

Padilla Bay Newsletter

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

Autumn 2017



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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For more news, research updates, program details, see our website at www.padillabay.gov.

To request materials in a format for the visually impaired, call the Reserve at 360-428-1558, Relay Service 711, or TTY 877-833-6341.

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Investigating Blue Carbon at Padilla Bay

Isn't carbon black? Think carbon paper, charcoal, graphite pencils, coal. So how can carbon be blue?

Carbon dioxide is a natural part of our atmosphere, trapping heat and keeping the planet warm and livable. Plants take carbon dioxide out of the atmosphere when they photosynthesize, and can store that carbon for a long time in their roots and tissues. That's how peat, oil, and coal were formed. When we burn these "fossil fuels" to make electricity or to power our cars and factories, we release that stored carbon back into the atmosphere. We're now releasing so much rampant carbon dioxide that it's trapping heat like a thick blanket, warming up the planet, and disrupting the climate.

But the atmosphere and land are only part of the story. The atmosphere, land and ocean are closely connected, with heat, gasses, and even organisms passing carbon back and forth. Scientists are now taking a closer look at how carbon flows through or is stored in coastal ecosystems. They call this "blue carbon" – blue to pay tribute to the beautiful blue oceans that support these ecosystems.

Several research projects this past summer looked at carbon storage and movement in Pacific Northwest ecosystems. Courcelle Stark, a visiting student researcher from Smith College who came to Padilla Bay through NOAA's Hollings Scholar program, studied how floating microorganisms break down organic matter and release carbon dioxide through respiration. She wondered how cycling of this carbon will respond to climate change, so she did experiments measuring respiration at



Alicia Juang

different water temperatures to reflect future temperature scenarios. Courcelle found that respiration will increase with rising ocean temperatures, suggesting that the ocean's ability to absorb atmospheric carbon dioxide may decrease.



Courcelle Stark

Imagine driving a two-meter long PVC pipe down through sticky mud, and then trying to pull it back out, full of sediment. That's what Alicia Juang, another Hollings Scholar from Harvard University, spent her summer doing in order to determine how much

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How You Can Help

Grassroots involvement is the core of Padilla Bay Foundation’s commitment to protecting our estuaries and supporting the Padilla Bay National Estuarine Research Reserve. Members of the Padilla Bay Foundation contribute directly to environmental education and research at Washington State’s only Estuarine Research Reserve.

Memberships can be for multiple years. Please consider payment of 2 or 3 years at a time, as this will save the Foundation considerable labor and mailing costs and insure that your dues work harder supporting the programs you care about.

Categories of membership are:

Senior/Student	\$25
Individual	\$35
Family	\$50
School/Organization	\$50+
Supporting	\$75
Sustaining	\$100+
Small Business	\$100+
Sponsor	\$250
Patron	\$500
Steward	\$1000

Send your contribution to:

Padilla Bay Foundation
 PO Box 1305
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Visit our blog at www.padillabayfoundation.org.

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carbon is stored in salt marsh sediments. She compared carbon stored in natural saltmarshes, diked farmland that was once saltmarsh, and in a newly restored marsh. Alicia found dramatic differences between natural and converted systems, with carbon sequestration much higher in natural marshes.

Alicia’s work is part of a larger regional NOAA funded study to quantify the carbon storage capacity of estuarine habitats throughout the Pacific Northwest. The PNW Blue Carbon Project is a three-year sampling effort that seeks to characterize the ecosystem services associated with carbon storage in over 40 coastal wetlands located on the outer coast, Columbia River estuary, and Puget Sound. For more information on blue carbon research at Padilla Bay, feel free to contact research coordinator Jude Apple at japple@padillabay.gov.

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Autumn Events

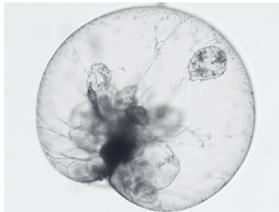
Wild Edible and Medicinal Plants

Fall is harvest time - in our gardens, and in our fields and forests. Join naturalist Marlee Osterbauer in this search for wild edible and medicinal plants. She will share extensive knowledge of plant uses and folklore. Weather may be chilly, so dress appropriately. A notebook and pencil are useful. This class is offered twice, **Friday, September 22 and Saturday, September 23, 2:00-4:00PM**. Please register online or call the Interpretive Center.



Our Glow-in-the-dark neighbors: Living Light in the Pacific Northwest - Part 2

This is a sequel to Chandler Colahan's presentation last June. Bioluminescent plankton are microscopic organisms that give off light when disturbed. Scientists are now finding all kinds of marine life with the same talent – sparkling and glowing in their underwater world. Everyone is welcome. **Saturday, October 7, 1:00PM**. Please register online or call the Interpretive Center.



Introduction to Wild Mushrooms and Mushroom Hunting

As the dry heat of summer transitions into the cool rain of fall, most people prepare for a few depressing months indoors. Meanwhile, mycologists and mycophagists alike wait with excitement for enough precipitation to warrant their first mushroom hunting expedition!

This introductory course on mushrooms will cover basic biology, ecology and morphology of fungi commonly found in the Pacific Northwest. We will discuss field identification of mushrooms, tools and equipment used for collecting, and the ecological impact of wildcrafting. Tristan Woodsmith, avid mushroom collector and photographer, has studied the role of fungi in northwest forests and the cultivation of medicinal and edible mushrooms. **Saturday, October 28, 2:00-3:30PM**. Please register online or call the Interpretive Center.



The Breazeale Interpretive Center is open to the public Tuesday-Saturday, 10:00-5:00.

Closed November 10, 23, & 24, 2017

Register online or by phone.

(360) 428-1558 www.padillabay.gov



Aquarium Tour and Fish Feeding

Come and find out what's new and exciting in our aquariums. Join aquarist, Mark Olson for a behind-the-tanks view of the system, and a close-up look at our amazing critters. **Saturday, November 4, 11:00AM**. No need to register. Just join us in the aquarium room.



Fall Birds of Padilla Bay and the Samish Flats

Join naturalist, Libby Mills, to see who's stayed and who's arrived. Wear comfortable walking shoes and be prepared to explore Padilla Bay's uplands and the "west 90" of the Samish Flats. Bring water and a snack. If you don't have them you can borrow binoculars. Meet in the Padilla Bay parking lot. This class is offered twice, **Friday, November 10 and Saturday, November 11, 8:00AM-12:00 noon**. Register online or call the Interpretive Center.





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Breazeale Interpretive Center
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Padilla Bay

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 the Interpretive Center to register.

September 6 & 7, 10:00AM & 1:00PM

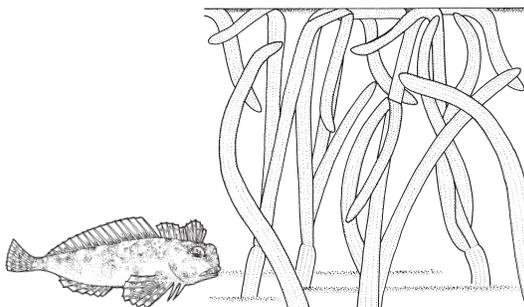
Life on a Rock—Lots of plants and animals make their homes on rocks. We'll look closely at rocky homes in Padilla Bay to see who's hiding and hanging on tight.

October 25 & 26 10:00AM & 1:00PM

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.

November 8 & 9, 10:00AM & 1:00PM

Winter Habitat,—All animals need food, water, and shelter. We'll learn about neighbors in the backyard, and build winter feeders and homes.



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

September 1 & 2, 10:30AM-Noon

Elegant Eelgrass—There's no plant we like more than eelgrass. And Padilla Bay is famous for our giant meadow. Dress for the beach and come explore the wonderful world of eelgrass.

October 20 & 21, 10:30AM-Noon

Who Eats Whom in the Food Web?—Have fun untangling the sometimes confusing estuary food web, and learn how everything seems to be connected.

November 17 & 18, 10:30AM-Noon

Estuary Art—Estuaries are beautiful places full of marvels. They have inspired artists for centuries, and they can inspire you, too. We'll look at beautiful examples of estuary art, and make some ourselves.

