



Padilla Bay Newsletter

A Joint Publication of the Padilla Bay Foundation and Padilla Bay National Estuarine Research Reserve

Summer 2005



Padilla Bay

National Estuarine Research Reserve

Padilla Bay National Estuarine Research Reserve is managed by the Washington State Department of Ecology under the National Estuarine Research Reserve System established by NOAA.

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The Padilla Bay Foundation is a membership-based non-profit organization formed in 1987. Its mission is to help preserve the Padilla Bay estuary in Skagit County, Washington, through support of Padilla Bay National Estuarine Research Reserve.

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Where Should We Eat Tonight? Scoter Habitat Study

Scoters are sea ducks that breed in freshwater wetlands of Canada and Alaska and winter in estuaries and bays on the Pacific and Atlantic coasts. All three species of scoters winter in Puget Sound, and their combined population declined by 57% between 1978 and 1999. This decline may be related to winter habitat and food availability. During early to mid-winter, scoter utilize habitats of hard-mixed substrate. In late winter, substantial scoter populations arrive to feed in the soft-bottom, eelgrass habitat in Padilla Bay. They feed on mussels, clams, crabs, other invertebrates, as well as smelt and herring eggs. It seems that the diving birds may find better foraging in the gravelly habitat. After several months of feeding, they deplete much of the prey and move to their second choice—eelgrass habitat.

Eric Anderson, a doctoral student at the University of Wyoming, is investigating differences between a hard-mixed substrate in Penn Cove and the soft-bottom eelgrass habitat in Padilla Bay. He is comparing prey availability in the two bays as well as analyzing the birds' diet and seasonal distribution.



Eric's research is funded in part through a competitive grant from NOAA's NERR Graduate Estuarine Research Fellowship Program.

Padilla Bay Foundation News

Foundation's Board of Directors Pledge to Capital Campaign

In the spirit of fundraising, members of the foundation's board of directors have challenged themselves to make special contributions to the 'Benefactors For The Bay' capital campaign. So far, the board members have collectively pledged a total of \$8,850! They are now searching for "kindred-spirit" donors to match this show of support for the foundation's goal of raising \$138,000.



Starbucks Joins the Blackberry Volunteers

We would like to thank everyone who helped make our spring blackberry work parties a success! A special thanks goes out to Starbucks for donating coffee and to the Burlington Haggen for donating treats. Local Starbucks employees were among those braving the thorns in the photo above. Through the "Make Your Mark" program, Starbucks "paid" their employees for their time, donating the wage to the Padilla Bay Foundation.

If you weren't able to join us for our Spring work parties, don't worry, we will be having two more in August. Join us from 9 AM to Noon on August 13 and 27 as we continue the removal of the invasive Himalayan Blackberry. We will be chopping canes and digging roots in the upland. All tools are provided. Please bring water and wear long sleeves to protect your arms. For more information, or to sign up call Sharon at 428-1098 or Mary 428-1043, or email us at manderson@padillabay.gov.

Volunteers Celebrate Another Year of Monitoring

Congratulations to Stream Team Volunteers! When June ends we will have collected ten months of data in Skagit County's three priority watersheds. This year's hard earned Stream Team recognition and pot luck event will take place from 12:30-2:30 PM on Saturday, June 12 at the new Padilla Bay Meeting Room. The party is co-sponsored by Blau Oysters and Taylor Shellfish. Volunteers will have the opportunity to sample fresh, barbequed oysters provided and cooked by Paul Blau himself. Thanks to 35 of the best volunteers for all their hard work.



Padilla Bay Foundation

How You Can Help

Grassroots involvement is the core of Padilla Bay Foundation's commitment to protect Padilla Bay and support the Padilla Bay Reserve.

Membership in the Foundation means you are contributing directly to environmental education and research right here in Western Washington.

Categories of membership are:

Senior/Student	\$20
Individual	\$30
Family	\$40
School/Organization	\$50+
Supporting	\$60
Sustaining	\$100+
Small Business	\$100+
Sponsor	\$250
Patron	\$500
Steward	\$1000

Send your contribution to:
Padilla Bay Foundation
PO Box 1305
Mount Vernon, WA 98273
(360) 757-3234
a 501 (c) 3 organization

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Summer Events

Presentations for June, July, and August

Summer Birds by Sight and Sound

The singing starts early, so enjoy an early morning of bird watching and listening with naturalist, Libby Mills. Early summer is a great time to observe young fledglings while still catching plenty of breeding activity and singing. Dress in warm layers and bring a snack. **Saturday, June 4 and Sunday, June 5, 7:30-11:30.** Call to register, or register online.

Washington Native Plants

Long days and warm temperatures mean that Washington is bursting with green. Join members of the local Salal Chapter of the Washington Native Plant Society for a slide presentation and field excursion to look for native plants. Presenters will share their knowledge of the botany, identification, and cultivation of native plants. **Saturday, June 25, 1:00-3:00.** Please call or register online.

Toxins in the Marine Environment

Pacific Northwest Orcas have some of the highest levels of PCBs in the world. Learn from three experts about how toxic chemicals are affecting Puget Sound and its inhabitants. John Dohrmann from the Puget Sound Action Team will talk about restoring toxic sediment sites in Puget Sound. Environmental consultant Kristen Burgess will talk about the effects hormone mimickers like PCBs are having on orca whales and educator Kaia Smith will discuss the Swinomish tribe's unique response to increased exposure to toxins as a result of a heavily seafood-dependent diet. **Thursday, July 7, 7:00-9:00.** Call to register, or register online.

Printing with Natural Objects

Capture the beauty of Nature's patterns and details in this workshop with local artist, Roxanne Grinstad. Use natural objects to craft unique images on a variety of papers. Roxanne will show you how to create impressions with leaves, seeds, evergreen needles, feathers and more. We'll also try our hand at the ancient art of Gyotaku fish prints. **Saturday, July 9, 1:00-3:00.** Call to register, or register online.



Estuary Cooking

Great Blue Herons aren't the only ones feasting on estuary food. From seaweed to salmon, our estuary offers a wide variety of food options. Everyone will get a chance to help in the kitchen and in the end we'll have lots of treats to taste! Come on your own or with your family. A collection of recipes will also be given out so you can continue your estuary cooking exploration at home. **Saturday, July 30, 1:00-3:00.** There will be a \$5 fee for this class to cover the cost of ingredients. Call to register, or register online.

Mud Flat Safaris

When the tide goes out at Padilla Bay, it goes all the way out! Come explore this huge expanse of mud, teeming with life. Fearless guides will lead you on a trek into the seldom seen world of the estuary's mud flat. Come with old shoes that tie or snug boots. All ages welcome. The programs begin at the Padilla Bay Interpretive Center, and end at Bay View State Park. Call to register, or register online. **July 8 from 12:30-2:30, July 19 from 10:00-12:00, August 6 from 12:30-2:30, August 17 from 10:00-12:00, and September 2 from 10:00-12:00.**

Beach Seines

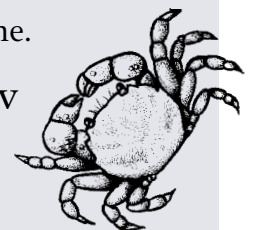
No need to get your feet wet to see what's living out there in the bay. Just meet on the beach at **Bay View State Park** and watch while we pull a fish net through the water. Come and learn more about our fine finned friends! No registration necessary. **June 30 at 11:00, July 12 at 11:00, July 30 at 11:00, August 10 at 2:00, and August 23 at 12:30.**

The Breazeale Interpretive Center is open
Wednesday-Sunday, 10:00-5:00.

Register online or by phone.

www.padillabay.gov

(360) 428-1558.



Padilla Bay Estuary Camp

We have a week of amazing activities planned for kids ages 8-12. If you like going to the beach, playing games, singing songs, making cool art projects, camping out, and learning all about the Padilla Bay Estuary, then this camp is for you. **Monday, August 15 - Friday August 19, 9:00-4:00**, with an overnight Thursday night, camping at Bay View State Park. The \$70 registration fee covers transportation, T-shirt, programs, overnight meals, and snacks. For more information, call the Interpretive Center at (360) 428-1558, or check the Padilla Bay website at www.padillabay.gov.

Eelgrass Ecology by Boat

Cruise above the eelgrass beds of Padilla Bay onboard the Island Express. This two hour educational program will depart from Cap Sante Marina in Anacortes and will focus on eelgrass ecology and current research and monitoring at the Reserve. There is a \$25 fee for this program. For registration information, call the Reserve or check the Padilla Bay website at www.padillabay.gov. **Saturday, August 27, 1:00-3:00**. While you are at the Anacortes waterfront, you can participate in the many other marine-related events happening during Marine Ecology Day at Seafarers Park.

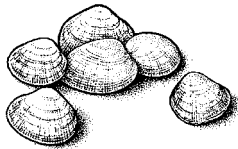
Kayaking in Padilla Bay

Enjoy a summer day of paddling on Padilla and Fidalgo Bay. An Island Outfitters guide and a Padilla Bay naturalist will lead these trips. No experience necessary, just come with a lunch, water bottle, and warm clothing (rain gear, non-cotton layers, hat). Minimum age is 12. People under 18 must be accompanied by a parent. Participants meet at 10:30 at the Island Outfitters store on 24th & Commercial, Anacortes. Fee is \$65 per person for a 5 hour trip. Call Island Outfitters at 299-2300 to register. **June 4, July 2, August 6**.

Films and Videos:

Sundays at 1:00 & 4:00

June	5	Incredible Suckers (60 min)
	12	Creating a Future for People and Salmon (45 min)
	19	Pacific Estuaries (28 min)
	26	Owls Up Close (55 min)
July	3	Secrets of the Salt Marsh (20 min)
	10	Where Have all the Orcas Gone? (40)
	17	Steller Sea Lions in Jeopardy (27 m)
	24	The Intertidal Zone (17 min)
	31	The Secret World of Sharks, Rays (60)
August	7	The Days of Salmon Traps (30 min)
	14	Search for the Giant Squid (60 min)
	21	Yellowlegs, Eelgrass, Tideflats (60 m)
	28	Estuary! (15 min)



Monthly Youth Programs Offer Fun Learning

Mini Explorers are the 3-5 year old learners. We look at a new topic each month, with stories, games, hands-on observations, art projects, and plenty of action. Call no more than 2 weeks ahead to register.

June 15 & 16, 10:00 & 1:00

Clams are Cool—Who's hanging out in Padilla Bay's mud? Come and find out about clams and their bivalve cousins with stories, songs and activities.

July 13 & 14, 10:00 & 1:00

High Tide Low Tide—When the tide goes out in Padilla Bay, it goes all the way out! Find out what that means for all the plants and animals in the estuary.

August 3 & 4, 10:00 & 1:00

Mud Flat Safari—Head for the mud to see what lives beneath the tide in Padilla Bay. Come with a jacket and snug boots or old shoes that tie for this trek to the beach.

Junior Ecologists are 6-9 year olds who have fun exploring the estuary. Excursions to the beach, science experiments, games, art projects, and studying life in the bay -- this program is guaranteed fun! Call the Interpretive Center to register.

June 25, 1:00-2:30

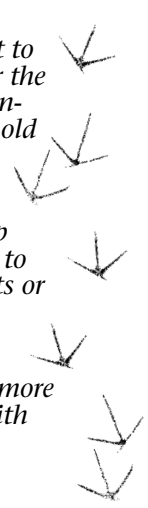
Animal Tracks—There is nothing like a mud flat to show off signs of animal activity. We'll decipher the clues like detectives and figure out what's happening in the Bay. Bring a jacket and snug boots or old shoes that tie.

July 23, 1:00-2:30

Mud Flat Safari—This is our exciting annual trip to Padilla Bay's mud flat. There's no better way to experience the bay! Bring a jacket and snug boots or old shoes that tie.

August 13, 1:00-2:30

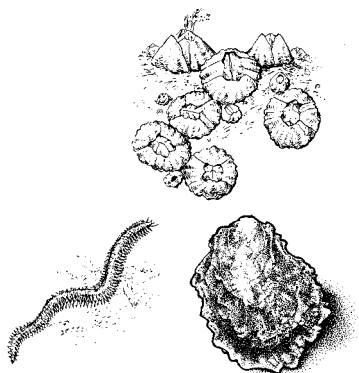
Crabs and their Crustacean Cousins—There's more to crabs than their pincers. Come face to face with these favorite Padilla Bay animals.



Toxic Chemicals in the Estuary

by Maya Groner

Toxic chemicals from many sources often end up in estuaries. In Washington, the geomorphology of our biggest estuary, Puget Sound, prevents many of these chemicals from being flushed out to sea. As a result Puget Sound, especially in the south and central sectors, is a relative 'goldmine' for these bad guys.



Toxic chemicals can move from the water column and sediment into the food chain by way of filter feeders and benthic invertebrates.

Toxic Sediments in Padilla Bay?

While Padilla Bay has no toxic cleanup sites, there are eight state designated toxic cleanup sites in Fidalgo Bay, to the west. Most of these sites are associated with maritime industries such as shipyards, seafood packaging and plywood production and many of these industries have since closed.

Though a study on sediment toxicity done in Padilla Bay in 1992 indicated low levels of toxicity throughout the bay, there is no obvious connection to a point source of contamination. An abandoned landfill in the southwest corner of the bay may be leaching toxins into the bay. Toxins from diverse and distant sources that accumulate in the sea surface "microlayer" may be carried throughout the bay and deposited with the ebbing tide.

To learn more about toxic chemicals in Padilla Bay and Puget Sound, please come to the toxicology presentation on July 7th. See Summer Events on page 3 for more information.

You may have heard of the amazing ability of estuaries to purify water, and in a sense this is true. When water flows off of the land into salt water, heavy metals attach to the sediment. In the estuary, filter-feeders such as oysters and clams remove suspended sediments, metals, toxic algae and bacteria. At the same time, toxins are moved through the food chain as animals from zooplankton to orcas accumulate fat-soluble carcinogens, heavy metals and naturally and artificially produced hormones. While these processes leave the water relatively clean, the toxins haven't actually left the estuary- the estuary inhabitants suffer and, as consumers of many of its products, we suffer too.

One of the difficulties we face with toxins is that we respond to their damage retroactively. The trend has become familiar- a new chemical is manufactured and marketed before enough time has passed to realize the repercussions. Years later, alarms go off when birds stop singing (DDT and DDE), daughters cannot bear young (DES), crocodiles are hermaphroditic (increased estrogens), or, as has been in the news lately, orcas are fireproof.

Puget Sound Orcas have accumulated high concentrations of chemicals called PBDEs (polybrominated diphenyl ethers). PBDEs are used as flame retardants in everything from computers to furniture stuffing, and reach the estuary when they leach into the watershed or rain down as airborne particulates. The amounts of PBDEs detected in North American people and wildlife have doubled every four to five years since the 1970s. This is a pace unmatched by any other contaminant. Tests have shown that they may impair memory, learning and development of young and may affect immunological and hormonal functions. Both orcas and humans, because we feed high on the food chain, are especially susceptible to this type of contaminant.

PBDEs are similar to many hormone mimickers such as PCBs. They are fat-soluble and can be stored in body lipids for entire lifetimes. When these fat stores are drawn upon, as they are when an organism is consumed, or a female is lactating, these fat-soluble contaminants are passed to predator or offspring, where they are stored again. Northwest Environmental watch has found PBDEs in the breast milk of women in the Puget Sound area in quantities that are 20 to 40 times higher than in Europe and Japan.

The development of major cities, military bases and industries in Puget Sound has left an invisible and toxic legacy that has come into the limelight in recent years. There are currently 110 sediment clean-up sites in Washington marine waters. Of these, 29 are listed as US EPA's Superfund sites. Cleanup is underway at many of these sites, with estimated costs ranging from \$436 million to \$1.86 billion.

Derelict Crab Pots Removed from Padilla Bay

The Northwest Straits Commission has worked since 2002 to remove derelict fishing gear such as lost and abandoned nets and crab pots from marine waters in Puget Sound. Recently, their efforts focused on Padilla Bay, a popular place for recreational and commercial crabbing.

The Commission located pots using sidescan sonar in the summer of 2004. The thick eelgrass found at the bottom of the bay occasionally made it difficult to find pots, but the survey found over 350 derelict pots in water depths ranging from 10 to 120 feet.

In February of this year, divers returned and conducted four days of removal operations. The divers investigated 78 of the pots that had been located, and found two new ones. They were able to remove 47 pots, and some of the others were left in place but disabled by cutting an opening for marine life to escape. The derelict pots had 135 crabs in them, including red rock, Dungeness and helmet crabs.

Based on the findings, it is clear that the use of a biodegradable rot cord panel on crab pots is very important to ensure that lost pots do not continue to catch and kill crab and other marine species. By removing gear that is currently in our marine waters the Commission hopes to reduce the impact of derelict fishing gear. You can help by ensuring that any crab pots you use are equipped with rot cord.



Check Inside for the Summer Activity Schedule:

- Presentations
- Mini Explorers
- Junior Ecologists
- Films
- Kayaking



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