

WORKING IN COASTAL ENVIRONMENTS

Preamble

The School conducts a significant amount of teaching and research in coastal environments in New Zealand and overseas. There are a myriad of hazards in the coastal environment, the most significant being drowning. Of the 100 or so drownings per annum, almost 60% are in the coastal environment.

As with all fieldwork and other off-campus activities, staff and students must complete the requirements as covered in the School of Environment *Field Safety Guide*.

Most importantly,

- Assess and identify hazards and manage them appropriately.
- Construct a robust communication plan and itinerary and stick to it, within reason.
- Avoid working alone.

Environmental factors	Actions
Hypothermia/hyperthermia	<p>Monitor weather forecasts and dress appropriately.</p> <p>Use appropriately fitting wetsuits if working in water.</p> <p>Monitor colleagues for signs of hypothermia/hyperthermia and treat accordingly.</p>
Heat exhaustion/ heat stroke	<p>Monitor colleagues for signs of heat exhaustion and treat accordingly.</p> <p>Keep drink fluids regularly</p>
Dehydration	<p>Take enough water to last the trip, drink regularly to keep hydrated.</p> <p>Monitor colleagues for signs of dehydration and treat accordingly.</p>
Sunburn	<p>Wear appropriate protective gear - shirt, sunscreen, hat, sunglasses and make sure to seek shade when able.</p>

Drowning and other in water hazards	Actions
<p>Deep water</p> <p>Currents/ Rips/ Holes</p> <p>Waves</p>	<p>Assess site for dangerous conditions and avoid as necessary.</p> <p>Keep participants away from water unless necessary.</p> <p>Ensure participants working in the water are capable of managing the conditions.</p> <p>Ensure all participants in the water are monitored from shore by a capable and equipped observer (preferably a qualified lifeguard).</p> <p>Ensure observer is equipped with a rescue tube and fins where appropriate.</p> <p>Ensure a rescue plan is in place for all water based work including a means to call emergency services.</p> <p>Keep all in-water activities clear of active rip currents and their associated feeder currents unless there is lifeguard support available.</p>
<p>Freak (infragravity) waves</p>	<p>These waves can appear rapidly and wreak havoc at times by inundating a beach even to above high spring tide level</p> <p>Be ever wary of these waves and their potential impact on your activity and participants.</p>
<p>Tides & Daylight</p>	<p>Plan all activities carefully around the tide and daylight to avoid getting stranded or caught out.</p> <p>Ensure all in-water activities are completed well within daylight hours as any potential rescue efforts will be severely hampered in the dark.</p>
<p>Being stuck in mud</p>	<p>Be wary of tidal stage when working on mud flats as people have drowned by being stuck on an incoming tide.</p> <p>Groups should proceed in single file when mud is over knee deep.</p> <p>Take a rescue rope (~20 metres) to assist with extracting stuck people.</p>

Sea creatures	<p>Learn of creatures specific to your field site and how to manage them</p> <p>Stay a safe distance away from potentially dangerous marine animals</p> <p>Be wary of jellyfish and other poisonous sea creatures</p> <p>Wear appropriate gloves, booties, wetsuits or nylon stinger suits</p> <p>Do not prod or poke at potentially dangerous animals</p> <p>Never put your hands in dark holes or crevasses</p> <p>Take care when wading in intertidal areas – shuffle your feet noisily to allow creatures such as stingrays to move away in time.</p>
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Minor injury risks	Actions
Cuts and abrasions from shells, rocks, glass	<p>Wear suitable footwear or gloves as appropriate</p> <p>Tend to injuries quickly and thoroughly and monitor for signs of infection</p>
Slipping and falling on rock platforms or other slippery surfaces	Wear suitable footwear

Working around cliffs	Actions
Falling from cliffs or scarps	<p>Avoid working near cliff or scarp edges especially on unstable ground or in stormy or windy conditions</p> <p>Any cliff work with a potential fall over 2 or 3 metres above ground needs to be considered as height work and use of appropriate equipment (e.g., a ladder or abseiling equipment) is a requirement.</p>
Falling debris or landslides	<p>Avoid working close to cliffs unless absolutely necessary</p> <p>Hard hats must be worn when working next to cliffs or scarps</p> <p>Do not work directly above or below any other person</p>

Vehicles & watercraft	Actions
Land vehicles	Be aware that beaches are legally defined as roads and vehicles may be present. Standard NZ laws apply; seatbelts, speed limits (beach specific), wof and rego.

Driving on beaches	<p>Exercise due caution when driving on beaches, carefully noting tides and being on the watch for freak waves.</p> <p>It is highly recommended that 4-wheel drive vehicles are used on beaches, equipped with high jack, spades, and an extraction stop.</p> <p>If driving on dunes, the driver must have attended a certified off-road driving course.</p>
Water craft	<p>When working in the water, be aware of boats, jetskis and other watercraft – where high visibility apparel if required.</p> <p>Keep all in-water work away from ski lanes.</p>

Tsunami	Actions
Tsunami	<p>While of a lower probability, the risk is ever present. <u>Do not</u> undertake work in low lying coastal areas when there is a tsunami warning in place.</p> <p>It is highly recommended that those working in coastal areas maintain appropriate communication channels such that they can be warned of an impending tsunami (e.g., cellphone, radio, or even FM radio).</p>

Deploying equipment in water and surf

Deploying instruments in the water can be a dangerous activity especially when in rough conditions such as surf zones. The main rules when deploying instruments are;

- At least one experienced staff member must be present to co-ordinate the activity.
- At least one person remains up-current from the work as a safety observer, and carries a dive knife and rescue tube.
- At least one person is to remain as an on-shore observer who is able to identify potentially hazardous situations and call emergency services if necessary.
- Special consideration must be given to the weather, swell, and tidal conditions at the time of deployment and retrieval – an instrument deployed too deeply may be near impossible to retrieve due to burial, higher water level (e.g., due to low pressure systems or higher tides), or increased swell height.
- Deployments in the surf zone or in flowing water are set in waist deep water maximum. Still water deployments can be installed safely in chest deep water. Deeper water deployments must be done from a boat or similar.
- Ensure a robust system of communication (e.g., radios or hand signals) is set up between inwater participants and on-shore observers to facilitate a smooth deployment.
- See also *Deploying Equipment in the Field* in the Field Equipment and Activities section of the School H&S Website.

Equipment Deployments	Actions
Entanglement in ropes	<p>All buoy ropes must be tidily wound until equipment is in place. Clip buoy lines onto frames with lanyard clips <u>after</u> installation.</p> <p>All participants must remain up-current from ropes, lines and buoys.</p>
Entanglement or impacting equipment or frames	<p>All participants must be positioned such as to minimise the risk of being swept into the frame (or having the frame washed onto them) by waves or currents.</p> <p>Minimise sharp edges or points on frames and equipment by removing or covering them</p>
Straining/stressing from lifting or over-exertion	<p>Maintain standard manual handling and lifting techniques (see the <i>Manual Handling</i> procedure in the Fundamental Safety Information section of the Schools H&S website).</p>