Oliver Nickson

MEng. BEnvs.

Oliver has been working as a coastal engineering consultant since 2017.

Coastal risk analysis is both Oliver's strength and passion, the origins of which began during a year long Masters exchange at Delft University of Technology in the Netherlands, a global leader in the field of coastal engineering and flood risk. Oliver established OMCN in 2019 to provide coastal risk information to home owners/buyers so they can make informed decisions about coastal property.

Oliver has substantial practical experience delivering coastal projects from the concept design stage to detailed design across most states of Australia and internationally. He has been a key team member in numerous regional scale coastal hazard/risk assessments for organisations including Melbourne Water, South Gippsland Shire Council, Bundaberg Regional Council and Kangaroo Island Council.

PROFESSIONAL EXPERIENCE

Great Ocean Road Coast Committee, Torquay - *Coastal Planning and Projects Officer*
Oct 2019 - Current

OMCN, Melbourne - *Director*
July 2019 - Current

Water Technology, Melbourne - *Graduate Coastal Engineer*
July 2017 - July 2019

QUALIFICATIONS

Master of Engineering (Environmental), University of Melbourne, 2016

Bachelor of Environments, University of Melbourne, 2013

EXPERIENCE RECORD

Bundaberg Regional Coastal Hazard Adaptation Strategy - Queensland
Oliver was a key team member that undertook the analysis of coastal hazards for a 110km stretch of coastline which included coastal erosion, storm tide inundation and sea level rise impacts.

Kangaroo Island Coastal Hazard Strategy - South Australia
Oliver played a key role in assessing the coastal hazards for a number of key communities on Kangaroo Island. The analysis combined the impacts of storm surge events and underlying erosion trends, with the potential future impact of sea level rise.

South Gippsland Coastal Levee Risk Assessment - Victoria
Coastal levees provide protection from coastal inundation for a substantial amount of land in the south gippsland region. In assessing their quality and effectiveness Oliver undertook storm tide inundation modelling across current and future sea level rise scenarios. This modelling then informed a large scale risk assessment for both erosion and coastal inundation.

Western Treatment Plant Seawall Design - Victoria
Coastal erosion was threatening the outer levee of a lagoon inside the Western Treatment Plant resulting in an unacceptable pollution risk for Port Phillip Bay. Oliver was an integral part of the design team who undertook concept and detailed design of a seawall to protect the levee.

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Port Phillip Bay Storm Tide Levels Review - Victoria
The storm tide levels used for planning in Port Phillip Bay had not been reviewed for a significant period of time. Oliver personally reviewed historical water level data and extrapolated it out using an extreme value analysis to calculate storm tide levels for both inside the bay and on the open coastline. The analysis was validated using a regional hydrodynamic model that was able to correlate storm tide levels at Lorne and Williamstown with a high degree of accuracy.

Dutton Way Seawalls and Beach Access - Victoria
An ongoing erosion issue along Dutton Way was undermining both road infrastructure and properties. To address the erosion Oliver undertook spectral wave modelling of Portland Bay to determine storm tide levels and design wave heights which were then used to inform the design of a 7km length of seawall and beach access structures.

Ho Tram Seawall - Vietnam
Ongoing erosion at a 5 star resort in Ho Tram, Vietnam has required a number of seawalls to be constructed on the resorts boundary. As part of the expansion of the resort, Oliver was part of the team which undertook both concept and detailed design of a substantial seabee seawall structure to protect the new development under current and future sea level rise scenarios.

Ocean Grove Beach Access Ramp and Seawall - Victoria
The existing beach access ramp at Ocean Grove was perpendicular to the shore and resulted in unacceptable terminal scour on its eatern side. Oliver helped design a new access ramp and seawall which ran parallel to the coastline substantially reducing the terminal scour.

Hellyer Beach Access Stairs - Tasmania
Substantial and ongoing erosion at Hellyer had resulted in very steep and unsafe dune access to the beach. Oliver designed two sets of stairs to provide safe beach access under current and future sea level rise scenarios.

Brighton Yacht Club Channel Dredging
Oliver developed a dredging program for the Brighton Yacht Club to provide safe access along the eastern side of the Marina. The dredge spoil was transferred to adjacent beaches to increase amenity in these locations.

Martha Cove Marina Entrance Dredging
Oliver developed a dredging program for Martha Cove to provide safe entry to the marina facility. The dredge spoil was used to top up adjacent beaches which were lacking sediment due to the changes in the sediment transport regime introduction of the marinan breakwaters.

Ashburton Solar Salt Mine - Western Australia
Oliver aided in the hydrodynamic modelling which was used to determine the environmental impact of brine discharge a byproduct of the solar salt mine into the Exmouth Gulf. He also undertook a coastal risk assessment which investigated the current and future coastal inundation risk of the large scale solar salt mine.

Coastal Hazard/Risk Assessments
Oliver has completed over 20 investigations into current and future coastal hazards focusing on the risks associated with sea level rise. Both coastal inundation and erosion risk were assessed across a number of projected sea level rise scenarios eg. 2040, 2070 and 2100. Larger projects include:

- Edithvale SLSC - Vic
- Bon Beach SLSC - Vic
- Chelsea SLSC - Vic
- Portsea SLSC - Vic
- St Kilda Marina - Vic
- 6280 Great Ocean Rd (164 Lots) - Vic
- United Petrol Hastings Terminal - Vic
- Point Grey Redevelopment - Vic
- Bundaburg CHAS - Qld
- Horseshoe Bay Magnetic Island - Qld
- Kangaroo Island Coastal Hazard Strategy - SA
- Nora Crina Golf Course - SA
- Cornelian Bay - Tas