

JUANITA CREEK

WATERSHED REPORT CARD

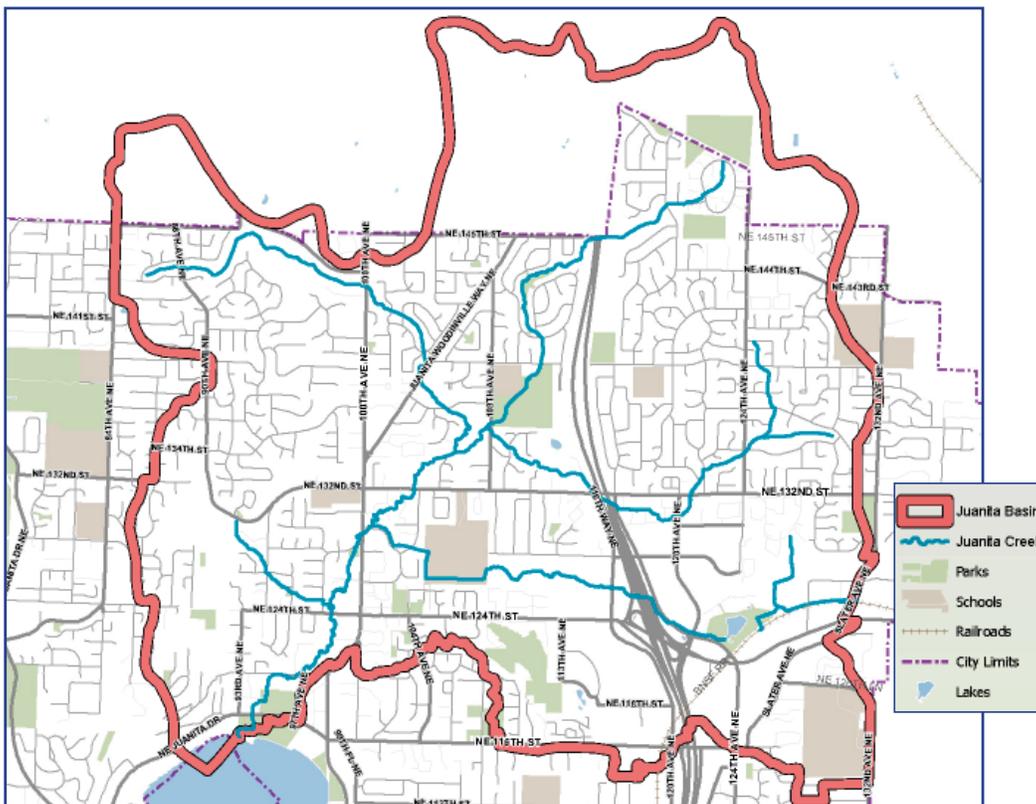
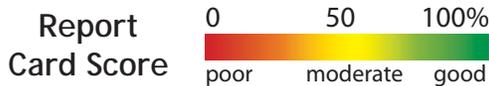
As a resident living near Juanita Creek, your daily actions affect the health of the Juanita Creek watershed and its health affects your quality of life.

This report card summarizes information regarding the environmental health of the Juanita Creek Watershed, and provides you with information on how to protect, enhance, and improve natural features in the watershed. The health of the creek was determined by measuring the physical conditions of the Creek along with the level of chemicals, nutrients and bacteria, and the types of aquatic species and vegetation found in and along the stream.

Join us in working toward a healthy watershed - a watershed with clean, safe water for recreation, and a healthy habitat for fish, wildlife & humans. **Please take a moment to read about some actions that you can take and to share your thoughts on the last pages of this Report.**

Summary of Conditions in the Juanita Creek Watershed

| Water Quality | Streamside Conditions | In-stream Habitat | Fish & Wildlife |
|---|--|---|--|
| MODERATE • Temperature & dissolved oxygen - <i>moderate</i> • Bacteria - <i>poor</i> • pH - <i>good</i> | POOR • Streamside vegetation - <i>poor</i> • Erosion & armoring - <i>poor</i> | POOR • Stream flow - <i>poor</i> • Large woody debris - <i>poor</i> • Pools - <i>poor</i> • Sediment - <i>poor</i> | POOR • Fish & wildlife - <i>poor</i> • Macroinvertebrates - <i>poor</i> |



Map of Juanita Creek Watershed

What is the Juanita Creek Watershed?

A **watershed** is an area of land bounded by hills. It directs rain & the water that runs off our properties to a common body of water, such as a creek, stream, river or lake.

The **Juanita Creek Watershed** consists of all the land that drains to Juanita Creek. Any water that falls anywhere within the watershed eventually finds its way into Juanita Creek.

MODERATE

Water Quality

| Indicator & Description | Desired Level or Range | Current Conditions |
|---|--|---|
| Temperature & Dissolved Oxygen (DO). Cold-blooded aquatic species, like salmon & trout, need high levels of oxygen & water temperatures within a certain range to survive. | <ul style="list-style-type: none">• Consistent, cool temperatures; maximum 60°F.• DO > 9.5 mg/L. | <ul style="list-style-type: none">• Average temperature remains below 60°F throughout the year.• Level of DO generally falls below threshold in summer months. |
| Fecal Coliform Bacteria is present in the feces of warm-blooded animals. Its presence indicates fecal matter in the stream & the potential for the water to have other disease-causing organisms. | Levels should stay mostly below 100 colonies per 100 mL. | Water samples from Juanita Creek range from 0 colonies per 100 mL to 2,000 colonies per 100 mL. |
| pH. A healthy creek is neither excessively acidic nor alkaline; as the pH drops the acidity of water increases. The largest variety of organisms flourishes in a range of 6.5 to 8. | pH ranging from 6.5 to 8.5. | pH of Juanita Creek ranges from 6.8 to 7.7. |
| Metals & toxic pollutants can enter Juanita Creek from land use activities, household maintenance & transportation. These substances can cause chronic or acute toxicity to sensitive aquatic life, or adversely affect public health. | Levels should not exceed natural background levels - varies by substance. | 24 pesticides were detected in Juanita Creek over the course of a year. |



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Streamside Conditions **POOR**

| Indicator & Description | Desired Level or Range | Current Conditions |
|---|---|--|
| Streamside vegetation. Streamside shrubs & trees provide shade to regulate stream temperature & to provide cover for fish. Large conifers are crucial to fish habitat. | Multi-story tree canopy, abundant shade year-round. | Streamside vegetation is dominated by landscaped areas, grasses, shrubs, & invasive plants. Remaining streamside forest is dominated by small-diameter deciduous tree species. |
| Invasive plants. An invasive plant establishes easily & spreads into new areas. They can cause environmental harm by crowding out desired plant species. | No invasive plant species. | Himalayan blackberry & field bindweed are established & dominate some of the stream corridor. |
| Erosion & armoring. Both excessive erosion & artificial bank protection ("armoring") are harmful to fish & are a sign of stream channel instability. | Stable banks, little erosion or armoring. | Urbanization of the watershed & loss of vegetation contribute to erosion & streambank instability. Armoring of streambanks is present in all segments of Juanita Creek. |



½ of Juanita Creek's watershed is covered in impervious surfaces

POOR

In-stream Habitat

| Indicator & Description | Desired Level or Range | Current Conditions |
|--|--|--|
| Stream flow. Unusually high, low, or changing flows are signs of possible watershed problems. | Similar to pre-development conditions. | High-volume rapid storm flow. |
| Large woody debris. Large downed trees, also called large woody debris (LWD), help reduce stream energy, protect streambanks, store sediment, & provide instream cover and habitat diversity. | Many large downed logs, of conifers if they were historically present. | The quantity of LWD is quite low in Juanita Creek, having been lost through transport downstream due to high storm flow and removal by humans.. |
| Pools & riffles. Pools, areas of deep, slow water, provide cover, shelter & resting areas for fish. Riffles, areas of shallow, swift water, aerate the water, harbor most insect life, & are used by fish for feeding & spawning. | Abundant, high quality pools. | Adequate pool frequency along most of Juanita Creek, but the majority of the pools are small relative to channel size, shallow, and low quality. |
| Stream sediments. Streambed sediments range in size from boulders, down to fine clay & silt. Gravels free of fine sediment are important for fish spawning. | Clean rocks & gravel free of sediment. | Juanita Creek's streambed is most frequently observed to consist of sand & fines, which can smother eggs and young fish, instead of gravel. |



| Grading the Watershed | |
|-----------------------|--|
| GOOD | Healthy watershed conditions. Protection may be required to maintain conditions & some enhancement may be necessary. |
| MODERATE | Watershed conditions require enhancement or improvement. |
| POOR | Degraded watershed conditions that need considerable improvement. |

Fish & Wildlife

POOR

| Indicator & Description | Desired Level or Range | Current Conditions |
|--|--|---|
| Fish & wildlife , or signs of their presence, signal a functioning stream system. | Abundant, diverse populations. | Small numbers of cutthroat trout & coho, sockeye & kokanee salmon observed. Signs of beaver present in creek. Ducks & other waterfowl present in creek. |
| Benthic macroinvertebrates are bugs that live in stream sediments. An B-IBI score summarizes the number & kinds of these creatures. The B-IBI values indicate water quality & range from 50 (excellent) to 10 (poor). | Large diversity of creatures, especially those requiring undisturbed conditions. | Samples indicate a low diversity & abundance of benthic creatures. B-IBI score ranges from 16 (very poor) to 19 (poor). |

Volunteers have seen small numbers of kokanee, sockeye & coho salmon on Juanita Creek



The City of Kirkland is committed to restoring, protecting & enhancing Kirkland's creeks, including Juanita Creek.

•To see what the City is doing to help Juanita Creek, visit www.kirklandwa.gov/JuanitaCreek

•For more information, contact Public Works at stormwater@kirklandwa.gov or (425) 587-3800.

References:

- *King County Water Quality Monitoring - Juanita Creek Site 0446* (green.kingcounty.gov, search Juanita Site 0446)
- *Habitat Inventory & Assessment of Juanita Creek* (green.kingcounty.gov, search Juanita Inventory)
- *Kirkland Surface Water Master Plan* (www.kirklandwa.gov, search Surface Water Master Plan)

How You Can Help

Bacteria

Clean up after your dog, even when in your own backyard. The water flowing into the storm drains in our neighborhoods is not treated before it enters Juanita Creek. So, if pet waste is left on the ground, it may get washed into the creek. Scoop your dog's poop & throw it in the trash!

Keep your dog on leash when in Juanita Beach Park. That way you know where & when your pet is going.

Don't feed wildlife, including squirrels, ducks, geese, raccoons, crows, or gulls! Feeding wild animals unnatural food overloads the natural system with waste & contaminates the creek.

Temperature

Leave natural streamside vegetation along Juanita Creek & its tributaries. A lack of vegetation along the creek makes the stream more vulnerable to solar heating.

Plant native trees & bushes along the creek. Streamside shade reduces stream temperature by as much as 18°F.

Infiltrate runoff from your roof, driveway, & yard into the ground. This runoff soaks into the soil & feeds cool water to the creek during the summer.

Runoff Volume

Build a rain garden on your property. Rain gardens are landscaped shallow depressions that allow storm runoff from roofs, driveways, patios, etc.

Build your soil with compost. Dig in compost when planting gardens, beds, or lawns.

Mulch beds annually with wood chips, leaves, or compost. Mulch increases the water retention of soil, helping to slow the flow of runoff.

Get Involved!

Stencil storm drains or adopt a neighborhood drain. Help your community learn about watersheds & where stormwater goes. Call 425-587-3858 for a kit and more info.

Watch for salmon. Participate in the King County Salmon Watcher Program, occurring every fall. Email jennifer.vanderhoof@kingcounty.gov for more information.

Host a watershed-friendly charity car wash. Sell car wash tickets or use a car wash kit for your next fundraiser. Call 425-587-3858 for more info.

Form a Friends of Juanita Creek group. Help educate & involve your neighbors in Juanita Creek's health. The City is available to provide assistance.



City of Kirkland
Public Works Department
Surface Water Division

Phone: 425-587-3800

Email: stormwater@kirklandwa.gov

Web: www.kirklandwa.gov, search Storm & Surface Water

Citizens' Report Card

How would YOU grade the Juanita Creek Watershed? We want to hear from you!

The Citizen's Report Card will help us understand your concerns as the City of Kirkland restores areas of Juanita Creek and places within the watershed.



Complete & return this card
for a FREE, gourmet
milk chocolate fish!

Please complete this card & return it in the postage-paid, self-addressed envelope.

Mark all that apply.

Which of these water quality problems do you see in your immediate neighborhood?

- pet waste
- leaves &/or trash in storm drains
- excess fertilizer &/or pesticide applied to yards
- erosion
- car washing in street or driveway
- chemicals dumped down storm drains
- other _____

Which of these environmentally-friendly actions occur in your neighborhood?

- mulch & compost applied to yards
- storm drains marked "Dump No Waste, Drains to Stream"
- neighbors clear leaves & trash from storm drains
- neighbors pick up pet waste
- car washing on lawn or gravel area
- other _____

Comments _____

Name _____
Address _____
City _____ State _____ Zip _____
Email _____ Phone _____

Please send me information on (mark all that apply):

- Charity car washes
- Natural yard care
- Pet waste
- Car washing
- Rain gardens
- Adopting a storm drain
- Storm drain marking
- King County Salmon Watchers

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City of Kirkland
Public Works Department
123 5th Avenue
Kirkland, WA 98033

Juanita Creek Facts

| | |
|---------------------------|---|
| Drainage Area | Approximately 6.6 square miles (4224 acres) |
| Municipalities | Kirkland, Unincorporated King County |
| Population | Approximately 28,400 people |
| Land Use | Single-family & multifamily residential, commercial & offices |
| Impervious Surface | 48% of surface area is covered in impervious surfaces, including roads, parking lots & rooftops |
| Soils | Indianola series. Soil type A - deep, well- to excessively-drained sands & gravels having high infiltration potential |
| Fish | Anadromous & resident fish Cutthroat trout, coho salmon, sockeye salmon |
| Wetlands | 112 acres of wetlands, including Totem Lake Wetlands & Heronfield Wetlands |

