Animal Care, General and Specific Safety Training Overview
BioAquatics Facility
Texas A&M University, Biology Department

I. Introduction

BioAquatics Training Overview is designed to familiarize you with specific hazards, procedures, and programs unique to the BioAquatics Facility. The training will include an overview of the Animal Use Protocols (AUPs) and Standard Operating Procedures (SOPs) for the animals you will be working with, as well as the TAMU Biosafety Occupational Health Program, Hazard Training, Security, Animal Welfare Concerns, Emergencies, and Vet Support. This training must be completed by each worker of the facility to comply with the university and AAALAC requirements for Safety Training. You will find in your training packet the outline and assurance form, the Overview, sample MSDSs, Biosafety Occupational Health enrollment form, and the BioAquatics Emergency sheet.

The BioAquatics Animal Resource Supervisor is responsible for all training and also maintains the documentation that safety training has been completed. After completion of the training, you will sign the assurance form signifying that you understand the items covered in the training. A signed copy will be sent to the Biology Department Safety Coordinator, one will remain in the facility and you will keep a copy and the packet to review when questions arise. You will find copies of AUPs and SOPs in BSBE 120 and in the animal rooms. The Biosafety Occupational Health enrollment form will be transferred to the TAMU Biosafety Occupational Health Program (BOHP).

II. Records

A. Animal Use Protocols are required to use vertebrate animals for teaching or research. An AUP form must be completed and approved by the Institutional Animal Care & Use Committee (IACUC) prior to acquiring animals. Modifications of the AUP can be approved by amending the protocol with IACUC.

B. Standard Operating Procedures are specific to the animals you will be working with. These forms include detailed information about the animals, research/teaching objectives, emergency contacts, housing set up and parameters, daily duties, and emergency procedures.

C. Daily Animal Records must be filled out everyday. Initial charts when the job is completed. Use “N/A” when the job is not applicable or “N/N” when the job is not needed. A dash (-) is used when a job needs to be done, but you did not do it. Blank boxes indicate you did not do the job, so make sure all boxes are filled out. The “comment” section is used to note health concerns or other specific duties completed.

III. Biosafety Occupational Health Program

A. Enrollment Form: Texas A&M University Biosafety Occupational Health Program provides an occupational health program for all individuals who work with laboratory animals. All individuals potentially exposed to animals must complete the Enrollment Form and be enrolled in the program. Once the BOHP receives your form, they will contact you about any additional training.

B. Training in Safety Procedures will be discussed in detail in the next section.

C. Resources in the Facility: It is important to use the safety equipment provided. Our safety equipment will be discussed in detail in the next section.

D. What to do if you become sick or injured?
   a. Notify the Animal Resource Supervisor or PI (Principle Investigator).
   b. Fill out a First Report of Injury form with the Biology Department Safety Coordinator in BSBW 225B (ph. 862-2051).
   c. See the Scott and White Occupational Health and Safety Physician (ph. 691-3458) or if after hours go to the Emergency Room and follow up with the OH&S Physician the next business day.
IV. Hazards of the BioAquatics Facility

A. Chemical Hazards

a. Material Safety Data Sheets

Chemical Hazards represent a significant hazard to employees no matter where they work. In our facility we encounter several specific chemical hazards. Each chemical we have on hand has a Material Safety Data Sheet (MSDS) located in the MSDS notebook in BSBE 120. MSDSs are available so we are aware of the potential hazards of chemicals. The data sheets include: identity of compounds, hazardous components, physical and chemical characteristics, fire and explosion hazards, reactivity, health hazards, safe handling and disposal, protective gear, and control measures. MSDSs are provided for easy access for the times you want to know more about a chemical than what the bottle itself provides. You can look up any hazards (potential carcinogens) or what to do if there is a spill for a certain chemical as well as other safety questions you may have. It is the responsibility of each person to read up on the hazards and precautions to be taken for each chemical we use. During this training we will go over our most used chemicals and their MSDSs.

b. Protection

Cleaning agents and disinfectants are used frequently in the facility and can cause possible problems from accidental exposure by inhalation to chronic exposure that requires medical attention. Since there are potential hazards with just about every chemical, we use several protective measures in the facility. Protective clothing is worn and extra care should be taken when working with chemicals by using eye goggles to protect from splashing or a respirator to protect mucous membranes and lungs. Skin exposed to chemicals should be flushed with plenty of water. Eyewash stations are available in laboratories, prep rooms, and the BSBE & Butler hallways. Safety showers are located in the hallways for chemical spills covering large areas of your body (contaminated clothes should be removed and exposed area should be flushed with water). It is important to move quickly when such spills occur to minimize the degree of irritation caused by exposure. Chemical spill kits are located in the hallways to be used for spills that are under control. Every year new and improved measures are taken to protect us, but the best protection is being aware of what you are working with. This requires proper labeling, handling, storage and disposal of chemicals. Certain chemicals cannot be mixed, others need to be stored separately, and some need to be stored in a safety storage cabinet. There are guidelines that we follow for all chemical use, so if you have a question, make sure you ASK instead of becoming a chemical accident.

c. Acids and Bases

Some of the chemicals used in the facility are strong acids and bases that can produce dangerous vapors or in some cases explosions if mixed. When using acids, individuals are required to wear protective eyewear, lab coats, and rubber gloves. Also, the work should be done under a fume hood (located in lab room BSBE107). When making acids remember to always add acid slowly to water and not the other way around. Areas where acids are used will have an eyewash station. In the past we have mixed up a 2M HCl solution to clean airstones. When making the acid or using it, you must wear protective clothing. If a spill does occur, there are chemical spill pillows in 112 or you can find everything you need in one of the chemical spill kits located in the hallway.

d. Anesthetics and Solvents

Anesthetics (MS222) and halogenated substances affect kidney function at very low exposure levels. Solvents such as toluene (located in some paint products) affect brain tissues and are very damaging to the reproductive system. Gloves and disposable respirators located in the safety cabinet can be found in Room 112.

e. Dust
Activated carbon dust is potentially hazardous to your lungs. A respirator should be worn when washing the carbon to eliminate excess dust before making new filters as well as during the time you are making up the new filters. Some of the water quality chemicals produce dust. Respirators and disposable respirators are located in the BSBE 112 safety cabinet.

f. Fritz Salt

Fritz salt is a very corrosive substance and should be treated with caution. If you get the salt concentrate on your skin, wash the area with plenty of water. When mixing up new salt water in the reservoir, you should wear protective eyewear and clothing, and gloves.

B. Physical Hazards

a. Protection

Physical Hazards exists in all areas of the BioAquatics Facility. Again, the best protection is to be aware of the potential hazards. Some of the hazards are electrical shock, slipping on water, lifting heavy objects, ergonomic issues, and bites and scrapes. For several of these, protective gear is very important. It is required that we wear protective clothing (at least a scrub jacket or lab coat) while in the animal rooms, but during certain jobs that is not enough. Rubber boots, wet gear, eye goggles, earmuffs, or lifting belts need to be used when specific hazards are present.

b. Electrical Shock

Since the facility involves the use of water, electrical shock is always a concern. The facility is equipped with Ground Fault Interrupt (GFI) electrical outlets to prevent electrical shock. When a change in voltage occurs the GFI outlet will break the circuit allowing us to be protected. The GFI outlets have a test and reset button. Before using an outlet, push the test button to make sure the circuit will break and afterwards push reset in order to reset it for use. If you come across an outlet that does not work, try pushing the reset button before reporting it. Testing an outlet does not guarantee that it will work properly, so use extreme caution when working with water and electrical outlets. It is important to keep water below electrical cords and outlets, and to provide a drip loop on electrical cords if possible. Also, rubber soled and closed toe footwear should always be worn in the facility. Do not stretch extension cords from laboratories into aquatic rooms. The use of extension cords should be avoided in all aquatic rooms if possible.

c. Slipping and Sliding

Floors get very slick when wet and measures must be taken to protect yourself as well as others from slipping and sliding. Rubber boots provide the best protection from slipping and sliding. Many times water gets on the floors of the hallways where people not wearing protective foot wear will be walking. The floors in the hallways can become particularly slick because they are waxed regularly. To prevent slipping and sliding of others around our facility, make sure that when water is spilled, dripped, or run out onto the hallways it is mopped up and WET FLOOR signs are put out. Signs should be left out until the area is dry and then returned to BSBE 112. Non skid strips have been applied to slick areas of the floor in BSBE 119A. Please report any slick areas in animal rooms to the Animal Resource Supervisor.

d. Lifting Heavy Objects

Lifting heavy objects is a potential hazard. Using the correct method of lifting (bend your knees and keep your back straight, NOT the other way around) will prevent most back injuries. Knowing how much is too much for you to lift by yourself will also help prevent injuries. Ask for help when you find something too heavy for you to lift. Back support belts are available to help keep your back straight when carrying heavy objects. You can find them in the safety cabinet in Room 112. Remember that water weighs almost nine pound per gallon. When mixing salt water (80# bag and 65# bucket) pour partial amounts in a blue bucket to make lifting up to reservoir easier.

e. Ergonomic Issues
Identifying ergonomic hazards ensures that products and environments are comfortable, safe and efficient for people to use. Some areas that have been identified are duties that require repetitive motion like holding a hose sprayer, using the squirt bottle or repeater pipette, or using the flushing gun. If fatigue occurs, take a break and rest the muscles being used. Normal posture is compromised when using the deep sinks and buckets in the animal rooms and can cause back strain for periods of long use. Platforms have been added to the sinks and a lift has been added in the buckets to help minimize the risk. Step stools and ladders are used to get to and see into tanks on high shelves. These keep periods of looking up and reaching up to a minimum.

f. Bites and Scrapes

The possibility of getting bitten exists when working with animals. The bite of an eel or sting of an anemone can be extremely serious. Again, taking precautions is the best method. If you are bitten, clean and cover the wound immediately. Scrapes seem to be an everyday occurrence in the facility. Most of the scrapes and cuts are minor, but can become major if not taken care of properly. First Aid kits are located in BSBE 112. Injuries should be reported immediately to your supervisor. Injuries possibly needing professional medical care must be reported to the BioAquatics Animal Resource Supervisor, and the Biology Department Safety Coordinator. These injuries also require completion of a "First Report of Injury" form, and a visit to the occupational health physician at the Scott and White Clinic.

C. Biological Hazards

Disease Agents/Proper Hygiene

Disease agents can be passed from animals to humans during routine animal care and use procedures, including handling, tank cleaning, or animal transport. Therefore it is very important to wear proper protective clothing and practice good hygiene. Wash your hands when leaving each room so as not to infect yourself or possibly cross contaminate animals in other rooms. Soap and paper towels are provided in each room. Again, we must protect others from disease agents, so when tours come through the rooms, make sure that individuals coming in contact with the animals or water wash their hands. It is not recommended that visitors be allowed to handle animals during tours, but if they do, it must only be under close supervision with proper hygiene.

Atypical Mycobacteriosis can be passed from infected fish or amphibians to humans. Serious disease symptoms are greater in immunocompromised people. Wearing gloves while working with fish and amphibians and when cleaning their aquaria is the best protection. Always wash hands thoroughly after handling animals and aquaria.

V. Facility Security

V is very important to maintain a safe environment for the workers and animals. All animal rooms must be kept locked at all times. Report any suspicious persons. Keep door codes confidential and do not allow anyone to enter the building after the doors are locked if you do not recognize them.

VI. Veterinary Support

V is available at all times. A Comparative Medicine attending veterinarian visits the facility once a week. For questions, call 845-7433 to speak to or obtain a cell number of the on call veterinarian.

VII. Emergencies

V is posted in all rooms. This sheet will tell you what to do and who to call if an emergency arises.

VIII. Reporting Concerns

V about animal welfare should be taken to the Animal Resource Supervisor, PI, Attending Veterinarian or Campus Veterinarian. You can make confidential calls to The Office of the Campus Veterinarian if you feel you need to. Procedures for reporting animal welfare concerns are posted in various locations throughout the facility.

ANIMAL CARE, GENERAL and SPECIFIC SAFETY TRAINING
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IV. Hazards in the BioAquatics Facility
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V. Facility Security

VI. Veterinary Support

VII. Emergencies: BioAquatics Disaster Plan

VIII. Reporting Concerns

I have been informed of all of the above BioAquatics safety concerns and procedures. I understand the hazards involved in employment at the BioAquatics Facility and I understand how to use the safety equipment. I agree to use the provided safety equipment at all times when on the job.

________________________________________     _________________________
Employee's Signature & Printed Name              Trained By

__________            __________
Date                Date

06/11