



Education and Research: Testing Hypotheses

Teacher Overview of Citizen Scientist and JellyWatch.Org

Procedure for teacher:

1. Follow this link: <http://www.jellywatch.org/> to the JellyWatch homepage and begin your exploration of the magnificent world of jellies.

Notes:

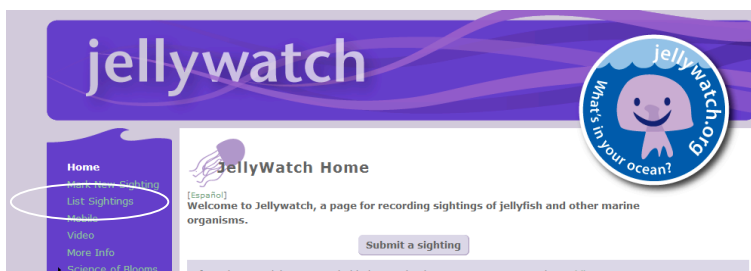
- There is a background PowerPoint for both an introduction to Citizen Science and also a reference for the jellies.
- Students will need access to JellyWatch on their computers. They will also need to have access to the free JellyWatch App (best option would be for them to download it to a smartphone or other device).

An interactive map is on the homepage that allow students to see where jellies have been observed. You may zoom in or out of the map. Clicking on an icon will display the observation date, location and name (if identified) of the sighting.

The screenshot displays the JellyWatch.org homepage. At the top, it says "Happy Jellywatching!". Below this, there is a map of the world with various jelly sightings marked by icons. A legend on the right side of the map lists different jelly species and other categories: Jellyfish, Box Jelly, Man o war, Clean sea, Red Tide, Mammal, Squid, Plastic, and Other. A detailed view of Monterey Bay is shown in the foreground, with a pop-up window displaying the following information: "Corolla and Solmaris abundant in Monterey Bay", "Organism: Jellyfish", and "Date: 2014-03-04". The map also shows various geographical features like Mendocino National Forest, Tahoe National Forest, and several cities like Reno, Sacramento, Fresno, Bakersfield, and Santa Clarita.

Note: This is a large and growing database. It is highly suggested that it not be printed out. Even the Excel Modified Jellyfish.org Data Set is huge, thus it would be best if students had access to it on a computer. Directions titled “Modifying JellyWatch Data Instruction Sheet” are available if you would like to change the parameters of data to be used. For the rest of this activity, you and your students will be using the Excel Modified Jellyfish.org Data.

To determine where the data comes from, locate “List Sightings” in the upper left menu bar on the JellyWatch homepage and click this link.

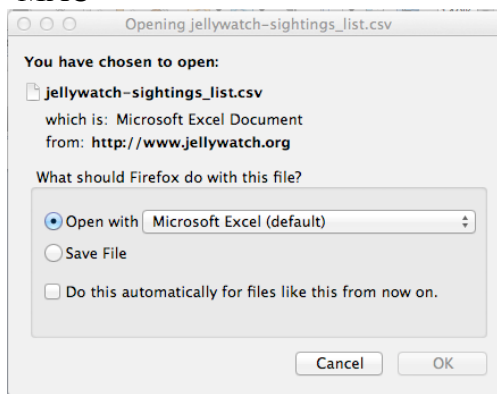


Locate and select this link (**CSV**) to export the “jellywatch-sightings_list.csv” to an EXCEL spreadsheet. The large Excel file will download to your laptop.

Windows PC



MAC



2. Hand out the *Student Reflection and Procedure Sheet*.
3. Using the Citizen Scientist PowerPoint (or other background information), lead a class discussion about the importance of Citizen Scientist projects, especially JellyWatch. After the discussion, have students answer Reflection Questions #1 and 2.
4. Allow students to access the Modified Jellyfish Data available on their computers. Next, have them answer Student Reflection Questions #3, 4 and 5.

- Have students get in groups and share their responses for questions 1-5. Then have them examine the data table for inconsistencies and record what they find (for example *Velella* is listed under both columns A and J and also under a Man o' War).
- Have students gather in groups and examine the data table, then have them answer Student Reflection Question #6.
- Have student groups compare the fields of entry for the webpage versus the app (they can do this by comparing the Adding a Sighting to JellyWatch Webpage and Adding a Sighting to JellyWatch App). Have students answer the Student Reflection Question #7
- Students (either individually or in a small group) will pick or be assigned a jelly. They need access to the Modified JellyWatch Data. The Student Directions are below, and also on the *Student Reflection and Procedure Sheet*. They will answer questions **highlighted** below.

From *Student Reflection and Procedure Sheet*.

Now you will select or be assigned a species of jelly/ctenophore.

Open the Modified Data Set on your computer. Highlight the entire spreadsheet by clicking your cursor in the upper, left quadrant of the spreadsheet

	A	B	C	D	E	F	G	H	I	J
1	Title	Date	Posted	Type of org	Latitude	Longitude	Other	Quantity	Description	Image
2	"Sarsia-type" hydrozoa	10/8/2013	10/11/201	Jellyfish	60.56	5.02		6 to 10		http://
3	'Cross jellies' (Suffolk, I	7/30/2011	07/30/201	Other	52.04	1.46	hydrozoan	2 to 5	Two specime	http://
4	'Cross jellies', Plocktor	5/30/2011	06/01/201	Other	57.34	-5.65	hydrozoan	2 to 5	Four specime	http://

Then while in the DATA tab, SORT by "Title" Column A and hit OK.

	A	B	C	D	E
1	Title	Date	Posted	Type of org	Latitude
2	"Sarsia-type" hydrozoa	10/8/2013	10/11/201	Jellyfish	60.5
3	'Cross jellies' (Suffolk, I	7/30/2011	07/30/201	Other	52.0
4	'Cross jellies', Plocktor	5/30/2011	06/01/201	Other	57.3
5	1" jellies on Sealcliff St	1/2/2011	01/03/201	Jellyfish	36.9
6	2010/10/16 Mikawa Bi	10/16/2010	10/19/201	Jellyfish	34.6
7	2010/12/28 Mikawa Bi	12/28/2010	12/28/201	Jellyfish	34.8
8	2011/05/21 Mikawa Bi	6/17/2011	06/17/201	Jellyfish	34.7
9	2011/06/07 Mikawa Bi	6/7/2011	06/17/201	Jellyfish	34.8
10	20110823 Jellyfish Pat	8/23/2011	08/31/201	Jellyfish	34.6
11	30 Jan_Reunion Rocks	1/30/2010	02/04/201	Jellyfish	-29.9
12	4 days of Jelly swarms:	5/28/2011	06/11/201	Jellyfish	27.6
13	5 - 10000 jellyfish on I	8/6/2013	08/06/201	Jellyfish	56.2
14	6:00 am box jelly	2/23/2014	02/26/201	Box Jelly	21.2
15	8.25.13 close up from s	8/26/2013	08/26/201	Jellyfish	3

Now the names will be in alphabetical order. Scroll down to your organism name, highlight all entries for your organism and copy (Control-C on a PC). The example below is for sea nettles.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
797	Sculpine in reeds at Tit	7/20/2014	07/21/201	Box Jelly	53.61	-131.94		1															
798	Scypho spotted from ark	10/20/2013	10/24/2013	Jellyfish	33.81	129.75		1	Spotted this	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/IMG_0344.jpg													
799	Scyphomedia in Arab	5/3/2009	04/03/2011	Jellyfish	25.6	50.2		6 to 10	in shallow w	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/Jelly-1288.JPG													
800	Scyphozoa in Maimli,	10/29/2011	07/29/2011	Jellyfish	55.61	13		1	Aurelia?	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/malmo_jelly_four.jpg													
801	Scyphozoa near Darwin	3/11/2010	03/11/2011	Jellyfish	-12.38	130.84		11 to 99	Purple, swar	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/jellyfish249.jpg													
802	Scyphozoa in Lofoten	7/20/2012	07/29/2011	Jellyfish	68.03	13.35		1	about as big	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/lofoten_jelly_both.jpg													
803	Sea Nettles in reeds at Cor	6/26/2013	06/29/2011	Jellyfish	27.83	-97.38	Chrysaora	6 to 10		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1372547013.jpg													
804	Sea Nettles?	8/17/2012	08/17/2011	Jellyfish	35.37	-120.85		2 to 5		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1345258352.jpg													
805	Sea nettles and egg yol	8/22/2013	08/22/2011	Jellyfish	36.79	-121.84		100+	and whales	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/beroe_1377181694.jpg													
806	Sea Nettles in Monterey	9/9/2012	09/10/2011	Jellyfish	36.59	-121.89		6 to 10	Sea Nettles s	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/1st weekend, September 2012 012.JPG													
807	Sea nettles in Monterey	7/4/2012	07/05/2011	Jellyfish	36.59	-121.89		11 to 99	Plenty of Chr	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/July 4th 507.JPG													
808	Sea nettles in Moss Lar	8/8/2012	08/08/2011	Jellyfish	36.8	-121.79		11 to 99	Lots of larg	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1344459798.jpg													
809	Sea Nettles in San Diego	8/9/2013	12/05/2011	Jellyfish	32.71	-117.23	Sea Nettles	2 to 5		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/IBWrites_1386293525.jpg													
810	Sea Nettles still in Mor	9/17/2012	09/22/2011	Jellyfish	36.59	-121.9		6 to 10		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/September 17th, 2012 077.JPG													
811	Sea Nettles? at La Push	9/3/2013	10/25/2011	Jellyfish	47.9	-124.63		2 to 5	We saw four	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/photo_1.JPG													
812	Seaushoes jellyfish	7/25/2014	07/25/2011	Jellyfish	55.57	-1.64		1	The one and	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/NO003.JPG													

Then click on a New Spreadsheet at the bottom of your Excel sheet and paste your data.

JellyWatch Data with JUST IMAGES REV THURSDAYAM [Compatibility Mode] - Microsoft Excel

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Sea Nettles	6/26/2013	06/29/2011	Jellyfish	27.83	-97.38	Chrysaora	6 to 10		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1372547013.jpg													
2	Sea Nettles?	8/17/2012	08/17/2011	Jellyfish	35.37	-120.85		2 to 5		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1345258352.jpg													
3	Sea nettles	8/22/2013	08/22/2011	Jellyfish	36.79	-121.84		100+	and whal	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/beroe_1377181694.jpg													
4	Sea Nettles	9/9/2012	09/10/2011	Jellyfish	36.59	-121.89		6 to 10	Sea Nettles	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/1st weekend, September 2012 012.JPG													
5	Sea nettles	7/4/2012	07/05/2011	Jellyfish	36.59	-121.89		11 to 99	Plenty of Chr	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/July 4th 507.JPG													
6	Sea nettles	8/8/2012	08/08/2011	Jellyfish	36.8	-121.79		11 to 99	Lots of larg	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/mobile_jellywatcher_1344459798.jpg													
7	Sea Nettles	8/9/2013	12/05/2011	Jellyfish	32.71	-117.23	Sea Nettles	2 to 5		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/IBWrites_1386293525.jpg													
8	Sea Nettles	9/17/2012	09/22/2011	Jellyfish	36.59	-121.9		6 to 10		http://jellywatch.org/sites/default/files/imagecache/original/uploaded/September 17th, 2012 077.JPG													
9	Sea Nettles	9/3/2013	10/25/2011	Jellyfish	47.9	-124.63		2 to 5	We saw fou	http://jellywatch.org/sites/default/files/imagecache/original/uploaded/photo_1.JPG													

Because the organism may not be correctly identified in Column A (Type), you will need to SORT and FIND, Copy and Paste (to your new spreadsheet) from Column G (other) as well. Use your new spreadsheet for the following parts.



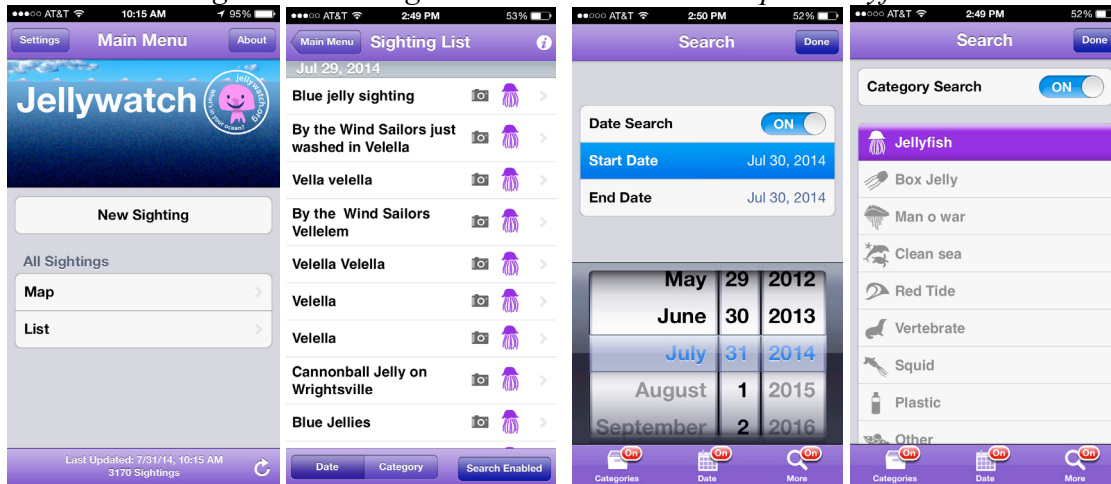


*SORT your data for Column E (latitude) and record the range of your organism.
Range*

*Now verify this range found on JellyWatch with reputable source (check with your teacher).
Explain if the JellyWatch Data is verified?*

Now use the JellyWatch App and find all the sightings of all jellyfish since August 1, 2014.

To do this go to the JellyWatch App homepage and Click on LIST. Then click SEARCH ENABLED then change the date range then CATEGORIES and pick Jellyfish.



Using this data, which species/organism is most common in our area or (for those not on an ocean) a favorite coastal vacation spot?

9. Students will construct an infographic on their assigned/chosen jelly based on the Infographic Rubric (there is also an example available).

