

Fishy Tales: Student Handout

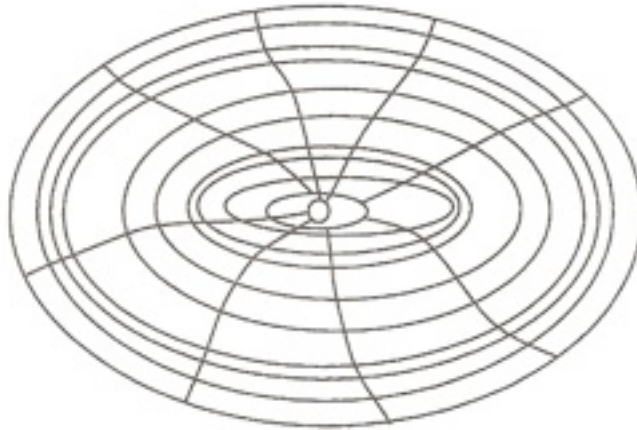


Diagram of an
idealized fish scale

1. Scrape away a few scales with the tweezers. Soak the scales in a small jar or beaker of warm water to which a few drops of dish detergent have been added. Stir the water vigorously to remove mucus and other materials from the scales.
2. Remove the scales from the water solution and blot them of a piece of paper towel. Mount the scale for observation by placing it between two microscope slides and wrapping masking tape around each end of the slides to flatten it and keep it in position.
3. Observe the scale and sketch an illustration of what you see, labeling the visible structures using the diagram above. Try to determine the age of the fish by counting the annuli.
4. Highlight the growth differences on your sketch: Color large growth season red and limited growth seasons blue.

Questions for discussion:

- Assume the idealized scale above came from a fish that grows best in warmer waters and that one degree of temperature leads to 1mm growth difference. The average water temperature of this fish's habitat was 11°C in the last season before you removed the scales. Suggest an average water temperature for the season prior. Could fish be used as a bioindicator of climate change?
- We have assumed your observed scales came from a fish that spent all of its life within one geographic area. How would your scales look different if the fish migrated from one area to another? Do your scales indicate that the fish may have migrated?
- What factors would cause a fish to grow slower? What factors would cause a fish to grow faster?