Team members **Period** **Date**

Oregon Sea Otter Reintroduction Plan

Overview

A habitat suitability analysis evaluates if and how habitats can support the introduction or reintroduction of an animal or plant species. It is an important step in selecting possible sites for any reintroduction effort. In this activity, you will use information from a habitat suitability analysis sponsored by the Elakha Alliance, which looked at potential sites along the Oregon Coast where sea otters could be reintroduced. Your group will take on the role of conservation leaders and decision makers. You want to ask the U.S. Fish and Wildlife Service for permission to relocate 100 otters from an existing population (in California or Alaska) to Oregon. Since sea otters remain endangered, the U.S. Fish and Wildlife Service will take your request very seriously. To succeed, you need to develop a plan that gives the relocated otters the best chance for survival in their new home. Follow the instructions below to identify one spot on the Oregon Coast where you think conditions will be most successful for reintroducing sea otters to Oregon.

INSTRUCTIONS

1. Skim the excerpt from the Elakha Alliance sea otter habitat suitability analysis provided by your teacher. Don't worry about reading and understanding every page in the analysis (it's highly technical).
2. Using the suitability analysis and the instructions in this handout, work with your group to identify a section of the Oregon Coast where you think an effort to reintroduce a stable population of sea otters is most likely to be successful. As you work, answer the questions and/or record the indicated information in the spaces provided.
3. Be ready to present your group's work to the whole class!

Source: Tinker, M. T., Estes, J., Bodkin, J., Larson, S., Murray, M., & Hodder, J. (2022, January). *Oregon sea otter reintroduction feasibility study.* Elakha Alliance. **https://www.elakhaalliance.org/feasibility-study/**

Oregon Sea Otter Reintroduction Plan *(Continued)*

Population Density

Sea otters, like many animals (including humans), require access to food and shelter. The more food and shelter a habitat offers, the more animals the habitat can potentially support. This is known as *population density*.

INSTRUCTIONS

1. Look at the maps on page 3 of the feasibility study that identifies potential sea otter population densities along the Oregon Coast (figure 6.1).
2. Based upon your interpretation of the maps, answer the following questions or prompts in the "Notes" section below:
    a. *Which section or sections of the Oregon Coast (northern, central, or southern) appear capable of supporting the highest population densities of sea otters? What are some of the specific sites mentioned within that section of the Oregon Coast?*
    b. *Explain your reasoning.*

NOTES

Oregon Sea Otter Reintroduction Plan *(Continued)*

Substrate

Substrate is the surface on or in which plants, algae, or certain animals, such as barnacles or clams, live or grow. The Oregon Coast has shoreline substrates that range from rock reefs to mud plains. Rocky bottoms provide an ideal surface for kelp plants to attach to and grow from.

INSTRUCTIONS

1. Look at the substrate maps (figures 6.2a and 6.2b on pages 6 and 7 of the feasibility study).
2. Based upon your interpretation of the maps, answer the following questions or prompts in the "Notes" section below:
    a. *What are some sections or sites along the Oregon Coast that have a rocky shoreline substrate? (Hint: Look for sites that seem to have large sections of bedrock.)*
    b. *Explain your reasoning.*

NOTES

Oregon Sea Otter Reintroduction Plan *(Continued)*

Kelp Distribution

Kelp forests provide abundant food for sea otters as well as places for them to hide from higher trophic-level predators.

INSTRUCTIONS

1. In the feasibility study, look at the kelp canopy area table (table 6.2) on page 10 (specifically, look at the last column, "Total Canopy Area") as well as the map of kelp in Oregon (figure 6.4) on page 12.
2. Based upon your interpretation of the table and maps, answer the following questions or prompts in the "Notes" section below:
    a. *What are some sections or sites along the Oregon Coast that appear to have sizable kelp forests?*
    a. *Explain your reasoning.*

NOTES

Oregon Sea Otter Reintroduction Plan *(Continued)*

Sea Otter Prey Distribution

Sea otters' preferred foods include marine invertebrates (animals lacking a backbone) such as sea urchins, abalone and other shellfish, and crabs.

INSTRUCTIONS

1. In the feasibility study, look at the map of high-catch crabbing and sea urchin harvesting areas (figure 6.6) on page 15.
2. Based upon your interpretation of the maps, answer the following questions or prompts in the "Notes" section below:
    a. *What are some sections or sites along the Oregon Coast that appear to have high densities of the types of invertebrates that sea otters like to eat?*
    b. *Explain your reasoning.*

NOTES

Oregon Sea Otter Reintroduction Plan *(Continued)*

Estuaries

In addition to kelp forests, sea otters prefer habitats with abundant seagrass. Beds of seagrass—especially eelgrass (a type of seagrass)—offer sea otters access to additional or different types of food and safe places to rest and raise pups. Eelgrass beds can be found in Oregon in tidal estuaries, bays, or inlets where freshwater mixes with saltwater.

INSTRUCTIONS

1. In the feasibility study, look at the map of seagrass distribution along the Oregon Coast (figure 6.9 on page 19).
2. Based upon your interpretation of the map, answer the following questions or prompts in the "Notes" section below:
    a. *What are Oregon estuaries with sizable distributions of eelgrass?*
    b. *Explain your reasoning.*

NOTES

Oregon Sea Otter Reintroduction Plan *(Continued)*

Bringing It All Together: Pilot Site Recommendation

Certain sites along the Oregon Coast may provide a higher quality habitat for sea otters than others. In this final step, your group will identify a single site along the Oregon Coast where you think a reintroduction of sea otters is most likely to be successful based on the food, shelter, and other variables you examined for different locations along the coast.

INSTRUCTIONS

1. Together with your group, review your notes from the previous pages.
2. In the "Notes" section below, prepare a list, table, or spreadsheet that allows you to compare different sites you studied along the Oregon Coast and prioritize them based on features that have the best potential to support a population of sea otters.
3. Use your list, table, or spreadsheet to identify one named site along the Oregon Coast you would recommend scientists use as their first test site for reintroducing sea otters to Oregon.
4. Explain the reasoning for your recommendation in the "Notes" space below.

NOTES