Padilla Bay Newsletter

A Joint Publication of the Padilla Bay Foundation and Padilla Bay National Estuarine Research Reserve Autumn 2013

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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PADILLA BAY FOUNDATION

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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Make the Switch

Now's the time to check out our new e-newsletter. This issue of Padilla Bay's newsletter will be the last to be mailed to households. We'll still print a limited number to share with visitors, but our online version will be the best way for you to stay up to date on programs, educational opportunites, and research projects at the reserve. Sign up for the new newsletter on our website at www.padillabay.gov and click "Newsletter," or call the Interpretive Center at (360) 428-1066.

Concert for the Coast

From the Members Day Brunch to the closing notes from Swingnuts, June 30th was a delight for all who attended. Many thanks to staff, volunteers, and financial support from the Padilla Bay Foundation, Skagit Conservation Education Alliance (SCEA), Skagit PUD, and Taylor Shellfish Farms. The generous support of Shell Puget Sound Refinery provided a new element: a festive raffle of kites (provided by SCEA) and educational books and souvenirs from the Foundation's gift shop.

The atmosphere was casual and relaxed. Music from Erthlingz and Swingnuts was engaging for all ages. Add sunshine, hot dogs, art activities, ice cream, the Skagit Watershed Letterbox Trail Kickoff, and divine strawberries -- and you get one perfect day. Don't be surprised to see a repeat next year. What a fine way to bring in summer!

Padilla Bay Foundation Special Event

Climate Change in the Pacific Northwest

The Padilla Bay Foundation is pleased to invite you to a presentation by Patty Glick, Senior Climate Change Specialist at the National Wildlife Federation. How has our local climate changed and what can we expect next? Patty will share the latest science on the impacts of climate change on coastal habitats and ecosystems in the Pacific Northwest. She will discuss the new National Climate Assessment, due in final form in early 2014. She will also present ways you and your community can help promote solutions, including reducing greenhouse gas emissions and preparing for unavoidable impacts. Join us Saturday, November 2 from 1:00-3:00. Please call or register online.

Volunteer Opportunity

Join the Skagit Stream Team

Get intimate with Skagit County's waterways. The Skagit Stream Team is looking for volunteers to monitor the quality of water in Anacortes, Padilla Bay, Samish and Skagit River watersheds. Teams of 3 to 4 people check a stream's temperature, salinity, dissolved oxygen, and depth once a month. Samples are then brought back to the Padilla Bay lab where another volunteer tests for fecal coliform and turbidity. The goal is to collect 9-12 months of accurate water quality data to share with interested agencies. The program provides hands-on learning about natural systems, land-use impacts, and stream/estuary health. Orientation and training will be at the Interpretive Center on: September 10 and 12, from 6:00-8:30PM and Saturday, September 14 from 9:00AM-3:00PM. If you'd like to volunteer or have any questions, call Kristi Carpenter at the Skagit Conservation District, 360-428-4313.

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
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PADILLA BAY FOUNDATION

Padilla Bay Foundation is a membership-based non-profit organization formed in 1987. Its mission is to help preserve the Padilla Bay estuary through support of the Padilla Bay National Estuarine Research Reserve. Foundation programs include:

Support for Education
Funding for aquaria and displays at the Breazeale Interpretive Center
Purchase of educational equipment
Funding for public programs and presentations
Scholarships for selected Washington Conservation Corps/ Americorps members

Support for Research
Funding support for students conducting research into the ecology of Padilla Bay
Purchase of research equipment

Special Projects
An annual environmental presentation funded by the Smith-Aguero Trust.
Support of meeting rooms and guesthouse
Providing match for federal grants
Yearly Members' Day event and annual meeting

To contact the Padilla Bay Foundation or discuss donations
Kay Reinhardt, Administrative Officer
Padilla Bay Foundation
PO Box 1305
Mount Vernon, WA 98273
360-757-3234

New Foundation Blog

For all the latest projects, ideas, thoughts, and inspirations, check out the Padilla Bay Foundation's blog at www.padillabayfoundation.org.

Funding for Education

Funding from the Padilla Bay Foundation enabled Chandler Colahan (left) to spend quality "mud time" with thousands of students, teachers, and parents this past spring.

Name _____

Address _____

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(see reverse)

Membership Amount $ _____

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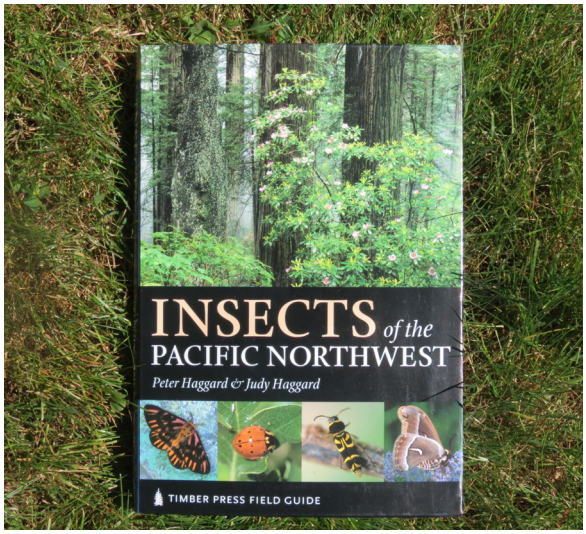
Insects of the Pacific Northwest *by Peter Haggard & Judy Haggard*

Insects form by far the Earth's most diverse group of organisms, at least of those visible without magnification. Most insect species are still undescribed by science, but estimates of insect species range from 2 million to 30 million. The Northwestern U.S. hosts a mere 28,000 or so. Most of us know something about only a very few. To feel the real meaning of "biodiversity," focus a bit on insects. Each of those 28,000 species makes a unique living in this place, and many are interesting, even beautiful, to simply observe. To feel amazement at insects, a great place to start is Peter & Judy Haggard's Insects of the Pacific Northwest.

This introductory guide presents color photos of 452 species in 10 insect orders occurring from southwestern British Columbia to northern California. For many entries, the larvae (e.g. caterpillars) are also shown. Some insects, such as certain wasps, induce plants to grow galls, and the authors present many of these structures too.

The Haggards' approach works well for non-specialists. Descriptions of each order and family precede photographic keys with emphasis on species we're most likely to see and can most readily distinguish using pictures. For that reason, the largest parts of the book focus on beetles, butterflies, and moths, with smaller sections on bees, dragonflies, true flies, etc. It concludes with some non-insect invertebrates such as spiders, mites, and snails we might come upon while searching for insects.

The concise text emphasizes identification but also gives interesting bits about insect lives. Nymphs of insects in the Family Cercopidae create the white foam we see in meadows. This foam protects young Spittlebugs from predators, parasites, and the drying sun. Several beetles and flies closely resemble bumble bees. The tiny Ladybird Beetle Wasp lays its egg in a ladybug beetle. The wasp larva grows in the living beetle until finally emerging just before its host expires.



The Haggards make a well-argued case for gardening with native plants and avoiding insecticides. Native insects play many important roles in the ecosystem, and knowledge of these promotes our understanding and enjoyment of the places we live.

Find your copy of Insects of the Pacific Northwest at Padilla Bay Interpretive Center and begin opening your eyes to the amazing diversity of life around us.

—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.

Padilla Bay
National Estuarine Research Reserve

Autumn Events

Presentations for September, October, and November 2013

Diking the Delta

Between1863 when Samuel Calhoun stood on Pleasant Ridge and looked north across the Skagit Delta and 1920, most of Padilla Bay's marshes were drained and converted to prime farmland. Padilla Bay's education coordinator, Glen (Alex) Alexander will share stories and photos of this monumental work by determined settlers. We welcome stories and pictures from the audience. **Saturday, September 28, 1:00-2:00**. Register online or by phone.

Wild Edible Plants

Come and experience Padilla Bay's fall harvest. 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. This 2-hour class is offered twice. **Saturday, October 5 and Sunday October 6, 2:00-4:00.** Please register online or call the Interpretive Center.

Aquarium Tour and Fish Feeding

Summer beach seines have kept our aquariums teeming. Join Padilla Bay's aquarist, Mark Olson for a behind-the-tanks view of our new system, and a close-up look at the amazing critters in the tanks. You may find this month's celebrity, the silver-spotted sculpin (see p. 6). **Saturday, October 19, 11:00.** No need to register. Just join us in the aquarium room at 11:00.

Climate Change in the Pacific Northwest

How has our local climate changed and what can we expect next? Patty Glick, Senior Climate Change Specialist at the National Wildlife Federation, will share the latest science on the impacts of climate change on coastal habitats and ecosystems in the Pacific Northwest. She will discuss the latest National Climate Assessment, due in final form in early 2014. She will also present ways you and your community can help promote solutions, including reducing greenhouse gas emissions and preparing for unavoidable impacts. Join us **Saturday, November 2 from 1:00-3:00.** Please call or register online.

Birds of Fall

Join naturalist, Libby Mills, listening and looking for fall birds around Padilla Bay. From late sparrows in the uplands to early waterfowl and raptors, fall is an exciting time of coming and going. Bring warm clothing and a snack. Binoculars and field guides are available at the Interpretive Center. Meet in the Padilla Bay parking lot. Each class limited to 15 participants. **Saturday November 16 & Sunday November 17, 8:00-12:00.** Please register online or call the Interpretive Center.

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

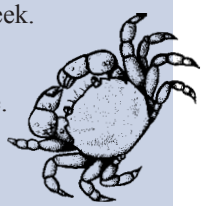
Staff are available 7 days a week.

Closed November 28 & 29

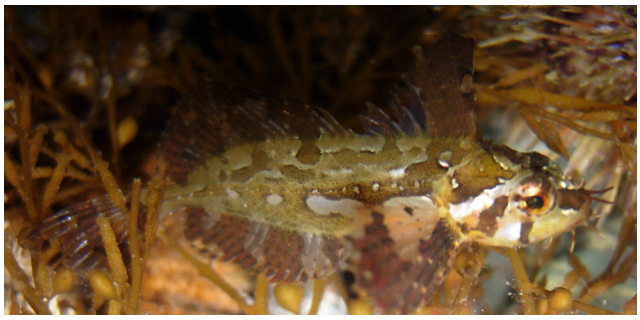
Register online or by phone.

www.padillabay.gov

(360) 428-1558



Aquarium Notes



Silver Spotted Sculpin: absolutely beautiful!

Blepsias cirrhosus is known by the Japanese as "isobaten-gu" which translates as "the little dragon sculpin." On our side of the Pacific we call him the Silver Spotted Sculpin.

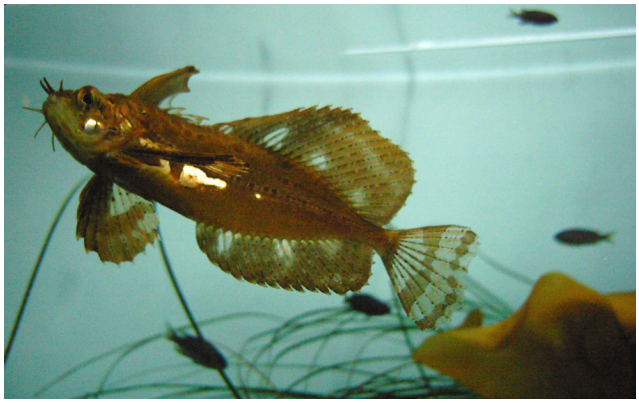
This fish prefers the cold and has been found in water as chilly as 35F, that's just three degrees above freezing! While these guys do prefer cold water they are quite hardy and can often be found in brackish estuarine waters. This means they must tolerate large changes in salinity and temperature which is hard on any fish.

Even though the adult can survive the inhospitable conditions of an estuary, their eggs cannot and when breeding they must find perfect conditions. A female will inject eggs into the tissue of some sponges. Her job finished, off she goes, leaving the eggs without a protector. The eggs may not be guarded, but they couldn't be in a safer place.

Most sea animals do not fancy sponges as food. Sponges produce antifungal and antibacterial agents, all the while circulating oxygen rich water through its tissue. One mind boggling fact about those eggs though is they can take over 250 days to hatch. That's over two-thirds of a year!

Our little dragon sculpin here at the Padilla Bay Interpretive center is only a juvenile, but it can get up to eight inches long and have colors ranging from maroon to green with silvery marks on its flank and fins. A scientist has observed females turn red-brown or purple with bright yellow bellies during breeding season. Now there's a proud mama!

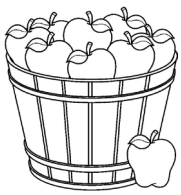
by Jon Eilers



Monthly Youth Programs Offer Fun Learning

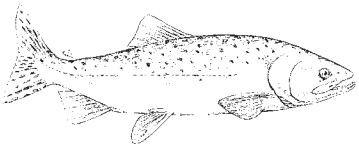
Mini Explorers are the 3-5 year old learners. We look at a new topic each month, with stories, games, hands-on observations, art projects, and plenty of action. Call the Interpretive Center to register or register online.

September 11 & 12, 10:00 & 1:00
How Animals Move—*Swimming, flying, crawling, squirming—only a few estuary animals walk on two legs like you!*



October 23 & 24, 10:00 & 1:00
Cider Pressing–*Turn the crank and enjoy a fall day in the Breazeale family orchard. Don't forget warm clothes!*

November 13 & 14, 10:00 & 1:00
Salmon – *Here is an amazing fish with an incredible life story. Come hear the river-to-sea adventure of the Salish Sea's most famous fish.*



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.

September 13 & 21, 10:30-12:00
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 25 & 26, 10:30-12:00
Cider Pressing–*Spend a fall morning out in the orchard, and learn about the Breazeale family farm. (Wear a warm jacket.)*

November 15 & 16, 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.*

The Importance of Habitat

After a long day at work, it's nice to go home, peer into the refrigerator, make a meal, catch up on the mail and maybe sit down and relax. Have you ever thought about wild creatures and what they need in the way of a home?

Padilla Bay is home to many creatures ranging from tiny one-celled animals to large Stellar's sea lions. Their homes are really the habitats they need to survive. "Habitat" has many definitions but all involve the place an organism can get what they need to reproduce, grow, and survive. They need food within a reasonable distance, refuge from predators, and a place to raise young. That doesn't sound so different than what we need, does it?

We have a number of habitats in Padilla Bay: open water, sub-tidal channels, eelgrass meadows, mudflat, salt marsh, rocky intertidal, and man-made sandy islands. The divisions between these habitats are often not distinct, but blurred. An eelgrass meadow grows on the same substrate that makes up a mudflat. Mudflat grades into salt marsh in the higher intertidal. Tides flow from one habitat to another, carrying small organisms, detritus (dead plants and animals), nutrients and such. Animals such as limpets may only need a small area to survive. Others such as harbor seals may need to range across many miles of varied habitat to find the food they need or partners so they can reproduce.

The size and quality of the habitat may make the difference between an animal's survival or demise. Habitats have "carrying capacities" (i.e. a specific area can only provide for a certain number of animals). Animals have developed "niches" —specializing on one food, one small area of a habitat, or one time of day for activity. That usually means more animals can fit into an area because they don't all need the same things.

Animals share a need for clean, unpolluted water. Aquatic animals need adequate dissolved oxygen in the water as most "breathe" through gills. The warmer the water, the less oxygen it contains. Animals need food. Limpets scrape algae off the rocks with their roughened tongues or "radulas" and may return to the same depression in the rock over and over again. Sunstars hunt other seastars in eelgrass meadows. Juvenile salmon look for small animals called harpacticoid copepods in the upper surface of the mud. Pacific octopus go hunting for crab and then return to rocky dens. Great blue herons wade in the shallow waters of the bay, searching for fish, then fly to their nests with food for their young.

In the coming months, Stewardship Coordinator, Sharon Riggs will highlight different habitats in the bay so you can become more familiar with why these habitats are important to the overall health and functioning of the larger Salish Sea ecosystem. Please join Sharon for an armchair exploration!

Fidalgo Bay Day

A Fun & Educational Experience for the Entire Family! Celebrate the beauty, history, and marine life of Fidalgo Bay.

Saturday, September 14, 2013. 11:00-3:00
Fidalgo Bay RV Park, 4701 Fidalgo Bay Road, Anacortes

See and touch living sea creatures. • Talk with marine scientists. • Enjoy complimentary samples of local seafood cuisine. • Participate in the popular beach seining. • Feast on no-host traditional Samish salmon BBQ platter prepared by the Cayou Family. • Celebrate National Estuaries Day with educational activities along the Tommy Thompson Trail.

Funding, volunteers and staff from these sponsors make this an event you won't want to miss: Friends of Skagit Beaches, Northwest Straits Initiative, Skagit Marine Resource Committee, Shannon Point Marine Center, Taylor Shellfish Farms, Samish Indian Nation, WSU Beach Waters of Skagit County, and Padilla Bay National Estuarine Research Reserve.

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