SHORE STEWARDS NEWS

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Out of Sight, But in the Sound

Each year as the holiday season approaches, the temperatures begin to drop as winter pushes us inside to our warm, cozy homes. With the fire blazing, what better way to spend your time than cooking and baking delicious holiday treats?

As we eat our cinnamon spiced cookies and vanilla infused drinks, the impacts of our food choices on the Puget Sound are far from our minds. We stroll along the water's edge sipping our caffeinated drinks as we try to muster up energy when the sun sets at 4pm, but rarely acknowledge the connection between our food and drinks and the water. Even driving from store to store trying to find that perfect gift, it's easy to be consumed in the holiday hubbub and overlook a modest oil leak. However, our diets and other daily life choices not only impact our digestive systems, but alter the waters that surround us as well.

Spiced up Holidays

Holiday recipes are teeming with bountiful amounts of holiday spices, herbs, and flavors. As we add these ingredients to our daily foods throughout the holiday seasons they don't stop just at our tables or in our stomachs. At the University of Washington (http://www.washington.edu/news/2008/12/04/spicy-puget-sound-fish-swim-in-big-dilute-latte-research-shows/) students tested waters throughout the Puget Sound and found significant increases in certain holiday ingredients in our waters such as vanilla (both artificial and natural), thyme, cinnamon, and all spice.

It all begins promptly right around Thanksgiving and lasts through New Years. These ingredients work through our systems, down the drains, and through our storm drains making their way into the Sound. As samples have been taken throughout Puget Sound during the course of several years a clear interpretation of the increase in spices during the holiday season is prominent.
http://westernwaters.org/record/view/82206

Although these spices have not been reported to have any negative impacts on the species in Puget Sound we do

know many creatures such as salmon rely heavily on their sense of smell to navigate and find food. When sipping on our pumpkin spiced lattes, eating our snicker doodle cookies, and washing the dishes from the holiday baking treats it's easy to be out of touch with how our actions have impacts on our surroundings. Professor Rick Keil, at the University of Washington talks about his research on the Sound and our human connection to it. "If you eat it, Puget Sound eats it," says Keil.

One Modest Cup of Joe

It's only one cup we tell ourselves, pouring the morning coffee into the oversized mug. Soon the caffeine from that extra large cup will be kicking in and ramping up the energy of many around the Puget Sound. That caffeine is not only amping up and flowing through our human bodies, but it's flowing through Puget Sound as well (http://www.pdx.edu/news/CoastalCaffeineWaters).

"You can go to the deepest, darkest basin at the bottom of Puget Sound and find caffeine there because we live in a society that consumes a lot of caffeine products," says Keil. In King County, Researchers found out of 216 samples taken from Puget Sound waters 160 had caffeine in them and was found at depths of 640 feet. This is a vast amount of the water. However, the implications of the caffeine are not entirely known.

Caffeine is a stimulant. It can decrease lethargy and increase alertness. When this substance is added to the water, it has been found to have an effect on marine species such as cellular stress. More research will be necessary to determine what, if any, long term impact this has. For now though, all surrounding Puget Sound will be buzzing on caffeine.

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Medicated Waters

On average, 70 percent of Americans take at least one prescription medication daily according to Researchers from the Mayo Clinic Research Center for the Science of Health Care Delivery (http://www.mayoclinic.org/news2013-rst/7543.html). This number is only estimated to increase with time. With the amount of pharmaceuticals being taken, research has been conducted to analyze our water as water waste treatment plants do not catch all the diverse medicines.

Pharmaceuticals enter our water systems through two primary ways; direct disposal and excretion through our bodies. All the medicine is not completely removed through our waste water treatment plants, which allows these chemicals to enter our water systems such as Puget Sound.

Pharmaceuticals such as antidepressants, hormones, and antibiotics have been found to have environmental effects on marine and human health. Researchers have

found marine species reproduction to change and alter when in water environments tested with these chemicals. Male fish have been found to have eggs inside their reproductive organs. Also, drinking water tested around the US has been found to have traces of pharmaceuticals, such as in Colorado Springs, CO and Chicago, IL. However, water sampling for Seattle drinking water revealed no traces of these chemicals although Seattle receives its water from the Cascade Mountains.
(http://hosted.ap.org/specials/interactives/pharmawater_site/sept15a.html).

Currently, the health of our water is becoming modified due to our consumption of pharmaceuticals. With the use of prescription drugs on the rise our waters will continue to be effected. However, one way to help reduce the water contamination through our medicines is by discarding your old, extra, or unused pharmaceuticals at a local safe return and disposal site instead of flushing them down the drain. Visit this site to find out what to do with unwanted medicines in Island County. Also, check your local paper for disposal events hosted by the Sheriff's office: http://www.islandcounty.net/publicworks/SolidWaste/Documents/MedsSharpsHandoutWhidbey.pdf

What Can WE Do?

With caffeine pulsing through Puget Sound's medicated waters, sprinkled with some seasonal spices. These are not items that need to be or will be removed from our Puget Sound lives. However, being aware of how what we do on land has an effect on other ecosystems is keenly important as they are all interconnected.

It is important to dispose of waste properly, use mitigation techniques along shorelines (vegetative planting and other Shore Stewards recommendations), and stay up to date on water use practices. However, with over 220 cloudy days in theSouth Puget Sound region, a decline in caffeine consumption does not appear to be occurring anytime in the near future.

Shore Stewards Celebrates 10 Years and 800 Members in Island County

In 2002, a group of volunteers from the first class of Beach Watchers on Camano, in cooperation with the Island County Marine Resources Committee, began creating a program to teach important shoreline stewardship practices to Island County shoreline property owners, and to those who lived near the shoreline. The program was introduced on Camano in 2003, and expanded to Whidbey Island, as well as additional counties, in 2005 and 2006.

In the 10 years since Shore Stewards began signing up members, over 800 people have joined in Island County, topping the 800 number at the November Beach Watchers meeting on Camano. We hope to provide you with more resources and education in 2014, and hope that you can help by introducing Shore Stewards to friends and neighbors who live on or near the shoreline. Please contact us if you have any questions or suggestions.

Resources

Spices in Puget Sound: http://www.washington.edu/news/2008/12/04/spicy-puget-sound-fish-swim-in-big-dilute-latte-research-shows/

Puget Sound Spice Research: https://depts.washington.edu/soundcit/data/reports/

UW Spicy Water Research: http://westernwaters.org/record/view/82206

Caffeine in Coastal Waters Research: http://www.sciencedirect.com/science/article/pii/S0025326X12001804

PSU Study of Caffeinated coastal waters: http://www.pdx.edu/news/CoastalCaffeineWaters

Pharmaceuticals Found in Drinking Water:
http://hosted.ap.org/specials/interactives/pharmawater_site/sept15a.html

Medicine in Water: http://www.lhwmp.org/home/hhw/pharmaceuticals.aspx

Wastewater Treatment:
http://www.ecs.umass.edu/eve/background/chemicals/PPCPs/PPCP%20wastewater%20treatment.html

Mayo Clinic Pharmaceutical Research: http://www.mayoclinic.org/news2013-rst/7543.html

Events

SOUND WATERS -- All things Puget Sound and Those who love them

On Saturday, February 1, 2014, the 19th annual *Sound Waters* event will bring together over 500 curious and passionate folks. From all age groups and walks of life, the unifying draw is a love for Puget Sound and the desire to pass it on for future generations to enjoy. *Sound Waters* began almost 20 years ago, after the first Beach Watchers organization was started on Whidbey Island, with WSU Extension Service drawing together volunteers passionate about keeping the waters of Puget Sound vibrant.

The 2014 *Sound Waters* keynote address will be given by William Steele, a 20 year veteran of the University of Washington Seismology Lab, who will talk about the Cascadia Fault Zone, earthquake hazards and efforts to build an effective early warning system. You may recall last March, Whidbey Island made the news when a large slide moved a house down the bluff and several front yards 500 feet wide disappeared into the sea. That occurred without an earthquake. What will result all around the shores of Puget Sound when an 8 or 9 scale earthquake releases the tension that has been building in the Cascadia Fault Zone?

The keynote begins the day, and is followed by three sessions featuring a choice of 65 classes on every topic related to life in and near the Sound: ocean acidification and sea level rise; local history; Native culture and traditions; basic fishing techniques; the plants, animals and insects that share our environment; and efforts to monitor and maintain healthy watersheds and coastal marine waters. The topics range from baleen whales to dragonflies. In response to the Ledgewood slide last March, there are classes on coastal geology (bluffs and beaches), an intermediate class on Whidbey landslide hazards, and a class on emergency preparedness. Birders can enjoy classes on “feathered architecture” or bald eagle ecology, plus a class just on The Grebes. Practical

skills can be learned in crabbing, salmon fishing, septic tank care, and gardening. Classes average 20-30 students. Past attendees have been enthusiastic in their praise for the classes and the wealth of information offered.

Sound Waters will take place at Oak Harbor High School on Whidbey Island on February 1, 2014. Registration cost is $40 per person, with a discounted rate of $25 for students and active military. Certified teachers may earn 5 clock hours of continuing education credit through Washington State University. To see the full class listing, lunch options, schedule and registration information, please go to the Sound Waters website, www.beachwatchers.net/soundwaters. Online registration opens January 4, 2014, or you may request a registration form by telephoning (360) 678-7837.

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If you would like to download or view previous Shore Steward newsletters, please visit http://county.wsu.edu/island/nrs/shorestewards/Pages/Newsletter.aspx An Index of newsletters is now available at this site. Your Shore Stewards Coordinator is Scott Chase, (360) 387-3443, ext 258, or email at shorestewards@wsu.edu