

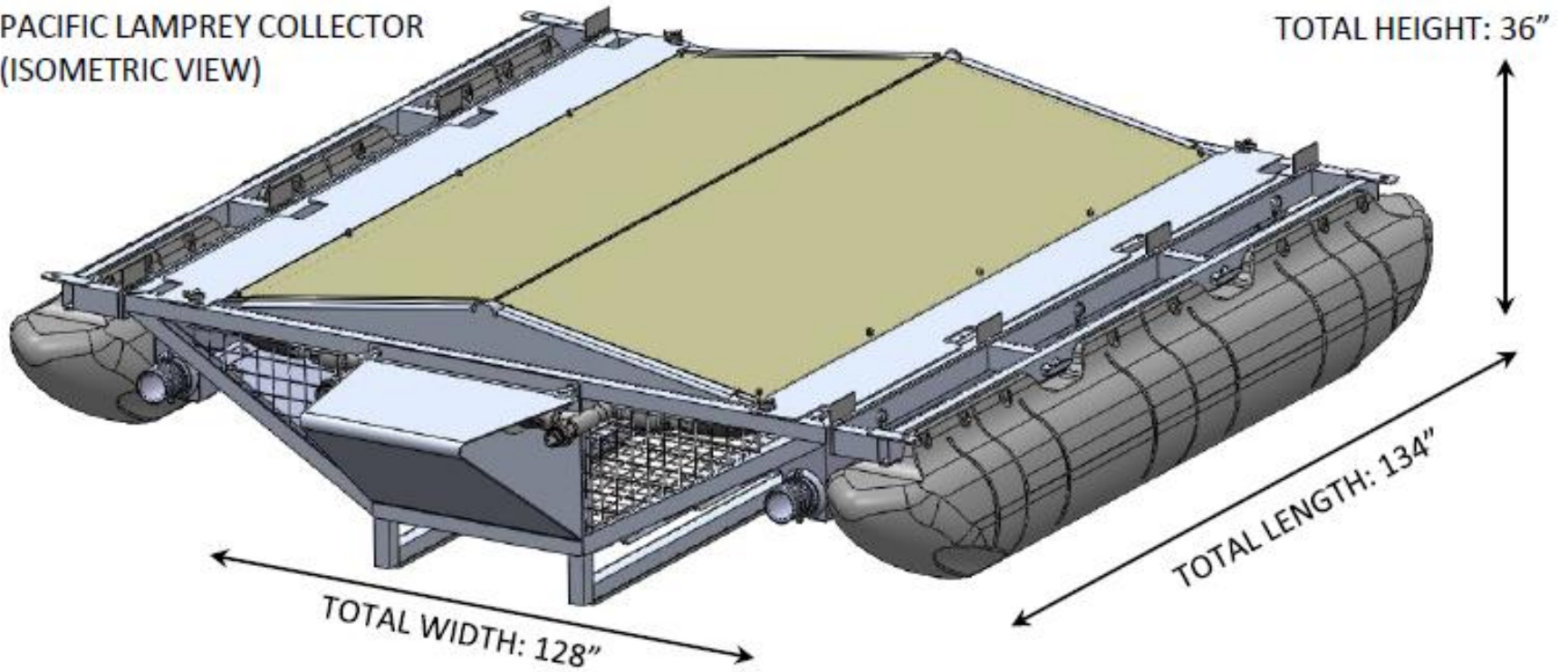
Overview of the New Adult Lamprey Floatable Collector and Next Steps

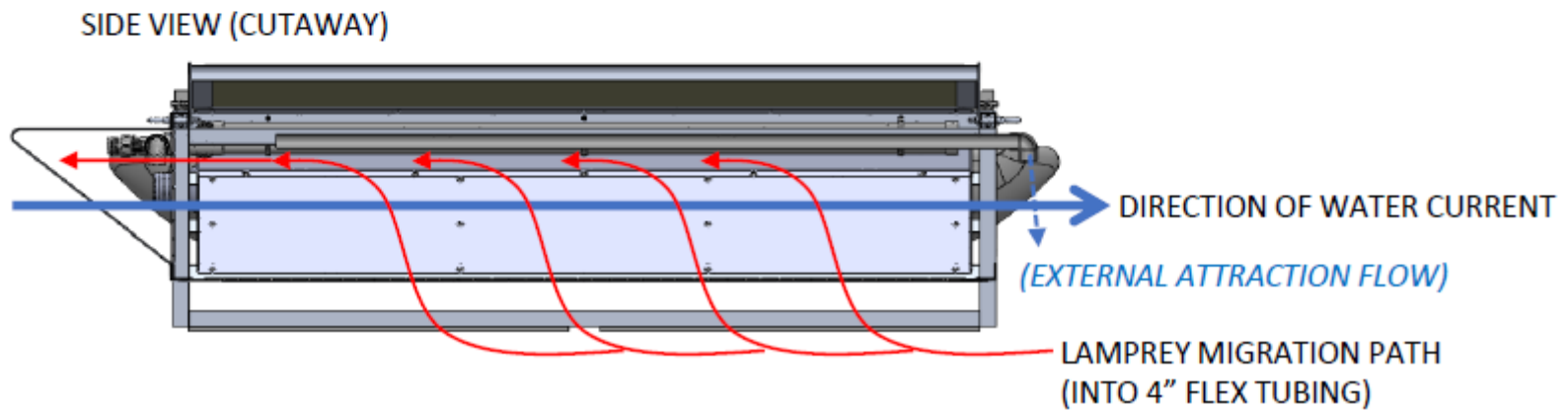
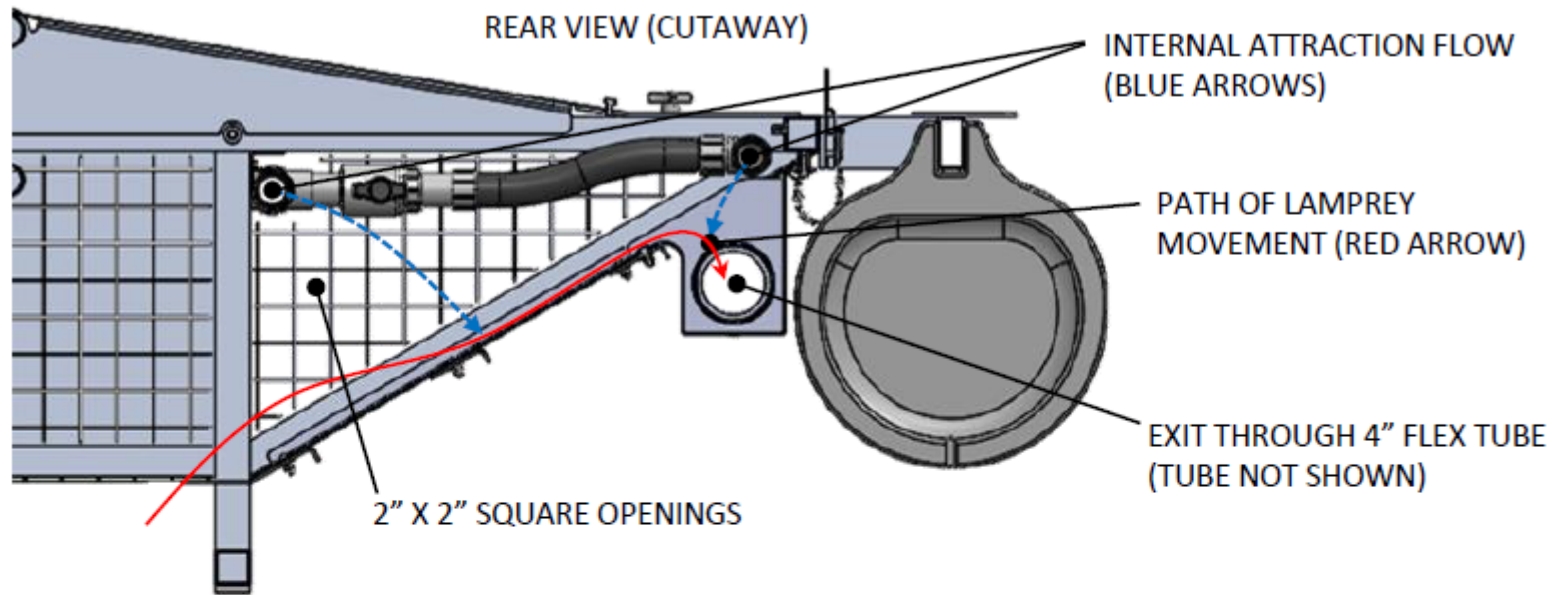
Ralph Lampman

Yakama Nation Fisheries

11/3/2023

PACIFIC LAMPREY COLLECTOR
(ISOMETRIC VIEW)





Key Modification Needs – Overall:

- 1. Mesh screen modification

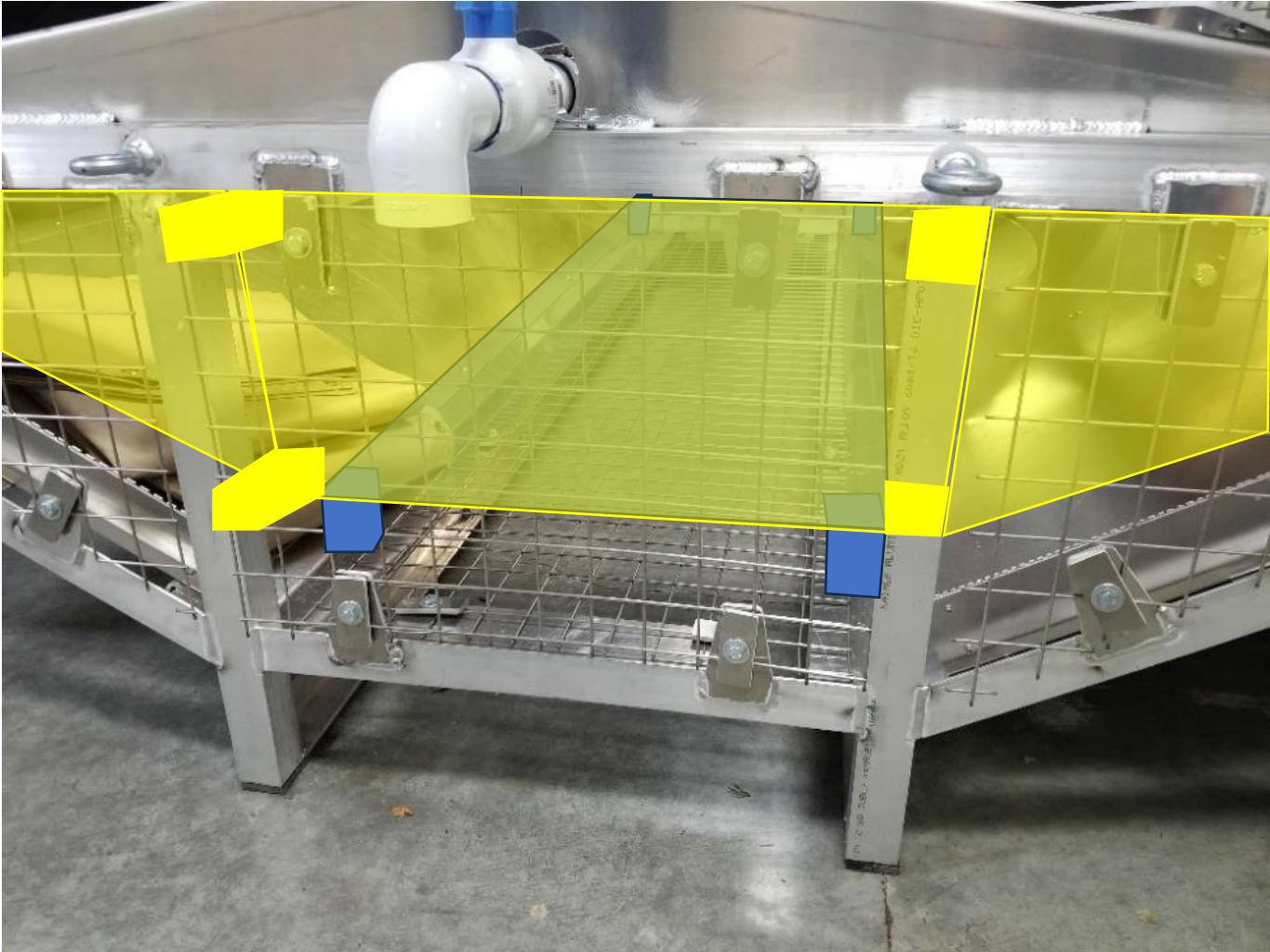
Current mesh (2x2 inch)



Modification Proposed 1



Modification proposed 2





UPDATED OCTOBER 2018



Potential Methods for Detering Seals and Sea Lions from Private Property and Fishing Activities

This guidance applies to the following species of seals and sea lions:

- Pacific harbor seals
- California sea lions
- Northern fur seals
- Eastern U.S. Stock of Steller sea lions
- Northern elephant seals

General Information

- The Marine Mammal Protection Act (MMPA) generally prohibits the harassment, hunting, capturing, or killing of marine mammals, or any attempt to engage in such activities. However, Section 101(a)(4) of the MMPA allows for the non-lethal deterrence of nuisance animals under certain circumstances. For more information, see [Detering "Nuisance" Pinnipeds](#).
- When attempting to deter these animals, you are **not allowed** to seriously injure or kill them (e.g. no open wounds, avoid impact to the animals' eyes and face, avoid blunt force trauma and aiming pyrotechnics directly at animals, etc).
- These "Potential Methods" are not "approved" deterrence methods by NOAA Fisheries. They are examples of methods that are known to have been effective at deterring pinnipeds in the past.

Methods to Avoid

The following methods/devices have an increased likelihood of causing injury or death and *should be avoided*.

- **NO** firearms with "live" (lethal) ammunition (including metallic, glass, or sharp projectiles: e.g. BBs, marbles)
- **NO** devices with injurious projectiles (e.g., archery gear, crossbows, spear guns, bangsticks)
- **NO** sharp/pointed objects (e.g., harpoons, spears, gaffs, nail studded bats/poles/clubs/docks)
- **NO** entangling devices (e.g., loose webbing, snares, concertina wire)
- **NO** aggressive tactile methods (e.g., striking animals with bats, hammers, etc.; impact with vehicles or boats)
- **NO** tainted baits or poisons
- **NO** guard dogs

If you have questions about protecting your property and/or fishing gear and catch from nuisance pinnipeds, please contact our marine mammal specialists:

Seattle, WA - Lynne Barre (206) 526-4745
 Portland, OR - Robert Anderson (503) 231-2226
 Long Beach, CA - Dan Lawson (206) 526-4740

Potential Methods for Private Property Owners:

Barriers & Exclusion Devices:

- fencing (e.g., plastic construction/snow fence, chain link), closely spaced posts
- bull rails
- electric livestock fencing
- netting
- swim step protector

Visual Repellents:

- flags, pinwheels, or streamers
- flashing lights or strobes
- human attendants/monitors

Physical Contact:

- high or low pressure water hoses
- sprinklers, sprayers
- crowder boards
- bull poles (blunt tip), brooms
- cattle prod (these products produce only a mild electric shock designed for handling livestock and are in no way related to "stun guns" designed for self-defense)
- toy water guns (e.g., "Super SoakerSM")
- non-toxic and water soluble paint ball or air soft guns (no metallic/glass/sharp projectiles)
- slingshot (no metallic/glass/sharp projectiles)
- chemical irritants (e.g., non-toxic pepper spray, mace) used for animal control (note: *there are municipal and state ordinances managing the use and possession of these irritants*)

Noise Makers:

- horns, whistles, bells
- music
- clapping, banging pots, pans, drums; empty aluminum cans on a string banging together
- electronic acoustic devices/ acoustic harassment devices
- pyrotechnics (e.g., bird screamers, bangers, firecrackers, propane canons) (*there are municipal and state ordinances managing the use and possession of these products*)

Additional Potential Methods for Fishermen:

Visual Repellents/Noise Makers:

- boat hazing, circling
- pounding on hull
- horns, bells, whistles
- pyrotechnics (e.g., bird screamers, bangers, underwater firecrackers, cracker shells)

Physical Contact:

- slingshots (no metallic/glass/ sharp projectiles)
- non-toxic and water soluble paint ball guns
- non-lethal ammunition (e.g., rubber bullets)



**Potential Deterrence Methods for
Pacific Harbor Seals, California Sea Lions &
Eastern U.S. Stock Steller Sea Lions**
Updated November 2015

The following list of “potential methods” and “deterrents to avoid” is not an exhaustive list of non-lethal methods or techniques. If you have questions about protecting your property and/or fishing gear and catch from nuisance Pacific harbor seals, California sea lions, and eastern U.S. stock steller sea lions, please contact our marine mammal specialists: (Seattle, WA) Lynne Barre, 206-526-4745; (Long Beach, CA) Monica DeAngelis, 562-980-3232; Penny Ruvelas, 562-980-4197.

Note: Some of the methods listed (such as loud noise or pyrotechnics) may not be appropriate for use in some areas, or are subject to prohibition under federal, state or local ordinances. The presence of ESA listed species (marine mammals or fish) in some areas may advise against the use of certain methods. Please consult with appropriate authorities to determine if such prohibitions exist in your area, or if ESA-listed species may be encountered.

Potential methods for use by private property owners to deter Pacific harbor seals, California sea lions, and eastern U.S. stock Steller sea lions from damaging property (developed waterfront, decks, docks, floats, piers, bait receivers, vessels at anchor, etc.).

Barriers & Exclusion Devices:

- fencing (e.g., plastic construction/snow fence, chain link)
- closely spaced posts
- bull rails
- electric livestock fencing
- netting
- swim step protector

Visual Repellents:

- flags, pinwheels, or streamers
- flashing lights or strobes
- balloons
- human attendants/monitors

Noise Makers:

- horns, whistles, bells
- electronic acoustic devices (Acoustic Harassment Devices)
- clapping, banging on pots, pans, drums; empty aluminum cans on a string banging together
- music
- starter pistols
- pyrotechnics (e.g., bird screamers, bangers, firecrackers, propane canons)

Physical Contact:

- high or low pressure water hoses
- sprinklers, sprayers
- crowder boards
- bull poles (blunt tip), brooms
- cattle prod (these products produce only a mild electric shock designed for handling livestock and are in no way related to “stun guns” designed for self-defense)
- toy water guns (e.g., “Super Soaker®”)
- non-toxic and water soluble paint ball or air soft guns
- slingshot
- chemical irritants (e.g., non-toxic pepper spray, mace) used for animal control (there are many municipal and state ordinances controlling the use and possession of these irritants)

Note: Guard dogs are not included on the list of suggested measures because of risks to both dogs and marine mammals, including the potential risk of disease transmission between them.



Potential methods for use by fishers to deter Pacific harbor seals, California sea lions, and eastern U.S. stock Steller sea lions from damaging gear or catch (anglers must be actively fishing with gear deployed).

Visual Repellents/Noise Makers:

- boat hazing, circling
- pounding on hull
- pyrotechnics (e.g., bird screamers, bangers, underwater firecrackers, cracker shells)
- starter pistols
- horns, bells, whistles

Physical Contact:

- slingshots
- non-toxic and water soluble paint ball guns
- non-lethal ammunition (e.g., rubber bullets, sabot rounds, game stingers)

Methods to Avoid – *The following methods and techniques have an increased likelihood of causing injury or death and should be avoided.*

- No Firearms with “live” (lethal) ammunition
- No Devices with Injurious Projectiles (e.g., archery gear, crossbows, spear guns, bangsticks)
- No Sharp/Pointed Objects (e.g., harpoons, spears, gaffs, nail studded bats/poles/clubs)
- No Entangling Devices (e.g., loose webbing, snares, concertina wire)

- No Aggressive Tactile Methods (e.g., striking animals with bats, hammers etc., impact with vehicles or boats)
- No Tainted Baits or Poisons

Act responsibly & use common sense

Regardless of method or intent, the property owner or fisher may be subject to prosecution should a marine mammal be seriously injured or killed as a result of deterrence efforts for the protection of property, gear or catch.

Remember personal safety

Attempts by property owners and/or fishers to deter nuisance animals from engaging in unwanted behaviors using non-lethal means is a personal choice and not without risk (to the person doing the deterring and anyone around them). Sea lions and seals are wild animals that may react unpredictably to non-lethal deterrence measures, resulting in personal injury or additional damage to property. Sea lions are large and powerful animals that can move as quickly as a person on land.

Be aware of people around you and be courteous

The safe use of some of the above-listed potential methods (e.g., cracker shells, non-lethal ammunition) requires considerable skill and experience. The use of some of these methods may precipitate undesirable social interactions. *If you are in possession of a firearm, law enforcement officers approaching your property or vessel will assume that your firearm is loaded with lethal ammunition.*

Individuals attempting to deter nuisance sea lions and seals, using the above the listed potential methods are similar techniques, do so at their own risk.

1. Best location to test the collector in summer 2024 (determine the final site)

Bonneville Dam Washington Shore or The Dalles Dam (discussion ongoing)

2. Methods for deployment (placing into the water – via bank or from top?)

3. Methods for how to move and adjust the trap on the water surface once deployed?

Key Needs –For the Upcoming Hatchery Test:

4. Need for setting up an upwelling box (ideally two – one for each ramp) at Bonneville Hatchery (and the dam). Available from JDA Dam facility.

- Need to figure out if we will use two separate 4-inch tubes for each ramp, or merge the two tubes into one tube (separate is simpler)

5. Placement of a mesh lid to the small tank for lamprey to exit into the tank

6. Determine the size of hole for the spray bar pipes (start small and gradually increase)

7. Others?

Overview Photos of Floatable Collector

Side View 1 (the buoy on the far end will come down when in water)



Side View 2



Front View (looking upstream)



Front View (looking upstream)



Close Up Photos of Floatable Collector Parts

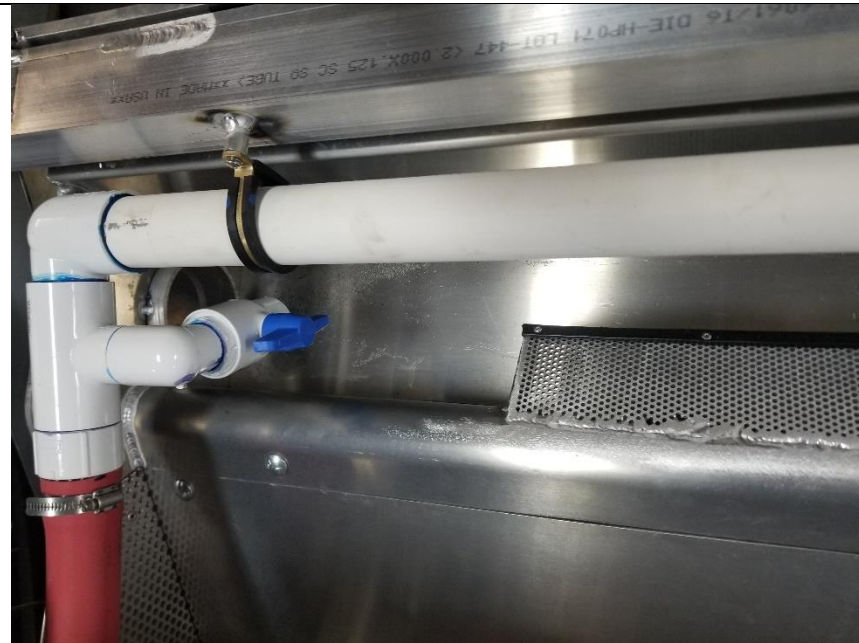
The pump connection & attachment ring point for lifting (downstream)



Side ramp overview



The 4" exit point with inlet valve close to it



The opposite end of the ramp



Side view of the ramp



Pipe setup and attachment ring for lifting



Buoy overview



Buoy folding manifold



Top of the ramp close up (bolts, plates, perforated plates)



Top of ramp close up 2 (dimension of the round bolts)



Pump connection close up



Pump connection close up 2 (2-inch)



Overview of the upstream end of the collector



Mesh Screen (2 x 2 inch)

Bottom mesh (looking from above) – upstream half

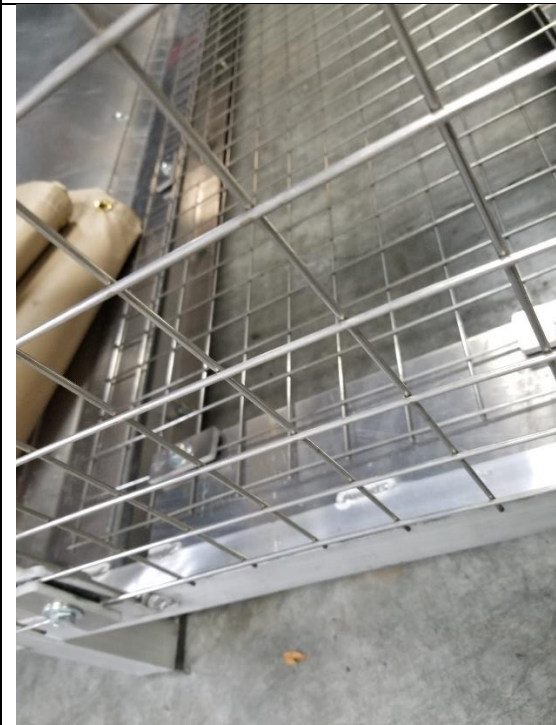


Bottom mesh (looking from above) – downstream half



Side mesh

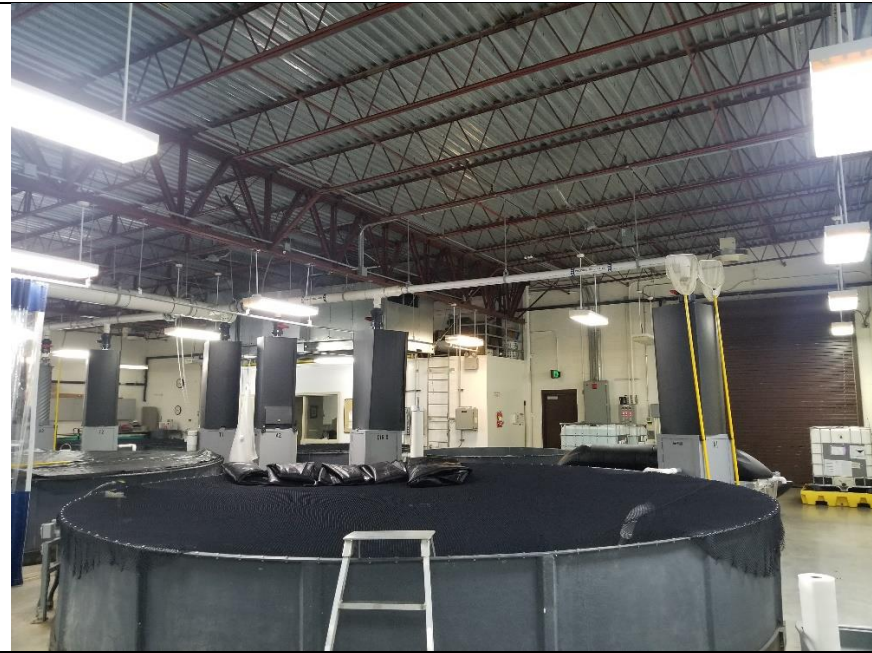






Tanks for Testing the Floatable Trap

Overview 1



Overview 2

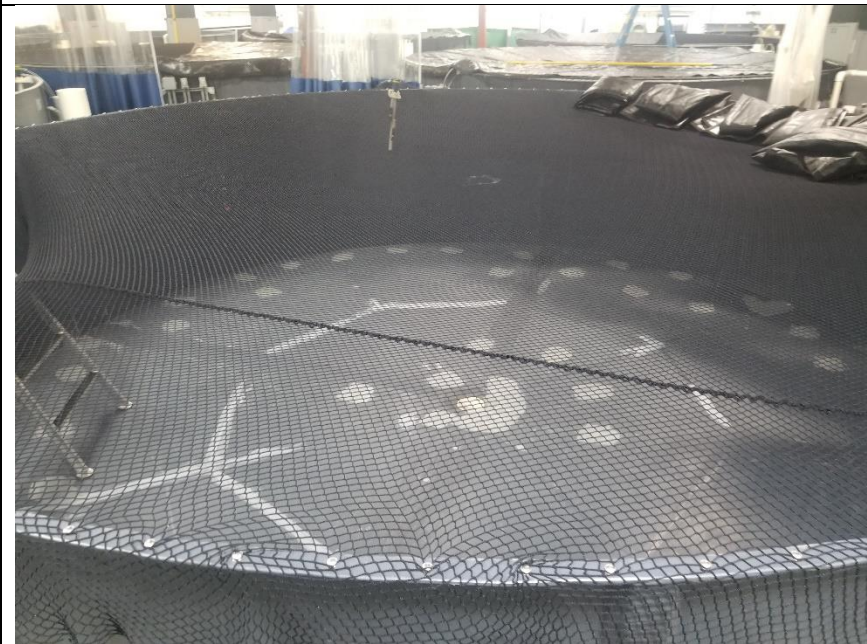


Overview 3



A custom ladder for easy entry





Large tank and the small tank that lamprey will migrate to as they pass



Distance between the large and small tank (sufficient to place upwelling box)



Distance between the 2 tanks



Height of the large tank



Dimension of the small subset tank where adults can migrate to

Outlet pipe plastic mesh (supported by 2 metal bars underneath)



Other General Facility Photos

