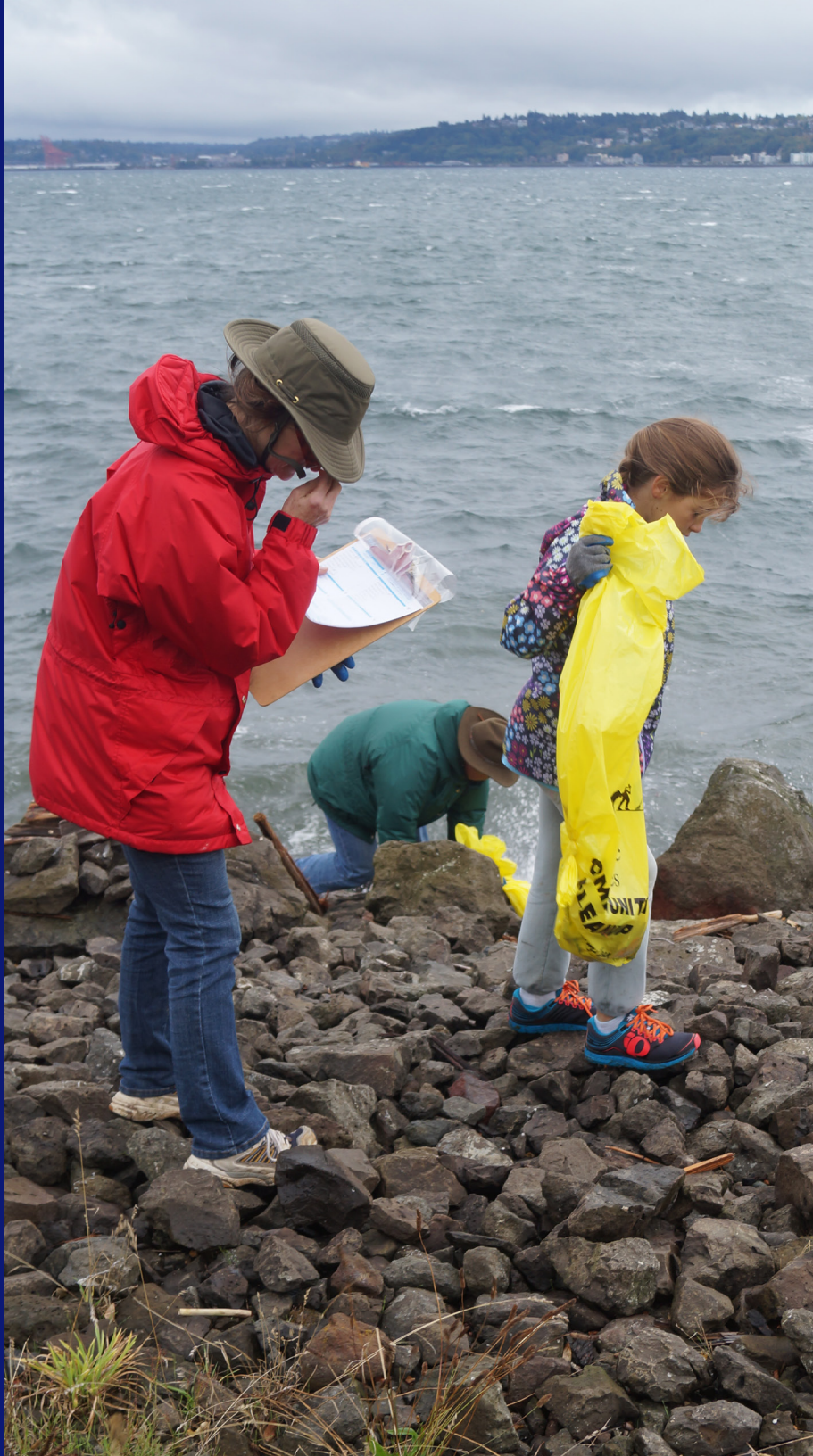


PUGET SOUND COASTAL CLEANUP 2017



Published by
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SOUNDKEEPER®**



WHAT IS THE ICC?

Ocean Conservancy's International Coastal Cleanup (ICC) in partnership with organizations and individuals around the globe is the largest volunteer project in service to our oceans. Volunteers remove trash from the world's beaches and waterways, document sources of debris and promote behavior changes to prevent marine litter in the first place.

Globally, over 800,000 volunteers participate in ICC annually and remove millions of pounds of debris.

At each cleanup, information on the amount and type of debris collected is recorded on detailed data cards. These data are compiled into a global report that shows trends in data accumulation and can inform specific solutions to protect our waterways. Visualizing cleanup data also helps educate the public about the pervasive problem of marine trash.

Puget Soundkeeper is the regional coordinator for cleanups that occur within the Puget Sound watershed. This report details the work of the many groups who participated in the Puget Sound Coastal Cleanup effort in the fall of 2017.

For help organizing a cleanup near you, please contact us:

Puget Soundkeeper
psa@pugetsoundkeeper.org
206-297-7002

CLEANUP LOCATIONS

ALKI BEACH
WEST SEATTLE
SEAHURST PARK
DUWAMISH RIVER
LAKE UNION
CENTENNIAL PARK
CARKEEK PARK
GENE COULON MEMORIAL PARK
DASH POINT STATE PARK
EBEY'S LANDING
POINT DEFIANCE MARINA
BLAKE ISLAND STATE PARK
SAGSTAD MARINA
NOOKSACK RIVER
PIONEER PARK
PUYALLUP RIVER
ARBORETUM
SAMMAMISH RIVER
BREMERTON
SWINOMISH SPIT
ANDERSON ISLAND
PURDY SAND SPIT
VASHON ISLAND
DES MOINES
LINCOLN PARK
JACK BLOCK PARK
GOLDEN GARDENS
RICHMOND BEACH PARK
EDMONDS
MUKILTEO
STILLWATER WILDLIFE AREA
CORNWALL BEACH
LOCUST BEACH
BIRCH BAY
CYPRESS ISLAND
JACKSON BEACH
CATTLE POINT
SWANTOWN
PORT TOWNSEND
DUNGENESS SPIT
PORT ANGELES
MANCHESTER STATE PARK
BAINBRIDGE ISLAND





CLEANUPS BY THE NUMBERS



259 MILES
CLEANED



9,555 LBS
OF
TRASH



1,423
VOLUNTEERS

CLEANUP HIGHLIGHTS: SAN JUAN ISLAND



San Juan County includes 172 named islands and reefs. The islands are host to abundant biodiversity, stunning views, and a few well-known animal characters. Here, resident orcas reliably put on spectacular shows and Popeye the blind harbor seal greets visitors to Friday Harbor. Visit a beach in August and you may see bioluminescent plankton light up the shoreline like fireflies.

Students at the Spring Street International School on San Juan Island are active stewards of the island's many beaches and have used cleanup data to engage their community and power local solutions.

High school students have collected marine debris from Cattle Point, located at the south end of the island, since 2015. The students collect data on the trash found at each cleanup

and share the information with the San Juan Islands National Monument to direct further cleanup efforts. Younger students have adopted Jackson Beach, located just south of Friday Harbor, and are soliciting help from the island community to remove the deep layers of styrofoam and other accumulated plastics from the driftwood.

The students collect data on the trash found at each cleanup and share the information with the San Juan Islands National Monument to direct further cleanup efforts.

Their weekly surveys of the beach have found that the top five items are styrofoam, plastic shotgun casings, plastic bottle caps, food wrappers, and other miscellaneous plastic pieces.

Beach surveys are not only an excellent way to build data collection and analysis into science curriculum, but also unite and empower students to take action against the problem of marine debris.

CHINA'S BAN ON PLASTIC WASTE IS A WAKE-UP CALL

The dawn of recycling was not very long ago. As disposable, single use items became widely available after the 1950s, landfills were quickly overcrowded. Municipal recycling services gained momentum in the 1970s to recover these otherwise wasted materials. Cities like Seattle went a step further and implemented "single-stream" recycling. No need to sort paper, glass, plastic and aluminum; combine it in one bin and local sorting facilities will take care of the rest! This convenience, combined with a mandatory recycling law, has resulted in one of the highest recycling rates in the country.

Recycling has obvious environmental benefits. However, the discussion around the economics of recycling remains complicated.

In the Puget Sound area and around the globe, many recyclables are shipped to China for repurposing. High labor costs and environmental regulations have made it prohibitive to recycle most materials domestically. However, once overseas, these products enter a complex system of small-scale operators who sort, grind and melt plastics and other goods into usable forms for manufacturers. This has resulted in serious water and air pollution problems, and workers are often exposed to dangerous chemicals and working conditions without proper protection.

Starting in January 2018, China stopped accepting many imported recyclables due to high levels of contamination.

Cities around the world are scrambling to find new markets and implement better sorting practices to achieve the 0.5% contamination limit now required for imports to China.

The country hopes to improve air quality and protect natural resources by reducing pollution from plastics recycling. Imported bales of recycled plastic often contain other unwanted materials, or pathogens from leftover food waste, dirty diapers, and other hazardous material.

In addition, the fluctuating price of oil and other raw materials for plastic production often makes it cheaper to manufacture new materials. As a result, it is often more cost effective to focus on manufacturing virgin plastic rather than relying on an uncertain supply of recycled materials that need intensive processing.

Cities around the world are scrambling to find new markets and implement better sorting practices to achieve the 0.5% contamination limit now required for imports to China. While this has caused serious disruption to an already volatile industry, it is also an opportunity to rethink responsible waste management.

At the individual level, you can do your part to lower recycling contamination by making sure items are empty, clean, and dry before they are placed in your recycling bin. Ultimately, it is also important to reduce consumption of single use items to curb the amount of waste we collectively generate.



**790,000
METRIC TONS**

of recyclables were shipped to China through the ports of Seattle and Tacoma in 2017. That is equal to more than 238 pounds of recyclables from every person in the State of Washington.

MICROPLASTICS: A NOT SO MICRO PROBLEM

The durability of plastic is a double-edged sword. It works for as long as we need it, but remains long after we toss it in the trash can. That toothbrush you threw away seven years ago is still out there, as is that granola bar wrapper. In fact, every piece of plastic ever made is still in existence in some shape or form.

Each year, over 8 million metric tons of plastic waste enter the world's oceans. That's equal to one dump truck every minute. Unfortunately for our oceans, plastic does not biodegrade. When exposed to the sun's rays and strong ocean currents, it breaks up into smaller and smaller pieces that persist in the marine environment for centuries.

Plastic fragments and fibers 5 millimeters in size and smaller are called microplastics, and they don't just come from the breakdown of larger debris. Research has found that car tires, latex paint, and fibers from synthetic clothing are all major contributors to microplastic pollution.

Plastics can contain harmful additives like phthalates

(used to make plastic more flexible) and PBDEs (flame retardants). Even more concerning, plastics can adsorb toxic compounds already present in a polluted waterway, including DDTs, PCBs, nonylphenols (industrial detergents), heavy metals, pesticides, and pathogens. If an organism consumes contaminated plastic, these toxics may transfer to the organism's tissues.

Separate studies have found microplastics in fish, shellfish, salt, honey, beer, and even drinking water. An international study completed in 2017 found that the U.S. had the highest microplastic contamination rate in our drinking water, detecting plastic fibers in 94 percent of tap water samples from sites including Congressional buildings, the

US Environmental Protection Agency headquarters, and Trump Tower in New York.

We are just beginning to understand the magnitude of the microplastics problem. In the fall of 2017, Puget Soundkeeper and the University of Puget Sound coordinated the collection of water samples from 44 sites across Puget Sound, from the San Juan Islands to Olympia. Throughout the fall, volunteers took to local shorelines with sample jars and data sheets. We analyzed

The durability of plastic is a double-edged sword. It works for as long as we need it, but remains long after we toss it in the trash can.



On average, there were 2.8 microplastics per 150 ml sample.



Most samples contained microfibers, which can come from clothing, tires, and paint.



Three out of the 44 samples had no microplastics in them.

those samples in the winter of 2018, and the results were telling. Out of the 44 samples that volunteers took, 41 of them contained at least one microplastic, and 96% of all microplastics found were fibers.

Puget Soundkeeper seeks to document the extent of microplastic pollution in Puget Sound in order to inform future policy, technology innovations, and restoration efforts that protect this ecologically and culturally important watershed. We are seeking volunteers to take samples during the fall of 2018 at International Coastal Cleanup events. To participate in this exciting community science project, contact us at psa@pugetsoundkeeper.org.

We all have a role to play in the movement toward a plastic-free Salish Sea. The solution involves a commitment from all of us to reduce plastic consumption, strengthen scientific understanding of the effects of plastic to human health and the environment, and develop sound policy that engages individuals, governments, and industry.

The first and most basic step you can take as a consumer is to reduce your reliance on plastic! Ask your local grocer, café, or retailer if they have plastic-free packaging options. Repair plastic items like hair dryers or TV remotes when they break instead of throwing them out. Invest in reusable alternatives such as glass or metal water bottles, utensils, and food containers.

To learn more about what you can do to help in our efforts to fight marine debris, take the plastic pledge (<https://pugetsoundkeeper.org/plastic-pledge/>) to get updates and action alerts related to microplastics.



Car Tire Dust



Larger Plastic Waste



Paint from Boats,
Buildings, and Roads



Clothing



Cosmetics

WHERE DO MICROPLASTICS COME FROM?

WHERE DO THEY END UP?



Microplastics have been found in fish destined for human consumption.



A 2017 study found that the U.S. had the highest microplastic contamination rate in our drinking water out of fourteen countries.

CLEANUP HIGHLIGHTS: POINT DEFIANCE MARINA

Marinas and boating facilities play a critical role in maintaining water quality. They are in a unique position to do so as they provide direct access to the water and interface with boaters who are responsible for proper waste disposal from boats and vessels. Not only can marinas help to reduce marine trash, but a well-managed facility also prevents oil spills, sewage discharges, and other pollutants from entering the water.

Point Defiance Marina, located in Tacoma, organizes a monthly cleanup to remove debris from their surrounding shoreline. The marina, along with local sailing clubs, community boating centers, and many other Puget Sound

marinas, have removed hundreds of pounds of trash through the International Coastal Cleanup and other cleanup projects.

Clean Marina is a voluntary certification and technical assistance program to help marinas assess their operations and make improvements that better protect the marine environment.

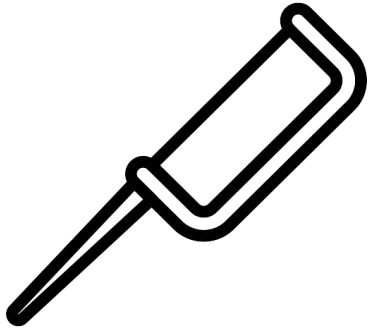
Point Defiance Marina is also a member of the Clean Marina program, which Puget Soundkeeper administers for the state of Washington. Clean Marina is a voluntary certification and technical assistance program to help marinas assess their operations and make improvements that

better protect the marine environment.

As of June 2018, 75 marinas have been certified in Washington. Find out more at www.cleanmarinawashington.org.



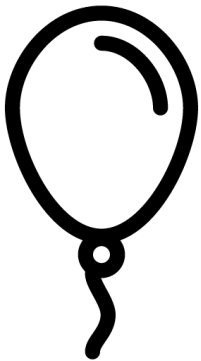
ITEMS OF LOCAL CONCERN



FLOSSERS



STRAWS

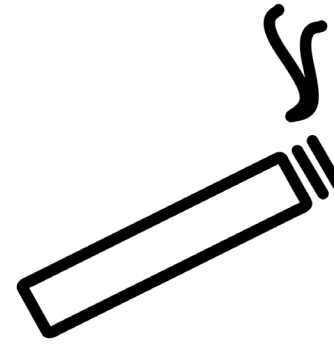


BALLOONS

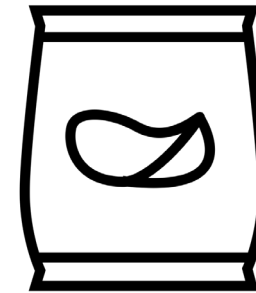




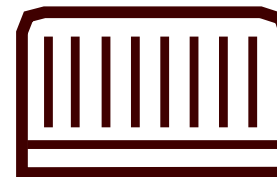
TOP ITEMS FOUND



14,355
cigarette butts



3,948
food wrappers



2,972
bottle caps

CIGARETTE BUTTS

Cigarette butts are the number one item collected at International Coastal Cleanup events. In 2017, 4,492,670 cigarette butts were collected worldwide, a fraction of the trillions that pollute our waterways every year.

These small pieces of debris are deceptively toxic. The majority of filters are made from cellulose acetate, a plastic that does not biodegrade. In addition, they serve as a pathway for multiple toxic compounds to enter aquatic ecosystems. Nearly 7,000 chemicals are present in cigarette tobacco, including ammonia, arsenic, formaldehyde, lead, and tar.

These chemicals accumulate in cigarette filters which then leach into the water and have harmful effects on aquatic wildlife.

Keep cigarette butts off the ground by promoting "Butt out of Puget Sound" at your workplace, favorite local bar, or apartment complex! Stickers for cigarette butt receptacles are available by request.

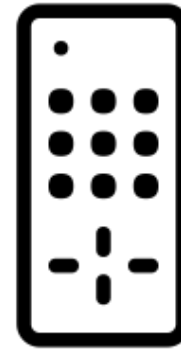
DON'T SMOKE OUR SALMON

buttoutofpugetsound.org





MOST UNUSUAL FINDS



TV REMOTE



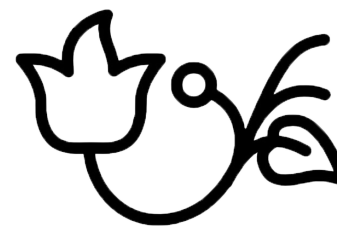
CAN OF LARD



SHOTGUN CASINGS



RUBBER DUCK



FAKE FLOWERS



EARPLUGS

CLEANUP HIGHLIGHTS: WASHINGTON COASTSAVERS

Washington CoastSavers is a coalition of nonprofits, community groups, corporations, and public agencies united to protect Washington's Pacific Coast from marine debris. CoastSavers acts as the regional coordinator for the International Coastal Cleanup for activities along the outer coast of Washington State and along the Strait of Juan de Fuca.

On September 16th, 2017, CoastSavers organized over 650 volunteers to remove 13,000 pounds of debris from more than fifty beaches! As if that wasn't impressive enough, many of the beaches that CoastSavers cleans are only accessible by trail and the trash collected must be hauled out using only human power.

Not all of the results from CoastSavers' cleanups are included in this Puget Sound report, but the data is viewable online at www.coastalcleanupdata.org.

CoastSavers organizes beach cleanups in the fall, and then again in April of each year. Join a cleanup by visiting www.coastsavers.org.



2017 DATA

COUNTY	PEOPLE	POUNDS COLLECTED	MILES CLEANED	TOTAL ITEMS COLLECTED	CIGARETTE BUTTS	FOOD WRAPPERS	BOTTLE CAPS
Island	17	69.77	2.86	305	2	22	24
Jefferson	71	724	16.61	26	2	0	0
King	851	2558.08	109.94	31514	9499	2891	2299
Kitsap	284	2127.07	102.37	5443	712	170	202
Pierce	64	538	5	9684	1955	255	138
San Juan	37	38	1.25	1163	800	55	33
Skagit	25	251.5	5.4	742	97	94	36
Snohomish	36	72.94	2.17	1942	942	197	104
Thurston	23	69	4	822	104	88	45
Whatcom	15	109.84	10.32	3459	242	176	91
TOTALS	1423	9555.02	259.92	55100	14355	3948	2972



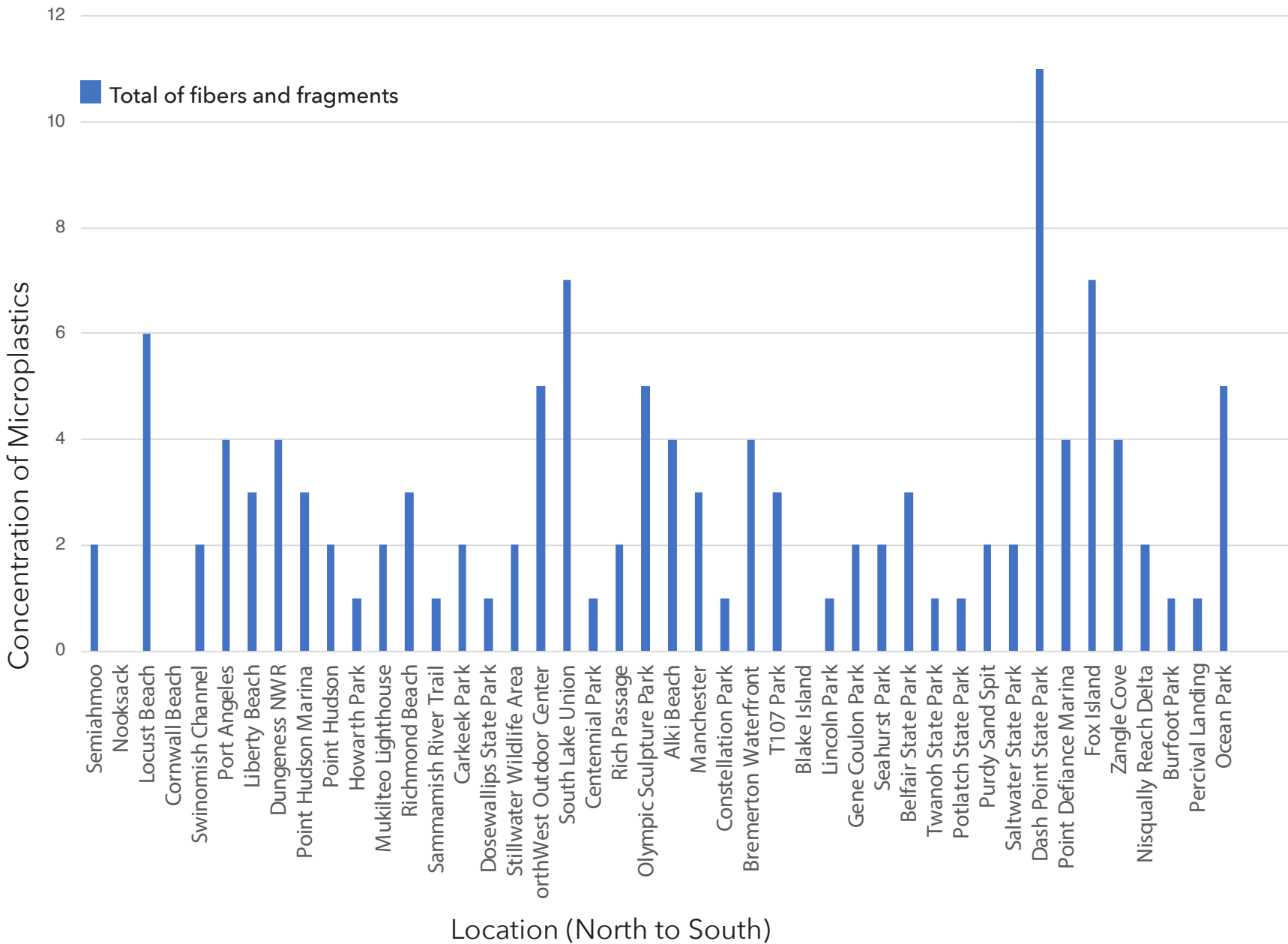
BEVERAGE CANS	GLASS BOTTLES	PLASTIC BOTTLES	PLASTIC LIDS	STRAWS	PLASTIC BAGS	TAKEOUT CONTAINERS	PLASTIC CUTLERY
6	0	8	3	17	9	4	1
0	0	3	0	0	2	0	0
843	560	838	697	688	710	598	250
78	348	104	92	65	112	93	46
98	118	83	68	86	115	60	54
2	0	6	9	16	72	0	0
51	19	74	9	3	85	20	5
33	32	28	14	20	11	23	6
95	41	68	19	11	18	3	0
72	103	50	14	12	26	24	15
1278	1221	1262	925	918	1160	825	377

For more detailed data visit: www.coastalcleanupdata.org



MICROPLASTIC DISTRIBUTION IN PUGET SOUND

Lowest and highest number of plastic fragments and fibers found by location.



THANK YOU TO OUR PARTNERS!

ISLAND COUNTY

Whidbey Camano Land Trust

JEFFERSON COUNTY

Washington CoastSavers

KING COUNTY

Ballard Windermere Real Estate Co.

Bank of America

Content 26

Cox Enterprises

Environmental Science Center

Liberty Mutual Insurance

Rena Ware International

Renton Sailing Center

Salesforce

Sealife Response Rehabilitation and Research

Seattle Academy

Sound Salmon Solutions

Wellspring Family Services

Woodland Park Zoo

KITSAP COUNTY

Barefoot Eco Outfitters

City of Bremerton

Sustainable Bainbridge

PIERCE COUNTY

The Bush School

Harbor Wild Watch

Point Defiance Marina

Renton Sailing Center

SAN JUAN COUNTY

Spring Street School

SKAGIT COUNTY

Coastal Volunteer Partnership at Padilla Bay

SNOHOMISH COUNTY

Girl Scouts Troop #42955

Everett Community College

Sno-King Marine Mammal Response

Snohomish County Beach Watchers

THURSTON COUNTY

Pacific Shellfish Institute

WHATCOM COUNTY

RE Sources for Sustainable Communities



GARYmanuel

patagonia®



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JOIN SOUNDKEEPER

Join the community protecting the waters of Puget Sound for future generations. Become a Soundkeeper member today!

<http://bit.ly/joinsoundkeeper>

