

# Remote Site Egg Collection





- Optional practice using the metric system
- In Course Content/Power Points



# \* Fun with the metric system!

Well, maybe not “fun” but kind of necessary.....

## THE METRIC SYSTEM



Countries that have not adopted the metric system:  
USA, Liberia and Myanmar (formerly: Burma)

### \* Practice questions

This is a voluntary practice for you. It is important to have a basic understanding of metric system application at AK hatcheries.

One slide will pose a question. The next slide will provide the answer.

Nothing to turn in here - this is simply to help you understand basic concepts.

# Before we get started.....

- What do we mean by “remote” eggtake?
- How might this differ from a hatchery eggtake?
- What kinds of stuff will we need?
- How to prepare?





# Fish Transport Permit

- As previously mentioned all projects require a Fish Transport Permit.
- Depending on how well you did your homework ADFG may require additional information to insure the project is consistent with the guidelines established for state enhancement projects. All these issues are addressed in the permitting process.

FTP Review

# Fish Transport Permit Approval Process

PROJECT LEADER



Submit FTP Application



Regional Planning Team Review



ADFG Review



ADFG Commissioners Approval



# Collecting Eggs in the Wild

- Remote Egg Takes are expensive /plan well
- Develop a checklist !
- Do a site survey before mobilizing a crew
- Available brood fish will likely vary from year to year
- Be prepared to go on short notice and be prepared for an extended stay if the weather sours.





# Plotnikof preparations











*Plan carefully – plane rides aren't cheap!*





Plotnikof Lake cabin – it's not always this nice at camp.....





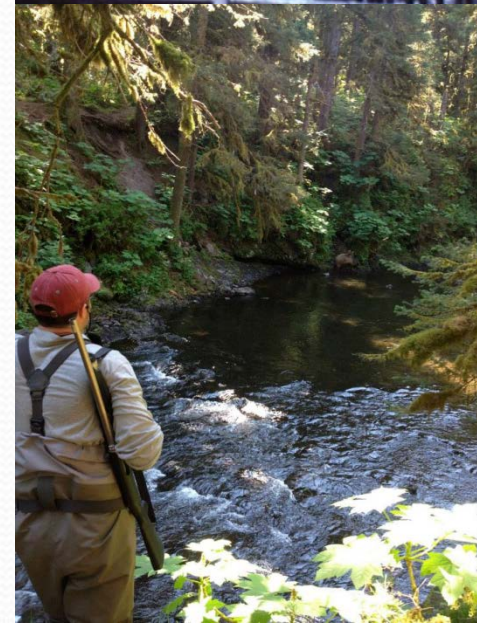


Personal hygiene facility at Plotnikof – note dental hygiene facility for bears.....



# Brood Stock Capture Methods

- Seine
- Gillnet
- Snagging
- Electro Fishing
- Weirs





# Seine

When using any capture method it is very important to treat the fish as gently as possible unless you plan to spawn it immediately.

Rough handling will result in mortality, many times on remote egg takes every fish counts.





# Gillnet/Tanglenet



- Properly sized gillnets are effective even if you plan to hold fish long term in pens until mature.
- The net needs to be sized such that the fish becomes entangled and not actually gilled.



Do not snag the fish in the  
body cavity



**The SnagMastah 8000  
series!**





## Beach Seining at Plotnikof Lake





## “Sport” fishing method at Plotnikof





## Side benefit of sportfishing for broodstock







Learn from the pros.

CLASSROOM AND FIELD BASED  
ELECTROFISHER TRAINING.

# Electrofishing



Smith-Root  
LR-20B Electrofisher

\$7,527.00



Smith-Root  
LR-24 Electrofisher

\$9,527.00



<http://www.smith-root.com/>

**Lots of great videos on this site!**



# Weirs

Adults can be collected at a weir and transferred to holding pens.





# Brood Stock Holding

- Net pens
- Cages
- Predator Proofing pens/cages
- Bright fish do not hold well and die easily, also it is very unlikely you will be able to hold them long enough to mature.
- Discard obviously injured, diseased or partially spent males and females.
- Minimize handling whenever possible and be gentle.



# Brood Stock Holding Basics

- Hold males and females separately, reduces excess handling and allows accurate accounting.
- Remove mortalities daily if possible.
- Pen density generally should not exceed 10kg/m<sup>3</sup> @ 10 centigrade. Fish mature more slowly at colder temperatures but can be held at higher densities. (do you guys know how to figure this out?)
- For every increase or decrease of 2 degrees C temp. Density can be adjusted 5 - 10%.
- Best measure of safety is to insure at warmest time of day DO does not drop below 6.5ppm.



If you have some spare time  
while out in the field.....





Many types of holding containers –  
depends on location, size of eggtake, and  
other factors





Pens need to be portable, yet sturdy





## 1 of 3 Plotnikof holding pens

Issues we had to consider:

- Wind
- Bears
- Otters
- Debris
- Accessibility
- Portability





Plotnikof brood to holding pens, keep inventory – don't forget a pencil!





# Egg Take Procedures

- When collecting eggs from wild fish the guidelines established and described by ADFG in the Alaska Sockeye Salmon Culture Manual should be applied to all species except Pink and Chum salmon.
- *Pink and Chum salmon are not susceptible to many of the diseases that can be controlled at the time of egg collection therefore sterile spawning techniques with these species is not critical.*
- Lay out all equipment and assign specific tasks. There should be a clear project leader.



# Iodophors – for disinfection of fish, tools

- All males and females are dipped into an iodophor bath to disinfect the outside of the fish. Iodophor is effective at killing bacteria and viruses.
- Iodophor baths can be made from any available water source. The most common brands of iodophor are Betadine and Argentyne.
- Betadine = 1% active ingredient iodine – medical grade - expensive
- Argentyne = 1% active ingredient plus buffer



# Iodophor Stock Solution



- Iodophor solutions are prepared @ 1:100
- Betadine 1 part iodophor to 100 parts water
- Buffering the solution with .7 grams of baking soda/liter will keep the solution at a pH of 7.0 and neutralize acid.



# Step by Step Remote Egg Collection **Fertilized** & **Water Hardened in the Field**



For Sockeye:

- Disinfect external areas of fish. Diseases can be transmitted horizontally
- Use spawning racks do not lay fish on the ground (**why?**).
- All zak knives and utensils including hands are disinfected between each female with iodophor.



# Step by Step Remote Egg Collection – fertilized onsite



- Eggs are spawned into a clean disinfected container and sperm from two males is added.
- Gently stir then activate sperm with virus free water (could sub iodophor sol'n).
- Allow a contact time of 60 sec. to insure adequate time for fertilization.
- Rinse eggs with iodophor to remove excess sperm, blood and broken eggs.



# Step by Step Remote Egg Collection – fertilized onsite



- fill each container with iodophor.
- Allow eggs to sit covered and protected from the sun for 1 hr.
- Keep the eggs cool.
- Drain and rinse with virus free water.
- Eggs can be packed for shipment in a variety of containers.
- Place in coolers with ice, it is very important to insure that eggs do not come into direct contact with the ice. They will freeze.



## Eggs and Sperm Shipped as *Separate Gametes*



- Procedures are the same up to removing the eggs from the female.
- Eggs are spawned into individual ziplock bags (or other type of container). Bags are placed into cooler in layers. Each layer is covered with burlap cloth and iced to prevent freezing.
- Eggs can be kept cool and held overnight for shipment the following day.



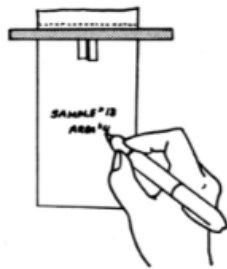
# Eggs and Sperm Shipped as Separate Gametes



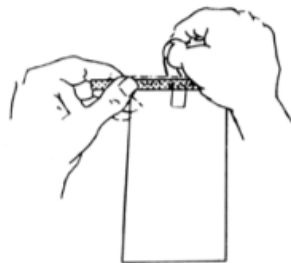
- Males are stripped into individual whirl packs. Each Whirl Pack is then filled with oxygen from a cylinder with a low pressure regulator.
- It is especially critical to keep Whirl Packs cool but do not allow direct contact with ice. Sperm freezes easily. Sperm, on ice in an oxygen enriched environment, can be held over night (as well as eggs).
- If I didn't explain how these work very well, check out:  
[https://www.youtube.com/watch?v=gEBXHfi8B\\_E](https://www.youtube.com/watch?v=gEBXHfi8B_E)



## INSTRUCTION SHEET FOR **WHIRL-PAK**® SAMPLE BAGS



1. Label the bag with sample information if necessary.



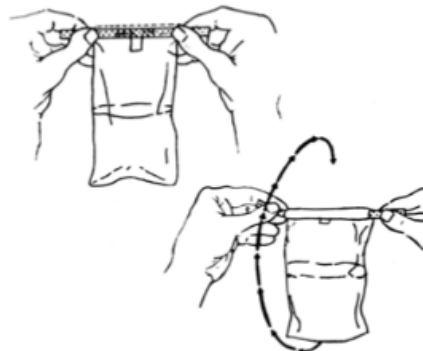
2. Tear off the top of the bag along the perforation.



3. Use pull tabs on each side to open the bag. Sometimes a little pull on the bottom of the bag helps open it completely.



4. Put sample, liquid or solid, into bag. Leave enough space at the top for closing and mixing if needed.



5. Pull the ends of the wire to close the bag. Holding the bag by the wire ends, whirl the bag three complete revolutions to form a leakproof seal. Whirling the bag will form the tightest seal. Larger bags can be closed by "folding" the tab over as tightly as possible.



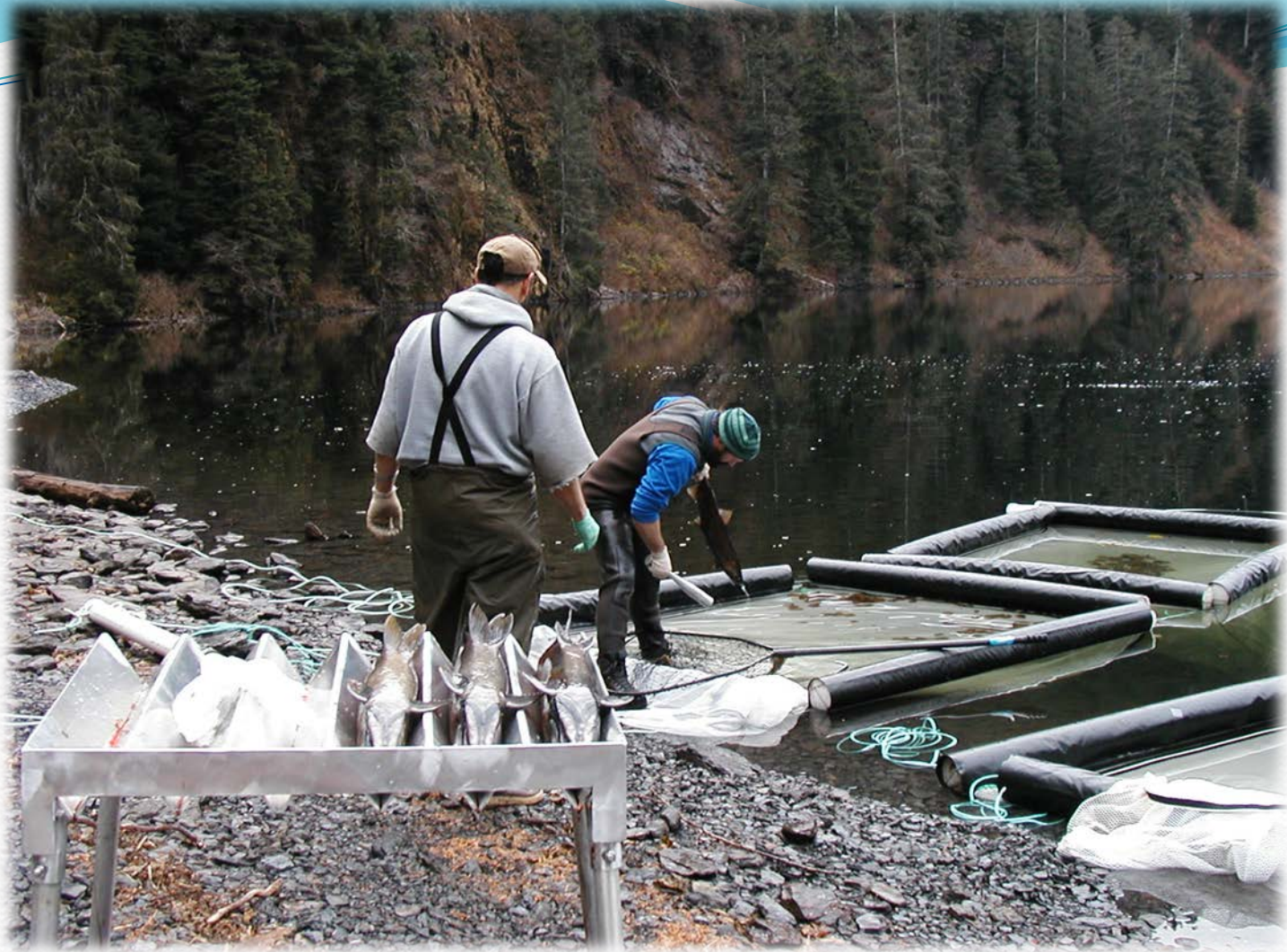
6. Bend the wire ends over onto the bag to complete the closing.



# Plotnikof coho – separate gametes







- **Sorting and killing females**
- **Make sure you made the weather call first!**





Wiping broodstock with iodophor solution





- Females wiped down and tails cut
- Coolers in background are set up with ice/snow and burlap
- Plane has been scheduled for pick up





- Females are spawned into numbered ziplocks
- If it had been raining we would have had to set up a tarp or other cover





- Remember the slide that mentioned not putting fish on the ground?





- Eggs ready to put ice
- Important to pay attention to details: proper packing for shipment and correct labeling



## Samples for BKD testing



- Similar to procedure at hatchery
- Proper labeling and disinfection between individuals is imperative
- These fish were actually pretty disgusting – 25% positive





Kidneys: just a pinch *between your cheek and gums* will last you all day.....



# No “live” class on 10/12.

- Watch video about incubator types and function listed under Course Content. (Aaron – this is on the zip drive at UAS/ Kim Davis)
- Take notes as you watch of info you don't understand/questions you may have.
- Post to the Discussion Board to receive Participation Points for 10/12.
- Note: this video actually IS well done.....had someone along who knew what they were doing!
- About 36 minutes long



# Assignment 5

- watch the short videos on remote eggtakes which you can find under Course Content/Resources/Weblinks/Remote eggtakes
- Provide a short summary of each
- Write down any questions you may have about the remote eggtake process – we can go over them in class
- Due by 10/19/16

