

Puget Sound Beach Sweepers – FIELD INVESTIGATION

Pacific Shellfish Institute

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Grades 5-10
60 minutes.

Overview

The field investigation component of the Beach Sweepers program allows students to conduct a debris clean-up event at their school or local Park. The Field Investigation is offered as a follow-up component to the Beach Sweeper classroom presentation enriching student learning and fostering ongoing environmental stewardship.



Students at Chambers Prairie Elementary record the types of debris collected during a campus cleanup

In this 1-hr program, students learn field investigation skills by performing a campus or community cleanup event. Students will learn the difference between an experiment and a field survey and consider how to make surveys reproducible in order to measure progress over time. Students will be given Field Notebooks developed in collaboration with Pacific Education Institute to map and label their site location, generate questions, record data, and reflect on findings. Students will enter data so that results can be analyzed, compared to global marine debris data, and submitted to the Puget Soundkeepers Alliance. Students are encouraged to construct or initiate Action Plans in response to their findings.

Equipment included in the Beach Sweepers Kit:

Beach Sweepers – Field Investigation Notebook
Clipboards
Trash grabbers
Plastic gloves
Trash bags

Methods

If students have not already participated in the Beach Sweepers Classroom Presentation, have them watch “Investigating Plastic Pollution: The Basics,” a 6 ½ minute video produced by Algalita Marine Research and Education: <http://www.algalita.org/video/plastic-pollution-a-serious-threat-to-the-environment-april-2013/>.

Beach Sweepers
Keeping Debris Out of the Sea
Field Investigation Notebook







Name: _____

Date: _____

Teacher: _____

Field Trip Guidelines:

-  Please remain with your group and out of the street.**
-  Use work gloves or grabbers to pick up trash.**
-  Do not handle sharp objects.
Contact an adult to dispose sharp objects (i.e. needles, broken glass) in a designated container.**
-  To avoid breaking glass:
Please don't swing trash collection bags over your shoulder or drop bags onto the ground.**

What is Marine Debris?

Marine Debris is any man-made object discarded, disposed of or abandoned that enters the coastal or marine environment.

How does Trash Travel?



Image: Ocean Conservancy

Survey Procedures

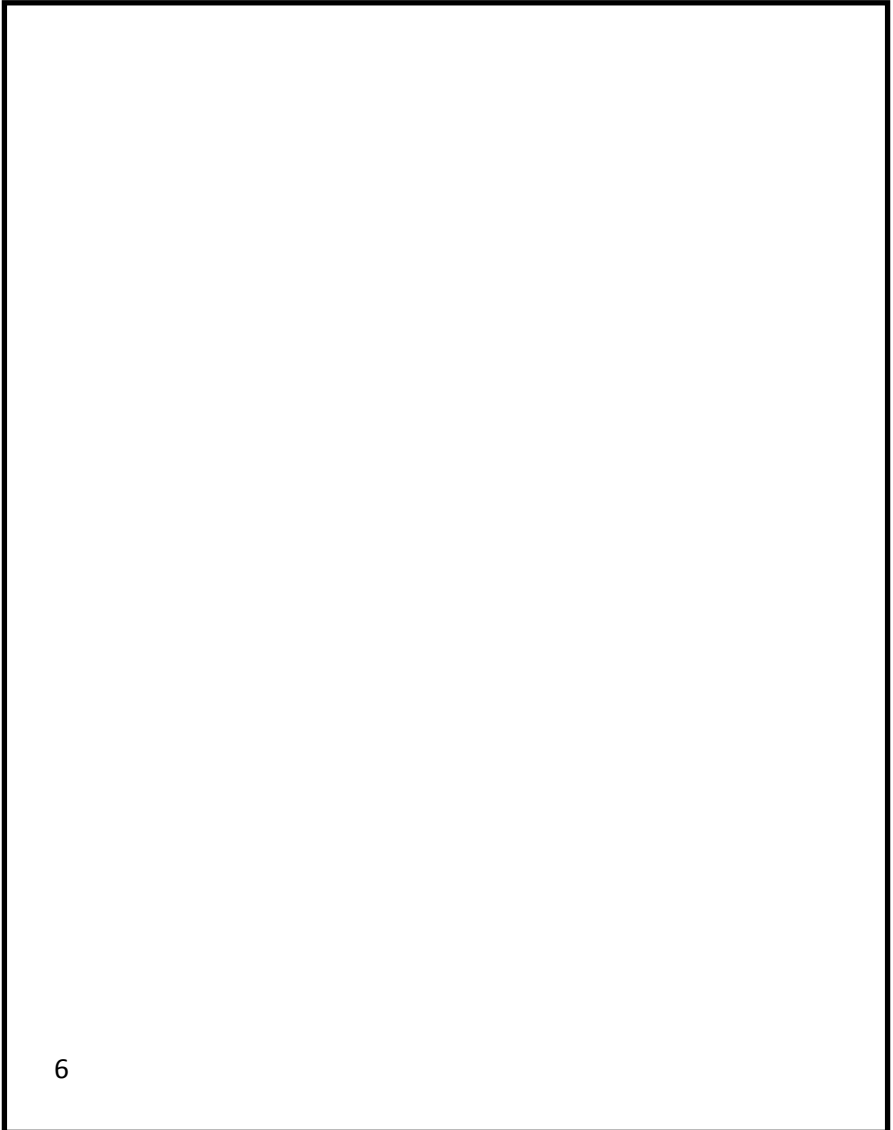
1. Form groups of 3. Each team will need a grabber, gloves, and trash bag
2. Assign 2 people to be “Grabbers” and 1 person to be the “Recorder”
3. Your teacher will direct you to your survey location
4. Map your location (bird’s eye view) and write 2 field study questions in your workbook
5. Begin the Clean-up!
Grabbers – pick up debris and deliver it to the Recorder
Recorder – tally each item onto your Trash Data Form *before* it is placed into the trash bag

Sketch your study site location

Label relevant features (buildings, trash cans, etc.)

Location _____

Partners _____



Field Study Questions

*Example: What types of litter are found
at this location?*

What other questions do you have?

1. _____

2. _____

Trash Data Form

Cigarette Butts _____ =

Food Wrappers _____ =

Food containers (plastic, foam) _____ =

Plastic Beverage Bottles _____ =

Glass Beverage Bottles _____ =

Beverage Cans _____ =

Plastic Bottle Caps _____ =

Metal Bottle Caps _____ =

Straws, Stirrers _____ =

Cups, Lids _____ =

Forks, Spoons, Knives _____ =

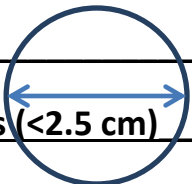
Plastic Grocery Bags _____ =

Other Plastic Bags _____ =

Paper Bags _____ =

Small plastic pieces (<2.5 cm) _____ =

Other _____ =



TOP 10 ITEMS COLLECTED



1
Cigarette Butts
2,043,470



6
Grocery Bags
(Plastic)
441,493



2
Food Wrappers
(Candy, chips, etc.)
1,685,422



7
Beverage Bottles
(Glass)
394,796



3
Beverage Bottles
(Plastic)
940,170



8
Other Plastic Bags
389,088



4
Bottle Caps
(Plastic)
847,972



9
Paper Bags
368,746



5
Straws, Stirrers
555,007



10
Beverage Cans
339,170

What were the top 5 items collected at your specific location?

1. _____

2. _____

3. _____

4. _____

5. _____

How are these top 5 similar and different than the International Cleanup data?

Reflections on your debris survey

What is the problem? (Define the problem)

Why is it a problem?

How does marine debris impact marine organisms?

What are some solutions? (Brainstorm in your group)

1. _____

2. _____

3. _____

4. _____

Take Action! What will you do?

- Bring your own mug or reusable beverage container.
 - Carry a reusable water bottle
 - Carry a reusable shopping bag
 - Opt out of using plastic lids or straws
 - Avoid plastic cutlery by carrying your own reusable utensils
 - Organize your own beach or neighborhood trash cleanup
 - Recycle or dispose of your trash in a trash can
 - Share what you know with others
 - Other ideas! _____
-

How would you know if your actions worked? (How could you “test” your solution?)

Contact Information

Submit data to:

Each team may enter their data onto an Excel spreadsheet and submit to PSI at psi@pacshell.org. PSI will add data to a master spreadsheet and return it to your teacher and the Puget Soundkeeper Alliance (www.pugetsoundkeeper.org).

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*Fostering sustainable shellfish resources &
a healthy marine environment through
research & education.*

1. Distribute the Beach Sweepers Field Investigation Notebooks. To save time, assign students to groups of three beforehand by writing their group number on the notebook. For example, if your class has 27 students, write 1,1,1, 2,2,2, 3,3,3...9,9,9 on the top of the notebooks. Draw a star on only one notebook from each group (total of 9 stars). The star assigns one student from each group to be the Recorder and to gather supplies for his/her group.
2. Assign 3 adults to be in charge of 3 groups each (9 students total). Each adult and their 3 groups can select a different area of the campus, or park, to clean. As students leave the classroom, have the students with a star on their notebook pick up 1 grabber and 2 pairs of gloves for their group. (More grabbers per group tend to result in “grabber duels” between students).
3. Walk to your designated clean-up area. Have students map their location and write 2 field study questions in their workbooks.
4. Start the clean-up by having the “Grabbers” pick up debris and carry it to the “Recorders.” Have the “Recorders” record the type of debris in their Trash Data Forms prior to placing it in their trash bags.
5. Make sure the “Recorders” share their final results with the rest of their group either in the classroom or in the field. Students can then complete the remaining questions in their workbooks.
6. Once in the classroom, students can share their reactions to the clean-up event and discuss possible action plans to address the amount or type of debris. Have the Recorders enter their Clean-up Data into the Beach Sweepers Spreadsheet (Excel file) and send the results to Pacific Shellfish Institute, aimee@pacshell.org. PSI will add the data to their Master Spreadsheet and return it to your class and the Puget Soundkeeper Alliance.

Total # of Items Collected: _____

Trash Cleanup BINGO!!!

Keep garbage off the ground and out of Puget Sound

Tally items that you pick up in the spaces below. Find all 16 for a BINGO Blackout!

Cigarettes 	Beverage Cans 	Plastic Bottles 	Glass Bottles 
Bottle Caps 	Plastic lids 	Straws/Stirrers 	Plastic Utensils 
Food Wrappers 	Plastic Cups & Plates 	Containers (Plastic) 	Containers (Foam) 
Plastic Bags 	Small plastic pieces 	Dog waste bags 	Other _____ _____ _____ _____ _____ _____

Share your results with us and help us meet our goal of picking up 1,000 items!

Send your results (or photo of your completed sheet) to aimee@pacshell.org, or mail the form to Pacific Shellfish Institute, 120 State Ave NE #1056, Olympia, WA 98501.

Interested in a trash collection mobile app? Check out CleanSwell by Ocean Conservancy