

The Right Worshipful, The Lord Mayor  
Mr Graham Sawyer  
Darwin City Council  
PO Box 84, DARWIN,  
NT 0801

Dear Lord Mayor,

I am writing to you regarding the plans to develop the East Point, Ludmilla Bay and Nightcliff foreshore area as the proposed *Arafura Harbour* marina estate.

I am shocked that such a massive project has even been considered for this ecologically important, culturally valuable and scenic coastal area. It is surprising that such plans have progressed to the stage where it is now receiving consideration by government authorities. It suggests that perhaps the Darwin City Council who have reputedly 'backed the project' (*NT News*, 1 April 2009) have not progressed in terms of environmental awareness and social responsibility since the days when proposals such as Darwin South, the previous Ludmilla Creek canal estate and the Elizabeth River Dam were on the table – all of which were soundly rejected by the people of Darwin. Developers and government authorities appear to remain ignorant of the serious mistakes made elsewhere, both on the Australian coastline and worldwide, by the destruction of self-sustaining mangrove ecosystems for the construction of major marina and canal estate developments.

Furthermore, it indicates that the NT Government is ignoring the electorate and is out of touch with the people of Darwin. The Darwin population truly values the few areas of open space, containing natural habitats, supporting healthy fisheries and that remain in the suburban area. Otherwise they would probably live on the Gold Coast!

Both Ludmilla Bay and Ludmilla Creek support intact, healthy and extensive mangrove forests. Globally, mangroves are now one of the most threatened tropical ecosystems—more threatened than rainforests and coral reefs (Valiela et al, 2001). The ecological significance of these systems is well known and documented, and the conservation of these habitats is of increasingly high priority (Duke 2006). With your professional and scientific background, I'm sure I do not need to underscore the intrinsic value and importance of mangrove habitats for a diverse range of terrestrial and marine fauna. Mangrove habitats also provide numerous free ecological services including:

- Stormwater filtration and sedimentation which protects coastal waters from pollution
- Shoreline stabilization which protects the coastline from erosion and storm damage
- Protection of infrastructure and people from the full impact of cyclones, storm surge and tsunamis
- Feeding, nursery and breeding grounds for species of importance to traditional, commercial and recreational fisheries
- Scientific, educational and recreational resources
- Biodiversity conservation

Not only would this marina proposal consume an entire natural embayment and one of the primary natural tidal creek systems in the Darwin area (Ludmilla Creek) but it would destroy an extensive area of remnant coastal monsoon rainforest (or vine-forest) at Kulaluk, which occurs at

the landward fringe of the mangroves at Ludmilla Bay. The Northern Territory Government Planning Scheme (NTG, 2007) defines both mangrove and vine-forest habitat as 'sensitive and significant' vegetation communities which should not be cleared at all. Such a proposal makes a mockery of the new Northern Territory Government Planning Scheme and Land Clearing Guidelines (NRETA, 2006) and demonstrates the absence of a considered approach to coastal development.

Moreover, it is well known that development in tropical mangrove habitats is fraught with engineering as well as environmental difficulties and should be avoided. You will recall the massive, extremely costly, subsidence problems both at Cullen Bay, the East Arm Port and the Darwin LNG plant. In addition to inappropriate substrates for construction, there are serious long-term problems with the creation of acid-sulphate soils when mangrove sediments are disturbed and drained (e.g pollution by acid-sulphate soils at Vestey's Beach). Furthermore, marinas create ideal environments for the introduction and proliferation of exotic marine pests (eg. recent invasions of the Black-striped Mussel at three Darwin marinas). Exotic pest species generally cannot survive in the healthy natural habitats but favour the artificial situation created by marinas – where pest outbreaks are extremely difficult and costly to control.

Finally, it is profoundly confusing that a development such as *Arafura Harbour* is proposed at a time when global climate change and sea level rise demands adequate planning for setbacks in coastal areas and limits to approvals for coastal developments both elsewhere in Australia, and worldwide. It is evident that construction projects within the Darwin Harbour intertidal zone are inappropriate and environmentally negligent and should be avoided at all costs.

Disturbance to fragile coastal habitats can also exacerbate mosquito breeding and pose major public health risks. The mangrove environments of Ludmilla Bay, Coconut Grove and Nightcliff are currently free of 'sandflies' or biting midges and have negligible mosquito populations (Medical Entomology Branch, pers. com.). However, disturbance to these habitats, particularly by a project such as this, which will impede the natural pattern of drainage in upstream brackish and freshwater habitats (which abut high density residential areas in Ludmilla and Fannie Bay) is likely to significantly increase the risk to public health from breeding of mosquitos of disease vector significance.

I have been involved in research, environmental assessment and monitoring of mangrove habitats in Darwin Harbour for over 27 years. During this time, I have been employed by the Australian National University, the Charles Darwin University and as a consultant scientist in the private sector. I have studied the primary productivity of mangroves in Darwin Harbour (Metcalf 1999) and in 2007 completed a PhD on mangrove biodiversity and the impacts of disturbance in Darwin Harbour (Metcalf 2007). In my experience, it is evident that mangrove environments are highly important and extremely productive tidal forests; they are crucial to healthy functioning of tropical estuarine systems and support an extraordinary diversity of life. The *Arafura Harbour* plan will destroy an entire healthy and intact mangrove creek system and one of the few sandy-shore mangrove stands in the local Darwin area. The proposal must not be allowed to proceed.

The significance of the coastal habitats of Darwin Harbour (which includes the East Point, Ludmilla Creek and Ludmilla Bay area) is underscored by:

1. Designation as conservation zone by the Northern Territory Government (DIPE, 2004).
2. Listed in the Directory of Important Wetlands in Australia (ANCA, 1997).
3. Listed on the Register of the National Estate (DEH, 2004).
4. Acknowledgement in the Darwin Harbour Plan of Management (DHAC, 2005) of the

importance of protecting natural ecosystems for future generations.

5. Listed by NRETAS as a Site of Conservation Significance (2008) noted for the presence of important shorebirds and the Nightcliff Rainforest Conservation area with natural resources and species of national and international significance ([www.nt.gov.au/nreta/environment/conservation](http://www.nt.gov.au/nreta/environment/conservation))

Indeed, areas of natural coastline such as Ludmilla Bay are what makes Darwin unique, distinguishing it from many other tropical cities in South East Asia and south-eastern Australia which have lost such natural assets through uncontrolled and poorly considered developments. A more appropriate plan would be to designate the area as a conservation reserve and develop a an environmentally sensitive ecotourism development for the area. Developed wisely, the harbour could become a showcase (eg the existing Darwin Mangrove Ecotours) and may continue to be a major asset to recreation and tourism (e.g the highly lucrative fishing industry).

Furthermore, although the media recently reported that local Aboriginal groups are in favour of the proposed development, I doubt that this is actually the case for the vast majority of indigenous people. In fact, the Larrakia are totally opposed to the project (Alana Eldridge, Coordinator Larrakia Nation, pers. com.).

As a scientist and an environmental professional I am very concerned that the *Arafura Harbour* proposal has numerous major problems and serious flaws including:

- The proposed loss of extensive areas of two significant coastal habitats (mangroves and rainforest)
- Destruction of terrestrial and intertidal wildlife refuge areas, a major fauna corridor and feeding grounds for migratory species (wading birds)
- Loss of a heavily utilized traditional fishing and food gathering area for Darwin's urban Aboriginal population
- Promotion of coastal development when global sea level rise demands precisely the converse – coastal setbacks and residential development well away from the coast
- Exposure of infrastructure and thousands of residents to the full impact of cyclone and storm surge damage
- The potential to exacerbate current stormwater drainage problems in upper Ludmilla and Fannie Bay and public health risks from mosquito breeding
- Destruction of the only permanent mangrove tourism and educational facility in Darwin – the East Point Mangrove Boardwalk
- Loss of the entire Ludmilla Bay and Nightcliff mangrove ecosystem which is regularly utilised by school and university groups for fieldwork and research projects

The following is an excerpt from the Darwin Harbour Regional Plan of Management (DHAC, 2005) which states that :

The Plan of Management, prepared in consultation with the community, cites a vision for the Darwin Harbour region as:

*"A biologically rich and diverse marine and terrestrial environment for our use and enjoyment today and for our children tomorrow..."*

*The Plan of Management for the Darwin Harbour will ensure development is in line with the protection of ecosystems, and the maintenance of the harbour's value as a recreational, cultural, commercial and scenic resource.*

I sincerely urge you to reject the *Arafura Harbour* marina plans on the basis of the numerous ecological, engineering and social reasons outlined above. The proposal represents some of the most appalling coastal planning ever suggested for the Darwin region. I would be happy to provide further detail regarding any aspect of this submission, should this be required.

Yours sincerely,



Dr. Kristin Metcalfe

Principal Environmental Scientist

#### References

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