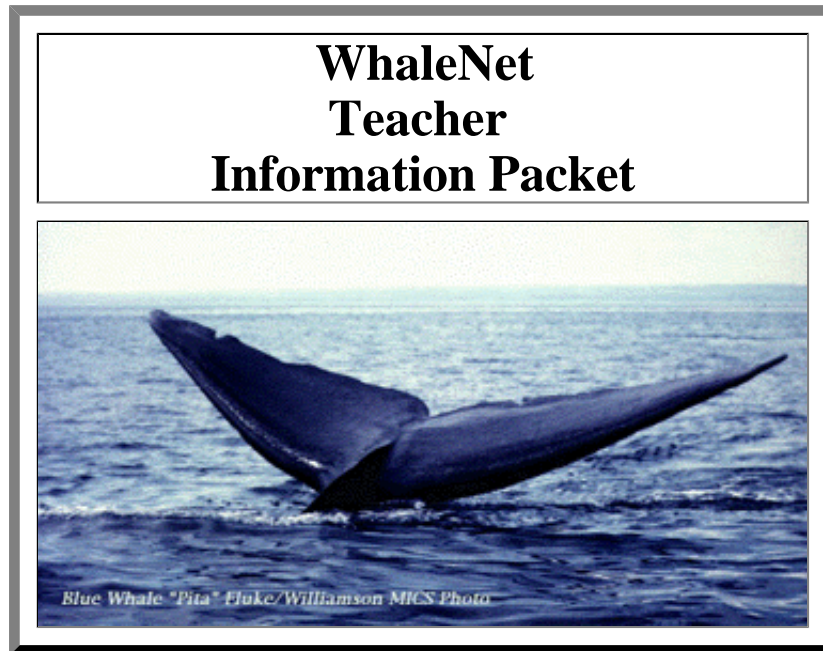


[Español](#)



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## WhaleNet

Interactive Education with Telecommunications

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[Click here for the Adobe PDF version of the Teacher Packet](#)

### Welcome to WhaleNet

WhaleNet is an interdisciplinary, student-centered, interactive educational program focused on whales, the marine habitat, and environmental studies. WhaleNet uses advanced technologies and telecommunications to enhance environmental awareness, develop interest in science and improve skills in problem solving and critical thinking. The program provides a range of high interest "hands-on" materials and supplementary curricular activities.

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This teacher packet begins with an overview of WhaleNet and then provides helpful instructions for accessing WhaleNet and collecting/using whale watch trip data. The following information is included:

1. [Instructions on How to Access WhaleNet](#)
2. [Instructions for Preparing, Recording and Using Data](#)
3. [Marine Mammal Species Sheet With Abbreviations](#)
4. [Whale Sighting Data](#) and [Pollution Data](#) sheets <<<-- **DATA SHEET LINKS**

(To print data sheet, go to Page Setup, reduce print image to 90%, and select landscape or horizontal image, then Print.)

5. [Map of Stellwagen Bank](#) area to plot sightings, & [INDEX of Maps](#)
5. [Instructions on how to input data into the WhaleNet Data Base](#)

6. [WhaleNet Data Base Information Including a Simulated Email Entry](#)
7. [Start-up and Sample WhaleNet Teaching Activities](#)
8. [Supplemental Materials Information](#)

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## Expand Your Educational Horizons with Telecommunications

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WhaleNet, in conjunction with [research groups, educational organizations, and whale watch companies](#), provides programs to enhance the education of students.

WhaleNet uses telecommunications to offers [curriculum resources](#), a source of [data](#) for interdisciplinary [classroom activities](#), and interactive informational support.

**WhaleNet programs** include:

- the [Satellite Tagging Observation Program \(STOP\)](#) so students can observe the movement of whales and marine animals using data from satellite tags;
- [A.S.K. a Scientist](#) so students can correspond with practicing scientists via email;
- [Whale Watch data](#) so students can access and use actual research data;
- the [WhaleNet Pals](#) listserv so students can locate and then collaborate with students in classrooms around the world;
- [Research Voyages](#) so students can share in the experience of student crews;
- other interesting [Educational Programs and Resources](#).

Class activities may be supplemented with information and [materials](#) made available through WhaleNet. Materials include:

- "How to Build an Inflatable Whale"--Plans to build a life-sized(55 ft.) inflatable whale that the students can actually walk through,
- "[The WhaleNet Guide to Whales & Marine Mammals of the North Atlantic Ocean](#)", A CD-ROM containing the Humpback Whale Catalog of the Gulf of Maine and information on 20 marine mammals of the North Atlantic Ocean,
- "The World of Whales, Dolphins, and Porpoises" -- Interdisciplinary Curriculum Activities for Pre-K through High School,
- "Marine Science Activities on a Budget" -- Oceanographic activities that can accommodate many grade levels, and
- " Marine Science Bibliography" -- General knowledge, children's and scientific books.

WhaleNet is a project funded by the National Science Foundation (RED-9454757) and sponsored by Wheelock College and Simmons College in Boston. The purpose of WhaleNet is to enhance science education and environmental awareness using interdisciplinary learning and telecommunications.

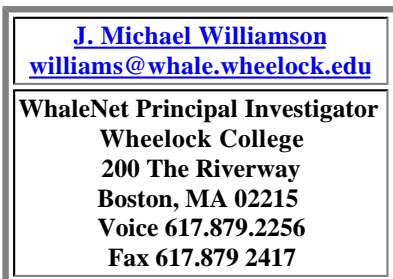
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## INSTRUCTIONS FOR ACCESSING WhaleNet

You may connect through the www using:

<http://whale.wheelock.edu>

We hope you enjoy our network. If you are interested in receiving more information or learning more you can contact:



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## WhaleNet Sample & Start-up Activities

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**Note:** *You can use these activities without actually going on a whale watch trip.* Most activities can be done using WhaleNet [data](#) from the archives.

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### Activities Goal:

The goal of this section is to give you ideas on how WhaleNet data and information can be used. This section is meant to stir your own educational creativity. Personalize these activities so that they will be suitable for you, your class, and your geographic location. **If you cannot go on your own whale watch trip**, WhaleNet data can be accessed in "[Whale Watch Data](#)" or "[Ask, Case Studies, and News Archives](#)". Good luck and enjoy the experiences. If you have questions [contact me](#).

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### Activity 1: Navigation

Simple navigation methods can be used to involve **mathematics**. Using latitude and longitude, or a system of navigation called LORAN (Long Range Aid to Navigation), a ship's position can be plotted very accurately on a navigation chart of the area. You can access research vessel data for this activity from contributed data, "[Whale Watch Data](#)".

With a plot of the ship's course a number of activities can be undertaken. For example, calculate the distance covered and the rate of the vessel's travel from point to point ( $D=R*T$ , "a minute's a mile the world around"). The depth of water at various points can be found by checking the depth on the chart at the point of the fix and thus the topography of the research track can be observed (see bathymetry below). Using the research track data, students can note locations, depths, topography, etc. where marine mammals are observed and correlate them with the behavior observed. Useful links: <http://whale.wheelock.edu/Rosita/> and [http://whale.wheelock.edu/whalenet-stuff/research\\_vessel.html](http://whale.wheelock.edu/whalenet-stuff/research_vessel.html)

**Navigation charts** are available for ~\$14.00 or a bathymetric (fishing) chart for ~\$4.50 through boat yards or boating magazines. The bathymetric chart gives a better visualization of the bottom topography and may be more helpful if a study of bottom topography is planned. The bathymetric chart also has some LORAN lines on it, but not as many as the navigation chart. Prior to your "trip", laminate your chart or cover it with clear contact paper. The students can use water soluble fine tip markers to plot the fixes and course on the map as the day progresses. NOTE: You only need the Lat/Long or two LORAN coordinates to plot a position. Different colors can be used to indicate different species sightings, etc. The chart can be reused when the fixes are washed off.

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### Activity 2: Data Collection

Data collection includes: the location of the observation, species observed, number of each species, grouping and behavior of the organism, and any other information that might be useful.

If you do not go on a whale watch you can access data from the WhaleNet archived [data](#), and if you go on a whale watch, in advance of the activity or trip photocopy [Sighting Data sheets](#) from those included in this packet. Research groups can be assigned in a manner appropriate to the class. If you actually go on a whale watch, arrange to have data taken at least every 15 minutes, throughout the trip, by groups or individuals.

(To print data sheet, go to Page Setup, reduce print image to 90%, and select landscape or horizontal image, then Print.)

#### On a Whale Watch:

It is suggested that only one person at a time be assigned to record the position coordinates (Lat/Long) if this is done in the pilot

house. The captain should be contacted and asked about the best procedure prior to the trip. Some vessels have Lat/Long or LORAN receivers in the public cabin, inquire about this at the time you make your reservations.

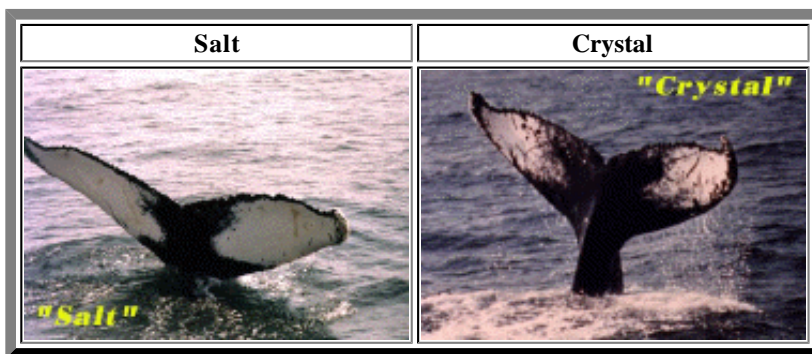
For more class involvement, additional data can be collected on pollution (floating trash) and bird sightings. The [Pollution Data sheet](#) includes the time sighted, location, item of trash, composition of the trash (what's it made of?), amount of trash (number), condition, weather anything is growing on the trash and other notes. The times for sightings can be coordinated with the position recordings to approximate the location of the trash. Totals for each item sighted should be compiled.

Bird sightings can be recorded in a similar fashion. There is a [bird sighting bulletin board](#) in [EnviroNet](#). See the EnviroNet booklet for procedures to input bird data. To obtain a booklet contact earth@sun.simmons.edu.

### Activity 3: Photo-Identification of Whales

Whether you find your fluke images on [WhaleNet](#), use the Voyage of the Mimi, adopt a humpback whale, or photograph a whale on a whale watch, you may want to photo-identify the individual. To identify images of Humpback Whale flukes look for the similarities and differences in the fluke pigmentation patterns. Type 1 is an all white fluke, Type 3 is 50% white and 50% black, and Type 5 is an all black fluke. If you have access to a Humpback Whale Fluke Catalogue or [WhaleNet Guide CD-ROM](#) match your photographs with those in the catalogue. Begin making your own fluke catalogue and use it each trip/year that students study whales and/or participate in a whale watch.

If you go on a whale watch and find a whale not in the Humpback Whale Catalogue, pictures can be mailed to Allied Whale, College of the Atlantic, Bar Harbor, Maine 04609 to be entered into the Humpback Whale Catalogue data base. Record photo-identification photographs of whales taken on the cruise, as follows: date, location (lat/long), photographer's name, roll number (label each roll of film with the initials of the photographer & roll number such as: JMW/95-001), and picture number. Use the photographs to **classify and identify** likenesses and differences between individuals of the same species.



WhaleNet developed a [CD-ROM of the Gulf of Maine Humpback Fluke Catalogue](#) in conjunction with Allied Whale at the College of the Atlantic. This CD-ROM is available.

### Activity 4: Mathematics

After you download a data set from the [WhaleNet](#) listserv or collect data on a whale watch, plot the complete research track on a navigation or bathymetric chart.

How many miles did the trip cover?

What was the average speed of the boat from fix to fix and for the entire trip?

What was the heading (compass direction) on each leg of the trip?

How many sightings were made for each hour of the trip? (This is the "catch effort" used by whalers to compare the efficiency of a trip. The "Catch Effort" method can also be used to compare different trips, on different days, locations, boats, etc.)

See the [Educational Resources](#) page for the [Map Generator](#) and [Distance Generator](#) which give you the ability to make maps and determine distances and bearings between any two points using the latitude and longitude.

**Activity 5: Analysis of Whale Watch/[Whale Watch Data](#) (Mathematics/Elementary Stat)**

Suggestions for analysis:

- (1) compare "catch efforts" (number of sightings of a species for each hour on the whale watch) for different days, different species, etc.;
  - (2) compare the range of behaviors of species on a given day;
  - (3) compare data for specific areas on a given day or week i.e., Jeffrey's Ledge and Stellwagen Bank;
  - (4) compare numbers of cow/calf pairs on given days;
  - (5) compare the depths where the different species were observed;
  - (6) compare where most of the sightings were, on the bank or ledge, over the deep water, etc.: or,
  - (7) compare numbers of sightings vs. sea state, cloud cover, wind velocity, etc.
- 

**Activity 6: Bathymetry (Math/Graphing, Earth Science)**

The ocean's bottom topography, bathymetry, can be plotted and displayed using graph paper placed along each leg of the research track.

Procedure:

- 1) Look at the range of depths over the track and determine an appropriate scale for the depths to be graphed.
- 2) Fold a piece of graph paper along a line about one inch from the edge of the paper.
- 3) Place the graph paper on the track line, and using your predetermined scale for depth, plot the depth of the bottom on the (vertical) Y-axis vs. appropriate/convenient points, along the research track, on the (horizontal) X-axis.
- 4) Connect the profile strips for each leg of the cruise to show the bottom topography of the entire trip.

Return to the bottom topography profile and note the locations of surface sightings, species and behavior observed i.e., feeding, logging, traveling, etc. **Analyze the data from your trip.** Is there a relationship between whale behavior or location and bottom topography? Are sightings usually made over a specific bottom type?

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**Activity 7: Topographic Model of the Bottom (Earth Science)**

Construct a model of an area of ocean bottom i.e., Stellwagen Bank. Using a bathymetric chart, draw lines perpendicular to the ridge line of the bank about one inch apart.

Use graph paper to make a profile of the bottom along each line. Glue the graph paper to pieces of cardboard and cut out the profiles. Line the cardboard profiles up one inch apart in clay or similar substance to hold up the cardboard, and cover with damp cloth or paper. Press the cloth or paper down gently to the contour of the cardboard, allow to dry, spray with paint and allow the paint to dry. Use your imagination!

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**Activity 8: Water Testing (Whale Watch Activity)**

Water testing is an important part of oceanography and whale research. Temperature, density and salinity are commonly tested qualities of sea water. To collect a water sample notify crew members, wait until the boat STOPS COMPLETELY, drop a bucket with a line attached to the handle overboard and bring up a water sample. Use a thermometer to measure the temperature and a hydrometer to measure the density. With the density and temperature, the salinity can be determined using temp/density/salinity chart or graph.

The color of the water, sea state (wave height), wind velocity and direction, and air temperature are also important to researchers. Record this information on the Sighting Data sheet.

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**Activity 9: Plankton Tow and Analysis (Whale Watch Activity)**

A plankton tow and analysis explains a great deal about why whales are where they are. [Phytoplankton](#) (plants) and [zooplankton](#) (animals) can be collected and observed under normal conditions, or downloaded from the included links.

On a whale watch, if only one plankton net can be purchased choose a phytoplankton net, since it collects both plant and animal plankton. The plankton can be examined with hand lenses or microscopes and, depending on the class age, various degrees of plankton analysis can be conducted. Data on the density of plankton, identification of plankton types, etc. can be gathered. *Fresh water plankton can also be substituted.*

Links to plankton productivity can be found in the "[Weather Information Links](#)" and "[Educational Resources](#)" pages of the *WhaleNet student home page*. A discussion and development of food chains and food webs would be a natural follow-up to the plankton analysis.

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#### Activity 10: Analysis of [Marine Pollution](#) (Whale Watch Activity or with non-WW links)

Collect data on pollution and floating debris by using the Pollution Data Sheet. Up-load the data using the same procedure as for marine mammals but use Pollution Data in place of Data in the subject header. WhaleNet will also be collecting Coast Sweep data in the future. Source of [Marine Pollution](#) Information.

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#### Activity 11: Analysis of [Pelagic Birds](#) (Whale Watch Activity or with non-WW links)

Collect data on pelagic birds by using a data sheet similar to the marine mammal Sighting Data sheet, substituting bird species for whale species. Up-load the information using the instructions for Environet's Bird Watch. To obtain a booklet contact earth@sun.simmons.edu.

**\*\* NON-WHALE WATCHING CLASSROOMS \*\***

If your classroom is not going on a whale watch trip but is instead using whale watch data from WhaleNet's data base, use the [data sheets](#) to copy data out of the [WhaleNet archives](#). You can then use the data in the same way as those that went on a whale watch.

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### Preparing and Recording Whale Watch Data

Prior to making reservations for your whale watch trip, ask the company if they are a WhaleNet affiliate and/or if they will allow you to conduct your research: record Lat/Long positions, collect water samples, and/or collect plankton samples. The company need not be affiliated with WhaleNet, but you should be sure that you will be allowed to conduct your activities. Ask if the Captain will allow a student in the pilot house to collect Latitude/Longitude (or LORAN) readings, depths, etc. if they do not have a Public Information Display.

Organize data collecting teams or individuals **before** you arrive at the boat. The excitement of the day, boarding, etc. does not lend itself to organizing at dock side.

#### [Data Sheet](#)

1. Fill in as much of the general information (weather, tides, etc.) in the [Sighting Data sheet header](#) as possible. The Port of Departure includes the city, state and country. Sea state (use the beaufort scale of wind velocity which you can download from the [Weather Information Links](#)), wave height, and visibility should be recorded at sea. Water temperature can be taken from the NOAA Weather radio broadcast at the dock, if you do not take it at sea.

2. Take a **Latitude/Longitude** (Lat/Long) fix about every 15 minutes on the way to and from the primary whale watching area beginning at the harbor mouth. Indicate N or S latitude (i.e. N lat) and E or W longitude (i.e. W long) on the data sheet. This is important because of the international nature of the WhaleNet data base.



3. The **time** should be recorded for each Lat/Long fix and marine mammal observation. Use 24-hr. time for all data entries, i.e., 2:15 PM would be 14:15. (For afternoon or evening just add 12 to the hour.)
4. The **location** is determined by Lat/Long coordinates (i.e. 71 24'W, 42 40'N). Two coordinates are used for a fix. Write one coordinate in each column under Location.
5. **Depth** can either be recorded by depth sounder on the boat or by making a fix on the chart and noting the depth on the chart closest to the fix. (Note: Many depth sounders do not work well when the boat is traveling at higher speeds.) Indicate the unit your measurement is in, i.e., feet, meters, fathoms.
6. When a whale is observed record the **Species** using the [Marine Mammals Sighting Abbreviation list](#), i.e. Mn for humpback, Bp for fin whale etc.
7. Record the **Number** of whales in the immediate area (subjective distance judgment) around the boat. This can be confusing when there are a number of whales in the area. Use a separate line on the data sheet for each species in an area, most of the other other data will be the same, i.e. time, Lat/Long, depth, etc.
8. **Grouping** is recorded by listing the number of whales in a group. The sum total of groupings must equal the previous Number recorded. For instance, if you have 6 humpback whales, under grouping you may have 2+2+1+1 if there are two pairs and two single animals. A cow/calf pair is recorded as c/c.
9. **Behavior** is recorded as feeding, traveling, breaching, flipper slapping, lob tailing, spy hop, logging, or trumpeting. There are more behaviors and some researchers take minutely detailed behavioral data, but for your purposes that detail may not be necessary.
10. **Names** of humpbacks can be included in the last column on the data sheet. Most of the Gulf of Maine population has been named to facilitate data transfer by researchers.
11. **Water Temperature, Density and Salinity** at each sighting and fix should be recorded in the last column, if possible.

### Marine Mammals and Turtle Sighting Abbreviations

#### Abbr, No., Common Name, Genus Species

- Eg, 1, Right Whale, *Eubalaena glacialis*
- Bm, 2, Blue Whale, *Balaenoptera musculus*
- Bp, 3, Fin Whale, *Balaenoptera physalus*
- Bb, 4, Sei Whale, *Balaenoptera borealis*
- Be, 5, Bryde's Whale, *Balaenoptera edeni*
- Ba, 6, Minke Whale, *Balaenoptera acutorostrata*
- Mn, 7, Humpback Whale, *Megaptera novaeangliae*
- Pc, 8, Sperm Whale, *Physeter macrocephalus*
- Kb, 9, Pygmy Sperm Whale, *Kogia breviceps*
- Er, 10, Gray Whale, *Eschrichtius robustus*
- Dl, 11, Beluga Whale, *Delphinapterus leucas*
- Lo, 12, Pacific White Sided Dolphin, *Lagenorhynchus obliquidens*
- Md, 13, Blainville's Beaked Whale, *Mesoplodon densirostris*
- Me, 14, Gervais's Beaked Whale, *Mesoplodon europaeus*
- Mm, 15, True's Beaked Whale, *Mesoplodon mirus*
- Zc, 16, Cuvier's Beaked Whale, *Ziphius cavirostris*
- Ha, 17, Northern Bottlenose Whale, *Hyperoodon ampullatus*
- Pe, 18, Melon-Headed Whale, *Peponocephala electra*
- Fa, 19, Pygmy Killer Whale, *Feresa attenuata*
- Px, 20, False Killer Whale, *Pseudorca crassidens*
- Oo, 21, Killer Whale, *Orcinus orca*
- Gm, 22, Long-Finned Pilot Whale, *Globicephala melaena*

- Gx, 23, Short-Finned Pilot Whale, Globicephala macrorhynchus
- Sb, 24, Rough-Toothed Dolphin, Steno bredanensis
- Wb, 25, White Beaked Dolphin, Lagenorhynchus albirostris
- La, 26, Atlantic White Sided Dolphin, Lagenorhynchus acutus
- Lh, 27, Frasar's Dolphin, Lagenorhynchus hosei
- Dd, 28, Common Dolphin, Delphinus delphis
- Tt, 29, Bottlenose Dolphin, Tursiops truncatus
- Gg, 30, Risso's Dolphin, Grampus griseus
- Sp, 31, Spotted Dolphin, Stenella plagiodon
- Sl, 32, Long-Snouted Spinner Dolphin, Stenella longirostris
- Sx, 33, Short-Snouted Spinner Dolphin, Stenella clymene
- Sc, 34, Striped Dolphin, Stenella coeruleoalba
- Pp, 35, Harbor Porpoise, Phocoena phocoena
- Or, S.36, Walrus, Odobenus rosmarus
- Pg, S.37, Harp Seal, Phoca groenlandica
- Cc, S.38, Hooded Seal, Cystophora cristata
- Hg, S.39, Gray Seal, Halichoerus grypus
- Pv, S.40, Harbor Seal, Phoca vitulina
- Tm, S.41, West Indian Manatee, Trichechus manatus
- Dc, T.42, Leatherback Turtle, Dermochelys corlacea
- Cc, T.43, Loggerhead Turtle, Caretta caretta
- Cm, T.44, Green Turtle, Chelonia mydas
- Lk, T.45, Ridley Turtle, Lepidochelys kempi
- Ei, T.46, Hawks Bill Turtle, Eretmochelys imbricata
- UD, U.47, Unidentified Dolphin/Porpoise,
- UB, U.48, Unidentified Large Whale,
- UX, U.49, Unidentified Small Whale

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>> **NOTE: Use the first letter of the Genus and species for species not listed.** <<

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## WhaleNet Data Input Instructions

### Note - You can subscribe to the WhaleNet listserv.

To subscribe send an email message to [majordomo@whale.wheelock.edu](mailto:majordomo@whale.wheelock.edu)  
 In the body of the message type subscribe whalenet  
 (Do not include any other information. and then send the message.)  
 You will receive notification shortly that you are subscribed



**Email** [WhaleNet](mailto:whalenet@whale.wheelock.edu) (whalenet@whale.wheelock.edu) **with your collected data in the following format:**

Under the **SUBJECT heading**, enter the information as shown:

To: whalenet@whale.wheelock.edu  
 CC:  
 Subject: Data/NSB/May 4 94/WCI/Pita I/Stoneham MS 6  
 Data/Port of Departure/Date/Organization or Research Group/Vessel/School and Grade

**Place a "/" between each category of information.**

### Key to the subject entry:

**Data** - identifies the entry as whale sighting data (**Pollution Data** can also be used.)



**NSB** - identifies the area of the excursion by the port of departure or a geographic area [i.e., NSB- Northern Stellwagen Bank, SSB - Southern Stellwagen Bank, JL-Jeffrey's Ledge, IP-Ipswich Bay, LIS - Long Island Sound, VB - Virginia Beach, etc.]

**May 4 94** - date of the trip

**WCI** - identifies the organization the vessel is affiliated with, i.e. the Whale Conservation Institute. All boats should be affiliated with a research group or organization.

**Pita I** - the specific vessel name

**Stoneham MS 6** - school or group name and grade

**Note:** Data entry must be consistent. The subject header will appear on the Bulletin Board Directory, and is used for sorting through the many data entries on the directory. For instance, to do a longitudinal study you can select one research group (ie. WCI); or a specific port of departure or geographic area such as NSB (Northern Stellwagen Bank); or one vessel (ie. Pita); or a specific date.

**\*\* NON-WHALE WATCHING CLASSROOMS \*\***

If your classroom is not going on a whale watch trip but is instead using whale watch data from WhaleNet's data base, use the [data sheets](#) to copy data out of the [WhaleNet archives](#). You can then use the data in the same way as those that went on a whale watch.

### Simulated EMail Entry

To: whalenet@whale.wheelock.edu

CC:

Subject: Data/Beverly, MA, USA/ May 4 94/MICS/Pita I/Stoneham MS

-----  
Vessel : Pita I

Port of Departure : Beverly, Mass., USA

Date : May 4 94

School/Org : Stoneham Middle School

Grade/Group : 6

Sea State : 2

Wave Ht. : 1-2 ft

Wind Velocity and Direction : NW/10 kts

Air Temp : 68°F

Water Temp : 55°F

Cloud Cover : 10 %

Visibility : 15 nm

High Tide (time) : 15:30

Recorder : Jim Williams

Time,LatN,LongW,Depth,Species,Number,Grouping,Behavior,Names, Water Temp.

9:00,42 40'N,70 45'W,d,s,n,g,b,n,w

9:15,42 43'N,70 42'W,d,s,n,g,b,n,w

10:30,42 45'N,70 40'W,d,s,n,g,b,n,w

10:45,42 23'N,70 25'W,150 ft.,Mn,5,3+2,logging,Salt Liner,w

11:00,42 45'N,70 22'W,d,s,n,g,b,n,w

11:15,42 45'N,70 20'W,100 ft.,Mn,3,1+1+1,Feeding,Pepper

11:15,42 55'N,70 30'W,100 ft.,Bp,2,2,feeding

11:30,42 45'N,70 28'W,d,s,n,g,b,n,w

...

15:20,40 50'N,70 25'W,250 ft.,Ba,7,1+1+1+1+1+1+1,feeding

Day Totals: Hrs:3,Miles:47,Mn:8,Bp:2,Ba:7, etc.

**Data Entry:**

**General Information:** Each day's data must contain the Data Sheet's general header information as shown in the Simulated EMail Entry above. Enter this general information, i.e., Vessel: Pita I, by typing the data's term followed by a ":" (colon). Each item in the general header is entered on a separate line.

**Data:** The first line of the data entry contains the column headings on the Data Sheet, each separated by a "," (comma). Subsequent lines are a single line from the data sheet with each column's entry separated by a "," (comma). Use appropriate letters as space holders (i.e., d,s,n,g,b,h,w) if there is no data in a column.

**Data input example and explanations using the last line of the above entry:**

**15:20** - 3:20 PM - use 24 hr time

**40 23' & 70 25'** - Lat/Long coordinates

**250 ft.** - depth taken from a location (fix) on chart or depth sounder on the boat

**Ba** - species of whale sighted i.e. Minke (use WhaleNet's [listing of abbreviations](#))

**7** - number of a species of whale sighted in the area of the boat

**1+1+1+1+1+1+1** - grouping of whales, sometimes singles, pairs, c/c (cow/calf), etc.

**feeding** - observed behavior (use WhaleNet's [listing of common behaviors](#))

**Day Totals** - try to eliminate duplicate sightings of the same whales and report totals by species. Hours and miles are reported from leaving to returning to the harbor mouth. Place a colon after each data type label and a coma after each number entry.

## WhaleNet Supplementary Materials

**WhaleNet CD-ROM:** the [WhaleNet Guide to Whales & Marine Mammals of the North Atlantic Ocean](#). This CD contain about 1,000 images including the Gulf of Maine Humpback Whale Catalogue with sighting histories and software to photo-identify individual humpback whales, and the natural histories and slide shows on 20 marine mammal species common to the area. ~~\$25.00~~ **\$15.00** + 3.00 shipping

The following listed materials may be purchased to supplement your classroom curriculum.

**Marine Science Activities on a Budget** (booklet) - Contains a cross-section of oceanographic activities that can be altered to accommodate many grade levels. \$13.00

[The World of Whales, Dolphins, and Porpoises - Interdisciplinary Curriculum Units for Pre-K through High School](#) (book) - This contains 200+ pages of interdisciplinary activities, bibliographies, etc. suitable for a wide range of interests, abilities, and grade levels. \$20.00

[How to Build an Inflatable \(55 ft.\) Fin Whale](#) (booklet) - Instructions on how to build a 55 foot long model of a whale that can be carried in a duffel bag by one person Students and teachers can walk inside. Estimated cost for materials is between \$40.00 and \$50.00. \$10.00

**Marine Science Bibliography** (pamphlet) - Extensive bibliography for a wide range of grade levels and interests from general knowledge, children's books, to scientific information for the marine mammal biologist. \$3.00

### Make Checks payable to: J. Michael Williamson

Prices (in US funds) include shipping within the USA.

Send order form to: [J. Michael Williamson](#)

MICS

20 Moynihan Rd.  
So. Hamilton, MA 01982

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

Address \_\_\_\_\_

\_\_\_\_\_

Email address: \_\_\_\_\_

What do you want to order? \_\_\_\_\_

