



Pacific
Shellfish
Institute



Sound Science Stewards (SSS) Sticker Program

for individuals, groups, troops & classes...for everyone
(but most appropriate for upper elementary through adult)

*"Individually we are one drop. Together, we are an ocean."
Ryunosuke Satoro*



DAWKINS
Charitable Trust



Pacific Shellfish Institute presents the SSS Sticker Program, an evidence-based stewardship program that supports a clean and healthy Puget Sound. Participants will directly improve water quality related to marine debris, fecal bacteria pollution and climate change through scientific monitoring and community action.

E-version: www.pacshell.org/pdf/SSS.pdf

Final Report Form: www.pacshell.org/pdf/FinalReportForm.pdf

Sticker Requirements

- Complete one “Investigative Survey” from each of the 3 sections.
- Complete one or more “Take Action!” projects from each of the 3 sections.
- Complete a [Final Report Form](#).



Reporting

To earn your sticker, please return the [Final Report Form](#) to the downtown Olympia Library or mail/email to:



Pacific Shellfish Institute
120 State Ave NE #1056
Olympia, WA 98501
psi@pacshell.org

Table of Contents

Section 1 – Marine Debris	3
Section 2 – Fecal Poo-lution	7
Section 3 – Climate Change	11
Final Report Form	15

This sticker program is modeled off Thurston County Solid Waste’s RRR Patch Program. Octopus Genius sticker designed by Katie Harmon, [Pink Polish Design](#). Thank you!

SECTION 1: Marine Debris (a.k.a. Ocean Trash!)

Marine debris is any man-made solid material that ends up in the ocean, either accidentally or intentionally. A large percent of this debris is plastic. Trash Travels! It makes its way into the ocean via wind, storm drains and rivers. So even if you live miles away from the beach, trash can still reach the sea. Marine debris is harmful to the economy, public health and wildlife due to entanglement and ingestion.



The good news is that we can all help prevent and remove marine debris. Many of the “top 10” items found during cleanups are single-use plastics: food wrappers, bottles, caps, straws, utensils, cups and bags. Reducing our use of these items also reduces the amount that enters the ocean. Participating in cleanup events is an effective (and fun!) way to keep the sea debris free!

Investigate! Trash Survey

Conduct a trash survey following the instructions on Pages 5-6. Trash surveys allow us to prevent marine debris, pinpoint items of concern and implement solutions.

Engineering Solutions!



The Ocean Cleanup aims to remove 90% of floating ocean plastic pollution. The organization is developing cleanup systems that can remove floating plastics caught in Ocean Garbage Patches as well as intercept plastic in rivers before it reaches the ocean.



Mr. Trash Wheel – Powered by the sun and the current of the river, this highly effective trash interceptor uses containment booms to funnel trash into Mr. Trash Wheel’s gaping mouth! Several locations exist in Baltimore, Maryland.



Bakey's Edible Cutlery is an Indian edible cutlery startup company that offers an eco-friendly alternative to disposable plastic utensils. Cutlery is millet-based and comes in savory & sweet flavors.

Take Action! (Complete 1 or more of the following)

Participate in a Cleanup – Group cleanups are a fun way to make a big difference. Find a cleanup at [Washington Coast Savers](#) and Olympia’s [Surfrider Foundation](#). Or conduct your own! [Ocean Conservancy](#) has resources to show you how. Add fun and friendly competition to your cleanup with [PSI’s Trash BINGO form](#).



Get App-y – Use a trash collection app like Ocean Conservancy’s [Clean Swell](#) or NOAA’s [Marine Debris Tracker](#) to record items that you clean up over time.

Make a Sign – Did you find a particularly trashy location? Create a friendly sign reminding folks to properly dispose of their garbage.



Speak Your Mind – Write a letter to the Editor, Neighborhood Association or Property Manager about your trash survey results and your call to action!

Help Pass Laws – Write a letter to a state representative asking them to support new waste reduction laws. Learn how at: [Zero Waste Washington](#).

Get Crafty – Create a recycled art project using beach trash or “would-be-discarded” single use plastics.



Refuse Single-Use Plastic Challenge – Stop marine debris at the source! Tally how many times you Refuse Single Use Straws, Cups, Bottles, Eating Utensils & Bags for a week or more.

Calendar Contest (K-8) – Enter [NOAA’s Marine Debris Calendar Art Contest](#).

Illustrate how marine debris impacts the ocean and what you are doing to prevent it. Contest opens every fall.



Ocean Friendly Restaurants – Support or thank an ocean friendly restaurant. Click [here](#) for a list of ocean friendly restaurants in your area.

Other? - _____

More Information!

NOAA Marine Debris Program: <https://marinedebris.noaa.gov/>

Investigate! Trash Survey

PROCEDURES:

- #1 Select your location.** Your survey location could be a park, beach, neighborhood, open space, or schoolyard.
- #2 Practice Safety!** Survey in a safe location away from busy roads, riverbanks or private property, if uninvited! Use gloves & avoid sharp objects.
- #3 Survey for trash.** Tally each item cleaned up on your Trash Data Form *prior* to placing it into your bag or bucket. When finished, record the total number of trash items collected and estimate the final volume.
- #4 Recycle (optional) and dispose trash.** Recycle clean cans, plastic and glass bottles – no lids. Place in your curbside recycle bin, except glass which must be collected separately. Dispose trash in garbage bin and wash hands.



SUPPLIES:

- Trash Data Form
- Bucket or bag
- Tongs or trash grabber (optional)
- Gloves

DATA RESULTS:

Total # of trash items

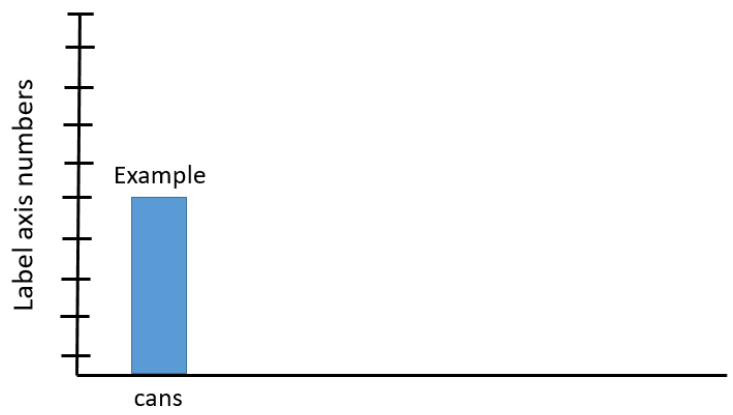
Estimated trash volume (in gallons): _____

1-gall = milk jug

5-gall = bucket

List the Top 5 items collected and graph:

1. _____
2. _____
3. _____
4. _____
5. _____



DATA ANALYSIS:

Is trash (litter) a problem at this location?

If so, what actions can be taken to decrease litter at this site?

REFLECTION:

Select one of your “top 5” items from the list above. What action can people take to decrease their use of this item or prevent it from becoming litter?

Item: _____ Action: _____

Trash Survey Data Collection Form


Name(s): _____

Survey Location: _____



TRASH COLLECTED

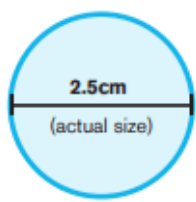
Citizen scientist: Pick up all trash and record all items you find below. No matter how small the items, the data you collect are important for Trash Free Seas.®

EXAMPLE: Plastic Bags:  = **8** **TOTAL #**

Please **DO NOT** use words or check marks. Only **numbers** are useful data.

MOST LIKELY TO FIND ITEMS:		TOTAL #
Cigarette Butts:	=	
Food Wrappers (candy, chips, etc.):	=	
Take Out/Away Containers (Plastic):	=	
Take Out/Away Containers (Foam):	=	
Bottle Caps (Plastic)	=	
Bottle Caps (Metal)	=	
Lids (Plastic) :	=	
Straws/Stirrers:	=	
Forks, Knives, Spoons:	=	
FISHING GEAR:	TOTAL #	
Fishing Buoys, Pots & Traps:	=	
Fishing Net & Pieces:	=	
Fishing Line (1 yard/meter = 1 piece):	=	
Rope (1 yard/meter = 1 piece):	=	
OTHER TRASH:	TOTAL #	
Appliances (refrigerators, washers, etc.):	=	
Balloons:	=	
Cigar Tips:	=	
Cigarette Lighters:	=	
Construction Materials:	=	
Fireworks:	=	
Tires:	=	
TINY TRASH LESS THAN 2.5CM:	TOTAL #	
Foam Pieces	=	
Glass Pieces	=	
Plastic Pieces	=	
Other Items:	=	
	=	
	=	
	=	

BEVERAGE BOTTLES:	TOTAL #
Beverage Bottles (Plastic):	=
Beverage Bottles (Glass):	=
Beverage Cans:	=
Grocery Bags (Plastic):	=
Other Plastic Bags:	=
Paper Bags:	=
Cups & Plates (Paper):	=
Cups & Plates (Plastic):	=
Cups & Plates (Foam):	=
PACKAGING MATERIALS:	TOTAL #
6-Pack Holders	=
Other Plastic/Foam Packaging:	=
Other Plastic Bottles (oil, bleach, etc.):	=
Strapping Bands:	=
Tobacco Packaging/Wrap:	=
PERSONAL HYGIENE:	TOTAL #
Condoms:	=
Diapers:	=
Syringes:	=
Tampons/Tampon Applicators:	=



Data sheet adapted from Ocean Conservancy's Trash Data Form.

SECTION 2: Fecal Bacteria Poo-lution

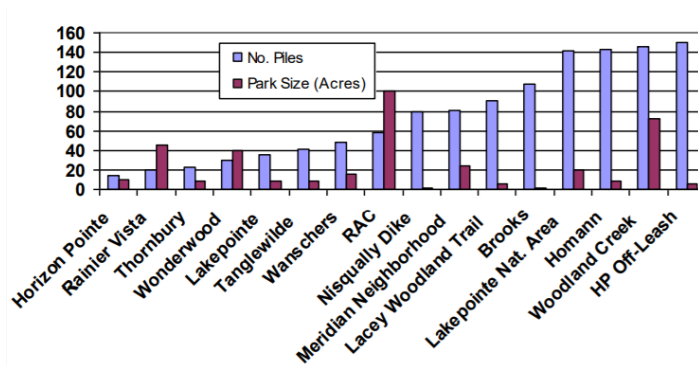
Poo contains fecal bacteria which lives in the guts of all warm-blooded animals, including you. When poo is left on the ground, rain can wash it into Puget Sound via storm drains or surface runoff. The presence of bacteria in water indicates that harmful pathogens may also be in the water that can make you sick. Health departments close beaches to swimming and shellfish harvesting when fecal bacteria levels are too high.

While poo may seem “natural,” the large number of dogs combined with our efficient stormwater drainage systems are not. Pet waste is responsible for bacteria poo-lution in many urbanized, or developed, environments. If you own a dog, be a good neighbor and **Scoop It, Bag It, Trash It!**



Investigate! Dog Waste Survey

Conduct a dog waste survey following the instructions on Pages 9-10. Dog waste surveys allow us to increase public awareness, pinpoint problem areas and implement solutions.



In 2011, PSI conducted the Scoop to Win campaign, surveying 16 parks and scooping over 1200 piles of wayward poop. Learn more: www.pacshell.org/pdf/scooptowinfinalreport.pdf

Engineering Solutions!



[Green Pet Composting](#), owned by Mud Bay and located in Gig Harbor, is one of two large-scale dog waste composting facilities in the nation.

[Envirowagg](#), located in Aurora, Colorado, is the other. Backyard composting does not kill pathogens. Please don't try this at home.

Take Action! (Complete 1 or more of the following)

Sharing is Caring – Collect and share clean, dry, plastic bags with a dog owner. They will thank you! Bread, newspaper and produce bags work great.

Set up a Dog Waste Station – Contact [StreamTeam](#) or [Thurston County Public Works](#) to apply for a free neighborhood pet waste station. Or, build your own using a [DIY option](#).

Speak Up – Write a letter to the Editor, Neighborhood Association or Property Manager about the importance of cleaning up after dogs, your survey results and your call to action!

Create a Sign – Frustrated with a particularly poopy area in your neighborhood? Create a cheerful sign that illustrates your message and responsible scooping behavior.

Get App-y! – The [Pooper Snooper App](#), designed to help communities tackle the issue of dog fouling, allows you to track & map the poop piles that you encounter and scoop. Start tracking now!

Poo-Haiku – Express how you feel about dog poo through a Poo Haiku. This Japanese poem is 3 lines long with 5 syllables in the first line, 7 in the second, and 5 in the third. You must share this with us!! 😊

Adopt-a-Can – Place a lidded bucket or small garbage can in your neighborhood that accepts bagged dog waste. Commit to disposing the waste into your own garbage can weekly. Get inspired at www.Poogooder.com.

A Year of Poo – Submit your most inspirational dog poo-related photos for a chance to be featured in PSI’s 2023 “Just Doo It!” Calendar. Clean up event? Spectacular pile? Dog in action? All photos will be considered.

You Scoop, You Rock! – Do you know a particularly poopy location? Be a rock star! Scoop wayward piles and replace with a friendly painted rock: Scoop if you ❤️ clean shoes! Retrieve rocks after a few days and reuse as needed.

More Information! Puget Sound Starts Here – [Dog Doogity Video](#)

Thurston County Environmental Health Department [Pet Waste Brochure](#)



Investigate! Dog Waste Survey

PROCEDURES:

#1 Select and map your location. Your survey location could be a park, open space, or backyard. On your map, label garbage cans, pet waste stations, parking lots, storm drains, creeks, or other notable features.

#2 Survey for poo piles. Systematically survey your site and tally the number of poo piles observed. Mark each pile on your map, or if too many, indicate problem areas with hatch marks. To increase public awareness, place a flagging stake (with outreach message) *next to* observed poo piles while you survey. Do not place flags in people's front yards.

#3 Scoop & estimate poo volume. Using a scooper or small shovel, scoop the poo piles into a bag. Estimate the final volume in gallons. Retrieve flags (if using) and dispose bagged waste into the garbage. Wash hands.



SUPPLIES:

- Flagging stakes or DIY stakes using wood skewers & tape (optional)
- Plastic bag
- Poo Scooper or shovel
- Gloves

DATA RESULTS:

Total # of poo piles



Estimated poo volume (in gallons): _____

1-gall = milk jug

5-gall = bucket

Number of pet waste stations: _____

Number of garbage cans: _____

Number of dogs observed: _____

If dogs, how many were unleashed?

Did you observe dogs pooping? _____

If so, did owners scoop?

DATA ANALYSIS:

Is dog waste a problem at this location?

If so, what measures can be taken to improve scooping compliance?

REFLECTION:

Why do you think dog owners pick up after their pets?

Why do you think some dog owners do not?

Dog Waste Survey Data Collection Form

Survey Map

Name(s): _____

Survey Location: _____

Date: _____ Start Time: _____ End Time: _____



Draw a birds-eye map of your survey location. Indicate pet waste stations, garbage cans, etc. Mark piles or areas of high concentration.

SECTION 3: Climate Change (& Ocean Acidification)

Human activities are responsible for a significant increase in carbon dioxide (CO₂) emissions since the Industrial Revolution. CO₂ and other greenhouse gases trap the Sun's heat within our atmosphere increasing the Earth's temperature. Oceans absorb about 30% of the CO₂ produced by burning fossil fuels, changing the ocean's chemistry. The lower the pH, the more corrosive the water is to shelled marine life and the more difficult it is for them to build their shells. Our shell-builders help create habitat for other sea creatures, protect our shorelines and support the livelihoods of coastal communities.



Large changes will be necessary to address society's carbon footprint related to transportation, food, energy and production/consumption. In the meantime, we can take many everyday actions to decrease our own carbon footprint. These actions are not only good for the planet, but our health and pocketbook, too. A win-win-win!

Investigate! Recycling Audit

Conduct a recycling audit following the instructions on Pages 13-14. Reduce, Reuse and Recycle (RRR) are important actions that we can take to reduce our carbon footprint. Everything that we buy requires energy to make, transport and dispose of. Waste audits help us identify ways to RRR and become familiar with our local recycling rules.

Engineering Solutions!



GenECO's Bio-Bug is the UK's first VW Beetle powered by human waste. The waste flushed down the toilets of 70 homes produces enough biogas to power the Bio-Bug for a year.



Fresh Paper sheets are infused with botanicals that slow down food spoilage and prevent wasted food and wasted money. Wasting food also wastes the water, energy, labor, pesticides, fertilizers and land used to make food.



Wind Power! Today, over 300,000 wind turbines supply 3.7% of global electricity, and the number is growing. If you haven't already, read "*The Boy Who Harnessed the Wind*," a true story about a 13-year-old Malawian boy who builds a wind turbine to save his village from famine.

Take Action! (Complete 1 or more of the following)

Ditch the Car – Walk, bike, skateboard, carpool or ride the bus (it's free!). For a week, record how many miles you swap for a lower carbon alternative. Participate in Intercity Transit's annual [Bicycle Community Challenge](#) in May or [Earn a Bike](#) program.



Drop your Home Energy Bill – Puget Sound Energy sends customers a monthly statement comparing your energy use to the previous year. Take [energy saving actions](#) (i.e. short showers, lights off, unplug etc.), drop the bill & save \$\$!

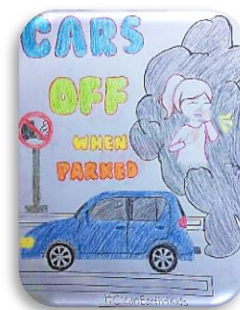
Plant a Tree – Trees store CO₂, provide oxygen, shade & habitat. Contact City Parks & Recreation or [Conservation District](#) to inquire about tree planting events or plant sales.

Plant a Garden – Food doesn't have to travel far when it's grown close to home. No place for a garden? Think small. A pot of cherry tomatoes or herbs on the windowsill can be a tasty treat. You may even have a [Community Garden](#) near you!

Meatless Monday – Cook a vegetarian (no meat) or vegan (no meat/dairy) meal any day of the week and share the recipe with a friend. Check out *Plant-Based on a Budget*, by Toni Okamoto, or many other delicious picks at The Timberland Library.

Join a Club – Join or start an Environmentally focused club. Or explore existing eco-minded groups such as Thurston Climate Action Team's [Youth Education Community Outreach \(YECO\)](#) group or Thurston Conservation District's [Teens in Thurston](#) program.

Conduct a No-Idling Survey – Is car idling a problem at your school or sports complex? Find out by conducting a [car idling survey](#) and calculating how much CO₂, gas and money (!) could be saved by turning off engines.



Make a No-Idling Sign – Breathe easier by encouraging folks to save money, their lungs and the planet by turning off engines when not driving.

Get Crafty! – Give an object a second life by upcycling it into something useful. Turn a container into a birdfeeder, jar into a candleholder. So many options!!

Other? - _____

More Information!

[NOAA's Ocean Acidification](#) page, [NASA's Climate Kids](#) page and the book, [Drawdown](#).

Investigate! Recycling Audit Survey

PROCEDURES:

- #1** Review **accepted materials** for [City of Olympia](#) or [Thurston County](#) curbside recycling.
- #2** **Locate a recycle bin.** Find a recycle bin at your home, apartment complex, school or church.
- #3** **Practice Safety!** Always ask permission to audit a recycle bin if it is not yours. If auditing a large bin or dumpster, be careful when reaching in and NEVER climb inside. Also take caution when handling tin cans – edges and lids are sharp! Wearing gloves is a good idea, especially if the bin is not yours.
- #4** **Conduct recycling audit.** Dump recyclables onto a flat surface. If the bin is large, you may only be able to look inside. Record the number of recyclables that you observe by tallying them on the “Easy 8” chart. List any items that do not fall into one of the 8 categories. For each of these, check if it can be recycled by entering the item’s name into Lemay’s Waste Wizard: www.thurston.lemayinc.com.
- #5** **Clean up.** Place contents back into the recycle bin. Wash hands.



SUPPLIES:

- Full recycle bin
- Data collection form
- Gloves



Waste Wizard

DATA RESULTS/ANALYSIS:

1. Did you find items that should NOT have been in the recycle bin? Which ones?
2. Were all bottle caps and plastic lids removed?
3. Were items clean?
4. Were boxes flattened?

DATA REFLECTION:

Recycling is important, but it is the last of the 3 waste reducing steps – The 3 R’s – **Reduce, Reuse, Recycle.**

Describe one way that you can REDUCE and REUSE a plastic water bottle:

I could REDUCE my use by:

I could REUSE the bottle by:








Thank you for Recycling Right!

Recycling Audit Data Collection Form

Observe the recyclables. Tally the number of items found in each of the 8 categories. Remove any items that do not belong and place them into the trash.

“The Easy 8” Chart

<p>Metal Cans</p>  <p>Tally: </p> <p>Lids OK if attached</p>	<p>Mixed Paper</p>  <p>Staples & plastic windows OK</p>	<p>Cardboard</p>  <p>Flattened!</p>	<p>Boxes</p>  <p>Flattened!</p>
<p>Plastic Bottles</p>  <p>No caps or lids</p>	<p>Dairy Tubs</p>  <p>No caps or lids</p>	<p>Plastic Buckets</p>  <p>No lids or handles</p>	<p>Glass</p>  <p>NOT accepted in curbside bin. Collect in a separate bin</p>

The following items are **NOT** accepted in curbside recycle bins:

Clam-shell containers, cups, straws, lids, utensils, Styrofoam, aluminum pans, aseptic containers, deli-style containers, gable-top cartons, drink pouches and plastic bags.





Final Report Form

One Report Form per person.

[Final Report Form](#) (fillable pdf)

Contact Information

Your Name (and Group, if applicable):

(i.e. Mary Jones, Mr. Smith’s class or Boys and Girls Club)

Your E-mail (or Group Contact E-mail):

Mailing Address (for sticker):

Results

1. **Investigate! Trash Survey:** How many pieces of trash did you clean up?
If you worked as a team, list your partner’s name:

2. Which follow-up Action(s) did you complete for Section 1? ★

3. **Investigate! Dog Poop Survey:** How many poop piles did you clean up?
If you worked as a team, list your partner’s name:

4. Which follow-up Action(s) did you complete for Section 2? ★

5. **Investigate! Recycling Audit:** Did you complete a recycling audit and are you now familiar with your local recycling rules?

6. Which follow-up Action(s) did you complete for Section 3? ★

7. What did you enjoy most about the SSS Sticker Program?

Thank you for participating in the SSS Program!
Please return the [Final Report Form](#) to the downtown Olympia Library or mail/email to:



Pacific Shellfish Institute
120 State Ave NE #1056
Olympia, WA 98501
psi@pacshell.org

★ **PLEASE SHARE** your amazing achievements with us! We’d LOVE to see your data, photos, haikus, artwork, letters, signs, photos & more! Send to: psi@pacshell.org