Name:_____   Period: _____   Date: _____

Clues from Albatross

What can an albatross teach us about ocean health? Record ideas below or in science notebooks.

1. Describe a whole bolus in detail. What objects do you recognize?

2. What might the hooked, dark-colored objects in boluses be? Describe and/or illustrate one.

3. **Carefully observe a bolus that a scientist has dissected. Non-prey items** include:
- Plastic Fragments – Rigid and hard, complete or broken pieces in any shape (caps, toys)
- Plastic Foam – Compressible and aerated plastic in any shape (packing foam, rubber)
- Plastic Sheet – Flexible, flat and thin sheets of plastic (pieces of plastic bags or tarps)
- Plastic Line – Round, single or multi-filament line or rope (unraveled fishing nets)

Prey items include:

- Squid Beaks – Hard upper and lower beaks of squid
- Eye Lenses – From fish and squid

4. **Categorize items found in the bolus. Record your findings in the data table below.**

- Count the number of non-prey items by type that you can identify.
- Record the number in the table.
- Count the number of prey items you see. If this is difficult, devise a way to count in smaller sections or grids. An Excel version of the table is at tinyurl.com/4eukefkp.

Item	Number of Non-prey Items			Number of Prey Items		Other Items	Total for each row
	Plastic fragments	Plastic foam	Plastic line	Squid beaks	Squid Eye lenses	Natural Non-food	
Partner A (top left)							
Partner B (top right)							
Partner C (bottom left)							
Partner D (bottom right)							
Total for Entire Bolus							
% of Total							

5. List the type or source of any non-prey items you can identify.

6. A tangle of fishing/plastic line is counted as one item, but it can take up significant space in a chick stomach. How might you measure the amount of line in a bolus if it is present?

7. Using the class data, calculate the percentage of prey vs. non-prey items in the bolus you observed.

Total Number of Non-Prey Items	Total Number of Prey Items	Total Number of Items	% of Items that are Non-Prey	% of Items that are Prey

8. In several scientific studies, biologists found that 100% of boluses regurgitated by albatross chicks in the Northwestern Hawaiian Islands contained plastic trash. And 52–66% of the bolus weight was plastic.

   a. How do these findings compare to the numbers of items you counted? Use evidence from your data tables to support your comparison.

   b. How might eating and storing plastic inside the stomach affect a seabird chick?

   c. Where do you think the non-prey items might be coming from? What are sources of marine debris?

9. Ocean currents form several large circulations, called **gyres**, around the North Pacific basin. Winds push ocean waters, and everything floating in them, in these circular paths.

Asia

North America

Pacific Ocean

Kuroshio Current   **California Current**
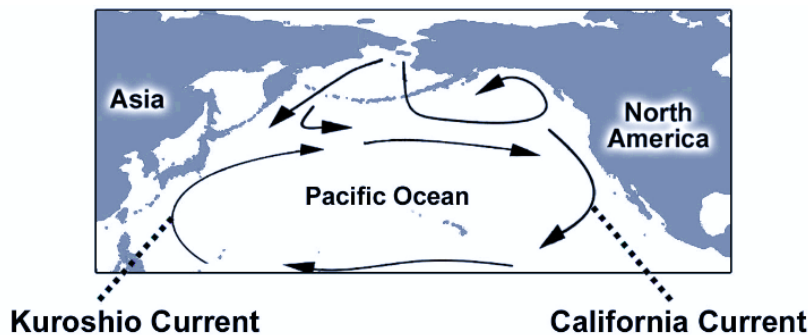
   a. What factors might cause plastic and other marine debris to wash up on Hōlanikū (Kure Atoll)?

   b. Brainstorm ways that we could prevent or solve the marine debris problem. Talk about them with a partner and record them on separate paper or in science notebooks.

   After you've written down all your ideas, circle the best ones.
   Which might you be able to implement to reduce plastic pollution
   and prevent albatross adults and chicks from ingesting it?