**Alaska Salmon Culture 1 - Exam 3**
**12/6/16**
**Due: 12/16/16 by 5pm  No Late Work Accepted!**

1. Describe gas super saturation, why it is a problem in fish culture, and list two methods of reducing it. Give a brief description for each method.                                        **10pts**

2. Go to http://mtalab.adfg.alaska.gov/OTO/reports.aspx and perform the following operation:
   a. go to Voucher Summary Report
   b. Run a report to find marks for Broodyr 2006 chinook at NSRA, all hatch codes
   c. list the results
   d. what is a "Hatch Code"? The answer can be found at the website.           **15pts**

3. We discussed three different methods of temperature manipulation for otolith marking.   For each method:
   a. List one advantage and one disadvantage for the method
   b. Provide an example of why a facility would want to use the method
   c. The question relates to methods used tovary temperature in order to lay down a good mark                                                                      **15pts**

4. We talked about the various types of salmon enhancement projects this semester.   For each of the following provide:  name of the project, location, organization associated with it, basic objectives and how they achieve them.
   a. Lake rearing
   b. Lake fertilization
   c. Fish stocking
   d. Remote rearing
   e. Hatchery facility                                                                   **25pts**

5. We discussed "White Spot Disease" and "Bacterial Gill Disease" in the "Hatch and Early Rearing" session.   Go to "ADFG Common Diseases of Fish" found under Course Content/Readings and find out a bit more.   Answer the following about these two common diseases:

   a. What are the causes of the disease?
   b. How do you treat for them?
   c. Are there ways to avoid the problem?                                          **10pts**

6. Regarding the presentation on 12/7:
   a. What is the name of the hatchery Al Seale manages?
   b. What association operates the facility?
   c. What species are mentioned?                                                   **10pts**

7. Yolk Sac Pellet sampling:
   a. Why is yolk sac pellet sampling important?
   b. For which 2 species is this particularly important?  Why?
   c. How is the % yolk sac pellet calculated (or what is it a comparison of)?
                                                                                      **15pts**