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LESSON 3: THE ENVIRONMENT AND RESOURCES OF WEST POINT

SUBJECTS
Social Studies, Geography, Washington State, Archaeology, Earth Science
DURATION
30 to 45 minutes
CLASS SIZE
10 to 30 students

OVERVIEW

This lesson explores what archaeologists discovered about the past environment and natural resources of West Point. Students will learn about the environment of West Point and the remains of plants, animals, fish, and marine invertebrates that archaeologists found at West Point.

OBJECTIVES

- To examine and identify the different environmental zones at West Point
- To learn about the ways in which archaeologists study remains of plants, animals, fish, and marine invertebrates
- To explore the different types of plants, animals, fish, and marine invertebrates found at the site
- To draw conclusions about the uses of natural resources at West Point

MATERIALS

"Environment Of West Point" laminated graphic; Xeroxes of the following hand-outs to distribute to students, "Environment Of West Point", "Animals of West Point", "Plants of West Point", "Distribution of Natural Resources", and "Uses of Natural Resources"; and these field guides as resources "Washington Wildlife", "Northwest Trees", and "Northwest Coastal Invertebrates".

VOCABULARY

Botanical sample – a small quantity of soil containing remains of plant fibers or seeds used by archaeologists for analysis.
Coniferous trees – a tree with needle or scaly leaves that bears cones.
Deciduous trees – a tree that sheds or loses its leaves at the end of the growing season.
Habitat – the place where plants and animals live.

BACKGROUND

Archaeologists consider the setting and environment of a site in order to reconstruct how people lived at a site thousands of years ago and what resources were available at that site. As you learned in the previous lesson, the West Point landform has always been a dynamic setting sculpted with beaches, bluffs, marsh areas, streams, and vegetated uplands. Each of these areas has provided a habitat for different resources. Consequently, as the landform changed throughout the years, so too did the resources available on and around this landform. In order to gain a better understanding of the natural resources available at the site, archaeologists studied botanical samples and the remains of mammals, birds, fish, and shellfish.

The following information will help you interpret the laminated graphic titled "Environment of West Point (3,800 B.P.). Archaeologists learned that the northwest side of West Point was once a sandy and rocky beach covered with mussels, snails, dogwinkles, and other marine plants and animals. During later times the beach provided a better habitat for clams, cockles and a myriad of other shellfish. For several thousand years, a low berm protected this beach except during unusually high tides and winter storms. Seals frequently hauled out along the beach. Along the northeast side of West Point, a small freshwater stream flowed from Lake Union through a flat marsh and brush-covered plain into the Puget Sound. A variety of freshwater and some saltwater fish would have been available in this stream. The saltwater lagoon at the southeast side of the site increased and decreased in size throughout the years. Bluffs lined the south side of the landform offering some protection from the elements.

Above the bluffs, the vegetated uplands were covered with coniferous trees such as Douglas fir, red cedar, and hemlock as well as deciduous trees and shrubs such as alder, maple, mock orange, oceanspray, elderberry, blackberry, and hazelnut. Other plants such as bedstraw and goosefoot grew in the area around West Point. Springs and small streams flowed from the uplands providing freshwater for the people of West Point. Deer, elk, mountain beaver, rabbit and other land mammals lived in the vegetated uplands above the West Point sandspit. Even the occasional black bear may have stumbled into these uplands.

West Point was surrounded by various habitats teeming with fish. Fish were available in three habitats surrounding West Point; shallow saltwater, deep saltwater, and freshwater. The fish available in particular habitats varied throughout the year depending on the migration pattern and lifecycle of particular fish species. Fish available near the shore depended on the season but sometimes included English sole, rock sole, starry flounder, various kinds of perch, herring,

tomcod, sculpin, midshipman, and Pacific sanddab. Other fish were available in freshwater and saltwater habitats around West Point such as Elliot Bay, Lake Union, Lake Washington, and Salmon Bay. Fish caught in freshwater during some parts of the year included salmon, peamouth chub, northern squawfish, and sucker. Fish were also available in the deeper saltwater further out from shore. Fish caught further out from shore during some seasons included rockfish, cods, red Irish lord, greenling, herring, and sablefish. Dolphins and porpoises also swam in the deeper waters west of the site. Overall, archaeologists established that a broad variety of natural resources were available at West Point including many different types of plants, birds, mammals, fish, and shellfish.

PROCEDURE

1. Display the laminated graphic "Environment of West Point (3,800 B.P.)" in front of the class.
2. Distribute the Xeroxes of the handout "Environment of West Point (3,800 B.P.)" to the students.
3. Identify the various environments of West Point including the beaches, vegetated marsh, vegetated uplands, the saltwater Puget Sound, and nearby freshwater stream.
4. Explain how archaeologists studied and analyzed the remains of plants and animals that they found at West Point.
5. Ask the students to guess what plants and animals archaeologists could have found evidence of at West Point. Make a list of the plants and animals that the students think could have been found at West Point.
6. Distribute the handouts "Animals of West Point" and "Plants of West Point" to the students.
7. Review the different types of animals found at West Point including the mammals, fish, and marine invertebrates. Use the field guides "Washington Wildlife" and "Northwest Coastal Invertebrates" to find pictures of these animals.
8. Also review the different types of plants found at West Point including coniferous trees, deciduous trees, shrubs, perennials, annuals, ferns, and grasses. Use the field guide "Northwest Trees" to find pictures of these plants.
9. Then discuss how different natural resources would have been found in different areas of the site. For example the difference between marine and terrestrial mammals or lowland and upland vegetation.
10. Distribute the handout "Distribution of Natural Resources" to the students.

11. The students can complete the "Distribution of Natural Resources" worksheet by using the "Animals of West Point" and "Plants of West Point" hand-outs to fill in the various environments of the site with the particular plants or animals that would have been found in that environment.
12. Then discuss how Native people used various natural resources to meet their basic needs. Also discuss how different natural resources would have been used and that some resources had multiple uses.
13. Distribute the "Uses of Natural Resources" handout to the students.
14. The students can complete the "Uses of Natural Resources" worksheet by using the "Animals of West Point" and "Plants of West Point" handouts to fill in the various uses for different plants and animals.
15. Finish the lesson by commenting on the wide variety of natural resources available at West Point for many different uses.

REFERENCES

Gunther, Erna. Ethnobotany of Western Washington. Seattle: University of Washington Press, 1973.

Kozloff, Eugene N. Plants and Animals of the Pacific Northwest. Seattle: University of Washington Press, 1976.

Larson, Lynn L. and Dennis E. Lewarch eds. The Archaeology of West Point. Seattle: Larson Anthropological/Archaeological Services, 1995.

Pojar, Jim. Plants of the Pacific Northwest Coast. Richmond, Washington: Lone Pine Publishing, 1994.

ANIMALS OF WEST POINT

Archaeologists recovered the remains of these birds, mammals, fish, and marine invertebrates at the West Point site.

BIRDS

Mallard

MAMMALS

Beaver
Black Bear
Black-tailed Deer
Bobcat
Coyote
Dog
Dolphin
Fisher
Harbor Seal
Mountain Beaver
Muskrat
Porpoise
Raccoon
River Otter
Roosevelt Elk
Snowshoe Hare
Stellar Sea Lion
Striped Skunk
Vole
Whale
Wolf

FISH

Buffalo Sculpin
Cabezon
C-O Sole
Curlfin Sole
English Sole
Great Sculpin
Greenling
Northern Anchovy
Northern Squawfish
Pacific Cod
Pacific Hake
Pacific Herring
Pacific Sanddab
Pacific Staghorn
Pacific Tomcod
Peamouth Chub
Pile Perch
Poacher
Ratfish
Red Irish Lord
Rockfish
Rock Sole
Sablefish
Salmon
Shiner Perch
Skate
Spiny Dogfish
Starry Flounder
Steelhead
Striped Seaperch
Sturgeon
Sucker
Trout
Wolf-eel

MARINE INVERTEBRATES

Amphissa
Barnacle
Butter Clam
Checkered Perwinkle
Chiton
Cockles
Crab
Emarginata Dogwinkle
Frilled Dogwinkle
Gumboot
Horse Clam
Jingle Shell
Limpet
Macoma
Moon Snail
Mussels
Native Littleneck Clam
Native Oyster
Sand Dollar
Sea Urchin
Sitka Perwinkle
Soft-shelled Clam

PLANTS OF WEST POINT

Archaeologists recovered the remains of these plants from excavated areas at West Point.

TREES

CONIFEROUS

Douglas Fir
Hemlock
Red Cedar
Yellow Pine

DECIDUOUS

Alder
Maple
Mock-Orange
Oceanspray
Oregon Ash
Poplar
Willow

SHRUBS

Bitter Cherry
Blackberry
Elderberry
Hazelnut
Indian Plum
Raspberry

PERRENIALS

Bedstraw

ANNUALS

Goosefoot

FERNS

GRASSES/SEDGES

DISTRIBUTION OF NATURAL RESOURCES WORKSHEET

List the natural resources that were found in various areas of the site.

SALTWATER

FRESHWATER

MARSH

BEACH

UPLAND

DISTRIBUTION OF NATURAL RESOURCES WORKSHEET

Answers: These plants and animals were found in these areas of the site.

SALTWATER

Buffalo Sculpin
Cabezon
C-O Sole
Curlfin Sole
Dolphin
English Sole
Great Sculpin
Greenling
Northern Anchovy
Northern Squawfish
Pacific Cod
Pacific Hake
Pacific Herring
Pacific Sanddab
Pacific Staghorn
Pacific Tomcod
Peamouth Chub
Poacher Pile Perch
Porpoise
Red Irish Lord
Rockfish
Rock Sole
Sablefish
Shiner Perch
Spiny Dogfish
Starry Flounder
Stellar Sea Lion
Striped Seaperch
Sturgeon
Sucker
Whale
Wolf-eel

FRESHWATER

Salmon
Steelhead
Trout

BEACH

Amphissa
Barnacles
Butter Clam
Checkered Perwinkle
Cockles
Crabs
Moon Snail
Emarginata Dogwinkle
Frilled Dogwinkle
Gumboot Chiton
Horse Clam
Jingle Shell
Limpets
Macoma
Mussels
Native Littleneck Clam
Native Oyster
Sand Dollar
Sea Urchin
Sitka Perwinkle
Soft-shelled Clam

MARSH

Bedstraw
Goosefoot
Grasses
Mallard
Sedges

UPLAND

Alder
Beaver
Bitter Cherry
Black Bear
Blackberry
Black-tailed Deer
Bobcat
Coyote
Dog
Douglas Fir
Elderberry
Fisher
Harbor Seal
Hazelnut
Hemlock
Indian Plum
Maple
Mock-Orange
Mountain Beaver
Muskrat
Oceanspray
Oregon Ash
Poplar
Raccoon
Raspberry
Red Cedar
River Otter
Roosevelt Elk
Snowshoe Hare
Striped Skunk
Willow
Wolf
Yellow Pine

USES OF NATURAL RESOURCES WORKSHEET

List the natural resources that were used for each particular purpose.

FOOD

BASKETRY & UTENSILS

TOOLS

FIRE/FUEL

SHELTER

CLOTHING

FOOD PREPARATION

CANOES & PADDLES

JEWELRY

USES OF NATURAL RESOURCES WORKSHEET

Answers: These natural resources were used for these purposes.

FOOD

Barnacles
Beaver
Bedstraw Fruits
Bitter Cherry
Butter Clams
Cockles
Deer
Dogfish
Elderberry
Elk
Flatfish
Frilled Dogwinkles
Goosefoot
Harbor Seal
Hazelnut
Herring
Horse Clams
Indian Plum
Mussels
Native Littleneck
Northern Squawfish
Oysters
Peamouth Chub
Perch
Rabbit
Raspberry
Ratfish
Salmon
Staghorn Sculpin
Sucker
Venus Clams

FIRE/FUEL

Douglas Fir
Cedar
Hemlock
Pine

FOOD PREPARATION

Alder
Ash
Maple
Mock-orange
Oceanspray
Poplar/Willow

BASKETRY & UTENSILS

Alder
Cedar
Hemlock
Maple
Mock-orange
Oceanspray

SHELTER

Cedar
Poplar
Willow

CANOES & PADDLES

Ash
Cedar

TOOLS

Alder
Ash
Beaver Tooth
Cedar
Deer Antler
Deer Bone
Elk Bone
Elk Antler

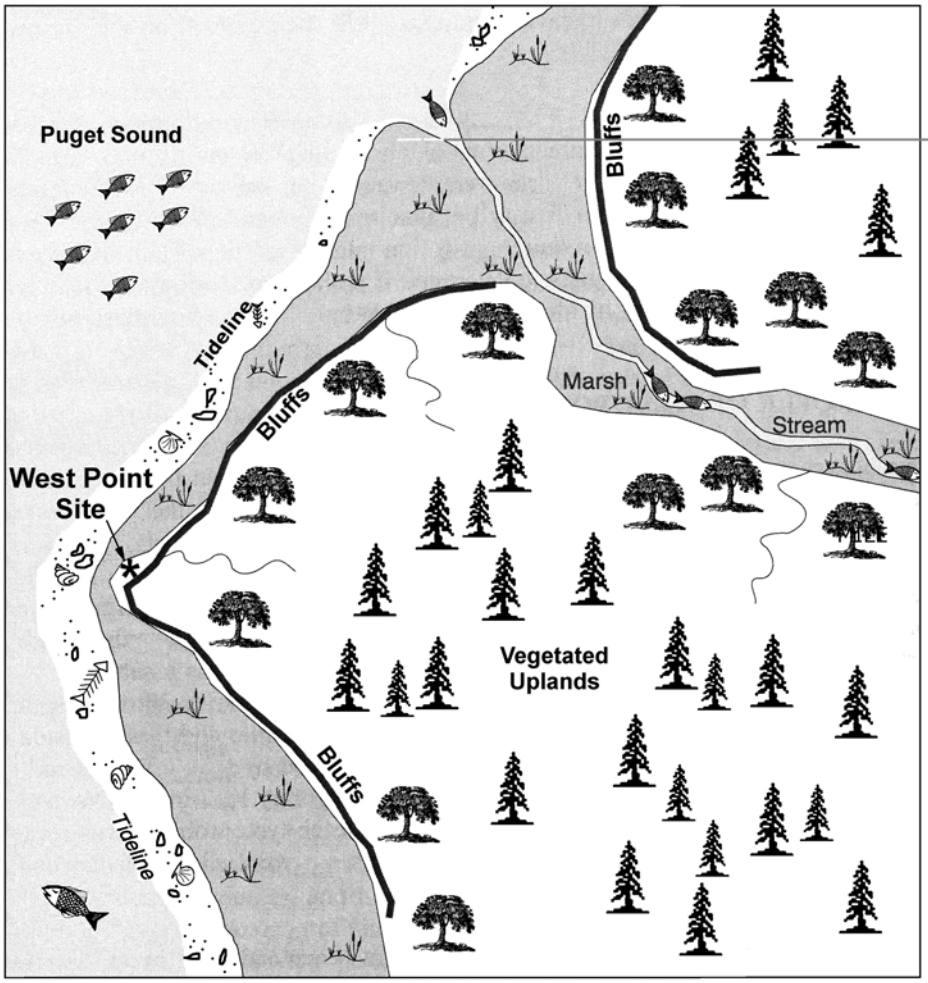
CLOTHING

Cedar

JEWELRY

Bone
Shell

ENVIRONMENT OF WEST POINT (3,800 B.P.)



KEY

= Deciduous Trees

= Coniferous Trees

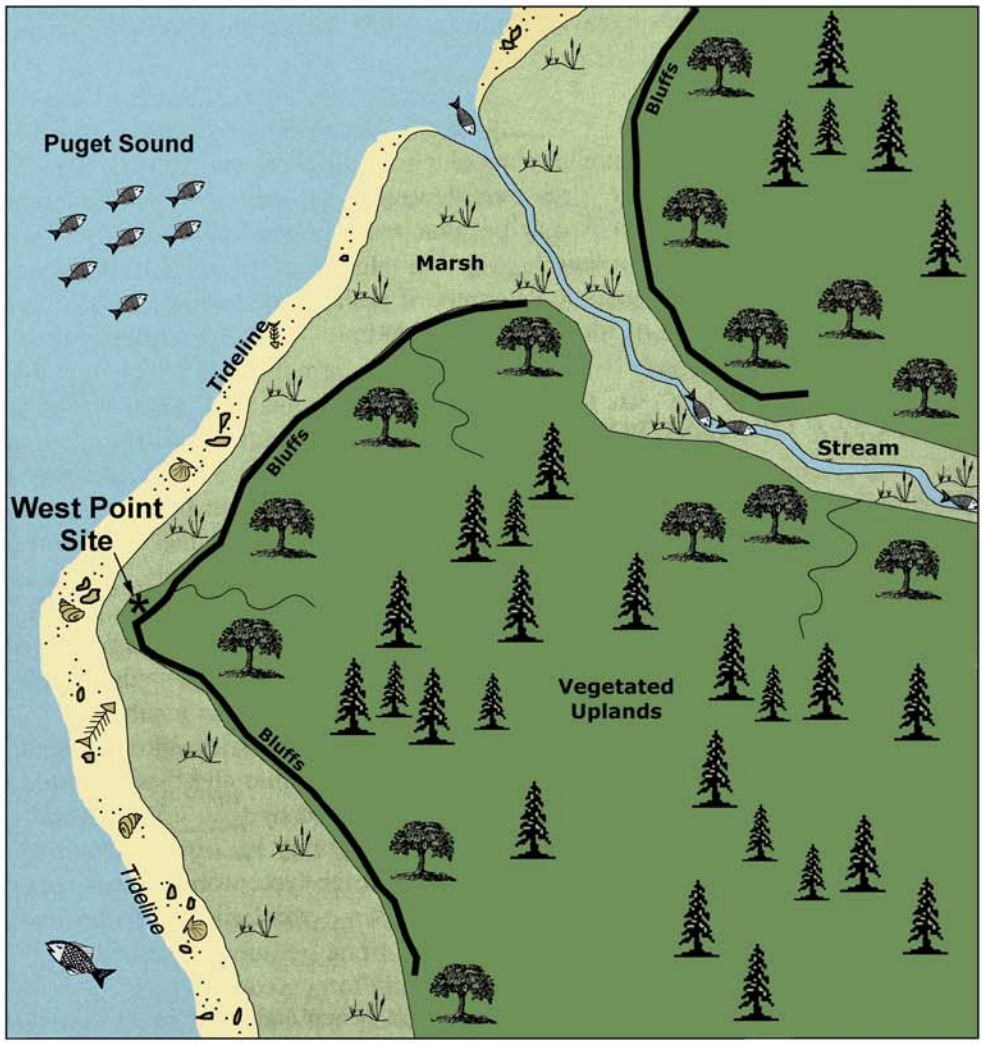
* = Archaeological Site

= Fresh & Salt Water Fishes

= Marsh

= Sandy & Rocky Beach

ENVIRONMENT OF WEST POINT (3,800 B.P.)



0 1/2 MILE

SCALE

N

KEY

= Deciduous Trees

= Coniferous Trees

* = Archaeological Site

= Marsh

= Fresh & Salt Water Fishes

= Sandy & Rocky Beach