




	Flinders University School of Biological Sciences Standard Operating Procedure For the use of Marine and Aquaculture Facilities				
					Aquaculture/ Marine
SOP Number		AWC Approval Date			
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Contact Person		SOP prepared by			Review Date :
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Legislation

- *Australian code for the care and use of animals for scientific purposes. 8th ed.*
- *Section 115 of the Fisheries Management Act 2007*
- *South Australian National Parks and Wildlife Act 1972*
- *Animal Welfare Act 1985.*
- *Animal Welfare Regulations 2012*
- *Work Health and Safety Act 2012*
- *Work Health and Safety Regulations 2012*

University policy

- Occupational Health, Safety and Welfare Policy
- NH&MRC Guidelines

Local policy

Use of the Biological Sciences Animal Facilities by all staff and students of the School of Biological Sciences, Flinders University of S.A. is subject to awareness of, and adherence to the following:

Research Involving Animals:

- The University holds a licence for the use of animals for teaching and research purposes. To satisfy the requirements of the licence, anyone wishing to undertake teaching and research using animals must submit a proposal to the Biological Sciences Animal Welfare Sub-Committee. No work with animals may commence until written approval has been received from the Animal Welfare Committee (AWC). Standardised application forms for Laboratory, Teaching and Wildlife work with animals can be found on the Flinders University Animal Welfare Committee website listed below. It is your responsibility to regularly check this site for updates to guidelines, forms etc.
http://www.flinders.edu.au/research/researchersupport/ethics/committees/animal/animal_home.cfm
- **All staff and students involved in animal research must complete Animal Ethics Online Training (AEOT) and must also regularly attend Experienced Researcher Animal Welfare Seminars (ER-AWS).**

Standard Operating Procedures

Refer to Risk assessments, Standard Operating Procedures and Safe Operating Procedures for chemicals, processes and plant equipment where appropriate. All projects must have an accompanying Risk Assessment signed by the Chief Investigator and submitted to the Biological Sciences OH&S Manager.

The following are a list of the main SOP's governing working with animals in Biological Sciences. An extensive database of specific technique SOP's is also available from the Animal House Manager and on the AWC home page.

- **Standard Operating Procedure and Safe Work Procedure for the Use of the Aquaculture/Marine Aquarium Facilities**
- **Standard Operating Procedure & Safe Work Procedure for the Use of the Animal House Facilities**
- **Standard Operating Procedure for Working With Fish / Aquatic Organisms**
- **Standard Operating Procedure for Working With Reptiles**
- **Standard Operating Procedure for Working With Birds**

Permits

- ❑ Any research to be undertaken in the field may require a permit from Department for Environment, Water and Natural resources(DEWNR).
[http://www.environment.sa.gov.au/licences-and-permits/Animals in captivity permits](http://www.environment.sa.gov.au/licences-and-permits/Animals%20in%20captivity%20permits)
- ❑ The Animal House Manager holds a Marine Specimen Collection exemption, that may be used by nominated delegates, or you may obtain your own at [http://www.pir.sa.gov.au/fisheries/licensing and registration/permits and exemptions](http://www.pir.sa.gov.au/fisheries/licensing_and_registration/permits_and_exemptions)
- ❑ Collection and live transport/holding of noxious species/declared pests will require a specific permit from The Department of Water, Land and Biodiversity Conservation (DWLBC) and The Department of Primary Industries and Resources of South Australia (PIRSA).
- ❑ The School of Biological Sciences holds an Aquaculture licence that covers all species endemic to South Australia. If you wish to hold non endemic species, please check with the Animal House manager to see if they are covered by our current licence or if a permit variation will be required.

While your research may not involve animals as defined by the Australian Code and therefore not require an application for the use of animals it is necessary to provide details of organisms you propose to use to the AWC, so as to register their use and identify potential situations where an application will still be required. For example: marine or terrestrial invertebrate collecting which includes the 'by catch' of non-target animal species will require an application must be submitted to the AWC.

General

- ❑ Wash hands with disinfectant upon arrival at facility and before leaving.
- ❑ Refer to supporting Standard Operating Procedures and Safe Work Procedures.
- ❑ No Eating, drinking or smoking in areas housing animals.
- ❑ Wear shoes at all times (not thongs).
- ❑ An Unexpected Adverse Event is an event that is not expected and was not foreshadowed in the application approved by the AWC.

Induction

All users of facilities are required to undergo induction. Induction will familiarise you with the Safe and Standard Operating procedures for the facility and any training required. This induction will also provide an overview of operation of aquarium systems and the monitoring and recording of water quality parameters.

Project proposal approved	Yes/No	Date:
Any hazardous/toxic substances used RA supplied	Yes/No	Date:
Project Risk Assessment completed	Yes/No	Date:

Safe Work Practice supplied	Yes/No	Date:
Booking form completed and signed	Yes/No	Date:
Room/tank labels issued	Yes/No	Date:
Swipe Access/key issued	Yes/No	Date:
Attended Biology OH&S induction	Yes/No	Date:
Shown emergency exits/fire extinguishers in facility	Yes/No	Date:
Shown handwash station and first aid kit	Yes/No	Date:
Location of phones and emergency numbers/signage	Yes/No	Date:
Inducted in SOP document	Yes/No	Date:
University Induction for new staff- booked in/undertaken	Yes/No	Date:
Familiarised with University website and relevant links	Yes/No	Date:
Identified any other health and safety training required- hazardous substances training, First Aid, OH&S online.	Yes/No	Date:
Immunizations current	Yes/No	Date:
Swipe Card and Payroll access submitted	Yes/No	Date:
Supplied with SOP's for Animal House	Yes/No	Date:
Complete initial training sessions under supervision	Yes/No	Date:
Complete required tasks without supervision	Yes/No	Date:
Discuss and initiate further training requirements as required	Yes/No	Date:

Modification to Projects/Facilities

- Any form of modification planned to existing facilities should be discussed with the Animal House Manager. Modifications to existing systems may require approval from the AWC and cost must be budgeted for in the projects funding.
- Modifications to existing experiments need the approval of the AWC. The modification form can be found on the AWC homepage.
- Changes to diet, room or aquarium temperature, light cycle etc. should be discussed at least a week before any changes are planned.

Communication Book

- General information to be written in the book located in the main hallway, Animal House. Please include your name and date and check the book as regularly as possible.
- All animal movements within your booked space (inside/ outside, tank to tank, etc.) and changes to normal holding conditions are to be put in the book before animals are moved or conditions changed.

- All deaths, births, arrivals, departures, missing animals and changes in behaviour/health concerns, must always be recorded in this book as they form part of the mandatory monthly reporting to the AWC.

Animal Identification/Information on Aquariums/Outside Pens

- Animal identification and handling must comply with the Standard Operating procedure for Animal Handling and Identification.
- Aquarium cards should list the species, identification number, tank number and where applicable- experimental dates, medical treatments and any special requirements.
- If it is possible to identify animals by physical appearance, this is preferable to identification by more invasive procedures a digital image on induction is preferred.
- Charts on the doors of rooms must include contact details for researchers, animal numbers, project approval number and finish date.

Animal Housing- Planning ahead and set up

- Animal house staff should be notified at least one week before any animals arrive or leave.
- Housing design must allow for routine monitoring of animal health. Glass and clear plastic tanks for shelving style housing (no black tubs). Large scale fish holding tanks must be light coloured and/or have a viewing window and/or have fish housed in floating cages and/or a periscope, so that fish may be observed as per monitoring check list criteria.
- If your species requires submersible pumps within the aquaria- be aware that anemones, small fish, invertebrates can get sucked in to the filter- seizing the pump, fouling the system-and in the case of anemones, releasing toxins.
- Tank outlets may require a mesh covering to stop tank inhabitants escaping. Do not use flyscreen wire as it will rust. Plastic and Silicone meshes work well but can block up with detritus and cause the tank to overflow. They must be cleaned off regularly and a mesh size chosen that allows maximum water flow but small enough that animals cannot gain access.
- Numbers to be held must take into consideration that waters oxygen carrying capacity decreases as temperature increases.
- A system generally will be able to accommodate a greater total weight of large fish than small (in regards to available oxygen).

- ❑ Fish in floating bags for acclimation must be provided with supplementary air and a coloured “sticky” note attached to the door of the room. All animal movements must also be recorded in the communication book in the hallway.

Things to consider

Have you sourced or budgeted for Water testing equipment?

Eg. Oxygen meter, pH/salinity/temperature meter, ammonia, nitrite and nitrate test kits?

Food?

specialised aquariums/ housing? Will you need heaters/ chillers to vary water temperature?

Will you need to grow and maintain live feed, such as artemia and rotifers and algae?

Do you have containers to grow them in and chemical nutrients to maintain the algae?

Feeding/Cleaning/Checking

- ❑ All animals are checked daily to ensure they are healthy and have a clean water supply and shelter. Project owners are expected to maintain their area and tanks and feed animals while they are under experimental conditions.
- ❑ At the termination of your project all tanks must be cleaned with either 70% or 99% ethanol, or bleach or sodium hypochlorite. (bleach and sodium hypochlorite must be neutralised with sodium thiosulphate at a ratio of 1:3 (bleach:thiosulphate).
- ❑ When planning your feeding and cleaning routine, keep in mind that oxygen consumption is directly related to the amount of food fed. Uneaten food reduces oxygen carrying capacity through BOD (biochemical oxygen demand). BOD measures the amount of organic compounds in water.

Hygiene

- ❑ Items requiring cleaning must be cleaned in the wash room, not left in the animal rooms (with the exception of tanks) Rooms are to be kept clean, tidy and free of clutter at all times.
- ❑ Wear gloves when in contact with animals/ tanks when possible and always wash hands thoroughly, using the antiseptic hand wash in preparation room and washroom.
- ❑ Each room has its own equipment to avoid cross contamination, please don't introduce or move equipment between areas.

Health

- A key factor when working with animals is to keep their environment as stress free as possible. Many health issues are triggered by stress and a weakened immune system. Healthy animals can carry various microorganisms in their system/ on the body without becoming ill, but a stressful environment- poor water quality, lack of oxygen, incorrect temperatures, housing, poor handling techniques etc can all make them much more susceptible to disease. It is important before you start your work that you have appropriate housing arranged and an understanding of how to maintain your animals in a healthy condition.

Animal Incident Reporting

Definition- ANY variation in your approved protocol

Examples- Any changes in behaviour or physiological condition not on monitoring chart or clinical record sheet, or in excess of agreed parameters approved in application.

- Changes to drugs being administered or dose being administered.
- Equipment failure.

What do I do ?

Stop. Assess. Stabilise.

DO- Notify Animal House Manager and seek assistance to stop any flooding, stabilise water quality, secure housing, bring injured birds in and set up in a cage in a warm, quiet room.

Contact C.I. (if not you)

Contact AWO for veterinary assistance if required, but also within 24 hours to advise of incident.

DO NOT- administer medications or try and continue with experimental protocol.

The AWO will advise whether you need to cease any further work until the incident has been reviewed by the AWC or whether you may continue until the review. You will need to complete an Animal Incident Reporting Form and submit to the AWC within 3 working days.

Outcomes

AWC concludes incident is an unexpected adverse event. Project may continue as before

AWC concludes incident is an unexpected adverse event and requires modifications for project to continue

AWC concludes the incident is an adverse event and will decide if project may continue- potentially including modifications to minimise further incidents

All unexpected deaths/ sick animals require the following procedure:

- Report to Animal House Manager and Animal Welfare Officer as soon as possible and within 24 hours.
- Send an incident report form to animal.welfare@flinders.edu.au
- Arrange a necropsy with the Animal House Manager.
- Unexpected Adverse Event Forms are available on the Animal Welfare Committee website.

Health

- ❑ This form is not exclusively for reporting unexpected sickness/ deaths and should also be used to report any unexpected incidents (e.g. equipment failure etc).
- ❑ Carcasses are kept on request or are placed in the blue carcass bin in the level 1 room 130 freezer main building Biological Sciences.
- ❑ Sick animals will not be available for research work until they have fully recovered.
- ❑ Animals may only be euthanased by trained staff and researchers and must adhere to the method stated in the research application approved by the Animal Welfare Committee.
- ❑ Although the Animal Care Unit staff carry out daily monitoring of all animals held in the facility, it is also the responsibility of the researcher to ensure adequate monitoring of their animals well-being (Chapter 2.4- 8th edition of the Australian Code for the care and use of animals for scientific purposes).

Care of Animals During Emergencies

- ❑ The Facility has a back up generator for power outages so there will rarely be a total facility power failure. If power is out for a specific room or piece of equipment, it is more likely a fuse/ safety switch has tripped, which maintenance can rectify and identify the cause of. Generally it will be a heat lamp or item of plug-in electrical equipment- pumps, powerheads etc There are replacements items for most equipment in the facility storerooms.
- ❑ Emergency euthanasia should not be undertaken unless all reasonable steps to contact the Chief Investigator and/or Animal Welfare Officer/Animal House Manager have been unsuccessful and then, only by experienced staff.

Flooding in room

- ❑ Notify Animal House staff immediately if you do not have experience in fixing such problems
 - Mobile numbers listed on window next to office. Leave a voice mail message if they don't answer.
- ❑ If staff member not present/ cannot immediately be reached on phone:
 - Walk through room and observe pipe inlets and outlets, looking for blockages to outlets or inlets that have been knocked out of tank. Look for leaking fittings and water level in tanks (if overflowing then an outlet is likely blocked)
- ❑ Turn off pump at switch on wall, near the sink or individual tank tap to stop water flow while you fix the leak (if possible).

- Contact details for researcher are listed on the door to the room. Attempt to contact them for further advice if animal house staff cant be reached.
- If researchers and animal house staff cannot be reached, the phone number for the Animal Welfare Officer (Mark Hill) is also listed on the window next to the Animal House Office Door. Mark can advise on whether immediate action is required or whether animals can be comfortably maintained without recirculating water for the time being.
- Do not attempt to fix the source of the flooding unless you are very familiar with the animals housing condition, the project they are attached to and the approved application from the Animal Welfare Committee. This includes the water temperature they are kept in, the salinity levels, pH etc. The outside water supply that refills the tanks can vary by as much as +/- 15'C from inside. Rapidly refilling a system with water outside the animals usual parameters can result in shock, death and secondary infections. Affecting the experimental protocol may also mean having to start the work again, more animals, more time etc.
- If you are confident as to the source of the flooding (often a blocked tank outlet or loose pipe) remove the blockage.
- If you understand the recirculating system and there is enough water in the sump (at least 1/3 to ½ full) you can turn the pump back on.
- If there isn't enough water in the sump, do not refill it unless you know the correct water parameters and are able to provide them (unless otherwise directed by the Animal Welfare Officer/ Animal House Manager on the balance that recirculating water is a higher priority than matching water parameters)
- Once sump is refilled you may switch the pump back on. If leaking/ flooding appears to have stopped, it can be left on. Leave a note on door chart (permanent textas in drawers in hallway) indicating action taken and the blue folder in the hallway with the appropriate room number on its cover.
- If you can determine a cause to do with power or plumbing that requires Maintenance to urgently repair, contact them on **82012177 (call Security on 82012880 if out of normal business hours)**
- Once situation is stabilised, commence Animal Incident Reporting Procedure.

Safety

- All work undertaken must comply with Safe and Standard Operating Procedures
- All electrical equipment must be electrically safety tested and tagged before use and must not be introduced into areas without clearance.

- ❑ All injuries and incidents must be reported to Animal House Staff and the OH&S Manager.
- ❑ Any chemicals and plant equipment brought into the Facility must have been risk assessed and documentation available
- ❑ Do not recap syringes; place them in the sharps bin provided. Shoes must be worn at all times in the facility (not thongs).
- ❑ Do not allow access to anyone that is not directly involved (and authorised) in undertaking research on the animals held, including family and friends.
- ❑ Floors are to be kept clear to avoid creating tripping hazards. Equipment must be stored on shelves
- ❑ Do not prop open external doors as it compromises the security of the facility

SOP Review

This SOP currently applies to the animals housed in the Biological Sciences Animal House facilities and field sites. This SOP will be reviewed 3 yearly, but also updated more frequently as policies, techniques and animal care requirements change.

Any questions regarding the above guidelines and any technical advice/ assistance required can be directed to Animal House Manager.

Position	Name	Contact Details
Animal House Manager	Leslie Morrison	X 12196 Office in Animal House Leslie.morrison@flinders.edu.au
Animal Welfare Officer	Lewis Vaughan	0450 424 143 awo@flinders.edu.au

Useful References:

- <http://www.wildlifep permit.sa.gov.au>
- <http://www.nhmrc.gov.au>
- <http://www.adelaide.edu.au/ANZCCART/>
- <http://www.australiananimalwelfare.com.au/content/aquatic-animals/aquatic-animal-welfare-guidelines>
- <http://www.environment.sa.gov.au>
- http://www.pir.sa.gov.au/fisheries/licensing_and_registration/permits_and_exemptions
- http://www.flinders.edu.au/research/researcher-support/ethics/committees/animal/animal_home.cfm
(Link for Animal Incident Report forms, Teaching and Research Application Forms and all animal welfare related matters)

Ross, L. G. and Ross, B., 2008. Anaesthetic and Sedative Techniques for Aquatic Animals, *Blackwell Publishing* (3rd Edition)

Ostrander, G., Bullock, G. and Bunton, T., 2000. *The Laboratory Fish*, Academic Press

