



## Welcome to Your Greenway Field Trip at Lake Sammamish State Park

Thank you so much for being part of this Greenway field trip! You will play an important role: helping the students stay safe while participating in the field trip activities. If you have any questions, don't hesitate to ask your Greenway Educator.

### Greenway Educator Cell Phone Numbers:

Lindsay Spangler: 206-373-1613

Mikaela Ebbeson: 206-678-2244

Victoria Love: 206-373-1601

Becca Kedenburg (Manager): 206-678-3893

### What's in This Packet?

- ★ Overview of the Day
- ★ In Case of Emergency
- ★ Chaperone Expectations
- ★ Student Expectations
- ★ Map
- ★ *Forests and Fins* station descriptions
- ★ Key Terms
- ★ Feedback Survey



## ★ Overview of the Day

1. Your Greenway Educator will get your group ready for the field trip, including:
  - a. Introduction to the Mountains to Sound Greenway Trust
  - b. Overview of the day
  - c. Behavior expectations
  - d. Use the bathrooms
2. Hike to your investigation site, divide students into four investigation groups, start the investigation
3. Eat lunch (near the bathrooms)
4. Each investigation group gives a presentation to the rest of the class
5. Whole-class discussion
6. Use the bathrooms and get on the bus

## ★ In Case of Emergency

Greenway Educators carry a first aid kit and are trained in Wilderness First Aid and CPR.

The nearest medical facility:

Swedish Medical Center  
751 Northeast Blakely Drive  
Issaquah, WA 98029  
425-313-4000

## ★ Chaperone Responsibilities

We are so grateful for our adult chaperones! We ask that you:

- Help keep kids **safe** and **engaged**
- Use your cell phone only when necessary
- **Help guide your students** to use their science journals – there are clipboards and pencils in the Greenway backpack
- Encourage students to take turns using materials
- Help get everything back into the Greenway backpack by the end of the day
- **Ask us if you have questions or concerns!**
- **Give us any feedback** on the included evaluation form

## ★ Student Expectations

While we're in this outdoor classroom, we expect students to be **respectful** of others and of nature, to be **curious**, and to **try their best**. This means we:

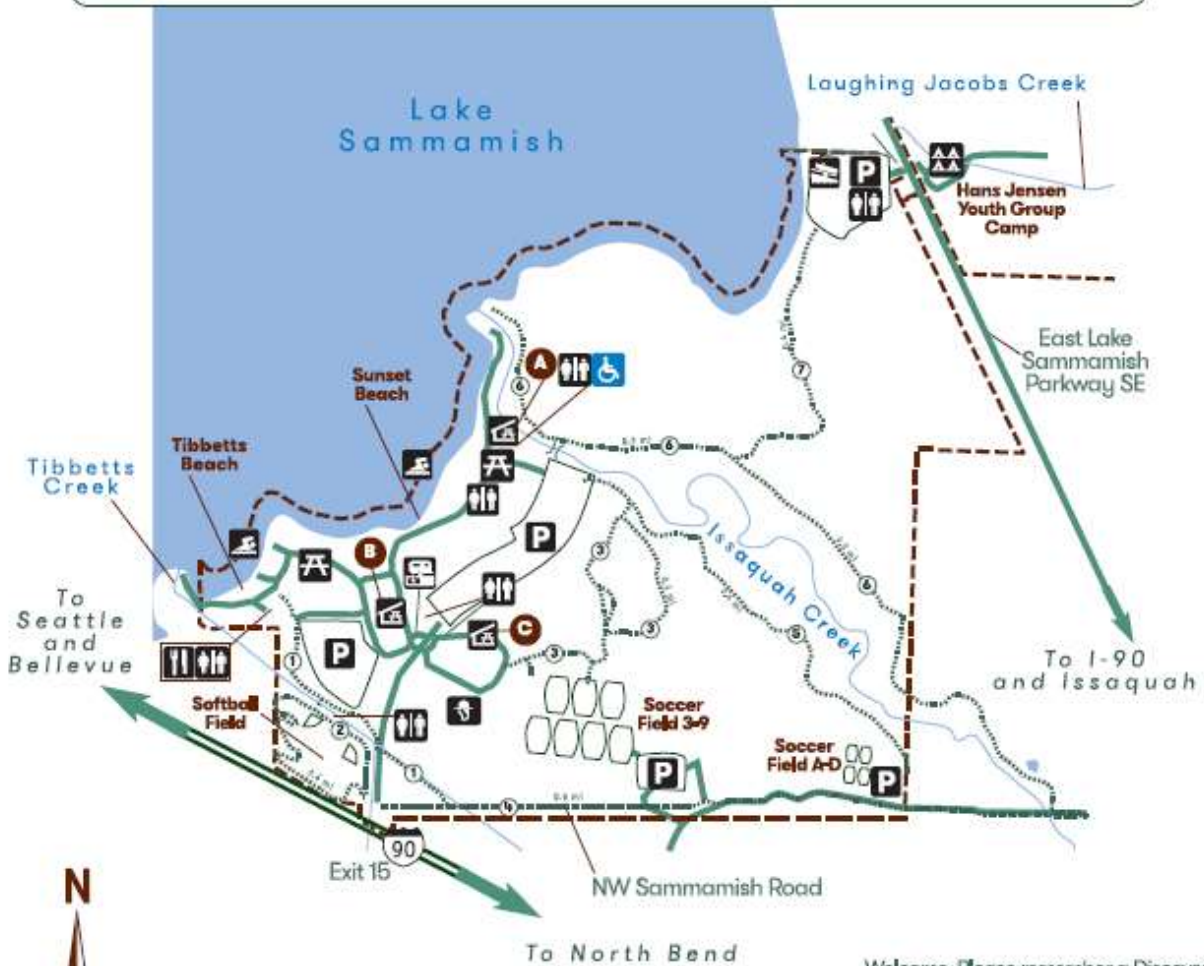
- Listen to the speaker
- Use an "indoor voice"
- Stay on the trail
- Walk, don't run
- Be considerate to other hikers – let them pass you on the trail
- Treat living plants with respect – don't tear or pick plants
- Stay with your group
- Observe wildlife – don't touch animals, including any dogs on the trail





# Lake Sammamish State Park

Concession (open 3-4 days/week)	Ranger station	ADA accessible	Restroom	Trail	<b>Lake Sammamish State Park Trails</b> 1. Tibbetts Creek - 0.5 mi 2. Jogger's Loop - 0.6 mi 3. Orchard Loop - 0.8 mi 4. NW Sammamish Rd - 1 mi 5. Homestead - 0.6 mi 6. Issaquah Creek - 1.3 mi 7. Boat Launch - 0.4 mi
Group campground	Picnic area	Swimming	Park boundary	<b>A - Creek Shelter</b> (S3002)	
Boat launch	RV dump station	Picnic shelter	Parking	<b>B - Rotunda Shelter</b> (S3003) <b>C - Kitchen Shelter</b> (S3001)	



Welcome. Please remember a Discover Pass is required to visit a state park or other state-managed recreation lands.

Revenue from Discover Pass replaces general fund tax funding no longer available to cover the cost of operations.

(Revised 09-26-16)

## ★ Forests and Fins Investigation Groups

The students will work in groups to study one part of the salmon stream habitat. Please help them use the directions in their science journal to complete their investigation. Your group's Greenway backpack has everything you need. In the science journal, each group has a few pages: Background Information, Directions, Data Analysis, and Thinking Questions. Later today, your group will give a short presentation to the rest of their class about what they discovered.

Remember, you can find definitions in the **Key Terms** section of this folder.



### **Macroinvertebrates: pages 5-9**

Students will measure the quality of the water by collecting and identifying stream bugs (macroinvertebrates). The type and quantity of bugs they find will tell them something about the water quality because some bugs can only live in high-quality water and others can handle some pollution.

### **Riparian Zone: pages 10-14**



Students will study the plants growing in the riparian zone, which is the area along the stream. Hopefully, they will find lots of native trees and shrubs. They will use plant identification books/sheets to figure out what is growing in their study area and record that information in a drawing.



### **Stream Channel: pages 15-18**

Students will get more a bird's-eye view of the stream. They will make a drawing of the stream, including things like the shape of the stream, how many logs are in the water, the speed of the water, evidence of erosion. And they will measure the speed (velocity) of the water.



### **Water Quality: pages 19-22**

Students will see if the water quality is low, medium, or high by measuring the temperature, dissolved oxygen, turbidity (how clear the water is), phosphate (a nutrient), and the pH (how acidic the water is).

## ★ Key Terms

**Data analysis** means thinking about the information you have collected.

**Dissolved oxygen (DO)** is oxygen that is dissolved into the water. Salmon breathe oxygen using their gills. Colder and fast-moving water has more oxygen in it than warmer, slower water.

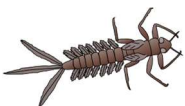
**Erosion** carries sediment from the stream bank into the stream, making the water cloudy and burying salmon nests (redds).

**Indicator species**, like macroinvertebrates, are species whose presence tells us about the quality of their habitat.

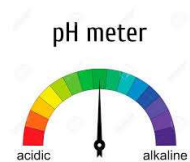
**Introduced plants** are native in other parts of the world and were brought to this region by people – by accident or on purpose. **Noxious weeds** are a type of introduced plant that significantly impact and degrade native plant and animal habitat. **Weeds of concern** are another type of introduced plants that can also impact and degrade an ecosystem, but less compared with noxious weeds.

**Keystone species** are species on which other species in an ecosystem largely depend, such that if it were removed the ecosystem would change drastically. Salmon are a keystone species.

**Macroinvertebrates** are small animals that are big enough to see without a microscope (*macro* = “big”) and that have no backbone (*invertebrate* = “backbone”). These include snails, insects, worms, crayfish, leeches.



**Native plants** are plants that have grown in their ecosystem for a long, long time.



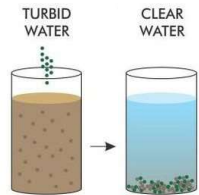
**pH** is the measurement of how acidic or basic a liquid is. pH is measured on a scale of 0 to 14, where 0 is the most acidic (like lemon juice) and 14 is the most basic (like bleach). Our blood has a pH of about 7, which is neutral. Salmon need to live in water that is neutral.

**ppm**, or parts per million, is a way to measure how much of a nutrient is present in the water. For example, if we find 10 ppm of phosphate, that means there are 10 drops of phosphate for every million drops of stream water.

**Pools** are deep places in the stream where water moves slowly. Salmon fry live in the pools after they leave their nest (redd) in the gravel bed.

**Riffles** are small rapids in the stream where water moves quickly and bubbles over big rocks, logs, and sticks. The fast-moving water adds oxygen to the stream.

**Riparian zone:** the area next to a stream or lake. A healthy riparian zone is full of different kinds of native plants.



**Turbidity** is the measurement of how cloudy or clear water is. The cloudier the water, the more turbid it is. The cloudiness is caused by little particles of soil and plants in the water. The particles make it hard for salmon to breathe (imagine trying to breathe in a sandstorm).

**Velocity** of a stream is how fast the water is moving.

**Water temperature** is important to measure because fish are ectothermic, meaning they can't regulate their body temperature. Salmon need cold water so that they don't get too hot, and because it has lots of oxygen in it.



**Woody material** are logs and large sticks that have fallen into the stream. Woody debris provides shade and shelter for young salmon, decomposes, and adds nutrients to the water, and interrupts water flow to form pools and riffles.