

Shoalhaven Heads Estuary Taskforce

Meeting Date: Wednesday, 02 May, 2018

Location: Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra

Time: 4:00pm

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Agenda

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2. Confirmation of Minutes

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3. Declarations of Interest

4. Reports

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SH18.5	Shoalhaven Heads Entrance Notch Maintenance	28

5. General Business

Membership

Clr Mitchell Pakes - Chairperson

All Councillors

Mr Gareth Ward MP (Nominee – Mr Paul Ell)

Ms Jessica Zealand

Mr Graeme Philpott

Mr Mike James

Mr Phil Guy

Mr David Lamb

Mr Bob Williamson

Mr Barry/Brian Allen

Mr Craig Peters

Mr Gerald Groom

Mr Stephen Short

Ms Robyn Flack

Quorum – Three (3): One (1) Councillor and Two (2) Community Members

Purpose

- Examine options for pursuing a partial or complete opening of Shoalhaven Heads
- Review Councils current Entrance and Estuary Management Plans for Shoalhaven Heads
- Report directly to Council

MINUTES OF THE SHOALHAVEN HEADS ESTUARY TASKFORCE

Meeting Date: Monday, 20 November 2017
Location: Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra
Time: 4.00pm

The following members were present:

Clr Mitchell Pakes - Chairperson
Clr Amanda Findley
Clr Nina Cheyne
Clr Joanna Gash
Clr Patricia White
Clr Mark Kitchener
Clr Bob Proudfoot
The Hon Gareth Ward - MP
Mr Phil Guy
Mr Mike James
Mr David Lamb
Mr Stephen Short
Mr Bob Williamson
Ms Robyn Flack

Others Present:

Russ Pigg – General Manager
Phil Costello – Planning Environment and Development Group Director
Kelie Clarke – Environmental Services Section Manager
Alasdair Stratton – Natural Resources and Floodplain Unit Manager
Ray Massie – Coast and Estuaries Officer
Michael Strachan – Infrastructure Manager
Dr Rafael Carvalho – University of Wollongong

Apologies / Leave of Absence

An apology was received from Clr Alldrick, Clr Wells and Gerald Groom

Confirmation of the Minutes

RESOLVED (David Lamb / Phil Guy)

That the Minutes of the Shoalhaven Heads Estuary Taskforce held on Monday 20 March 2017 be confirmed.

CARRIED

Declarations of Interest

Nil

PRESENTATIONS

Research Findings Shoalhaven River Sediment Transport – Dr Rafael Carvalho

A PowerPoint presentation was provided by Dr Rafael Carvalho.

Mr Rafael Carvalho tabled a report and a copy will be sent with the minutes.

REPORTS

SH17.6 Update on Taskforce resolutions

HPERM Ref:
D17/375925

Mr Phil Guy said that the grant application for River Road should have been given to the community with more time to comment.

Kelie Clarke advised that dredging could not be included in the grant application because it was outside of the scope of the grant guidelines. Mr Guy requested that Council investigate if any State Government Grants available for dredging and pursued as a priority.

Mr Guy was unsatisfied with the statement that it is unsustainable for all boat ramps to be used in all weather conditions.

Mr Guy suggested that the boat ramp in Wharf Road be rebuilt to a regional standard. Council have applied for a Better Boating Upgrade, however it is not explained by Council if this is a complete dig up or an upgrade of the facility.

Mr Guy also said that the Shoalhaven Heads Estuary Taskforce was thankful in relation to the status of the River Road Embankment and that Council had lodged a grant application.

Mr Guy continued & said that the Entrance Management Plan has always been part of the Shoalhaven Heads Estuary Taskforce's Committee Objectives. It has always been advised that reviewing this Plan is a matter of gaining funding. It was discussed at a meeting approximately two years ago that the Plan failed to support actions required. At that meeting the Hon Gareth Ward MP advised that there were numerous grants available subject to a certified Coastal Zone Management Plan (CZMP) or Coastal Management Program (CMP). Council have an adopted Coastal Zone Management Plan but not a certified one.

Council sort certification on the adopted CZMP and the list of requirements requested from the NSW Office of Environment & Heritage (OEH) was very comprehensive. Currently there are no resources in the budget, however, Council is looking at trying to make it happen. The Taskforce was advised that the timeframe for turnaround is very short (six months) and it has taken almost 12 months to get this feedback.

Kelie Clarke was questioned as to whether she felt any of the additional requirements prior to certification were unreasonable from OEH, Kelie advised the main concern was that it was expected that a complete additional round of community consultation was required, it is believed by staff that Council should only be required to put it on public exhibition.

The Hon Gareth Ward MP requested Kelie Clarke to list her concerns regarding OEH's requirements for Gareth to take up with the Minister directly.

Kelie Clarke confirmed that the delay of the River Road grant application was due to the community's uncertainty about the WRL conceptual design, and a further workshop was held with SHET and CCB representatives to work through their concerns and the process. The grant

guidelines were clear that different works could not be included and the overall budget could not be substantially increased. It is up to Council if it chooses to pursue this as a separate issue.

In regard to the Entrance Management Plan, Council's Floodplain & Stormwater Engineer, Mir Abdus Subdan, gave an update of the review of the Entrance Management Plan. Council has successfully obtained a grant to undertake an updated Lower Shoalhaven River flood study and risk management plan, which includes the review of the Entrance Management Plan. This study will take approximately 3 years and the Entrance Management Plan will be reviewed as part of this project once the flood study has been completed.

Recommendation (Item to be determined under delegated authority)

That the Taskforce receive the report for information.

RESOLVED (Phil Guy / Gareth Ward)

That the Shoalhaven Heads Estuary Taskforce receive the report for information with the additional comments from Mr Phil Guy.

CARRIED

**SH17.7 Shoalhaven Heads Estuary Task Force
recommendations - report on financial and resourcing
implications**

**HPERM Ref:
D17/262657**

The Shoalhaven Heads Estuary Taskforce was advised that until the Coastal Zone Management Plan is certified or a Coastal Management Program is developed and certified that none of the other issues can be rectified, this should be a priority.

The Shoalhaven Heads Estuary Taskforce would like to see the commencement and completion of the Entrance Management Plan with community consultation based on current data, with the community incorporated within that plan during community consultation.

Note: Cllr Gash left the meeting, the time being 4.57pm.

The Natural Resources and Floodplain Management Committee evaluated the traditional Estuary Management Plan. Council is committed to reviewing the plan, but it is unknown whether the Entrance Management Plan will be covered. The next step would be to put up a budget bid to Council to consider allocating additional resources required.

Recommendation (Item to be determined under delegated authority)

1. That Council receive the report on financial and resource implications of the Shoalhaven Heads Estuary Taskforce recommended objectives for information; and
2. Council continue to work with the Shoalhaven Heads community to develop River Road Foreshore Precinct to address coastal erosion, as per the options identified in the Draft NSW Water Research Laboratory Assessment of Coastal Management Options.

Recommendation (Phil Guy / Gareth Ward)

That Council

1. Receive the report on financial and resource implications of the Shoalhaven Heads Estuary Taskforce recommended objectives for information; and
2. Continue to work with the Shoalhaven Heads community to develop River Road Foreshore Precinct to address coastal erosion, as per the options identified in the Draft NSW Water Research Laboratory Assessment of Coastal Management Options.
3. Seek certification of its Coastal Zone Management Plan (CZMP) and develop a Coastal Management Program (CMP) based on current data, not only historical data.

GENERAL BUSINESS

SH17.8 Additional Item - Update Proposed Works for the Boat Ramp

Michael Strachan advised that Council applied for the Better Boating Now Program. It is being assessed.

Note: The Hon Gareth Ward MP left the meeting, the time being 5.02pm.

Council is confident that the outcome will be positive.

Further consultation with the Shoalhaven Heads Estuary Taskforce will take place at a later stage.

The concept plan has been prepared and this involves consultation with a number of users.

The Committee responded that the application be put forward to name the Shoalhaven Heads Reef, drop off point. The Committee believes that the three boat ramps will be used to maximum ability during peak periods.

It was also clarified that the statement that the level of service is unsuitable for all weather conditions is due to financial sustainability.

Note: Cllr Gash returned to the meeting, the time being 5.04pm.

Cllr Pakes wished the Committee a Merry Christmas and a Happy New Year.

There being no further business, the meeting concluded, the time being 5.05pm.

Cllr Mitchell Pakes
CHAIRPERSON

SH18.1 Membership Applications Rob Russell and Carol Cassidy

HPERM Ref: D18/132845

Group: Finance Corporate & Community Services Group
Section: Human Resources, Governance & Customer Service

Attachments: 1. Membership Application - Rob Russell [↓](#)
2. Membership Application - Carole Cassidy [↓](#)

Purpose / Summary

To advise the Shoalhaven Heads Estuary Taskforce of Membership applications that require resolution.

Recommendation

That Council appoint Carole Cassidy and Rob Russell as members of the Shoalhaven Heads Estuary Taskforce.

Options

1. As recommended.
2. The Shoalhaven Heads Estuary Taskforce adopt an alternate recommendation.

Background

The Shoalhaven Heads Estuary Taskforce does not currently have a limited membership. Given this it is possible that two (2) new members may be appointed should the Taskforce wish to.

Attached to the report are the applications from Rob Russell and Carole Cassidy which were received in March 2017. Membership applications were deferred at the previous meeting.

Rob Russell stated in his application – “It is essential the mouth or lower sections of the Shoalhaven River remain clean and tidal. It cannot detract from attracting tourists to the area for water recreational activities such as swimming, SUP’s, kayaks, fishing etc. it is also important for oyster farmers and ecological reasons. Additionally we must focus on flood mitigation for the residents along the river and erosion of the river banks.”

Carole Cassidy stated in her application – “I walk the riverbanks with my dog and I fish in the river for recreation, from the wharf on the banks. Ms Cassidy has confirmed that she still wishes to become a member of the Taskforce.



Corporate and Community Services Group

Shoalhaven City Council

Received

Shoalhaven Heads Estuary Taskforce Community Member Application Form	06 MAR 2017 File No. _____
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File No: 45866E

Referred to: A. Stratton

The purpose of the taskforce is to examine options for pursuing a partial or complete opening of Shoalhaven Heads and review Council's current Entrance and Estuary Management Plans for Shoalhaven Heads

Applicant's Name:	<u>Rob Russell</u>
Applicant's Address:	<div style="background-color: black; width: 100%; height: 100px;"></div>
Telephone:	
Email (this is the primary address for our communication with you):	
Why are you interested in the sustainable management of Shoalhaven Heads Estuary?	<u>It is essential the mouth or lower sections of the Shoalhaven River remain clean and tidal. It cannot detract from attracting tourists to the area for water recreational activities such as swimming, SUP's, kayaks fishing etc. It is also important for oyster farmers and ecological reasons. Additionally we must focus on flood mitigation for the residents along the river and erosion of the river banks.</u>

Attributes	Please circle one	
Do you like to share ideas with other people?	<u>Yes</u>	No
Do you respect people who have a different opinion or view than yours?	<u>Yes</u>	No
Do you accept compromise?	<u>Yes</u>	No
Are you interested in working in partnership with government agencies, technical experts and Council?	<u>Yes</u>	No

SH18.1 - Attachment 1


Are you a member of an existing body?	Please circle one		Name of Group or Body
Community Consultative Body?	Yes	<input checked="" type="radio"/> No	
User Group (ie. Fishing Club, Boating Club etc)	<input checked="" type="radio"/> Yes	No	SHOALHAVEN HEADS GOLF CLUB
Conservation Group (ie. Bushcare, Landcare, Dunecare group etc)	Yes	<input checked="" type="radio"/> No	
Primary Producer Industry Group (such as oyster growers group, commercial fishing group etc)	Yes	<input checked="" type="radio"/> No	
Do you have extensive professional experience in Natural Resources or a related field?	Yes	<input checked="" type="radio"/> No	

Applications Close 5.00 pm 6 March 2015

Return to: council@shoalhaven.nsw.gov.au

The General Manager
Shoalhaven City Council
PO Box 42
Nowra NSW 2541

Attention: Rosemarie Collier

	Corporate and Community Services Group Received: - 1 MAR 2017
	File No. _____ Referred to: <u>R. Collier</u>

**Shoalhaven Heads Estuary Taskforce
Community Member Application Form**

File No: 45866E

The purpose of the taskforce is to examine options for pursuing a partial or complete opening of Shoalhaven Heads and review Council's current Entrance and Estuary Management Plans for Shoalhaven Heads

Applicant's Name: CAROLE CASSIDY

Applicant's Address: [REDACTED]

Telephone: [REDACTED]

Email (this is the primary address for our communication with you): [REDACTED]

Why are you interested in the sustainable management of Shoalhaven Heads Estuary?

I walk the riverbanks with my dog and I fish in the river for recreation, from the wharf, or the banks.

Attributes

Please circle one

Do you like to share ideas with other people?

☒ Yes No

Do you respect people who have a different opinion or view than yours?

☒ Yes No

Do you accept compromise?

☒ Yes No

Are you interested in working in partnership with government agencies, technical experts and Council?

☒ Yes No

Are you a member of an existing body? Please circle one Name of Group or Body

Community Consultative Body? ☒ Yes ☐ No *Community Forum*

User Group (ie. Fishing Club, Boating Club etc) Yes ☒ No

Conservation Group (ie. Bushcare, Landcare, Dunecare group etc) Yes ☒ No

Primary Producer Industry Group (such as oyster growers group, commercial fishing group etc) Yes ☒ No

Do you have extensive professional experience in Natural Resources or a related field? Yes ☒ No

Applications Close 5.00 pm 6 March 2015

Return to: council@shoalhaven.nsw.gov.au

The General Manager
Shoalhaven City Council
PO Box 42
Nowra NSW 2541

Attention: Rosemarie Collier

SH18.2 Update on the review of the draft 2012 Coastal Zone Management Plan

HPERM Ref: D18/133099

Group: Planning Environment & Development Group
Section: Environmental Services

Purpose / Summary

To provide an update on the revision of the Shoalhaven Coastal Zone Management Plan (CZMP) 2018.

Recommendation (Item to be determined under delegated authority)

That Council receive the update report on the revision of the Shoalhaven Coastal Zone Management Plan (CZMP) 2018 for information.

Background

In order to apply for the full range of grants available under NSW Coastal & Estuary Grants Program, Council is required to have a certified coastal zone management plan or coastal management program. At the time of its completion, the draft 2012 CZMP was not submitted to the NSW Government for certification because the Stage 2 Coastal Reforms were announced and certification of CZMPs was put on hold until the Reforms were implemented.

In 2016, without any changes being made, Council resolved to submit the draft CZMP to the NSW Government for certification. Certification was not granted and OEHL subsequently provided Council with a comprehensive list of changes that needed to be made before re-submission.

The Stage 2 Coastal Reforms are contained within the 2016 Coastal Management Act which came into effect on April 3. From that date, Council will have 6 months to have the draft revised CZMP certified by the Minister. For the last two months, or more, it will need to be with the NSW Government undergoing the certification process, so Council will have approximately four months (from April 3) to complete the review, place the document on public exhibition, distribute the document to appropriate agencies, prepare the final plan and report it to Council.

Council's intention is to send the CZMP 2018 to the NSW Government for certification in late July following public exhibition.

Reviewing and editing the draft document began late last year and, and has included the engagement of an external consultant to assist with the review and speed up the process to make the substantial changes required by OEHL. Council has also engaged a coastal engineering consultancy to complete the technical updates that relate to coastal hazard risk assessment.

Summary of amendments to the CZMP to date

- Department of Industry staff have reviewed the document and all comments have been incorporated

- DPI Fisheries and JBMP staff at Huskisson have reviewed the document and all comments have been incorporated
- The document has been updated to be consistent with The Coastal Hazard Review report 2016 and mapping has been updated
- The structure of the document has been rearranged and simplified
- Redundant, out dated, irrelevant text has been deleted
- New text has been added
- All figures and tables have been reviewed and updated
- All figures and tables have been given a 'new look'
- Citywide strategies have been reviewed and updated
- Local Area Action Plans are being reviewed and updated
- Appendices have been updated
- Emergency Action Sub Plan is being reviewed and will be included as an Appendix
- All technical information in the document is being reviewed and updated
- The whole document will be inserted into a 'new look' template before going out for public exhibition
-

Community Engagement

Council's Communications & Media team is assisting Environmental Services to provide a new graphic look for the document. They are also preparing an engagement plan which will include a 'Get Involved' page for information and feedback, a video explaining the what and why of the CZMP and FAQs. The CZMP will go out on public exhibition as part of the review process.

Policy Implications

Without a certified CZMP, Council is eligible to apply for a very limited range of grant categories in the Coastal and Estuary Grants Program. This significantly reduces the range of coastal maintenance and capital works Council can implement.

Financial Implications

The OEH Coastal and Estuary Grants Program, provides 50% of project funds. Without a certified CZMP Council would be denied eligibility for the full range of grant categories. This means Council would need to fully fund the many coastal projects that become necessary over the next 3-5 years, while the new Coastal Management Plan is being prepared and certified.

Risk Implications

With increased stormy weather predicted, there will be more coastal projects requiring implementation to manage risk, repair infrastructure and maintain coastal assets to a safe and acceptable standard. If grant funds can't be accessed, public safety and asset protection will be at risk.

SH18.3 Technical peer review of the River Road Foreshore Shoalhaven Heads: Assessment of the Coastal Management Options Report by MHL.

HPERM Ref: D18/133125

Group:
Section: Environmental Services

Attachments: 1. MHL Technical Review

Purpose / Summary

To advise the Taskforce of the technical peer review by Edward Couriel from Manly Hydraulics Laboratory (MHL), of the River Road Foreshore Shoalhaven Heads: Assessment of the Coastal Management Options Report prepared by Water Research Laboratory (WRL) UNSW.

Recommendation:

That the Taskforce

1. Receive the Manly Hydraulics Laboratory technical review of the WRL River Road Coastal Option Report titled *MHL2595 – Review of River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options Report dated February 2018*, for information; and
2. Endorse the incorporation of the following technical information in the detailed design of any future coastal erosion remediation control structure at the River Road foreshore precinct:
 - a. Coastal erosion remediation structure be designed for a more conservative large river entrance opening to reduce the risk of failure.
 - b. A minimum design life of 25 years for coastal erosion remediation structure be adopted.

Options

1. As per the recommendation.

Implications: Proceeding with the option endorsed by MHL's technical review, to undertake design incorporating the above technical information as per the MHL technical review recommendation. Designing the foreshore erosion remediation structures to a minimum design life of 25 years and for a large river entrance opening is likely to increase the cost of the structure. This will need to be costed as part of the detailed design process.

2. Recommend alternative options for the detailed design of the River Road coastal foreshore erosion remediation.

Implications: This would depend on the alternative option.

Background

The 2016 east coast low storm resulted in a moderate flood (Natural Disaster declared 2016) and a major coastal storm which impacted beaches and foreshores across the City.

This impact included coastal erosion of 1000 meters of riverbank on the Shoalhaven River at River Road, Shoalhaven Heads. In response to this erosion at River Road, Council engaged the University of NSW Water Research Laboratory (WRL) to undertake an assessment of the coastal management options to manage this erosion.

In August 2017, WRL produced the River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options, Technical Report, prepared by their team of experienced coastal and estuarine engineers.

The technical report divides the foreshore area up into six (6) prioritised zones based on coastal hazard and geo-technical risks impacting each zone. The study identified nine (9) management options:

1. Do nothing
2. Monitoring with no active management works
3. Monitoring in combination with management works
4. Relocating existing sand located within the beach area
5. Stabilisation of erosion scarps and revegetation
6. Protection structures (rock or geotextile revetment)
7. Repairs and improvements to stormwater outlets on the beach
8. Improvements to stormwater control across the beach
9. Nourishment of the beach

The report recommends which of the nine (9) foreshore management options are best suited to each foreshore management zone, as outlined in the figures below.

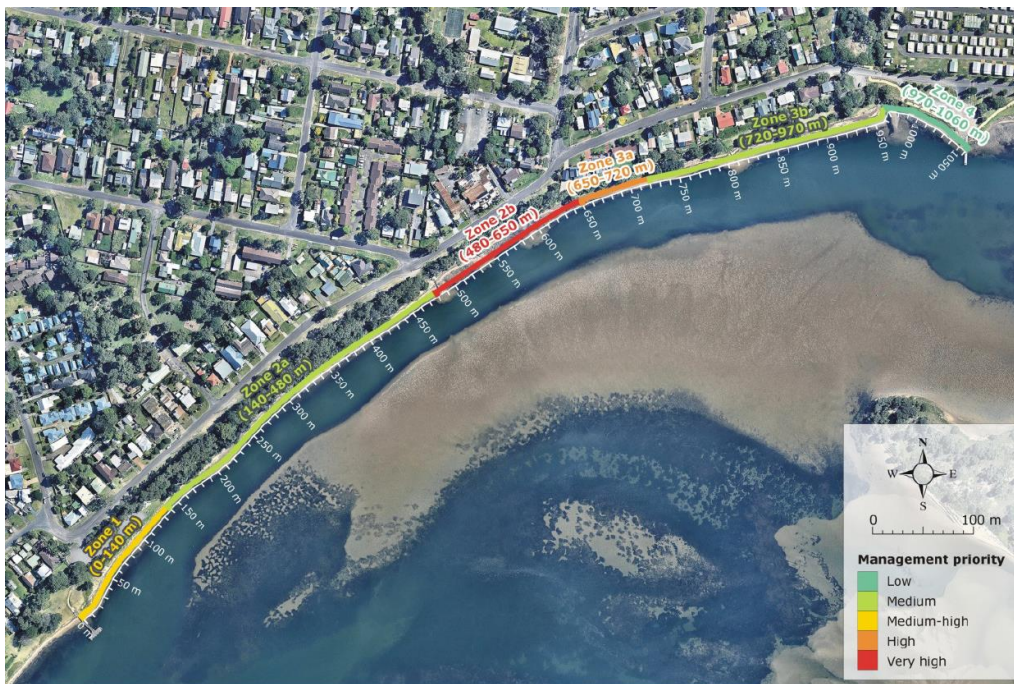


Figure 1: Qualitative Prioritisation of the Foreshore Management Zones

	Foreshore Management Zone					
Management Option	Zone 1	Zone 2A	Zone 2B	Zone 3A	Zone 3B	Zone 4
Do nothing	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
Monitor, without management works	Not suitable	Not suited	Not suitable	Not suitable	Some areas	May be suitable
Monitor, with management works	Suitable	Suitable	Not suitable	Not suitable	Suitable	Suitable
Beach scraping	Not required	Not required	With other management works	Not required	With other management works	With other management works
Stabilisation and revegetation of scarps	Suitable	Suitable	Not suitable	Not suitable	Suitable	Suitable
Protection revetment	May be option in future	May be option in future	Suitable	Suitable	Not required	Not required
Improvements to stormwater outlets	Not applicable	Not applicable	Suitable	Not applicable	Suitable	Suitable
Improvements to stormwater control across beach	Not applicable	Not applicable	Suitable	Not applicable	Suitable	Suitable
Nourishment of beach with sand from estuary	Suitable	Suitable	Suitable with additional protection ¹	Suitable with additional protection ¹	Suitable	Suitable

1. Based on an achievable/affordable modest extent of beach nourishment that could be applied in the short to medium term, as opposed to mass dredging of the estuary sand shoals and extensive nourishment of the whole foreshore profile.

Figure 2: Suitability of Management Options for the Foreshore Zones

Consultation on the WRL technical report has been undertaken with the Shoalhaven Heads Community Forum members, Shoalhaven Heads Estuary Taskforce and the Shoalhaven Heads community.

The community identified the need to address and manage the storm water impacts and maintain the visual amenity.

Stormwater management and discharge is Council's Asset and Works priority and a specialist stormwater design is needed with soft engineering options to be included. These conditions will provide erosion remediation of the whole frontage in one project, as requested by the community.

Upon the communities' request, Council sought a technical peer review of the WRL report and engaged Edward Couriel, Director, Manly Hydraulics Laboratory (MHL).

MHL are the technical arm of NSW Public Works Division. Edward Couriel is a qualified Coastal Engineer and has over 20 years' experience in coastal and estuarine engineering studies and is well placed to provide a pragmatic coastal engineering review of the WRL Technical Report. A copy of the MHL report is contained within Attachment 1.

The review recommends that a larger entrance scenario be adopted for the design of erosion control structures, as discussed in the WRL options report. The design modifications are expected to have a minor construction cost increase and an improved asset class and lifespan.

MHL also recommended that Council undertake a comparison of the life cycle cost and benefits of the WRL recommended 10-year design life of the erosion control structure compared with a longer serviceable life cycles of 25 and 50 years.

The peer review also highly recommended beach nourishment to some degree, as part of any longer-term foreshore management options adopted. As this may be warranted due to the potential benefits and cost savings of this management option, given the extensive environmental approvals associated with the sand nourishment options, the peer review recommended exploring sourcing sand behind the river entrance flood notch, where a "wet notch" was trialled in the 1990's.

It is recommended that this option be reviewed as part of the 2018 Lower Shoalhaven River Flood Risk Management Study and the associated review of the Shoalhaven River Entrance Management Plan.

If this is a viable option, it would provide, along with the maintenance of the dry flood notch, a moderate sand supply for repeat sand nourishment to the River Road foreshore areas and potentially extend the “life of the next entrance breakout”.

Community Engagement

Extensive community consultation has already taken place in the development of the WRL foreshore management options report via the Shoalhaven Heads Estuary Taskforce and the Shoalhaven Heads Community Forum and at a community drop-in session at the Shoalhaven Heads community centre on Sunday 9 April 2017.

The community identified the need to address stormwater management and retain the visual and recreational amenity of the River Rd foreshore in any management options undertaken.

Members of the Shoalhaven Heads Estuary Taskforce requested Council obtain a technical peer review of the WRL report by another suitably qualified and experienced coastal engineer to assess if the recommended management options outlined in the WRL report are the best possible options. This technical review was completed as described above.

Financial Implications

In October 2017, Council, in consultation with the Shoalhaven Heads Community Forum, applied to the NSW Regional Growth – Environmental and Tourism – Restart NSW grant program for \$1, 213,000 to undertake the coastal erosion management options recommended by WRL. In addition to the grant amount, Council would be contributing \$550,000 for the storm water management works, rock protection and revegetation works. The cost of the peer review undertaken by MHL was \$2,500.

The MHL peer review recommends designing the foreshore erosion remediation structures to a minimum design life of 25 years and for a large river entrance opening. This is likely to increase the cost of the structure, as larger sized rocks will be required. This will need to be costed as part of the detailed design process.



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Manly Vale NSW 2093
T 02 9949 0200 F 02 9948 6185 TTY 1300 301 181
ABN 81 913 830 179 www.mhl.nsw.gov.au

20th February 2018

Mr Ray Massie
Coast and Estuaries Officer
Shoalhaven City Council
Bridge Rd (PO Box 42)
Nowra NSW 2541
Ray.Massie@shoalhaven.nsw.gov.au

Dear Mr Massie,

**MHL2595 – Review of River Road Foreshore, Shoalhaven Heads:
Assessment of Coastal Management Options Report**

NSW Governments' Manly Hydraulics Laboratory (MHL) is pleased to have undertaken this review of the *River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options* report (WRL 2016/21 Final Draft, August 2017). This letter report provides a summary of our review which was based on an appraisal of the appropriateness and feasibility of the coastal management options outlined within the WRL report.

1 Introduction

The WRL report presents the results of their assessment of conceptual coastal management options for the eroded foreshore along the River Road area of Shoalhaven Heads. The report includes a geotechnical engineering inspection and risk analysis undertaken by JK Geotechnics which is described in the report and reproduced in Appendix E.

The coastal management options developed within the report are based primarily on a 10 years design life, a small entrance opening condition at Shoalhaven Heads and a 20 years ARI design storm event. The condition of the entrance at Shoalhaven Heads is the overriding design parameter that results in the greatest degree of design sensitivity and is discussed further in the sections below.

The following sections provide a discussion on the results of our review, including the basis for our recommendations and conclusions.

2 Review of Coastal Management Options

The WRL report provides a detailed site description outlining the characteristic of different areas along the foreshore. The foreshore is broken up into a number of distinctive zones (1 to 4) with zone 2 and zone 3 being further divided into two parts each (i.e. Zone 2a, Zone 2b, etc.).

2.1 Coastal Processes and Hazards Assessment

A description of the coastal processes affecting the area is provided in section 3 of the WRL report. The study focuses on the river entrance processes and stormwater drainage stating that these processes appear to have most influenced the observed erosion at the site. Based on the available record of entrance conditions, a 13% AEP is adopted for entrance opening conditions where a risk of further embankment erosion may occur. A brief description of the expected processes associated with stormwater discharge across the foreshore and its qualitative influence on potential sediment transport is also provided.

2.2 Geotechnical Hazards Assessment and Management Prioritisation

The geotechnical risk assessment undertaken by JK Geotechnics is outlined with the full report reproduced in Appendix E of the WRL report. Assessed Risk Levels (ARLs) are determined for 3 potential hazard pathways resulting in the following conclusions:

- Current levels of geotechnical risk are considered acceptable, with the exception of future erosion events causing ongoing landslip (hazard pathway 2) within Foreshore Zone 2B (between Renown Avenue and Mathews Street intersections with River Road).
- “.....construction of foreshore erosion protection measures would reduce the risk to ‘acceptable’ levels”.
- Council should monitor the foreshore slope in order to assess existing conditions and any indications of deterioration such as tension cracks along the crest area of the foreshore slope, further evidence of landslips, damage to timber steps, drainage culverts etc.:
 - on an annual basis;
 - after periods of prolonged or heavy rainfall;
 - during periods of predicted peak tidal levels and/or wave conditions.

Based on the above conclusions and a further qualitative assessment of exposure to coastal hazards and existing site conditions and characteristics, a prioritisation rating was assigned to each foreshore zone, as shown in **Figure 1** (Figure 5.1 in WRL report).



Figure 1 – Qualitative Prioritisation of Management Works (Figure 5.1, WRL 2017)

2.3 Foreshore Management Options

A range of management options are considered including “do nothing”, soft options (e.g. monitoring and beach scraping), protection structures (either rock or geotextile bags) and beach nourishment. Options for improved stormwater control and management are also considered. The objective is emphasised as **“addressing the immediate coastal hazards in the short term, while also not compromising the ability to implement a longer term management plan for this section of the estuary at a later date”**. This short term focus (as recognised by WRL) effectively rules out a number of potential alternative management options (for example larger scale beach nourishment works) which would require additional investigations, funding and approvals. Table 6.1 of the report lists the assessed suitability of the options considered for each zone of the foreshore and Table 6.2 lists the recommended management options. The Recommended Foreshore Management Approach (Table 6.2) has been reproduced below.

Noteably, small scale nourishment of the foreshore is included as a suitable short term action for all areas (in conjunction with additional works such as a toe revetment for Zone 2B and Zone 3A), while larger scale nourishment of the entire foreshore profile is not considered as being “well suited to addressing the immediate engineering risks”.

Table 6.2: Recommended Foreshore Management Approach

Foreshore Management Zone	Suggested Management Approach
Zone 1	<u>Now:</u> Re-profile erosion scarp, stabilise erosion surface, revegetate, consider improved public access. <u>Short Term Future:</u> Nourish beach (\$13,000-\$30,000).
Zone 2A	<u>Now:</u> Remove/cover tree stumps, revegetate, monitor tree safety. <u>Short Term Future:</u> Nourish beach (\$32,000-\$73,000), monitor beach width/volume, monitor embankment (if impacted by erosion).
Zone 2B	<u>Now:</u> Remove debris, improve stormwater outlets, protect embankment toe with rock (\$280,000) or geotextile bag (\$580,000) revetment (additional costs for optional crest boardwalk), train stormwater across beach, monitor embankment and crest area. <u>Short Term Future:</u> Nourish beach (\$16,000-\$37,000), monitor beach width/volume.
Zone 3A	<u>Now:</u> Remove debris, improve stormwater outlets, upgrade existing protection to embankment toe with rock (\$115,000) or geotextile bag (\$240,000) revetment (additional costs for optional crest boardwalk), train stormwater across beach, monitor embankment. <u>Short Term Future:</u> Nourish beach (\$7,000-\$15,000), monitor beach width/volume.
Zone 3B	<u>Now:</u> Re-profile erosion scarp, stabilise erosion surface, revegetate, consider improved access. <u>Short Term Future:</u> Nourish beach (\$24,000-\$54,000).
Zone 4	<u>Short Term Future:</u> stabilise erosion scarps, revegetate, nourish opportunistically (\$8,000-\$19,000).

MHL considered that the recommended foreshore management approach is appropriate and feasible given the focus on addressing the immediate coastal hazards in the short term. Larger scale nourishment of the foreshore would be expected to provide a greater degree of beach amenity improvement along with coastal protection/resilience benefits to the foreshore, however the relatively greater degree of certainty in coastal protection provided by the recommended revetment option allows Council to reduce their immediate risk of further embankment erosion with a low maintenance semi-permanent solution. Notwithstanding the above comments, outflanking of the proposed embankment berm remains a possibility, albeit with a low probability, should broader channel migration occur. Sand won from activities relating to maintenance of the entrance flood notch may be used for periodic beach nourishment and may form part of a longer term management solution. This could include management of the subaerial berm height and width, as well as excavation of a sediment sink in the shoals behind the flood notch that may contribute to longer entrance opening periods. Monitoring of the effectiveness and impacts of flood notch and shoal maintenance works should be carried out to inform future management operations.

2.4 Concept Designs of Foreshore Management Works

Section 7 of the report outlines the concept design of the proposed foreshore management works, comprising the embankment toe protection works, improvements to stormwater drainage across the beach and small scale beach nourishment works. The principal coastal

hazards affecting the site are reported to stem largely from the exposure of the foreshore to long period ocean swells during periods when the Shoalhaven River entrance is open. As such, the decision by WRL and Council to base the concept protection works design on only a small entrance opening (rather than a more conservative large opening) entails a relatively higher risk approach regarding the longevity of the proposed works. Furthermore, Appendix B Section 3.1 notes that a 10 years design life was adopted for the structure by Council and WRL. While many structures exceed their design life (due to a number of factors including conservative design assumptions, maintenance and sometimes luck), given the magnitude of the proposed works and associated costs, MHL would consider it appropriate to adopt a design life that results in a serviceable structure for a longer time period (for example 25 years). Due to the short design period adopted, no allowance for future sea level rise was included in the analysis. If a longer design life is considered, sea level rise should be incorporated into the design parameter determination. Prior to commencement of any work MHL recommends that council compare the life cycle costs and benefits of both the adopted 10 years design life structure and a structure designed with a longer serviceable life. WRL provides an indicative analysis of the sensitivity of the design conditions, noting that if the design event was changed from the 20 year ARI to the 100 year ARI, *“the wave and water level conditions at the proposed seawall along the inner foreshore are not expected to increase significantly”*. As such, MHL recommends that a cost benefit analysis of adopting an extended design life be considered.

2.4.1 Embankment Toe Protection Works

The hydraulic stability of rock armour and sand-filled geotextile containers on a 1V:1.5H slope is determined for each entrance condition (closed, small opening and large opening). WRL notes that the behaviour of geotextile containers subject to lateral velocities is unknown and hence their hydraulic stability under freshwater flood flow velocities was not assessed. On this basis MHL would not recommend using sand-filled geotextile containers for the proposed works in the absence of physical model testing that adequately demonstrates the stability of the containers under simulated flood flow conditions.

The stability of sandstone and basalt rock armour is analysed and presented in detail in Appendix B. Notably, the adopted rock masses for stability under wave attack were also assessed for stability under the 5% AEP flood flow velocity using the stone blanket stability design method, which demonstrated that the armour mass required to withstand wave attack was greater than that required for stability under flow velocities. The basalt and sandstone rock armour sizes recommended by WRL are reproduced in the table below.

Structure	Entrance	Material	Required Mass
Seawall	Closed or small opening	Basalt (2,650 kg/m ³)	M ₅₀ = 150 kg
		Sandstone (2,300 kg/m ³)	M ₅₀ = 250 kg
	Large opening	Basalt (2,650 kg/m ³)	M ₅₀ = 750 kg
		Sandstone (2,300 kg/m ³)	M ₅₀ = 1,300 kg

While the small entrance opening condition was adopted for the design, MHL would recommend utilising the armour sized for hydraulic stability under a large entrance opening condition. The existing erosion problem is understood to have stemmed from large swell penetration of an open entrance condition (June 2016) and hence it is rational to design the foreshore protection works for a known potential entrance condition that could occur throughout the design life of the structure. That is, unless the consequence of failure of a structure designed for only a small entrance opening are assessed to be acceptable.

Basalt is generally a preferable material for construction in the marine environment, hence the 750 kg (M₅₀) basalt armour stone would be the preferred construction material, followed by 1,300 kg (M₅₀) sandstone. If sandstone is adopted for the construction, rocks properties including the strength, Los Angeles abrasion and Sodium Sulphate soundness of the proposed rock source should be assessed for suitability for use in the a marine setting. Greater care during construction is also warranted if using sandstone to avoid potential degradation of rocks traversed by heavy machinery for example.

Wave overtopping was assessed using the methods given in the EurOtop (2016) Overtopping Manual to determine design crest elevation for 5% AEP wave conditions (table 7.3 as reproduced below).

Table 7.3: Comparison of Estimated Relative Runup Levels and Overtopping Rates for a range of Crest Levels for three Entrance Conditions (for 5% AEP event)

Parameter	Crest Level (m AHD)	Entrance Condition		
		Closed	Small Opening*	Large Opening*
2% Runup, R_{0.2%} (m AHD)		2.7	4.6	6.7
Mean Wave Overtopping Rate for Crest Elevations (L/s/m)	2.5	0.3	140.1	430.5
	3.0	<0.1	43.8	221.0
	3.5	<0.1	10.3	96.7
	4.0	0.0	2.0	38.0
	4.5	0.0	0.3	13.7
	5.0	0.0	0.1	4.6

*EurOtop (2016) recommends that wave setup be excluded from the input water levels as its empirical equations are based on physical model test results which implicitly reproduced wave setup against the test structures. However, WRL has included wave setup in the input water levels for the small and large entrance opening conditions in the inner Shoalhaven Heads bay as this super-elevation is due to wave breaking outside the entrance rather than directly against the seawall.

WRL adopted an acceptable design overtopping rate of 5-10 L/s/m (tolerable for grass covered slopes, EurOtop, 2016) and an associated design crest height of 4.0 m AHD for the adopted small entrance opening condition. Council should be advised that in the event of a design storm event involving a large entrance opening, a significantly greater degree of wave opening would be expected (38 L/s/m from Table 7.3 above) which may lead to erosion of the embankment slope above and behind the proposed revetment. Detailed design should be undertaken to ensure that the proposed structure is designed to withstand potential erosion of material behind the structure to prevent undermining or slumping failure.

WRL quotes for NSW a *“scour level of approximately -1.0 m AHD is commonly adopted as an engineering rule of thumb for rigid coastal structures located at the back of the active (open coast) beach area.”* This is a commonly made misinterpretation of historical data which was based on scour measurements to around -1 ISLW (not AHD). The reference to Nielsen et al. 1992 actually states that *“The scour that may occur in front of reflective seawalls is likely to be greater than that on a natural beach and a level of -2.0 m AHD is often adopted for design”*. Notwithstanding the above, the adopted scour depth of -1.0 m AHD is considered to be appropriate given the relatively shelter location of the structure.

Additionally, Appendix B Section 7.2 acknowledges that the maximum depth of the entrance following the August 1974 flood has been reported as being between 10 m and 20 m. Should a major entrance scour event of this magnitude occur, the alignment of the channel and scoured entrance characteristics may lead to undermining of the toe of structure, although adopting a more conservative lower toe depth (of say -2.0 m AHD) is unlikely to provide much additional protection in an extreme scenario of this nature.

Indicative layouts for the proposed work are provided including potential access arrangements. MHL notes that end effects should be consider with the final design of the revetments being “turned back” at the ends to ensure that they are not potentially undermined by flanking erosion at the ends. The likely extent of additional erosion expected in the areas adjacent to the revetment should also be considered during detailed design as described by MHL (2016).

2.4.2 Stormwater Drainage Concept Improvements

The recommended improvements to the stormwater outlets at the foreshore as outlined in Section 7.4 are considered to be reasonable and would certainly improve local scour protection compared with the present situation. Managing stormwater flow across the beach via trial beach scraping maintenance works is recommended by MHL initially over the training of flows using geotextile bags due to the potential amenity benefits of beach scraping and the tendency of geotextile bags placed across the foreshore to suffer damage and vandalism leaving a somewhat unsightly area that may lose effectiveness. Should beach scraping be demonstrated to be ineffective or financially burdensome, geotextile containers could be reconsidered at a later date.

2.4.3 Beach Nourishment Improvement Works

The recommendation to carry out beach nourishment in the short to medium term following construction of the embankment works would be highly beneficial to the amenity of the beach, in partially burying the embankment protection structure and in providing a sand buffer against future erosion events along the foreshore. While major nourishment was not considered as a stand-alone management option (due to cost, environmental approvals, timing, etc.), given the costs associated with revetment construction MHL still believes that major nourishment alone from the estuary shoals could be a viable solution to reduce the risk of further embankment erosion along the foreshore, albeit likely to require periodic top up following major events.

Nevertheless, the recommended minimum of 2-3 m of beach profile widening in front of the proposed embankment revetment (comprising 2,000-2,500 m³) of sand is strongly supported following completion of the embankment protection works based on our review. Nourishment of the entire foreshore length (approximately 1,000 m) could be carried out providing a 5 m wider profile than that existing at the site for a cost of the order of \$200,000. Council should note that this is approximately half the cost of the proposed embankment revetment works and would provide significant amenity benefits. Risks associated with large scale nourishment include the potential loss of this material from the foreshore during major flooding/storm events, which would necessitate further nourishment to reinstate a protective sand buffer if or when required. As noted in Section 2.3 of this report, maintenance works carried out for the entrance flood notch and in the shoals behind the flood notch may provide a source of sediment for nourishment works and aid in creating conditions for longer entrance opening periods if desired. These works may contribute to a longer term active management solution.

In all cases, some degree of beach nourishment is highly recommended to form part of the solution in managing the foreshore erosion problem.

3 Conclusions and Recommendations

WRL have undertaken a concept design and assessment of foreshore management options that utilises a well accepted methodology and included reasonable design assumptions. The resulting recommended management options are justifiable and would provide Council with a viable solution to their foreshore erosion management problems given the focus on addressing the immediate coastal hazards in the short term. While a small entrance opening was adopted as the basis for most of the concept design assessment, it would be prudent to utilise the large entrance opening scenario for the detailed design of any embankment protection works to provide a more resilient structure for what would likely be relatively little additional expense. The existing erosion problem is understood to have stemmed for large

swell penetration of an open entrance condition (June 2016) and hence it is rational to design the foreshore protection works for a known potential entrance condition that could occur throughout the design life of the structure. That is, unless the consequence of failure of a structure designed for only a small entrance opening are assessed to be acceptable.

Due to the short-term focus of the brief, MHL recommends that council compare the life cycle costs and benefits of the adopted 10 years design life of the structure proposed with a structure designed with a longer serviceable life. Beach nourishment of some degree is highly recommended as a part of any foreshore management solutions adopted and further consideration of major beach nourishment may be warranted given the potential benefits and cost savings of this management option.

I trust that this report is satisfactory to meet Shoalhave City Councils' requirements. Please contact me on (02) 9949 0224 or at Edward.Couriel@mhl.nsw.gov.au, or Stuart Young on (02) 4908 4986 or at Stuart.Young@mhl.nsw.gov.au should you wish to discuss any aspects further.

Yours sincerely



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Document Control

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SH18.4 Updates on the Review of the Lower Shoalhaven River Floodplain Risk Management Study and Plan

HPERM Ref: D18/133816

Group: Planning Environment & Development Group
Section: Environmental Services

Purpose / Summary

The purpose of this report is to inform the Taskforce about the updates on Shoalhaven River Floodplain Risk Management Study & Plan, including the review of the Shoalhaven River Entrance Management Plan for Flood Mitigation.

Recommendation (Item to be determined under delegated authority)

That Committee receive the report for information.

Options

1. The Taskforce receive the report for information.

Implications: Nil.

2. The Taskforce could choose to provide an alternative recommendation for future consideration by Council.

Implications: Unknown

Background

The objective of this study is to improve understanding of flood behaviour and impacts, and better inform management of flood risk in the study area in consideration of the available information. The study will also provide a sound technical basis for any further flood risk management investigation in the area.

The study will be overseen and guided by Council and Shoalhaven Natural Resources and Floodplain Management committee, which includes representatives from key stakeholder and end user groups. The study will be guided technically by Council, OEH and the Shoalhaven Natural Resources and Floodplain Management Committee, which includes representatives from the council and other NSW Government organisations (such as NSW SES). The Council will be the day-to-day contact for the study.

The project will review the existing flood study, floodplain risk management studies and plans and implemented measures for the study area, to enable an understanding of the impacts and changes in flood behaviour due to physical alteration of catchment characteristics such as construction of flood mitigation works or extensive new development in the catchment. It also involves reviewing existing recommended, but unimplemented, management measures as well as testing and investigating practical, feasible and economic additional management measures to treat existing, future and residual risk. The revised floodplain risk management study will provide a basis for informing the development of a new floodplain risk management plan.

The study includes the review of the Shoalhaven River Entrance Management Plan for Flood Mitigation. The management of the entrance berm and the dynamics of entrance scour once it is breached can be treated as a flood mitigation option whilst investigating flood modification measures. The review should investigate but not be limited to the following:

- Review the current entrance management policy
- Review the efficiency of the current dry notch level of the entrance berm and opening trigger water level at the gauge in reducing flood impacts on riverside settlements,
- The flood behaviour implications of keeping the entrance opened permanently or semi permanently,
- Impacts of a range of sea level rise scenarios on the practicality of the entrance management policy
- The effect of the berm initial conditions and scour behaviour on the severity of inundation originating from the ocean and the catchment
- The effects of allowing the total flow of the river to exit via Berry's Canal prior to the berm opening and subsequent flooding impacts on Shoalhaven Heads and Greenwell Point.

Currently, Council's appointed consultant is in the early stages of the project reviewing the current information and data available. The consultant is concurrently preparing a survey brief seeking to obtain additional information and data necessary for this project. The review of Shoalhaven River Entrance Management Plan for Flood Mitigation can start once the first round of community consultation, hydrology and hydraulic assessment have been complete. According to the project plan the review of the entrance plan is due to start July/August 2019 and conclude with the whole study and plan by mid-2020.

Community Engagement

Advancing Council's long-term floodplain management program ensures that economic, social and environmental factors relating to the management of floodplains within the Shoalhaven are considered, documented and implemented in Council's planning programs and policies.

The Shoalhaven Heads Estuary Taskforce is a key stakeholder, particularly with the review of the Shoalhaven River Entrance Management Plan for Flood Mitigation. The Taskforce will be consulted at relevant stages of this review.

Policy Implications

The current Shoalhaven River Entrance Management Plan for Flood Mitigation is in place until such time the updated policy is adopted by Council.

Financial Implications

Funding for the Lower Shoalhaven River Floodplain Risk Management Study and Plan has been provided for under the NSW State Government 'Floodplain Management Program' on a 2:1 basis. Council's matching 1/3 contribution comes from the existing general Floodplain Management Program budget.

The project is for the provision of consultancy works and will not have any direct or immediate implications on Council's assets.

The tendering and studies will be undertaken by consultants who will be managed by the Natural Resources and Floodplain Unit of Council.

SH18.5 Shoalhaven Heads Entrance Notch Maintenance

HPERM Ref: D18/125775

Submitted by: Phil Guy

Recommendation

That Council not stockpile sand removed as notch maintenance but use it to nourish the river edge in front of the Council Caravan Park and along the river edge. This is because the River Road Foreshore project may not need this sand for 18 months to 2 years and the foreshore is in need of nourishment urgently.

Details

It was intended to stockpile the sand being moved from the notch area at the beach at a location near the “Bird Park”. However the River Road Foreshore project is not yet designed and it will be some time before the sands are needed. The river edge in front of the Council Holiday Haven Park and along the river edge up to the wharf at the intersection of Jerry Bailey Road and River Road is degraded of dry sand and in need of nourishment. In addition some trees along the river edge are undermined and could be saved by sand scraping and or nourishment from the notch sand.

Staff Response

Shoalhaven Council is planning on undertaking routine maintenance of the Shoalhaven River entrance dry-notch in the week of 30 April – 4 May 2018 (5 days), as part of the routine flood mitigation preparation works, outlined in the Shoalhaven River Entrance Management Plan for Flood Mitigation.

Notification was sent to relevant stakeholders, including the Shoalhaven Heads Estuary Taskforce on 19 March 2018.

The purpose of this work is to assist in the ease of opening the Shoalhaven River during an emergency; the level of sand at the river mouth is kept to a manageable level. Due to the fast deposition of sand in this location, this activity is generally undertaken at least once a year.

As per the entrance management plan Council will be removing around 735 cubic metres of sand from the Shoalhaven River entrance. The sand will be removed to maintain the sand berm to a height 2.0AHD across an east-west transect, as per the entrance management plan.

Council will be using the sand in the following order:

1. Filling of the emergency access path to the notch where needed;
2. Nourish the severe erosion area near the cycle path near Bolt Street as shown in Figure 1 below:



SH18.5