University of Alaska Fairbanks Lena Point Fish Facility
Guidelines and Standard Operating Procedures

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1.0 Objectives of this document

The Lena Point wet lab is established as a permanent fish facility at the University of Alaska Fairbanks (UAF). As such, all users will be required to adhere to the standards established by the UAF Institutional Animal Care and Use Committee (IACUC) for the wet lab facility *regardless of whether they are working with vertebrate animals*. The objective of this document is to provide information about the Lena Point wet lab facility and guidelines for its use. Specifically, the document provides an overview of the wet lab facility, outlines the IACUC requirements for fish facilities, provides guidance on animal husbandry and water quality standards, and details emergency plans and procedures.

For any study involving live animals, the principal investigator will be responsible for making sure that all procedures listed in this document are adhered to by project personnel. All applicable documents will be posted on the UAF Fisheries website and in the wet lab.

2.0 General information about the UAF Lena Point Fish Facility

2.1 Facility description

The UAF Lena Point wet lab facility consists of two indoor rooms (Seawater lab #1, room 110; Seawater lab #2, room 102) and one adjacent outdoor area equipped with a flow-through seawater system. The seawater inlet is located at 90-100 feet below mean lower low water (MLLW) and the pump system is operated by NOAA Ted Stevens Marine Research Institute (NOAA TSMRI). Filtered and unfiltered seawater are circulated from NOAA TSMRI to UAF and back for treatment. See detailed schematic (**Figure 1**).

A food preparation area containing a freezer, countertop and sink is located in Seawater lab #1 (room 110); the analytical lab (room 104) adjacent to the wet lab area is used for other research and is not associated with the Lena Point fish facility. Food storage and preparation for work with live animals should only take place in the designated area within the wet lab itself (i.e., Seawater lab #1, room 110).

The indoor space contains small and large tanks for research with live animals. As of April 2014, there are two large circular tanks indoors and four large circular tanks in the adjacent outdoor space. Researchers who wish to use these tanks should contact the Facilities Manager (see below).

Indoor area
Seawater lab #1 (room 110): 499.5 square feet
Seawater lab #2 (room 102): 471 square feet

Outdoor area
Each outside tank takes up about 75 square feet. Four tanks would be 300 square feet and does not include extra working space or square footage for additional tanks that could be added in the future. If the entire apron were designated for fish, it would be 800 square feet.

2.2 Responsible parties

The Lena Point Facilities Manager is the first point of contact for all wet lab activities. Principal investigators who wish to conduct research with live animals should contact the Facilities Manager to submit a wet lab request form and complete an orientation. Large circular tanks are available on a first-come, first-served basis. The Facilities Manager will monitor the lab regularly to assure compliance with all SOPs and contact the responsible PIs whenever problems are noticed. A Wet Lab Committee, consisting of the Facilities Manager and faculty, will review any requested changes to the wet lab layout or operations for new projects. Principal investigators will work with the Wet Lab Committee to verify that changes required by new projects will not negatively affect current projects or wet lab operations. The Fisheries Division Director will give final approval of any significant changes to the wet lab facilities that will impact current or future projects or facilities operations.

Important note: The Facilities Manager and Wet Lab Committee are not responsible for animal husbandry or water quality testing associated with a particular project; this is solely the responsibility of the PI and authorized research personnel.

Wet Lab Committee (as of 5/11/14)

Name	**Title**	**Office**	**E-mail**	**Phone**
Gabrielle Hazelton (temporary)	Facilities Manager	Lena 201B	gdhazelton@alaska.edu	907-796-5443
Gabrielle Hazelton	Administrative Manager	Lena 201B	gdhazelton@alaska.edu	907-796-5443
Gordon Kruse	Fisheries Division Director	Lena 203	ghkruse@alaska.edu	907-796-5458
Anne Beaudreau	Faculty	Lena 321	abeaudreau@alaska.edu	907-796-5454
Ginny Eckert	Faculty	Lena 221	gleckert@alaska.edu	907-796-5450
Alexei Pinchuk	Faculty	Lena 303	aipinchuk@alaska.edu	907-796-5466

2.3 Wet lab user responsibilities

1. Contact the Lena Point Facilities Manager to describe wet lab needs at the proposal stage and ensure project can be completed with current resources.
2. Read the UAF Lena Point Fish Facility Guidelines and Standard Operating Procedures (this document) for required forms and information.
3. Users must have needed Alaska Department of Fish and Game permits and IACUC approval *before* bringing animals into the wet lab.
4. Submit a wet lab request form to the Facilities Manager (**Appendix A**), who will verify space availability and discuss any special needs for your project. A copy of the wet lab request form should be kept on file by the Facilities Manager. Your request will be added to the wet lab schedule administered by the Administrative Manager (e.g., shared Google Document).
5. Meet with the Facilities Manager for a wet lab walk through and orientation to the basic procedures outlined in this document. A record that the user has completed this

orientation and is familiar with disaster plan procedures (see Section 7.0, Disaster plan) should be maintained by the facilities manager.

6. Provide a contact phone number to the Facilities Manager so that you can be added as the contact person that the autodialer will call if any of the tanks you are using triggers the high temperature alarm (see section 3.0, Water quality).
7. Tape a copy of your wet lab request form to each tank that you are using; Rite in the Rain paper is recommended. Remove after the experiment is completed.
8. Approved wet lab users should review the wet lab schedule to familiarize themselves with who is using which tank(s) and for what purpose. It is important that all wet lab users are aware of how others are using the lab in order to coordinate their use without conflicts.
9. Coordinate with other wet lab users for freezer space (food storage), wet lab workspace, and supply storage.
10. Researchers working with vertebrate animals should monitor temperature of the designated food storage freezer during ongoing projects (see Section 4.1). Any unused food should be removed from the wet lab freezer and disposed of appropriately after the study concludes.
11. During the study, if a disease outbreak occurs, contact the Facilities Manager and prepare specimens for pathology screening.
12. For users working with live vertebrates, maintain a notebook for your current project in the wet lab that contains a copy of your approved ADF&G permits and IACUC protocol, any SOPs for the current project, and daily logs documenting water quality and animal disposition (see **Appendices B and C**).
13. Follow all water quality, animal husbandry and hygiene, security, and emergency procedures outlined in this document.
14. Review and be familiar with the IACUC policies for animal facilities: http://www.uaf.edu/iacuc/animal-facilities/

3.0 Water quality

This section is not a comprehensive overview of potential water quality issues. It is intended to highlight the most likely problems that researchers need to be aware of.

3.1 Temperature

The body temperature of fish and other poikilotherms is regulated by ambient environmental conditions. For coldwater fish, high temperatures are more dangerous than low temperatures because they can induce metabolic stress on the organism, eventually shutting down body function. However, any rapid change in temperature can be stressful. Because the seawater intake is located 90-100 feet below MLLW, it is unlikely that an acute high temperature event would result from ambient seawater conditions. Rather, a reduction or blockage of flow to the tanks would be the most likely cause for warming. Each large circular tank is equipped with an autodialer, which calls the primary contact for the project in the event that a high temperature alarm is triggered. When vertebrate animals are being held in the tanks, temperature should be monitored daily and recorded in the water quality log (**Appendix B**).

3.2 Dissolved gas

Pressurized seawater can hold a higher concentration of dissolved gases than seawater at one atmosphere. When pressure is reduced (e.g., as water is pumped to shallower depths), the water becomes supersaturated with dissolved gas, which will gradually come out of solution. Supersaturation can cause bubbles (emboli) to form inside capillaries and under the skin of fish (i.e., fish get "the bends"). The resulting condition, called gas bubble disease (GBD), is characterized by restricted blood flow, the formation of hemorrhages and clots, and in some cases, death. In theory, oxygen and carbon dioxide can be supersaturated without harming fish; however, emboli will develop when the sum of the partial pressures of all dissolved gases exceeds atmospheric pressure. Nitrogen dissolves or leaves solution slowly in comparison to other gases. Although the total pressure of all dissolved gases determines whether supersaturation will occur, nitrogen is the most dangerous individual gas when it comes out of solution inside an animal (Smith et al. 2004). Saturation levels of nitrogen above 110% will usually cause GBD, while levels under 102% are typically safe for fish systems (Wedemeyer et al. 1976).

Evidence of GBD in fish is most commonly seen in the yolk sacs, gills, fins, and eyes since these areas have membranes that are more gas permeable. Fish with GBD may lose equilibrium, swimming upside down or vertically. Smaller fish are affected more easily because they have thinner membranes, while larger fish are generally only affected at higher supersaturation levels. Tolerance levels can vary widely by species, but in some cases gas supersaturation levels of less than 105% can be high enough to put very small fish at risk. In addition to regular monitoring of dissolved gases in the tanks, fish should be carefully monitored for signs of GBD (disequilibrium, presence of gas emboli in fins or other tissue, degradation of fins).

3.2.1 Degassing

We will use two Pentair Aquatic Ecosystems degassers (model DG4). These are forced-air degassers that connect to an external blower, creating a counter-current of air-flow as the water cascades over the internal bio-media. One unit will be used for the two inside circular tanks, while the second unit will drain the degassed water into a sump to be pumped to the four outside circular tanks. A single blower will be connected to both units, enabling each unit to degas 75 gpm, a greater flow-rate than currently required. The water pumped to the outside tanks will be through the piping currently dedicated for the "unfiltered seawater," then through the existing outside plumbing infrastructure. This system allows for the quick shifting between the degassed water and the standard filtered seawater, in case of emergency, via the valves just inside the laboratory space.

3.3 Water quality monitoring

Water quality should be monitored regularly (at least once weekly) and a record kept by users working with live vertebrates. Each tank containing vertebrate animals should be monitored individually for temperature, salinity, nitrogen waste concentrations, dissolved oxygen, and total dissolved gas pressure. See **Appendix B**.

4.0 Animal husbandry and hygiene

4.1 Food storage and preparation

Food for vertebrate animals should be stored only in the designated freezer in Seawater Lab #1 (room 110) or, for dry feed, in the cupboards above the sink in rooms 110 or 102. All open bags of dry food must be stored in a sealed container to avoid attracting rodents. The sinks and countertops may be used for food preparation but should be washed and dried thoroughly afterwards. Researchers working with vertebrate animals should monitor temperature of the designated food storage freezer during ongoing projects. Any unused food should be removed from the freezer and disposed of appropriately after the study concludes.

4.2 Hygiene

Hygienic practices are our most effective biosecurity measures. Biosecurity refers to disease control and maintaining the health of captive animals throughout the study. The following are best practices for maintaining a hygienic environment and should be adhered to by all users:

1. Keep your tank and work areas clean and dry. Thoroughly mop up water on the floor and counter tops before exiting the lab.
2. Keep the outdoor tank area clean; do not store anything outdoors that will generate odors and attract insects or wild animals.
3. Tanks need to be cleaned regularly and often, making sure unused food and animal waste is never allowed to build up. Indicate the date of tank cleaning on your animal care log (**Appendix C**).
4. After an experiment has ended, the tanks must be drained, disinfected with a dilute bleach solution (200 ppm, as recommended by Alaska Department of Fish and Game), scrubbed, rinsed, and dried empty for 48 hours before the tank is filled and new animals are introduced.
5. Proper carcass and waste disposal methods are:
    a. Food and animal waste (carcasses, feces) must be double bagged and placed in a freezer until garbage day. Ask the Facilities Manager when it is allowable to place the waste in the dumpster outside the wet lab facility.
    b. Never put any food or animal waste in the trash cans.
6. If possible, separate gear by tank, project, species, and/or capture location to keep cross contamination at a minimum.
7. All users should be familiar with the ADF&G disease control guidelines (Myers 2010): http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.5J.2010.01.pdf

4.3 Animal care

Researchers should be aware of the environmental factors that may cause stress for their study species and design holding areas to minimize stress. Specific factors that should be considered and can often be managed to minimize stress responses in fish include: (1) choice of species, (2) history of the animals under study, (3) water chemistry, (4) water flow, (5) water temperature, (6) light conditions and cycles, (7) bottom substrate, (8) noise and other physical stimuli, and (9) stocking density (AFS 2004). Researchers working with live vertebrates should monitor animals daily and complete an animal care log that they maintain in their project notebook in the wet lab (**Appendix C**). The log will be used to report the number and disposition of animals; schedule of tank cleaning, feeding, and experimental activities; and surgical records.

A list of helpful animal husbandry references is included in section 9.0, References. When in doubt, researchers should contact the UAF IACUC with any questions or concerns: http://www.uaf.edu/iacuc/iacuc-info/

5.0 Prohibited materials
Mold is a potential health hazard for humans and animals. To prevent the growth of mold, do not store or expose absorbent materials (wood, cloth, etc.) in the wet lab. Any wood used in the wet lab must be thoroughly coated with non-toxic paint.

No chemicals may be used to clean floors or work surfaces. To avoid chemical contamination, the wet lab is not on a janitorial contract and will not be accessed by unauthorized personnel.

6.0 Security
The UAF Animal Facilities are restricted access facilities for two primary reasons: 1) to protect the animals from injury and disease; and 2) to prevent disruption of ongoing research activities. Although protection of the animals and research is of primary concern, the Office of Research Integrity and the facility managers recognize that it is important to allow some visitors into the facilities (i.e., prospective students or employees, federal agency inspectors, and funding agency representatives). See IACUC policies and procedures for guidelines: http://www.uaf.edu/iacuc/animal-facilities/procedures/

Several measures have been put in place to minimize the risk of vandalism: (1) the Lena Point facility is behind a locked gate, which is closed at nights and on weekends; (2) only authorized individuals who have obtained key access from the Facilities Manager are allowed into the wet lab; and (3) outdoor tanks have locked lids that may only be accessed by authorized personnel.

7.0 Emergency procedures
The following disaster plan should be posted in a visible location for all users. All users should be familiar with this plan and confirm that the Facilities Manager has documented their knowledge of the plan.

7.1 IACUC disaster plan
UAF Lena Point Wet Lab Facility (includes Seawater lab #1, room 110; Seawater lab #2, room 102; one adjacent outdoor area)

1. Disasters most likely to affect Lena Point facility: severe winter storms, earthquakes, power outages

2. Who is in charge?
The Lena Point Facilities Manager is the first point of contact for any emergencies. If the Facilities Manager is not available, the next point of contact is the Administrative Manager, followed by the Fisheries Division Director.

Facilities Manager: Gabrielle Hazelton (temporary)
Administrative Manager: Gabrielle Hazelton
Fisheries Division Director: Gordon Kruse

3. Where will they be? (Command Center – there can be multiple)
See CIRT below.

4. Who can provide assistance?
a. Critical Incident Response Team (CIRT)
In the case of a system-wide emergency, such as a power outage or seawater pump failure, the Facilities Manager is the first point of contact, followed by the Administrative Manager and the Fisheries Division Director. For issues involving individual tanks (e.g., high temperature alarm triggered) or projects, the project PI and personnel will be contacted.

Name	**Title**	**Office**	**E-mail**	**Phone**
Gabrielle Hazelton (temporary)	Facilities Manager	Lena 201B	gdhazelton@alaska.edu	907-796-5443
Gabrielle Hazelton	Administrative Manager	Lena 201B	gdhazelton@alaska.edu	907-796-5443
Gordon Kruse	Fisheries Division Director	Lena 203	ghkruse@alaska.edu	907-796-5458

b. Animal care staff
These individuals will be specific to each IACUC protocol.

c. Vet staff
The Lena Point facility does not have veterinary staff on hand. However, in the case of emergency, we will contact the Alaska Department of Fish and Game Pathology Laboratory (contact information below). The ADF&G Fish Pathology Section monitors and controls finfish and shellfish diseases statewide. Their diagnostic laboratories in Anchorage and Juneau are equipped with state-of-the-art technology, including transmission electron microscopy, ELISA, DNA probe, and PCR. The staff includes two fish pathologists, two microbiologists, and one laboratory technician; all are experienced and highly trained in microbiology, fish health, and aquatic veterinary medicine. Staff members hold American Fisheries Society Fish Health Section Certifications of Fish Pathologist and Fish Health Inspector.

Alaska Department of Fish and Game
Pathology Section
Division of Commercial Fisheries
P.O. Box 25526
Juneau, AK 99802-5526
Phone: (907) 465-3577; Fax: (907) 465-3510

d. Computer personnel
Chris Brooks (support@sfos.uaf.edu, 907-796-5442)

e. Law enforcement/Fire department

Emergencies: 911
Non-emergency fire: Juneau Fire Department, 907-586-5322
Non-emergency police: Juneau Police Department, 907-586-0600

f. Facility services
Gabrielle Hazelton (temporary): gdhazelton@alaska.edu, 907-796-5443

g. PIs/Lab personnel
These individuals will be specific to each IACUC protocol. PI/lab personnel names need to be visibly posted in wet lab during the project.

5. Important Components
a. Drills
The primary problem we would encounter is a power outage and the CIRT has discussed and agreed on the protocols for re-establishing power and taking care of animals in the event of a power outage (see 6d, below). The Facilities Manager has extensive experience dealing with power outage events at the Lena Point facility.

b. Phone tree (key contacts)
See CIRT, above. Each large circular tank is equipped with an autodialer, which calls the primary contact for the project in the event that a high temperature alarm is triggered. UAF also has an established cell phone notification process to alert Lena Point personnel about emergencies.

c. Emergency Supplies
Emergency supplies include a back-up generator, water quality monitoring equipment, extra fish food, battery-operated aerators, aerator hoses and air stones, and a first aid kit.

6. Other
a. Minimum number of people needed to care for animals.
Each project involving fish would require at least one person to care for the animals. At least two would be ideal to allow people to take shifts. Fish-care staff would set up shifts (6 to 8 hours in duration each shift) to monitor fish during the emergency. Fish would be monitored 24 hours per day.

b. Can staff get to facility?
All CIRT staff and members of the Wet Lab Committee live within 15 miles of the Lena Point facility, most much closer.

c. Are buildings safe?
As long as the building is structurally sound, we can restore backup power. If the building is not structurally stable, we would immediately euthanize fish if allowed to enter the building.

d. Is there power? If no, actions to protect animals.
NOAA Ted Stevens Marine Research Institute (TSMRI) is located approximately 500 feet from the UAF Lena Point facility. The seawater inlet is located at 90-100 feet below mean lower low

water (MLLW) and the pump system is operated by NOAA TSMRI. Filtered and unfiltered seawater are circulated from NOAA TSMRI to UAF and back for treatment. In the case of a city power outage, NOAA TSMRI has a generator that will provide power to two seawater pumps. NOAA TSMRI has a 10,000 gallon fuel capacity that can run the generator and boiler system for at least 2 weeks with no additional fuel deliveries, if weather is not below freezing.

The seawater reservoir capacity is flow dependent. NOAA TSMRI can support a 4 hour loss of seawater with a minimum flow demand upon the filtered seawater sumps for TSMRI and UAF under the current seawater use regime.

In the unlikely event that both pumps fail simultaneously or cannot be supplied with generator power at NOAA, UAF is equipped with an oil-less compressor that can be used to supply air to tanks. The compressor requires city power to operate. In addition, a diving air compressor and SCUBA tanks are in the small storage building adjacent to the facility that can be used to aerate tanks; this compressor can be powered from the UAF generator. The UAF generator has a 275 gallon/day tank and is auto refilled by the main 4,000 gallon fuel tank. During winter, if the main tank is full and boilers are running, the run time of the generator is estimated to be 6 days. If the main tank is half full, run time is estimated to be 3 days. During summer, estimated run time is 12 hours on a full tank and 6 hours on a half tank. The generator provides power to three outlets in the wet lab.

e. Is there food/water for people and animals?
Reserve food for animals will be maintained in the wet lab freezer. Currently, there is no reserve supply of food or water for people in the wet lab facility as we do not allow items for human consumption to be kept in the freezer. CIRT members would need to bring in their own food and water during an emergency.

f. How long can animals be maintained?
See 6d, above. If seawater cannot be refreshed, animals can be maintained for hours to days by aerating the water, as long as water temperature in the tanks does not increase rapidly. Animals will be closely monitored and immediately euthanized if they exhibit any signs of distress (e.g., loss of equilibrium, hyperventilation, etc.).

g. Transportation? If needed, how?
If the need arises, animals could be transported next door to the NOAA TSMRI facility and held in their seawater tanks until the Lena Point wet lab is restored. Animals would be transferred in coolers equipped with aerators and driven up the hill to NOAA TSMRI (approximately 500 feet away).

h. Priorities? (animals, euthanasia)
Fish in active experiments will be euthanized only if conditions during the experiment (dissolved nitrogen, water temperature) exceed the listed criteria in the associated protocols. Fish not in active experiments (e.g., fish being reared or maintained for experiments) will be maintained as long as possible. However, if we cannot provide cold water, deliver sufficient dissolved oxygen, or keep nitrogen at sufficiently low levels, then fish will be euthanized. The particular conditions and trigger points are species specific, so it is hard to identify a particular duration/time period

before we would initiate euthanasia. Obviously, if fish exhibited any significant signs of stress, as identified in the associated protocol, they would be euthanized. Euthanasia procedures will be carried out by study personnel according to their IACUC protocol.

i. Potential response to vandalism or trespassing
Several measures have been put in place to minimize the risk of vandalism: (1) the Lena Point facility is behind a locked gate, which is closed at nights and on weekends; (2) only authorized individuals who have obtained key access from the Facilities Manager are allowed into the wet lab; and (3) outdoor tanks have locked lids that may only be accessed by authorized personnel.

j. Reliable phone service: ACS

8.0 Annual IACUC inspection
IACUC will conduct an in-person inspection of the wet lab facility two times per year if animals are being held (otherwise, once per year). The inspectors will review the emergency plan and notebooks maintained for current projects, including any SOPs and the daily log documenting water quality and animal disposition. The IACUC inspectors will use the facility inspection checklist in **Appendix D** as a basic guide. The Facilities Manager and at least one other member of the Wet Lab Committee should provide a tour and answer questions for the inspectors.

9.0 References
American Fisheries Society (AFS). 2004. Guidelines for the Use of Fishes in Research. URL: http://fisheries.org/docs/policy_useoffishes.pdf

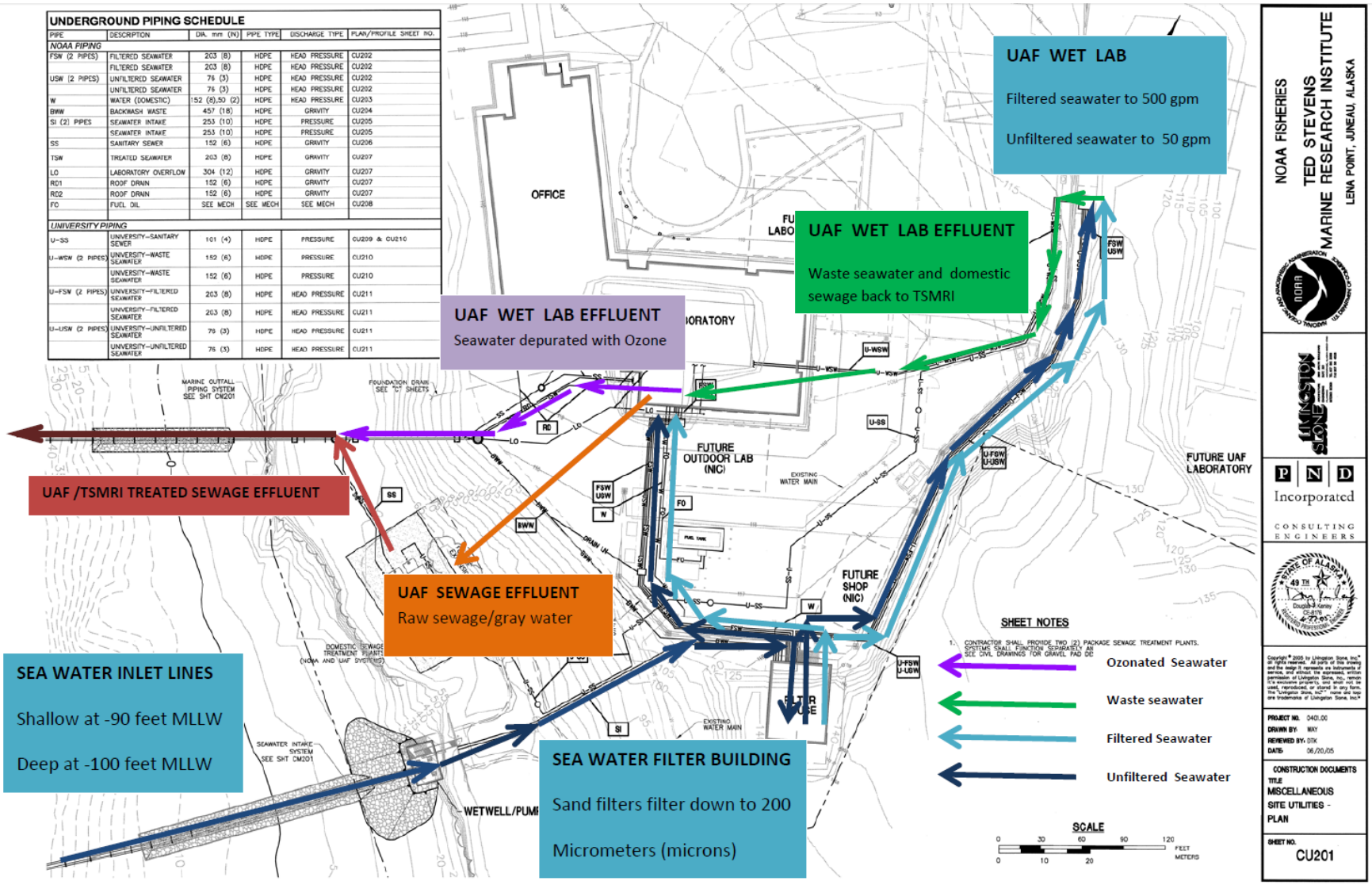
American Veterinary Medical Association (AVMA). 2013. AVMA Guidelines on Euthanasia. URL: https://www.avma.org/KB/Policies/Pages/Euthanasia-Guidelines.aspx

Myers, T. 2010. Regulation changes, policies and guidelines for Alaska fish and shellfish health and disease control. Alaska Department of Fish and Game, Regional Report Series No. 5J10-01, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.5J.2010.01.pdf

Smith, M., D. Warmolts, D. Thoney, and R. Hueter (editors). 2004. The Elasmobranch Husbandry Manual: Captive Care of Sharks, Rays and their Relatives. Special Publication of the Ohio Biological Survey. 589 pp.

Wedemeyer, G. A., F. P. Meyer, and L. Smith. 1976. Diseases of Fishes. Book 5: Environmental Stress and Fish Diseases. S. F. Snieszko and H. R. Axelrod (eds.). T. F. H. Publications, Neptune City, NJ. 192 pp.

Figure 1. Schematic of the Lena Point wet lab system. Seawater is circulated between NOAA Ted Stevens Marine Research Institute and UAF.



Appendix A. Wet lab request form

Lena Point Wet Lab Facility Request

Date Submitted: _____

Project Name: _____

Project Objectives: _____

_____

PI (name and e-mail address): _____

Approved Project Personnel (names and e-mail addresses):

_____

Primary Contact Person(s). These individuals will be primarily responsible for daily care of animals, water quality monitoring, and cleaning of space/tanks used in this project. They will be contacted in the event of an emergency involving the wet lab. *Add more rows as needed.*

Name	Project Role	E-mail Address	Phone

Species held in the wet lab. *Add more rows as needed.*

Species	Number	Sizes/Ages	Capture Location

Needed Tanks. *Add more rows as needed.*

Tank	Dates Requested

Special Needs (e.g., heated, chilled, lighting, etc.):

ADF&G Permit Number(s): _____

IACUC Permit Number(s): _____

UAF Grant# / Fund-Org: _____

Appendix B. Water quality monitoring log

INPUTS								RESULTS											
								TDG Pressure mmHg				ΔP mmHg				%Sat			
Tank #	Date & Time	Temp (C)	BP (mm Hg)	ΔP (mm Hg)	O2 (mg/L)	Salinity (ppt)	CO2 (mg/L)	*All Gases + Vapor Press*	*N2 +Ar*	*O2*	*CO2*	*All Gases + Vapor Press*	*N2 +Ar*	*O2*	*CO2*	*All Gases + Vapor Press*	*N2 +Ar*	*O2*	*CO2*

Formulas used to calculate **Results** are provided in an Excel spreadsheet. Please request a copy from Anne Beaudreau (abeaudreau@alaska.edu).

Appendix C. Animal care record keeping

PI:_____Contact information: _____

Person responsible for the project:_____Contact information: _____

IACUC Protocol Number(s): _____

Time of lights on and off: _____

(1) Daily Animal Care Log
For individual projects, the following activities should be performed *daily* and recorded in the animal care log: a) animal census for each tank, b) check for animal disposition (signs of illness, distress or injury). Other activities, such as tank cleaning and feeding, should also be recorded; the frequency of these activities will depend on the specific project and species.

Animal Care Log

Date	Time	Tank #	Activity / Outcome	Personnel

(3) Fish Facility Animal Disposition Log
Each animal facility maintains a single disposition log to track what has been done to or with the animals housed in that facility. The disposition log should be updated whenever the following occur:

- animals are brought into or removed from the animal facility, regardless of whether the move is temporary or permanent; the record should include where they came from or went
- animals are subjected to any manipulation or treatment (note: initial research surgeries should be recorded, but normal post-operative care should only be recorded on the surgical log)
- sick, injured or distressed animals are identified
- an animal is examined or treated by Veterinary Services personnel
- an animal dies or is euthanized
- animals are moved to a new room, pen, tank, etc. within the facility

The disposition log is a veterinary services record and is the their primary source of information regarding what has been done to individual animals.

Animal Disposition Log

Date	Time	Tank #	Disposition	Personnel

(3) Surgical Records

In keeping with regulatory requirements, UAF requires that surgical records be kept in the animal facility throughout the research and for three years after the end of the project or for the life of the animal whichever is longer. Surgical logs and records of post-surgical care are veterinary services records; investigators may make copies for their research records.

Appendix D. Facility inspection checklist

IACUC Member name:
Date:
Location:

• **Location:**	**A***	**M**	**S**	**C**	**NA**
animal areas separate from personnel areas (*Guide*, p 134)					
separation of species (*Guide*, p 111)					
separation by disease status (*Guide*, p 111)					
security and access control (*Guide*, p 151)					
• **Construction:**					
corridors (*Guide*, p 136)					
animal room doors (*Guide*, p 137)					
exterior windows (*Guide*, p 137)					
floors (*Guide*, p 137)					
drainage (*Guide*, p 138)					
walls and ceilings (*Guide*, p 138)					
heating ventilation and air conditioning (*Guide*, p 139)					
power and lighting (*Guide*, p 141)					
noise control (*Guide*, p 142)					
vibration control (*Guide*, p 142)					
environmental monitoring (*Guide*, p 143)					
• **Water Quality:**					
standards for acceptable quality are established (*Guide*, p 78)					
chlorine, chloramines, chemical, and reactive bioproducts are removed or neutralized prior to use in aquatic systems (*Guide*, pp78, 86) [must]					
• **Life Support System:**					
water source is based on appropriate controls and research requirements (*Guide*, p 79)					
biofilter is of sufficient size to process bioload (*Guide*, p 80) [must]					
• **Temperature, Humidity and Ventilation/Illumination/Noise and Vibration:**					
temperature and humidity (*Guide*, pp 43, 80-81)					

ventilation and air quality (*Guide*, pp 45, 81)					
illumination (*Guide*, pp 47, 81)					
noise and vibration (*Guide*, pp 49, 81)					
• Primary Enclosure:					
allows for normal physiological and behavioral needs (*Guide*, p 82)					
allows social interaction for social species (*Guide*, p 82)					
provides a balanced, stable environment (*Guide*, p 82)					
provides appropriate water quality and monitoring (*Guide*, p 82)					
allows access to food and waste removal (*Guide*, p 82)					
restricts escape and entrapment (*Guide*, p 82)					
allows undisturbed observation (*Guide*, p 82)					
constructed of nontoxic materials (*Guide*, p 82)					
prevents electrical hazards (*Guide*, p 82)					
space needs of species are evaluated by IACUC during program evaluations and facility inspections (*Guide*, p 83)					
• Environmental Enrichment, Social Housing, Behavioral and Social Management:					
enrichment elicits appropriate behaviors and is safe (*Guide*, p 83)					
handling is kept to a minimum and appropriate techniques are in place at facility or protocol level (*Guide*, p 84)					
nets are cleaned, disinfected and managed to avoid contamination of systems (*Guide*, p 84)					
• Food:					
storage to prevent contamination, preserve nutrients and prevent pests (*Guide*, p 84)					
delivery ensures access to all , minimizing aggression and nutrient loss (*Guide*, p 84)					
storage times are based on manufacturer recommendations or accepted practice (*Guide*, p 84)					
a nutritionally complete diet is provided (*Guide*, p 84)					
• Substrate:					
amount, type and presentation of substrate is appropriate for the system and the species (*Guide*, p 85)					
• Sanitation, Cleaning and Disinfection					
frequency of tank/cage cleaning and disinfection is determined by water quality, permits adequate viewing and health monitoring (*Guide*, p 86)					
cleaning and disinfection of macroenvironment (*Guide*, p 86)					
• Waste Disposal:					

procedures for collection (*Guide*, pp 73-74)					
hazardous wastes are rendered safe before removal from facility (*Guide*, pp 73-74) [must]					
animal carcasses (*Guide*, pp 73-74)					
• Pest Control:					
regularly scheduled (*Guide*, p 74)					
documented program including control of pests and insecticide use (*Guide*, p 74)					
• Emergency, Weekend, and Holiday Animal Care:					
care provided by qualified personnel every day (*Guide*, pp 74, 87)					
provision for accessible contact information (*Guide*, pp 74, 87)					
emergency response plans in place to address major system failures (*Guide*, 87)					
veterinary care available after hours, weekends, and holidays (*Guide*, pp 74, 114) [must]					
• Identification:					
cage/tank cards contain required information (*Guide*, pp 75, 87)					
genotype information included and standardized nomenclature used when applicable (*Guide*, pp 75, 87)					
• Recordkeeping:					
water quality parameters and frequency of testing recorded (*Guide*, p 88)					
records kept on feeding, nonexpired food supplies, live cultures (*Guide*, p 88)					
• Storage:					
adequate space for equipment, supplies, food, substrate and refuse (*Guide*, p 141)					
substrate protected from contamination (*Guide*, p 141)					
food in vermin-free, temperature and humidity controlled area and protected from contamination (*Guide*, p 141)					
refuse storage is separate (*Guide*, p 141)					
carcass and animal tissue storage is separate, refrigerated below 7ºC and cleanable (*Guide*, p 141)					
• Personnel:					
adequate space for locker rooms, administration and training (*Guide*, p 135)					

***A** = acceptable
M = minor deficiency
S = significant deficiency (is or may be a threat to animal health or safety)
C = change in program (PHS Policy IV.A.1.a.-i.) (include in semiannual report to IO and in annual report to OLAW)
NA = not applicable