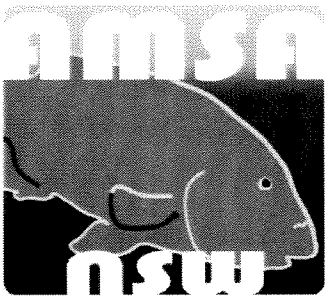
Submission
No 53



5th May 2005

The Committee Manager
Standing Committee on Public Works
Parliament House
Macquarie Street, Sydney NSW 2000

CC: The Hon Craig John Knowles MP
Level 33, Governor Macquarie Tower, 1 Farrer Place Sydney NSW 2000

CC: The Hon John Brogden, MP
Leader of the Opposition, Shadow Minister for Infrastructure Planning & Major Projects
1725 Pittwater Road, Mona Vale 2103

Dear Sir/Madam,

Re: Inquiry into Infrastructure Provision in Coastal Growth Areas

I write on behalf of the NSW branch of the Australian Marine Sciences Association (AMSA) to comment on the Inquiry into Infrastructure Provision in Coastal Growth Areas. AMSA is a professional society of over 1,000 members who are committed to understanding and protecting marine resources, and NSW AMSA has over 180 members. The New South Wales coastal zone is an internationally-significant area containing many endemic marine organisms and unique habitats. Its importance in agriculture, housing, shipping and waste disposal must be carefully balanced against its ecological services for tourism, conservation of biodiversity and fisheries.

Any consideration of infrastructure requirements in coastal NSW must consider the following environmental issues:

> **Healthy environment underpins the increased development**. No one wants to live next to a polluted lake full of harmful or nuisance algae, that periodically suffers fish kills, nor do local councils have the resources to fund ongoing engineering and maintenance works. Once these problems are apparent, it is usually too late or too expensive to fix the problem –

which would mean purchasing properties, installing wetlands or storm water treatment devices etc. It is far more cost effective and sustainable to ensure that natural environments are preserved to secure ecosystem services, places for recreation, commercial harvest etc. In addition, the NSW Government is bound to a number of policies and principles such as Ecologically Sustainable Development and biodiversity strategies. We are in a unique position with this inquiry to learn from the well-documented mistakes of the past, use recent research that demonstrates the impact of increasing nutrients into coastal waterways, and put in place legislation, policies and principles that will ensure that mistakes of the past are not repeated. NSW AMSA is pleased to take this opportunity to input into this process and we wish to make the following points at this stage:

- NSW State government and local councils are **poorly resourced** to assess the impact of increased infrastructure on the coastal environment, particularly estuaries and coastal waters. This is due to a lack of staff with appropriate qualifications and training in agencies responsible for approval and consent of developments, especially in regional areas.
- In any consideration of coastal infrastructure requirements to service in areas supporting increasing population, existing natural environments and habitats (including submerged, intertidal and terrestrial) must be considered among the state's most valuable infrastructure assets. Natural environments provide numerous environmental services that directly benefit society. In many cases, equivalent engineering solutions to provide similar services are expensive, ineffective and have a high maintenance requirement. Examples of **ecosystem services** provided by natural environments include:
    - Erosion and accretion processes in coastal dunes preventing coastal erosion
    - Wetlands filtering and processing nutrients before they reach coastal waterways
    - Mangroves trapping sediment, preventing erosion, and providing essential habitat for juvenile fish
    - Seagrass providing essential nursery areas for recreation and commercially important fish species
    - Intertidal sand and mud flats providing a wealth of food for fish, crabs and shorebirds
    - Subtidal reefs with high biodiversity value that contain species currently under investigation for medicinal properties
- The NSW coast is a **naturally eroding coastline** and realistic studies of climate change predict significant sea level rise and increased storminess. Therefore buffers and setbacks for development along the coast are

essential to prevent the need for artificial rock armouring and seawalls along the coastline. These may provide a temporary solution for landowners but usually fail in the long term, and are expensive, unattractive and lead to permanent loss of coastal habitat.

- Unfortunately we have already seen the consequences of increased coastal development on **the health of many coastal waterways** in NSW. Compared to all other Australian states, NSW has the highest proportion of unhealthy estuaries and coastal lakes (NLWRA 2002). Increased coastal development will place significant demands on our coastal waters. It is important to ensure any future development along the entire NSW coast incorporates best practice, recent innovations and technology to reduce the amount of nutrient, sediment and pollution in runoff out to coastal waterways. Development in coastal urban or rural areas must consider the carrying capacity of the receiving waterways for increased runoff. Coastal lakes are particularly sensitive to these increased inputs. Consequences of unsustainable development around coastal waterways include odours, toxic algal blooms, nuisance phytoplankton and filamentous algal blooms, loss of seagrass and saltmarsh, fish kills and periods of anoxia (no oxygen). These problems have resulted in loss of ecological values, ecosystem services, amenity, tourism, recreational and commercial fishing opportunities and generated considerable media interest and community concern. Any consideration of infrastructure planning must incorporate the results of Sustainability Assessments for Coastal Lakes currently being undertaken by DIPNR. If development proceeds around sensitive environments, it must incorporate sufficient area and resources to prevent or 'filter' runoff to natural coastal waterways. Increasing entrance flushing by constructing permanent rock-lined entrances on coastal lakes does not usually provide a successful solution for the following reasons:
    - Scientific studies have demonstrated that small increases in flushing afforded by entrance works do not reduce the risk of algal blooms, fish kills, etc.
    - Entrance works are generally expensive and result in the loss of habitat, loss of safe access and loss of amenity. It is essential that the inputs to the lake be addressed to reduce the risk of eutrophication. In Lake Illawarra, the cost of recent entrance works ($8 million) was comparable to the cost of implementing the storm water strategy ($10 million). The latter was focused on reducing inputs but is likely to be delayed due to the requirement for councils to contribute to the cost of the entrance works.
- It is essential to recognise that **natural ecological processes** and cycles within wetlands, estuaries and coastal lands (e.g., minor flooding, cycles of erosion and accretion of dunes) are **crucial to maintaining natural healthy environments**. Healthy environments provide areas that have good water quality, support diverse assemblages of plants, animals and

fish, and are resources for recreation. When natural processes are disrupted, a 'chain reaction' usually results in unforeseen and ongoing environmental problems. For example, it is important to ensure that infrastructure around coastal lakes and lagoons is not sited below the level of maximum water height i.e., natural berm breakout height. Inappropriate placement of buildings, roads, sewage overflows, etc., means that communities place pressure on local councils to mechanically open lakes which can lead to further problems including sand intrusion and entrance blocking, less flushing, loss of surrounding wetlands, increasing salinity, and a requirement for more frequent openings.

- There has been an **enormous loss of estuarine riparian habitat along the NSW coast** due to entrance works and rock lining of estuaries. In some cases, over 80% of the length of the estuary is rock lined. Where erosion is a problem in estuaries, other options should be considered. These include: riparian rehabilitation, 'soft options', and leasing or purchase of affected land. There has been little monitoring and/or assessment of the success of erosion control works undertaken under the Estuary Management Program by DIPNR. A review of best options in different situations is required. In addition, there should be consideration of removal of rock lining where it is no longer required.
- Construction of roads and bridges has the potential for significant environmental damage such as destruction and constriction of habitat, creating barriers and draining wetlands. This is especially pertinent for saltmarsh areas that are bordered by roads, which alter drainage patterns and prevents the expansion of habitat when hydrological conditions change (e.g., sea level rise). Construction of bridges often requires filling of estuaries for extended periods to move heavy equipment from one side to the other without disrupting traffic flow, causing reduced flushing and connectivity of the river, often at crucial areas for juvenile fish and prawns. It is important that the RTA is required to undertake comprehensive assessment of the environmental impact of these activities.

Sincerely,

Dr Jane Williamson

President

NSW Branch, Australian Marine Sciences Association

Department of Biological Sciences

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