



Padilla Bay Newsletter

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

Autumn 2011



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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Remembering Milt Martin

The man responsible for establishing the Padilla Bay Sanctuary (now the National Estuarine Research Reserve) passed away in June at his residence in Stanwood, Washington at the age of 84. According to Rod Mack, Department of Ecology Assistant Director who hired Milt in 1979, “Milt was the perfect person to turn the idea of the Sanctuary into a reality. . . He had a tremendous ability to communicate with local citizens, elected officials, and staff at all levels of government, and easily gained the trust of everyone involved.”



Milt worked with the governor’s office in setting up various planning and technical committees, always stressing the need for local representation on all groups. He organized over 100 meetings to insure good communication. Terence Stevens, current Reserve Director (and a member of one of the original planning committees) notes, “Milt was superb in bringing people with extremely divergent professional interests into a position of mutual support for the future of Padilla Bay.”

Milt’s task was no easy feat. The Bay’s tidelands had been subdivided into over 1700 parcels, a major land investment company sued the Department of Ecology over land values, and everything done at the local and state levels had to be coordinated with NOAA’s Sanctuary Division in Washington DC. Milt succeeded in taking an idea and turning it into the federally designated Padilla Bay Sanctuary in less than two years. He worked closely with Miss Edna Breazeale who donated her family’s farm for conservation and education, and in 1982, oversaw the completion and dedication of the Padilla Bay-Breazeale Interpretive Center.



Milt Martin and Edna Breazeale

He received much-deserved recognition and several public and private environmental awards for his efforts. NOAA then offered him the chance to work his “magic” in both Florida and California where efforts to establish Estuarine Sanctuaries were stagnated.

Milt stayed involved in Reserve activities. He was a founding member of the Padilla Bay Foundation, and often visited the Center. Mark Olson, long-time Reserve staff, notes, “It was always great to see Milt at Padilla Bay.... You could see his pride and commitment in the growing success of the programs and people here.”

Milt and his work will be fondly remembered.



photo - Michele Pope

Fidalgo Bay Day

Celebrate Skagit County's marine shorelines, marine organisms, history and culture. Fidalgo Bay Day offers lots of excitement for all ages. Many organizations come together for this popular, free event, offering great food, educational kids' activities, informative displays, a beach seine, and more.

Padilla Bay staff will join the celebration **September 17 from 11:00-3:00** at Seafarers' Memorial Park in Anacortes - just south of Cap Sante Boat Haven. Invite your friends and family, and come celebrate our great Salish Sea. Fidalgo Bay Day is held jointly with WSU Skagit County Beach Watchers, the Skagit Marine Resource Committee, and the Port of Anacortes.



photo - Ivar Dolph



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
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 (360) 757-3234
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PADILLA BAY FOUNDATION NEWS

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
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Name _____	Membership Category _____
Address _____	(see reverse)
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The Cloud Spotter's Guide: The Science, History, and Culture of Clouds

by Gavin Pretor-Pinney

We Pacific Northwesterners rarely suffer the monotony of a cloudless sky. You would expect more of us, then, to be interested in clouds and all their variety, in what they tell us about atmospheric conditions and tomorrow's weather, and simply in their beauty. If you've ever felt inclined to learn about clouds but feared reading about them would be deadly boring, here's the book for you: *The Cloudspotter's Guide: The Science, History, and Culture of Clouds*, by Gavin Pretor-Pinney. Read it on a bench along the Padilla Bay Dike Trail or on a boat out on the bay, and you'll soon find clouds are not only very interesting, but that they evoke plenty of humor too. Gavin Pretor-Pinney, founder of the Cloud Appreciation Society, writes well and is a very funny man.

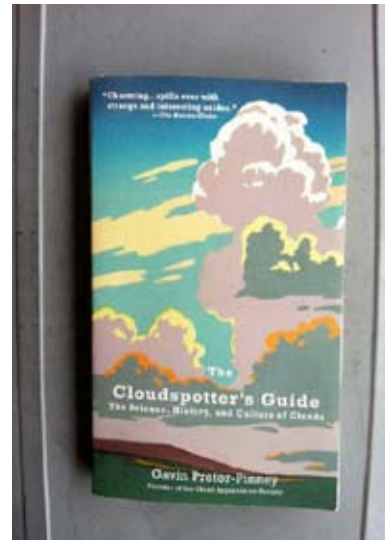
The core of this book, of course, explains the 10 main types of clouds and the personalities and variations of each. The explanations of how clouds form and why they look as they do are crystal clear. Many diagrams supplement the text, from one of a lava lamp showing how cumulus clouds develop to a drawing of orographic clouds forming as air passes over mountains, creating lens shapes mistaken for flying saucers. The Guide's chart of precipitation types includes "cats and dogs" along with rain, hail, and so on.

Rainbows, sundogs, and other sky phenomena get thorough treatment as does "mackerel sky," a striking type of cirrocumulus, whose name motivates the author to investigate just which type of mackerel is involved. The detailed account of Lt. Col. William Rankin's experience unintentionally descending the entire towering height of a cumulonimbus (thunder cloud) and surviving will have you at the edge of your seat.

As promised in the book's subtitle, clouds in relation to culture are a significant part of this little book. Pretor-Pinney has examined clouds in art with interesting results and includes references from Henry David Thoreau to Steven Spielberg, John Updike, and Frankie Lymon, whose 1950's pop hit asked, "Why does the rain fall from up above?"

For a good-natured tour of the troposphere with a witty, well-educated Englishman, read this book. You'll learn a lot about clouds, including those in the big sky of Padilla Bay, and you'll laugh too. At the Padilla Bay Interpretive Center (\$13.95).

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.



Presentations for September, October, and November 2011

Aquarium Tour and Fish Feeding

Padilla Bay's aquarium inhabitants are always changing. 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. From the best camouflaged pipefish and flounder to the flashiest seastars and anemones, aquarium inhabitants have unique habits and stories. **Saturday, September 24, 11:00.** No need to register. Just join us in the aquarium room at 11:00.



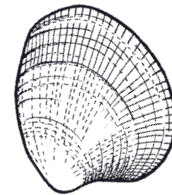
Birds of Fall

Join naturalist, Libby Mills, listening and looking for fall birds around Padilla Bay. We'll look for year-round residents as well as recent arrivals with the fall migration. This excursion involves a **slow** walk around the reserve uplands, so bring warm clothes, binoculars, field guides, and warm drink or lunch. Binoculars are available at the Interpretive Center. Meet in the Padilla Bay parking lot. Each class limited to 15 participants. **Friday, September 30 and Saturday, October 1, 8:00-12:00.** Please register online or call the Interpretive Center.



Wild Edible Plants

Northwest naturalist, Marlee Osterbauer joins us once again for a popular program on wild edible plants. Marlee has a wealth of knowledge and stories about native plant uses and traditions. Weather may be chilly or wet, so dress for the outdoors. You may want to bring a notebook and pencil along with your appetite. **Saturday, October 1 or Sunday October 2, 2:00-4:00.** Please register online or call the Interpretive Center.



Owls Outback

To some cultures they are symbols of wisdom and learning, while to others they are harbingers of doom and death. Join wildlife biologist David Drummond for a close look at these exceptional birds. This slide presentation will explore the cultural mythology, biology, ecology, field identification, and calls of local owls. **Saturday, October 15, 1:00-2:30.** Please call or register online.



Safe Shellfish in the Salish Sea

People today harvest shellfish in much the same way and with the same enthusiasm as the first people who have lived here for thousands of years. Greg Combs, Recreational Shellfish Program Lead for the Washington State Department of Health will talk about human health and shellfish harvest, why there are concerns, what we learn from monitoring, and how we can harvest safely and keep our water clean. **Thursday, November 10, 7:00-8:30.** 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 11, 24, & 25
 Register online or by phone.
www.padillabay.gov
 (360) 428-1558



Aquarium Notes

Leather Star, *Dermasterias imbricata*

One look at the underside of this common Padilla Bay sea star, and you'll see how it got its name. The smooth, flesh-colored skin almost looks like it's been pickled in vinegar. Its top (aboral) surface is an interesting pattern of orange and grey, slippery textured and without spines.

This star is a favorite because it's so easy to please. It likes to eat anemones, especially the "brooding anemone," *Epicatus prolifera*. But when it can't have that, it digs into most anything else—sea pens, bryozoans, sponges, sea cucumbers, fish eggs, chitons, urchins, and the diatom coating on rocks and mud.

Of course, at Padilla Bay this means the leather star sometimes ends up eating other creatures we'd prefer to have alive and well in our aquariums. So this lovely star tends to get moved around from tank to tank. A long-lived creature, one leather star in Padilla Bay's aquarium lived for nearly 20 years, and was even loaned out for research projects. We were told our star was well behaved, eating on cue and showing clear food preferences when asked.

They say the leather star smells like garlic or burned gunpowder. We can't confirm this, but it's certainly something to check out next time you're walking in Padilla Bay and come across this beauty.



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 7 & 8, 10:00 & 1:00

Trees are Terrific, Trees are Great!—Where would we be without the biggest of the plants? We'll take a short tree hike, so dress for the weather.

October 19 & 20, 10:00 & 1:00

Cider Pressing—We'll head for Padilla Bay's orchard, learn about the people who farmed here, and have fun cranking cider. Wear warm clothes for wet, fall weather.

November 9 & 10 10:00 & 1:00

Why Animals Don't Wear Clothes—Feathers, shells, scales, and slime: estuary animals have all sorts of ways to dress.



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 9 & 10, 10:30-12:00

Field Journaling – Through drawing, writing and observing, this class will help you see and experience the natural world in a new way.



October 14 & 15, 10:30-12:00

Cider Pressing—We'll head for Padilla Bay's orchard, learn about the people who farmed here, and have fun cranking cider. Wear warm clothes for wet, fall weather.

November 18 & 19, 10:30-12:00

Plankton Aplenty—The tiniest critters in the estuary are also the most important. Dive into the microscopic water world of Padilla Bay.



Clipart courtesy FCIT

To Weed, or Not to Weed: That is the Question.

– by Rachel Ackerman

Padilla Bay staff were treated to a presentation in July by Deborah Shafer of the US Army Corps of Engineers and James Kaldy of the US Environmental Protection Agency. Deborah and James have been working together for years, digging deep into the mysteries of the eelgrass we view every time the tide goes out in Padilla Bay. Their research focuses on the growth of two eelgrass species under different conditions. They are especially interested in climate change and how conditions for the plants might be changing. For example, water temperatures are warming. Stronger and more frequent storms may cause more physical damage to plants and decrease the water clarity. Heavier winter rains may lead to lower salinity and more siltation and sea level rise will change elevations.

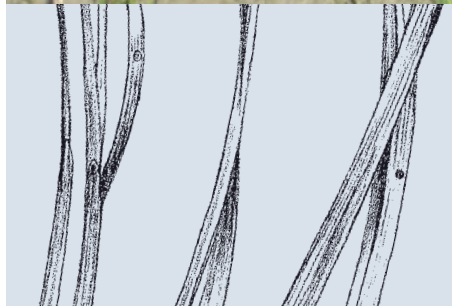
The Salish Sea has two species of eelgrass. *Zoster marina*, native to the Pacific Northwest, is a longer, thicker grass that tends to grow just below the low tide zone. *Zoster japonica* was introduced from Japan with the Pacific oyster trade in the early 1900s and is a shorter, thinner grass, covering mud flats in the intertidal zone. Originally growing along the western Pacific from Vietnam to southern Russia, *Z. japonica* now resides in British Columbia, Washington, Oregon and northern California, with the potential of spreading further south. In Padilla Bay, the two sometimes grow together in shallow depressions in the mud flat.

James and Deborah's research has shown that both temperature and salinity are critical factors for growth, and may influence the interactions and ranges of the two species. In Chesapeake Bay, Deborah has witnessed large die-offs of *Z. marina* which were probably due to warming events. In the Salish Sea, *Z. marina* may out-compete *Z. japonica* in cold waters, but is not as tolerant of warm temperatures. A future Salish Sea with warmer water and more fresh water runoff may favor *Z. japonica*.

Even though it is an introduced and potentially invasive species, *Zostera japonica* now receives the same protections as native eelgrass. It provides food for ducks and brant geese, stabilizes sediment, and seems to add to the productivity and diversity of the ecosystem. This status is now the center of a lively debate.

In Willapa Bay, the Asian eelgrass has spread into commercial shellfish beds, where yields in some beds have fallen by 40 to 50 percent. Shellfish farmers have asked that state agencies declare *Z. japonica* a noxious weed so they can try to eradicate the plant. In Humboldt Bay, California, where *Z. japonica* is a very recent arrival, resource managers are aggressively removing the plant by manually digging, covering with plastic, and using various heat treatments. Shellfish growers in Washington would like permission to include herbicides as an eradication method.

While growers have an immediate need to protect their shellfish beds and their businesses, much remains unknown about *Z. japonica*, including its effect on mud flat organisms and the degree and threat of its invasiveness. Some scientists and resource professionals would like more information. In July, Deborah and James collected samples of Padilla Bay's eelgrass to compare genetics between populations here and in Japan. Their discoveries will provide another piece of the complex puzzle and may influence the way we manage our precious grasses of the sea.



Abandoned Crab Pots Pulled From Padilla Bay

Life for a crab is never exactly easy, but some recent work in the bay just made it a little safer. The Northwest Straits Initiative removed 342 derelict crab pots from Skagit County waters in May and June of this year. Most of these pots were removed from Padilla Bay, south and west of Hat Island. One third of these pots were still catching crabs: 465 crabs were found in the pots—both Dungeness and red rock crab.

Half of the pots removed were not equipped with the required cotton escape cord. Escape cord is cotton cord that will dissolve over time if a crab pot is lost, allowing trapped crabs and other marine species to escape. There are an estimated 12,193 crab pots lost in Puget Sound each year, and each one can kill up to 30 crabs until deterioration. That adds up to 180,000 harvestable crabs lost each year—crabs that might have ended up on someone’s dinner plate.

Funding for these removal operations came from the Puget Sound Crab endorsement fee paid by sport crabbers to the Washington Department of Fish and Wildlife. This project is part of the Initiative’s larger effort to remove derelict fishing gear in Puget Sound. For more information, check the Initiative’s website at <http://www.derelictgear.org/>.



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