DATA *Nugget*

Testing the waters for oyster farming
Featured scientists: Amanda Glazier and Jane Churchill from Prince William Sound College. Written by Melissa Kjelvik.

Research Background:

With so much coastline, Alaska has many opportunities for **mariculture**, which is the farming of food in the ocean. Large-scale mariculture is still new in Alaska, but interest is growing quickly because it can provide jobs and food for small coastal communities.

Alaska's cold, clean waters are ideal for growing oysters. Oysters usually stay on a farm for several years until they are large enough to sell. Farmers want oysters to grow as quickly as possible so they can sell them sooner. Because oyster farming is still fairly new in Alaska, research needs to be done to find the best ways to grow oysters successfully.

Amanda is a marine researcher who lives and works in Valdez, Alaska. She wants to figure out which methods are most effective for oysters to grow. She can then share her findings with farmers to help them. Amanda partnered with members of the Valdez Native Tribe who were interested in growing oysters in the area.

Amanda started monitoring the oysters every year to document their growth. A few years after the farm was set up, she visited the site and noticed that the oysters had not survived the summer season. Amanda wanted to find out why this happened so they could prevent it from happening again in the future.

Jane monitoring the Valdez oyster farm.

Amanda had a few ideas about what might be affecting the oysters. She noted that the oysters were all in **surface baskets**, which float at the top of the water. She also observed that the year that all the oysters perished, Valdez had heavy rainfall. Amanda knew that rain can lower **salinity**, or the amount of salt in ocean water, near the surface. Freshwater from rain flows into the ocean and can stay on top if it does not mix well with saltwater below. When salinity becomes too low, oysters close their shells and stop feeding and growing.

Amanda asked one of her students, Jane, if she wanted to do an independent research project to test a new type of home for oysters. They explored the use of **lantern nets**, which are a different setup that holds oysters below the surface of the water instead of floating on top. These nets hang straight down and are about 3 meters long. They also have several levels, allowing oysters to be placed at different depths so Amanda and Jane could see where the oysters grew best.

Amanda with a surface basket (left), Jane holding up a lantern net (right).

To test salinity levels and oyster growth at different depths, Amanda and Jane set up a new study at the Valdez farm site. In April 2025, they brought very small, young oysters to the farm. They weighed out equal amounts of oysters and placed some into three surface baskets and some into different levels of two lantern nets.

Over the summer, Jane visited the oyster farm every two weeks to measure salinity. She looked at four different depths: surface (0 meters), 1, 2, and 3 meters deep. This way, she could see whether the freshwater inputs make the surface water less salty. In October 2025, Jane and Amanda measured the oyster size at the end of the summer to see how much they had grown. They compared the length of oysters from the surface baskets and from the different levels of the lantern nets.

Scientific Question: How do salinity and oyster growth change at different water depths?

Scientific Data:

Use the data below to answer the scientific question:

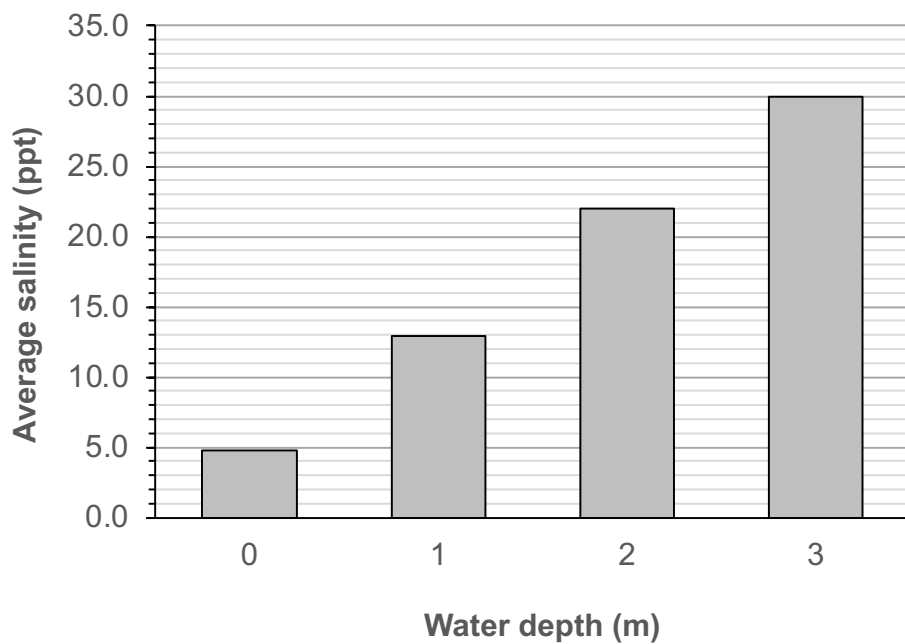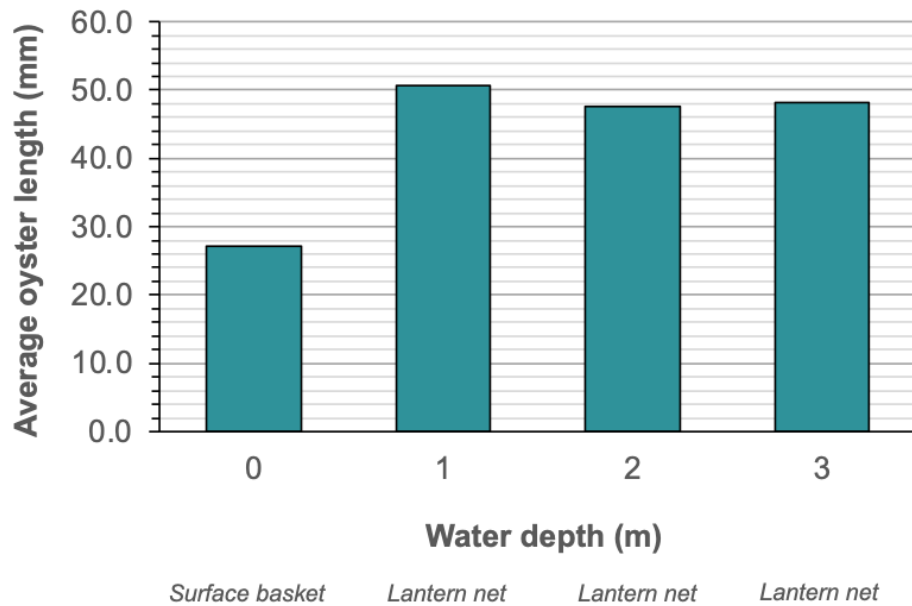|	Water depth (m)	Average oyster length (mm)	Average salinity (ppt)
Surface basket	0	27.1	4.8
Lantern net	1	50.7	12.9
Lantern net	2	47.6	22.0
Lantern net	3	48.3	30.0

What data will you graph to answer the question?

Independent variable: _____

Dependent variable(s): _____

_____

Below are graphs of the data: Identify any changes, trends, or differences you see in your graphs. Draw arrows pointing out what you see, and write one sentence describing what you see next to each arrow.

Average oyster length (mm) vs **Water depth (m)**

Surface basket	*Lantern net*	*Lantern net*	*Lantern net*

Average salinity (ppt) vs **Water depth (m)**

Interpret the data:

Make a claim that answers the scientific question: How does salinity and oyster growth change at different water depths?

What evidence was used to write your claim? Reference specific parts of the table or graphs.

Explain your reasoning and why the evidence supports your claim. Connect the data back to what you learned about how low salinity can harm oysters.

Apply this research: Farmers want their oysters to grow quickly so they can sell them sooner. If you were starting an oyster farm in Valdez, would you choose surface baskets or lantern nets? How did the results from this study help you decide?

Your next steps as a scientist: Science is an ongoing process. What new question(s) should be investigated to build on Amanda and Jane's research? How do your questions build on the research that has already been done?

What future data should be collected to answer your question?

Independent variable(s): _____

Dependent variable(s): _____

For each variable, explain why you included it and how it could be measured.