



Kokanee Karnival Youth Education Program

Fish Eggs to Fry Elective

Classroom Program Curriculum

Introduction

Fish Eggs to Fry is an elective program in Kokanee Karnival. Each class in this program has an incubator in the classroom provided by Kokanee Karnival or ODFW. There are two times when eggs are delivered, some classes receive eggs in the fall but the majority of the classes receive trout eggs in the spring. All the egg deliveries are scheduled on the same day in the fall or spring.

Background

ODFW maintains a list of the teachers who have elected to have their class participate in this program and volunteers who have expressed interest in delivering eggs to the classrooms. ODFW contacts the teachers about four weeks prior to egg delivery to have the teachers make sure their incubator is functioning and that the teacher has the necessary equipment and to inform the teachers of the date that the eggs will be delivered. ODFW also contacts the volunteers to verify they are still willing to participate in egg delivery. ODFW asks how many classes the volunteer is willing to be assigned. In most cases the volunteer receives two or three classes. ODFW tries to make sure the classes assigned are in the same relative area or are in the same school.

The volunteer should contact the assigned teachers at least one week prior to the egg delivery date to schedule a time for delivery. The classroom presentation requires about 30 minutes.

On the day of egg delivery, the volunteer will pick up the eggs at ODFW. The volunteer should bring a small cooler with some ice. ODFW will have packets of eggs wrapped in moist paper towels. Each packet contains 200 eggs. The eggs are in the eyed eggs stage. The volunteers also receive a folder with information that is given to the teacher. The folder contains supplemental information for the teacher to use with the class. The folder also contains a form stating the stage of egg development and forms for recording the daily monitoring information.

It is important for all volunteers to report the hours and mileage they provided for the egg delivery to ODFW because ODFW needs this information as a part of their overall volunteer participation program.

Daily the class monitors water quality and the number of eggs, alevin and fry that survive or die. When the project is complete the class releases the fry into a water body designated by ODFW.

Classroom Presentation

The first thing volunteers should do is to introduce themselves to the class and tell them who they are representing (aka fishing club). Tell them you have 200 eggs for their incubator in the cooler. The highlight for the students is seeing the eggs before they are placed in the floating hatching tray in the



incubator. There are several topics the instructor should cover before placement of the eggs. The goals of the presentation are to give the students information and to encourage them to participate in the discussions.

Each class should have the egg to fry exhibit with four glass cylinders containing green eggs (early stage of development after fertilization), eyed eggs, alevin, and fry. Use this exhibit to relate what you are talking about to what they can see.

The eggs will either be steelhead or rainbow trout. Ask the students if they know what kind of trout we have in Oregon. Answers should include rainbow, brown, brook and bull. Ask if they know the difference between a steelhead and a rainbow trout. Steelhead migrate to the ocean and then come back to the rivers to spawn while rainbow trout remain in the stream. Salmon migrate to the ocean also. Ask if they know the difference between salmon and steelhead. Answers should be that salmon die after spawning but steelhead can migrate and spawn several times.

Tell the students these eggs are from fish raised in a hatchery. Ask the students if they know what a fish hatchery is and why we have hatcheries. Some of the classes are in the Kokanee Karnival Comprehensive Program and these students learned about hatcheries. Other classes will need the explanations. Ask the students if they know why we need hatcheries. Answers will include to raise enough fish for people to catch, to supplement fish in streams where there are limited fish reproducing and to help threatened and endangered fish species populations.

Tell them the hatchery people gather the eggs from the female fish and milt or sperm from the male fish and mix them to fertilize the eggs. Tell the class the eggs look like the green eggs in the cylinder in the exhibit after fertilization. The eggs are raised at the hatchery until they are large enough fish to stock in the lakes and streams of Oregon. The hatchery workers monitor water quality daily just like the students will do. The hatchery workers take the dead eggs out of the incubators just like the students will do. The hatchery workers raise the fish until they are old enough to release just like the students will do. Tell the student that their raising the eggs in the classroom is just like the hatchery workers.

Ask the students if they know why they have to take the dead eggs out of the incubator tray. Answer the dead eggs can get a fungus and that can kill healthy eggs.

Ask the students about wild fish and how the fish build a nest when they spawn in rivers and streams. Ask if they know what spawn means. Ask what a fish nest is called in the stream – a redd. Describe how the fish spawn, how the eggs are deposited in the redd and that the fish then cover the eggs with gravel to protect the eggs.

Tell the students after a while the eggs develop into eyed eggs. Ask if they know what the eyed egg is. Use the exhibit to show them the cylinder that contains the eyed eggs. Now tell them you are going to go around the class so they can all see the eyed eggs. This is a lot of fun for the students. Open the egg packet and hold it in your hand keeping the eggs on the damp paper towel. Depending on the stage of development of the eggs, the embryo may twitch due to the warmth of your hand. Students really get excited about this. Make sure each student has the opportunity to see the eyed eggs. In some packets of



eggs there may be dead eggs that are whitish colored. Point these out to the students so they can tell the difference between live healthy eggs and dead eggs.

While walking around remind the students that these eggs are out of water. Ask the students how fish breathe. Answer should be using gills. Ask if fish can breathe out of water. Ask if the eggs are out of water how do they breathe. Answer is the eggs absorb oxygen through the egg membrane and that is why the eggs have to be kept damp.

After showing the eggs to the students it is time to put the eggs in the floating incubator tray. If you are working with 5th grade students, ask the teacher if they want to designate a student to put the eggs in the tray. With 4th grade students it is often necessary for the teacher to pick a student to help you do this task.

After you place the eggs in the incubator ask the students if they know what the fish are called when they hatch. Alevin. Show them the cylinder that contains the alevin in the exhibit. Tell them in the wild it takes about 2 to 4 weeks for the eggs to hatch depending on the water temperature. Ask the students what the alevin eat. Describe how the alevin live in the gravel for 2 to 3 weeks existing on the egg sac.

Now ask what the fish are called when the alevin use up the egg sac and come out of the gravel. Fry. Show them the cylinder that contains the fry in the exhibit.

Review the life stages with the students by asking what is the first stage – ans. green eggs, second stage – ans. eyed eggs, third stage – ans. alevin and finally small fish – ans. fry.

Significant Vocabulary:

- Hatchery
- Green eggs
- Spawn = laying eggs and depositing milt (sperm)
- Redd
- Eyed eggs
- Alevin = stage of a fish that carries an egg sack
- Fry = small fish that feed mainly on zooplankton

Monitor your time and if time remains ask the teacher if it is ok if you take some time for the students to ask questions. You need to limit the number of questions because the students can go on with this for a long time. Keep answers short and simple. This helps to get the maximum number of questions and students participating in the allotted time.