



Bering Strait Spill Response Teaching Tool (BSRTT) Tutorial

This tutorial provides a step-by-step overview for the BSRTT. This tool allows users to find, visualize, and integrate data from federal and state agencies, Alaska Native communities, oil-spill-response agencies and conservation organizations.

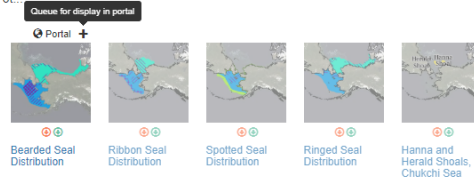
Finding Data Layers

Go to “CATALOG 🔍” in the top right of the home page.

The catalog has different categories, including Habitat, Oil and Gas, and Sea Ice/Weather, and advanced search functions like a spatial filter. There are also multiple layers options to choose from within some data layer sets, which you will see as smaller maps below the name of the layer.

Arctic Marine Synthesis

In early 2010, Audubon Alaska, in cooperation with Oceana, completed the Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas. The project area includes the southern Beaufort, southern Chukchi, and northern Bering seas. In total, this project obtained and compiled spatial data from over 100 sources, plus literature and reports from another 400 sources, including peer-reviewed journals, government agencies, universities, NGOs, and others.



To search for a data layer, start at “GO TO SEARCH” from the home page of the BSRTT. Choose a category like “Maritime” and choose a layer like the vessel traffic layer by again clicking the “+” to add the layer.

Data Layer Catalog

The Data Layer Catalog is a library of information available for the Bering Strait region including real-time weather and sea ice data, historical ship tracks, infrastructure, boundaries, and other spill response resources. Users can browse data sets by category, search metadata using keywords, or click to access dataset descriptions with links to original source data.

[Go to search](#) [Tutorial](#)

Result types

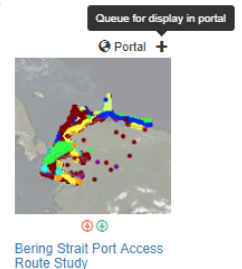
☒ Map layers ☒ Sensor stations

Advanced search options

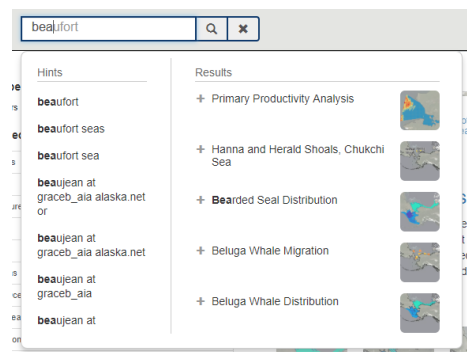
- Boundaries
- Habitat
- Infrastructure and Transit
- Maritime**
- Oil Spill
- Oil and Gas
- Physical Oceanography
- Sea Ice/Weather
- Species Monitoring Studies
- Spill Response Resources

AIS Vessel Tracking in the Bering and Chukchi Seas

The Marine Exchange of Alaska (MXAK) hosts a vessel tracking system that records information emitted from shipboard Automatic Identification System (AIS) transmitters. The AIS equipment transmits information such as ship name, position, course and speed on regular intervals, data that are picked up by AIS receivers on land.



You can also quickly add a data layer by typing in the catalog search bar, found at the top of every page on the BSRTT. Add the “Bearded Seal Distribution” layer by clicking the “+” next to the layer name.





Click on the data layer's name to get more information, learn how the data was collected, the source, and other metadata, and download the data.

[← Back to Search Results](#)

Walrus areas of use

• Metadata URL: <https://www.sciencebase.gov/catalog/item...>

The Pacific walrus (*Odobenus rosmarus divergens*) feeds on benthic invertebrates on the continental shelf of the Chukchi and Bering seas and rests on sea ice between foraging trips. USGS researchers radio-tracked walrus to estimate areas of walrus foraging and occupancy in the Chukchi Sea during June–November of 2008–2011, years when sea ice was sparse over the continental shelf. The earlier and more extensive sea ice retreat in June–September and delayed freeze-up of sea ice in October and November, allowed walrus to arrive earlier, occupy slightly more northern areas, and stay later in the Chukchi Sea than in the past. The lack of sea ice over the continental shelf in September–October caused walrus to forage in nearshore areas in contrast to offshore areas in the past. Walrus rarely moved into deep waters of the Arctic Basin when sea ice retreated off the shelf. Walrus foraged in most areas they occupied, and areas of concentrated foraging generally corresponded to regions of high benthic biomass, such as in the northeastern (Hanna Shoal) and southwestern Chukchi Sea. A notable exception was the occurrence of concentrated foraging in a nearshore area of northwestern Alaska that is apparently depauperate in walrus prey. With increasing sea ice loss, it is likely that walrus will increase their use of coastal haul-outs and nearshore foraging areas, with consequences to the population that are yet to be understood.


Walrus areas of foraging in the Chukchi Sea during sparse sea ice cover

Walrus areas of occupancy in the Chukchi Sea during sparse sea ice cover

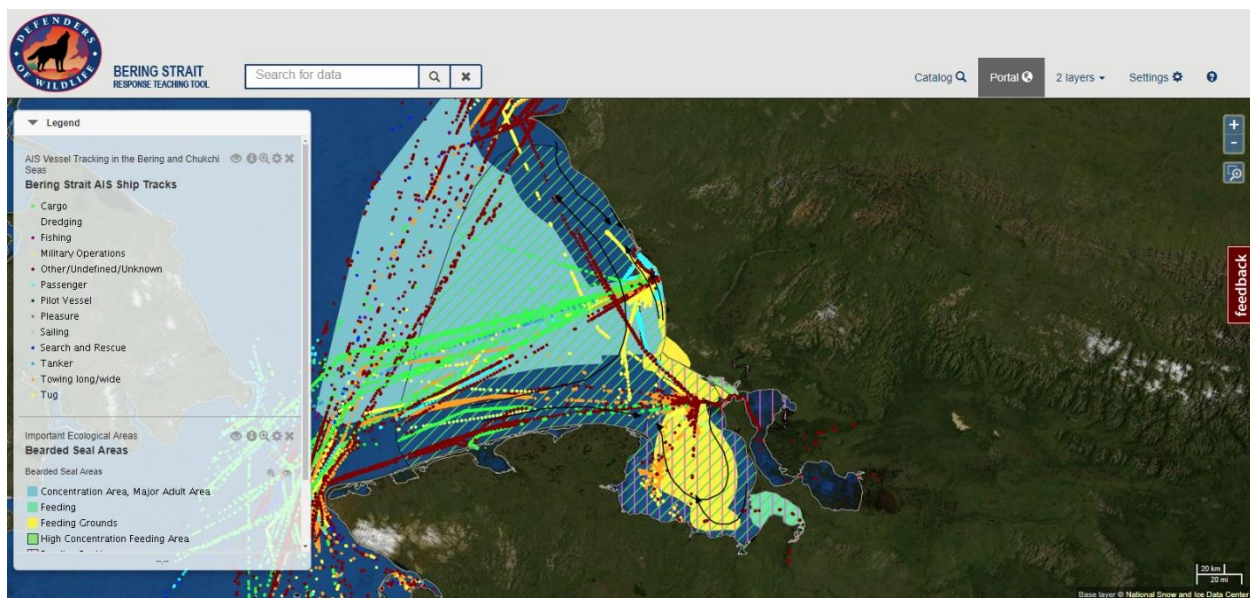
Walrus areas of foraging in the Chukchi Sea during sparse sea ice cover ▾

[Download ▾](#)
[Portal](#)
[+](#)

Viewing Data Layers on the Interactive Portal

After adding the data layers you wish to explore, click the “PORTAL ” button on the top right of the page.

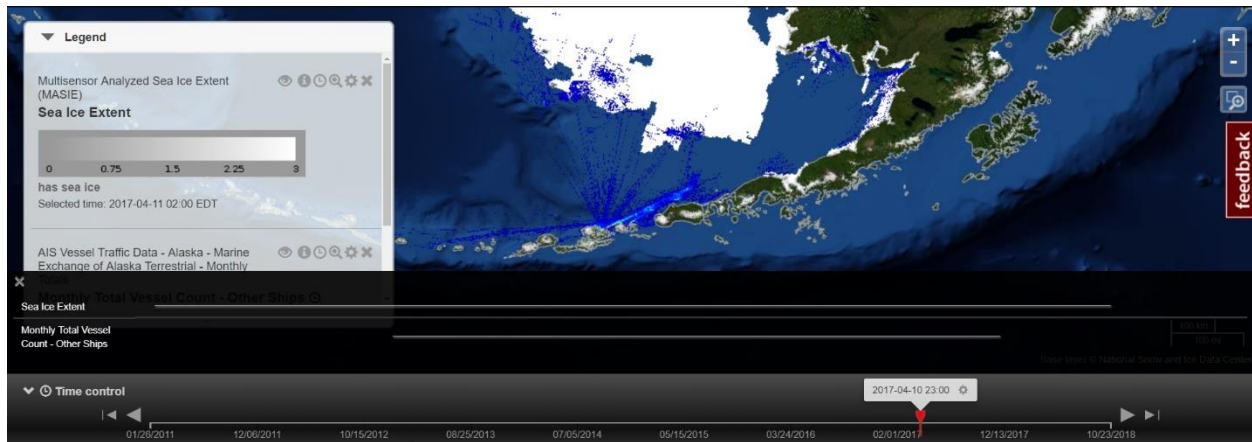
The LEGEND on the left side of your portal will show you what you are looking at, and allow you to hide, remove, or learn more about your layers. To zoom in or out, use the “+” and “-” controls near the top right of the portal or scroll up or down with the wheel of your mouse.



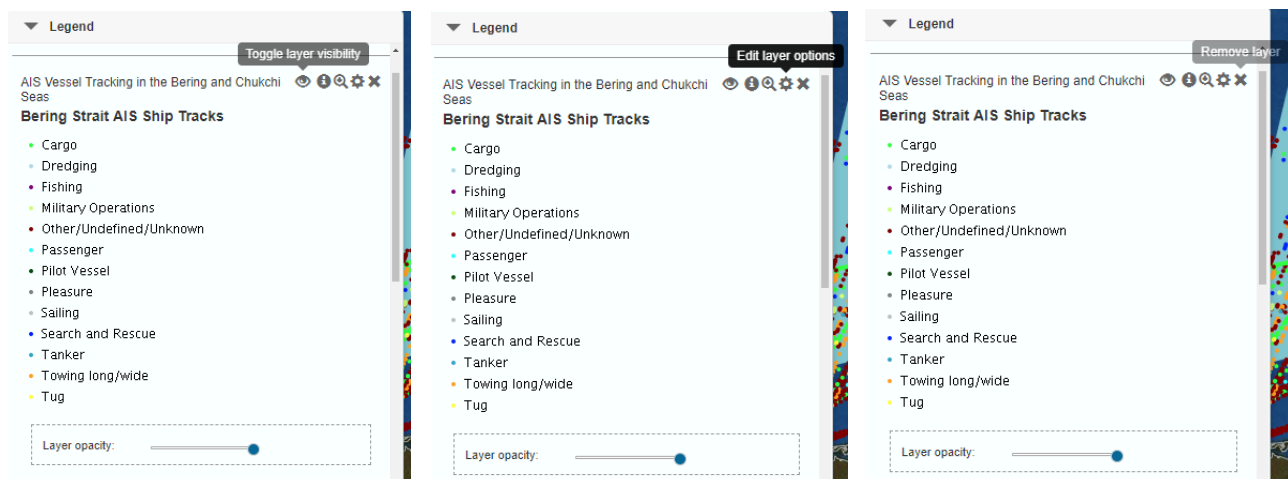
Some data layers have a timeline associated with them and a “time control” bar will appear on the bottom of the portal. You can compare data over time by sliding the red bar back and forth to different dates.



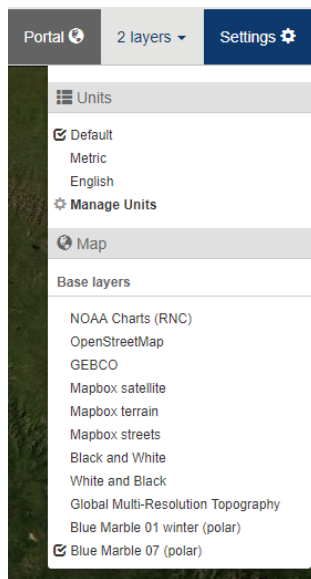
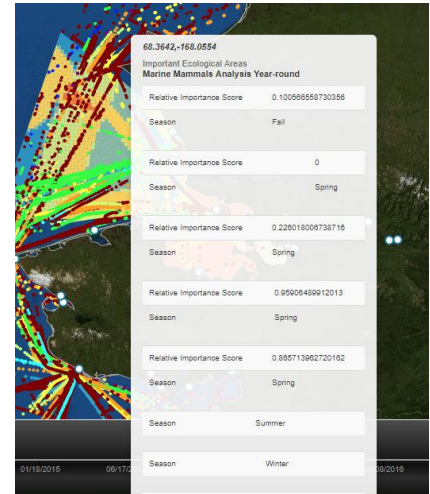
If you are working with two sets of data that each have a timeline associated with them they will each have a time control bar. You can click the arrow on the top left of the time control bar to see where the two timeline data sets overlap.



In the LEGEND, you can edit layer options, like opacity, so you can also view multiple layers on top of each other. You can also temporarily hide a layer or remove it altogether.



By hovering over the map, you can view location, data layer, and the value of your layers. This example shows Bering Strait AIS Ship Tracks and Marine Mammal Analysis.



If you would like to change the base map to show roads, topographical features, or satellite imagery underneath the layers you have added, go to “SETTINGS” in the top right and pick the base layers of your choosing. You can also change units to metric or English.

(A note about settings: At this time, the mapping portal does not preserve the settings of the time and opacity sliders when you toggle between the catalog and the portal. You also cannot reorder data layers in the legend without removing the layer and adding it back in the order in which you wish to view the layers. Raster layers (gridded data shown as multiple boxes) will always be placed below vector data (lines, points, polygons) both on the map and in the legend.)

Downloading Data

While all data is available for download by following their metadata link to more information, most data is easily downloaded right from the BSRTT. View the layer information page and scroll down and hit download.



Oil Spill Response Scenarios

Oil spill response scenarios can be found on the homepage by clicking “EXPLORE SCENARIOS” or from the data layers catalog under the category “OIL SPILL.”

There are five illustrative oil spill scenarios to choose from on the right side of the page. The first scenario you will see will be the Kivalina scenario. Select any scenario and then add the scenario by the “+” sign and go over to your portal. These scenarios are based on real life events and are meant to illustrate the potential impacts of a spill.

Oil spill scenarios



Explore scenarios

Defenders Oil Spill Scenarios

Scenario 1: Kivalina 2016-05-31 20:00

A theoretical barge of 4369 gross tons and 274 feet in length ran aground in a storm when separated from its tug boat. The barge hit shore 30 miles south of Kivalina. The barge carries lead and zinc concentrate and 22,000 gallons of diesel fuel. In this theoretical scenario, 650 tons of diesel fuel was released. Release of zinc or lead concentrate is unknown. This scenario shows the movement of the diesel fuel over the course of 96 hours.

This scenario is based on a real life event that occurred in October 2002 and did not result in any substance release. This scenario is meant to consider the potential impacts had the vessel in 2002 released toxic substances.

- http://peninsulaclarion.com/stories/100902/ala_100902ala0060001.shtml#V-F6TsrLIU
- <http://www.mxak.org/community/kivalina/kivalina2.html>
- <http://www.mxak.org/community/kivalina/kivalina.html>

Scenario 1: Kivalina
2016-05-31 20:00

Scenario 2: Kotzebue
2016-05-31 20:00



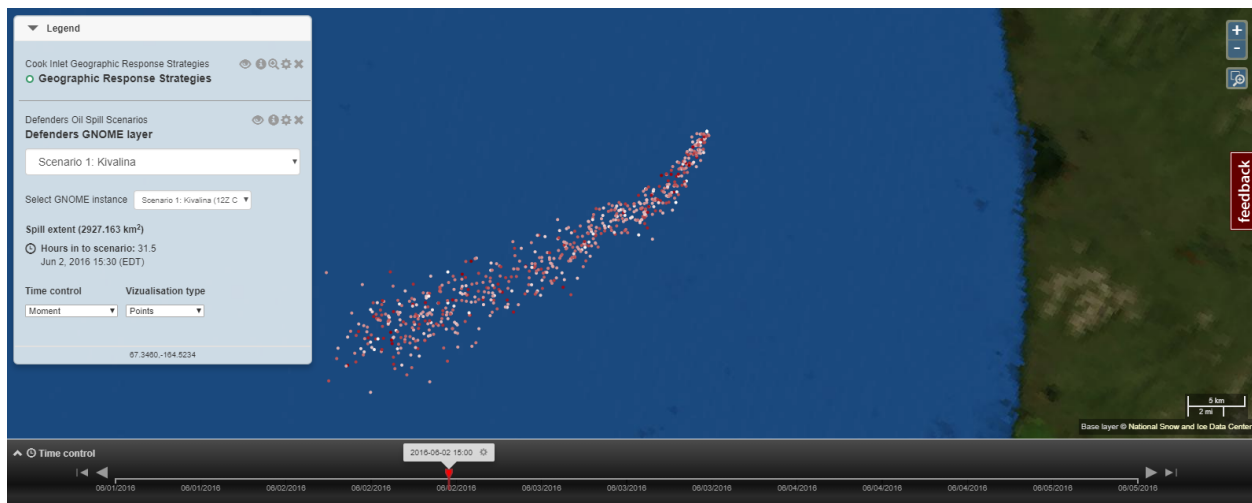
Defenders Oil Spill container

Choose for display in portal

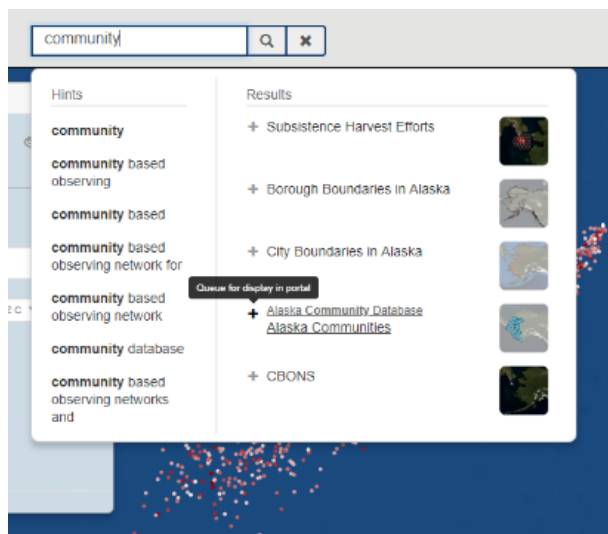
Portal +

Scenario 3: Nome
2016-05-31 20:00

As you drag the bar along the bottom of your portal, the map will show the movement of oil, projected using real weather data from June 2016. The color gradient shows not moving oil (white) to oil moving rapidly (red).



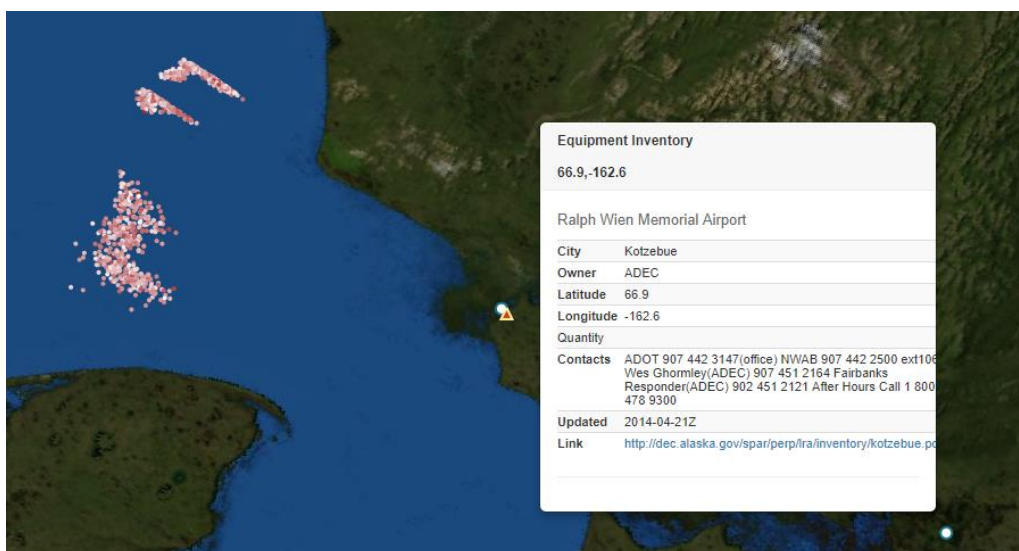
Add the “equipment,” “community,” and “geographic response strategies” layers (by typing in the search bar and clicking the “+”) to begin visualizing a response strategy to this spill.



The equipment layer shows equipment resources and requirements for use at different locations. Hover over an equipment space to view equipment details.

Clicking on a community will open a new window to the Alaska Community Database where you can find resources including first responders and medical facilities.

The response strategies layer shows the options for focusing response efforts based on equipment and community resources. Clicking one of these will open the geographic response strategy PDF in a new window.





Bering Strait Response Teaching Tool (BSRTT) Exercise

Oil Spill Response Resources

Exercise Objective:

The BSRTT is a tool that visualizes multiple information resources that are used by responders and others in situations of oil spill response. You are asked to look at different data within the tool, examine the data and answer the questions below that would be helpful in a spill response.

Questions:

1. Using a Geographic Response Strategy: identify what kind of response strategies will be needed? What are some of the protected species in that geographic area?
2. Are there any equipment resources nearby? Where are they located?
3. Bonus question: What marine mammal subsistence species are at risk during the time of the spill (June)?

Exercise Steps:

1. Go to the BSRTT (<http://bsrtt.defenders.org/#>)
2. Watch the tutorial videos to learn how to use the BSRTT
3. Go to the Data Layer Catalog, click on the “Oil Spill” category on the left side
4. Open the Defenders Scenarios, click “Scenario 2: Kotzebue” to review the scenario, then add to the portal
5. Go back to the Data Layer Catalog, click on “Spill Response Resources”
6. Open the Alaska Department of Environmental Conservation Resources
7. Add the Geographic Response Strategies data layer, the Alaska Local Response Equipment Containers
8. Go to the Interactive Ocean Portal to view all of the data layers together
9. Remove any default layers you are not interested in but might be loaded due to a previous exercise.
10. Now your screen should be oriented to have the small white dot where the oil spill will begin centered on your screen.
11. Using the time control bar at the bottom of the map, drag the red-time slider bar back and forth to see how the oil spill scenario unfolds.
12. Examine and open at least one of the Geographic Response Strategies (GRS) that would be activated by the spill.
13. Using the map and the opened GRS answer the spill response questions above.
14. Bonus: Search for and add the Northwest Arctic Borough Subsistence Mapping Project. (Make sure Scenario 2: Kotzebue is still selected!) Using your virtual sensor tool (your mouse) examine the specific species impacted by the spill.



Bering Strait Response Teaching Tool (BSRTT) Exercise Shipping Lanes and Sea Ice

Exercise Objective:

Here you are identifying what data layers will show ice conditions and shipping lanes, combining these layers, and exploring their historical data to answer the questions below.

Questions:

1. What are typical times (e.g., months) that Arctic shipping lanes in the Bering Strait have been ice--free in the past few years? How has that compared to ice-free times historically?
2. Why is this type of information useful? What sort of person or occupation use this information?

Exercise Steps:

1. Go to the BSRTT (<http://bsrtt.defenders.org/#>)
2. Watch the Tutorial Videos to learn how to use the BSRTT
3. Go to the Data Layer Catalog
4. Search in the search box: Shipping
5. This will take you to the Arctic Marine Shipping Assessment, click on it to open
6. Add one or both of the data layers within the Arctic Marine Shipping Assessment
7. Go back to the Data Layer Catalog and search: Sea Ice
8. The first result will be NSIDC Sea Ice Concentration, click to add it to the portal
9. Go to the Interactive Ocean Portal to view both layers together
10. Remove any default layers you are not interested in but might be loaded due to a previous exercise.
11. Now you should have sea ice data overplotted with Arctic shipping routes.
12. Orient your map to display the Bering Strait Region.
13. Using the time control bar at the bottom of the map, drag the red-time slider bar back and forth to look at typical times of ice-free months in the past few years (for example: 2017, 2016 and 2015) and then do same for 2000, 1995, 1990, 1985 and 1979, which is the start of the satellite ice extent records).
14. Identify months the Bering Strait is open in recent times, compared to historically.
15. Bonus: you can use your virtual sensor tool (your mouse) to hover over any visualized data on the map for more information such as percentage of sea ice concentration.



Bering Strait Response Teaching Tool (BSRTT) Exercise

Oil Spill Response Resources

Answer Key

Questions:

1. Using a Geographic Response Strategy: identify What kind of response strategies will be needed? What are some of the protected species in that geographic area?
2. Are there any equipment resources nearby? Where are they located?

Ralph Wien Memorial Airport

City	Kotzebue
Owner	ADEC
Latitude	66.9
Longitude	-162.6
Quantity	
Contacts	ADOT 907 442 3147 (office) NWAB 907 442 2500 ext106 Wes Ghormley (ADEC) 907 451 2164 Fairbanks Responder (ADEC) 902 451 2121 After Hours Call 1 800 478 9300
Updated	2014-04-21Z
Link	http://dec.alaska.gov/spar/perp/lra/inventory/kotzebue.pdf

- a.
3. Bonus question: What types of subsistence species are at risk?



Bering Strait Response Teaching Tool (BSRTT) Exercise

Shipping Lanes and Sea Ice

Answer Key

Questions:

1. What are typical times (e.g., months) that Arctic shipping lanes have been ice-free in the past few years? How has that compared to ice-free times historically?
 - Ice free months:
 - 2017 May 21 - ???
 - 2016 May 22 - December 17
 - 2015 May 20 - November 29
 - 2014 May 30-December 11
 - 2000 June 25 - November 11
 - 1995 June 14 - December 04
 - 1990 June 15 - November 15
 - 1985 June 1 - November 22
 - 1979 June 14 - November 13
2. Why is this type of information useful? What sort of person or occupation use this information?
 - Persona: US Coast Guard, Sea Captain or mariner, US Navy