



Padilla Bay Newsletter

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

Spring 2010



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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Publication No. 09-06-008

Climate Change: What Can We Expect?

There's a lot of talk right now about climate change, and Padilla Bay is thick in the conversation. Researchers are looking at possible effects of climate change and sea level rise on eelgrass, mudflats, and salt marshes. Educators are training volunteers to spread the word in their communities through climate change outreach and education. Staff are looking at ways to reduce their greenhouse gas emissions at work and in their homes.

Climate includes patterns of temperature, precipitation, humidity, wind and seasons. "Climate change" is more than just a change in the weather. It refers to seasonal changes over a long period of time. These climate patterns play a fundamental role in shaping natural ecosystems, and the human economies and cultures that depend on them.

For example, a change in the usual timing of rains or temperatures can affect when plants bloom and set fruit, when insects hatch, or when streams are at their fullest. This can affect the pollination of crops, food for migrating birds, spawning of fish, water supplies for drinking and irrigation, forest health, and more.

Here in Western Washington, we can expect warmer, drier summers and warmer, wetter winters. This means higher fire danger in our forests, more need for irrigation for farmers in the valleys, lower summer flow in our rivers (not so good for salmon and hydroelectric power), less snow in the mountains (not so good for snowboarders and glaciers), higher chances of damaging floods, and rising sea levels (not so good for public ports, waterfront property owners or spawning surf smelt). These changes have an impact on everyone and everything in our watershed.

So, what is being done about it? Plenty. But it is not enough. There is broad scientific consensus that climate is changing and will continue to change. Governments at all levels - from cities to federal agencies like NOAA are making plans.

Policy change is important. International agreements to reduce emissions, regional caps on carbon, and tax incentives to encourage alternative energy can be part of the solution. But more important is changing our individual habits. Check out the articles throughout this newsletter about Climate Change education and action at Padilla Bay. Then try some steps of your own to help slow the change.



Climate Stewards and a Cool Community Campaign

by Marieke Slovin

One must spend only a brief time at Padilla Bay to appreciate the dedication of its many citizen volunteers to education in the Skagit Valley community. A growing cadre of impassioned, informed Skagit residents have taken the part of educator and role model in the race to reduce our Skagit carbon footprint.



Over the two months that I have been working at Padilla Bay, I have had the great fortune to meet and learn from the WSU Extension Climate Steward volunteers. In partnership with Padilla Bay and the Northwest Clean Air Agency, Climate Stewards are busy in their communities, leading a host of projects, along with heated discussions with family, friends, and neighbors about how best to tackle this heated issue.

Thanks to a recommendation from local Bay View volunteers Anne and Jack Middleton, we invited Jon Riedel, Geologist for North Cascades National Park, to share a presentation on climate – past, present, and future – in the Skagit Watershed. Jon is a wonderful speaker with a unique ability to make complex research concepts accessible and easy to understand. Well, easier to understand!

Cool Climate Café Heads Upriver

In October, Climate Stewards worked with Skagit Beat the Heat, Padilla Bay, and Skagit County Sustainability Taskforce members to begin an exciting new program. The Cool Community Campaign helps people reduce the carbon footprint of their household by working closely with friends and neighbors. About 200 people attended the first café, held in Anacortes and Mount Vernon. The two-hour workshop provides a foundation of information about climate change for local residents, along with a book called *Low Carbon Diet: a 30 Day Program to Lose 5000 Pounds* by Richard Gershon. Participants form teams and work through the program over the following month or two. Together, Skagit County teams have already committed to reducing greenhouse gas emissions by over 600,000 pounds!



In an effort to offer Cool Climate Café workshops to more communities in Skagit County, Padilla Bay is currently working on designing workshops for residents of the Shelter Bay, La Conner, and Swinomish communities as well as Guemes Island, the Skyline neighborhood in Anacortes, and upriver in Lyman and Concrete. There has been a great response from people around the county to promote climate change education, and it is serendipitous that I have the opportunity to be a part of this movement.

For more information about the Skagit Cool Community Campaign or if you'd like to join a Cool Climate Team, call the reserve at (360) 428-1558 or email Susan Wood at swood@padillabay.gov.



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	\$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
Mount Vernon, WA 98273
(360) 757-3234
a 501(c)(3) organization

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PADILLA BAY FOUNDATION NEWS

Foundation receives support for Aquarium Phase II Fundraising Campaign!

Since starting a fundraising challenge in October 2009, the Foundation is well on its way toward the goal of raising \$85,000 by December 2010. An anonymous donation of \$10,000 was a tremendous beginning, and continuing contributions have added \$7,000 more for a total of \$17,000. We hope to see continued support to meet this ambitious and exciting challenge. All contributions are tax deductible and there is a 2.3 to 1 federal match. Each \$100 donated grows to \$330!

Phase I of the aquarium renovation began in November. By the time you read this, we expect a wonderful, large tank will be open for viewing. The tank features rocky shore animals and plants, with an incredible rock wall, complete with encrusting barnacles, mussels, sea stars, urchins, anemones, and kelp. The tide level will change over a 15 minute cycle, creating a realistic intertidal environment for the animals. We will be able to accomodate larger fish and keep everything healthy and happy with a much more advanced life support system. And—if you’re an oyster connoisseur, you’ll have to come and see our three foot high oysters, complete with associated snails, clams and limpets, surrounding an interactive water quality and shellfish exhibit.

Phase II will complete the room with a bird exhibit and a walk-through eelgrass tank where we hope to house salmon, pipefish, and all things small and green. Visitors will feel like they are underwater in an eelgrass meadow, and will even get a view of life under the mud. So, visit us this spring, enjoy the new exhibits, and consider a contribution toward Phase II. As always, the Foundation is thankful to have your continued support.

Padilla Bay Foundation supports the second Youth Earth Summit

Thanks in part to support from the Foundation, over 100 high school students from Skagit, Whatcom, and Island Counties gathered for an exciting day of sharing, learning, and inspiration. The summit for high school environmental clubs was held at Skagit Valley College February 26. Presentations, discussions, and displays focused on natural systems, food, energy, and “sustainable stuff.” Other supporters included the Northwest Clean Air Agency and Puget Sound Energy.

Name _____	Membership Category _____
Address _____	(see reverse)
City/State/Zip _____	Membership Amount \$ _____
E-mail address _____	Extra Donation \$ _____
	<input type="checkbox"/> Check enclosed
	<input type="checkbox"/> Charge my card (VISA/Mastercard)
mail to: Padilla Bay Foundation P. O. Box 1305 Mount Vernon, WA 98273	Card # _____ Expiration Date _____ Signature _____

***The Beachcomber's Guide to Seashore Life in the Pacific Northwest*, J. Duane Sept**

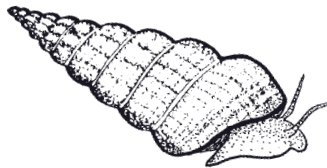
Bull Kelp, Chitons, Ribbon Worms, Nudibranchs, Sea Cucumbers, Isopods, Snails ... The Pacific Northwest's huge diversity of life is especially evident on a rocky beach at extreme low tide. Until you've looked, you can't imagine the array of creatures and plants inhabiting Puget Sound's cool waters. It can all seem bewildering without some help sorting things out, and here's just the book for that: *The Beachcomber's Guide to Seashore Life in the Pacific Northwest* by J. Duane Sept.

This handy volume presents color photos of the 274 most common plants and animals you are likely to find. Unlike many other field guides, this one goes beyond name and description to offer interesting information about each species. Sept tells us the apparently docile Opalescent Nudibranch, a very fancy looking mollusk without a shell, is in fact a voracious predator. As it consumes creatures such as anemones, this nudibranch incorporates the prey's stinging cells into its own body and uses them to fend off predators. The Bull Kelp we see floating off shore or washed up in winter can grow more than 5 inches a day until over 100 feet long! Sept describes uses people have found for this amazing plant from creating fishing line to making pickles. The spiral Mudflat Snail, or Batillaria, dotting Padilla Bay by the thousands at low tide "was accidentally introduced with oysters from Japan." For each creature or plant, Sept has something to spark our curiosity and renew our sense of wonder.

The author includes helpful information on tides and habitats and a detailed section on "Best Beachcombing Sites in the Pacific Northwest" from British Columbia south to Oregon.

The Beachcomber's Guide can help make visiting the shore at low tide a real adventure. Participate in some Padilla Bay and Beach Watcher programs and bring along your new book. You'll be off to a good start enjoying the fascinating Pacific Northwest shore. Look for this handy field guide at the Breazeale Interpretive Center! (\$24.95)

Review by Tim Manns



Padilla Bay Foundation Membership

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.

Please fill out the reverse side of this form and join today.

Membership Categories

Senior/Student	\$25
Individual	\$35
Family	\$50
School/Organization	\$50
Supporting	\$75
Sustaining	\$100
Small Business	\$100
Sponsor	\$250
Patron	\$500
Steward	\$1000
Benefactor	\$2000

Hand cast brass critters, mounted at the Interpretive Center, are available to donors of \$1000 and above who would like to be acknowledged in this way.



Spring Events

Presentations for March, April and May 2010

Truffles to Treetops: Northwest Forest Ecology

New research is exposing an amazing subterranean connection between mushrooms and trees where both are dependent on the other. Come explore this relationship as well as other fascinating aspects of forest ecology. David Drummond, Merlin Falcon Foundation Biologist will present major tree species field ID, habitat zones, human connections, and representative wildlife found in woodlands of the Olympics and on both sides of the Cascade/Coast mountains. Join us on this spring primer for your outdoor appreciation and adventuring!



Sunday, March 28, 1:00-2:30. Please call or register online.

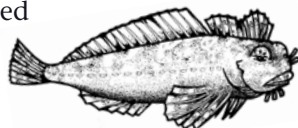
Deep Energy Reduction and Energy Efficiency in Homes (and Businesses)

This timely program begins with a brief overview of our most serious energy issues—and how we can help solve them by making homes (and businesses) more energy-efficient. We'll discuss the cutting-edge concept of "Deep Energy Reduction," with potential for 70%-90% reductions in home energy use. We'll also discuss case studies of Skagit homeowners who are making big changes in how they use energy. Steven Hoffman, Ph.D., is Executive Director of the NW Center for Sustainability and Innovation, a Skagit-based 501(c)3 nonprofit. With over 20 years of environmental research, consulting and nonprofit experience, Steve will strive to provide new insight into how individuals can help us all attain a sustainable energy future.

Saturday, April 3, 1:00-2:30. Please call or register online.

Fred's Fish & Friends

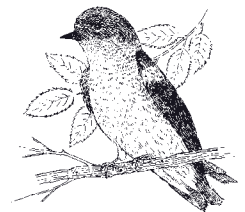
The Fred Morelan Marine Life Collection has moved out of the aquaria room and into the main exhibit area and we'll be learning about the fish in this collection, and a little about the man who made the models and donated the collection. Sharon Riggs, Stewardship Coordinator at Padilla Bay will



help you identify each animal – whether it is fish, marine mammal or invertebrate, and you'll learn where it lives, what it eats and some interesting facts about each one. Limited to 15. **Sunday, April 18, 2:00 – 3:30.** Please call or register online.

The Spring Chorus: Birding by Ear

Join naturalist, Libby Mills, listening and looking for neotropical migrant birds. There is no better time of year to enjoy the music. This excursion involves a **slow** walk around the reserve uplands, so you may want to bring a folding chair. Pack warm clothes, binoculars, field guides, and warm drink or lunch. Meet in the Padilla Bay parking lot. Each class limited to 15 participants. **Sunday, April 25 and Saturday, May 8, 8:00-12:00.** Please register online or call the Interpretive Center.



Wild Edible Plants

Come and experience our annual celebration of spring's bounty. Join naturalist Marlee Osterbauer in this search for wild edible plants. She will share her extensive knowledge of plant uses and folklore. Weather may be chilly, so dress appropriately. You may want to bring a notebook and pencil. **Saturday, May 1, 2:00-4:00.** Please register online or call the Interpretive Center.



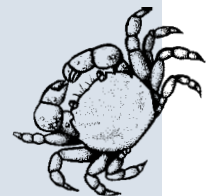
The Breazeale Interpretive Center is open to the public Wednesday-Sunday, 10:00-5:00.

Staff are available 7 days a week.

Register online or by phone.

www.padillabay.gov

(360) 428-1558



Beachwatchers 2010 Winter Seminar Series

Puget Sound Anemones and Coral Bleaching

Friday March 12th
Anacortes Public Library
7:00 PM - 8:30 PM

Brian Bingham of Western Washington University tells us "What can Puget Sound sea anemones (Aggregating Anemones) teach us about the bleaching of tropical coral reefs?"



Tidal Power Generation

Friday April 9th
Anacortes Public Library
7:00 PM - 8:30 PM

Craig Collar of Snohomish PUD and Shiela Murray of the Department of the Navy tell us about agency plans to test tidal turbines for electrical production in the Admiralty Inlet area. Learn about this technology and evaluations of the potential use of this renewable power source in Puget Sound.



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 or register online.

March 10 only, 10:30-11:30

Our Fine Feathered Friends- *Find out what makes a bird a bird and why they love Padilla Bay.*

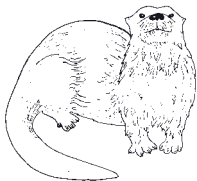


April 7 & 8, 10:30-11:30

Habitat-*Find out why Padilla Bay is the perfect home for so many things.*

May 5 & 6, 10:30-11:30

Mammals-*Furry and warm blooded, lots of mammals make their home around the estuary.*



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 or register online.

March 12 & 13, 10:30-12:00

Hawk Watch - *Learn about all the hawks that live in the Skagit Valley. Bring coat, hat, and binoculars if you have them-or borrow ours.*



April 16 & 17, 10:30-12:00

Camouflage: How to Hide in the Tide-*Don't wear bright pink to this program. We'll find out how camouflage works and who uses it in Padilla Bay.*



May 21 & 22, 10:30-12:00

Trees - *Celebrate spring and explore the forests above the Interpretive Center. We'll see how important trees are for animals, clean water, clean air, and people.*



Environmental Leadership Starts Here ~ Culminating Projects

Upon entering high school, students begin a journey replete with countless decisions to make, many of which will influence the path they follow after graduation. Whether they play a sport, join theater or band, or run for class president, students' lives take on a busy air for 4 years. In addition to all of these choices, students are tasked with many impending requirements for graduation – class projects, standardized testing, college applications, and a culminating project. A requirement that stands out in this list is the culminating project, for here students are given the opportunity to focus their passion and creativity and make a difference in their own and the greater Puget Sound community.

Padilla Bay staff are working to connect high school students with mentors from the environmental community to pursue a project with an environmental focus. Read on to learn about Jordyn LeBlonde's experiences studying and learning about the Whatcom Waterway in Bellingham. Jordyn is the first student to be featured in a series highlighting the work of high school students from the north Puget Sound region.

A Halocline in Whatcom Creek?

by Jordyn LeBlonde

When deciding what to do for my culminating project one of my teachers suggested that I contact Padilla Bay. Alex, their Education Coordinator, gave me a few different ideas, and I decided to look into salt water wedges and see if there is one present where Whatcom Creek flows into Bellingham Bay. This wedge shape happens because of the difference in densities of freshwater and salt water. Since salt water is denser than freshwater it should sink to the bottom while freshwater floats on top. I choose to do this project because of my experience scuba diving in Cenotes in Mexico. I've seen haloclines—a perfect line where the freshwater meets the salt water. When coming out of the salt water it looks as if you are surfacing—an amazing sight. So I wondered if this halocline was present here in the Whatcom Waterway.

The greatest challenge that I faced during my project was probably deciding what to do. I knew that I wanted to do a project that involved Marine Biology in some way but didn't know exactly what. After deciding, I had a few other challenges while completing my project. My goal was to graph my salinity data in Excel to then be able to see if a salt water wedge was present in the waterway, but unfortunately I couldn't figure out how to graph the data. After struggling with it for a while I contacted Alex, who asked a scientist at Padilla Bay for help. After she looked over my data she came to the conclusion that my graphs were just too complex for excel to graph so I had to create them by hand.

I think that the most rewarding part of this whole experience was being able to go out into the community and do my own project my own way. When doing this project I had to struggle through the difficulties myself. I didn't have my teachers to guide me through the whole thing like I normally do in school so I was able to learn a lot by having to do this project all on my own.

This project had a huge benefit to me. It taught me a lot about what I should expect in the future if I continue to pursue a degree in Marine Biology. Also, when doing this project I had to learn how to deal with professionals in the field and this is something that in the past I would never do. But through this project I was able to do things I have never been able to do before. I also gave a couple of presentations for my culminating project to a number of people. And speaking in front of people is not something I love to do at all. However, through this project I was able to step out of my comfort zone and do something that wasn't easy or normal for me and that has changed me forever.

Did I find a halocline? No. But this project has changed my life and I am so glad that I had the chance to do this project and have these great experiences.



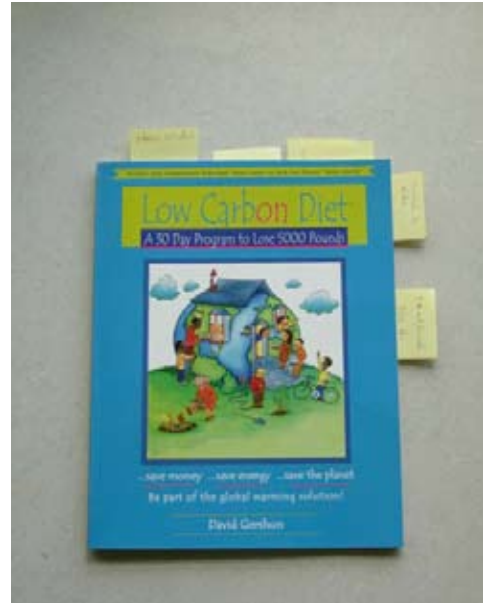
Padilla Bay's Cool Climate Team

Walking the talk is important, so as winter set in and furnaces kicked on, many of the staff at Padilla Bay chose to form a Cool Climate Team to try to reduce their carbon emissions at home. Armed with our *Low Carbon Diet* books (see page 2) we set about the task of estimating our "carbon footprints" and seeing how we might shrink them down a size or two.

We met every few weeks during lunch to share our carbon footprint calculation, talk about what we could do about it, and make our plans. It was interesting to see the different approaches staff used to trim their carbon waistline. Someone found a 5-minute shower timer from the Skagit PUD (especially useful with a teenage boy in the house). Someone arranged to work from a Bellingham office once each week to save the commute miles. One team member decided to air dry her laundry on folding racks. Alex, who already commutes by bus and bicycle every day, and whose family declined the suggestion to turn the thermostat down to 55° at night, began cooking a meatless meal every Monday. Several of us decided to buy Green Power through our local utility, Puget Sound Energy. Another staff started a Cool Climate Team in her Samish Island neighborhood, and the new group of 5 families shaved a total of 73,000 pounds of CO² from their household emissions.

Altogether, Padilla Bay staff have committed to eliminating over 40,000 pounds of CO². We enjoyed spending informal time together, sharing our hopes and concerns about climate

change. And we feel like we're taking a big step towards a more sustainable future. For more information about Cool Climate Teams, attend a café in your neighborhood, or call Susan Wood at (360) 428-1066.



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