

Channel and Entrance Issues

Living

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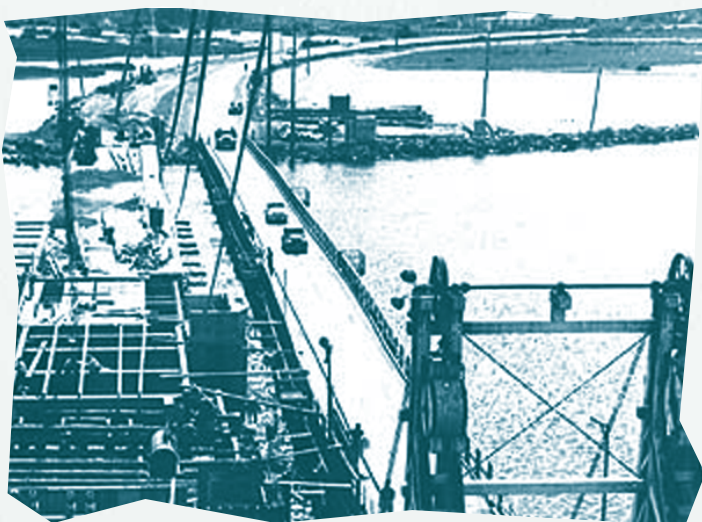
A Brief History

The ocean entrance to Lake Macquarie has always presented difficulties for European navigators. Swansea Heads was first known as "Reid's Mistake", after Captain James Reid mistook the island at the mouth of the "bar lagoon" for that of Nobby's Island at the mouth of the Hunter River. In 1801, the Lady Nelson was nearly lost at the entrance and thus the scene was set for problems for navigation for the next 200 years.

There is a long history of attempts to maintain a navigable channel from the ocean into the Lake. Attempts to 'manage' the entrance and channel were undertaken with the construction of 'training walls' and breakwaters. From 1878, the link between ocean and Lake can be described as a 'constructed channel'.

By 1914, the sand spit on the northern side of the entrance had been removed as a result of the breakwaters. The construction of the Swansea Bridge and breakwaters saw dynamic changes to the entrance and the expansion of the "drop over" (an area of shifting shoals built up where water flow slows and drops sand), located between Marks Point and Coon Island.

Both the channel and the foreshore continued to erode and the



The width of the channel was greatly reduced by infilling for the approach to Swansea Bridge.



"The ocean entrance has presented problems for navigators for 200 years."

resulting sediment has been deposited in the navigation channel. Indeed, it can be argued that by "training" the entrance and dredging to increase water depth, the speed (velocity) of the tidal and flood water moving through the channel has increased, thereby increasing the rate of erosion of the channel and foreshore.

With increased boating activity, wave attack on the foreshore has also added to the problem. Dredging of the channel began in the 1950s and has continued to today, in order to keep the channel open and safe for navigation.

The State Of Play

Good care of the physical environment is important. However, no management plan or physical works can completely overcome the direct conflict between ecological and social values.

While there is pressure to keep the channel open for reasons of economy and lifestyle, the exercise can add to the rate of erosion of shorelines. Even with sophisticated modelling and research, it is difficult to predict what effect these "training" strategies will have on other elements of the entrance.



Action has been undertaken to prevent major, negative changes to the current structure of the entrance and the channel. This action is designed to avoid a repeat of the chain reactions caused by past management strategies, such as the erosion of Salts Bay. Increased wave penetration from the breakwaters has resulted in the erosion of land at Salts Bay.

In turn, the Black Neds Bay wetland area, formerly protected by the Salts Bay foreshore, is under serious threat from the open ocean. The long-term security of Black Neds Bay will depend on channel stabilisation works.







We need to find a balance between the needs of the environment and our social and economic demands.

Active Management?

The Premier's Lake Macquarie Task Force (1999) has put into place a three-year program to achieve total improvement in the health of the Lake.

The report by the Premier's Taskforce on Lake Macquarie has identified the following tasks to direct future actions on channel entrance issues:

-  Monitoring of boating traffic to assess the cost/benefit of keeping the channel open to boats
-  The Salts Bay stabilisation program, to begin in the latter half of 2000
-  Monitoring of erosion at a number of problem sites
-  Stabilisation of the foreshore near Aeropelican and investigation of similar options at Coon Island

Issues concerning the entrance to Lake Macquarie are generally confined to ensuring safe navigation for boating. The cost of this work needs to be judged against the use of the Lake by local vessels and the impact that restrictions to this use will have on the total Lake economy.

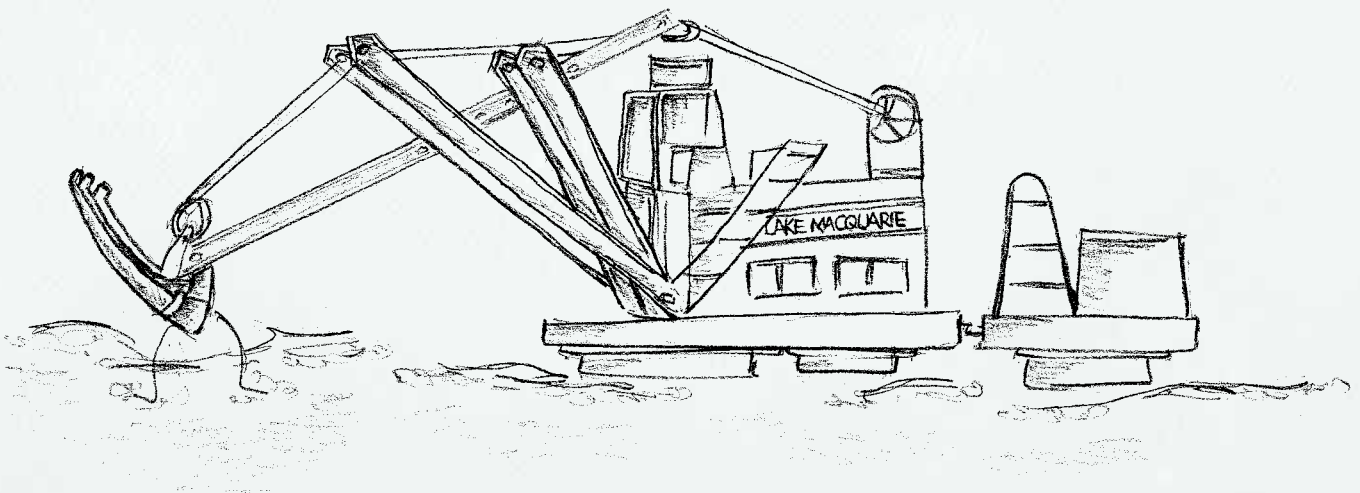
Tourism, as well as boating related industries will all suffer if the entrance is dangerous. The loss of publicly owned foreshore and private land as a result of erosion also has an economic cost.

The Road Ahead

Dredging of the Lake entrance and other locations identified as trouble spots, has traditionally been done to ensure safe navigation for boats entering and leaving Lake Macquarie. There are little, if any benefits to tidal exchange or the balance of sediments and nutrients to be gained from this exercise.

The ongoing monitoring of boating traffic will contribute baseline data to community debate. It is important that this is an informed debate involving all stakeholders, to ensure that all decisions and any actions balance economic and lifestyle factors with safety issues.

History suggests major changes to the entrance and the channel are likely to result in any number of changes to other elements of the environment. While advanced research and modelling techniques provide some insight, it is difficult to guarantee how nature will respond to strategic intervention. This is an important consideration in planning to resolve the issue.



'Dredging has been carried out since the 1950's to keep the channel open and safe for navigation.'