WATER QUALITY ASSESSMENT REPORT FOR THE SQUAXIN ISLAND TRIBE

Date issued: January 24, 2020
Time period this strategy covers: Federal FY2010 to FY2018, Update 2016-2018
Contributors: Joe Puhn, Erica Marbet, Karen Welch, and Jean Caldwell, and Daniel Kuntz
Tribal contact: Erica Marbet
Phone: 360-432-3804
Email: emarbet@squaxin.us

I. Introduction – Atlas of Tribal Reservation Water Resources [*does not include 21 other watersheds (~1000 mi^2) in our Treaty Fishing Area*]

Overview of Squaxin Island Tribe Reservation:

- The Reservation totals approximately 3,422 acres including Squaxin Island and Kamilche areas.
- It also includes approximately 3,600 acres of nearshore habitat including approximately 840 acres of commercial tidelands (360 surrounding Squaxin Island) and 16 miles of shoreline (14.1 of which is Squaxin Island).
- There are two watersheds encompassing reservation land: the 12,800 acre Skookum Watershed and the 1,417 acre Squaxin Island.
- There are 11.7 miles of streams intersecting tribal properties.
- There are 130 acres of wetlands within Squaxin properties, consisting of 20 acres of riverine wetlands and 110 freshwater emergent, freshwater forested/scrub, and freshwater pond wetland types. This does not include tidelands.

This assessment report focuses on the Kamilche Reservation land. The reservation has expanded in recent years (Figure 1 and Figure 2), and the Natural Resources Department has expanded some samples to accommodate that. In the future, we need additional funding to continue monitoring and assessment of these added streams, of Squaxin Island, and all watersheds upstream of our Treaty Fishing Area in South Puget Sound per the 2020 Water Quality Monitoring Strategy for the Squaxin Island Tribe. We have developed a full hydrogeologic assessment and water budget of the Skookum Watershed to assess and protect our drinking water supply, and we will continue water quality and quantity investigations to further understand groundwater/surface water interactions.

Important environmental issues are related to nonpoint source pollution from septic systems, agriculture and forestry activities. Stormwater runoff from impervious surfaces is a major transport mechanism for water pollution, and disrupts natural flow regimes exacerbating water quality issues. Habitat alterations like removal of riparian cover and large woody debris from stream systems, draining of historical wetlands, and marine shoreline armoring have limited the ability of the landscape to “buffer” water pollution.

The Department of Ecology completed a TMDL Technical Report in March 2006 entitled *Tributaries to Totten, Eld, and Little Skookum Inlets - Fecal Coliform Bacteria and Temperature Total Maximum Daily Load: Water Quality Improvement Report*. The report covers lands upstream of the Kamilche portion of Reservation lands where Skookum Creek is listed for fecal coliform bacteria and stream temperature. In November 2007, Ecology published *Tributaries to Totten, Eld and Little Skookum Inlets: Fecal Coliform Bacteria and Temperature Total Maximum Daily Load Water Quality Implementation Plan.* Other than occasional efforts of septic system workshops and farm plan outreach, we are unaware of any major efforts by Ecology or anyone else to make large changes in the watershed. The Tribe is carrying out restoration at some of the properties that it has newly acquired.

II. Water quality monitoring program and assessment methods

A. Introduction

The purpose of this portion of the Tribal water quality monitoring and assessment program is to determine whether state water quality criteria are being met and beneficial uses are being supported upstream and downstream of Reservation land. Establishing a baseline of water quality conditions for all waters and periodically reassessing baseline water quality to look for changes is also an important program objective. In addition, identifying waters needing restoration is a high priority.

The Tribe is also interested in developing biological benchmarks for streams. We are currently collecting salmonid data (out-migrating Coho smolts).

Reservation Monitoring Objectives

Program Area	Objectives
On-Reservation Water Supply and Fish Habitat	1. Assess surface-groundwater interactions and the effect of groundwater pumping on and upstream of the Kamilche Reservation to evaluate aquifer sustainability on Reservation land and the maintenance of minimum summer streamflows in Skookum Creek. 2. Monitor anadromous-fish bearing streams on the Reservation to identify water quality and riparian/aquatic habitat trends, and track and correct pollution sources as necessary and habitat deficiencies as possible.

B. Reservation Monitoring Program Overview

Water quality monitoring is conducted by Tribal natural resources staff. We have a quality assurance project plan (QAPP) approved by EPA. We follow standard protocols to collect this data and use the Department of Ecology Manchester Lab for analysis. We collect all water column data monthly, except temperature which is monitored seasonally or continually, and streamflow which is monitored continuously (Table 1). Out-migrating Coho smolts are counted in the spring and habitat monitoring occurs at least once every decade. Our fisheries biologists snorkeled key reaches of Skookum Creek in the summers of 2017, 2018, and 2019.

Table 1. Monitoring Sites of the Squaxin Island Kamilche Reservation.

ID	Name	Description	Latitude	Longitude	Parameters	Frequency
CLA1	Clary 1	Clary as if flows under railroad tracks to Skookum Creek	47.12586051	-123.0974178	Dissolved Oxygen, Conductivity, Fecal Coliform	Occassionally, not regularly.
CLA2	Clary 2	Culvert under Salish Cliffs Maint road	47.123	-123.104	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Monthly when it is flowing, since 2014.
HUR1	Hurley 1	Hurley as it flows into Skookum Creek.	47.10841058	-123.137678	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Fecal monthly Since 2006, other paramaters since 2014.
HURT	Hurley Creek Trib	Downstream side of road crossing on Hurley Waldrip Rd	47.109372	-123.117521	Fecal Coliform	Targeted dates in 2015.
HUR3	Hurley 3	Downstream side of a box culvert under driveway at multiple road intersection at right angle bend in Hurley Waldrip Rd	47.106796	-123.116739	Fecal Coliform	Targeted dates in 2015.
LIT1	Little 1	At the daycare bridge	47.1291305	-123.0986978	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Fecal monthly Since 2006, other paramaters since 2014.
LIT2	Little 2	1st Kamilche Ln. Bridge	47.13268468	-123.0984884	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Targeted dates in 2015.
LIT3	Little 3	2nd Kamilche Ln. bridge	47.13627098	-123.0963134	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Targeted dates in 2015.
LIT4	Little 4	At Green Diamond 2901 Road Bridge	47.1426503	-123.101695	Fecal Coliform, Dissolved Oxygen, Specific Conductivity, pH, Chloroform, Temperature	Targeted dates in 2015.
SKO0	Skookum 0	At Old Olympic Highway	47.12615	-123.09269	Fecal Coliform	Fecal monthly Since 2006, other paramaters since 2014.
SKO05	Skookum 0.5	Skookum .5 - btwn 0 & 1 is Skookum creek at the Railroad Crossing behind the Legal Dept building in Kamilche.	47.126141	-123.096105	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SKO1	Skookum 1	At Hwy. 101	47.12581051	-123.0999178	Fecal Coliform, Stage (ft), Discharge (cfs), Temperature	Fecal monthly Since 2006, stage at 15-min since 2004, Discharge monthly since 2004, temperature hourly since 2006
SKO2	Skookum 2	At golf course bridge	47.12678051	-123.1035978	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SKO3	Skookum 3	At Hwy. 108 near Alta Forest Products	47.12513052	-123.1136778	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SKO4	Skookum 4	At Eich Road	47.10973057	-123.137818	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SKO5	Skookum 5	At Hwy. 108 at River Mile 6.0	47.09894334	-123.1901766	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SKO8	Skookum 8	Left fork of Skookum at Hwy. 108 culvert	47.097309	-123.212691	Fecal Coliform, Discharge (cfs)	Fecal targeted dates in 2015, discharge occasionally.
SNOD01	Snodgrass 01	Snodgrass Creek exiting culvert before 2650 SE Bloomfield Road (Mason County # TL001)	47.123618	-123.036867	Fecal Coliform	Mason County collected data in 2013-2015

C. Map of Monitoring Sites

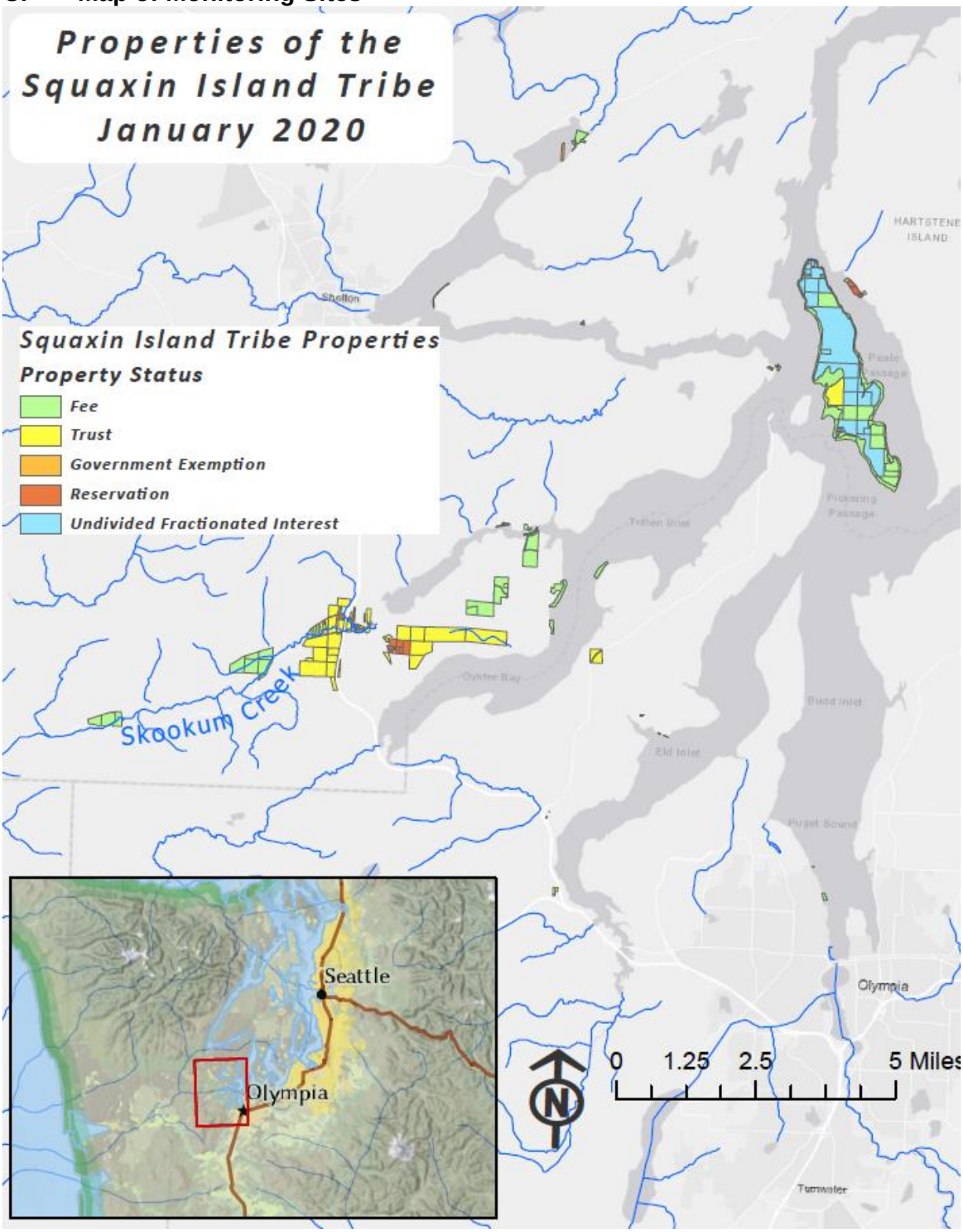

Figure 1: Overview of Properties of the Squaxin Tribe

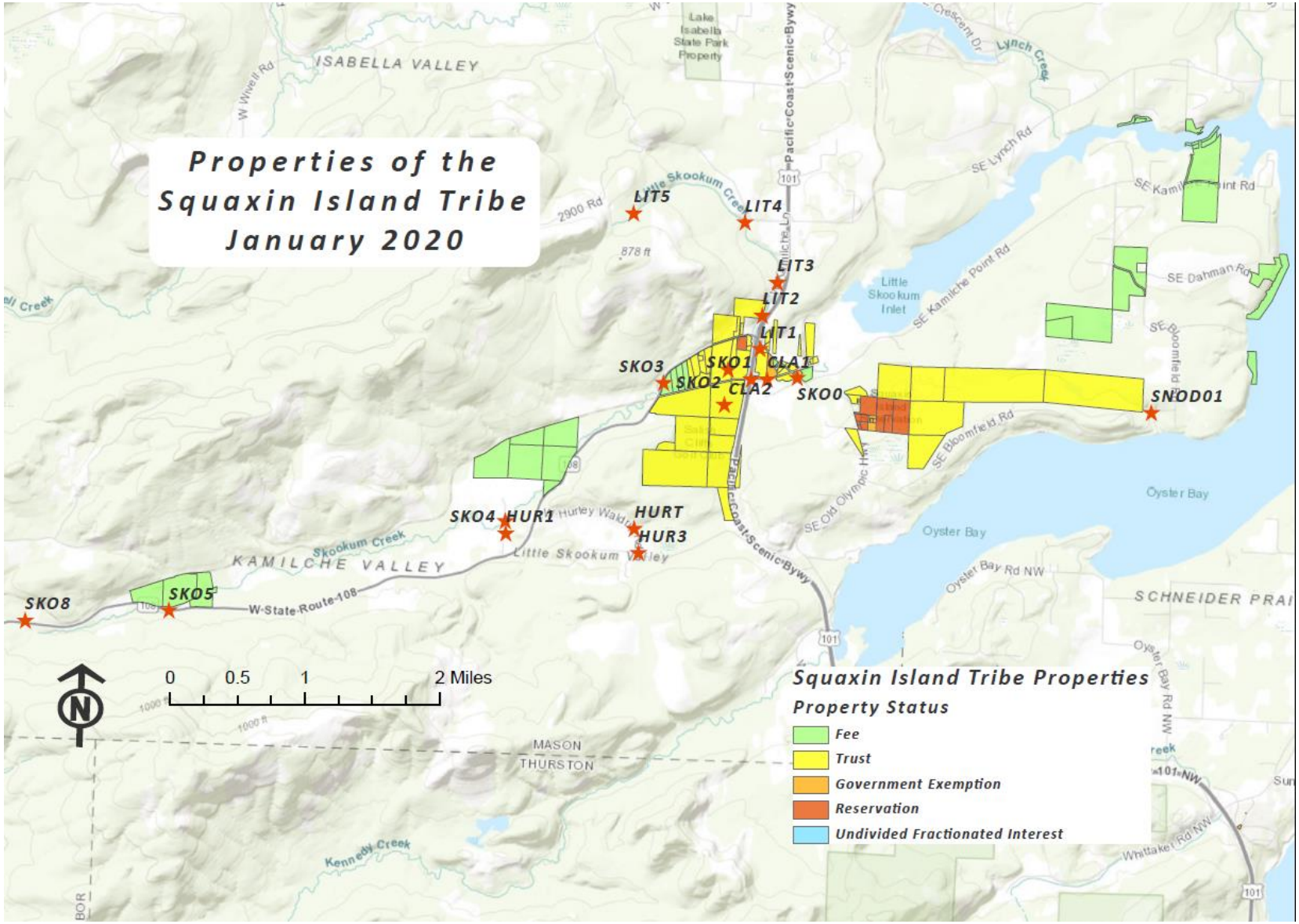

Figure 2: Details of Squaxin Island Tribe Properties

D. Total Extent of Waters Assessed

We monitored five named streams on the Reservation. This represents 100% of the total stream miles (6 miles) on the Kamilche portion of the Reservation. No wetlands were monitored in the Kamilche area due to budget constraints.

We did not monitor Squaxin Island due to budget constraints. Squaxin Island has no streams, but it does have 11 miles of extremely high value marine shoreline and some upland wetlands.

Table 2. Waters of the Reservation

Waterbody name	Total Miles on Reservation	Miles Assessed on Reservation
Skookum Creek	3 miles	3 miles (100%)
Little Creek	1 mile	1 mile (100%)
Clary Creek	0.3	0.3 (100%)
Hurley Creek	This is upstream of Reservation.	
Snodgrass Creek	1.7	0.7 (40%)

E. Data Analysis and Assessment

The goal for all waters in the Kamilche portion of the Squaxin Island Reservation is to support aquatic life uses, recreational uses (primary contact) and water supply uses (drinking water). Skookum Creek on the Reservation supports core summer salmonid habitat. Upstream of the Reservation Skookum Creek supports salmonid spawning and rearing. Little Creek on the Reservation supports core summer salmonid habitat and salmonid spawning and rearing. A goal for the Squaxin Island portion of the Reservation is to support shellfish harvest in the tidelands.

To assess whether aquatic life is being supported we evaluate data for DO, temperature, pH, turbidity, nutrients, habitat, biota and flow. For recreational and shellfish harvest use, we assess pathogens (Fecal coliform). To assess whether salmonid spawning is being supported, we evaluate temperature and dissolved oxygen data during the appropriate season. For drinking water uses, we evaluate pathogens (Fecal coliform) as displayed in Table 3.

Table 3. Data Used to Make Assessment Decisions

Designated Use or Tribal Goal	Parameters to be Measured to Determine Support of Use or Goal
Recreation & Drinking Water	Fecal coliform
Aquatic Life	DO, temperature, pH, turbidity, nutrients, habitat, biota, flow

The Squaxin Island Tribe does not yet have water quality standards. Therefore, we use state criteria values to evaluate our pH, temperature, dissolved oxygen, turbidity, pathogens, and streamflow data. We used EPA's eco-regional criteria to evaluate nutrients. For biota monitoring, we use a projection of historic Coho smolt productivity developed from an Ecosystem Diagnosis and Treatment model of the Skookum Watershed. To analyze habitat data, we use Watershed Analysis methodology incorporated into Timber-Fish-Wildlife and Forest & Fish processes.

Table 4. Relevant Water Quality Standards

Parameter	Tribal Goals	Benchmarks/Criteria	Citation
pH	Aquatic Life	6.5 – 8.5	State of Washington Chapter 173-201A WAC
Temperature	Aquatic Life – core summer habitat June 15 -September 15	7-day Max. 16°	State of Washington Chapter 173-201A WAC
	Aquatic Life – fall spawning and rearing September 16-June 14	7-day Max. 13°	State of Washington Chapter 173-201A WAC
Dissolved Oxygen	Aquatic Life – core summer habitat	1-day Min. 9.5 mg/L	State of Washington Chapter 173-201A WAC
	Aquatic Life – fall spawning & rearing	1-day Min. 8.0 mg/L	State of Washington Chapter 173-201A WAC
Turbidity	Aquatic Life	5 NTU over back-ground (U.S. EPA 2000 ref-erence condition for ecoregion 2 = 2.0)	State of Washington Chapter 173-201A WAC
NO^2+NO^3	Aquatic Life	0.26 mg/L	U.S. EPA 2000 reference condition for ecoregion 2
Total Phos-phorus	Aquatic Life	0.02 mg/L	U.S. EPA 2000 reference condition for ecoregion 2
Pathogens – fecal coli-form	Recreation & Drinking Water	Geometric mean con-centration of 50/100 mL and a 90th Percen-tile of 100/100 mL	State of Washington Chapter 173-201A WAC WAC 173-201A-260 (2)(a) and (b)
Biota – Coho smolts	Aquatic Life	20,305 smolts/year	Squaxin EDT Analysis of his-toric smolt production
Habitat – key pieces LWD	Aquatic Life	0.5 pieces/channel width	Washington Forest Practices Manual: methodology for con-ducting watershed analysis
Streamflow	Aquatic Life	3 cfs July 15 to Octo-ber 1 for Skookum Creek	State of Washington Chapter 173-201A WAC

III. Data Analysis Results

Water quality results for collected parameters from 2013 – 2018 are presented in Table 5. Table 5 summarizes streamflow data and Coho Smolt data that we have collected for 2003-2018.

Table 5. Water quality parameters from 2013 to 2018. Green indicates that the state water quality is being met. Black text- we are not comparing this parameter to a regulatory standard. Red indicates that the standard has not been met. Brown indicates that the standard is close. Data count is in parentheses.

2013-2018 - Monthly Sample

Site	Mean pH	Mean Chorophyll RFU[1]	Mean Dissolve O_2 sat %	Mean Dissolve O_2 mg/L	Specific Conductivity µS/cm	Mean Turbidity NTU[2]	Temperature ^0C	Comment
CLA2	7.3 (19)	19.5 (21)	89.4 (25)	10.6 (26)	110.9 (19)	nd	8.1 (26)	2014 - 2019
HUR1	7.3 (51)	1.2 (46)	85.5 (53)	9.8 (63)	98.3 (40)	nd	9.3 (63)	
LIT1	7.6 (50)	10.1 (42)	97.6 (48)	11.2 (59)	100.9 (39)	nd	9.7 (59)	
SKOO	7.4 (50)	9.6 (46)	91.6 (52)	10.2 (62)	1056.2 (40)	nd	11.0 (62)	Tidal influence on conductivity
SKO3	7.5 (51)	0.7 (46)	92.5 (52)	10.3 (63)	81.3 (40)	nd	10.7 (63)	

RFU[1] = relative fluorescence units; NTU[2] = Nephelometric Turbidity Unit; nd = no data

Table 6. Annual streamflow metrics and spring coho smolt counts for Skookum Creek (SKO1), a 12,800 acre watershed. Green indicates that the state water quality is being met. Black text- we are not comparing this parameter to a regulatory standard. Red indicates that the standard has not been met. Brown indicates that the standard is close to not being met.

Water Year	Mean Annual Flow (afy)	Mean Annual Flow (cfs)	Mean Annual Precip. (inches)	Min. Daily Flow (cfs)	Max Daily Flow (cfs)	7-day Low Flow (cfs)	Min Inst Flow (cfs)	Max Inst Flow (cfs)	Coho Smolt Count
2003-2004	<Partial New Year Install>					0.9			291
2004-2005	28663	39	56.3	1.1	908	1.1			974
2005-2006	39630	55	66.9	0.7	730	0.7			1518
2006-2007	46349	64	78.6	1.4	884	1.6			1186
2007-2008	30557	42	58.2	2.4	847	2.5			2376
2008-2009	37487	52	59.6	1.5	1415	1.7	1.318	1550	
2009-2010	38037	53	75.2	2.2	445	2.4	1.5	573	166
2010-2011	53950	74.5	79.9	1.6	1094	2.1	1.1	1292	1084
2011-2012	44018	60.6	62.7	2.2	737	2.5	1.4	826	
2012-2013	40326	55.7	79.3	0.7	664	0.7	0.5	866	144
2013-2004	42286	58.4	57.9	0.1	731	0.2	0.002	814	475
2014-2015	32848	45.4	62.0	0.7	778	0.7	0.4	1024	1310
2015-2016	53382	73.7	79.0	0.8	892	1.0	0.5	1140	549
2016-2017	50415	69.6	88.4	1.5	580	1.7	1.3	717	38
2017-2018	47292	65.3	66.4	0.7	670	0.7	0.4	751	1,397

Regarding Table 4- *The 7 lowest flow days of the year do not meet the WA state instream flow of 3 cfs.*

Coho smolts are not up to capacity of 23,005 fish.

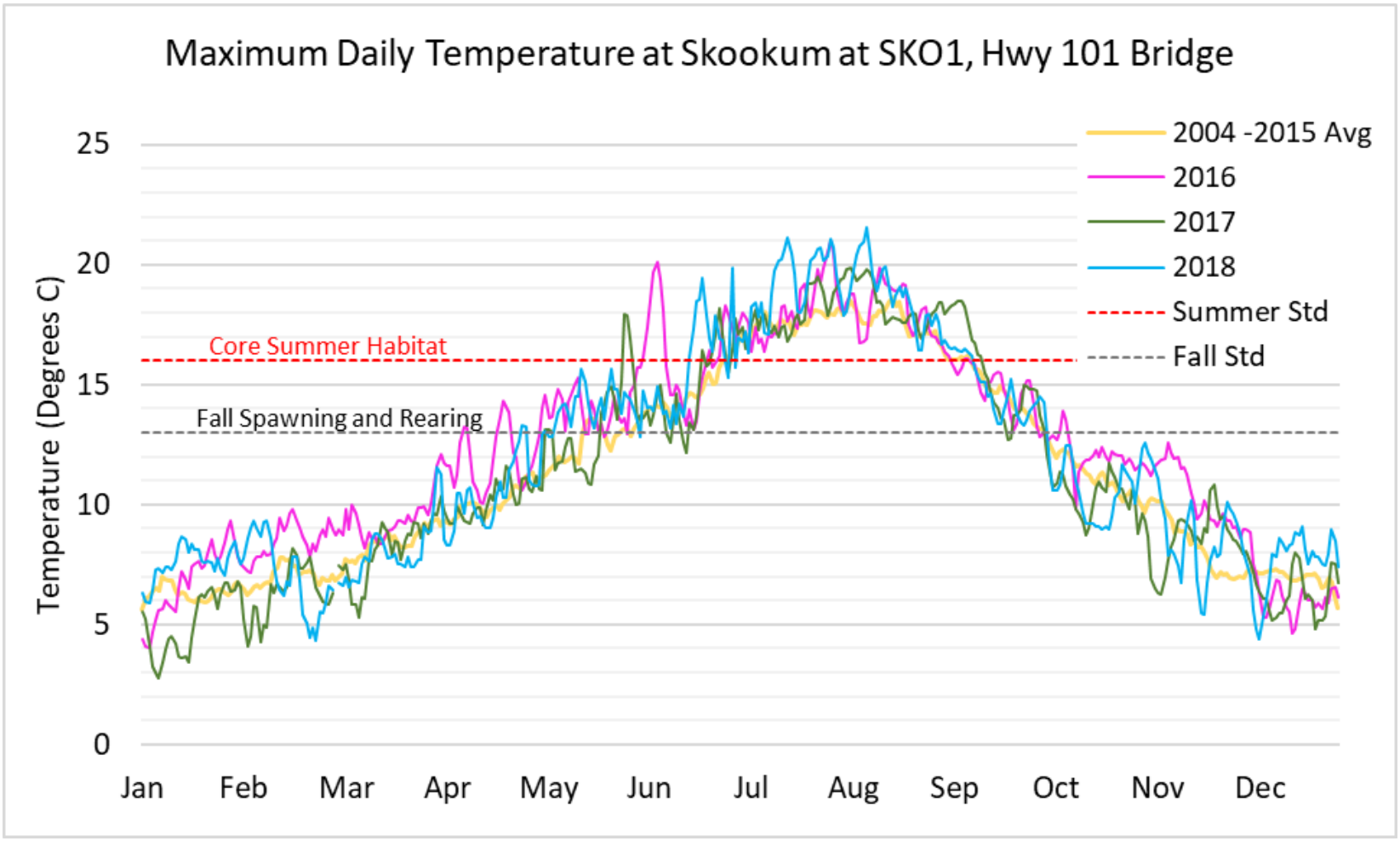

Figure 3. Maximum daily temperature in Skookum Creek at SKO1.

Regarding Table 4- *State temperature standards for core summer habitat and for early fall spawning and rearing are not met.*

Fecal Coliform Overview

Bacterial pollution has been a concern in Skookum Creek for many years. The primary sources of bacterial pollution in the past have been livestock and septic systems. There are also elk herds in the Skookum Valley. The Tribe treats all reservation wastewater at a reclaimed water plant and uses it to irrigate a golf course. So septic systems adjacent to Skookum Creek are less an issue than they were in the past. However there are septic systems in Hurley valley and upper Skookum valley. There are also livestock in both of those valleys as well. Finally, an additional bacterial burden comes from stormwater runoff from the casino campus and neighboring businesses.

Hurley, Little, and Skookum Creeks generally pass or barely pass the fecal coliform geometric mean standard from WA. State Dept. of Ecology. They generally fail at the 90th percentile (Table 2, Figure 4, and Figure 5) except for 2016 when all stations met the standard. We segmented and sampled the whole area in 2015 and found that the areas with most pollution were lower Hurley Creek and Skookum Creek where Hurley joins it. Also, there were some high hits in the Casino area and lower and upper Little Creek. Bacterial concentration is not strongly correlated with discharge (Figure 6), but bacterial load is strongly correlated with discharge (Figure 7). This indicates that the pollutions source comes from the land surface and is mobilized by rainfall. Episodes of high bacterial load during high streamflows have decreased in recent years, though load is still high during high flows (Figure 8).

Table 7. Geometric means of fecal coliform concentration at Squaxin Island Tribe sampling sites (# of colonies per 100 ml) by calendar year. The data count is in parentheses. Green indicates that the state water quality is being met. Black text- we are not comparing this parameter to a regulatory standard. Red indicates that the standard has not been met. Brown indicates that the standard is close to not being met.

		Geometric Mean				90th Percentile			
	Site	2006-2015	2016	2017	2018	2006-2015	2016	2017	2018
Hurley 1	HUR1	63 (113)	35 (14)	35 (14)	63 (14)	200	82	83	266
Little 1	LIT1	34 (95)	24 (12)	25 (11)	21 (9)	201	70	190	48
Skookum 0	SKO0	50 (102)	32 (12)	50 (11)	43 (12)	284	80	260	158
Skookum 3	SKO3	50 (103)	32 (12)	63 (11)	46 (12)	200	92	220	144

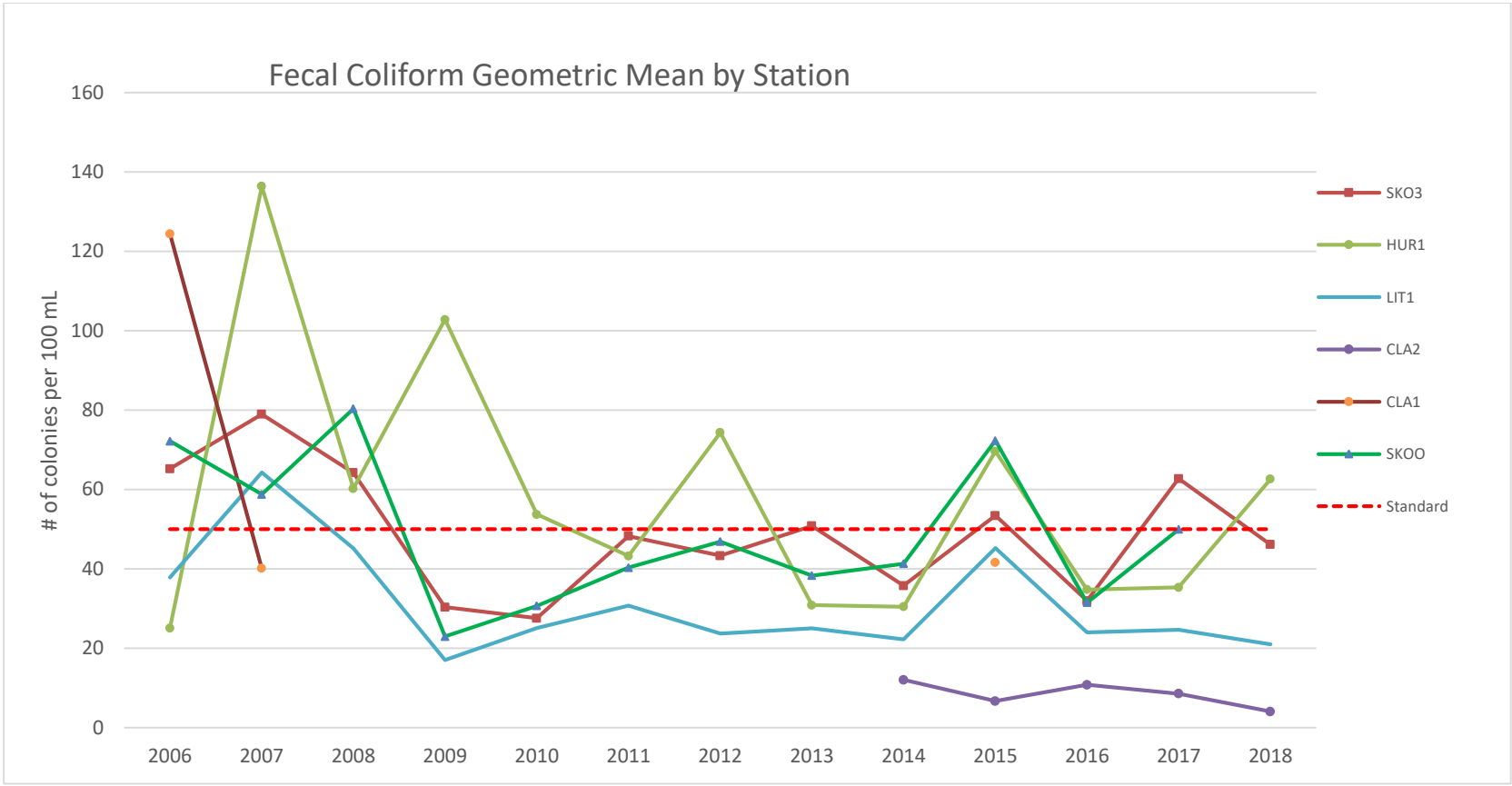

Figure 4. Annual geometric mean of fecal coliform bacteria concentration in Skookum Creek and its tributaries, 2006-2018.

Regarding Table 4- *Fecal Coliform Bacteria- Generally, creeks on the reservation met the geometric mean standard since 2010, but they failed the 90th percentile.*

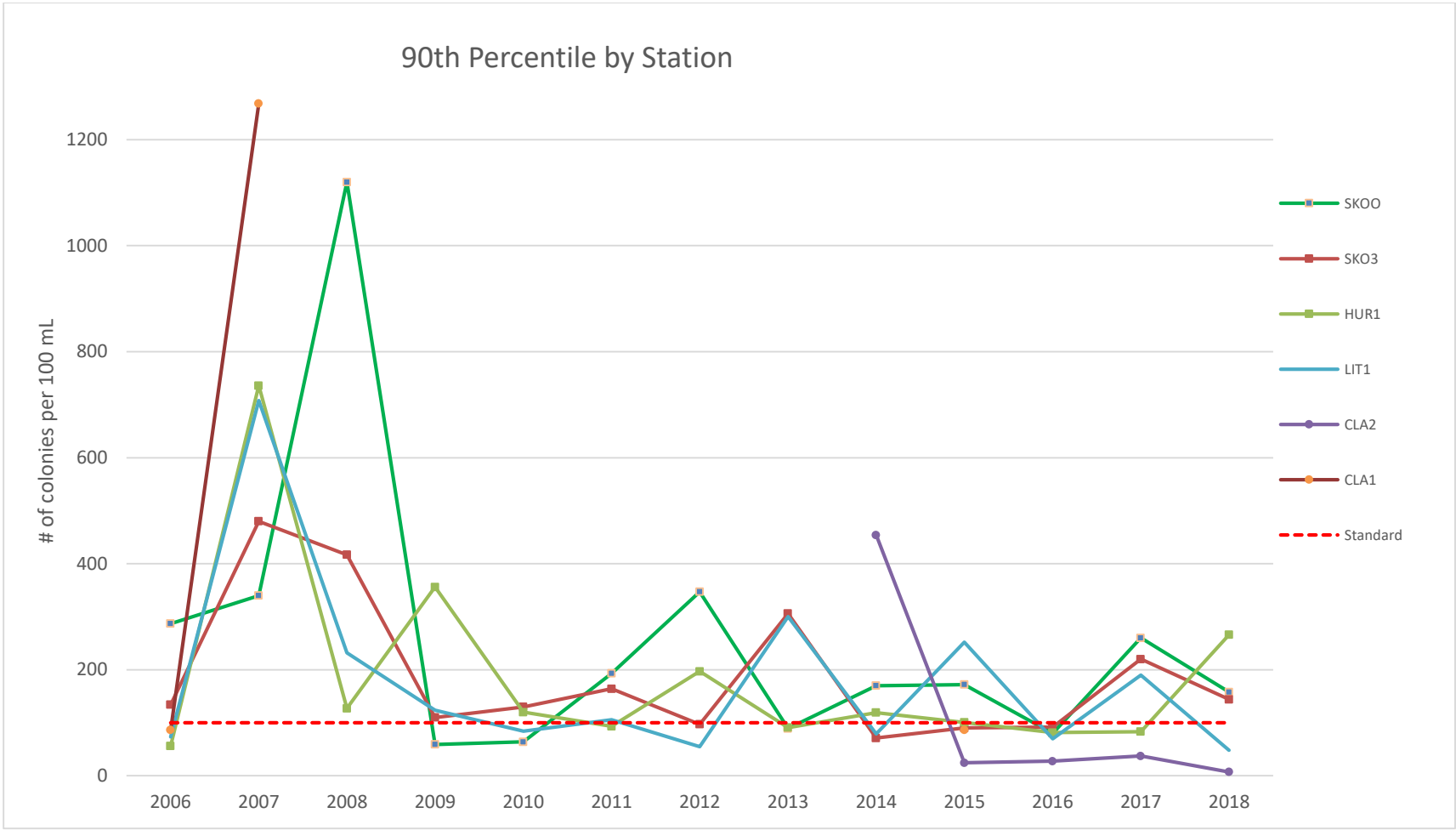

Figure 5. Annual 90th percentile of fecal coliform bacteria concentration in Skookum Creek and its tributaries, 2006-2018.

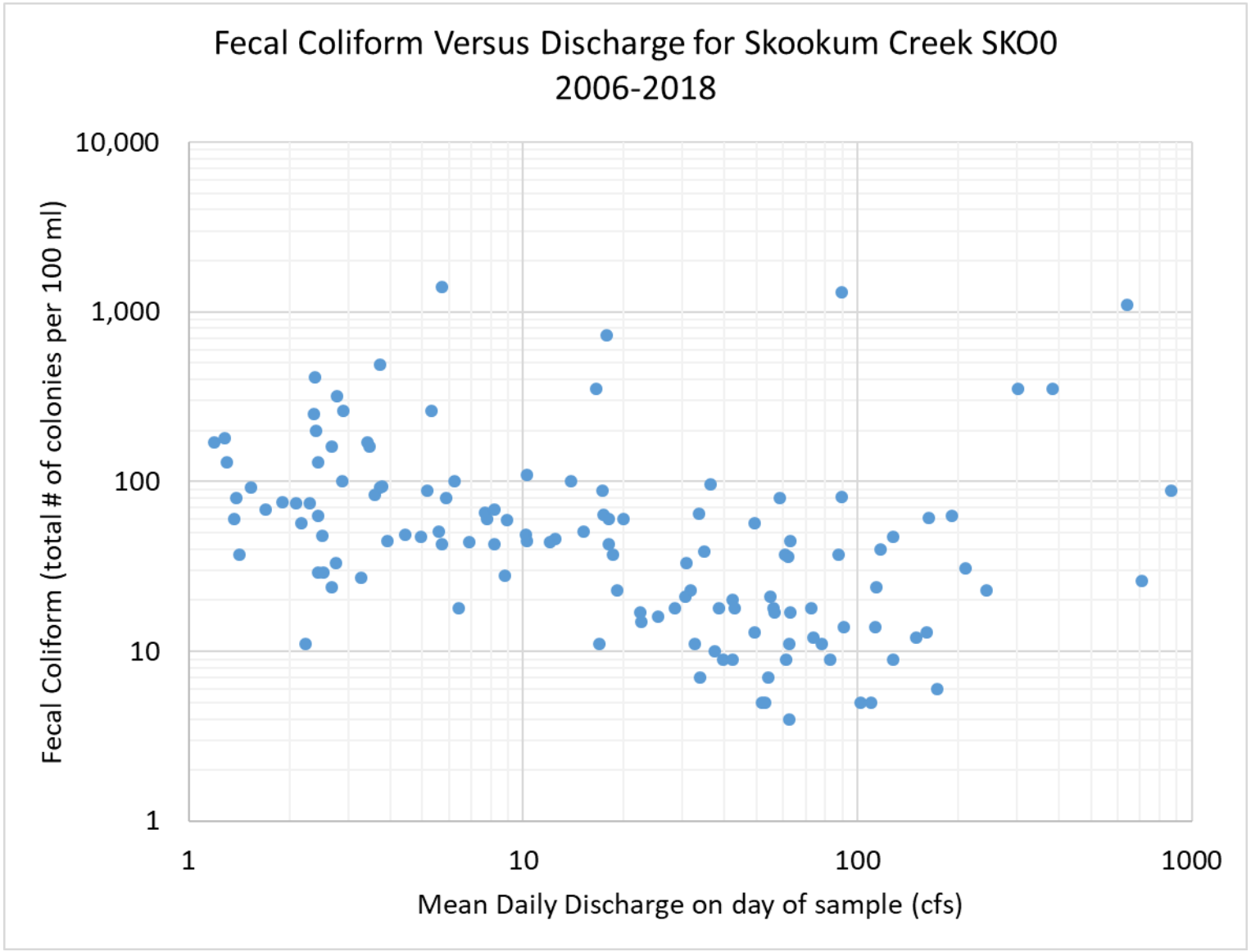

Figure 6. Bacterial concentrations at SKO0. ***Concentration is not well correlated with discharge.***

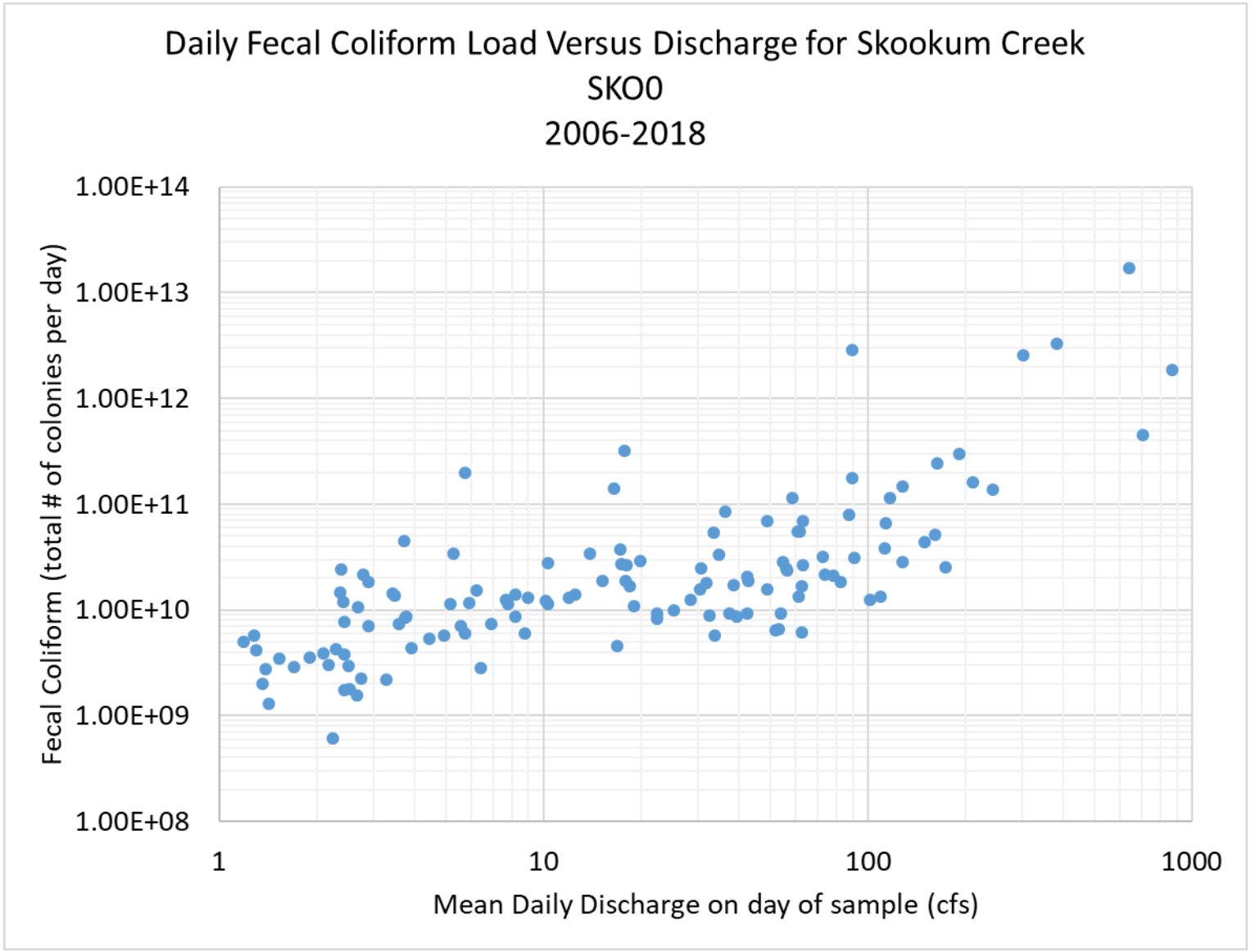

Figure 7. Daily bacterial load versus mean daily discharge at SKO0. ***Load increases with discharge.***

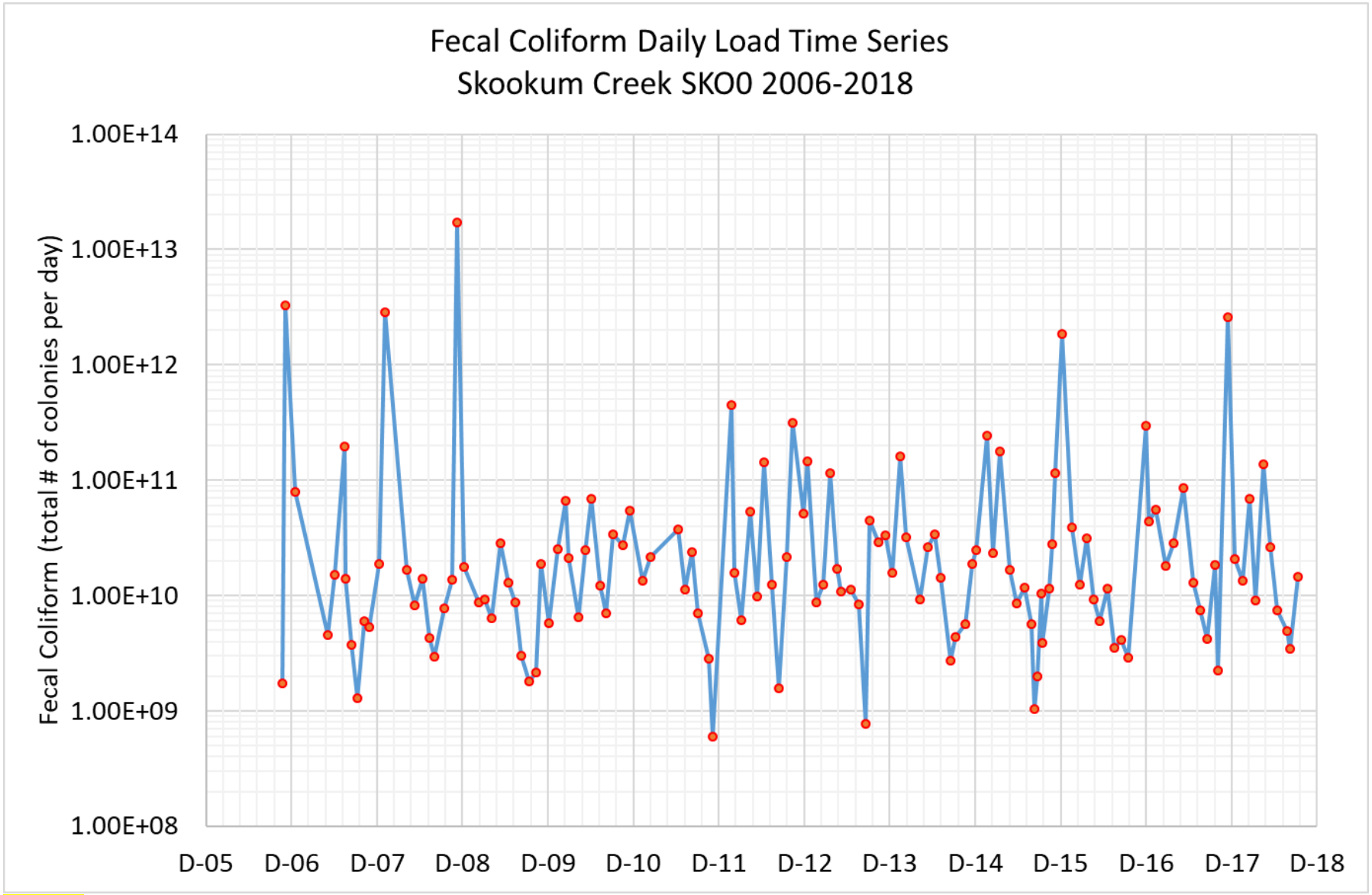

Figure 8. A time series of daily bacterial load in Skookum Creek at SKO0, calculated monthly. ***Bacterial load is three orders of magnitude higher during high winter streamflow than during summer low flow.***

Site Specific Comparison of Data to Benchmarks/Criteria

Most of the creeks are meeting criteria for pH, dissolved oxygen (Table 8). However this assessment is based on just a few discrete samples. Skookum Creek at SKO1 does not meet criteria for stream-flow or temperature, both measured continuously. Nor does Skookum Creek meet criteria for Coho smolts. Finally, all of sites sampled are failing to meet both criteria for pathogens (fecal coliform) (Table 8).

Table 8. Comparison of Water Quality Results to Standards in Table 4. **Meets Criteria? √ = yes, X = no**

Parameter	Tribal Goals	Benchmarks/Criteria	LIT1	SKOO	SKO1	SKO3	HUR1	CLA2
pH	Aquatic Life	6.5-8.5	√	√	NA	√	√	√
Temperature	Aquatic Life – core summer habitat	7-day Max. 16°	√	√	X	√	√	√
	Aquatic Life – fall spawning and rearing	7-day Max. 13°	√	√	X	√	√	√
Dissolved Oxygen	Aquatic Life – core summer habitat	1-day Min. 9.5 mg/L	√	√	NA	√	√	√
	Aquatic Life – fall spawning & rearing	1-day Min. 8.0 mg/L	√	√	NA	√	√	√
Turbidity	Aquatic Life	5 NTU over background (US EPA 2000 reference condition for ecoregion 2 = 2.0)	NA	NA	NA	NA	NA	NA
NO^2+NO^3	Aquatic Life	0.26 mg/L	NA	NA	NA	NA	NA	NA
Total Phosphorus	Aquatic Life	0.02 mg/L	NA	NA	NA	NA	NA	NA
Pathogens – fecal coliform	Recreation & Drinking Water	Geometric mean concentration of 50/100 mL and a 90^{th} Percentile of 100/100 mL	X	X	NA	X	X	X
Biota– Coho smolts	Aquatic Life	20,305 smolts/year	NA	NA	X	NA	NA	NA
Habitat – key pieces LWD	Aquatic Life	0.5 pieces/channel width	Not Collected	Not Collected	Not Collected	Not Collected	Not Collected	Not Collected
Streamflow	Aquatic Life	3 cfs July 15 to October 1	NA	NA	X	NA	NA	NA

IV. Discussion of issues of tribal concern

The most likely sources of bacterial water quality impairments are livestock, possible failing septic systems upstream of reservation land, and pet and garbage waste on the Casino campus. There are also elk herds in the Skookum Valley. A renewed effort by Mason County to make sure all septic systems are inspected and pumped, along with an effort by Mason Conservation District to update landowner farm plans, would be effective in decreasing bacterial sources. Neither entities have much funding for these efforts right now.

Regarding stream temperature in Skookum Creek, the Ecology's TMDL technical report (http://www.ecy.wa.gov/pubs/0603007.pdf) and implementation plan (http://www.ecy.wa.gov/pubs/0710071.pdf) identified a deficiency in shade upstream of the Reservation leading to heat pollution of the stream water. The deficit ranged from 20% to 50% of potential shade. Continuous buffers of mature riparian vegetation are predicted to cool stream temperatures sufficiently to achieve state water quality standards upstream of and likely on the reservation.

At this point, a 150-foot buffer on each side of Skookum Creek that lacked sufficient forest cover have already been replanted where possible. This includes the casino area and the Knight property. The portion of the Reservation where replanting was not possible is under a BPA powerline corridor. Significant large woody debris has been added to Skookum Creek under the powerlines to provide a surrogate for forest shade. Also, in 2018, using EPA 319 funding, we added woody debris to the channel on the Knight property. The Tribe has begun an effort to use find conservation funds to purchase the Skookum Valley properties. We achieved our first step with that in 2019 by purchasing the Skookum Ranch. We will expand the riparian buffer around mainstem Skookum Creek on Skookum Ranch and other properties that we acquire in the valley.

Appendix I. Quality Control of Squaxin Island Tribe Fecal Coliform Sampling

Quality control lapsed for a few years, but it was started up again in 2015. A single blank and a single duplicate were taken periodically and results are displayed below. Samples were processed at WA Dept. of Ecology's Manchester Lab. The large relative percent difference is due to the variability of fecal coliform bacteria distribution in streams. Also, high percent differences ay low estimates of fecal coliform concentration, are within error of the estimated value. For example, the difference between 7 colonies/100ml and 5 colonies/100ml is within error of the estimate, even though there is a 33% difference.

Percent Difference Calculations

Sample Date	*Location*	*Fecal Sample # Col/100 mL*	*Duplicate # Col/100 mL*	*% Difference*
6/5/07 10:15	CLA1	29	31	-7%
2/22/17 9:45	CLA2	0	2	-200%
11/14/17 9:45	CLA2	15	10	40%
11/9/15 10:05	HUR1	100	120	-18%
1/20/16 8:15	HUR1	7	5	33%
12/13/16 9:30	HUR1	13	14	-7%
10/4/17 9:45	HUR1	17	33	-64%
3/14/18 9:30	HUR1	65	69	-6%
12/20/06 11:11	LIT1	24	25	-4%
7/19/16 9:45	LIT1	22	19	15%
8/16/16 9:45	LIT1	57	47	19%
9/13/16 9:35	LIT1	87	76	13%
11/28/16 9:40	LIT1	33	22	40%
3/28/17 9:05	LIT1	12	10	18%
2/14/18 8:45	LIT1	32	24	29%
6/12/18 9:50	LIT1	35	25	33%
5/7/07 9:28	SKO0	10	11	-10%
7/17/07 10:21	SKO0	1400	1200	15%
7/24/18 10:05	SKO0	170	160	6%
10/12/16 9:20	SKO3	51	60	-16%
5/9/17 9:25	SKO3	77	65	17%
4/17/18 9:20	SKO3	35	29	19%