



Title: Incident Command Scenario

Developed by the Kachemak Bay Research Reserve, <http://www.adfg.alaska.gov/index.cfm?adfg=kbrb.home>, with funding from the Prince William Sound Regional Citizens' Advisory Council.

Theme: The varied participants and constantly changing conditions make it incredibly challenging to clean up and contain an oil spill.

Objectives:

- Students will work cooperatively in strike teams to respond to an oil spill and react to changes in conditions.
- Students will understand some of the challenges of cleaning up an oil spill.

Duration: 30-45 minutes

Age Range: 6th-12th Grade

Materials:

- Walkie talkies
- Strike Team Cards
- Changing Conditions Cards

Background:

Many people and agencies participate when an oil spill occurs in Alaska, including the Coast Guard, the local Regional Citizen's Advisory Council (if there is one), the Alaska Department of Environmental Conservation, local fishermen, wildlife biologists, and many trained volunteers. While it is beneficial to have a large pool of people-power and variety of expertise, coordinating a response between multiple agencies and volunteers is extremely challenging. This activities illustrates some of the challenges that arise when trying to contain and cleanup oil in coastal areas.

Preparation:

Determine a location where students can talk freely on walkie-talkies without disturbing other classes. Ideally this will be an outdoor location. Otherwise a gymnasium will do. Students will divide into three groups. The teacher should be able to see all of the groups, but the groups don't need to see one another. Each location can have something that is relevant to this simulation – a sandy location on the school grounds could represent the location where shorebirds congregate, playground equipment could be a fish hatchery, and a set of stairs can be a haul out

where seals congregate. The attached images can be taped up in advance so that students have something to look at by way of a reference. Make sure the walkie talkies have been charged overnight. Set them all on the same channel.

Introduction:

Explain to students that many people and agencies participate when an oil spill occurs, including the Coast Guard, the local Regional Citizen's Advisory Council, The Alaska Department of Environmental Conservation, local fishermen, wildlife biologists, and many trained volunteers. Ask students if they would be interested in helping out if there were a spill near their community. Explain that the following activity will give them some practice with mopping up an oil spill.

Activities & Procedures:

Explain that students will form three Oil Spill Strike Teams. Team Green, Team Red, and Team Yellow. They are to imagine that an oil spill has occurred and is moving in the direction of their community. It will make landfall within the next 24 hours. Each team is being sent out to assess an area to determine what needs to be done to protect the region.

Go over the use of a walkie talkie (*hold the button down to talk, release to listen*). Each team will have one walkie talkie. Give each team their color-coded scenario cards and send them to their location. Once each team is in place, call them individually by walkie talkie and ask them to describe what they find in their location. (*Team Green should explain that there are harbor seals hauled out on the beach near the head of the bay. Team Red should explain that there are thousands of shorebirds feeding in the mud flats, and Team Yellow should explain that they are located at a fish hatchery.*)

Radio each team in turn and ask them what the weather is doing and what their fuel needs are. Their cards will describe this. Tell teams that are low in fuel that a refueling vessel is in route and will be there within three hours. Tell teams that are experiencing strong winds that there is a storm coming with high seas predicted. Ask all teams to determine a plan to protect their area. Give them a few minutes to discuss this.

Radio each team and explain that the oil is now just a few hours out and will make landfall before the end of the day. Ask them what their plan is to protect their area.

Go around to each team and have them pick a "challenge card" at random. Ask them to adjust their plans accordingly. Give each team an additional few minutes to change their response plan.

Wrap-Up:

Call students back to a central area and discuss the activity. Ask how oil spill responders prepare for a spill? (*They hold drills to practice response techniques*). What should responders think about before going out to cope with a spill? (*Do they have adequate materials, fuel, food, etc.*) What conditions would make fighting a spill more difficult? (*Stormy weather, animals present, remote locations, ice*). What can be done to assist responders with the enormous task of cleaning up an oil spill? Are there things that can be done ahead of time or during a spill to support responders?

Evaluation:

Listen as students describe their observations about the scenarios to each other and observe their planning and response process as a formative assessment.

Oil Spill Strike Team card information:

Team Green:

1. You are located at the mouth of a narrow estuary which contains a beach where harbor seals haul out. There are over 60 seals in the water or on shore, many with young pups.
2. The weather is still pretty calm. You have three boats and quite a bit of boom material, but two of your boats are very low in fuel.
3. Discuss among yourselves how you will protect the seals in this estuary and what challenges you face.

Team Red:

1. You are located in a salt marsh where thousands of shorebirds have come to eat after their long spring migration. These birds are tired nesting grounds further north.
2. You have just two boats and only a little boom material. You do have a couple of propane hazing cannons on board. The boats have enough fuel to last the day. The wind is blowing really hard which is driving many of the birds further inland.
3. Discuss among yourselves how you will protect the birds in the salt marsh and what challenges you face.

Team Yellow:

1. You are located at a sockeye salmon hatchery. There are hundreds of thousands of juvenile fish in the pools ready for release within the next few weeks. This hatchery produces a run of fish that supplies much of the local community.
2. You have seven boats and they are all well supplied for fuel and boom materials. The wind has picked up and there are whitecaps on the water.
3. Discuss among yourselves how you will protect the salmon hatchery and what challenges you face.

Challenge Cards:

Injury – One of the volunteers has injured themselves while carrying equipment. You must use one of your boats and captains to evacuate the injured person. Now you are missing 2 people and 1 boat. How can you protect the area?

Fuel Delay – The fuel boat has been delayed by stormy weather. Do not expect any additional fuel for the next 4 days. Develop a plan to protect the area with only your existing fuel.

Food Shortage – Your supply of food is dwindling and none is enroute. You must develop a plan to feed your workers. You can try to find your own in the area, or send a boat to the closest community for help.

Busted Boom – Strong tidal currents ripped your boom in multiple places. You must figure out a way to repair the boom, make new boom, or do without.

Stormy Seas – A strong wind is blowing towards shore. This makes it nearly impossible to safely navigate the nearshore waters. Develop a plan on how to proceed that does not involve any boats moving close to shore.

Otters Around – A large raft of sea otters is moving towards your area. Develop a plan to protect them, as well as the resources you were originally working to protect.

Cultural Concerns – One of your team members informs you that a large part of the beach in your area is culturally important as a sacred site and should not be disturbed during the containment and cleaning process. Decide how to proceed without disembarking on these sacred lands.



Harbor Seal Haul Out



Shore birds feed here in great numbers



Fish hatchery with boom

Incident Command Scenario 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

[9] SE1.1 recognizing that the value of any given technology may be different for different groups of people and at different points in time (e.g., different uses of snow machines in different regions of Alaska)

[11] SE1.1 researching how social, economic, and political forces strongly influence which technology will be developed and used