

Mallacoota Ocean Access
MSV Safety Audit and Risk Assessment
Summary Matrix - Response to Recommendations

MSV Audit and Risk Assessment Recommendation	Proposed Implementation Action
14.2 Recommended treatment options based on elimination	
A.1 Use the dredge in non-peak periods where possible	Addressed in Operational Management Plan
A.2 Make use of helicopters for rescue services where appropriate	Will be addressed through communications to relevant authorities (Vic Police, MSV, AMSA)
14.3 Recommended treatment options based on engineering	
a) Channel	
The following recommendations are made to the design of the channel:	
B.1 Ensure that the water depth at the end of the breakwater is suitably deep to limit breaking wave action	Modelling indicates depth is adequate during operable conditions. The excavated channel has been extended to achieve the required depth beyond the end of the breakwater.
B.2 Ensure that the channel is suitably deep throughout to permit all vessels using the ramp to navigate safely with outboard motors in the fully down position	Channel depth is to RL-2.0m AHD, Mean Lower Low Water (MLLW) level is RL-0.6m AHD, providing a minimum of 1.4m depth, which is adequate for the design vessel (Parks Victoria's "Ocean Argus")
B.3 Conduct regular assessment of the sand build up at the end of the breakwater and in the channel and dredge as necessary to maintain suitable water depth	Addressed in Operational Management Plan through inspection regime.
B.4 Conduct regular assessment of the sand build up on the boat ramp and clear as necessary	Addressed in Operational Management Plan through inspection regime.
B.5 Ensure that the channel width at the entrance is wide enough to give vessels sufficient space to manoeuvre in breaking waves	Channel width of 25m in entrance area significantly exceeds minimum recommendations in Marina Guidelines (AS 3962) and is sufficient for manoeuvring.
B.6 Ensure that the channel width is wide enough to give vessels sufficient room to pass, and to shelter at peak periods	Channel width of 25m in entrance and jetty areas significantly exceeds minimum recommendations in Marina Guidelines (AS 3962) and is sufficient for vessels to pass.
B.7 Monitor presence of kelp in the channel and on the boat ramp and remove if and when necessary	Addressed in Operational Management Plan through inspection regime.
b) Breakwater	
The following recommendations are made to the design of the breakwater:	
C.1 Design the breakwater to allow maximum possible visibility for vessels entering and departing by stepping or sloping it down towards the end	Stepping considered by breakwater designer Dr Peter Riedel, however modelling indicated that this significantly increased the incidence of over-topping of the breakwater. This would greatly increase the risk to persons on the breakwater during storm events, notwithstanding the fact that railing and signage has been designed in an attempt to prevent people from accessing the breakwater. Signage indicating speed limit and the requirement for a single departing vessel to occupy the entrance area at any time was adopted in lieu of this.
C.2 Install strategically placed lifebuoys on the breakwater	Adopted - Life buoys to be installed on breakwater and jetty
C.3 Design breakwater to ensure that as little wave energy reaches the boat ramp as possible	Modelling indicates worst case of 0.2m wave height at ramp during operable conditions.
c) Ramp and associated works	

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The following recommendations are made to the design of the ramp and associated works:	
D.1 Optimise the design of the ramp (in accordance with AS 3962:2001)	Ramp has been designed to cope with weight and dimensions of the design vessel. The ramp design complies with AS3962 (Marina Guidelines).
D.2 Don't provide fish cleaning area close to the ramp	Adopted
D.3 Install strategically placed hand supports as appropriate without causing obstructions	Adopted - hand supports installed in ramp section of jetty.
D.4 Install brightly coloured ripple strips and other non-slip material at the water's edge, as appropriate	Defined walkway across ramp area is constructed with high visibility textured pavement marking.
D.5 Install lifebuoys in strategic positions	Adopted - Life buoys to be installed on breakwater and jetty
D.6 Ensure adequate space for mooring/tying up vessels awaiting recovery	Sufficient space for 8 vessels to be moored at the jetty has been provided.
D.7 Optimise ramp/finger pier design to minimise time taken to recover a vessel	Ramp is of ample width, and optimal grade, and has good manoeuvring space on approaches in order to minimise vessel launch and recovery time.
D.8 Install appropriate lighting, including navigation lights	Lights to be installed to Gippsland Ports requirements. Lighting and navigation aids noted on design drawings.
D.9 Install sunscreen dispenser	Not adopted - The potential for vandalism and abuse is considered greater than the potential benefit.
d) Land side ramp access	
The following recommendations are made to the design of the land side access arrangements:	
E.1 Design vehicular traffic flow to minimise time taken from car/trailer park to boat ramp	Access road and ramp approach slab are designed to facilitate smooth and well defined traffic flow from the car/trailer park area. The carpark has been designed to minimise travel distance from ramp to parking area. Topographical and other constraints prevent car park being moved any closer.
E.2 Ensure adequate turning circle for cars/trailers reversing into boat ramp	Vehicle turning movements have been modelled and are all satisfactory for the design vehicle and vessel.
E.3 Minimise time required for vessel operators to walk to car/trailer park to recover vehicle	Well defined walkway access is provided from ramp to carpark. Topographical and other constraints prevent car park being moved any closer.
E.4 Ensure car/trailer park is adequate for expected number of vessels using the ramp	The number of car/trailer spaces has been optimised based on predicted usage, whilst minimising encroachment into native vegetation.
E.5 Consider method of handling overflow in car/trailer park in peak periods, such that time to retrieve car/trailer is not excessive	Overflow parking has been provided for vehicles to relieve pressure on trailer parking area. It is acknowledged that it is not possible to provide sufficient parking for total peak usage without requiring extensive vegetation removal. Mallacoota Ocean Access Boat Ramp Community Advisory Committee agreed this position of compromise.
E.6 Design road access to maximise safe operation	Road access is designed to meet all relevant safety requirements.
E.7 Design vehicle turning circles and vehicle access to boat ramp to avoid vehicle and pedestrian conflict	All pedestrian access apart from designated crossing points is off the carriageway on defined footpaths or boardwalks. Vehicle and trailer turning movements have been modelled and are satisfactory.
E.8 Allow adequate safe space for pedestrians and those preparing to board the vessel to congregate	Several safe areas exist, such as adjacent to signage on east side of ramp, and at the public seating situated adjacent to the access pathway on the timber outstand to the west of the ramp.
e) Dredge and associated works	

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The following recommendations are made to the design of the dredge and associated works:	
F.1 Minimise dredge footprint	The proposed dredge and associated pipeline are trailerable and will be removed when not in use.
F.2 Ensure sufficient spare parts and piping to repair dredge in timely manner after incident	Addressed in Operational Management Plan.
14.4 Recommended treatment options based on administration	
The following recommendations are made for administrative controls:	
G.1 Display appropriate warning signs	Waterway signage, lights and navigational marks have been incorporated in line with Gippsland Ports recommendations.
G.2 Install water depth gauge to indicate height of tide	Not incorporated into design due to the potential to confuse ramp users.
G.3 Display tide tables for current month on a board close to the ramp	Not incorporated into design due to the potential to confuse ramp users. Tide tables specific to Mallacoota are not published.
G.4 Install isolated danger mark high at the end of the breakwater	Waterway signage, lights and navigational marks to be adopted in line with Gippsland Ports recommendations
G.5 Conduct random policing of users of the boat ramp, in particular:	Will be addressed through communications to relevant authorities (Vic Police, MSV, AMSA)
i) carriage of all safety equipment	Will be addressed through communications to relevant authorities (Vic Police, MSV, AMSA)
ii) observance of alcohol limits	Will be addressed through communications to relevant authorities (Vic Police, MSV, AMSA)
iii) maximum load on vessels	Will be addressed through communications to relevant authorities (Vic Police, MSV, AMSA)
G.6 Develop and conduct safety seminars relevant to operations at Bastion Point including:	Site specific conditions communicated by site signage and navigation marks.
i) bar crossings	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
ii) operations in the open ocean	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
iii) launching and recovering in the presence of wave surge	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
iv) conflict between vessels and surfers or swimmers	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
v) issues associated with operation of dredge	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
vi) boat ramp etiquette and channel congestion issues	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
vii) night time operations	These issues are addressed state-wide through MSV publications, seminars and other safety education initiatives.
G.7 Initiate and enforce policy of only one departing vessel being in the vicinity of the entrance to the channel at any one time	Adopted - Will be communicated via signage on breakwater directed toward departing vessels. Enforcement to be undertaken by Victoria Police.
G.8 Initiate and enforce speed limits for all vessels in the vicinity of the breakwater, including the entrance to the channel	Signage will clearly communicate speed limits. Enforcement by Victoria Police.
G.9 Monitor development of surfable waves due to sand build up in the region close to the entrance of the channel with a view to introducing controls if necessary	Addressed in Operational Management Plan through inspection regime.

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G.10 Introduce and enforce special purpose zone in a similar manner to that at the current boat ramp.	Gippsland Ports and MSV to determine changes to extent of Special Use Zone. Exclusion Zone also proposed to eliminate conflict between boats and swimmers at existing beach to north of proposed ramp.
G.11 Make use of buoys and signage to mark dredge area of operation	Lateral Marks are used to clearly define channel limits. During dredging, standard signals, markings and lights will be used in accordance with MSV regulations.
G.12 Require vessel operators, swimmers, and surfers to maintain a specified distance from the dredge area of operation	Existing regulations supplemented by controls developed in the Operational Management Plan will address these issues.
G.13 Develop and publicise boat ramp etiquette such that vessels are retrieved quickly when there are others waiting in the channel	On-site signage will note the request for boat ramp etiquette.
G.14 Develop traffic management plan, including adequate signage	Road, boat ramp and car park conform to relevant standards for traffic management, and layout optimises safe movement of vehicles and pedestrians (eg. By using drive-in drive-out trailer parks)
G.15 Implement a policy whereby vessel users have priority over fishermen	Relevant wording to be included in on-site signage.
G.16 Designate sufficient car/trailer parking bay(s) close to the boat ramp for emergency services use only	The closest lay-by parking bay to the boat ramp is designated as having priority for Emergency Services.
G.17 Ensure crew of rescue vessels are well trained and equipped	Ongoing responsibility of Vic Police, MSV, AMSA, Volunteer Coast Guard etc.).
14.5 Recommended treatment option based on PPE	
The following recommendation is made for a treatment option based on PPE:	
H.1 Require the wearing of PFDs when operating from Bastion Point by nominating the area as a designated hazardous area	Designation of Hazardous Area to be undertaken by Gippsland Ports and MSV.
14.6 Recommendations for monitoring and review	
I.1 An incident data base should be developed from all accidents and incidents, including near misses, where possible.	To recorded by Gippsland Ports, Victoria Police and MSV.
I.2 The wave conditions at the end of the breakwater should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.3 The wave conditions in the channel and at the boat ramp should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.4 The effect of changes to the underwater topography due to the construction of the breakwater, and the effect of sand build up, on the development of surfable waves should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.5 The effect of sand movement on the behaviour of recreational swimmers should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.6 The sand build up at the entrance to the channel and in the channel should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.7 The sand build up on the ramp should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.8 The kelp build up in the channel and on the ramp should be monitored	Addressed in Operational Management Plan through inspection and monitoring regime.
I.9 The car/trailer park usage should be monitored and an assessment of the usage level of the ramp should be undertaken	Addressed in Operational Management Plan through inspection and monitoring regime.