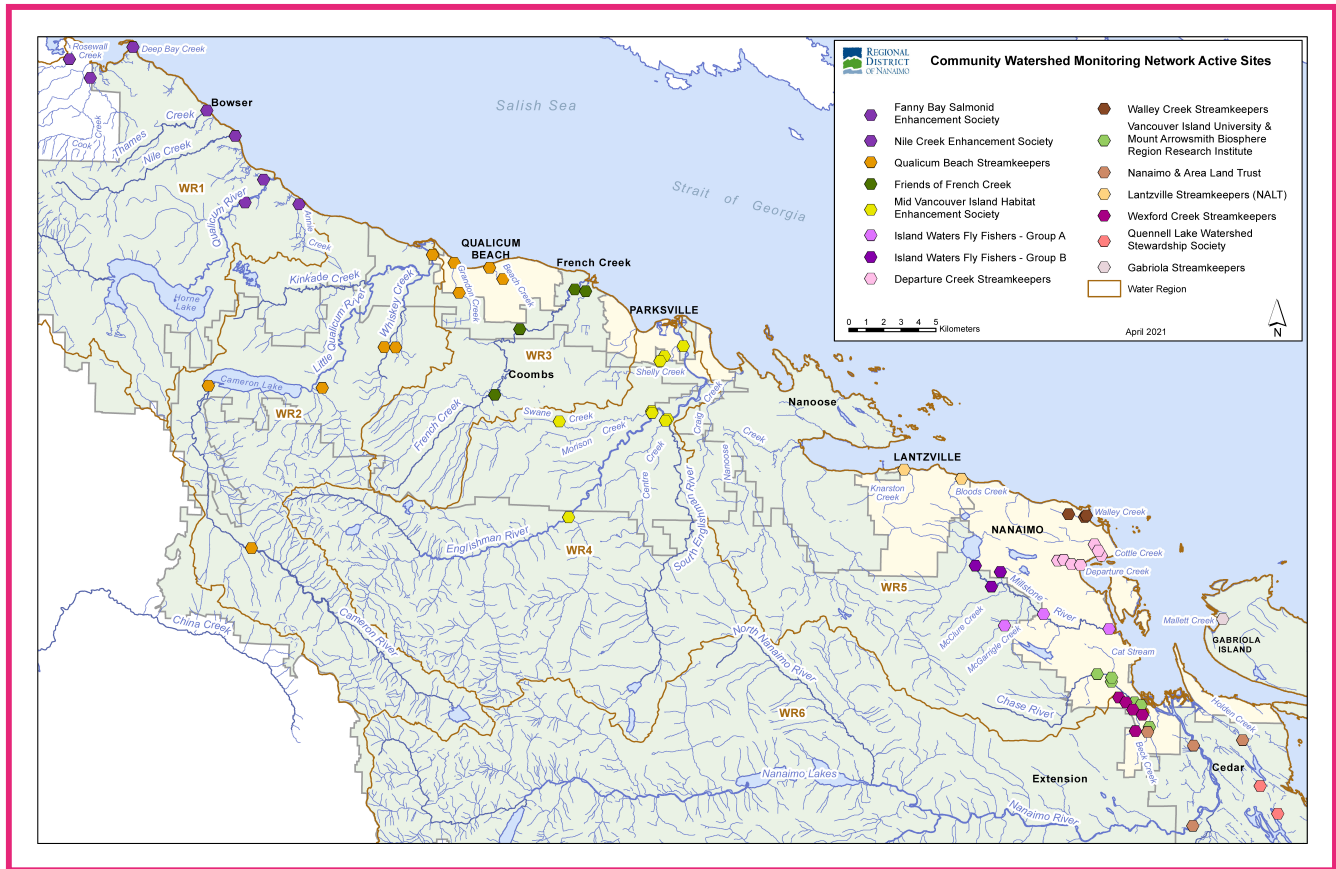


Community Watershed Monitoring Network 2020 Results by Water Region



Included in Your Water Region Package:

1. CWMN Sample Sites in Water Region (WR) 1
2. How to Interpret a Box Plot and Summer / Fall Exceedance Maps
3. Box Plot Comparison 2020 Data to Previous Years: *Graphs displayed per parameter (Temperature, Dissolved Oxygen, Turbidity, Conductivity) and per sample period (summer and fall)*
4. 2011-2020 Water Quality Trend Analysis Map
5. 2011-2020 Fall Exceedance Map
6. 2011-2020 Summer Exceedance Map
7. FBSES Site Map
8. NCES Site Map



Water Region 1
sampled by:
**Fanny Bay Salmonid
Enhancement Society (FBSES)
&
Nile Creek Enhancement Society
(NCES)**

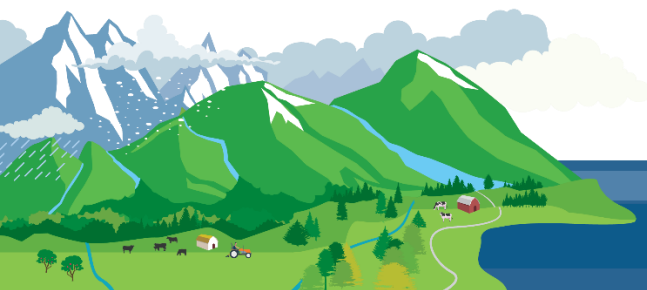


CWMN Sample Sites in WR 1:

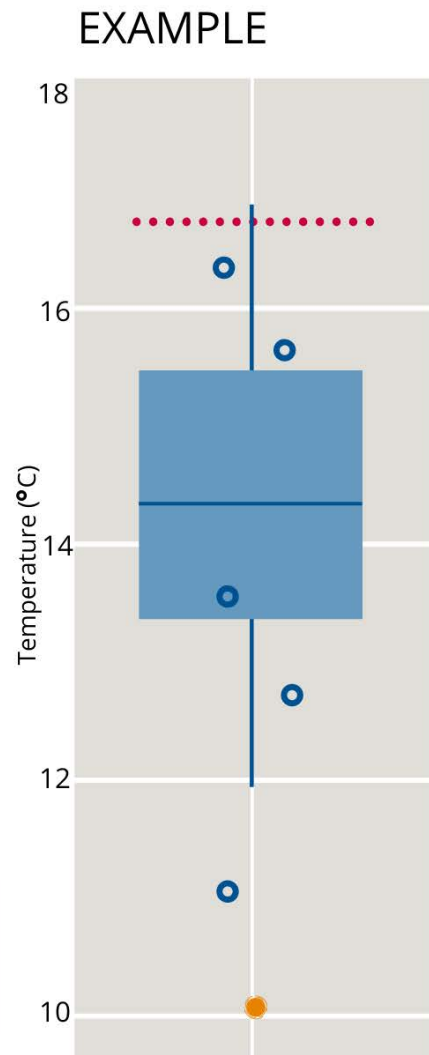
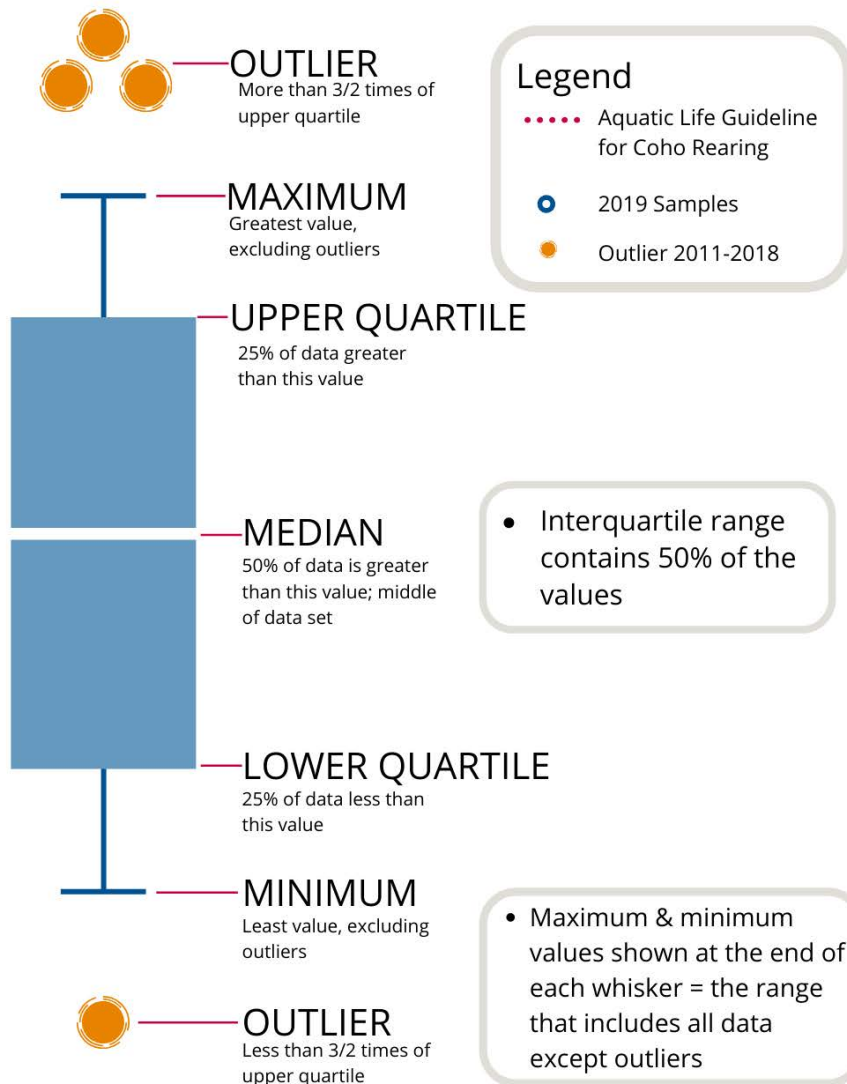
The table below shows the groups and sites monitored, as well as the number of years and which years a site was sampled. The number of years is important to keep in mind when interpreting the box plots as the plot for each site may contain a slightly different temporal range.

Group	EMS ID	Geographic Description	Years Sampled	Years Monitored
FBSES	E306374	<u>Rosewall</u> Creek @ <u>Rosewall</u> Creek Park	5	2016 – present
FBSES	E309086	Cook Creek at Old Island Hwy Connector	4	2017 – present
FBSES	E306375	Deep Bay Creek	5	2016 – present
NCES	E240141	Annie Creek	6	2014 – present
NCES	E298597	Big Qualicum just u/s Hwy 19 bridge	6	2014 – present~
NCES	E298598	Big Qualicum River ~700m d/s hatchery	6	2014 – present~
NCES	E286553	Nile Creek @ <u>Rosepark</u> Rd (50m u/s Old Island Hwy)	7	2011 – present^
NCES	E286549	Thames Creek 200m u/s Old Island Hwy	7	2011 – present*~

The number of years sampled: *does not include 2014 and 2015; ^does not include 2016; ~does not include 2019.



How to Interpret a Box Plot:

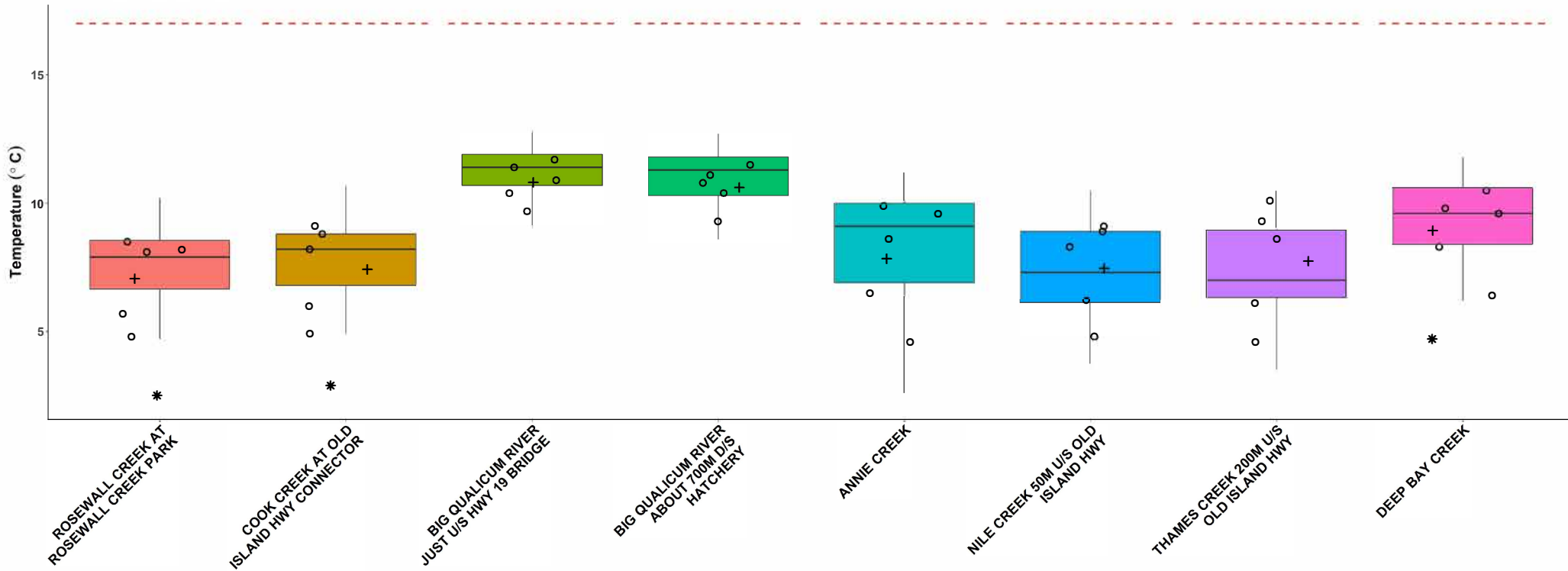


How to Interpret Summer and Fall Exceedance Maps:

The summer and fall exceedance frequency maps included in this package express the number of sample periods (summer low-flow / fall flush) with exceedances for each site. There are four frequency categories for the number of sample periods with exceedances: no exceedance recorded (0), low (1 – 2), moderate (3 – 4), and high (5 or more). The exceedance categories are for the three parameters with aquatic water quality guidelines and objectives based on the following thresholds: temperature $\geq 17^{\circ}\text{C}$, dissolved oxygen $\leq 5\text{mg/L}$, summer turbidity $\geq 2\text{NTU}$, and fall turbidity $\geq 5\text{NTU}$.



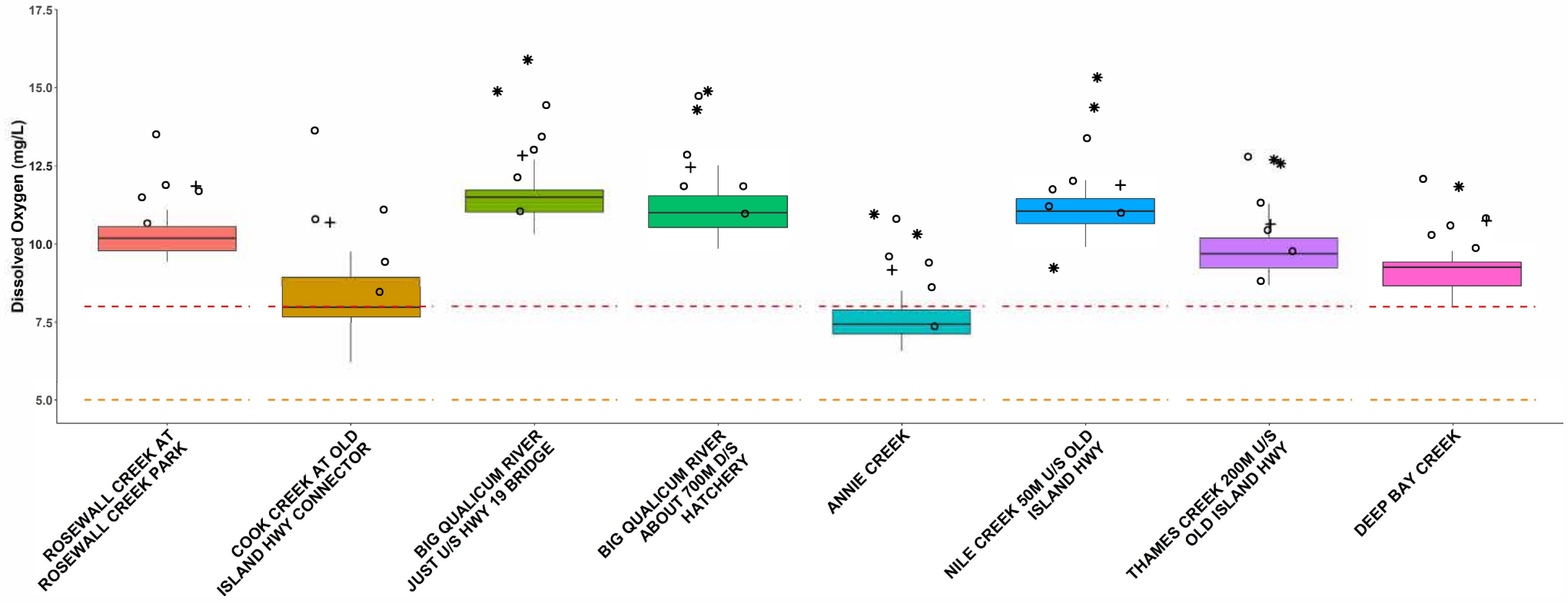
WR1 Fall Temperature



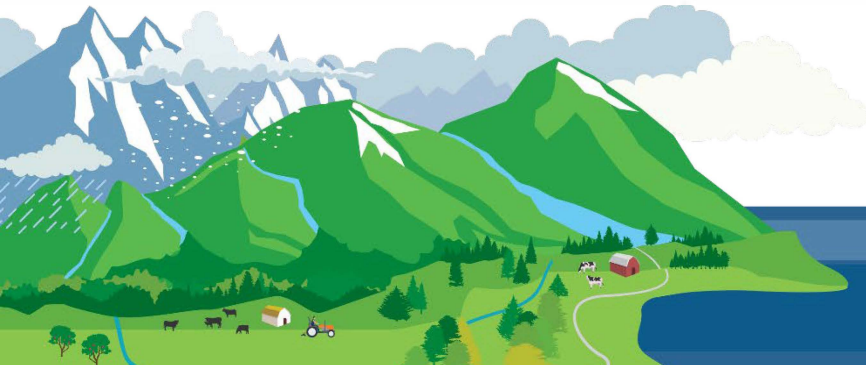
○ 2020 Samples Guideline
 * Outlier 2011-2019 -- Aquatic Life Guideline for Coho Rearing (17°C)
 + 2020 30 Day Avg



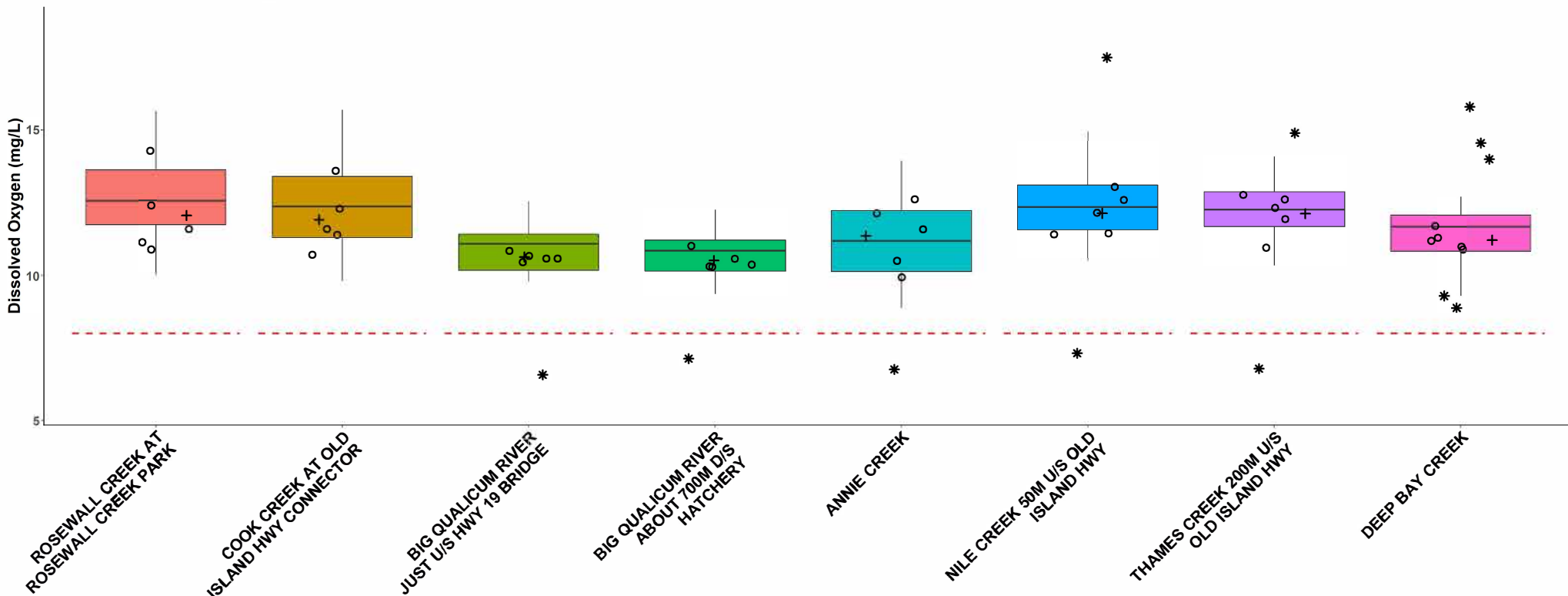
WR1 Summer Dissolved Oxygen



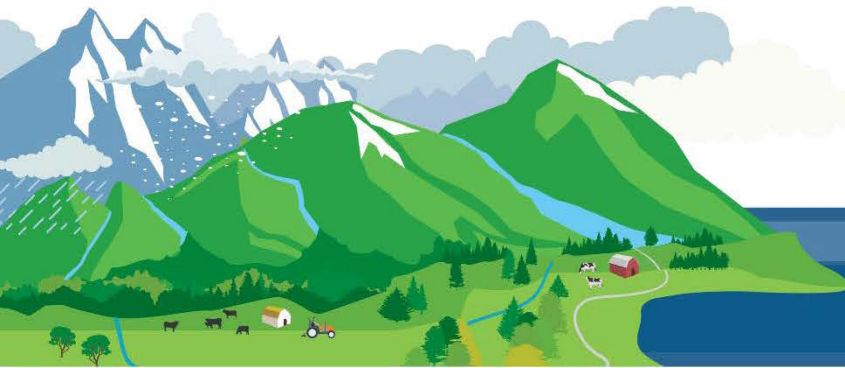
○ 2020 Samples * Outlier 2011-2019
 + 2020 30 Day Avg + 2020 30 Day Avg
Guideline
 --- 30 Day Average (<8 mg/L)
 --- Instantaneous Minimum (<5 mg/L)



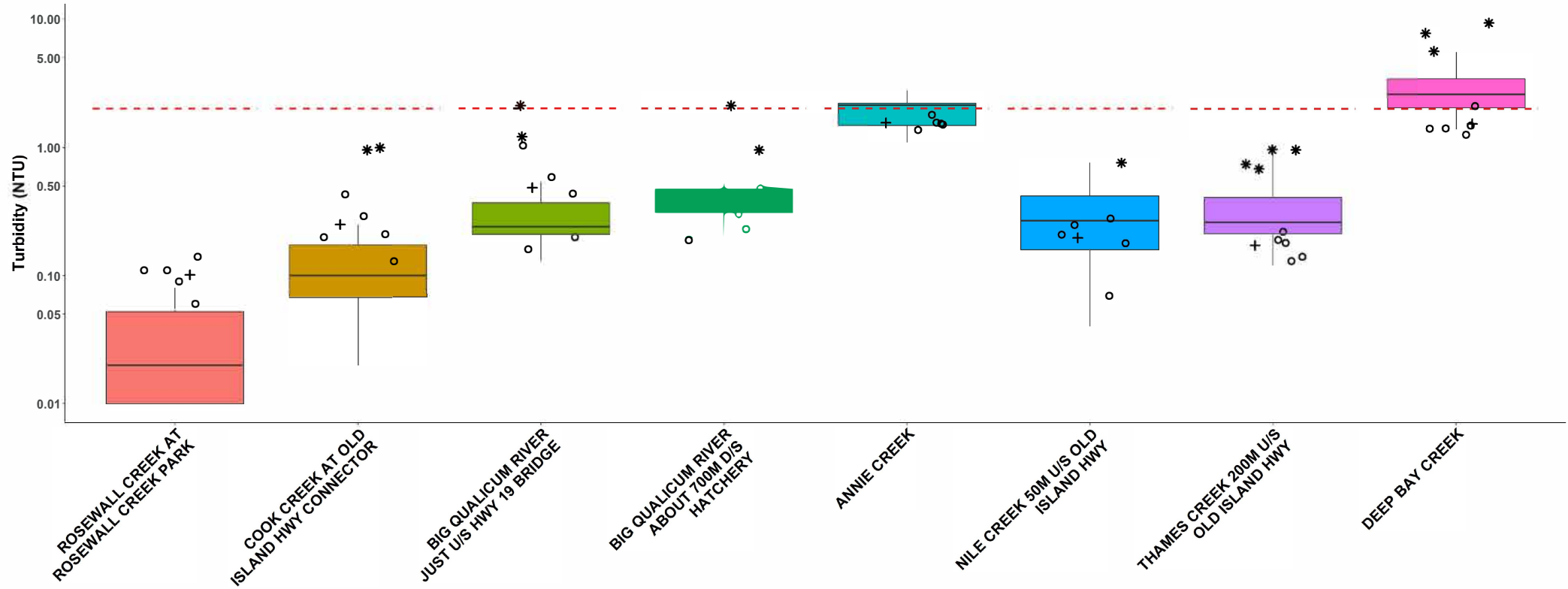
WR1 Fall Dissolved Oxygen



○ 2020 Samples Guideline
 * Outlier 2011-2019 -- 30 Day Average (<8 mg/L)
 + 2020 30 Day Avg - - Instantaneous Minimum (<5 mg/L)



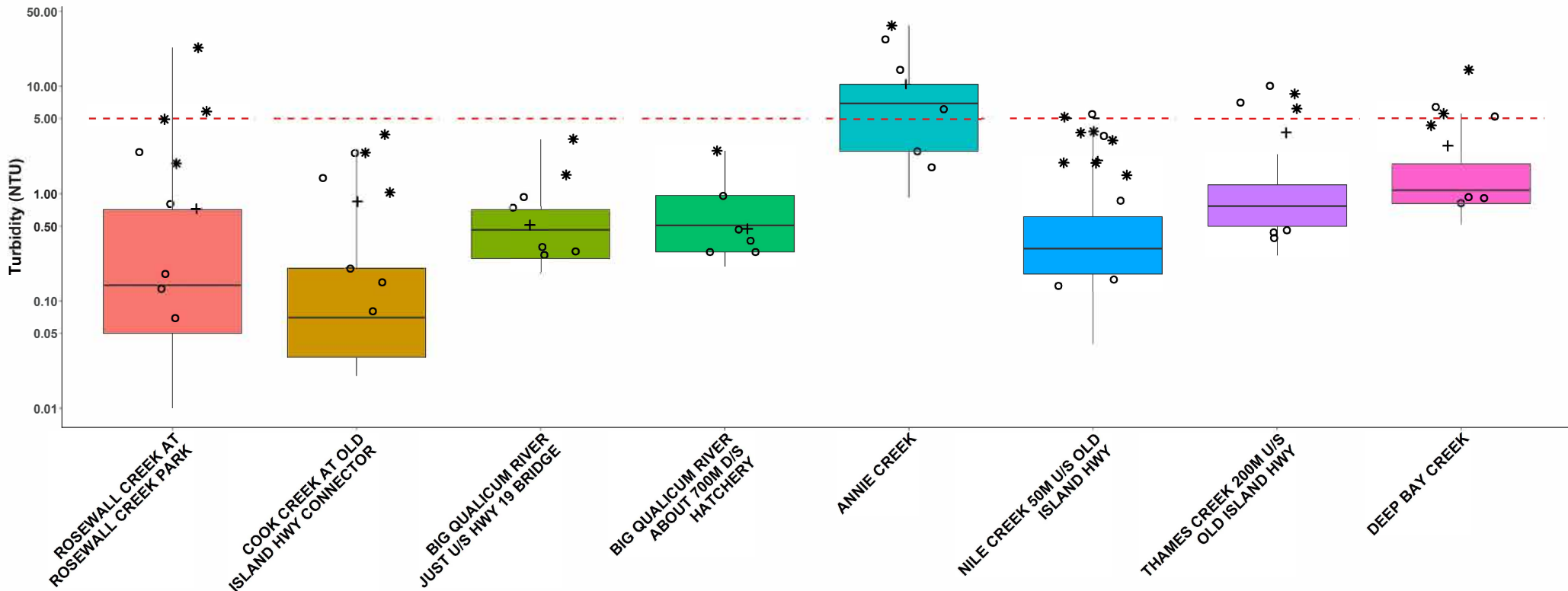
WR1 Summer Turbidity



○ 2020 Samples
 * Outlier 2011-2019
 + 2020 30 Day Avg
 --- Guideline
 --- Jan-Sept Max (2 NTU)



WR1 Fall Turbidity

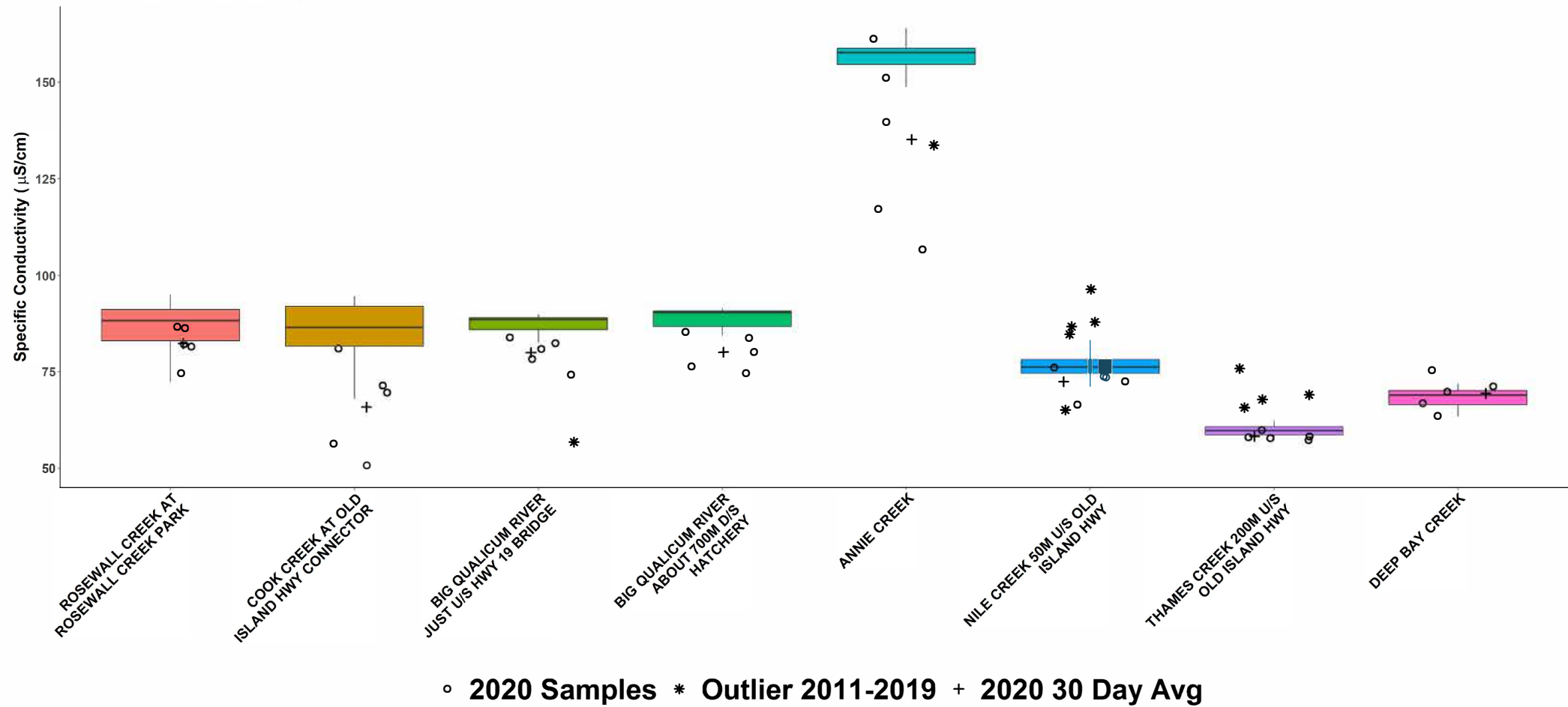


Guideline
 - - Oct-Dec Max (5 NTU)

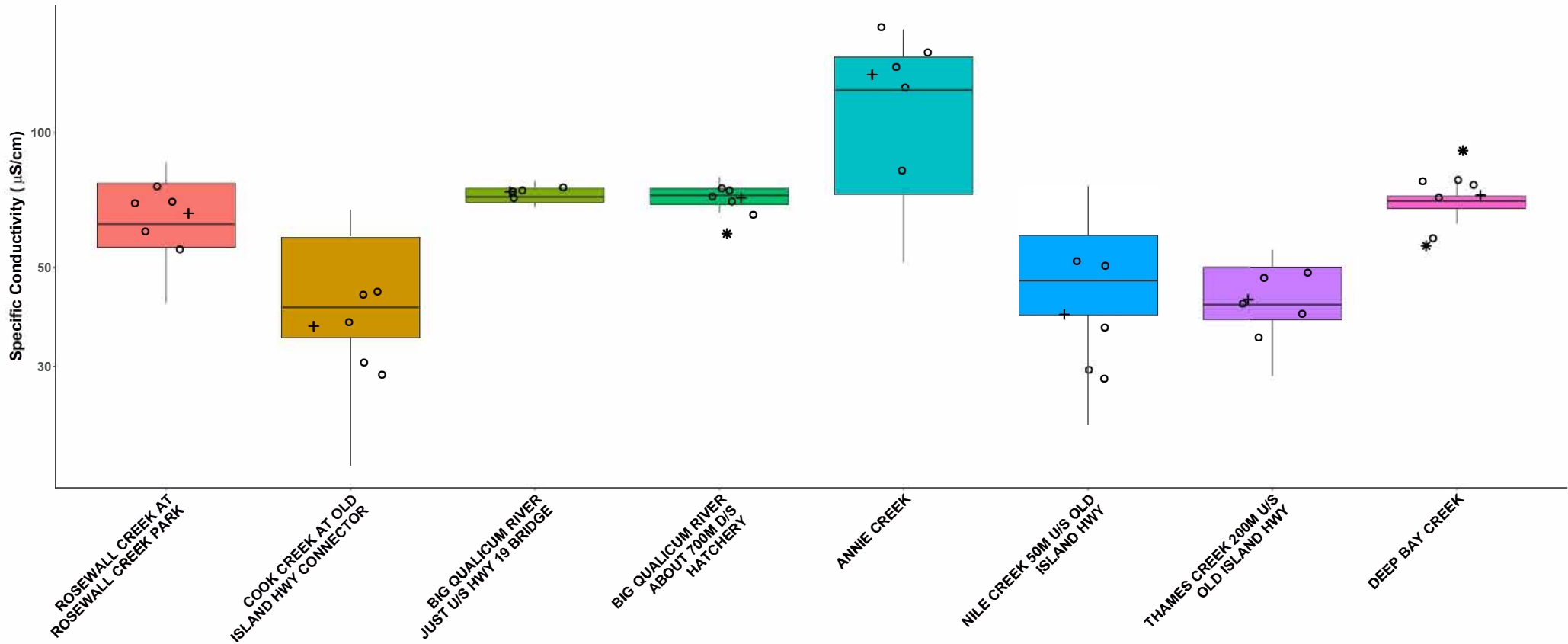
○ 2020 Samples
 * Outlier 2011-2019
 + 2020 30 Day Avg



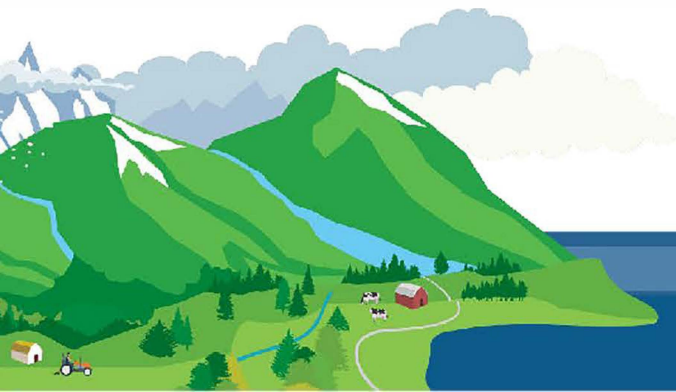
WR1 Summer Conductivity



WR1 Fall Conductivity



○ 2020 Samples * Outlier 2011-2019 + 2020 30 Day Avg



Regional District of Nanaimo

CMMN Water Quality Trend Analysis 2011-2020

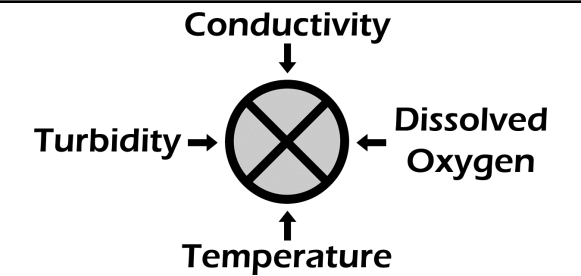
WR1: Big Qualicum

Location: Nanaimo, BC
Project No.: 21-3702
Prepared for: Regional District of Nanaimo
Prepared by: Ecoscape Environmental Consultants Ltd.
Coordinate System: NAD83-UTM Zone 10
Imagery: ESRI Canada

LEGEND

- Sample Site - No Trend Assessed
- ⊗ Sample Site - Trend Assessed
- Highway
- ▭ Watershed
- ▭ Water Region
- ▭ Lake
- Trend Color Code**
 - ▭ Improving
 - ▭ Stable
 - ▭ Degrading

SAMPLE SITE KEY



Conductivity can be influenced by factors such as groundwater and ocean spray that are not necessarily indicative of a degrading condition. For simplicity, an increase in conductivity is categorized here as degrading.

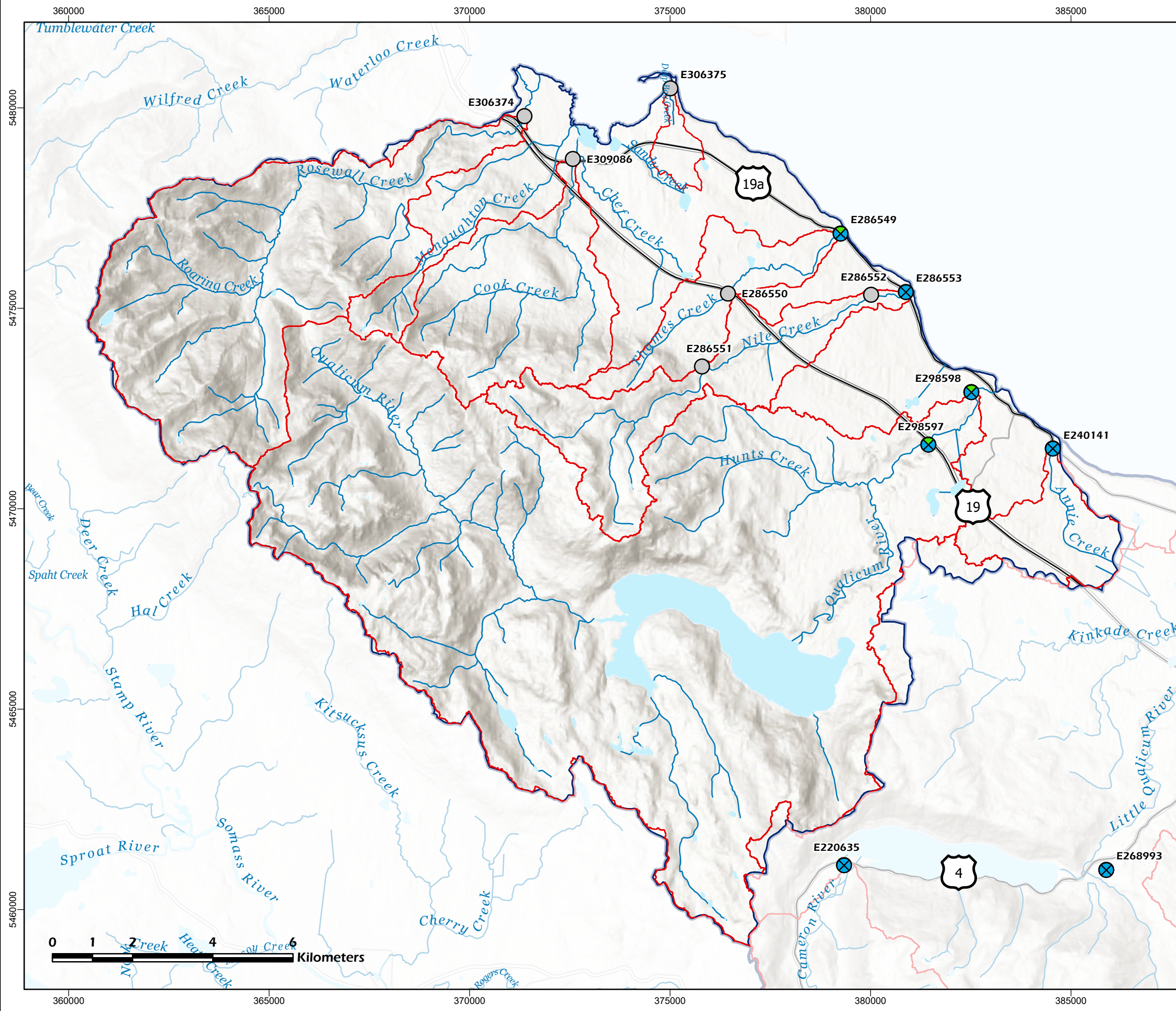
MAP INDEX

Solid blue lines indicate entire water region; extent of main view map may be scaled to better visualize sample -site-dense regions.



DISCLAIMER

The data displayed is for conceptual purposes only and should not be interpreted as a legal survey or for legal purposes. If discrepancies are found between the data portrayed in this report and that of a legal survey, the legal survey will supersede any data presented herein.









Regional District of Nanaimo

CMMN 2011-2020 Fall Exceedance Assessment





WR1: Big Qualicum

Location: Nanaimo, BC
Project No.: 21-3702
Prepared for: Regional District of Nanaimo
Prepared by: Ecoscape Environmental Consultants Ltd.
Coordinate System: NAD83-UTM Zone 10
Imagery: ESRI Canada

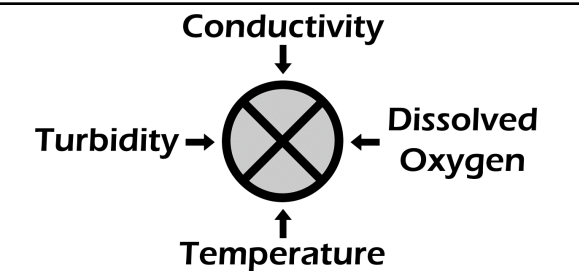
LEGEND

-  Sample Site
 -  Stream
 -  Highway
 -  Watershed
 -  Water Region
 -  Lake
- Note the exceedance frequency categories are reflective of the number of sample periods with exceedances, not the number or values of the exceedances.*

Exceedance colour key

-  No exceedance recorded
-  Low exceedance frequency
-  Moderate exceedance frequency
-  High exceedance frequency

SAMPLE SITE KEY

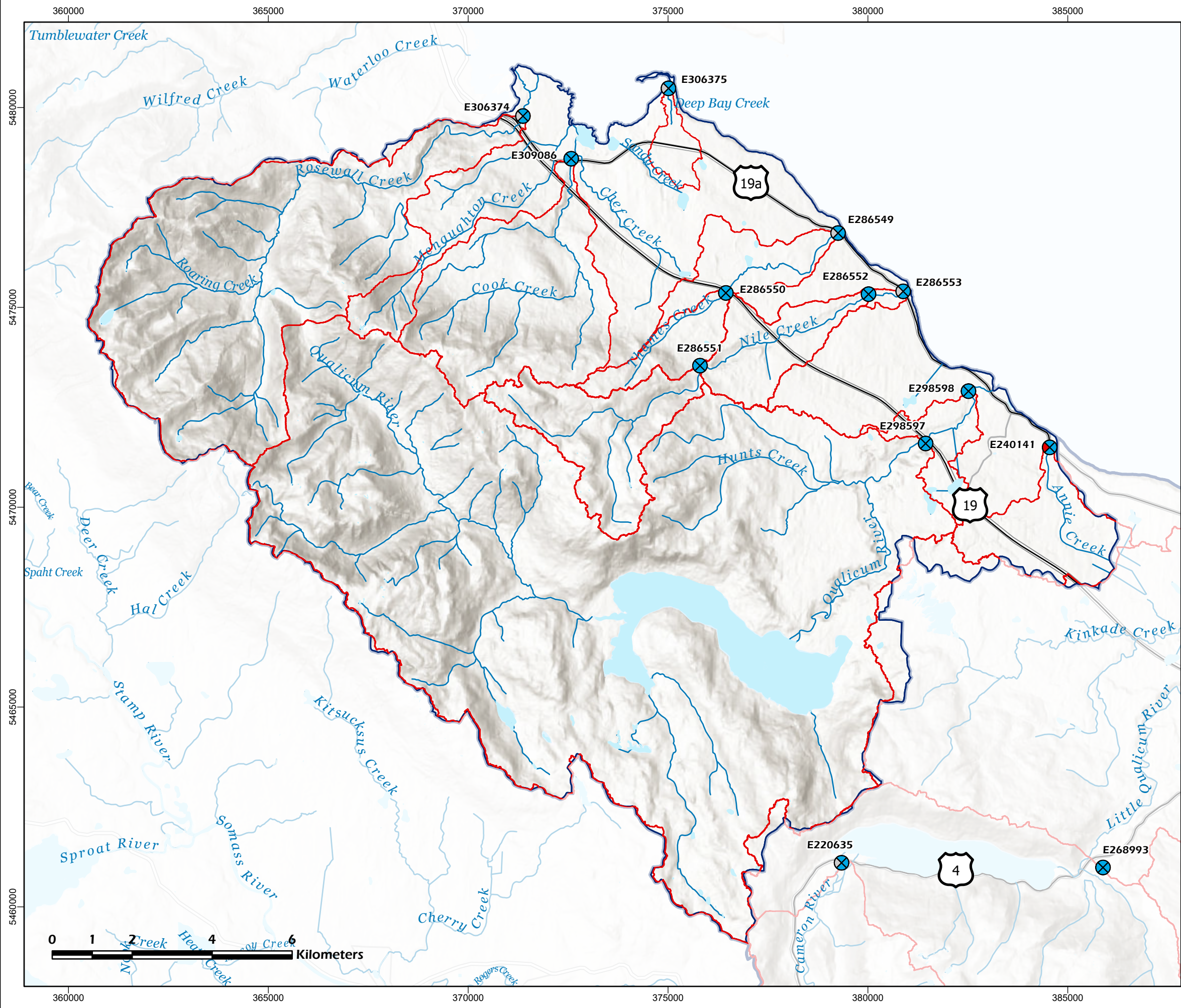


MAP INDEX



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Fanny Bay Salmonid Enhancement Society 2020 Monitoring Sites

Status

- Active
- Not Active

Watercourse (approximate location)

Community Park

2018 Air Photo

0 150 300 600 Meters

July 2019

N



**Nile Creek Enhancement Society
2020 Monitoring Sites**

Status

- Active
- Not Active

Watercourse (approximate location)

— 2018 Air Photo

■ Community Park

0 250 500 1,000 Meters

July 2020

N