Wyong Shire Council

EXHIBITION DRAFT

Community, Coast and Climate Change

Wyong Shire Coastal Zone Management Plan

Volume 2 – Appendices 1 to 7

June 2011

Umwelt
Environmental Consultants

APPENDIX 1

Community Engagement

Committee Presentation

Wyong Coastline Management Study and Management Plan

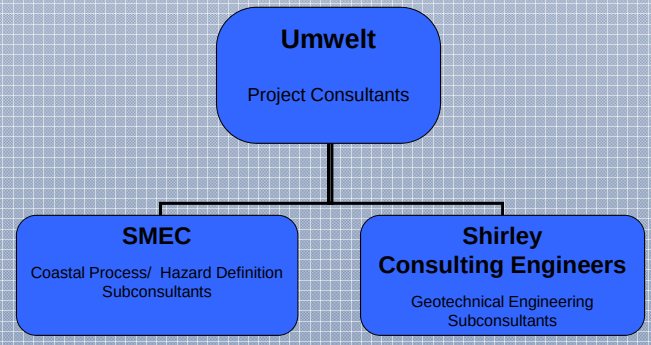
Umwelt
Environmental Consultants

Presentation Outline

- Introduction
  - Introduce Umwelt and Project Team
- Project Description
  - Project Framework
  - Study Area Delineation
  - Scope of Works
    - Including Expansion of scope and Key Components
  - Stakeholder Consultation Program
- Project Program/Timing
- Up-Coming Events
  - Project Launch
  - 'Day on the Beach'
- Questions

Project Team

Consortium Structure



Project Team

Leading Team Members

Umwelt

- Peter Jamieson (Project Director)
- Brad Snedden (Project Manager)
- Pam Dean-Jones (Stakeholder Consultation Coordinator)

SMEC

- Lex Nielsen (Specialist Coastal Engineer)

Shirley Consulting Engineers

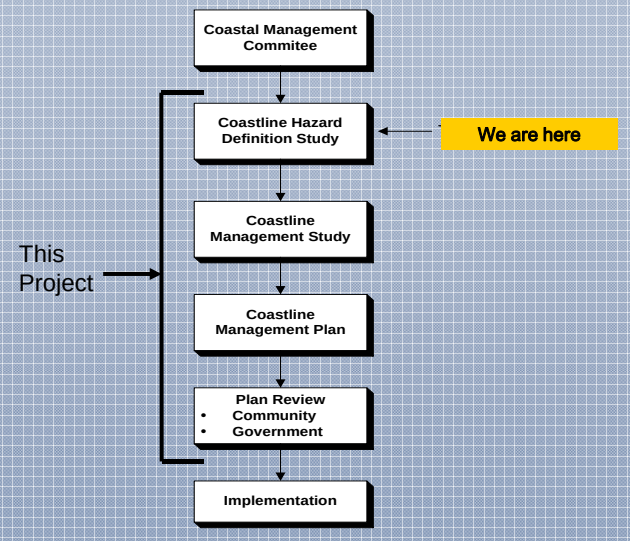
- Andrew Shirley (Specialist Geotechnical Engineer)

Project Framework

NSW Coastline Management Framework

- Coastline Management Manual (1990) and Coastline Hazard Policy (1988)
  - Draft Revised Coastal Zone Management Manual not complete.
- NSW Coastal Policy 1997 provides direction for application of the Plan
- Coastal Protection Act 1979
- SEPP 71
- Other key legislation:
  - EP&A Act 1979 – LEP, DCPs
  - Crown Lands Act 1989
  - Local Government Act 1993

Project Framework



Study Area Delineation

- According to the consultant brief:
  - The width of the study area is variable, and
  - includes both marine and terrestrial areas likely to be impacted upon by human activities and coastline hazards, plus relevant Crown Lands.
  - describes a study area that combines the the concepts outlined in both the Coastal Hazards Policy (the Manual) and the Coastal Policy, and
- As a result, the combination of the two concepts facilitates the differentiation of two broad zones.

Study Area Delineation

- Core Area includes:
  - coastal hazard zone (from Hazard Definition Study);
  - adjacent marine and terrestrial areas
    - (directly associated with the coastline, in terms of physical processes & socio-economic functions)
  - Relevant Crown and Council-owned Lands
  - e.g. access tracks, parking areas, coastal amenities, residences within hazard zones and, some commercial activities.
- Context Area includes:
  - larger area, where activities are influenced by, and themselves influence, the management of the core area.
  - e.g. urban development areas, drainage catchments

Study Area Delineation

Coastline compartments:

1. Lakes Beach
2. Hargraves Beach
3. Norah Head & surrounding beaches i.e. Soldiers Beach, Cabbage Tree Harbour
4. The Entrance North
5. The Entrance
6. Blue Bay (additional geotechnical)
7. Toowoon Bay (additional geotechnical)
8. Shelley Beach (incl. Blue Lagoon – additional hazard definition)
9. Bateau Bay (additional geotechnical & coastal hazard assessment)

Scope of Works (as revised)

Stage 1- Coastal Processes and Hazard Definition Study

- **Data Compilation and Review**
  - Compilation and review of existing data
  - Project Launch and Community Briefing Day
  - Draft Data Compilation and Review Report to TLECM for review
  - Final Data Compilation and Review Report

- **Existing and Future Studies**
  - Coastal Processes / Hazard Definition assessment and Geotechnical Assessment, which includes:
    - Review of existing hazard zones
    - Targeted Community workshops
    - Assessment of hazard zones for areas not previously undertaken e.g. Lake Beach SLSC Building
  - Coastal Hazard Maps (Hazard zones for beach and cliff/bluff areas)
  - Draft Hazard Definition Study to TLECM for review
  - Final Hazard Definition Study

Scope of Works (as revised)

Stage 2 – Coastline Management Plan

- **Coastline Management Options Analysis**
  - Assess Considerations for Development of Management Options
    - Land Tenure, Use and Management
    - Aesthetic and Ecological Factors
    - Recreational Amenity
    - Socio-Economic Issue
    - Heritage and Cultural Values
  - Broad Community Workshop
  - Prepare options for coastal compartments, focusing on urban areas, with semi-natural and natural areas at a more strategic level.
  - Draft Options Analysis Report to TLECM for review
  - Final Options Analysis Report

Scope of Works (as revised)

Stage 2 – Coastline Management Plan

- **Coastline Management Study**
  - Preparation of Draft Management Study
  - Draft Coastline Management Study to TLEMC for review
  - Final Draft Coastline Management Study
- **Coastline Management Plan**
  - Prepare Draft Coastline Management Plan
  - Targeted workshops during preparation of Draft Plan
  - Draft Coastline Management Plan to TLEMC for review
  - Final Draft Coastline Management Plan
  - Presentation to Council on Draft Management Plan
  - Public Exhibition of Draft Coastline Management Study and Plan
  - Prepare submissions report for Council
  - Finalise Study and Plan in light of submissions

6 May 2004
Umwelt
Environmental Consultants

Consultation Program

Council's Goals for Project Consultation

- Provide ways for the community to participate
- Identify community concerns and values
- Gather information from the community
- Inform the community about possible actions, alternatives and consequences
- Seek community feedback
- Achieve satisfactory outcomes for all parties
- Develop and maintain credibility

Consultation Program

Who is "the community" for this project?

- Residents living within the core study area and context study areas (i.e. east of Tuggerah Lakes)
- Other residents of Wyong Shire and adjoining LGAs – local visitors to the study area
- Part time residents and service groups –Sydney, etc
- Members of community, social, sporting and service groups/activists – local and regional
- Coastcare members
- Traditional Owners and Local Aboriginal Land Council members
- Members of Council Committees
- State agency representatives
- Councillors
- Scientific experts

Consultation Program

Involvement Strategy

- An integral part of study and plan development
- Consider social, economic, cultural and environmental values
- Ownership and responsibilities – a collaborative attitude
- Shared understanding of technical information and perspectives
- Recognise differences and tailor materials to encourage broad involvement
- Expectations – what's negotiable and what's not
- How does adaptive management work?

Consultation Program

Activities

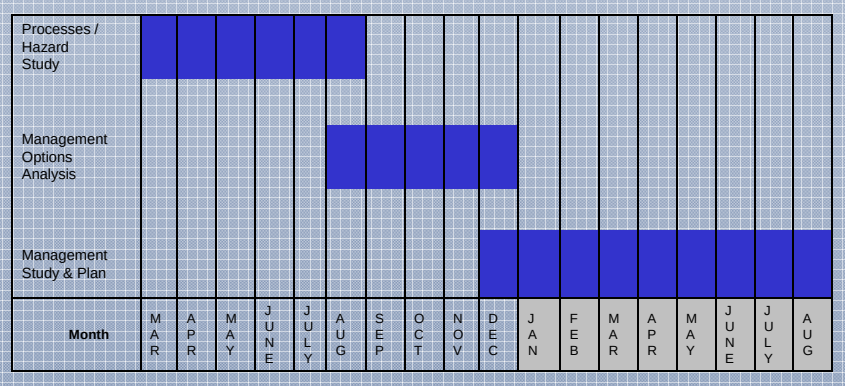
- Committee briefings
- Project launch – media and community profile
- Media releases – project and event driven
- Information brochures – A4 colour
- Web site – for access to all project documentation
- Focus on the Coast – Community Briefing
- Community participant register – questionnaire
- Interviews – agency, council, community organisations, individual landholders
- Letter box drops – targeted areas
- Hazard definition workshops

Consultation Program

Activities Cnt'd

- Values, Threats and Issues workshop
- Options development workshop
- Councillor briefings prior to release of main draft reports – Study and Plan, and on final Plan
- Public exhibition of draft Study and Plan
- Direct notification of key community interests
- Information session on the draft Plan at local venues, with survey to guide responses
- Community meeting – overview of the Plan, implementation strategy

Project Program



Project Program

Stage 1 - Coastal Processes and Hazard Definition Study

- Data Compilation and Review – March to Early June 2004
  - Project Launch and 'Day on the Beach' – Mid May 2004
  - Present Data Compilation Report to TLECMC – June 2004 Meeting
- Existing and Future Studies – May to Mid Aug 2004
  - Targeted workshops – early July 2004
  - Draft Hazard Definition Study to TLECMC – Aug 2004 Meeting

Project Program

Stage 2- Coastline Management Plan

- **Coastline Management Options Analysis – Aug 2004 to Dec 2004**
  - Options Analysis – March to May 2004
  - Project Launch and 'Day on the Beach' – Mid May 2004
  - Present Options Analysis Report to TLECMC – Dec Meeting2004
- **Coastline Management Plan – Dec 2004 to Sept 2005**
  - Prepare Draft Management Study – Dec to Jan 2005
  - Present Draft Management Study to TLECMC– Feb Meeting 2005
  - Targeted workshops – Mar 2005
  - Present draft Management Plan to TLECMC – May Meeting 2005
  - Publicly exhibit Management Study and Plan – June 2005
  - Present summary of submissions to TLECMC – Aug Meeting 2005
  - Final Coastline Management Study and Plan to Council – Sept 2005

Up-Coming Events

Project Launch –
Cabbage Tree Bay Rockpool, 18 May 2004

- How Coastline Planning adds value to the management of a major community and natural asset
- Media and invited guests – Mayor, Members of Parliament, regional community representatives

Up-Coming Events

'Day on the Beach'
Focus on the Coast – Community Briefing,
Lakes Beach Surf Club, 22 May 2004

- 40 invited representatives of community groups with an interest in Wyong's coast
- Briefing, BBQ lunch and visits to key locations
- Project scope and planning process
- Reconnaissance issues tour

Project website and email

- wyongcoastline@umwelt.com.au
- www.umwelt.com.au/wyongcoastline

Questions

Coastal Zone Definitions

- The Coastal Policy
  - includes within coastal zone areas within the following criteria:
    - 3 nautical miles seaward of the mainland and offshore islands
    - 1 km landward of the open coast high water mark
    - 1 km around all bay estuaries, coastal lakes, lagoons & islands
    - 1 km around tidal waters of coastal rivers.

Coastal Zone Definitions

- Coastline Hazard Policy (Coastline Management Manual) recommends a study area for a coastline management plan to include:
  - All waters and submerged lands where existing and proposed human activities may impact on the shoreline and immediate environments.
  - All marine-derived coastal dunes, headlands and associated water bodies where existing and proposed human activities may impact on the shoreline and immediate environs.
  - The Manual also notes the area should extend outside the area of direct hazard to include all relevant Crown Lands used for coastline related purposes e.g. recreation, accommodation and access.

From Catho to Crackneck – what's in the study area?

Wyong Council has approximately 35 km of coastline, extending from Catherine Hill Bay to Crackneck Point at Bateau Bay. Nearly half of the coast is dominated by long sandy beaches – Birdie Beach and Tuggerah Beach, but there are also numerous small bays, high sandstone cliffs and rocky bluffs adding diversity to the landscape.

Coastline Management Plans deal with the management of the immediate coastal fringe – the interface between coastal processes and the land. For Wyong this includes:

- the first street parallel to the ocean or the extent of the 100 year coastal hazard zone (which ever is the greater) for urban areas and public reserves;
- foredunes and hind dunes; and
- areas that are identified as having a high probability of instability along cliffs and bluffs.

Most of the residential development along Wyong's coast is around the smaller bay beaches and bluffs, such as Bateau Bay, Toowoon Bay, Noraville and The Entrance. These areas are the main focus of the current project, together with development on the dunes behind some sections of the long sandy beaches.

Around these core areas of coastal process influence is an area which can affect the environmental quality of the coastline. This will include stormwater catchments, and other urban areas from which local people would visit the beaches, headlands and rock platforms. Land managed by National Parks & Wildlife Service (now part of Department of Environment and Conservation) is also part of the context area.

This project is not about Tuggerah Lakes. The management of the lakes and the lake entrance is being addressed through a separate but related process.

How to contact us

You can contact the project team in three ways.

The project consultants (Umwelt):

Pam Dean-Jones or Brad Snedden
Phone 4950 5322
Fax 4950 5737
PO Box 838 Toronto 2283
Email wyongcoastline@umwelt.com.au

Wyong Council's Project Manager:

Chris Puslednik
Strategic Planning Department
Phone 4350 5710
Mobile 0409 685799

Or you can find out about the project and submit comments on the special project web site www.umwelt.com.au/wyongcoastline

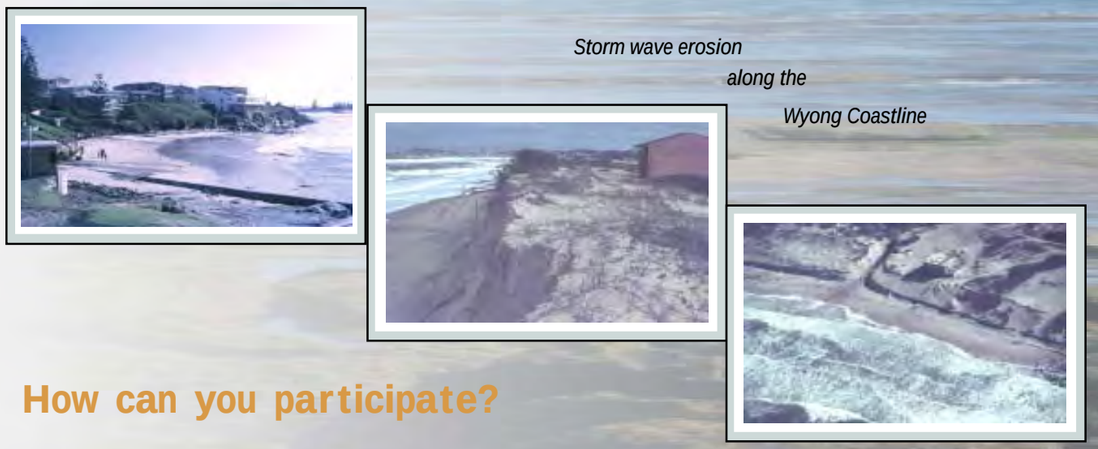
Introducing the Wyong Coastline Management Study and Plan

Wyong Council has commenced the preparation of a new Coastline Management Plan for Wyong Shire. Community input and feedback are welcome throughout the project and are vital to its success. This brochure explains the scope of the project and what to expect over the next 18 months as the Study and Plan evolve.

What's involved?

The project has three stages:

- Specialist coastal process and geotechnical studies to define the "Coastal Hazard Zone" for 50 year and 100 year planning periods. New maps of coastal hazards and hazard zones for Wyong's coast will be prepared and made available for comment.
- Analysis of information about the full range of coastline management issues. Natural and cultural features, environmental impacts and impacts on community safety and amenity will be considered.
- Preparation of feasible management options and evaluating which options offer the best opportunities for the coast as a whole. The outcome will be a Plan that provides both strategic direction and step by step guidance about key actions to achieve the community's goals for Wyong's coastline.



Storm wave erosion along the Wyong Coastline

How can you participate?

Your experience, observations and feedback will be very important parts of the project.

Photos, stories or other information about the coast will all help to build up a picture of what is important, and your comments will help to determine the types of management approaches that will be acceptable. You can contribute your suggestions at any time during the project. Please fill out the enclosed form, to assist the project team to communicate effectively with you or your group.

To find out about new project reports on coastline issues and to provide feedback, check the special project web site at www.umwelt.com.au/wyongcoastline. Further information brochures will be available both in hard copy and on the project web site.

The project team will seek your comments and feedback about suggested management options and activities at community meetings and workshops as the project progresses.

The project is expected to take about 18 months altogether, with the results of the hazard definition studies being available from early July 2004, and exhibition of a draft Management Plan in mid 2005.

Focus on the Coast

Why Prepare a Coastline Management Plan?

Dynamic coastal environments are important parts of the landscape for most Australians. About one quarter of the population of Wyong Shire lives along the narrow corridor east of the Tuggerah Lakes. However, the coastline also attracts thousands of visitors – from other parts of Wyong Shire, from neighbouring Council areas and from further afield. The Central Coast has been a favourite recreation and holiday destination for people from Sydney for generations. The population of Wyong Shire continues to have one of the fastest growth rates in NSW.

High recreational usage and rapid population growth place pressure on sensitive coastal landscapes. Coastal processes such as storm wave erosion of beaches and dunes and landslip on cliffs or bluffs have the potential to impact on community safety and enjoyment, highlighting the importance of community participation in the preparation of the Coastline Management Plan. The planning process helps Council and the community to understand:


The Entrance

- Which locations have special features that warrant conservation.
- How the coastline changes over time.
- Options for managing places that are susceptible to coastal erosion, by waves or cliff collapse.
- What's needed to provide safe access and safe recreation spaces for local people and visitors, and where user facilities should be placed to assist everyone to enjoy the coastal environment.
- Where special protection should be provided for coastal community infrastructure such as surf clubs.
- What emergency procedures need to be in place to respond to major storms or other events.
- How to minimise urban development impacts on the coast, such as weed infestation, stormwater drains, land clearing, car parks and other structures on dunes.
- The costs of providing what the community wants for the coast, and where state and local government should spend their money.


Norah Head


Toowoon Bay

The Wyong Coastline

A New Coastline Plan for Wyong Council

Project Launch at Cabbage Tree Bay Rockpool

18 May 2004, 9.30 am to 10.30 am

Agenda

9.30 am **Welcome and Introductions**
Chris Puslednik, Strategic Planning Engineer, Wyong Council

9.35 am **Wyong Council's commitment to sustainable management of the coastline**
Neil Rose, Deputy Mayor of Wyong

9.45 am **NSW Government initiatives for a sustainable coastline: Partnerships with local government**
Neil Kelleher, Senior Natural Resource Officer, DIPNR

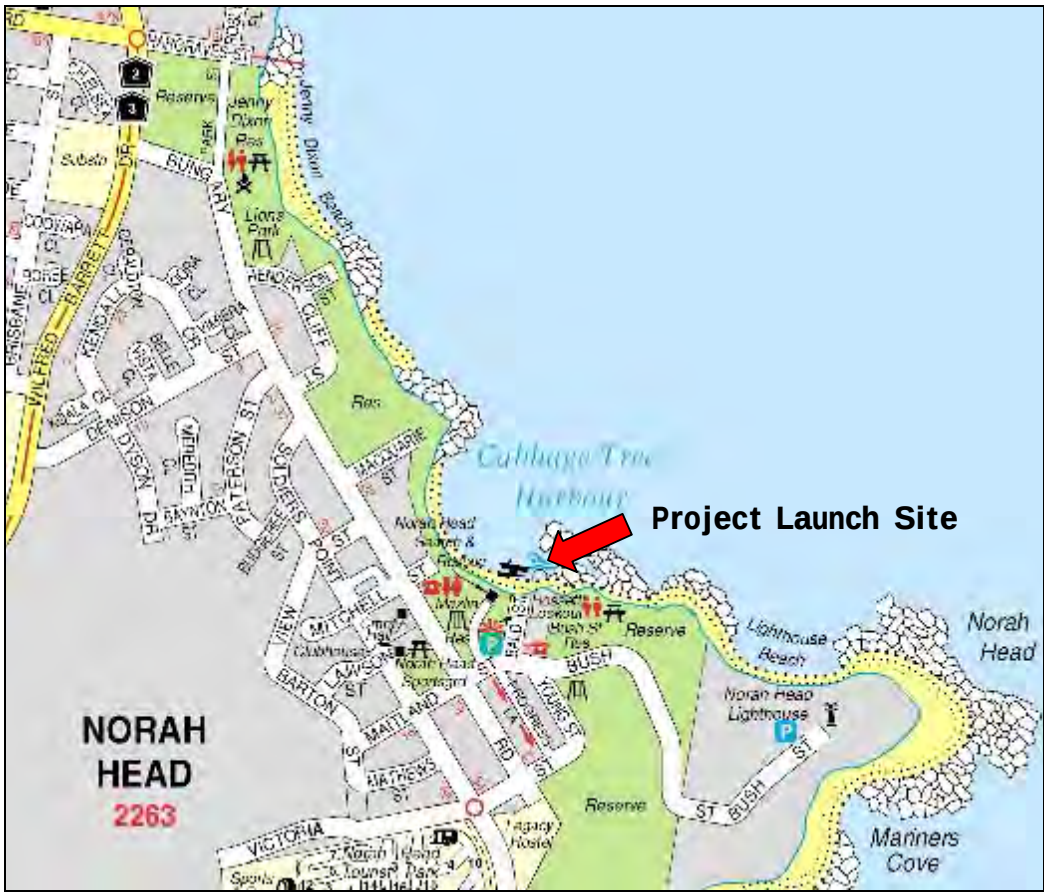
9.55 am **Key start up messages for the program – what will be happening over the next few months?**
Chris Puslednik, Strategic Planning Engineer, Wyong Council

10.05 am **Typical coastline management issues - residences, rock platforms, bluffs and boat ramps: Cabbage Tree Bay (short walk along the Bay)**

10.15 am **Questions and Discussion**

10.20 am **Light refreshments will be served**

Directions



Travelling from the North and West (Budgewoi and Toukley):

1. From Wilfred Barrett Drive, turn first left into *Bungary Road.*
2. Turn left into *Maitland Street.*
3. Follow *Maitland Street* around to the left into *Bald Street.*

Travelling from the South (The Entrance):

1. From *Wilfred Barrett Drive*, turn right into *Denison Street.*
2. Turn right into *Bungary Road.*
3. Turn left into *Maitland Street.*
4. Follow *Maitland Street* around to the left into *Bald Street.*

Parking:

There is parking available at Rossett Lookout on the corner of Maitland Street and Bald Street. Additional parking is available to the left of the boat ramp on Bald Street.

Project Launch:

The Project Launch will be held at the Cabbage Tree Bay Rockpool, Norah Head. Pedestrian access to the Rockpool is available via a pathway situated to the right of the boat ramp on Bald Street.

Welcome to the first community briefing about the new Wyong Coastline Management Plan

Lakes Surfclub

22 May 2004, 10.00 am to 3.00 pm

Agenda

You are welcome to meet the project team over coffee, tea or a cool drink from 9.45 am.

10.00 am Welcome and Introductions, confirm who will be part of the afternoon issues reconnaissance (Neil Kelleher, DIPNR)

10.10 am The study area - a quick virtual tour: what's in and what's out (Umwelt and Wyong Council)

10.25 am Why prepare a Coastline Management Plan? (Umwelt)

10.30 am A partnership approach: opportunities for involvement

Questionnaire – help us to understand the perspective of your group (Umwelt)

10.40 am Steps in preparing the Coastline Management Plan (Umwelt)

- Previous studies and consultation
- Relationship to estuary planning
- Objectives of this project
- Project timeframes
- Major milestones

10.45 am Questions and Discussion – please also feel free to ask questions at any time during the morning

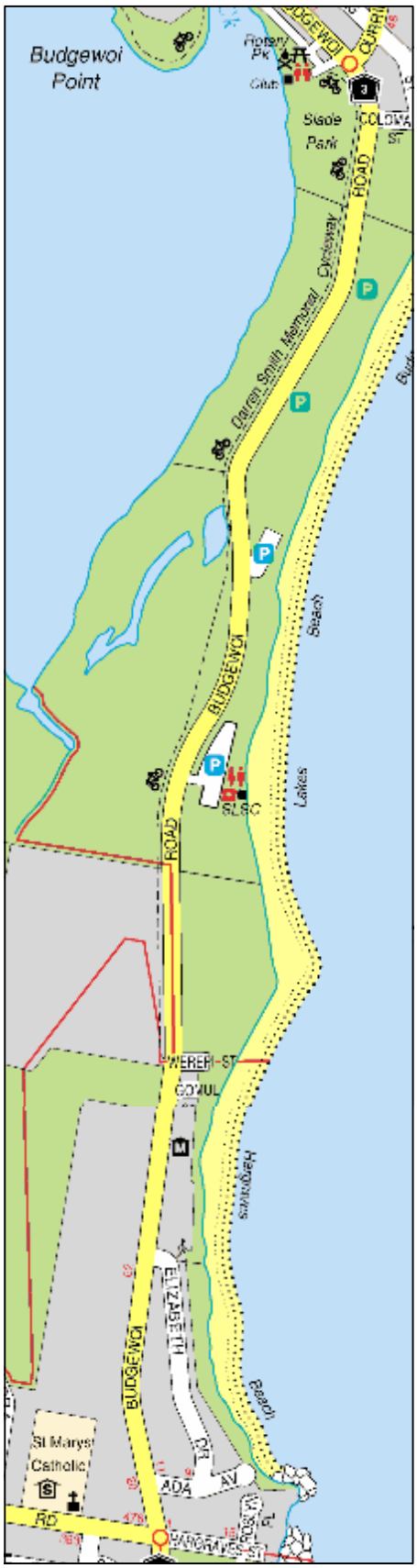
11.00 am Upcoming events

The briefing will be followed by a light lunch.

From 12 noon, site inspections will be held at the following locations along the coast. If you would like to highlight issues about the management of any of these places, please meet us there. A map showing meeting locations is on the back of this agenda.

12 noon	Budgewoi Beach
12.30 pm	Cabbage Tree Bay and Norah Head
1.00 pm	North Entrance
1.30 pm	The Entrance
2.00 pm	Toowoon Bay
2.30 pm	Crackneck Point

Focus on the Coast



Directions

Travelling from the South (The Entrance):

1. From *Wilfred Barrett Drive*, continue through the roundabout into *Budgewoi Road*.
2. Travel 1.7 km along *Budgewoi Road*.
3. The Lakes Beach SLSC is located on the right.

Travelling from the West (Toukley):

1. From *Main Road*, turn left at the roundabout into *Budgewoi Road*.
2. Travel 1.7 km along *Budgewoi Road*.
3. The Lakes Beach SLSC is located on the right.

Travelling from the North (Budgewoi):

1. From intersection of *Budgewoi Road* and *Ourringo Road*, travel south for approximately 1.6 km.
2. The Lakes Beach SLSC is located on the left.

Project Team

Consortium Structure

Umwelt
Project Consultants

SMEC
Coastal Process/ Hazard Definition
Subconsultants

Shirley Consulting Engineers
Geotechnical Engineering
Subconsultants

What we'll be covering today

- Introduction to the project
- How the study area is defined
- Importance of community participation – roles and responsibility
- What's involved in preparing the Coastline Management Study and Plan
- How long will the process take
- What can you expect to see at the end of the process

The Study Area – Definition of the "Coastal Zone"

- Different perceptions of the coast for different purposes
- NSW Coastal Policy
- Coastline Hazard Policy
- Regional planning for coastal areas – whole LGAs
- Coastal catchments

Coastal Zone Definitions

- The Coastal Policy
  - includes coastal zone areas within the following criteria:
    - 3 nautical miles seaward of the mainland and offshore islands
    - 1 km landward of the open coast high water mark
    - 1 km around all bay estuaries, coastal lakes, lagoons and islands
    - 1 km around tidal waters of coastal rivers.

Coastal Zone Definitions

- Coastline Hazard Policy (Coastline Management Manual) recommends a study area for a coastline management plan to include:
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  - All marine-derived coastal dunes, headlands and associated water bodies where existing and proposed human activities may impact on the shoreline and immediate environs.
  - The Manual also notes the area should extend outside the area of direct hazard to include all relevant Crown Lands used for coastline related purposes e.g. recreation, accommodation and access.

Concept of “core” and “context” areas

- Areas directly affected by coastal processes – waves, wind, coastal bluffs
- Coastal subcatchments
- Crown land used for “coastal’ activities
- Lands managed by DEC (National Park and Nature Reserve)

A quick tour of Wyong’s Coastline

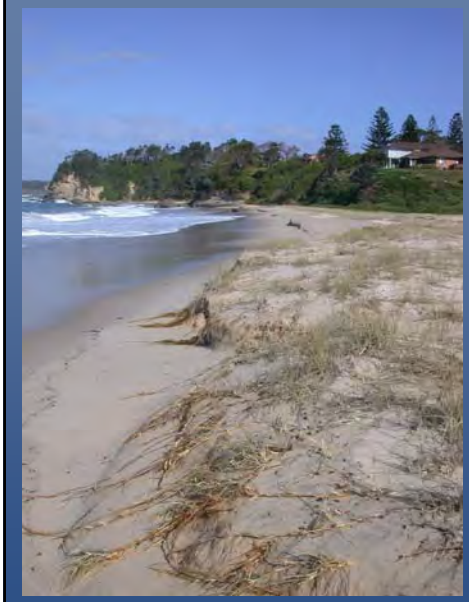
Budgewoi Beach

Lakes Beach

Lakes Beach

Hargreaves Beach

Hargreaves Beach



Hargreaves Beach

Elizabeth Drive

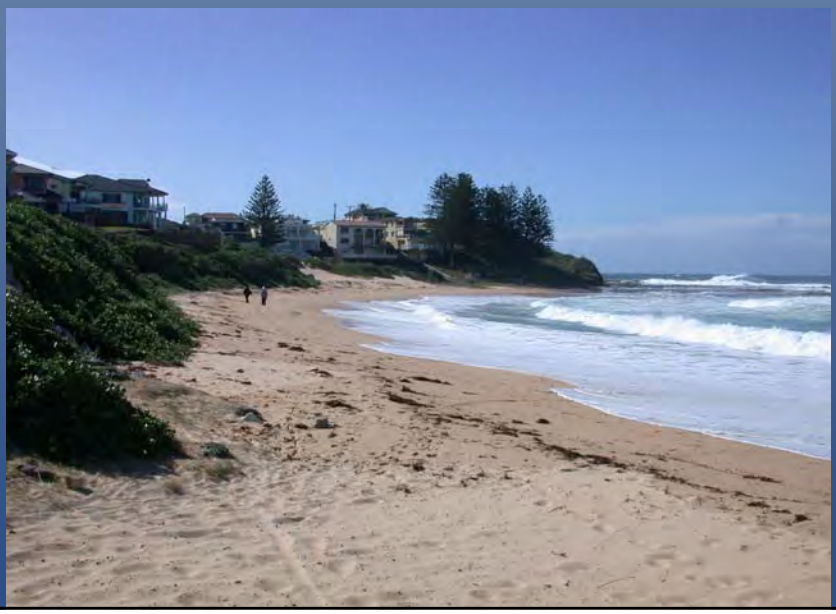
Weripi Street

North Shelly

Toowoon Bay

Toowoon Bay

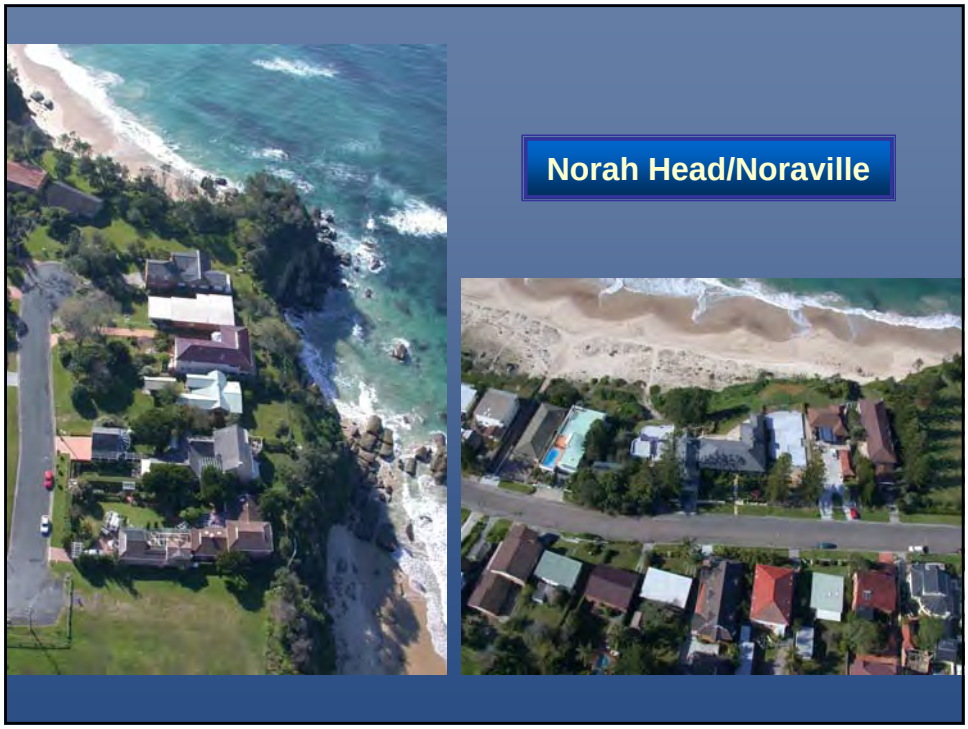
Blue Bay



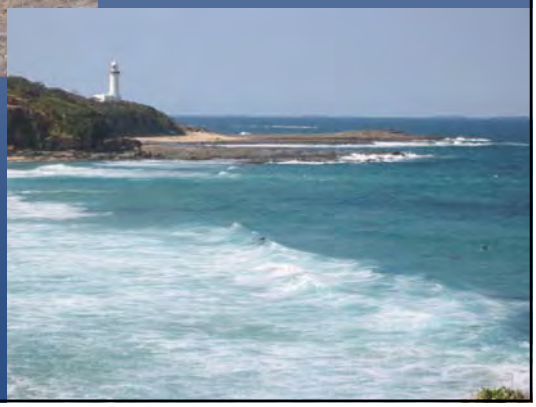
Cabbage Tree Bay

Cabbage Tree Bay


Norah Head

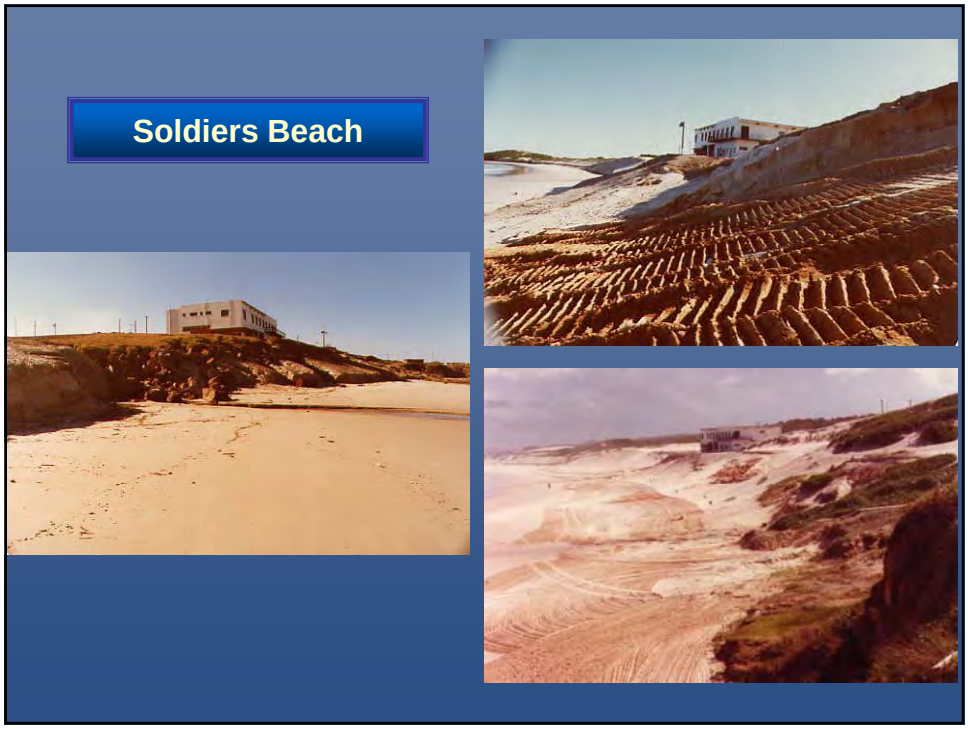

Norah Head/Noraville

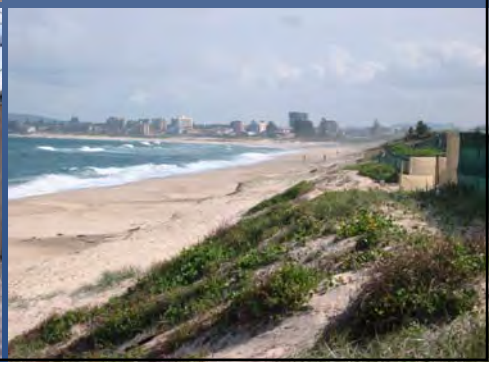
Norah Head



Soldiers Beach


Soldiers Beach

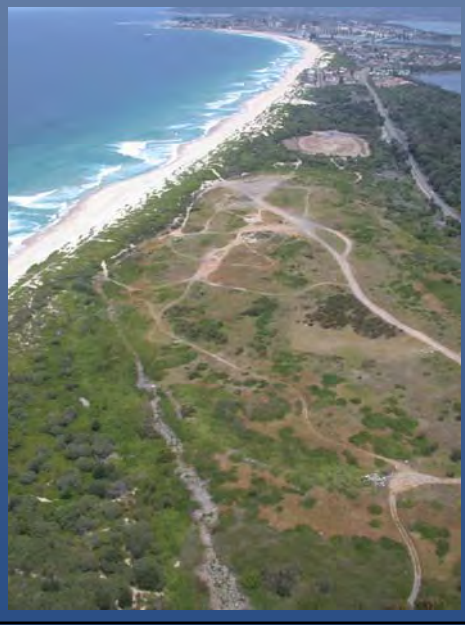

Soldiers Beach



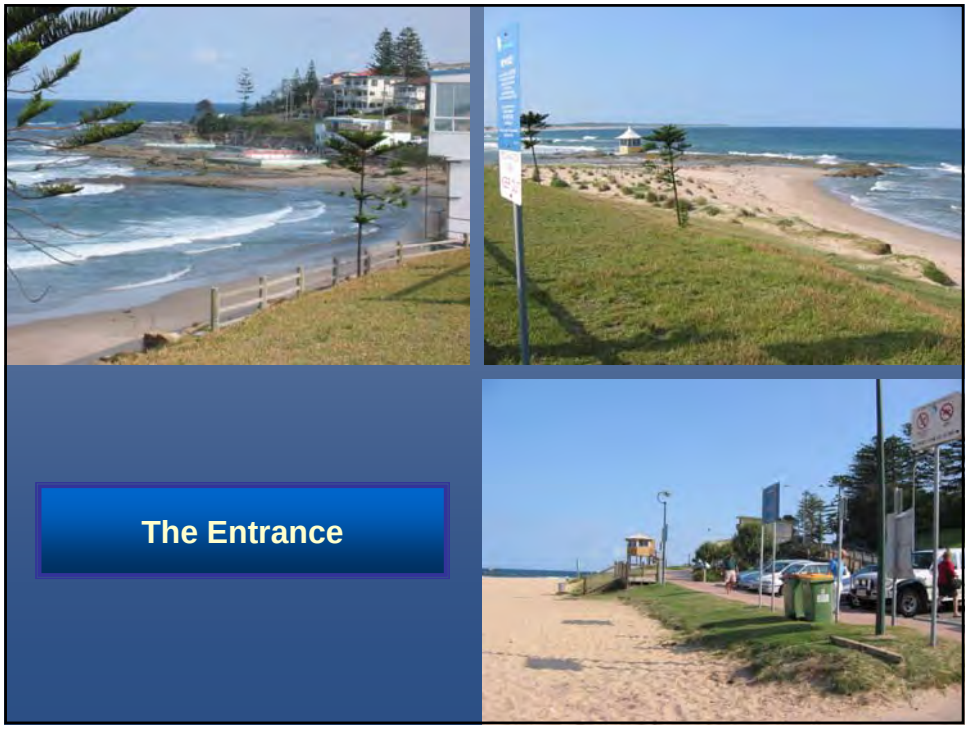
Tuggerah Beach/
The Entrance North

Tuggerah Beach/
The Entrance North

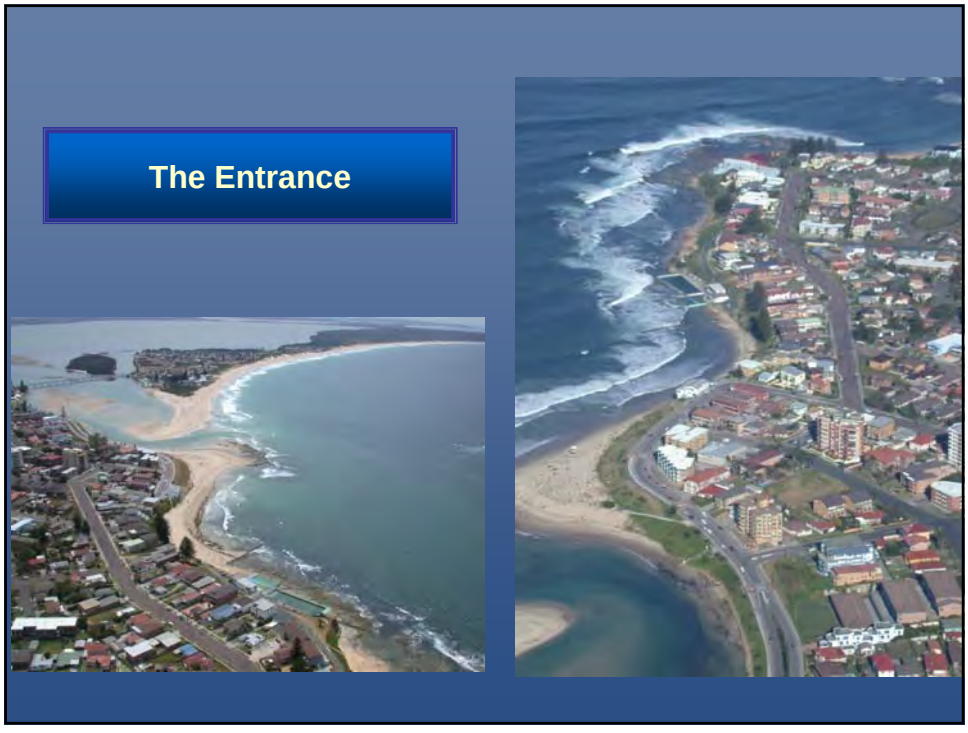
Tuggerah Beach/The Entrance North



Tuggerah Beach/ The Entrance North



The Entrance



The Entrance

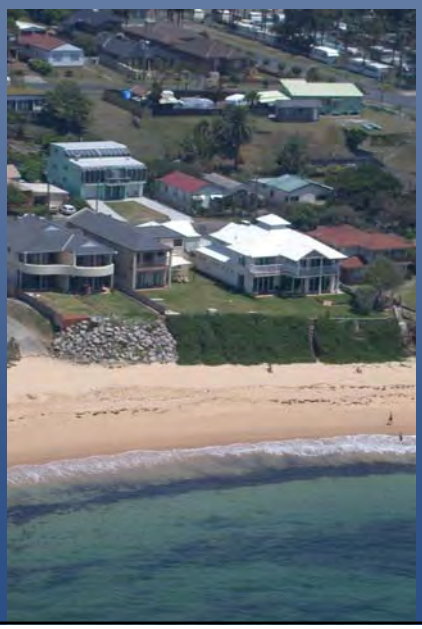
The Entrance Surf Club

Shelley Beach

Shelley Beach

Shelley Beach

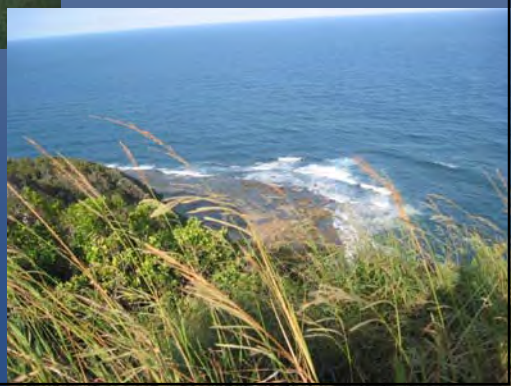
Blue/Toowoon Bay



Blue Bay

Blue Bay

Crackneck



Crackneck

Crackneck

Why Prepare a Coastline Management Plan?

- Value of the coastal landscape to residents and visitors
- Urban development and recreational pressures on coastal ecology
- Coastal process impacts on community assets
- Planning for the future – solutions require integration across environmental, social and economic values and issues
- A prioritised schedule of actions for the whole coast

Why Prepare a Coastline Management Plan?

- The NSW Coastline Management Program Framework:
  - NSW Coastline Hazard Policy (1988)
  - NSW Coastline Management Manual (1990)
  - NSW Coastal Policy (1990 > 1994 > 1997)
- Coastline Management made the responsibility of Councils
- **Financial assistance - 1:1 ratio**
- Amended legislation to provide immunity from liability in respect of advice or acts done in good faith in respect of coastline hazard matters, provided they follow the principles within the manual
- Amended legislation to provide rate relief for vacant land that cannot be developed due to planning decisions made in response to coastal processes

Project Framework

NSW Coastline Management Framework

- Coastline Management Manual (1990) and Coastline Hazard Policy (1988)
  - Draft Revised Coastal Zone Management Manual not complete.
- NSW Coastal Policy 1997 provides direction for application of the Plan
- Coastal Protection Act 1979
- SEPP 71
- Other key legislation:
  - EP&A Act 1979 – LEP, DCPs
  - Crown Lands Act 1989
  - Local Government Act 1993

A partnership approach – why community input is fundamental

- The coast is a whole of community asset
- Multiple managers – importance of shared concepts, ideas
- The outcome of the planning process will touch almost everyone in the community
- Residents and coastline users hold important information that is not in written records or technical reports
- Ownership and responsibilities – a collaborative attitude
- Expectations – what's negotiable and what's not
- Evaluation of options
- Adaptive management – importance of feedback about progress

Council's goals for project consultation

- Provide ways for the community to participate
- Identify community concerns and values
- Gather information from the community
- Inform the community about possible actions, alternatives and consequences
- Seek community feedback
- Achieve satisfactory outcomes for all parties
- Develop and maintain credibility

Who is "the community" for this project?

- Residents living within the core study area and context study areas (ie east of Tuggerah Lakes)
- Other residents of Wyong Shire and adjoining LGAs – local visitors to the study area
- Part time residents and visitors – Sydney, etc
- Members of community social, sporting and service groups – age and gender differences
- Members of community conservation groups/activists – local and regional

Who is “the community” for this project?

- Coastcare members
- Traditional Owners and Local Aboriginal Land Council members
- Members of Council Committees
- State agency representatives
- Councillors
- Scientific experts

Activities

- Committee briefings
- Project launch – media and community profile
- Media releases – project and event driven
- Information brochures – A4 colour
- Web site – for access to all project documentation
- Focus on the Coast – Community Briefing
- Community participant register – questionnaire

Activities (cont)

- Interviews – agency, Council, community organisations, individual landholders
- Letter box drops – targeted areas
- Hazard definition workshops
- Values, Threats and Issues workshop
- Options development workshop

Activities (cont)

- Councillor briefings prior to release of main draft reports – Study and Plan, and on final Plan
- Public exhibition of draft Study and Plan
- Direct notification of key community interests
- Information session on the draft Plan at local venues, with survey to guide responses
- Community meeting – overview of the Plan, implementation strategy

Project website and email

Email: wyongcoastline@umwelt.com.au

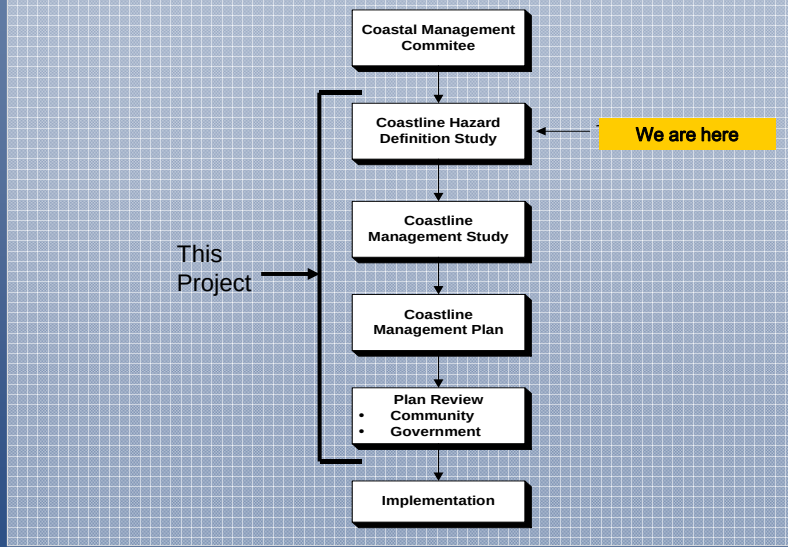
Web: www.umwelt.com.au/wyongcoastline
or
Via Council's website

Survey Form

Information that will help us to keep you informed

Steps in preparing the Coastline Management Plan

Project Framework



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Previous Studies and Consultation

- Previous coastal hazard definition studies
- Previous management option and feasibility studies for engineering works – sea walls, training walls and cliff stabilisation
- Preliminary Coastline Management Study – Urban Areas (ERM 2002) (draft report only)
- Community newsletters and meetings associated with the ERM study (February 1999) – meetings at Norah Head and The Entrance

Issues raised by community representatives in 1999

- Management of erosion at Gravelly Beach/Pebbly Beach (Norah Head)
- Restoration of rainforest pockets at Norah Head
- Quarrying (Cliff Street) – poor rehabilitation, erosion problems
- Clarity about who manages various land parcels (Council, Darkinjung, State Govt, etc), and how various plans will fit together

Issues raised by community representatives in 1999

- Rock walls or groynes (or artificial headlands) for Curtis Parade – erosion implications elsewhere?
- Cabbage Tree Bay – wave erosion or stormwater? Impact of bitou bush on cliff stability.
- Priorities for management – protect property or recreation areas?

Issues raised by community representatives in 1999

- Beach access – potential for some places to be fenced off?
- Purchase of at risk properties or construction of rock walls?
- Conflicts between views and revegetation of dunes
- Which plants should be used when bitou bush is removed?

Issues raised by community representatives in 1999

- Appropriate fencing for cliff tops – safety and visual amenity
- How to manage major kelp deposition on the beach
- Stormwater management and discharge points – eg affects beach water quality at Toowoon Bay, also dune and cliff stability in other locatons (eg Jenny Dixon Beach)

Issues raised by community representatives in 1999

- Relative management priorities of heritage and other buildings
- Implementation time for recommended actions
- Relationship between this study and tourist development – major employer in the area
- Past poor management actions and implications
- Rabbits adding to destabilisation of dunes

Issues raised by community representatives in 1999

- Sources of sand if beach nourishment is needed?
- Locations of surf clubs in high hazard areas
- Local observation of beach erosion – not always compatible with hazard predictions
- Social impact assessment needed for any compulsory acquisition of land

Issues raised by community representatives in 1999

- Safety concerns at The Entrance when sand is eroded – exposed rock forces beach closures. Also affects Surf Club membership and viability
- Can Council use a rate levy to fund compulsory acquisition?
- Relationship between channel dredging and beach nourishment (note also sand quality)

Objectives of this Project

- Coastline Management Plan – ecologically sustainable, practical, locally targeted, consistent with State natural resource management framework
- Deal with short and long term challenges – sea level rise
- Explore broad range of options – innovation and consultation
- A rigorous and transparent evaluation process
- Costed and implementable actions, reconciling community aspirations and statutory obligations

Scope of Works (as revised)

Stage 1- Coastal Processes and Hazard Definition Study

- **Data Compilation and Review**
  - Compilation and review of existing data
  - Project Launch and Community Briefing Day
  - Draft Data Compilation and Review Report to TLECM for review
  - Final Data Compilation and Review Report
- **Existing and Future Studies**
  - Coastal Processes / Hazard Definition assessment and Geotechnical Assessment, which includes:
    - Review of existing hazard zones
    - Targeted Community workshops
    - Assessment of hazard zones for areas not previously undertaken e.g. Lake Beach SLSC Building
  - Coastal Hazard Maps (Hazard zones for beach and cliff/bluff areas)
  - Draft Hazard Definition Study to TLECM for review
  - Final Hazard Definition Study

Scope of Works (as revised)

Stage 2 – Coastline Management Plan

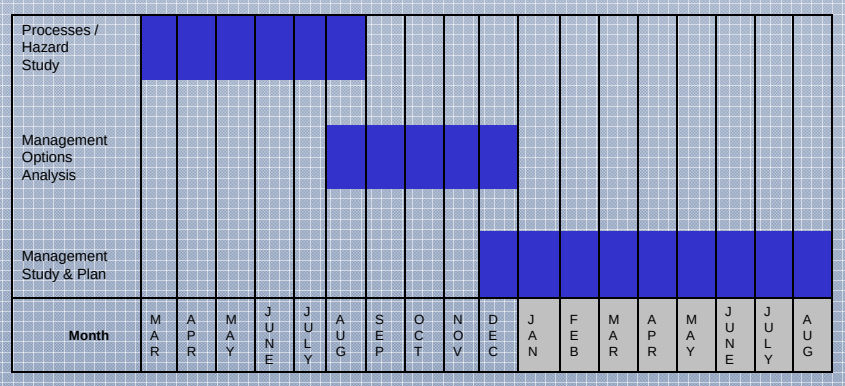
- **Coastline Management Options Analysis**
  - Assess Considerations for Development of Management Options
    - Land Tenure, Use and Management
    - Aesthetic and Ecological Factors
    - Recreational Amenity
    - Socio-Economic Issue
    - Heritage and Cultural Values
  - Broad Community Workshop
  - Prepare options for coastal compartments, focusing on urban areas, with semi-natural and natural areas at a more strategic level.
  - Draft Options Analysis Report to TLECM for review
  - Final Options Analysis Report

Scope of Works (as revised)

Stage 2 – Coastline Management Plan

- **Coastline Management Study**
  - Preparation of Draft Management Study
  - Draft Coastline Management Study to TLEMC for review
  - Final Draft Coastline Management Study
- **Coastline Management Plan**
  - Prepare Draft Coastline Management Plan
  - Targeted workshops during preparation of Draft Plan
  - Draft Coastline Management Plan to TLEMC for review
  - Final Draft Coastline Management Plan
  - Presentation to Council on Draft Management Plan
  - Public Exhibition of Draft Coastline Management Study and Plan
  - Prepare submissions report for Council
  - Finalise Study and Plan in light of submissions

Project Timeframe



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Project Timeframe and Milestones

Stage 1 - Coastal Processes and Hazard Definition Study

- **Data Compilation and Review – March to Early June 2004**
  - **Project Launch and 'Focus on the Coast' – Mid May 2004**
  - **Present Data Compilation Report to TLECMC – June 2004 Meeting**
- **Existing and Future Studies – May to Mid Aug 2004**
  - **Targeted workshops – early July 2004**
  - **Draft Hazard Definition Study to TLECMC – Aug 2004 Meeting**

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Project Program

Stage 2- Coastline Management Plan

- **Coastline Management Options Analysis – Aug 2004 to Dec 2004**
  - Options Analysis – March to May 2004
  - Project Launch and 'Focus on the Beach' – Mid May 2004
  - Present Options Analysis Report to TLECMC – Dec Meeting 2004
- **Coastline Management Plan – Dec 2004 to Sept 2005**
  - Prepare Draft Management Study – Dec to Jan 2005
  - Present Draft Management Study to TLECMC– Feb Meeting 2005
  - Targeted workshops – Mar 2005
  - Present draft Management Plan to TLECMC – May Meeting 2005
  - Publicly exhibit Management Study and Plan – June 2005
  - Present summary of submissions to TLECMC – Aug Meeting 2005
  - Final Coastline Management Study and Plan to Council – Sept 2005

Questions & Discussion

Wyong Coastline Management Study
Community briefing day – notes from discussion during site inspections

22 May 2004

Introduction

On Saturday 22 May 2004, a briefing session for community groups with an interest in the management of the Wyong coastline was held at Lakes Beach Surf Club. The briefing was followed by a field inspection of several sites along Wyong's coast. Community group representatives were invited to attend all or some of the inspection sites, depending on their specific interests. Most people attended at least half of the sites.

This event was the first community briefing for the Wyong Coastline Management Study and Management Plan and was designed to introduce the project to key community groups. As the project progresses, there will be other opportunities for residents, visitors and other interested people to contribute information, ideas and feedback.

Twenty two community group representatives attended the briefing, in addition to Chris Puslednik (Wyong Council), Neil Kelleher (DIPNR) Pam Dean-Jones and Brad Snedden (Umwelt). Interest group types included Coastcare, Precinct Committees, Progress Associations, Fishing Clubs, Surfrider Foundation, Dunecare, Residents and Ratepayers Association, Bushcare, SES, Norah Head Search and Rescue and Norah Head Lighthouse Community Trust.

These notes summarise comments and suggestions made by the various community representatives, particularly during the afternoon visits to Budgewoi Beach, Cabbage Tree Bay, North Entrance, The Entrance, Toowoon Bay and Crackneck Lookout.

The notes reflect the comments made by community representatives who attended the briefing and site inspections, and are not necessarily the views of Council or other coastline managers such as NPWS (DEC) or DIPNR.

Wyong Council will soon provide further information in relation to some of the issues or observations noted by the community representatives. This information will also be available on the project web site.

In addition to input provided during the briefing and field inspection, community attendees were invited to fill in a short registration form to provide further details about the interests and priorities of their group. The registration form was also forwarded to other community groups who were not able to attend the briefing.

Twenty two community group representatives have completed the survey form. The information provided has been entered in a data base.

Some preliminary outcomes from the survey are provided at the end of the field notes in this document.

All of the information shared during the briefing and field inspections will contribute to the preparation of the Wyong Coastline Management Study.

Notes from community comments and discussion at beach inspection sites

1. Budgewoi Beach

The local Dunecare group has worked hard at this site for several years. We viewed the beach and coastal outlook from a timber viewing platform on the crest of the reshaped dune. There is also a boardwalk through the bushland on the landward side of the dune. Access is via an unsealed road and a moderately sized unsealed car park.

In the 1980s this part of the beach had a high sheer drop after extended erosion. The dune was reshaped to a lower profile, and revegetated with dense ground cover plants on the exposed surfaces. Higher shrubs and small tress have been established on the sheltered landward side of the dune. Dunecare groups are very proud of their achievements at this site and several people commented that a similar approach would be beneficial at North Entrance. Rod Kidd has provided good advice and support to the Dunecare Group, and they praised the Dunecare Manual (DLWC 2001).

Local comment was that the Budgewoi dune has been reasonably stable since reshaping; they also noted that there is frequently a bar in the surf off this part of the beach, which helps to reduce the energy of waves reaching the shoreface.

Community representatives noted that Budgewoi Beach is broken into smaller “compartments” by rocky reefs (2 reefs control beach plan form - not one long zeta curve).

The beach is popular with locals for swimming, surfing and recreational fishing. There is some vandalism of signage around the car park.

2. Cabbage Tree Harbour

Cabbage Tree Bay is one of only three boat launching ramps on the central coast providing access to the ocean. The other two ramps are located at Swansea (on the channel at Blacksmiths), and at Terrigal. There is also limited access across the beach at Toowoon Bay. Most of the boats launched at Cabbage Tree Bay are 4-7 metres in length. The ramp has two side by side lanes and a third lane across the beach. The ramp is very heavily used in summer, with people queued up to get onto the ramp.

It was suggested that the Cabbage Tree Bay ramp is not very safe in heavy seas; - people's boats get washed off the ramp. The bottom of the ramp also gets sanded up at times and vehicles can get bogged in the sand. The Norah Head Search and Rescue station keeps records of all its members going in and out (overlooks the bay and they sign in and out); they've also had to help pull out a few boats. Community representatives suggested that etiquette on the ramp gets a bit strained in peak periods. People are reluctant to move to let the rescue boat out.

Other users of Cabbage Tree Bay include surfers – over the reef in high wave conditions.

A dive school also uses the bay regularly for snorkeling and scuba training as there are often good fish to observe around the reef. Dive school operators co-operate with the Search and Rescue station volunteers in relation to safety issues during high usage periods on the ramp (ie there can be a lot of boats milling around in the bay).

Other pedestrian access ways to Cabbage Tree Bay and Norah Head are through the Bush Street Reserve (rainforest area), the Lighthouse and the stairs which begin at a café on Bush Street (to the pool). It's possible to walk a pleasant circuit via these routes.

Local residents recalled that there used to be a rock wall and jetty in the bay years ago. Some of the rocks from the wall were later used to make the outside wall of the rock pool.

There is a fish cleaning station adjacent to the boat ramp. Locals said they thought drainage from the cleaning table is connected to the sewer (and there is an inspection point next to the table). They noted that before the fish cleaning facility was installed, people used to clean their fish on the rocks/beach and there was often fish offal spread along the beach.

It was also noted that the sewer pump station has an overflow for peak storm flows (but doesn't appear to have any storage). It was suggested that if overflows do occur from the sewerage system at this location, there may be water quality issues in the Bay at certain times.

A community representative noted that the grassed area seaward of the Volunteer Coastal Patrol building is suffering from slump and four to five years ago they had constructed a sleeper seawall at the base of that slump in an attempt to protect it from wave erosion. Those sleepers have been buried up to 6 feet under the sand, but sand volumes on the beach are very variable.

The representative of Ocean and Coastal Care Initiatives commented that the rock platform at the south of Cabbage Tree Harbour (ie around the northern side of Norah Head) had notably deteriorated over the past five years from over-use and collection of shell fish.

3. The Entrance North

The inspection was made from in front of North Entrance Surf Club. This provides a good view of The Entrance North peninsula, From the Surf Club, blow outs on the dune face are clearly visible further along the beach (eg at Coogee Avenue, sand has blown through almost to the main road). Residences are constructed very close to the beach at several locations along the peninsula. South of the surf club, houses on the foredune are constructed on piles, but are still considered to be threatened by storm waves. Even in small storms, the dune cuts back very close to houses. Local people also said that in big storms, waves break over the frontal dune. It was suggested that houses at Curtis Parade had been inundated by storm waves in the past, but not to

the extent of structural damage. No information on dates or extent of this inundation is currently available.

A comment was made regarding the beach accesses at The Entrance North. These access ways suffer from major "blow-outs" which appear to exacerbate beach erosion, as well as cause access issues with the amount of sand that builds up at the rear of the access way.

It was also suggested that new higher density development is filling in the back beach "wetland" areas at The Entrance North.

Local Dunecare members thought that the dunes around the Surf Cub at The Entrance North should be reshaped like the one at Budgewoi and planted with dense ground covers to stabilise the surface. There was some discussion about the merits of "zig zagging' access tracks across the dune in these locations where there is a high risk of wind erosion, to better trap the sand and prevent major blowouts.

Dunecare members said that they are currently working on a project with the Glenvale School which is located behind the dune at The Entrance North. Dunecare uses part of the school site for their plant nursery, and is working towards the construction of a path from the school to the dune crest, so children in wheelchairs can be brought up to see the beach from a viewing platform.

There was discussion regarding the issue of car parking at The Entrance North. During peak periods, cars are parked along the beach side streets which can become extremely congested. It was suggested that this is also an issue for other beaches. (eg Soldiers Beach) As with other locations, there are ongoing security issues for vehicles parked in Surf Club car parks.

A comment was made regarding a bad rip that local residents consider to be "permanent" at North Entrance Beach opposite the Dunleith Caravan Park.

There was some discussion at this site about the impact of dredging in the lake entrance and whether or not it provided any stability benefits for the North Entrance Beach. Residents commented that their understanding is that Council has approval only to place dredged sand on the North Entrance Beach, but they expressed concern that the beach south of the lake entrance would erode. Residents from The Entrance North suggested that some sand that was placed on the dune in front of North Entrance properties from lake dredging was "contaminated." The sand was described as having a very strong odour.

In relation to sand nourishment projects the Department of Infrastructure Planning & Natural Resources (DIPNR) has put a case to the NSW Government to allow access to offshore sand supplies for beach nourishment, rather than having to rely on the lake entrance/beach/dune sediment compartment.

4. The Entrance

The inspection site was near The Entrance Surf Club, with a view across to North Entrance, and of the current entrance channel dredging and sand pumping work.

Some people said that they feel that The Entrance Beach is a more secluded beach than other parts of the coast, in that beach goers are often able to move further north from the surf club area and choose an area to sit that allows them plenty of space to go undisturbed.

Community representatives remembered that the Surf Club was undermined by wave erosion in the 1978 storm. More recently, Council has built the promenade along the southern side of the lake entrance channel, to the headland. The pathway was slumping several years ago and Council has now built rock walls in front of the promenade pathway. This is a high wave energy beach (except across the rock reef at the lake entrance) and in high seas, waves bounce off the rock wall mobilising sand at The Entrance Beach. Some sand is moving into the entrance channel.

Some long time residents said that they had heard that in the big storms of the 1940s, waves cut through the Entrance and passed right up to The Entrance Hotel.

The old houses built along The Entrance Beach (north side) were made of "sand bricks". A property called "Dunleith" was owned by Mrs Duffy from the early 20th century. The Dunleith Caravan Park has a copy of the original navigation plans for the Entrance channel, dating to early 20th century. Locals believed that this channel was 1-1.5m deep.

Locals also said that some of the land on northern side of the entrance channel was reclaimed after major storm in 1978 and the current landform does not necessarily reflect the natural landform. It was also suggested that a better understanding of these changes can be gained by reading 'The Entrance Long Ago' (published by Wyong Shire Council 1978 and written by A McClure) and 'Tuggerah Lakes Way Back When' (Dr Anthony Scott, 2002).

Community representatives said that The Entrance Ocean Baths, built about 1920, are now heritage listed. Council is planning a major refurbishment program during winter 2004.

At this location, several people noted their dissatisfaction with the use of Norfolk pines along the walkway at The Entrance. They said that they had heard that some residents had actually cut down the tress because they were concerned about losing their views. It appears that Norfolk pines have been planted around the Entrance for many years (particularly at North Entrance from the 1930s) and they do seem to have a beach side iconic status. Despite this, some community representatives noted that Norfolk pines are not a local species, and may not be appropriate for locations where there are residences immediately across the street. They thought it was important to stabilise the ground surface as much as provide shade. Dunecare representatives thought coastal groundcovers and lower shrubs would be preferable.

Some community representatives commented that Little Terns nest on North Entrance Beach.

Some community representatives pointed out that the "temporary" life saving stations at The Entrance Beach are not used by the surf life savers. They felt that the presence of the structure raises an expectation amongst the community or beach goers that it is safe to swim at this location (rather than in front of the Surf Club). Some members of the community have suggested that a life saving station should also be built on Tuggerah Beach at the North Entrance. Others thought that such a structure would create similar uncertainty about safety, unless it was staffed at all times.

5. Toowoon Bay

This is a sheltered beach with rock reefs providing protection from high seas. The rock reefs extend across the majority of the northern portion of Toowoon Bay and this rock shelf is connected to the mainland with a tombolo (or sand spit).

Kims Resort (beach side accommodation) fronts the beach at Toowoon Bay and includes a densely vegetated beach face.

Community representatives commented that whilst it is not possible to directly see the residences at Blue Bay from the boat ramp site it is known that there has been some *ad hoc* sea wall construction in front of some properties.

The community representatives commented that Council has previously tried to remove bitou bush in front of properties at Blue Beach, but some residents complained. They thought that part of the problem was linked to consultation prior to the works.

It was suggested that beach cleaning is an issue here and at some other beaches – some people think it should be done everywhere, others think that it exacerbates beach erosion. (eg it was suggested that beach cleaning is not done at North Entrance Beach, for this reason), but Shelly Beach and Lakes Beach are cleaned regularly.

Local residents advised that the Surf Club at Toowoon Bay is about to be rebuilt, more or less on the same site (will also incorporate the public amenities building).

There is a relatively informal "boat ramp" at Toowoon Bay, but boats have to be pulled across the sand. When there is a lot of sand on the beach, boats have to be pulled up to 150 metres, sometimes over a steep drop off at the seaward end. Water access is difficult except for small boats. Some locals say that they have seen boat owners trying to drag vessels across the sand with a rope and hook. If the rope breaks, the hook flies like a missile and it is claimed that on one occasion a hook has hit the surf club garage door approximately 100 metres away.

There were also some comments about antisocial behaviour and unauthorised use of the boat launching access at Toowoon Bay. Concern was expressed about the boat ramp providing access to the beach for 4WD vehicles. Some people noted that previously, the idea of closing the access at night has been raised, however, this creates difficulty for legitimate boat users, particularly recreational and commercial fishers who like to launch their boats early in the morning before dawn, which would be when the gate is locked.

6. Bateau Bay Bushcare site

Local Bushcare representatives said that they consider the Bateau Bay foreshore reserve area (part of Wyrrabalong NP) is a big success story. They said that the reserve has been revegetated by persistent volunteer work over the last twenty years. The residents believed that Council used to slash the understorey in here and they said that Council does still slash (or mow) other foreshore reserve areas (ie they manage them as grassed open space rather than as habitat).

A member of the Bateau Bay Bushcare group explained that the Bateau Bay Bushcare group had been the largest in the State with up to 115 members, however, this number has been reduced of late.

Wyrrabalong National Park was gazetted in 1993. Residents at this location expressed concern about how NPWS (now part of DEC) has dealt with the Bushcare plant nursery over the last couple of years. Residents said that they had previously propagated plants at the nursery inside the National Park for use in bush and dune restoration projects.

7. Crackneck Point Lookout

There is a parking area, picnic tables etc and excellent views north along the coast from this lookout in Wyrrabalong National Park and it appears to be heavily used.

Whale watching is particularly popular from Crackneck picnic area and the site becomes quite congested during the weekends of the winter months for this purpose.

Hang-gliders also use Crackneck as a take-off point, as they do at Wybung Headland.

Some people expressed concern about the adequacy of safety management and maintenance of fences and railings etc close to cliff tops at the picnic area.

8. Other general issues raised during discussion on the 22 May.

Questions from audience:

- Is the management of the entrance channel part of this study? It is in the paper every week.

  The lake entrance channel is principally addressed in the Estuary Management Study and Plan. Council is working on the Estuary Management Plan concurrently with the Coastline Management Plan. The beach and berm that separate the lake from the ocean are part of the Coastline Management Plan so clearly there is a need for co-ordination between the two projects. Plan. Council will investigate the coastal processes in this area and the reuse of dredged material on The Entrance Beach and Tuggerah Beach.

- Is the Magenta Shores Development part of this study?

  Council is working closely with Mirvac to ensure that their development complies with the consent conditions prepared by the DIPNR. Mirvac will need to rehabilitate parts of the dune system for the length of its development. The Coastline Management Study & Plan will look at continuing that dune rehabilitation along other portions of Tuggerah Beach that require rehabilitation.

- One participant suggested that often issues raised by the community about the management of Crown Lands are not addressed because Council (as Trustee Managers) and the Lands Department of State Government often shift responsibility between each other.

- It was suggested that kelp is sometimes an issue at Soldiers Beach. Kelp also sometimes accumulates on the beach at The Entrance, particularly after storms, as there is a rock reef close to shore.

- One or two people expressed their lack of trust in the Tuggerah Lakes Estuary Catchment Management Committee in their overseeing of this project. It was suggested that issues raised by the community were not necessarily heard by the Committee in the past. There is also some confusion in the community about the relationship between the estuary management program and the coastline management program.

- Wyee and surrounding communities are directly west of Norah Head and any urban expansion of these areas would potentially create further congestion of the Norah Head beaches, particularly during peak periods.

Survey results

This section provides a preliminary review of the information that was provided by community group representatives who attended the briefing day, in response to a short survey which contained questions about group membership, special interests and activities, and opportunities for future participation in the preparation of the Coastline Management Plan.

Two of the survey questions provide a preliminary indication of the values of the coastline for members of these groups. Respondents were asked to comment on why their group members considered the activities of the group important or enjoyable. They were also asked to identify the five most important responsibilities for Wyong Council, from a list that included diverse coastline, urban, infrastructure, community services and economic development options.

Community Group Activities

Comments on why members felt that their activities were important included:

- Stabilization of dunes and protection of hind dune vegetation from storms, humans.
- Ongoing beach amenity and access, protection of private property
- Concern for the environment
- The beaches and lakes are what brought us to the coast
- Maintaining access for recreation and protecting rights to use the coast
- Concern about deterioration of beaches and sand dunes
- Preserve habitat, natural assets and social interaction as well as real estate values
- Safety at sea for everyone
- Observable decline in biodiversity of local rock platforms, with further pressure from increasing population
- For the benefit (now and in the future) of everyone who identifies with the coast and the Australian beach culture

Identified Council priority responsibilities

Community group representatives were asked to select what they considered to be the top five priority activities for Wyong Council. The following activities were noted as key responsibilities for Council. Numbers in brackets indicate the number of times that issue was mentioned as one of the five most important priorities for Wyong Council.

- Controlling stormwater impacts (8)
- Managing impacts on sensitive coastal vegetation and re-establishing coastal vegetation (8)
- Managing the water supply catchment (8)
- Roads and footpaths in urban areas (8)
- Managing coastal hazards such as erosion of public lands (7)
- Provision of access ways and facilities for citizens to visit beaches and headlands (7)
- Supporting economic development and job creation (4)
- Planning for new urban growth areas (4)
- Best practice sewage management (3)
- Supporting tourism – attracting more visitors to the area (3)

- Provision and maintenance of recreation facilities (parks and playgrounds) (1)
- Managing impacts on marine habitats (1)
- Community care and responsibility for environmental behaviours (1)

This preliminary advice indicates a high priority for recreational amenity and environmental performance. A suite of activities relating to management of habitat, water quality, coastal hazards and recreational access all scored very highly (seven or eight mentions), matched only by "roads and footpaths". Interestingly, for this small sample of respondents, the cluster of activities related to planning and economic development had a much lower rate of mentions as an important activity for Wyong Council than did environment protection issues.

16 June 2004

«Title» «First_Name» «Last_Name»
«Position»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«City» «State» «Post_Code»

Dear «Salutation»

Re: Focus on the Coast – Introducing the Wyong Shire Coastline Management Study and Plan

Work on the preparation of the Wyong Coastline Management Study and Management Plan has recently commenced and is expected to continue until the draft Coastline Management Plan is exhibited late in 2005.

On Saturday 22 May, an introductory briefing and coastline inspection was conducted with community groups who are expected to be interested in the future management of the coastline. Those who attended provided excellent initial input on their interests and concerns about Wyong's coast, but unfortunately not all groups were able to attend the briefing.

Please find enclosed a copy of the introductory information booklet about the project and a copy of short survey form. Your responses to the questions in the survey will help us to tailor the community consultation process to suit the needs of different groups in the community and will also help us target issues that need close attention in future project information sheets.

You will find a copy of the presentation material from the briefing on 22 May on the project website, www.umwelt.com.au/wyongcoastline. The web site will be regularly updated with information about upcoming consultation activities, feedback from community meetings, and information about coastline management issues that may be of interest to community members.

We hope that you will take the time to complete and return the survey, and we look forward to meeting you personally as the project progresses.

If you would like any additional information at this time, please contact Pam Dean-Jones on 4950 5322.

Yours sincerely

Pam Dean-Jones
Senior Environmental Planner
Project Consultation Co-ordinator

enc

Wyong Shire Council

Coastline Management Study and Management Plan

Coastal Hazards Community Briefing

TODAY'S PROGRAM

10.30	Morning tea, informal discussion
10.45	Welcome from Mayor, introduce team members (consultants and Council)
10.50	Introduction to the day What will we be doing? Review of the program for preparing a Coastline Management Study and Plan and its key components – how does Hazard Assessment fit?
11.00	Small group discussion - what do people value about their beachfront/bluff positions? (we will use this later to discuss how the hazard lines could affect households and the community)
11.30	Current management context for hazards along Wyong Coastline – when were hazards assessed, need for a comprehensive and consistent process, Current management approach (DCP77)
11.40	Which areas have been the focus of the assessment and why. Why review previous assessments?
11.45	What's involved in hazard assessment: Coastal processes Geotechnical processes Key issues and how they are measured/assessed Allow time for questions
12.30	Lunch
1.00	Results and findings Beach by Beach descriptions - coastal process hazard zones Questions
1.25	Results and findings – geotechnical issues Instability mechanisms and hazard zones Questions
1.50	Small group discussion of hazards at individual beach and bluff areas. Noraville/Norah Head and northwards The Entrance/Entrance North Bateau Bay, Toowoon Bay etc. Technical experts available to answer questions during this session. How does the information you have heard affect what's important to you about the coastline? Refer to earlier responses on what was important to you about your local area. Move to another table after 5 minutes, allow for three changes Scribe to record key points of discussion. They can write on the maps or on butchers paper. Final groups to report
2.20	Feedback from each group General discussion - Confirm management issues for each key area, arising from the assessment draft outcomes
2.35	Where to from here. All info from presentations and main points from discussion will be on web site within 2 weeks. Any burning questions people wanted to ask and haven't had a chance yet?
2.45	Meeting close, hand out feed back sheets and recording sheets if people want to send in further information/comments

Wyong Coastline Management Plan

Coastal Hazards Community Briefing

16 October 2004

Umwelt
Environmental Consultants

Objectives of the Briefing

- Meet residents from beachfront and bluff areas
- Understand what's important to these landholders
- Present concepts of coastal process and geotechnical hazards
- Why Council has reviewed existing hazard lines
- Factors influencing assessment of hazards
- Identify key areas where hazards are a management issue

Umwelt

Objectives of the Briefing (cont)

- Opportunity for residents to hear about the new assessment and ask questions
- Obtain feedback from landholders
- How will Council proceed where hazard assessments have changed?
- Update on the overall project – what happens next
- Further opportunities to comment on the hazard assessment
- Any other important expectations of the briefing?

Planning for Sustainable Coastline Management

- Balance - environmental, social, cultural and economic values
- Understand coastal processes - hazard study - good science

WE ARE HERE

- Management information - what do we need to know before we make a management decision:
  - What's important to the community about the coast
  - Council and community vision for the coast

Planning for Sustainable Coastline Management (cont)

- Many things to consider –
  - Ecology – special habitats and species
  - Culture – Indigenous and historic
  - Traditional social activity patterns
  - Demographic change
  - Property values
  - Business values
  - Services and access
  - Safety
  - Scenic values
  - Level of commitment to management
  - Level of co-operation and co-ordination
  - Statutory obligations

Participation Opportunity

- Coastline Management Study and Plan - partnership between council, DIPNR and community
- Importance of shared understanding of values and technical issues
- Today is about information and consultation, not decision making

Participation Opportunity (cont)

- We will inform about:
  - Hazard assessment processes
  - New hazard lines and what they mean
  - How Council's thinking on hazards is changing
  - How hazards fit into the planning process
  - Where you can find more information

Participation Opportunity (cont)

- We will consult about:
  - What people value about their coast front position
  - Any additional information we should take into account
  - How coastal hazards affect landowner's values

What we are asking of you

- Basic rules about conversations
- Ask questions, tell us what you think
- Share your knowledge – we'll get a better result

Today's Program

10.50	Program outline
11.00	What's important to you about the coast – small group discussion
11.30	Current hazard management context – DCP77
11.40	Why review previous assessments? Areas of focus
11.45	What's involved in hazard assessment: Coastal processes; Geotechnical processes
12.30	Lunch
1.00	Key outcomes of the hazard assessments – coastal processes. Questions.

Today's Program (cont)

1.25	Key outcomes of the hazard assessments – geotechnical processes. Questions.
1.50	Small group review of maps and small group discussion – individual areas
2.20	Feedback/discussion from small groups. Confirm management issues arising.
2.35	Where to from here? Where to find information.
2.45	Meeting close, feedback sheets

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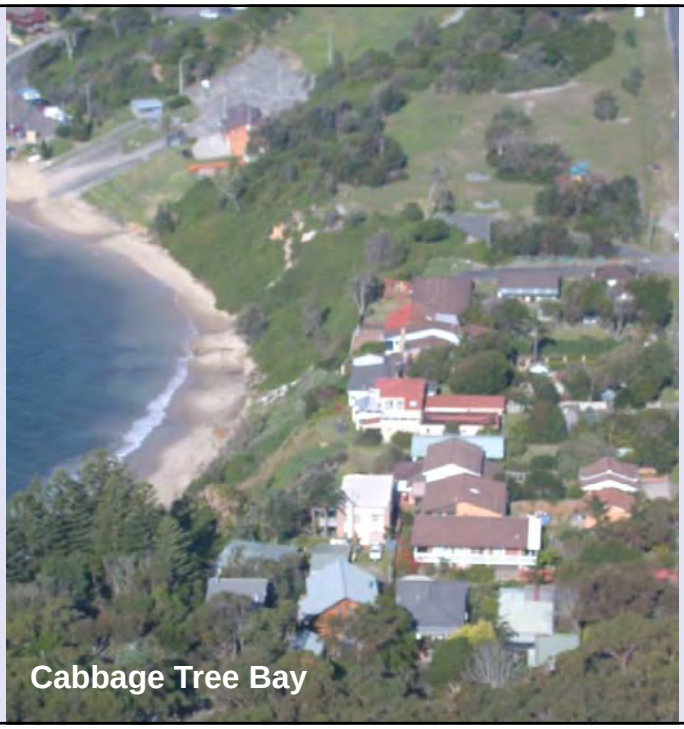
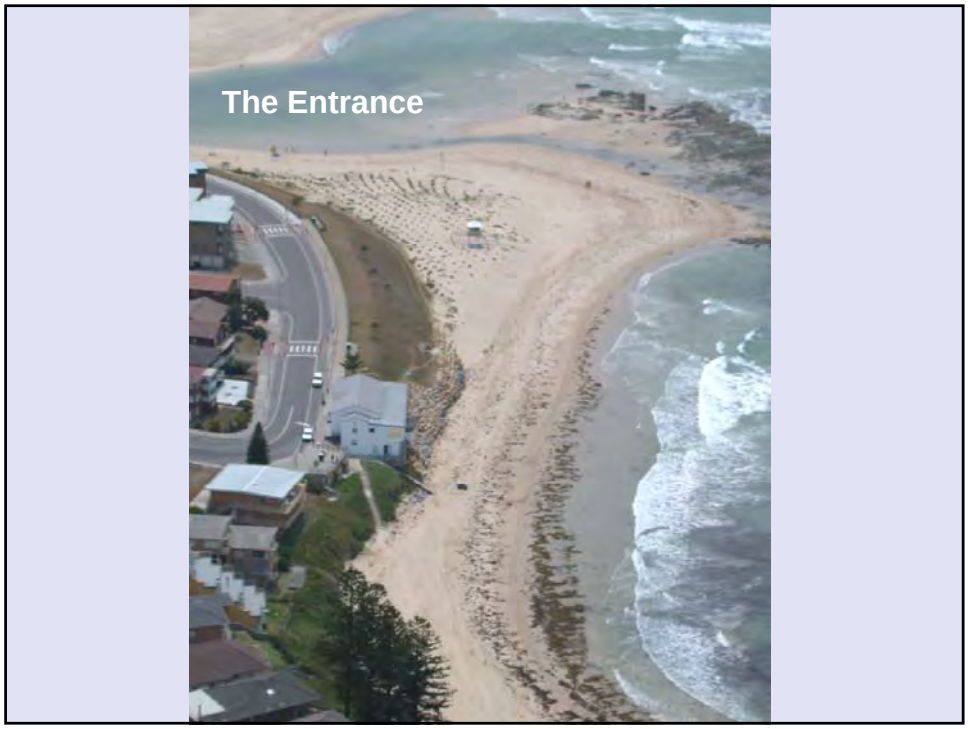
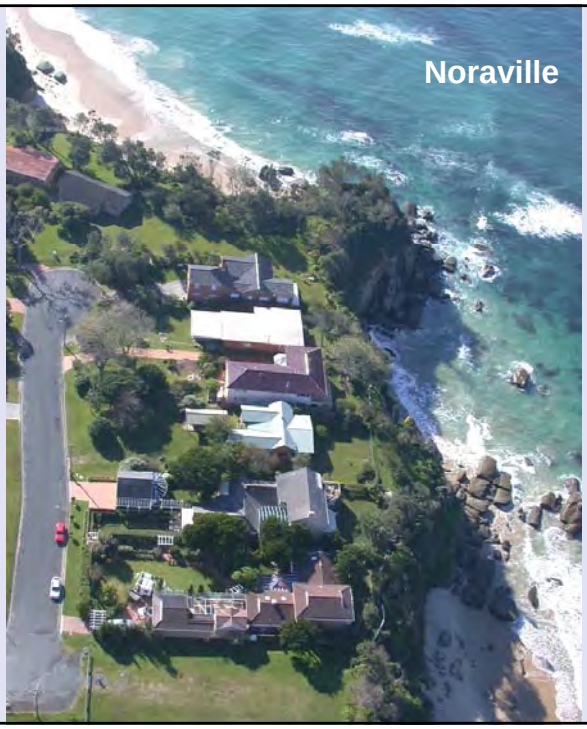


Cabbage Tree Bay


The Entrance


The Entrance

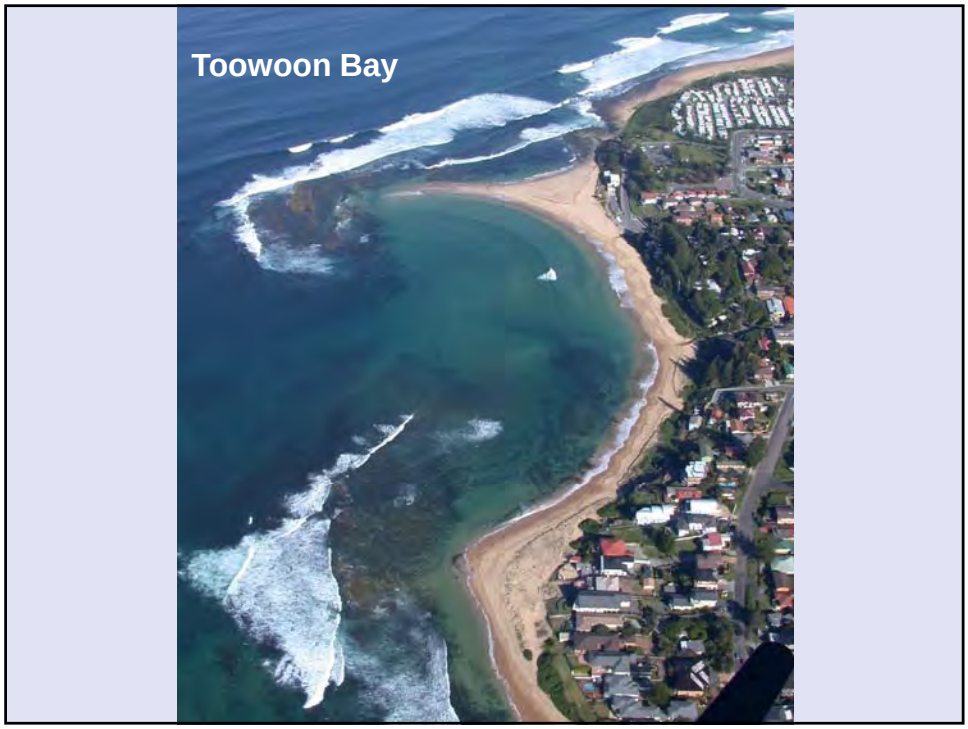

Shelly Beach


Noraville


Noraville


Blue Bay

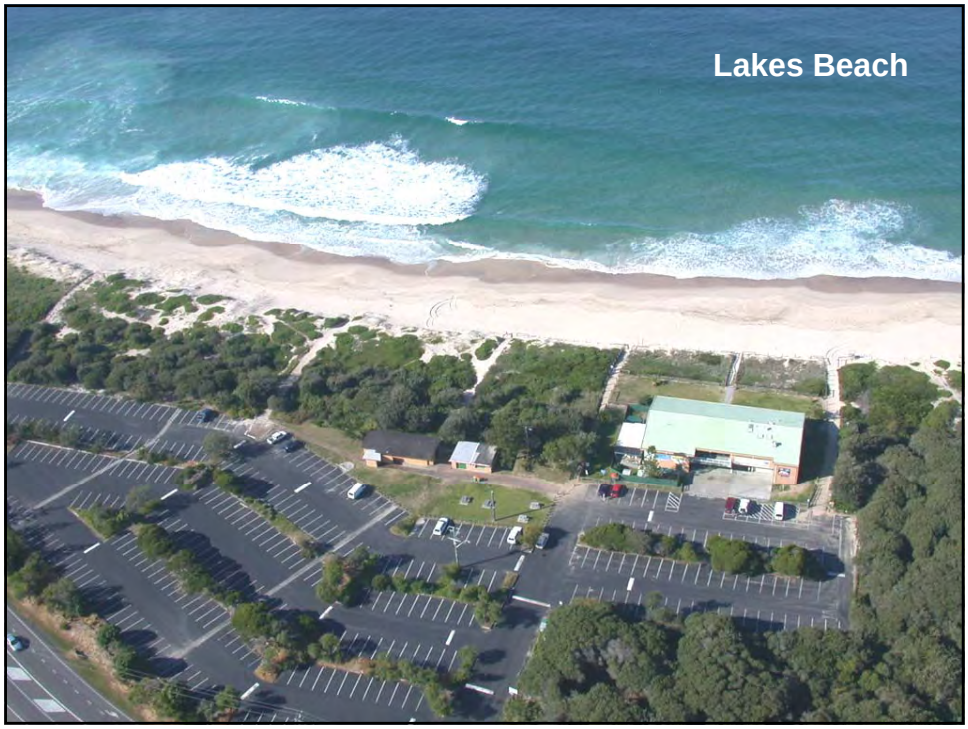

Toowoon Bay


Toowoon Bay


Soldiers Beach


The Entrance North


The Entrance
North


Lakes Beach

Issue

- What's important about the beach front and bluffs to you?
  - Are you are waterfront landowner?
  - Do you use waterfront reserves?
  - How did you come to live here? What influenced your decision?
  - A high coastal hazard area on my property would affect……..?

Method

- Write down what attracted you to your residence
- Discuss – select three important/diverse factors from your group
- Write these on cards and put up the display board
- What are the key themes and values?

Current management context for coastal hazards in Wyong

What's new?

- Why reconsider previous assessments?
  - New information about some of the variables – sea level change and climate predictions
  - Better understanding of some geological materials
  - Increasing pressure for residential and community recreational facilities in immediate coastal zone
  - Council obligation to advise ratepayers with best available information
  - Apply best practice risk assessment techniques
  - Information to set management priorities along entire coast

What's involved in hazard assessment?

What's involved in hazard assessment?

- Coastal processes
- Geotechnical processes

Why study the stability of bluffs and headlands along the Wyong Coast

- Bluff areas:
  - coastal cliffs and headlands on bedrock
  - "cliff like" indurated sand slopes
- Evidence of past mass movement failures – rock fall, land slip, landslide, creep, slump etc – prior to historic records
- Known mass movement events within memory of current residents (within last 25 years to 100 years)
- Council responsibility for safety of community using public reserves
- Value of coastal frontage residences
- Value of other assets that may be affected – stormwater drainage, beach access etc

The importance of scale

- Studies and mapping at Shire wide scale – planning guidelines within 50 year timeframes
- Not intended to resolve all issues on individual properties
- Previous detailed studies for individual properties – not relevant for strategic planning and sustainability considerations for the whole coast

Hazard management objectives - coastline management plan

- To ensure that the preferred hazard management options are:
  - long term ecologically sustainable solutions - integrated
  - cost effective
  - feasible
  - consider sea level rise; and
  - have fully identified and assessed potential environmental influences

What do we need to know about bluffs to address the Plan objective?

- Hazard definition
  - Underlying geology – patterns in stratigraphy, stability characteristics of various assemblages
  - Details of past land slip size, distribution, associations etc
  - Engineering properties of geological units
  - Causes of instability – what causes these bluffs to fail?
  - Future risks – sea level rise, changes to rainfall patterns – how will these affect the failure mechanisms?
  - Identify hazard zones, based on best available information
  - What assets are at risk within these zones?
  - Which areas present urgent risks?

What do we need to know about bluffs to address the Plan objective?

- Hazard Management
  - Do all affected land owners and bluff users understand the issue?
  - What are Council and community objectives for bluff areas – what does sustainability mean for these areas?
  - What other factors need to be taken into account – set backs, safety, costs, land values, views etc
  - What is Council doing now? Does this address the issue effectively?
  - What other options are available – new and existing development, public reserves.
  - Benefits and constraints of various options – how well do they achieve Council and community objectives? Is any flexibility possible?
  - Agree on a fair framework for dealing with hazards.

What has been done in this study?

- A detailed study of Triassic and Quaternary geology, including bore log data and new field mapping
- Detailed review of previous geotechnical investigations
- Review of aerial photography for last 30 years
- Discussions with long term residents with observations of cliff instability
- Field observations of drainage, seepage etc
- Research and define hazard mechanisms

What's the geology tell us?

Different relationships of Quaternary (unconsolidated) and Triassic ("solid bedrock") units

- Quaternary:
  - Modern beach and dune sands
  - Aeolian (windblown) sands – thin deposits overlying bedrock
    - highly susceptible to both wind erosion and stormwater erosion
    - highly variable distribution and thickness

What's the geology tell us? (cont)

- Indurated sand – sometimes called "coffee rock"
  - may form near vertical faces, appear similar to weathered sedimentary rocks
  - variable cementation – localized soft or weak zones, flow paths for seepage
  - surface deterioration can be rapid after exposure – surface slumping
  - affected by toe erosion (high seas) and surface slumping
- These materials also sometimes used as fill

What's the geology tell us? (cont)

- Triassic
  - Terrigal formation –
    - interbedded sandstones, laminated siltstones and claystones
    - Crackneck area
    - susceptible to weathering
    - limited distribution
    - blocky form – susceptible to rock fall
    - vertically permeable (water penetrates along joints to weaker underlying units)

Wyong Coastline Management Plan

What's the geology tell us? (cont)

- Patonga Claystone
  - south of The Entrance
  - red brown and grey green claystone, with fine bands of siltstone and sandstone
  - strongly weathered – highly plastic clay
  - relatively impermeable
  - shrink –swell behaviour
  - generally slopes rather than cliffs
  - differential weathering – undercutting of jointed sandstones – rock falls
  - water seepage at interface of Terrigal formation and Patonga claystone
  - water seepage at soil/talus boundary with weathered claystone
  - regional dip makes seepage greater on south facing slopes

What's the geology tell us? (cont)

- Tuggerah Formation
  - lithic sandstone with minor claystones and conglomerate, porous cement
  - generally more stable than Patonga claystone, but undercutting occurs where siltstone is exposed in wave attack zone
  - Can appear stable for long periods, followed by sudden, major failure
  - Opening of joints in "zone of influence" behind cliffs
- Munmorah Conglomerate
  - relatively limited distribution
  - relatively hard and stable base

Wyong Coastline Management Plan

What's the geology tell us? (cont)

- Igneous dykes
  - fracturing of adjacent parent rock; increase weathering and erosion rates
  - highly susceptible to weathering
  - groundwater seepage through fractured rocks
- Joint sets
  - Near vertical, spaces 1-2 m at cliff face, slightly wider spacing away from cliff

Sea level rise

- Intergovernmental Panel on Climatic Change – 0.15-0.35 m SL rise over 50 years
- Assume 0.25 m for this study
- Potential for further rises over next 100 years

Lunch

Key outcomes of hazard assessment

Geotechnical findings

- Four main mechanisms for bluff instability:
  - Indurated sands (surficial slumping)
  - Soil and fill creep on slopes (shallow landslips)
  - Rock block/differential weathering
  - Undercutting/rock block failure

Indurated sands (surficial slumping)

- Cabbage Tree Harbour, Bateau Bay
- Storm attack at toe of slope has big impact on rate of recession
- Sea level rise will affect areas exposed to wave attack
- Areas adjoining the crest of indurated sand slopes are Immediate High Hazard.

Soil and fill creep on slopes (shallow landslips)

- Slips of soil mantle over bedrock – weak clay soils and groundwater seepage
- Hummocky ground (Guyagal Street, Macquarie St, Cabbage Tree Harbour)
- Slip scarps from recent landslip
- Cracking/Damage to retaining walls
- Local seepage zones and absence of mature vegetation (Ocean Pde, Jenny Dixon Beach)
- Emplaced fill failures
- Detailed studies necessary for any development in these areas – high local variability

Rock block/differential weathering

- differential weathering of the claystones undermine blocky sandstone – rock falls
- Ocean Parade headland
- Joint opening behind cliffs as horizontal stresses are relieved

Undercutting/rock block failure

- Norah Head (Tuggerah Formation)
- Similar to above, but wave attack important in undercutting
- Hargreaves Street and Roslyn Place, Jenny Dixon

Determining Hazard Lines

- Geological and groundwater analysis
- Plan trend of recession
- Local experience and engineering judgment

Hazard classification system

Category 1 **50 year Low Hazard**	Development will not be adversely impacted by coastal processes within 50 years
Category 2 **50 year Medium Hazard**	Development could be impacted by ongoing processes within 50 years. Development should be secured against impact with appropriate foundation design
Category 3 **50 year High Hazard**	Within 50 years, development could be subject to high hazard – landslip, rockfall etc
Category 4 **Immediate High Hazard**	Land already subject to high hazard – rockfall, landslip etc could happen NOW

Key Conclusions

- There are bluff and cliff instability issues on public and private land
- The most serious private property issues are at Noraville, Blue Bay, Toowoon Bay
- Very few slope hazards on public land (Council or National Park) on bluffs have warning signs or fencing
- Stormwater discharge from some private property is initiating and aggravating landslip
- At some sites, Council stormwater management also contributes to the risk of cliff instability

Key Conclusions (cont)

- Landslide adjacent to unfenced public reserve at Bateau Bay
- An extensive landslide opposite Guyagal St, Bateau Bay – slow creep; headscarp close to walking track
- There are high hazard areas in public reserves at Jenny Dixon Beach, Noraville, Cabbage Tree Harbour and Bateau Bay
- The key mechanism at Cabbage Tree Harbour is likely to be surficial slumping, not rotational slope instability

Key Conclusions (cont)

- The subhorizontal drainage system at Cabbage Tree Harbour
  - has been damaged
  - is discharging at a low rate (clogged)
  - has limited stabilising effect
- DCP 77 needs revising

What's different?

- Cabbage Tree Harbour – mechanisms and extent of high hazard areas
- Focus on safety issues on public land
- Importance of stormwater management, linked to groundwater flows
- Importance of identifying real drivers of instability so treatment is designed effectively
- Improved understanding of data quality issues
- Some hazard lines have moved with better data

Where to from here?

- Erect warning signs and fencing in areas with public safety risks
- Ensure property owners and land developers are aware of the changes to understanding and approach
- Revise DCP77
- Detailed studies of specific locations where necessary for local technical detail

Where to from here? (cont)

- Include a bluff instability management plan in the Coastline Management Plan – prioritise actions needed to address instability issues
- Take hazard findings into account when preparing other strategies for the coastline (eg to address ecological or recreational access issues)
- Continue community participation in planning for management of bluff instability

Coastline Management Plan

- Management objectives
- Strategic approach to sustainability
- Criteria for selecting priorities
- Urgent actions – precautionary principle
- Work program and funding
- Responsibility and accountability
- Communication and feedback
- Ongoing review - adaptive

Coastal Hazards Wyong Shire

Lex Nielsen
Chris Adamantidis

SMEC Australia

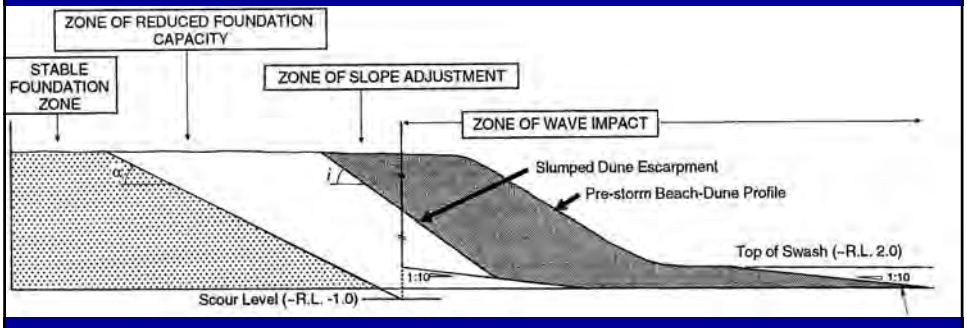
What are the Coastal Hazards?

- **Beach erosion during storms**
- **Long-term shoreline change**
- **Oceanic flooding**

Storm Erosion

Wamberal Beach 1974 (left) and 1978 (right)

Dune Stability Schema

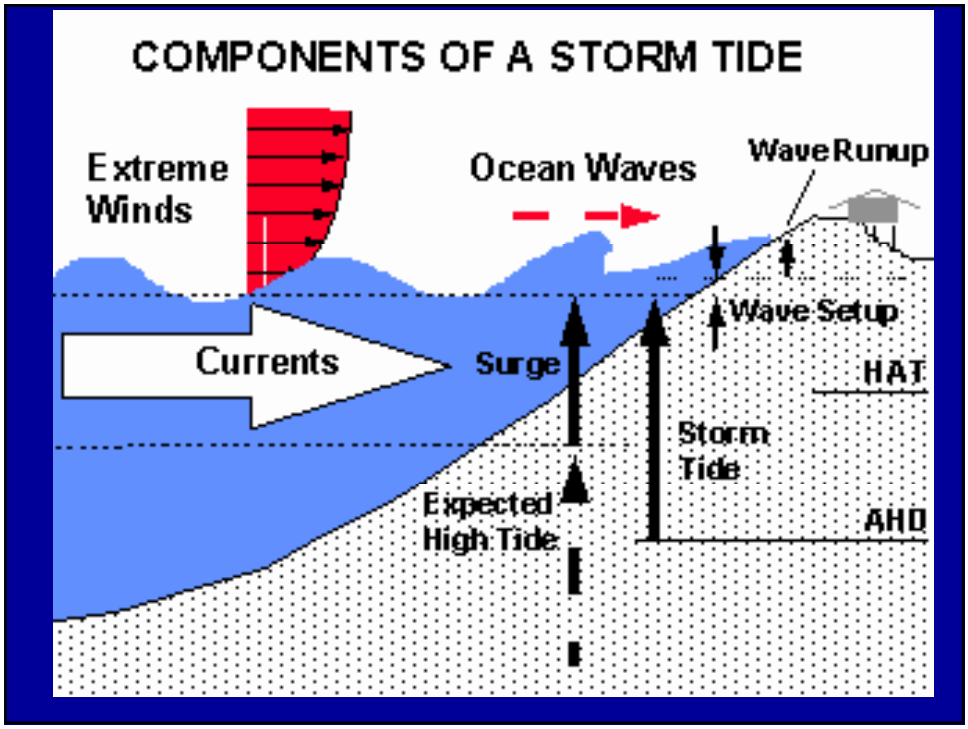


Long Term Shoreline Recession

Shoalhaven Heads 1977 (left) & 1978 (right)

Storm Overwash/Oceanic Inundation

New Brighton 1972



Hazard Classification

- **Category 1: 50 Year Low Hazard area**
  Areas where, within 50 years, development would not be impacted on adversely by coastal processes.
- **Category 2: 50 Year Medium Hazard Area**
  Areas where, within 50 years, development could be impacted upon by ongoing processes and where development could be secured against adverse impacts with appropriate foundation design.
- **Category 3: 50 Year High Hazard Area**
  Areas that, within 50 years, could be subject to high hazard in respect of erosion, landslip, rockfall and/or tidal inundation.
- **Category 4: Immediate High Hazard Area**
  Areas that, at present, are subject to high hazard in respect of erosion, landslip, rockfall and/or tidal inundation.

Quantifying Coastal Hazards

- **Empirical data from photogrammetric mapping**

Analytical methods / computer models calibrated against measured events (usually 1974 storm)

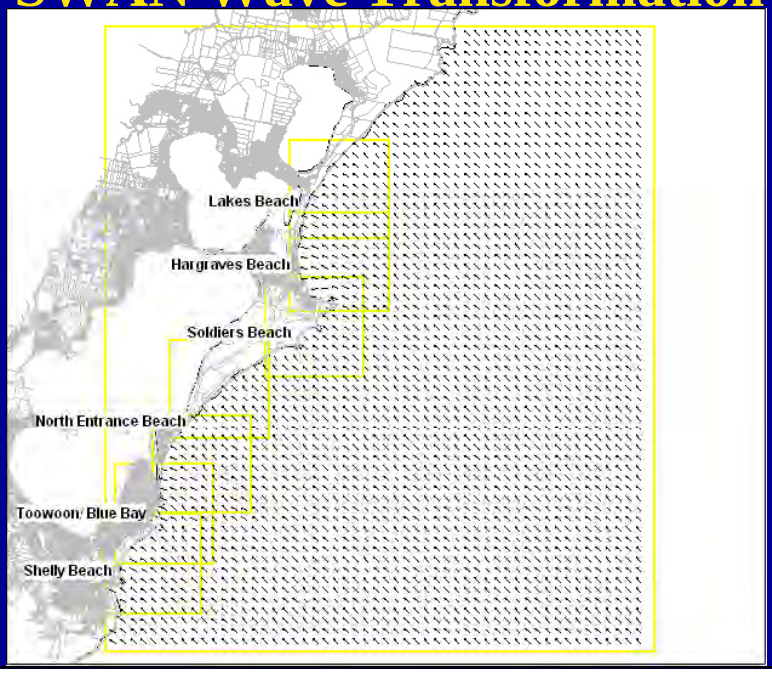
Changes from Previous Studies

- **Additional 10 years of data**
- **Revision (downwards) of IPCC prognosis for future *Greenhouse* sea level rise**
- **Advances in wave data analysis due to the availability of a longer term data set, which allows for:**
- **Rational approach to storm erosion hazard assessment using calibrated storm erosion modelling in *lieu* of a purely empirical approach, allowing the risk to be quantified (*i.e.*, 1% event)**

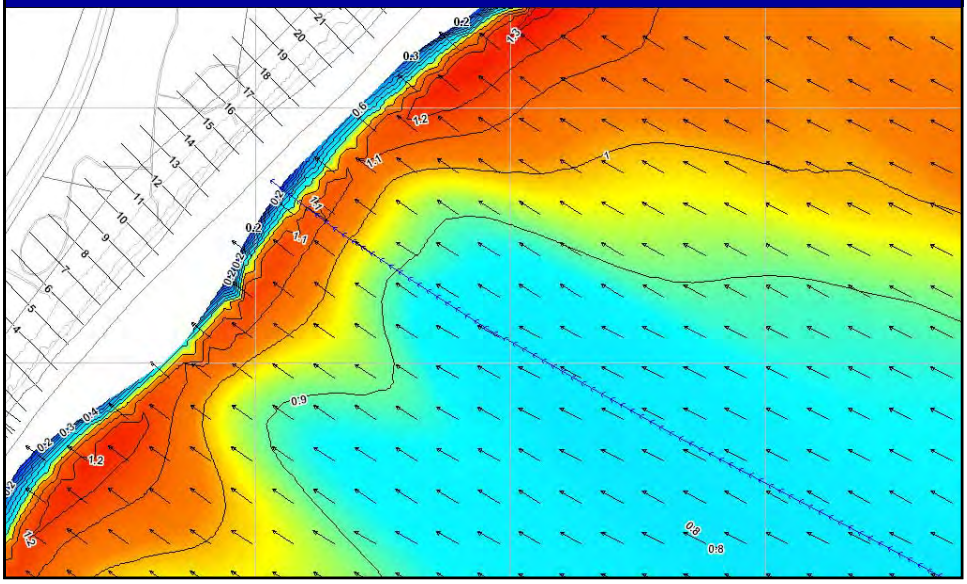
Beach Erosion Methodology

- Determine nearshore wave climate using SWAN wave refraction modelling.
- Establish SBEACH dune erosion model and calibrate model to 1974 storms.
- Define a 1% storm event and apply this *design* storm to the average beach profile.

SWAN Wave Transformation

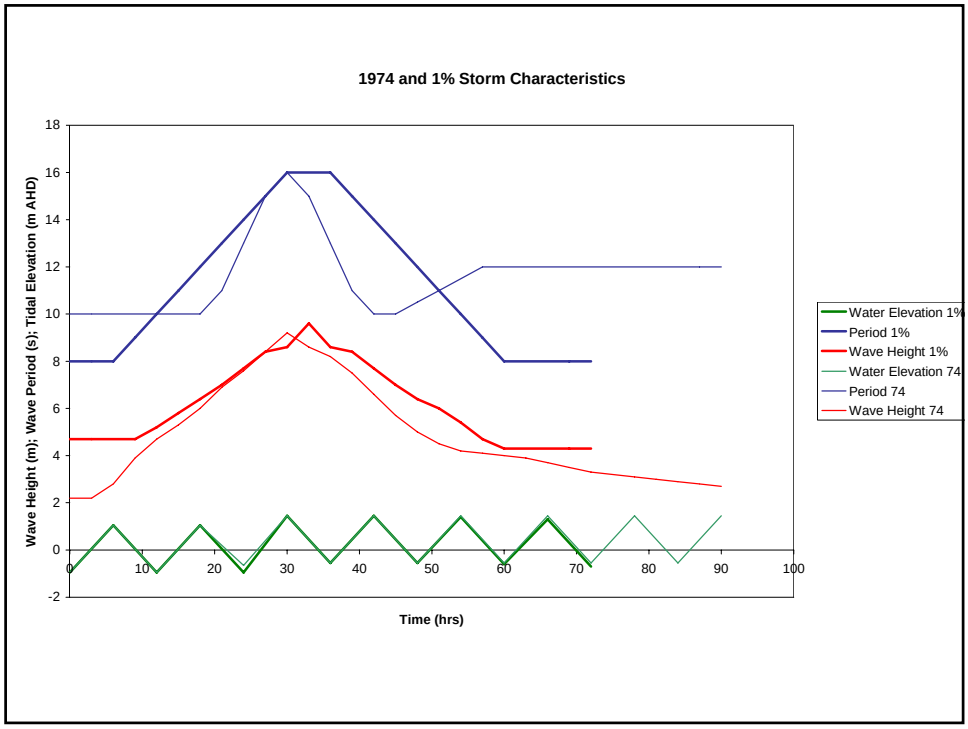


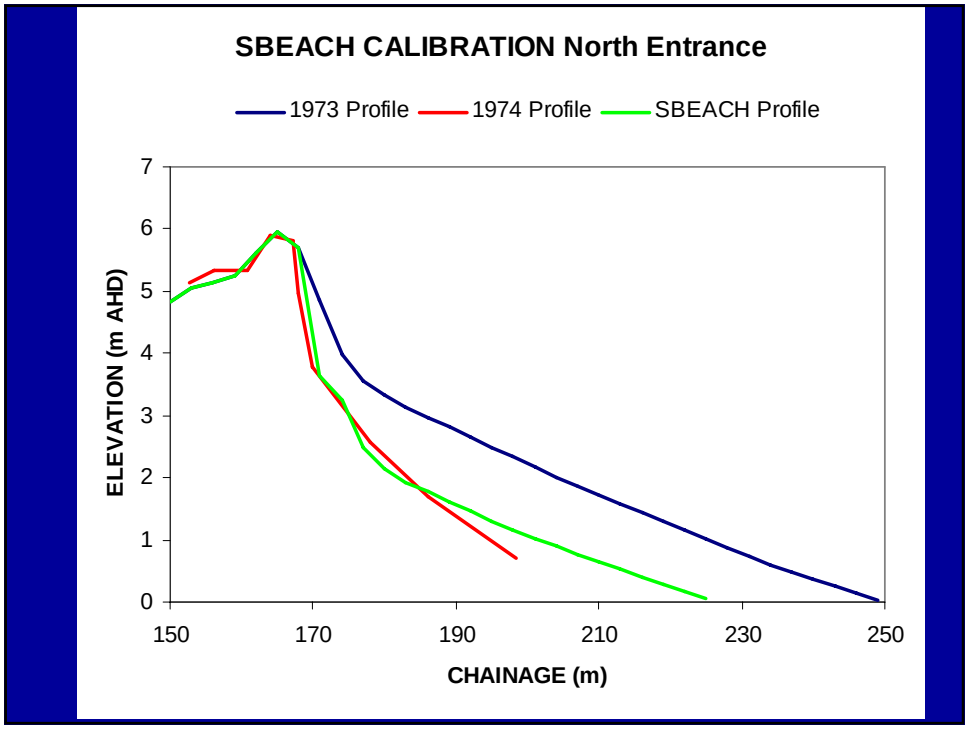
Nearshore SWAN Wave Transformation

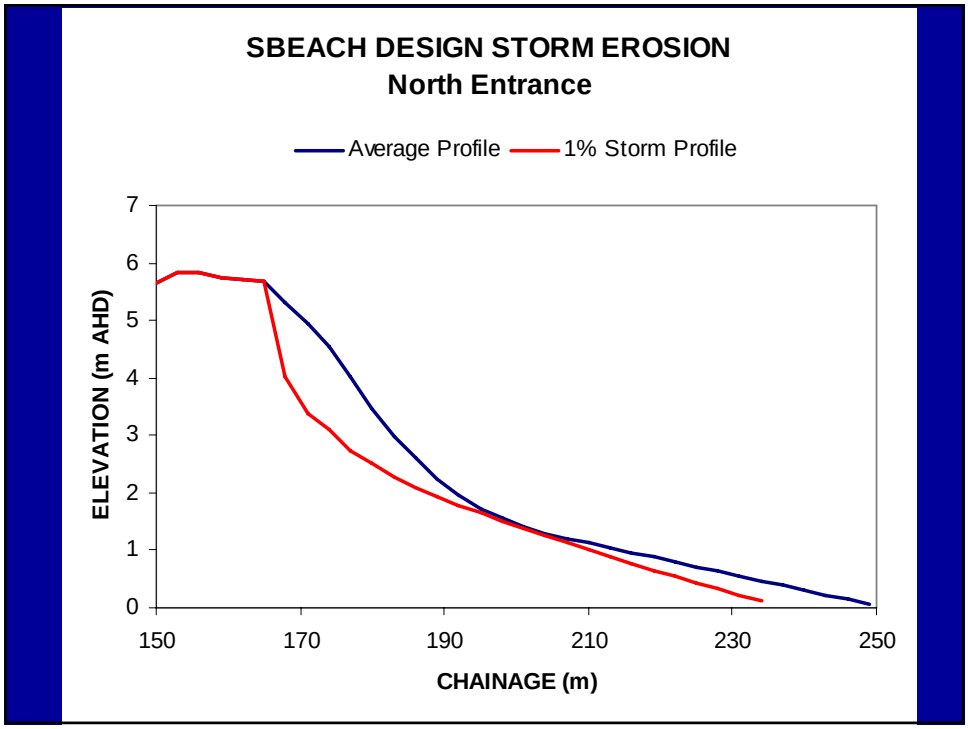


SBEACH Dune Erosion Model

- Two dimensional model of dune erosion during severe storms
- Calibrated against measured erosion during the 1974 storm by comparing 1973 & 1974 photogrammetric profiles
- Apply Design Storm (1% event) as determined from long term waverider records


1974 and 1% Storm Characteristics
Wave Height (m); Wave Period (s); Tidal Elevation (m AHD)
Time (hrs)
Water Elevation 1%
Period 1%
Wave Height 1%
Water Elevation 74
Period 74
Wave Height 74

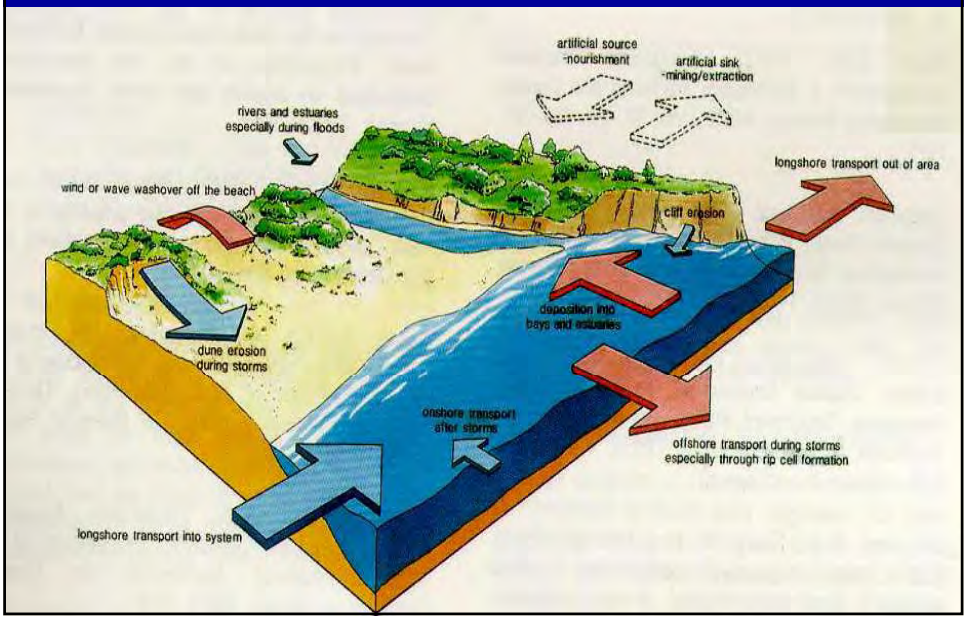

SBEACH CALIBRATION North Entrance
1973 Profile
1974 Profile
SBEACH Profile
ELEVATION (m AHD)
CHAINAGE (m)

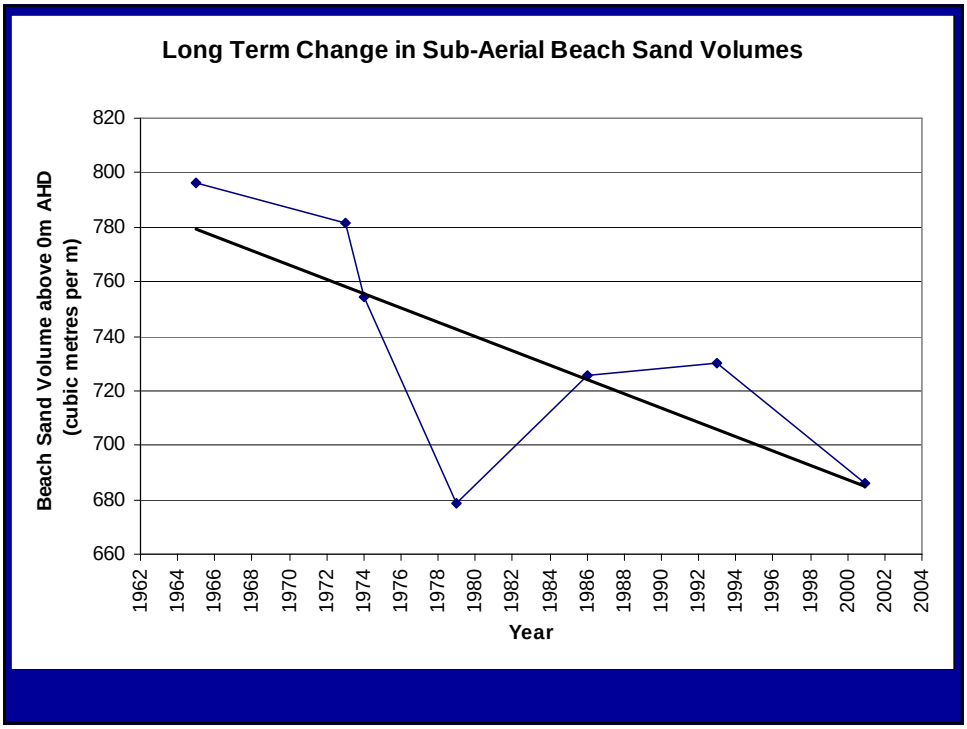


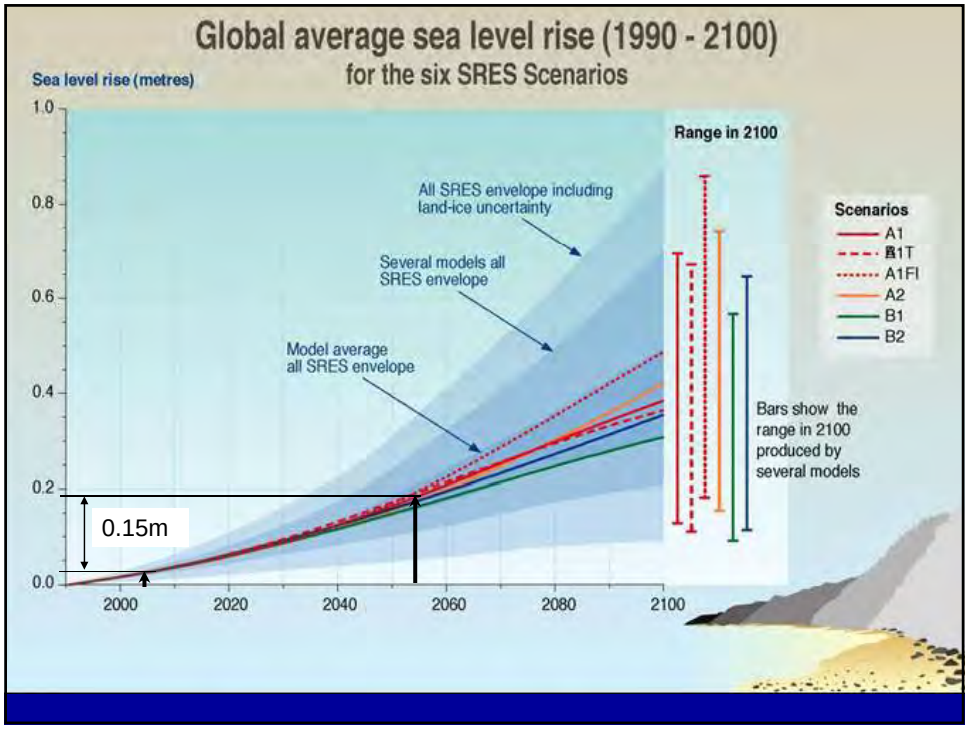
Long Term Erosion

- **Losses in beach sand volumes as measured over decades**
- **Shoreline Recession due to *Greenhouse* sea level rise**

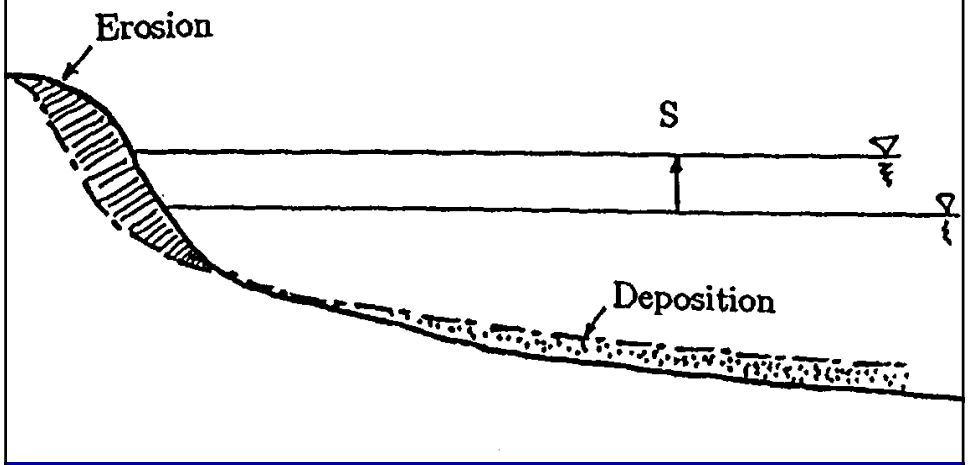
Sediment Budget







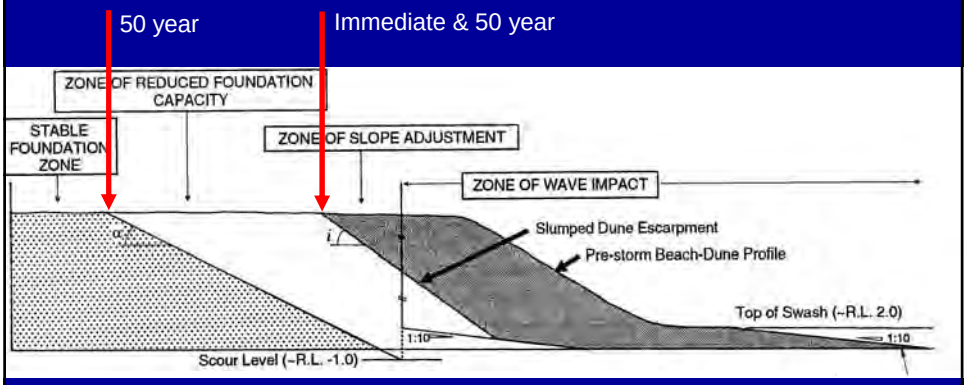
Sea Level Rise Recession



Hazard Mapping

- **Storm erosion +**
  longer term recession trend +
  Recession due to *Greenhouse* sea level rise
- **Plot**
  - ***Zone of Wave Impact & Slope Adjustment***
  - ***Zone of Reduced Foundation Capacity***
- **Present day, 50 year & 100 year planning periods**

Definition of Hazard Lines

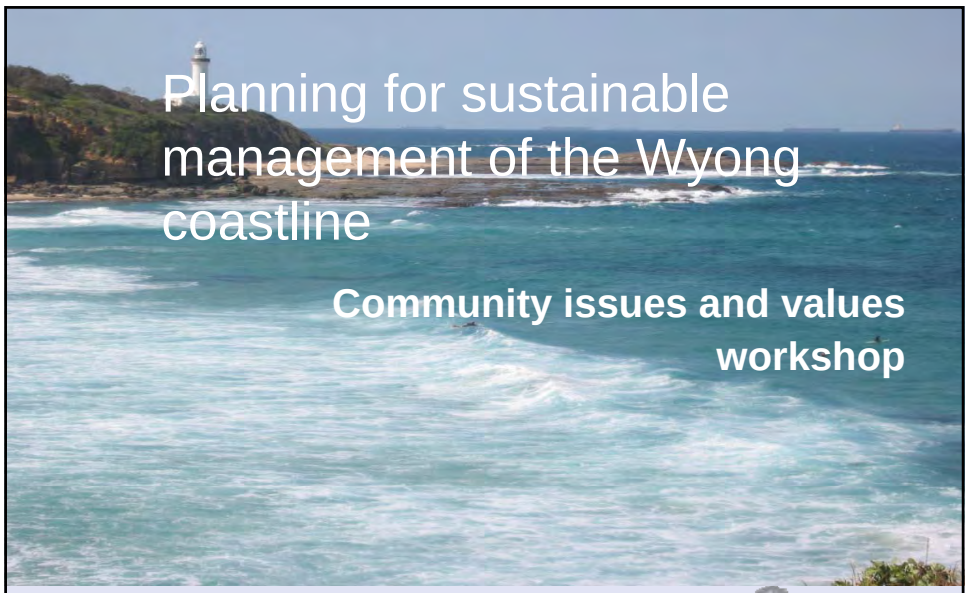


FEEDBACK ON THE COASTAL HAZARDS COMMUNITY BRIEFING 16 OCTOBER 2004

Aspect	No. responses per criteria	Criteria	Comments
1. Venue and Facilities	0 0 4 16 6	1. Poor 2. Acceptable 3. Good 4. Very good 5. Excellent	• A second microphone would be helpful.
2. Timing (Saturday daytime timeslot and length of event)	1 0 6 16 3	1. Very inconvenient 2. Inconvenient 3. Acceptable 4. About right 5. Excellent	• OK. • Well organised and interesting for all residents of the CC. • A bit long but excellent timing.
3. Format of the day – mix of presentation and discussion, technical issues and interactive group work	0 0 10 10 5	1. Boring/time wasting 2. Reduced focus of the day 3. About right/adequate 4. Very good/helpful 5. Excellent	• Better if a little shorter. • Very clear and patient presentation – well informed, very learned presenters. • Great info – thanks. • I wouldn't start with a table exercise – give us some info first and then we discuss. • A lot of technical information re geology which was not always understood.
4. Quality of information	1 0 4 16 4	1. Poor 2. Acceptable 3. Good 4. Very Good 5. Excellent	• People should have been given written information as well as a summary of what was presented in written form. I would have liked a copy of plan that affects my property.

Aspect	No. responses per criteria	Criteria	Comments
5. Quality of presentations – were they clear, targeted and understandable?	0 1 6 15 2	1. Poor 2. Acceptable 3. Good 4. Very Good 5. Excellent	• First part acceptable, second part very good. • Some a little inaudible.
6. Opportunities to ask questions or make comments during the day	0 0 4 16 4	1. Poor 2. Acceptable 3. Good 4. Very Good 5. Excellent	• Felt a bit rushed for time though.
7. Communication about the day and other organisation. Did you receive adequate and timely advice about the meeting.	3 0 4 12 6	1. Poor 2. Acceptable 3. Good 4. Very Good 5. Excellent	
Any other comments you would like to make?	• Great idea. To have such an informative discussion, communication and consideration are so necessary. Thanks for the day. • Well done and thank you. Please keep us informed by mail if possible rather than us keeping in touch with website for a long time. • Learnt a great deal. Very interesting – looking forward to next time. • Well worthwhile – Thanks. • Thank you for keeping us informed of the process. • More information from Council about immediate/urgent risks and what is to be done now would have been better than future planning initiatives. • Would have liked a couple of solutions to Cabbage Tree Bay problem.		

Aspect	Comments
Any other comments you would like to make? (cont)	• Thank you for today – particularly as you gave up your Saturday. • I enjoyed and learnt from the discussions. • Although the meeting was about hazards and very interesting, one of the reasons for living here is the wildlife on the rocks – sea anemones, chitons etc which I fear are less common than a few years ago.



Planning for sustainable management of the Wyong coastline

Community issues and values workshop

17 November 2009

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Environmental Consultants

Program

- Introductions
- About the Coastal Zone Management Plan project (Greg White)
- LiDAR data for high resolution analysis
- New policy and guidelines (Pam Dean-Jones)

DISCUSSION

- Small group discussion – what are the issues?
- Combined discussion – whole of coast and local area issues
- Small group discussion – important values
- Combined discussion – Imagining the coast in the future – what to protect, restore and enhance?
- Small group discussion – possible management solutions
- Combined discussion – sustainable options for the coast

Umwelt

Challenges for Managing the Wyong Coastline

Cabbage Tree Harbour

North Entrance

The Entrance Beach

What happens to your input?

This workshop is to make sure we understand the community perspective on:

- Issues that need fixing - what needs to be managed differently along the coast – Council responsibilities
- What's important about the coast – what does the community value about the coastline and how do they use coastal assets
- Preliminary concepts on management direction. What level of risk is acceptable? What options could be considered?

Another workshop will focus on evaluating sustainable options for the coast

Information from both workshops goes into the draft Management Study and Management Plan

Draft Plan to Council at end of February 2010 – will be exhibited for 6-8 weeks

Managing coasts – change and uncertainty

Managing four strands of change for sustainability:

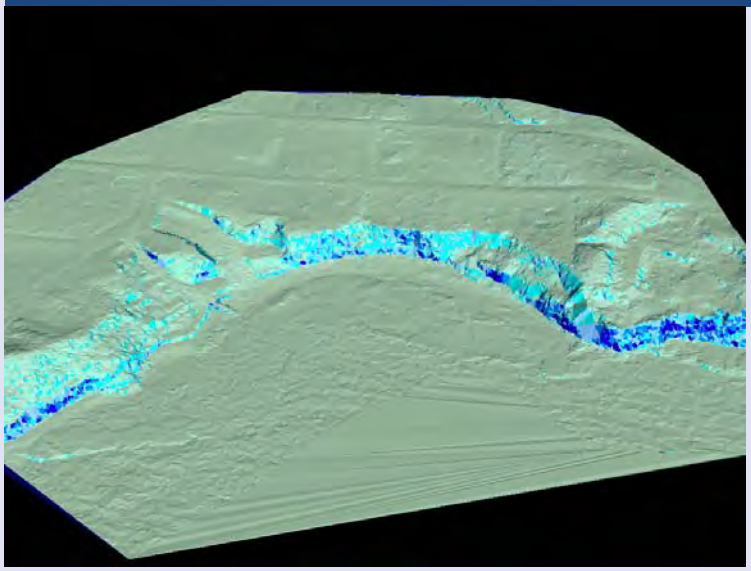
- Environmental change – effects of climate change and sea level rise – incremental and step changes
- Community change – population growth, age structure, life style and aspirations
- Legislation and policy framework – attitudes to risk management
- Science and knowledge – reducing uncertainty with improved understanding of processes and successful strategies

Science and technology

- IPCC 2007 sea level rise projections
- DECCW, CSIRO regional predictions, model testing
- LiDAR data – high resolution terrain data for the coast
  - Benchmark with opportunity to measure small scale actual change over time
  - Improves accuracy of models and predictions
  - Allows comparison of different parts of the coast
  - Improved resolution of hazard lines

Example of LiDAR data – terrain model

Example of LiDAR data – 3D slope analysis



Policy and programs: Commonwealth Government

- Department of Climate Change – sponsoring research, vulnerability assessments, adaptation guidance
- House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts:

  Managing our Coastal Zone in a Changing Climate (October 2009) – 47 recommendations:
- Research, data management, information for adaptation, governance and intergovernmental cooperation, disaster preparedness and management grants, national frameworks for assessing the vulnerability of infrastructure, socioeconomic vulnerability, insurance, planning and legal issues, Indigenous issues, Coastal Zone Ministerial Council.

Wyong Coastline Management Plan

New directions in NSW coastal planning context

Five main themes

- Risk based management
- NSW Government will support councils
- Facilitate appropriate development
- Better preparation for coastal emergencies
- Information to the public

New DECCW policy and guidelines

Momentum for reform

- NSW Sea Level Rise Policy Statement – 40cm above 1990 by 2050, 90cm by 2100
- Technical note re IPCC and the NSW benchmark
- King tide photos – sea level rise affects estuary shorelines and floodplains as well as the open coast
- Draft guide – incorporating SLR benchmarks in coastal erosion risk assessment
- Draft guide – incorporating SLR benchmarks in coastal flood risk assessment
- 19 hotspots for urgent emergency management plans and review of management options (protection?)

New DECCW policy and guidelines

Still to come from DECCW

- Updated coastal zone ‘manual’ – by end 2009
- Code of Actions for coastal emergencies
- Amendments to LG Act, CL Act, EP&A Act to implement hotspots and user pays principles for coastal protection
- Beach nourishment – science and funding issues. User pays in perpetuity?
- Statutory power mechanism for ‘guidelines’

DoP Planning Guidelines: November 2009

Build on existing planning framework

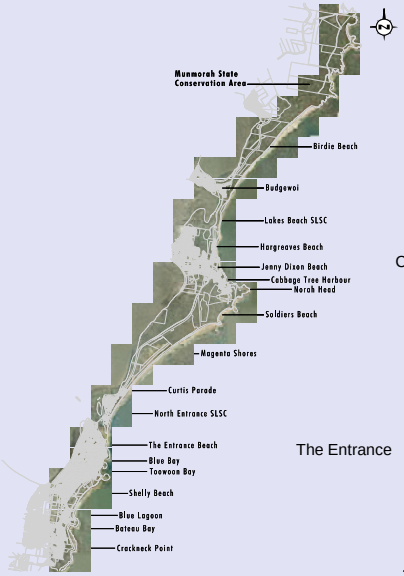
- NSW Sea Level Rise Policy Statement (NEW)
- NSW Coastal Policy
- Coastal Regional Strategies (e.g. South Coast, Sydney Metropolitan, Central Coast, Lower Hunter, Mid North Coast, Far North Coast)
- Coastline Manual and Floodplain Development Manual (TO BE UPDATED 2009)
- Coastal Design Guidelines
- SEPP 71
- Section 117 Direction 2.2 Coastal Protection
- Section 117 Direction 4.3 Flood Prone Land
- Standard Instrument - Principal LEP (NEW LEPs IN PREPARATION BY MOST COUNCILS)

DoP Guideline – six principles

- Assess and evaluate coastal risks taking into account sea level rise planning benchmarks – interim investigation areas?
- Make coastal risks known to the public – how to communicate to raise awareness
- Avoid intensifying land use in coastal risk areas through **appropriate** planning
- Consider options to reduce land use intensity in coastal risk areas where feasible
- Minimise exposure to coastal risks from proposed development - use 2100 erosion hazard line including SLR for strategic planning
- Implement appropriate management responses and adaptation strategies – site management and merit assessment for DAs

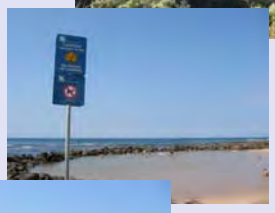
SUBMISSIONS BY 11 DECEMBER

The Wyong coastline



Crackneck Point

Cabbage Tree Harbour



The Entrance

Wyong Coastline Management Plan

Contact us

Wyong Shire Council

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Jess Bourchier

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Phone 02 49505322

Wyong Shire Council
CENTRAL COAST

Invitation

To participate in a Coastline Management Workshop

Wyong Shire Council is developing a Coastline Management Plan to help us manage the built and natural environment along the coast. The Plan will help inform all future planning and policy decisions and guide development in the coastal zone. We would like to hear from the community in developing this Plan as the information will help us to create a more effective Plan in line with community values.

Wyong Shire Council is inviting interested persons from the local community who could be individual residents or members of community groups with a business, social or environmental focus, to participate in an interactive workshop at Council. The aim of the workshop is to establish the issues and management options the community would like considered in the Coastline Management Plan and to examine what is valued along the coast and should be protected.

The workshop is scheduled for Tuesday 17 November, 6 – 8:30 pm in Wyong Shire Civic Centre's Tony Sheridan Room. Light refreshments will be provided.

To register please contact Susan Wilson on 4350 5161 or email susan.wilson@wyong.nsw.gov.au by 5pm, Monday 10 November.

Community and Coast

Wyong Coastline Management Plan

March 2010

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Environmental Consultants

Today's briefing

- Project status
- What happens next?
- Structure of Study and Plan
- Vision and objectives for the coastline
- Preliminary results of coastal hazard studies – erosion and geotechnical
- Biggest risks
- Options and evaluation

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Project status

- Coastal erosion hazard study, maps – full draft
- Geotechnical hazard study, maps – preliminary draft
- Coastline Management Study – working draft:
  - Current management, new initiatives, condition, trends, issues, objectives, risk assessment and options analysis
- Coastline Management Plan – preliminary working draft:
  - Action Plans – Knowledge Management, Emergency Response, Coastal Erosion and Recession (with climate change), Geotechnical Hazards, Building Biodiversity Resilience, Recreation and Tourism, Lake and Sea Interactions, Cultural Landscapes
  - Implementation information
  - Actions mapped by coastline planning precincts

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What happens next?

- 6 to 8 weeks of targeted briefings and consultation:
  - Coast and Estuary Committee
  - Community groups and precinct committees
  - Agencies
  - Councillors
  - Council Managers
- Full working draft, with hazard lines 2-3 weeks
- Full draft report, reflecting targeted consultation, will go to Council for approval to exhibit.
- Ongoing discussions with DECCW and DoP re technical issues and planning strategies

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Plan structure and concept

- A single integrated volume, 4 parts
- Parts 1, 2 and 3 – Management Study
- Part 4 – Management Plan
- Appendices include full hazard studies, consultation documents, statutory and policy background, evaluation details.

Wyong Coastline Management Plan

Plan structure and concept

Part 1 What the Coastline Plan aims to achieve	Plan scope and purpose Spatial focus Adaptive management – community change and climate change A sustainable coastline Vision, objectives and targets for the future Preparing the Plan What the community has said
Part 2 Status review – coastal condition, existing management and risks to coastal values	Existing management framework – stakeholders, roles and responsibilities of all levels of government Coastal landforms and processes – scale and rates of change Coastal erosion hazards, geotechnical hazards Biodiversity, settlement and land use – coastal values Risk assessment What needs to be done differently?

Plan structure and concept

Part 3 Option evaluation: to reduce risks and enhance coastal values	Types of response tools available to Council Evaluation process – criteria and scoring Adaptive management framework Potential responses for managing: •Coastal erosion and recession risks – immediate, 2050 and 2100 •Inundation risks •Geotechnical risks •Coastline management opportunities •Governance/institutional partnerships Detail on benefits and problems
Part 4 Action Plans for implementation	Relevant objectives and targets Preferred options Intent and rationale Responsibility and key partners Priority/timing and review period Where – specific locations for investment Indicative costs and funding sources

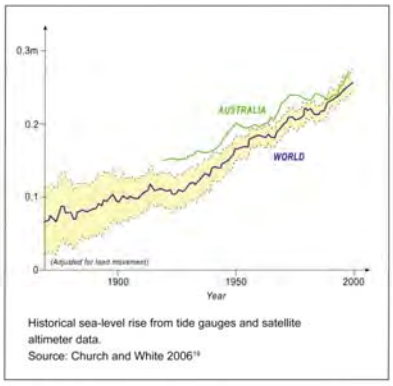
Council's vision for the Wyong coastline

Continuing community enjoyment of resilient coastal landscapes in times of change

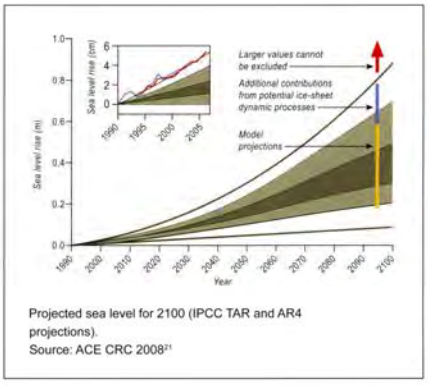
Key Principles:

- **Coastal knowledge and community awareness**
- **Recognise the scale and variability of coastal processes and hazards, including climate change**
- **Risk based and logic linked decision making – for effectiveness and efficiency**
- **Building biodiversity resilience**
- **Community access to the coastal landscape**

What's changing? Sea level rise



Historical sea-level rise from tide gauges and satellite altimeter data.
Source: Church and White 2006[19]



Projected sea level for 2100 (IPCC TAR and AR4 projections).
Source: ACE CRC 2008[21]

Social, economic and policy change

- Population growth 2.5%/year over last decade, predicted 1%/year to 2031
- Importance of day visitors and holidays – peaks in recreational demand, facilities and services for recreational safety and amenity, economic value
- Transition of older holiday homes to permanent residences – often in high risk locations
- Conservation values of the coast – community involvement in landscape management

Policy change

- NSW and Commonwealth government – new polices and guidelines in last six months:

Sustainable coastal communities and sea level rise adaptation

Climate Change Risks to Australia's Coast – A First Pass National Assessment 2009

Senate Inquiry into Climate Change and the Coastal Zone 2009

Adapting to Climate Change in Australia – Australian Government Position Paper 2010

NSW Government Sea Level Rise Policy Statement, Coastal Erosion Hotspots 2009

Department of Planning – draft NSW Coastal Planning Guideline – Adapting to Sea Level Rise 2009 (final expected this month)

Revised and updated coastline management 'manual' and emergency response protocols due early 2010

Climate Change Impact for the Hunter, Lower North Coast and Central Coast (HCCREMS) 2009

Assessing coastal erosion hazards

- Analysis and mapping of coastal erosion/recession on sand based terrain:

  Immediate, 2050, 2100 planning periods

- Apply DECCW sea level rise policy benchmarks for 2050 (40cm above 1990) and 2100 (90cm above 1990)
- Erosion hazard zones:
  - Wave impact and slope adjustment (storm cut and slumping)
  - Reduced foundation capacity
  - Stable foundation
- DECCW/DoP 'coastal risk areas' – landward margin of the zone of reduced foundation capacity
- Interaction of sand and rock based processes

Coastal erosion hazard findings

- Zero to low measured recession during late 20th century with less severe storm activity since 1974/78
- Predicted retreat of dune face and loss of sand volume from beaches by 2050 and 2100

- Increased wave runup by 2050 and 2100, greatest effect on eroded beaches
- Interactions between coastal recession and higher lake levels – potential breaching of barrier by 2100

Coastal erosion hazard results

- Confirms erosion hazard at North Entrance for immediate, 2050 and 2100 planning periods: Coastal Erosion Hotspot

Coastal erosion hazard results

Coastal erosion hazard results

- Significant erosion hazard at Hargraves Beach, particularly immediate and 2050 planning periods

Coastal erosion hazard results

Coastal erosion hazard results

- Toowoon Bay and Blue Bay – expect impacts on property by 2050
- All surf clubs are in zone of wave impact and slope adjustment by 2050; also carparks, access, facilities
- Central Coast highway at Budgewoi/Lakes Beach – 2050 and 2100
- Possible entrance opening at Budgewoi/Lakes Beach by 2100

Geotechnical hazards

- Character of Quaternary sand (unconsolidated) and interbedded, jointed Triassic sandstone and claystone, multiple igneous dykes drive geotechnical hazards
- Processes are episodic and landslip events localised, but hazard conditions are widespread
- Historical context, 100years:
  - Cliffs and bluffs measured recession 10-25 metres.
  - Indurated sand bluffs measured recession 30-35 metres
  - Active rock falls, landslip and slumping

Wyong Coastline Management Plan

Geotechnical hazards

- Without any climate change, cliffs and bluffs predicted to recede further by 2100
  - 12-20 m(rock bluffs)
  - 25-30m (sand bluffs) – e.g. Cabbage Tree Harbour Coastal Erosion Hotspot
- Climate change (SL rise) affects geotechnical processes, increases rate of recession:
  - Increased exposure of toe of slope to wave impact
  - Rainfall intensity and seasonality

Geotechnical mechanisms

P10: Mechanism D – Dyke Influenced Rock Recession.
Map Area G12: Sandstone bedrock undercut & rock falls near dyke.

Biggest risks

- **Immediate planning period**
  - Storm erosion of houses/property (53 houses in zone of wave impact and slope adjustment)
  - 3 surf clubs – zone of reduced foundation capacity
  - Geotechnical/landslip impacts on houses/property/reserves at Cabbage Tree Harbour, Jenny Dixon Beach, Norah Head and The Entrance
  - Balancing new development, recreational and tourism uses with biodiversity values – such as shore bird habitat

Biggest risks

- **2050 planning period**
  - Storm erosion and coastal recession impacts on houses and property: 101 houses in zone of wave impact and slope adjustment
  - Surf clubs in zone of wave impact and slope adjustment
  - Threat to community infrastructure – pump stations, reticulation system etc.
  - Ongoing geotechnical issues – more properties affected
  - Maintaining safe public beach access on a receding coast – managing land tenure and access ways

Biggest risks

- 2100 planning period
  - 135 houses in zone of wave impact and slope adjustment, plus parts of other properties
  - Coastal holiday parks eroded
  - Further geotechnical process impacts at Jenny Dixon Beach, Cabbage Tree Harbour and Toowoon Bay
  - Loss of Surf Club, carpark, access and foreshore facilities at Shelly Beach, Soldiers Beach, Lakes Beach, North Entrance Beach
  - Central Coast Highway – eroded and/or inundated
  - Other public infrastructure – sea walls, pumping stations, reticulation system
  - Potential breach of barrier and changed entrance processes: ecological, flooding and infrastructure implications

Key management tools

- Land use planning and development control, land tenure
- Coastal emergency response planning, communication
- Community awareness and information
- Scheduled relocation of valuable public assets
- On ground works – protection, drainage, restoration and maintenance, beach nourishment
- Research, review and refine – adaptive management

Different mix of measures for different planning periods

What could be done to reduce risk

- Immediate coastal erosion and geotechnical risk
  - Emergency Response Management Plan (new DECCW requirements for erosion hotspots expected soon)
  - Improve data management, risk assessment and maintenance systems for coastal infrastructure and access assets
  - Community awareness – information brochures, on rate notices, on s149 certificates, community briefings
  - Use clauses in the LEP and DCP to prohibit or restrict **new** development in immediate hazard zone – for erosion hazard, geotechnical hazard and inundation hazard. Same requirements for private development and Council development
  - Safety rails and signage for geotechnical hazards in reserves
  - Address drainage/fill issues affecting geotechnical risk

What could be done to reduce risk

- Immediate coastal erosion and geotechnical risk
  - Require existing development to be removed at set trigger points linked to zone of wave impact and slope adjustment
  - Dune stabilisation and revegetation activities, including beach scraping and vegetation recovery programs
  - Beach nourishment using sand dredged from The Entrance channel
  - Build structural protection such as sea walls – rock and/or geotexile bags to protect **public assets** and access
  - Build or upgrade structural protection such as sea walls – rock and/or geotexile bags to protect **private property** (with ongoing commitment to maintain beach amenity and protect adjoining property from adverse consequences). Options for short/interim term protection or longer term protection
  - Clarify land tenure on beaches to maintain public access

Wyong Coastline Management Plan

What could be done to reduce risk

- 2050 and 2100 planning periods
  - Use LEP and DCP clauses to restrict locations, design and types of private development on lots within coastal risk areas
  - Use LEP and DCP clauses to introduce timed consents linked to coastal risk period. Options for extension and for mandatory demolition
  - Locate new surf club buildings outside the coastal risk areas for appropriate planning horizons
  - Split surf club functions to link investment to risk and function. Design exposed structures for retreat during emergencies or in the long term
  - Establish a structured plan and funds for relocation/protection of major community infrastructure e.g. Central Coast Highway

What could be done to reduce risk

- 2050 and 2100 planning periods
  - Use zoning to protect land suitable for retreat of vulnerable ecological communities and strengthen vegetation communities on dunes outside risk areas
  - Establish conservation agreements for coastal ecological communities
  - Further research/assessment of risks to coastal lakes
  - Seek alternative, larger sources of sand for beach nourishment – e.g. off shore sand. Continue to review entrance dredging plan for Tuggerah Lake
  - Government acquisition of private ocean frontage land within coastal risk areas

Wyong Coastline Management Plan

What could be done to reduce risk

- 2050 and 2100 planning periods
  - Construct/maintain sea walls to protect public and private assets (as for immediate coastal risks). Must provide integrated protection. Consider geotechnical and erosion hazards
  - Install nearshore artificial reefs to reduce wave impact
  - Establish user pays framework for coastal protection works
  - Investigate tradable or transferable development rights for owners of high risk land

Some opportunities

- Coastal walk and mountains to the sea walk
- Disabled access to beaches and headlands
- Interpretation and signage – coastal stories, values, processes, safety – design themes
- Ocean boat access
- Community involvement in biodiversity projects
- Social projects for sustainable communities
- Community surveys – satisfaction with coastal facilities – feed into review process

Which actions should be in the plan?

- Extent of risk reduction or positive benefit
- Specific locations where the action makes a difference
- Costs – up front and maintenance
- Can funding be obtained, are partnerships feasible?
- Policy and statutory constraints to implementation. Can it be approved? How long/what effort to gain approval?
- Multiple benefits?
- Community acceptance

Contact us

- Greg White and Kurt Sorensen at WSC
- Umwelt: Pam Dean-Jones
  - pdeanjones@umwelt.com.au
  - Phone 49505322

Wyong Coastline Management Plan

Options for managing coastal risks

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Responses to risk

- Risk combines the likelihood of a hazard or threat occurring and the consequence
  - safety
  - financial cost, including loss of property, infrastructure
  - access and amenity
  - economic opportunities
  - statutory compliance
  - loss of biodiversity
- Risks occur in immediate and longer term time frames

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Coastal hazards

- For Wyong, the main coastal hazards creating risks are:
  - Coastal erosion (immediate storm bite)
  - Coastal recession (medium to long term), largely driven by sea level rise
  - Oceanic inundation and lake entrance processes
  - Geotechnical processes (land slip and rock fall)
- Other human activities and processes create opportunities but can also threaten important coastal values, creating or increasing risks

Who is affected by coastal risk?

- Coastal hazards create risks for:
  - Landowners and other residents
  - Businesses
  - Council
  - State Government
  - Visitors and recreational users
  - Environmental values

Indicative risks - immediate

- **Immediate planning period**
  - Storm erosion of houses/property (53 houses in zone of wave impact and slope adjustment)
  - 3 surf clubs – zone of reduced foundation capacity
  - Geotechnical/landslip impacts on houses/property/reserves at Cabbage Tree Harbour, Jenny Dixon Beach, Norah Head and The Entrance
  - Balancing new development, recreational and tourism uses with biodiversity values – such as shore bird habitat

Wyong Coastline Management Plan

Indicative risks - 2050

- **2050 planning period**
  - Storm erosion and coastal recession impacts on houses and property: 101 houses in zone of wave impact and slope adjustment
  - Surf clubs in zone of wave impact and slope adjustment
  - Threat to community infrastructure – pump stations, reticulation system etc.
  - Ongoing geotechnical issues – more properties affected
  - Maintaining safe public beach access on a receding coast – managing land tenure and access ways

Indicative risks – 2100 planning period

- 2100 planning period
  - 135 houses in zone of wave impact and slope adjustment, plus parts of other properties
  - Coastal holiday parks eroded
  - Further geotechnical process impacts at Jenny Dixon Beach, Cabbage Tree Harbour and Toowoon Bay
  - Loss of Surf Club, carpark, access and foreshore facilities at Shelly Beach, Soldiers Beach, Lakes Beach, North Entrance Beach
  - Central Coast Highway – eroded and/or inundated
  - Other public infrastructure – sea walls, pumping stations, reticulation system
  - Potential breach of barrier and changed entrance processes: ecological, flooding and infrastructure implications

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What makes a good response?

- ESD or ‘triple bottom line’ assessment
- Preferred options:
  - Reduce important risks – for all stakeholders
  - Robust over various time scales
  - Are cost effective – affordable and good value for money – up front and maintenance costs
  - Have community support
  - Have limited ‘downsides’
  - Comply with statutory and policy requirements
  - Create opportunities
  - Performance can be tracked and reviewed

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Six main types of response for coastal hazards

- Beach nourishment
- Coastal vegetation management
- Sea walls and other structures
- Planned retreat – statutory, policy and planning
- Compulsory and voluntary acquisition
- Do nothing – rely on emergency response

Also consider research and awareness/education

Also options to protect coastal values or encourage community enjoyment of the coastline

Beach nourishment

- Sand sources
  - Tidal delta deposits – in lake entrance – already cycling sand onto North Entrance Beach
  - Beach 'scraping' to move beach volume landward after storms
  - Coastal dunes – old beach ridges or transgressive dunes
  - Offshore sand deposits

Beach nourishment considerations

- Tidal deltas –
  - limited volume available
  - impact on recreational safety in entrance channel
  - Budgewoi option – biodiversity conservation value
  - Sand quality – organic content, ASS?

Beach nourishment considerations

- Terrestrial sand – dune sources
  - Sand extraction in national parks not permitted
  - Sand grain size and mineralogy for open ocean coastline
  - Dune deposits have significant commercial value – construction sand, glass making
  - Transport distances and costs
  - Biodiversity value of vegetated dune fields

Beach nourishment considerations

- Offshore sand sources (continental shelf)
  - Large volume of sand, but difficult to access
  - Currently prohibited in NSW
  - Exploration licence application off central coast rejected December 2009
  - Requires special equipment/technology (deep water dredges)
  - AECOM 2009 study for 3 high risk Sydney beaches estimated $300 million for first nourishment campaign (12 million m^3), plus $120 million every 10 years
  - Biodiversity issues – dredge sites, transport and storage

Planned retreat

- Land use planning tools (LEP, DCP, zoning and consent conditions) to control new development – reduce future exposure of development – land owners to make informed choices about risk
- Due diligence for Council and State government – providing best, up to date advice about risk, and using it themselves
- Same principles to apply to public assets and private assets

Planned retreat

- s149 notification, also rate notices
- Prohibit new development in immediate coastal risk areas
- Design and set back requirements for 2050 and 2100 coastal risk areas – structures that can be relocated or can withstand storm bite
- Timed consents – linked to coastal risk and to asset life
- Trigger points for relocating major community infrastructure – roads, sewer systems – scheduling major investment to asset life

Planned retreat issues

- Impact on existing landholders –
  - Maintenance of existing development
  - Loss of land value
  - Insurance cover issues
- Broader economic development issues where tourism infrastructure/assets are affected
- Land tenure issues on retreating coastline

Planned retreat and voluntary acquisition

- State or local government purchase of affected properties
- Not currently State policy for properties in coastal risk areas
- Very high cost at current market values – impact on council rate base and State budget
- Timing issues – when would property be acquired?

Structural protection

- Sea walls – rock, e.g. The Entrance, Cabbage Tree Harbour toe protection
- Geotextile bag sea walls/structures
- Groynes
- Offshore artificial reefs – geotextile, other materials
- Clear, robust ‘line in the sand’ protection, and/or modification of natural sand movement processes

Structural protection considerations

- Cost of rock walls – Cabbage Tree Harbour proposal is $2million for about 200 metres of low wall. Geotextile walls are about 50% of the cost of rock walls
- Require specialist engineering design, generally imported materials. Past examples of rubble/dangerous materials being used
- Affect dynamics in creek and lake entrances; offshore bars and rips - when waves bounce off the wall

Wyong Coastline Management Plan

Structural protection considerations

- Transfer erosion hazards further along the beach and/or reduce beach sand volume in front of the wall – reduced recreational access and amenity
- Maintaining recreational values will usually require concurrent beach nourishment – at landowner cost – new legislation for this

Structural protection considerations

- Geotextile walls have less impact on access safety (rounded, not sharp)
- Geotextile bags need a supply of suitable sand
- Geotextile bags are less robust than rock structures, but can be moved or topped up more readily – good for emergency and short term protection
- Artificial reefs – for fish habitat, surfing breaks and beach protection (create a control point off shore)
- All structures have some impacts on biodiversity – but so does severe erosion

Do nothing – rely on emergency response

- Allow ongoing residential and commercial development of the coastal dune system, within ‘coastal risk areas’ – could apply to immediate, 2050 or 2100 time frames
- Emergency protection/beach nourishment and safe egress for residents in place
- Land owners responsible for removing debris if house is undermined/collapses during a major storm event

Do nothing and rely on emergency response

- Emergency engineering works can have long term impacts – Code of Practice for emergency works
- Suitability of emergency response depends on what would be required - e.g. How much emergency sand/geotextile bags are needed and can they be got into place in time to make a difference?
- Council required to be consistent in its approach – e.g. retreat policy would reduce likelihood of investing in emergency protection works

WYONG SHIRE COUNCIL

MINUTES OF THE
COMMUNITY COASTAL WORKSHOP ON
SUSTAINABLE MANAGEMENT OPTIONS

TONY SHERIDAN FUNCTION ROOM
WYONG SHIRE COUNCIL CIVIC CENTRE
16 HELY ST, WYONG
MONDAY 29 MARCH
6- 8:30PM

Facilitators

Neil Kelleher	Department of Environment, Climate Change and Water (DEECW)
Phil Watson	Department of Environment, Climate Change and Water (DEECW)
Pam Dean-Jones	UMWELT
Greg White	Wyong Shire Council (WSC)
Kurt Sorensen	Wyong Shire Council (WSC)

63 persons attended the workshop. Participants included residents, business owners, council staff and councillors.

Greg White (WSC) opened the meeting at 6.10 pm and welcomed participants, speakers and Neil Kelleher (DECCW) who facilitated the rest of the evening. Neil acknowledged the Darkinjung as the original owners of the land and introduced Phil Watson.

Phil Watson's (DECCW) Presentation: Climate Change and Sea Level Rise

Phil provided a simplified explanation of current climate change science. This included a quick overview of the climate system and greenhouse effect. He then demonstrated the close links in levels of CO^2, temperature and sea level rise (SLR) over the past 400, 000 years.

Phil contextualised sea level rise in the broader climate change picture and explored the current projections, particularly those from IPCC. Since the first IPCC report in 1990, sea level has risen 62mm. This is tracking at about the upper limit of the IPCC predictions. If sea rise continues at this projected upper limit, we would expect sea level rise of 0.91m by 2100. Phil explained that even if we could reduce our greenhouse emissions substantially today, sea levels and mean temperatures would continue to rise and take hundreds of years to reach equilibrium.

Phil explored the myriad of impacts of sea level rise on the natural and built environment, particularly focusing on beach recession and loss of beach amenity. King tide photos from January 2009 were used to illustrate the current vulnerability of NSW to tidal inundation.

Phil outlined some of the issues for coastal zone managers. These included;

- Sea level rise is already happening and predictions point towards 0.9m by 2100
- There are uncertainties over extent and time and the impacts are varied and extensive
- There are duty of care issues as well as liability and insurance concerns

- Differing coastal areas will have varying capacity to adapt to sea level rise
- There will be differing *"Tipping Points"* beyond which adaptation becomes uneconomic from an engineering perspective

Phil offered his suggestions of where to go from here. Particularly, developing more lateral and innovative planning tools and waterfront property titling systems to enable more orderly staged retreat for vulnerable areas. Other suggestions included:

- Considering the above coastal issues within a "Risk Management" framework
- Preparation of Coastal Zone Management Plans that consider a sensitivity analysis for SLR over various planning horizons (S733 LGAct 1993)
- Applying the "Precautionary Principle" judiciously from a planning perspective
- Adoption of a state-wide (or national) standard SLR for various planning horizons for development assessment and strategic planning
- Develop planning guidelines on how to consider SLR for strategic planning and development assessment (DA) purposes

Finally, Phil provided an overview of current State Government legislation, polices, guidelines and other initiatives. This included an explanation of the NSW Sea Level Rise Policy (November 2009) and associated coastal reform elements.

Pam Dean-Jones's (UMWELT) Presentation: Options for Managing Coastal Risk

Pam explained what coastal risk was and what it meant for Wyong Shire. Risk combines the likelihood of a hazard or threat occurring and the consequence. Hazards occur over varying timeframes (e.g. immediate, 2050 and 2100), and affect various stakeholders.

For Wyong, the main coastal hazards creating risks are:

- Coastal erosion (immediate storm bite)
- Coastal recession (medium to long term), largely driven by SLR
- Oceanic inundation and lake entrance processes
- Geotechnical processes (land slip and rock fall)

Pam identified and discussed the 6 main responses for coastal hazards. These are;

- Beach nourishment - sand sources include tidal delta deposits (I.e. in lake entrance already cycling sand onto North Entrance Beach), beach 'scraping' to move beach volume landward after storms, coastal dunes (old beach ridges or transgressive dunes) and offshore sand deposits
- Coastal vegetation management
- Sea walls and other structures - these include groynes, artificial reefs and the use geotextile bags
- Planned retreat - statutory, policy and planning
- Compulsory and voluntary acquisition
- Do nothing - rely on emergency response

Pam identified that we also must consider research, awareness/education of the community, options to protect coastal values and encourage community enjoyment of the coastline.

Group Discussion and Workshop

There were 7 tables for the workshop each table with approximately 9 chairs. Each table was given one of the options from the 6 options above, plus one table which looked at 'other' options. Each table was then asked the following questions;

1. Where could the option apply in Wyong Shire?
2. List the strengths and weaknesses of the option in regards to the three aspects of sustainability. These are;
    a) Environment
    b) Society
    c) Economy

The answers for each option were recorded on mind-maps. Each table chose a representative to present their responses at the end of the workshop. See table 1 below for a summary of these responses.

Table 1: Community Responses for the Sustainability of Management Options

	Where could it be applied?	ENVIRONMENTAL SUSTAINABILITY	SOCIAL SUSTAINABILITY	ECONOMIC SUSTAINABILITY
Beach Nourishment Note: Should be done in conjunction with vegetation management	- Bateau Bay - Shelley Beach -The Entrance (incl. near the channel) -North Entrance (beach near Curtis Pde) -Cabbage Tree Harbour - Soldiers Beach -Lakes Beach (SLSC) -Blue Lagoon -Hargreaves Beach -Jenny Dixon Beach	**STRENGTHS:** - Generally replicates existing environment - Opportunities to refine, correct and adapt process **WEAKNESSES:** - Potential impact on beach ecology - Potential Acid Sulphate Soils - Potential impact on offshore ecology -Impacts on source/mining area's ecology	**STRENGTHS:** - Safety, I.e. covering exposed dangerous items - Delays impacts so other options can be considered - Maintains beach use amenity **WEAKNESSES:** - Dredging and nourishment can affect short term use - May not get community acceptance	**STRENGTHS:** - Minimise potential need for property acquisition - Retains beach amenity for local tourism economy etc - Mutual benefit in dredging sand from channel to reduce risk and increase amenity Protects property and assets **WEAKNESSES:** - Only temporary, therefore ongoing expenditure - Not cost affective to use for most areas on Wyong's coastline - Costly (transport and extraction)
Coastal Vegetation Management	- North Entrance - Budgewoi - Tacoma - South Tacoma - Lake Foreshores (Lake Munmora, Budgewoi) - River Banks - All river mouths (Wyong, Tumbi and Wallorah Creek) Riparian Zones	**STRENGTHS:** - Protect property - Habitat for flora and fauna - Increased ecology - Protect biodiversity - Improved micro-climate **WEAKNESSES:** - Cost to homeowners - Loss of species - Pollution	**STRENGTHS:** - Improved aesthetics of vegetation **WEAKNESSES:** - Loss of access - Amenity loss - Could diminish way of life	**STRENGTHS:** - Preservation of species and biodiversity for future human needs **WEAKNESSES:** - Property loss to vegetation encroachment - Devalue property (loss of views etc)
Sea Walls and Other	-South Entrance -North Entrance	**STRENGTHS:** - Protect biodiversity behind wall	**STRENGTHS:** - Protect private property as well as	**STRENGTHS:** - Protect valuable assets

Structures	-Cabbage Tree Harbour	-Training walls can help keep the lakes entrance open and flushed - Artificial reefs and headlands can encourage biodiversity **WEAKNESSES:** - Loss of beach due to erosion in front of wall -Change to natural sand movement - Environmental effects of structure falls apart or not properly maintained - Disruption to sand dunes and vegetation during construction phase - Increased erosion longshore or in other areas from seawalls	council infrastructure and other assets - Protect highly developed areas - Artificial reefs can improve surfing breaks **WEAKNESSES:** - Loss of natural appeal - Loss of beach width	- Job creation in construction and ongoing maintenance **WEAKNESSES:** - Very expensive - Liability issues if structure fails or causes damage somewhere else
Planned retreat	- Anywhere under the 1/100 flood line that is depicted for 2100 using DECCW benchmarks - Large new developments	**STRENGTHS:** **WEAKNESSES:** - Loss of amenity - "Run out" of land	**STRENGTHS:** - Reduce risk of flooding - Stay in preferred location/lifestyle - Opportunity for landowners further back to become new waterfront property **WEAKNESSES:** - Loss of local communities - Loss of everything due to lack of insurance for landowners when a natural disaster occurs - Legal problems	**STRENGTHS:** **-** Potential cost of removing/relocating may be less than trying to "stop" the water and erosion **WEAKNESSES:** **-** Cost for future owners - Possible devaluing of land - Reduced number of land owners could reduce rates base thereby increasing rates for rest of community - Increased insurance costs - Legal mine field
Compulsory and Voluntary Acquisition	-Low Lying Areas -Cliff Faces -Chittaway Bay -Rocky Point -Hargreaves Beach	**STRENGTHS:** **-** Land may be used for environmental protection - Increased biodiversity	**STRENGTHS:** **-** Includes owners in decision making process (in voluntary acquisition), and other owners may follow suit.	**STRENGTHS:** - Reduces ongoing liabilities - Could be more cost effective over a long period of time - Voluntary acquisition reduces

	-Jenny Dixon Beach -Cabbage Tree Harbour	**WEAKNESSES:** - Reduced funding available for environmental initiatives	- Allows owners to move on - Reduces liability **WEAKNESSES:** - Loss of home - Social upheaval consequences (incl. stress and depression) - Litigation - People have sentimental value of home (which they may lose)	litigation costs **WEAKNESSES:** - Could be very expensive - Reduced number of land owners could reduce rates base thereby increasing rates for rest of community
Do Nothing	Everywhere	**STRENGTHS:** **-** Development tendencies would change because of risk so people would build on higher ground - It would avoid the impacts of "coastal works" and continued maintenance **WEAKNESSES:** - Vulnerability - Loss of biodiversity - Lack of planning - Potential for catastrophic disasters - Neglecting responsibility	**STRENGTHS:** **-** Avoid conflict in the short term between government, landowners and other stakeholders **WEAKNESSES:** - Loss of beach amenity - Liability (I.e. council not acting in good faith) - Increased threat to life and property	**STRENGTHS:** - Cheap in the sort term **WEAKNESSES:** - Depleted land value - Loss of infrastructure - Loss of tourist income - Reduction in opportunities - Increased insurance or losing ability to insure Mortgage impacts
Other	There were a variety of other ideas that were explored including; **Living Underwater** **-** Could it be possible to use mining cavities? - Socially it could work, but could we support it economically and environmentally? **Houses on Stilts in the water** **-** There would be additional costs for building the foundations - Waste disposal could be a problem - It would be difficult to have a garden - Transportation and other infrastructure would be difficult and expensive to construct/maintain **Live on the Water (e.g. Houseboats)**			

	- Good for those who like fishing - Waste disposal could be a problem - Could be problems with being isolated/away from society - Difficult to have a garden **Dyke System (e.g. Holland, New Orleans)** - Huge environmental and economic cost for construction and continued maintenance **Live off the planet (e.g. Space Stations)** - Huge economic costs - Is the technology available - Isolation from rest of society could be problematic **Ocean Cooling** - Would the financial benefit of stopping sea level rise outweigh the costs of supplying an energy source? - Huge economic costs - Environmental effects and associated eco-system disturbances

The Panel

Neil Kelleher (DECCW) facilitated "The Panel" which consisted of Phil Watson (DECCW), Pam Dean-Jones (UMWELT) and Greg White (WSC). The workshop groups where asked to record any questions, issues or suggestions that they had throughout the evening. The questions were then answered at the end of the evening by "The Panel". Some examples include:

- Given existing flooding levels in many old Wyong suburbs likely affected by sea level rise, what liability exists on council to carry out drainage improvements to meet future predicted impacts?
- Application of sea level rise benchmarks has been applied in full by adding to known lake flood levels. By management of the entrance to the lakes, flood levels may be able to be reduced, but by how much we don't know. I suggest a detailed hydraulic study is required.
- Do you feel noxious weed establishment along our coast has had a major effect on coastal stabilization?
- Compulsory and voluntary acquisition, who pays, and who values the asset?
- There is a need for adequate ongoing funding to ensure implementation of strategies.
- Where are the 53 properties that are in the immediate hazard zone?

Feedback Forms

The workshop attendees were given feedback forms at the end of the evening. Of the 63 attendees, 21 feedback forms were returned. Below is a summary;

90% of respondents found the workshop informative to extremely informative.

67% of respondents agreed to strongly agreed that the workshop improved their knowledge of the Coastline Management Plan.

89% of respondents found the workshop useful to extremely useful.

Below are the comments, suggestions and questions that participants submitted.

What is the key message you will take from this workshop?	**Participant Comments**
The science is conclusive and should not be ignored. Climate change and sea level rise is real.	5
Community consultation is very important.	4
Coastal Management is a very complex issue with many different options.	3
There is much work yet to be done, council needs to do a lot more.	3
We need a balance of options and think about them sustainably.	2
Careful planning is important and is being undertaken at all levels of government.	2
Climatic impacts are a complex issue which require a strategic approach.	2
Coastal landowners should familiarise themselves with the "Exposure Bill".	1
Responding to climate change now is important for inter-generational equity.	1
Future planning is essential and we should learn from past mistakes.	1

We should be looking beyond the 2100 planning period.	1
All options are costly- even doing nothing.	1
We need consistent and responsible application of council policy.	1
We need to think laterally about the risks and solutions.	1
We need to weigh up the three principle of sustainability when considering coastal management options.	1
If you have low lying or coastal land you should sell soon.	1
No concrete decisions have yet been made regarding our local area and management options.	1

Do you have any further comments or suggestions?	**Respondent Comments**
A need for continued community workshops on coastline management .	2
The information presented was biased, and there should be a speaker for both sides of the climate debate.	2
There are a lot of ifs and buts and not enough evidence to suggest climate change is happening.	2
The staff presented a fantastic workshop .	1
All Council's should lobby state government to invest in green energy technologies to help mitigate climate change.	1
Revegetation and bush regeneration are the cheapest options that reduce need for engineering solutions and improve environmental amenity.	1
Discussion was too broad- need to relate more to immediate environment.	1
More research is needed to direct the most effective response.	1
Storm water should be redirected so it doesn't flow into the lake system and ocean. This mean water wouldn't be able to flow back up through the stormwater drains as depicted in the king tide photos.	1
Detailed hydraulic studies of Tuggerah Lake are needed.	1
Workshop should be better explained at start.	1
Question time should be at the start.	1
It will be interesting see how Wyong Council will respond to climate change now with no climate change policy.	1
More time for "The panel" Q and A's.	1
Staff should have supplied information about solar radiation as it affects all things.	1

Any other questions?

What will S149 notification be? Could this be commented on or objections lodged by the landowner?
Could landowners in each affected area elect a representative to join council for more specific information about their area?
What's the point of reducing CO2 emissions if global warming will still continue long into the future?
Water expands when frozen, so why would it expand when heated?
1974 storm event that caused heavy erosion was just a one of, hasn't the beaches built up since?
Why allow 2.2m rise in lake levels during the floods?

Planning for sustainable management of the Wyong coastline
Community Issues and values workshop Minutes

Tony Sheridan Function Room
Wyong Shire Council Civic Centre
16 Hely St, Wyong
Tuesday 17 November
6-8:30pm

Facilitated by Pam Dean-Jones from Umwelt Australia, Greg White and Jess Bourchier from Wyong Shire Council

63 attendees

A short presentation was completed by Pam Dean-Jones from Umwelt including:

- Challenges for managing Wyong Shire's coastline
- Community input – workshop to understand communities perspective on issues that need fixing, what's important about the coast, and preliminary concepts on coastal management direction
- About the science and an introduction to LiDAR
- Policy and guidelines from the Commonwealth Government
- New NSW Government policy and guidelines

The first small group discussion was focused around the question: What are the issues? The main issues raised where:

- The impact to existing properties, land values and insurance, and the uncertainty accompanying these issues
- Development on existing properties
- Sea level rise
- Beach erosion and dune management
- Risk to tourist infrastructure and income
- Risk management rests with residents

Other issues raised where:

- Reliability of LiDAR and generalisation of study over the coast
- Removal of rocks at The Entrance beach to build Oaklands Ave
- Emergency procedures during storm events
- Dredging of The Entrance channel and/or protection wall
- Land sterilisation and rate adjustments
- Sustainable population of the Shire
- Littering and pollution of the beaches and Tuggerah Lake
- More conservation areas for marine and coastal areas
- Too much coastal development
- Funding for native coastal dune vegetation regeneration groups
- Assets provided in newer popular beach areas
- Changes to development/settlement patterns
- Security of potable water supply
- Storm surge
- If sea level rise occurs and with storm surge there won't be a North Entrance
- Bank loans for prospective buyers will decrease
- Policy changes should be specific in requirements

A group discussion was then focused around the question: What do you value about the coastline?
The main values where:

- The lifestyle
- Beach amenity, protection, safety and access for all including the disabled
- Properties (values, insurance, development)
- The right to build and maintain own land
- Infrastructure

Other values raised where;

- The environment
- Tuggerah Lakes
- Conservation of intertidal zones
- Water quality for swimming
- Tree on Yalarra Island, The Entrance
- Healthy beaches and dunes
- Community at The Entrance North
- More community input
- Protection of all assets – open spaces, property, natural environment, community and infrastructure
- Fishing

The last group discussion was focused around the question: How could these values be protected?
The main ideas raised where:

- Seawalls / protection works
- Beach nourishment from outside the system and dune management with native coastal vegetation regeneration

Other ideas raised where:

- Council buy back
- Emergency response – long term and prior planning
- Correct dune restoration and management
- Correct beach access
- Appropriate development in perpetuity
- No blanket decisions for coastline – use a case by case assessment
- More co-operation regarding beach maintenance between local government and general community
- Clear and concise guidelines
- Retreat or protect
- Planning for uncertainty
- Protect now to stop falling property values

Other questions that where raised include:

- How much has sea level risen since 1990?
- Is sea level rise really happening?
- Council should visit properties and visit questions
- Specific guidelines are needed for criteria of ‘appropriate development’
- Who is responsible for human, property and community welfare?

Comments
68% of attendees where residents, and 60% of residents where from The Entrance North
76% of residents that attended lived on the street from the beach, while 18% lived on Tuggerah Lankes.
4 members of the Tuggerah Lakes Estuary Management Committee
No heritage values where raised
Most comments where self serving and many raised issues of land holder rights

Climate change was accepted within the attendees and no one voiced opinions that climate change is not occurring.
There where no calls for the state or federal governments to do anything

Notes from general discussion and group presentations, community meeting November 2009

Issues

- Building
- Development in North Entrance
- Dredging of/protection wall at The Entrance channel
- What's going to happen to the proposed boardwalk in front of houses on the lake side of North Entrance
- Existing properties in North Entrance
- Impact on existing land prices
- Overall coastal erosion
- How reliable is LiDAR
- Protect existing properties
- Emergency management plan
- Dredging of The Entrance channel
- What alternative protection
- Property values
- Land sterilisation – what will happen to rates?
- Think that with SLR and storm serge there won't be a North Entrance
- Land Prices
- Insurance
- Bank Loans to prospective buyers
- The Entrance channel sea wall
- Compensation if lose properties
- Loss in Tourism – everyone loses out
- Risk management lies with residents
- Policy changes should be specific in requirements
- Communication between council and the community
- Generalisation of studies and quality of data for long term assessments
- DA's being stopped now because of changes to legislation in the future
- Preventative measures to human, community and property welfare – who's responsible and how will it be protected?
- Beach erosion/dune management, if dunes managed properly erosion is reduced
- Litter on beaches
- Management of Tuggerah lakes and pollutant levels
- Conservation areas including marine and intertidal zones
- To much development on the coast
- There is no dune vegetation at erosion areas
- Appropriate development in perpetuity
- Residence to take some responsibility
- How are properties going to be protected from falling property values, lack of insurance, inundation from lakes

Values

- All Government levels have a duty of care to residents
- Maintain rights, to use and do what like with land
- Conservation areas including marine and intertidal zones
- Recreation
- Beach amenity
- Sustainable population
- Open beaches for everyone
- Amenity

- Protection of assets including beaches, property, natural environment, flora and fauna, and water/sewer/infrastructure
- Lifestyle, whole community values
- Environment
- Beach safety during storm swells
- Protect properties and Surf Lifesaving Clubs
- Protect beach
- Tree on Yallara Island – The Entrance
- Healthy beach – healthy dunes
- Disabled beach access and parking facilities
- The Beach
- Community at The Entrance North
- Lifestyle
- Fishing
- People come to the Shire for the beaches
- Lifestyle
- Properties, human and intertidal rights
- Critical infrastructure – bridges/roads
- Property values
- Environment
- Properties – council act with community input

Protect Values/Management Options

- Will Council buy back
- Seawalls
- Use of offshore sand for beach nourishment
- Emergency response- long term and prior planning
- Management of beach access
- Correct dune restoration/management
- Proper dune management
- Use of sand nourishment and vegetation together (at the moment sand dredged from The Entrance channel isn't used with vegetation) – sand sourced from outside the system
- Wait 50 years and see what happens…?
- Dune stabilisation with vegetation
- Correct beach access
- Emergency response plans completed correctly
- Appropriate development in perpetuity

Other

- What happened to the geotextile bag trial
- How much has the sea level risen since 1990
- Is SLR happening
- Prevention better than cure
- Council should go to properties and answer questions
- Appropriate development = take into consideration forward planning and sea level rise factors to determine decision if impact on that property
- Appropriate development = withstand coastal hazards, doesn't impact on other properties, build to what infrastructure is already in place (no new roads, water/sewer)
- Specific guidelines are needed for criteria of "appropriate development" that don't use words such as sustainable. Should be a specific list of points.

Notes from table group discussion during workshop, November 2009

Issues

- Sea level rise
- Fort Denison recording (Facts??) 50 years and 100 years data
- Coastal erosion
- LiDAR mapping
- Gravel mining Cabbage Tree Bay
- Protection of existing homes
- The entrance beach removal of rocks to build Oakland Ave.
- Emergency procedures
- Dredge strategy (monitoring reports)
- When The Entrance channel is closed beach accretes sand
- Peel Harvey Estuary
- Government duty of care
- Uncertainty –property devaluation
- Land sterilisation – adjustment of rates
- Sustainable population
- Environmental management - burn offs etc
- Beach erosion (Dune management)
- Littering/pollution
- Tuggerah lake – pollution levels and management
- More conservation for marine and coastal areas
- Too much coastal development
- Correct beach access
- Appropriate development in perpetuity
- Residence take some responsibility
- Funding for native coastal vegetation regeneration for groups
- Assets (eg. toilet blocks) provided in newer popular beaches, eg. Hargraves beach
- Hazard lines need to be looked at based on the specific circumstances of the coast ie Toowoon Bay ahs different stability to The Entrance North, don't generalise results
- Risk management rests at the resident
- Reducing value of beachfront land (by not allowing risk management) will have spinoff effects in attracting business leaders – economic impacts and demographic mix
- Changes to area of land affected by flooding due to sea level rise – communication of new boundaries
- DA's being held for future legislation
- Risk to tourism infrastructure and income
- Risk of economic loss – private and public lands – falling values
- Changes to development/settlement (patterns)
- Insurance and funding issues
- Security of potable water supply
- Development in North Entrance
- Board walk in front of properties
- Existing dwellings
- Impact existing land values
- Climate change
- Sea level rise
- Storm surge
- Quality long term data required
-

Values

- Crucial infrastructure in terms of floods, road heights
- Free and open beaches
- Sustainable population
- Correct beach access\
- Protection of open space
- Lifestyle
- Beach lifestyle for whole community
- Property values
- The environment
- Beach access for residents as well as community
- Infrastructure (roads, water, sewer, etc)
- Beach safety (bigger more frequent storm swells, exposed rock shelfs)
- Environment – Lake – Killarney Vale and Chittaway
- Maintaining existing rights of residents
- Right to maintain/protect own land
- Maintaining community services (sewage)
- Flood management eg keeping The Entrance channel open
- Effects on natural environment
- Toowoon Bay
- The right to protect my property
- Human rights within Wyong Shire
- Tuggerah Lake
- Intertidal zones (conservation)
- Water quality for swimming
- Public access to beaches
- Property (houses, surf clubs)
- Beach
- Beach access
- Tree on Yalarra Island
- Disabled access to beaches
- Healthy beaches and dunes
- Community at The Entrance North
- Properties
- More community input
- Lifestyle
- Amenity and lifestyle
- Beach and property
- Access to coast for all (road access sufficient to overcome flooding)
- Protection of the assets – open spaces, property, natural environment, community, infrastructure

Management Options

- Alternate prote4ction measures
- Look at offshore sand nourishment
- No blanket decisions for coastline – case by case assessment
- Dune/coastal dune stabilisation with native vegetation
- Emergency response – long term and prior planning
- More co-operation regarding beach maintenance and clean between local government and general community
- Clear concise guidelines – what rules/what is required (prescriptive)
    - consistency in benchmark/application/review process
    - should it be consistent across Australia – national standard on scientific data
    - not necessarily based on ‘Council standard” or worst case scenario
- Retreat or protect
- Planning for ‘uncertainty’

- Proper dune management (dune fencing)
- Sand nourishment and vegetation
- Wait for 50 years and try again if something happens
- Proper protection not panic moves
- Rock wall (geotech bags)
- Council prepared to buy back properties

Other

- Changes need to be made to Local Government Act to allow residents to indemnity
- Council to facilitate development – otherwise sterilise land
- What action and how will happen now after this meeting?
- Can Council apply to state government for funding to protect properties with a rock wall?
- Protection now will stop falling values
- The ocean will not join with the lake
- Protect beach or Tuggerah Railway will have a ferry service
- 2007 flooding Curtis Pde was out of water
- Dredging wastes money
- Lake Munmorah is dirty
- Current flows north to south – needs a wall
- Maintaining existing rights of residents
- Right to maintain/protect own land
- Council to meet with residents on properties effected by change
- Answer our questions
- Act instead of talk
- Who is responsible for human, property and community welfare

PRECINCTS AND OTHER ASSOCIATIONS COMMUNITY CONSULTATION

Wyong Shire Council (WSC) has met with coastal precincts and other associations as part of its community consultation for the Coastline Management Plan (CMP). Greg White (WSC) gave a summary of the CMP's history, progress, status, and explained its structure and content. He also gave an overview of coastal hazards, changes in population, sea-level rise (SLR), adaptive management and future management options in Wyong Shire. Below are questions, concerns and feedback encountered during consultations.

Bateau Bay/Killarney Vale Precinct Committee Meeting 8 March 2010

Questions, concerns and feedback;

There was some general confusion regarding the structure and purpose of the Plan including;

- Objectives and targets were in part 1 of the plan, then again in part 4
- If the CMP would also apply to the lake
- If there were any actions in the Plan that could actually stop coastal degradation

A query was raised to discern why council had rescinded the Draft Climate Change Policy.

The Entrance North Progress Association 13 April 2010

Questions, concerns and feedback;

The atmosphere at the North Entrance tended to be more of a political nature and included concerns such as;

- Council tends not to listen to what the community has to say
- If a liberal party state government came into power, couldn't they just turf the CMP

Council has adopted the State Government's Sea-level Rise Benchmarks. This prompted a variety of concerns and confusion as to what floor height residents are required to build new developments and which properties were affected.

There was some frustration voiced as to why The Entrance channel was not being dredged to help alleviate flooding issues. One resident pointed out that Tuggerah Lakes is not a lake but in fact an ICOLL and is naturally intermittently closed.

Budgewoi/Buff Point/Halekulani Precinct Committee Meeting 15 April 2010

Questions, concerns and feedback;

Discussion was mostly based around present and future hazard lines including;

- DCP 77 - Coastal Hazards, as to whether the current hazard lines are available and if they will change with the new CMP
- If hazards maps in the CMP were to include lines around the lake

How the Dutch have used sea-dykes in the past, and how they will use them into the future was briefly discussed.

The Entrance Precinct Committee Meeting 20 April 2010

Questions, concerns and feedback;

Dredging (or lack of) at the Entrance Channel was highlighted and took up much of the discussion time. Concerns included;

- The effects of not dredging and resultant declining fishing stocks
- Council's delays in obtaining a license for dredging

There was some confusion with a question about using bulldozers on the lake. Greg White understood the question as relating to the Lakes Restoration Project and answered the question accordingly, whereas some community members were under the impression he was referring to the Entrance Channel.

Overpopulation/overdevelopment of the Central Coast was identified as adding pressure to existing and future problems.

Windblown sand that ends up on Curtis Parade was identified as a problem, not just because of the driving hazard but also because the sand is then classified as "contaminated" and cannot be placed back onto the beach.

There was concern about the stench at Fisherman's Wharf.

Norah Head Ratepayers Association 3 April 2010

Questions, concerns and feedback;

Concerns regarding the CMP included;

- Changes in State Government legislation could affect the validity of the CMP
- The amount of money council has spent due to hold-ups, and having to rewrite the Plan

There were a number of queries about the existing hazards at Cabbage Tree Harbour including;

- Hazard signage
- Cavity under the boat ramp
- Sharps on the beach
- Storm water issues
- Temporary fencing at top of slope

There were a number of queries about the proposed toe drainage structure including:

- When will construction begin
- Will it be smaller, if so will there be liability issues for council
- What will its lifespan be
- Will council do the construction in house

Storm water issues regarding overflow onto Bungary Road and erosion at Soldiers Beach was discussed.

A general lack in confidence in council was highlighted due to council not delivering promises in the past.