

Sea Lion Feeding Frenzy

What does sea lion feeding have to do with human health?

RESEARCHER:



Samantha Rae, MS Student in Comparative Health Sciences at Oregon State University. Researching Sea Lion Health and Immune Function with a focus on Coastal Contaminants



TEACHERS:



Nicole Kraynik, MAT - Middle School Science teacher in Bandon, OR



Jason Lipe, Science Teacher at Siuslaw High School in Florence, OR

Classroom: Middle/High School

Because of ORSEA:

We were able to collaborate and work as a team to create a unit based entirely on local scientific research. We were able to bring different perspectives to the table to formulate a beneficial scientific lesson. Students will gain a better understanding of the connections between living things and the impacts humans have on their environment.



Explanation of Anchoring Phenomenon

Sea lions have adapted the behavior of migrating miles upriver to feed on salmon at hydropower dams in the Columbia River Basin. What do these sea lions feeding have to do with human health?

Sea lions are prime sentinel species because they have long life spans, are long-term coastal residents, feed at high trophic levels, and have unique fat stores that can store contaminants. They can alert us to environmental and public health dangers when we are able to study them.

This marine research matters because:

Coastal and tribal communities rely heavily on fish runs for subsistence, economic, and cultural purposes. These communities are especially tied to fish health and susceptible to marine contaminants. Since sea lions are a sentinel species, scientists use the One Health paradigm to analyze the connection between contaminants, fish, sea lions, and people to make informed decisions regarding public health, environmental protection, and wildlife conservation.

Learning Plan Components

ENGAGE:

- Anchoring Phenomenon: Sea lions eating salmon at Bonneville dam
- Driving question: "What do sea lions feeding have to do with human health?"

EXPLORE:

- Bioaccumulation activity - modeling bioaccumulation and biomagnification
- Data analysis activity - analyzing sea lion diet data

EXPLAIN:

- Bioaccumulation and Biomagnification presentation - key vocabulary, factors, and case studies
- Sentinel species presentation - key vocabulary and examples

ELABORATE:

- Bioaccumulation extension activities
- Sea lions and the One Health Paradigm - independent reading comprehension or whole-class discussion
- ORSEA Career Connections activity - STEM career exploration and researcher bio

EVALUATE:

- Food chains and Biomagnification - modeling biomagnification
- Sentinel species research project - research and present how organisms can be used to alert us to dangerous conditions