

adult



egg



alevin



Scales & Tales!

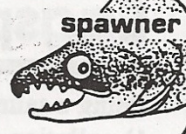
fry



smolt



spawner



Not Eggsactly Eggciting

"Some animals are born ready for action. Many animals are born looking like miniature copies of their parents. Most animals are born with at least one parent still alive. Me, I'm a salmon egg and I have to fill in 'none of the above' to all of the above."

"I'm not exactly complaining, but life so far, as a salmon egg, has all kinds of down-sides and, quite frankly, not too many perks."

"The biggest drawback is that, although 2500 of us were laid in this underwater gravel nest (redd), only one in ten of us will ever see the light of day. That's because we are so sensitive. The least disturbance of the streambed means death to most of us. Changes in water level will kill hundreds of us. Add predators, siltation, pollution and disease to the list and that leaves very few survivors. Those of us who do live do so

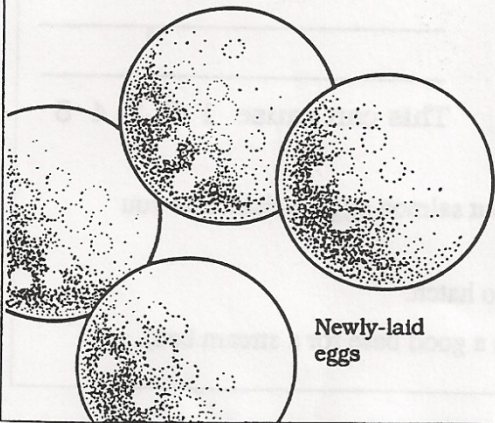
in the dark. We salmon eggs are not high profile creatures until later in our lives.

"Enough of doom and gloom. On the positive side, I am orange, I am about 7 millimetres in diameter and I weigh almost 220 milligrams. My shell is soft and transparent. It's made up of two layers - the outer casing and a membrane on the inside.

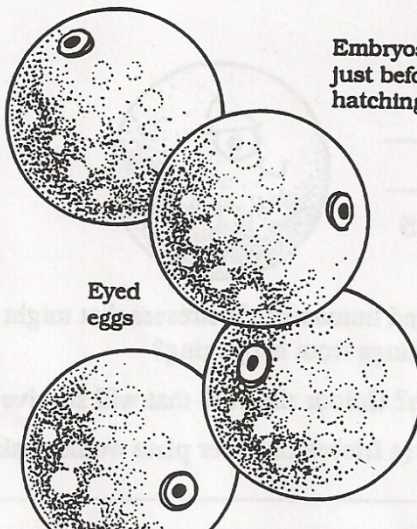
"I would like to say that I have some control over my own development but, like most young critters, I don't. Technically I'm known as an embryo, but that doesn't mean much to me down here in the dark. Soon I will have an eye but I don't think that will make a great deal of difference. I am growing inside this shell but my

rate of development depends on the temperature of the surrounding water. The warmer the water the faster I grow. Of course, being a cold water species of fish, I can't tolerate temperatures below freezing or above 20 degrees Celsius.

"I've just about eggshasted (couldn't resist the pun) the pros and cons of life as a salmon embryo. I can hardly wait until I hatch, which will happen in about 3 months. I bet you can hardly wait either because that will mean you will get to read another chapter in the continuing story of, 'The Phantom of the Redd.'"



Newly-laid eggs

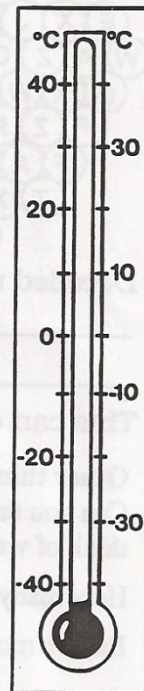


Eyed eggs



Embryos just before hatching

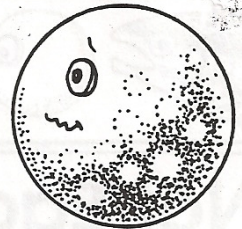
What do you think the water temperature is today? Indicate the temperature on the thermometer.



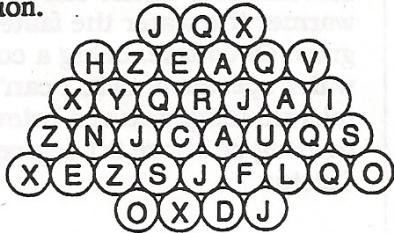
Eggsposed to Danger!

Being a salmon egg is risky business. Some of the conditions that kill salmon eggs are:

- 1) pollution
- 2) movement
- 3) siltation
- 4) extreme temperatures
- 5) a change in the water level

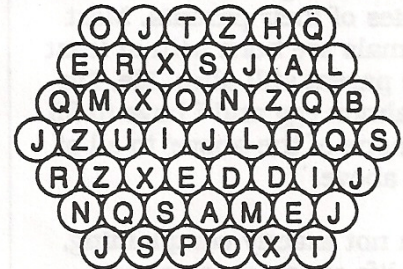


Hidden in each of these groups of eggs is a situation that may cause one or more of these conditions. To find out what's happening to put these salmon eggs at risk, decode the message by crossing out eggs marked J, Q, X, or Z. Then circle the condition(s) (1, 2, 3, 4, and/or 5) that might be caused by that situation.



Decoded message:

This can cause 1 2 3 4 5



Decoded message:

This can cause 1 2 3 4 5



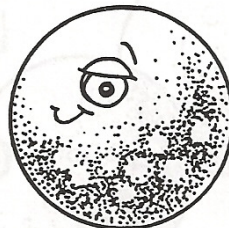
Decoded message:

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Decoded message:

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Decoded message:

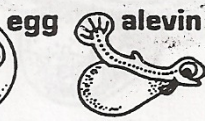
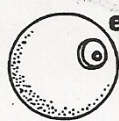
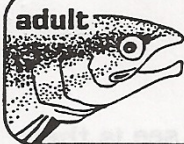
This can cause 1 2 3 4 5

Other things to do:

Can you think of other natural and human-made stresses that might put salmon eggs at risk? Can you think of ways to prevent these things from happening?

How many eggs are on this page? Colour the 10% that will survive to hatch.

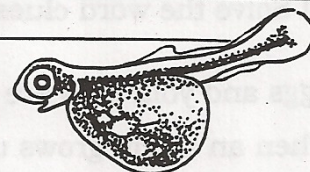
Build a model of a salmon redd (a frisbee or paper plate would make a good base for a stream bed).



Scales & Tales!



Lunch bags for little fish



Bet you don't recognize me. I'm still down here in my under-gravel redd. I'm still pinkish orange and fragile but I'm not round anymore and I'm no longer a salmon egg. I'm still me but now *I'm an alevin!*

Let me explain. When salmon eggs hatch they are called alevins. Two days ago I hatched so that makes me an alevin.

Don't worry. I'm not going to fill you in on every little detail of my life, but I would like to share some things with you. First of all, I have a very weird shape.

That bulge on my underside is my yolk sac, and although it's a little bulky-looking I may as well get used to it. For the next 30 - 50 days it's going to be my food cupboard.

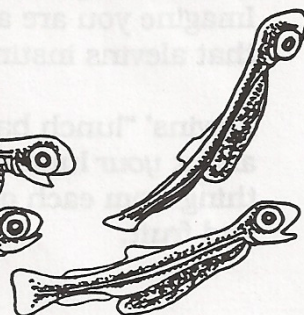
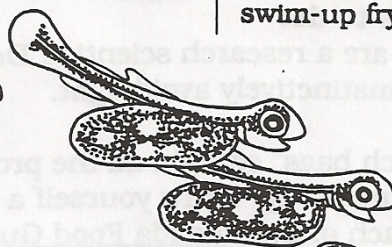
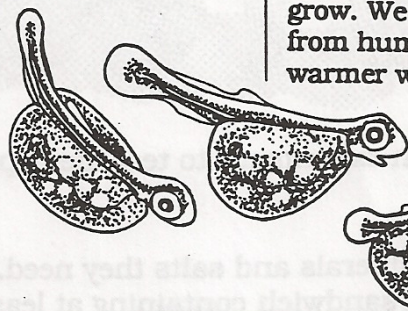
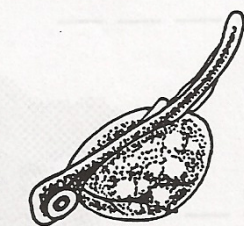
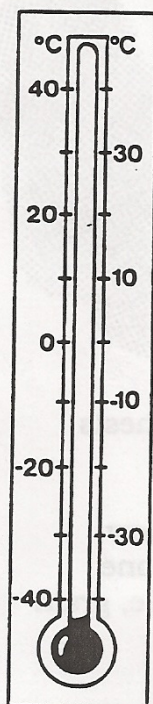
This yolk sac of mine contains all the protein, minerals and salts that I will need for my living and growing. All those goodies (but no junk food) are packed in my own little attached lunch bag. As my body grows bigger my yolk sac gets smaller. By the time I am ready for real food, I will be slim enough to wiggle my way up and out of my gravel nest. Then it will be goodbye, redd; hello, swimming around in the water.

I'd better not get too far ahead of my alevin story. I get impatient because I have so little control over my development - everything depends on the water temperature. The warmer the water, the faster I grow. We sure are different from humans. When we "talk" warmer water we're not talk-

ing bathtub warm. (Remember we salmon are cold-water fish.) When the temperature gets above 14° C we get very uncomfortable.

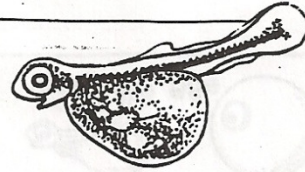
Speaking of differences, are you afraid of the light? I didn't think you were but I sure avoid it. No night light for me. The darker the better. I'm not absolutely sure why I wiggle away as quickly as I can if any light penetrates down here. It probably has something to do with the fact that alevins are fragile and defenceless. We don't exactly blend in with the gravel or did you forget that we are orange? Anyway, I don't really think about the avoiding-light thing. I just respond. Light comes; I hide.

Well, that just about wraps up this action-packed episode of "All My Offspring". Please tune in two months from now when you will find out if the little alevin used up all her yolk sac and wiggled out of the gravel to become a swim-up fry...Exciting stuff!



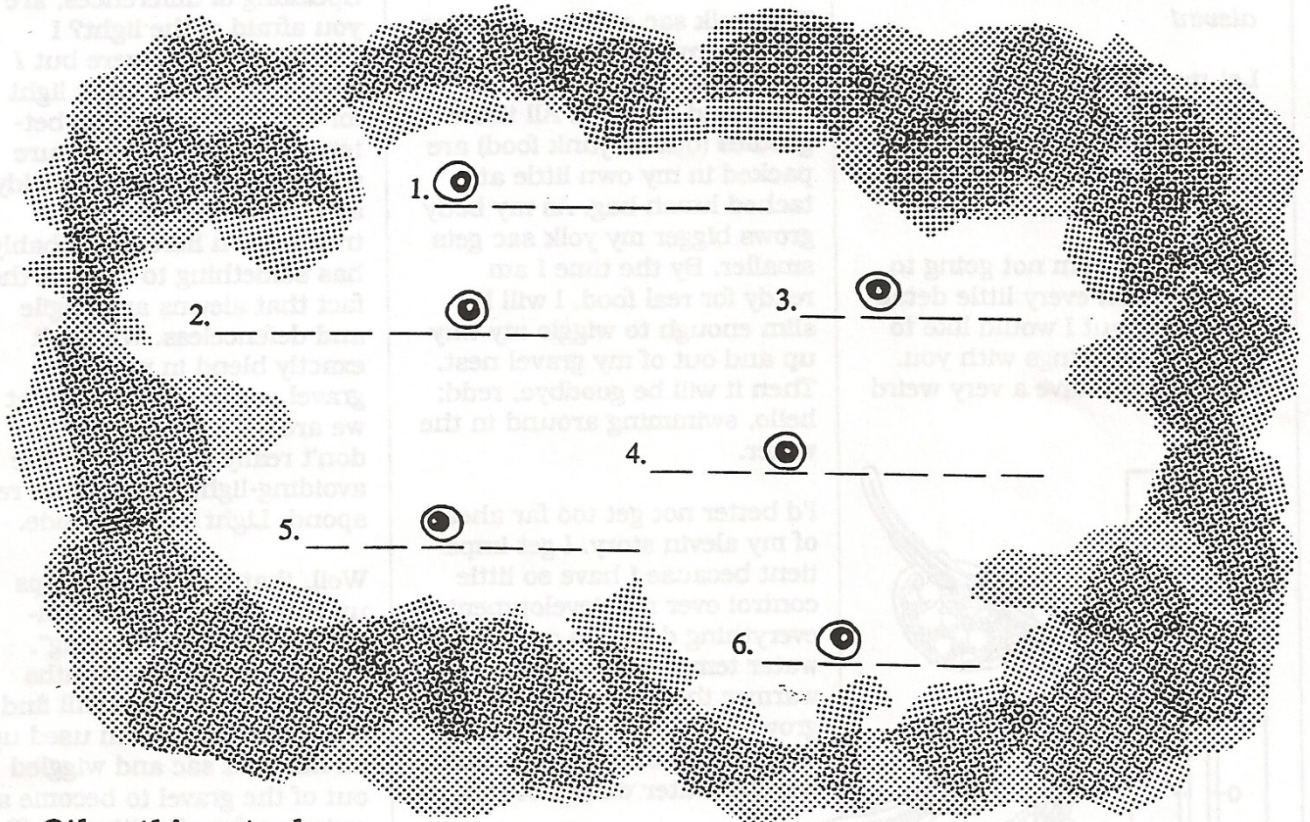
These alevins are growing quickly, and using up their yolk sacs as they do. The water must be at a suitable temperature for their development. Mark water temperature on thermometer.

Down in the Dark



These alevins are hiding in the gravel. It's so dark down there, all you can see is their eyes! Solve the word clues and fill in the blanks, using the eyes for the letter "O".

1. Eggs and yolk sacs are coloured _ _ _ _ _
2. When an alevin grows up, it becomes an adult _ _ _ _ _
3. The mixture in an alevin's "lunch bag" is called the _ _ _ _ _
4. Alevins need _ _ _ _ _ , minerals, and salts to grow.
5. Alevins grow more _ _ _ _ _ if the water is too cold.
6. Salmon are _ _ _ _ _ -water fish.



Other things to do:

Imagine you are a research scientist. Design an experiment to test the hypothesis that alevins instinctively avoid light.

Alevins' "lunch bags" contain all the protein, minerals and salts they need. How about *your* lunch bag? Draw yourself a big, fat sandwich containing at least one thing from each of the Canada Food Guide food groups: dairy, meat, vegetable, grain and fruit.