



**SUBMISSION
TO
UNESCO
WORLD HERITAGE COMMITTEE
GREAT BARRIER REEF WORLD HERITAGE AREA
(AUSTRALIA)
PROPERTY ID N154**

March 2012

M. A. McCabe & C. F. James
CAPRICORN CONSERVATION COUNCIL INC.



Figure 1: Major rivers and coastal areas covered by CCC. **Insert:** Coal and Gas Basins

INTRODUCTION

Capricorn Conservation Council since 1973 has been the principal non-government environmental organisation in Central Queensland. CCC covers environmental issues in the Fitzroy Basin, the largest catchment flowing into the Great Barrier Reef lagoon, plus the coastal and marine areas from Baffle Creek to St Lawrence (Broadsound Coast). (Figure 1)

CCC's GOALS

- To preserve the biodiversity and integrity of species and ecosystems—land, water, marine, and atmosphere.
- To prevent the exploitation of the region's natural resources when it impacts on ecological sustainability.
- To ensure the CQ community is heard on environmental issues and that individuals receive appropriate assistance and advice.
- To engage the community by developing partnerships and strategic alliances which achieve greater conservation outcomes.

CCC HISTORICAL SNAPSHOT

The main activities of CCC are summarised as follows:

- **Climate Change**— threatened species, renewable energy, 'no new mines' policy, water resource management, ocean acidification, salinity, coastal planning.
- **Mining**—water quality in the Fitzroy Catchment, land degradation, site rehabilitation, land use conflicts.
- **Industry**— cumulative impacts, water resource management, air and water quality, dredging impacts in Gladstone Harbour, conservation areas.
- **Urban development**—water and waste management, riparian zone conservation, infrastructure, strategic planning.
- **Agriculture**—vegetation management, water quality, reef health, land use conflicts.
- **Tourism**—marine/coastal impacts, water and waste management, public access, World Heritage Areas, conservation areas (wetlands, remnant vegetation, mangroves, beaches).

CCC strongly supported the advances made since the introduction of Australian and Queensland Government legislation and management agencies to protect the Great Barrier Reef and catchments. We play an active role on a range of consultative groups such as GBRMPA Local Marine Advisory Committee, Shoalwater Bay Training Area Environmental Advisory Committee, Fitzroy Water Quality Advisory Group, Gladstone Harbour Fish Health/Water Quality Extended Oversight Committee and many others. CCC is concerned that the current and planned surge in coal mining, coal seam gas, port expansion, increased shipping and coastal urban growth will overwhelm the ecological resilience of the Great Barrier Reef. In the central Queensland region, despite 45 years industrial expansion around Gladstone the coastline North and South is still relatively undisturbed with only small towns, national parks, low intensity grazing lands.

LOGO

The CCC logo represents the vulnerable Fitzroy River Turtle *Rheodytes leucops*, endemic to the Fitzroy River and tributaries and under many habitat and water quality pressures.



http://www.derm.qld.gov.au/wildlife-ecosystems/wildlife/az_of_animals/fitzroy_river_turtle and
http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1761

TABLE OF CONTENTS

RECOMMENDATIONS	4
SHOALWATER BAY – GBRMP MPZ-15	5
SHOALWATER BAY TRAINING AREA– GBRMP MPZ-15	5
EMERGING THREAT– GBRMP MPZ-15	6
BYFIELD– GBRMP MPZ-16	6
KEPPEL BAY – GBRMP MPZ-17	7
KEPPEL BAY ISLANDS – GBRMP MPZ-17	8
GREAT KEPPEL ISLANDS – GBRMP MPZ-17	8
FITZROY RIVER & DELTA – GBRMP MPZ-17	10
PORT CURTIS-BUSTARD BAY – GBRMP MPZ-17	12
WHOLE OF CATCHMENT IMPACTING GBR WHA	16



Long Beach – Great Keppel Island
Looking South to Curtis Island & Mt Larcom

CCC REGIONAL OVERVIEW

MATTERS RELEVANT TO GREAT BARRIER REEF WORLD HERITAGE AREA

Capricorn Conservation Council understands that the UNESCO World Heritage Committee review of the state of conservation of the Great Barrier Reef focus will be on the WHA property as a whole. This submission will focus on the Mackay / Capricorn Management Area of the Great Barrier Reef Marine Park as well as the range of terrestrial and river catchment areas outside the GBR WHA which we consider have significant or potential influence on the ecosystem of the Great Barrier Reef. The following recommendations are based on the CCC assessment of the issues described in the detail, from a geographical and river catchment perspective. Marine areas will be referenced to the Great Barrier Reef Marine Park Zoning Plan map series.

RECOMMENDATIONS

To protect the universal values of the Great Barrier Reef CCC recommends

1. That major industrial projects including dredged marinas be excluded from the Great Barrier Reef World Heritage Area between the Broadsound Coast and Keppel Bay.
2. The largely ecologically intact Fitzroy Delta, Keppel Bay and associated estuaries and intertidal wetlands habitats should be protected from heavy industry and ports.
3. Curtis Island north of Graham Creek (north of LNG Precinct) should become a National Park
4. Great Keppel Island public land outside existing developments, specifically Lot 21, should be protected as a National Park for conservation purposes.
5. Mt Larcom become a National Park with nature corridors to the nearby Rundle range National Park and other nearby remnant natural areas.
6. Dredging of Gladstone Harbour must cease until peer reviewed independent science can identify, quantify and ascertain the actual cause/s for ecological and environmental harm (fish, mammals, water quality, sediments, microbes/pathogens and ecosystems) in the harbour and furthermore identify potential cause of ecological harm. CCC proposes a moratorium of dredging operations in the GBR World heritage Area.
7. Port and Shipping infrastructure should be optimised within existing locations and not expanded.
8. An immediate moratorium on the assessment and approval processes of current development projects within and adjacent to the GBR WHA until the Strategic Assessment has been completed to community and UNESCO World Heritage Committee's satisfaction.
9. Scope 3 Greenhouse gas emissions from the proposed and current coal and gas development projects in Queensland must be taken into account and assessed on a per project and accumulative basis in project assessments and in the Strategic Assessment, so that the actual contribution of GHG to global climate change and its subsequent impact on the Great Barrier Reef are fully considered.
10. Coal Mining, Coal Seam Gas wells and Shale Oil/Gas mining should be strictly off limits for the coastal areas adjacent to the Great Barrier Reef World Heritage Area and GBR Marine Park.

BROADSOUND/SHOALWATER BAY – GBRMP MPZ-15

The coastal area from the township of Clairview to the Torilla Peninsula has little in the way of intensive agriculture and industry, being south of the sugar cane growing areas. This area contains the Clairview Dugong Protection Area, large productive tidal estuaries and off-shore the hundreds of island and outcrops of the Northumberland Group. The area protected to a degree from the massive sediment plumes from major rivers such as occurred in 2011 and is critical as a refuge for aquatic species. Wild Duck Island and its critical nesting sites for Flatback Turtle (*Natator depressus*) has suffered damage from inappropriate and failed tourism operations.

There has been significant clearing of coastal native vegetation and introduction of exotic pasture grasses for beef production until recent years. A significant shift is occurring in coastal grazing practices towards better manage soil health, maintaining ground cover, sustainable stocking regimes, transition to sustainable stocking rates and organic beef and protection of riparian zones and wetlands. While these changes have improved the water quality and connectivity of streams and wetlands entering the GBR lagoon there is still much to do to ensure the ecological resilience of the area. Former practices of ponded pasture (using invasive exotic grasses) and installation of tidal banks and other barriers like road and rail corridors are still impacting on the connectivity of freshwater systems and the GBR intertidal areas.

CCC believes more should be done to ensure land management practices continue to be improved for example to reduce cattle grazing on important wetlands at St Lawrence. Major barriers to fish migration are still in place on many streams reducing the capacity of our many catadromous fish species (salt water spawning/freshwater maturation) to sustain fish populations in the Southern Great Barrier Reef. CCC believes the area is unsuitable for intensive agricultural industries such as expansion of sugar cane growing, beef feedlots or aquaculture because of the risk of further loss of riparian vegetation, fresh and intertidal wetlands, or harmful run-off to this reasonable well protected stretch of the GBR Marine Park. Fringing reef along sections of mainland and inshore islands including the islands of Broadsound have the highest tide range in Queensland (8 metres plus). CCC is sponsoring a three year survey with Birds Australia (Birdlife Australia) of shorebird roosts in Broadsound to complement work done by the Fitzroy Basin Association and Wetlands International. This area is absolutely critical for migratory and local shorebirds, especially given the massive coastal developments elsewhere along the GBR coast.

SHOALWATER BAY TRAINING AREA- GBRMP MPZ-15

This area (total 453 000 Ha, of which 164 000 Ha is marine environment) is managed for dual use, defence and conservation. In the past there have been many proposals for sand mining, port and industrial developments. The management of such a large diverse area with conflicting goals creates considerable challenges. The chief conservation concerns relate to feral animal control, ecologically sustainable fire management regimes, noxious weeds, endangered plants and animals communities, erosion control, fish habitats, turtle and Dugong protection.

While CCC is generally satisfied with the environmental management efforts, there has not been a comprehensive review of state of the environment of Shoalwater Bay Training Area (SBTA) since 2008.

Some wildfires of control burns have damaged areas and a new fire management regime is being put in place. Illegal fishing, especially netting which can drown turtles and Dugong, needs extra surveillance, more so between military exercises when aerial monitoring is less frequent.

The main concern CCC has expressed is the increased use of SBTA. There is now an annual rolling series of Australia Defence Force, (Exercise Hamel), Singapore Airforce/Army (Exercise Wallaby) and the large joint bi-annual exercises with the US and New Zealand (Talisman Sabre). The shorter gaps between exercises combined with recent highly variable weather patterns, long dry spells and record wet years, has put unreasonable pressure on the environmental managers of the area. Enforcement of sector closures, fire management, feral animal and weeds control programs have to compete with the demand for the increased military training use.

The SBTA represents the largest, mostly intact land and sea ecosystem of the Southern Great Barrier Reef. It's use for military training while intense, currently protects the area from mining, ports, and coastal urban and industrial expansion. CCC considers that an update review of the state of its environment is necessary, along with an independent scientific assessment of long term environmental management practices, given predictions of greater climatic variability and potential for increased storm surge and coastal erosion events.

EMERGING THREAT- GBRMP MPZ-15

Coal and unconventional gas and possible shale oil exploration is occurring throughout the Broadsound-Shoalwater area. There are enormous problems (some suggest impossibility) of managing mine rehabilitation to anything approximating a return to productive agriculture or nature conservation in the fragile and often sodic soils of the nearby Bowen Basin. Other problems have been managing mine water discharge, flooding of pits during major rain, flood events, stream diversion, lack of suitable 'off-set' areas for lost vegetation communities, permanent large final voids, dissection of the landscape with rail and pipeline corridors. These problems would be magnified if coal mining and major coals seam gas (CSG) production was allowed in the Broadsound-Shoalwater coastal area. While government agencies claim that 'adaptive management' practices and the 'precautionary principle' are applied to mining and gas approvals, CCC considers that the encroachment of such activities onto the coastal plain adjacent to the Great Barrier Reef Marine Park and World Heritage Area pose an unacceptable risk of permanent ecological harm.

BYFIELD- GBRMP MPZ-16

Immediately south of the SBTA in the Byfield National Park, small communities and farms, as well as a large exotic pine plantation run by Forest Plantations Queensland Pty Ltd (formerly State owned). Aside from the extensive clearing of coastal heathland communities and sclerophyll forests for pine plantations the area is largely intact ecologically. The main impacts are from increasing access to remote beaches and dunal systems from people using 4 wheel drive vehicles. While this impact is reasonable well managed under the Byfield Area Management Plan (Queensland Parks and Wildlife Service), there has been damage to vegetation, disturbance to vulnerable species like the Beach Stone Curlew *Esacus magnirostris*, and waste disposal problems.

Similar to the Broadsound Coast, there are extensive coal exploration permits in the area. The catchment of Corio Bay is fed by deep sandy aquifers and would be highly prone to damage from mine exploration and definitely from coal mining if ever it was approved. The Federal Government recently rejected a proposal for a coal export terminal and rail corridor through the area, noting its environmental sensitivity and importance. CCC considers that this area should not be mined due to potential for destruction of the Corio Bay catchment and estuary.

Extraction for urban water supplies for the growing population of the Capricorn Coast was reducing freshwater flows from the sandy aquifers and causing intrusion of the saline estuary and mangroves into coastal rainforest. This risk has been mitigated by the construction of a pipeline from the Fitzroy River Barrage to the Capricorn Coast. Corio Bay and surrounding intertidal and supratidal are extremely valuable habitats for aquatic and terrestrial species. Corio is protected on the northern side by National Park but the western and southern catchments are vulnerable to inappropriate human activities. In the 1970s significant tidal barriers were created reducing the extent and interconnectivity of extremely important freshwater and saline ecosystems. Illegal clearing of vegetation by both commercial entities and recreational visitors still occurs despite the best efforts of government agencies to monitor the area.

Recreational 4 wheel drive vehicles are permitted access along Farnborough Beach which forms the seaward side and dunal protection for the southern part of Corio Bay. Beach driving access is lightly regulated and there is no limit of numbers or vehicles. A combination of storm surges, illegal cutting of trees and beach driving appears to be the cause of the loss of up to 500 metres of Sandy Point in recent years. The increasing traffic of heavy vehicles puts stress on the microscopic sand dwelling biota essential for beach stability. Dunes and dunal vegetation are being damaged, reducing the stability of the easterly protection for the critical fish habitat of Fishing Creek. Recent experience with tropical cyclone 'Yasi' (category 5) has demonstrated the risk to coastal ecosystems from major storm surges. Conversely, intact vegetated dunes, mangroves and stable beaches offer protection and assist rapid recovery of natural coastal systems. If Corio Bay and adjacent areas are damaged or substantially altered through inappropriate developments and human activities, it would be a severe loss to the biodiversity of Keppel Bay and the inshore water of the Southern Great Barrier Reef.

KEPPEL BAY – GBRMP MPZ-17

While there continues to be steady urban growth the beaches, estuaries, coastal vegetation communities and in-shore waters remain relatively intact ecologically. There have been some inappropriate residential projects which have built on 'reclaimed' intertidal salt flats (e.g. Coorooman Creek). Continuation of such practices would progressively lessen the sediment trapping, nutritional storage/exchange ecosystems services of these areas. The Queensland Coastal plan has now been released and if applied fully and effectively across whole of government planning and decision making should assist in minimising further loss of important habitats. Against this is enormous pressure from developers and so called 'sea-changers' seeking beach front or nearby land for housing. CCC considers that more needs to be done to fully engage the community in understand coastal management priorities and practices and to accept the best available science about predicted increases in sea level and storm surge events.

KEPPEL BAY ISLANDS – GBRMP MPZ-17

Most of the islands of Keppel Bay are protected as national parks or appropriate GBR Marine Park zonings. The major concern from CCC is that there is insufficient investment in scientific study of the Bay, Islands and reefs. Keppel Bay supports a small commercial fishing /pawning industry and is an important base for such activities on the Swain Reefs. The lack of comprehensive base line data and continuous assessment of marine health creates uncertainty about the sustainability of fish stocks. Like the rest of the Queensland coast, the Capricorn Coast has an ever increasing increase in recreational boating and fishers. With the projected growth in population and proportionate rate increase in boating, recreational and commercial fishing, CCC is concerned that we don't have enough knowledge to avoid a collapse in fish stock or key species. Sharks are routinely taken on fixed 'drum-lines' off swimming beaches, more as a public relations exercise than effective protection against possible human shark attack. In the past ten years the take has roughly halved and fishery agencies have no current explanation for the trend. Commercial shark fishing still occurs but CCC considers more thorough study is required into the sustainability of the industry and the ecological impacts of selectively targeting key species of high order predators.

GREAT KEPPEL ISLANDS – GBRMP MPZ-17

Great Keppel Island - GKI (Woppa in the language of traditional owners the Woppaburra People) is the largest island in the Keppel group. The removal of the Woppaburra People and grazing substantially changed the environment of the island and surrounding waters and reefs. There are estimated to be over 300 feral goats damaging native vegetation and causing erosion of the fragile soils into the waters of the fringing reefs. The majority of the island (known as Lot 21) is covered in intact or substantially regrown native forests. Tracks and exposed areas are infested with noxious weeds such as Rubber vine and Lantana. A succession of tourism ventures has heavily impacted on the western shores of GKI which currently has an abandoned resort being considered for re-development, a small airstrip, small tourist/backpacker operations and some freehold shops and houses. CCC has been arguing for better environmental management of GKI for 30 years. Only small sections of surrounding waters are mapped as a GBRMP Conservation Zone.

CCC supports the Queensland Government's own assessment that the state owned leasehold lands on GKI should be kept intact and protected under the Nature Conservation Act (National or Conservation Park). The current proposal by GKI Resort Pty Ltd (Tower Holding) is awaiting environmental impact assessment and, if approved, would involve the demolition of the old resort, rebuilding of a 250 bed hotel, dredging and construction of a 250 berth marina, construction of 1050 residences and a golf course.

The proponents estimate *'an average of around 2,360 visitors, staff and residents on the Island each day, totalling around 860,000 person days per year'*. Contrast this with the much larger Hinchinbrook Island in the northern part of the GBR which restricts walking /camping permits to 40 and houses a small 50 bed resort. GKI and surrounding reefs and waters are too important as unique examples of southern GBR ecological communities to be 'loved to death' as (WHA listed) Fraser Island the world's largest sand island to the south, is described.

CCC fully supports environmentally sensitive redevelopment of the resort and accepts that some form of improved marine facilities would assist visitors accessing GKI. CCC considers that dredging the shallow Putney Beach for a marina would destroy the fringing corals, sea grass beds and threaten the water quality and nutritional values of the nearby deep channels and the reefs of the nearby islands (Middle, Miall). Clearing of bushland for roads, golf course and residences on Lot 21 would cause significant damage to the terrestrial ecosystem, and create the risk of erosion and contamination of the two major creeks and intertidal wetland (Putney and Leekes).

GKI supports a range of vulnerable species and is an important example of a terrestrial ecosystem of a rocky island in the Southern GBR. The coral communities and associated species of the Keppels present a special representation of inshore fringing reefs in the Southern GBR. Their in-shore location under the influence of discharges from the Fitzroy River, the largest flowing into the GBR lagoon, makes them quite special. Major floods impact heavily on the corals with the influx of fresh water (The 2011 flood event exceeded 40 Gigalitres) and the accompanying sediment load carrying high levels of nutrient and contamination from agricultural run-off and mine discharges.

Like other areas (Stanage Bay, Inshore Islands of Broadsound) the hard and soft coral communities of Keppel Bay are highly tolerant of the tidally induced turbidity. These coral communities have survived and adapted to the historical flows from the Fitzroy but are struggling to recover a year after the 2011 event. CCC considers that much more data and long term study is needed to understand the influences on coral community resilience and capacity to adapt to probable changes in sea temperature and pH, storm and flood event frequency and severity and increasing human activities.

CCC has been seeking support to better manage activities such as the sustainability of coral and marine life collecting for the aquarium trade. While the Keppels are currently subject to a voluntary aquarium industry moratorium due to the poor recovery after the 2011 floods, CCC considers it inappropriate to take coral and selected species of fish and marine life from the accessible reefs in Keppel Bay. This appears to be in total contradiction to the 'multiple use' principles of the GBR.

Low impact tourism around the Keppels to view intact reefs (at least once they recover) would rate more highly under ecological sustainability principles than taking of live coral specimens and fish for an uncertain fate in the aquarium supply chain.

Increasing recreational boating and resultant anchor damage is a problem around popular fishing spots and preferred island camping sites. CCC accepts there have been efforts to create 'no anchor' zones and educate the boating public but much more need to be done as recreational boating increases. When the former GKI resort was operating there was strong evidence of increased boat strike on turtles especially from the high speed jet-skis.

FITZROY RIVER & DELTA – GBRMP MPZ-17

The GBR World Heritage Area covers the Fitzroy Estuary tidal wetlands and surrounding areas. The effective length of the estuary was roughly halved around forty years ago by the construction of a tidal barrage to provide Rockhampton with a reliable freshwater supply. Despite the installation of a fishway the barrage creates a significant barrier to fish migration and a substantial reduction in the size of the estuarine habitat. Little is understood about the changes to aquatic biodiversity as the project was completed before the more rigorous environmental assessments required today. Anecdotally, the variety of fish in the freshwater sections has significantly reduced and the main species now evident are catfish. Fortunately big flood events such as in 2011 allow the Fitzroy to flow around the obstruction of the Barrage and allow migrating fish to swim upstream into freshwater refugia.

Studies have shown changes to the deposition of silt in the river from activities such as the extensive clearing of Brigalow scrub from the 1960 (now controlled under the vegetation Management Act). Other 'natural' changes to the River have been the 1991 flood eroding through a narrow isthmus and reducing and changing the flow patterns and silt deposition in the delta. The only other industry currently around the delta (apart from commercial fishing) is for salt production. While this activity does have a negative ecological affect the current footprint is reasonable in proportion to the remaining areas of intertidal salt flats. CCC is concerned that very large adjacent areas are under mineral (salt) mining exploration leases and if fully exploited the loss of ecosystem services would be immense.

These events and activities are mentioned as they are relevant to the current proposals to totally change the character and environment of the Delta though installation of multiple coal ports. While there has been shipping in the Fitzroy and Delta since European settlement in the 1860s, the current port caters for a limited number of small vessels which require minimal maintenance dredging. There are currently two port proposals being considered and a third, potentially the largest of all, remains part of a 'strategic plan'.

The first current port proposals for Balaclava Island Coal Export Terminal (BICET) would require a rail corridor across tidal creeks and marine plains, coal stockpiles adjacent to a tidal estuary, and major causeway across intertidal wetlands, potential loss of endangered coastal beach scrub, and a major dredging program (>6.5 million m³).

The proposed dredging is in the preferred habitat (most frequently sightings) of the Australian Snub-fin Dolphin, Australia's, only endemic dolphin; identified as a separate species in 2005. The species is shy and highly prone to disturbance from boat movements. The Snub-fin is a specialised river delta animal and the Fitzroy is the known limit of its south-eastern range. Little is known about the Dolphin, though the population in the Fitzroy delta have been found to be genetically isolated from North Queensland populations. Any reasonable application of the precautionary principle would suggest that destructive activities of major ports, dredging and shipping major should not be allowed and certainly not without very substantial research.

Studies by Danielle Cagnazzi of Southern Cross University, spanning some 5 or more years in the CQ coastal environment, have indicated there are less than 100 individuals in the Delta and little is known about its breeding success. CCC considers this isolated population must be protected at the highest possible level by government and community, and the way to do this is to actively protect their habitat (riverine/delta/coastal) from any proposed or future development. If any of the proposed coal port developments are approved by our government/s, then this will likely bring about extinction of the Snub-fin Dolphin in the Fitzroy River. Their population is far too small to cope with the destruction and disruption to their habitat (and that of fish species which they feed upon) from proposed capital and maintenance dredging, increased shipping traffic and increased noise and light levels.

This is an isolated population that is not known to migrate or to interbreed with other geographically located populations. The Fitzroy River Snub-fin Dolphin population size, low genetic diversity and isolation is likely to reduce its resilience to survive, or adapt to, activities that substantially change the delta's ecosystem and habitat, such as anthropocentric development proposals for coal ports and climate change. The continuance of the species in GBR waters will depend on the survival of such isolated populations. The next known population of Snub-fin Dolphins is some 500+km north of the Fitzroy River. CCC is very concerned that the Australian Snub-fin Dolphin is still not correctly assessed and listed under environmental protection laws, and is still referred to as a migratory Irrawaddy Dolphin in environmental impact assessments.

The Fitzroy Terminal Project (FTP) proposes to operate 10 000 tonne coal barges on a 24 hour 7 day week cycle to transhippers moored in deeper waters off Curtis Island to load the larger bulk ships. The full details of the project have not yet been released but initial indications are that there would be less need to dredge the Delta, only a section of Raglan Creek near the barge loading facility. While proposing less dredging than BICET, the proposal would mean far greater movement of large vessels through the same channel frequented by the Snub-fin Dolphin. Again the potential for disturbance and reduced consequent reduced breeding success could create unacceptable risk of a population collapse. CCC is aware of no successful protection programs for the world's rare river dolphin, through relocation or habitat offsets which are the type of environmental conditions suggested for other port approvals in the GBR region. The FTP proposal suggests that the sea and wind conditions would allow for transhipper operations over 200 days per year. CCC understands the sea currents and prevailing winds off the northern end of Curtis Island create an unacceptable hazard for transshipping coal in the GBR Marine Park and World Heritage Area.

FTP unlike the BICET proposal involves an unknown number of large bulk ships queuing at unknown locations in Keppel Bay awaiting transshipment. BICET claim that their ships will only arrive for a two day turnaround when scheduled. Either way the two projects would introduce numerous large bulk ships into the shallow waters of Keppel Bay and the Fitzroy Delta.

Both projects have the potential to disturb the environment of Peak Island, a GBRMP Preservation Zone and the largest Flat-back Turtle hatchery in the GBR. Dredging, spoil dumping, ship movements, anchor drag, coal dust hazards by themselves, all create great environmental risk without even the consideration of maritime accidents on the ecosystem.

Even larger than the BICET and FTP proposals is the strategic plan of the wholly Queensland Government owned Gladstone Ports Corporation Ltd.(GPC) for 4-6 ports on Balaclava Island and even more on the northern (Sea Hill) end of Curtis Island. This plan was not in the public domain until a GPC map was published in the local newspaper. GPC have since acknowledged the plan, but have yet to issue an Initial Advice Statement. The GPC 'Port Planning and development Master Plan – Port Alma Balaclava Island and Sea Hill', depicts 2900Ha of Future Strategic Port/industrial land on the northern (Keppel Bay) end of Curtis island immediately adjacent to the Queensland Government declared Fish Habitat area. A road and rail corridor would, if it proceeds to the full extent of the concept map, dissect protected areas and reserves on Queensland's second largest island. Shipping traffic in Keppel Bay large bulk vessels traversing the Southern GBR would be in the hundreds per week.

While some improvement have been made to better track ship movement, incidents of ships' captains taking short cuts though GBR are still occurring. The full extent of long term damage from the coal bulker Shen Neng colliding with Douglas Shoal east of Keppel Bay (2010) is still being assessed; (physical destruction plus many layers of anti-fouling paint affecting marine regrowth).

The large tides of the Fitzroy Delta are known to stimulate the release of nutrients from intertidal areas. These form the marine food chain. The projects have the potential to substantially change tidal flows, siltation and erosion patterns and these have unknown impacts on the ecological productivity of the Delta. Any changes could have wide scale impacts in the GBR. Barramundi, a large migratory fish are known to spawn in the outer delta; these and other fish species use the variety of refugia offered by the largely intact Delta before surviving of juveniles are able to follow fresh water flows to inland waters until they reach sexual maturity. Barramundi released into the Fitzroy system are known to travel hundreds of kilometres north and south of Keppel Bay. Dredging of Potential Acid Sulphate Soils (PASS) and Actual Acid Sulphate Soils (AASS), changes to Delta hydrology, dumping of spoil on land or in the marine Park, shipping activities and construction activities all have the potential to irreparably change biological interrelationships with far reaching unknown consequence for the southern GBR and beyond. North Curtis and Fitzroy Delta port and projects represents a 50-60 km extension of industrial sprawl. Rail lines, roads and dredging of The Narrows are all being suggested projects. Extension of Gladstone Port activities to Fitzroy River Delta and the strategic plans for a Port/Industrial region on North Curtis Island which currently has almost zero population and minor infrastructure change would be a huge environmental hazard for the Southern GBR.

A summary of CCC's concerns in relation to the proposed coal ports in the Fitzroy River Delta, and the impacts to ecological processes, systems and species, can be found on our website at <http://www.cccqld.org.au/balaclava.html> .

PORT CURTIS-BUSTARD BAY – GBRMP MPZ-17

Curtis Island

Curtis Island is the second largest island off the Queensland coast and the largest in the GBR World Heritage Area. Until the approval of the Liquified Natural Gas projects the only human disturbance to the island was a small residential area at South End, limited cattle grazing, some small tourist

ventures, fishing huts, lighthouses and, historically, an immigration and quarantine station. Aside from clearing for the LNG processing plants Curtis Island remnant vegetation communities are largely intact. Feral animals (horses and wild pigs) are present and, being an island, could more easily be controlled or eliminated than from the mainland. Sections of the island are protected by a patchwork of National or Conservation Parks with the rest under grazing or resource (timber) reserve. Marine areas on the eastern side are under GBPMP zonings of Marine National Park (Green), Conservation Park (Yellow), and habitat protection Zones (Blue) reflecting the critical importance of the Curtis coast bio-region.

CCC considers that the entire remaining area of Curtis especially north of Graham Creek should become a National Park to ensure the permanent protection. Approvals for the LNG industry included the creation of 'environmental precincts' in the area south of Graham Creek. This provides no guarantee to protect their natural values, including migratory bird habitats from further industrial or residential expansion. GPC is known to have plans for bridges across The Narrows and Graham Creek and roads into the buffer zone on south Curtis. These plans came to the attention of the public only in March 2012.

Fringing reefs close to Port of Gladstone.

Just outside the limits of the Port of Gladstone are the GBRMP Habitat Protection and Conservation Park zones of Facing Island, slightly further to the south, are the important zones of Rodds Bay and Peninsula. The Port of Gladstone Western basin project dredge spoil dumping at East Banks, just off Facing Island, is within Port limits but inside the GBR WHA and just outside the GBRMP. CCC is concerned that the monitoring of water quality within the potential zone of influence of spoil dumping is inadequate. Requests to GPC Ltd and government agencies water quality data have been frustrating despite the legal requirements of the environmental approvals for full access by the public. CCC requested data for the twelve months, including the period prior to commencement of the Western Basin dredging program. Data for only the last six months was provided. Repeated requests to obtain information about official audits of water quality and compliance activity have gone unanswered. Official responses from the Ports Corporation and government have attempted to dismiss concerns about the proximity of the dredging and spoil dumping to the GBR. GPC publishes misleading maps or statements about how far the spoil grounds are from Heron Island or the Whitsundays, ignoring the in-shore coral reefs in the WHA.

Rodds Bay Dugong Protection Area

This 'sanctuary' covers all of Gladstone Harbour but appears to offer no protection whatsoever from massive environmental degradation of their habitat, including the continued loss of the ecologically productive foreshores. The loss of sea-grass meadows from the Western Basin – Fisherman's Landing reclamation site and the dredged shipping lanes, the uncertainty over higher rates of Dugong mortality in 2011 and the capacity of the Harbour to support a viable population during the dredging activities and beyond, is of great concern to CCC.

Rodds Bay is understood to be an essential habitat for the southern GBR population of Dugong and if suitable habitat is permanently lost or reduced it could have consequences for the capacity

of the species to re-locate from The Great Sandy and Moreton Bay area when these become stressed by natural events and increased human population pressures.

The Narrows

The Narrows is a GBRMP Habitat Protection Zone and was previously listed on the Register of the National Estate though this lapsed in 2012 through a previous federal government decision. CCC considered there are unknown or inadequately understood potential hydrological and ecological changes resulting from Western Basin dredging and the industrialisation of both northern and southern tidal channels. Shale Oil exploration leases have been granted right along the full length of the western side of The Narrows. A decade ago, the initial attempt to extract oil from these shales failed due to the release of noxious emissions. There has been a permit issued for a trial shale oil plant close to the Fisherman's Island landfill. After the two year trial of the new technology the company is expected to seek approval for mining and oil/gas extraction for their leases. If these are approved there would be significant loss of vegetation, impacts on ground water and potential leachate containing a wide range of contaminants including Vanadium.

Coastal Dolphins – Indo-Pacific Humpback

Studies prior to the LNG- Western Basin approvals indicated a population of around 100 Indo-Pacific Humpback Dolphins throughout the Port Curtis and Capricorn Coast in-shore waters. There were concerning levels of dolphin morbidity in 2011 and CCC understand that recent surveys have indicated they are now limited to a small pod (3-4) in Auckland Creek and to the southern end of Rodds Bay. When CCC endeavoured to raise the apparent decline of this key high order predator as a possible negative indicator of ecosystem health, the question was dismissed by senior staff of the relevant government agencies. Further prompting, did however suggest that the need for further research and population surveys may be required. CCC considers this is a pertinent example of the lack of sufficient base line scientific / ecological knowledge, the inadequacy of environmental assessment processes (EIS), approvals and effective conditions. The ongoing uncertainties surrounding water quality and fish health in Gladstone Harbour further reinforce this point.

Gladstone fish health and water quality studies

With 40+ years of industrial growth in Gladstone over 3000Ha of intertidal areas including mangroves The CCC has been actively concerned about the expansion of Gladstone Harbour for LNG facilities and coal ports, and the ecological and environmental harm (to aquatic and terrestrial species) which may or has occurred as a result of the development projects and proposals. CCC has been actively involved in commenting on projects in the assessment process, providing environmental and conservation comment on Initial Advice Statements, Terms of Reference, Environmental Impact Statements and EPBC referrals for LNG facilities and the Western Basin Dredging Project and Fisherman's Landing. CCC has also been commenting on the management, implementation, monitoring, regulation and science of the approved Western Basin Dredging and Disposal Project and LNG projects in Gladstone Harbour.

CCC is also a member of the Gladstone Harbour Fish Health Extended Oversight Committee, managed by the Queensland Government for community engagement and communication with

peak stakeholders regarding fish health and water quality. It is worthy to note that CCC had to make a formal request to be included on this committee in January 2012 and had to point out that there was no conservation representation for 'community engagement' prior to our complaint and request. This committee is now in recess with a lack of assurance of any continuation.

CCC is not completely satisfied with the management of these meetings and their outcomes, specifically in relation to answers or the responses provided by government staff to questions raised by stakeholders regarding concerns on fish health, ecosystem health or water quality health (and reports) in the Gladstone Harbour. Whilst there are fish and water quality monitoring and reports being undertaken/produced by the Queensland Government on an ongoing basis, initiated as a response to investigate fish and human health issues in the harbour, we have great concerns that these studies and investigations are omitting and not thoroughly investigating an existing ecological stressor in the harbour; that is dredging operations for the Western Basin Dredging and Disposal Project and the LNG berths.

We also believe that the conditions and monitoring sites for regulatory water quality monitoring for these projects are not sufficiently adequate to identify and prevent environmental harm from occurring (to the reef, water column and marine fauna and flora). Furthermore, dredging operations by the Gladstone Port Corporation have been voluntarily suspended and environmental protection orders also served by the government to suspend dredging operations on numerous occasions in the past 6-9 months, as turbidity levels have been exceeded beyond limits of approval/s. This has generally resulted in the 'shut-down' of the cutter suction dredge, whilst the back-hoe dredges continue to operate.

It is our belief that the back-hoe dredges, operating to remove sediment for the LNG berths, are disturbing and digging up both potential and actual acid sulphate soils, resulting in increases and changes to turbidity, pH and potentially the availability of dissolved metals/heavy metals in the water column. However monitoring sites that could identify the back-hoe dredges direct and actual impact on physical and chemical water quality parameters are not included in the regulatory monitoring sites under DERM's conditions. Gladstone Ports Corporation (GPC) has water quality monitoring sites near each of the three back-hoe dredging operations for LNG facilities on the western side of Curtis Island, yet this data is not publicly available and not part of DERM's approval conditions.

CCC has suggested at a previous Extended Oversight Committee meeting, that the monitoring data for these sites should be requested from GPC and analysed and interpreted to identify if the back-hoe dredges are, or are not, contributing to raised turbidity (or changes to other water quality parameters) in the Gladstone Harbour, particularly whilst the cutter suction dredge operations are suspended. To the best of our knowledge, we don't believe this has occurred.

CCC has also been instrumental in contacting Gladstone Port Corporation (GPC) for a copy of all of their water quality data, graphs and reports for the Western Basin Dredging Project. After some avoidance, GPC provided 6 months of data but not the full 12 months as requested.

It is worthy of noting that it is a condition (condition 24) under the Federal EPBC approval for such information to be provided on the public request. CCC is concerned at drops in pH and increases in turbidity in some of the water quality graphs provided by GPC to CCC. Furthermore, GPC's website that hosts the water quality information on the Western Basin Dredging Project is currently providing graphs for dissolved oxygen, pH, temperature and salinity, for the period of April to August 2011 (turbidity is weekly and heavy metals over a year or more until November 2011). CCC is therefore concerned that data and graphs for dissolved oxygen, pH, temperature and salinity from August 2011 until present, are not currently available for the public to access and that turbidity data cannot be viewed cumulatively over time (only weekly).

GPC Ref: http://www.westernbasinportdevelopment.com.au/water_quality_monitoring/

In closure, CCC supports the independent research and findings of the Gladstone Fishing Research Fund by Dr Matt Landos and the information and comments presented by the Gladstone Conservation Council. Furthermore, CCC would like to provide more detailed information regarding water quality and the health of marine species in the Gladstone Harbour in the near future.

WHOLE OF CATCHMENT IMPACTING GBR WHA

The following matters relate to inland terrestrial areas and rivers outside of the GBR WHA but nevertheless have very significant impacts on the Reef. CCC accepts there have been greatly improved natural resource management (NRM) in the predominant primary industries of cattle grazing and cropping to protect the GBR catchment. Land clearing, overgrazing and inappropriate soil management practices have left a legacy of excessive silt discharge, contamination from fertilisers, pesticides and increased seepage of minerals and salts into the GBR lagoon. CCC applauds the 'quiet revolution' in farming practices which has seen land managers become converts to protecting soil health, riparian vegetation, biodiversity corridors, and water quality.

Dams weirs and barrages have significantly reduced connectivity of the rivers and wetlands so important for many aquatic species which migrate to and from the GBR lagoon. Attempts have been made to create artificial fishways, but little is known about their effectiveness. This is especially relevant to the major river systems of the Fitzroy and Boyne. The escape of an estimated (but not proven) 30,000+ artificially stocked Barramundi from the Awoonga dam on the Boyne has been a suggested cause of the major fish morbidity and mortality in Gladstone Harbour.

On the Fitzroy River, above the estuarine barrier of the Barrage, Eden Bann Weir has an ineffective fish lock system to aid migration. While mature fish heading back to the sea can survive traversing the Weir it is known that this and other weirs are death traps for freshwater turtles. Weirs also are not ideal habitats for the vulnerable cloacally ventilated endemic Fitzroy River Turtle *Rheodytes leucops* which prefers natural streams, and well oxygenated pools below riffle zones. These habitats are lost when weirs and dams are built.

To provide water security for the ever increasing industrialisation of Gladstone there are proposals to raise the level of Eden Bann and to construct a massive weir further upstream at Rookwood.

To cater for massive coal mining proposals in the Bowen and Galilee Basin there are proposals to dam the only remaining 'wild' river in the Fitzroy Basin, the Connors and also to build a 1.1 Gigalitres dam on the Dawson River. These ecological barriers and the consequential loss of riparian corridors and changes to water flows, and quality will have consequences with for the GBR.

Currently there are ~50 Coal mines operating in Central Queensland plus 35 proposed new or expanded coal mines (this includes the Bowen and Galilee Coal Basins). Further to this existing and proposed coal development, is the exploration and operation of coal seam gas measures in both basins. The coal industry in Queensland is expanding at an unprecedented rate. For example, Greenpeace notes in their report titled 'Boom goes the reef' (available at <http://www.greenpeace.org/australia/en/news/climate/Save-The-Reef-from-coal/>), that the capacity for coal export in Queensland is predicted to expand from 156 million tonnes per annum in 2011, to 944 million tonnes per annum in 2020, increasing the number of coal ships passing through the GBRWHA from 1,722 per annum (2011) to 10,150 per annum in 2020.

CCC is concerned about the cumulative impacts to surface and ground water quality, threatened ecological communities, threatened species and terrestrial and aquatic ecosystem function in general, as a direct and indirect result of the coal mine operations and expansion in the Fitzroy River Basin and Burdekin River Basin. Already, the Fitzroy Basin and the quality of its river water has been impacted by discharges of contaminated (and saline) water from coal mine and gas field operations. The Ensham mine water discharge of saline and contaminated mine water in 2008 into the Nogoa River, a major tributary of the Fitzroy River Basin, is an example of the downstream indirect consequential impacts of mining development on water quality entering the Great Barrier Reef WHA. Further information about this incident can be found at www.fitzroyriver.qld.gov.au.

The point of our cumulative impact concerns of coal and gas development in Central Queensland is that the water and any contaminants from mine or gas field operations flow directly to the Great Barrier Reef and the World Heritage Area via the two largest river catchments flowing to the Great Barrier Reef; the Fitzroy and Burdekin. This begs the question; Can our river, ecosystems and GBR can survive the massive expansion of coal in Central Queensland and remain in a healthy and viable state? We don't believe so and have grave concerns for their future.

It is our belief that the state and federal governments regulatory frame work, approval process and legislation is unable to keep up with the 'boom' in the resource sector.

The massive increase is in projects being put forward for assessment (and regulatory monitoring once approved), under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) and the Environmental Protection Act 1994 (Qld) for coal and petroleum projects and their associated ports. Most importantly, to the best of our knowledge, we don't believe that state or federal governments, or project proponents (coal and gas and ports), are actively quantifying or monitoring (to the extent required) the cumulative impacts of existing and proposed coal and gas projects upon threatened ecological communities, species, water quality, rivers systems, the Reef and climate change.

CCC is endeavouring through EIS submissions to ensure that the massive expansion of coal mining, coal seam gas extraction, road and rail corridors do not further threaten the endangered Regional Ecosystems of the Brigalow bioregion, of Semi Evergreen Vine Thicket and Native Grasslands. These are essential habitats for terrestrial species, soil and stream health and ultimately for the health of the GBR. The EIS process, approvals and monitoring are totally inadequate in regard to considering accumulative impacts over whole catchments and the GBR.

Despite decade of open cut coal mining in the region there is little evidence of any success in rehabilitating the often sodic soils of the region to any state useful for productive agriculture or natural habitats and corridors. Hundreds of kilometres of open pits and spoil dumps pit the river catchments. Based on existing and approved mines and the current practice pit of allowing multiple final voids the rivers are at permanent risk of reduced water quality and accumulative toxins flowing into the GBR. Mines are given approval for major diversion of streams and wetlands adding to the risk to the GBR. Offset policies which require mines to either protect other remnants or to pay for loss of biodiversity are ineffective due to the depletion of available sites and the lack of protection for the offset areas from future mining.

Improvement have been made to some mining practices, such as water management, since the disastrous floods of 2008. This resulted in improvements in greater understanding the hydrology of the Fitzroy Basin, fewer pit total flooding events and uncontrolled discharges, increased water quality monitoring and reporting, improved compliance regimes and agreed water quality standards. The floods on 2011 exceeded the estimated maximum possible river heights for some major Fitzroy Tributaries and resulted in over 40 coal mines requiring temporary permits to discharge water outside their environmental authorities. With a possible doubling of mines in the Basin and the likelihood of increasing variability in rainfall, increased severe storm and cyclones the CCC considers that the capacity of the river system and the GBR to cope with the impacts of mining will be exceeded.

If the multi-billion tonne Galilee Basin mines proceed there will eventually be 400+ kilometres of open cut mining trough the currently un-mined Belayndo/Burdekin catchment with even less predictable consequences to the whole GBR.



Michael McCabe
CCC Coordinator
14 March 2012



Chantelle James
CCC Project Officer
14 March 2012