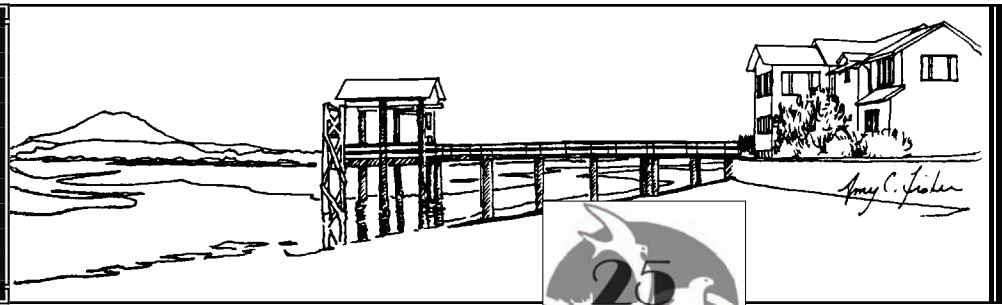


Luhr Lore



THE NEWSLETTER OF THE NISQUALLY REACH NATURE CENTER
25TH ANNIVERSARY 1982-2007

Fall 2007
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NRNC Celebrates 25th Year with Open House Events

By Judy Murphy

The colorful history of the Nisqually estuary was showcased during two open house events at the Nisqually Reach Nature Center this summer. These events marked the Center's 25th anniversary and were attended by the local community, neighbors, volunteers, NRNC members, and even some notable local figures such as State Senator Karen Fraser and author/historian Tim Ransom.

The first open house, on June 23rd, featured talks by Daniel Hull, Center Director, who presented highlights of the citizen science activities carried out over the last few years, and Center caretakers Jeanine Toth and Austin McKinley, who focused on local history. Jeanine and Austin, using historical slides, illustrated the history of the area around McAllister Creek, including early Indian settlements and the more recent era of Bill Luhr, who built the original Center building in the 1920s.

In addition to the informal slide show presentations, Daniel conducted a fish seining, which netted several jellyfish and a rather unusual inhabitant of the estuary, a relative of the seahorse called a pipefish.

On August 25th, Daniel showed slides of summer camp and talked about the special programs that volunteers presented to the campers. In addition, he presented camp data and how this was relevant to the ongoing work of the NRNC.

Later in the afternoon, Tim Ransom presented a detailed review of the history of the settlers of Braget Farm, located on the east side of the Nisqually River.



Tim Ransom's Braget Farm presentation

The last survivor of this Norwegian pioneer family, Ken Braget, died last year, and the land was sold to the Nisqually Tribe. The Braget family had played a major role in keeping the land from being developed by the Port of Tacoma and other potential buyers. Tim, a former Center board member and volunteer, has been writing a book on the Braget Farm and has compiled an exhaustive history of the Nisqually Valley from sources such as journals, land titles, marriage, certificates, and letters.

A favorite part of both events was the food, organized by volunteer Janice Donovan, which included sandwiches, punch, and cakes decorated with the NRNC 25th anniversary logo.



Daniel checks the seine net for fish with visitors at the open house while Alan Ramer waits to record the information.

As Daniel remarked, "We have had a great year of celebration, and now we look forward to the next 25 years at the Nisqually Reach Nature Center!"

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Director's Corner...

The weather is changing as the temperature starts to sink, rains start to come and the trees change colors; I look back to a great summer season. We celebrated our 25th year of operation this summer with two open houses and our first annual fundraiser pig roast. Good times were had by all in our celebrations, and as the Director I was excited to see the seasoned veterans of the Nature Center spend time with some of our new recruits. The Nisqually delta is a testament to our efforts at the Center; looking out over the delta one can view one of the most intact healthy estuaries in the Puget Sound. Being a part of this Center gives partners, members and volunteers the opportunity to self-educate through research ongoing at the Center and empowers us to be a part of an education process by sharing the information and values we acquire. My prime goal as Director is to shoot for another 25 years of excellence for the Center. With the help of NRNC supporters, we can lay the groundwork for communities in the surrounding areas to make a commitment to environmental stewardship, enabling their communities to be ecologically healthy and diverse for generations to come.

**NRNC Director
Daniel A. Hull**

Luhr Lore is published by the Nisqually Reach Nature Center for its members and friends.

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NRNC Presence at the Nisqually Watershed Festival a Big Hit

By Daniel Hull

As we did last year, NRNC brought a touch tank and organized two field trips to the Center during the annual Nisqually Watershed Festival held at the Nisqually Wildlife Refuge on Saturday, September 29th. A steady stream of people came back to the touch tank where kids and adults got a close encounter with animals like the Dungeness crab, sea urchin, gumboot chiton, purple sea star, sea cucumber, and others. We also had a smaller nontouch tank set up with fish such as shiner perch, rockfish, stickleback and greenling. Everyone who stopped by had some questions and was excited to find out about NRNC. Marian Bailey (Refuge Biologist), Christopher Ellings (fish biologist) and Doug Myers, our very own Vice President, worked tirelessly to educate people about what they were seeing in the tanks and to inform people about the two organized van trips to NRNC. I led the trips to the Center, where I presented a near-shore program highlighting some other animals in our aquaria and held a successful plankton workshop. During the festival, we reached some 600 people at the touch tank, had 31 people on field trips to the Center and another 40 people come through the Center during open hours. All in all, it was a great day of outreach and education at the Center.



Touch Tank set up at the Watershed Festival.

Marine Nematodes of South Puget Sound

By Don Murphy

When I tell people I am interested in finding out what nematodes might be living in Puget Sound, the question most of them ask is, "What is a nematode?"

The free-living nematodes of the Nisqually delta are tiny roundworms that are eel-like in appearance and movement. Adults commonly range between about 0.5 to 5 mm in length. They belong to a group referred to as "meiofauna," which are small metazoans. Mouth parts in some are simple tubes, whereas in others they involve complex "jaws" and teeth. The various species make meals out of most anything edible, from bacteria and diatoms to other members of the meiofauna, including other nematodes.

A century ago, biologist and nematologist Nathan Cobb pointed out that if you could remove everything from earth other than nematodes you would still be able to recognize the various plants, animals, land masses, rivers, lakes and oceans. This is because nematodes, free-living and parasitic, are so abundant and so specific to location and host. Nematodes are the most abundant of metazoans in the surface one or two centimeters of sand and mud in the tidal and subtidal beach in front of the NRNC. Many people mistakenly believe that insects comprise the most numerous and diverse animal group. However, most insects have at least one species-specific nematode parasite. Add to this the great number of nematode parasites of other animals (including humans), plus those that parasitize plants, and the numbers expand remarkably.

Yet this is only the beginning. Free-living nematodes abound in nearly every location imaginable. Most are yet to be discovered and described. They are fascinating creatures, but difficult to study. It is the parasitic nematodes, devastating to some human populations and causing great economic loss in agriculture, that garner attention and are extensively studied.

Dr. Wolfgang Wieser, based in the UW Friday Harbor Laboratory, began studying Puget Sound nematodes in 1955, and in 1959, published *Free-living Nematodes and other Small Invertebrates of Puget Sound Beaches*. I

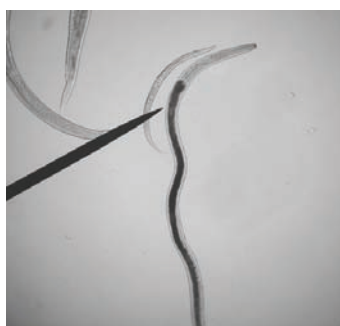
worked briefly with Dr. Wieser at the Woods Hole Oceanography Institute in Massachusetts, during my postgraduate studies on marine nematodes at Oregon State University. My career eventually took me in a different direction, but after moving to Olympia a few years ago, I thought it might be interesting to see what nematodes I could identify on the beach outside the Center.

Working in my very modest home laboratory, I made arrangements for collaboration with colleagues from the past who had forged careers in marine nematology. Unfortunately, however, retirement had caught up with these friends and the opportunity that I had hoped for lapsed.

Daniel navigated the state bureaucracy and provided me with a collection permit. Over the course of many months, I collected hundreds of specimens representing about 30 species. Most of these, perhaps all, had been seen by Wieser, and 9 were first described by him from Puget Sound. One, *Spilophorella furcata*, I described originally from a location near Depot Bay, Oregon. It is likely that at least some of those I was unable to assign to a known species are new to science and yet to be described.



Male nematode; the head (anterior) is at the top.



Adult nematode, with juvenile to its left; dark portion is the intestine; light portion is the esophagus.

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NRNC Hosts Sold-out Fundraiser

By Janice Donovan and Jeanine Toth

On Saturday, September 15, 2007, the Nisqually Reach Nature Center held its first pig roast fundraiser, which met with great success and culminated our 25th anniversary celebrations. This was the first fundraiser for the NRNC in over 15 years and also the first undertaking of its kind to be held at the Nature Center but, hopefully, it will not be the last since it was even better than had been anticipated. Seventy-five tickets were sold and a total of over \$2000.00 was raised. Because of the ingenuity of our two resident caretakers, Jeanine and Austin, we were able to have this fundraiser at minimal expense to the Center.

The pig was cooked and all side dishes were cooked and donated by *Ramblin' Jacks* and *Mercato Ristorante*. And, WOW, the food was terrific! We had a smoked pig complete with head and tail that was large enough to feed 75 people along with extra barbecue sauce. Other side dishes included delicious coleslaw, a wonderful mixed green salad, and just-like-mom-used-to-make baked



Congratulations to Jeanine, Daniel, and Austin, (and the Pig) for their hard work in making this event happen!

beans. *Costco* donated rolls and other miscellaneous supplies such as plates and silverware that were needed to bring the event together.

Terra Blanca supplied a huge bottle wine, a wonderful merlot for the event, while Fish Tale Brewery graciously provided ales. On tap were Organic Wild Salmon Pale Ale, Leavenworth Hodgson's IPA, and Spire Mountain Pear Cider, ensuring a good time for all. Fish Tale also provided their delicious non-alcoholic ginger brew beverage and a server to run the taps for the event.



Those Bottom Feeders playing for a happy crowd on the pier.

The weather made the day even better, with balmy skies and just-right temperatures. Tables were staged inside and outside on the dock with displays of nature-themed table decorations. Those Bottom Feeders supplied the music, playing out on the dock with a historic country feel that fit the atmosphere just right. There were tickets sold for two seatings, due to our limited space and parking, which were held at 3:30 pm and 5:30 pm, respectively. Guests included volunteers, NRNC Board members, local community members and neighbors and once again, Senator Karen Frasier showed up to celebrate and support the NRNC. Many people stayed throughout the afternoon, after the sunset and long after the food was gone, to enjoy the camaraderie of a lovely fall afternoon at the Center and to celebrate 25 years of NRNC research and education accomplishments.

**An enormous heartfelt thank you goes out to all those who helped make this event the success that it was: without your support this event could not have happened. We commend you--
Kudos to You!**

Invertebrate Monitoring Continues at the NRNC

By Deanna Donovan

The NRNC is in the midst of completing its second round of invertebrate identification as part of an estuarine restoration study being conducted by Nisqually Wildlife Refuge and Nisqually Tribe biologists. The invertebrate identification portion of the study serves as a determinant as to whether or not estuary restoration facilitates the increase in population of invertebrate species included in the salmon diet and to what extent.

The invertebrate monitoring partnership began in 2005 when one part-time employee, a couple of interns and a group of dedicated volunteers spent hundreds of hours sorting and identifying terrestrial, benthic and neuston (from the water column) samples. The long hours and volunteer dedication paid off and we are hard at work at the microscope again.

Results from the project's interrelated salmon gut analysis study gave evidence indicating that the diet of salmon in the studied habitats correlates strongly with terrestrial fall-out insects. Due to this discovery we are now putting all of our focus towards the slightly more macroscopic terrestrial samples. This allows for a little less eyestrain on our data collectors since we can actually see most of the specimens with the naked eye! But it does take a gentle

touch with the tweezers to count the wing veination.

One of our new interns, Leia Gartner, has revised the Invertebrate Monitoring Identification Records and Procedures (IMIRP) notebook, and she and a handful of volunteers have been gathering data at a steady rate. Center Director Daniel Hull has also put together a slide presentation to help guide interns and volunteers through the process of identification and recording data.

We are thrilled that our efforts have been a success so far. It is exciting to see students and the public actively participating in scientific research conducted in their community. We are looking to complete this round of identification this winter, so if it sparks your interest let us know by calling the Center at 459-0387. We would be glad to show you the ropes and have you join our invertebrate monitoring team!



Leia Gartner hard at work

Have You Renewed Your Membership?

It's membership renewal time! The Nature Center has just celebrated its 25th year with a number of special events made possible by our wonderful members, volunteers and staff. Membership support helps us maintain and expand our environmental education and research programs. But in addition, you may not realize how important you are to the operation of the Nature Center: memberships help

- ◆ support aquarium maintenance;
- ◆ keep the Center supplied with everyday necessities such as paper towels and garbage bags;
- ◆ pay utility expenses; and
- ◆ contribute to the general upkeep of the building.

These may seem like mundane ways to spend your money, but without this vital support our doors would close. If you would like to see the accomplishments you read about in *Luhr Lore* continue, please put your renewal in the mail today! We appreciate our members and volunteers!

Thank you — Gordon Bellevue, Membership Coordinator

Data Collection and Fun on the Beach: Summer Camp 2007

By Daniel Hull

Our 2007 summer camps were another great success! With a seasoned volunteer summer camp staff and other volunteers coming in with new ideas, our summer camps are better than ever. As in years past, we had many students returning, but when it comes to doing surveys on the beach, they are always different. Many students who had previously attended summer camp even brought back their old journals to compare notes on what happened during prior surveys. For these returning students as well as new students, it was exciting to see the differences between then and now and then think about what causes the populations on the beach to fluctuate. I am always amazed by the ability of youngsters to grasp some big concepts and realize the importance of valuing one's community and environment. This year we did surveys that looked at shore crab populations, plankton, fish, and clams. Unlike in the past, this year we compiled our data to make a presentation at the 25th anniversary open house. It is our goal now to start a database with all the data we collect in summer camps and other programs at the Center, to look at what population trends might be on Luhr beach and to compare these findings with trends in other areas. It will be exciting to see if our trend data will change with some of the upcoming restoration that is planned for the Nisqually delta.

Our camps are not just about research and science; we have several games/activities that involve students in ecologic concepts in a fun and active way. Once again, a favorite game was swimmy camouflage, where students camouflage and hide a paper fish inside the Center, hoping that their fish will not be found by others. We also had a grand time with a program called the Salmon Game, in which students reenact what it is like to be a salmon and go through a field-based obstacle course that is designed to mimic some



Students explore through an inside scavenger hunt what the many aquaria and displays hold at the NRNC.

of the obstacles that real salmon face. Students are always upset when you start with 16 salmon (students) and out of the 16 only one or none makes it back to spawn. The stu-

dents are stunned to realize that this realistically relates to the life cycle of a salmon and that even in wild, healthy stock only two percent of the juvenile fish live to spawn. Critical thinking comes in when students must decide what they can do to help salmon by restoring habitat, restricting fishing, reducing needs and so on, as well as thinking of ways that humans impact salmon. For the second year running, we had students create their own artistic rendition of an estuary and talk about the importance of art in science. I believe that the greatest scientific minds are usually in some ways artistic in their ability to see outside the box.

New to this year's summer camp was a yoga curriculum, a camp song and a Native American curriculum. I was very pleased to see how well the students responded to yoga and how it helped the students to concentrate and relax. Jeanine Toth and Candace Alvarino were instrumental in working on the composition of camp songs that corresponded with a Native Culture lesson. I think it is important for our students to get a better understanding of the history of this area, and we are now incorporating some curriculum to do just that.



Volunteers, Jaime Bradshaw and Candace Alvarino help campers set the seine net hoping to catch some fish!!!

(continued on p. 7)



Session 3, a happy group ready for the beach!

(Summer camp, continued from p. 6)

There is much hard work that goes into making our summer camps a success, and it never ceases to amaze me how much our volunteers contribute to making sure our camp is one of the best affordable summer camps available. This year we had 4 counselors available throughout



the day, with a target of 16 students per session. We reached 65 students during 5 summer camp sessions with one student from Japan! Once again, we received unsolicited rave reviews from parents like Suzanne J. Tatham who said, “My children think this is the best camp they have been to.” Most of the parents who pick their kids up re-



mark on the amount of information their children come home with. It is our in-

tent at the Center to make sure our students have a fun, safe time, but also walk away with a powerful message that they can share with their families and friends.

(Nematodes, continued from p. 3)

In addition to the nematodes, I encountered a suctorian commensal with nematodes that I first described decades ago, *Praethecacineta oregonensis*, Murphy, 1963. Suctorians are protozoa with a wide range of habitat and natural history. This specimen was attached to the outer surface of a nematode of the genus *Axonolaimus*. The relationship between suctorians and nematodes is fascinating: how are the nematode hosts recognized by the suctorian? Is the suctorian detrimental to the nematode, neutral in effect, or a beneficial symbiont? It seems incredible that we can send probes to Mars and still have such an inadequate understanding of what is happening right under our feet.

For a list of the 30 free-living nematode species recovered from the intertidal zone adjacent to the Center, go to the NRNC website at www.nisquallyestuary.org. If you have further interest in nematodes, one of many internet sites that will be useful is: www.nematol.unh.edu.

We Want You!!
Volunteer Opportunities
At NRNC

- Visitor Center Staffing
- Aquarium Maintenance
- Yard Maintenance
- Invertebrate Monitoring
- Bird Monitoring
- Environmental Education

Interested? Call 459-0387 or send an email to: nrnc@nisquallyestuary.org.

Nisqually Reach Nature Center

The NRNC is a private, non-profit organization incorporated in Washington State, and recognized as a 501(c)(3) organization under the Internal Revenue Code. All contributions are tax-deductible.

The Nature Center is located at Luhr Beach on the west side of the Nisqually Delta. Our facilities are provided by the Washington Department of Fish and Wildlife. No state funds are provided for the operation of the Center.

The Center is open to the public Wednesday, Saturday, and Sunday between 12 and 4 pm.

Board of Directors

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- NRNC Director,** Daniel Hull

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NATURE CENTER

Become a Supporter of Nisqually Reach Nature Center

Become a Member of the Nisqually Reach Nature Center, or renew your membership, and help support marine science education programs for children and adults. All Members will receive:

- A subscription to the Center's newsletter, *Luhr Lore*
- Priority consideration for Center activities and events
- Volunteer and docent opportunities

To join, fill out this application and mail it to:
Nisqually Reach Nature Center
4949 D'Milluhr Drive NE
Olympia, WA 98516

We do not give out any personal information.

Yes!! I want to support the Nisqually Reach Nature Center, its goals, and educational programs. I wish to become a Member of the Center as a (check one):

	Membership Category	Annual Dues
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