



1. While reading the "About PacIOOS Voyager" handout, click on the associated buttons, links, etc. described in the handout to get a feel for how to use this online mapping and data exploration tool.
  - a. Is this your first time seeing the PacIOOS Voyager?
    - i. If not, how did you hear about it before?
  - b. How intuitive do you find it to use?
    - i. Provide at least one suggestion for improvement and/or one thing that you like about the PacIOOS Voyager.

Imagine you are planning to head out to the ocean for recreation right after Lab. In order to pick the best spot for your ocean recreational activity of choice, it would be helpful to have some ocean and atmospheric information.

2. Let's start with wave data.
  - a. How many data categories can you identify that include wave data?
  - b. What are the names of these categories, and what type of data do they provide?
3. How many PacIOOS wave buoys are located around the Main Hawaiian Islands?
4. Using the information from the sources you identified in #2 and #3 above, examine the present wave conditions around your island (height, direction, and period)
  - a. What are the conditions like on the North coast? South? West? East?
  - b. Why is the wave period valuable information?
  - c. Based on the near real-time data from the wave buoys, where is the largest swell coming from (what direction)? How big is it?
5. Now examine atmospheric data.
  - a. In which categories can you find atmospheric information?
  - b. What are the present wind conditions (direction and velocity)? Hint: Check the time of the Weather Forecast.
  - c. Is there other information on the atmosphere that you may be interested in knowing when determining what ocean activity to partake in?
6. Now examine the tides.
  - a. What is the tide currently doing? What will it look like over the next hours? Is the tide high/low? Incoming or outgoing?
  - b. What data category helped you determine this?
7. Based on the information gathered above, where is the best location for your chosen ocean activity immediately after your lab is complete?
  - a. Provide a detailed explanation on your activity and why you chose this location. (Hint: If you don't know much about the various beaches around you, check out the Hazards/Hazards:observed/beach safety.)

- b. Save a link to the map (or maps) you create on Voyager to make your decisions so that your friends can paste the URL into their Internet browser and see the same map overlays as you. What is the URL(s) to your map? (HINT: use the LINK tab in the upper right corner of the map. Click on the "Short URL" box to make it easier to copy down.) Note: You may have to save multiple maps, as it is difficult to visualize more than one forecast at a time.
    - c. If your ocean activity requires equipment (board, paddle, canoe, sail, kite, etc.), include which type of equipment you would take with you on this day, and why. Please be as specific as possible.
  8. Do you check any websites or apps for ocean conditions before you head out to the ocean?
    - a. If so, what is your favorite website/app that you check?
      - i. What information are you looking for?
      - ii. Compare the data on the PaclOOS Voyager to the information on your favorite site. How do they compare?
    - b. If not, what ocean activity do you participate in most frequently?
      - i. List at least one data category that will help you improve your decision-making before you go partake in this activity.
  9. Imagine that you plan to go to your favorite beach in Hawaii tomorrow afternoon.
    - a. Using the PaclOOS Voyager, your knowledge about your favorite ocean activities/sports, and information you have learned in Oceanography class, what is the optimal ocean activity to pursue tomorrow at this beach?
    - b. What data and information did you use to make this decision? Be specific and thorough. List at least 2 data sets that you used to make this decision.
    - c. Make a map illustrating the data overlays you used to make your decision. Save the URL link and provide it here.
    - d. Is there any additional information you wish you had to help improve your decision-making?
  10. Shift your attention to wildlife. There are some really interesting data overlays in Voyager under "Biology", "Fish and Wildlife." Explore the different data layers in this category for a while. What are the 3 different ways that data are portrayed in this category and how are they different? (HINT: The first one is called "tracking." Click on the text to get a pop-up explaining each type of data folder offered.)
  11. Focus in on the Tiger Sharks Distribution layer. This data layer includes information on shark locations from sharks tagged previously off Hawai'i Island, O'ahu, Mokumanamana, French Frigate Shoals, Pearl and Hermes Reef, and Kure Atoll as well and sharks tagged in 2013-2014 off Maui. Based on this data, what broad speculations might you make are tiger shark distribution in the Hawaiian Islands?
  12. To interact with the tiger shark data a bit more, activate the Tiger Shark data under "sightings." Notice that you will need to check the box next to "points." The default is to show only 100 points. Open the "Map Options" dropdown and choose 1000 points. Note that you can customize the look of the points as well. These data points are more interactive than the previous layer. Click a few of the points. In the pop-up, notice that each point is associated with a Tag ID, and next to that ID, you can click "show track" to see an animation of that animal's movements. If you click on "show track" it will close this layer and open the "tracking" layer above it. What is the tag ID of the shark

pinged furthest North? What is the tag ID for the shark that was identified by satellite furthest South? How long is this shark? Is it male or female?

13. Now focus on the Tiger Sharks Tracking. Watch the animations for "HIMB: 133372" and "HIMB: 133371." What is similar about the tracks of the two sharks? What is different? What is similar about the sharks themselves? What are your thoughts about their movements?
14. Name at least one bias associated with the data sets available in the "Fish and Wildlife" data category.
15. What other uses can you envision for the data and information available on the PacIOOS Voyager?