Developing a plan for the future

The lower Tweed is a complex river and estuary system. Its value and usefulness is measured in terms of its wide range of qualities... scenic beauty, biological productivity, recreation, and fishery resources.

Because of an expanding population a management plan is needed to keep the Tweed River both natural and useful.

September 1991
ISBN 0 7305 8627 8
PWD 91051

PUBLIC WORKS
The Tweed River is a vital link in the social and ecological fabric of the valley. Sensitive management will sustain the quality of the river and its ecology.

This publication is a report to inform the community of the work to date in developing a management plan for the lower Tweed River. It includes an overview of the management objectives and at the end, outlines options for 18 specific areas. You are encouraged to comment by using the enclosed card.

It is important for the community to come to an agreement on an overall concept.

During 1989–90 the Tweed Valley community worked with Public Works on a feasibility study to resolve the problems of the Tweed entrance.

The study confirmed a widespread community perception that the tidal part of the Tweed River was a unique zone requiring a comprehensive river management plan to protect its valuable attributes and to ensure that present and future residents would be able to enjoy them to the full.

In July 1990 the Minister for Public Works, in response to the community’s desire to protect the beauty and benefits of the region, initiated studies on which a sound Lower Tweed River Management Plan could be based.

The objectives of these studies are:

- to devise an overall concept for the estuary that encompasses all its varied assets and pays proper and fair regard to each
- to survey and set out the critical details of the problems confronting the river
- to develop strategies for the entire estuary for community consideration
- to set priorities for necessary actions.

Detailed planning for individual parts of the estuary should proceed only if there is broad community agreement that the overall concept is consistent with its needs and goals.

**Technical basis**

Individual areas of concern have been carefully assessed by specialists in the disciplines of:

- marine and earth ecology
- water quality
- water and sediment movement
- recreation planning
- archaeology
- visual assessment
- administrative systems.

Reflecting the richness of the Tweed River as revealed in these studies, the total plan must encompass a range of interlocking considerations.

**People**

The current population of Tweed Shire is 58,000 and expected to double in the next 15 years. The region is also attracting more and more tourists.

It is a superb area for recreation and supports 15 community recreation clubs which use the waterway for activities such as sailing, rowing, canoeing and fishing. Primary and secondary schools use the river for educational and recreational purposes.

Already the existing facilities are showing strain, especially in the summer holiday season.

The technical studies have shown there are a number of areas which can be developed to cater for the future recreation needs of the rapidly growing population without compromising the integrity of habitat areas.

There is scope for increased recreation on the main arm and its eastern foreshore, accommodating both aquatic activities and greater foreshore recreation. Terranora Creek is suitable for low key aquatic and foreshore recreation. Terranora Broadwater has aquatic recreation potential if improved by dredging.

A number of possible recreation improvements in specific areas have been identified, varying from the creation of recreation beaches, boating facilities, and river access points to foreshore and lagoon walks and bird viewing areas.
River management objectives

- **commercial navigation**
  - maintain channels for fishing fleet, oyster farmers and charter boats

- **waterway improvements**
  - dredge sand shoals to improve boating and provide habitat diversity

- **recreation and conservation**
  - improve natural habitats
  - increase foreshore facilities for walking, fishing and picnicking
  - provide opportunities for wetland enjoyment eg. boardwalks, bird watching sites, snorkelling
  - encourage low key boating

- **conservation**
  - protect and extend significant habitats
  - protect heritage areas
  - develop education facilities
  - improve stormwater quality

Fishing
The Tweed estuary supports a large and diverse commercial fishing industry. Most commercial species of fish, either as juveniles or adults, rely upon the habitats available within the estuary.

The principal commercial fishing activities within the estuary include net hauling, meshing and crab trapping.

Hauling operations generally occur upstream of Barneys Point Bridge but the lower estuary habitats are vital to sustain the industry. Tonys Bar is the most frequently used lower estuary hauling ground for mullet, whiting, bream, flathead and prawns.

Oyster farming is an important part of the fishing industry on the Tweed. It depends heavily upon good water quality (ie low concentrations of silt, pesticides, pathogens, heavy metals etc).

As well, Tweed Heads is a major fishing port for trawlers. The size of the fleet varies with fishing conditions and navigability of the river entrance but is presently the fifth largest in NSW. The fleet employs both directly and indirectly some 250 people and contributes approximately $12 million to the local economy. Although trawling occurs in the ocean, the principal trawler catch consists of prawns which rely upon habitats in the estuary (particularly seagrass meadows) as nursery grounds.

Environment
The Tweed estuary is in a region where plants and animals of both tropical and temperate origin overlap. The diversity of the region is exceptional and the resulting plant and animal communities are highly valuable.

Habitat areas are crucial to the ecology of the river’s bird and marine life. The most significant areas comprise the saltmarshes, mangrove forests and seagrass meadows along the eastern edge of the main arm, Cobaki Broadwater, the delta islands of Terranora Broadwater, and a number of side bays and back channels in both arms of the estuary, particularly Ukerebagh Passage and the wetlands of Ukerebagh Island. All these areas teem with small marine life in the sediment and are vital links in the marine food chain and the overall ecology of the estuary.

The vegetation along the shorelines of the lower Tweed River and Broadwaters provides important habitats for land animals and reptiles. There are major bird roosts in the secluded western foreshores of the delta islands, Trutes Bay in Terranora Broadwater, the eastern shores of Cobaki Broadwater, Kerosene Inlet and Wommin Lake and adjoining areas. These roosts are essential for the breeding, and therefore survival, of the species which use them.

17 migratory and 10 non-migratory birds which occur in the lower Tweed estuary are listed in international bird treaties.
Heritage
Current studies discovered 14 previously unrecorded sites of archaeological importance. Proposals for the study area need to recognise the archaeological significance of the estuary foreshores.

Shoaling
Many areas of the river have extensive sand shoals which restrict navigation and opportunities for recreation. They include the shifting sands of Terranora Inlet and the main arm. The studies have found that these shoals are comparatively barren and are therefore less sensitive than the ecologically rich wetlands and shoreline margins.

Dredging would benefit both the ecology and fishing. It is required in two main areas:
• Boyds Bay to the entrance
  Navigation channels need to be regularly dredged for the Tweed Heads fishing fleet.
• Barneys Point Bridge to the junction of the two arms

Dredging here would produce many benefits. It would:
- remove restrictive shoals which curtail recreational boating and constitute a hazard
- increase the flow of sea water to enrich the habitats
- create specific deep habitats which would promote a richer marine life and increase numbers of large fish
- produce sand for local industry and construction
- provide royalties to help fund the River Management Plan
- lower flood levels and reduce flooding.

Urban run-off and discharges
The pollution from urban run-off is already damaging some habitat areas and the amenity of some popular recreation areas. Key areas of concern are Shallow Bay, Tony's Island, Ukerebagh Passage, Jack Evans Boatharbour, Cobaki and Terranora Broadwaters.

The increasing population and associated development of the catchment is damaging the quality of the water in the river. Catchment run-off produces approximately 230,000 cubic metres of silt a year, mostly from areas under cultivation. Evidence suggests that the clearing of the slopes above Terranora Broadwater and in the Cobaki catchment have contributed to siltation and habitat degradation in these lakes.

The levels of some nutrients, such as phosphates, from stormwater run-off and sewage treatment plants will increase greatly under present population projections unless adequate management strategies are put in place.

Pesticides and fertilizers from agricultural areas require monitoring to ensure they do not reach unhealthy levels in the river.
The State Government has contributed towards developing a successful plan by commissioning baseline studies and offering professional advice. However, the long term success of any management initiative depends upon community involvement. Through the Tweed Entrance Community Liaison Committee, formed in 1989, the Government is working with the community to develop a satisfying and workable river management plan.

The development of a river management plan is an evolutionary process which requires refinement and adaptation with each piece of new information and increased understanding of the river.

One of the early steps was the Tweed Entrance Feasibility Study. This study found broad community support for improvements to the existing entrance which included dredging of the lower estuary.

The next step is the development of a Tweed River Management Plan which places any dredging within an overall context of management and enhancement of the whole estuary.

Adoption of a Plan requires the community to participate in the development of an overall concept for the river. Turn to page 12 to see how you can participate.

The Plan should ensure that any action taken in one particular area will not produce problems or become an obstacle to improvement in other areas.

Once the community agrees to an overall concept, detailed development plans will be prepared for review and approval by the community and appropriate authorities. A multitude of individual projects can then get under way to bring the Plan into being.

The Plan will involve:

- conservation and habitat improvement to protect and enhance important areas for bird life and marine animals, to improve the river as a fish nursery, and to restore areas which are currently degraded
- encouragement of increased recreation in suitable areas, including planning for future needs
- minimising pollution from urban run-off to preserve water quality and protect significant habitat areas
- waterway improvements to maintain commercial navigation channels and to open up areas where sand shoals restrict general navigation and recreational opportunities.

Putting the Plan into action

Because of its close contact with the community and its facilities for regular consultation, Tweed Shire Council is best placed to be involved in setting priorities for proposed works and reviewing those priorities and refining them in the light of changing river problems.

River improvement works will be funded by State Government based on sand royalties.

Already a number of environmental enhancement works have been identified for possible inclusion in an Early Works Program involving expenditure of $500,000. These are works which appear to have high priority and which could be achieved at a realistic cost, such as:

- upgrading of inlet to Wommin Lagoon
- creation of beaches along the eastern river training wall of the main arm
- design of erosion control at Seagulls Estate Reserve
- removal of sedimentation at major stormwater outlets
- improvements to Jack Evans Boatharbour.
Population and development

Early timber-getters found safe harbour and lush subtropical rainforest in the Tweed River. Sugar cane farmers, dairy farmers and banana growers followed and cleared the fertile floodplain and slopes. They developed agriculture at the expense of the natural environment of the lower Tweed. The development of Tweed Heads accelerated after the construction of river training walls (1890s) and entrance breakwaters (1904) allowed regular shipping. The natural habitat which remains on the lower floodplain is confined to the wetlands and foreshores of the estuary. These are threatened by continuing urban expansion.

The estuary and adjoining areas continue to be intensely used for residential, recreational and commercial activities. The community has stated its wish to have a River Management Plan which will preserve open space and focus on family recreation facilities.

River ecology

Identifying the distribution of plant and animal life provides the planning tool to protect and enhance the ecology of the river. This database showed that the Tweed River supports a shorebird population equal to those in the larger systems of the Clarence and Richmond Rivers. The richness of bird and marine life is related to the area of mangroves and seagrasses. The Tweed has the eleventh largest mangrove coverage in NSW. Many of the birds identified in the area are migratory and are protected by international treaties. The Little Tern is classified as 'threatened' by NSW National Parks and Wildlife Service.

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Little Terns were observed in the estuary during the survey and special consideration has been given to its requirements in the possible works.

Little Tern Osprey
lower Tweed estuary Developing a plan for the future

Tweed River main arm

The main arm of the Tweed River and the wide tracts of Crown land on Letitia Spit have the capacity to provide high quality recreation as well as significant areas for plant and animal conservation.

Kerosene Inlet area has been damaged by vehicular activity and should be buffered from this type of intense recreation. It is a significant bird roosting area which needs protecting.

With proper management it also offers an opportunity to integrate foreshore recreation and environmental conservation.

Improving navigation depths in the main channel would also offer opportunities to enrich the marine habitat. Deep holes combined with artificial reefs could create the habitat diversity that attracts large fish.

At Tonys Bar, works could include dredging both to reduce a biting midge breeding area and, using the extracted sand, to build a more secure roosting site for shorebirds. Dredging would also improve tidal flushing in silted areas like Shallow Bay.

Jack Evans Boatharbour in the heart of the residential and business area is presently under-utilised. It offers opportunities for innovative facilities such as an underwater observatory and a snorkel trail winding through seagrasses and artificial reefs. Carefully planned and attractive walkways, fishing piers and seating on the foreshore would be well used by residents and tourists.
Terranora system

The different characters of the main arm and the Terranora system require distinctly different management solutions.

Terranora Creek is heavily urbanised and there is not the same scope for foreshore facilities as in the main arm.

Terranora has speed restrictions and the Broadwaters are presently too shallow for extensive boating activities.

In these areas there are opportunities for a different range of facilities.

Along Terranora Creek there are sites for boardwalks through mangroves, bird viewing platforms, educational facilities and picnic areas.

The Broadwaters are very shallow, particularly Cobaki, but they have significant habitat value. Cobaki is a bird roosting area and because it is inaccessible, it is best left as a conservation area. Seclusion is a vital part of bird habitats.

The extensive mangrove areas of Terranora offer opportunities for interesting boardwalks.

Features such as these elevated mangrove walks and bird watching platforms provide excellent opportunities to combine family recreation and education.

Terranora Broadwater is the centre of the oyster growing industry and dredging will be required to maintain navigation channels for the industry. Dredging within the Broadwater would allow a greater range of recreational boating.

Terranora Broadwater
Developing a plan for the future

River management objectives

Within the lower Tweed, 18 areas have been identified for the purpose of defining specific problems and opportunities.

1 Jack Evans Boatharbour
- recreation and conservation
- Improve quality of stormwater discharge
- Finalise detailed plans of new foreshore and recreation facilities
- Finalise seagrass regeneration plan.

2 Kerosene Inlet
- conservation
- recreation and conservation
- Rehabilitate degraded wetland
- Extend existing wetland
- Develop recreation sites
  - improve access to river
  - build beaches along river
- Regenerate natural vegetation
  - limit vehicles
  - replace Bitou Bush with native species
  - prevent power boat access to wetland
- Buffer and protect bird roost areas.

3 Sponsors Reach
- conservation
- recreation and conservation
- waterway improvements
- Extend worthy conservation areas, particularly wetlands
- Finalise plan for water recreation
- Regenerate native vegetation to buffer Sponsors Lagoon
- Finalise stormwater drainage plan to protect lagoon.
4 Wommin Reach
- conservation
- recreation and conservation

Extend worthy conservation areas, particularly wetlands
Improve tidal flushing of lake and lagoon areas
Create additional wetlands
Prepare EIS to identify and seek approval for sand processing site
Regenerate native vegetation buffers
Develop foreshore recreation sites.

5 Tonys Island Reach
- conservation
- recreation and conservation
- waterway improvement

Finalise sand extraction plan
- remove shoals from main channel
- reduce biting midge (sand flies) breeding area at Tonys Bar
- increase diversity of marine habitats
Build and protect new bird roosting sites, especially for the Little Tern
Increase water and foreshore recreation sites on eastern side of reach.

6 Rocky Point Reach
- conservation
- recreation and conservation
- waterway improvement

Finalise sand extraction plan
- remove shoals from main channel
- increase diversity of marine habitats
Protect and improve bird roosting sites on the western shore
Increase water and foreshore recreation sites on eastern side of reach.

7 Ukerebagh Passage
- conservation

Increase public awareness of the area as the most important bird roost and fish nursery in the region
Protect from feral animals
Build bird watching platforms
Improve water quality
- maintain good tidal flushing
- install trash racks
- remove silt.

8 Terranora Inlet
- commercial navigation
- waterway improvement

Maintain navigation channel
- establish suitable dredge disposal sites
Limit access to Ukerebagh Island.

9 Boyds Bay
- commercial navigation
- waterway improvement

Maintain commercial port facilities
Improve water quality
Build sullage pump-out station.
### 10 Bridge to Bridge Reach
- **recreation and conservation**
- **waterway improvement**

- Develop and encourage foreshore recreation
  - walking trails, bird watching, picnicking
- Improve water quality
  - provide better public education
  - develop long term effluent disposal plan
  - install gross pollutant traps
  - retain shallows to dilute and disperse discharges.

### 11 Entrance Reach
- **commercial navigation**
- **waterway improvement**

- Maintain navigation channels in main arm and at junction of Terranora Inlet.

### 12 Caddys to Wyuna Reach
- **recreation and conservation**
- **waterway improvement**

- Improve and protect important natural habitats
- Develop foreshore recreation and education facilities
  - walking trails, bird watching sites and information displays.

### 13 Seagulls
- **recreation and conservation**
- **commercial navigation**

- Encourage a variety of uses
  - oyster cultivation
  - water and foreshore recreation
- Repair bank erosion
  - maintain boat speed limit.

### 14 Terranora Broadwater
- **conservation**
- **recreation and conservation**
- **commercial navigation**

- Develop plans for improvements
  - boating channels
  - natural habitats
  - foreshore recreation (elevated boardwalks, birdwatching platforms, picnic sites)
- Improve water quality
  - install gross pollutant traps
- Register heritage finds.

### 15 Tweed West
- **conservation**
- **recreation and conservation**
- **commercial navigation**

- Prepare management plan
  - protect significant bird and marine habitats
  - develop walking tracks and viewing areas
  - develop public information on habitat importance
  - install educational displays.

### 16 Cobaki Broadwater
- **conservation**

- Finalise management plan
  - protect significant natural habitats
  - develop public information on habitat importance.

### 17 Shallow Bay
- **conservation**

- Improve important fish habitat
  - encourage use of upstream silt traps
  - deepen and extend southern channel
  - prepare dredging plan to improve tidal flushing
- Investigate shoaling processes.

### 18 Terranora Canals
- **conservation**

- Improve quality of urban run-off
- Encourage regular canal maintenance.
Join the team
The best plan for the Tweed River will be one that is drawn from the ideas of all those who have an interest in the wellbeing of the estuary and the adjoining foreshores.

Your help
We want to hear your ideas and develop a Plan building on your suggestions.

Your thoughts
There are a number of ways you can provide your ideas:
1. Complete and return the card attached to this brochure by 6 December 1991
2. Write a letter explaining your ideas by 6 December 1991
3. Attend one of the public meetings that Public Works will advertise in October and November 1991.

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Tweed Heads NSW
PO Box 1013
Tweed Heads NSW 2485
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More information
Visual displays are now in clubs and major shopping centres and at offices of Tweed Shire Council to explain river investigations to date.
A report on the Lower Tweed Estuary Management Plan and a Lower Tweed Estuary Technical Summary have been placed in Tweed Shire Libraries and are available for purchase at offices of Tweed Shire Council ($20 each).
The complete set of technical reports is available for inspection and purchase at the Public Works Tweed Heads Office.

River Management Plan reports
- River Management Plan
- Technical Summary
- Ecological Assessment & Appendices
- Influent Audit
- Hydrodynamics Assessment
- Recreation Study
- Archaeological Assessment
- Visual Assessment
- Supplementary Information
- Implementation Options
- Initial Monitoring
- Preliminary Concepts

Contacts for information and further discussion on any aspect of the development of a Tweed River Management Plan: