

WASHINGTON'S  
— 2016 —

# Deschutes River



## Watershed Guide



*Points of Interest*  
*Pull-Out*  
*Map*  
*Inside!*  
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Contributors to the Watershed... Back Cover	

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**On the Cover, Clockwise from Top:** Mud Bay (credit Joel Kluger), Prairie (credit Noelle Nordstrom), and Upper Deschutes Falls (credit Dani Madrone)

**Left:** Budd Inlet

**Authors:** Daniel Einstein, Zena Hartung, Martin McCallum, Sue Patnude, Greg Schundler & Helen Wheatley



## *Deschutes River* WATERSHED FACTS

The Deschutes Watershed has:

52 river miles

•

143 tributaries

•

Elevation of 3,870 feet at its highest point

•

Sea level at its lowest point

•

Budd Inlet, its marine water terminus,  
averages 1.15 miles wide

•

Budd Inlet averages 27 feet deep

•

Geological features include  
forest, wetlands, prairie, farmland, urban  
development, marine bays & open sea

## The Deschutes Watershed...

Our history, our health and our quality of life are connected through the ecosystems we depend on for land, water and food. We call them watersheds.

Welcome to the **Deschutes Watershed Guide**, a production of the **Deschutes Estuary Restoration Team (DERT)** with funding from the **Thurston County Historic Commission**. We invite you on a tour of the Deschutes Watershed and its ecological culture: past, present and future.

This guide attempts to provide you with a range of information: the history and geology of our watershed and the impacts it has survived with industrialization and urbanization. We, in our daily lives, experience only a small piece of the life of a watershed, and our understanding is limited by our perspective. The hope is that this guide will encourage you to make your own study of this territory, to ask questions and seek answers, to move up and down the watershed's accessible places and to really understand the scope of the Deschutes River watershed. It is our further hope, that with this understanding, students, visitors and landowners who are privileged to know the Deschutes Watershed will grow to cherish its unique place on Puget Sound...at the beginning of the Salish Sea.

The **Deschutes Watershed** is a basin holding all the land whose streams, wetlands, lakes and ground water drain into the Deschutes River. It covers an area of approximately 170 square miles mostly within Thurston County, but with a small portion in Lewis County—both in the State of Washington.



*People of the Water . . .* SQUAXIN ISLAND TRIBE



VIEW OF OLYMPIA, WASH.

# Environment

## of the Deschutes Watershed

### THE PAST

The Deschutes Watershed is tens of thousands of years old. It offers Puget Sound geographic texture and diversity with a river and its streams running through forest and prairies before it reaches its marine water terminus. All of these features have made it an ideal place for human settlement. Since ancestral times, Native American Tribes inhabited the watershed, moving with the seasons and the availability of once-abundant subsistence resources, using just what they needed to survive.

When the first non-native settlers moved to the Deschutes watershed, they also began using its resources—but not as wisely as Native American Tribes. Logging, fishing, shellfish harvesting, farming industries and the support businesses sprang up rapidly causing significant changes to the watershed. At the time, settlers didn't think about the overall ecosystem—they didn't even know what an ecosystem was. Settlers were building homes and communities so they used everything they could, learning from Native peoples how to use the resources, but not understanding the need to conserve. As the population of settlers increased, natural resources began to dwindle in abundance from extraction, over use and pollution.

The Deschutes watershed was transformed significantly during the explosive growth of the timber industry in the temperate rainforest climates of the upper watershed. Sailboats and steamboats carried timber far and wide even before the railroads arrived to connect Puget Sound to American's eastern industrial cities.

The timber industry continued to grow with the arrival of railroads and the investments of timber industrialists such as Frederick Weyerhaeuser. The Klondike gold rush of 1897 precipitated a Western building boom that saw West Coast timber production jump from 750 million board feet in 1899 to over 14 **billion** board feet by 1929.

Washington became a leading timber state. Clearcutting forests created a barren landscape and caused heavy sediment run-off compromising many river and estuary ecosystems.

The first oyster processing plant was built on the waterfront in 1893, and others were rebuilt during the 1920's. Oyster processors included Brenner Oyster Company and Olympia Oyster Company. With improvements in overland roads, processing moved to Totten Inlet where the producing oyster beds were located. Later, sulfite waste and other environmental factors caused the decline of the Olympia Oyster, but recently efforts have been made to re-establish this resource. (*Short History of Budd Inlet, 1992*) The once thriving oyster beds in Budd Inlet were reclaimed as log boom yards. Shellfish help reduce nutrients in the water. The loss of shellfish production and the introduction of log yards dealt a significant blow to the health of the Deschutes estuary.

Olympia and Tumwater, the Deschutes Watershed's most northern and most populous cities grew with the arrival of the railroads. Along with the Port of Olympia, most of Olympia's historic downtown architecture was built on land created with dredged sediment from the Deschutes estuary changing the contours of Olympia's shorelines permanently in 1911-12, when almost 22 blocks were added to the downtown area in a gigantic dredging and filling effort to create a deep water harbor and fill the sloughs to the north and east of the city. (City of Olympia)

In 1951, the mouth of the Deschutes River was dammed to create a sediment reservoir called Capitol Lake. At the time, the dam was created to provide a transportation link from downtown Olympia to the westside of town. The reservoir was also thought to be relief from a time when raw sewage was allowed to flow into the estuary causing a strong odor. And—the controversial Capitol Lake was promoted as a reflecting pool for the Washington State capitol dome.

Times have changed tremendously since South Puget Sound began to modernize. The environmental challenges have grown with these times. Older generations remember times when the water was cleaner and more accessible, when the air was pure and you could wind your way through the streets without congestion. Those days are gone. Its time to work on sustainable resources for our future generations.



**Top:** Deschutes Estuary prior to dam  
**Right:** Old Brewery in Tumwater  
**Above:** Capitol Lake

Clearcutting forests created a barren landscape and caused heavy sediment run off compromising many river and estuary ecosystems.

# Geology

## of the Deschutes Watershed

### FROM THE HILLS...

The headwaters of the Deschutes watershed are located in a low mountain range near the foothills of Mount Rainier in Lewis County. The highest peak is Cougar Mountain, about 3900 feet above sea level, in the Gifford Pinchot National Forest. Although it is in the heart of volcano country, Deschutes watershed was shaped by the Ice Age over 10,000 years ago. Its “bald hills” are glacial moraines where the water drains so quickly, not even trees can grow.



### AND RAIN FORESTS...

The watershed is part of the great West Coast Rainforest, a bioregion that follows the Cascades from California to Alaska. The old forest ecosystem once provided for an astonishingly dense web of life. For more than a century, forest logging has provided the economic base for the region, at a cost of wildlife diversity. Over a third of the watershed is managed as part of the Weyerhaeuser Vail Tree Farm. Always home to an abundance of cutthroat trout, the forests also shelter juvenile Chinook and Coho salmon.



### TO THE PUGET LOWLANDS...

Retreat of the Vashon glacier at the end of the Ice Age left behind a prairie providing rich harvest grounds of camas root and wild game. Transformed to pasture land and farm land, the prairies of the Deschutes now face growing pressure from residential development. Patches of native prairie survive in such places as Joint Base Lewis McCord and the Olympia Airport. Sheltered there are native species such as the threatened streaked horned lark, Taylor’s checkerspot butterfly, the Mazama pocket gopher and Garry Oak.

### TO THE ESTUARY AND THE SEA:

The estuary is where the river meets the sea. This is not only the Deschutes river, but streams running directly into Puget Sound all the way from the Deschutes basin to Boston Harbor at the north end of Budd Inlet. The long finger-shaped inlet encouraged the formation of tide flats and oyster beds. It created an ideal environment for spawning forage fish including sand lance, smelt and herring—ideal food for

predators from bear to salmon to Orca whales. Waterfowl, including the marathon travelers of the Pacific Flyway, find shelter in the tidelands and wetlands of the estuary. The estuary lies at the heart of the Coast Salish culture of the Squaxin Island Tribe.



**Above:** Upper Deschutes Falls (credit Dani Madrone); **Left Top:** Rainforest (stock); **Left Bottom:** Prairie (credit Noelle Nordstrom)

# Points of Interest

WASHINGTON'S  
- 2016 -

*Deschutes River*



*Watershed  
Guide*

# *Pull-Out Map*

Remove Pages 7-11



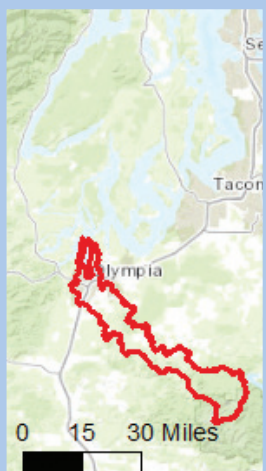
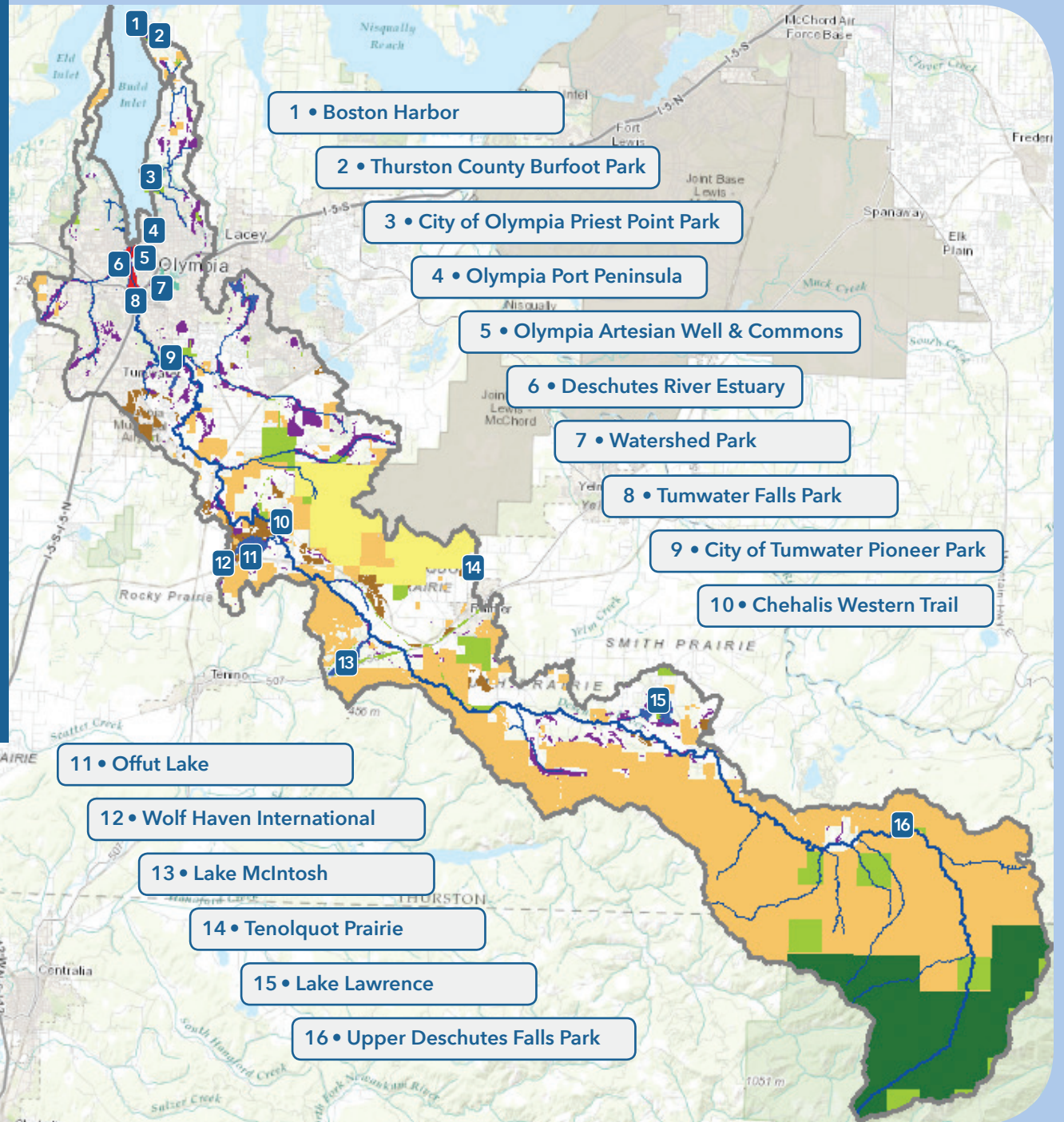
Photo: Capitol Lake and Budd Inlet,  
Courtesy Aerial Images nw

# Deschutes River Watershed

-  Deschutes River Watershed
-  Fish and River Viewing Access
-  Deschutes Main Stem
-  Tributaries
-  WA Dept of Ecology "Waterbody of Extreme Concern"
-  Lakes
-  City Park
-  County Park
-  Joint Base Lewis McChord
-  WA Dept of Fish and Wildlife
-  Other Protected Areas
-  Gifford Pinchot National Forest
-  Private Timberland
-  Important Wetlands
-  Oak Habitat

0 2.5 5 10 Miles

Sources: Washington State Department of Ecology,  
Washington State Department of Natural Resources,  
Photos from Google Image, Esri







# Deschutes River Watershed *Points of Interest*

1

**Boston Harbor** is on the northern end of Budd Bay and marks the terminus of the Deschutes River watershed and estuary. **Boston Harbor Marina** offers great views of the Puget Sound. Kayak rentals are available.

2

**Thurston County Burfoot Park** includes trails with access to the beach.

3

**City of Olympia Priest Point Park.** This 314-acre city park includes vista points and trails with access to a beach and tide flats.

4

**Olympia Port Peninsula's** attractions include **Percival Landing Park, Olympia Farmer's Market, LOTT's WET Science Center** and is flanked by **East Bay Park and West Bay Park** (across Budd Inlet) each having viewpoints.

5

**Olympia Artesian Well & Commons.** This well-known historic landmark offers a free flowing artesian well. The City is partnering with local businesses and non-profits to bring positive, daily programming and events to this urban park.

6

**Deschutes River Estuary.** The Deschutes River Estuary is dammed at the 5th Avenue Bridge in Olympia. The water behind the dam is called Capitol Lake. Capitol Lake is managed by the state.

7

**Watershed Park** is a 153-acre temperate rain forest public park. Deep in the park is the **Moxlie Creek Springs Basin**, one of the largest spring basins in the region. The park's trail system provides one of Olympia's best walking experiences.

8

**Tumwater Falls Park** includes a half mile walking trail highlighted by cascading waterfalls, reflective pools, footbridges, and massive rocks.

9

**City of Tumwater Pioneer Park** includes a riverside trail and is the location of the future **Deschutes Watershed Center and Salmon Hatchery.**

10

**Chehalis Western Trail** runs north-south through the heart of Thurston County. It features views of the Puget Sound, Chambers Lake, wetlands, forests, and farmlands. Mile marker #15 (corner of Stedman Rd and Tempo Lake Drive S.E.) is an excellent place to view the Deschutes River. The CWT also links up with the County-owned 14.5-mile Yelm-Tenino Trail.

11

**Offutt Lake** is open for angling year-round. The public boat launch and toilet is located on the lake's west side. There is a resort located on the south side of the lake offering lodging, a lakeside restaurant and boat rentals. Just north of Offutt Lake is a mima prairie with groves of Garry Oak, a surviving oak native to South Puget Sound.

12

**Wolf Haven International** is a non-profit organization dedicated to conserving and preserving wolves and their habitat. Their site is located on 36 acres of mounded prairie and oak woodland habitat. Wolf Haven has a well-maintained prairie trail with interpretive materials.

13

**Lake McIntosh** is within the Deschutes watershed. The lake has a public boat ramp and restroom off Military Road SE. It is open for fishing for part of the year.

14

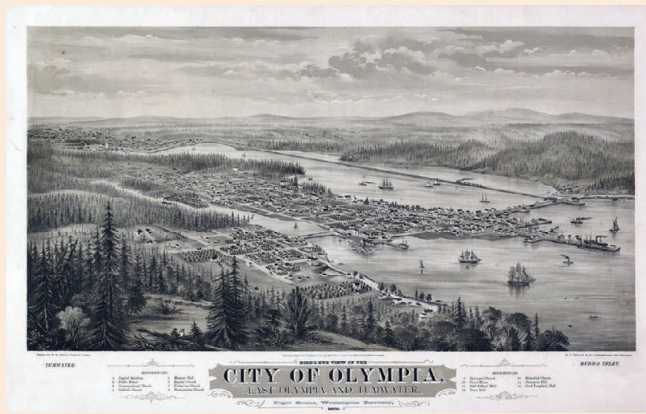
The **Tenolquot Prairie** is a fertile grassland loved by Native Americans and farmed by the Hudson Bay Company in the 1840's. The prairie can best be seen at the intersection of Waldrick Rd. SE and Military RD. SE.

15

**Lake Lawrence.** Waters from the lake flow into the Deschutes River. There is a public boat access and restroom on the lake's south side. It is open for angling year-round. A land restoration and mitigation project is underway in a wetland at the lake's outflow.

16

**Upper Deschutes Falls Park.** In the Deschutes River highlands, the river cascades through a narrow canyon. The property on the north side of the falls is called Deschutes Falls Park. This property is not developed and is currently closed to the public.

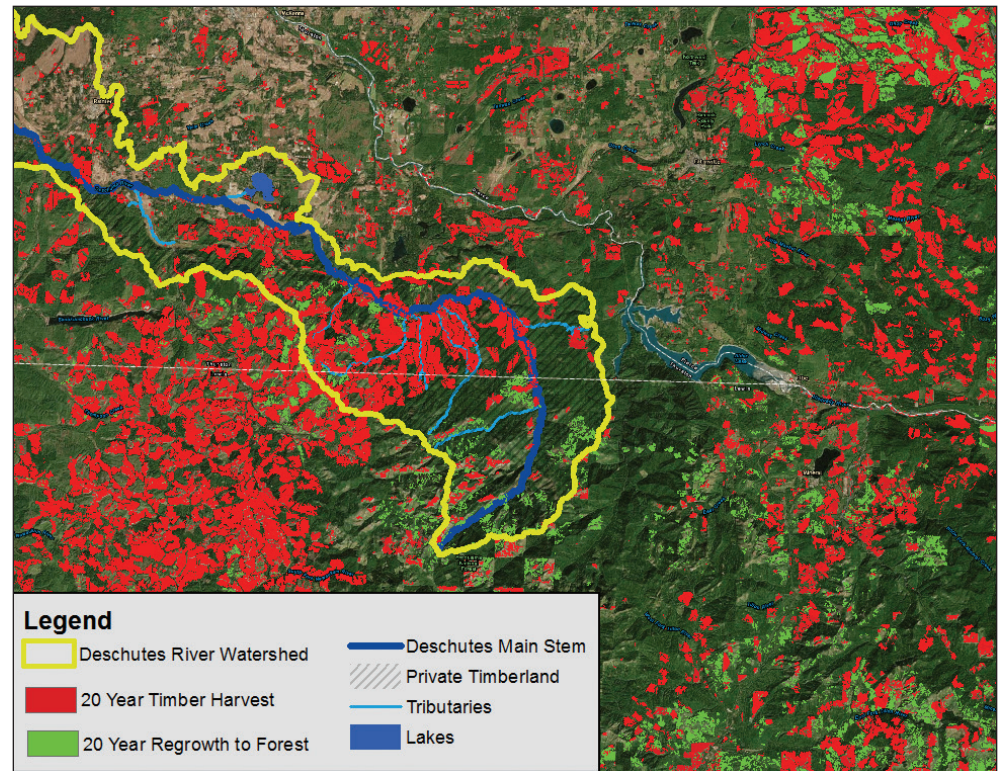


**Clockwise from Top Left:** Historic Photos (credit Washington State Digital Archives), Deschutes River (credit Tom Hyde), Prairie (credit Noelle Nordstrom), Rain Forest (stock), and Upper Deschutes Falls (credit Dani Madrone)



## Yesterday's Legacy, *Today's Restoration*

Up until the early 20th century, the Deschutes Watershed was a haven for fish, shellfish and wildlife of all kinds including predators at the top of the food chain like eagles, bear and even wolves. Human beings had lived here with fish and wildlife for thousands of years. However, the industrial age brought changes that destroyed the watershed ecosystem. Now we know by protecting the ecosystem, we also save ourselves. People are part of the food chain. When we destroy our habitat, we destroy ourselves.



### FOREST PRACTICES

The temperate rainforests of Deschutes watershed are primarily owned by private timber companies. As these forests grow, they create layers that slow the rain from above, in the canopy, and some moisture is absorbed before it arrives at the forest floor. The interaction between the rain and the forest is complex, with the trees both accepting the rain and dispersing it by means of transpiration. Forests create oxygen by photosynthesis and help to counteract the increase of carbon in the air. The forest provides habitat for birds, other animals, insects, mosses and fungi and a range of plants, native and foreign.

Some timber businesses practice selective logging, to provide a forest more adapted to our long dry summers. But typically logging companies take all the trees of the canopy and the result is bare soil. The usual result of clear cutting is the loss of topsoil into the streams. The soil is carried away to the river by rainfall. Replanting is carried out in poorer soils and the process of re-growth is slow and does not provide the “ecosystem services” of the intact rainforest.



## PRAIRIES:

The Center for Lands Management (see Agency List, p. 10) is the conservation organization most involved with South Puget Sound's prairies and oak woodlands. These unique places lie hidden among the region's forests, farms and homes. Here, wide-open skies arch over rolling expanses of bunchgrasses, wildflowers, and gnarled oaks. Butterflies found in few other places in the world spangle the sun-washed grasslands, and blue birds and meadow larks serenade the quiet visitor.

One of the rarest ecosystems in the country, these open savannas were created by retreating glaciers 15,000 years ago, which left behind gravelly soils that dried out quickly during summer droughts. Native Americans sustained these grassy plans for thousands of years using fire to keep the encroaching forests at bay so that tribes could harvest the prairie's bounty of wildflowers and bulbs. Today conservationists maintain our prairies through active management and restoration. (from Center for Lands Management South Sound Prairies website)

**The South Puget Sound Prairies were created by retreating glaciers and sustained by Native Americans. They are unique to the Northwest and are now dependent on us for their conservation.**

One specific area is the Tenalquot Prairie. This area of fertile grassland is located in the Deschutes Watershed. The name "Tenalquot" related to a Native American legend. Here is the legend as told by a noted Puyallup Indian leader named Henry Sicade.

"Many years ago, the mink, which was the Indians' impersonation of the one who goes over the country seeking good locations for the habitat of men, came overland from the Columbia River. In his journey he found many obstacles. There was no road or trails through the thick timber and brush, the hills that he had to cross were rough and covered with stones so his feet became very sore. One evening he came to a beautiful prairie; it was covered with waving grass and bright flowers, throwing his hands up into the air he shouted "Ta-nal-cuth," meaning the "best yet," or as Sicade says it may be literally translated "happy land."

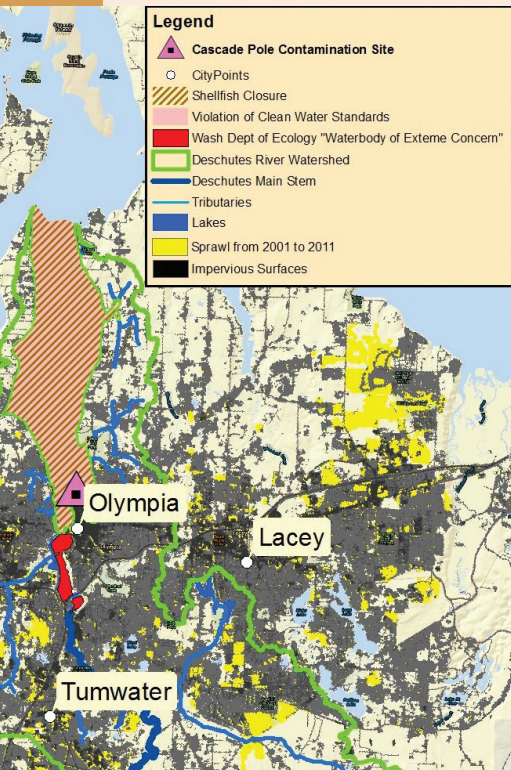
Prairies are critical watershed habitats. Their long roots help hold the earth in place and filter water. South Sound is fortunate to have such amazing places. If you are a homeowner and have prairie habitat around you, the Center for Land Management has information to help you protect your land.

## THE LOWER WATERSHED:

The lower reaches of the Deschutes Watershed are continually under pressure from growth, resulting in many small, uncontrolled sources of pollution entering the river. Over the past several decades, water quality monitoring revealed that measured results of pH, dissolved oxygen, temperature, fine sediment, and fecal coliform were not within standard ranges for good water quality. When this occurs, a federally-mandated Total Maximum Daily Load or TMDL process begins. This process helps determine the sources of Clean Water Act violations. More information is available on the Deschutes Watershed TMDL process on the Washington State Department of Ecology's website at <http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/index.html>.

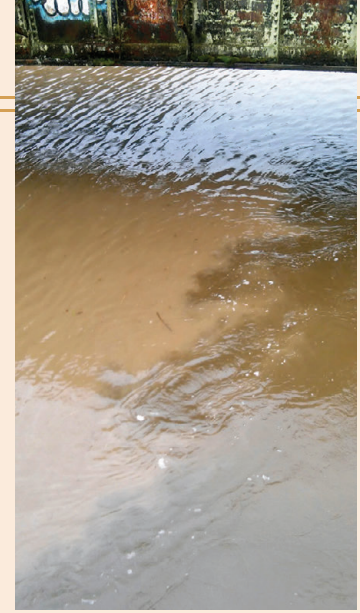
◆ These are some of the problems:





## ◆ Sediment

Human impact on the Deschutes Watershed has caused a crisis of both **too little sediment** getting to where it is needed as witnessed in the destruction of the estuary and **too much sediment** filling the river bed and sediment reservoir with silt harming our fish and wildlife populations. For over half a century, the 5th Avenue dam has held back sediment that would normally flow into Budd Inlet and Puget Sound to build shorelines and send nutrients where they need to go to support the underwater ecosystem. With estuaries and tideflats, there used to be great runs of herring, sand lance and other forage fish eaten by salmon and trout, but now they have all but disappeared. Estuaries, where the river meets the sea contain many different habitats: both shallow and deep open waters, tidal salt marshes, sandy and gravelly beaches, life-giving mud flats, rocky shores, forests, seagrass beds, river deltas and tidal pools. These habitats form the most productive areas on earth, creating more organic material each year than comparable areas of forest or farmland. (NIWA Water and Atmosphere 8 (4) 2004)



## ◆ Invasive Species

The Deschutes River is seasonally warm and shallow with decreased current from ground water withdrawals. Native fish and wildlife can't compete with invasive plants better adapted to the warm, stagnant water like milfoil, elodea and the New Zealand Mud Snail. Invasive species raise the cost of dredging. Lake material infested with the mud snails can only be disposed on land to help prevent the spread of the pest. The New Zealand Mud Snails have caused Capitol Lake to be closed for years.

## ◆ Legacy Pollution

Budd Inlet suffers the legacy of a past century of polluting industry, worst of all the superfund Cascade Pole site. As climate change brings sea-level rise—a phenomenon we are already experiencing, it will be crucial to clean-up these legacy pollution sites. Besides ongoing problems with nutrient loads, the watershed faces a looming crisis of failing old septic tanks. Pharmaceuticals and chemicals we use every day end up in wastewater discharges—both from our wastewater plant called LOTT and from on-site septic systems.

## ◆ Compromised Water Quality

The watershed has failed federal clean water standards for decades. Study after study has shown that the dam has cut off circulation in the Deschutes Basin and Budd Inlet. The river is choked with sediment in places making it shallow and increasing water temperature. Capitol Lake is eutrophic or rich in nutrients that support plant growth and lower oxygen in the water. This warm, stagnant water pushes down oxygen levels in Budd Inlet because when the invasive plants die carbon is released into the atmosphere and the water. *“The Capitol Lake dam causes the largest negative impact on dissolved oxygen of any activity evaluated due to the dam’s combined effects of changing circulation as well as nitrogen and carbon loads.”* —(Washington State Department of Ecology Publication No. 1503002, Sept 2015)

## ◆ Stormwater Input

Stormwater carries sediment and other forms of pollution into the Deschutes River. Before land is developed almost all of the water is taken up by trees and other vegetation and then evaporates or is filtered through the ground. After development the water runs off the ground and rooftops. This runoff carries a huge pollutant load into the Deschutes Watershed. There are currently approximately 46 stormwater outfalls to Capitol Lake alone – this does not include all of the stormwater runoff from the roadways, the Interstate 5 corridor or anything running across the ground and into the lake. We do not know the source and amounts of pollutants that find their way to the Deschutes River and/or Budd Inlet.

# The Historic Deschutes Estuary, 5<sup>th</sup> Avenue Dam & Salmon

For thousands of years, the Deschutes estuary spanned the Puget sound shoreline for 2,000 feet. Fish and wildlife were abundant and the Steh-chass tribes lived in harmony with the ecosystem using only what they needed for subsistence. The river and tides brought gifts that helped sustain life. After the first European settlers arrived, progress was rapid. The City of Olympia was built on sediment dredged from the estuary.

Sediment was used to help the community prosper and to bury garbage. Sediment was taken from places where it became an impediment to progress and used to keep progress moving. But just moving the sediment from place to place does not make it go away. Rivers bring sediment to estuaries and then eventually that sediment reaches the ocean. That is the natural estuarine cycle.

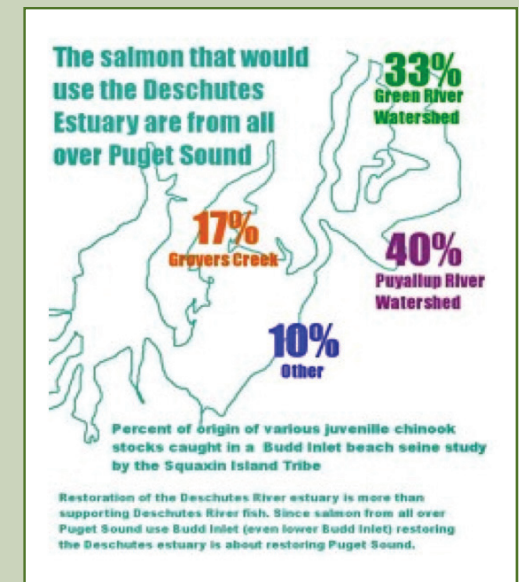
The situation is quite different as soon as the sediment enters the estuary. The river flow is now opposed by the tide, and the tidal current takes over the role of turbulence generator. There is now a short period of time between the rising and falling tides when the flow comes to rest and the turbulence is at a minimum. This gives the heavier sediment particles a chance to settle at the bottom. As the tidal current increases again the particles are lifted into the water column again. But unlike the river water, which continues to flow through the estuary in the upper layer, the particles are now in the lower layer of the estuarine circulation where the mean water movement is from the ocean towards the head. A large part of the sediment will therefore never make it to the sea but accumulate in the estuary...How does the sediment eventually leave the estuary? The key factor is the river discharge. High river run-off pushes the turbidity region further downstream, and the higher level of turbulence associated with the increase in the mean flow keeps the sediment longer in suspension. This allows the sediment to propagate through the turbidity region without being trapped.” (*Shelf and Coastal Zone Lecture Notes*, Chapter 17, Tomczak 2000)

Olympia’s 5th Avenue dam at the mouth of the Deschutes river was completed in 1951. It is 45 feet high and 82 feet wide. The dam has always been controversial and remains so today. At the time it was built, the dam was honored by some as a reflecting pool for the State of Washington’s capitol dome. However, its main purpose was to provide a transportation link from downtown Olympia to the Deschutes Parkway. The results of building the dam have not been good. The Deschutes River has deposited hundreds of thousands of cubic yards of sediment behind the 5th Avenue dam and seriously destroyed a Puget Sound estuary, causing ecosystem collapse.

The dam destroyed the historic and productive Deschutes Estuary. The estuary provided a transition zone for salmon leaving and returning to the river. Juvenile salmon spend a prolonged period of time

(weeks to months) in estuaries in order to help ease their bodies adapt to the transition from fresh water to salt water. In a process called “smoltification”, salmon are able to make the next step in preparing their bodies for the transition from freshwater to saltwater. Specifically, their bodies go through dramatic changes portrayed through their outward appearance, behavior, and even body chemistry. When these salmon return as adults they must go through the same process again in estuaries to help make the transition from saltwater to freshwater before heading back to their respective rivers to spawn. (*Puget Sound Shorelines*. 12 May 2005. Department of Ecology. 18 May 2011)

Juvenile salmon from all over Puget Sound would use the Deschutes Estuary to grow and strengthen for their journey out through the Salish Sea to the Pacific Ocean. The graphic at right is an example of marked salmon found in Budd Inlet from a sampling project conducted by the Squaxin Island Tribe.



Courtesy: Squaxin Island Tribe



The lower watershed releases carbon into the atmosphere and water. This happens when the plant growth in Capitol Lake dies and sinks to the bottom. This carbon release causes low dissolved oxygen in the Deschutes River and Budd Inlet. When the Deschutes Estuary is restored, coastal wetlands will form along its shores. A significant benefit of coastal saltwater wetlands and marshes is the sequestering of carbon. This phenomenon is called Blue Carbon.

According to the Restore America's Estuaries Coastal Blue Carbon project, coastal wetland blue carbon ecosystems remove 10 times our carbon per hectare from the atmosphere than forest. Wetlands primarily store carbon in soils, where it can remain for centuries. Drained and degraded wetlands can release this stored carbon back into the atmosphere.

Coastal wetlands provide critically important environmental and economic value, such as habitat for important fish and other threatened and endangered species, storm and flood protection, improved water quality, tourism and jobs and yet they are being lost at an unsustainable rate of up to 7% a year. In the case of the Deschutes Estuary—their loss began with the creation of the sediment reservoir.



Photo: Credit Dennis Rosvall



The Deschutes River and Watershed is the system that most impacts the population centers of Thurston County, yet it is little known by those who live here. Many don't realize that Capitol Lake is really a dammed Deschutes river and estuary. Although only a beginning, we, of the Deschutes Estuary Restoration Team hope this watershed guide helps its reader understand a little more about the legacy of our Deschutes Watershed and its ecological condition. Our intention is to provide basic information and get the reader interested in learning more through self-exploration. It is only with knowledge that the difficult process of restoration can begin.

The Deschutes Watershed community can and will make restoration a priority only when the understanding of what has been lost through history is common knowledge. We are very aware that everything we do today impacts future generations and it's important to act with the future in mind. Doing as little damage to our habitat now will help our kids and grandkids live a little bit better. Keep in mind the younger populations have not had the benefit of seeing **"salmon so thick in the rivers you could walk across their backs to the other side."**

The Deschutes Estuary Restoration Team is a nonprofit organization dedicated to protecting and restoring the Deschutes Watershed. DERT began organizing in 2009 and became a 501c3 non-profit in 2011. DERT's first objective is to restore the Deschutes Estuary and remove the 5th Avenue dam in Olympia, Washington.

This first watershed guide to begin an exploration of the ecological culture of the Deschutes Watershed was made possible with a \$5,000 Heritage Grant from the Thurston County Historic Commission. The Thurston County Historic Commission is responsible for promoting and conducting public information, education and interpretive programs pertaining to county history and county cultural resources. Environmental culture—historic, present and future, is the theme of this guide. DERT would like to thank the Commission and especially Thurston County Commissioner Sandra Romero and former Commissioner Karen Valenzuela for their help and support along the way.

DERT encourages the reader to go to our website and link to the Watershed Guide page for an ever expanding list of resources that accompany this Guide. DERT's website is located at: [www.deschutesestuary.org](http://www.deschutesestuary.org)

## Agencies & Organizations Contributing to the Deschutes River Watershed

### **Black Hills Audubon Society**

promotes environmental education and recreation with the aim of protecting our ecosystems. Members of this non-profit group are involved in conservation work and offer events and field trips throughout the year. <http://www.blackhills-audubon.org/>

**Capitol Land Trust** is dedicated to protecting and caring for the unique natural areas and working lands within southwest Washington. Conserved lands include land bordering the Deschutes River and Spurgeon Creek and its wetlands. <http://www.capitolandtrust.org/index.html>

### **Center for Natural Land Management's South Sound Prairies Program**

focuses much of its effort on the rarest habitats of the area -- prairies and oak woodlands. <http://www.southsoundprairies.org/cnlm/>

### **Deschutes Estuary Restoration Team (DERT)**

is working to restore the Deschutes River Watershed. DERT's first objective is restoration of the estuary through removal of the 5th avenue dam to reconnect the river to South Puget Sound. [www.deschuteestuary.org](http://www.deschuteestuary.org)

**LOTT** provides state of the art secondary water treatment. It also manages the WET (Water, Education, and Technology) Science Center. <http://www.lottcleanwater.org/>

### **Olympia Coalition for Ecosystem Preservation.**

**OlyEcosystems** is an urban land trust whose focus is the preservation, restoration and re-wilding of our shoreline and riparian ecosystems in Olympia's urban core. [www.olyecosystems.org](http://www.olyecosystems.org)

### **South of the Sound Community Farm Land Trust (SSCFLT)**

promotes sustainable local food and farming systems. <http://www.communityfarmlandtrust.org/>

### **South Puget Sound Salmon Enhancement Group (SPSSEG)**

protects and restores salmon populations and aquatic habitat with an emphasis on ecosystem function through scientifically informed projects, community education, and volunteer involvement. <http://spsseg.org/>

**The Squaxin Island Tribe** are the People of the Water of the Deschutes watershed. The Tribe provides economic, scientific and cultural leadership and participates in community projects and policy to improve water quality, manage fisheries and restore wildlife habitat in the Deschutes River and its estuary. <http://www.squaxin-nr.org/>

### **Stream Team of Olympia, Lacey, Tumwater and Thurston County**

offers many opportunities for volunteers to help improve and raise awareness of our local environment. Stream Team sponsors work teams benefitting, among others, the Deschutes River Watershed. <http://www.streamteam.info/>

**Thurston EcoNet** coordinates efforts to provide education, communication and outreach on environmental issues for the Deschutes watershed. <http://thurstoneconetwork.org/>

### **Washington State Department of Ecology**

knows water quality in the Deschutes River, Capitol Lake, and Budd Inlet fail to meet state and federal standards. See its recently published report at: [www.ecy.wa.gov/programs/wq/tmdl/deschutes](http://www.ecy.wa.gov/programs/wq/tmdl/deschutes)

### **Thurston County Conservation's South Sound GREEN (Global Rivers Environmental Education Network)**

is a watershed education program. <http://www.thurstoncd.com/south-sound-green.html>

### **Thurston County's Bountiful Byway**

is a scenic route promoting agritourism in Thurston County rural areas. <http://www.co.thurston.wa.us/permitting/agriculture/agriculture-tourism.html>

### **Washington State Department of Fish and Wildlife**

works to preserve, protect and perpetuate fish, wildlife and ecosystems. [www.wdfw.org](http://www.wdfw.org)

**Wolf Haven International** hosts a trail through a beautiful native Mima Mound prairie. Wolf Haven's prairie is home to many of the rarest butterflies and moths. <http://wolfhaven.org/>



*Special thanks to:*



Maps: Greg Schundler

Sources: Esri, HERE, DeLorme, TomTom, Intermap, Increment P Corp, GEB-CO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, KadasterNL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopop, MapmyIndia, OpenStreetMap contributors, Ben Dennis, and the GIS User Community

Data Layers: NLCD 2011, NLCD 2001-2001 Landcover Change, NLCD 1992-2001 landcover Change, USGS PAD, NHD, WA Landuse 2010, NLCD Impervious Surfaces 2011, and other publicly available GIS data from the State of Washington