

WebQuest: Oil Spill in the Gulf

Introduction:

Assessing the environmental impact of an industrial accident, such as an oil spill, can be a challenge for scientists. There are multiple variables that must be assessed for a complete picture to emerge. This is proving to be the case of the Gulf of Mexico oil spill. In a recent article published in the journal **Science**, the authors suggest five key questions that scientists will be trying to answer as they begin to assess the impact of this disaster (Kerr et al., *Five questions on the spill*, 2010). These questions are:

- 🔍 What's happening to the oil?
- 🔍 What's happening to life on the sea floor?
- 🔍 What's happening to marine life?
- 🔍 What's happening to coastal ecosystems?
- 🔍 What's happening to fisheries?

Vocabulary:

The following are a list of words you should know before you start the activity:

- | | | |
|--------------------|---------------|-------------------|
| •Ecosystem | •Volatile | •Sediment |
| •Coastal Marshland | •Toxic | •Symbiotic |
| •Catastrophe | •Weathering | •Detritus |
| •Chemical property | •Dispersant | •Coastal Wetlands |
| •Physical property | •Hydrocarbons | •Photosynthesis |

Activity:

In this activity you and your group will be preparing a poster(s) that will assess the environmental impact of the oil spill using the five key questions as a guide (an online version of the article can be found here: <http://news.sciencemag.org/scienceinsider/2010/05/five-questions-on-the-oil-spill.html>). In addition to the article your group will need to find additional web resources to use in creating your poster(s). You will need to include images in your poster and must also cite where the images are from. You should split the work between group members, each researching and designing a specific part of the poster(s).

Background Knowledge:

This section should contain background information about the Gulf of Mexico oil spill. Locate at least two news articles from a reputable news source (CNN, FOX News, MSNBC, etc.), and answer the following questions:

- When and where did the spill occur? (Locate it on a map)
- Who are the responsible parties?
- How did it happen?
- Include any other important background information.

Questions 1: What's happening to the oil?

This section should include information about the oil that is spilling into the Gulf of Mexico. In addition to the article locate several sources and use them to discuss the following:

- How much oil is spilling into the Gulf? (present estimates)
- Where is it heading? (where are the ocean currents taking the oil?)
- What are chemistry and physical properties of the oil as it is first spilt, and as it weathers?
- What are dispersants? How are they being used clean up the oil? What are the pros and cons of using them?
- What else is being done or can be done to clean up the oil as it spills into the Gulf?
- Include anything else you feel is important

Question 2: What's happening to life on the sea floor?

This section should include information about the life on the sea floor. Locate several additional sources to help you answer the following questions about the sea floor:

- What are the two types of communities found on the sea floor of the gulf?
- Discuss the sources of food/ energy for these communities? (draw or find a picture of a food web)
- What is being done to study the benthic communities of the gulf?
- Include anything else you feel is important

Question 3: What's happening to marine life?

This section should include information about the marine organisms that live in the open sea. In addition to the article, locate several sources to help answer the following questions:

- What organisms live in the gulf?
- Describe the food web(s) of these organisms?
- What organisms are scientists particularly worried about?
- How many organisms have been found dead so far?
- What can be done, if anything, to help organisms affected by the oil spill?
- Include anything else you feel is important

Question 4: What's happening to coastal ecosystems?

This section should include background information on the impact of the spill on the coastal ecosystem. In addition to the article, locate several sources to help answer the following questions:

- What effects can an oil spill have on the surrounding coastline?
- How might the oil affect the coastal food web?
- How are coastal birds affected by the oil spill?
- What can be done, if anything, to prevent oil from washing up on shore?
- Include anything else you feel is important.

Question 5: What's happening to fisheries?

Fishing is an important industry along the gulf coast. In this sections discuss the impact of the oil spill on the gulf coast fisheries. Locate additional sources to help answer the following questions:

- Estimate how much the fisheries along the gulf coast are worth. (in tons of fish, or in dollar amounts, or both).
- What kinds of organisms are caught in the gulf coast?
- Why are the fisheries affected by this disaster? (Health concerns, etc.)
- When will it be safe to open the fisheries again? How will we know?
- In the mean time what, if anything, is being done to help the fishermen? Is there anything they can do to help?
- Include anything else you feel is important.

A picture is worth a thousand words

Locate pictures from the Gulf of Mexico oil spill to illustrate your poster(s). Make sure to site the source of your images and the photographer/ illustrator who created the images.

Once each group member has researched and designed their section of the poster. Come together as a group and collaboratively integrate each section into a complete poster(s). Include a bibliography in the back of the poster(s).

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Research Worksheet

Use the following worksheet to help complete your research and design your section of the poster.

What part of the Poster Project are you responsible for:

Website #1:

Title: _____

url: _____

Author or Organization: _____

Notes: _____

Website #2:

Title: _____

url: _____

Author or Organization: _____

Science Research and Explorations
Adapted from AAAS: Five questions on the Spill
As published in www.sciencemag.org

Name _____
Date _____ Period _____

Notes: _____

Website #3:

Title: _____

url: _____

Author or Organization: _____

Notes: _____

Attach additional research to the back of this worksheet. Use the same format as above.