

# Become a Marine Biologist for the Day

**Grade:** 9-12

**Subject:** Social Studies

**Duration:** One – three lessons

## Objectives

*It is expected that students will:*

- Demonstrate an ability to present and interpret geographic information using grid references and map symbols
- Critically analyze the validity and usefulness of data for social and scientific purposes
- Represent what it means to be Canadian with reference to distinctive programs

## Overview and Background

Pacific Canada is one of the best places in the world to see and study cetaceans (whales, dolphins and porpoises). Unfortunately, several of these populations are classified as species at risk. Teams of experts are working on the recovery of these animals, however, there are still many gaps in our knowledge about how best to protect them.

The *B.C. Cetacean Sightings Network* is an innovative program that empowers Canadians to participate in conservation. The B.C. Cetacean Sightings Network compiles cetacean sighting reports from the public. This information is used to help researchers better understand cetacean behaviour and identify habitat that is critical for their survival.

Background information is available in the killer whale section of the *Conservation in Action* website.

<http://www.vanaqua.org/conservationinaction>

This lesson gives students the opportunity to present sample data on a map and draw conclusions about its meaning.

## Procedures

Students:

1. Brainstorm methods for tracking the distribution of whales, dolphins and porpoises. Identify the pros and cons of each method.
2. Watch the Cetacean ID video in the killer whale section of the *Conservation in Action* website. Learn the identifying characteristics of the cetacean species.
3. Complete the *Cetacean Sightings Mapping* worksheet and *Discussion* questions.

**Notes for teachers**

An answer key has been provided, at the end of this document, for the *Cetacean Sightings Mapping* exercise.

**Materials and Resources**

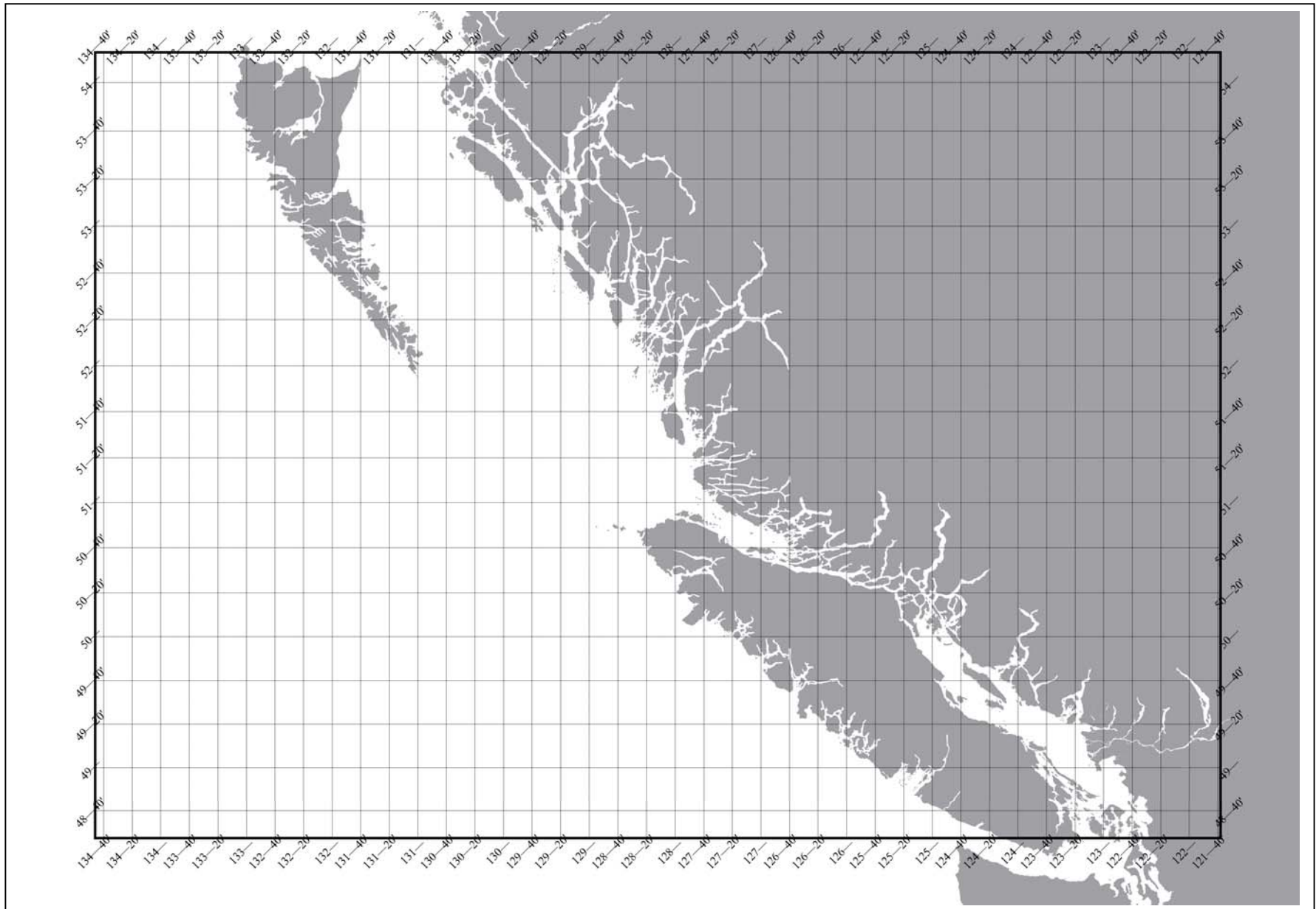
- Computer and Internet connection
- *Map of the British Columbia Coast*
- *Cetacean Sightings Mapping* worksheet
- *Cetacean Sightings Discussion* questions
- *Identifying Characteristics of Commonly Sighted Cetaceans in Pacific Canada* document

**Evaluation**

Use the following to assess student work.

To what extent did the student:	
1. Use a map to effectively present information	5 4 3 2 1 0
2. Draw appropriate conclusions about the data	5 4 3 2 1 0
3. Offer detailed, accurate, and relevant information about the assigned topic	5 4 3 2 1 0

## Map of the British Columbia Coast



## Cetacean Sightings Mapping

Name: \_\_\_\_\_

The B.C. Cetacean Sightings Network appreciates reports of any cetacean sightings in British Columbia. Most of the reports are submitted by experts who provide accurate details, however, sometimes the Network receives calls from inexperienced (and enthusiastic) people. Trained staff do their best to interpret the reports.

The following are examples of some of the more ambiguous reports the Sightings Network receives. (This type of data is not representative of the database.)

- Identify the cetacean or cetaceans described in the report
- Plot their locations on the Map of the British Columbia Coast.
- Develop appropriate mapping symbols for the data and provide a legend.
- Include any other information on the map that you think will help readers interpret the data.

### Sighting #1

Date: Sat, 19 Feb 18:50:25 -0800 (PST)  
From: Jimmy Dean <meandean@snapper.ca>  
To: sightings@vanaqua.org  
Subject: whale encounter

While fishing near Langara Island (54 15.788 N, 132 54.662 W) Saturday October 22, 2005 I saw a whale approx. 13 m long w/ v. long flippers the dorsal fin was low but it had a broad base. I sat and watched, it came up close to me and breached out of the water. I could see the bumps on its head. What an experience!

1. What type of Cetacean did Jimmy see?
2. Bonus: What is one method this species uses to feed?

### **Sighting #2**

Date: Wed, 10 Aug 14:54:31 -0800 (PST)  
From: Belinda Izarro <bizarro@pc.gc.ca>  
To: sightings@vanaqua.org  
Subject: Cetacean near Saturna Island

Hello, I am a park warden in the Gulf Islands National Park Reserve. At approximately 2:30 this afternoon, I saw three cetaceans approximately 100 metres southeast of Boiling Reef (48 47.269 N, 123 02.455 W). Here are my observations:

- They were black and white.
- They were small (less than 3 m long).
- They were swimming very quickly, spraying water as they went along.
- They had triangular dorsal fins, with some white on it.

I hope this information will be of use to you. Belinda

1. What type of Cetacean did Belinda see?
2. Bonus: What's the name of the behaviour Belinda saw?

### **Sighting #3**

Date: 13/09  
Time: 19:20  
General Location: Hyacinthe Bay, SE Quadra Island  
Latitude: 50 7.437 N  
Longitude: 125 13.592 W  
Number of individuals seen: 2 (exact)  
Physical description: triangular dorsal fin, body & dorsal fin completely dark  
Body length estimate: <3m(<10ft)  
Animal behaviour: traveling NE towards Hyacinthe Point, but did not splash  
Sighting Distance: 100-300m  
Sighting Platform: Boat  
Observer Information:  
Name: Harry Bach  
City: Gibsons  
Vessel name: Seas the Day  
Email: [bachatcha@nowhere.com](mailto:bachatcha@nowhere.com)

1. What type of Cetacean did Harry see?
2. Bonus: True or False: Porpoises rarely "porpoise" out of the water.

#### **Sighting #4**

"Okay, so, hi? My name is Faye and I totally just saw a whole bunch of whales by Texada Island (49 46.694 N, 124 33.401 W). There must have been like 200 of them! The fins on their backs were all curved and some of them were jumping completely out of the water! It was soooo cool. What are they called?"

1. What type of Cetacean did Faye see?
2. Bonus: What's the name of the behaviour Faye saw?

#### **Sighting #5**

"Hey, it's Matt again. I was towing a log boom by Bella Coola (52 11.346 N, 127 29.759 W) and I saw something that was about the size of a killer whale. Wasn't a killer whale, though. Had a long ridge going down its forehead and its dorsal fin was small and skinny. Thing stinked, man. Just thought I'd let you know. Yeah."

1. What type of Cetacean did Matt see?
2. Bonus: What's another distinctive characteristic of this species that Matt might have seen if it had lunged out of the water?

## Sightings #6 &7 – Ship’s Log Book Entry

Vessel/Platform: Aquaholic

Date	Time	Location	Lat&Long	Sea State	Vis.	Species	Observations	Name
July 28	1340	Haro Strait, W of San Juan Island	48 30.741 N 123 10.075 W	calm	clear	unknown	3 cetaceans ~7m long black + white body tall dorsal fin w/ pointed tip. Traveling SW across Haro Strait, circling a seal	L. Brotz
August 12	0805	Cow Bay	49 15.298 N 126 9.450 W	2 ft moderate	foggy	unknown	Uncertain ID. Whale was ~150 metres away from boat. It did not have a dorsal fin. Whale had mottled colouring and was staying still.	A. Poon

### Sighting #6

1. What type of Cetacean was seen?
2. Bonus: What ecotype was it?

### Sighting #7

1. What type of Cetacean was seen?
2. Bonus: What’s the cause of the mottled colouring?

## Cetacean Sightings Discussion

Name: \_\_\_\_\_

1. What conclusions can you draw from your Sightings map?
  
  
  
  
  
  
  
  
  
  
2. What are the limitations of the data used to generate this map?
  
  
  
  
  
  
  
  
  
  
3. If the Sightings Network data shows that no sightings have been recorded in an area of the coast, how would you determine whether whales never visit the area or people never visit the area?
  
  
  
  
  
  
  
  
  
  
4. One of the goals of the Sightings Network is to encourage people who are out on the water to understand and care about whales, dolphins and porpoises. Brainstorm other ways to encourage people to protect species at risk in Canada.

## Identifying Characteristics of Commonly Sighted Cetaceans in Pacific Canada

Name	Size	Dorsal fin	Other identifying features
Harbour porpoise	2 m	Triangular, black	- Dives smoothly without splashes
Dall's porpoise	2 m	Triangular, black with white frosting at its tip	- Skims the surface of the water and kicks up a spray that looks like a rooster's tail
Pacific white-sided dolphin	2 m	Sickle-shaped, black and grey	- Often travels in large groups ranging in size from 5 to 50 - May be seen in groups of up to 200 - Sometimes jumps clear of the water
Killer whale	7-9 m	Tall and triangular, black	- Large white eyepatch - See the "Conservation in Action" website for a description of killer whale ecotypes
Minke whale	8-9 m	Tiny compared to its body, sickle-shaped, black	- Ridged nose - Pointy head - Baleen pleats - Bad breath
Humpback whale	14-15 m	Stubby, small and black, but longer than the minke whale's	- Very long pectoral (side) flippers - Knobs on top of head - Big flukes (tail) - Breaches (comes out of water and flops on its side)
Gray whale	14 m	Bumpy knuckles back instead of dorsal fin	- Barnacles on its skin - Mottled white and grey colour

## Cetacean Sightings Answer Key

Sighting #1

Species: Humpback Whale

Bonus Question: Bubblenetting

Sighting #2

Species: Dall's Porpoise

Bonus Question: Roostertailing

Sighting #3

Species: Harbour Porpoise

Bonus Question: True

Sighting #4

Species: Pacific White-Sided Dolphin

Bonus Question: Porpoising

Sighting #5

Species: Minke Whale

Bonus Question: Ridge nose or pointy head

Sighting #6

Species: Killer Whale

Bonus Question: Transient

Sighting #7

Species: Gray Whale

Bonus Question: Parasites