

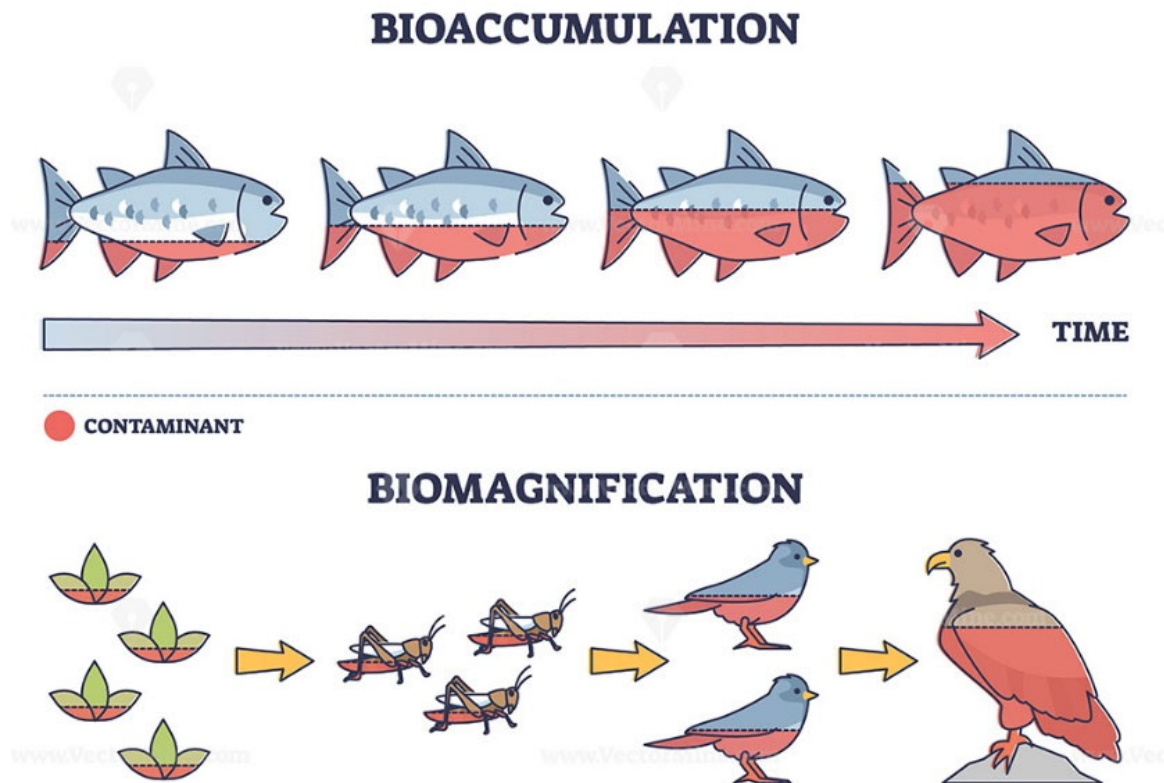
WILDLIFE QUESTIONS
OREGON ENVIROTHON 2022

(Total of 50 points)

PART A. Wildlife Ecology Concepts.

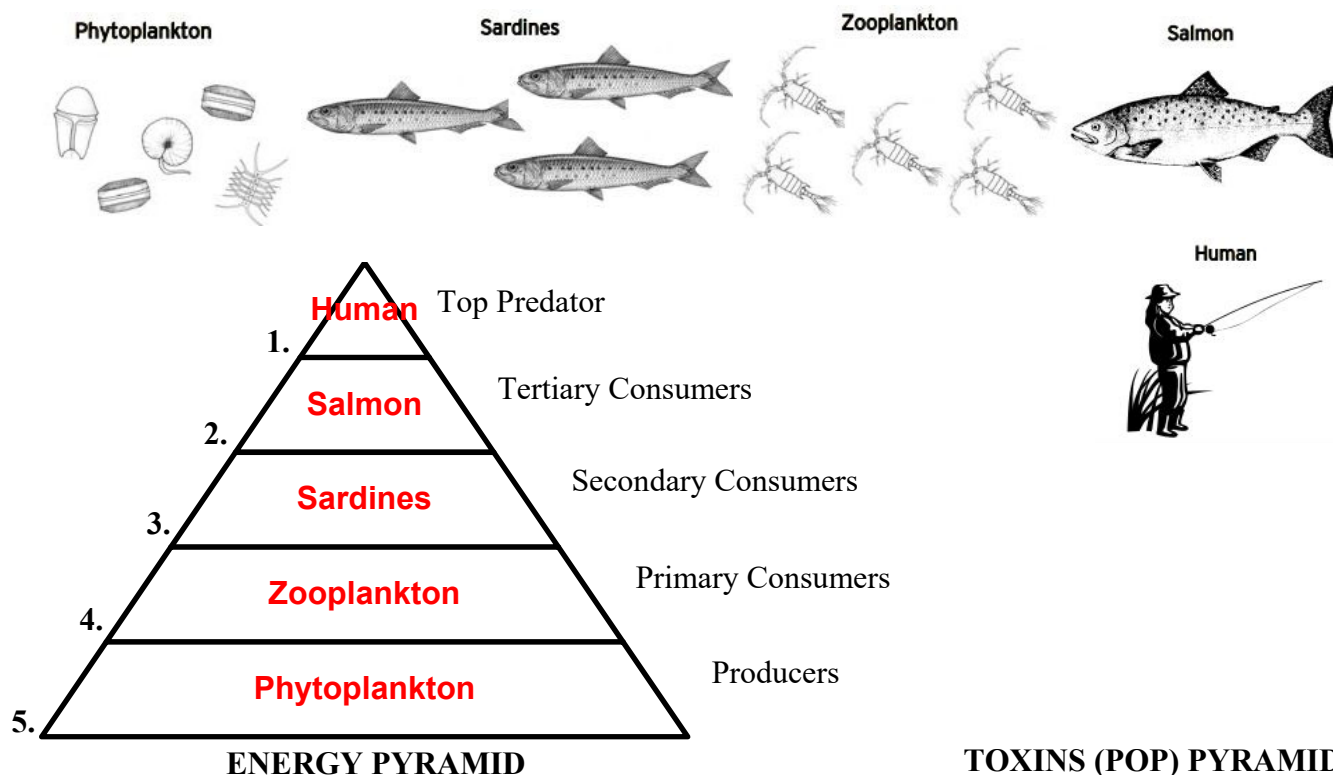
Background: Pollutants (like microplastics, PCBs, DDT, mercury, etc.) can have lasting effects on food chains through bioaccumulation and biomagnification. **Bioaccumulation** occurs when pollutants build up in a single organism's body over time. **Biomagnification** is a process where toxins may increase in concentration as they are passed up the food chain (see Graphic A. below). This leads to higher concentrations of chemicals in organisms higher up in the food chain.

The increasing presence of plastics in our environment and, more specifically, the ocean is a growing concern. Photodegradation and wave action on plastic marine debris create microplastics which marine organisms often mistake for food. Current research shows that plastics in the environment are also quite good at accumulating a class of chemicals called **persistent organic pollutants, or POPs**. Biomagnification of POPs occurs as they move up the food chain when predators consume prey, ingesting the POPs that have bioaccumulated in each prey item. Microplastics compound this problem by adding another more concentrated layer of exposure to the biomagnification process.

**GRAPHIC A**

Questions 1-5. [5 points]

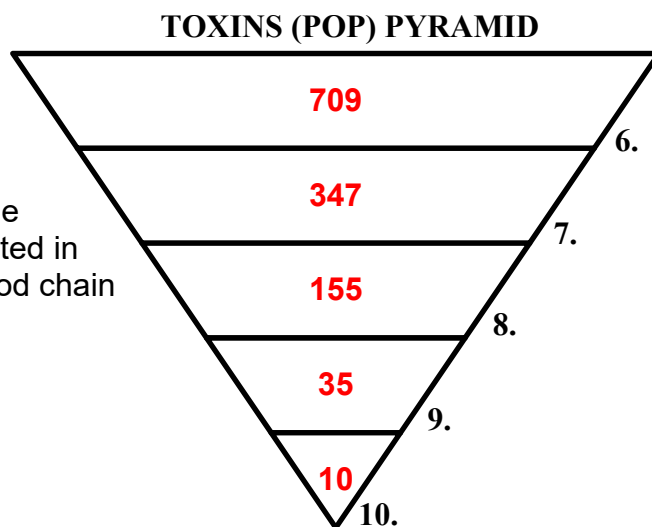
Below are 5 organisms in a marine environment. In the **ENERGY PYRAMID** provided, write in the organisms' names next to their consumer type in the food chain.



Questions 6-10.

In the **TOXINS (POP) PYRAMID** to the right, match the average number of POPs (below) that have accumulated in the organisms above to the appropriate level of the food chain using the numbers below.

155 35 347
709 10



Question 11. Based on the pyramids above, which organism would have the highest bioaccumulation of POPs?

_____ **Humans** _____

____ / 11 points

PART B: Wildlife Management Issue – Oregon Elk

Each Team should find a copy of a document entitled [Seeking Ground Less Traveled: Elk Responses to Recreation](#).

Don't worry; you will **NOT** need to read the whole thing. Instead, just skim this document to help you answer the following questions.

12. In this study, what was the most common tactic used by elk in response to human recreation? [1 point]

Flight/avoidance

13. Analyze the top right graph on page 4 and list the four outdoor recreation activities in order of most to least disruptive to elk. [4 points]

Most disruptive

Least disruptive

1. **All-terrain vehicles (ATV's)** 2. **Mountain biking** 3. **Hiking** 4. **Horseback riding**

14. At what distance did the most disruptive outdoor recreation activities trigger the elk's flight response? [1 point]

Over 1000 meters or 3,2180 ft.

15. Describe how health and reproductive capacity of elk is affected by increased outdoor recreation. [2 points]

Increased movement and flight (running) adds energetic costs and decreases foraging and resting times which can affect health and diminish their ability to reproduce.

16. What two data percentages from the elk fitbits indicate that habitat compression is occurring and why? [2 points]

44% percentage of elk locations detected during the recreation activities occurred in the 15% of the study area furthest from the trails. Elk sought refuge by crowding into a smaller range (creating reduced carrying capacity).

____/ 10 points

PART C: Wildlife Interaction: Oregon Doves
[Refer to book “*Birds of the Pacific Northwest*”]



Species A



Species B

Both of these doves are found in Oregon. Only one of the doves shown here is a native species, the other is a non-native commonly found throughout the Pacific Northwest and has rapidly colonized much of North America.

The non-native species is adapted to human settlement, readily eats at urban and rural bird feeders, and may aggressively chase away other birds which has spurred their range expansion.

17. Give the common name of Species A [1 point]. Mourning Dove
18. Give the common name of Species B [1 point]. Eurasian Collared-Dove
19. Besides their smaller size, list two other physical traits/differences that help identify the native species. [2 points]

Tail: pointed (showing black-tipped white feathers on sides)

Wings: black spots on wing coverts _____

Most musical call, mournful, and drawn-out (whooo-AHH whoo who-who) _____

Body: grayish tan above, warm light pinkish tan below _____

20. These two species utilize the same types of habitats and eat similar diets. Circle the term that best describe this type of interaction. [1 point]

Predation

Parasitism

Commensalism

Competition

____/ 5 points

PART D: Skins, Skulls, and Bones. [Refer to books “*Animal Skulls: A Guide to North American Species*”, “*Wildlife of the Pacific Northwest*”, and “*Falcon Guides: Scats and Tracks*”]

Your test station should have **field guides** and **materials** to help answer the following questions.

21. Examine and identify the **5 skins** of animals that are **found in Oregon**. Match the **Letter** attached to each **skin** to the correct mammal species in the list below. [2 points]

| | |
|------------------------------|---------------------------|
| ___ A ___ opossum | ___ C ___ nutria |
| ___ D ___ badger | ___ mink |
| ___ B ___ river otter | ___ gray fox |
| ___ E ___ red fox | ___ long-tailed weasel |
| ___ rabbit | ___ northern raccoon |
| ___ woodchuck | ___ yellow-bellied marmot |

22. Examine each labeled **animal skull** displayed on the table (**be gentle with them**). Assign each of the **6 skulls** to the appropriate animal. [6 points]

| | |
|--------------------------|------------------------|
| ___ C ___ coyote | ___ F ___ deer |
| ___ D ___ beaver | ___ G ___ bear |
| ___ E ___ raccoon | ___ H ___ heron |

_____/ 11 points

PART E. Identifying Tracks and Sign.

[Refer to books “*Wildlife of the Pacific Northwest*” and “*Falcon Guides: Scats and Tracks*”]

Track A

Scat or Sign



See “Track A” for reference

Background. This large and robust bird of prey species is renowned for its ability to hunt and tackle prey and has a widely varied diet.

Questions: [2 points]

23. What is the common name of this animal? _____ **Great horned owl** _____

24. What genus of birds does this species belong to?

_____ **Bubo** _____

Track B

See “Track B” for reference

Background. This rodent species is the largest of its kind, inhabiting oak woodlands, mixed broadleaf forests, riparian habitat, ponderosa pine forests, and parks. Acorns and conifer cones are a staple food source.

Questions: [2 points]

25. What is the scientific name of this animal? _____ **Sciurus griseus** _____

26. List the common name of the introduced species competing with it:

_____ **Eastern Gray Squirrel** _____

____ / 2 points

Track C**Scat or Sign**

See “Track C” for reference

Background. This slow-moving species that often climbs trees has specialized hollow hairs that are used as a defense mechanism.

Questions: [3 points]

27. What is the scientific name of this animal? _____ **Erethizon dorsatum** _____

28. This species has poor vision yet a good sense of ___ **smell** ___ and ___ **hearing** ___.

____ / 3 points

PART F: Species Identification. Use the available **field guides** to help you identify the following species.

Species A. This rodent is partial to conifer seeds/cones and fungi and has orange and yellow coloring that differentiates it from a closely related species. [2 points]

29. Give the Common Name: _____ **Douglas squirrel** _____

30. What is a collection of cones or discarded pieces around a feeding perch called?

_____ **Midden** _____

Species B. This limited range ground species with small populations is a candidate for both federal and state endangered species lists and has small white flecks on its gray back. [2 points]

31. Give the Scientific Name: _____ **Spermophilus washingtoni** _____

32. What is thought to be the reason this species is declining?

_____ **Habitat fragmentation** _____

Species C. This squirrel species uniquely uses forest environments and is abundant in open timberlands with rocky outcroppings. [2 points]

33. Give the Common Name: _____ **Golden-mantled ground squirrel** _____

34. What identifiable feature best distinguishes this species from others that is closely resembles (circle answer)?

No eye stripe

Tail held straight up

Alternate light/dark stripes on back

_____/ 6 points

Using the **field guides** provided, identify the species represented in the photos below. All of these species can be found in Oregon.



Species A



Species B



Species C

____ / 50 points TOTAL