A Critical Analysis of the AECgroup's Business Case – Final Report Summary for a Gold Coast Cruise Ship Terminal





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The following report is an analysis of the AECgroup's published findings entitled:

Gold Coast Ship Terminal Information Summary – Gold Coast City Council. Final Report, December 2012.

The elements discussed in this critical analysis refer principally to AEC's focus on the proposed Cruise Ship Terminal component and associated commercial developments contained in a concept commonly referred to by the current Queensland State Government and Gold Coast City Council (GCCC) as the 'Broadwater Marine Project'. This project is in the process of being studied for its potential to be located on the Broadwater and Southport Spit, Gold Coast, Queensland.

Executive Summary Analysis of the AECgroup 'Business Case' report - 2012

- A significant overstatement by AEC of revenue projections from a Gold Coast Cruise Ship Terminal (GCCST).
- Project infrastructure costs, including capital dredging and ongoing operational and maintenance costs, significantly under costed by AEC.
- A detailed Environmental Impact Study was not costed by AEC in their 'Business Case' nor any reference made to the impact of the Australian Government's Environment Protection and Biodiversity Conservation Act (EPBC Act) and associated 'Protected Matter' findings.
- No costing by AEC of environmental mitigation works to protect or replace threatened marine and wildlife species and habitat; or to protect wetlands of international significance or whales and other cetaceans.
- No consultation by AEC with existing tourism industries (fishing, boating, surfing, diving, whalewatching, sea-kayaking etc); or community groups and recreational users.
- No reference to the potential threat to current tourism and recreational revenue derived from dive, surf, boating, fishing and whale-watching etc industries in comparison to the small proportion of revenue predicted by AEC from a GCCST.
- No costing by AEC towards compensation for the potential negation and/or loss of existing tourism and recreational activities.
- No ongoing fulltime, part-time or casual jobs directly related to Gold Coast tourism were identified or quantified by AEC in relation to the operations of a GCCST.

- No mention or costing of potential damage in relation to the Gold Coast Seaway walls and private property revetment walls throughout the Nerang-Coomera River system and increased insurance premiums as a result of dredging for a GCCST.
- AEC admit potential damage to Seaway walls from the use of modern ship thrusters.
- No reference to two official GCCC surveys conducted in 2012 which revealed that the majority of Gold Coast residents opposed a GCCST and associated commercial developments on public open space on The Spit and Broadwater (online survey: 96% opposed; telephone survey with 'invite only' participants: 76% opposed).
- AEC admit a GCCST will require totally uncompetitive port and passenger charges (5-6 times more than the current market to 'break even') in comparison to existing Australian ports.
- AEC ignore significant competition from a nearby established and expanding Brisbane port.
- AEC rely on the discredited and inaccurate Meridian Maritime Services (2012) and Star Cruise Ship (2005) navigational simulation reports as the basis for their 'Business Case'.
- By 2020, the cruise vessels in the fleets of the world's major cruise line companies will be too large to ever safely dock at a GCCST under any weather or channel conditions.
- AEC Ignore significant meteorological conditions which will prohibit the safe navigation and docking of current and future cruise vessels in a massively dredged Broadwater during the main six month cruise season (Oct-March).
- Very poor value add generated by a GCCST adds only 0.5% to direct Gold Coast revenue and tourism jobs based on AEC projected cruise ship visit numbers which are heavily overstated.
- AEC admit, 'The GCCST is not commercially viable as a stand-alone investment opportunity'.
- GCCST not commercially viable as an ongoing operation even in conjunction with the lease/sale/giveaway of up to 75 hectares of public recreational land and waterways to the private development industry.
- No ethical business case presented by AEC for the lease/sale/giveaway of large tracts of public open space and waterways.
- No reference made by AEC to Public Private Partnerships (PPP) and its 'value for money' infrastructure; 'Project Framework Assurance' requirements; or the 'identification of risks' under current 'PPP' State Legislation.
- No reference or costing by AEC regarding the impacts of constructing a GCCST and associated commercial developments in relation to Federal, State and Local Government Legislation, Environmental and Planning Laws or the recently introduced Australian Maritime Legislation (2012) pertaining to 'safety and environment'.

DETAILED ANALYSIS of the AECgroup 'Business Case' report (2012)

Economic Benefits

The AEC 'Final Report Summary' begins with the following statement:

AECgroup Executive Summary

Consultation with industry indicates there is a strong demand for a cruise ship terminal at the Gold Coast. Economic analysis indicates the proposed development has the potential to be economically beneficial to the state of Queensland. (AEC p.ii)

AEC's statement that 'consultation with industry indicates there is a strong demand for a cruise ship terminal' does not indicate which industry was consulted. Certainly there is no evidence in the AEC report that the existing recreational and tourism surf, dive, fishing, whale-watching and boating industries, which run the risk of being severely negated or even destroyed by dredging and other actions required to construct and maintain a cruise ship terminal on the Gold Coast, were ever consulted. Readers must assume, therefore, that only the cruise ship industry was consulted for the AEC report.

The AEC 'Executive Summary' also displays no evidence of consultation with the Gold Coast community or recreational users regarding the potential loss of 2-75 hectares of sports and passive recreational spaces in the form of foreshores, islands, beaches, waterways and parks in relation to a proposed Gold Coast Cruise Ship terminal (GCCST) and associated commercial developments.

Conclusion: No consultation by AEC with existing tourism industries including (but not exclusively) fishing, boating, surfing, diving, whale-watching and sea-kayaking; or community groups; or recreational users of the Spit and Broadwater.

As yet, the 'proposed development' referred to by AEC is not even a detailed proposition, so to conclude there is 'potential to be economically beneficial to the state of **Queensland**' is pre-emptive and unsupported by detailed, hard data. Even so, it is interesting to note that the authors of the AEC report fail to state whether the 'proposed development 'of a GCCST would be 'economically beneficial' specifically to the **Gold Coast**.

Alternative and innovative funding approaches will be required to establish the facility and realise its broader economic benefits, as the market is unlikely to pursue it on a commercial basis, due to the high initial construction costs and ongoing dredging costs. (AEC Exec. Summary p.ii)

AEC cannot cite specific economic benefits for the Gold Coast and so refer vaguely only to 'broader' benefits, leading them to admit that the 'market is unlikely to pursue it [GCCST] on a commercial basis'.

AEC give no details as to how to implement their suggestion that 'alternative and innovative funding approaches will be required'. The only indication of 'alternative and innovative funding' at this point in time is the GCCC and Queensland Government's published desire in their 2012 'Expressions of Interest' (EOI) documents to give away, lease or sell up to 75 hectares of public open space and waterways for private/commercial use in the form of casinos, apartments, hotels, marinas and retail stores to the consortium that constructs the GCCST.

This open space (referred to above) currently generates hundreds of millions of dollars in tourism and recreational revenue as direct spend on the Gold Coast, in addition to providing Gold Coast residents with public areas for sports activities and passive recreation.

However, AEC admit:

Based on the number of cruise ship calls from the market sounding, the facility would have to achieve 5-6 times the current charges paid by the cruise ships at other Australian ports to be commercially viable. (AEC Exec Summary p.ii)

Currently the Port of Sydney levies \$20 per passenger. Carnival Cruise Co. (one of the two major cruise companies operating in Australian waters) has expressed its dissatisfaction at this level of passenger charge:

Cruise lines clearly indicated the costs associated with using a port weigh heavily in planning itineraries and their decision to use a port. (AEC p.8)

The charge of \$100-120 per passenger, as deemed necessary by AEC for GCCST cruise visits, will ensure that cruise companies will never visit a Gold Coast port, even if it was physically possible to safely navigate cruise ships into the Gold Coast Broadwater. It has be demonstrated in a previous report that it will not be possible on most days and in most weather condition for cruise vessels to safely navigate to or dock at a terminal on the Gold Coast (see below, Analysis of Navigational Report 2012):

http://www.saveourspit.com/No_Terminal/resources/2012-CST-Nav-Report-Analysis.pdf

Conclusion: A GCCST will require totally uncompetitive port and passenger charges in comparison to existing Australian ports.

The Cruise Industry

AEC does not back up the following general statement with concrete facts or figures.

The Opportunity

...the opportunity to establish a Gold Coast Cruise Ship terminal (GCCST) has been identified as having the potential to grow Queensland and regional tourism. (AEC Exec. Summary p.ii)

The reality is that the reduction and/or destruction of existing tourism activities such as surfing, diving, fishing, boating and whale-watching due to the construction of a GCCST, will narrow the regional tourism opportunities on the Gold Coast not 'grow' them.

In 2006, recreational fishing was estimated to bring \$100 million per annum (Sunfish Inc. 2006) to the Gold Coast; boating \$200m per annum (Marine Industry Assoc. 2006); diving \$30m per annum (GC Dive Assoc. 2006); whale-watching \$30m per annum (2006); and recreational surfing \$256 – 474 million per annum (see below, Lazarow 2008):

Not one ongoing fulltime, part-time or casual job directly connected to Gold Coast tourism or recreational activities was identified or quantified in the AEC report as a result of the operations of a GCCST. AEC also fail to note and quantify the potential reduction and/or demise of several hundred fulltime, part-time and casual jobs in existing Gold Coast tourism and recreational industries caused by dredging and construction of a GCCST resulting in the destruction of surf and dive sites and the creation of no-go security zones for fishing and boating.

The majority of crew jobs on cruise vessels visiting Australia are held by employees from third and second world nations, predominantly India in recent times. These cruise employees are totally unprotected by Australian labour laws, minimum wage levels/conditions and work safety regulations.

Professor Ross Klein, in his 2012 expert testimony to the US Senate 'Hearings on Oversight of the Cruise Industry' noted that international cruise line employees can earn as little as 75 cents per hour but often work 12 hour shifts, 7 days a week, 50 weeks of the year:

www.iztzg.hr/UserFiles/File/novosti/2012/2012-Testimony-of-R-Klein-in-US-Senate.pdf

These are hardly the conditions that Australian workers (or any workers) should be encouraged to endure. And quite frankly, international cruse companies will not employ anyone who is not willing to accept their substandard work conditions.

Conclusion: No ongoing fulltime, part-time or casual jobs directly related to Gold Coast tourism were identified or quantified by AEC as a result of the proposed operations of a GCCST.

Queensland Cruise Background

Cruise vessels rarely visit two ports which are geographically close to one another as is the case with Brisbane and the Gold Coast. A cruise company will place either Brisbane or the Gold Coast on its itinerary but not both. Therefore, the Gold Coast does not present an opportunity to 'grow Queensland and regional tourism' but merely to cannibalise existing Queensland ports in Brisbane.

The existing docks in Brisbane already cater for South-East Queensland cruise visits and provide a Base (home) port in the form of Hamilton (boutique cruise ships up to 284 metres Length Overall [LOA]); Port of Brisbane (mega-cruises up to and over 350m LOA); recent government approval of Luggage Point Terminal at the mouth of the Brisbane River (catering for all-sized cruise ships and operational in 2015-16); and the option of mooring off Moreton Island, a destination listed in Carnival Cruises 2012 itinerary.

Brisbane cruise passengers have the opportunity to visit the Gold Coast via land-based transport; however, Gold Coast tourism operators seem to have partially failed in their marketing strategies to attract large numbers of Brisbane cruise passengers. These passengers could be bussed or ferried down to the Gold Coast without the costs (financial and environmental) of constructing a terminal on the Gold Coast and the consequent destruction of existing tourism and recreational activities and marine habitat.

Current statistics reveal that the majority of Brisbane cruise passengers who choose an excursion to the Gold Coast travel to Mt Tamborine and the Gold Coast Hinterland as their preferred destination for onshore visits; that is, wildlife and nature-based destinations.

AEC's report displays little understanding of the Gold Coast's geographic position or its seasonal climate when they refer to the Australian 'counter seasonal climate patterns':

Cruise Industry Background

...The expansion of the cruise shipping sector internationally is forecast to continue...Australia is well positioned to access this anticipated increased supply due to its counter seasonal climate patterns relative to the major northern hemisphere cruise locations.(AEC Exec. Summary p.ii)

AEC ignore the fact that Queensland's 'counter seasonal climate' pattern during the main southern hemisphere cruise season (Oct-March), is CYCLONE season.

During the 2012-2013 summer cruise season, even if massively dredged shipping channels could have been be maintained at appropriate depths on the Gold Coast (minimum depth of 12 metres below the Lowest Astronomical Tide [LAT]), the prevailing weather/wind/wave/current conditions would have prevented the safe navigation of cruise ships currently operating in Australian waters on all but a few days for the entire 6 month summer period of 2012-2013.

While existing commercial ports such as Brisbane, Townsville and Cairns (which all attempt to accommodate cruise vessels) are also subject to storm and cyclone events, they are situated either in protected bays and rivers or inside the Great Barrier Reef, which offer some protection during significant weather events.

The Gold Coast offers only a shallow river estuary with huge quantities of coastal sediment transportation and high energy wave and wind events owing to the fact that it fronts directly onto the full power of the Pacific Ocean.

Even with the natural protection offered to Townsville's port, a recent report reveals:

Large cruise ships will be unable to dock at Townsville's new \$85 million cruise ship terminal because of safety concerns.

Navigational risks associated with the narrow channel means thousands of passengers on the biggest ships will bypass the city in favour of other destinations...Just 6 cruise ships are booked for Townsville next year...

Richmond Mayor John Wharton...said the port channel was too narrow, preventing Australia's largest cruise operator, Carnival, from bringing in its cruise ships.

Townsville Enterprise chief executive David Kippin [said] 'The new ships, the way they control them and power down and slow down, over the last 3-5km, they lose steerage. They are fine if there is no wind and tide but as soon as you have strong wind and tide, it increases the risk'.

http://www.townsvillebulletin.com.au/article/2013/04/06/378841_print.html

Cruise companies are notorious for cancelling port visits and permanently dropping ports from their itineraries following even one isolated weather event which interferes with their scheduling.

For instance, the City of Mobile, Alabama, spent approximately \$160m building a CST as a Base port to host a Carnival Cruise vessel. The first 3 years went smoothly until one weather event in November 2011 prevented a Carnival Cruise vessel from re-docking on schedule. Following a delay for 30 hours caused by the weather event, Carnival immediately pulled the ship from the port. Not one vessel has operated out of Mobile since November 2011. However, the city is still paying off the costs of constructing the terminal. To help pay off their debt the City of Mobil now rents spaces at the terminal for city carparking.

Conclusion: Negative meteorological conditions will prohibit regular cruise ship entries into the Broadwater during the main six month cruise season (Oct-March) even after massive and ongoing dredging.

The Cruise Market

AEC quote the following unsubstantiated 'approximate' figures to support their 'Business Case' report in relation to likely cruise ship visits and passenger numbers for the Gold Coast:

Market Sounding

Demand modelling suggests that between 36 and 58 vessel calls would be expected in the first year of operations (2015/16) bringing more than approximately 66,000 passengers and 28,000 crew. (AEC Exec. Summary p.ii)

Given it is unlikely that anywhere near the number of cruise vessels AEC have quoted above will be capable of safely docking on the Gold Cost, the perceived number of passengers visiting the Gold Coast will be considerably lower than those predicted by AEC.

Furthermore, reputable economists such as the Midwood Report have stated that each passenger and/or crew member who leaves the ship (two-thirds of passengers and crew) will spend an average of \$75 each (after the cruise company takes its 25% commission from land-based vendors). Based on the AEC 'fantasy' figures of 66,000 passengers visiting the Gold Coast in 2015/16, the AEC figure results in a total income from passenger spend of under \$5 million per year.

This figure constitutes less than 0.5% of total Gold Coast tourism income per year from all other tourist activities. Yet, an \$18-30 million per year surf break on South Stradbroke Island will be lost as a result of the dredging seaward of the Gold Coast Seaway (see above Lazarow 2008) and 'Shoals vital to quality waves at Strad' (2013) below:

http://www.saveourspit.com/No Terminal/news/NewsArticle.jsp?News ID=171

And a \$30 million per year inshore dive industry at The Spit and Wavebreak Island will be destroyed due to the initial and ongoing dredging required in an attempt to host cruise vessels.

Also, any income derived from passenger spending goes to vendors and/or the cruise company not towards paying off the capital, maintenance and operational costs of the GCCST.

Conclusion: Very poor value add generated by a GCCST – adds only 0.5% to direct Gold Coast revenue based on AEC projected cruise ship visit numbers which are heavily overstated.

Navigation, Safety and Risks

AEC's entire 'Business Case' is based on the false premise that cruise ships will ever be able to safely enter and dock at a GCCST in the Broadwater:

Project Case

Navigational simulations have demonstrated the Gold Coast Seaway could be navigated in safety by modern cruise ships up to 311 metres in length (AEC Exec. Summary p.ii)

This statement is totally inaccurate. AEC is basing its assumptions on the Meridian Maritime Services navigational simulation report 2012, *An investigation into the feasibility of piloting large cruise ships to and from a proposed terminal within the Gold Coast Broadwater*. This report has since been proven to have used faulty methodologies and inaccurate channel and meteorological data to give the appearance cruise vessels might safely enter the Gold Coast Seaway (see Analysis of Navigational Report 2012 mentioned above).

Even after the application of underscored weather/current velocity/significant-wave height data and limited wind speeds and directions, the Meridian report revealed that the fleet of cruise ships currently operating in Australian waters failed the majority of their simulated runs.

The 'Business Case' on which AEC has constructed its report is substantially based on misleading and inaccurate navigational simulations. For example, AEC claim that only ships up to 311 metres LOA can safely navigate a dredged Seaway; however, by 2015/16 the majority of vessels in major cruise fleets will be over 311m LOA. The Meridian Navigational report states that ships over 311 metres LOA could not safely navigate a Gold Coast Port within the dredging limits, topography and weather conditions currently existing on the Gold Coast.

Conclusion: The basis for the AECgroup 'Business Case' relies solely on the discredited and inaccurate Meridian Maritime Services (2012) and Star Cruise Ship (2004) navigational reports.

However, AEC does admit the following:

Every major port in Australia has been developed with financial support from the public sector. These investments, many made several decades ago, were appropriate as the initial cost has been repaid many times over through the additional economic activities generated. However, these costs have never been recovered from port users in the way in which a private developer would be required to, which creates a significant barrier to entry to any new facility. (AEC Exec. Summary p.ii -iii)

Almost every other major Cruise Ship Terminal (CST) in Australia was constructed in conjunction with existing commercial/merchant/military port infrastructure – forklifts, cranes, truck tarmacs, container storage, warehousing, wharves, channel dredging, adequate road access, pilotage and tug services and maintenance etc. The Gold Coast has none of these pre-existing commercial port activities, infrastructure or services to support new CST activities.

Portside Dock - Hamilton on the Brisbane River is unique in Australia, as it is a purpose built CST. However, it can only handle boutique cruise ships up to 240m LOA because at the completion of the terminal's construction it was 'discovered' that the majority of cruise vessels belonging to the major

cruise company fleets i.e. Carnival, Royal Caribbean and other global vessels like the Queen Mary 2, were too tall to safely navigate under the Gateway Bridge. And while the developer of the Hamilton CST was given public land on the riverside to build apartments, restaurants and other commercial outcomes as compensation for building the terminal, no public parks or world class diving, fishing, surfing or boating sites were lost due to its construction.

Conclusion: Significant competition from a nearby established and expanding Brisbane port has been ignored.

AEC acknowledge,

There are also likely to be additional costs associated with providing towage assistance as required by the regulatory authorities and the cruise lines themselves given that the Gold Coast is not a commercial port with available tugs. (AEC Exec. Summary p.iii)

The 2012 Meridian Maritime report was negligent in its failure to address the costs, insurance, legal, safety and physical issues related to the need for permanent docking of tugs or part-time tug assistance and pilot services on the Gold Coast. In fact, major maritime insurers such as Lloyds are highly unlikely to insure vessels trying to enter the Gold Coast without the use of tugs or tugs on stand-by. Existing commercial/merchant ports in Queensland such as Brisbane, Townsville and Cairns have pilot and tug services available 24/7.

An example of what can go wrong in Queensland waters with the existing type of vessel used by companies such as Carnival's P&O Australia line is described by Professor Ross Klein in his expert testimony to the US Senate in 2012.

www.iztzg.hr/UserFiles/File/novosti/2012/2012-Testimony-of-R-Klein-in-US-Senate.pdf

2010 Pacific Dawn (P&O Australia)

A pilot averted a possible disaster by bringing the out-of-control ship to a stop just 70m away from the six-lane Gateway Bridge over the Brisbane River. Two tugboats got the ship under control, bringing her to a complete standstill 70m shy of the bridge. (Klein 2012, p.46)

AEC go on to claim:

Addressing these two issues [tug services and public sector financial support] would improve the financial outcome considerably **but it is still likely that as a stand-alone development the GCCST would not meet the rate of investment return required by a commercial investor.** (AEC p.iii)

AEC suggest that if tug services were donated or subsidised in conjunction with some kind of extra economic activity to be paid for by taxpayers or ratepayers, the terminal would still not be viable as a stand-alone development.

This should be the end of the report and the end of the story as far as a GCCST is concerned; that is, a GCCST is not financially or economically viable. However, AEC further suggest:

For the GCCCST to be established, it is likely alternative funding mechanisms will be required. (AEC Exec. Summary p.ii)

While not stating openly what these 'funding mechanisms' might be, the clear signal from local and state government is the giving away, leasing or selling of up to 75 hectares of public open space and waterways to the consortia who construct the GCCST. In compensation, the winning consortium would be permitted to build casinos, private apartments and marinas, hotels, and commercial businesses on public assets such as parks, foreshores and islands which are currently used by the Gold Coast public and a variety of tourism, sport, wildlife and recreation operators.

Infrastructure and Dredging Costs

AEC maintain the costs of constructing a GCCST will be 'approximately \$90 to \$95 million capital expenditure'. In contrast to this figure, the Environmental Impact Statement (EIS) for the *Notional Gold Coast Marine Development Project* (GHD for the Qld. State Govt. 2006) reported that the capital costs for constructing a GCST at 2006 rates were \$118 to \$136 million. World cruise industry expert, Ross Klein, estimates the initial capital cost of constructing a GCCST at current rates would more likely be \$160 million.

AEC state that 'direct and flow-on gross value added activity annually during construction (between 2013/14 and 2104/15)' would be derived from the construction of the GCCST and amount to \$15 to \$30 million. The GHD 2006 EIS commissioned by the Qld. Government estimated 100 fulltime jobs would be created during the construction of a GCCST.

Recent GCCC media releases stated that 10,700 jobs would be created if a cultural centre, casinos etc were combined with the GCCST project. (GCB, 21st Oct. 2012) This figure is unsupported and dependent upon the outcomes of as yet 'unseen' proposals under the 2012 Expressions of Interest process for the 'Broadwater Marine Project'.

However, if the recent refurbishment of the Sheraton Hotel on the Spit by its current owners Pearls Global (India) is any indication, most construction jobs for the aforementioned potential projects will probably go to a foreign workforce. Perhaps this is also why the Gold Coast's Mayor's travel entourage to Taiwan and China in 2012 included 'migration lawyers' (Willoughby GCB 15/11/2012). Two Chinese development consortia have since been selected for the current shortlist of preferred developers from the EOI process (2012).

Whatever form it takes or the extent to which the 'construction' industry is perceived to be able contribute to future revenue, the Gold Coast will own an unviable 'standalone development' in the form of a cruise ship terminal which will rarely if ever be visited by cruise vessels owing to the weather, channel, safety, towage and insurance issues mentioned above.

Other economic benefits proposed by AEC include:

Any additional activity enabled by the dredging activity would increase the commercial viability...of the GCCST. (AEC Exec. Summary p.iii)

In other words, AEC suggest that the capital dredging (which will potentially destroy dive and surf sites and marine and migratory bird habitats) can be deemed a beneficial economic activity and that the continuous maintenance dredging 'for life' (Qld Govt. EOI 2012), to keep channels open for ships that will never come, also increases the 'commercial viability' of the CST. This logic is baffling and only proves, by default, that there is no business case for a Gold Coast Cruise Ship Terminal.

Conclusion: The GCCST is not commercially viable as a stand-alone investment opportunity.

AEC cannot even accurately describe the location of their 'Business Case' study for a GCCST:

2. Gold Coast Cruise Ship terminal

The development site under investigation is located to the **northern end** of the Broadwater and includes marine and land based elements... (AEC p.2)

The location AEC studied for their 'Business Case' was in the **southern Broadwater** on the west-side of the Southport Spit, not the 'northern end of the Broadwater' as claimed above.

Some of the major elements proposed by AEC under dubious 'Most Likely Establishment Cost Scenarios' include:

-Initial capital dredge of 4.1 million cubic metres of material. Most likely cost \$30.8 million. (AEC p.2)

However, that cost would require the dredging company to quote well under the \$10 per cubic metre (cu/m) at 2006 commercial rates. The 2006 rate was based on the dredged material being permanently deposited within close proximity to its origins. It is more likely the costs will be \$20-30 per cu/m where the dredge spoil is transported to other parts of the Gold Coast coastal system for such things as beach nourishment.

The 'most likely' cost of dredging quoted by AEC also fails to take into account that some of the dredge spoils will be 'hard material within the Broadwater [with] acid sulphate potential' (GCCC Economic and Major Projects GCCST Report#1, 22nd June 2012) and will therefore be more expensive to dredge and dispose of than estuary alluvial sand and sediment.

Also the quantity of 4.1 million cubic metres of material in capital dredging quoted by AEC relates to the 2003 positioning of the CST at the northern end of the Spit, in the Gold Coast Seaway. The position under examination by the GCCC in 2012 is approximately 1.5 km further inside the Broadwater, thus increasing the 'initial capital dredge' by at least 25% to over 5 million cubic metres.

On the basis of the location inside the southern Broadwater, 5 million cu/metres of dredged material at an average of \$20 per cu/metre will 'most likely cost' in excess of \$100 million for initial dredging not the \$30.8 million suggested by AEC.

It appears AEC may have taken the dredging funds allocated for recreational boast channel dredging maintenance of \$30 million, given to the GCCC by the State Government in 2012, as the total needed for deep dredging for cruise ship navigational channels. However, \$30 million in dredging expenditure relates only to recreational boat channels which need only be dredged from -3.5 to -4.5 LAT not the

-12 to -15 LAT required for the safe navigation of modern cruise ships.

Also the 2012 Meridian Maritime report seriously under quoted the width (130 metres) required for safe navigational channels for cruise ships on the Gold Coast. With the increased beams of ships coming into service post-2015, dredged channels to accommodate these vessels will need to be a minimum of 150 metres in width. So the AEC estimates of 4.1 million cu/m of material for the initial dredging are again substantially lower than the actual requirements which will be well in excess of 5 million cu/m (see Analysis of Navigational Report including PIANC guidelines).

Other costs which have been underestimated by AEC include:

-Shoreline protection to prevent increased erosion due to cruise ship movements... Most likely cost \$3.665 million. (AEC p.2)

While AEC partially recognise the effects of erosion on existing revetment walls and shorelines, they attribute any potential damage solely to 'cruise ship movements'. AEC have attributed no costs to the protection of all revetment walls throughout the Nerang/Coomera system which have been cited by engineering experts and reports since 1988 as under threat by flooding and scouring with the increased current velocities and greater tidal prism caused by deep dredging to accommodate cruise vessels (Delft Hydraulics, The Netherlands 1988; Gutteridge Haskins and Davey 1998; A. Douglas, Qld. Parliament, Hansard 23/08/2012).

The costs for property damage and shoreline repairs and protection have been estimated in the hundreds of millions of dollars in the above reports, not the \$3.665 million 'most likely cost' proposed by AEC. Damage and repairs to private property and business revetment walls attributed to increased current flows and the tidal prism caused by deep channel dredging related to the GCCST could see a huge class action taken against the authorities and/or individuals who approve such dredging. (see below, Beacon Law correspondence, 2013)

https://www.facebook.com/permalink.php?story_fbid=138877672970327&id=138874662970628

Other infrastructure costs estimated by AEC for a GCCST include:

-2000 square metres passenger terminal with facilities to check passengers on and off the vessel and complete required security checks, site landscaping and connections to services.

-Security provisions including perimeter fencing and site access control

-Significant paved areas for use by coaches, mini-buses, taxis and private vehicles... (AEC P.2)

While AEC claim they are capable of estimating the 2000 sq. metres of land necessary to house a terminal and to quantify the cost of constructing a terminal ('most likely cost' \$7.6 million), they are seemingly incapable of estimating the area needed to accommodate 'significant paved areas for use by coaches, mini-buses, taxis and private vehicles'. These areas, based on AEC's proposed passenger numbers, will require up to 6000 square metres (6 hectares) of land in addition to the 2 hectares allocated to the terminal.

Perhaps AEC were reluctant to quantify the expansiveness and costs of accommodating service transport in an attempt to present a brighter case to their client, the GCCC; that is, the takeover of 6 hectares of public parks and foreshores in addition to the 2 hectares required for the terminal building.

Accordingly, the 'most likely cost' for these 'services', estimated by AEC as \$982,000, seems very low considering the total area that is required to be developed to cater for 'coaches, taxis, mini-buses and private cars' and the subsequent compensation to the public for the loss of recreational open space.

Despite AEC claiming that 'a high level breakdown' of total establishment costs is provided in the table in their report (AEC p.2) the table reveals only a superficial breakdown with no indication of specific costs of 'security provisions including perimeter fencing and site access control' and no breakdown of costs for 'upgrade of Waterways Drive...'.

AEC published some cost breakdowns under the following vague headings:

'Miscellaneous \$2.6 million'; 'Specific Miscellaneous \$2.4 million'; 'Other \$5.9 million'; 'Contingency \$13.1 million'... (AEC p.2 - figures rounded off).

AEC also quote the Meridian Maritime report when its suits their argument; however, they ignore Meridian and other existing reports and information when it indicates a potentially negative impact on their 'most likely cost' business scenario; for example,

- 1. Meridian clearly indentify that a significant section of the southern groyne wall on Wavebreak Island has to be removed to accommodate cruise ships up to 311 metres in length. AEC have not considered the 'most likely cost' of this engineering work.
- 2. The Delft Hydraulic Reports, commissioned by the GCCC during the 1986-1988 construction of the training walls of the Gold Coast Seaway indicated that the walls were constructed to safely handle only up to -5.5 metres (Lowest Astronomical Tide) dredged channel depths and not the -10.0 metres (LAT) required for the cruise ships of that time. Current mega-cruise ships require up to -15 metres (LAT). These depths will undermine the stability of the Seaway walls, requiring either major reinforcement works or removal and replacement of the existing walls. AEC has failed to cost either of these two scenarios.
- 3. The advent of thrusters on modern cruise ships will also place new engineering stresses on the Seaway walls during navigation of the Seaway channel which were not anticipated when the walls were first built. The nature of thrusters for navigation through the Broadwater channels also has the potential to undermine the stability of dredged inner channels. AEC have not taken these facts into account when costing the establishment, operation and maintenance of a GCCST.
- 4. Recent engineering reports have indicated that a dredged ocean outer-channel for a minimum one kilometre ENE of the Seaway entrance would require an extension of the existing southern wall of 400-900 metres and/or the doubling of the capacity of the sand-by pass system to have any hope of maintaining a safe navigational outer-channel for cruise vessels. AEC has neglected to mention this infrastructure cost in their 'detailed breakdown' of 'total establishment cost' estimates. Once again this cost is potentially in the hundreds of millions of dollars.

Conclusion: Project infrastructure costs, including capital dredging and ongoing operational and maintenance costs have been significantly under costed.

The Cruise Market

AEC continue to furnish vague, generalised statements in their report and somehow draw conclusions that global demand in the northern hemisphere augurs well for the Gold Coast in their '[Market Assessment'.

3. Market Assessment

The Caribbean and Mediterranean regions account for over half of the global demand by passenger bed days (CLIA 2012) but during the last five years Australasia/South Pacific, Europe/Scandinavia and Transatlantic destinations have recorded the highest rate of growth. (AEC p.3)

The use of 'bed days' as an indication of 'market assessment' and 'growth rates' is totally erroneous to the proposed GCCST because 'bed days' relate to Base (home) ports where cruise itineraries begin and/or end, where some passengers choose to stay in a land-based hotel. Given the proposed GCCST will be a Transit (visiting) port, some visiting passengers will take land-based excursions for a few hours but will not book or use accommodation on the Gold Coast. So there will rarely be passenger 'bed days' recorded in land-based hotels or accommodation on the Gold Coast unless a transit passenger is sick or injured during their cruise.

In addition to AEC erroneously comparing Australia's population (23 million) with the population bases which support the demand for Caribbean and Mediterranean cruise industry (United States and Europe providing over 400 million potential travellers), AEC also bundles Australia into the same categories as if South Pacific, Europe/Scandinavia and Transatlantic cruise figures somehow relate to Australia's population or the passengers embarking on cruise trips out of America and Europe are going to focus their travel interests not only on Australia but specifically on Queensland and more particularly on the Gold Coast.

AEC also assume that with the industry growth in the northern hemisphere, we can anticipate similar levels of growth in Australia even though we have a substantially lower population base and greater distances between preferred Australian destinations.

Other general statements by AEC include:

Expected boom in Chinese cruise market with the number of Chinese residents taking cruise continuing to increase.

The anticipated ongoing increase in the size of the Chinese middle classes... (AEC p.3)

These statements appear to be a wish-list as opposed to solid business research or modelling. AEC seems to be working on the premise that potential Chinese and other northern hemisphere cruise passengers receive 4-6 weeks annual leave (as Australians do) and will have an inclination to embark upon lengthy cruises to Australia (and therefore the Gold Coast) over 4-6 week periods. Holidays for these 'potential' cruise clients are often restricted to a mere few days up to two weeks maximum annual leave.

It would be far more efficient and effective to attempt to attract potential Chinese tourists by air rather than ship and for them to spend their tourist dollars over a period of days up to a fortnight on the Gold Coast using local accommodation and hospitality rather than the minimal spend over a few hours on a land-based trip from a visiting cruise vessel. If indeed the Chinese would ever chose a cruise ship as their mode of transport to Australia, which is something AEC have not proven will be the case.

The AEC report also details the following statistics:

Market Demand			
Characteristics of Cruise Ships Calling at Australian Ports 2011/2012			
Ship Type 1	less than 500 passengers	10 visits	Ave Length 160 metres
ShipType 2	500-1250	12	190 metres
Ship Type 3	1250-2000	12	254 metres
Ship Type 4	more than 2000	8	286 metres
	Total	42	(AEC p.5)

Despite the 'relatively small number of vessels' (AEC p.8) overall in global terms calling at Australian ports in 2011/2012 (42 cruise ships) and the relatively low number of total passengers carried, none of the ship types mentioned above by AEC would be capable of safely docking at the Gold Coast under the channel designs and locations currently being examined.

Even with Meridian Maritime Services' underscored wave, wind, current and other unrealistic meteorological data in its simulated navigational studies (2012), only ships above 289 metres and less than 311 metres in length (equipped with thrusters and the most modern navigational equipment) successfully docked on the Gold Coast during some Meridian simulations runs, but not all runs.

Of the 42 cruise ship visits to Australian ports in 2011/2012, none of the above ship types could have safely docked on the Gold Coast under the current designs being proposed nor the prevalent weather, tide, current and wave conditions encountered on the Gold Coast.

While AEC also states,

Although there is a global trend towards building larger ships, the current navigational simulation suggests a limit of 311 metres or less under current channel design conditions (AEC p.5),

they inexplicably go on to conclude that because of the increased size of ships,

Additional average ship capacity could result in fewer ship calls as the same number of passengers could be transported over fewer trips. (AEC p.5)

AEC's logic is as follows:

Ships over 311 won't be able to safely dock on the Gold Coast 'under current channel design conditions' but because these bigger ships can carry more passengers, the Gold Coast won't need as many ship visits in the future to be economically viable.

It is totally illogical to suggest that the bigger ships of the future, which will carry more passengers but won't be able to dock on the Gold Coast because of their size, will give the Gold Coast the opportunity to grow its passenger visits. In fact, by 2015 the majority of cruise vessels commissioned by major cruise companies for their fleets will be too big to ever enter the Gold Coast in any weather or channel conditions.

Conclusion: By 2020, the cruise vessels in the fleets of the world's major cruise line companies will be too large to ever safely dock at a GCCST thus making the terminal totally obsolete.

AEC then declare:

Summary

The demand assessment provides a conservative estimate of potential vessel calls, which could be exceeded if the (sic) some of the legislative changes are enacted and if industry growth forecasts are exceeded (AEC p.6)

AEC appear to indicate that if some legislative changes are enacted and therefore rules and laws are relaxed, the capacity for greater numbers of vessel visits to a GCCST would be possible than currently predicted in their 'industry growth forecasts'.

The bad news for AEC is that the laws and safety regulations for commercial vessels visiting Australian Ports has become much stricter with the new Federal 'Navigation Act 2012' and its 'Compliance and Enforcement Policy' which came into force on 1st January 2013. Maritime laws that were over 100 years old, especially those related to 'risks to safety and the environment', have been replaced with far more stringent laws by the Australian Maritime Safety Authority (www.amsa.gov.au). Neither the Meridian Maritime Services navigational report nor the AEC 'Business case' report has addressed this legislation or issues.

These legislative changes to Maritime law follow recent Queensland shipping disasters on the Great Barrier Reef and Moreton Island and the near miss in the Brisbane River in 2010 mentioned above. So Meridian Maritime Services' suggestion in their December 2012 navigational report, that cruise vessels visiting a Gold Coast 'port' will not require tug assistance, is pure fantasy under the latest changes to Maritime law.

Finally, AEC concede:

4. Project Assessment

It is clear the equivalent fees per passenger needed to recover the operating costs, excluding a return of capital (depreciation) and a return on capital to investors, are significantly higher than current cruise line market expectations. (AEC p.7)

The GCCST is not commercially viable as a stand-alone investment opportunity. The high cost of dredging, which must be recovered by **a relatively small number of vessels**, and the requirement that tugs must be available, if not always used, at a location which is some way from their current base port adds considerably to the charges which cruise lines need to pay, compared to other ports. (AEC p. 8)

Cruise lines clearly indicated the **costs associated with using a port weigh heavily in planning** *itineraries and their decision to use a port.* (*AEC p.8*)

Most businesses would by now conclude that the project does not 'stack up'. But AEC in their enthusiasm to please their client, the GCCC, make general suggestions regarding how the project might proceed despite the findings listed above. AEC hint at:

Linking the GCCST development to a larger development opportunity. (AEC p.8)

No doubt this statement is inspired by the GCCC's desire to link a GSCCT (which is clearly financially and economically unviable and will severely reduce or destroy existing tourism industries and recreational activities) to the annexing of up to 8 hectares of public park for GCCST infrastructure and handing over the rights to a foreign casino/apartment/hotel consortium to commercially develop the remaining 75 hectares of public parks, islands, open space and waterways on the Broadwater and Spit.

Inexplicably, AEC makes no direct reference in their 'Business Case' to current State 'Public Private Partnerships' (PPP) legislation and its stance on 'private commercialisation of public assets' (up to 75 hectares of public parks and waterways) associated with a GCCST, as intimated in AEC's veiled suggestion for 'alternative and innovative funding approaches'.

Public Private Partnerships are supposed to deliver the following:

Public Private Partnerships

Public Private Partnerships (PPPs) have emerged as an infrastructure procurement and delivery option which can offer value for money. This is achieved by introducing incentives for innovation in the design, construction, operation and management of infrastructure assets by better allocating and managing risks and focusing on whole-of-life costs.

Broadly defined, a PPP is a risk-sharing relationship between the public and private sectors to deliver timely private infrastructure and related non-core services. The specific nature of each partnership will be defined through a contractual agreement covering the delivery of infrastructure facilities over a period of time.

The framework has been endorsed by the Queensland Government and applies to all infrastructure projects that have been identified under the <u>Project Assurance Framework</u> as a potential PPP where the expected whole-of-life project cost will exceed \$100 million Net Present Value during the term of the contractual relationship. The framework provides an analysis of projects, focusing on:

- project outputs
- whole-of-life costing
- identification of risks
- allocating risks to the appropriate party to manage.

http://www.treasury.qld.gov.au/clients/government/public-private.shtml

A Public Private Partnership, where the State (Queensland Taxpayers) will be left with a cruise terminal that will be 'commercially unviable' and totally obsolete by 2020, accompanied by the negation and/or

loss of over half a billion dollars in other tourism activities and loss of public access to parks, foreshores, beaches and waterways for recreational use, does not appear to adhere to the PPP's stated aim of 'offering value for money'.

Economic Impacts

Since 2012, the GCCC's mantra seems to have changed from 'we must have a cruise terminal on the Gold Coast to grow tourism' to 'we need to create construction jobs at any cost to the environment and existing tourism and recreational activities on the Spit and Broadwater'. However, if the GCCC focused on building core infrastructure for the Commonwealth Games, such as the athlete's village, polyclinic and gymnasium, Religious centre, Operational Zone etc (Cordell, 25th February 2013), there would be construction jobs aplenty, in addition to existing jobs on the light-rail and teaching hospital constructions already in progress.

One would assume, however, tourists and residents are attracted to the Gold Coast for reasons other than to view how many roads are dug up, how inconvenient it is to get around and how many cranes can be seen on the skyline.

AEC also link superyachts unnecessarily to the construction of a cruise terminal by

seeking opportunities to increase the number of cruise vessels using the facility through additional cruise ship calls and the attraction of superyachts to the facility. (AEC p. 8)

AEC display ignorance regarding the superyacht industry. Superyachts do not need channels dredged from -12 to -15m (LAT) in depth. They require only -5.5 metres (LAT), which is well within the parameters of existing recreational boating channels and maintenance regimes.

The hosting of superyachts is also not contingent upon up to 8 hectares of terminal and transport tarmacs being constructed on public parks and foreshores, nor the selling/leasing/giving away of up to 75 hectares of public open space and waterways to commercial developers in a 'larger development opportunity'. And superyacht owners prefer to dock well away from the oily, polluted waters and sulphur-dioxide fumes generated at cruise ship wharves. They prefer to be at some distance from such urban and industrial sites with their precious and very expensive hulls.

AEC's 'Economic Impact' statement reveals absolute ignorance regarding the manner in which cruise lines and ports operate:

Economic Impact Assessment

Industries which receive the greatest direct benefit [of a GCCST] would include 'transport, postal and warehousing' (AEC p. 9).

Direct income from 'warehousing' only occurs in Base (home) ports where the vessel begins and/or ends its journeys. A Base port requires infrastructure that allows the off-loading of a ship's hard rubbish, waste and sewage and the loading on of fresh water, food, fuel and other supplies required for the voyage. The necessity for provision of forklifts/cranes, trucking depots, warehouses and fresh water supplies etc leads to a Base port, by its very nature, becoming an industrial port site.

Transit (visiting) ports such as the proposed GCCST will not have warehousing infrastructure nor furnish the vessel with supplies, so no 'direct benefit' from warehousing will be derived from a GCCST.

'Postal' services are offered onboard all cruise vessels, including post boxes, stamps and post cards of the destinations visited. Some cruise vessels even have their own postcodes. Once again, AEG reveal ignorance regarding this potential 'benefit'.

'Transport' is an area that could bring direct financial benefits to a port but at the most commercially successful cruise ports (usually Base ports) the cruise company owns the bus, taxi, limousine and minibus operations to ensure they capture as much direct revenue from their passengers as possible. Where a cruise company does not own the local transport (as with all other land-based vendors) a 25% commission must be paid to the cruise company by the vendor.

AEC allege:

The 'retail trade' and 'accommodation and food services' sectors would also expect to receive a large share of the economic activity supported by a GCCST, primarily through direct passenger and crew expenditure on services provided by these industries.(AEC p.9)

Once again AEC ignore the fact that Transit ports generally do not benefit from passenger expenditure on accommodation, given that passengers' accommodation is prepaid and provided onboard the ship. Also most meals are part of the passenger's prepaid fare, so passengers tend to return to the vessel to have their meals.

And given that the majority of cruise ship crews are recruited from third world countries such as India and their accommodation/food is provided on the ship and their wages can be as low as 75cents an hour (Klein 2012), the ship crew spend in Transit ports is likely to be very small.

www.iztzg.hr/UserFiles/File/novosti/2012/2012-Testimony-of-R-Klein-in-US-Senate.pdf

Modern cruise ships possess shopping centres, cafes, cinemas, swimming pools, entertainment centres, golf links, retail, pharmacies, fashion and photographic stores onboard. Therefore, retail stores at Transit ports capture very little spending by customers from cruise visits.

AEC purport that 'sensitivity testing indicates':

The analysis is sensitive to the discount rate used, and is not economically viable at discount rates above 10.5% (AEC p.10)

Apparently the current long-term discount rates in the commercial investment world are 18% - 22%. Once again, the project becomes commercially unviable at 'discount' levels of 10.5%.

In terms of the 'range of costs and benefits' of a GCCST, AEC did not apply due diligence in quantifying the costs and benefits:

A range of costs and benefits were identified but not quantified for inclusion in the economic analysis due to data limitations (e.g. disruptions to seaway access; risks of collision; increased vehicle traffic; potential benefits to other third party operators; reputation and brand awareness of the Gold Coast; potential for boutique cruises; and potential for a 'Race Week' or similar style event... (AEC p.10)

One would expect that AEC should have investigated and been capable of making cost estimates regarding 'disruptions to seaway access; risks of collision; increased vehicle traffic'; for instance, Main Beach Progress Association has very accurate records of the current vehicle usage on Waterways Drive but was not consulted during the compilation of data for AEC's report.

Costs and Benefits

AEC go on to state:

In comparison to the costs and benefits included these impacts are expected to be immaterial, with the exception of economic benefits that could be realised if the GCCST encouraged a 'Race Week' or similar style event/festival on the Gold Coast.(AEC p. 10)

According to the AEC report, 'disruptions to seaway access; risks of [vessel] collisions' and 'increased vehicle traffic' associated with a GCCST are 'immaterial'. Yet, AEC mention one 'exception' by citing the unquantified 'economic benefits' associated with a 'Race Week'.

One must ask, has this spurious suggestion of a 'Race Week' as an 'economic benefit' anything to do with the Gold Coast Mayor being a member of the Gold Coast Turf Club (GCTC) and co-owner of a race horse with a former GCTC CEO? We might also ask, is a 'Race Week' cited as a 'benefit' because several of the newly elected GCCC councillors are members or honorary members of the GCTC and some of them received gifts/donations from the GCTC during their 2012 GCCC election campaigns?

Conclusion: AEC appear to be irresponsible in neglecting to investigate and make cost estimates regarding 'disruptions to seaway access; risks of collision; increased vehicle traffic', as an integral component of their Business Case report on a GCCST.

Environment

AEC also appear to be negligent in failing to estimate any environmental mitigation costs due to the construction of a CGCST and the associated initial and continuous dredging required. It is right to assume this cost is particularly relevant, given that a variety of marine, bird, mammal and vegetation species, protected under the Federal Government's 'Environment Protection and Biodiversity Conservation Act' (EPBC Act) and other International Treaties related to the nearby RAMSAR site, proliferate in the proposed areas for the GCCST and its associated commercial developments.

The *EPBC Act Protected Matters Report* (September 2012) lists in the Broadwater and Spit locations earmarked for the Broadwater Marine Project the following 'Matters of National Environment Significance':

Wetlands of International Significance: 1 Listed Threatened Species: 41 Listed Migratory Species: 61 The same report under the title, 'Other Matters Protected by the EPBC Act' lists the following:

Listed Marine Species: 94 Whales and Other Cetaceans: 13

Conclusion: No costing by AEC for an Environmental Impact Study, environmental mitigation works to protect or replace marine and wildlife habitat or compensation for the negation and/or destruction of existing tourism and recreational activities on the Gold Coast.

Cruise Industry 'Interest' AEC claim that:

consultations with cruise lines have indicated strong industry interest in the Gold Coast Cruise Ship Terminal. (AEC p.ii)

However,

Royal Caribbean managing director for Australia, Gavin Smith, said...

"The challenge for the Gold Coast is the marine navigation of the area and building a facility that could be reliably accessed by visiting cruise ships."

www.royalcaribbeanblog.com/2012/07/25/-royal-carribean-supports-new-gold-coast-terminal

Smith's comments reveal, 'Strong industry interest', but not a strong commitment to a GCCST.

Smith's response is also not very reassuring for cities such as Townsville with its recently opened \$85 million cruise terminal (see above). Likewise for Houston, Texas, where four years ago the city completed the construction of a \$200 million dollar terminal only to have zero cruise ship visits since its completion.

Cruise Ship Companies appear to be fair weather friends, they are users not payers.

Conclusions from the Analysis of AECgroup's 'Business Case'

There are no demonstrated business, tourism, commercial, economic, community or financial facts or arguments presented by AECgroup in their 'Final Report' which can support the construction of a Gold Coast Cruise Ship Terminal or justify the associated selling off/leasing/giving away of public assets on the Spit or Broadwater.

Furthermore, there is a complete absence of any environmental, moral or ethical arguments to support a Gold Coast Cruise Ship Terminal and associated 'developments'. A 'Business Case' report which does not substantially address the impacts of such 'developments' on the environment, existing tourism activities or community desires and fails to address ethical business practices is a deeply flawed report.

The AECgroup has revealed, often through factual omissions, superficial research and ignorance of the cruise industry, the reasons why a Gold Coast Cruise Ship Terminal on the Gold Coast Broadwater and Southport Spit will never be ethically, socially or environmentally appropriate or commercially viable.

Dr Steven Gration BEd (Melb) PhD (Griffith) May 2013

Works Cited

AECgroup. Gold Coast Ship Terminal Information Summary – Gold Coast City Council. Final Report, December 2012.

Australian Maritime Safety Authority. Australian Government (accessed 15th March 2013) www.amsa.gov.au

- Bureau of Meteorology, et al. A Critical Analysis of the Meridian Maritime Services Navigational Report regarding the feasibility of a Gold Coast Cruise Ship terminal. Save Our Spit Alliance Research Report, February 2013. http://www.saveourspit.com/No Terminal/resources/2012-CST-Nav-Report-Analysis.pdf
- Caspersen, B. Capt. *Navigation study for 3 Cruise vessels at the proposed Cruise Ship Terminal Gold Coast, Queensland. Australia.* Star Cruises Ship Management Sdn. Bhd. 20th January 2005.
- Delft Hydraulics, The Netherlands. *Beach erosion problems and Gold Coast Seaway construction reports.* Beach Protection Authority, GCCC et al, 1964 – 1992.
- Department of Sustainability, Environment, Water, Population and Communities. *EPBC Act Protected Matters Report*. Australian Government, September 2012.
- Douglas, A. *Massive upstream flooding caused by cruise ship terminal in Broadwater*. Queensland Parliament, Hansard, 23/08/2012.
- GHD. *Environmental Impact Study for the Notional Gold Coast Marine Development Project.* Queensland State Government, 2006.

Gold Coast City Council. *Economic and Major Projects GCCST Report#1*. 22nd June 2012

Gration, S. Dr. *Shoals vital to quality waves at Strad.* Save Our Spit Alliance Research Report, December, 2012.

Gutteridge Haskins and Davey. Dredging Report 1998. Gold Coast Harbours Authority, 1998.

- Klein, R. Testimony of Ross A. Klein, PhD Before the Senate Committee on Commerce, Science, and Technology. Hearings on "Oversight of the Cruise Industry". US Senate, 1st March 2012. www.iztzg.hr/UserFiles/File/novosti/2012/2012-Testimony-of-R-Klein-in-US-Senate.pdf
- Lazarow, Neil. A socio-economic study of recreational surfing on the Gold Coast, Queensland Report prepared as part of the Gold Coast City Council Shoreline Management Plan. Griffith Centre for Coastal Management, Research Report No. 89, October 2008. <u>http://www.valueofwaves.org/uploads/1/1/4/2/11420190/lazarow_2008_final_report_socioec_ onomic_study_of_recreational_surfing_on_the_gold_coast_lowres.pdf</u>
- Queensland Treasury and Trade. *Public Private Partnerships and Value for Money Framework.* Queensland Government (accessed 15th March 2013) <u>http://www.treasury.qld.gov.au/clients/government/public-private.shtml</u>
- Raggat, T. *Big ships unable to use new cruise terminal.* Townsville Bulletin. 6th April 2013. <u>http://www.townsvillebulletin.com.au/article/2013/04/06/378841_print.html</u>
- Smith, G. *Royal Caribbean Blog.* 25/07/2012. www.royalcaribbeanblog.com/2012/07/25/-royal-carribean-supports-new-gold-coast-terminal
- Watkinson, J. Capt. An investigation into the feasibility of piloting large cruise ships to and from a proposed terminal within the Gold Coast Broadwater. Meridian Maritime Services, 6th December 2012.

Willoughby, S. *Tapping into Taipei Lifetsyle*. Gold Coast Bulletin 15/11/2012.

Wilson, Jim. Save Our Revetment Walls Gold Coast. Beacon Law, 19/05/2013.