Shoalhaven Natural Resource & Floodplain Management Committee

Meeting Date: Wednesday, 18 April, 2018
Location: Shoalhaven Entertainment Centre - Mezzanine Conference Room, Bridge Road, Nowra
Time: 4:00pm

Please note: Council's Code of Meeting Practice permits the electronic recording and broadcast of the proceedings of meetings of the Council which are open to the public. Your attendance at this meeting is taken as consent to the possibility that your image and/or voice may be recorded and broadcast to the public.

Agenda

Membership
Clr White – Chairperson
All Councillors
General Manager or nominee

Community representatives:-
David McCorkell
Duncan Marshall
Ian Stewart
Dr Michael Brungs
Dirk Treloar
Annie Boutland
Helen Moody
David Reynolds
Kaye Milsom
Brett Stevenson
Chris Grounds
Mike Clear
Paul Beckett
Robyn Flack
Peter Hanson

Government Agency representatives:-
Jerrinja LALC
Ulladulla LALC
NPWS
SRCMA
OEH
RMS
DPI Fisheries
Local Lands Service
Crown Lands
NSW Office of Water
Jervis Bay Marine Park Authority
SES

Quorum – Three (3) provided that a minimum of one Councillor and two community representatives are present.

Objective
To foster sustainable management of Shoalhaven's natural resources including floodplains, coast and estuaries.

Role of Committee
1. Provide overall guidance for the management of natural resource management including floodplain management, estuary management and coastal zone management in accordance with Federal, State and Local Government Policy and Legislative instruments;
2. Advise Council on natural resource management including floodplain management, estuary management and coastal zone management matters;
3. Formulate agreed vision, goals, objectives, and targets sought from the Natural Resource Management Plans;
4. Facilitate the preparation of Natural Resources Management Plans;

5. Provides input into the identification of management options for Natural Resources Management Plans;
6. Facilitate broad community consultation;
7. Monitor State and Federal Government natural resource management direction and advises Council on appropriate response;
8. Monitor advances in knowledge and science of natural resource management issues (such as sea level rise and climate change) and integrate this knowledge in new Natural Resource Management Plans as well as in the review of existing Plans; and
9. Make recommendations for Council consideration.

MINUTES OF THE SHOALHAVEN NATURAL RESOURCE & FLOODPLAIN MANAGEMENT COMMITTEE

Meeting Date: Thursday, 23 November 2017
Location: Ulladulla Civic Centre
Time: 4.07pm

The following members were present:
Clr Patricia White – Chairperson
Clr John Levett
Annie Boutland
Chris Grounds
Bill McInnes
Frances Clements
Robyn Flack
Ian Stewart
Dirk Treloar
Kaye Milsom
John Murtagh
David McCorkell
Mike James
Paul Beckett
Duncan Marshall
Helen Moody
Michael Brungs

Others Present
Russ Pigg – General Manager
Kelie Clarke – Environmental Services
Alasdair Stratton – Natural Resources & Floodplain Unit Manager
Ray Massie – Coast and Estuaries Officer
Mir Abdus Subhan – Floodplain and Stormwater Quality Engineer
Ali Sevenler – Senior Floodplain Engineer

Election of Chairperson

RESOLVED (By consent)

That Clr White be appointed as the Chairperson for Shoalhaven Natural Resources and Floodplain Management Committee.

CARRIED

Apologies / Leave of Absence

An apology was received from Brett Stevenson, Jillian Reynolds, Clr Findley, Clr Gartner and Peter Hanson.

Confirmation of the Minutes

RESOLVED (Chris Grounds / Michael Brungs)

That the Minutes of the Shoalhaven Natural Resource & Floodplain Management Committee held on Thursday 07 September 2017 be confirmed.

CARRIED

Declarations of Interest

Nil

PRESENTATIONS

Ali Sevenler provided a presentation on Update on the review of the Lower Shoalhaven River and St Georges Basin Floodplain Risk Management Study and Plan.

Mir Abdus Subhan provided a presentation on Updates on the Shoalhaven River Levee Flood Damage Restoration 2017 Project.

Alasdair Stratton provided a presentation on Shoalhaven Riverbank Restoration - Bolong Road Project.

Reports

SN17.21	**Updates on the Shoalhaven River and St Georges Basin Floodplain Risk Management Study & Plan and Shoalhaven River Levee Flood Damage Restoration 2017 project**	**HPERM Ref: D17/348457**

Bill McInnes from SES advised that he could email a copy of minor, moderate & major floods as defined by the SES for the committee members.

Recommendation (Item to be determined under delegated authority)

That Committee receive the report for information.

RESOLVED (Mike Clear / Duncan Marshall)

That the Shoalhaven Natural Resources and Floodplain Management Committee receive the report and presentations for information.

CARRIED

SN17.22 Flood Mitigation Projects – Flood Information Sign Project **HPERM Ref: D17/352147**

There was a minute resolved back in 2015 in relation to the installation of flood level indicators and historical flood signage.

An in house project officer has been working on the project to identify potential locations and what information will be on the signs. Council is also working closely with the State Emergency Services. The signs will be prioritised around where they can be highly visable and a location that is in close prmoximity to evacuation plan announcements.

The design of the signage is yet to be determined, the idea is to attract peoples attention and remain informative. The Committee discussed potential graffiti damage.

It is thought that the sign could be mounted at the peak height of the flood, to show how serious flooding can be.

A further report to the Committtee is expected after further community consultation.

The Committee also commented that this would be an additional measure to ensure home buyers and renters are aware of the potential for flooding in areas.

Recommendation (Item to be determined under delegated authority)

That the Committee endorse the proposed locations of historical flood level signage.

RESOLVED (David Reynolds / Ian Stewart)

That the Shoalhaven Natural Resource and Floodplain Management Committee endorse the proposed locations of historical flood level signage.

CARRIED

SN17.23 Currarong Coastal Erosion Remediation Detailed Design Progress Report November 2017 **HPERM Ref: D17/361283**

An aboriginal heritage study is to be undertaken as well as a review of environmental factors prior to obtaining licences necessary to carry out proposed coastal management works and beach access. Council officers continue to consult with the community as part of the planning process for the proposed works.

The Committee were advised, Council sets aside $500,000 each year as an emergency response reserve for coastal management & infrastructure. It is protected and can accumulate over time.

Recommendation

That Council:

1. Undertake detailed design, review of environmental factors (REF) and seek necessary permits and approvals for the Currarong Coastal Erosion Remediation project; and
2. Include community and government agency consultation during the detailed design and REF process; and
3. Place the final detailed design and REF on public exhibition and report back to Council the outcome of the exhibition; and
4. Once necessary permits and approvals are obtained and Council has resolved to commence construction, complete the erosion remediation project construction including design amendments for the western beach access mound.

5. Should the necessary permits and approvals be obtained, construct a temporary access (Warrain Crescent Beach Access Ramp Plan, Drawing #PA1506/MA/1021, Royal HaskoningDHV) at Warrain Crescent, as soon as possible whilst continuing with the detailed design process for the remediation project.

Recommendation (David Reynolds / Annie Boutland)

That Council:

1. Undertake detailed design, review of environmental factors (REF) and seek necessary permits and approvals for the Currarong Coastal Erosion Remediation project; and
2. Include community and government agency consultation during the detailed design and REF process; and
3. Place the final detailed design and REF on public exhibition and report back to Council the outcome of the exhibition; and
4. Once necessary permits and approvals are obtained and Council has resolved to commence construction, complete the erosion remediation project construction including design amendments for the western beach access mound.
5. Should the necessary permits and approvals be obtained, construct a temporary access (Warrain Crescent Beach Access Ramp Plan, Drawing #PA1506/MA/1021, Royal HaskoningDHV) at Warrain Crescent, as soon as possible whilst continuing with the detailed design process for the remediation project.

CARRIED

SN17.24 Shoalhaven Dredging Survey Report — HPERM Ref: D17/382332

Back in June a resolution was passed by the Shoalhaven Natural Resources and Floodplain Management Committee that Council submit a further report outlining positive and negative feedback in relation to the dredging.

Council utilised the 'Get Involved' webpage and conducted a survey, that targeted Sussex Inlet and Lake Conjola residents and their opinions on the dredging in their localities.

The survey was sent to a wide variety of respondents including the ccbs for those areas.

The survey asked:

- was the dredging in the area environmentally positive?
- was the dredging in the area economically positive?
- was the dredging in the area socially positive?

The report outlines online survey visitation over the month and graphs for each estuary based on responses. The report was presented to the Committee with the results.

The Committee members made the following comments:

- The Committee requested that scientific and evidence based comments be sought. The data is not collated by scientific means and the report provides no guidance to the Committee for the future.
- The resolution came from a need for an evaluation, the committee felt this does provide feedback, and did not meet the request of the Committee for an evaluation.
- Why was Huskisson not included?
- What does socially positive mean? (open to interpretation)
- In relation to community consultation at Huskisson, the meeting during the dredging planning introduced the dredging & the community was told how the dredging would be done. There was

no consultation

It was clarified by Kelie Clarke that a financial assessment of the dredging project was undertaken, there was no funds remaining in the budget and Council had to contribute more as the cost was greater than initially estimated. Survey data is being collected over time to monitor the dredging however this survey was to gauge the communities opinion and feelings toward the issue.

Further to these comments, Clr White clarified that these are issues that matter to the community. Clr White also said that community consultation submissions are valuable information to the Councillors, as Councillors are representing the entire community. When community members have taken the time to provide opinion and comments, Councillors read all information provided to them in order to make an informed decision.

Recommendation (Item to be determined under delegated authority)

That the SNRFM Committee receive the report on the community feedback survey on the dredging program at Sussex Inlet and Lake Conjola for information.

RESOLVED (David Reynolds / Kaye Milsom)

That the Shoalhaven Natural Resources Floodplain Management Committee receive the report on the community feedback survey on the dredging program at Sussex Inlet and Lake Conjola for information..

CARRIED

GENERAL BUSINESS

SN17.25 Additional Item - Previous Meeting – Tourism Manager – Contact List – Request Follow Up

Helen Moody advised that at the previous meeting, Tourism Section Manager, Coralie Bell provided a presentation, at the end of the presentation, Coralie Bell asked the Committee if they would like to be consulted further or would like further information etc. A number of community members wrote their names and contact information down (approximately 11), however did not hear from anyone. Kelie Clarke will follow up with Coralie Bell and also notify her of Mr Ian Stewarts intention to be included in the follow up consultation.

SN17.26 Additional Item - Attachments SN17.24 - Lake Conjola

There was an administration error in relation to the Lake Conjola report, two additional attachments were not included. Alasdair Stratton will send the additional attachments to Governance for sending out to the Committee.

SN17.27 Additional Item - Lake Conjola – Dredging – Include in Entrance Management Plan

Mike James made a comment that in relation to Lake Conjola and the positive effect the dredging has had. It was suggested that the Entrance Management Plan be revisited and that dredging be included as a tool in the plan as an option. The dredging towards the entrance assisted in mitigation of minor flooding events in the frequency, level and duration.

Mr Dirk Treloar advised that a community dredging analysis by plotting the data prior to and after dredging with comparable data had been undertaken.

RESOLVED (Mike Clear / Annie Boutland)

That Council staff consider the Shoalhaven Natural Resources and Floodplain Management Committees request to undertake a scientific analysis of the dredging and report back to the Committee on how staff can undertake this and how the University of Wollongong can be incorporated into this..

CARRIED

SN17.28 Additional Item - Proposal – Griffith University – Resilience Plan

Kelie Clarke advised there has been a proposal from Griffith University to involve the Sustainable Futures Committee and the Shoalhaven Natural Resources and Floodplain Management Committee in developing an adaptation pathways plan as part of their research.

Kelie Clarke will arrange for Governance to email the proposal to the Committee Members via an e-meeting seeking endorsement through committee. If the majority of Committee approve, Kelie will write a report with a recommendation to Council seeking endorsement through Council. Governance will also send a link to the presentation provided by Dr Rafael Carvalho – University of Wollongong, at the recent Shoalhaven Heads Estuary Taskforce meeting about his PHD investigation into Shoalhaven River estuary sediment.

SN17.29 Additional Item - Scoping Study – Working Group – Feedback – Coastal Zone Management Plan

At the previous meeting it was resolved that a working group of committee members would be established to assist staff in finalising the scoping study for the Shoalhaven Coastal Management Program.

Kelie Clarke advised it has been undertaken and a working group was formed. Feedback has been gained.

Thank you to Chris Grounds, Dirk Treloar and Brett Stevenson for making time to be on the working group and for their contributions to the scoping study.

Progress on the scoping study and CMP will be reported to the next meeting.

There being no further business, the meeting concluded, the time being 6.11pm.

Clr Patricia White
CHAIRPERSON

MINUTES OF THE SHOALHAVEN NATURAL RESOURCE & FLOODPLAIN MANAGEMENT COMMITTEE

Meeting Date: Monday, 22 January 2018
Location: E-Meeting

The following members responded:

Clr Patricia White - Chairperson
Clr Kaye Gartner
Clr John Levett
Mr David McCorkell
Mr Duncan Marshall
Mr Ian Stewart
Dr Michael Brungs
Ms Annie Boutland
Ms Kaye Milsom
Mr Brett Stevenson
Mr Chris Grounds
Mr Mike Clear
Mr Paul Beckett
Mr Peter Hanson
Ms Robyn Flack
Mr Bill McInnes
Ms Jillian Reynolds
Mr Phil Costello - Director, Planning Environment and Development

Apologies / Leave of Absence

Nil

Confirmation of the Minutes

Note: The minutes of the meeting, held on Thursday 23 November 2017 will be discussed, amended as required and confirmed at the next meeting due to the feedback received from Committee members.

Declarations of Interest

Nil

REPORTS

SN18.1 Partnership with Griffith University — HPERM Ref: D18/13523

Recommendation (Item to be determined under delegated authority)

That:

1. Council partner in a research project with Griffith University funded by the Australian Research Council (ARC) Discovery grant titled “managing environmental change through planning for transformative pathways”; and
2. Interested Committee members participate in the project by attending workshops facilitated by Griffith University.

RESOLVED (By consent)

That:

1. Council partner in a research project with Griffith University funded by the Australian Research Council (ARC) Discovery grant titled “managing environmental change through planning for transformative pathways”; and
2. Interested Committee members participate in the project by attending workshops facilitated by Griffith University.

CARRIED

There being no further business, the e-meeting concluded.

Clr Patricia White
CHAIRPERSON

SN18.3 Safe Navigation Action Group (SNAG) - Sussex Inlet Dredging Plan 2017

HPERM Ref: D18/13156

Group: Planning Environment & Development Group
Section: Environmental Services

Attachments:
1. SNAG - Sussex Inlet Dredging Plan 2017 (under separate cover)
2. Shoalhaven Citywide Dredging Feasibility Study 2014 (under separate cover)

Purpose / Summary

To provide the Sussex Inlet Safe Navigation Action Group's plan for dredging at Sussex, 2017 for information. Information is also provided on the implications of the dredging plan in relation to the Shoalhaven Citywide Dredging Feasibility Study 2014 and the St Georges Basin Estuary Management Plan 2013.

Recommendation

That the Shoalhaven Natural Resources and Floodplain Management Committee receive the report on the Safe Navigation Action Group's Sussex Inlet Dredging Plan 2017 for information.

Options

1. Receive the report for information.

   Implications: Nil.

2. Recommend an alternative recommendation.

   Implications: the Sussex Inlet Safe Navigation Action Group's plan for dredging at Sussex has many wide-ranging policy implications and significant financial requirements.

Background

The Safe Navigation Action Group Inc. (SNAG) provided a copy of their Sussex Inlet Dredging Plan 2017 to Council in September last year. A copy of the plan is contained in Attachment 1. The plan identifies the following desired outcomes:

- Recognition that there is a need for regular dredging.
- Sussex Inlet dredging program included in and budgeted for in the Shoalhaven dredging plan.
- All appropriate licences in place to permit dredging within the agreed parameters of need and frequency.
- Recognition and provision for community involvement.

- Access to survey results of all sand movements, as required by the Dredging Plan. Refer NSW Rescuing our Waterways Grants stipulations.
- A review of the Canal Management Plan
- An update from Council on their submission to IPART for the Waterfront Maintenance Levy rate rise specific to canal residents.
- Review of the Swan Lake Entrance Management Policy.

There are twelve goals outlined in the plan. These goals have been compared to the priorities and options in the Shoalhaven Citywide Dredging Feasibility Study adopted by Shoalhaven Council on 8 April 2014 (Attachment 2). The plan goals have also been compared to the:

- St Georges Basin Estuary Management Plan http://doc.shoalhaven.nsw.gov.au/Displaydoc.aspx?Record=d13/172324
- Swan Lake and Berrara Creek Natural Resources Management Strategy http://doc.shoalhaven.nsw.gov.au/Displaydoc.aspx?Record=D11/115647
- Swan Lake Entrance Management Policy http://doc.shoalhaven.nsw.gov.au/Displaydoc.aspx?Record=D11/115450
- Sussex Inlet Canal Estate Management Plan (2014).

SN18.3

Review of SNAG's Sussex Inlet Dredging Plan 2017 goals:

Goal 1 - Survey Sussex Inlet complete length of estuary.

The purpose of this survey is to define the navigational channel from the river mouth to the entrance of St Georges Basin.

Shoalhaven Citywide Dredging Feasibility Study

The Feasibility Study ranks the Sussex Inlet channel as the second ranked priority behind Currambene Creek. The study does not recommend surveys of the entire length of the channel but does recommend hydrodynamic assessments of the lower shoals in some locations.

St Georges Basin Estuary Management Plan

As part of action CC2 under natural hazards – adapting to climate change, the estuary management plan recommends mapping areas around the Basin that are likely to be inundated as a result of sea level rise, using detailed LiDAR or similar survey information.

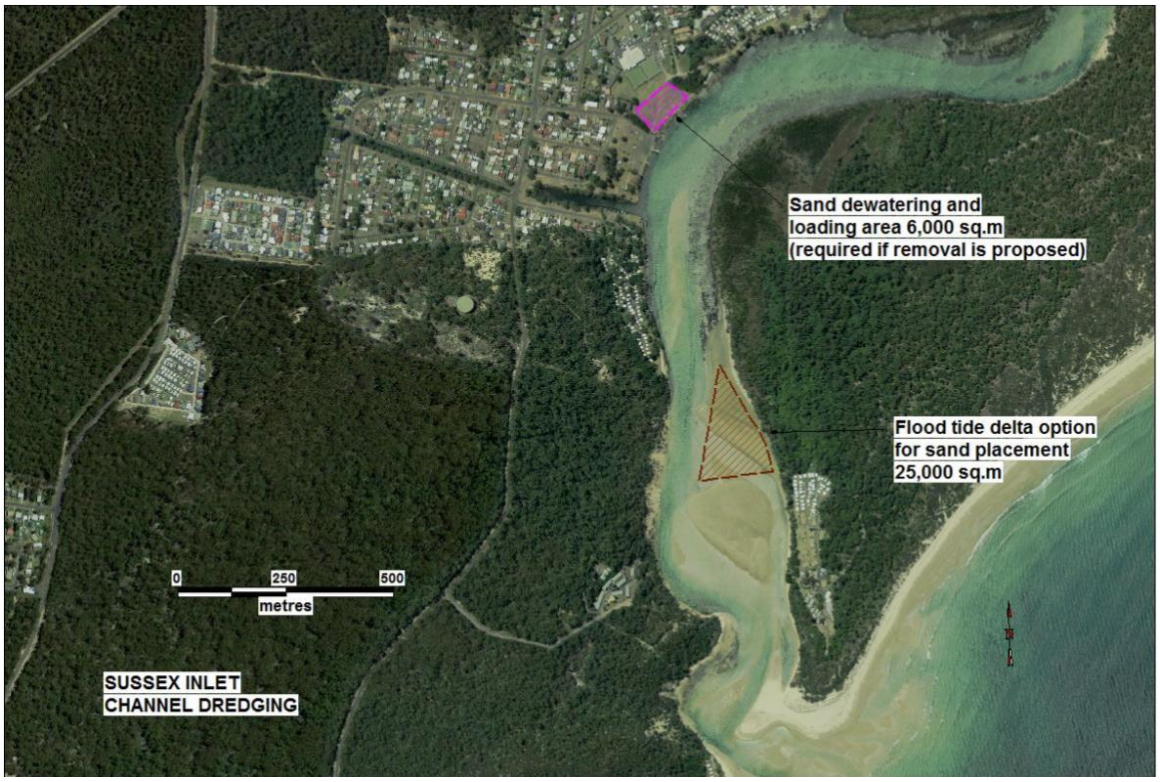
Goal 2 - St Georges Basin

The delta/entrance of St Georges Basin which at this juncture is less than 1 metre at low tide and is considered dangerously shallow, to be dredged to a safe navigable depth of 3 metres and 50 metres wide.

As well as improved navigational purposes it will also provide enhanced water quality and enhance flood mitigation for the St Georges Basin community. The dredged sand to be placed at Council discretion.

Shoalhaven Citywide Dredging Feasibility Study

The study does not identify any dredging works at the St Georges Basin tide delta/entrance to Sussex Inlet. The study identifies the priority for any dredging works to be in the last kilometre of the inlet in the tide shoals inside the entrance and examines the feasibility of dredging the entrance bar.



SN18.3

Figure 1: Sussex Inlet channel dredging sand disposal options – Shoalhaven Dredging Feasibility Study

St Georges Basin Estuary Management Plan

The St Georges Basin Estuary Management Plan does not have any actions to dredge or alter the St Georges Basin tidal flood delta area. It does however state that sediment movement in the basin is a dynamic process and that any dredging will only ever provide short term improvements, which will be followed by natural infilling from subsequent floods and tidal deposition. In additional to the significant initial costs involved in dredging there is also a sizable ongoing financial commitment required (Webb McKeon & Assoc. 2006).

Goal 3 - Sussex Inlet (river mouth/bar)

Partly remove the sand spit to open the river mouth and create a channel approximately 50 metres wide.

The aim of this Goal is to dredge/extract sand as required to aid safe navigation and contribute to flood mitigation/flood readiness. The need to remove sand will be decided in the annual review as stated in this plan and sand will be placed at Council discretion.

Shoalhaven Citywide Dredging Feasibility Study

The study identifies that between 2011 and 2013 there were 623 boat log-ons with the Sussex Inlet Marine Rescue and estimated that the majority of these boats were crossing the bar (Spurway 2014).

The study assessed likely longevity of potential dredging projects as one of the factors for prioritising projects. The overall longevity of project sites was rated from “poor” to “good” based on the rate of infill following the dredging, considering sand drift, dune erosion and scour from floods. The study rated the Sussex Inlet bar as being poor to fair, due to sporadic medium infill rate and irregular benefit from flooding.

The study also noted that local advice had been that the Sussex Inlet bar had not restricted marine rescue craft, rather the inlet shoals had been restrictive during low tide periods.

The study also identifies that the dredging of the entrance bar would require a second booster pump to the Alamein Rd site and the longevity of the dredged channel in this area would be limited by the unlimited southward feed of sand from Bherwerre beach.

St Georges Basin Estuary Management Plan

The estuary management plan states that any type of entrance management/training would result in increased tidal range which would lead to lower tides and may therefore reduce the depth of the navigation channels (Hughes, 1985). It also states that any alterations to the hydrodynamics of the waterways will affect the rate and magnitude of tidal-flushing within the estuary.

These changes to natural timing and magnitude of the tidal influence, due to modified entrance conditions, can have multiple effects on the physical, chemical and biological characteristics of the estuary. The estuary management plan has action in relation to navigation and entrance management, stating that there will be nil intervention in entrance of the estuary.

SN18.3

Goal 4 - Navigation Channel

Restore the navigational channel of the estuary to the centre of the river in the region of Alamein to The Haven (South of Lions Park Boat Ramp) see figure 3.

Figure 2: SNAG plan proposed location of dredging in the Sussex Inlet entrance.

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study identified that dredging should also be undertaken in the region of the Alamein Road, downstream to the Haven Holiday Resort, to provide a depth of -1.5m AHD

and a width of 25m metres. Although, not in the centre of the channel as proposed by the SNAG plan, see figure 3 below.

Figure 3: Location of the proposed dredging and beach nourishment as per the dredging feasibility study.

St Georges Basin Estuary Management Plan

The estuary management plan states that dredging inlet/entrance can provide immediate benefits to navigation, but these are frequently short lived. Increased depth of channel generally results in increased speed of current and tidal range, with low tides being lower. This effect can further reduce the depth of navigation channels (Ozcoasts, 2010; Hughes, 1985).

Goal 5 - Chris Creek Channel

Maintain a navigable channel at Chris Creek on the eastern side of the bridge.

Dredge and maintain navigable depth to avoid medium size boats bottoming out. (Medium size boat meaning any boat capable of passing under the bridge.)

Some of this sand can be placed in front of and around the concrete boat ramp and perhaps some top dressing on the adjacent reserve.

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study does not identify any dredging works for this location.

St Georges Basin Estuary Management Plan

In the estuary management plan, it identifies that DPI Fisheries has concerns about the potential impacts of dredging operations upon aquatic habitats and marine vegetation, particularly seagrass. This proposed location has large areas of seagrass meadows as can be seen from Figure 4 below.

Figure 4: Chris Creek location of proposed dredging showing darker areas are seagrass meadows

Goal 6 - Marine Rescue

Maintain *a suitable depth to accommodate the larger boat at the Marine Rescue berths on low tides.*

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study does not identify any dredging works for this location.

St Georges Basin Estuary Management Plan

In the estuary management plan, it identifies that DPI Fisheries has concerns about the potential impacts of dredging operations upon aquatic habitats and marine vegetation, particularly seagrass. This proposed location has areas of seagrass meadows located around the berth areas of the Marine Rescue surf craft.

Goal 7 - Swan Lake delta and creek

Remove some of the silted sands that have accumulated with the last three lake openings. These deposits are carried into the lake from the lake entrance on incoming waters when the lake is temporarily tidal and exacerbates environmental flows. It is also silt deposited from runoff, see figure 5 below for proposed location of dredging at Swan Lake.

Figure 5: Proposed location of dredging at Swan Lake, SNAG Inc. plan.

SN18.3

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study does not identify any dredging works for this location.

Swan Lake and Berrara Creek Natural Resources Management Strategy and the Swan Lake Entrance Management Policy

Both of these management plans and strategies make no reference to dredging or disturbance to sediment within Swan Lake. The Swan Lake Natural Resources Management Strategy has an action relating to minimising intervention in the natural entrance behaviour. This implies that the adopted strategy would not support this goal.

One of the Swan Lake Entrance Management Plan objectives is to ensure that, any entrance opening or manipulation of the entrance of Swan Lake is to follow as natural regime as possible, within the constraints of property inundation and flooding of infrastructure. This proposal clearly does not meet this objective.

<u>Goal 8 - Recurring Dredging Riviera Keys</u>

The community desire is to revisit the maintenance issues of the canal system and to see the provision of:

- *Recurring dredging for the purpose of maintaining appropriate silt levels adjacent to storm water drains.*
- *Recurring dredging to maintain canal formation and depths as shown in original construction specifications.*
- *Adequate sand placement for beach renourishment in front of all properties.*
- *Maintenance of revetment walls*
- *For Shoalhaven Council to continue with their submission to IPART for the Waterfront Maintenance Levy rate rise specific to canal residents as identified in Council minutes*

of The Extra Ordinary Meeting held on Tuesday 14th June 2016. This submission to IPART will be with further consultation with SNAG Inc.

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study does refer to the management plan for the Sussex Inlet canal estate development. It recognises siltation as an issue for the estate and states that if the channel linking the inlet to the canal estate does silt up, reducing tidal influence, then this could lead to a reduction in water quality.

The feasibility study does recommend that regular hydro surveys be undertaken to monitor the depth of the canals compared to the Public Works Design, shown in figure 7 of the Study.

Sussex Inlet Canal Estate Management Plan, December 2014

This Plan sets out management of the canals in relation to dredging.

Goal 9 - Alamein marina

Dredge *Alamein marina (Pacificana Drive). Particular attention to the western end around the boat ramp. Make the ramp serviceable by removing the accumulated silt.*

Removing accumulated silt and cleaning up around this ramp will reduce the load on the Lakehaven Drive ramp in peak seasons.

SN18.3

Shoalhaven Citywide Dredging Feasibility Study

The feasibility study does not identify any dredging works for this location.

Goal 10 - Improve navigation full length of estuary

As part of the Dredging Plan of 2015 Council stated their preparedness to monitor depths on a quarterly basis this will show where dredging is required as necessary to maintain navigational depth.

Shoalhaven Citywide Dredging Feasibility Study

As previously stated the feasibility study identified that dredging should also be undertaken in the region of the Alamein Road downstream to The Haven Holiday Resort, to provide a depth of -1.5m AHD and a width of 25m metres. Currently Council is undertaking hydrosurveys of the dredge locations, however on-going surveys of the entire inlet would be cost prohibitive.

St Georges Basin Estuary Management Plan

As part of action CC2 under natural hazards – adapting to climate change, the estuary management plan recommends mapping areas around the Basin that are likely to be inundated as a result of sea level rise, using detailed LiDAR or similar survey information.

Goal 11 - NSW Coastal Erosion Hot Spots

Recognition and identification of NSW Coastal Erosion "Hot Spots" for the Sussex Inlet area in addition currently listed on the NSW SEPP Map. I.e. the entrance western foreshore dune system (Stingray Bay).

The community are asking the question, "Should Coastal Management Policy include protection for the dune system at Stingray Bay (river mouth) and funding for the preservation of this dune system?".

The St Georges Basin Estuary Management Plan

The SNAG plan identifies in this goal that the barrier sand dunes around the entrance are being degraded and contributing to the infilling and siltation of the inlet entrance. The St Georges Basin Estuary Management Plan refutes this claim. Hughes (1985) and Manly Hydraulics Laboratory (1997) found that slip faces of the barrier dunes at the entrance contributed only small volumes of sand to the entrance shoals, which are insignificant in terms of the sediment transport potential within the inlet channel.

Analysis of historical aerial photographs from 1937 to 2009 (Muhlbaur, 2000 & Boardman 2009) support the findings of Hughs (1985) and MHL (1997).

Contrary to the claim made in the SNAG Inc. plan Sussex Inlet is not regarded as "Erosion Hotspot" or high risk beach, as per the Shoalhaven Coastal Hazard Review 2016, see https://shoalhaven.nsw.gov.au/Environment/Coastal-Landscape/Council-and-climate-change

Goal 12 - Provide a foundation for a future concept

We aim to provide a permanent pedestrian access to the river mouth for tourists and local residents. This will return to the community an asset that was enjoyed many years ago. Walking to the entrance, a swimming beach, and fishing, all part of a lost asset to the public.

Figure 8: SNAG Sussex Inlet Promenade Proposal for proposed permanent pedestrian access along the southern shoreline of the inlet entrance (from Appendix 1 of SNAG Plan)

St Georges Basin Estuary Management Plan

The St Georges Basin Estuary Management actions stress the importance of maintaining and retaining foreshore buffer zones around the basin and inlet, with linking vegetation to improve habitat corridors and reduce erosion.

It also has an action to provide environmental protection zoning to land adjacent to foreshores, watercourses or draining into sensitive aquatic habit.

The proposal to construct hard structures within the dynamic environment such as the entrance to an estuary may cause a "knock on" effect by exacerbating erosion in other locations within the shoaling estuary.

Any such proposal would need to be subject to environmental approval process.

Policy Implications

The SNAG Inc. Dredging Plan for Sussex Inlet has wide ranging policy implications for Shoalhaven Council under the Coastal Management Act 2016, Coastal Management State Environmental Planning Policy (SEPP) as well as other guiding plans such as the St Georges Basin Estuary Management Plan and the St Georges Basin Flood Risk Management Plan.

Financial Implications

To implement the actual dredging component of the SNAG Inc. dredging plan, including all the approvals, environmental studies, surveys and dredging works would be in the order of multiple-millions of dollars.

Risk Implications

There are extensive economic, environmental and social risk implications associated with the SNAG Inc. Sussex Inlet Dredging Plan that would require assessment and analysis.

SN18.4 Update on the review of the draft 2012 Coastal Zone Management Plan

HPERM Ref: D18/73442

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 OEH 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 last year and in January 2018, 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 OEH. 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.

SN18.5 Citizen Science - Utilising Technology to Monitor the Coast

HPERM Ref: D18/80832

Group: Planning Environment & Development Group
Section: Environmental Services

Purpose / Summary

To provide the Committee with information about the potential for Council to engage in a citizen science project via an App, named Photomon. The App has been developed by WA's Northern Agriculture Catchment Council, and is a mechanism used for coastal monitoring via citizen science. For further information visit the NACC Photomon website at https://www.nacc.com.au/project/beach-photo-monitoring/

Recommendation That:

1. Council endorse the opportunity to engage in a citizen science project by taking up the three-month free trial offered for the Photomon App;
2. Council seek an expression of interest through the Shoalhaven Natural Resources & Floodplain Management Committee, Council Consultative Bodies and Shoalhaven Bushcare Groups for volunteers to be involved in the citizen science project via the Photomon App; and
3. A further report be provided to the Shoalhaven Natural Resources & Floodplain Committee and Council on the outcomes of the trial in order to determine whether to proceed with a full subscription for future coastal monitoring.

Options

1. As recommended, proceed with the free, three-month Photomon trial.

   Implications: Council officers time would be required to coordinate the trial, including the recruitment and training of a limited number of volunteers to use the App at a limited number of sites.

2. Not proceed with the free, three-month trial

   Implications: Council officers will need to continue researching suitable options for the monitoring of coastal management processes.

3. Enter directly into a two-year subscription

   Implications: The App may not suit Council's needs and a trail is recommended to determine if it meets Council needs.

Background

In September 2017, committee member, Mike Clear, provided Environmental Services with information about an App called 'Photomon'. The App was developed by the Western Australian (WA) Northern Agricultural Catchments Council (NACC). Mr Clear suggested that

it could be an effective tool for recording changes in the local environment, particularly dynamic environments such as our beaches and estuaries.

In January 2018, king tides (peaking at 2.07m) prompted Environmental Services to discuss options for a formalised photo monitoring program that could assist various sections of Council to adapt to climate change and rising sea levels.

Staff in Council's Assets & Works Group and Shoalhaven Water expressed interest in collaborating with Environmental Services staff to investigate the options.

The most efficient option is to use an App so that the process of date stamping, and storing the photos for easy comparison, is automatic.

Council investigated the availability of photo monitoring Apps and found that the NACC App, Photomon, is the only one of its kind available that doesn't require software and other infrastructure.

Features of the App:

- Overlaid transparent reference photos for consistent Field of View
- Automatic labelling and uploading of photos using cellular network or wifi
- Program coordination via the database
- Reminder function to prompt the next photos

There are three ways of using Photomon:

- Demo mode for free, small-scale monitoring programs such as bush regeneration projects by community groups
- Larger photo-monitoring programs can be facilitated by engaging Photomon's developer to link the App to a separate and dedicated database. This option requires payment for amending the App and maintaining the new database
- Large organisations who want to link Photomon to their own database can enter into a license agreement with NACC to amend the App to link directly to the database.

The services NACC provides are:

- A three-month, free trial to ensure the service meets our needs
- Introductory information and guidence for the App
- Access to a secure back-up and database for storing photos
- Technical support via email and phone on how best to use Photomon
- Ongoing maintenance and upgrading of the App and database
- A Photomon Users Guide is available on the NACC website

Fees:

- Biennial subscription fees from 1 July to 30 June. Pro-rata payments can be made for periods less than 2 years
- Tiered subscription fees depending on how many photos are uploaded annually.

Subscriber Level	Number of photos uploaded annually	Biennial Subscription Fee
Level 1	Up to 250	$300
Level 2	250 - 500	$600
Level 3	500 - 1000	$1000
Level 4	1000 – 2500	$1500
Level 5	2500 +	Fee to be negotiated

Figure 1: Photomon Subscriber Level & Costs

It would be of benefit to Council if volunteers could be recruited and trained to use the Photomon App in nominated locations and for specific purposes such as:

- During king tides – the next king tides will occur between June 13 and June 16 when high tides will range from 2.10 m to 2.08 m. Sites are yet to be determined but could include boat ramps, high risk beaches, Ulladulla Harbour, wharves, jetties and any other sites of interest to SCC asset managers and community groups
- High risk beaches at regular intervals and immediately post storm
- Shoreline adjacent to sewer pump stations and other Shoalhaven Water at-risk assets.

SN18.5

Community Engagement

Initially, prior to the commencement of the three-month trail, an expression of interest (EOI) would be sent out to Committee members as well as Council Consultative Bodies and Bushcare Groups to recruit volunteers to participate in the trial. Based on the success of the trial period, if Council were to proceed with subscription of the App, then it could be promoted in the print media, on radio, on Council's social media sites and on Council's Get Involved site. Those interested in volunteering to become a 'Photomon', could offer their services through the Get Involved page.

Financial Implications

A Council officer would need to be allocated the task of Photomon project coordination, including preparing the community engagement program in conjunction with the Media and Communications Team, training and supporting volunteer Photomons and liaising with NACC and other sections of Council.

A budget would need to be consolidated, from the various interested sections of Council, to cover subscription fees and all other costs associated with implementing and managing the Photomon Project. The financial cost to Council would be based upon the level of the subscription that it chose (see figure 1).

Risk Implications

Coastal hazards, including rising sea level, constitute on-going risk. The Photomon App can provide Council with useful graphic data to monitor the impacts of coastal hazards. This data will assist Council and coastal communities prepare and adapt to the challenges, and on-going risks, associated with climate change.

SN18.6 Update on the Review of the Lake Tabourie Entrance Management Policy

HPERM Ref: D18/89903

Group: Planning Environment & Development Group
Section: Environmental Services

Attachments: 1. Tabourie Lake EMS Review Community Consultation Questionnaire ⇩

Purpose / Summary

The purpose of this report is to inform Committee about the updates on the review of the Lake Tabourie Entrance Management Policy.

Recommendation (Item to be determined under delegated authority)

That Committee receive the report on the review of the Lake Tabourie Entrance Management Policy for information.

Options

1. As recommended.

   Implications: Nil

2. Provide an alternative recommendation for future consideration by Council.

   Implications: Unknown

Background

Council, together with the NSW Government, manages some estuary entrances for flood mitigation purposes. Historical development of estuary catchments and floodplains has resulted in low-lying properties being at risk from flooding under certain rainfall and entrance conditions.

The Tabourie Lake Floodplain Risk Management Study (FRMS) and Plan (2016), proposed a review of Council's existing Tabourie Lake Entrance Management Policy (EMP) and Review of Environmental Factors (final draft, 2005). The ocean storm event in June 2016 further highlighted the importance of this review.

The review of the EMP should consider the detailed flood modelling results presented in the FRMS, the combined risks associated with catchment and ocean flooding, and the potential impact of climate change on flooding and entrance behaviour.

Preliminary options have been identified and presented to the community. The following options were presented in the following order:

Option 1 - 'Do Nothing' Approach
Option 2 - Continue Existing Approach
Option 3 - Raise Trigger Level
Option 4 - Berm Management
Option 5 - Dry Notch
Option 6 - Construct a Permanently Open Entrance

An online questionnaire was distributed during the consultation period (refer to Attachment 1) and 100 responses were received from the community.

In the questionnaire, the community was asked to rank the options presented (refer above) from a scale 1 to 5.

It was found there was wide range of opinions within the community. As demonstrated in Table 1 below, final scores for Options 2 to 5 were very similar, with Option 1 scoring the least. Therefore, the options assessment based on community feedback concluded that options will come down to cost and impacts to the community.

Option no.	Management Approach	Score
1	'Do Nothing' Approach	2.14
2	Continue Existing Approach	3.82
3	Raise Trigger Level	3.9
4	Berm Management	3.91
5	Dry Notch	3.59
6	Construct a Permanently Open Entrance	3.63

Table 1: Summary of results from the community questionnaire

At this stage, Council and the consultant are working to assess and weigh up the modelling options, taking into consideration the feedback from the community consultation. A second round of community consultation is currently being planned with modelled options. This will be undertaken in the same form as the first round of consultation.

Community Engagement

The outcomes of the preliminary findings of potential options have been presented to the community. The first round of consultation has been undertaken. An information night was held, mail-out of information, 'Get Involved' webpage setup and numerous social media posts. The second round of community consultation is being planned in the coming months.

Policy Implications

The current Lake Tabourie Entrance Management Policy (final draft, 2005) remains current until such time as this review is completed and formally adopted by Council.

Financial Implications

Sufficient funds have been allocated towards this project. The project is currently within budget, with no anticipation of the project budget being exceeded.

The project is for the provision of consultancy works and does not have any direct or immediate implications on Council's assets. The project is managed by staff from the Natural Resources and Floodplain Unit.

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TABOURIE LAKE ENTRANCE MANAGEMENT POLICY REVIEW

Please rank these options from 1 to 6, where your preferred option is ranked 1, and your least preferred option is ranked 6.

Option Description	Ranking
Option 1 – Do Nothing Under this scenario, there is no active management of the lake entrance. For the 'do nothing' option the entrance berm would be overtopped when water levels rise during a rainfall event and the entrance breaks out naturally without any intervention.	
Option 2 – Continue Existing Approach Option 2 provides for the continuation of the existing management approach. The lagoon entrance is opened when water levels exceed the trigger level of 1.17 m AHD, which allows sufficient time for mobilisation to open the lagoon before over-floor flooding of properties can occur. Or open the lagoon when the water level has been higher than 1 m AHD for 2 months or more.	
Option 3 – Raise Trigger Level Option 3 proposes continuing the existing management approach (see Option 2), but with a higher trigger level 1.5 m AHD. This would lead to fewer mechanical openings of the entrance of Lake Tabourie, thereby reducing the environmental impact of the current practices on the Lake.	
Option 4 – Berm Height Management (Dry Notch) When the lake entrance is closed, the berm height plays a very important role in determining the maximum water level that may be reached in Tabourie Lake. The berm height can be managed such that it does not exceed a pre-determined level; this is known as maintaining a 'dry notch', which is a low or 'saddle' point in the entrance berm which the water can preferentially flow across. The purpose of the notch is to dispense with the need to mechanically open the lake when a flood occurs. If maintained correctly, the notch would breach when the lake water level reaches the appropriate level without requiring Council to mobilise excavators during the event. Option 4, berm height management, would require more frequent mobilisation of an excavator to the beach in order to maintain the notch level	
Option 5 – Permanently Open Entrance Option 5 proposes constructing a permanently open entrance with rock armoured training walls. Flooding in the lake is largely affected by the entrance condition, and a permanently open entrance would, in theory, lower peak catchment flood levels within the lake by facilitating a more rapid release of flood waters to the ocean. There are, however, several issues associated with Option 5. From a flooding perspective, the main issue is that a permanently open entrance would allow high spring tides (which occur several times a year) and storm tides to propagate up the estuary and flood low lying properties	

Option 6 – Pilot Channel (plus either Option 2 or 3, as required) Option 6 involves a mechanical excavation of sand from the entrance berm 1-3 days before a large storm is scheduled to arrive, by digging a pilot channel starting from the ocean. The exercise is intended to reduce the volume of sand required to be removed to instigate a lake breakout, thereby inducing an earlier breakout and reducing flood levels (and possibly duration) within the lake. This would reduce risk to personnel, who often have to excavate the entrance during a storm event under the current management practice. The option would be undertaken as an additional component to Council's current entrance management policy of opening the lake once trigger levels reach 1.17 m AHD (or the higher trigger level of 1.5 m AHD).	

SN18.7 Update on the Shoalhaven River Levee Flood Damage Restoration 2017 Project

HPERM Ref: D18/92311

Group: Planning Environment & Development Group
Section: Environmental Services

Purpose / Summary

The purpose of this report is to inform the Committee about the updates on Shoalhaven River Levee Flood Damage Restoration project.

Recommendation (Item to be determined under delegated authority)

That the Committee receive the report for information.

Options

1. The Committee receive the report for information.

   Implications: Nil.

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

   Implications: This option can significantly affect the project and delay progress of the project.

Background

Council has commenced a project to repair damaged sections of the Shoalhaven River Levee at Terara, Numbaa and Comerong Island. The aim of the project is to repair damage that occurred during the August 2015 flood, June 2016 flood and damage identified during the levee audit undertaken by Royal Haskoning Pty Ltd in May 2015.

Council called for tenders mid last year for the project; however, all tenders were considered non-conforming.

Due to the market failure in open tendering and the limited grant funding timeline, at its meeting on 27 June 2017, Council resolved to enter into negotiation with any person or firm within existing tender panels (notified during previous NRFMC meeting) and break the work into smaller packages based on the levee location.

Due to non-availibility of a suitable tender panel, Council called for tenders for two high priority packages to repair levee defects at Terara and Comerong Island on 19 October 2017 to find a suitably qualified contractor. The tenders closed on 23 November 2017, however, were rejected due to late submissions. Despite rejection of the tender, Council found a contractor (NSW Soil Conservation Service) that was technically suitable for the job, as they had previous experince in undertaking larger scale projects in the relevant field. The other contractor was unable to meet minimum technical criteria and was not considered further.

As per the Council resolution, Council entered into negotiation with the ranked (based on price/non-price criteria) contractor i.e. NSW Soil Conservation Service (SCS- commercial

wing of DPI). After a sucessful negotiation, Council engaged NSW Soil Conservation Service with a contract worth of $1,676,842.20 (incl GST). The project cost is funded by both National Disaster Relief Recovery Arrangement (NDRRA) grant and Council.

Considering the fact that NSW Soil Conservation Service were found to be suitable for both the packages, and can offer savings on combining two packages, Council decided to combine two packages and issue a single contract for the project, which will save money, time and administration costs.

The project started on 27 Feb 2018 and is expected to be completed by August 2018. NSW Soil Conservation Service has indicated that they have the capacity to carry out the remaining two packages simultaneously to contracted works. Council is under negotiation at this stage with contractors for the remaining two packages to repair defects at Numbaa levee and levee repairs located at wedding venues at Terara. After negotiations are completed with the contractor, the remaining two packages can be added as a variation to the original contract.

In the past, Council received $1.1M National Disaster Relief Recovery Arrangement 2015 (NDRRA) grant fund to repair flood damage that occurred during August 2015 flood. Council also submitted the NDRRA 2016 claim to repair levee defects that occured during June 2016 flood. Public Works Advisory (PWA) requested Council resubmit Council's NDRRA claims taking the NSW Soil Conservation Service tender prices into account. Council currently, with the assistance from Public Works Advisory (PWA), is reviewing the NDRRA funding claim and will submit a revised claim shortly.

SN18.7

Community Engagement

Council's floodplain engineers and property unit officers have visited private properties and met with property owners to discuss access and levee repair works to be conducted on their properties. Council has received 21 signed Deeds of Agreement from the damaged levee affected private property owners and is negotiating to get the remaining 2 Deeds of Agreement signed by the relevant property owners. The remaining property owners have expressed their interest in discussing the works with the contractor prior to reaching an agreement. This message has been conveyed to the contractor and the contractor has agreed to do so.

Policy Implications

Council manages levees in the Lower Shoalhaven River area, which are identified in Council's Asset Management Plan for Flood Mitigation Structures.

Financial Implications

Council resolved to advance this project ahead of NDRRA funding confirmation. Public Works Advisory requested to resubmit the claim taking the accepted tender price into account. Currently, Council is revising the estimates in assistance with Public Works Advisory.

It appears that the current revised claim will be higher than the revised claims that were submitted during August 2017 for both the 2015 & 2016 flood damage. The actual volume of works and current market price are supposedly contributing to higher claim amounts. There is no guarantee that Council's revised NDRRA grant funding claims will be successful.

Risk Implications

Council resolved to undertake all flood levee restoration works to repair 2015 and 2016 flood damage including high priority levee audit defects, while waiting for the revised NDRRA outcomes. There is no guarantee that Council's revised NDRRA grant funding claims will be successful. However, if these levee defects are not restored, the levee defect locations will continue to erode leading towards more expensive restoration in future.

SN18.8 South Mollymook Beach Cost Benefit Distribution Analysis (CBA) Coastal Hazard Assessment

HPERM Ref: D18/102646

Group: Planning Environment & Development Group
Section: Environmental Services

Attachments: 1. South Mollymook Beach Cost Benefit and Distributional Analysis. Coastal Hazard Assessment (under separate cover)

Purpose / Summary

Advise the Committee on the current status of the South Mollymook foreshore protection structure, Cost Benefit Analysis (CBA) project commissioned in January 2018.

Recommendation (Item to be determined under delegated authority)

That Council receive the South Mollymook foreshore protection structure, Cost Benefit Analysis (CBA) "initial findings report" for information.

Options

1. As recommended.

   Implications: Nil

2. Propose an alternative recommendation.

   Implication: Would depend on the recommendation.

Background

In 2017, consultant 'Origin' was engaged by Council to carry out the cost benefit analysis for the replacement of the foreshore protection structure at South Mollymook Beach and a distributional analysis (partitioning of benefits to affected property and asset owners). Royal HaskoningDHV (RHDHV) were retained by Origin to carry out a risk-based coastal hazard assessment using a "probabilistic" coastal hazard modelling method, consistent with the new *NSW Coastal Management Manual Part C: Coastal Management Toolkit, Using Cost Benefit Analysis to Assess Coastal Management Options: a Guide for Local Councils* (OEH, 2015). This assessment process is outlined in attachment 1.

Coastal hazards threaten public and private assets at Mollymook Beach. Coastal hazards can include storm and long-term erosion, inundation, dune instability and sand movement, and geotechnical hazards https://www.shoalhaven.nsw.gov.au/Environment/Coastal-Landscape/ Coastal-Hazards

Council's draft Coastal Zone Management Plan (CZMP) lists a number of actions to reduce the risk of coastal hazards at Mollymook Beach, including review of revetment installations at South Mollymook. Royal HaskoningDHV (RHDHV) investigated foreshore stabilisation and

developed a staged upgrade to the existing walls. Concept designs were prepared for four seawall types covering 300m of foreshore (RHDHV, 2016).

A Site meeting was held in December 2017 with the project reference group including the Golf Club, Mollymook Surf Club, Shoalhaven Water, NSW OEH, and Council staff to discuss the scope of the project as well as long-term aspirations for the precinct.

To progress the design development of any prospective foreshore stabilisation works, a number of activities were recommended for consideration including a formal Cost Benefit Analysis (CBA) covering the range of management options including protection. The CBA also includes the base case of 'do nothing'. Four long-term options have been identified to manage coastal hazards at South Mollymook Beach:

Option 1 Base case/ status quo (Do nothing/ Emergency Response)
Option 2 Managed retreat
Option 3 Protection
Option 4 Protection and beach nourishment

Community Engagement

Council has been in direct consultation with the owners and occupiers of the private assets at risk at South Mollymook throughout the development of the CBA and coastal hazard mapping, including the Mollymook Surf Life Saving Club and the Mollymook Golf Club. This direct consultation will continue throughout the development of the CBA.

Financial Implications

The total cost of the CBA and coastal hazard modelling is $100,000. The NSW Office of Environment (OEH) has funded 50% of the costs. Following the outcomes of the CBA, Council will need to make a decision whether or not to proceed with the preferred management option recommended by the CBA. The cost of replacing/ rebuilding the South Mollymook seawall is estimated at $3,373,500. A budget bid for this amount over the 2018/19 and 2020/21 financial years has been prepared for Council's consideration in future budgets. Budget planning timeframes meant that a budget bid needed to be prepared for consideration prior to the completion of the CBA. Council has undertaken sand scraping, surface water diversion and some minor repairs to the face of the sea wall to protect the structure in an effort to increase the expected life of the structure. This work was completed in December 2017 at a cost of $40,000 from Council's existing coastal maintenance budget.

Risk Implications

Eventually the existing seawalls at South Mollymook will fail completely (storm damage greater than 30%), with the clean-up effort expected to far exceed controlled demolition and removal at an earlier point in time, based on the preliminary findings of the CBA. In this location, Council's coastal risk hazard mapping identifies the sewage pumping station, sewage lines, shared pathway, road, storm water infrastructure and kerb and gutter at risk from coastal hazards.