

Miller Bay Guardian

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Fall 2021

Olympia oysters are back

Restoring the Bay

by Paul Dorn

Thanks to many generous donations from the community this year, Friends of Miller Bay is going forward with an ambitious plan to reestablish Olympia oyster reefs in Miller Bay.

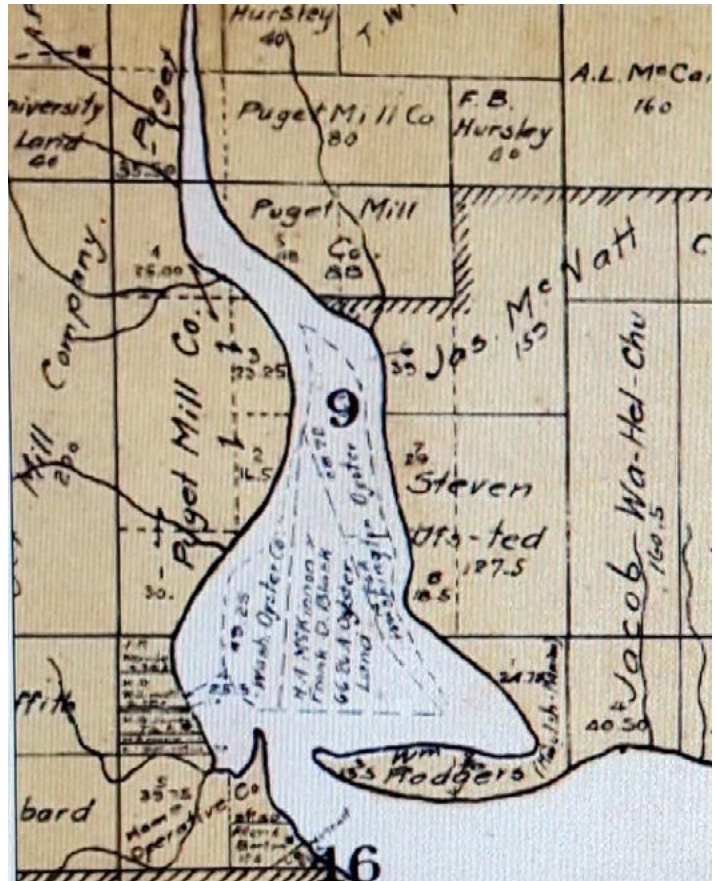
Olympia Oysters are the only native west coast oyster. They were over-harvested from Puget Sound in the late 1800's to early 1900's. The map (right) shows portions of Miller Bay's tidelands targeting these oysters for harvest. As a result, their numbers decreased below what was required to sustain their population.

FOMB is following Washington Department of Fish and Wildlife's Olympia oyster restoration protocols and has partnered on this project with premier Olympia oyster experts, the Puget Sound Restoration Fund (PSRF).

It's amazing that what was once was extensive oyster reef habitat around our bay disappeared before most of us were born. There was no US Fish and Wildlife Service to monitor the number of oysters in our bay. We're fortunate that small populations of Olympia oysters persisted in East Kitsap marine inlets, and it's the genetic stock of these survivors that will be introduced to Miller Bay this spring.

PSRF conducted an extensive reconnaissance survey this summer and prepared the maps and documentation needed to complete our permit applications. FOMB purchased over 200,000 Olympia oyster spat from PSRF this summer. These oysters have set on relic (sterile) Pacific oyster shell and are beginning their life in nearby Clam Bay. We plan to complete the permitting process soon and transfer the oysters to Miller Bay this spring.

Once transferred, the restoration project will require little maintenance. Great blue heron and other higher order predators will likely pick off some of the Olympia oysters as will predators like smaller red rock crab. None the less, we're expecting that natural checks and balances will allow the Olympias to thrive. They are well adapted to Miller Bay's mud, and actually take advantage of their smaller size to "float" on the mud and sandy habitat.



Miller Bay platt map circa 1910

As noted on the PSRS website, the newly established reef benefits its surroundings in many ways:

As a habitat-forming species, Olympia oysters can have a large impact on the ecological functioning of the larger community and ecosystem.

Benefits provided by the structure of healthy Olympia oyster populations include:

- ***Shelter and food, serving as a nursery for species, some of which are important prey for salmon***
- ***Water filtration, moderating excessive nutrient loads***

For more information, PSRF's website (<https://restorationfund.org/programs/olympiaoysters/>) explains their Olympia Oyster restoration activities in detail and includes many excellent pictures. Continued on Page 5 > OYSTERS

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Larval Salamander

Pocket wetlands are important

Amphibian Reproduction

by Tom Doty

Because their larval stages are so vulnerable to predation, most amphibians breed in fishless ponds and streams. Commonly referred to as vernal ponds and intermittent streams, these habitats are inherently ephemeral in nature. Reproductive strategy reflects this unpredictability. Because these habitats appear and then disappear, finding a suitable pond at breeding time is challenging. The most effective strategy, evolutionarily speaking, is to remember where the natal pond was (that from which the individual originated) and return to it.



Northwest salamander egg mass photo: John Williams

They 'remember' the way back aided, in part, by an ability to sense Earth's magnetic field and are very good at "homing" if displaced. However, here is a down side to this reproductive tactic. If every individual returns to the natal pond then this becomes a genetically isolated population, subject to the vagaries of genetic drift (accidental, random

changes in DNA normally swamped out by adequate diversity), leading to declining fitness and ultimately to local extinction.

Happily for amphibia, a small percentage (less than 5% in our studies) have the wanderlust - or perhaps a deficit in their ability to "home". In either event the result is a continuing, low level of genetic exchange between breeding populations, thus enhancing fitness.

One of the most serious insults to the future of amphibians everywhere is the increasing distance between suitable breeding sites, reducing the probability that a wandering juvenile will find a "new" pond.

Unfortunately, we do not appreciate the value of the small diverse fishless wetlands in which amphibia breed (Kitsap County & Washington State forestry rules do not protect them at all), allowing these breeding sites to be altered, physically and chemically, or eliminated altogether, and so those wandering juveniles are doomed. So, likely, are the increasingly genetically isolated remnant populations.*

Tom Doty is a Miller Bay resident and an emeritus professor of biology. He is a park steward for North Kitsap Heritage Park and is very passionate about the plight of amphibians. For the second year in a row, Tom graciously offered to write an article for the FOMB newsletter.



Rough-skinned newt



Miller Bay Shoreline Preserve waterfront Photo: N. D'Archangel

Critical habitat saved

Visiting MB's Shoreline Preserve

by Janine Moss

Last winter, I was lucky to join Paul Dorn for my first look at part of Great Peninsula Conservancy's new acquisition, the Miller Bay Shoreline Preserve (MBSP) near the head of Miller Bay, made possible by donations from FOMB supporters. This thirteen acre parcel is adjacent to previous acquisitions by GPC, the Tucker and Kawahara properties, and is a rich habitat teeming with life.

Access to the new preserve is limited. Some trails have been cut in for the purpose of tree planting but they are not intended to be permanent, nor are they suitable for public access. This bay side of the preserve is extremely wet!

I was only able to visit a small part of the MBSP, which is split by Miller Bay Road. The western portion ascends uphill from the road and is fairly heavily forested, similar to places in the Cowling Creek Forest Preserve. The eastern portion where I walked is primarily tidal estuary and shoreline. The remains of ancient, gigantic cedar stumps are a testament to what was once an old growth forest.

The importance of this parcel is very exciting to me. Even in the winter without tree foliage there were clear signs of the wildlife that depend on this area. Proximity to the mouth of Grover's Creek makes this area a huge draw for bears, eagles, seals, and otters among many others. Even on my brief visit that day, I saw fish parts scattered in the trees, dropped by eagles, ravens, or other birds, the skull of a beaver (we think), and a big harbor seal looking at us from the water.

The biggest thrill for me was peering into a huge hollow cedar stump that is a bear den. Fortunately nobody was there napping! Amazingly all of this is just a few hundred feet from a busy road and intersection.

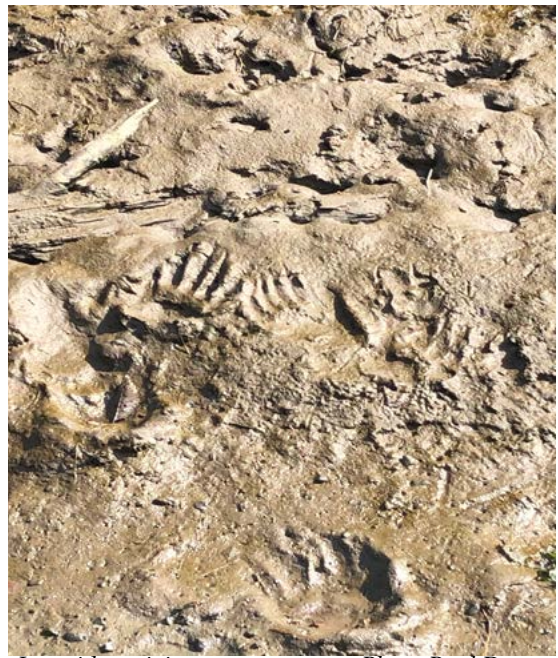
Mature Douglas firs, Western Red cedars, and even Sitka spruce are found dotted around this area. There are also Himalayan blackberries, ivy, and holly, which need to be removed.

Since my first visit, we have gotten a start planting some young hemlock, fir, cedars, and spruce. It's slow and diffi-

cult work with little trail access.

Wouldn't it be fun if we could visit in 50 years and see big, mature trees shading the upper reaches of Miller Bay/ Grover's Creek - just the way it should be!*

Janine Moss has been a FOMB board member since 2016 and is a passionate environmentalist and gardener. She has a Certificate of Environmental Horticulture and seems happiest mucking around the forest pulling out ivy and blackberries.



Low tide activity

Photo: Paul Dorn

Volunteer wins award

Ironing Out USPS Problems

When last year's newsletter came back from the printers, FOMB asked for help preparing it to be mailed. Long time FOMB supporter Bobbi Baum Mueller volunteered to complete the entire job.

There was a slight glitch however when she tried to mail them at the post office. They complained that the newsletters weren't flat enough! Undeterred, Bobbi returned home and fired up her iron. She ironed all 350 newsletters flat and returned to the post office and successfully mailed them - all in record time.



FOMB's Carol Haskins presents the Red Hot Iron Award to Bobbi Baum Mueller

It is this kind of dedication that helps make FOMB what it is. We were so impressed that we awarded Bobbi the first ever "Red Hot Iron Award"!*

Fish aging specialist

Influence of Miller Bay on a Young Woman

By Sharon Nichols

This is an update on Emma Saas, my granddaughter, who has been greatly influenced by Miller Bay and the people around it. As a result of growing up on the Bay, observing and enjoying its beauty and wildlife, Emma chose to study biology, earning a B.A. degree in Biology from Whitman College (2020).

During the summer of 2017, she helped with surveying cockles on Suquamish tribal property. This summer, she worked as a Shellfish Technician with the Suquamish Tribe cleaning baby Manila clams in the Floating Upwelling System (FLUPSY) located in Brownsville. Recently, the Tribe has used the FLUPSY to raise cockles to help replenish their population.

(See article below.)

As of October 1st, Emma began working as a Fish Aging Specialist with Salt Water, Inc., a contracting company which supports National Oceanic and Atmospheric Administration's (NOAA) goals and secured funds from NOAA to do this work. This lab in San Diego has been closed because of COVID, but she will be able to do her research once the lab space opens back up.

We will miss Emma but are so glad she is able to continue to pursue her career in biology.*



Emma Saas

Cockles Raised in Floating Nursery for Population Boost

By Tiffany Royal

Suquamish Tribe shellfish biologist Elizabeth Unsell was nervous about spreading several years' worth of work on a beach recently, in the form of thousands of thumb-sized cockles.

"This is the first batch of these juveniles that we're putting out in the real world," she said. "So much work has gone into making sure they survived spawning and their time in our shellfish nursery in the past year."

The tribe has been working with the Puget Sound Restoration Fund (PSRF) to establish a cockle broodstock program as part of the tribe's effort to reestablish a population on its reservation.

This has been a controlled and monitored grow-out trial, to avoid interactions between wild and hatchery popula-

tions, said Ryan Crim, PSRF's hatchery director.

Adult cockles were collected from the beaches at Kiana Lodge and George Lane in 2019 and taken to the federal Kenneth K. Chew Center for Shellfish Research and Restoration in Manchester for spawning and rearing.

After the adults were spawned and the offspring were reared to juvenile sizes, the cockles were transferred to the tribe's floating shellfish nursery (a floating upwelling system called a FLUPSY) in Brownsville last summer. They stay in the FLUPSY feeding on plankton until they are big enough to be relocated to the tribe's beaches.

On the beach, clams are divided up into plastic mesh bags that are clipped to an anchor line, protecting them from predators.

The first transfer was successful, Unsell said, with only a handful of mortalities out of the more than 3,000 that were placed in the bags in May. More than 80,000 were added to the bag system in early June.

"The shellfish feed on algae and plankton, and there is a lot of food in the water right now, which helped their growth in the FLUPSY," Unsell said. "We hope the clams will continue to grow quickly in the bags on the beaches."

The shellfish is a delicacy for tribal members, with older generations remembering harvesting them by the dozens. But tribal members have observed a significant decline the past few decades, Unsell said.

The tribe and PSRF also are learning more about the cockle's life cycle and genetics, testing them for diseases and determining best hatchery practices.*

First published July 20, 2020

Tiffany Royal is an information officer for the Northwest Indian Fisheries Commission/Northwest Treaty Tribes, educating the public about tribal treaty rights. She writes and edits stories, shoots and edits photos, produces videos and generates content for social media channels, in addition to designing reports, writing grants, and providing project support.



Baby Cockles

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The US Fish and Wildlife Service recently declared that 23 species, including birds, fish, and shellfish, are now extinct and should be deleted from the Endangered Species Act list.

Species come and go throughout the long march of time, but what these species have in common is loss of habitat, mostly caused by human activities. Habitat loss is occurring on an unprecedented scale around our planet.

Several of these extinct species are close cousins to critters that live among us. The extirpated Ivory Billed woodpecker is related to our impressive Pileated woodpecker. Several species of southern freshwater mussels that have disappeared are relatives to our Western Pearlshell mussel, once abundant in all our larger Miller Bay streams. These mussels live to be over 100 years old and their reproductive cycle depends on neighboring fish – living proof to the axiom that all species are connected.

If it works, don't fix it

The Superbly Adapted Osprey

Adapted from Bob Sundstrom's BirdNote
by Michelle Amicucci

To the untrained eye, the Osprey looks just like a bird of prey should. Talons, hooked beak, vivid yellow eyes. But it also has some characteristics that make it truly unique



Michelle Amicucci

among raptors, especially when catching fish. The Osprey is the only North American raptor to eat fish almost exclusively, and it's well adapted to do so. In common with most raptors, it has four long toes - three in front and one in back. As the bird reaches for a fish, its outer front toe swivels to the rear, giving it two grasping talons front and back - unusual among birds of prey. And those toes are lined with short, stiff spikes for extra grip. The Osprey's nostrils shut tight as it hits the water. Then as it ascends, it shakes itself off, shedding water easily thanks to its oily feathers. In fact, it's the only raptor that has this oily plumage. Its long, slender, arched wings help the Osprey get clear of the water too, as it takes flight with the fish's head facing the front - the most aerodynamically efficient position.

Unable to dive to more than about three feet below the water's surface, Ospreys gravitate toward shallow fishing grounds, frequenting deep water only where fish school near the surface.

The Osprey we see today - just one species worldwide - has changed little in tens of millions of years, when its an-

cestors diverged onto a unique evolutionary track, distinct from eagles and hawks, suggesting that over this period it has remained particularly well suited to its environment.

Fourth annual

Miller Bay Cleanup

Every year FOMB coordinates a cleanup of the bay's beaches with the aid of waterfront residents and others who want to help. Last summer's cleanup was scheduled for the weekend following the 4th of July. Surprisingly, less trash was collected this year compared to the previous three years so perhaps that's an encouraging trend.

If you'd like to help with these yearly efforts, check our [website](#) for information. Email notification will be sent to all residents who have shared their email addresses with us.*

Ospreys nest in a wide variety of locations, from Alaska to New England, Montana to Mexico, Carolina to California; their habitat includes almost any expanse of shallow, fish-filled water, including rivers, lakes, reservoirs, lagoons, swamps, and marshes.

Whatever the location, Osprey nesting habitat must include an adequate supply of accessible fish within a maximum of about 12 miles of the nest, open, usually elevated nest sites free from predatory mammals such as raccoons, and a long enough ice-free season to allow the young to fledge.

Summer visitors in much of their North American range, Ospreys winter in coastal California, Texas, and Florida and as far south as Argentina.

Miller Bay is a popular summer nesting area for ospreys who can sometimes be seen tussling with eagles over salmon that the ospreys have caught.*

Michelle Amicucci is FOMB's bird count leader and webmaster, besides being one of our most ardent supporters.



Osprey headed home with (take-out) dinner



PO Box 37
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98392

Time to renew for twenty-two!

FOMB ANNUAL MEETING

Our annual meeting is postponed from November to March. We are planning an informative program about Olympia Oyster restoration with a presentation by experts from The Puget Sound Restoration Fund. More information about the meeting will be posted on our website and will be distributed to all FOMB members.

www.friendsofmillerbay.org

Tragic Loss

A Remembrance of Matt

By Teresa Dwyer

Miller Bay lost a very special friend and neighbor over the summer, Matt Mattson. He was a shining light in Miller Bay which he dearly loved. The youngest of five children, Matt was raised by his Swedish parents Ivan and Catherine, in Hansville. In 1977, at the age of 15, he took a job working at Bay Marine and Miller Bay forever became his favorite place on planet Earth.

Early on Matt fished in Alaska as one of the youngest licensed boat captains and later did construction work in Kitsap when the time came to stay home and raise his two daughters Maelena and Breezie.

Matt purchased a home in his dream spot on Miller Bay in 2002 from Lane Holdcroft who then was the Friends of Miller Bay's President. This home had a nice big dock and boat house which made it the perfect playground for everything he loved; his friends and family, the bay, and boating. The dock became the place for friends to bum moorage in the

summertime or to pull up to if your engine developed a little rattle. You knew your friend Matt "MacGyver" could fix it. He once said he should put a light on the end of his dock to tell us if he was open for free advice.

Matt had such gratitude for living on the bay and his wife reminded me how funny it was that he kept posting the exact same view of Miller Bay from his living room on different days. He just loved it so much.

About 4 years ago the marina business came up for sale and Matt took the opportunity to buy it, renaming it Mattson's Bay Marine. We all felt lucky to have him at the helm, knowing our boats were in good hands. It was a fun place to stop by and see his collection of race boats and watch him bustle around, fixing the impossible and endless boat problems.

Matt was a long time supporter of FOMB, whether it was facilitating the bay cleanup home base or donating goods and services for fundraising.

Those of us on the bay and around town are missing the hum of his big old Chris-Craft heading out for evening cruises, rain or shine with his love Michelle, the pile of dogs, friends, and neighbors. He is greatly missed!*



Matt & his wife, Michelle