Field-Work Manual
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Introduction and Scope

Macquarie University conducts fieldwork which can be diverse in nature and may take place in unfamiliar and remote surroundings. Tasks undertaken during fieldwork may involve a potentially high level of risk to the health and safety of the participants, and the fieldwork environment may be potentially hazardous. Furthermore, fieldwork is often undertaken at locations that isolate participants from ready access to emergency services.

The fieldwork location is recognised as a workplace under the Work Health and Safety Act 2011 (NSW). Macquarie University recognises its responsibility as a PCBU (Person Conducting a Business or Undertaking) under this Act. Accordingly, supervisors, staff and students are required to meet their legal obligations for work health and safety during fieldwork planning and participation.

It is the responsibility of all employees and students undertaking the fieldwork to adhere to the policies, codes and rules set out by the University. Employees or students found in breach of these requirements will be disciplined according to the appropriate Macquarie University policy.

The purpose of these guidelines is to ensure that when fieldwork is undertaken:
- Potential and existing hazards are identified and reported;
- Identified risks are controlled, as far as is reasonably practicable;
- All information is presented as a trip plan before the trip takes place for review and approval

Where this manual does not state specific procedures it is expected that the Terrestrial Fieldwork Manager (TFM), the Marine Fieldwork Manager (MFM), the Fieldwork Committee or any other relevant fieldwork supervisor be consulted for clarification.

The following guidelines outline the minimum requirements for any person organising, conducting or participating in a field trip whether for teaching coursework or staff or student research. The guidelines apply to all fieldwork EXCEPT COMPRESSED AIR DIVING ACTIVITIES conducted by MQU staff and students.

For compressed air diving operations please refer to the Macquarie University Diving Operations Manual and the University Dive Officer.

1. Definitions

Fieldwork is any work, study or research authorised by Macquarie University and conducted by staff, post-graduate student(s), undergraduate student(s) and volunteers at a field site (on or off campus) for which a risk assessment must be completed. Visits to other institutions such as universities, museums, conferences (including formalised conference fieldtrips, and off-campus meetings are not considered fieldwork. If there is uncertainty about a site visit or reconnaissance please check with the relevant (Terrestrial or Marine) fieldwork manager.

Terrestrial fieldwork is any fieldwork conducted on the land up to but not including beach, intertidal, estuarine or lagoon areas. Freshwater environments however are considered terrestrial fieldwork unless boating or snorkelling are involved. Work in bush land, arid areas, national parks, suburban areas including parkland and roadside sites are all considered terrestrial fieldwork.

Marine fieldwork is any fieldwork conducted in, on or closely surrounding marine or freshwater environments including snorkelling, freediving and boating. Compressed air diving is not included in marine fieldwork and has a separate fieldwork application process.
Remote fieldwork is defined both in terms of distance and accessibility and encompasses:

- Working more than 5km from a town, farmhouse or other facility with telephone or radio communications (even if personal communication devices are carried)
- Working in off-road areas where little traffic is likely to occur or where dense bush land, hills or other topographic features would make it difficult to summon help, or if medical and other emergency support would be an hour or more away with or without a vehicle, potentially requiring a 4WD vehicle
- Working more than fifteen minutes’ walk from a vehicle in open vegetation or five minutes’ walk from a vehicle in dense vegetation in an area without defined walking tracks
- Any work in a freshwater or marine environment where emergency assistance would require more than one hour response time to access the emergency

Fieldwork manager is the person responsible for all terrestrial or marine fieldwork within the Department and has the authority to approve fieldwork if requirements of an application met and if not, to assist with facilitating correct fieldwork procedure. The fieldwork manager ensures that the fieldworker embarks on a trip with as much knowledge, relevant awareness or training, equipment and understanding of WHS and personal responsibilities as reasonably practicable.

Fieldwork team leader is the fieldwork applicant and is responsible for the team undertaking fieldwork. The team leader is the organiser of the fieldwork and is responsible for submitting the relevant documentation to the fieldwork manager prior to each field trip. They must be present in the field to ensure safe practice, risk management and participant compliance and communicate risks to all participants before and during the field excursion. The fieldwork team leader should report any incidents/ near misses or equipment failure to the relevant fieldwork manager and refer to the online incident report.

Supervisor is the academic supervisor of the staff, student or volunteer who may or may not be participating in the field trip. Where an academic is the fieldwork team leader, the supervisor should be direct line manager or Head of Department. The supervisor is responsible for checking all fieldwork activities and submitting/ forwarding all paperwork to the fieldwork manager for review and approval.

Call back person is the person not participating in the fieldtrip who is in daily communication with the fieldtrip team leader at a nominated time. The call back person is to keep a copy of the 'Notification and Risk Assessment’ paperwork. In the case that the fieldwork team leader fails to call back at the nominated time and the field team cannot be contacted, the call back person should call the fieldwork manager who will assess the situation and begin an action plan. For remote fieldwork, local authorities such as land managers, National Parks Duty Officers or Surf Life Saving Officers are favoured for call back procedures.

Volunteer is a ‘pre-approved’ person willing to participate in the fieldwork activities, who is offering their time and services for no remuneration. They are considered as fieldwork participants as far as Work Health and Safety systems and responsibilities are concerned and as such must be consulted on, provided with and comply with the same procedures and risk management documentation as staff or students would be. Volunteers must provide a fieldwork participant form to the fieldwork team leader. Volunteers can only be granted approval to operate university vessels and vehicles when they have received the relevant induction from the fieldwork or vehicle manager.
2. Procedures

Before

2.1 Inductions and training

The following inductions and/or training courses are required dependent on the fieldwork undertaken.

- All staff and students intending on acting as fieldwork team leader MUST receive a fieldwork induction with the appropriate fieldwork manager before they can organise any trips

Other inductions may include:

- Vehicle induction if you intend to drive a university vehicle (contact Vehicle manager)
- Vessel induction if you intend to operate a university vessel (contact MFM)
- Snorkel/ freedive induction and swim assessment for snorkel/ freedive based fieldwork (contact MFM)
- Chemical induction if there is the need for chemical (including gases) use in the field (Chemical Safety Officer)

Training programs outside of the university may be required or beneficial to fieldwork and so should be completed before a trip. For WHS reasons, certain courses may be recommended to you (e.g. 4WD and vehicle recovery courses) before a fieldtrip will be approved by the fieldwork manager.

**First Aid training** is a requirement of as many fieldtrip participants as possible and hence is recommended to all staff and students embarking on field excursions. It is University policy that AT LEAST ONE fieldwork participant has a current first aid certification recognised by the university (this generally does not include overseas first aid courses). The fieldwork manager has the right to refuse approval for a fieldtrip if there is not a first aid trained participant included.

Assistant from trained staff or volunteers can be sought to supplement participants.

**First aid training is available through the university at:**


The fieldwork manager and Department administration can assist with bookings and if a course is not available the fieldwork manager can recommend an external first aid certification course for enrolment.

2.2 Check permissions and permits

Some field sites may require access permission or scientific research and collection permits both for access and collection at the site. Allow sufficient time before planning the field excursion to obtain the required permit or licence.

A check should also be made to ascertain whether your field activities or journey will take you onto or through Aboriginal land. Permission to visit some communities is required by way of a permit in order to protect privacy, preserve culture and look after the natural environment. It can also help protect visitor safety, particularly in remote areas

Similarly allow time for field trip specific animal ethics, biosafety, biohazard or chemical safety approval, as well as funding approval. Academic supervisors should assist students with such applications. Permissions and permits are the responsibility of the fieldwork team leader

2.3 Apply for fieldwork using Field Friendly
• http://mq.fieldfriendly.com
• Login using your OneID
• Follow instructions on home page, including entering qualifications, Project, Site and Trip information.
• Refer any inquiries to your relevant fieldwork manager
• This document will assist you in using Field Friendly - Guide to Field Friendly PDF.docx

2.4 ‘Absence on duty’

• The ‘Absence on duty’ form must be completed by anyone who is undertaking University business incorporating travel of a period equal to or longer than 24 hours. This form is an official approval of travel with regards to university insurance
• Absence on duty requires field trip approval prior to submission.
• The ‘Absence on duty form’ is available online at: https://ask.mq.edu.au/account/user/login?referer=/account/forms/display/absence_on_duty and is relevant only to the departmental administration team (not the fieldwork manager).

Field trip will either be approved or further information or amendments requested by the relevant fieldwork manager. If there are serious concerns by the fieldwork manager the approval may be redirected to the Head of Department or the WHS Coordinator.

2.5 Collect equipment from the fieldwork manager

• Request for equipment should be submitted with all fieldwork paperwork well in advance of the field trip
• Arrangements are to be made for the collection of equipment from the relevant fieldwork manager. Equipment includes first aid kits, satellite phones, PLBs, snorkel or freediving equipment, collecting equipment, 4WD recovery gear, eskies or camping equipment.
• If you have booked a university vehicle, keys should be collected just before departure from the electronic safe E8B level 2. If you do not have access to this safe please contact the vehicle manager. Ensure your vehicle booking includes extra time for unpacking, cleaning and refueling.

During

2.6 Safety briefing

It is essential that the staff and students participating in a field activity receive safety information prior to and during the fieldwork as delivered by the fieldwork team leader

The safety information should include, as a minimum:

• The identified hazards of the fieldwork and precautions to be taken to minimise risks to those hazards, including weather/ ocean conditions specific to field sites
• Discussion of safety equipment required for the various activities that are to be carried out
• Minimum dress standards, particularly for weather protection
• Requirements to follow all regulatory and advisory signage and traffic rules
• Identification of the First Aid trained participants attending the activity
• Emergency procedures including call back procedure emergency evacuation and meeting points
• Hazard and incident reporting procedures onsite (‘See it - Say it’); and
• Demonstration of the proper use of safety equipment in case the fieldwork team leader is incapacitated, including GPS, PLB, satellite phone and any radio equipment
• the responsibilities of fieldwork participants during any recreational time on the fieldtrip, i.e. the participants must be held accountable for their own behaviour in the period when the actual ‘work’ element of the activity has ceased for the day and appropriate sign in/ out documents used for any recreational offsite activities.

On-site safety briefings should be conducted at each field site as in the case of multiple field sites the risks will differ. Emergency evacuation and meeting points also need to be constantly reviewed where multiple sites are used.

**If safety is compromised at any point on the field trip there should be no hesitation to cease all activity either until safe working conditions are restored or alternative arrangements are made. Warnings from local authorities should never be disregarded.

2.7 Daily checks

The ‘Fieldwork Onsite Hazard Checklist’ is to be used to assist with conducting a daily check. In addition to the items covered in the Onsite Hazard Checklist the following items must be considered as part of the daily check:

• Weather conditions – including ocean conditions and tides- to maximise fieldwork and minimise safety risks;
• Checks of equipment, first aid and food provisions, vehicles and vessels to ensure there are no interruptions to the daily field work plan and safety is maintained;
• Close communication with the participants, briefing them daily on site hazards, weather, environmental conditions, and ensure health, comfort and correct practice is managed; and
• Communication with land owner(s) and/or manager and weather services in the event of high winds or total fire ban.

2.8 Change of plans

• If there are changes to the fieldwork plan and the information that has been provided to the fieldwork manager, supervisor and call back person, these changes must be communicated at the earliest possible time. Examples of notifiable changes include but are not limited to change of personnel, vehicle, change of site, cancellation of a daily trip due to weather or hazards and identification of new site hazards.

2.9 Daily call backs

• The fieldtrip team leader is responsible for making daily call backs to the nominated call back person at or before the nominated time.

• Nominated call-back contacts agree to the following responsibilities:

  a. Must be accessible through the agreed means at the agreed times, and should be available through the agreed means throughout the fieldwork operation;

  b. If the call back is not made and the call back person cannot contact the fieldtrip leader or other field team members, or locate them in any way (e.g. call the accommodation, national parks ranger, local authorities, Marine rescue etc.), they should call the fieldwork manager who will put procedures in place to locate the field group. The fieldwork manager must also contact the trip leader’s supervisor and Head of Department as soon as possible.

  c. Must have a copy of the fieldwork risk assessment to be able to provide relevant detail to the relevant authorities should an emergency arise

2.10 Incidents

• If an incident occurs in the field, if necessary, do not hesitate to contact emergency services. Ensure the safety and health of all participants.
• NOTIFY the relevant fieldwork manager and supervisor as soon as possible. If unavailable please contact the Head of Department
• All incidents including accidents and minor injuries should be reported at the soonest possible time via the online incident reporting site for insurance and WHS reasons.

After

2.11 Upon return

• Check in with the relevant fieldwork manager upon return as a debrief to the trip
• Return all equipment in good order and report any problems, e.g. functionality, that you may have encountered
• Report any problems with vehicle or vessels that you may have had or noticed to the vehicle manager
• Submit ‘Fieldwork Onsite Risk Assessment’ form if that was the first site visit

3. Supervision

3.1 Supervision of undergraduate student groups

When planning undergraduate fieldwork the fieldwork team leader should determine an appropriate staff/student ratio. The ratio will depend on the type of activities being undertaken, location and the risk assessment for the activity.

• Generally the ratio of 1:10 is suitable for most situations. This is inclusive of terrestrial and marine fieldwork up to chest-deep water.
• For water over chest-deep and snorkel activity ratios please refer to the Snorkelling and free diving operations manual (Appendix)
• In higher risk situations, more remote areas or if requested by the fieldwork manager, a higher staff to student ratio should be employed.
• For higher risk snorkel/ free dive activities please refer to the Snorkelling and free diving operations manual (Appendix)

Staff in charge of the activity should provide students with a safety briefing before commencing fieldwork to make students aware of foreseeable hazards and risks associated with the field tasks. The briefing should be conducted in a way that participating students and staff appreciate the need to follow the correct safety procedures and can be aided with the completion of an approved ‘On-site Hazard Checklist’ form.

In the case that where students make their own way to a field site, the fieldwork team leader along with the assisting staff are responsible for maintaining a sign on/off sheet with student contact numbers and transport details. Students should sign upon arrival and departure and contact the relevant person upon arrival at their destination (e.g. designated call back person, team leader, next of kin etc.).

We suggest the field trip leader or class technician should use the excel spreadsheet of information created by the iLearn participant information database as a sign on/off sheet. It can be edited to only contain the information required.

An itinerary of student arrivals and departures must be submitted to the relevant fieldwork manager prior to the trip.

3.2 Supervision of postgraduate students

Supervisors should provide a supervising and mentoring relationship to the student in the field environment until such time that the supervisor is satisfied that the student can manage themselves safely in the field.
If they have sufficient experience, postgraduate students need not be closely supervised during fieldwork, but generally should never conduct fieldwork alone (unless an arrangement has been made with the appropriate fieldwork manager). All relevant documentation is sent to the students’ academic supervisor prior to submission at which point the supervisor can advise the student of necessary changes to the fieldwork to ensure WHS compliance.

### 3.3 Approval to work alone

Normally when doing fieldwork, persons should avoid working alone. If an incident occurs and there are two (or more) persons present, one person may then be available to attend to the victim while the other is available to notify emergency services.

While Macquarie University does not encourage field trip leaders to work alone, considerations will be given if the following criteria are met:

- The location, travel and nature of the fieldwork demonstrates minimal risk; such as a local park, close to home, short site visits, reconnaissance for site selection.
- The trip leader has demonstrated adequate qualifications and life experience to be able to perform the intended task, including driving skills.
- The trip leader has provided a detailed trip itinerary, with daily (or more frequent) call back plans in place. Use of local authorities near field sites is encouraged (e.g. NPWS Duty Officers)
- Adequate communication equipment is carried, including PLB. If local mobile network coverage is not adequate, satellite communication must be carried.

### 3.4 Fieldwork involving another institution

Often fieldwork is conducted in collaboration with other universities, research organisations or supervisors with the staff member or student fieldtrip leader still being primarily affiliated with Macquarie University. In the case that the Macquarie affiliated field trip leader is coordinating a fieldtrip themselves and thus taking responsibility for the safe conduction of field work and all participants, all aforementioned paperwork must be submitted and the relevant fieldwork manager consulted where required. Participant forms must be gathered for all fieldtrip participants for university insurance coverage.

Should a Macquarie affiliate be participating in or leading a fieldtrip through another organisation (e.g. at their sites, with their staff, using their equipment etc.) in most cases you will be required to abide by that organisations protocols and provide them with relevant paperwork as requirements for insurance. Please consult with the organisation for such requirements and inform the relevant fieldwork manager of Macquarie University as to the situation. The relevant fieldwork manager may ask for written confirmation that your safety and wellbeing is managed by the personnel of that organisation and that you are covered by their chosen insurer in the case of an incident during fieldwork.

It is understood that fieldwork collaborations vary. Please consult with the relevant fieldwork manager regarding the situation for further clarification.

### 4. Vehicle Use

(Please refer to [Macquarie University Policy Central](https://www.macquarie.edu.au/policy-central) for more information)

#### 4.1 Authority to drive vehicles

Any staff member, postgraduate student, authorised undergraduate, or volunteer may drive the University vehicles managed within the Department of Biological Sciences provided that they have a current appropriate class Drivers Licence and have received an induction for driver safety awareness.

The University gives permission for provisional licenced drivers to use University vehicles under the current insurance provisions. Provisional drivers must display ‘P-plates’ and drive according to current NSW RTA requirements. **Drivers with learner permits are not allowed to drive University vehicles.**
Use of mobile phones whilst driving is not permitted and can attract a significant fine if caught. Drivers should also be aware that insurers may not accept your claim if you are found to have been using a mobile phone at the time of an accident.

Driving whilst under the influence of alcohol or drugs is not permitted under any circumstance. The University will commence disciplinary action against any person who is found to be driving under the influence of either alcohol or drugs.

4.2 Departmental vehicles

Please see the Departmental Fieldwork page for a list of all current Departmental vehicles.

Usage costs are 50c/km for members of the Department of Biological Sciences. For other personnel the cost is 0.75/km. Please check funding availability before booking a vehicle.

For general suburban driving the Department’s 2WD vehicles are encouraged instead of 4WD. While these vehicles can be used for multi day long distance trips, they should only be used for fieldwork on roads & terrain designated for 2WD vehicles. **Off road use is not permitted, however the vehicles can be used on graded dirt roads.**

While the Department’s 4WD vehicles are available for suburban trips, use of these for either boat towing and/or remote location trips is prioritised. Where vehicles are to be used for off road work and vehicle recovery equipment is required, drivers must complete a NSW Government accredited 4WD handling course or demonstrate evidence of prior learning through previous training, employment activities or relevant life histories. Please contact the appropriate fieldwork manager to organise 4WD handling courses. The department has a variety of vehicle recovery equipment to loan for fieldtrips to remote and off road locations.

All drivers have a duty of care to return the vehicles _re-fueled & in a clean undamaged state_ by the due time recorded in the booking system. Any problems encountered must be reported to the vehicle manager immediately.

4.3 Driving alone

Driving alone is generally not recommended for many safety and support reasons. Driver fatigue is a major killer on NSW roads and a having a secondary driver is always preferable. Long-haul driving trips alone must be discussed with the fieldwork manager before approval will be granted. For such trips the fieldwork manager may require a journey plan with a predetermined communication plan for call back. If concerns arise, approval for driving alone trips may be referred to the Head of Department and/or HS Coordinator.

Please refer to the Centre for Road Safety for more information about safe driving and fatigue.

4.4 Use of private vehicles

Whilst recognising that use of private vehicles on University business is occasionally required, regular use is strongly discouraged. The vehicle must be registered, insured and road-worthy and driver must hold the appropriate licenses. Please consult with the appropriate fieldwork/ vehicle manager and Department Administration for more information.

Please read the Private Vehicle Reimbursement Policy for further information regarding authority for use, liability and insurance of private vehicles and hire vehicles used for university business:


4.5 Vehicle booking system

Vehicles must be booked online via the Departmental Fieldwork page. Procedures such as bookings and key collection will be detailed during the vehicle induction.
Each day of use the driver must complete an entry in the vehicle log book to meet the requirements of the Australian Taxation Office.

4.6 Daily checks, time and distance restraints on driving

It is the responsibility of the inducted drivers and/or fieldtrip team leader to perform a check of the vehicle before the field trip to ensure the vehicle is suitable and equipped for the work and terrain to be encountered. All vehicles undergo regular safety checks, maintenance and service by Department vehicle managers, however, during a field excursion, basic daily checks of oil, fuel, tyre pressure, engine temperature, secure equipment and emergency supplies should be performed.

For a long-haul driving field trip to be approved one or more back up drivers must accompany the primary driver and a travel plan indicating rest stops may be requested.

4.7 Towing

All departmental vehicles are rated to 2 tonnes for towing and tow points and trailer light attachment points are demonstrated during the vehicle induction. Tow hooks are located at the front of the vehicle & use of the safety pin in the tow bar tongue socket for rear towing.

Procedures for towing of university aquatic vessels are incorporated into the Departmental vessel induction

4.8 General driving advice

- **Driver fatigue** – Drivers are reminded by the University and a [NSW RMS recommendation](https://www.rms.nsw.gov.au) that driving periods must not exceed two hours before either a change of driver or a half an hour rest period occurs incorporating some light activity e.g. walking, tea break. Rest stops must be made on the first onset of fatigue.

  The Department encourages drivers to be aware of the welfare of the fellow passengers. In turn, passengers should express concerns if uncomfortable with the driver’s control. This includes no driving for 8 hours after consuming alcohol or fatigue inducing prescription medication. A total of no more than 12 hours per day should be spent travelling by vehicle either as shared driver or passenger. Where there are prior intensive activities to driving, this should be deducted from the driving schedule for the day.

- **Poor light driving** – Care must be taken when driving at dawn, dusk & night particularly in areas of wildlife activity. If a collision with an animal can’t be avoided, impact must be straight & central to avoid rollover. Encourage use of the front passenger as spotter for any hazards ahead.

- **Vehicle weight & speed** – Drivers need to be aware that greater stopping distances are required particularly when the vehicle is fully laden. Higher road clearance reduces vehicle stability particularly when cornering. Speed reduction & changing down through the gears when approaching curves & corners must be emphasized.

- **Blind spots** – Drivers need to be aware of blind spots of the vehicle & care with stowage of poles, spades & sharp objects. All drivers are encouraged to take care when parking the vehicles & use a passenger if present to assist with guiding. When driving in thick vegetation, mirrors need to be pulled in & aerials lowered.

- **Water crossings** – Depth limitation apply for water crossings, no deeper than the centre of the hub of the wheels. Under no circumstances should flooded roads be crossed except under direction of local emergency authorities.

- **Equipment** – There are first aid kits, torches, night visibility reflector vests, roadside assistance details, vehicle manufacturer’s instructions, jumper leads as well as jack & tyre change tools are provided in every vehicle.
• **Tyres** – Drivers need to be aware that the semi off road tyres fitted to the 4WD vehicles have reduced road surface contact due to tread patterns and therefore recommended to reduce highway speeds. Attention should be paid to the speed rating letter displayed on the tyre side wall; e.g. N rating means maximum allowable speed for the tyre is no more than 20km/h. Some vehicles are also fitted with satellite & or GSM vehicle trackers where trip speeds are digitally recorded.

Drivers should ensure they are capable of changing a tyre in their field vehicle especially when travelling in remote areas where NRMA support may be difficult. Each vehicle model will store tyre changing equipment in different compartments and drivers should ensure they are familiar with their location.

• **Tyre changing** – Drivers should ensure they are capable of changing a tyre in their field vehicle especially when travelling in remote areas where NRMA support may be difficult. Each vehicle model will store tyre changing equipment in different compartments and drivers should ensure they are familiar with their location. Drivers need to take extreme care when changing tyres on a vehicle, particularly avoid carrying out this procedure on busy roads, highways & freeways. Any passengers not involved with tyre changing should stay well clear of the vehicle, & rather act as spotters for oncoming traffic & not to roam across the road to take photos. Care must be taken to avoid injury, particularly to backs when lifting equipment, or avoiding hot surfaces beneath the car. Tyre changing procedures should follow the information provided in the manufacturer’s vehicle manual as well as details given during the vehicle induction process. NEVER PUT ANY PART OF YOUR BODY UNDER A VEHICLE SUPPORTED BY ONLY A JACK.

• **Under the bonnet** – Drivers are to refill the washer reservoirs as required with diluted window washer solution. If driving in dusty locations for long periods, remove the air filter & blow off any dust & foreign material as well as hose through the radiator grill to remove blockages. This should be covered in the vehicle induction process but seek professional mechanical advice on how this is done.

• **Run out of fuel** – Drivers must be aware that for vehicles fitted with aftermarket long range fuel tanks, the fuel gauge is not calibrated to volume present in the fuel tank. Therefore it is recommended safe practice that drivers should refuel all vehicles when the fuel gauge indicates that a half tank has been reached. If down to a quarter tank, refueling must be carried out as soon as possible. Vehicles are fitted with long range fuel tanks which along with fuel gauges are not calibrated to the increased volume, so extra care needs to be taken with calculating remaining fuel for long distance travel.

• **Jump start** – Drivers have to always check that all lights are switched off when leaving the vehicle. If the battery is flat, follow the directions of the vehicle manufacturer’s manual, e.g. connect jumper leads positive from the good battery to positive of the flat, negative to the engine hook or nearest metallic object in the engine bay. Never negative to negative as the battery could blow up or damage to power circuits can occur.

• **Vehicle recovery** - If the situation arises that a vehicle needs recovering, additional risks will exist. The potential for such a situation should be disclosed to the relevant fieldwork manager during the trip application process as this may affect the approval if the participants do not have the correct level of training or experience to recover a vehicle safely. If such situations are predicted to occur the fieldwork manager may request demonstration of skill or a 4WD vehicle recover course to supplement. Recovery may only proceed in the field if the fieldwork leader assesses the risks on site and determines that controls are appropriate to safely manage the operation with personnel on hand. Should this not be deemed safe, external assistance should be sought immediately.

• Information about 4wd driving can be found at:
5. Personal Safety Considerations

5.1 First aid policy

First aid requirements should be assessed prior to the trip to determine the number and level of training required of First Aiders present on a fieldtrip.

For fieldwork activities in the metropolitan area, it is a requirement to have at least one trained First Aider on the trip.

The following table is a guide:

<table>
<thead>
<tr>
<th>Groups up to 10 people</th>
<th>1 person trained in Apply First Aid (Level 2) or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups of 11 to 30</td>
<td>2 persons trained in Apply First Aid (Level 2) or higher</td>
</tr>
<tr>
<td>Groups of 31 to 60</td>
<td>3 persons trained in Apply First Aid (Level 2) or higher, plus an extra trained person for every additional 10 people above 60</td>
</tr>
</tbody>
</table>

Remote area first aid training and/or Advanced Resuscitation and Oxygen Provision courses are recommended for all trip leaders and their support staff working in remote non metropolitan locations and in aquatic environments.

Whenever practicable, First Aiders should be spread throughout the travelling party. Correct size and number of first aid kits for the field trip will be provided by the relevant fieldwork manager.

Personnel are responsible for renewing first aid and CPR certifications and informing the relevant fieldwork manager upon renewal. First aid courses are available to all staff and students of Macquarie University via the Health and Safety Unit.

5.2 Navigation and communication

Risk assessment documentation requires consideration of navigation and communication requirements both for safety and efficient work in the field and for pre-bookings to be made through the fieldwork manager.

In order to determine the navigation and communication equipment requirements the availability of the following should be considered:

- Detailed maps
- GPS and terrain/ connection restrictions
- Location of landline phones
- Mobile phone coverage (Telstra preferred- check with provider)
- Satellite phone
- UHF 2-way radios
- Local knowledge

Vessels are equipped with a chart plotter/GPS and a back up GPS is carried on board. It is recommended that charts of an area should be carried particularly if in unfamiliar territory.

When operating in open waters the master should log on and off with Marine Rescue VHF channel 16 (‘Distress, Safety and Calling’ Channel) or call Marine Rescue NSW on 94502468. Call back system is in place.

The Department has the following equipment for use which should be booked in advance with the fieldwork manager to ensure availability:

- Satellite phones*
- GPS**
- PLBs*
- EPIRBs*
- Short range UHF handheld radios

* Satellite phone, PLB and EPIRB require induction from fieldwork manager for correct use.
**GPS are available for safety use only not for recording research data. For this purpose devices should be purchased as required within research group expenditures**

Communication must be kept regular between all members of the fieldwork team as well as between the fieldtrip leader and the designated call back person. Call backs must be made daily at or before the time nominated and documented in the risk assessment paperwork.

### 5.3 Local area contacts

Fieldtrip team leader must contact local land holders, national parks, State Forests, Catchment or local company/ government personnel when visiting a site that requires authority permission. There may be site-specific inductions to complete and specific safety protocols to follow. Permission must also be sought to access indigenous land. Research and collection permits should be applied for well in advance of field work.

Local land holders and NPWS contacts should be noted on the risk assessment paperwork and details carried in the field as they are useful to contact in case of emergency and also for pre-trip checks of land/ fire/ hunting activity/ weather conditions that may restrict access. In remote areas local land managers and Duty Officers should be aware of your activities and personnel as they may be required to guide emergency personnel to your location so provision of your risk assessment is recommended.

In remote terrestrial locations where serviced, the Royal Flying Doctor contact details must be recorded in the trip risk assessment and carried in the field.

For marine fieldwork the Coastguard, local area Surf Life Saving Clubs, Water Police authorities and Maritime Rescue NSW can be considered as local area contacts

### 5.4 Personal protective clothing and equipment

The fieldtrip leader must ensure that the risk assessment identifies all the PPE that is required for the fieldtrip and ensure that it is available for use. The leader must communicate to the field trip participants these requirements and only allow field activities once safety gear is in use. (E.g. safety glasses, hats, gloves, overalls or gaiters etc.). PPE should be checked before the trip commences to ensure that it is functional. For chemical use PPE requirement, chemical risk assessments must be complete and approved by both the supervisor and the University's Chemical Safety Officer.

It is the responsibility of individual participants to ensure that adequate protection from light, cold, heat and adverse weather is carried and used. This includes:

- Hat, sunglasses, lip screen and sun screen, for protection against ultra violet radiation;
- Waders (personal or supplied) should have a boot-like sole pattern, or wetsuit for aquatic field activities. Instructions for safe use of waders must be incorporated into the field trip Risk Assessment;
- Rain/windproof jacket where appropriate. A change of dry clothing should be made available if a person is likely to become wet;
- Life jackets for boating. When operating in open waters life jackets are to be worn or when operating a stationary vessel and leaning over the side;
- Personal Flotation Devices (PFDs) for working along wave affected rock platforms and shorelines as well as wading in still waters greater than waist deep.

**Footwear**

Bare feet, thongs and sandals **are not permitted** on fieldtrips. The minimum footwear appropriate for a range of situations would be:

- For immersion in water – reef shoes, thick-soled sport shoes (e.g., runners) or wet-suit boots;
- For wet conditions – gumboots with tread soles or boots;
- For some remote area work (e.g. uneven rocky outcrops, mines, quarries)— solid walking boots which may include steel-capped toes;
- For other situations – thick-soled sports shoes as a minimum.

**Clothing**
Long sleeves and trousers should be worn when there is a risk of abrasion, being scratched from low-lying shrubbery, snake bite, insect bite or sunburn. In circumstances where the presence of snakes is obvious, wearing gaiters may be required, particularly where field trip personnel arrive ill prepared. Safety clothing with inbuilt insect repellent is widely available and particularly useful where working in tick infested areas.

In cold, wet and windy conditions, cotton clothing may not provide sufficient protection to maintain body warmth, particularly when wet. Wool is recommended, together with thermal underwear to prevent hypothermia.

Appropriate length and thickness wetsuits are to be worn for snorkelling, freediving or compressed air diving activities.

**Specialised safety equipment**

The wearing of specialised safety equipment will be required in many fieldwork situations. Examples are as follows:

- Safety vests – brightly coloured vests with reflective surfaces should be worn in all situations when visibility is a safety issue (e.g., anywhere near roads or traffic, or moving machinery), regardless of ambient light conditions
- Hard hats – should be worn in all situations where risk of head injury is present (e.g. falling objects, low headroom, construction sites). This is a compulsory requirement for work in all NSW State Forests
- Safety glasses or goggles – should be worn whenever there is a risk of eye injury
- Hearing protection – should be used whenever there is a risk of noise-related injury
- Respiratory protection – should be used where the risk assessment establishes an identified need
- Life Jackets or Personal Flotation Devices

Safety equipment should be:

- of approved design (i.e., meets Australian Standards as a minimum);
- of suitable quality for the conditions to be encountered in the field;
- inspected and maintained regularly

**5.5 Food and water provisions**

Food and water provisions should be suitable for the conditions and duration of the fieldtrip and should include adequate supplies in case of emergency stranding or extended duration. Dietary requirements, cultural requirements and food allergies must be considered and so must be discussed with all field trip personnel prior to leaving. Food provisions should be organised well in advance.

**5.6 Medical status of fieldwork participants**

Any person with a medical condition that may affect his or her performance on a field trip should discuss the matter in confidence with the fieldtrip leader and should indicate this in the participant information. This is to be made available to the first aiders and emergency services if required but otherwise remains confidential. It may be necessary in some cases to seek referral from a medical practitioner. In some instances, a treatment plan may be required refer to - [Disclosing a Known Medical Condition Procedure](#) for further guidance.

Individual participants must carry their own adequate supplies of any prescribed medication(s) required for the duration of the field activity (and a few extra days’ supply in case of emergencies) and are the sole responsibility of the participant.

Participants must be informed if there is a risk of exposure to venomous animals, insects that can spread diseases, such as Ross River, and plants likely to cause allergic reactions. The controls to minimise risk in these circumstances include wearing appropriate clothing, apply insect repellent and carry antihistamine drugs.
Snorkelling, freediving and swimming can be a strenuous activity. A swim assessment is required by an approved inductor prior to approval of such fieldwork. See the Marine Science- Snorkelling website for guidelines and details about assessment and requirements.

5.7 Overseas fieldwork

All items in this manual are applicable for overseas fieldwork, however additional forms may need to be submitted for insurance reasons, which will be communicated by the relevant fieldwork manager. Overseas fieldwork and associated risks should be investigated by the fieldtrip team leader and discussed and assessed with the relevant fieldwork manager before fieldwork paperwork is submitted. If necessary, approval may be referred to the Head of the University's Health and Safety unit.

Please refer to University Health and Safety Policy for insurance procedures and further information or restrictions that may limit your application for fieldwork. The risk rating of the country of travel should be assessed using government websites such as The Department of Foreign Affairs and Trade and Smarttraveller.

5.8 Smoking

Smoking is not permitted in any work vehicle or workplace, including a fieldwork site or camp site. **Smoking is strictly prohibited in National Parks.** If required, a smoking area may be established 10 meters from the camp site.

5.9 Drugs and Alcohol

Staff and students on Fieldtrips are reminded that the University's Drug and Alcohol policy applies at all times. Participants should ensure that they are aware of the policy and the requirements therein.

**The use or carriage of drugs is not permitted under any circumstance. The University will commence disciplinary proceedings against any person who is found to be in possession of or under the influence of drugs.**

The intent of the policy is not to curtail responsible use of Alcohol – however given the inherent dangers of fieldwork, participants need to be mindful of the risks associated with drinking and the area they are in.

6. Fieldwork hazards

6.1 Weather evaluation

The weather is a critical safety factor on a field trip and must be taken into account in planning a field trip. For example, boats should not be used in poor weather conditions or if poor weather is forecast. Recent heavy rain will affect river water levels. Fog reduces visibility for driving vehicles or boats. Hot, dry and windy weather will affect local bushfires.

Check the Bureau of Meteorology (BOM) website on the day prior to departure and the morning of the marine activity. For Boating operations in open waters wind speeds > 16 knots and swell size >2m be prepared to abort the trip.

Use resources available to you to perform daily checks of weather forecasts as well as local area conditions (e.g. National Parks State Alerts, Rural Fire Service alerts). National Parks and State Forests can be partially or completely closed due to fire, fire hazard reduction programs, logging, snow, ice or post storm remediation, for example. Given that such closures could interrupt fieldwork, it is recommended to check National Park and State Forest warnings and closures BEFORE embarking on a field trip.
In the case of inclement weather being forecast for particular trip dates, a discussion should be had with the relevant fieldwork manager utilising their knowledge and experience to assess the potential impact to your fieldwork.

6.2 Fire risks

Fire in or around a vehicle or vessel is a possibility and every person should be prepared for such an event.

Bush fires are an ever present risk in the Australian bush. All fire restrictions and bans must be observed and any road or park closures adhered to. Regularly monitor news bulletins and fire status with location authorities e.g. NPWS Duty Officers before embarking on fieldwork to such affected localities.

For information on responding to a bushfire contact the State Rural Fire Service applicable to your field locations.

Chemical transport and inadvertent mixing of chemicals can also pose a fire risk. Correct transport and separation of chemicals in alignment with the chemical SDS and the approved risk assessment must be observed.

6.3 Recreational hunting

Some National Parks and State Forests allow hunting by permit only, however others do not and the risk of illegal hunting is ever present. Such activities can pose serious threats to the safety of field work teams and must be considered in a risk assessment of the site. Prior to undertaking fieldwork, investigation is required with local authorities to ascertain the status of hunting activities at the field locations. If concerns are raised please consult with the fieldwork manager.

Do not risk the safety of the field trip team by entering such areas during hunting activities.

6.4 Marine/Aquatic

Ensure a daily onsite assessment of sea conditions, swell, wind, tides and currents is conducted.

First aid kits are provided for all marine fieldwork and snorkelling/ freediving fieldwork is provided with an oxygen cylinder and must have participants trained in first aid as well as oxygen administration and advanced resuscitation. Please see the marine fieldwork manager for further information.

Aquatic risks are often hidden so extra care should be taken to avoid dangerous aquatic wildlife, uneven footing, rocks and boulders and slippery surfaces.

Staff and students participating in field activities in marine, stream or lake environments where the work is carried out in deep water (above chest depth) are required by legislation to complete a swim/ snorkel assessment of competency prior to any fieldwork. Please see the marine fieldwork manager for further information.

For further information refer to the marine fieldwork website

6.5 Boating Safety

Fieldwork employing the use of Macquarie University vessel is detailed in boating fieldwork information and forms on the MQ marine science website.

The vessel operator must be appropriately qualified with NSW Maritime Boat license and inducted by the Boating Officer (currently MFM). All crew aboard must be familiar with emergency procedures and operation of safety equipment. Please see the boating Safe Work Procedure on the Marine Science – Boating website.
For information on individual vessels please refer to the research vessels page which includes the Standard operating procedure, Safety management system, quick reference guide and vessel usage log for each individual vessel.

In the case of activities aboard vessels not owned by the university, the fieldwork team must satisfy all requirements of the vessel owner and possess the correct level of training and qualification for the task at hand.

Please refer all enquiries to the Boating officer (MFM).

6.6 Dangerous Terrain

Extra care should be taken in situations where there is steepness of terrain, possible rock falls, overhangs or cliff faces, uneven or unconsolidated footing in an aquatic environment or evident sea wash for example. Foreseeable hazards involving dangerous terrain should be assessed and controlled in the risk assessment and also the onsite hazard checklist. A fieldwork manager can refuse fieldwork if risks are too high or there are no satisfactory controls in place. In some circumstances extra training can be arranged.

If terrain is dangerous to drive on and risks creating a vehicle recovery situation it is recommended to get out of the vehicle, assess the situation and if the risk is too high, walk rather than drive or abandon the locality. The safety of the field team is essential.

6.7 Working on or near roads

Fieldwork involving traffic or pedestrian behavior must not impose additional hazards to the public or fieldwork participants. The fieldwork activity must not distract the public, especially vehicle drivers. Adequate and appropriate warning signs must be deployed in accordance with local traffic laws. Participants must wear reflective vests when working on or near roads and other sights where traffic is involved, such as car parks. These can be collected from the fieldwork manager or vehicle manager. A pair of reflector vests are present in each Department vehicle for this purpose.

6.8 Specialist equipment

Certain field trips will require specialist equipment to be taken. For example; tree loppers, collecting equipment, analysis machines, hammers and chisels, powered equipment such as chainsaws etc. The equipment taken must have an associated risk assessment completed and submitted with the fieldwork application forms to the relevant fieldwork manager. The equipment can only be used in the field once approved by the fieldwork manager and if required, training certificates sited.

If the risks of using the equipment are high a Safe Work Procedure may be required. The supervisor and fieldwork manager can assist to ensure the correct paperwork is submitted with risks identified and control measures identified and in place to facilitate the use of specialised equipment. All specialist equipment related risks must be communicated to the field team.

In some circumstances, such as the use of cherry pickers or working at heights or using climbing equipment including ladders, extra training can be arranged. This should be discussed with the relevant fieldwork manager well in advance of the fieldtrip.

6.9 Chemicals in the field

A chemical induction with the University chemical safety officer is required before any chemicals including gases, may be carried into the field.

The carriage and use of chemical substances in the field may present a variety of hazards which must be effectively managed to protect persons from harm.

A hazardous chemical risk assessment must be completed, submitted to the fieldwork manager as well as the University chemical safety officer for approval, and a copy (along with the Safety Data sheet) must be carried into the field. An example of such a risk assessment can be provided from the relevant fieldwork manager.

Chemicals should be transported safely with the latest Safety Data Sheet and in the correctly labelled packaging in accordance with the local State EPA Acts and Guidelines. It may be easier and safer to
transport the chemicals to the field site before hand to avoid risks of transport to the field team. Dangerous goods MUST NOT be transported in your possession on any form of public transport and must be properly packaged, declared and sent as cargo.

Consideration for transporting any waste chemicals back to the University must be taken into account during the initial planning process. Waste chemicals should be disposed of in an appropriate manner. No chemicals are to be left abandoned at any site.

Information on transporting dangerous goods can be found at the NSW EPA website which includes links to Acts and Guidelines of all other states. This includes legal parameters for required:

- Documentation
- Emergency information
- Stowage
- Required placards and extinguishers and other safety control measures

**Chemicals of Concern**

Anyone considering taking any of the 96 chemicals listed under the [Code of Practice for Chemicals of Security Concern](https://www.yourwebsite.com) must ensure that effective physical security & inventory control processes are in place to ensure that the likelihood of chemicals of security concern being accidentally or deliberately delivered to or stolen by terrorists or their associates during transport is eliminated.

Some suggested actions include –

- Ensure chemicals are secure at all times during transport
- Do not leave vehicles unattended
- Use secure parking for loads in transit
- Monitor the location of vehicles which transporting chemicals
- Record quantities of chemical during loading and unloading
- Implement a system to confirm deliveries of correct amounts with security intact
- Ensure chemicals are only supplied to the correct recipient

Please refer to [Chemical Safety (Hazardous Chemicals)](https://www.chemicalsafety.org) site for further information

**6.10 Gas cylinder transport**

Gas cylinders should not be transported in the boot of a car (with the exception of SCUBA cylinders- please refer to the [Diving Operations Manual](https://www.yourwebsite.com)). Transport should be in a Ute or a trailer so that it may be tied down with safety straps and chocked to prevent movement. The choice of vehicle should allow for a secure tie down of the cylinder adhering to local state requirements.

The smallest cylinder possible should be carried and should be transported correctly in accordance with the SDS. The [BOC Guidelines for Gas Cylinder Safety](https://www.boc.com) may also assist with safe carriage information. As with transportation within buildings, the protective caps must be on cylinders and for toxic gases and valve outlets must be capped or plugged with an approved closure device. The transport compartment should be well ventilated. A gas cylinder MUST NOT be transported in the passenger compartment of the vehicle.

**Note**: For marine fieldwork where Oxygen cylinders are required (Snorkel/ Freedive not compressed air diving), the cylinders are carried securely in the cabin of the vehicle to keep them separate from flammable substances, reduce wear on cylinders and detect leaks early in such a case.

Transporting of dangerous goods MUST NOT be undertaken in your personal vehicle as you may not be insured in the event of an accident.

**DO NOT** transport cylinders with regulators or equipment attached even if the cylinder valves are closed.
Refer to the SDS and local state requirements for the gas for further transport information and seek advice from the relevant fieldwork manager and chemical safety officer.

**A separate risk assessment must be written for transport of gas into the field.**

### 6.11 Hazardous manual tasks

It is likely that hazardous manual tasks will occur during fieldwork (e.g. animal handling, digging with a shovel, heavy lifting, vehicle loading etc.) and those identified during the risk assessment process must be communicated to the fieldwork team. Manual tasks can contribute to strain and sprain type injuries and the risks must be managed in order to conduct safe fieldwork and work off-campus.

Employ engineering and load share solutions if possible to reduce the possibility of hazardous manual tasks.

### 6.12 Electrical safety

Electrical hazards should be avoided by using the correct equipment in the correct conditions which have been inspected and tested during the annual University wide inspection. University equipment carried in the field must be tested and visibly tagged to reduce the likelihood of faults and potential serious injury.

### 6.13 Biosafety

It is important that fieldworkers identify the possible biological hazards they may be exposed to or encounter while carrying out their work in the field.

Wildlife that has the ability to injure, bite, sting or cause some form of infection to fieldworkers may include exposure to snakes, ticks, bees, spiders, wild pigs, cattle, bats, dingoes, crocodiles, sharks, jellyfish, stonefish and blue-ringed octopus. Additionally some flora has the ability to cause severe injury and allergic reactions.

Standard risk controls should be taken when testing for contaminated soil or water sample, including use of gloves and sanitized hand washing as soon as possible.

For more information refer to [Occupational Health and Safety - Biosafety](#) or contact the University Biosafety officer.
7. Obligations and legal responsibilities

The following points are designed to provide guidelines to fieldwork teams while operating in the field.

a. All fieldwork participants have a responsibility for their own health and safety, as well as for the health and safety of other personnel working within the same environment.

b. Reporting unsafe practices or equipment is the responsibility of every team member as part of their duty of care;

c. Fieldwork can be a hazardous activity; however education, training and team cooperation will reduce the risks. This manual is to be used as an operations manual for risk management. If all procedures are followed, risks to health and safety will be significantly reduced;

d. Individuals or groups participating in fieldwork under the auspices of Macquarie University must operate within these procedures, and comply with all University policies, procedures as well as appropriate regulations, standards and legislation;

e. It should be noted that individuals or groups who fail to follow safe fieldwork practices as outlined by this manual, or as directed by TFM or MFM or their delegate, may be found legally responsible and liable for their actions or inactions, as well as face internal disciplinary procedures;

f. Fieldwork team leaders are responsible for the safety of the entire field team during the period in which that field team is under their control, however risk assessment and management is the responsibility of all team members. In the event that weather conditions, environmental factors, equipment or personnel are considered by any member of the team to create or contribute to an unsafe working situation, then the fieldwork must not continue until the situation is corrected to the satisfaction of the entire team;

g. All tasks undertaken must be within the experience and training of the personnel concerned, and the capacity of the equipment available.
8. Acknowledgements

- UNSW Fieldwork Guideline 2014
- Macquarie University Diving Operations Manual
- University of Wollongong – Fieldwork guidelines 2013
- Work Health and Safety Act 2011
- University of Queensland – Fieldwork and Off-Campus Safety Guidelines 2013
- Staff of the Department of Biological Sciences for their consideration and comments
- M. Herberstein and M. Carley for document approval

9. Related Legislation and procedure

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2011
- Privacy Amendment (Enhancing Privacy Protection) Act 2012
- Australian Road Rules
- National Standard for Commercial Vessels (NSCV)
- National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]
- BOC Gas Cylinder Safety 2009
- BOC Transport of gases 2008
- WorkCover Transporting of Small Gas Cylinders 2002

Macquarie University has an extensive list of Health & Safety Policies, Procedures and Risk Assessment Guidelines to cover foreseeable workplace situations. A full list of these can be found on the Macquarie University website.
## 10. Review History

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