



Title: Priorities for Protection

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Theme: Many important parts of ecosystems, economies, and communities could be changed by an oil spill.

Objectives:

- Students will understand maps used in oil spill response.
- Students will analyze and formulate opinions about the relative importance of protecting various components of local ecosystems.
- Students will discuss different values and priorities in the context of protecting local areas from oil pollution.

Duration: 30-75 minutes

Age Range: 6th-12th Grade

Materials:

- Maps of local area (1 copy for every 3-4 students, plus large master map)
- Geographic Response Strategies Maps for local area
- Pens or pencils
- Excerpts from interviews with children affected by oil spills
- Computer/projector/TV/SmartBoard to view videos

Background:

One of the most challenging aspects of oil spill response is that there are limited resources and people-power to contain and clean a spill. Rarely can all areas be protected -- instead members of the incident response team must make decisions that prioritize center areas over others. To help with this process, many areas have existing maps that highlight sites that are especially vulnerable or have extraordinary ecological, economic, or cultural importance. Geographic Response Strategies have been developed for much of Alaska to identify these areas, with input from local communities.

This activity simulates a community meeting in response to an oil spill. Students have to identify and prioritize priorities for protection based on GRS maps and their personal knowledge of local areas.

Preparation:

Print out the Geographic Response Strategies maps for your area from <http://www.dec.state.ak.us/spar/perp/grs/home.htm>. Creation of Geographic Response Strategies for coastal Alaska is still underway. Most coastal zones of Alaska have at least some GRS sites identified, with the exception of the North Slope. Interior Alaska is also not included. If GRS maps have not yet been developed for your local area, NOAA's Environmental Sensitivity Indexes (<http://response.restoration.noaa.gov/esi>) may be used instead. ESIs can also be accessed through ShoreZone (<http://mapping.alaskafisheries.noaa.gov/szflex/>), which will allow students to see photos of the coastal areas.

Visit <http://www.childrenofthespills.org/index.php/people> to choose excerpts of video interviews with children affected by oil spills. A DVD of video excerpts is also available upon request through the Children of the Spills website.

Introduction:

Begin by showing brief clips from Children of the Spills about the effects of the Exxon Valdez Oil Spill and BP/Deepwater Horizon Oil Spill. Discuss the different types of effects – changes to ecology, economy, subsistence, community & family structure, culture, etc.

Activities & Procedures:

Ask students, "Could it happen here?" It could happen here and in many places in Alaska, it already has happened. Explain that oil spill prevention is critical, but it is also crucial to prepare for a spill before it happens. Explain that one way to be able to respond sooner is to prepare ahead of time and outline plans for priority areas. Sometimes oil spill response groups create maps of an area to provide some guidance as areas of ecologic, economic, or cultural importance that are feasible to protect. Scientists rely on local people to add their special knowledge of a place.

If available for your area, show a Geographic Response Strategies map with the class. Discuss the different areas that have been highlighted for protection.

Divide students into small groups of 3-4 people to examine a local map and decide what sites are most important to protect. Have them spend about 10 minutes with the map and use markers, pens, or pencils to draw in where they would want to add protection.

Have each group present their map. Let other groups ask questions. After all groups have presented, have the class discuss the different areas highlighted. Challenge students to prioritize the list, choosing 3-5 sites for top protection and ranking them from most important to less important. Draw these sites on a large "master map."

After master map is completed, ask, "Is there anything missing?" Ask about things not along the shoreline that might need protection. What about other things

important in the community that could be indirectly affected by the spill and clean-up efforts? What about places where community members come together to have fun? What about places that are important to children? Have groups go back and add something new to the map that was overlooked, something that would help the community to recover from the spill and clean-up. Choose a few of these areas to add to the master map.

Wrap-Up:

Look at the places on the map that the class has chosen as priorities for protection. Have students create a list of ways that these areas are already protected or threatened. Have students brainstorm actions they can take to protect these places before an oil spill happens. Implement one (or more) of these ideas.

If your class identified important priorities for protection that were not addressed in the GRS map, you may wish to work as a class to draft a professional letter to the workgroup that developed the GRS. They encourage those with local knowledge of the portions of coastal Alaska with developed GRS to contact them at dec.spar.grs@alaska.gov

Evaluation:

Assess student understanding based on their completed group maps and contributions during the presentations and discussions. Observe participation, cooperation and respectful tone during group work, presentations, and discussions.

GRS Priorities for Protection Standards

Concepts of Life Science: Students develop an understanding of the concepts, models, theories, facts, evidence, systems, and processes of life science.

SC3

Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.

The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by:

[11] SC3.2 analyzing the potential impacts of changes (e.g., climate change, habitat loss/gain, cataclysms, human activities) within an ecosystem

Science and Technology: Students develop an understanding of the relationships among science, technology, and society.

SE1

Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.

The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by:

[6] SE1.1 recognizing that technology cannot always provide successful solutions for problems or fulfill every human need

[7] SE1.1 describing how public policy affects the student's life (e.g., public waste disposal)

[8] SE1.1 describing how public policy affects the student's life and participating diplomatically in evidence-based discussions relating to the student's community

SE2

Students develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits.

The student demonstrates an understanding that solving problems involves different ways of thinking by:

[6] SE2.1 identifying and designing a solution to a problem

[7, 8] SE2.1 identifying, designing, testing, and revising solutions to a local problem

[6, 7] SE2.2 comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate a question or problem

[8] SE2.2 comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate and evaluate potential solutions to a question or problem

SE3 Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.

The student demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society by:

[10, 11] SE3.1 researching a current problem, identifying possible solutions, and evaluating the impact of each solution

Cultural, Social, Personal Perspectives, and Science: Students develop an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives.

SF1

Students develop an understanding of the interrelationships among individuals, cultures, societies, science, and technology.

SF2

Students develop an understanding that some individuals, cultures, and societies use other beliefs and methods in addition to scientific methods to describe and understand the world.

SF3

Students develop an understanding of the importance of recording and validating cultural knowledge.

The student demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives by:

[10] SF1.1-SF3.1 analyzing the competition for resources by various user groups to describe these interrelationships

[11] SF1.1-SF3.1 investigating the influences of societal and/or cultural beliefs on science