

# Padilla Bay Newsletter

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

Summer 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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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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## Citizen Science Highlighted at Research Symposium

Citizen scientists make extremely valuable contributions to coastal and estuarine research throughout the region. This was a key message repeated over and over by research scientists and volunteer coordinators who spoke at Padilla Bay’s second annual research symposium on May 1st. The symposium brought together scientists and practitioners who are engaged in a wide range of citizen science-based programs including Marine Resource Committees, Skagit Stream Team, Beachwatchers, the Surfrider Foundation, and Shannon Point Marine Center. Presenters shared their programs and research findings, and discussed challenges and rewards of engaging in volunteer-based research. A “glacier to bay” perspective was the focus of an afternoon panel, which addressed current and future challenges to the Skagit River, particularly in light of climate change.

The Padilla Bay Foundation offers many thanks to the symposium funder, Shell Puget Sound Refinery!



Sylvia Yang, Julia Parish, Jude Apple, Eric Shen, and Doug Bulthuis, members of the symposium planning team.

## Aquarist, Mark Olson Gains Prestigious Certification

Thanks to hard work, good judgement, and a head for test-taking, Mark Olson has just been certified as a Level 3 Life Support Operator. This is the highest level of certification by the Aquatic Animal Life Support Operators, the sole certification organization among professionals in animal care facilities, zoological parks and aquariums. He is among less than 20 certified Level 3 Operators in the world, qualified to operate any world class facility at the highest level of management. Padilla Bay's aquarium critters are in good hands!



Mark certainly has the experience to go with the piece of paper. He's worked at Padilla Bay longer than any other employee, starting in 1982. He witnessed the design and installation of the original aquariums (photo at left) in 1985, and has been collecting organisms, cleaning filters, monitoring oxygen levels, and fiddling with troublesome compressors ever since.

You can meet Mark, and hear about the aquariums directly from our "expert" at the next public Fish Feeding, July 8.

## Enthusiastic Volunteer, Susie Coder

Weekend visitors, school children, and even our kelp greenling have all enjoyed the cheerful energy of volunteer, Susie Coder. She's given dozens of hours to helping out wherever needed, greeting visitors at the front counter, braving the elements to accompany students at the beach, and keeping the aquariums clean and running smoothly.

A resident of Mount Vernon, Susie loves animals, gardening, and, from what we can see, life in general. Next time you see Susie at the interpretive center, say, "hello and thanks!"



## 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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## *The Sea Around Us* by Rachel Carson

It is now 51 years since the publication of *Silent Spring*, the book we most associate with Rachel Carson. Publicizing detrimental effects of chemicals such as DDT helped spark the environmental movement and laws protecting air, water and wildlife. But it was *The Sea Around Us* in 1951 that first brought Rachel Carson public attention. Her education in aquatic biology combined with literary talent led to several books on the marine environment. The New York Times Best Seller List featured Carson's book about the world's oceans for over a year and a half.

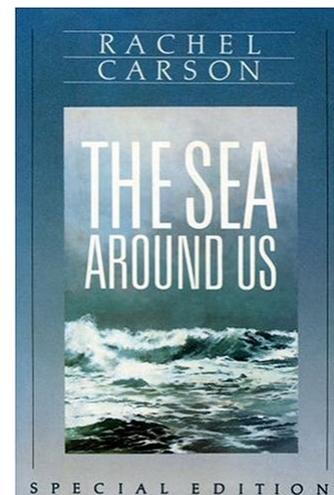
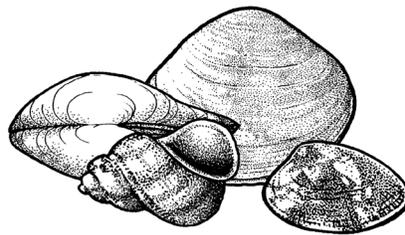
Sixty-two years later, *The Sea Around Us*, fine natural history writing on a timeless theme, is still in print. Because most of us spend far longer on land than water, even living coastally we are not truly conscious of how central the sea is to Planet Earth. In just over 200 pages, Carson shows in detail how key the sea is to geological processes, climate, and both human and non-human life.

Rachel Carson's poetic writing is essential to this book's timeless quality. Read her prose aloud to hear in its cadences the rhythms and vastness of the sea. Her finely chosen examples from all around the planet support the book's title; the sea is indeed all around us, all of us everywhere on earth.

Oceanographers have learned much in 62 years. *The Sea Around Us* does not mention continental drift or seafloor spreading, but you see ideas moving in that direction. Carson describes climate warming in definite terms, but in mid-twentieth century the causative relationship between human activities and climate change was not yet understood. *The Sea Around Us* conveys how well-informed people viewed the natural world then and their sense of being on the verge of great discoveries. Among the book's concluding statements you will find this one just as true today: "... even with all our modern instruments for probing and sampling the deep ocean, no one now can say that we shall ever resolve the last, the ultimate mysteries of the sea."

Rachel Carson's classic overview of oceanic natural and human history is as compelling today as when it won the National Book Award in 1951. Get your copy, complete with oceanographic update, at Padilla Bay Interpretive Center.

—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

# Summer Events

Presentations for June, July, and August 2013



## 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 the Interpretive Center or register online.

**Thursday, June 27 from 12:30-2:30**

**Saturday, July 6 from 10:00-12:00**

**Tuesday, July 23 from 1:00-3:00**

**Saturday, August 3 from 10:00-12:00**

**Tuesday, August 20 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

**Friday, July 12 at 11:00**

**Saturday, July 27 at 1:00**

**Saturday, August 10, at 11:00**

**Friday, August 23 at 10:00**

## Wild Edible Plants

Come and experience our annual celebration of late 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. This 2-hour class is offered twice.

**Saturday, June 1 and Sunday June 2, 2:00-4:00.** Please register online or call the Interpretive Center.

## Summer Bird Songs

The migrants have all arrived, and breeding activity is at its peak. Join naturalist, Libby Mills, listening and looking for summer birds around Padilla Bay. Be prepared for a **slow** walk around the reserve uplands. (Don't let the date fool you. Bring warm clothes.) Binoculars and field guides are available at the Interpretive Center. Meet in the Padilla Bay parking lot. Each class limited to 15 participants.

**Friday, June 7 and Saturday, June 15, 8:00-12:00.** Please register online or call the Interpretive Center.

## Salamanders and Newts

Though officially summer, the weather is still wet in our Temperate Coastal Forests. This is prime time for many species of North-west salamanders and of course, newts. We are living with some 15 species of these amazing vertebrates, with two species unique to Washington and two families that are found nowhere else in the world! We will explore their field ID, special adaptations, biology and nearby habitats. Join David Drummond for this "fresh from the field" powerpoint and perspective! David is a wildlife biologist and director of the Merlin Falcon Foundation. **Saturday, June 29, 1:00-2:30.** Register online or by phone.

## Aquarium Tour and Fish Feeding

It's spring, and there are new animals in our aquarium. 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, July 13, 11:00.** No need to register. Just join us in the aquarium room at 11:00.

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

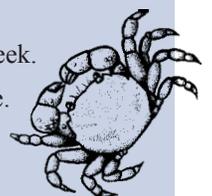
Closed July 4

Staff are available 7 days a week.

Register online or by phone.

[www.padillabay.gov](http://www.padillabay.gov)

(360) 428-1558



# Aquarium Notes



## Bring on the Waves for *Gobiesox maeandricus*!

The most mysterious critter found in the Padilla Bay aquarium, the northern clingfish, lives an undercover life. With a powerful suction cup on its belly, this fish spends its days “clinging” to the underside of the large rock in the aquarium cylinder tank. An unusual modified fin forms the suction cup, and allows this species to stick to a surface with a force equal to 180 times its body weight! This comes in handy out in the intertidal zone where strong currents and crashing waves are the norm. What is the mechanism behind this super-fish strength you might ask?

A gecko might be able to answer that question best. Scientists have discovered microscopic hairs line the edge of the suction cup, similar to the hairs found on the toes of geckos that give them the ability to scale vertical walls. These hairs allow the clingfish to stick to just about any type of surface.

This Pacific Coast native can be found throughout rocky intertidal zones from Alaska down to Baja California. Its carnivorous diet includes worms, small crabs, crustaceans and mollusks. The clingfish is a specialized hunter of small limpets and chitons. It uses its strong suction cup as an anchor so that the head and bottom teeth can pry unsuspecting mollusks from their rocky foundation.

When the tide is high it is exposed to predation by larger fish and diving shore birds. At low tide it is vulnerable to creatures that roam the intertidal area such as gulls and raccoons. Fortunately for this species of clingfish, it has the ability to blend in with its surroundings by changing the color of its skin. This adaptation makes it less visible to potential predators.

Next time you are enjoying a rocky beach, carefully overturn a rock or two. There is a good chance you’ll see a Northern Clingfish attached firmly to its hideaway. But good luck trying to catch one of these slippery creatures as it has a reputation of being one of the most elusive intertidal inhabitants. And don’t forget to carefully put the rock back!



## 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.

### June 19 & 20, 10:00 & 1:00

Amazing Amphipods—Here’s one of the most important critters in the estuary food web. Sometimes called beach hoppers, these teeny crab-cousins are fun to catch -- especially if you’re a fish! Bring a jacket for the beach.



### July 17 & 18, 10:00 & 1:00

Wiggling Worms—Come face-to-face with Padilla Bay’s most incredible worms. No wonder our birds and fish are so well-fed!



### August 7 & 8, 10:00 & 1:00

Mudflat Safari—This special safari is just for 3-5 year olds who want to see all the critters that live in the mud. Bring a jacket and snug boots or old shoes that tie.



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.

### June 21 & 22, 10:30-12:00

Mudflat Safari—This special safari is just for 6-9 year olds who want to see all the critters that live in the mud. Bring a jacket and snug boots or old shoes that tie.

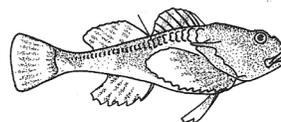
### July 19 & 20, 10:30-12:00

Animal Tracks—Put on your detective hat and join this trek to the beach to see who’s been walking through the mud. Bring a jacket and snug boots or old shoes that tie.



### August 16 & 17, 10:30-12:00

Fantastic Fish—From a fancy-finned sculpin to sleek-as-a-snake gunnels, Padilla Bay’s fish are full of surprises.



## Trail Tales Guided Walks

Friends of Skagit Beaches are pleased to offer guided walks on the Tommy Thompson Trail throughout the summer. Walks start at several places in Anacortes, usually where the trail intersects 34th street or the Fidalgo Bay RV Resort. For more information, see [www.skagitbeaches.org](http://www.skagitbeaches.org).

◆ Sat. June 1, 10:00 AM, Cap Sante Marina Seafarers' Park History & Restoration

◆ Sat. June 1, 2:00pm, Meet at 34th: Plywood Mill History and Cleanup

◆ Sun. June 2, 10:00am, Meet at Cap Sante Marina: Early Anacortes Maritime Scene

◆ Wed. June 12, 10:00am, Fidalgo Bay RV Park: Samish Culture in Fidalgo Bay – Past, Present & Future

◆ Wed. June 19, 6:30pm, Meet at 34th Street: Bike Ride: Pioneer Kinship – Cultures Shared More than the Shoreline

◆ Sat. June 22, 2:00pm, Meet at RV Park: Natural History-Fidalgo Bay Style

◆ Wed. June 26, 10:00am, Meet at RV Park: Preserving and Managing Fidalgo Bay Aquatic Reserve

◆ Wed. July 10, 10:00am, Meet at RV Park: Strands that Connect Mountains to the Sea

◆ Sat. July 20, 2:00pm, Meet at RV Park: The Changing Face of Fidalgo Bay

◆ Sat. July 27, 2:00pm, Meet at RV Park: Family Discovery Walk: Tombolos and Eelgrass and Herons - Oh My!

◆ Wed. August 7, 10:00am, Meet at 34th Street: Getting to Know the Salish Sea

◆ Sat. August 17, 2:00pm, Meet at the Depot: Bike Ride: March Point History and Herons

◆ Sat. August 24, 2:00pm, Meet at 34th Street: Tides & Currents at Work and at Play

◆ Wed. August 28, 10:00am, Meet at RV Park: Fidalgo – The Bay that Feeds Us

## How I Stopped Worrying and Finally Did Something

by Ken Carrasco

I've bought a number of cars over my lifetime, but I've never felt such apprehension as I did when I signed the papers for a new 2011 Nissan LEAF. I could see that my purchase of this Leaf was going to be totally one way or the other — a really, really good idea, or a really, really bad one.

My first couple of drives into town were anxious because I didn't know what to expect, but it was my third trip — returning from town packed with our two teenage sons and their laptops, skateboards, and enough various frozen foods to satisfy their appetites — which was downright nerve-racking. Mount Baker Highway and Highway 9 never seemed so long, but we did make it and with energy to spare. This “range anxiety” quickly went away, and the Leaf has become my primary car for about 90 percent of my personal driving.

### My Four Surprises

#1. Meets most of my driving needs. The Leaf takes me 70-80 miles on a charge. I have never, ever recharged away from home on routine trips into Bellingham, Lynden, or Mount Vernon. And I have never, ever been stranded with a depleted battery (a common question). Even though we live way out in the country, the Leaf is adequate for the vast majority of my transportation needs. Now that the West Coast Electric Highway program has placed chargers at strategic points along Interstate-5 and US Route 2, my range is even further.

#2. Cheap to operate. My cost to run errands in town, typically a journey of 65 miles, is absurdly, ridiculously low. A 65-mile trip to town and back costs me about \$1.83 in electricity. This is merely the cost of a small cup of drip at a coffee retailer for all that distance! And, a side benefit is that the car is much simpler and there is less that can go wrong or break.

#3. Helps the environment. My purchase of the Leaf, in one step, has helped me take a significant, material step to literally save the world. An electric motor is much more efficient than an internal combustion engine. The Leaf's motor is 97 percent efficient. In contrast, a gasoline engine only uses about 25-30 percent of the energy contained in the gasoline fuel to move the vehicle. Even in areas of the country which use coal to fuel power plants, the electric car still produces far less greenhouse gas per mile.

#4. Fun to drive. The Leaf is a sporty car to drive. Forget the “enhanced golf cart” jokes. An electric battery is capable of providing instant power and, consequently, 100 percent torque to the wheels. You can step on the accelerator at any speed from zero to 70 mph and you will feel the instant, quick acceleration. And, because the battery is located under the floor, the center of gravity is lower than a standard car. Consequently, the cornering capability is much better in this car.

Like many of you, I became informed and concerned about the issues of climate change, ocean acidification, the transport of petroleum over marine waters, and the geopolitical implications of petroleum dependency on our national security. And the more I have learned, the more urgency I feel to take steps to solve these issues which will determine the quality of life for my children and future grandchildren. Driving an electric car is a step I've never regretted.

*Ken Carrasco is a marine and salmon biologist who lives outside Acme. He is currently serving on the board of directors of the Nooksack Salmon Enhancement Association and is a member of the Whatcom County Marine Resources Committee.*

## Art for Learning Watershed Science

June 19-June 30 will be packed with activity at Padilla Bay, with programs and art opportunities for all ages.

Exploring Watersheds: stamp and journal making, June 19-22 and 27-29, from 2:00-4:30.

Open Art Barn for teens and adults, June 21, 22, 27-29, from 6:00-9:00pm.

Seeing and Expressing: Creative Journaling workshop on June 22, 28, and 29, from 9:00am-4:00pm.

Watershed Words Teacher Training - see sidebar. →

Skagit Watershed Letterbox Trail Kickoff, Sunday, June 30, from 12:00-4:00. A grand celebration with all ages activities, scavenger hunt, letterbox clues revealed, and Concert for the Coast with Swingnuts Jazz!



## Watershed Words - for Teachers

Wednesday, June 26, 2013, 9:00-4:00  
Padilla Bay Reserve

This workshop is jammed with tips for using writing and your own school campus as a context for learning. Integrate outdoor observation, investigation, and poetry writing with the core subjects English, science, social studies, and the arts.

Postmark your registration by June 12, 2013 and take advantage of the EARLY-BIRD rate of just \$25.

The regular workshop registration fee (post-marked after June 12, 2013 ) is \$45.

Free continuing education clock hours.

Download the Watershed Words Workshop Registration Form: [http://www.co.snohomish.wa.us/documents/Departments/Public\\_Works/SWM/C-Watershed-Words.doc](http://www.co.snohomish.wa.us/documents/Departments/Public_Works/SWM/C-Watershed-Words.doc)



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