavy rain, a phenomenon exacerbated by the introduction of drought resistant breeds of cattle capable of heavily grazing of grassland during the dry season (p 107). Increased sediments cause damage to the ecosystem by reducing light penetration, smothering coral and other small invertebrates and transporting nutrients and pesticides to the Great Barrier Reef (p 109).
  - i) Pesticides are being widely detected in waters and animals of the Great Barrier Reef and in waters in the catchment... the residence times for pesticides in the environment varies with half-lives ranging from 5 days to 15 months (p 107). Herbicides can affect the health of plants in the marine environment and thus affect the levels of primary production in the ecosystem. The timing of the exposure to pollutants may alter the severity of their effects. For example, corals are particularly vulnerable to contaminants during the time of spawning and larval settlement. Some pollutants such as heavy metals can persist for decades in the marine environment. They are

known to accumulate in species that have high fat contents (such as whales, dolphins), species which are higher in the food web and in species which are long-lived.

- j) The decline in inshore habitats as a result of polluted water will have economic and social implications for industries and coastal communities that derive their income from these areas (p 110).
- k) An assessment of the impacts of catchment run-off on the Great Barrier Reef was 'high' which compared with 'very high' for climate change and 'high' for coastal development (p 113).
- 4) Coastal development, which includes agricultural, industrial and urban developments and its impact on coastal ecosystems, was also found to be one of the four highest risks to the long term health and resilience of the Great Barrier Reef (Outlook Report 2009). It causes loss of ecosystem functions through degrading or removing habitats for many species of plants and animals.
- 5) The Great Barrier Reef is recognised as an outstanding asset for local, regional, state, national and international communities. It has been valued, in straight economic terms, as worth over \$6b annually to the Australian and Queensland economies, providing full time employment for around 66,000 people. This is generally considered to be only a fraction of its actual worth given non-market values such as its recreational values and intrinsic environmental values. **Attachment B is on the accompanying CD and available from the GBRMPA website at [http://www.gbrmpa.gov.au/data/assets/pdf\\_file/0008/5588/gbrmpa\\_RP88\\_Measuring\\_The\\_Economic\\_and\\_Financial\\_Value\\_Of\\_The\\_GBRMP\\_2005-06.pdf](http://www.gbrmpa.gov.au/data/assets/pdf_file/0008/5588/gbrmpa_RP88_Measuring_The_Economic_and_Financial_Value_Of_The_GBRMP_2005-06.pdf).**
- 6) This outstanding value was recognised by Australians in 1975 when the area was declared the Great Barrier Reef Marine Park (the Marine Park) and in 1981 by the world community when it was listed as the Great Barrier Reef World Heritage Area (the World Heritage Area).
- 7) In early 2000 it was recognised that declining water quality was threatening these values and the Australian and Queensland Governments came together and developed the Reef Water Quality Protection Plan 2003 (Reef Plan).
- 8) The initial five years of Reef Plan (2003) focused on self-regulation and the identification of best industry practices. Research assisted those farmers who wished to improved their practices and governments provided some incentives through programs like the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT I & II).
  - a) In 2008 the review of our knowledge and progress over the previous five years in addressing the decline in water quality entering the Great Barrier Reef was compiled into a Scientific Consensus Statement. **Attachment C is on the accompanying CD and available from the GBRMPA website at <http://www.reefplan.qld.gov.au/about/assets/scientific-consensus-statement-on-the-water-quality-in-the-gbr.pdf>.** The main findings were:
    - i) Water discharged from rivers to the Great Barrier Reef continues to be of poor quality in many locations.
    - ii) Land derived contaminants, including suspended sediments, nutrients and pesticides are present in the Great Barrier Reef at concentrations likely to cause environmental harm.
    - iii) There is strengthening evidence of the causal relationship between water quality and coastal and marine health.
    - iv) The health of freshwater ecosystems is impaired by agricultural land use, hydrological change, riparian degradation and weed infestation.
    - v) Current management interventions are not effectively solving the problem.
    - vi) Climate change and major land use change will have confounding influences on the Great Barrier Reef.
    - vii) Effective science coordination to collate, synthesise and integrate disparate knowledge across disciplines is urgently needed.
  - b) The review of Reef Plan in 2009 led to the development of a clear goal, objectives and targets to achieve these and effective monitoring and reporting process to track progress. **Attachment D is on the accompanying CD (hard copy provided to the Committee) and available from the**

Queensland Government website at <http://www.reefplan.qld.gov.au/about.aspx>. The release of the First Report Card 2009 Baseline, which benchmarked the situation at that time, found that:

- i) The Great Barrier Reef is in moderate condition overall, however, this varies regionally.
  - ii) Inshore waters often contain elevated concentrations of available nutrients, with the highest concentrations evident in the Wet Tropics and Burdekin regions.
  - iii) Monitoring during flood events over the last five years has detected pesticide concentrations above the water quality guidelines, at least 25 km from the mouth of the Pioneer and O'Connell Rivers. Concentrations that may have short term effects on the health of marine plants have also been detected up to 50 km from the coast.
  - iv) Inshore seagrasses were in moderate condition. Seagrass abundance was variable and has declined over the last five to ten years, associated with excess nutrients. The number of reproductive structures was poor or very poor in four of the six regions, indicating limited resilience.
  - v) Most inshore reefs are in good or moderate condition, and have either high or increasing coral cover. However, corals in the Burdekin region are mostly in poor condition and have shown little recovery in the last four years.
  - vi) The loads of nutrients entering the Great Barrier Reef was 31,000 tonnes, with the key source being agricultural fertilizers, the total suspended sediment load from human activities was 14 million tonnes and 28,000 tonnes of pesticide. There was also a loss of 30,000 ha of wetlands between 2004 and 2008.
  - vii) Practices considered unacceptable by industry and community standards (D practices) were used by 34 per cent on sugarcane growers for nutrients and 45 per cent for soil management.
  - viii) For horticulture producers, 24 per cent of farmers used D class nutrient management practices and 12 per cent of graziers in both the Burdekin and Fitzroy regions used D class grazing practices.
- 9) Since the Outlook Report 2009 was released a number of additional issues have arisen and actions been taken. These include:
- a) The review of Reef Plan led to two significant initiatives being the Commonwealth's \$200m Reef Rescue initiative and Queensland's \$50m ReefWise Farming Initiative, including the Reef Protection Regulation.
  - b) The GBRMPA's Marine Monitoring Program and the baseline Reef Plan Report Card released in August 2011 have reported a downward trend in health of seagrass communities in the Great Barrier Reef, especially south of Cooktown. **Attachment E is on the accompanying CD and available from the Queensland Government website at <http://www.reefplan.qld.gov.au/measuring-success/report-cards/first-report-card.aspx>.**
  - c) The Australian Institute of Marine Science (AIMS) has reported a long term decline in coral cover across the entire Great Barrier Reef of around 50 per cent since surveying began in the mid 1980s. A significant portion of that loss (42 per cent) is attributable to COTS outbreaks and the only area where this decline in coral is not evident is north of Cooktown.
  - d) Another COTS outbreak has begun about the reefs in the Cairns area following a number of heightened wet season floods in the Wet Tropics and Burdekin regions since 2009.
  - e) The 2011 wet season was the worst in over 100 years with widespread flooding across the entire Great Barrier Reef catchment and this was followed by Cyclone Yasi, a category 5 cyclone, which affected a significant area of the reef from Cairns to Townsville. The loss of seagrass communities and the subsequent deaths of dugongs and turtles was unprecedented, highlighting the links between chronic impacts of water quality and the acute impact of the cyclone on critical ecosystems and the species reliant on them. It is likely that it will take years for the seagrass communities to recover and that is presuming an absence of further extreme events.
  - f) The GBRMPA has developed a Great Barrier Reef Biodiversity Conservation Strategy in recognition that the pressures on the Great Barrier Reef, identified in the Outlook Report, are

leading to declines in a number of species and ecosystems. This Strategy identifies that concerted action is needed if this decline in inshore species and habitats, especially adjacent to the developed coast, is to be addressed. **Attachment F is on the accompanying CD (hard copy provided to Committee) and available on the GBRMPA website at <http://www.gbrmpa.gov.au/about-the-reef/biodiversity/draft-biodiversity-conservation-strategy-for-public-consultation>.**

- 10) The GBRMPA has also worked with Queensland agencies to understand how coastal development has led to the modification and loss of coastal ecosystems and the ecological functions they provide. This loss of ecological functions is affecting the long term health and resilience of the Great Barrier Reef, its ecosystems and species. The technical report '*Informing the Outlook for Great Barrier Reef Coastal Ecosystems*' will be released in the near future and will be used to inform the GBRMPA's strategic assessment. This report has identified significant loss or modification of many coastal ecosystems in catchments south of Port Douglas. In particular this is having a detrimental effect on the inshore ecosystems and species of the Great Barrier Reef. Some of the implications of these changes for the Great Barrier Reef are:
  - a) The loss of connectivity between marine and freshwater ecosystems reduces the productivity of many marine species by reducing their breeding and feeding areas, their food supply and their recruitment success. This is generally caused by infrastructure such as roads, bunds, levees or any other structures that halt or significantly alter tidal movements.
  - b) Effects on the water quality in coastal ecosystems by reducing the natural sediment and nutrient recycling processes, thus reducing the environmental carrying capacity for many native species, encouraging establishment of pest species better suited to these degraded conditions and restricting the movement of many species between marine and freshwater environments.
- 11) Affecting the natural protective role of mangrove, seagrass and coral communities which protect the coast from the erosive forces of nature, and coastal communities from many effects of storms and flooding. This growing pressure on coastal ecosystems is leading in recent years to significant declines in the health of Great Barrier Reef ecosystems and species populations. For example, populations of several species of sawfish have disappeared from coastal and estuarine areas south of Port Douglas and many of the more common fish populations have also declined.
- 12) Today's legislative environment does not allow for the ill-considered and broadscale changes to the natural environment seen in the 1900s and many of these legacy issues can be addressed. There are several programs over the last two decades have developed techniques to address them for example Queensland Wetlands Program, WetlandInfo. However, as with the earlier efforts under NHT and NAP the programs have often been ad hoc and piecemeal. A dedicated Reef Plan like program that brings all the whole of government's tools together with a clear goal is needed if we are to halt this decline in inshore ecosystem health.
- 13) Reef Plan's Second Report Card, which is due for release shortly, will report on the effectiveness of Reef Plan actions taken since 2009. This report shows:
  - a) Good progress in engaging farmers in improving their practices with numbers already halfway towards the 2013 Reef Plan target of 80 per cent of sugarcane growers adopting better land management practices. There are 38 per cent of farmers already implementing practices designed to improve Great Barrier Reef water quality.
  - b) Good to very good progress is being made with other agricultural industries towards Reef Plan targets with 13 per cent of graziers and 18 per cent of horticultural producers adopting improved management practices.
  - c) The sophisticated new catchment modelling undertaken by the Queensland Government shows that changes made at the paddock scale have led to reduced pesticide loads at the end of catchments by around eight per cent.
  - d) There has already been the reduction in nitrogen loads of around four percent and a reduction of sediment loads of around two per cent. Given this information was for 2009-10 year, these are very encouraging signs that Reef Plan actions have made a difference and can achieve the goal set by the Australian and Queensland governments.

- e) As Reef Protection Regulation only came into effect in 2010 most of these initial improvements were a result of the Commonwealth's Reef Rescue initiative, which began providing significant incentives to improve farm practices from late in 2008. However, Reef Rescue funded improvements only cover around half a million hectares of the 42 million hectares of the Great Barrier Reef catchment.
  - f) Recently released information on the outcomes of Queensland's ReefWise Farming program show that in just two years the new regulation is likely to have reduced the annual run-off of fertilizer nitrogen by at least 14 per cent <http://www.reefwisefarming.qld.gov.au/pdf/impact-statement-2012.pdf>. This means that over the two plantings since regulation commenced, growers would have saved up to \$25m or \$6000 for each grower. This is profit otherwise lost through payment for fertilizer that previously ended up in the Great Barrier Reef.
  - g) The footprint of the Reef Protection Regulation is around 10 million hectares of agricultural land (by far the majority being grazing land) in the highest priority areas for addressing losses of sediment, nutrients and pesticides from the Great Barrier Reef catchment.
- 14) Additional issues related to the impacts of agricultural and resource industries in and adjacent to the Marine Park relate to specific industries:
- a) Aquaculture, both in the Marine Park and in the adjacent coastal strip.
  - b) Mining.
- 15) While the footprint of these resource industries in the Great Barrier Reef catchment is relatively small, their activities if not effectively managed can add to the cumulative delivery of sediments, nutrients and toxic chemicals to the Great Barrier Reef lagoon.

**B. The assessment processes and other regulations administered by the GBRMPA to mitigate environmental impacts on the reef from these industries, as well as the scientific basis of these assessments/regulations**

1. The GBRMPA regulates only two agriculture or resource industries as defined under this inquiry. These are aquaculture and mining.
2. Aquaculture in the Marine Park is a permitted activity in certain zones. This is provided for under the Zoning Plan requirements and the *Great Barrier Reef Marine Park Regulations 1983*. More information on these can be obtained from our web site. Specifically the GBRMPA has a position statement on aquaculture management in the Marine Park. This Position Statement can be viewed in **Attachment G is on the accompanying CD and from the GBRMPA website at <http://www.gbrmpa.gov.au/zoning-permits-and-plans/legislation-regulations-and-policies/policies-and-position-statements>.**
3. In assessing the impact or likely impact of aquaculture, a fundamental concern for the GBRMPA must be the maintenance of natural systems. In order to address this concern the GBRMPA must, wherever possible, ensure that the ecological risk is minimised.
4. The GBRMPA has certain mandatory considerations it must take into account in assessing applications seeking a permission to undertake an activity in the Marine Park. These are found under Section 88Q of the *Great Barrier Reef Marine Park Regulations 1983*. The GBRMPA must assess:
  - a) The potential impacts of the conduct proposed to be permitted by the permission (the proposed conduct) on the environment and on the social, cultural and heritage values of the Marine Park or a part of the Marine Park.
  - b) Options for monitoring, managing and mitigating the potential impacts of the proposed conduct.
  - c) If the proposed conduct will take place in an area to which a zoning plan applies - the objectives of the zone as set out in the zoning plan.
  - d) If the proposed conduct also requires an approval or permit under the *Environment Protection and Biodiversity Conservation Act 1999*:
    - i) Whether the approval or permit has been, or is likely to be, granted and, if granted, the terms and conditions of it being granted.

- ii) Any relevant assessment documentation (within the meaning given by subsection 133 (8) of that Act) in relation to the approval or permit.
  - iii) Any written comments received about the application in response to the public advertisement published in accordance with Regulation 88D.
  - iv) Any other matters relevant to the orderly and proper management of the Marine Park.
5. Aquaculture under the GBRMPA's Zoning Plan is classified as either extensive (does not include addition of feed) or intensive (does include addition of feed). Extensive aquaculture may be conducted in General Use, Habitat Protection and Conservation Park Zones (around 63 per cent of the Marine Park). Intensive aquaculture may only be conducted in General Use Zones (around 34 per cent of the Marine Park) (Outlook Report p 126).
  6. The *Great Barrier Reef Marine Park (Aquaculture) Regulations 2000* (the Regulations) apply to certain aquaculture developments in the coastal strip adjacent to the western boundary of the Marine Park. These Regulations were subsequently turned off on 2 March 2005. At this time the Commonwealth Minister for Environment and Heritage accredited Queensland law under the Regulations. A statement of reasons is available for this decision **Attachment H is on the accompanying CD and available from the GBRMPA website at <http://www.gbrmpa.gov.au/outlook-for-the-reef/declining-water-quality/management-actions>**. Based on this agreement, no permission from the GBRMPA is required for a land-based aquaculture facility to operate (that is any land-based aquaculture facility that discharges aquaculture waste to a waterway leading to the Marine Park).
  7. In the context of discharges from coastal developments that may affect the water quality of the Marine Park, the GBRMPA has developed specific Great Barrier Reef Water Quality Guidelines (2009). These guidelines are applied in GBRMPA's decision making processes when assessing the impact of coastal developments that may impact on plants and animals in the Marine Park.
  8. The GBRMPA's Water Quality Guidelines are nested within the Queensland and Australian Water Quality Guidelines, which were all developed under the National Water Quality Management Strategy. The Guidelines provide trigger values for pollutants over which impacts on the health of ecosystem and species could be expected. **Attachment I is on the accompanying CD and available from the GBRMPA website at <http://www.gbrmpa.gov.au/about-the-reef/how-the-reefs-managed/water-quality-in-the-great-barrier-reef/water-quality-guidelines-for-the-great-barrier-reef>**.
  9. The GBRMPA's Marine Monitoring Program assesses water quality in the Marine Park against the GBRMPA guideline trigger values, providing an adaptive management loop for assessing the effectiveness of programs like Reef Plan in addressing the decline in water quality in the Great Barrier Reef.
  10. Mining is prohibited within the GBRMPA under Section 38AA and Section 38AB of the *Great Barrier Reef Marine Park Act 1975* (the GBRMPA Act).

**C. The benefits and costs of these assessments and regulations for the environment and the industries that are affected.**

1. The GBRMPA's fundamental obligation is to protect the Great Barrier Reef Marine Park and the World Heritage Area.
2. GBRMPA does this by striving to ensure all human uses of the Marine Park are ecologically sustainable and that the ecosystem's natural functions, especially resilience, are maintained.
3. The GBRMPA is responsible for ensuring the Park, one of the world's greatest natural treasures, is protected for the future.
4. An ecosystem based approach is used, and the Marine Park is widely recognised as one of the best managed marine protected areas in the world.
5. The Marine Park is a multiple-use area that supports a range of communities and industries that depend on the Great Barrier Reef for recreation or their livelihoods. Tourism, fishing, boating and shipping are all legitimate uses of the Marine Park.
6. The entire Marine Park is covered by a Zoning Plan that identifies where particular activities are permitted and where some are not permitted **Attachment J is on the accompanying CD and**



available from the GBRMPA website at <http://www.gbrmpa.gov.au/zoning-permits-and-plans/zoning>.

7. The Zoning Plan separates conflicting uses, with 33 per cent of the Marine Park afforded marine national park status where fishing and collecting is not permitted.
8. In high use areas near Cairns and the Whitsunday Islands, special Plans of Management are in place, in addition to the underlying Zoning Plan.
9. Other Special Management Areas have been created for particular types of protection, such as the Dugong Protection Areas.
10. In most of the adjoining waters, the Queensland Government provides complementary zoning in virtually all the World Heritage Area.
11. The GBRMPA and the Queensland Parks and Wildlife Service operate a joint program of education, compliance and enforcement to support the rules governing protection of the ecosystem.
12. Under an agreement with the Australian Government, Fisheries Queensland undertakes much of the fisheries management within the Marine Park.
13. In 2007, our GBRMPA Act was amended adding specific references to protecting World Heritage values and ecosystem-based management, sustainability, and the precautionary principle.
14. Our priorities are based on the Great Barrier Reef Outlook Report that is published every five years providing an important stock-take of the Great Barrier Reef, its management, and its longer-term outlook.