

## Site Report Cards (SRCs)

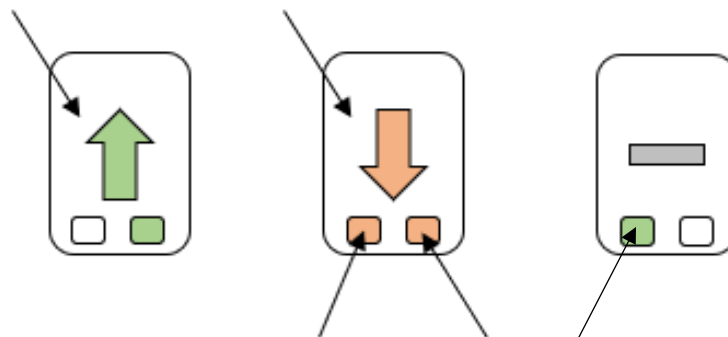
The Site Report Cards (SRC's) on the following pages report results from the Skagit County Monitoring Program for each site. These are intended to provide a general overview of how the site has changed over the length of the program.

The first page of each SRC includes a general description of the site, if the site passed state standards in water year 2022, and how it compares to the rest of the sites in the SCMP. Infographics describing the statistical trends and the WQI rating over the length of the monitoring are also included. The three following pages are heatmaps of the average monthly temperature, DO, and FC over the length of the monitoring.

### Statistical Trend Infographic

The statistical trends are summarized with an infographic that is interpreted with the following:

- If there is an arrow, the statistic showed significant change on a monthly examination, at 95% confidence. This is our main statistic for determining changes.
  - A **green** arrow is positive for water quality. A **red** arrow is negative for water quality.
- The lower boxes exist to show a more sensitive view of what may be occurring at a site, rather than simply a binary yes or no statistic.
  - If the lower left box is shaded in, the statistic showed significant change on a bi-weekly examination. This is more sensitive and less robust.
  - If the lower right box is shaded in, then the statistic was nearly significant on a monthly examination, at 90% confidence.
  - A **green** box is positive for water quality. A **red** box is negative for water quality.
- For example:
  - The graphic on the left shows a positive significant monthly trend upward, at 95% and 90% confidence levels.
  - The graphic in the middle shows a negative significant monthly trend downward, at 95% and 90% confidence levels, and was also significant on a bi-weekly basis, at 95% confidence.
  - The graphic on the right shows no significant monthly trend at the 95% or 90% confidence levels but shows a significant trend on the bi-weekly examination, at 95% confidence.





## Heatmaps

The heatmaps provide an overall picture of the water quality at a given site over time in comparison to state standards. They are not intended to fully describe the conditions at that site. Note that the color coding on the temperature heatmaps are not all equivalent due to the different temperature standards for each site. The marine site (Site 47) also has different standards than the rest of the freshwater sites.

## SRC Order

The SRC's are organized and color coded by watershed in the following order:

Watershed	Site ID	Watercourse	Location
Samish Watershed	3	Thomas Creek	Old Hwy 99 N
	4	Thomas Creek	F&S Grade Rd
	6	Friday Creek	Prairie Rd
	8	Swede Creek	Grip Rd
	11	Samish River	State Route 9
	32	Samish River	Thomas Rd
	33	Alice Bay Pump Station	Samish Island Rd
	34	No Name Slough	Bayview-Edison Rd
	36	Edison Slough	W. Bow Hill Rd
	37	South Edison Pump Station	Farm to Market Rd
	38	North Edison Pump Station	North Edison Rd
Nookachamps Watershed	39	Colony Creek	Colony Rd
	12	Nookachamps Creek	Swan Rd
	13	E.F. Nookachamps Creek	State Route 9
	15	Nookachamps Creek	Knapp Rd
	16	E.F. Nookachamps Creek	Beaver Lake Rd
	17	Nookachamps Creek	Big Lake Outlet
Middle Skagit Watershed	18	Lake Creek	State Route 9
	19	Hansen Creek	Hoehn Rd
	20	Hansen Creek	Northern State
	21	Coal Creek	Hoehn Rd
	22	Coal Creek	Highway 20
	23	Wiseman Creek	Minkler Rd
	24	Mannser Creek	Lyman Hamilton Hwy
	25	Red Cabin Creek	Hamilton Cem. Rd
Lower Skagit Watershed	30	Skagit River	Cape Horn Rd
	29	Skagit River	River Bend Rd
	41	Maddox Slough/Big Ditch	Milltown Rd
	42	Hill Ditch	Cedardale Rd
	43	Wiley Slough	Wylie Rd
	45	Skagit River – North Fork	Moore Rd
	46	Skagit River – South Fork	Fir Island Rd
Padilla Watershed	48	Fisher Creek	Franklin Rd
	51	Hill Ditch/Carpenter Creek	East Stackpole Rd
	34	No Name Slough	Bayview-Edison Rd
	40	Big Indian Slough	Bayview-Edison Rd
	44	Sullivan Slough	La Conner-Whitney
	47	Swinomish Channel	Twin Bridges Boat Launch
	49	Joe Leary Slough	Farm to Market Rd
50	Joe Leary Slough	Bayview-Edison Rd	
52	Little Indian Slough	Farm to Market Rd	

# 3 - Thomas Creek at Highway 99

Samish Watershed  
Downstream Ag

Site 3 is Thomas Creek, downstream from Site 4, and sits just prior to the creek joining the Samish River. This section of the creek is more of a slough, with slow-moving, channelized water. This site has substantially lower flow volumes in the summer months. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen has significantly declined over the last 10 years. WQI scores have improved since monitoring began but have never reached the category of lowest concern.

Site 3 regularly fails to meet state standards for DO and occasionally does not the temperature in the warmer months. This site easily passed the FC and EC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.

Site 3 is tied for 23<sup>rd</sup> out of 36 sites for number of significant trends, with 10, and 29<sup>th</sup> out of 36 sites for positive trends, at 30%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
▬	↓	▬	▬	▬	▬	▬	▬	▬
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

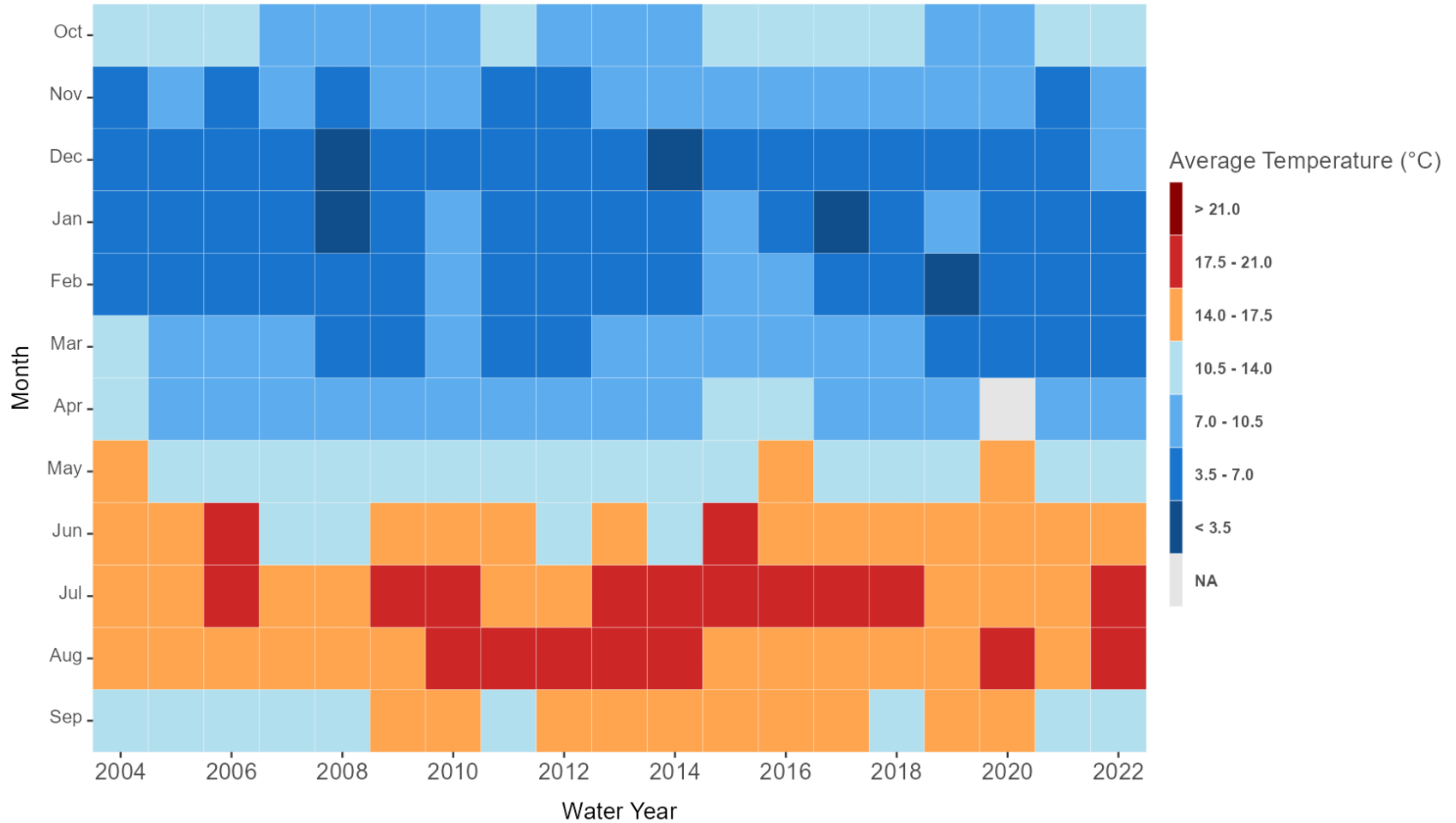


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	20	14	31	49	58	41	60	41	45	53	41	30	37	56	44	67

# Monthly Average Temperature

## 3 - Thomas Creek at Highway 99

Samish Watershed  
Downstream Ag

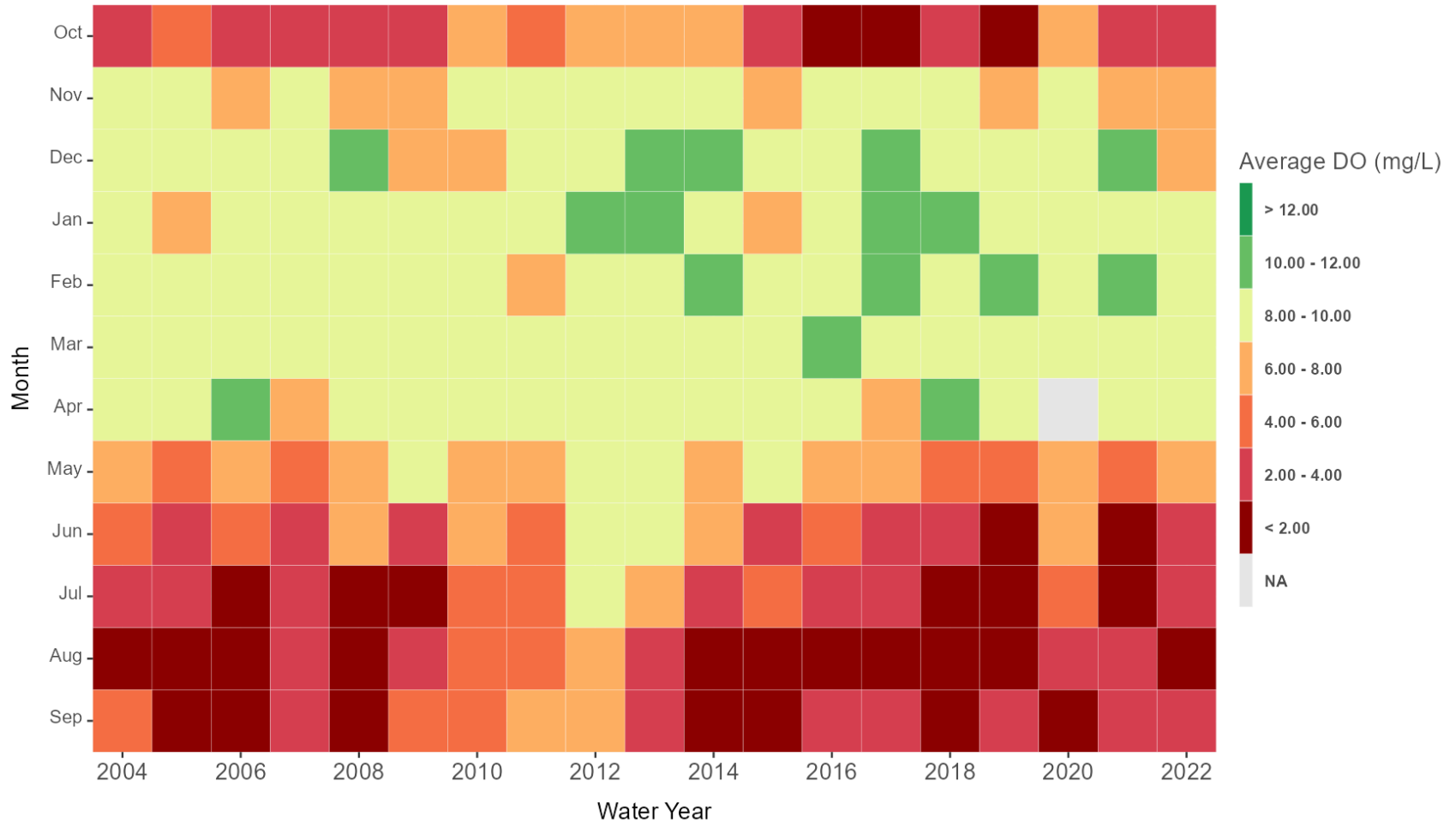


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 3 - Thomas Creek at Highway 99

Samish Watershed  
Downstream Ag

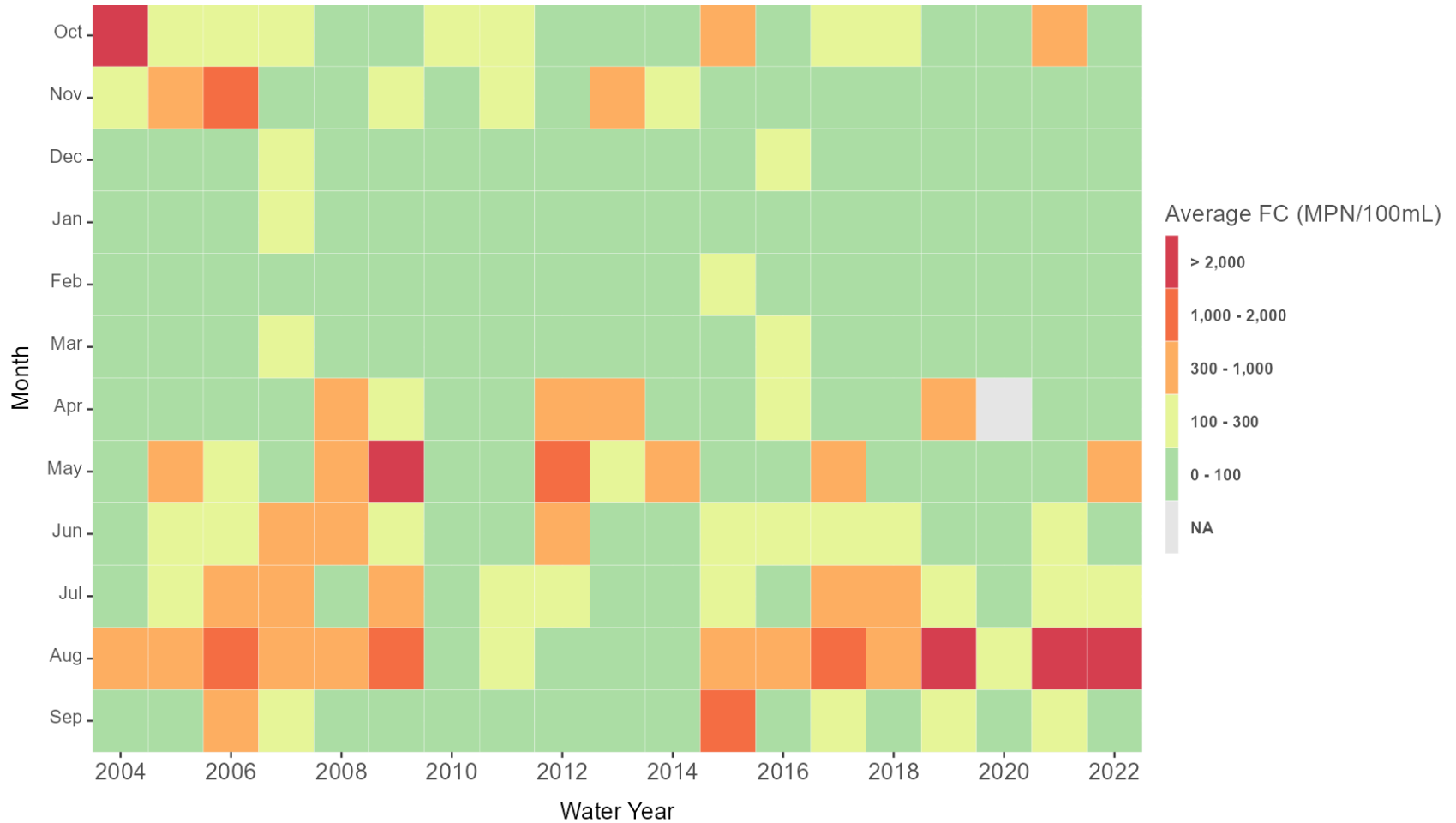


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 3 - Thomas Creek at Highway 99

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 4 - Thomas Creek at F&S Grade Road

Samish Watershed  
Upstream Ag

Site 4 is Thomas Creek, upstream of site 3. Upstream of this sampling site, the creek is well oxygenated and fast-moving. This site has substantially lower flow volumes in the summer months. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen has increased significantly across the last 19 years, however over the last 5 years dissolved oxygen has significantly declined. Fecal coliform counts are lower than they were 19 years ago. WQI scores have substantially improved since monitoring began.

Site 4 regularly meets state standards for temperature and DO for most of the year. However, this site failed the FC and EC state standards for both the geometric mean and 90<sup>th</sup> percentile requirements.

Site 4 is 2<sup>nd</sup> out of 36 sites for number of significant trends, with 19, and tied for 15<sup>th</sup> out of 36 sites for positive trends, at 63%.



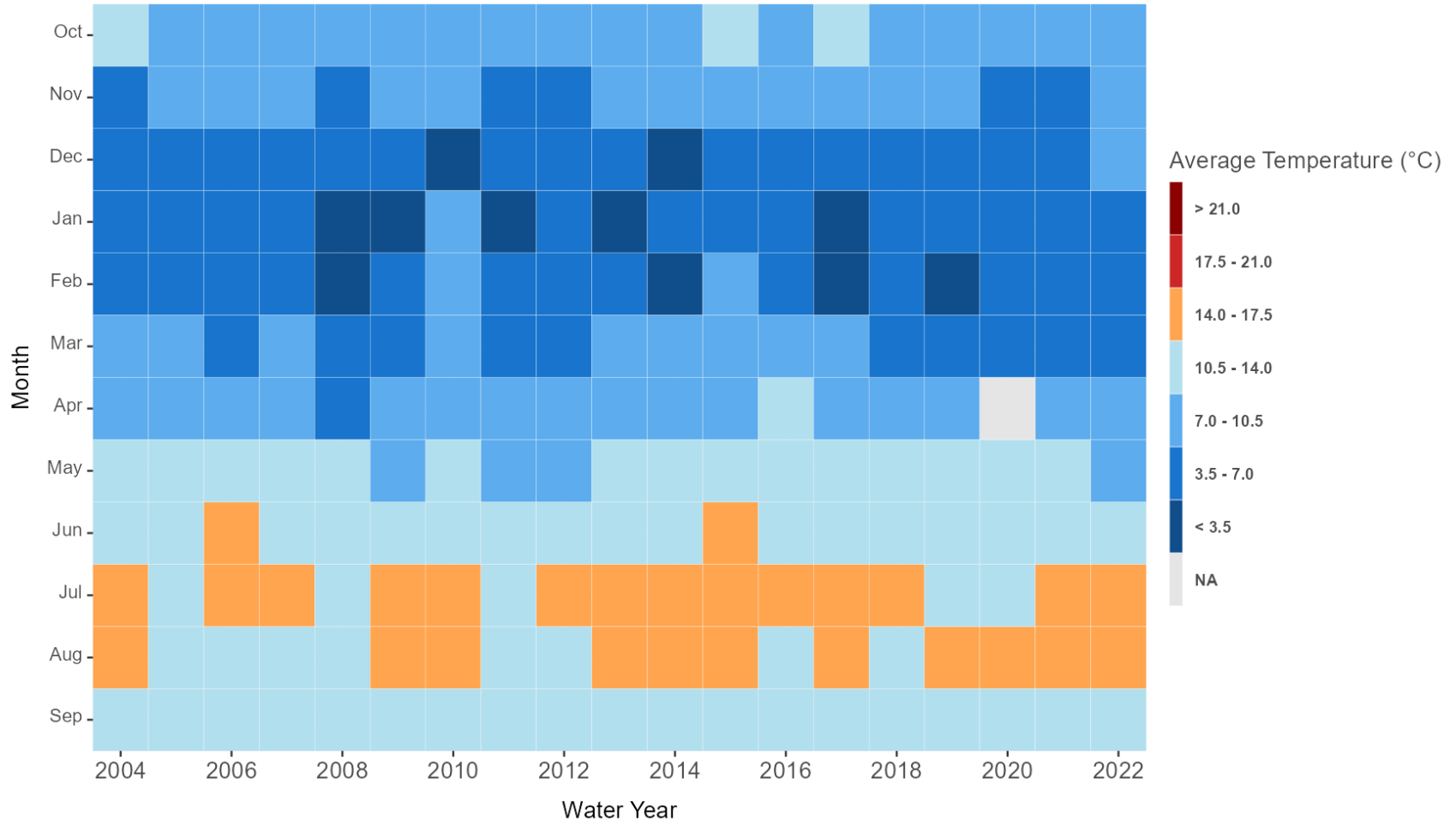
Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	—	↓	—	—	—	↓	↑	—
■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■

Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
15	54	39	66	76	77	62	81	89	71	52	89	81	65	72	75	70

# Monthly Average Temperature

## 4 - Thomas Creek at F&S Grade Road

Samish Watershed  
Upstream Ag



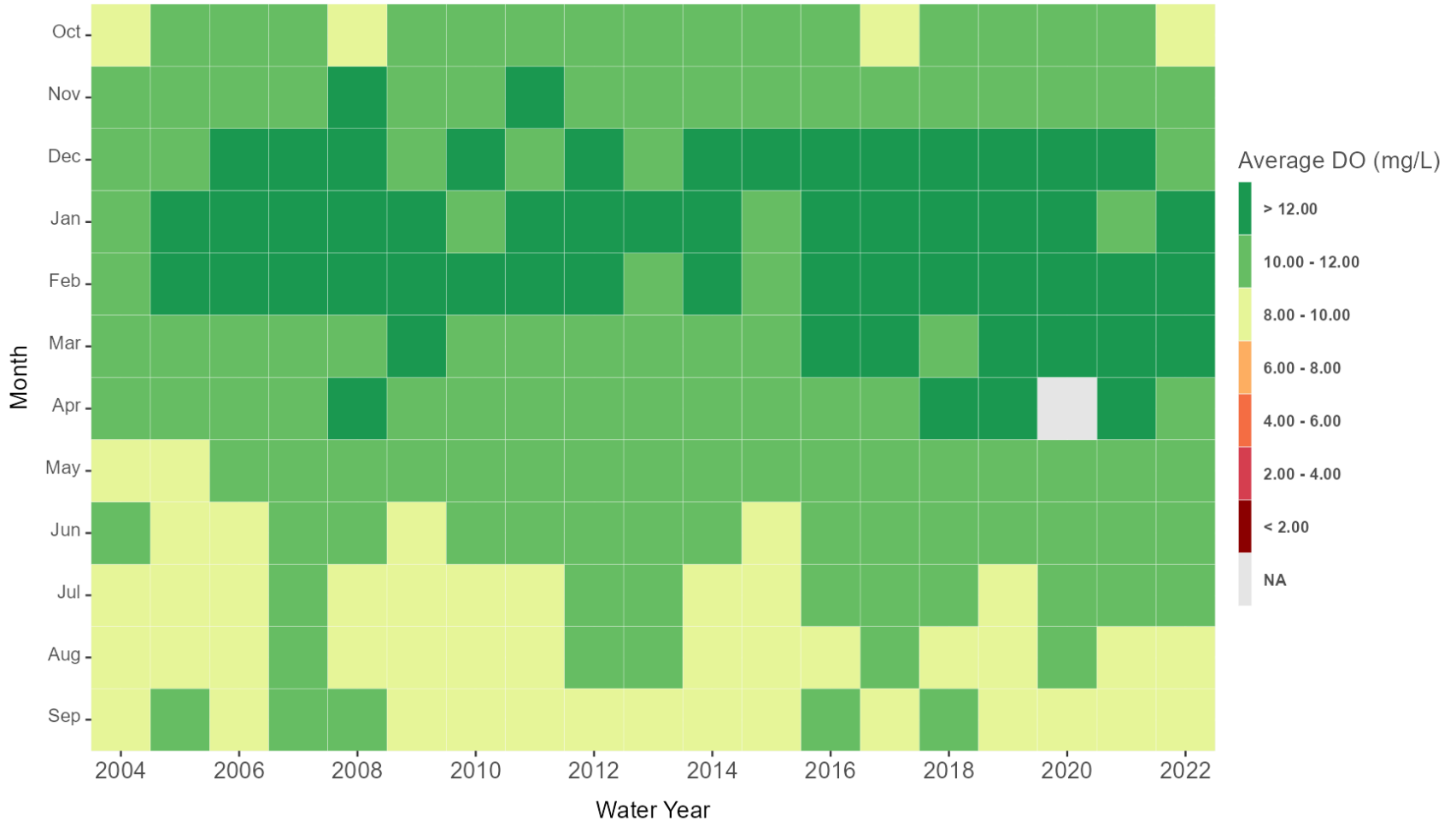
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 4 - Thomas Creek at F&S Grade Road

Samish Watershed  
Upstream Ag

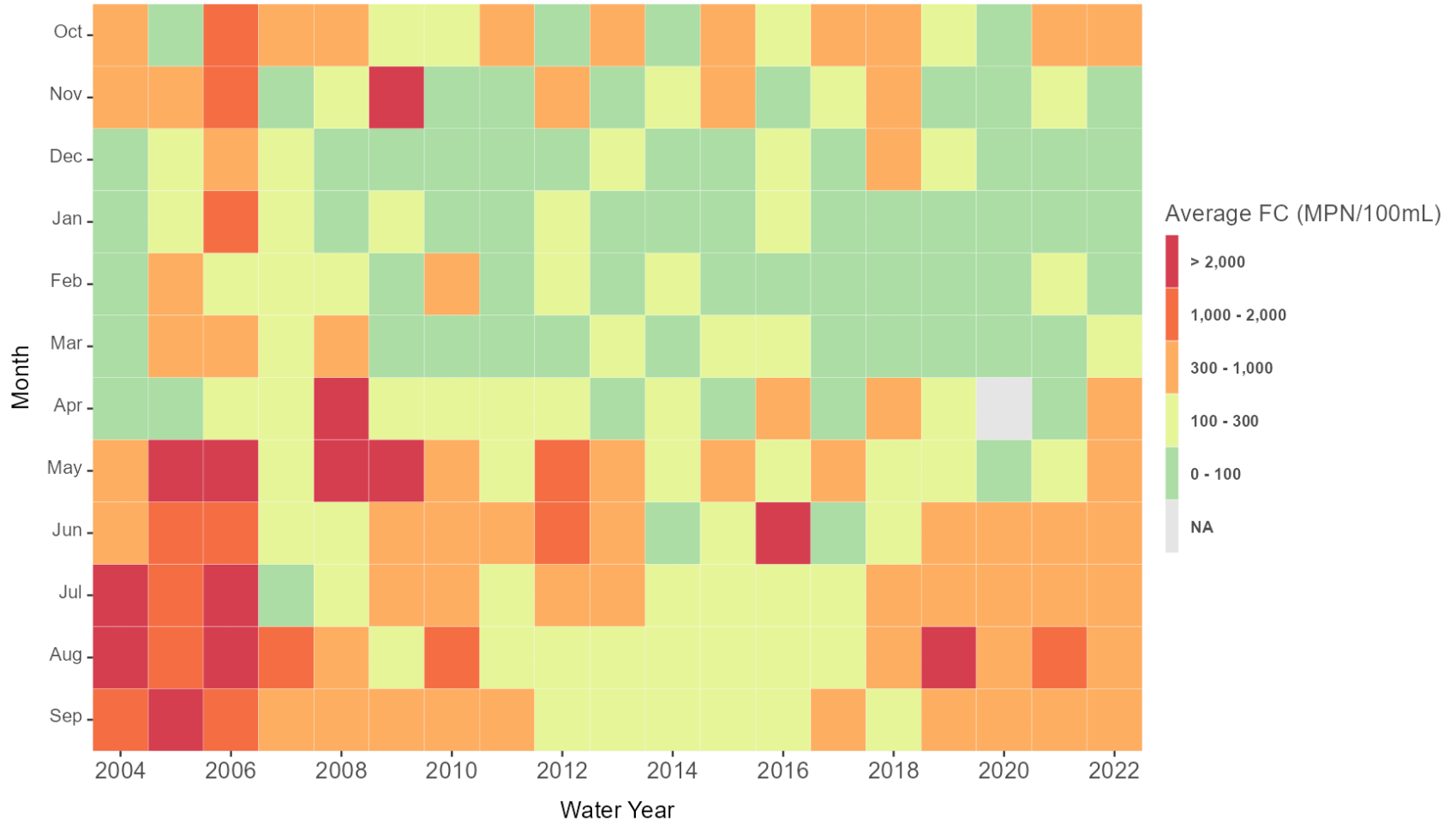


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 4 - Thomas Creek at F&S Grade Road

Samish Watershed  
Upstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 6 – Friday Creek at Prairie Road

Samish Watershed  
Reference – Rural Preserve

Site 6 is Friday Creek and sits just prior to the creek joining the Samish River. This creek has a high flow discharge and can seasonally contribute around 40% or more of the total volume of the Samish River. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the last 19 and 10 years. Temperature is significantly higher now than it was 19 years ago. WQI is consistently in the category of least concern.

Site 6 regularly meets state standards for DO for most of the year. Temperature exceeds state standards during the hottest time of the year. The bacterial levels for the 2022 water year easily met state standards.

Site 6 is tied for 17<sup>th</sup> out of 36 sites for number of significant trends, with 11, and is tied for 20<sup>th</sup> out of 36 sites for positive trends, at 55%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	▬	↑	▬	▬	▬	▬	▬
□□	□□□	□□	□□	□□	□□	□□	□□□	□□□

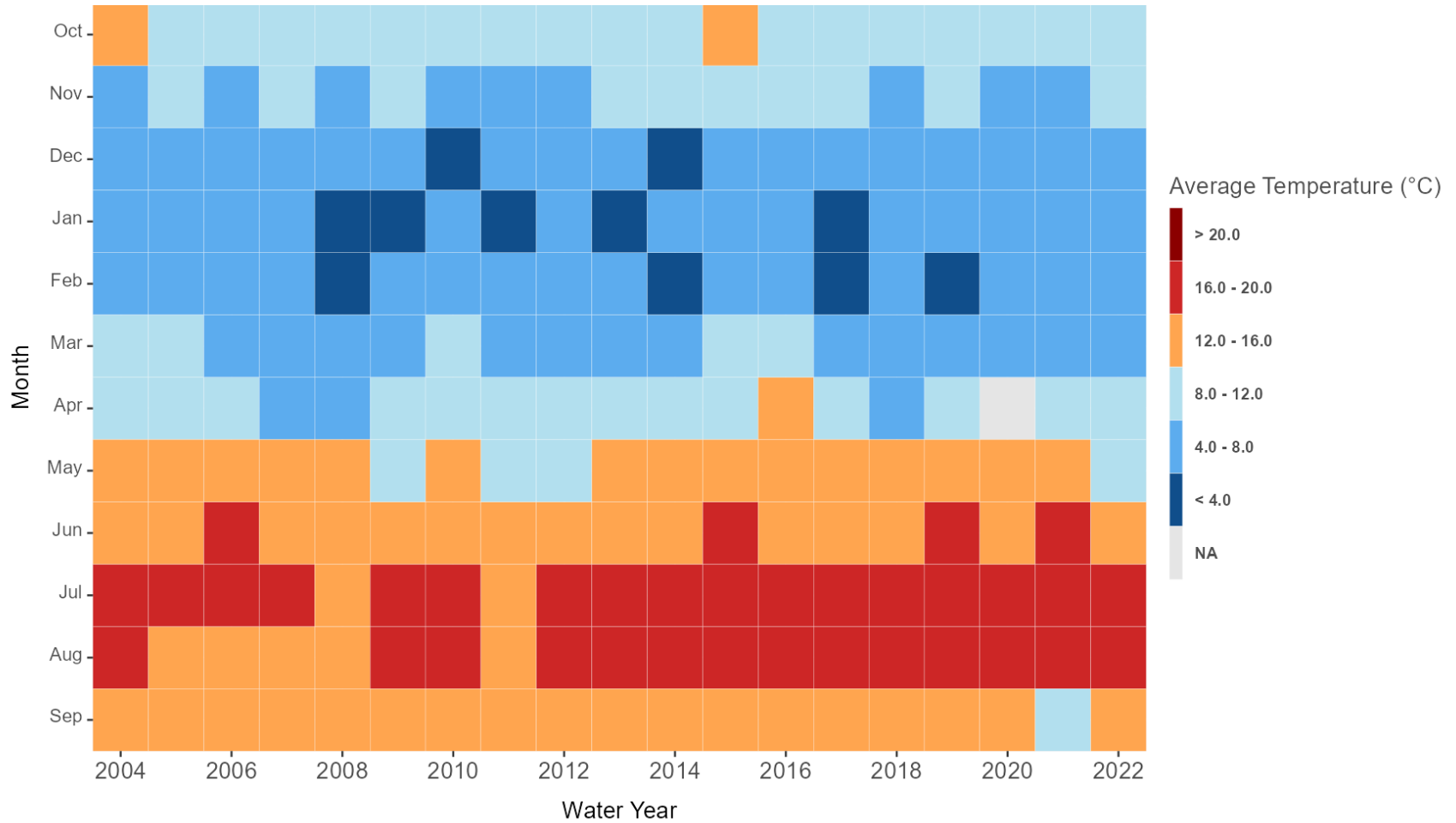


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
45	81	65	86	90	94	81	88	88	90	85	86	91	87	87	89	90

# Monthly Average Temperature

## 6 - Friday Creek at Prairie Road

Samish Watershed  
Reference – Rural Preserve

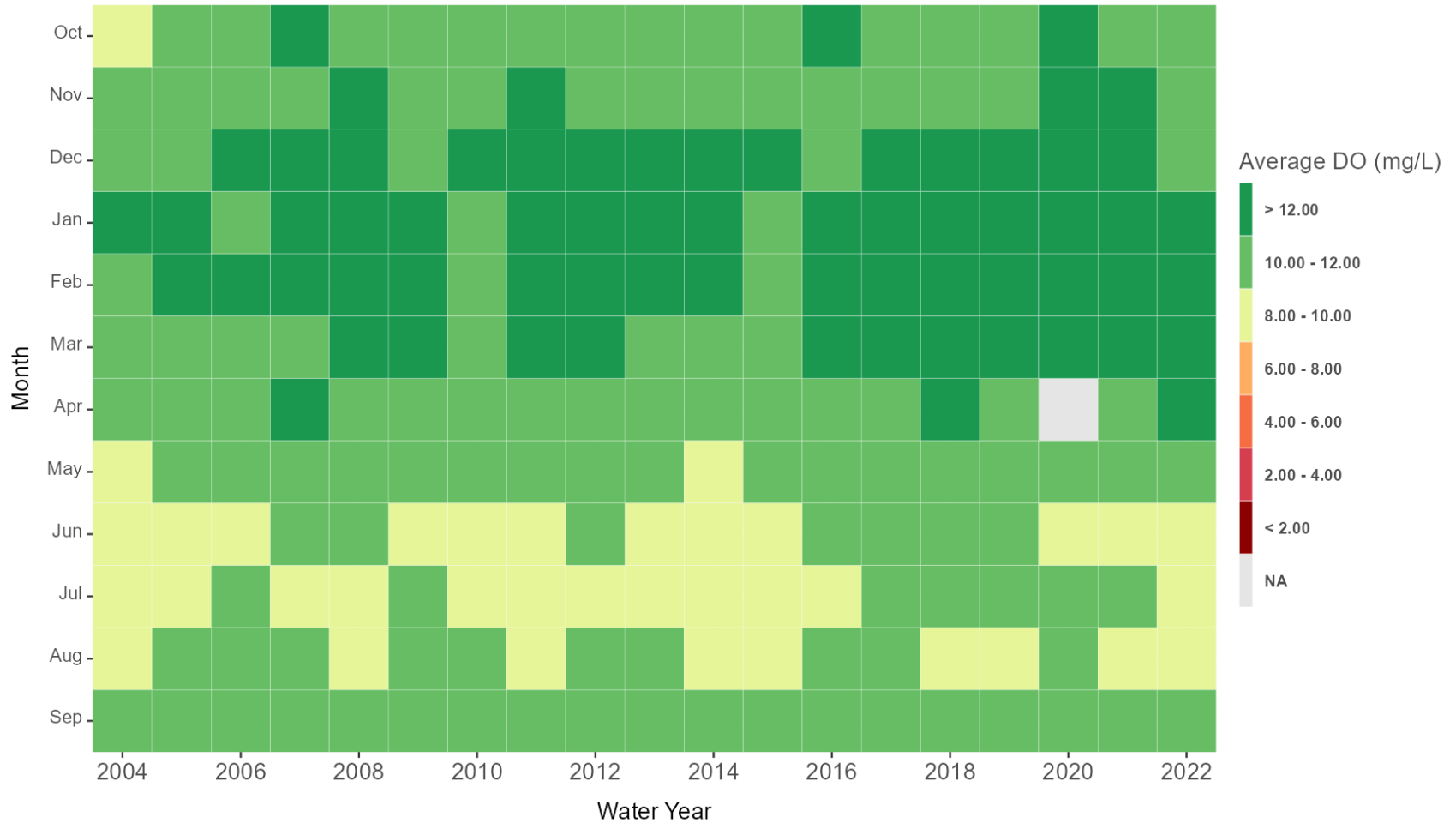


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 6 - Friday Creek at Prairie Road

Samish Watershed  
Reference – Rural Preserve

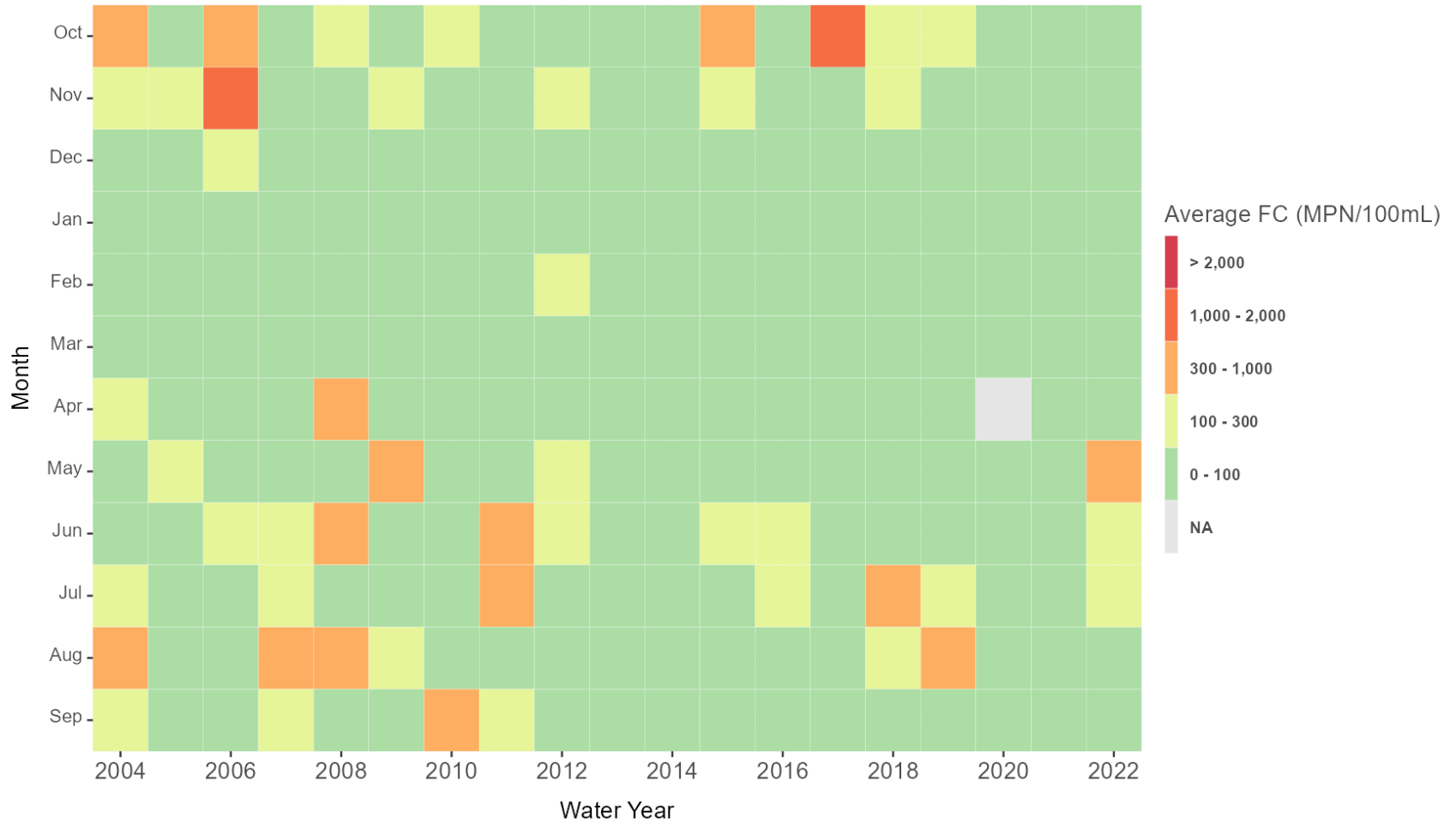


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 6 - Friday Creek at Prairie Road

Samish Watershed  
Reference – Rural Preserve



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 8 - Swede Creek at Grip Road

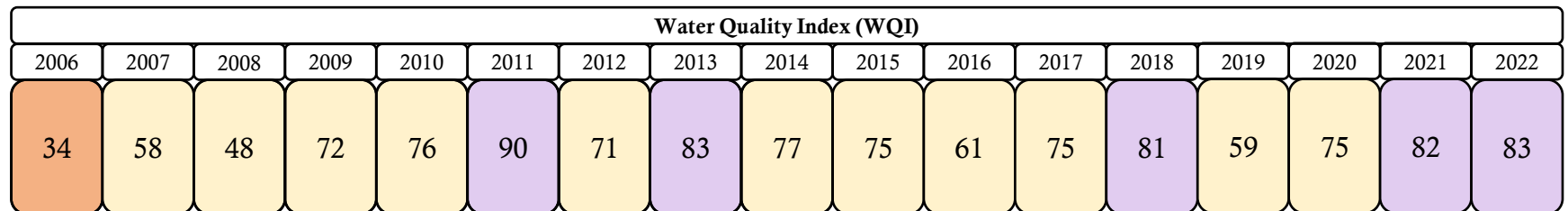
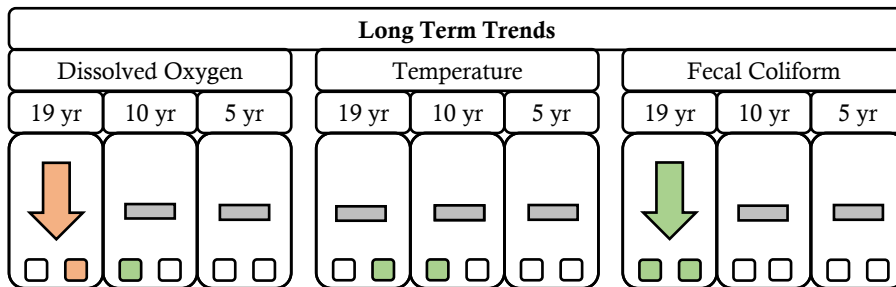
Samish Watershed  
Downstream Ag

Site 8 is Swede Creek and sits just prior to the creek joining the Samish River. Swede Creek has been a focus of pollution monitoring efforts in the Samish basin, with rural residential and agricultural sources in the watershed. The site is designated as core salmonid habitat.

Dissolved oxygen has significantly declined as compared to 19 years ago but has improved over the last 10. Fecal coliform counts are lower than they were 19 years ago. WQI scores are generally in the higher-scoring end of the moderate concern category, and sometimes score as least concern.

Site 8 fails to meet state DO standards and occasionally does not meet temperature standards in the warmer months of year. This site easily passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. EC levels met both the geometric mean and 90th percentile standards.

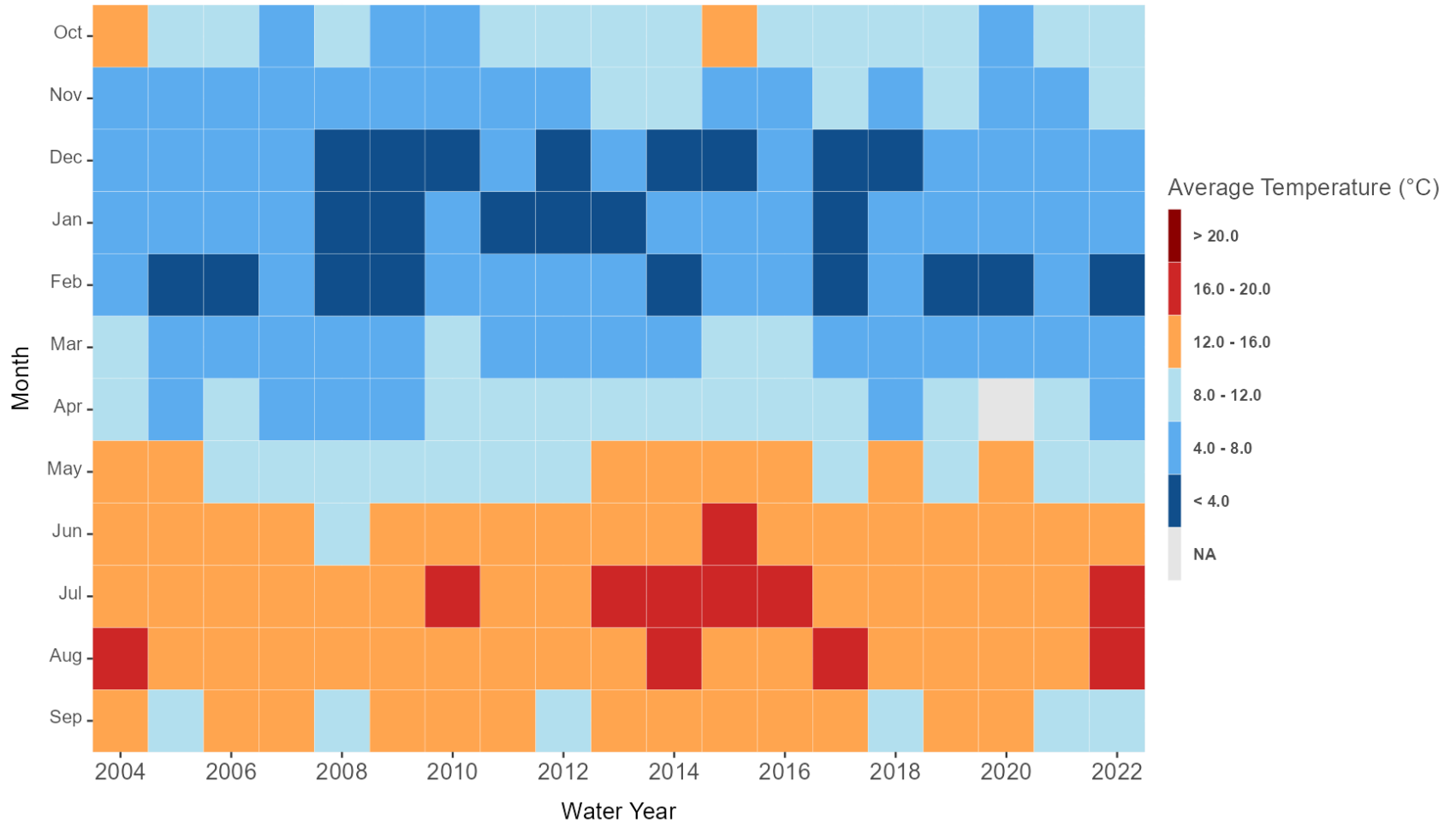
Site 8 is tied for 10<sup>th</sup> out of 36 sites for number of significant trends, with 8, and tied for 17<sup>th</sup> out of 36 sites for positive trends, at 62%.



# Monthly Average Temperature

## 8 – Swede Creek at Grip Road

Samish Watershed  
Downstream Ag



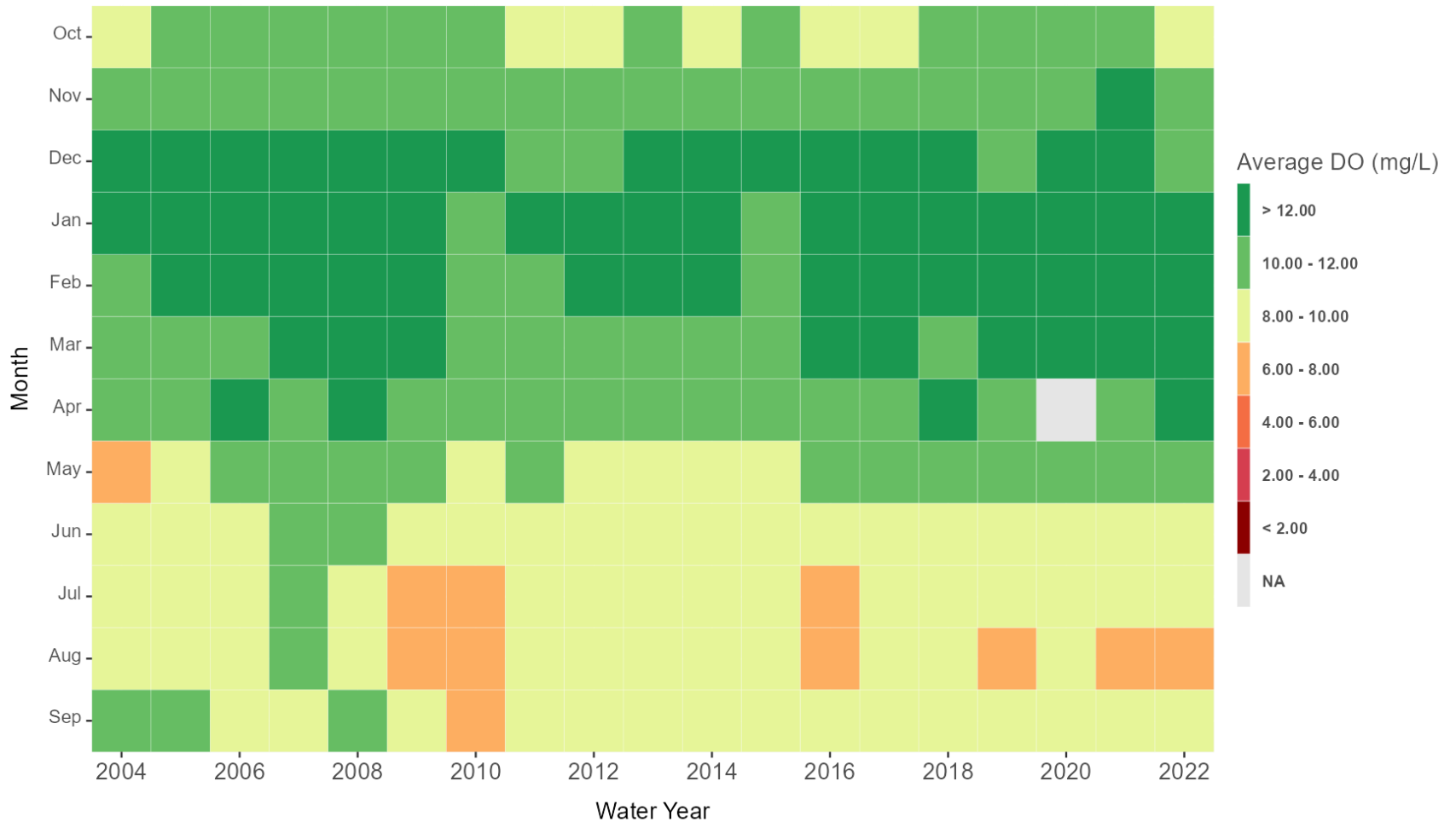
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 8 – Swede Creek at Grip Road

Samish Watershed  
Downstream Ag

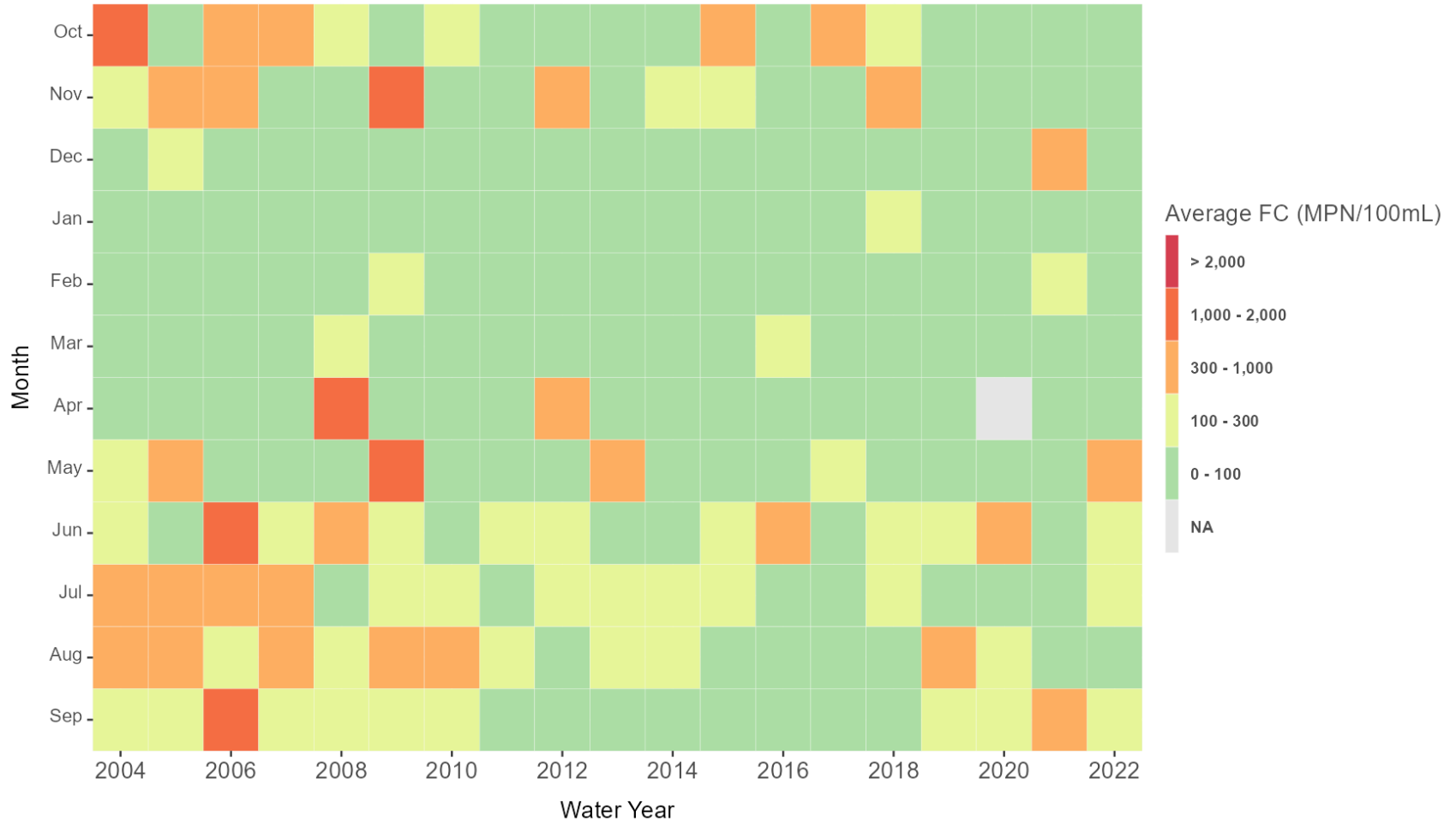


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 8 – Swede Creek at Grip Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 11 – Samish River at Highway 9

Samish Watershed  
Upstream Ag

Site 11 is the Samish River, upstream of all other Samish River sampling sites. This site shows the condition of the Samish River prior to all monitored tributaries. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the 19- and 10-year time periods. WQI scores are generally in the higher-scoring end of the moderate concern category, and often score as least concern.

Site 11 regularly fails to meet state standards for DO, but easily passes state standards for temperature, year-round. The bacterial levels for the 2022 water year easily met state standards.

Site 11 is tied for 17th out of 36 sites for number of significant trends, with 11, and is 4th out of 36 sites for positive trends, with 91%.



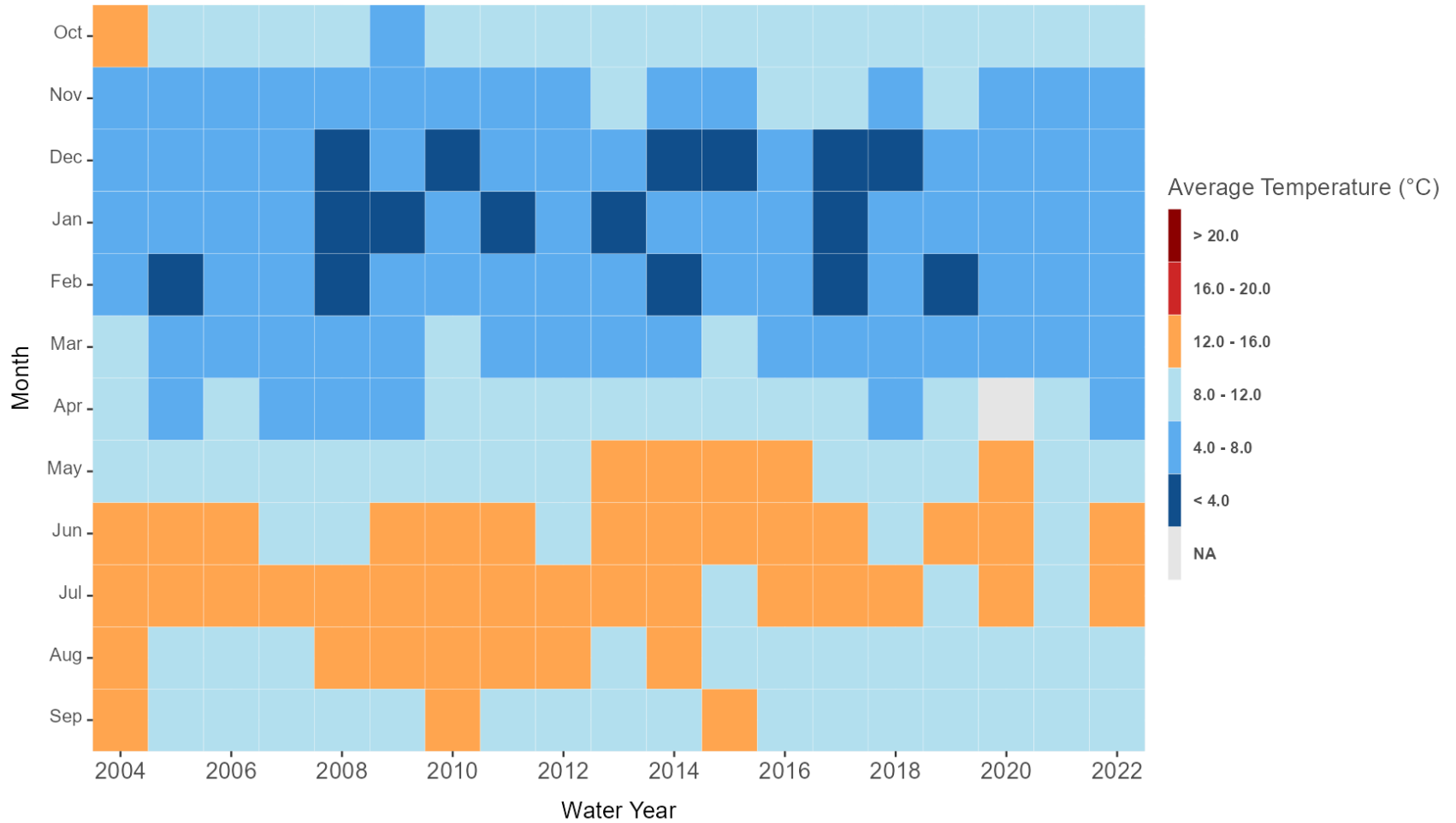
Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	—	—	—	↑	—
2/2	2/2	0/2	0/2	0/2	0/2	0/2	1/2	0/2

Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
57	85	68	81	78	86	65	72	68	66	80	82	87	81	82	82	74

# Monthly Average Temperature

## 11 – Samish River at Highway 9

Samish Watershed  
Upstream Ag

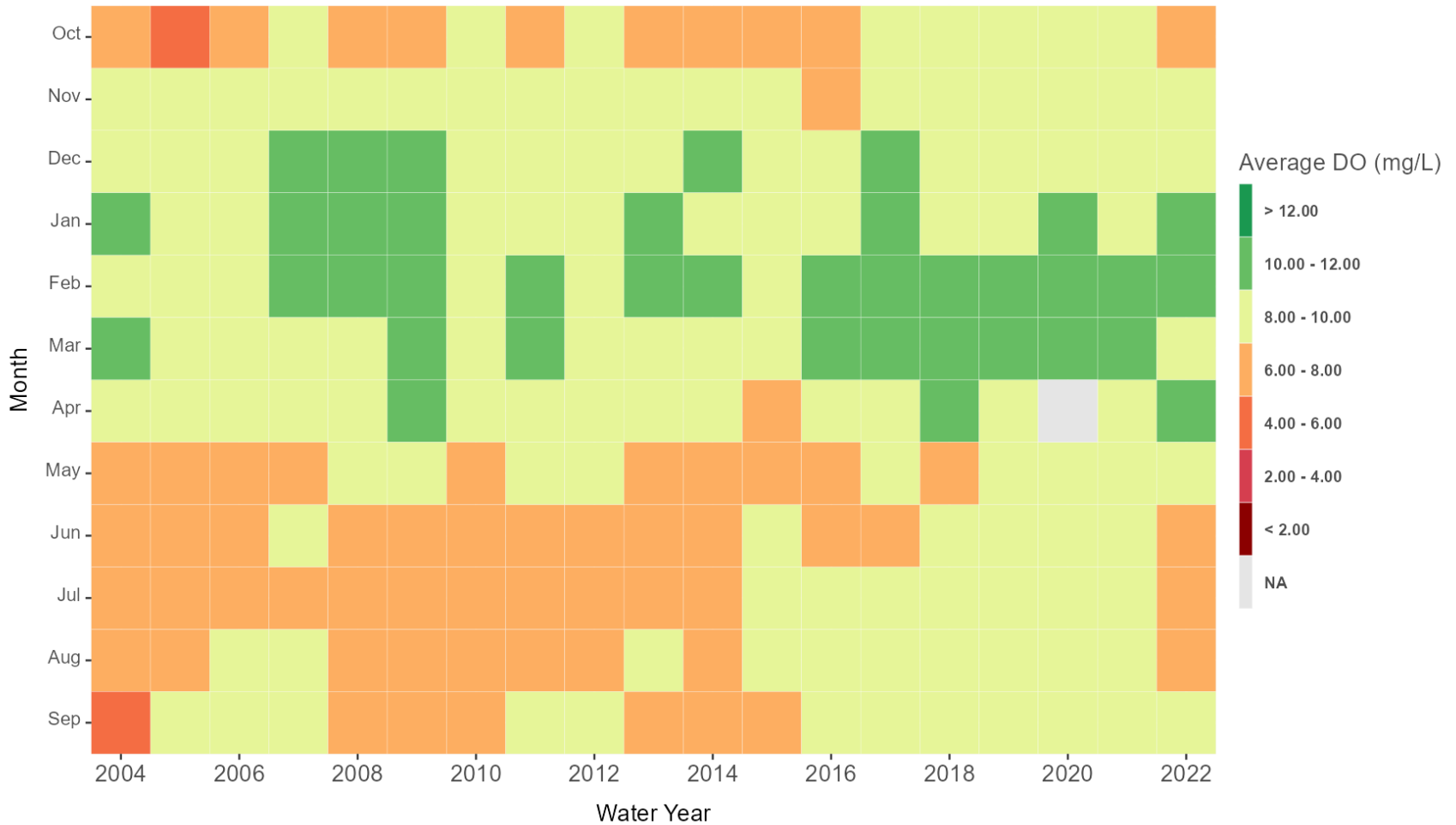


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 11 – Samish River at Highway 9

Samish Watershed  
Upstream Ag

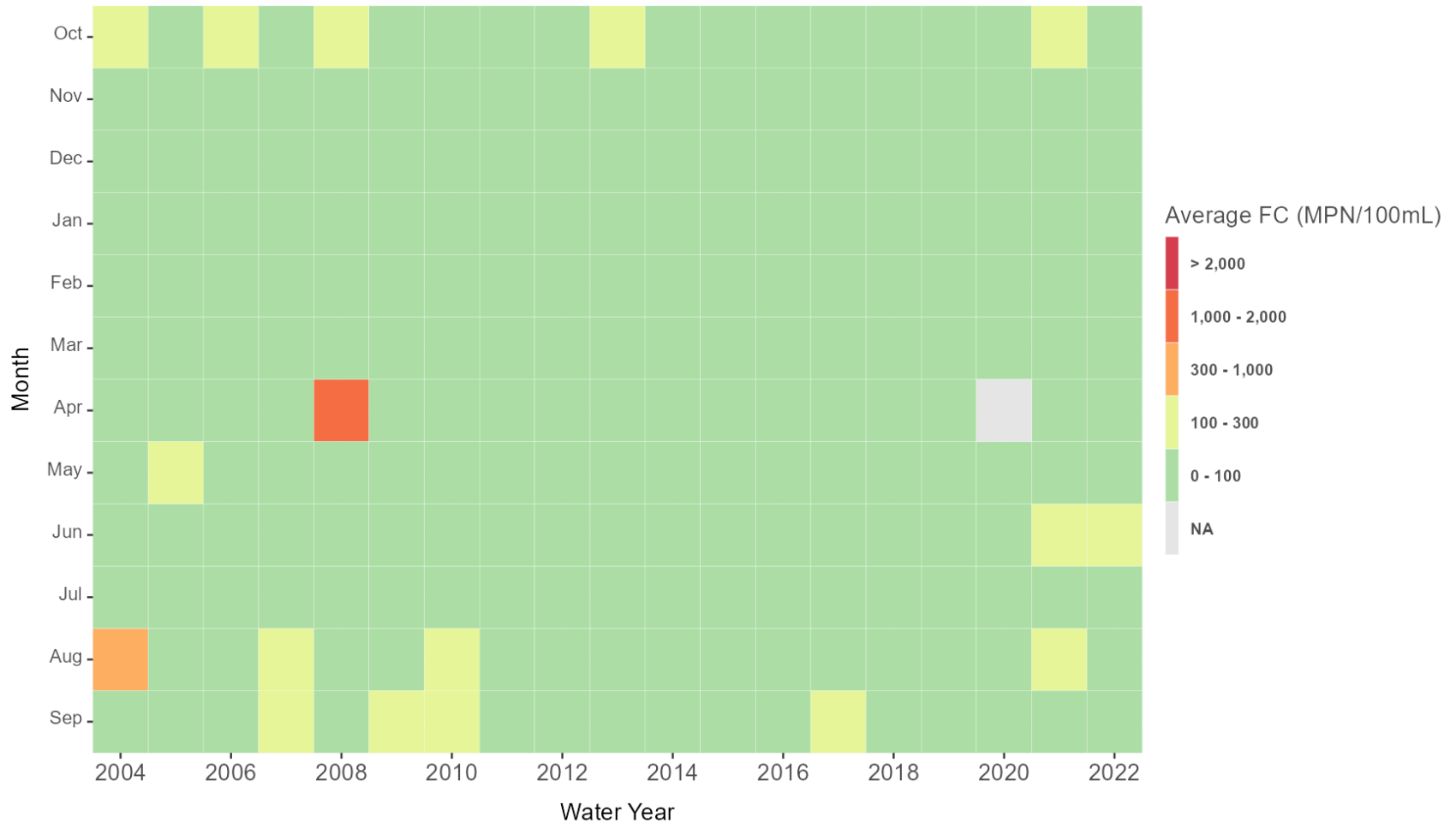


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 11 – Samish River at Highway 9

Samish Watershed  
Upstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 32 – Samish River at Thomas Road

Samish Watershed  
Downstream Ag

Site 32 is the Samish River and is the last site that is sampled by this program prior to the river terminating in Samish Bay. The Samish River’s watershed contains expansive agricultural activity. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen has increased over the last 19 and ten years. Fecal coliform counts are significantly higher than they were 10 years ago. WQI Scores have improved over the length of this program and are now consistently in the category of least concern.

Site 32 occasionally fails to meet state standards for DO and typically exceeds state standards for water temperature during the warmer months of the year. The bacterial levels for the 2022 water year easily met state standards.

Site 32 is 6th out of 36 sites for number of significant trends, with 15, and is tied for 6<sup>th</sup> out of 36 sites for positive trends, with 80%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	—	—	—	↑	—

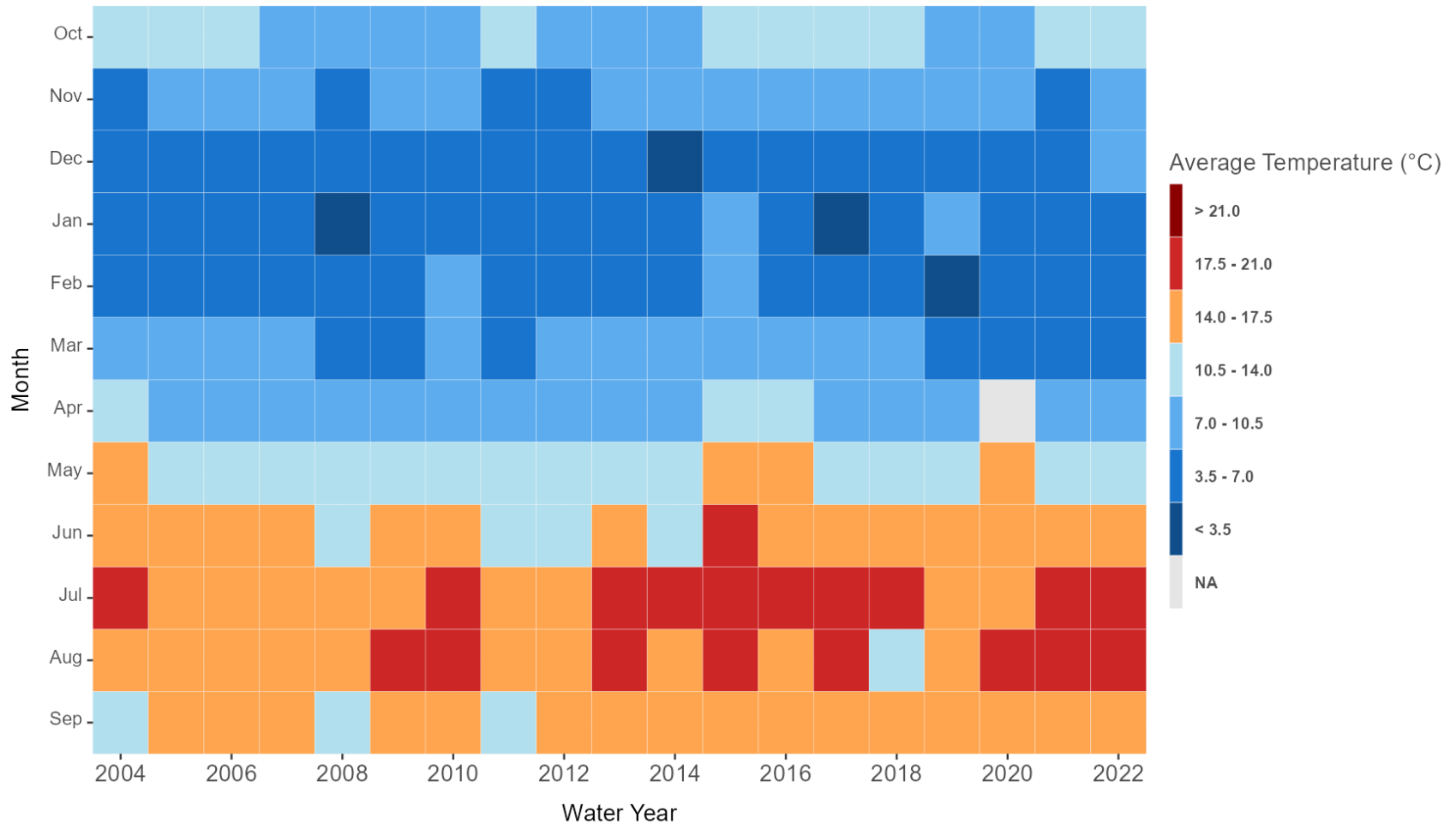


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
34	47	43	75	83	92	70	89	88	83	80	84	93	91	83	86	88

# Monthly Average Temperature

## 32 – Samish River at Thomas Road

Samish Watershed  
Downstream Ag



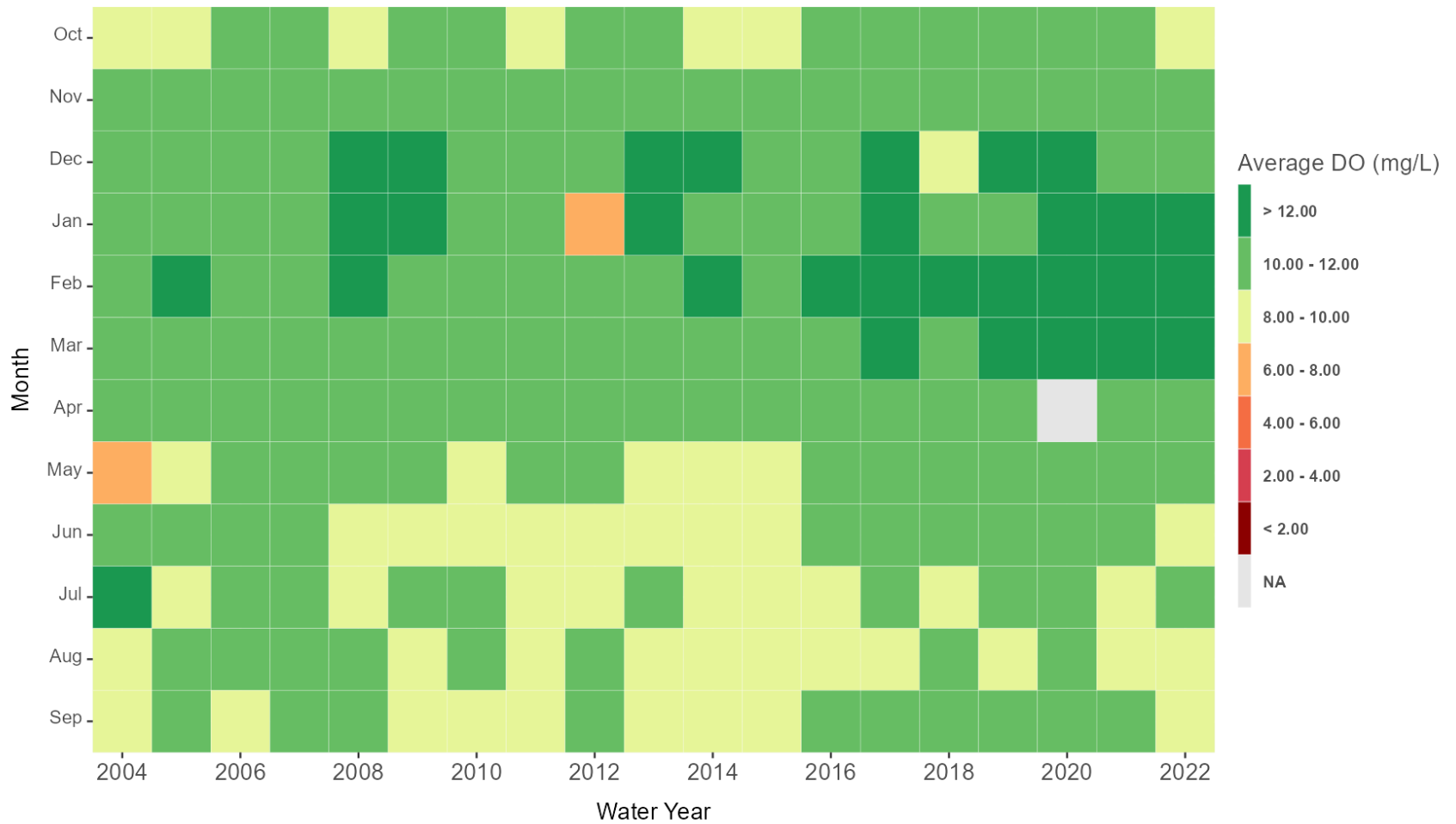
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 32 – Samish River at Thomas Road

Samish Watershed  
Downstream Ag

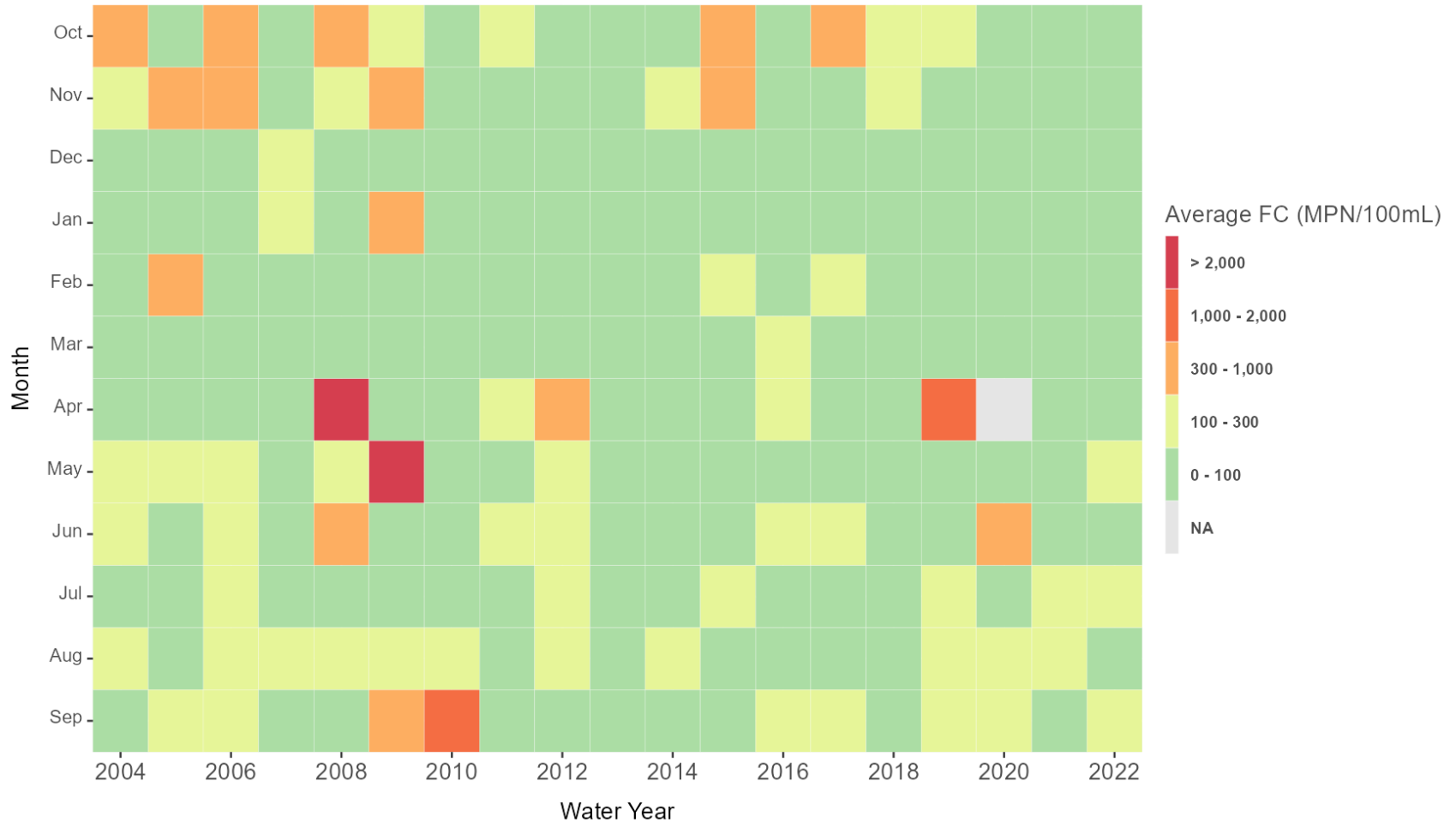


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 32 – Samish River at Thomas Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 33 – Alice Bay Pump Station at Samish Island Road

Samish Watershed  
Downstream Ag

Site 33 is the pump station for the agricultural drainage ditches at Alice Bay, just to the west of the mouth of the Samish River. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen and fecal coliform counts at this site have declined over the last 5 years. WQI scores are consistently in the category of highest concern.

Site 33 regularly fails to meet state standards for DO and water temperature. During the periods of high DO in the summer, there is likely algae present. This site easily passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. EC levels met both the geometric mean and 90th percentile standards.

Site 33 is tied for 7<sup>th</sup> out of 36 sites for number of significant trends, with 14, and is 26th out of 36 sites for positive trends, with 36%.



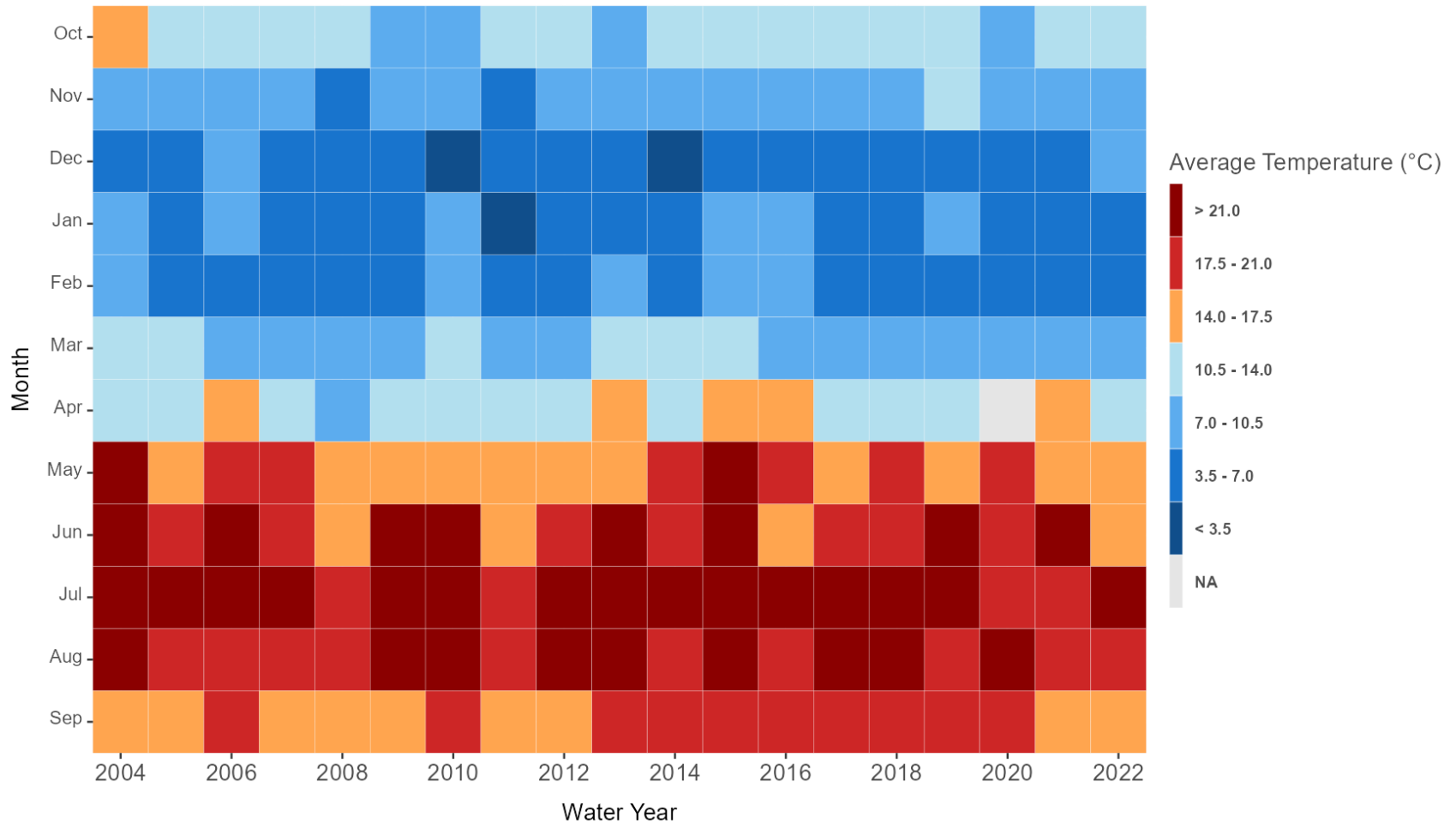
Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr

Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2	5	6	15	12	33	37	24	17	24	23	35	42	16	26	34	16

# Monthly Average Temperature

## 33 – Alice Bay Pump Station at Samish Island Road

Samish Watershed  
Downstream Ag

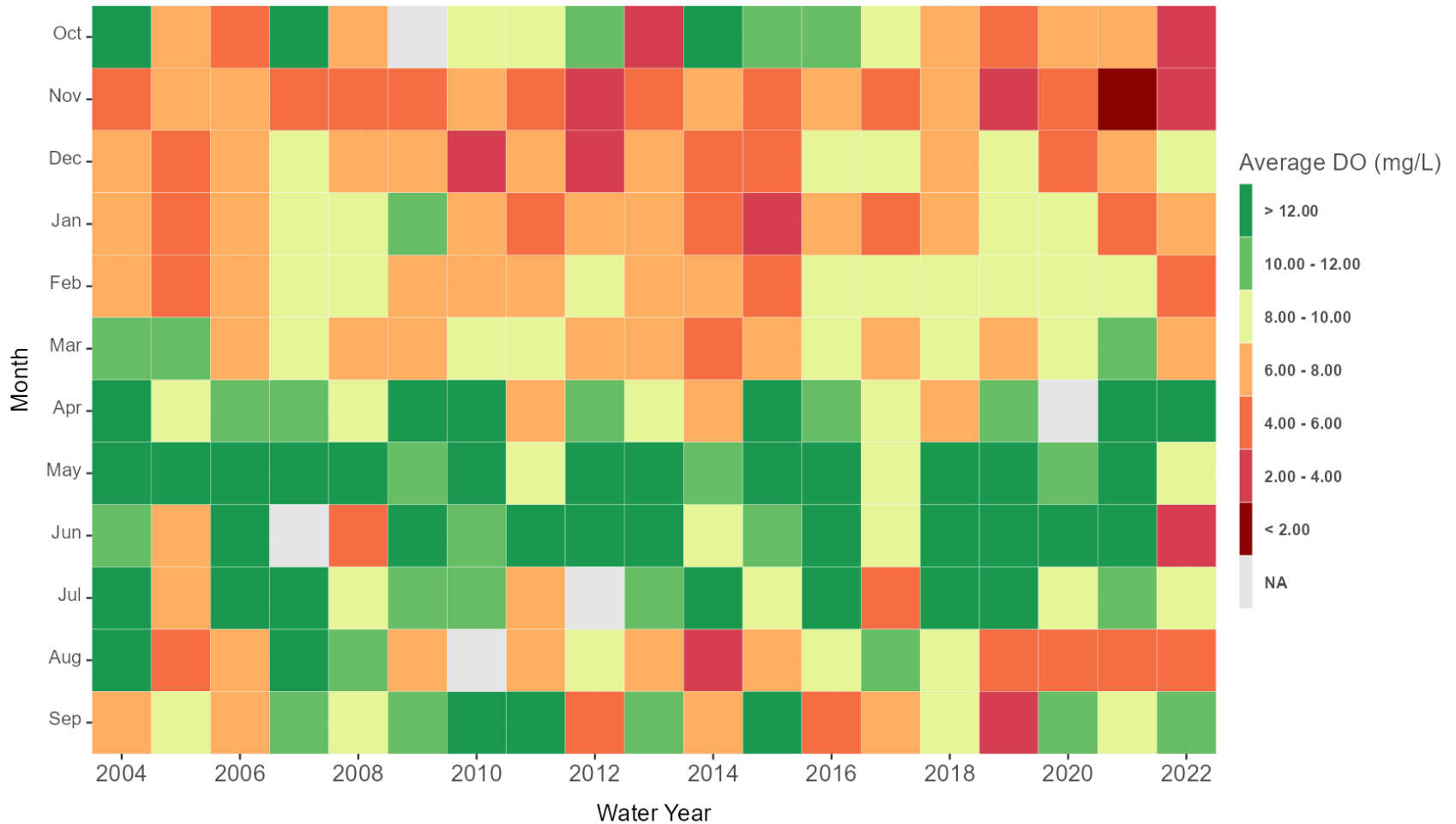


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 33 – Alice Bay Pump Station at Samish Island Road

Samish Watershed  
Downstream Ag

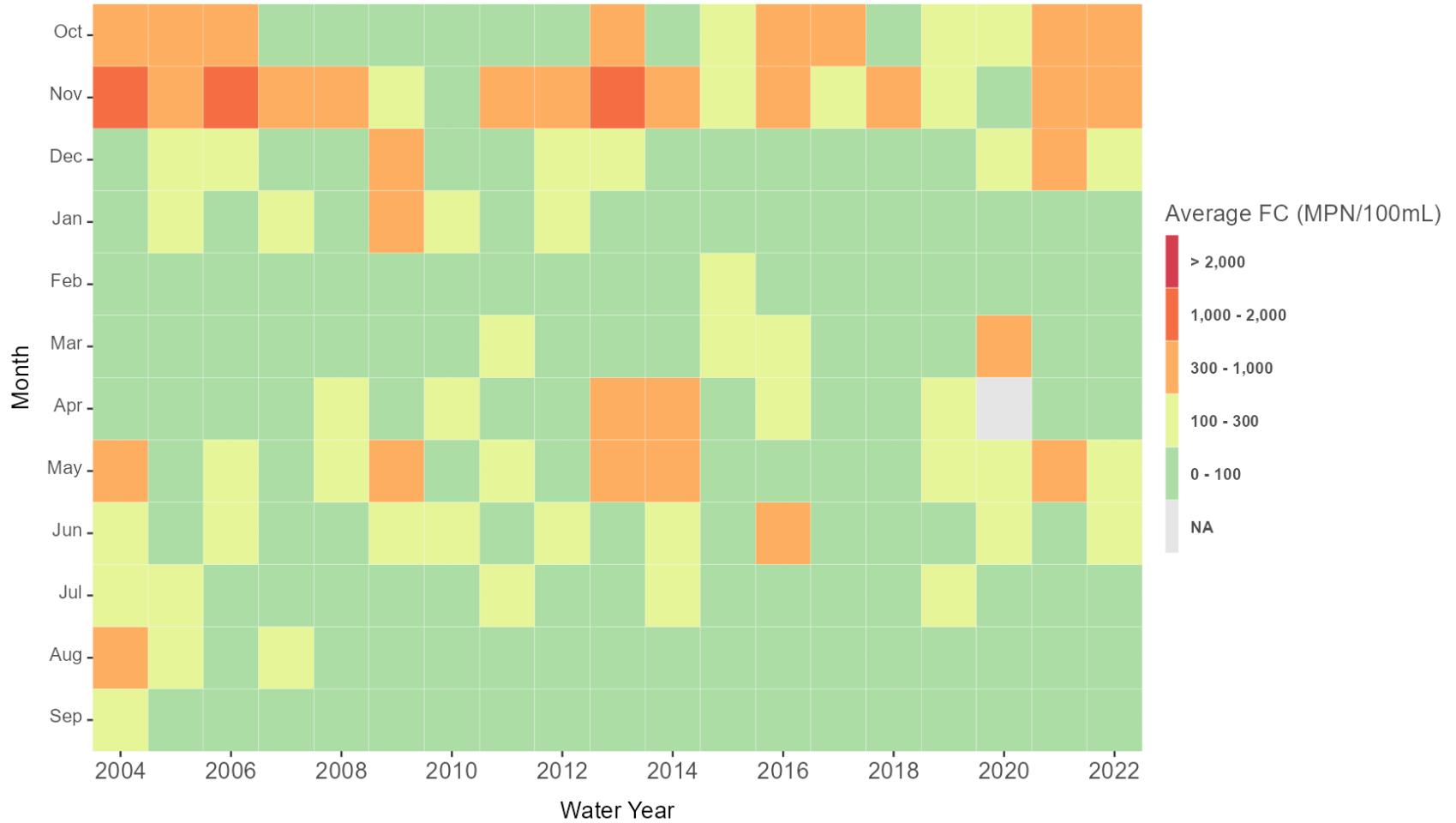


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 33 – Alice Bay Pump Station at Samish Island Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 36 – Edison Slough at Edison Elementary

Samish Watershed  
Downstream Ag

Site 36 is Edison Slough, just prior to the town of Edison and its terminal discharge into Samish Bay. Sites like this are characterized by being stagnant or slow-moving, and are heavily tidally-influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Fecal coliform is significantly higher than it was 19 years ago. No significant monthly trends for DO or temperature were observed across any of the time periods analyzed in this report. WQI scores are consistently in the category of highest concern.

Site 36 regularly fails to meet state standards for DO and water temperature. During the periods of high DO in the summer, there is likely algae present. This site failed the FC state standards for both the geometric mean and 90<sup>th</sup> percentile requirements. The EC standard for geometric mean was met but did not meet the 90<sup>th</sup> percentile requirements.

Site 36 is tied for 23<sup>rd</sup> out of 36 sites for number of significant trends, with 10, and is tied for 24<sup>th</sup> out of 36 sites for positive trends, with 40%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
█	█	█	█	█	█	↑	█	█
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

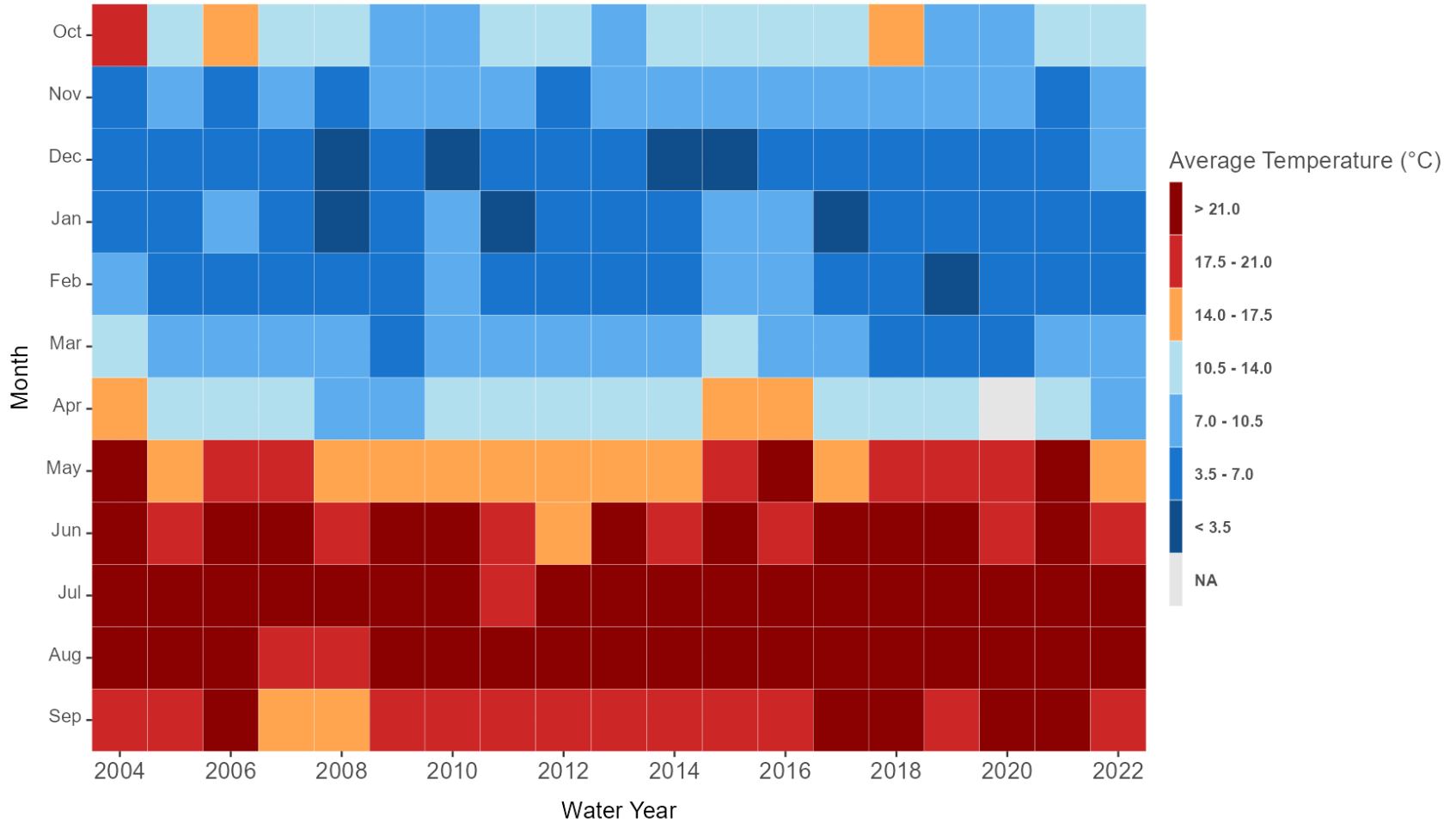


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	10	6	30	25	34	21	37	37	23	34	38	38	45	17	50	58

# Monthly Average Temperature

## 36 – Edison Slough at Edison Elementary

Samish Watershed  
Downstream Ag



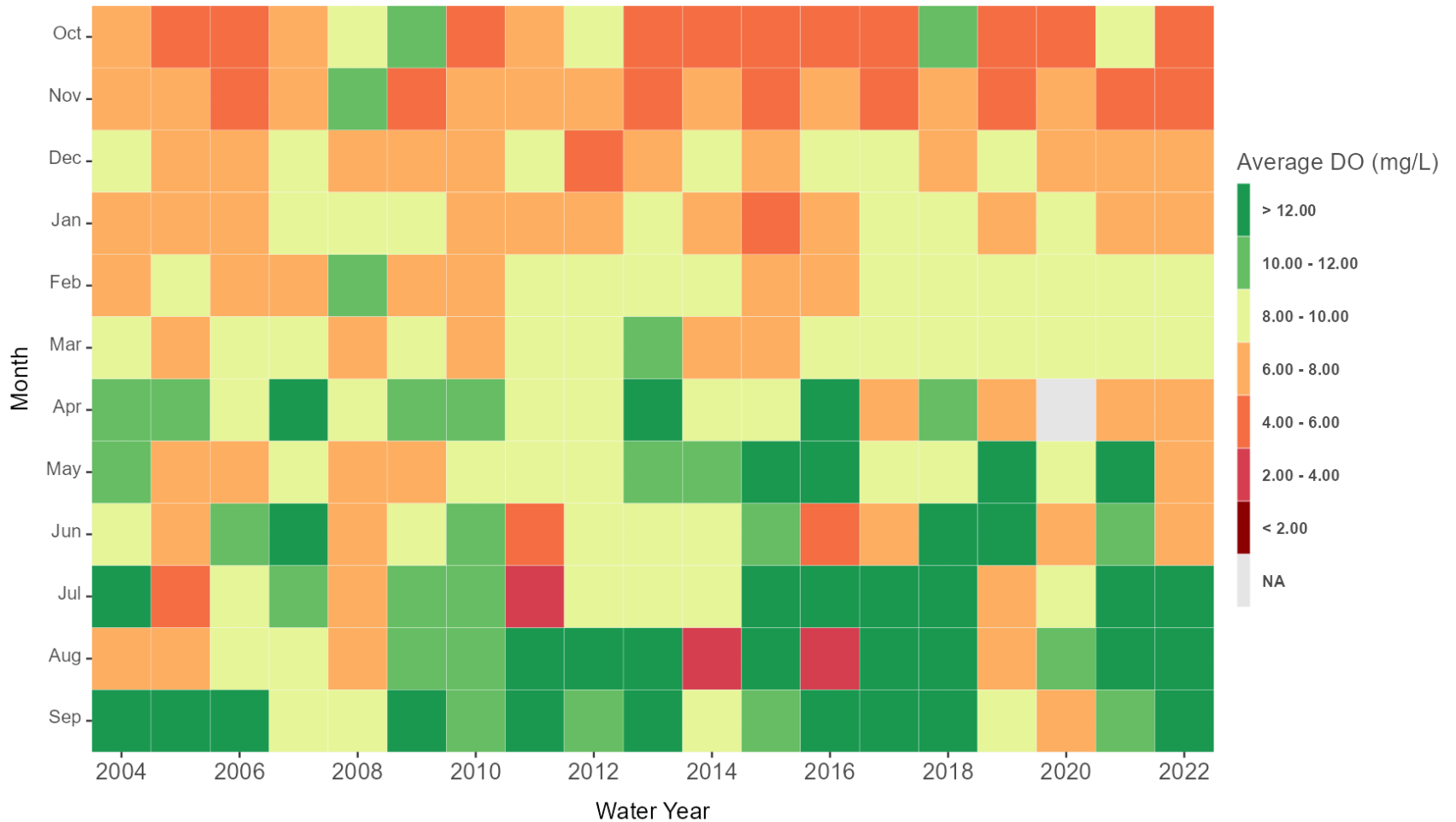
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 36 – Edison Slough at Edison Elementary

Samish Watershed  
Downstream Ag

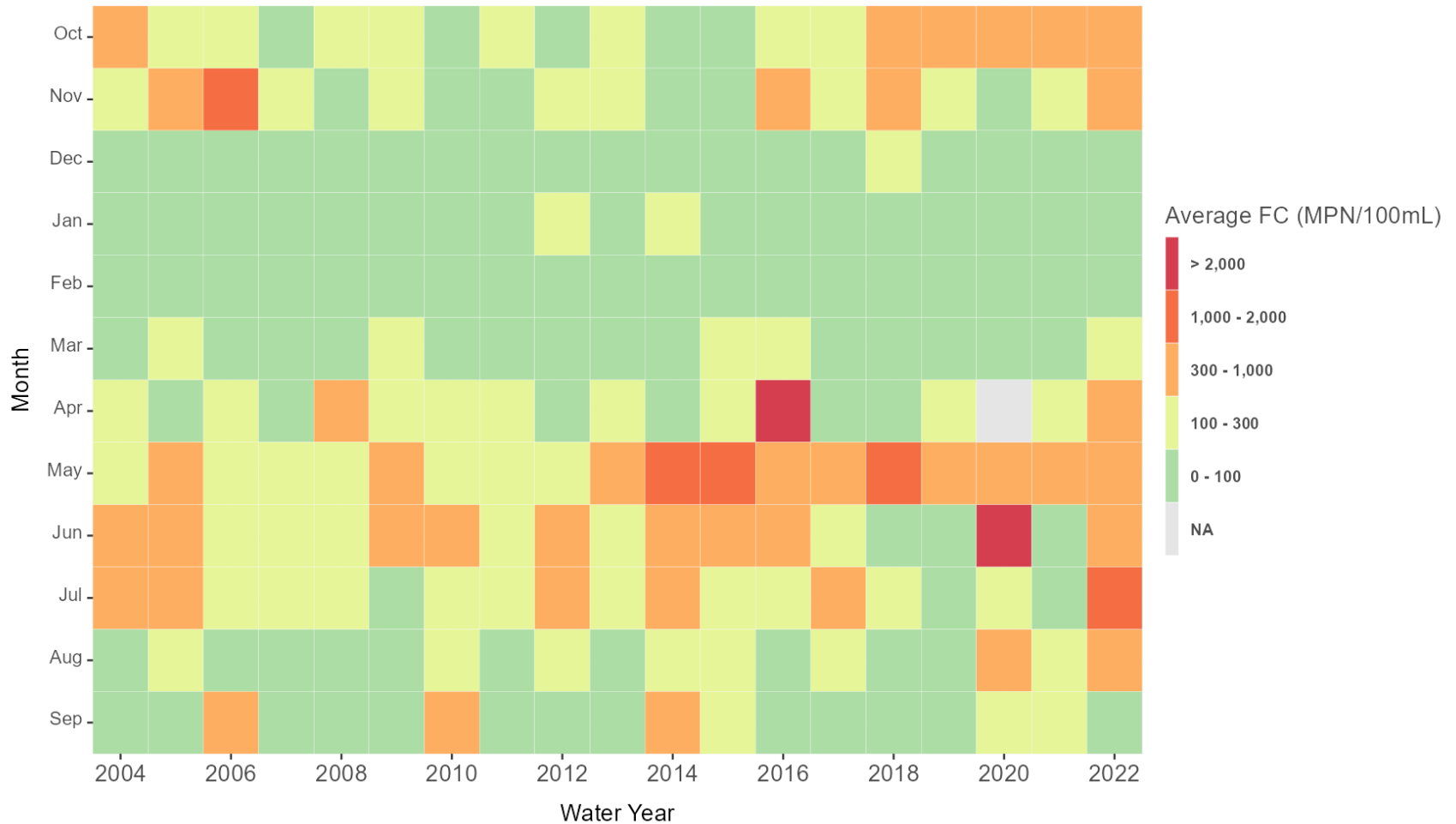


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 36 – Edison Slough at Edison Elementary

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 37 – South Edison Drainage Pump Station at Farm to Market Road

Samish Watershed  
Downstream Ag

Site 37 is the south pump station of agricultural drainages in the town of Edison on Samish Bay. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Water temperatures have significantly increased over the past 5 years. Fecal coliform counts are significantly higher now than they were 19 and 5 years ago. WQI scores are consistently in the category of highest concern and are often in the single digits.

Site 37 regularly fails to meet state standards for DO and water temperature. During the periods of high DO in the summer, there is likely algae present. This site failed both the FC and EC state standards for both the geometric mean and 90th percentile requirements.

Site 37 is tied for 17th out of 36 sites for number of significant trends, with 11, and tied for 32<sup>nd</sup> out of 36 sites for positive trends, with 18%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
—	—	↓	↑	—	↑	↑	—	—
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

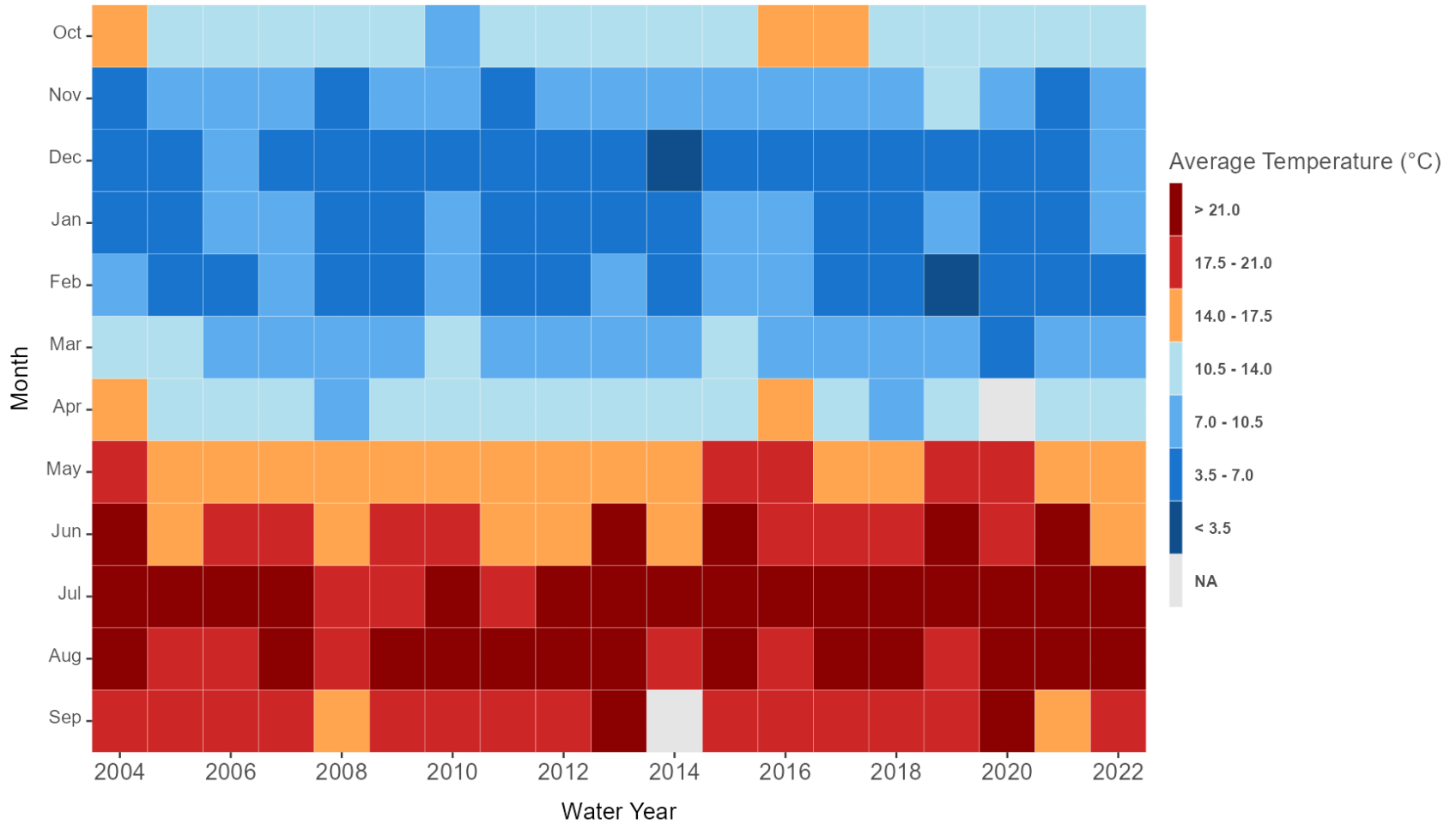


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	1	5	18	1	26	16	2	10	1	7	7	9	11	1	23	8

# Monthly Average Temperature

37 – South Edison Drainage Pump Station  
at Farm to Market Road

Samish Watershed  
Downstream Ag

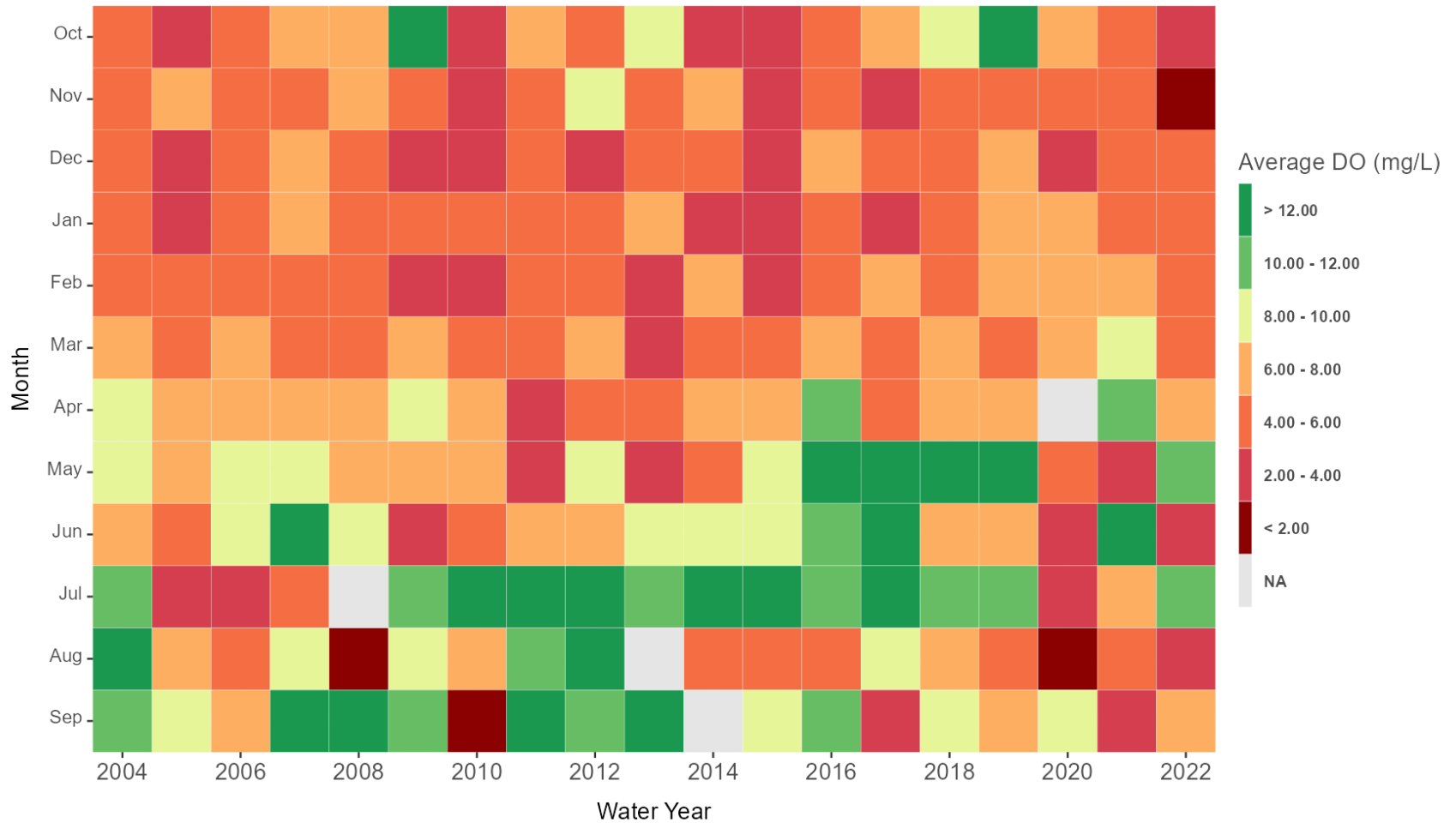


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 37 – South Edison Drainage Pump Station at Farm to Market Road

Samish Watershed  
Downstream Ag

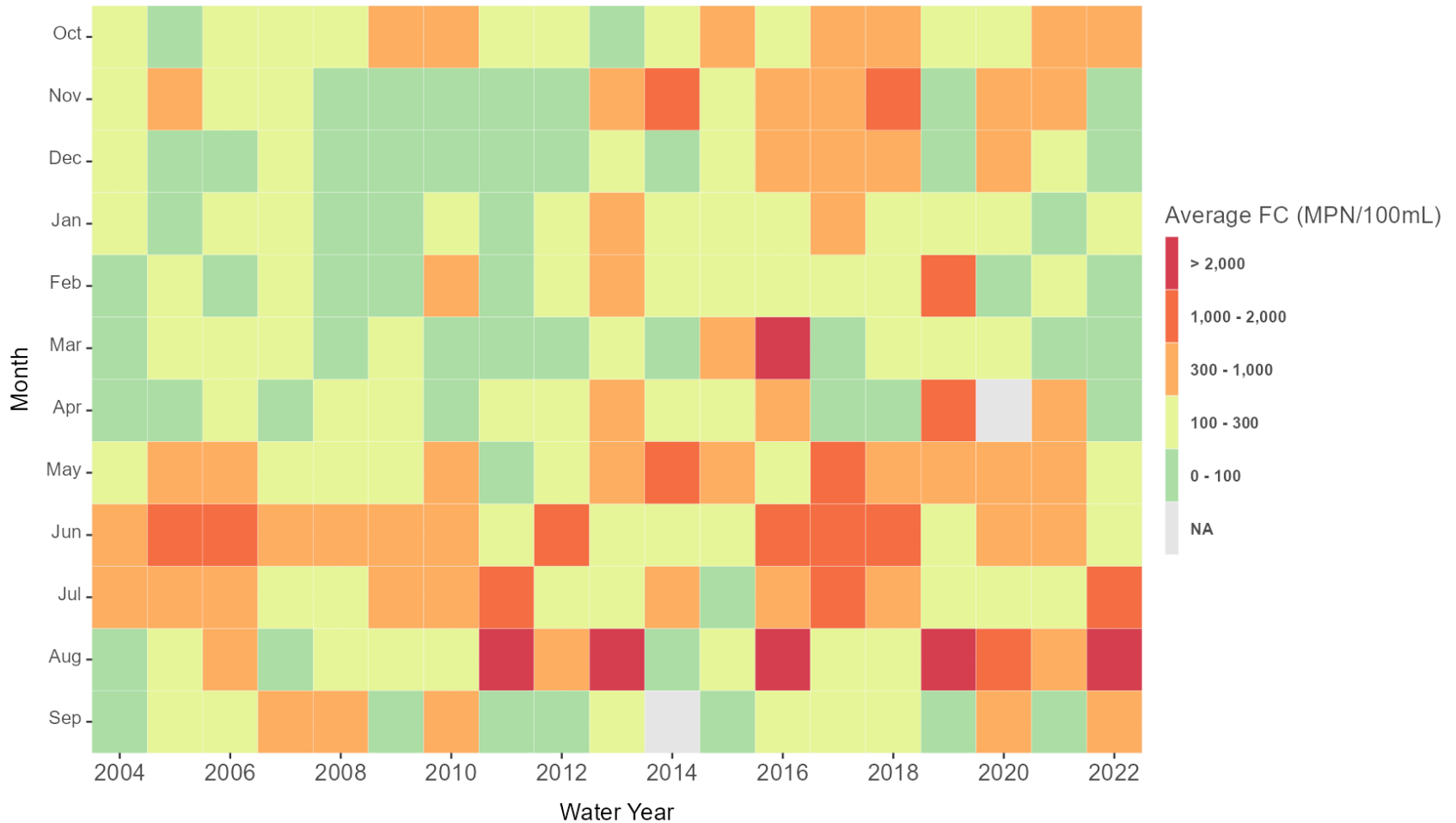


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

**37 – South Edison Drainage Pump Station**  
at Farm to Market Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 38 – North Edison Drainage Pump Station at Smith Road

Samish Watershed  
Downstream Ag

Site 38 is the north pump station of agricultural drainages in the town of Edison on Samish Bay. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen is significantly lower than it was at the beginning of the program, 10 years ago, and 5 years ago. WQI scores are consistently in the category of highest concern and are often in the single digits.

Site 38 regularly fails to meet state standards for DO and water temperature. During the periods of high DO in the summer, there is likely algae present. This site failed the FC state standards for both the geometric mean and 90th percentile requirements. The EC standard for geometric mean was met but did not meet the 90th percentile requirements.

Site 38 is tied for 3<sup>rd</sup> out of 36 sites for number of significant trends, with 17, and is tied for 32<sup>nd</sup> out of 36 sites for positive trends, with 18%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↓	↓	↓	—	—	—	—	—	—
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

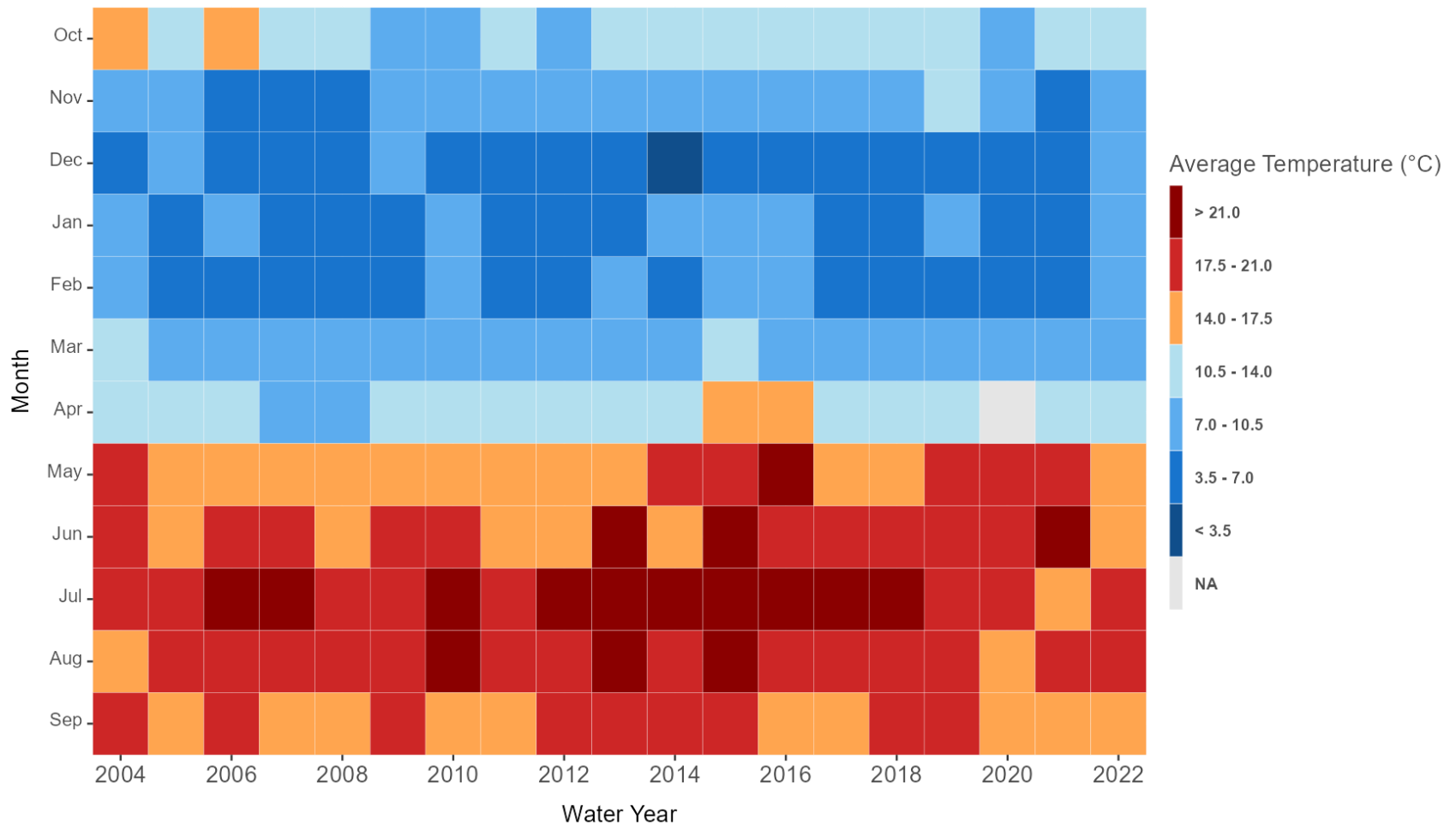


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	6	1	13	16	36	12	13	3	6	19	18	20	5	1	1	1

# Monthly Average Temperature

38 – North Edison Drainage Pump Station  
at Smith Road

Samish Watershed  
Downstream Ag



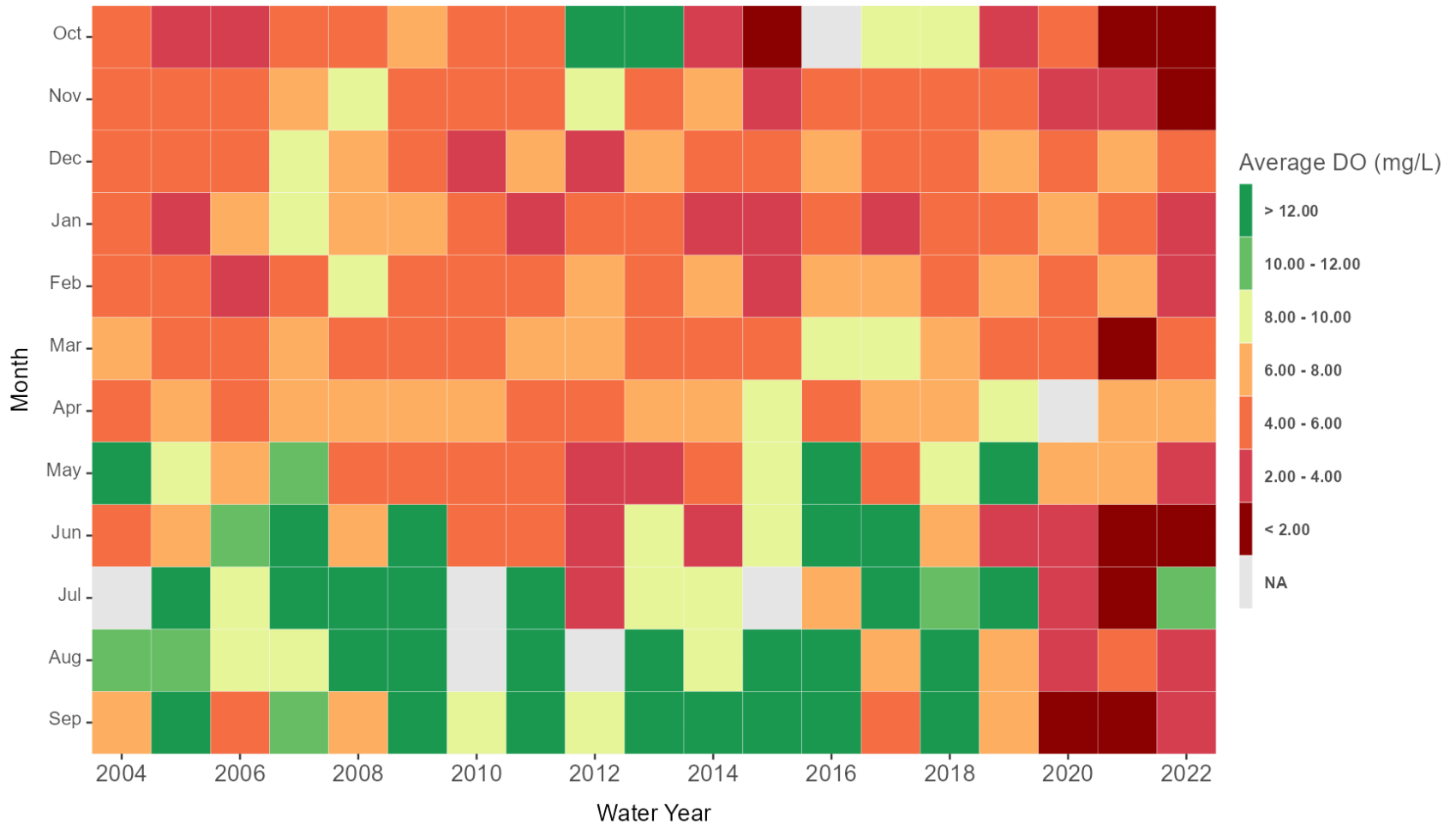
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 38 – North Edison Drainage Pump Station at Smith Road

Samish Watershed  
Downstream Ag

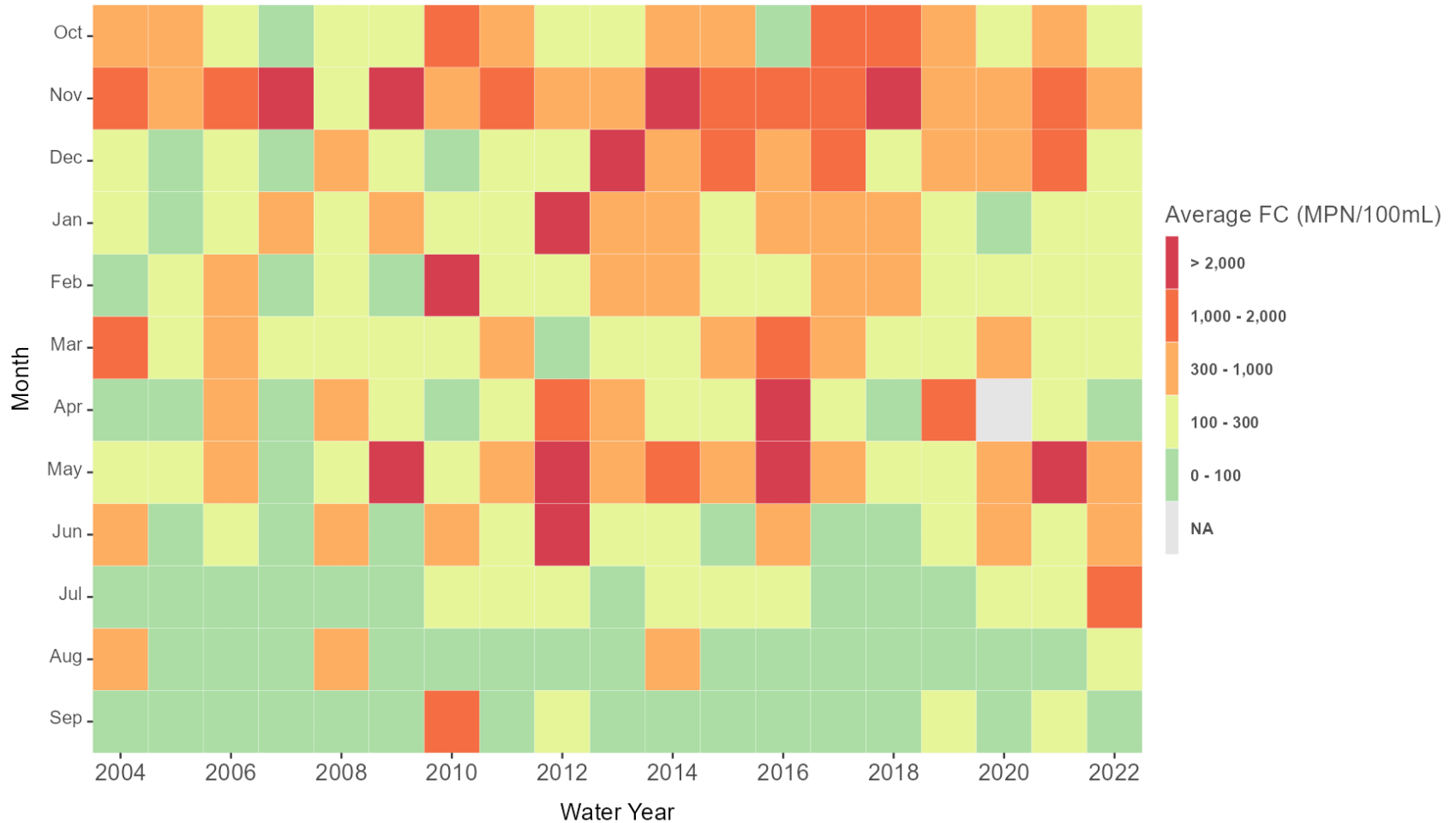


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

38 – North Edison Drainage Pump Station  
at Smith Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 39 – Colony Creek at Colony Road

Samish Watershed  
Downstream Ag

Site 39 is Colony Creek, prior to its convergence with Harrison Creek and termination in the north end of Samish Bay and has rural residential and agricultural influences. This site is designated as core salmonid habitat.

Fecal coliform counts are significantly lower than they were 19 years ago. WQI scores are generally in the upper-score end of the moderate concern category, and sometimes score as least concern.

Site 39 does not meet state standards for DO during the warmest times of the year. However, meets water temperature standards year-round. This site easily passed the FC and EC geometric mean standards but did not pass the 90th percentile requirements.

Site 39 is tied for 32<sup>nd</sup> out of 36 sites for number of significant trends, with 8, and is 15<sup>th</sup> out of 36 sites for positive trends, with 63%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr

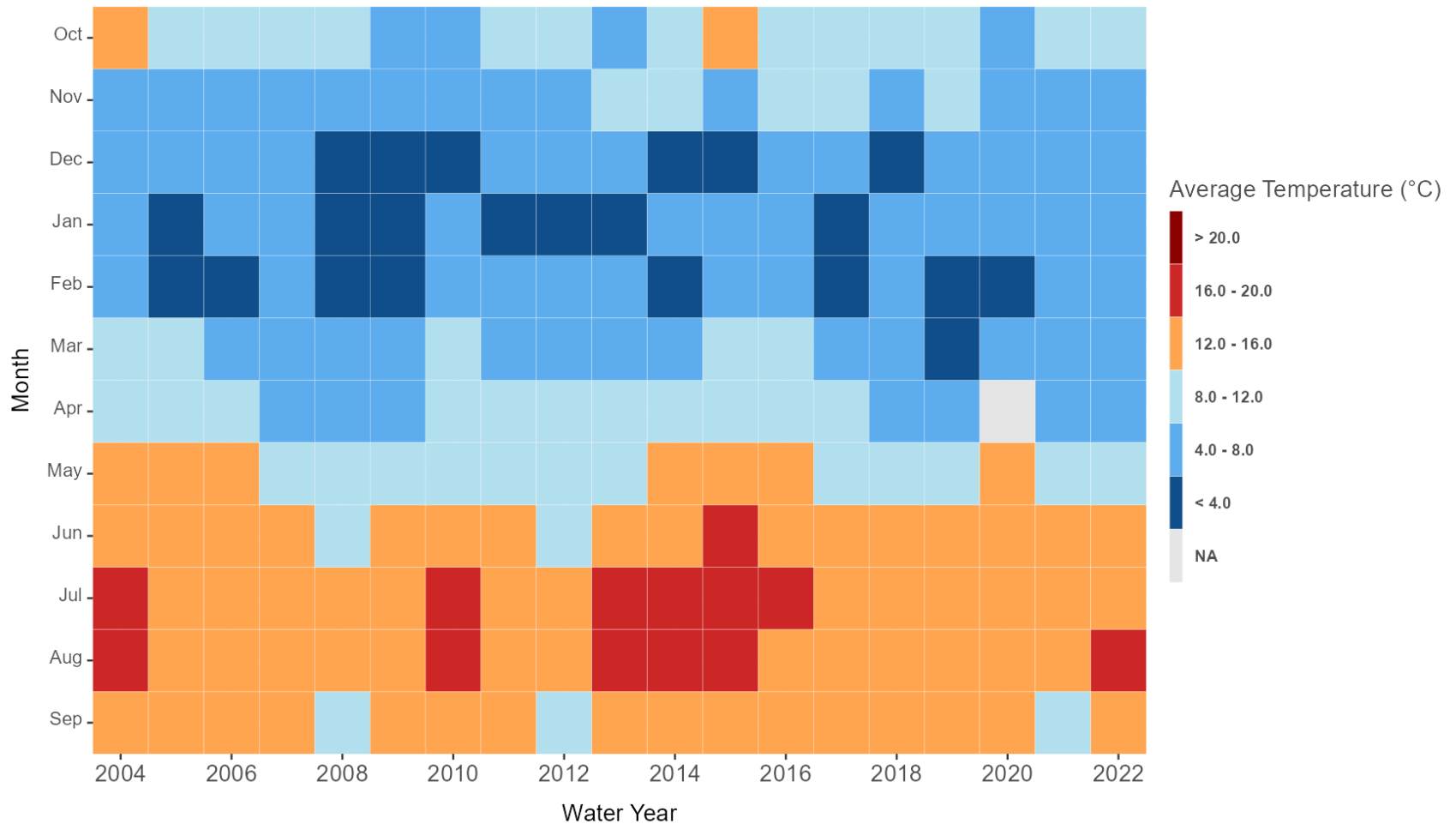


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
17	39	59	67	63	85	78	81	76	83	83	81	80	58	75	79	71

# Monthly Average Temperature

## 39 – Colony Creek at Colony Road

Samish Watershed  
Downstream Ag

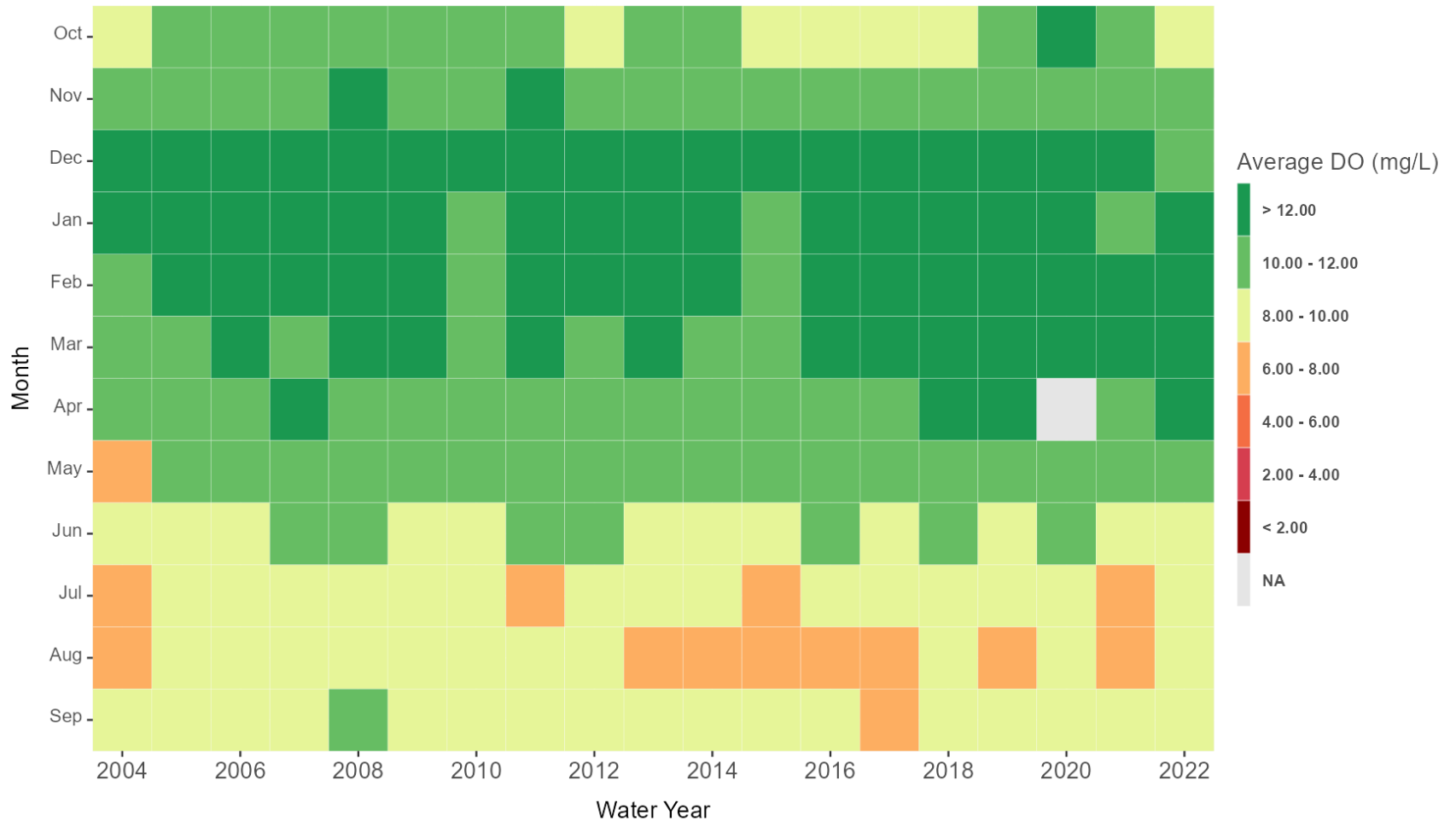


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 39 - Colony Creek at Colony Road

Samish Watershed  
Downstream Ag

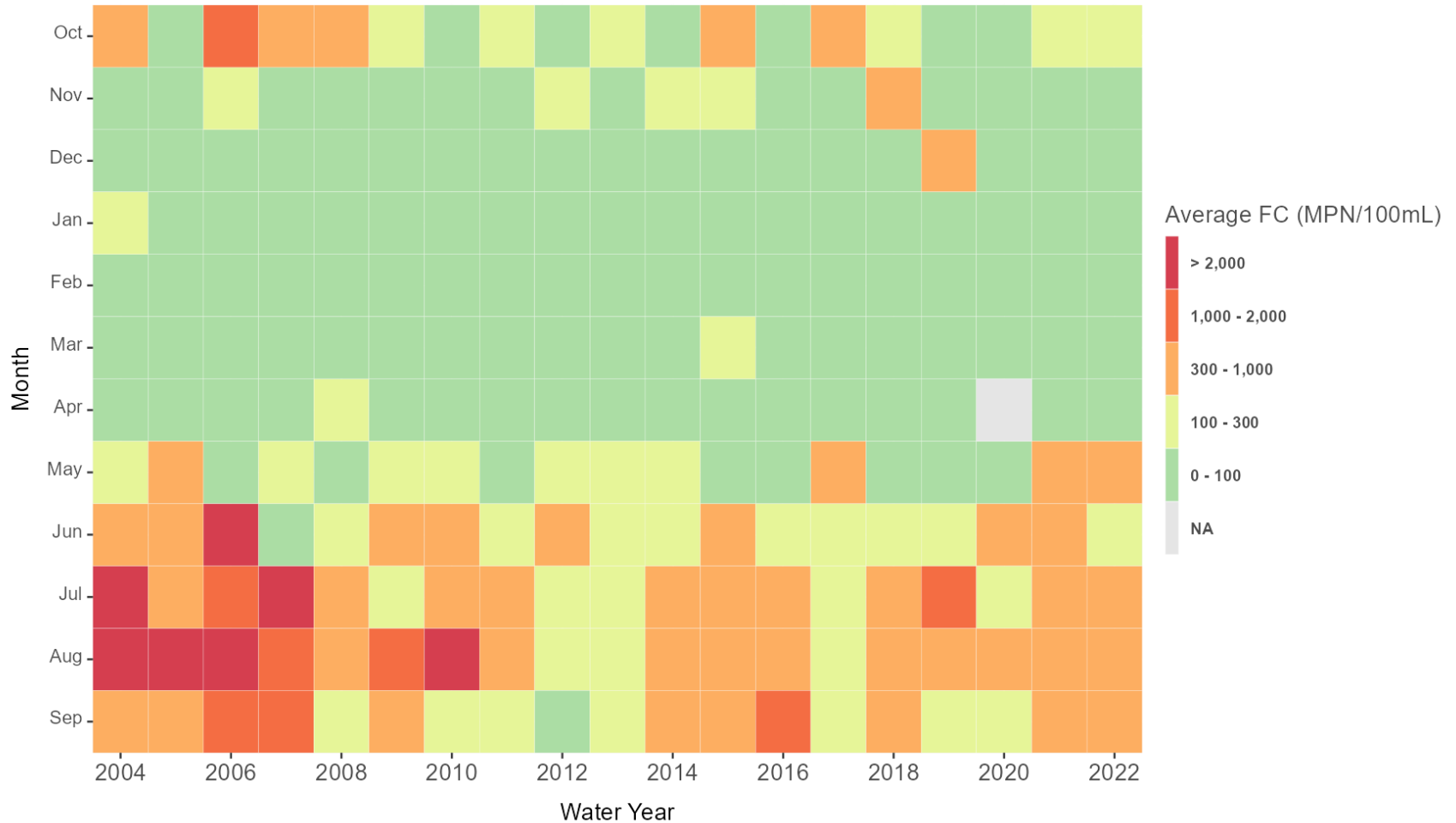


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 39 - Colony Creek at Colony Road

Samish Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 12 – Nookachamps Creek at Swan Road

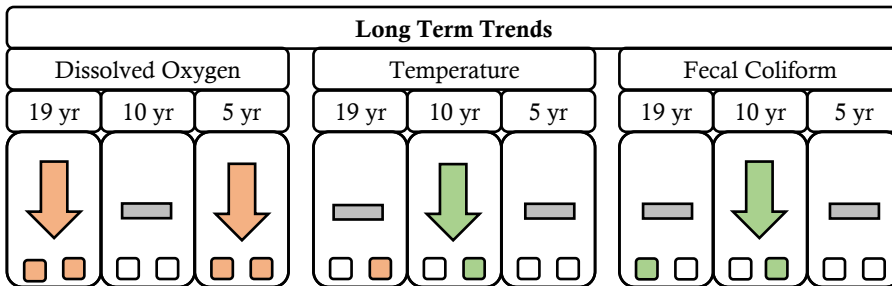
Nookachamps Watershed  
Downstream Ag, TMDL

Site 12 is Nookachamps Creek and is the furthest downstream site of the creek in this program, located just prior to joining the Skagit River. This creek drains a large valley of rural residential and agriculturally zoned areas. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly declined over the past 19 years. Temperature and fecal coliform counts have significantly declined over the past ten years. WQI scores are regularly in the category of moderate concern.

Site 12 regularly fails to meet state standards for DO and temperature during the warmer months. The bacterial levels for the 2022 water year easily met state standards.

Site 12 is tied for 10<sup>th</sup> out of 36 sites for number of significant trends, with 13, and is 12<sup>th</sup> out of 36 sites for positive trends, with 69%.

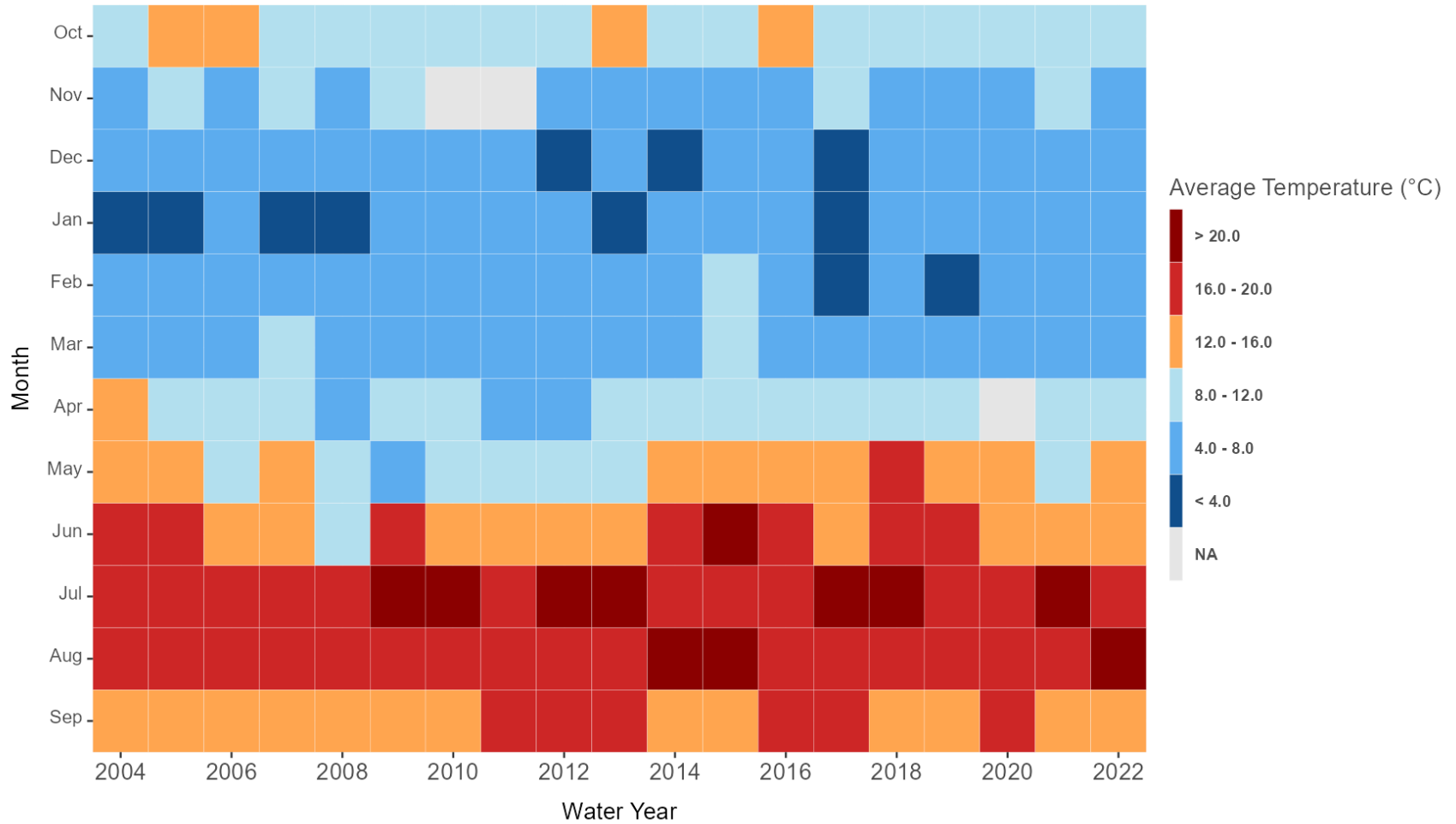


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
63	72	38	72	58	68	50	62	58	59	67	59	49	72	58	70	41

# Monthly Average Temperature

## 12 – Nookachamps Creek at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL



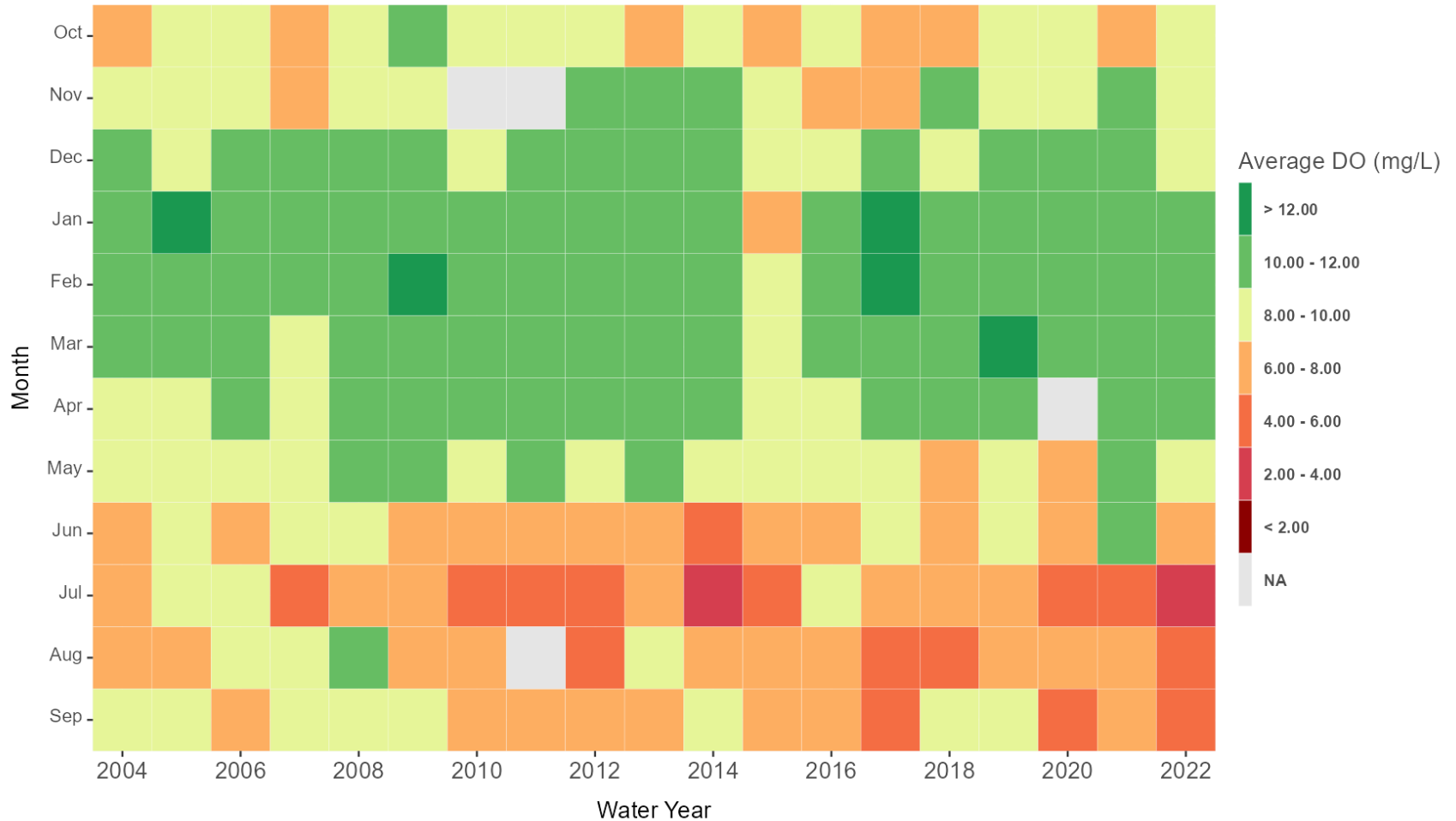
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 12 – Nookachamps Creek at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL

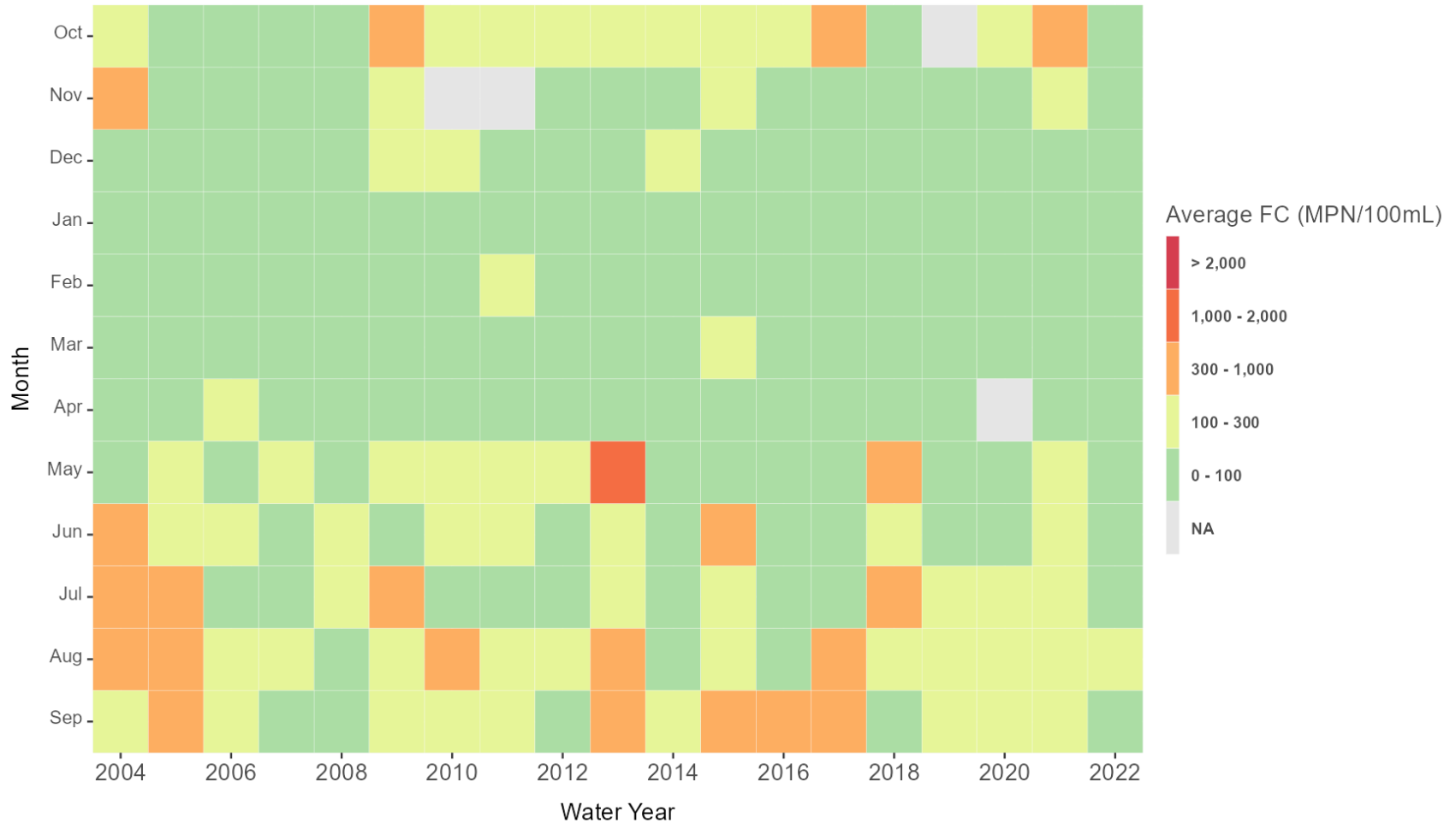


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 12 – Nookachamps Creek at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 13 – East Fork Nookachamps Creek at Highway 9

Nookachamps Watershed  
Downstream Ag, TMDL

Site 13 is East Fork Nookachamps Creek, downstream of site 16, and sitting just prior to joining Nookachamps Creek and ultimately the Skagit River. It sits downstream of a stretch of agricultural activity. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly declined since 19 and 5 years ago. Temperature is higher than it was 19 years ago, however over a 10-year scale has significantly decreased. Fecal coliform has significantly increased over the past 5 years. WQI scores are generally in the higher-scoring end of the moderate concern category, and sometimes score as least concern.

Site 13 regularly fails to meet state standards for DO and temperature during the warmer months. The bacterial levels for the 2022 water year easily met state standards.

Site 13 is tied for 7<sup>th</sup> out of 36 sites for number of significant trends, with 14, and is 30<sup>th</sup> out of 36 sites for positive trends, with 29%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↓	—	↓	↑	↓	—	—	—	↑
■ ■	□ □	■ ■	■ ■	□ ■	□ □	■ ■	□ ■	■ ■

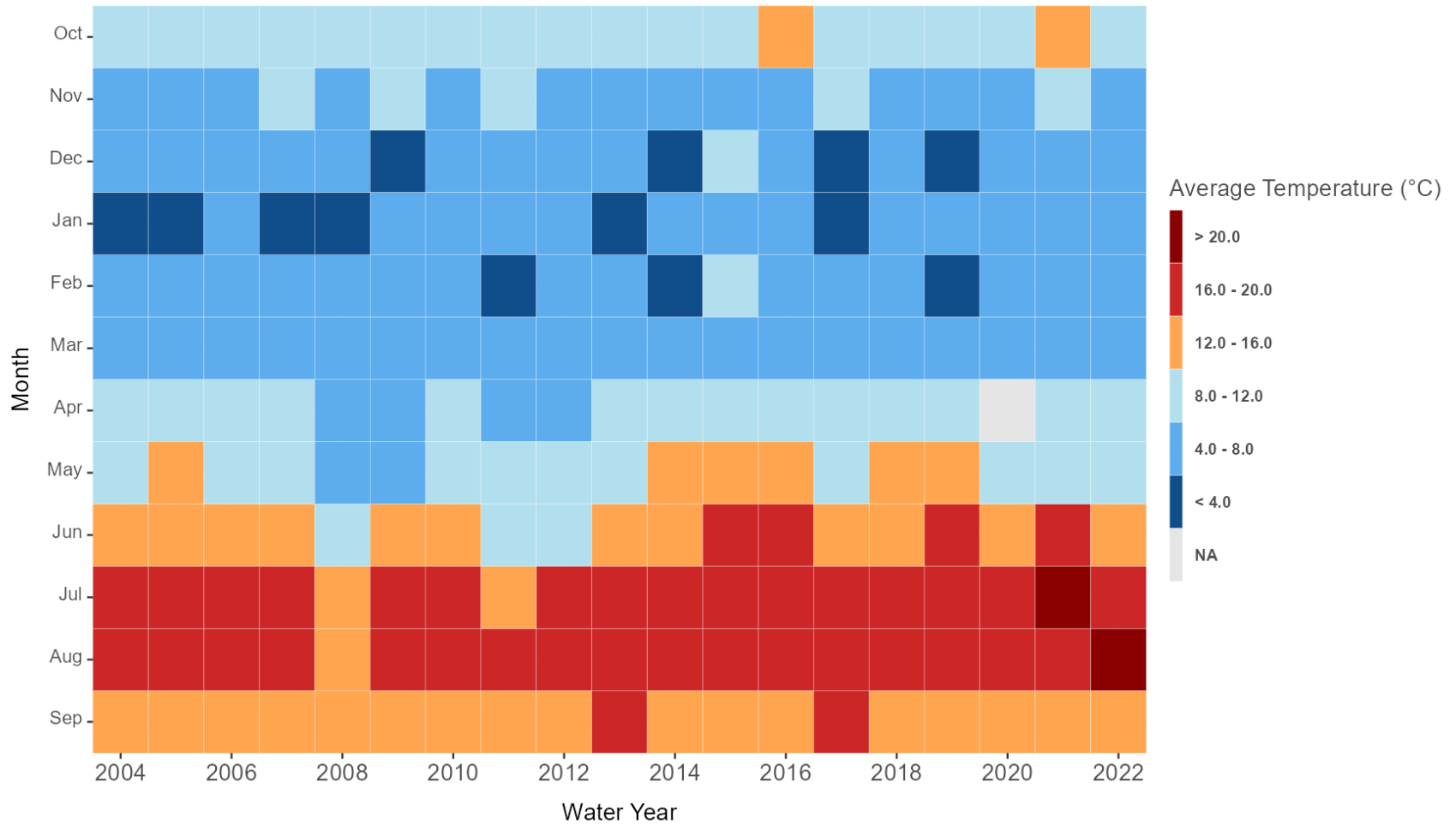


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
74	77	88	85	85	91	65	70	76	74	75	64	80	74	57	73	54

# Monthly Average Temperature

13 – East Fork Nookachamps Creek  
at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL

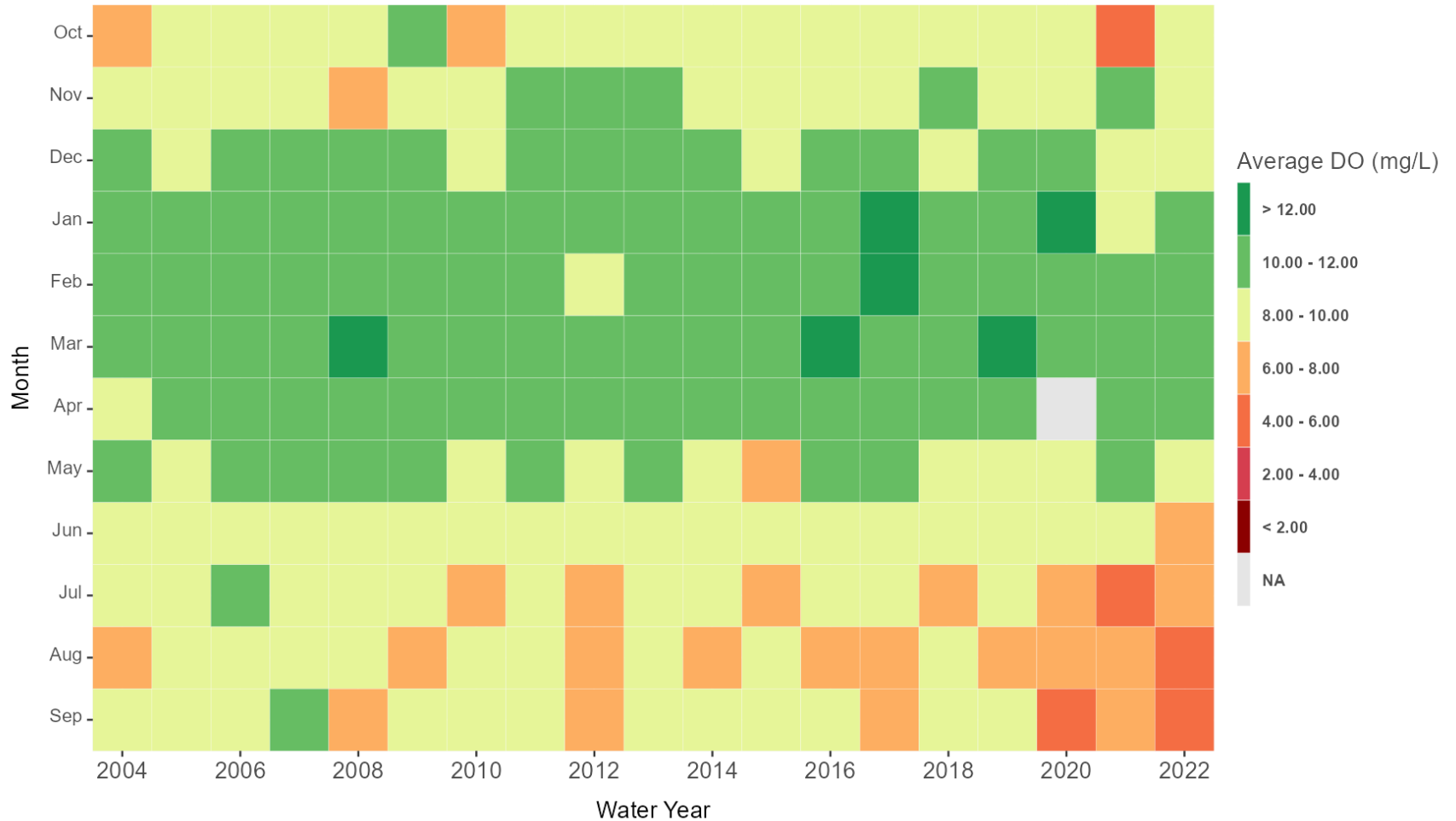


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 13 – East Fork Nookachamps Creek at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL

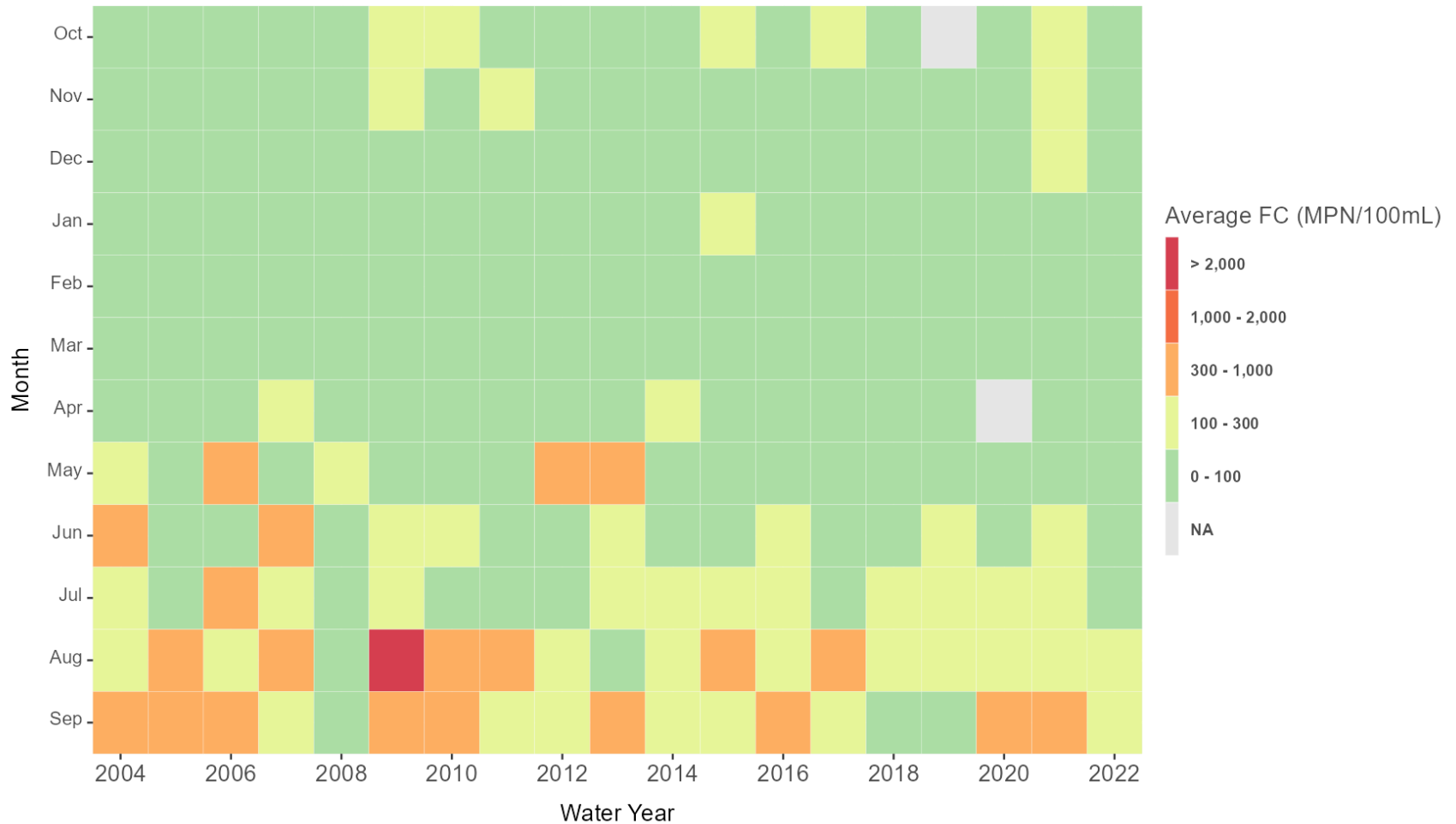


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

13 – East Fork Nookachamps Creek  
at Swan Road

Nookachamps Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 15 – Nookachamps Creek at Knapp Road

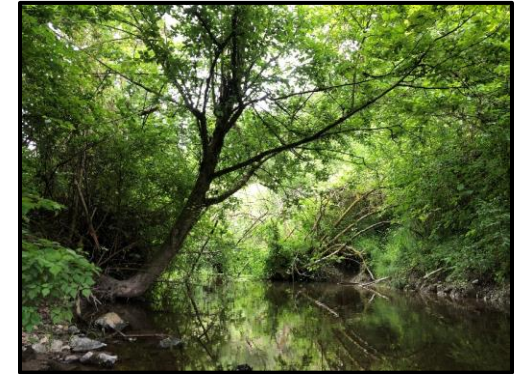
Nookachamps Watershed  
Midstream Ag, TMDL

Site 15 is located mid-stream along Nookachamps Creek. This site is upstream of site 12, and downstream from Big Lake and site 17. This location is designated as core salmonid habitat.

Water temperature is significantly lower than it was 10 years ago. Fecal coliform counts are lower now than they were 10 years ago. WQI scores are consistently in the category of highest concern, but they are improving since the beginning of this study.

Site 15 regularly fails to meet state standards for dissolved oxygen and temperature during the warmer months. The bacterial levels for the 2022 water year easily met state standards.

Site 15 is tied for 23<sup>rd</sup> out of 36 sites for number of significant trends, with 10, and is tied for 6<sup>th</sup> of 36 sites for positive trends, with 80%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr

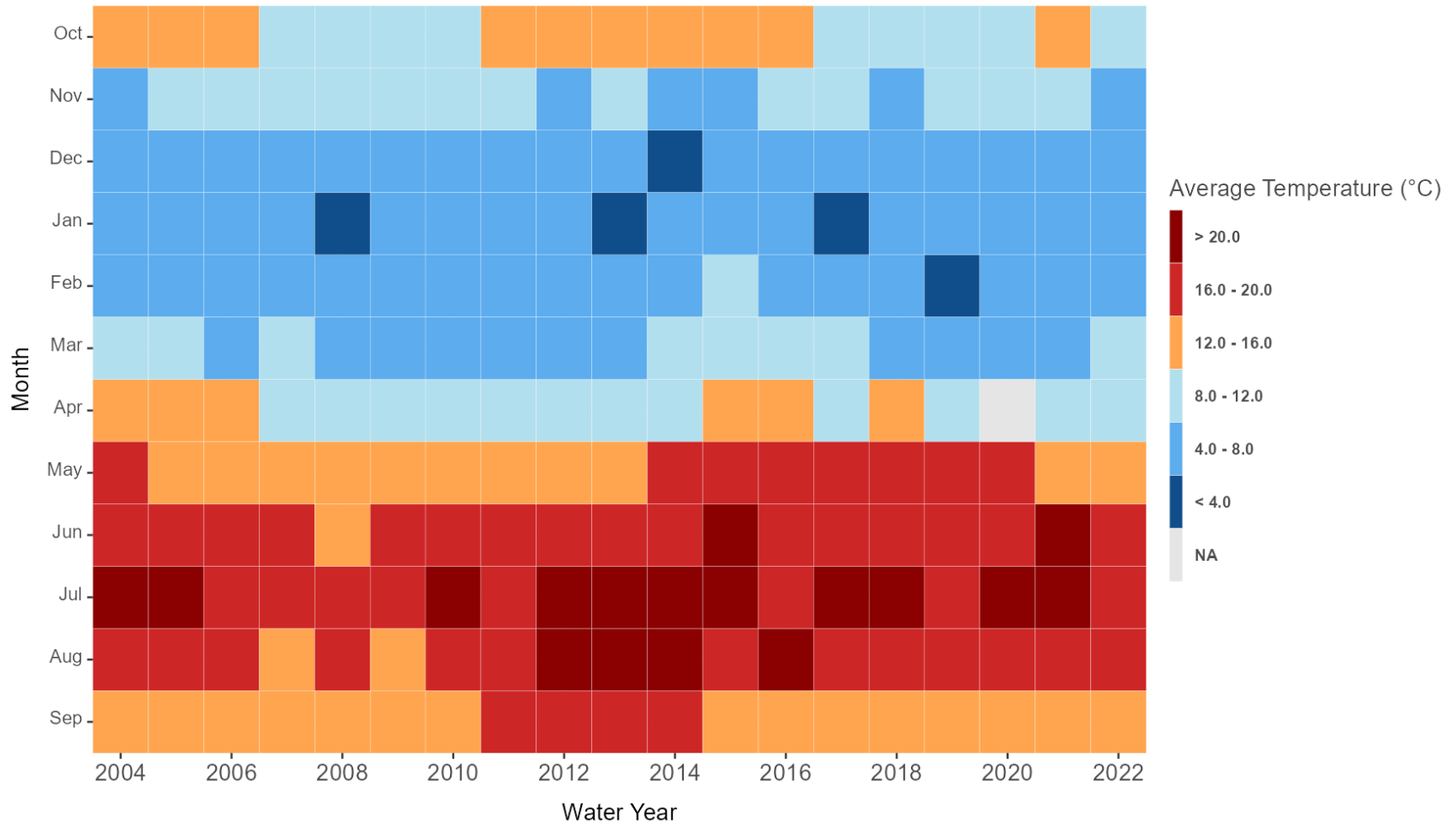


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	8	18	15	54	36	31	29	31	56	48	28	50	27	63	49	60

# Monthly Average Temperature

## 15 – Nookachamps Creek at Knapp Road

Nookachamps Watershed  
Midstream Ag, TMDL



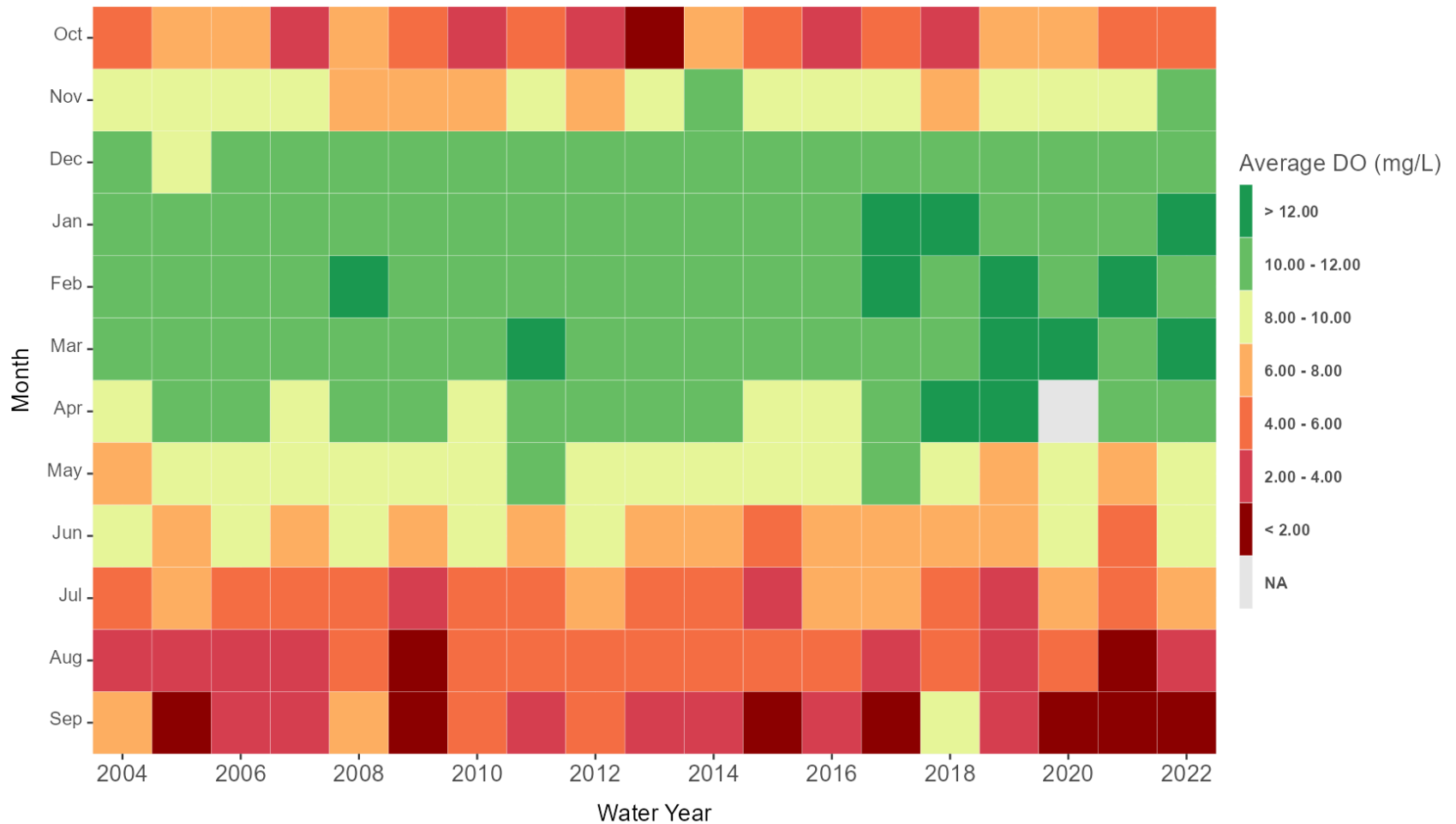
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 15 – Nookachamps Creek at Knapp Road

Nookachamps Watershed  
Midstream Ag, TMDL

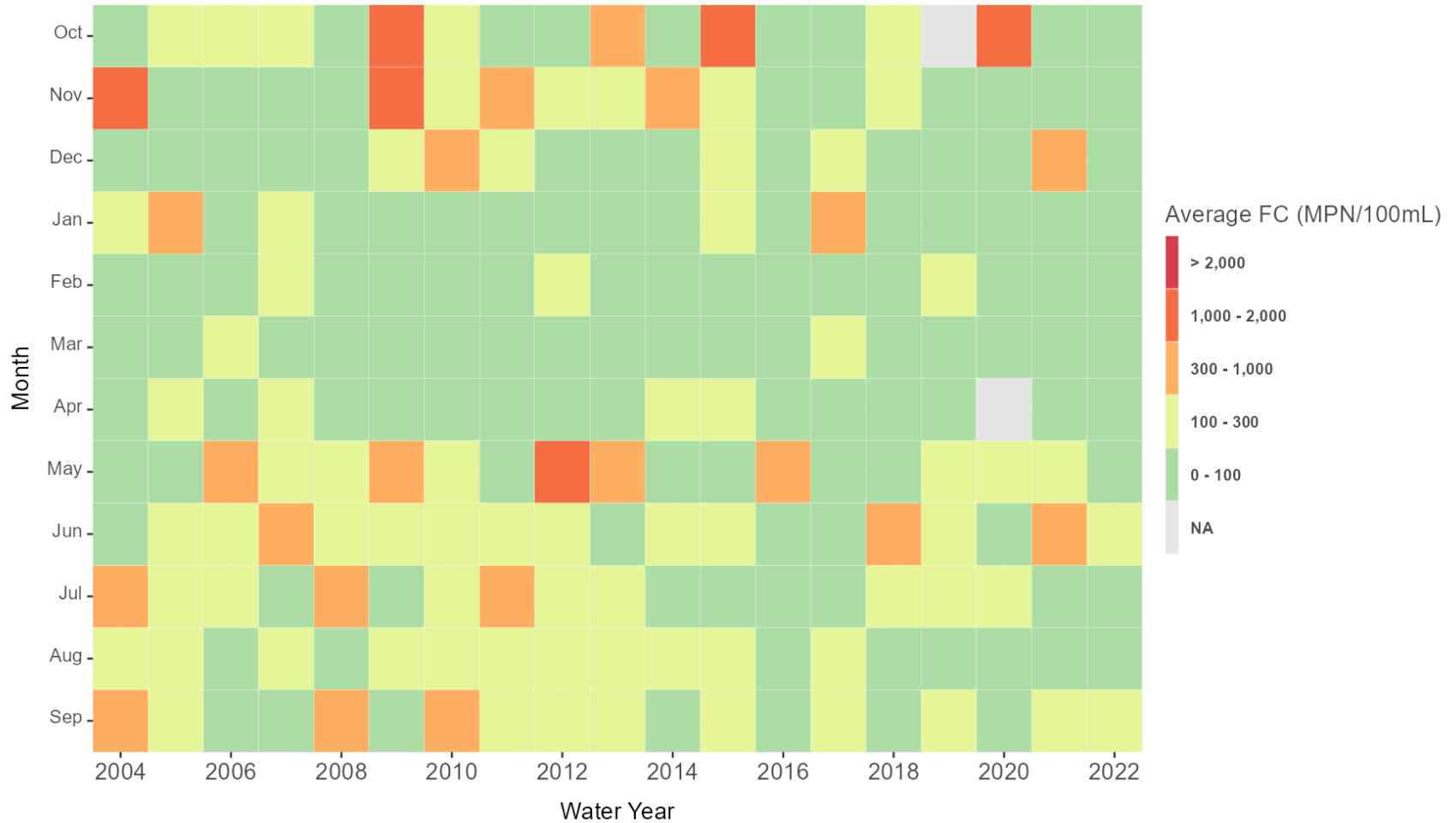


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 15 – Nookachamps Creek at Knapp Road

Nookachamps Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 16 – East Fork Nookachamps Creek at Beaver Lake Road

Nookachamps Watershed  
Midstream Ag, TMDL

Site 16 is East Fork Nookachamps Creek, upstream of site 13, and immediately after adjoining with Cold Spring Creek. This site is influenced by light agricultural uses and undeveloped land. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the last 19 and 10 years. Temperature has significantly increased over the length of the program, however over a 10-year scale, temperature has significantly declined. There were no significant trends in fecal coliform. WQI scores have never been outside of the category of least concern.

Site 16 passes state standards for DO most months, but water temperatures can occasionally exceed state standards during the warmest time of year. The bacterial levels for the 2022 water year easily met state standards.

Site 16 is tied for 10<sup>th</sup> out of 36 sites for number of significant trends, with 13, and is tied for 17<sup>th</sup> out of 36 sites for positive trends, with 62%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	↑	↓	—	—	—	—
□	□	□	□	□	□	□	□	□

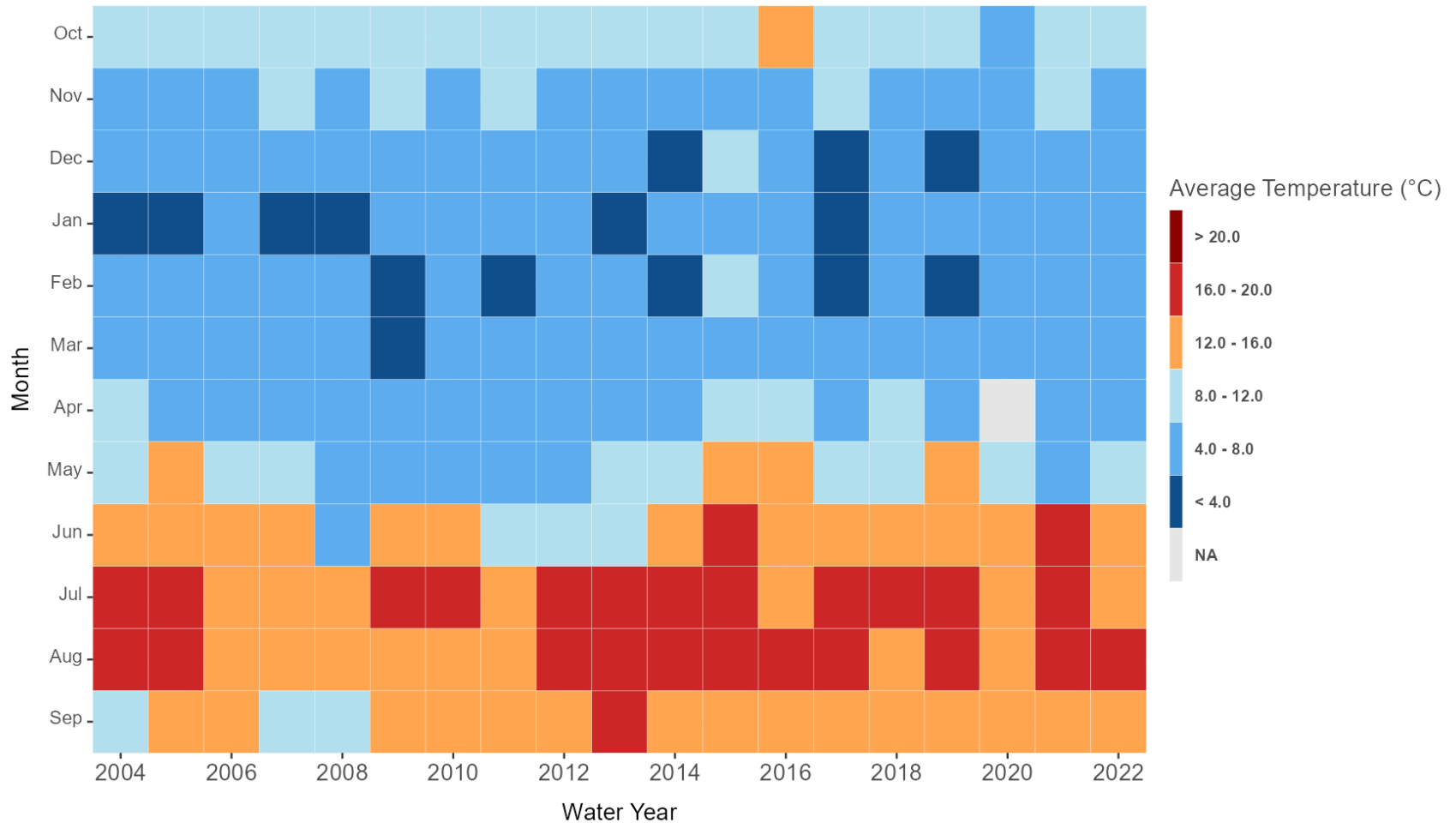


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
88	86	89	91	97	84	91	80	92	95	88	83	89	87	90	89	86

# Monthly Average Temperature

16 – East Fork Nookachamps Creek  
at Beaver Road

Nookachamps Watershed  
Midstream Ag, TMDL

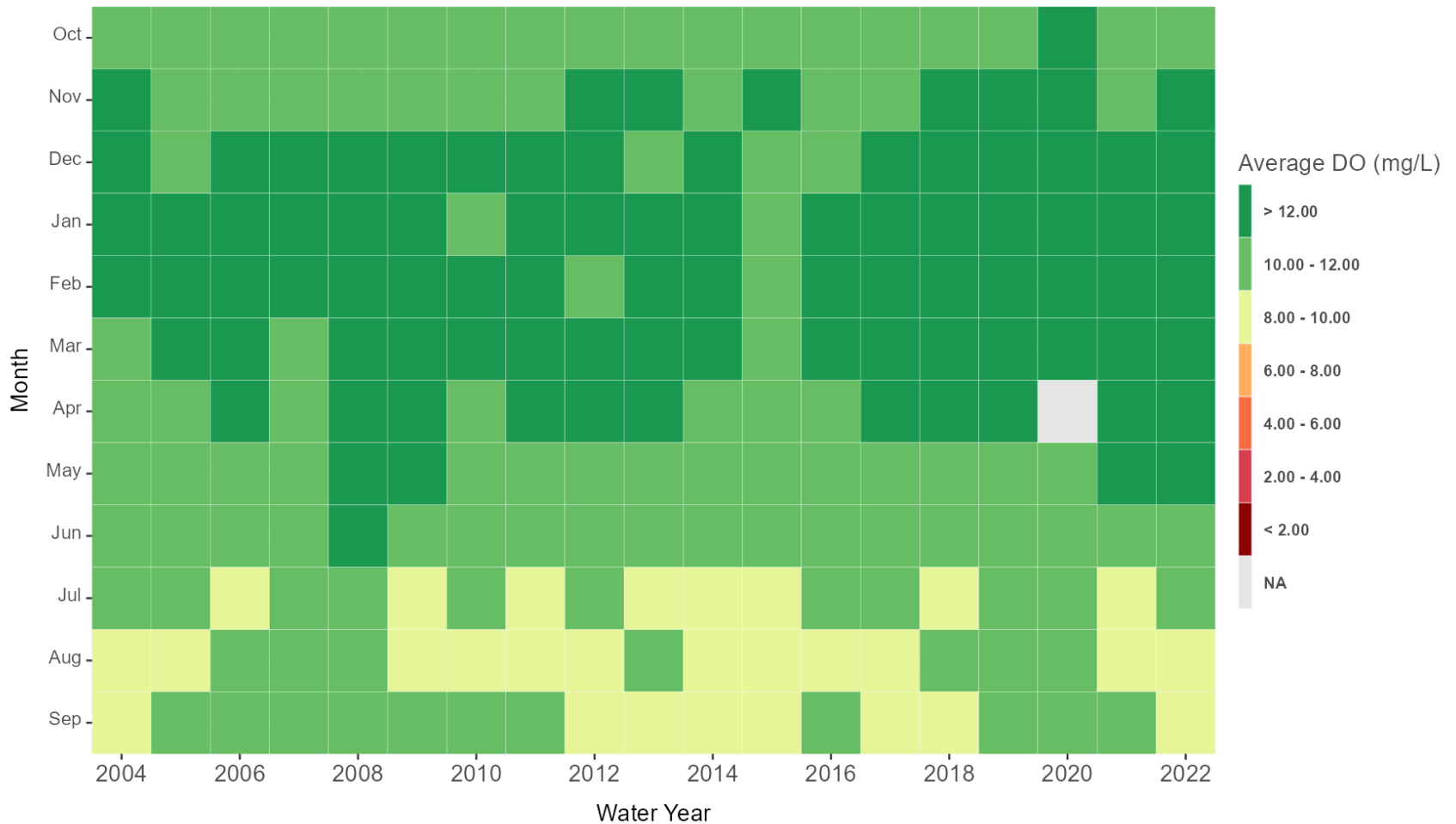


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 16 – East Fork Nookachamps Creek at Beaver Road

Nookachamps Watershed  
Midstream Ag, TMDL

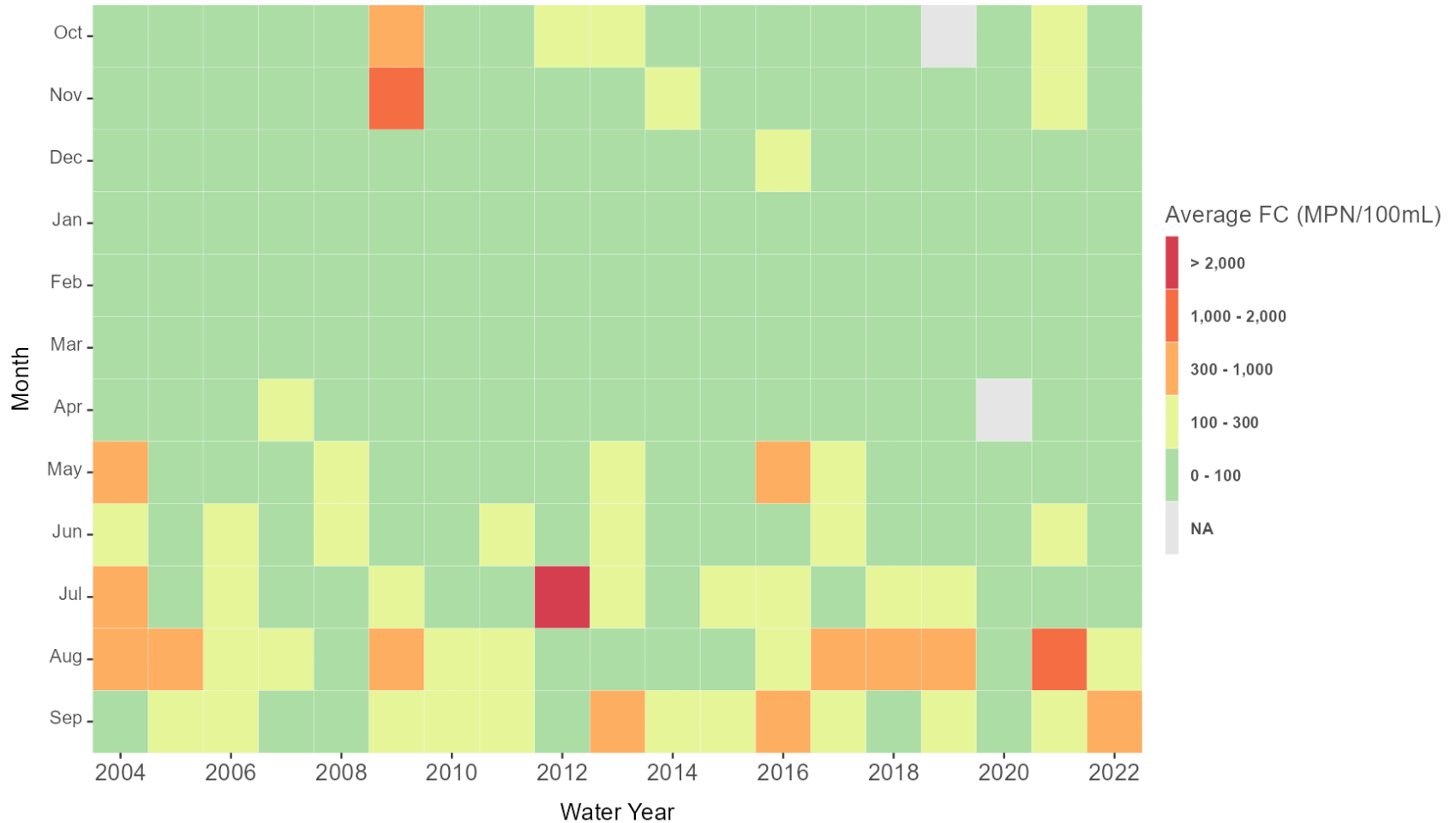


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

16 – East Fork Nookachamps Creek  
at Beaver Road

Nookachamps Watershed  
Midstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 17 – Nookachamps Creek at Big Lake Outlet

Nookachamps Watershed  
Upstream Ag, TMDL

Site 17 is Nookachamps Creek, at its source, immediately after leaving Big Lake. This site is upstream from sites 15 and 12. This site is designated as core salmonid habitat.

Over the most recent 10 years, dissolved oxygen has increased. Water temperature has increased since 19 years ago, however over the last 10 years has significantly decreased in temperature. There have been no significant changes in fecal coliform counts. WQI scores are generally in the upper end of the moderate concern category, and has scored in the least concern category in the past.

Site 17 regularly fails to meet state standards for DO and temperature during the warmer months. The bacterial levels for the 2022 water year easily met state standards.

Site 17 is tied for 17<sup>th</sup> out of 36 sites for number of significant trends, with 11, and is tied for 20<sup>th</sup> out of 36 sites for positive trends, with 55%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
—	↑	—	↑	↓	—	—	—	—
□ □	■ ■	□ □	□ ■	■ ■	□ □	□ □	□ □	□ □

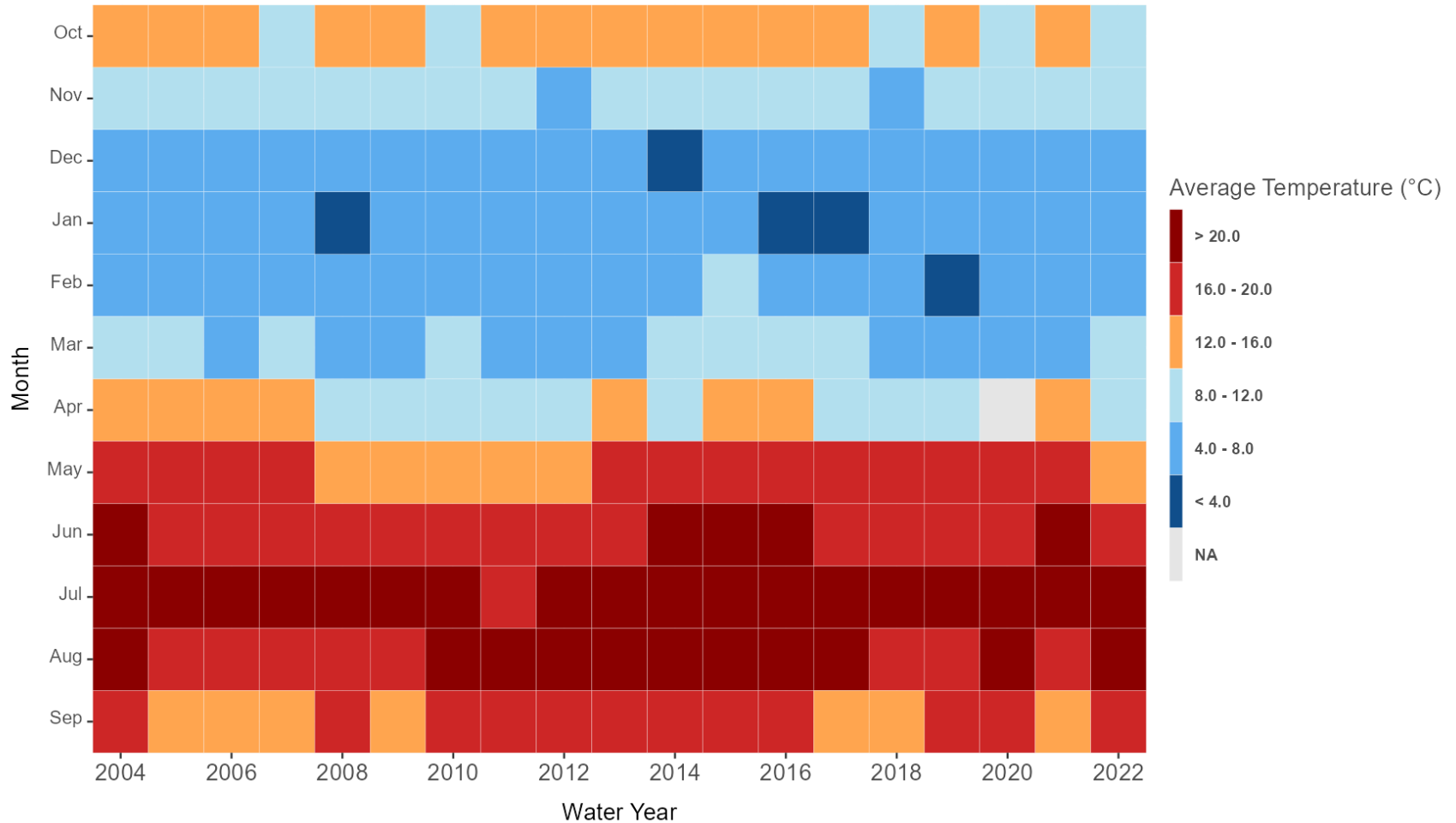


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
60	83	69	84	75	91	74	64	60	79	71	78	67	65	69	74	66

# Monthly Average Temperature

## 17 – Nookachamps Creek at Big Lake Outlet

Nookachamps Watershed  
Upstream Ag, TMDL



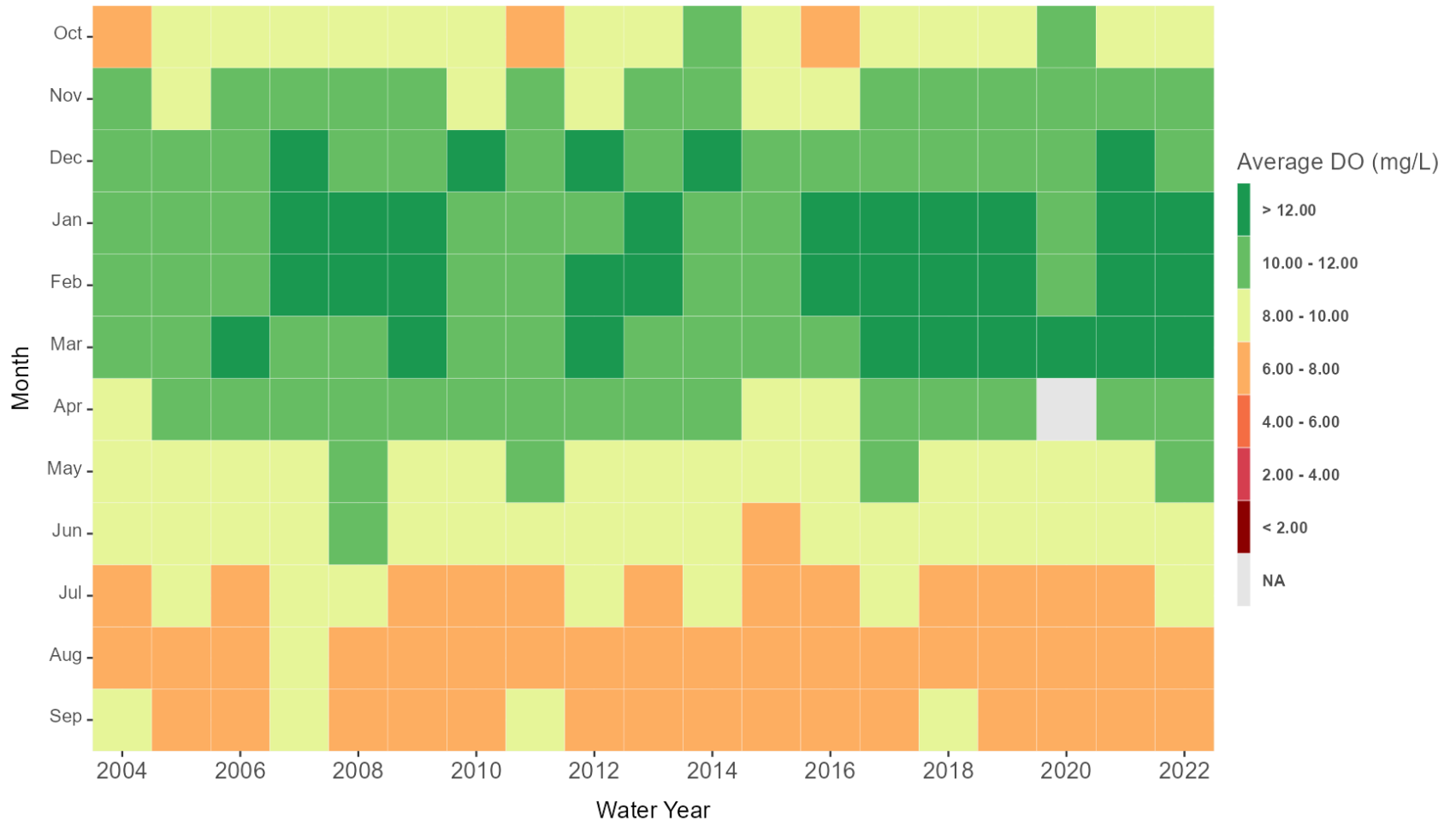
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 17 – Nookachamps Creek at Big Lake Outlet

Nookachamps Watershed  
Upstream Ag, TMDL

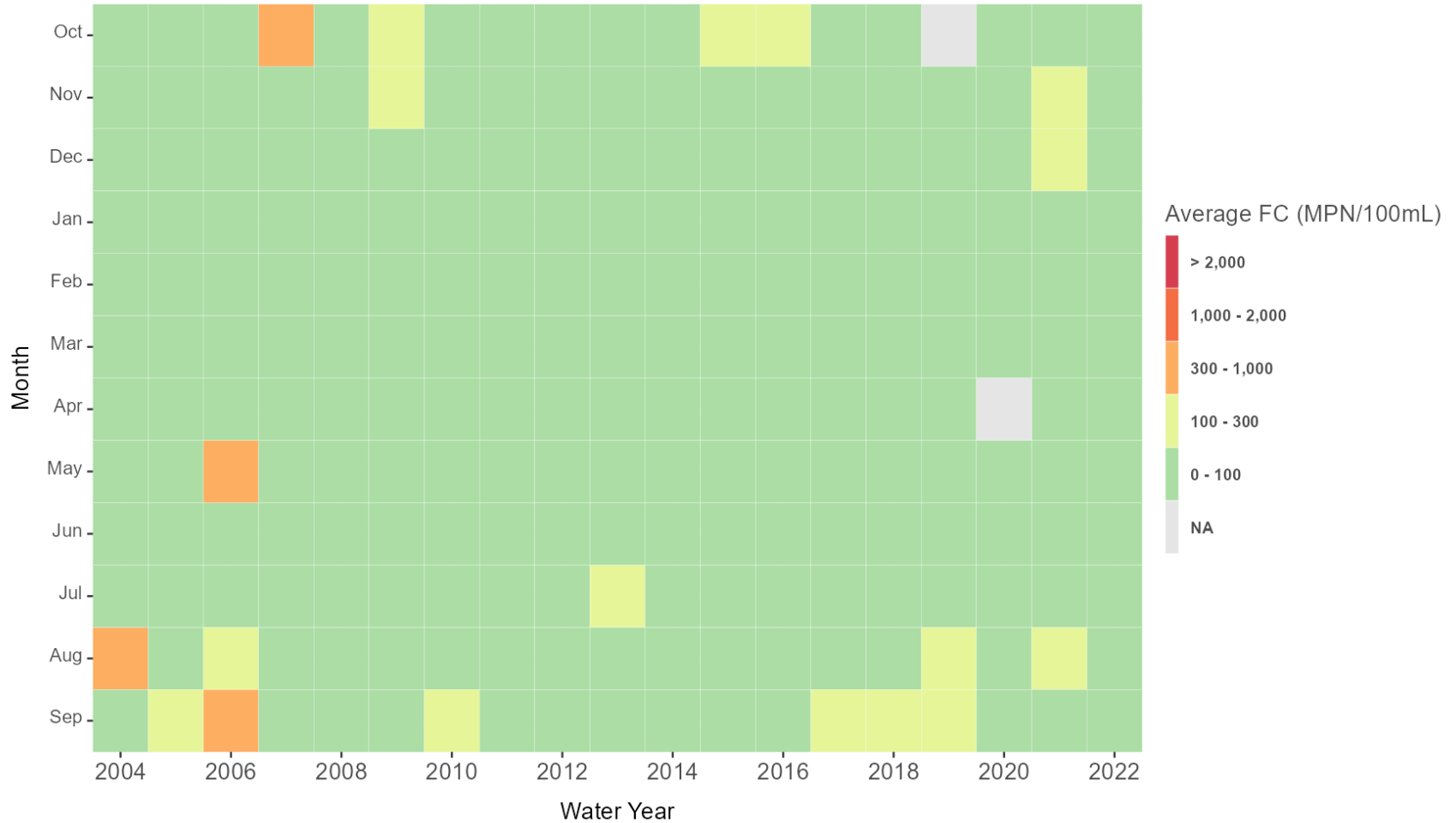


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 17 – Nookachamps Creek at Big Lake Outlet

Nookachamps Watershed  
Upstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 18 – Lake Creek at Big Lake Boulevard

Nookachamps Watershed  
Upstream Ag, TMDL

Site 18 is Lake Creek, coming out of Lake McMurray, and just prior to entering Big Lake. This site contributes to water quality data bracketing of Big Lake along with site 17. This site is designated as core salmonid habitat.

Dissolved oxygen has increased in the most recent 10 years. Water temperature has significantly increased in the last 19 years, however over the most recent 10-years temperature has declined. Fecal coliform is significantly lower than it was 19 years ago.

Site 18 does not meet state standards for DO and occasionally temperature in the warmest months of the year. This site easily passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. EC levels met both the geometric mean and 90th percentile standards.

Site 18 is 32<sup>nd</sup> out of 36 sites for number of significant trends, with 8, and is tied for 10<sup>th</sup> out of 36 sites for positive trends, with 75%.



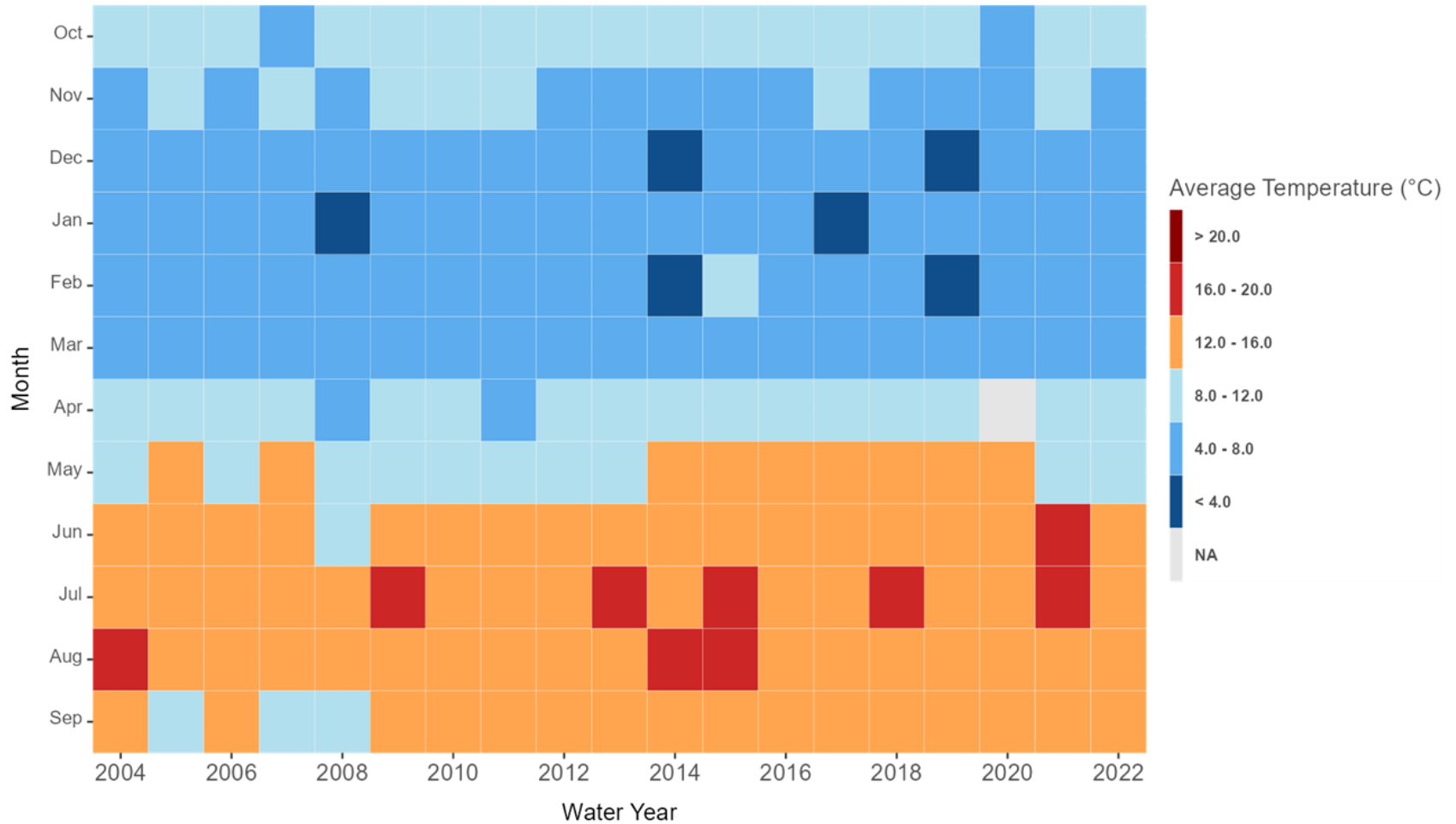
Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
—	↑	—	↑	↓	—	↓	—	—
□ □	■ ■	□ □	■ ■	□ ■	□ □	■ ■	■ □	□ □

Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
84	66	80	93	63	80	87	80	90	88	84	86	87	82	89	87	90

# Monthly Average Temperature

## 18 – Lake Creek at Big Lake Boulevard

Nookachamps Watershed  
Downstream Ag, TMDL

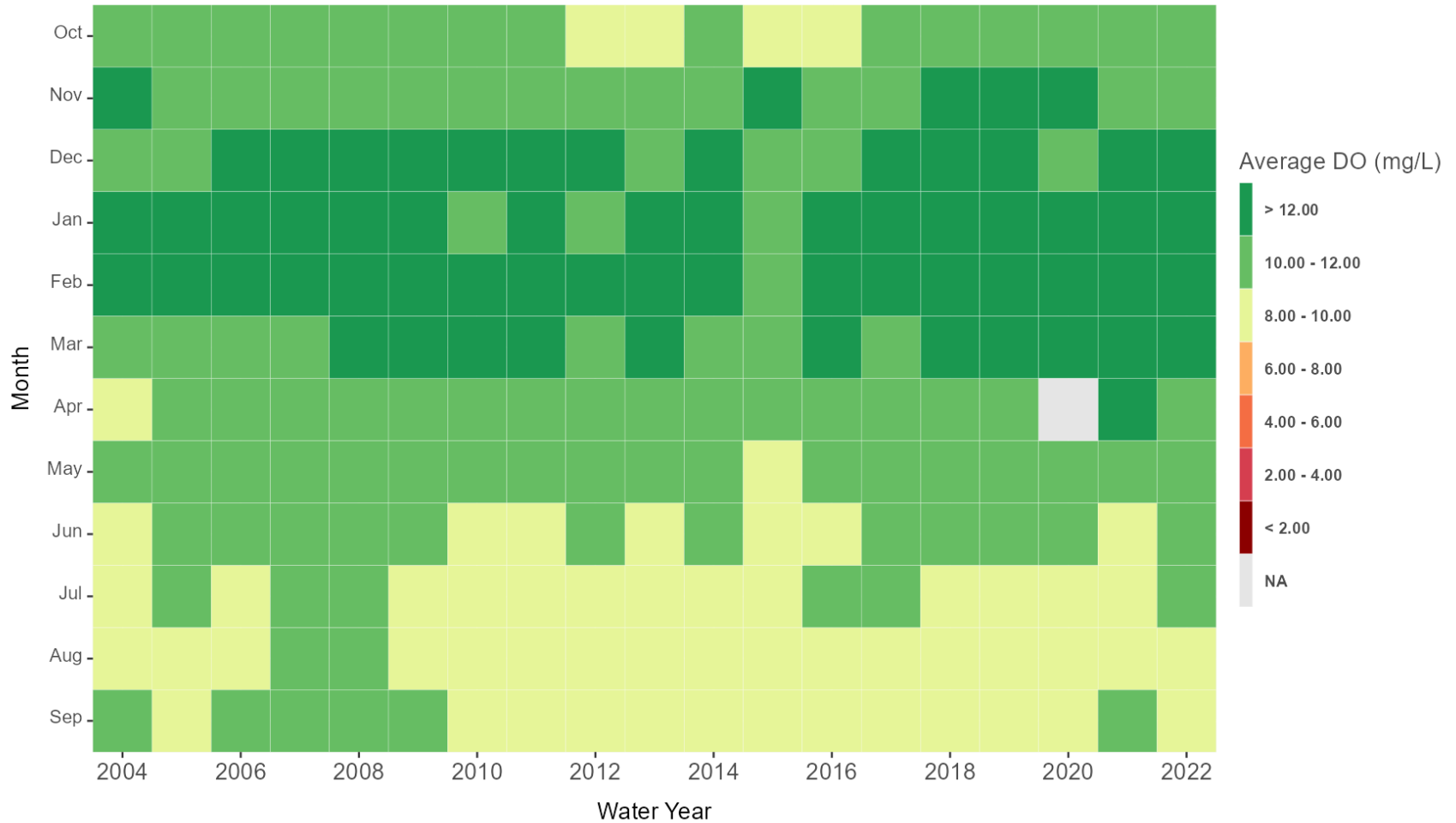


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 18 – Lake Creek at Big Lake Boulevard

Nookachamps Watershed  
Upstream Ag, TMDL

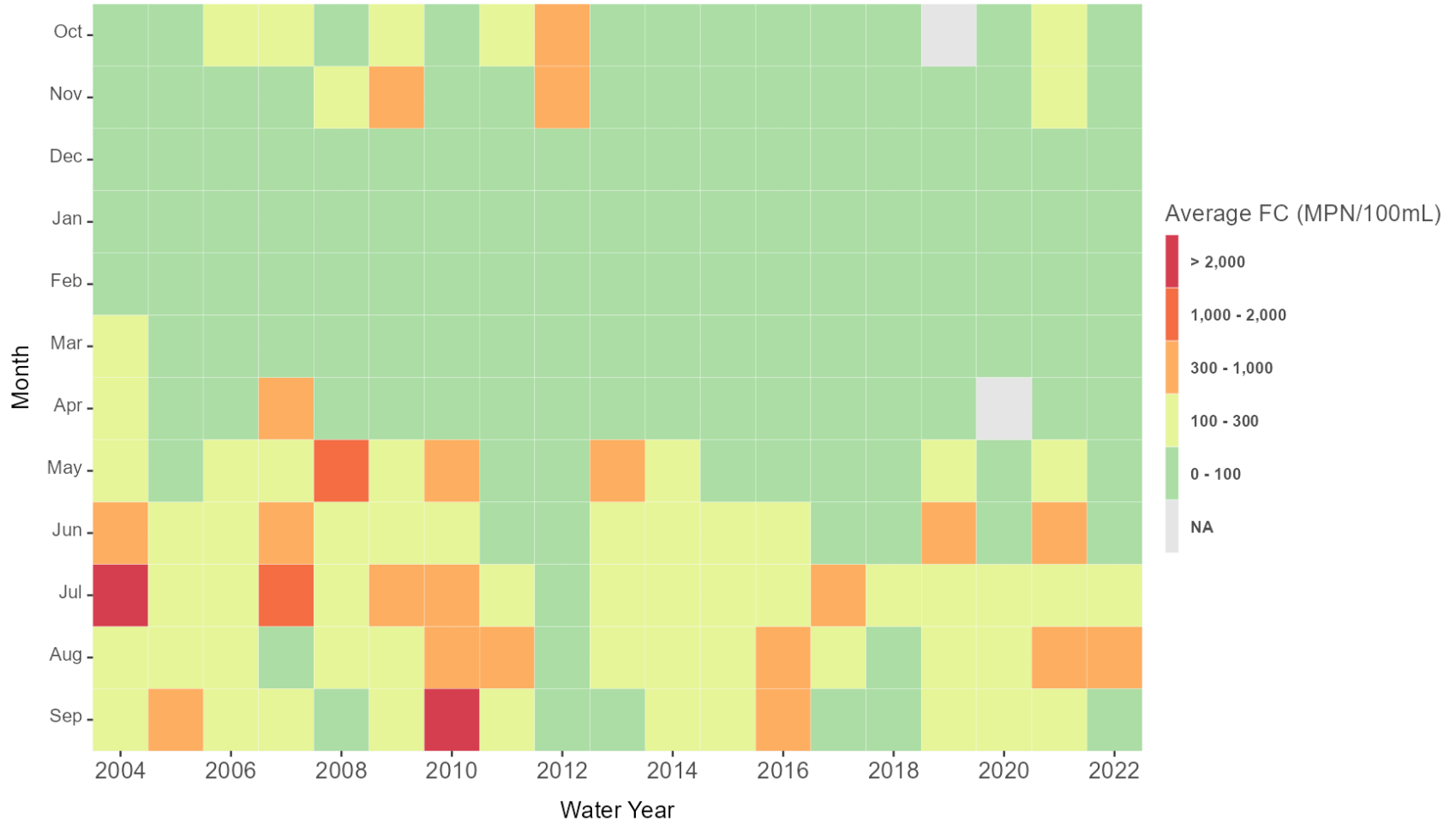


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 18 – Lake Creek at Big Lake Boulevard

Nookachamps Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 19 – Hansen Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag, TMDL

Site 19 is Hansen Creek, downstream from site 20 at the Northern State Recreation Area. This site is pseudo-ephemeral and often can stop flowing by the end of the summer. This site is designated as core salmonid habitat.

Over the 19-year life of this program, dissolved oxygen has declined, and water temperatures have increased. WQI scores are generally in the upper-score end of the moderate concern category.

Site 19 typically fails to meet state standards for DO during the warmer months when its flow volume becomes extremely low. Temperature often also fails to meet state standards during the hottest time of the year. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.

Site 19 is tied for 13<sup>th</sup> out of 36 sites for number of significant trends, with 12, and is tied for 35<sup>th</sup> out of 36 sites for positive trends, with 17%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↓	—	—	↑	↑	—	—	—	—
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

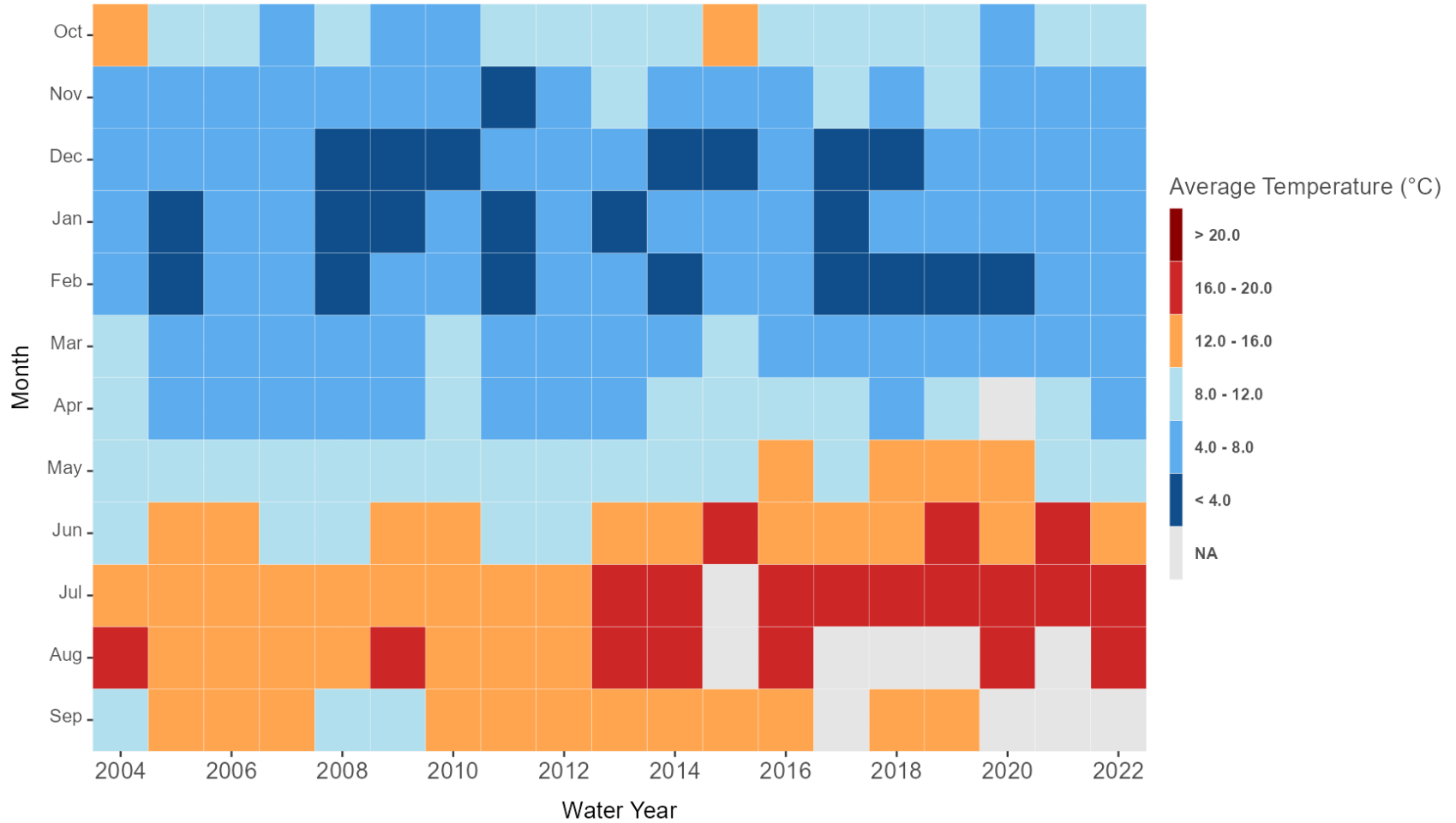


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
28	40	58	91	72	78	62	74	63	75	71	85	80	73	80	86	87

# Monthly Average Temperature

## 19 – Hansen Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag, TMDL



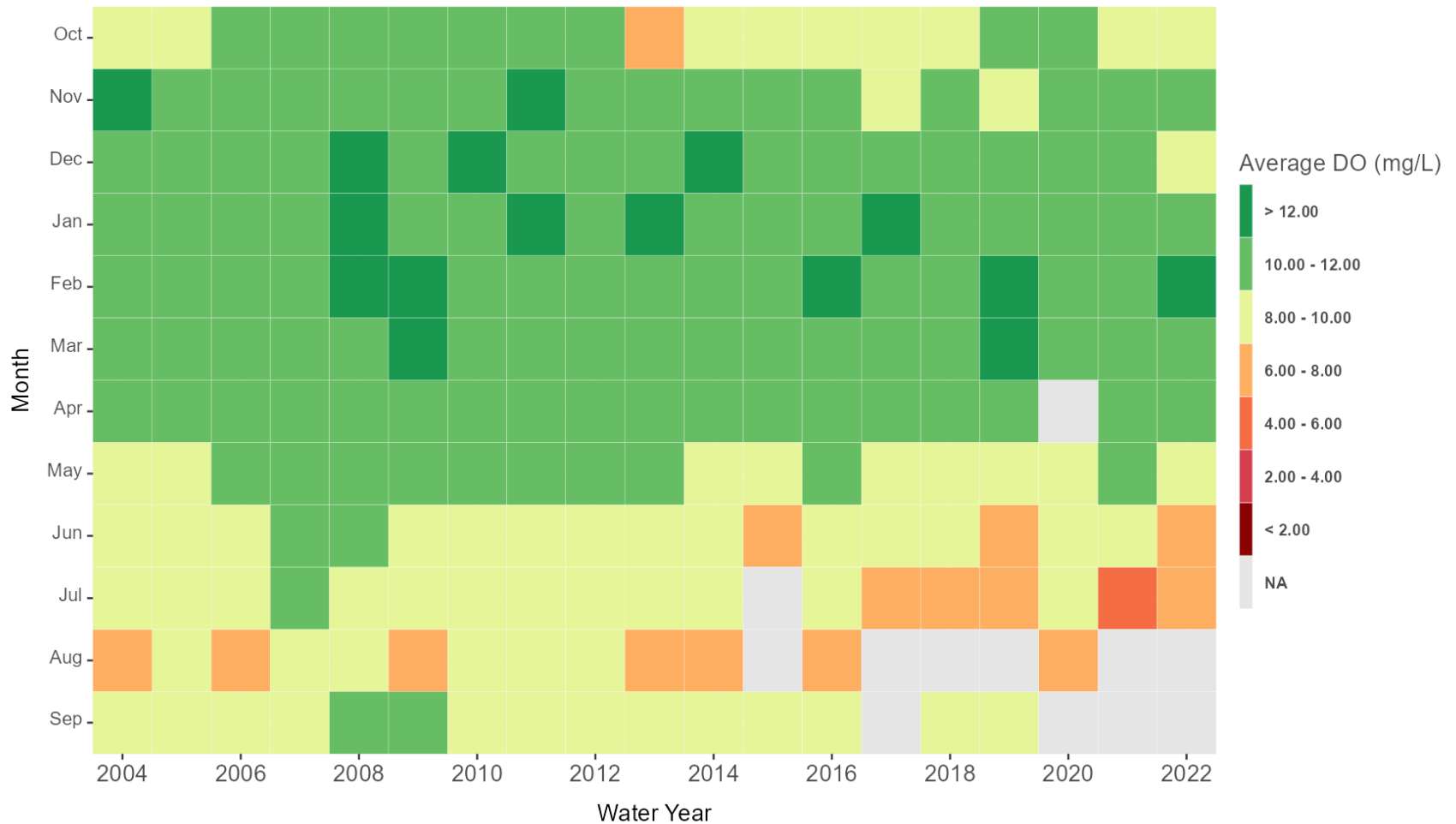
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 19 – Hansen Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag, TMDL

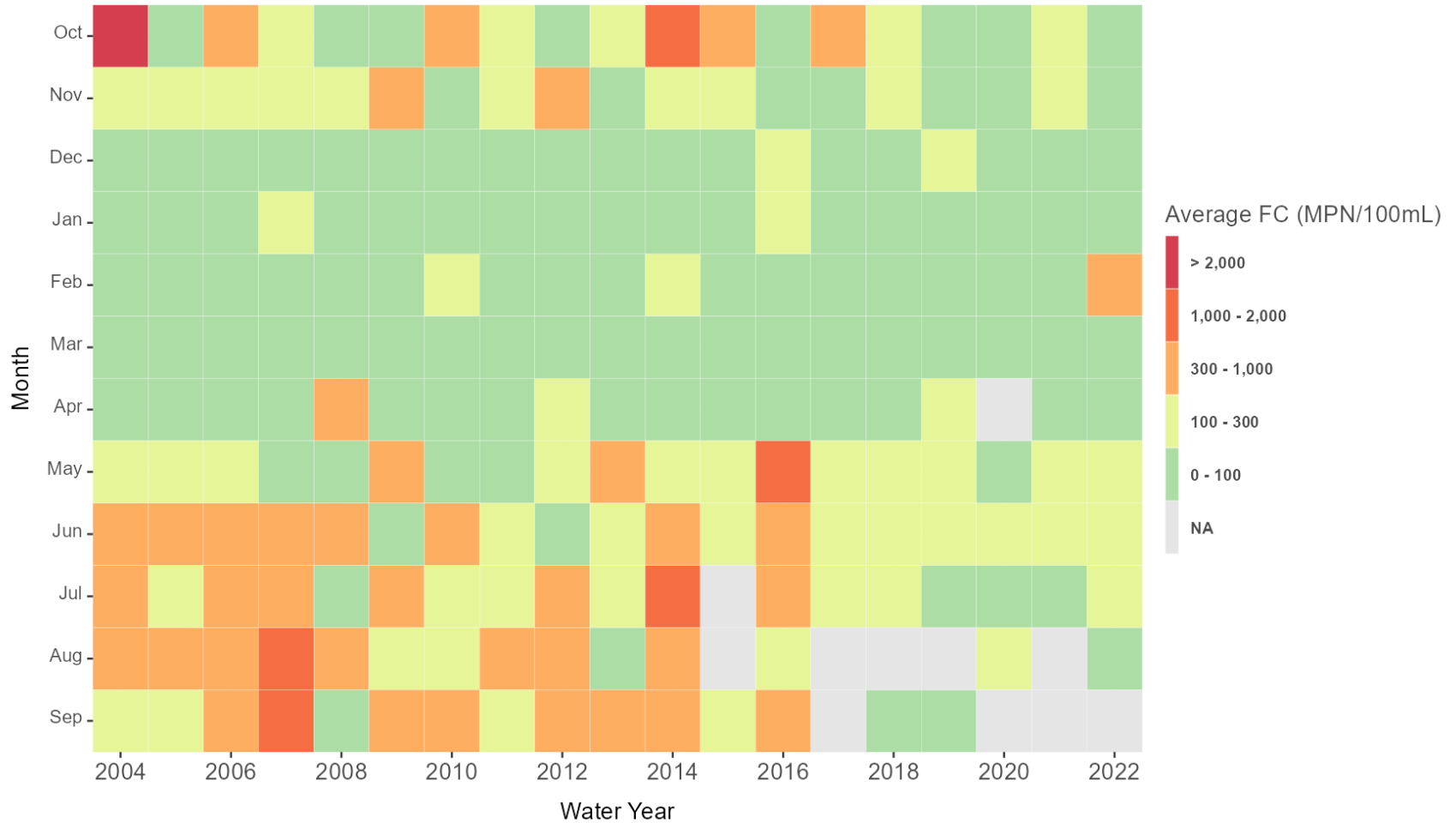


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 19 – Hansen Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 20 – Hansen Creek at Northern State

Middle Skagit Watershed  
Upstream Ag, TMDL

Site 20 is Hansen Creek at the Northern State Recreation Area, upstream from site 19. Water input to this site comes down from Lyman Hill and has very little developed land. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the last 19 years and 10 years. Trends at this site are distinctly different than those downstream at site 19. WQI scores have typically been in the category of least concern over the past 10 years.

Site 20 rarely ever fails to pass state standards for both DO and temperature, year-round. This site easily passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. EC levels met both the geometric mean and 90th percentile standards.

Site 20 is tied for 27<sup>th</sup> out of 36 sites for number of significant trends, with 9, and is 8<sup>th</sup> out of 36 sites for positive trends, with 78%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	—	—	—	—	—
□□	□□	□□	□□	□□	□□	□□	□□	□□

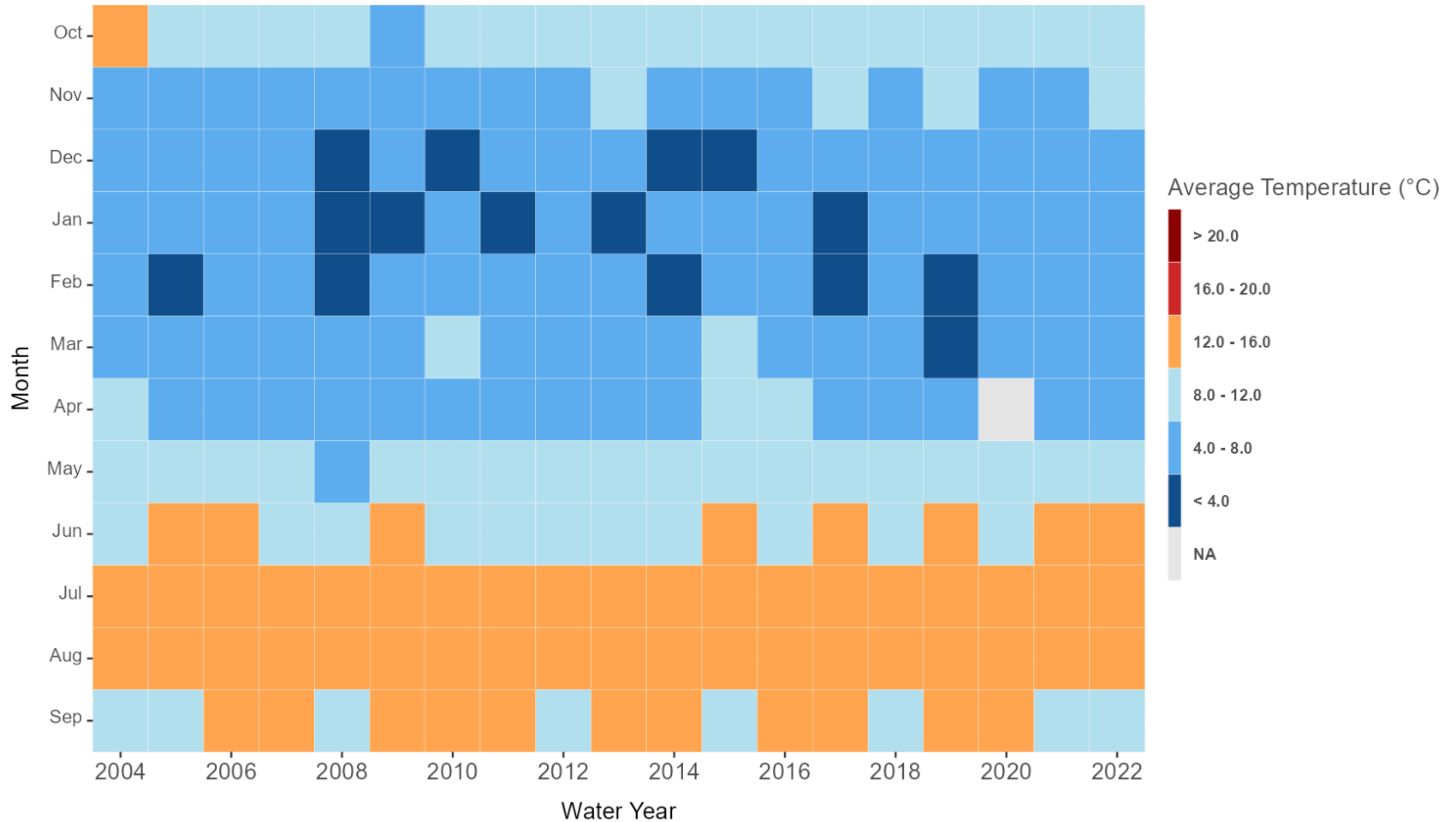


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
25	39	67	89	91	90	82	89	82	87	79	84	84	85	81	90	86

# Monthly Average Temperature

## 20 – Hansen Creek at Northern State

Middle Skagit Watershed  
Upstream Ag, TMDL

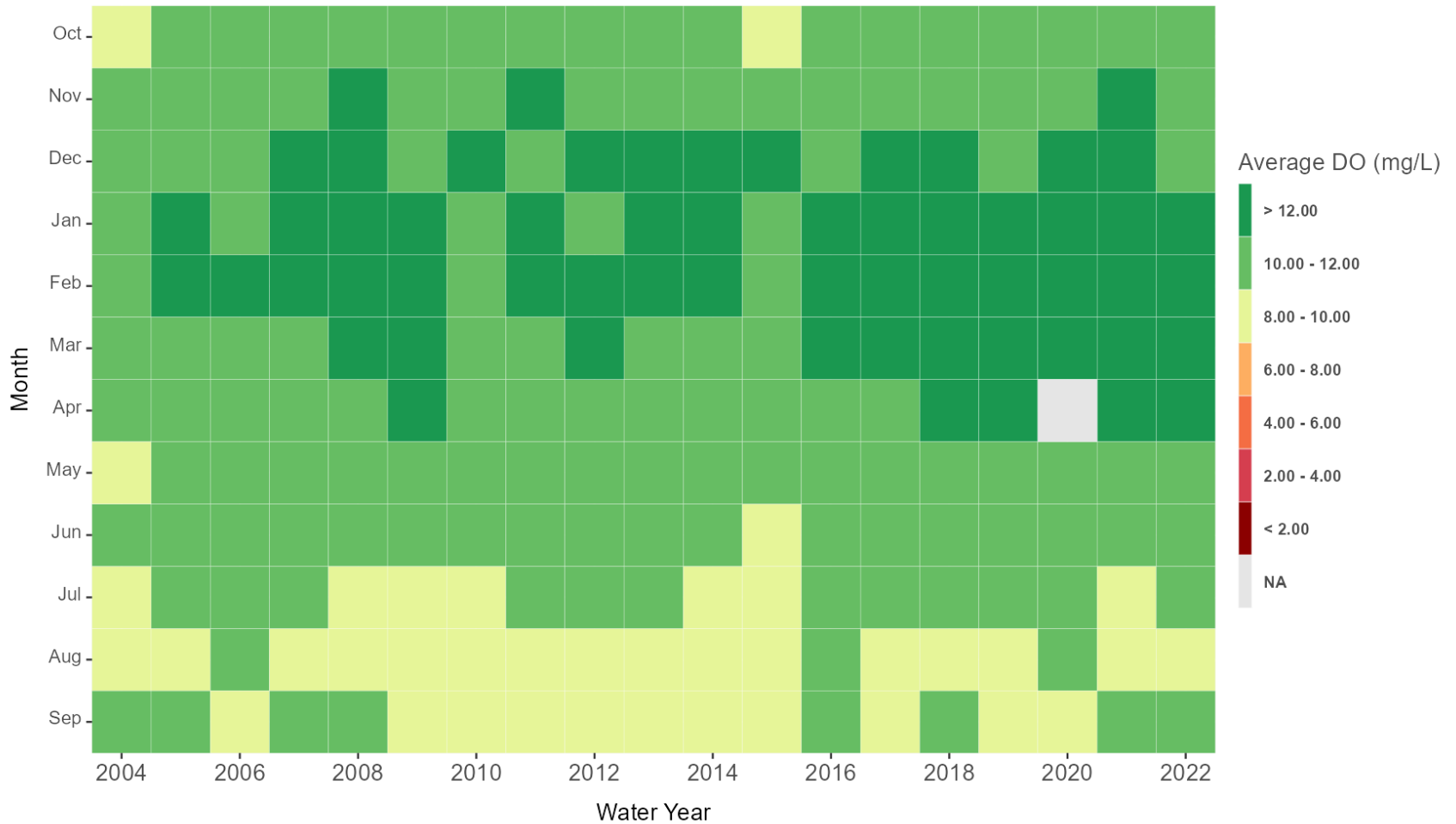


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 20 – Hansen Creek at Northern State

Middle Skagit Watershed  
Upstream Ag, TMDL

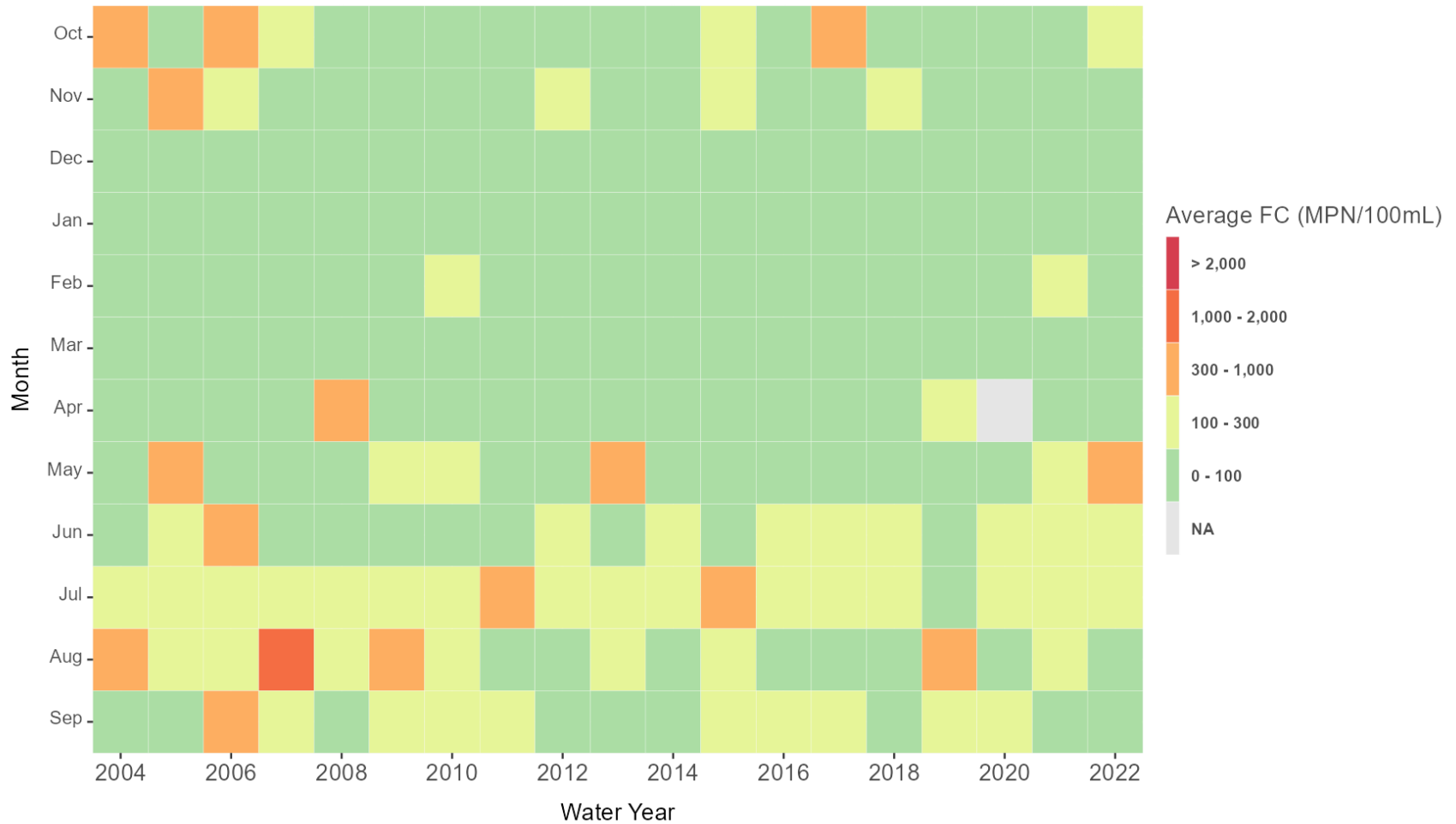


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 20 – Hansen Creek at Northern State

Middle Skagit Watershed  
Upstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 21 – Coal Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag

Site 21 is Coal Creek, downstream from site 22, and just prior to arriving in Skiyou Slough and ultimately the Skagit River. This site is pseudo-ephemeral and can often stop flowing by the end of the summer. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the past 10-years. WQI scores are generally in the upper-score end of the moderate concern category, and often score as least concern.

Site 21 does not meet state standards for DO and occasionally temperature during the warmest months of the year. This site failed the FC state standards for both the geometric mean and 90th percentile requirements. The EC standard for geometric mean was met but did not meet the 90th percentile requirements.

Site 21 is tied for 27<sup>th</sup> out of 36 sites for number of significant trends, with 9, and is 8<sup>th</sup> out of 36 sites for positive trends, with 78%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
█	↑	█	█	█	█	█	█	█
□	□	□	□	□	□	□	□	□

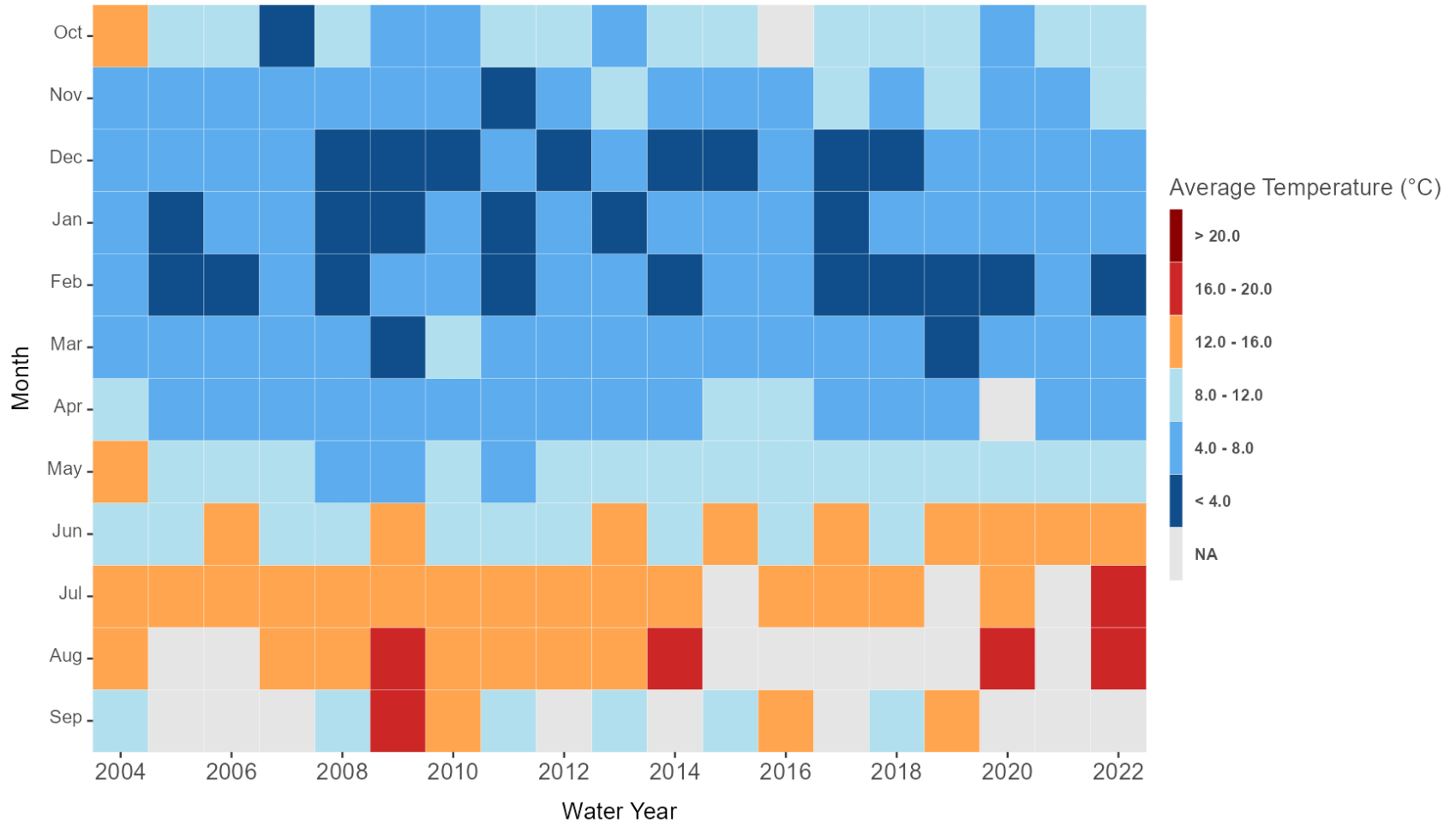


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
36	34	46	87	80	91	82	76	86	68	76	88	80	74	93	84	85

# Monthly Average Temperature

## 21 – Coal Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag



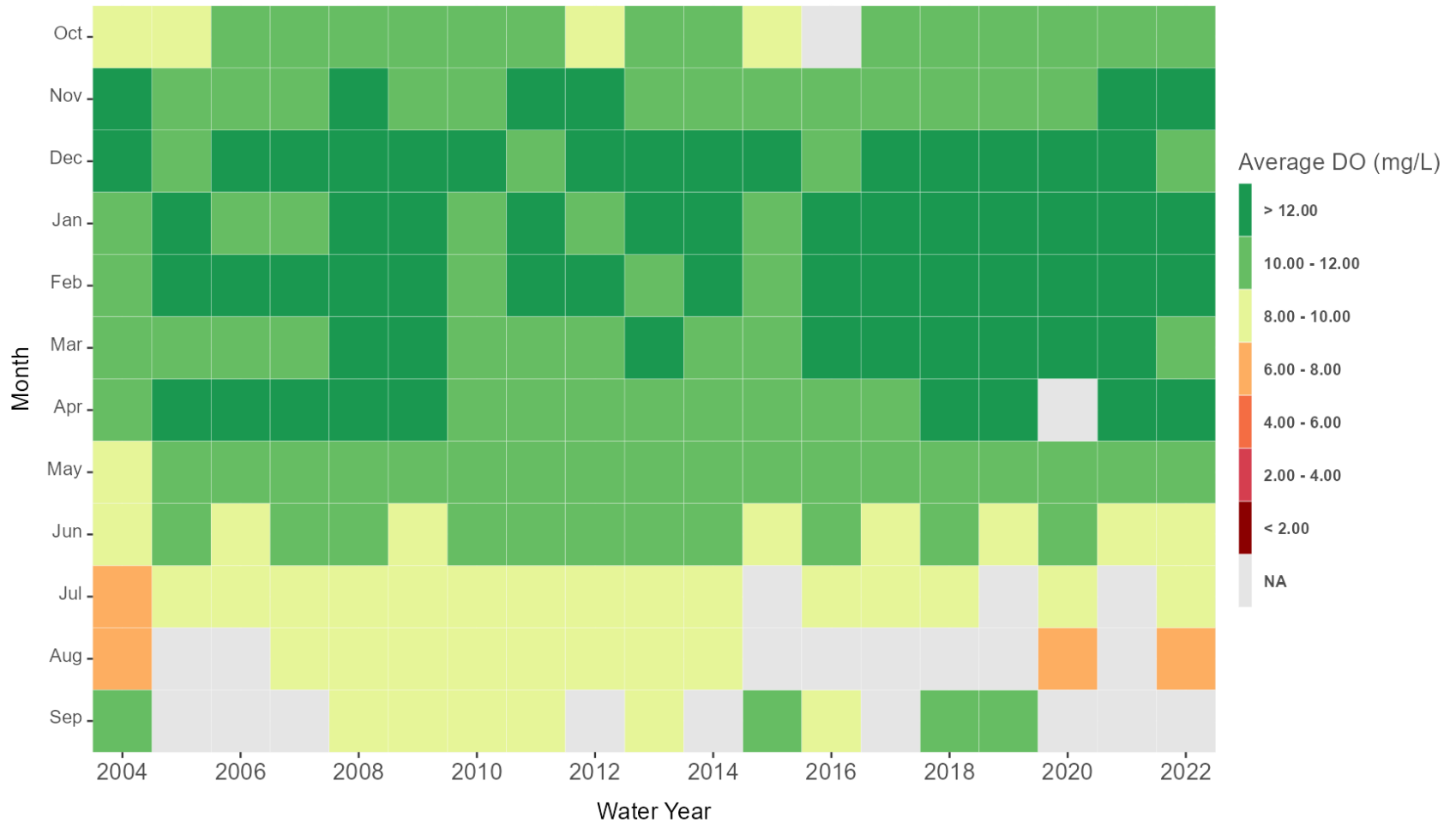
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 21 – Coal Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag

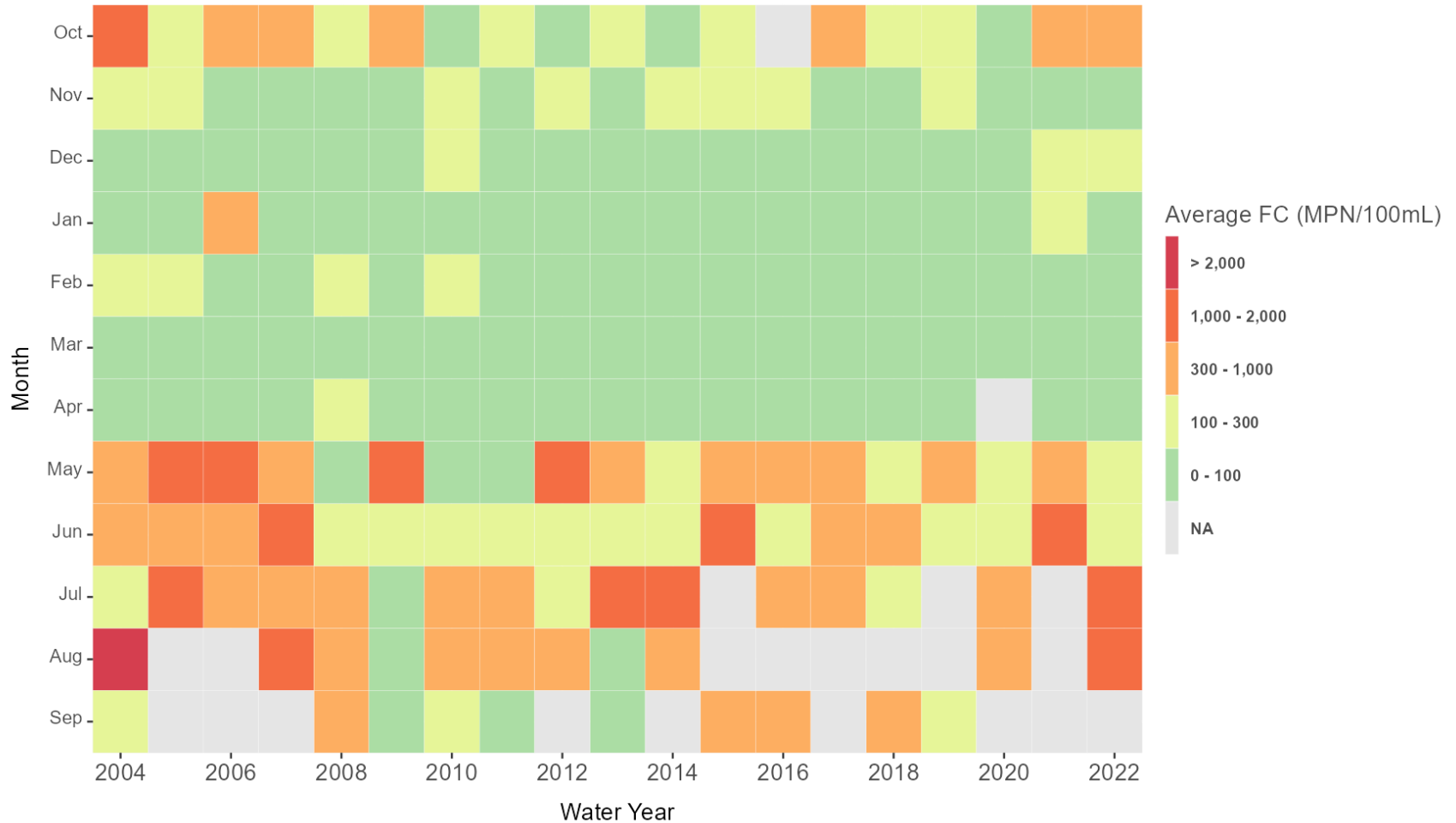


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 21 – Coal Creek at Hoehn Road

Middle Skagit Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 22 – Coal Creek at Highway 20

Middle Skagit Watershed  
Upstream Ag

Site 22 is Coal Creek as it comes down off Lyman Hill and is upstream of site 21. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the past 10 years. Temperature has significantly increased over the length of the 19-year program. WQI scores are regularly in the category of least concern.

Site 22 meets state standards for DO and temperature year-round. This site easily passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. The EC standard for geometric mean was met but did not meet the 90th percentile requirements.

Site 22 is in last place out of 36 sites for number of significant trends, with 6, and is tied for 22<sup>nd</sup> out of 36 sites for positive trends, with 50%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
—	↑	—	↑	—	—	—	—	—
□ □	■ ■	□ □	□ ■	□ □	□ □	□ □	■ □	□ □

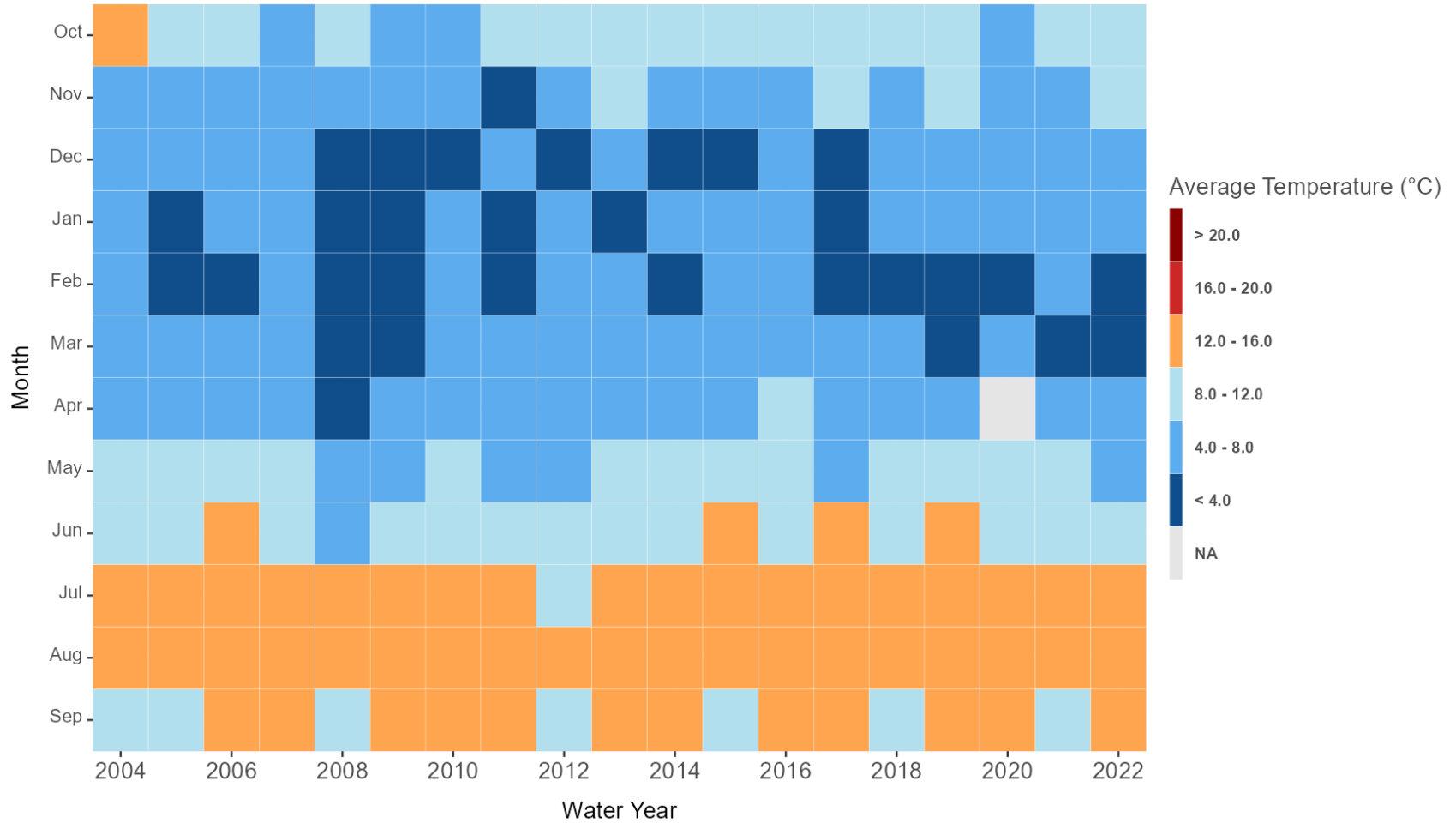


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
37	63	95	96	93	95	89	83	85	87	95	85	93	79	81	96	87

# Monthly Average Temperature

## 22 – Coal Creek at Highway 20

Middle Skagit Watershed  
Upstream Ag

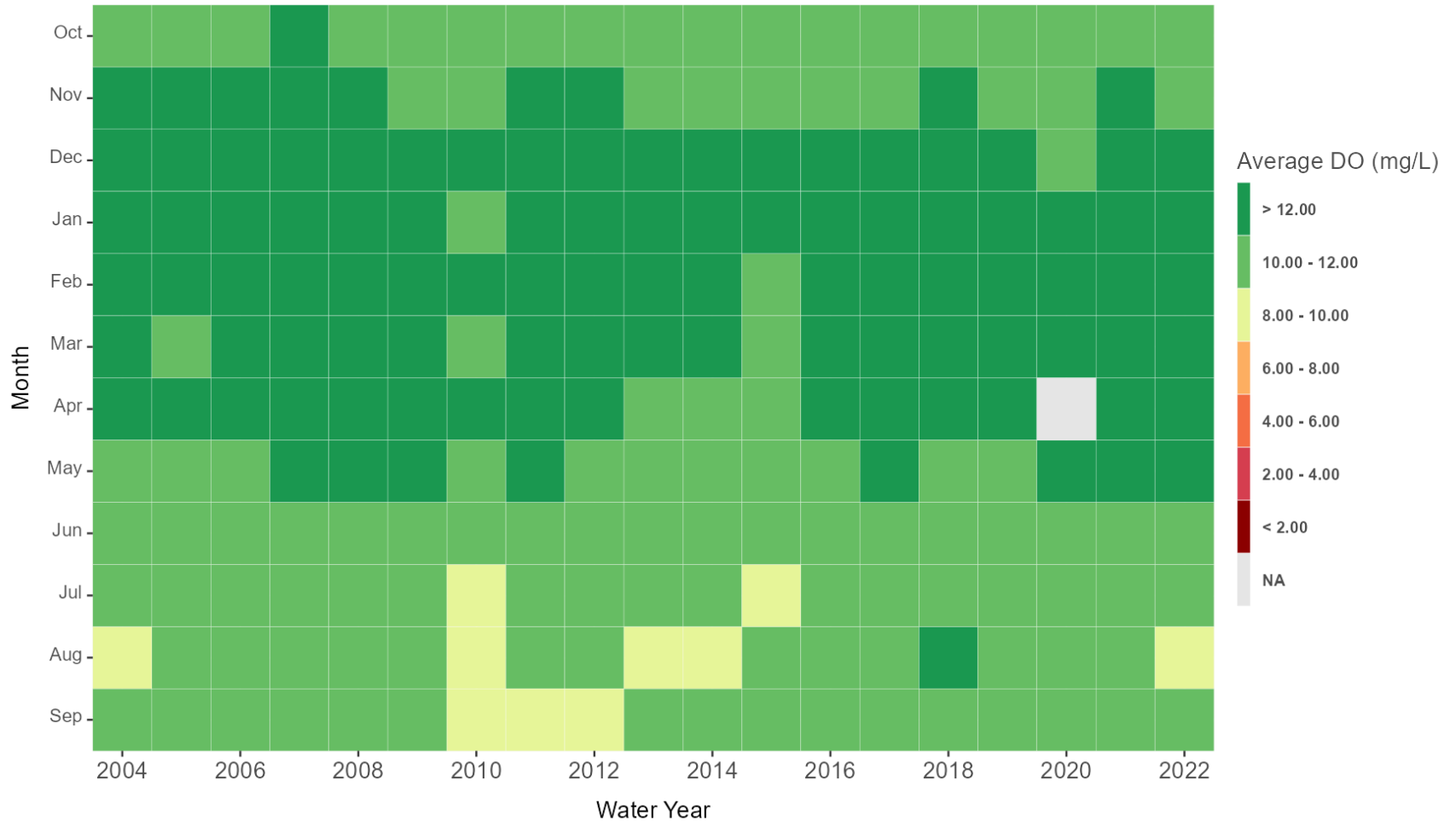


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 22 – Coal Creek at Highway 20

Middle Skagit Watershed  
Upstream Ag

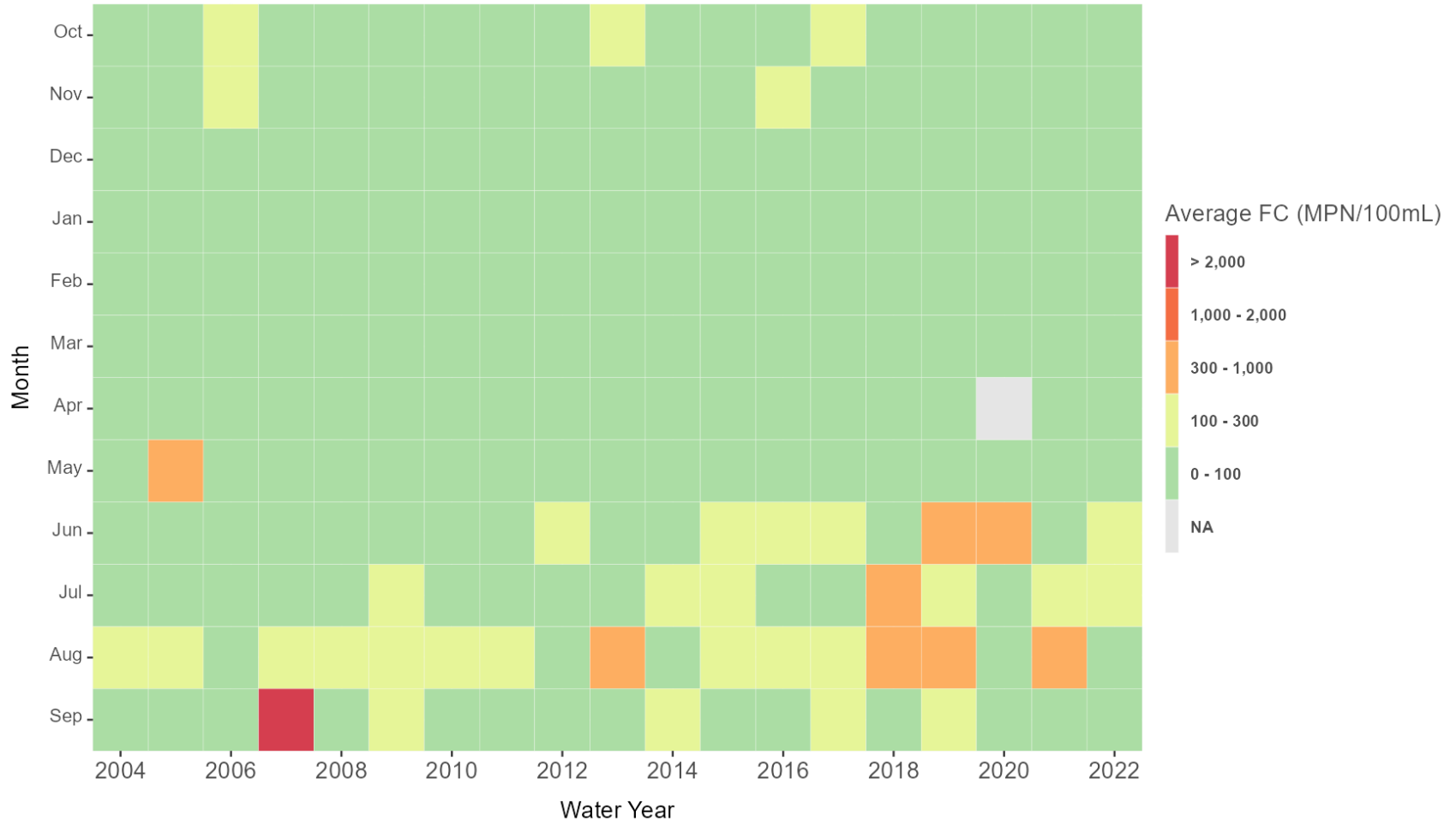


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 22 – Coal Creek at Highway 20

Middle Skagit Watershed  
Upstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 23 – Wiseman Creek at Minkler Road

Middle Skagit Watershed  
Upstream Ag

Site 23 is Wiseman Creek as it comes down off Lyman Hill, and prior to entering Skiyou Slough and ultimately the Skagit River. This site is designated as core salmonid habitat.

No significant monthly trends were observed in dissolved oxygen, temperature, or fecal coliform at this site, over any of the time periods analyzed. WQI is consistently in the category of least concern.

Site 23 rarely, if ever, fails to meet state standards for DO and water temperature, year-round. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement.

Site 23 is 35<sup>th</sup> out of 36 sites for number of significant trends, with 7, and is tied for 11<sup>th</sup> out of 36 sites for positive trends, with 71%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr

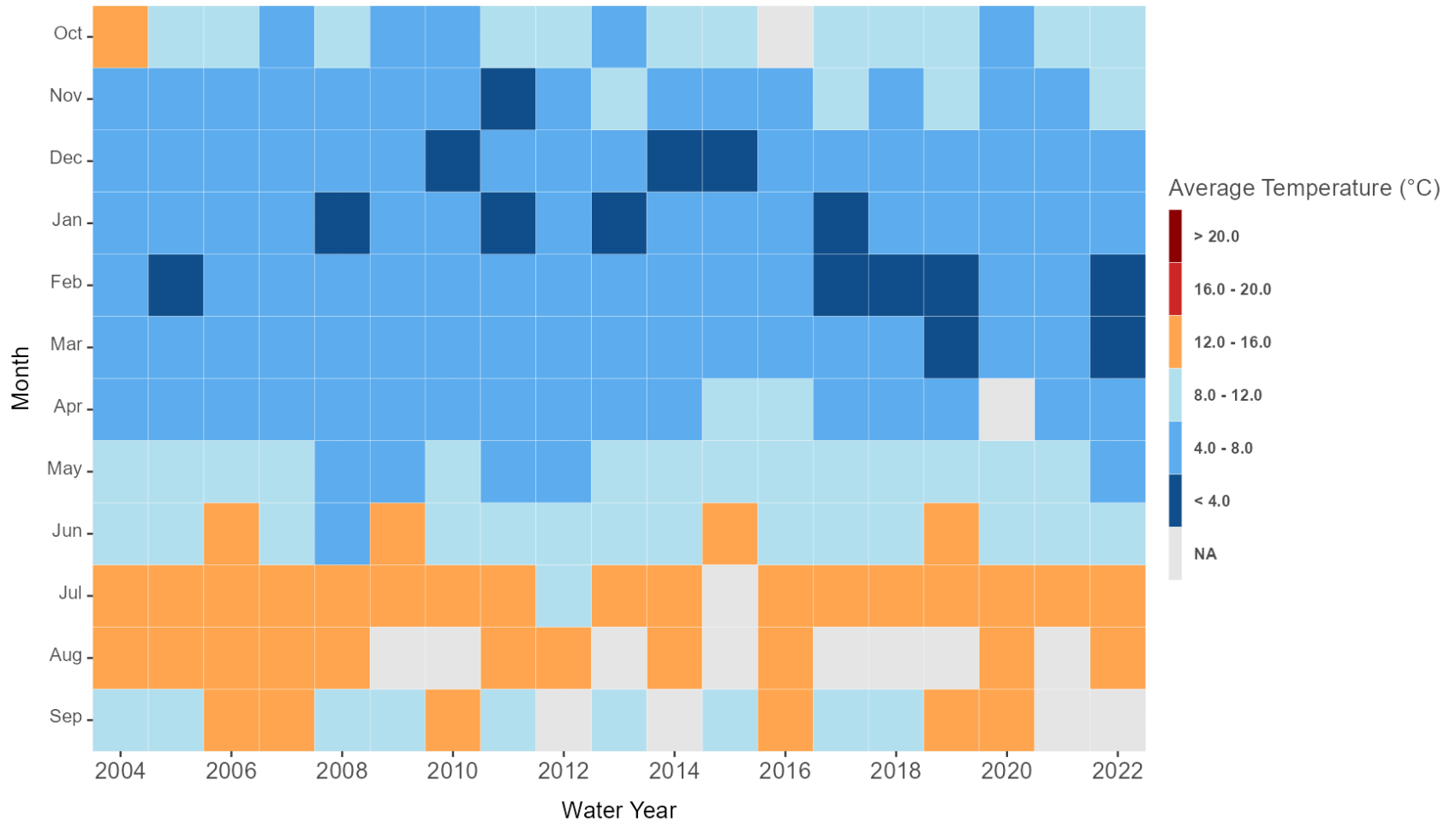


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
27	48	85	98	95	98	95	90	96	83	90	95	85	89	96	93	95

# Monthly Average Temperature

## 23 – Wiseman Creek at Minkler Road

Middle Skagit Watershed  
Upstream Ag



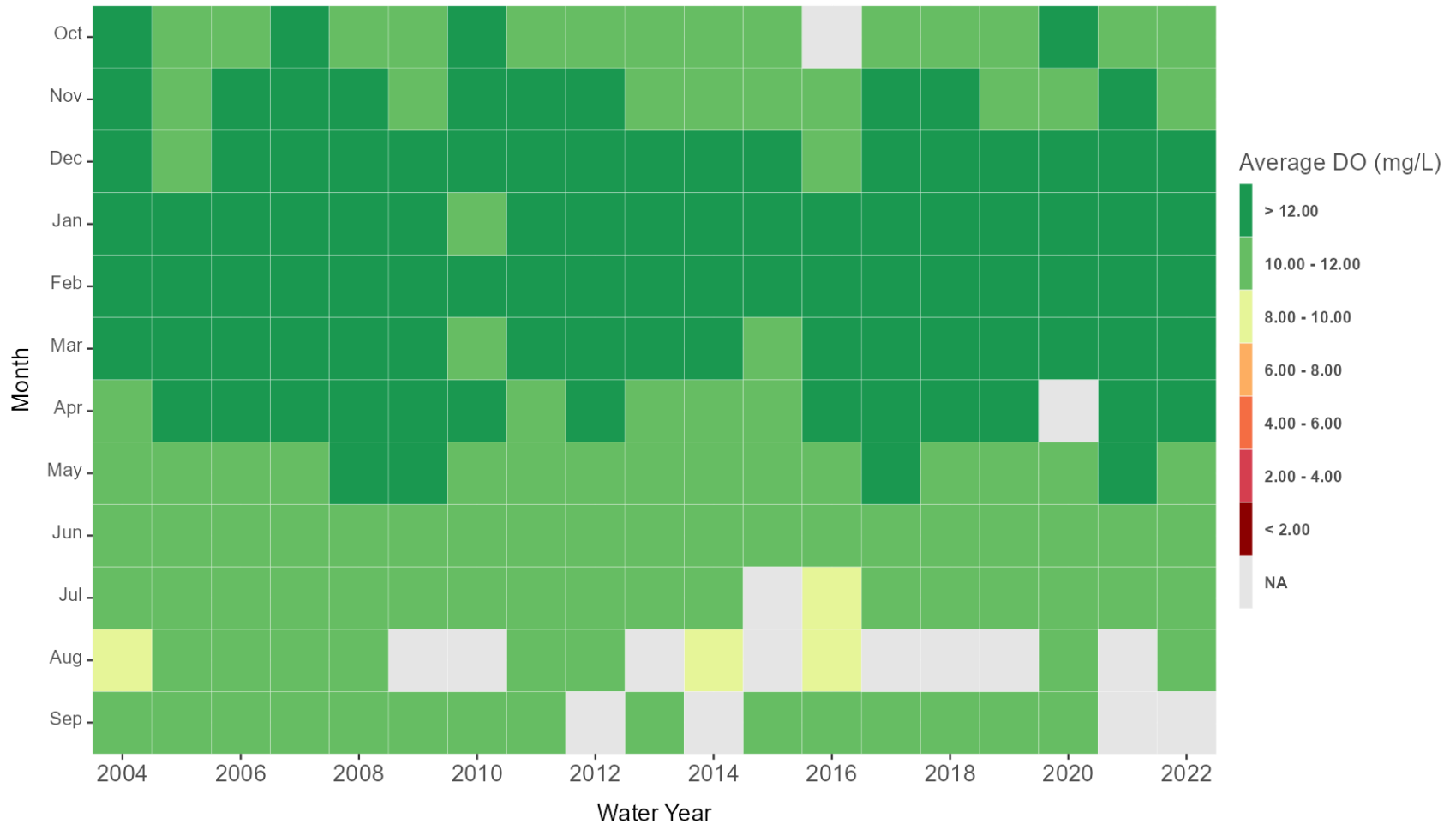
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 23 – Wiseman Creek at Minkler Road

Middle Skagit Watershed  
Upstream Ag

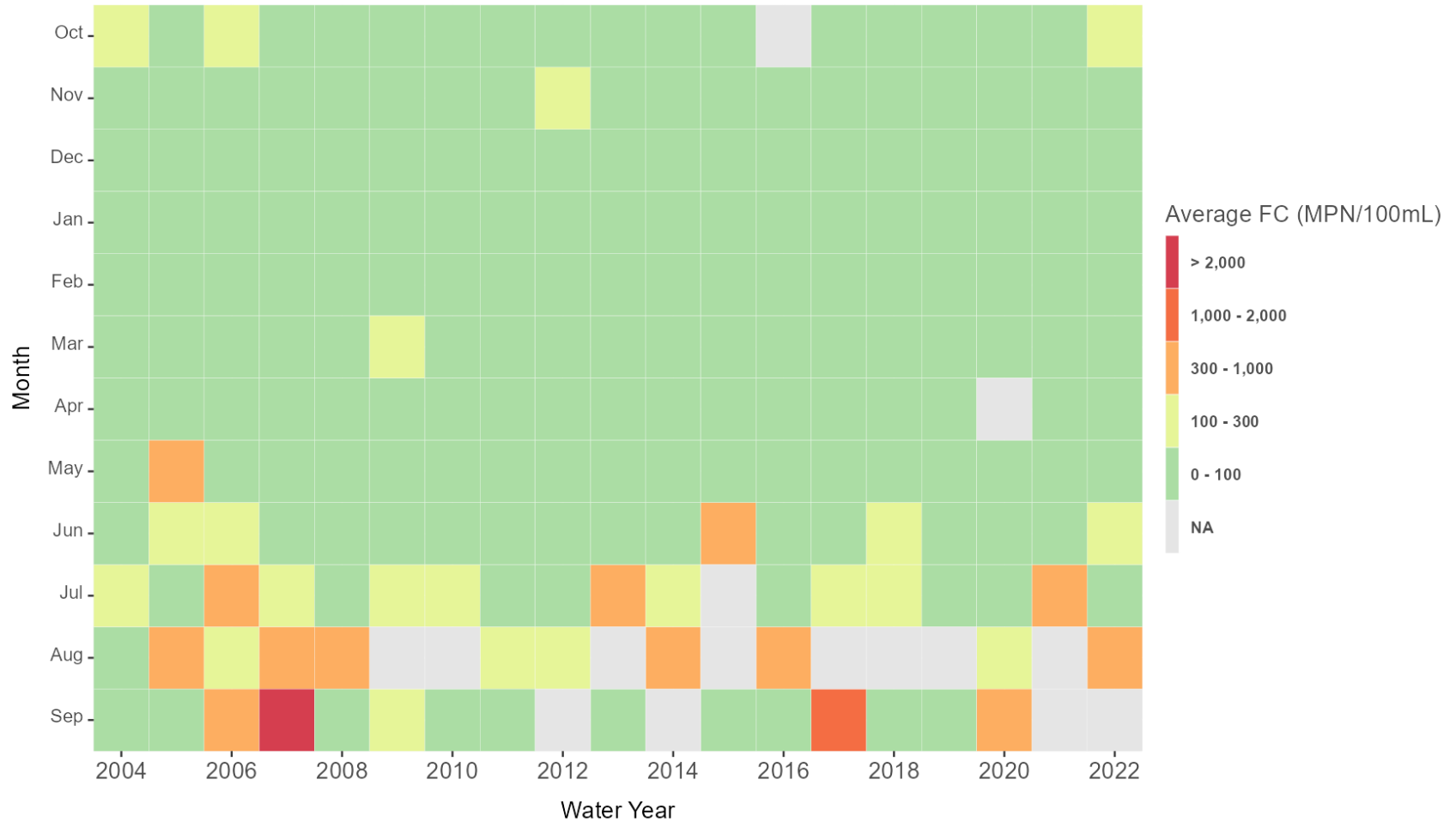


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 23 – Wiseman Creek at Minkler Road

Middle Skagit Watershed  
Upstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 24 – Mannser Creek at Lyman-Hamilton Highway

Middle Skagit Watershed  
Midstream Ag

Site 24 is Mannser Creek, after descending off Mount Josephine and prior to joining the Skagit River, just east of Lyman. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased across the 19- and 10-year time periods. Temperature has increased in the last 5 years. WQI scores are regularly in the category of moderate concern.

Site 24 is slow-moving and inundated with invasive reed canary grass. This has the effect of lowering dissolved oxygen but also decreasing temperature. As a result, this site is almost always below state standards for DO year-round but has never exceeded state temperature standards throughout the history of this program. The bacterial levels for the 2022 water year easily met state standards.

Site 24 is tied for 13<sup>th</sup> out of 36 sites for number of significant trends, with 12, and is tied for 22<sup>nd</sup> out of 36 sites for positive trends, with 50%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	—	↑	—	—	—
2/3	3/3	1/3	1/3	1/3	2/3	1/3	1/3	1/3

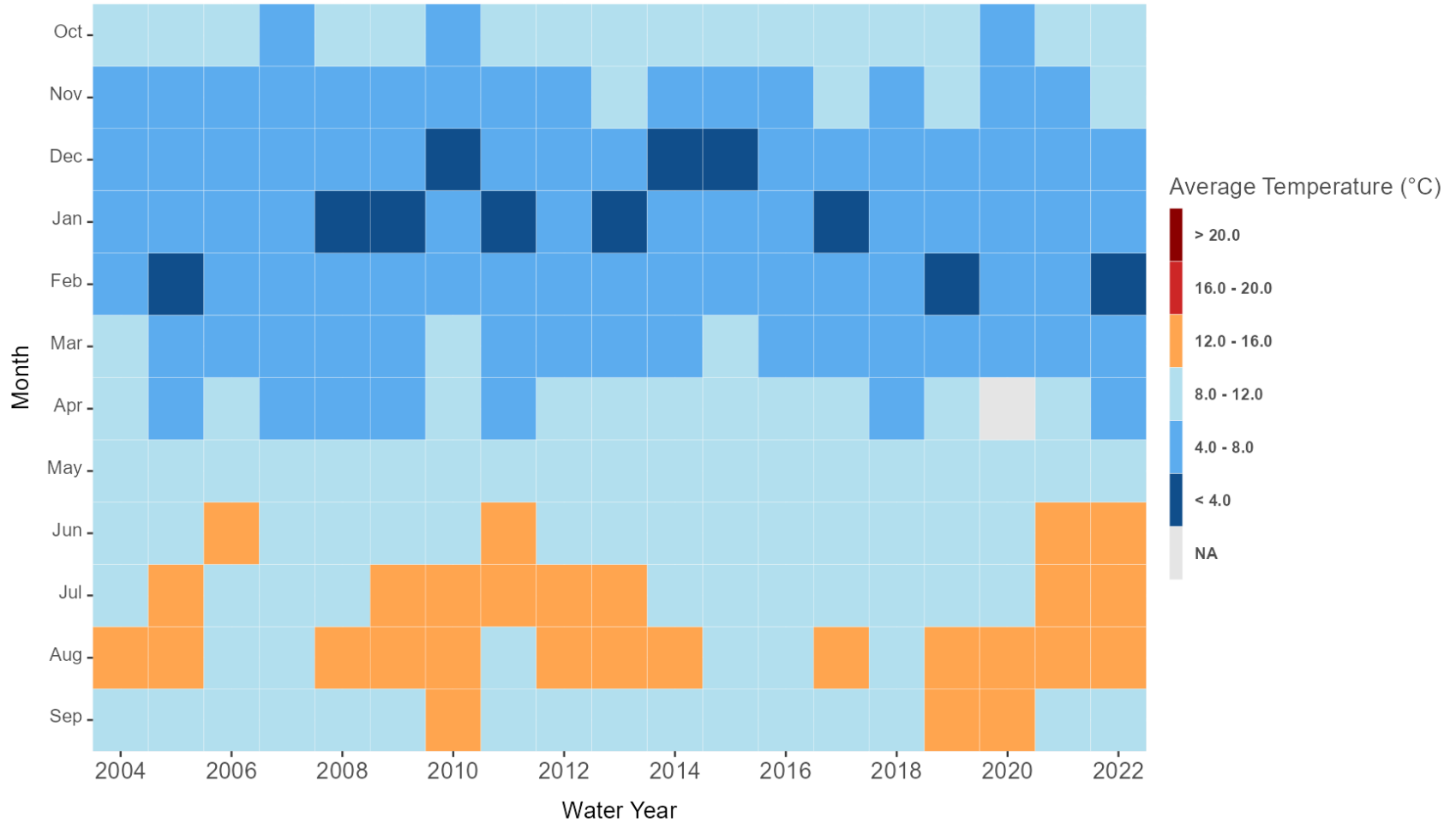


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
35	56	41	69	63	62	45	52	50	62	31	64	71	47	63	69	63

# Monthly Average Temperature

## 24 – Mannser Creek at Lyman-Hamilton Highway

Middle Skagit Watershed  
Midstream Ag

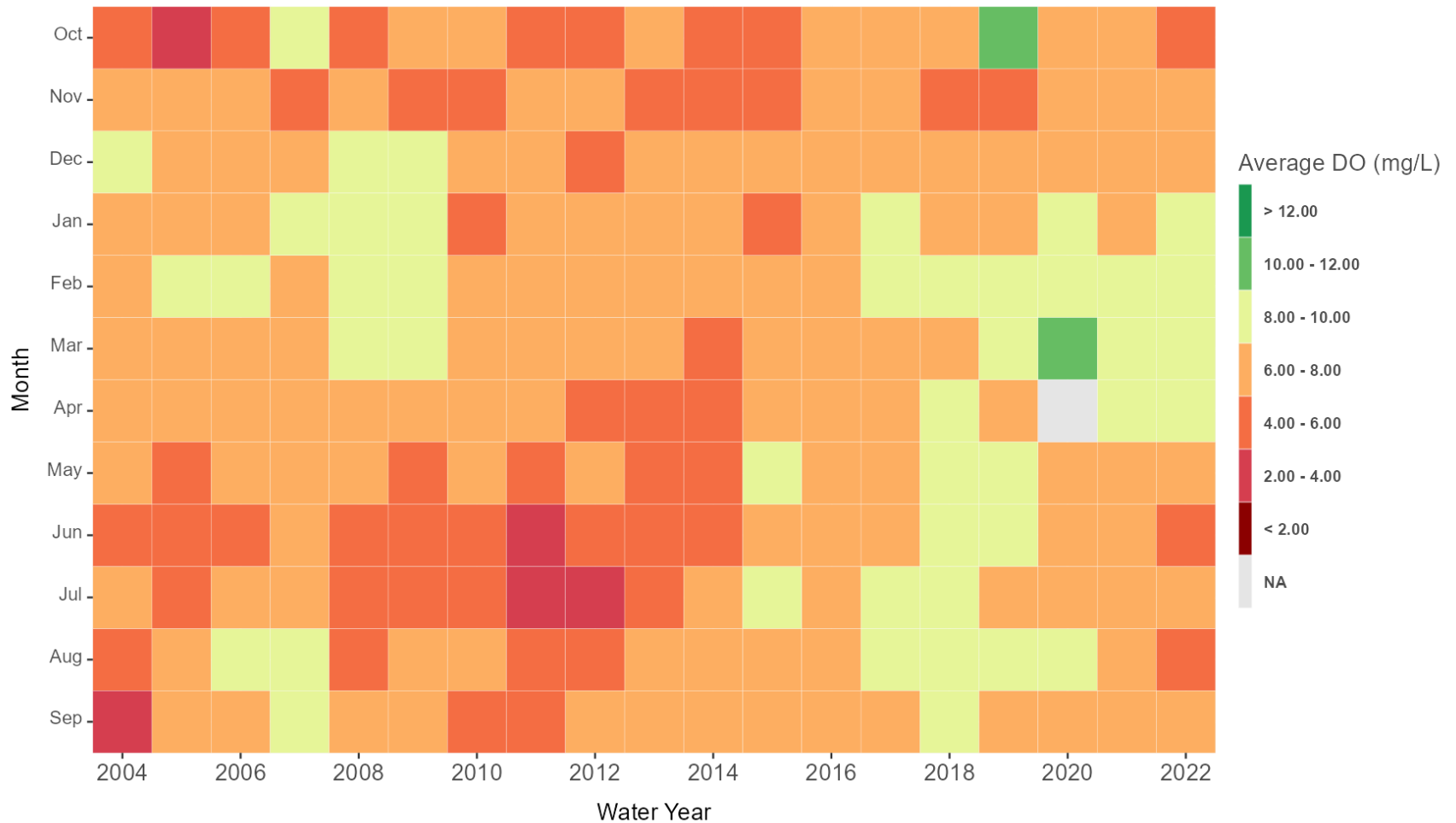


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 24 – Mannser Creek at Lyman-Hamilton Highway

Middle Skagit Watershed  
Midstream Ag

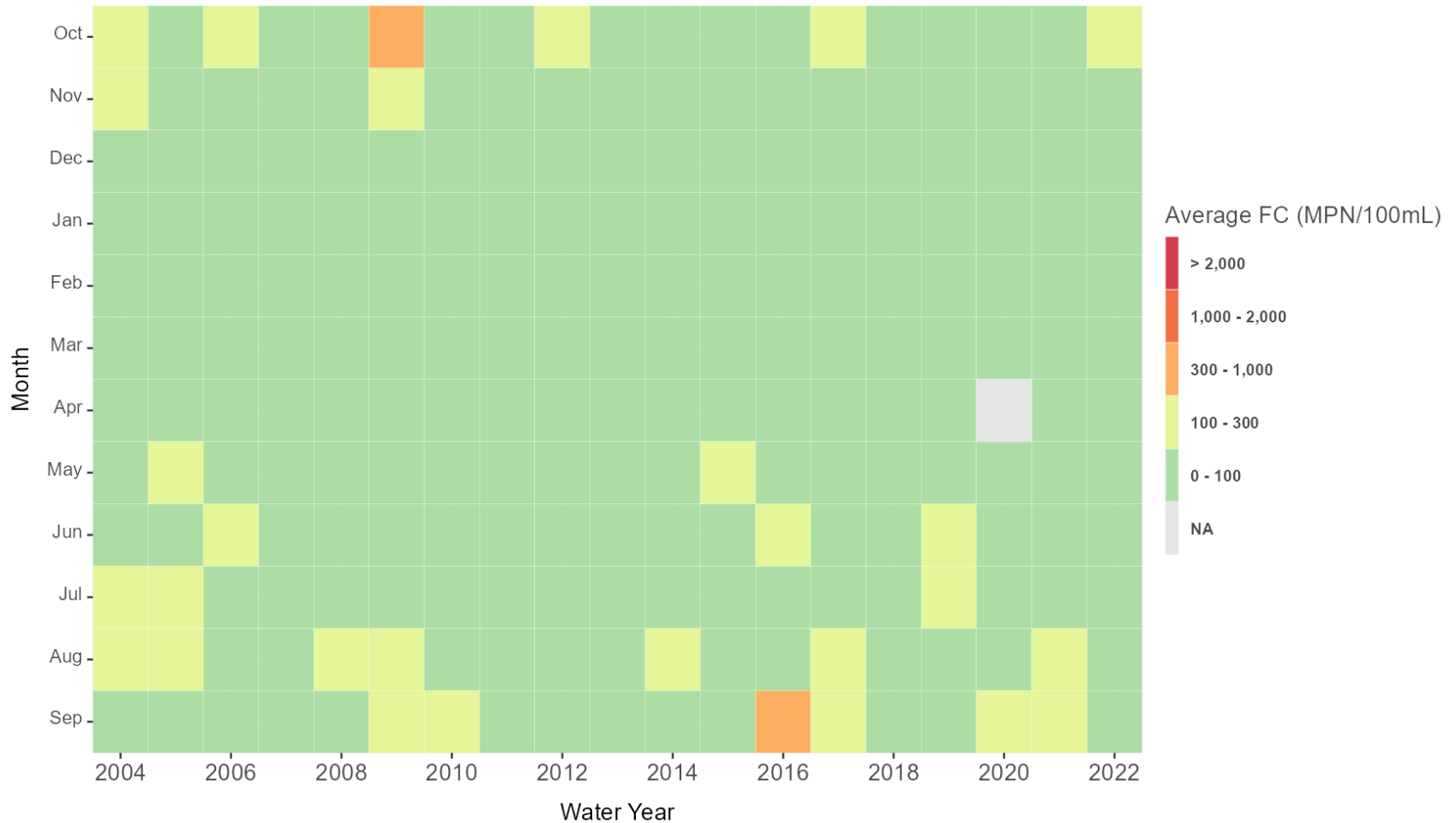


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 24 – Mannser Creek at Lyman-Hamilton Highway

Middle Skagit Watershed  
Midstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 25 – Red Cabin Creek at Hamilton Cemetery Road

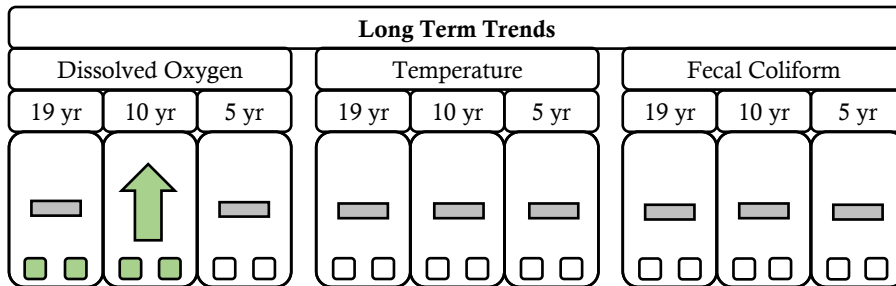
Middle Skagit Watershed  
Reference – Rural Preserve

Site 25 is Red Cabin Creek, after it comes off Mount Josephine in between Lyman and Hamilton. This is an ephemeral creek that regularly dries up by the end of summer. This site is designated as core salmonid habitat.

Dissolved oxygen has significantly increased over the past 10-years. Except for the first year of WQI monitoring, this creek has solely been in the category of least concern.

Site 25 very rarely does not state standards for DO or water temperature. The bacterial levels for the 2022 water year easily met state standards.

Site 25 is 27<sup>th</sup> out of 36 sites for number of significant trends, with 9, and is 19<sup>th</sup> out of 36 sites for positive trends, with 56%.

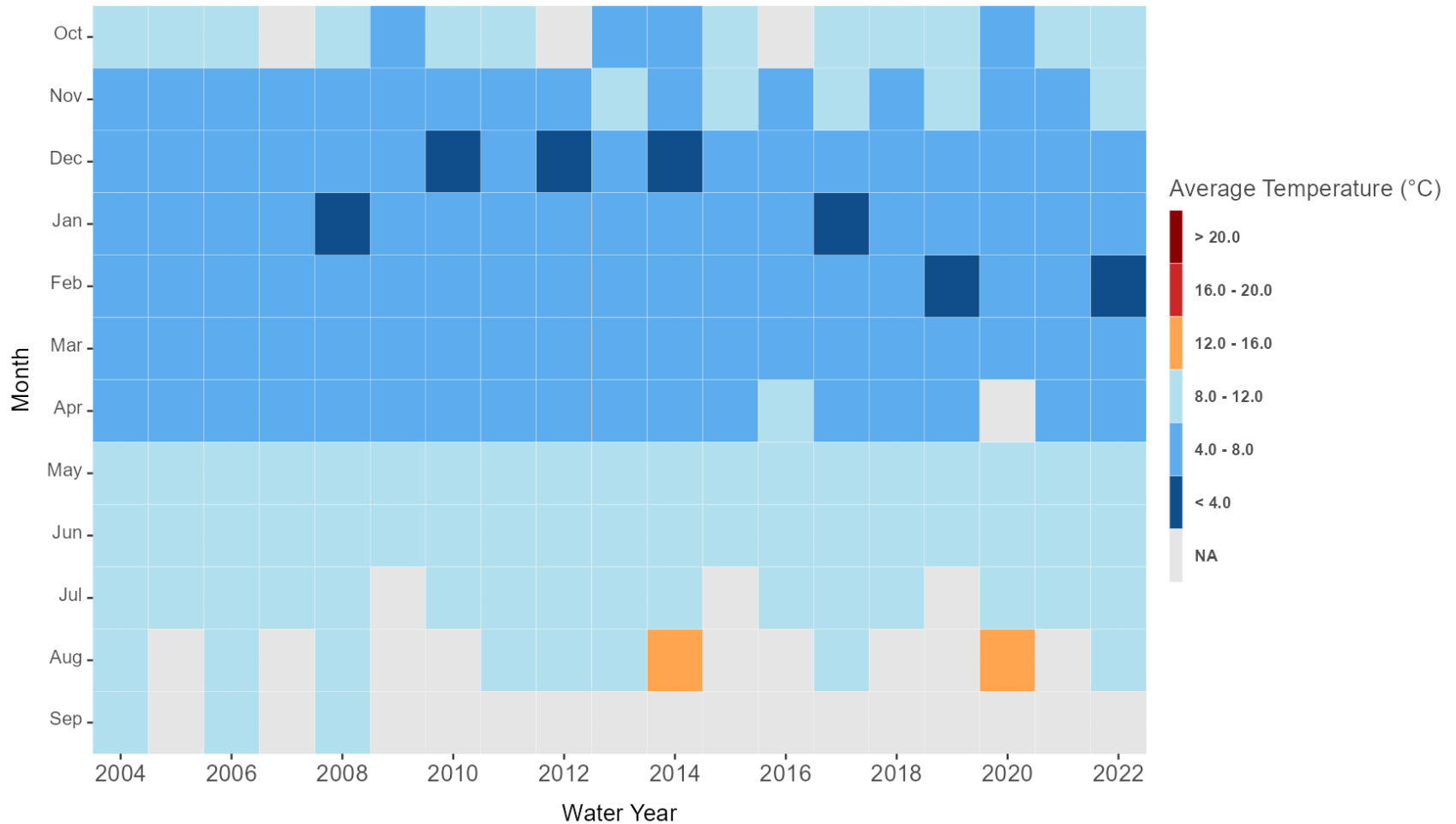


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
74	90	87	97	97	96	96	97	97	94	93	94	96	91	94	97	97

# Monthly Average Temperature

**25 – Red Cabin Creek**  
at Hamilton Cemetery Road

Middle Skagit Watershed  
Reference – Rural Preserve



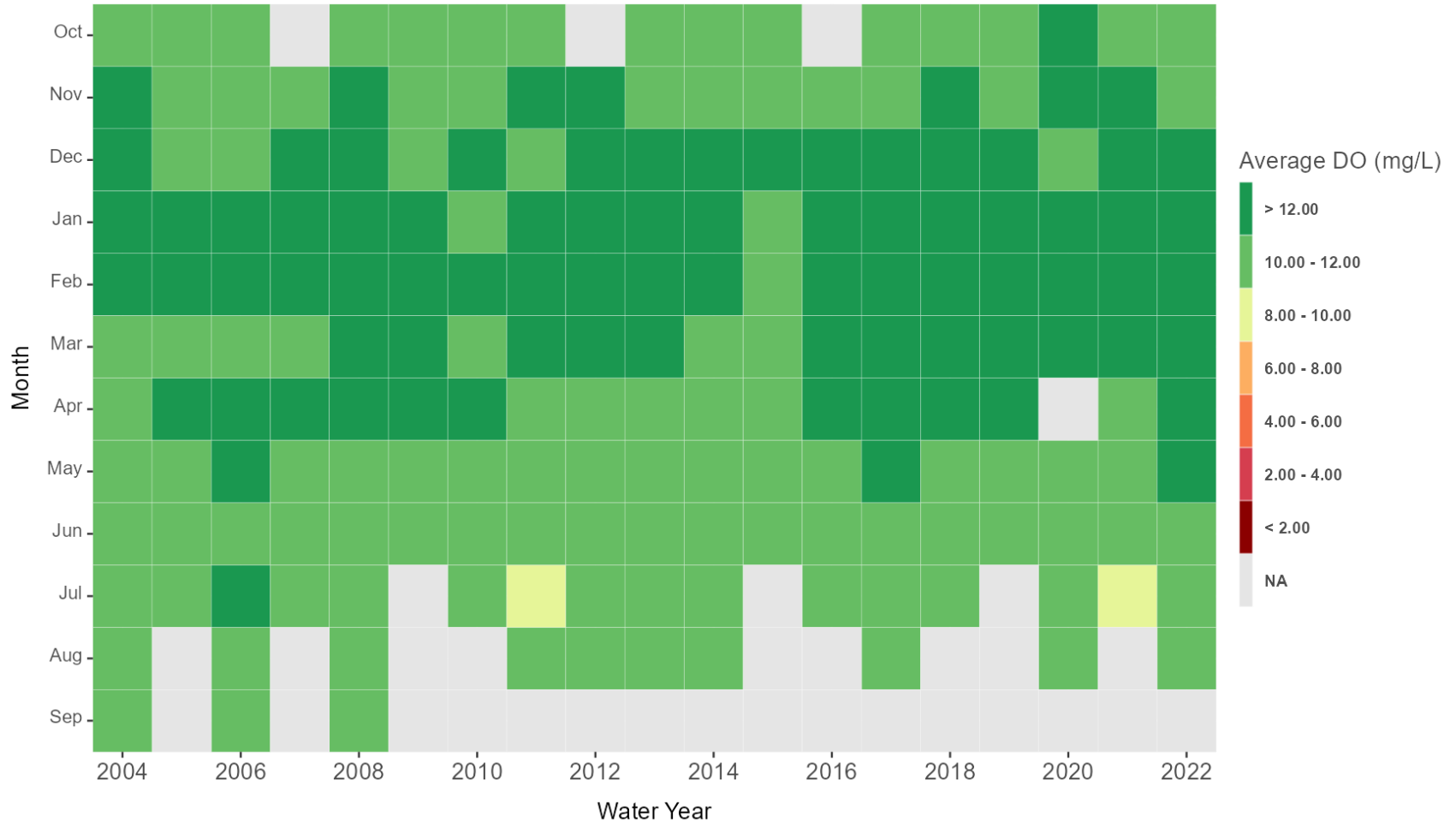
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 25 – Red Cabin Creek at Hamilton Cemetery Road

Middle Skagit Watershed  
Reference – Rural Preserve

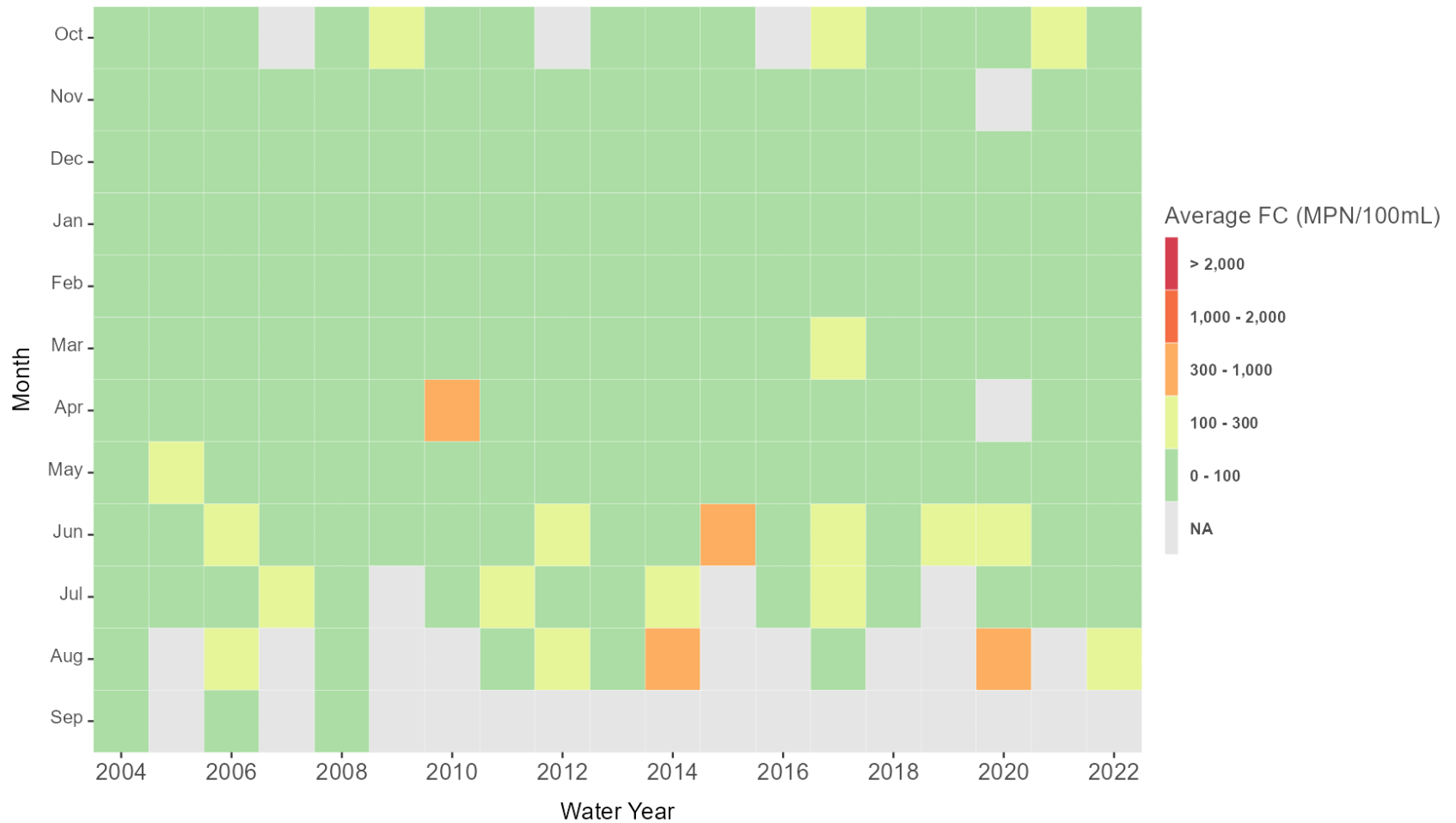


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 25 – Red Cabin Creek at Hamilton Cemetery Road

Middle Skagit Watershed  
Reference – Rural Preserve



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 30 – Skagit River at Cape Horn Road

Middle Skagit Watershed  
Mainstem Skagit - Upper

Site 30 is the Skagit River, at its furthest upstream sampling point for this program, east of Hamilton. The river is designated as core salmonid habitat.

Dissolved oxygen has nearly significantly increased over the last 19 years and 10 years. There have been no significant changes in temperature or fecal coliform at this site. WQI scores are consistently in the category of least concern.

Site 30 does not meet state standards for DO during the warmest times of the year. However, temperature standards are met year-round. The bacterial levels for the 2022 water year easily met state standards.

Site 30 is tied for 27<sup>th</sup> out of 36 sites for number of significant trends, with 9, and is 5<sup>th</sup> out of 36 sites for positive trends, with 89%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	—	—	—	—	—
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

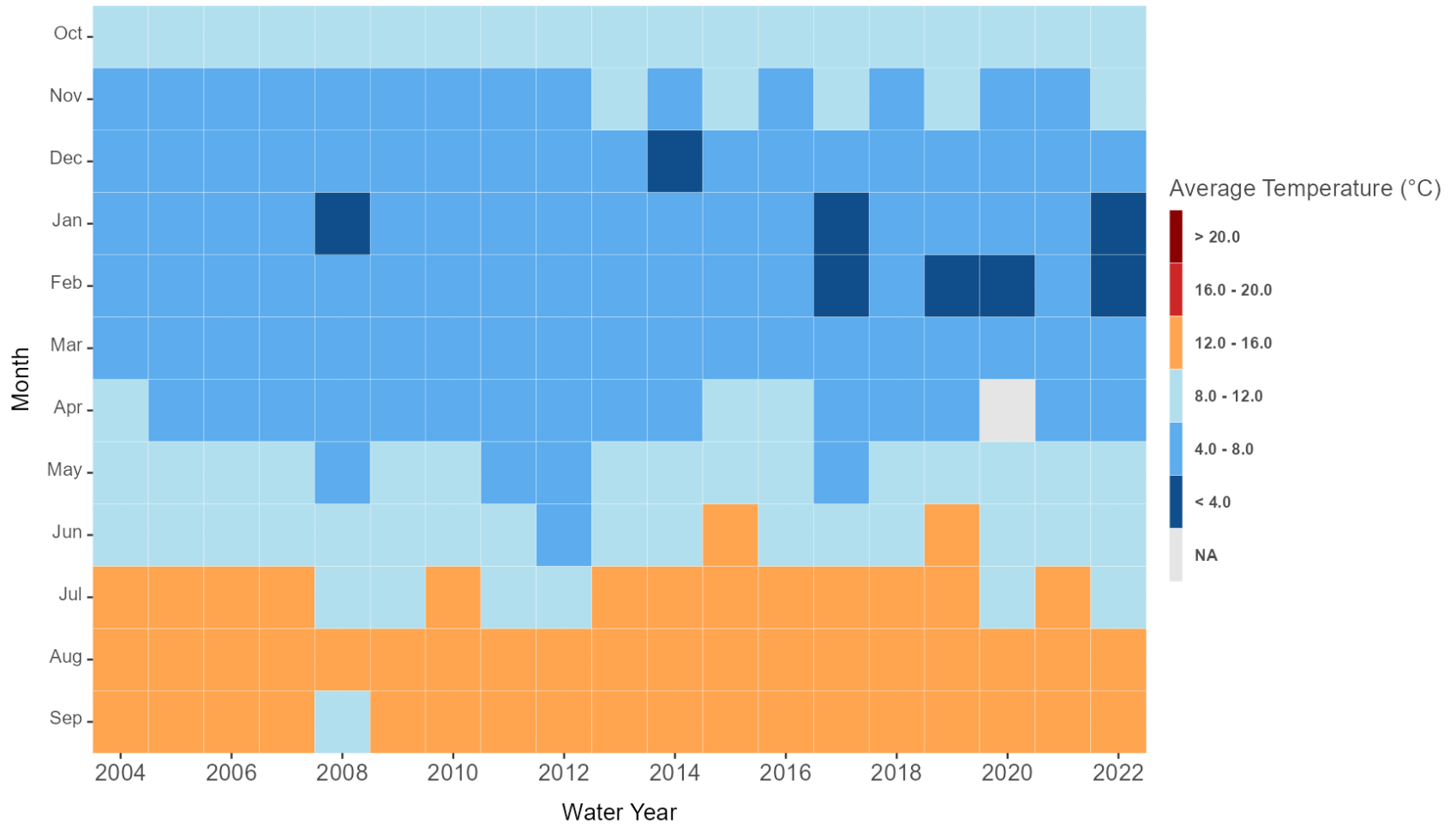


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
66	78	85	89	93	90	90	94	90	85	92	88	96	93	84	86	91

# Monthly Average Temperature

**30 – Skagit River**  
at Cape Horn Road

Middle Skagit Watershed  
Mainstem Skagit - Upper

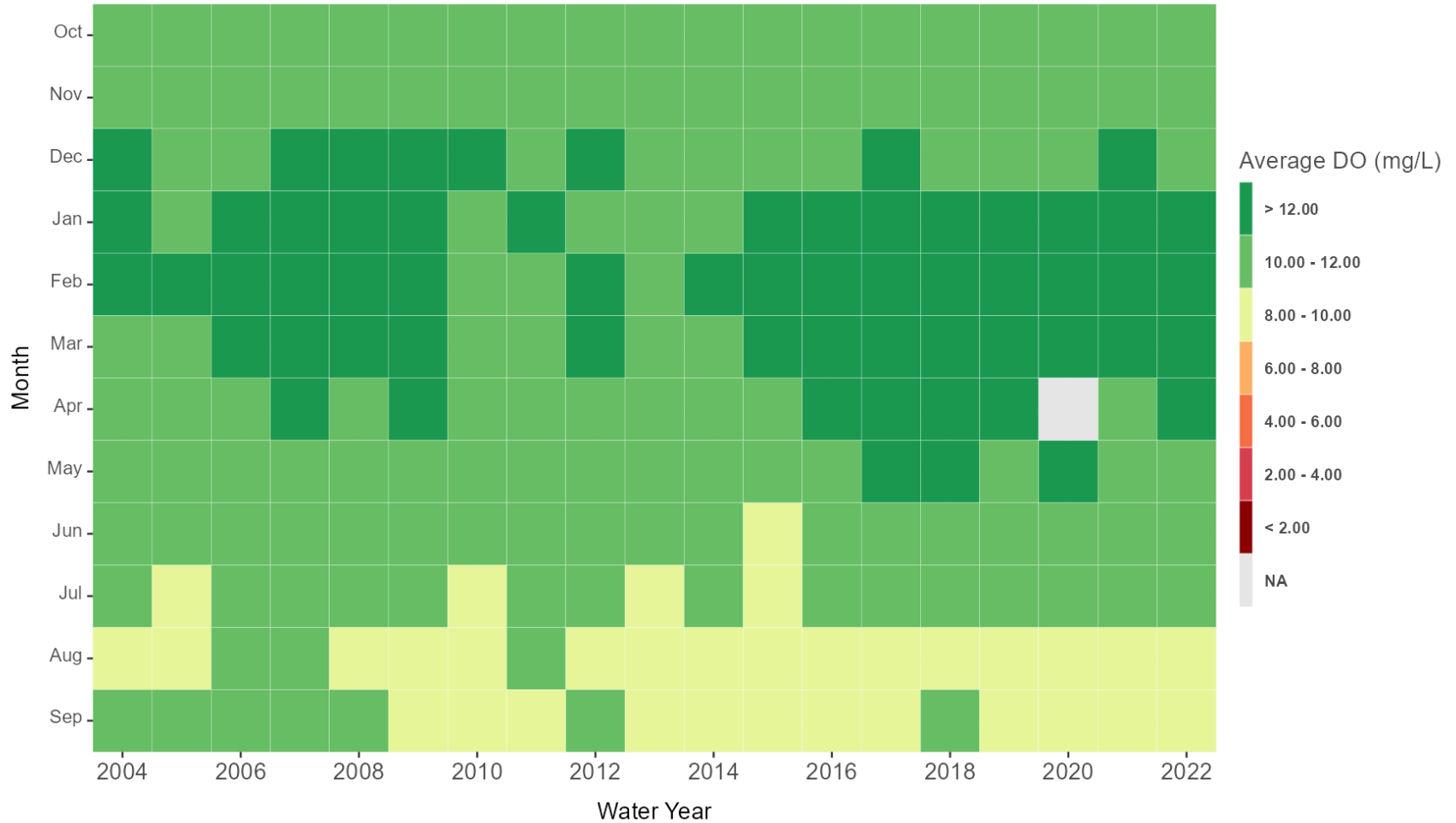


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 30 – Skagit River at Cape Horn Road

Middle Skagit Watershed  
Mainstem Skagit - Upper

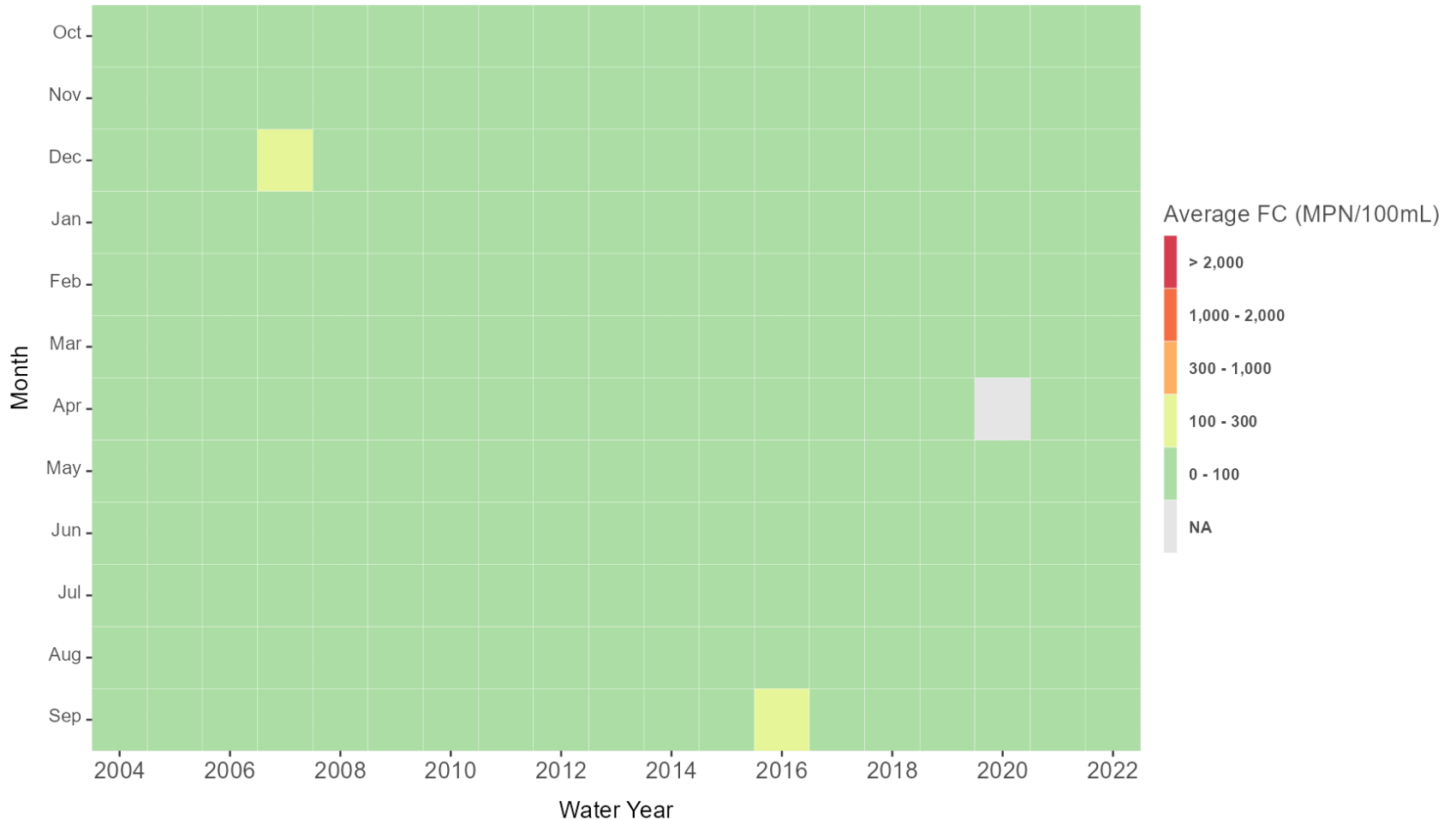


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 30 – Skagit River at Cape Horn Road

Middle Skagit Watershed  
Mainstem Skagit - Upper



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 29 – Skagit River at River Bend Road

Lower Skagit Watershed  
Mainstem Skagit - Lower, TMDL

Site 29 is the Skagit River, after it intersects Burlington and Mount Vernon, and prior to the terminal fork. The river is designated as core salmonid habitat and as salmonid spawning and rearing status.

Dissolved oxygen has significantly increased at this site in the last 19 and 10 years. Temperature has significantly decreased over the length of the program. No significant long-term trends were observed in FC across all time periods measured. WQI scores are consistently in the category of least concern.

Site 29 rarely fails to meet state standards for DO and temperature, and only does so in the summer months. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.

Site 29 is tied for 13<sup>th</sup> out of 36 sites for number of significant trends, with 12, and is 3<sup>rd</sup> out of 36 sites for positive trends, with 92%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	↓	—	—	—	—	—
■	■	■	■	■	■	■	■	■

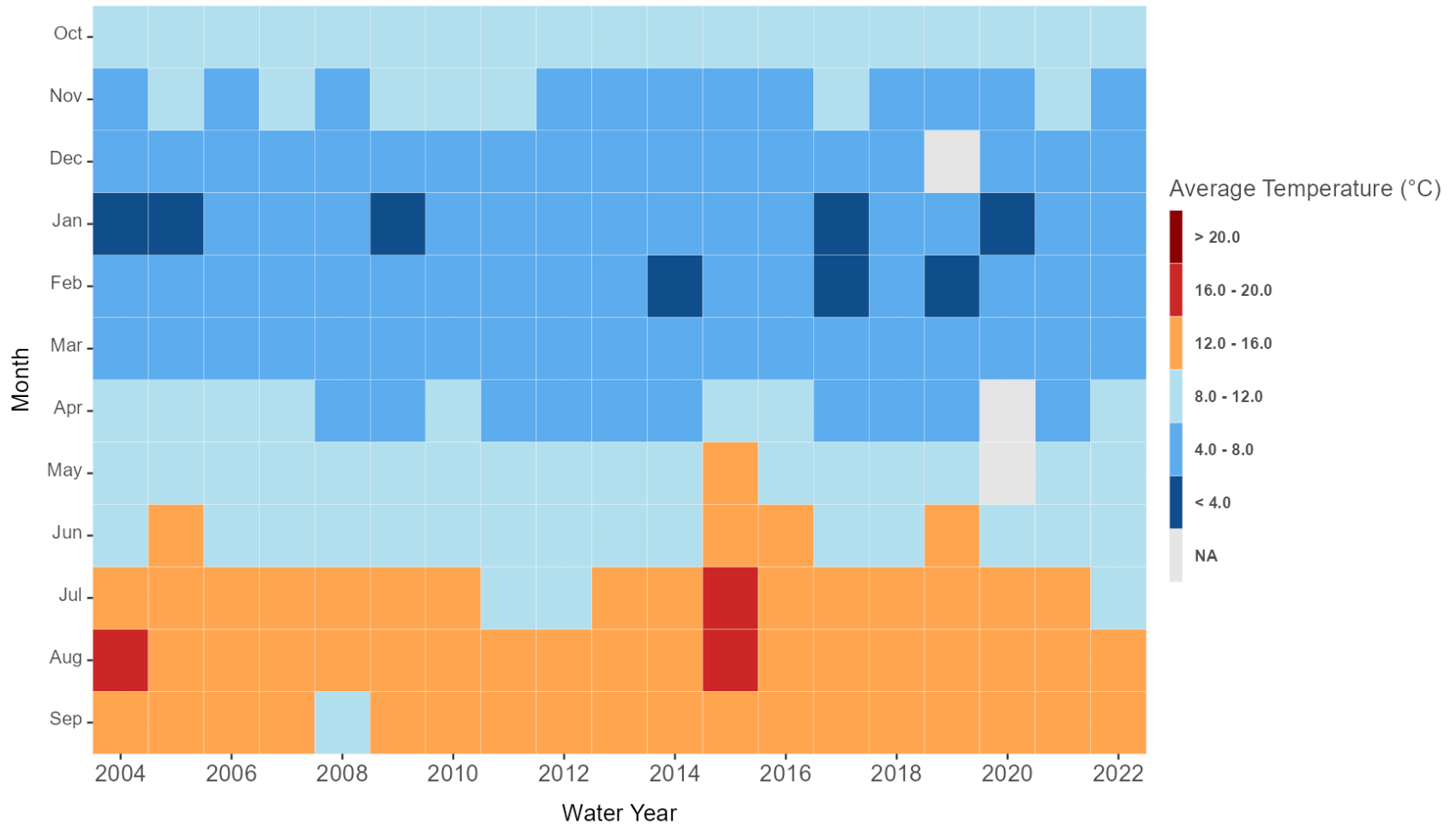


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
76	63	82	94	92	86	82	87	94	93	93	85	92	81	82	83	87

# Monthly Average Temperature

## 29 – Skagit River at River Bend Road

Lower Skagit Watershed  
Mainstem Skagit – Lower, TMDL



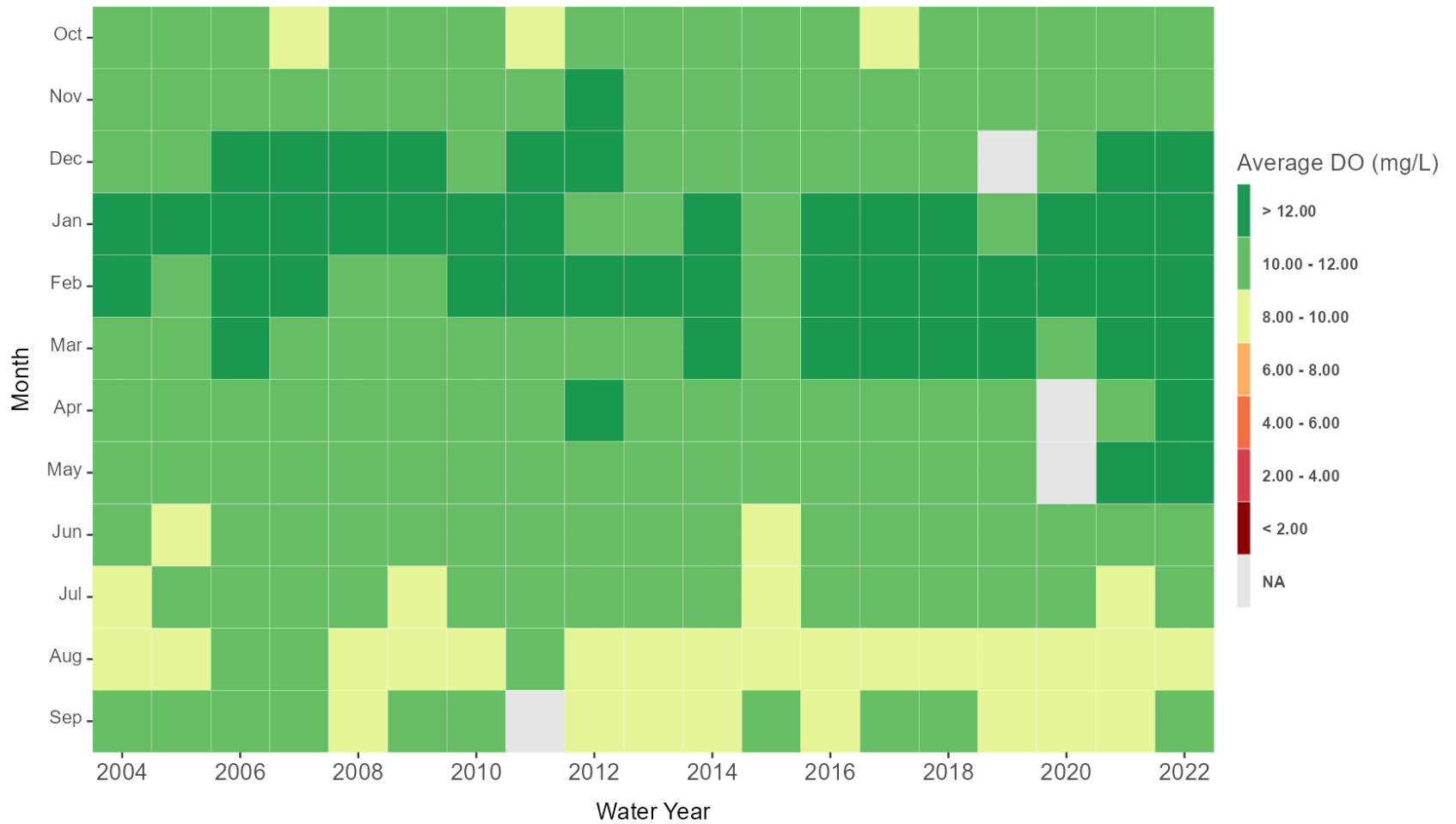
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 29 – Skagit River at River Bend Road

Lower Skagit Watershed  
Mainstem Skagit – Lower, TMDL

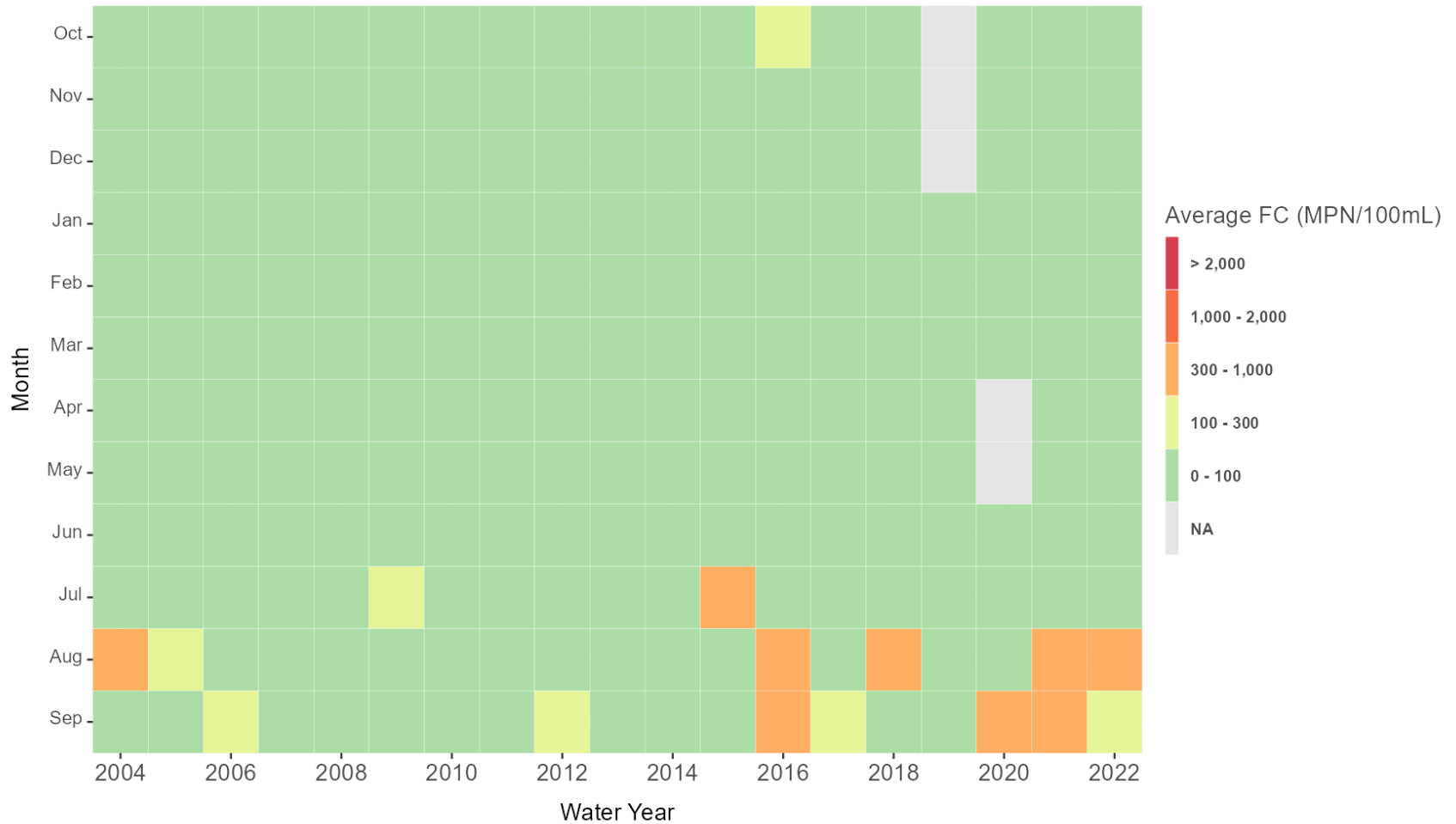


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 29 – Skagit River at River Bend Road

Lower Skagit Watershed  
Mainstem Skagit – Lower, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 41 – Maddox Slough

## at Milltown Road

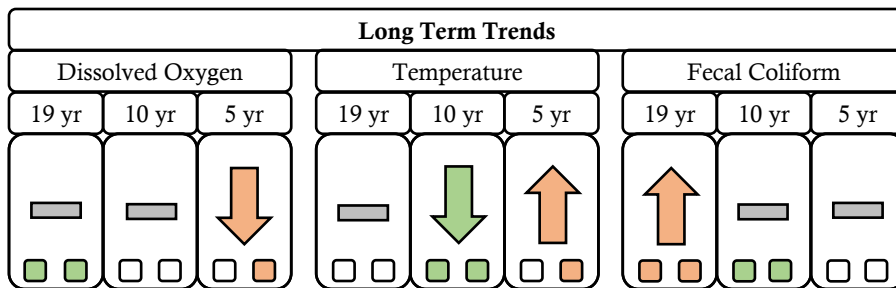
Lower Skagit Watershed  
Downstream Ag

Site 41 is Maddox Slough, or Big Ditch, prior to entering Skagit Bay. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen is significantly lower than it was 19 years ago. Water temperature is lower than it was 10 years ago, however over the 5-year scale has significantly increased. Fecal coliform levels are higher than they were 19 years ago. WQI scores are consistently in the category of highest concern.

Site 41 rarely meets state standards for DO and exceeds state standards for water temperature during the warmer months. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.

Site 41 is 5<sup>th</sup> out of 36 sites for number of significant trends, with 16, and is tied for 28<sup>th</sup> out of 36 sites for positive trends, with 31%.

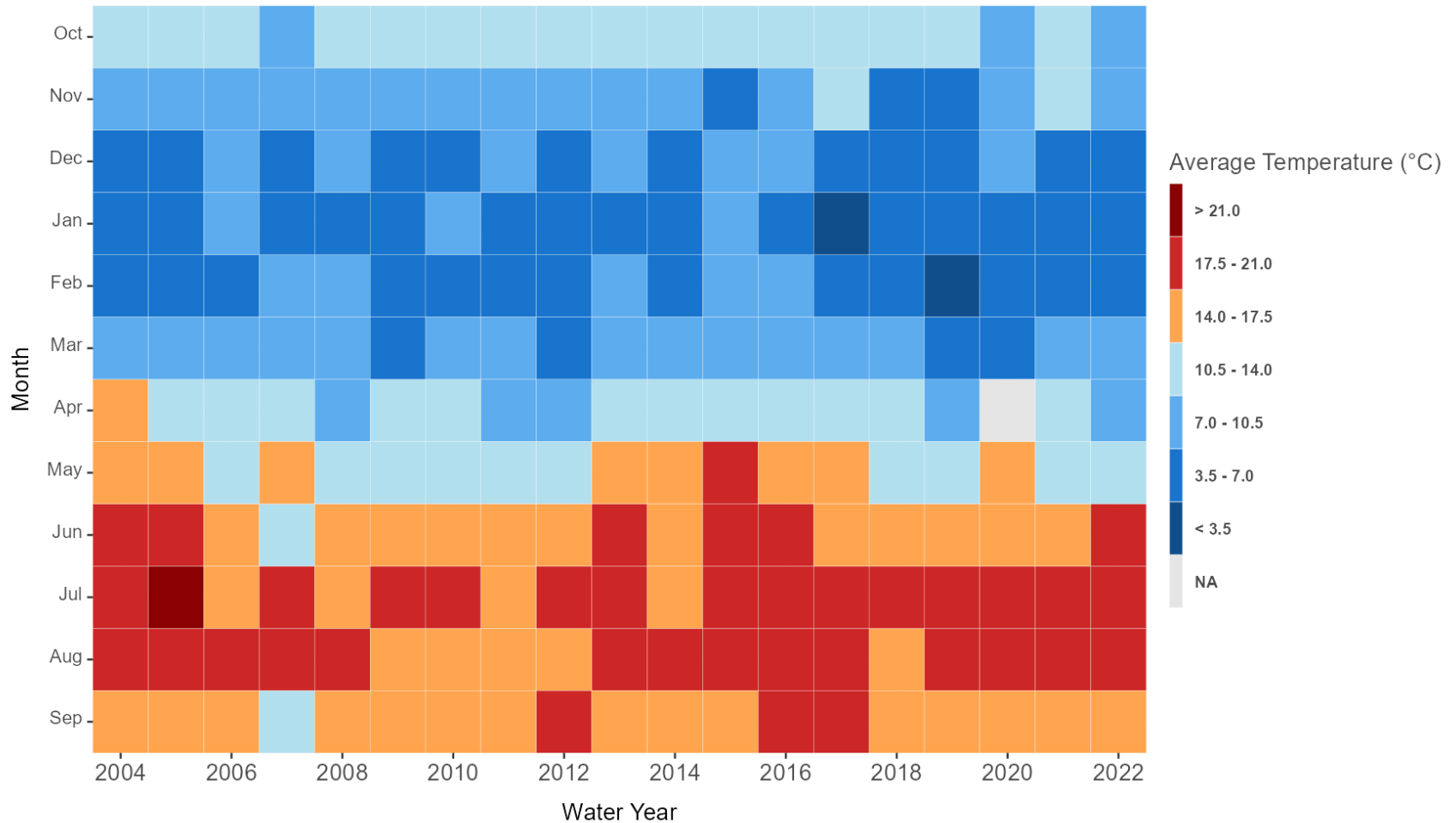


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
15	27	23	56	55	27	34	19	24	30	39	39	25	33	18	27	32

# Monthly Average Temperature

## 41 – Maddox Slough at Milltown Road

Lower Skagit Watershed  
Downstream Ag

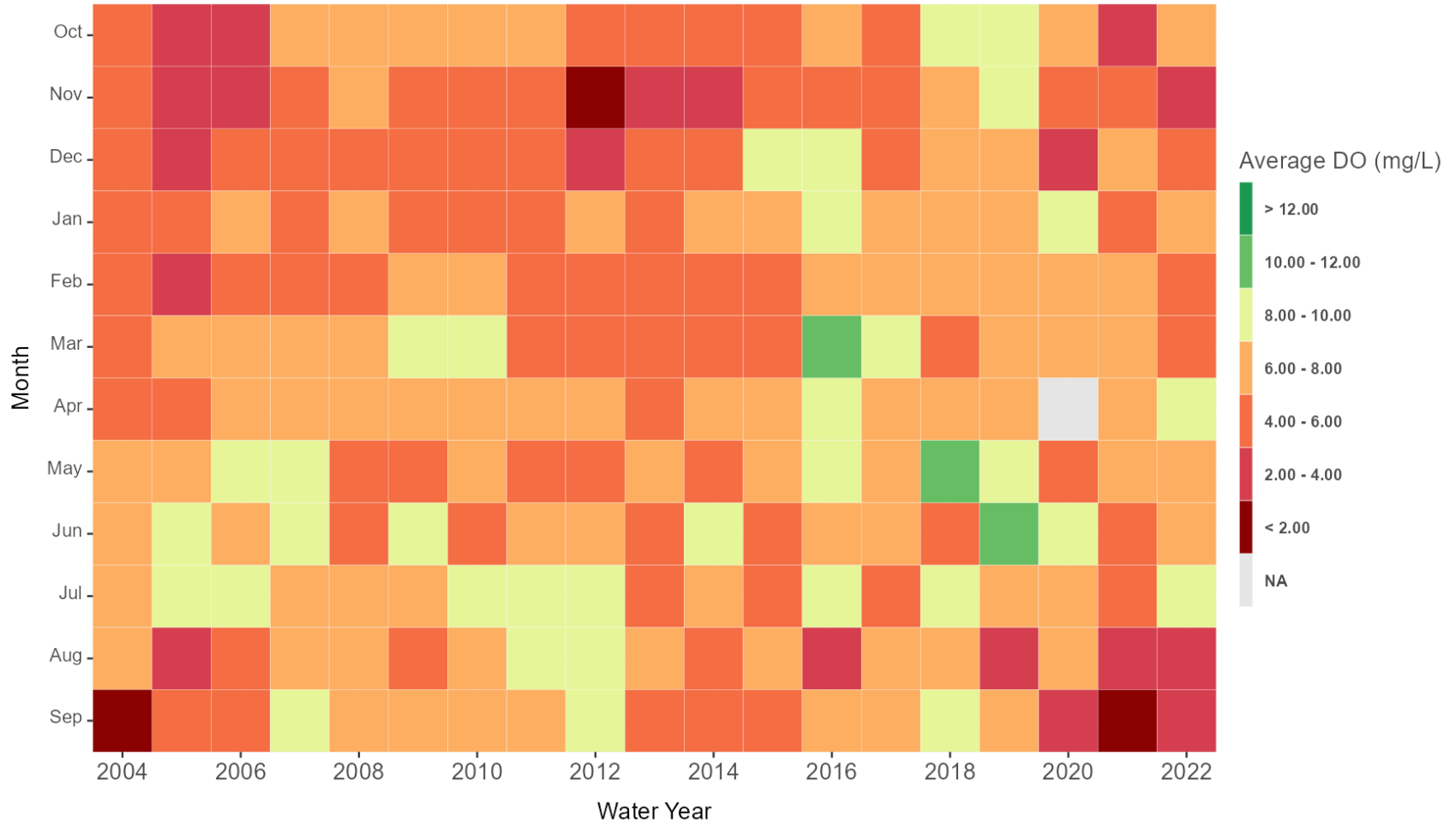


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 41 – Maddox Slough at Milltown Road

Lower Skagit Watershed  
Downstream Ag

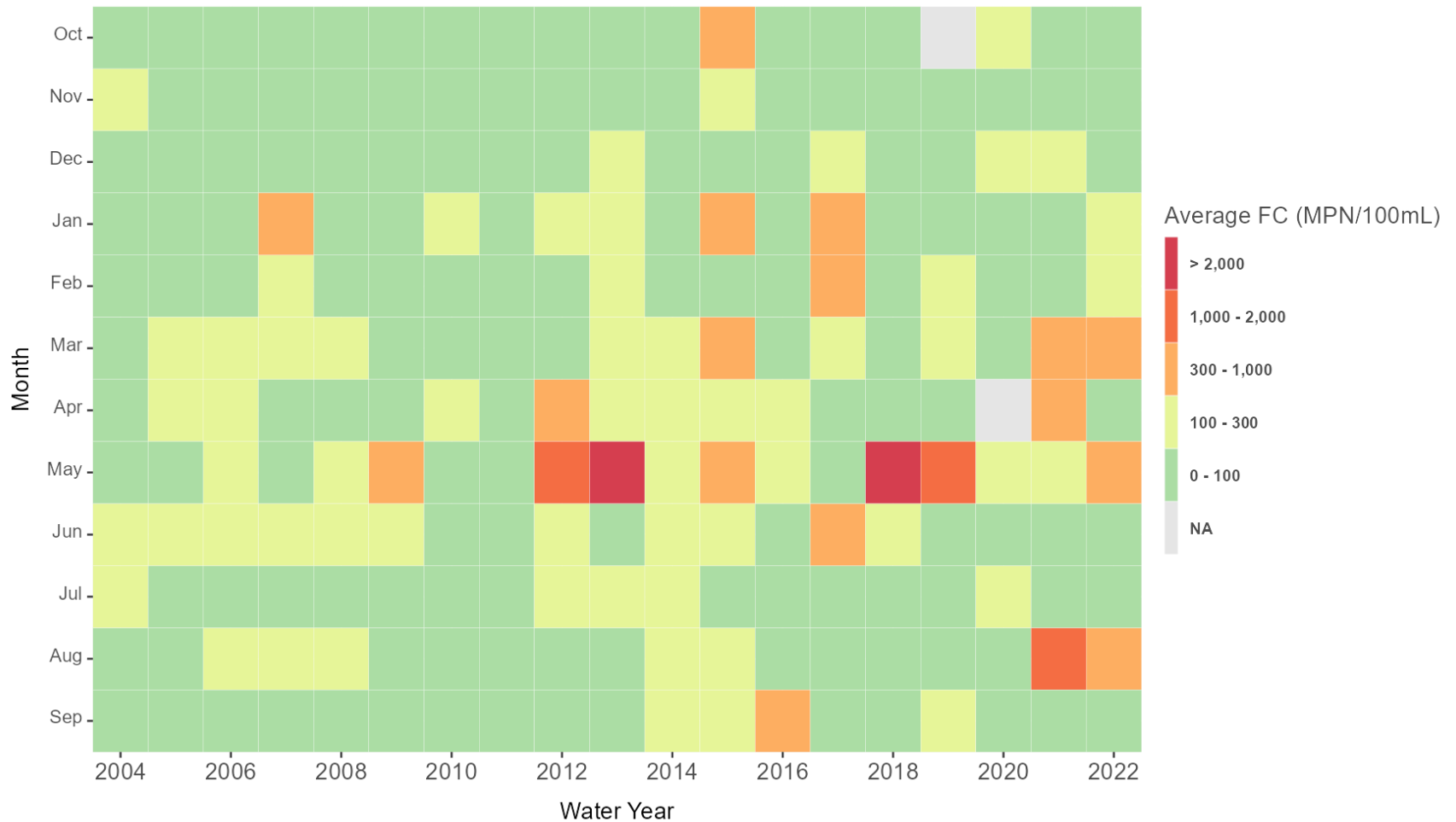


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 41 – Maddox Slough at Milltown Road

Lower Skagit Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 42 – Hill Ditch at Cedardale Road

Lower Skagit Watershed  
Downstream Ag

Site 42 is Hill Ditch or Carpenter Creek, prior to being joined by Fisher Creek and entering Skagit Bay. This watercourse has urban, rural residential, and agricultural influences. This site is designated as core salmonid habitat.

Dissolved oxygen is significantly higher than it was 19 years ago, but it has decreased in the last 10 and 5 years. Temperature has declined over the past 10 years. Fecal coliform counts are higher than they were at the beginning of this program and as compared to 5 years ago. WQI scores have improved over the years from the category of highest concern to the category of moderate concern.

Site 42 fails state standards for DO about half of the year and fails state standards for water temperature during the warmer months. This site failed the FC state standards for both the geometric mean and 90th percentile requirements. EC levels met both the geometric mean and 90th percentile standards.

Site 42 is 1<sup>st</sup> out of 36 sites for number of significant trends, with 20, and is tied for 24<sup>th</sup> out of 36 sites for positive trends, with 40%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↓	↓	—	↓	—	↑	—	↑
■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■

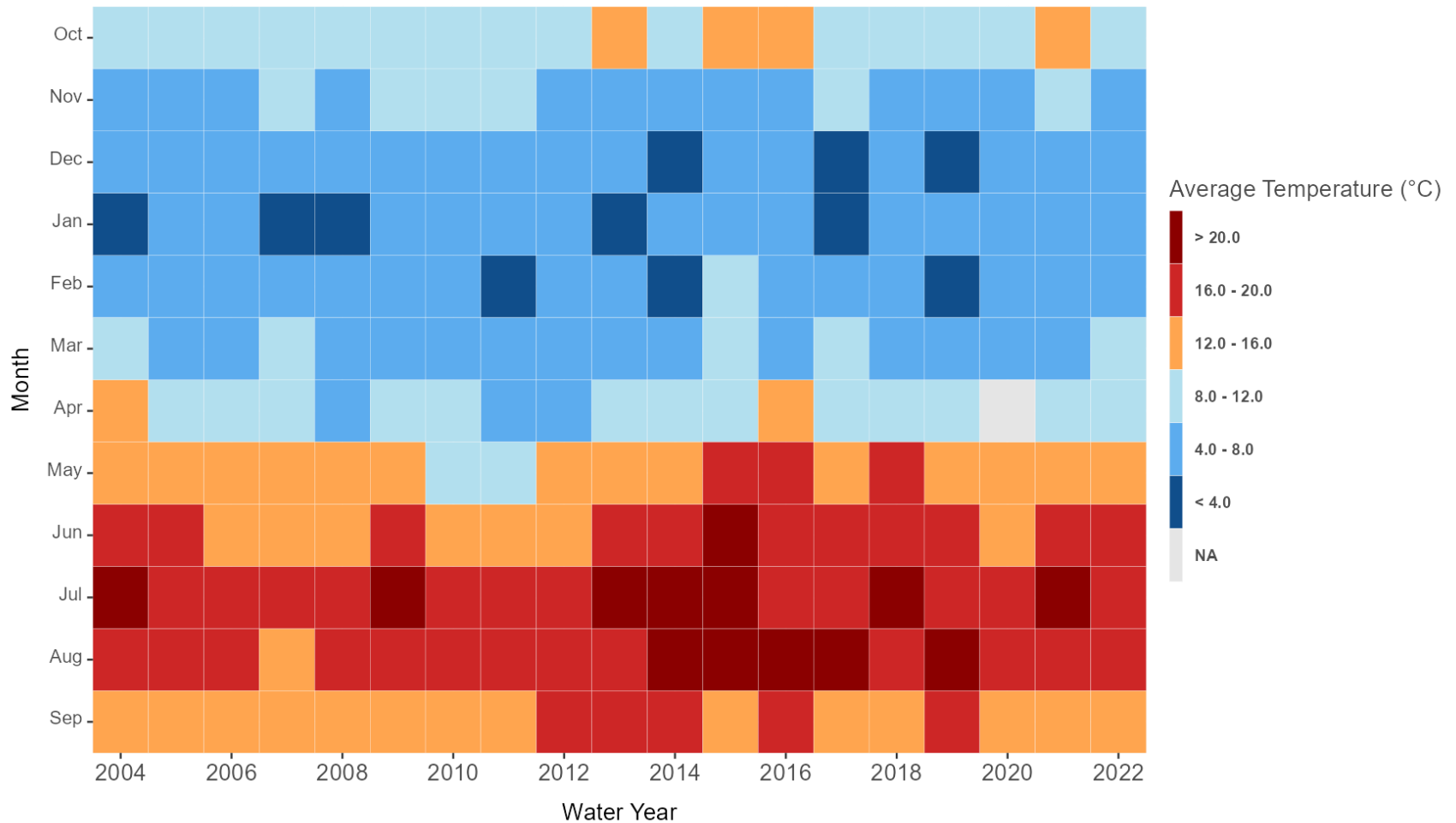


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
50	35	7	39	58	66	70	60	74	77	75	81	80	73	74	57	52

# Monthly Average Temperature

**42 – Hill Ditch**  
at Cedardale Road

Lower Skagit Watershed  
Downstream Ag



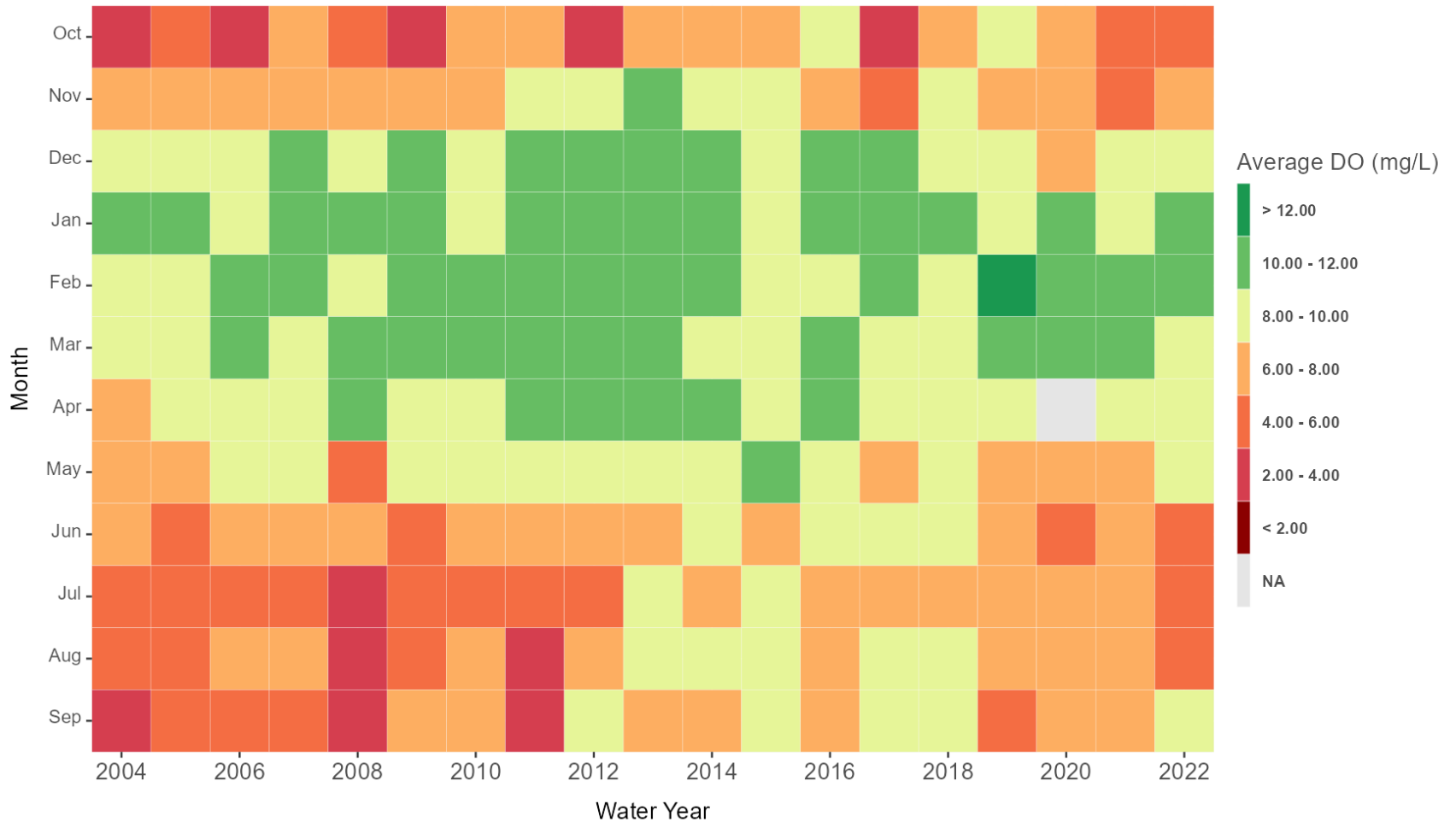
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 42 – Hill Ditch at Cedardale Road

Lower Skagit Watershed  
Downstream Ag

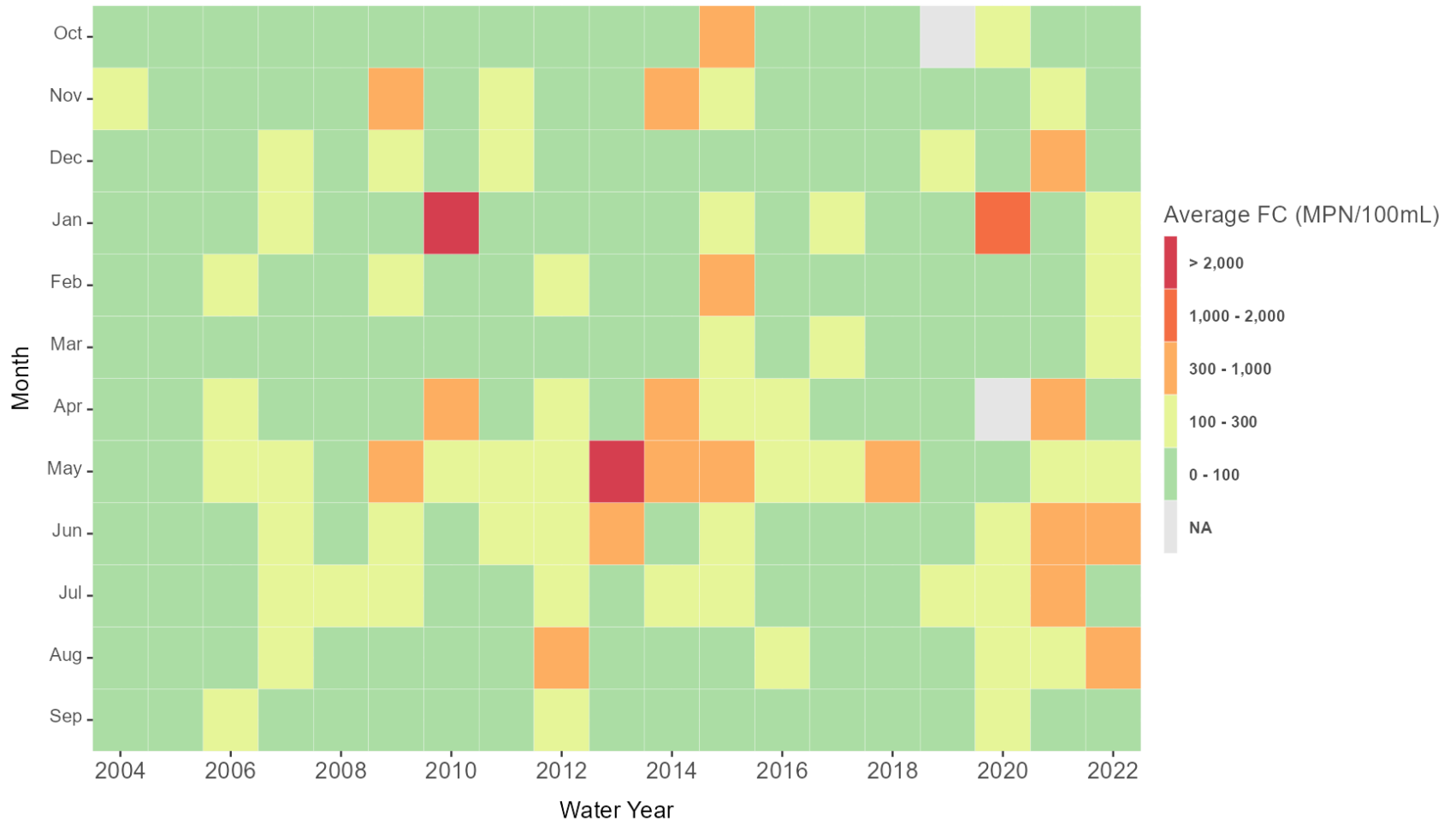


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 42 – Hill Ditch at Cedardale Road

Lower Skagit Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 43 – Wiley Slough at Wiley Road

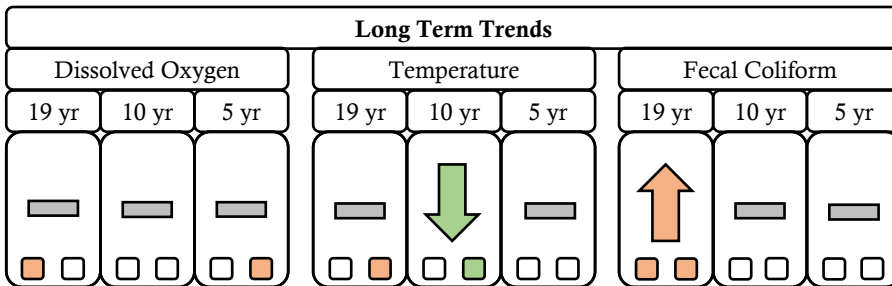
Lower Skagit Watershed  
Downstream Ag

Site 43 is Wiley Slough, prior to its termination into the Skagit Wildlife Area wetlands and Skagit Bay. This site drains a large amount of agricultural area on Fir Island. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Water temperature has significantly decreased over the past 10 years. Fecal coliform levels are higher now than they were at the beginning of this program. WQI scores are consistently in the category of highest concern.

Site 43 almost never meets state standards for DO. During the summer months temperature standards are also not met. This site failed the FC state standards for both the geometric mean and 90th percentile requirements. EC levels met both the geometric mean and 90th percentile standards.

Site 43 is tied for 27<sup>th</sup> out of 36 sites for number of significant trends, with 9, and is in last place out of 36 sites for positive trends, with 11%.

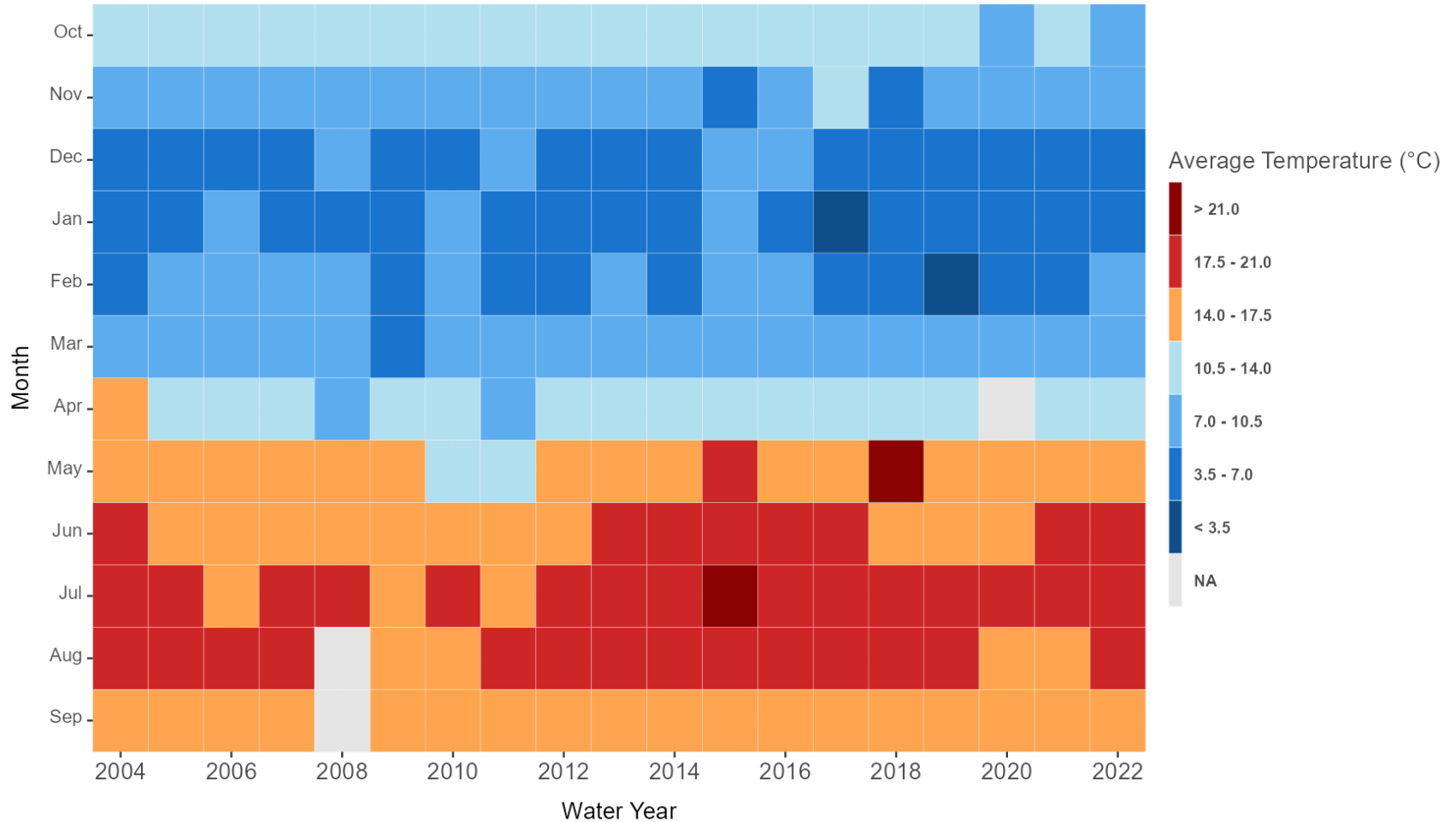


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	19	17	10	22	6	19	11	12	3	13	1	16	26	7	10	19

# Monthly Average Temperature

43 – Wiley Slough  
at Wiley Road

Lower Skagit Watershed  
Downstream Ag

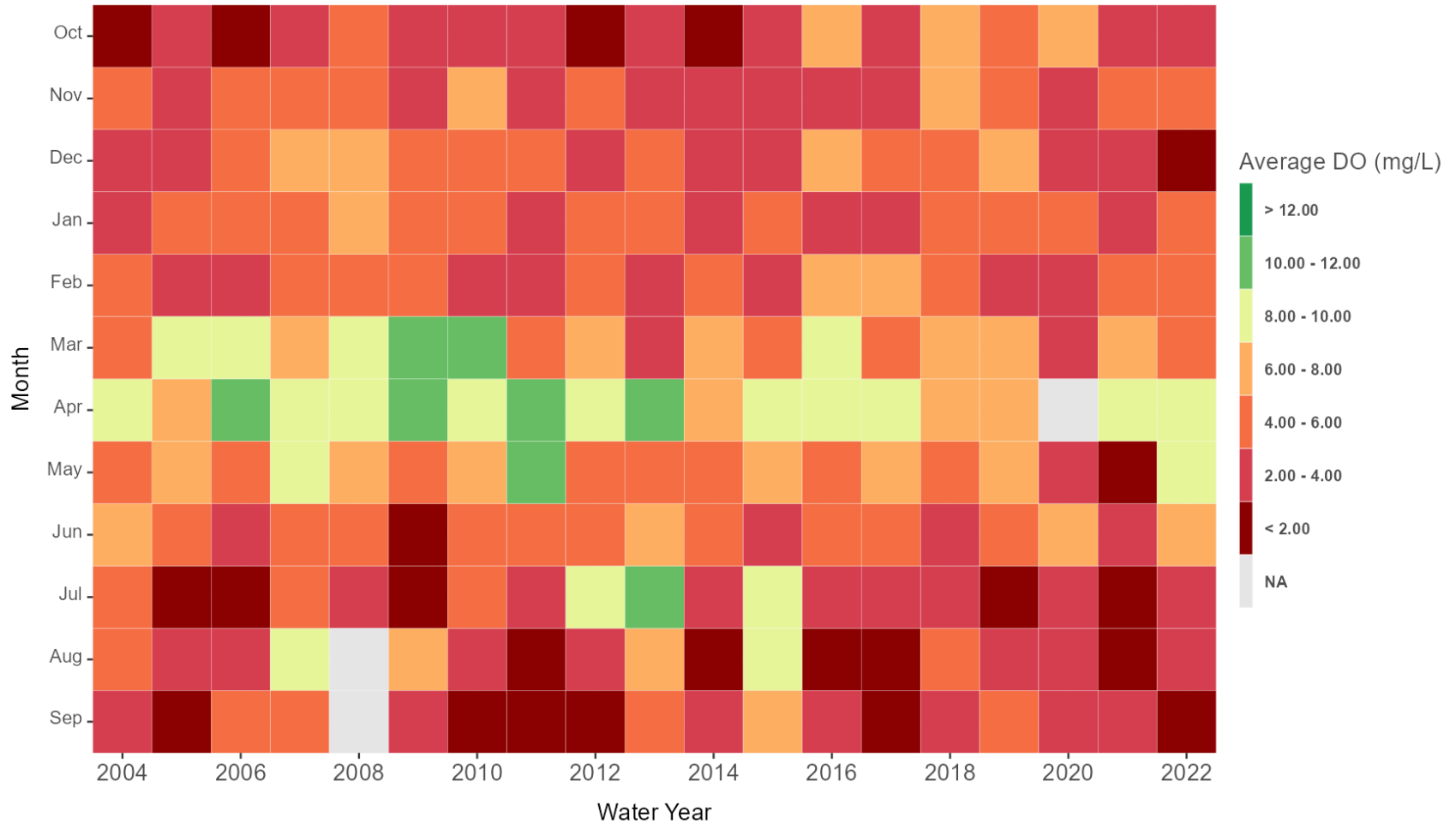


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 43 – Wiley Slough at Wiley Road

Lower Skagit Watershed  
Downstream Ag

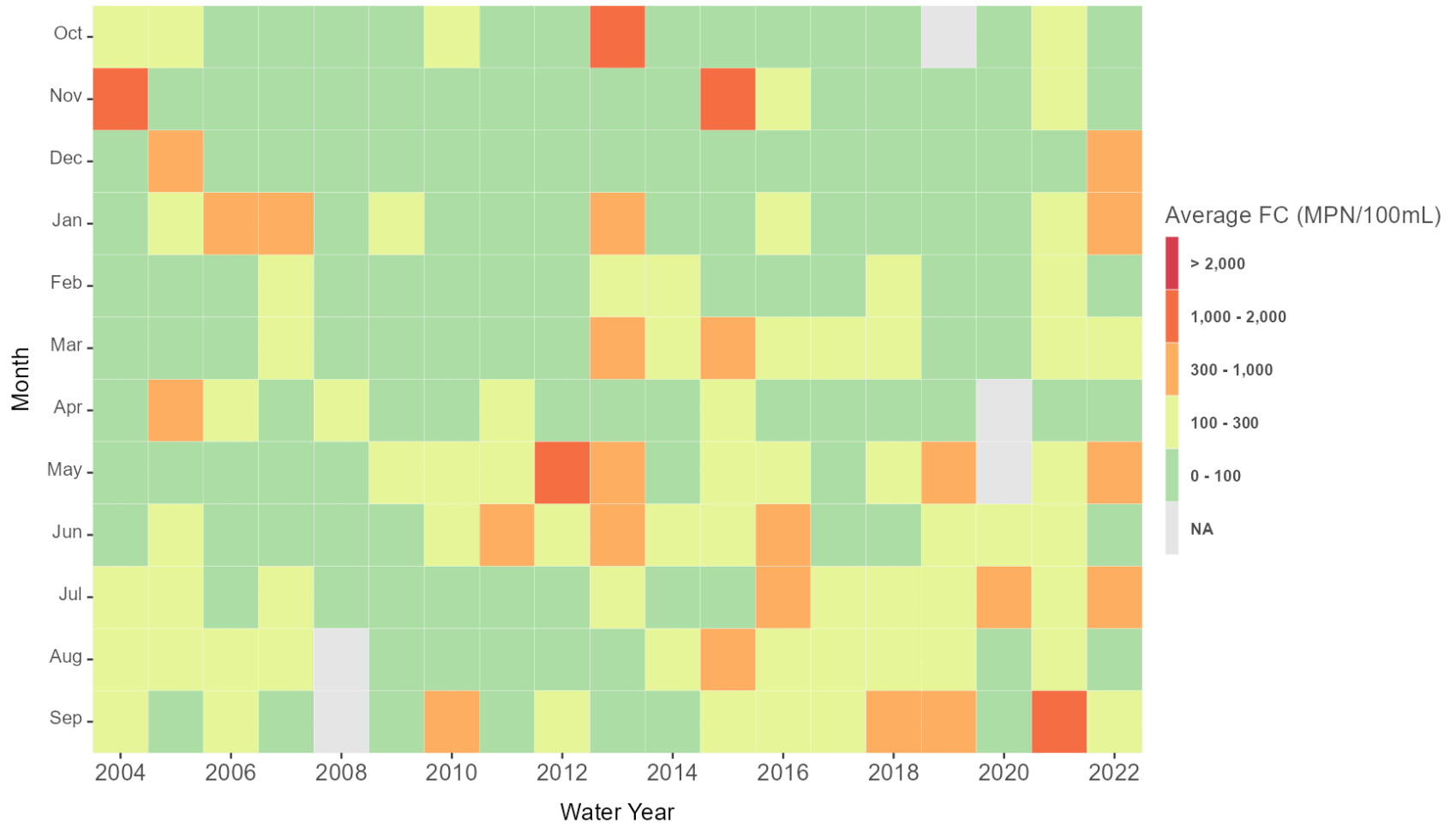


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 43 – Wiley Slough at Wiley Road

Lower Skagit Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 45 – North Fork Skagit River at Moore Road

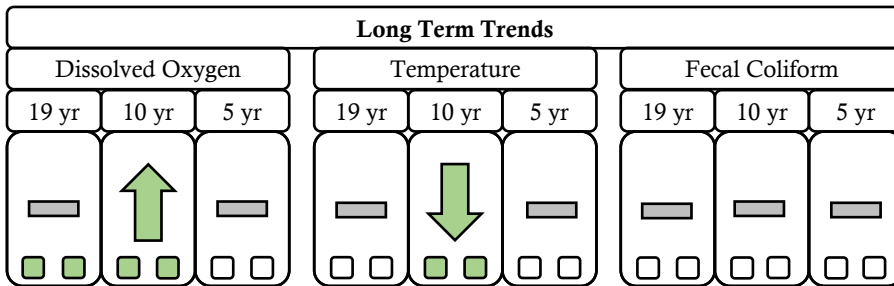
Lower Skagit Watershed  
Skagit River – Lower, TMDL

Site 45 is the north fork of the Skagit River, downstream of Mount Vernon. The river is designated as core salmonid habitat and as salmonid spawning and rearing status.

Dissolved oxygen has significantly increased over the most recent 10 years. Additionally, temperature has significantly decreased over the past 10 years. WQI scores are consistently in the category of least concern.

Site 45 does not meet state standards for DO during the warmest times of the year. Occasionally the temperature standard is not met. The bacterial levels for the 2022 water year easily met state standards.

Site 45 is tied for 32<sup>nd</sup> out of 36 sites for number of significant trends, with 8, and is tied for 1<sup>st</sup> out of 36 sites for positive trends, with 100%.

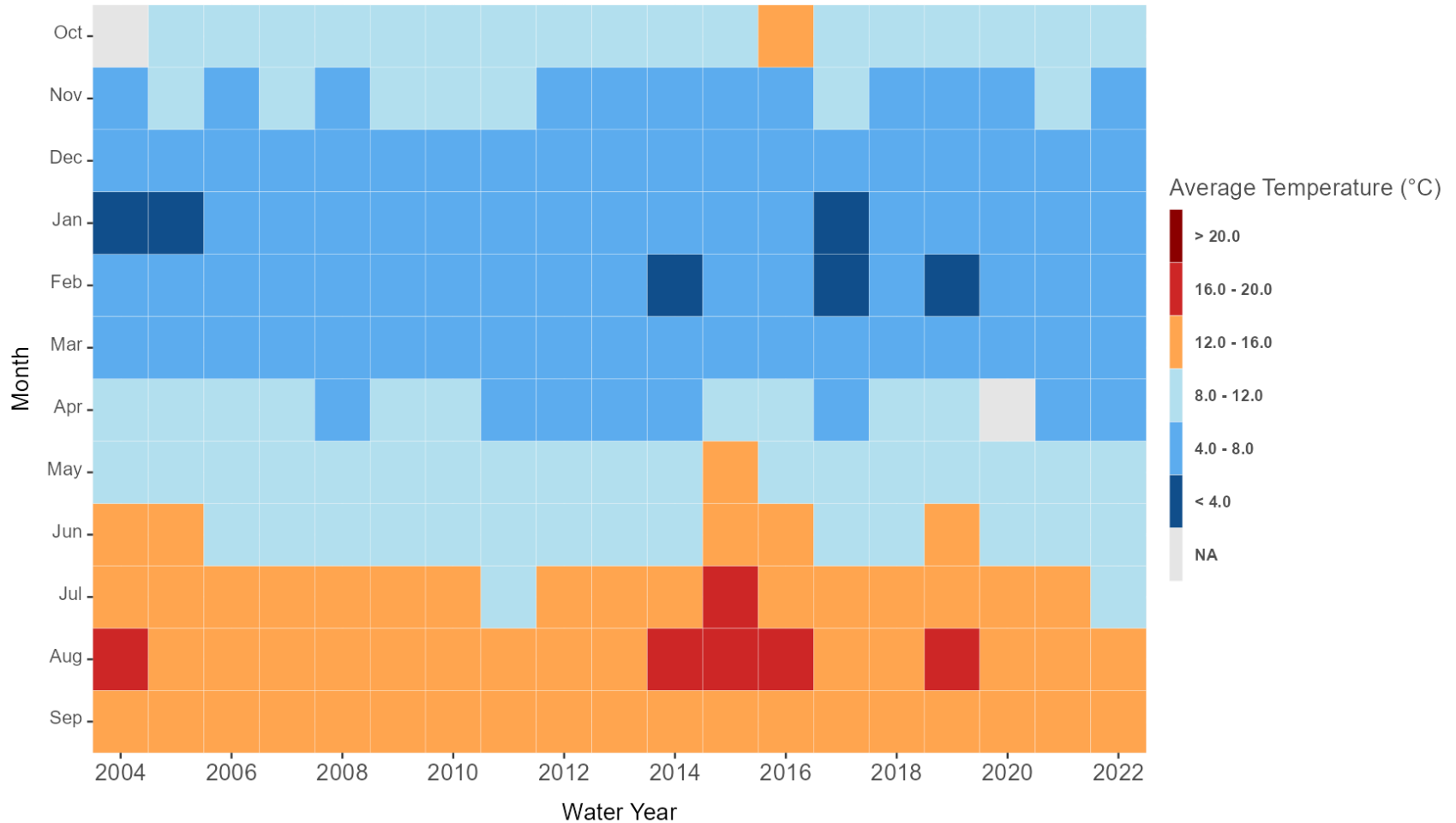


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
78	71	88	95	95	95	80	86	85	93	89	89	89	88	93	86	91

# Monthly Average Temperature

## 45 – North Fork Skagit River at Moore Road

Lower Skagit Watershed  
Skagit River – Lower, TMDL



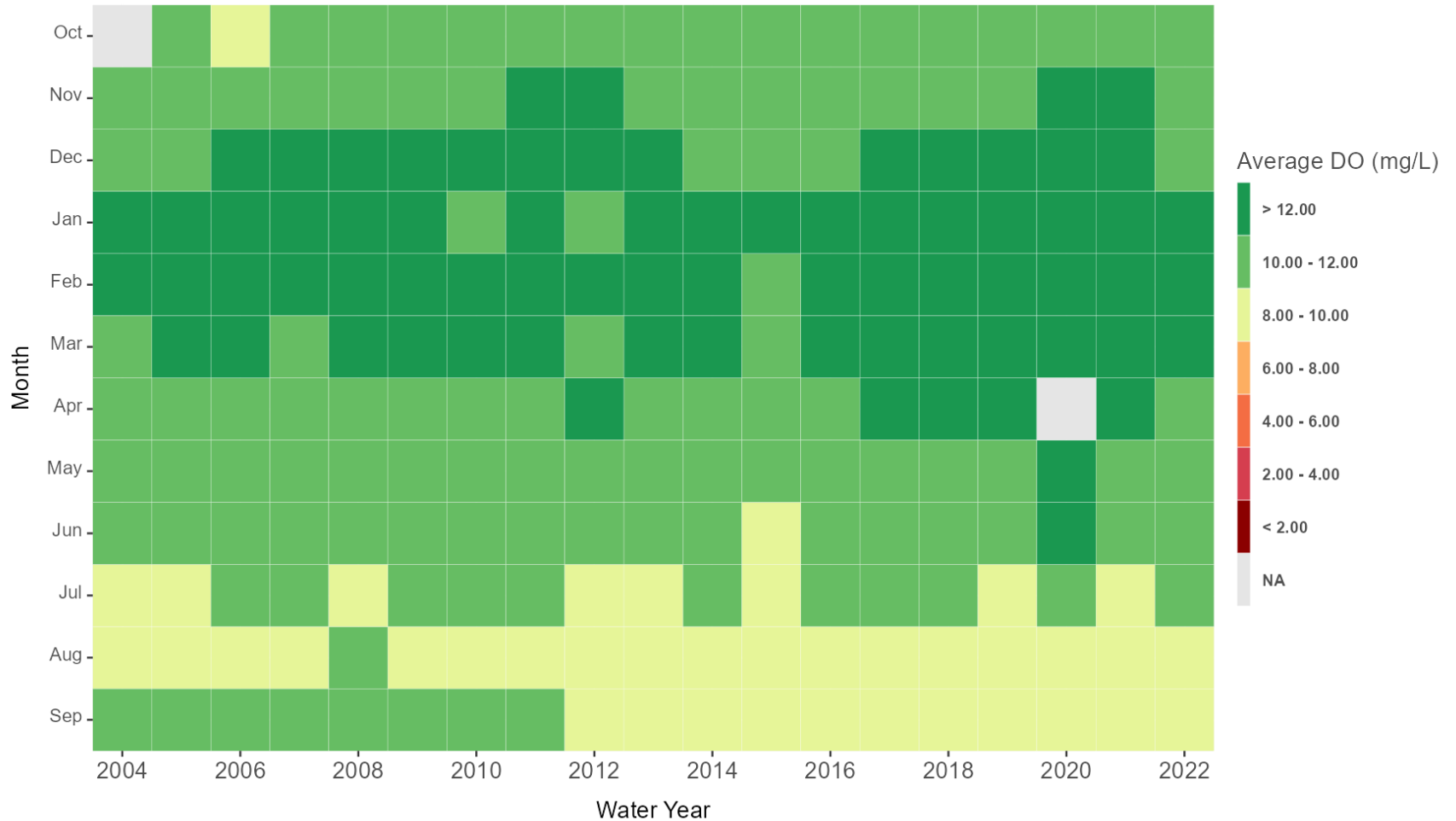
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 45 – North Fork Skagit River at Moore Road

Lower Skagit Watershed  
Skagit River – Lower, TMDL

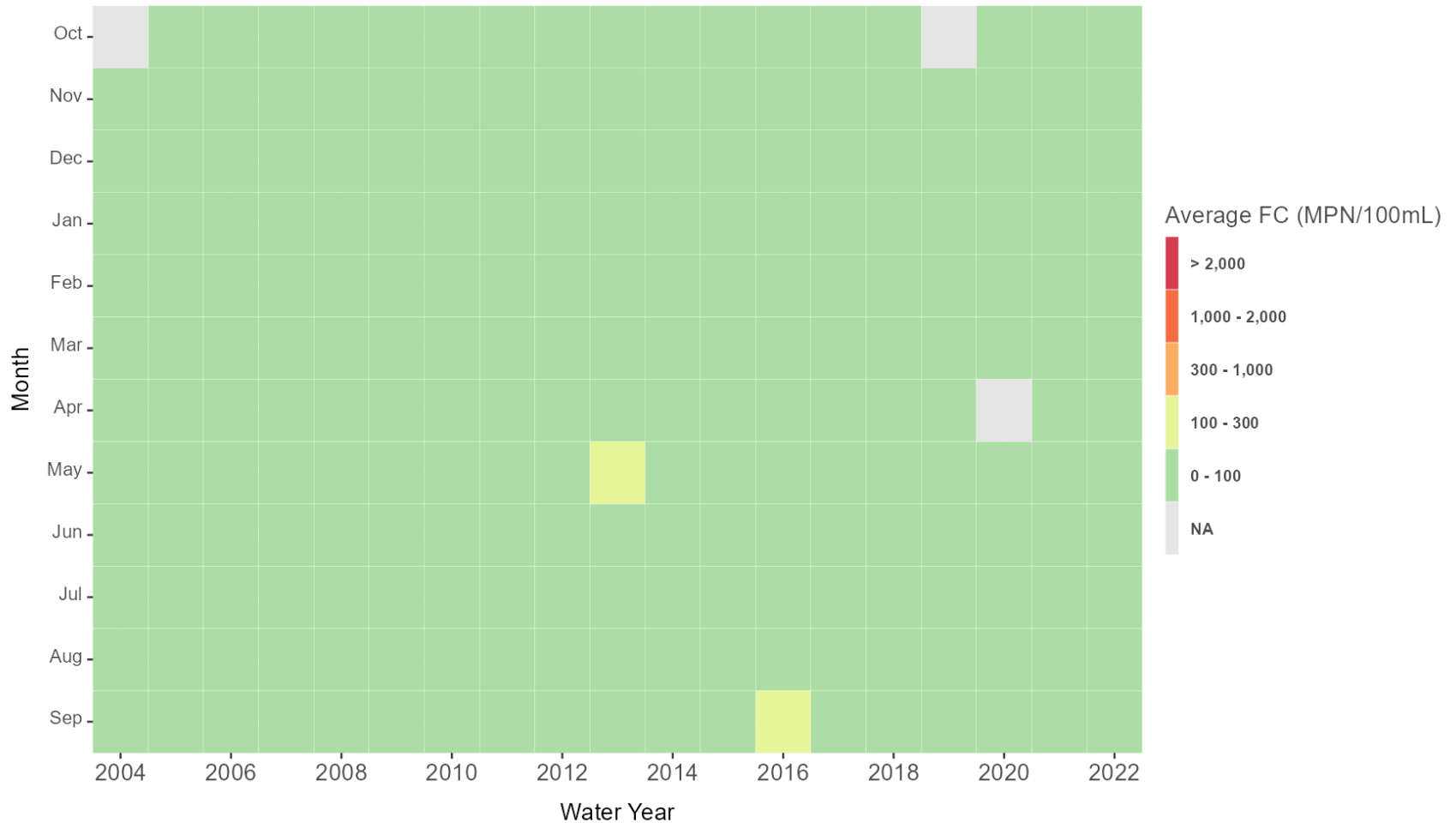


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 45 – North Fork Skagit River at Moore Road

Lower Skagit Watershed  
Skagit River – Lower, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 46 – South Fork Skagit River at Conway Bridge

Lower Skagit Watershed  
Skagit River – Lower, TMDL

Site 46 is the south fork of the Skagit River, downstream of Mount Vernon. The river is designated as core salmonid habitat and as salmonid spawning and rearing status.

Dissolved oxygen has increased over the 19- and 10-year time periods. Temperature is significantly lower than it was 10 years ago. WQI scores are consistently in the category of least concern.

Site 46 occasionally fails to meet state standards for DO and temperature during the summer months. The bacterial levels for the 2022 water year easily met state standards.

Site 46 is tied for 23<sup>rd</sup> out of 36 sites for number of significant trends, with 10, and is tied for 1<sup>st</sup> out of 36 sites for positive trends, with 100%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	—	↓	—	—	—	—
□	□	□	□	□	□	□	□	□

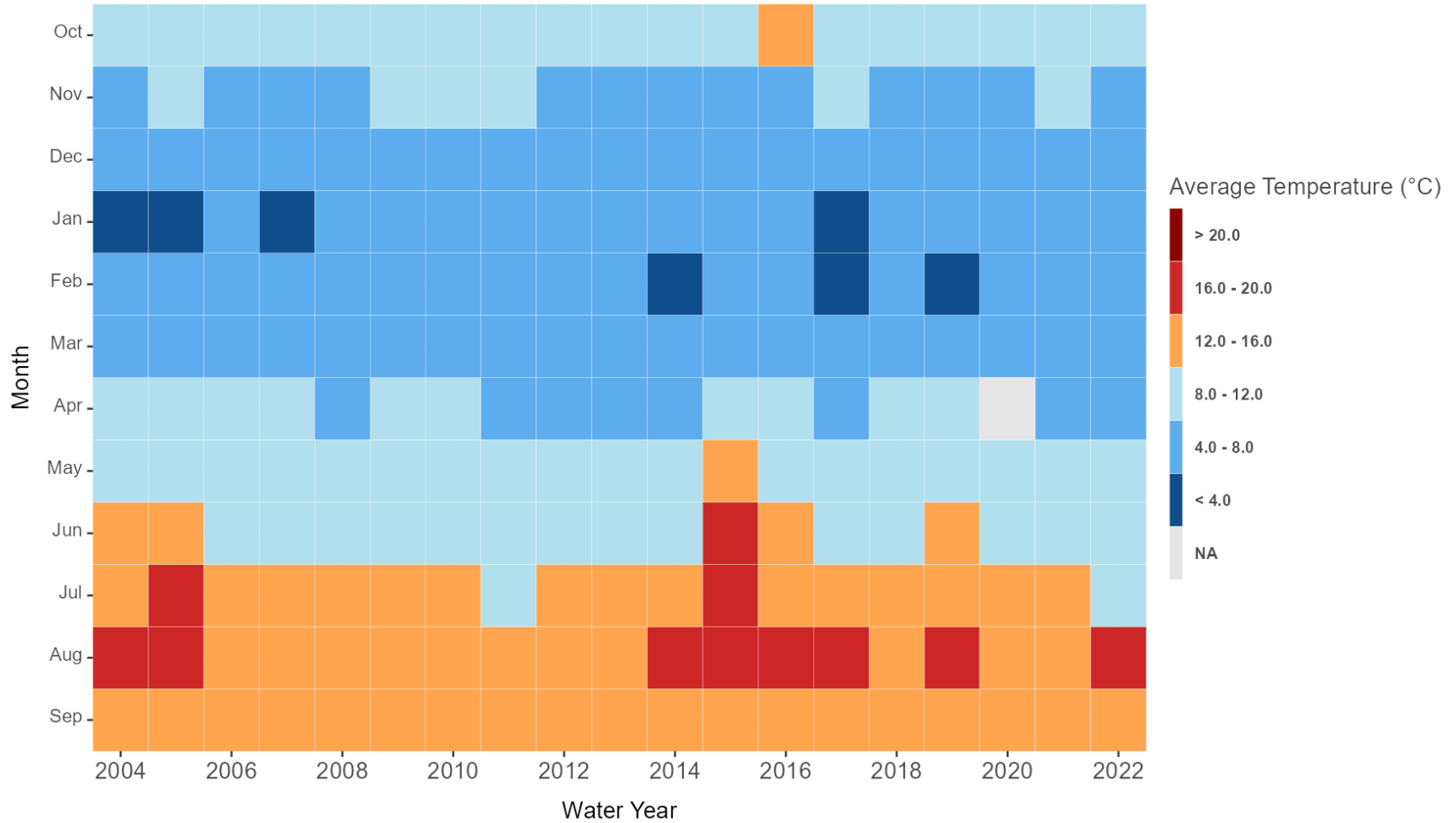


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
81	73	80	93	91	95	89	83	91	91	93	88	92	86	93	87	91

# Monthly Average Temperature

## 46 – South Fork Skagit River at Conway Bridge

Lower Skagit Watershed  
Skagit River – Lower, TMDL

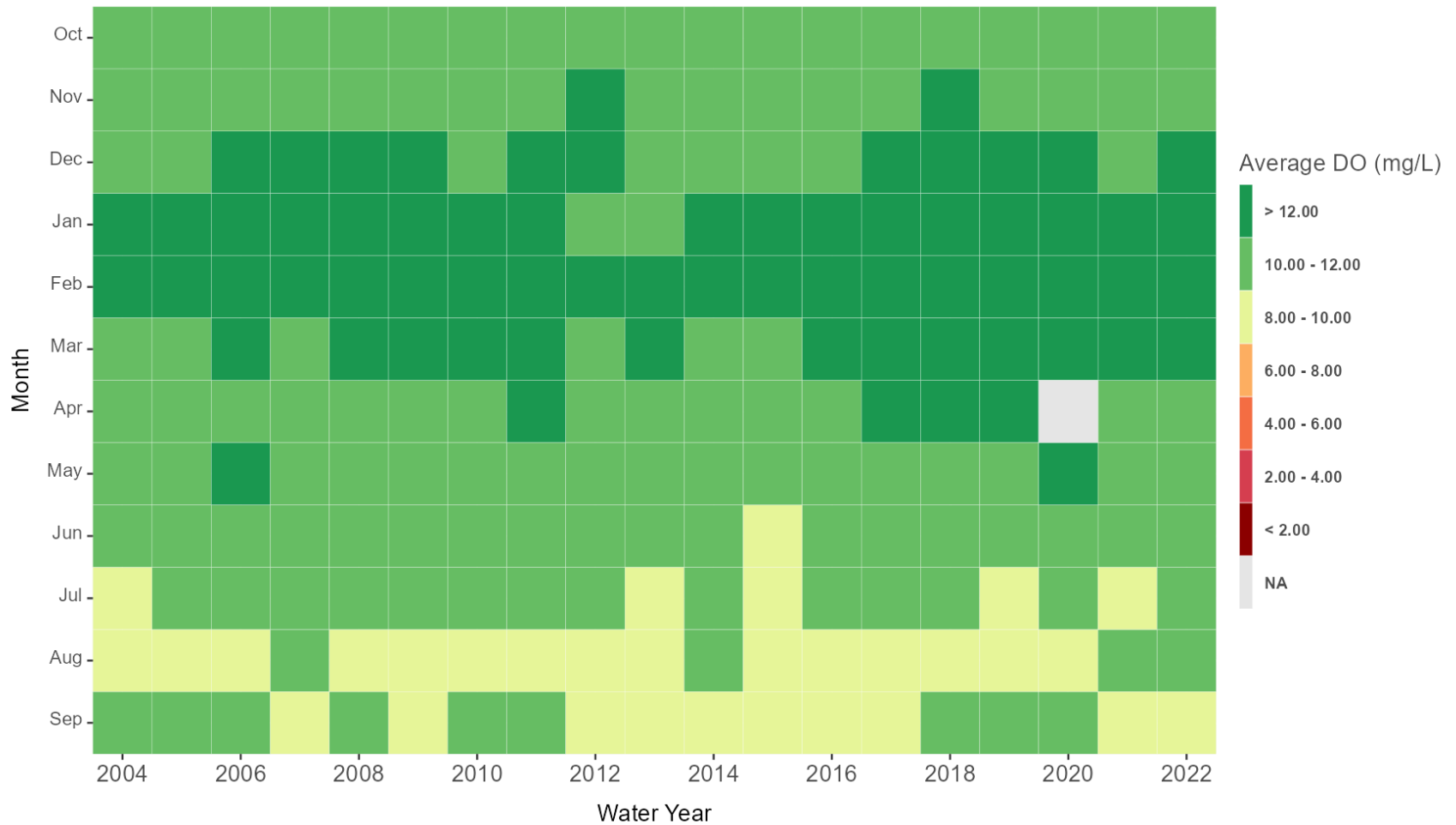


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 46 – South Fork Skagit River at Conway Bridge

Lower Skagit Watershed  
Skagit River – Lower, TMDL

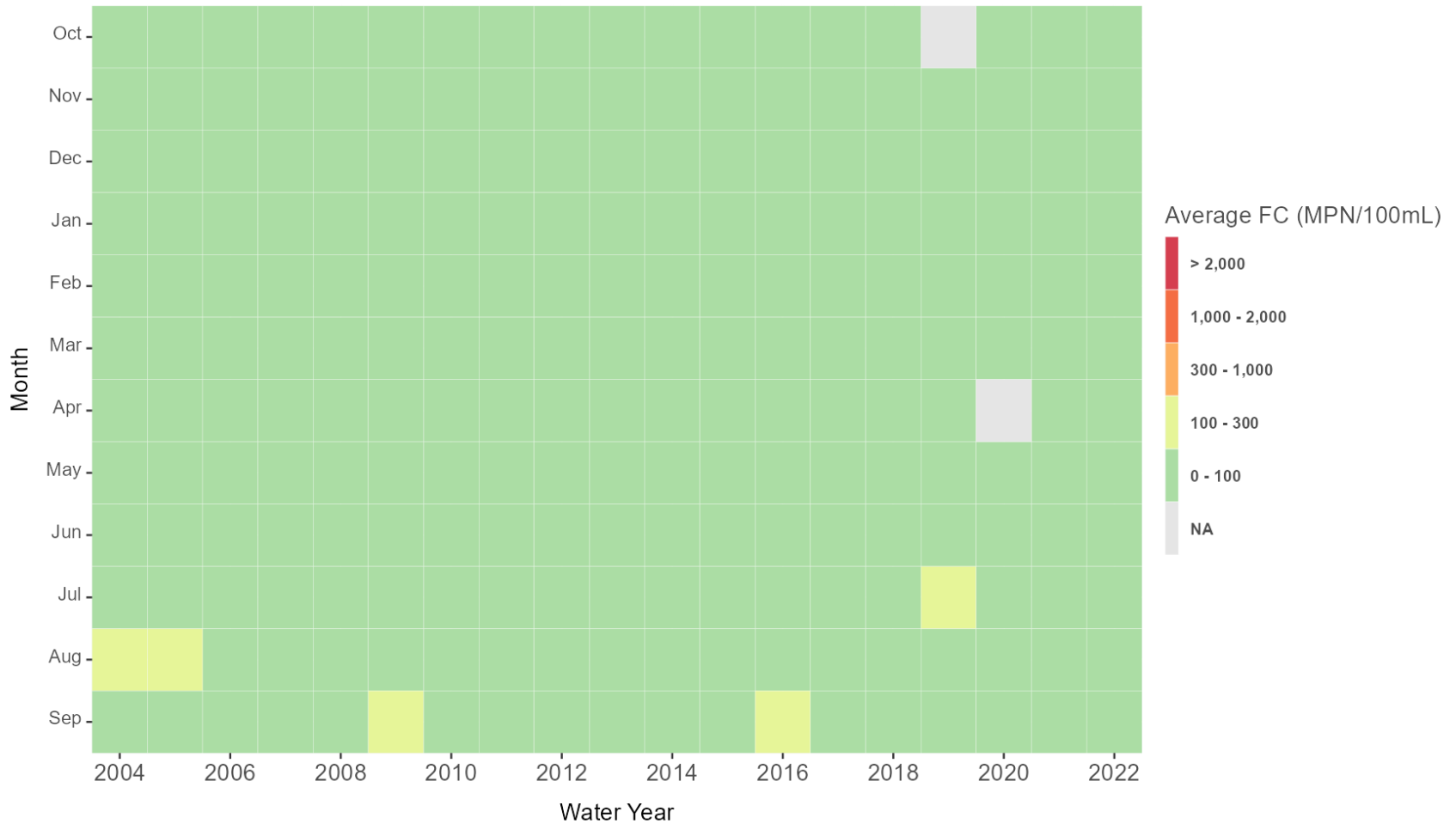


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 46 – South Fork Skagit River at Conway Bridge

Lower Skagit Watershed  
Skagit River – Lower, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 48 – Fisher Creek at Franklin Road

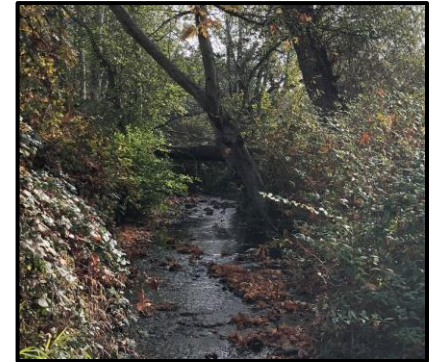
Lower Skagit Watershed  
Downstream Ag, TMDL

Site 48 is Fisher Creek, just prior to adjoining Carpenter Creek/Hill Ditch, and ultimately Skagit Bay. This site is influenced by rural residential and light agricultural activities. This site is designated as core salmonid habitat.

Dissolved oxygen has increased over the past 19 years ago and 10 years. Water temperature is higher than it was 19 years ago. WQI scores are generally in the higher-scoring end of the moderate concern category, and often score as least concern.

Site 48 rarely fails to meet state standards for DO and temperature. This site passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement. EC levels met both the geometric mean and 90th percentile standards.

Site 48 is tied for 7<sup>th</sup> out of 36 sites for number of significant trends, with 14, and is 14<sup>th</sup> out of 36 sites for positive trends, with 64%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↑	↑	—	↑	—	—	—	—	—
□□	□□	□□	□□	□□	□□	□□	□□	□□

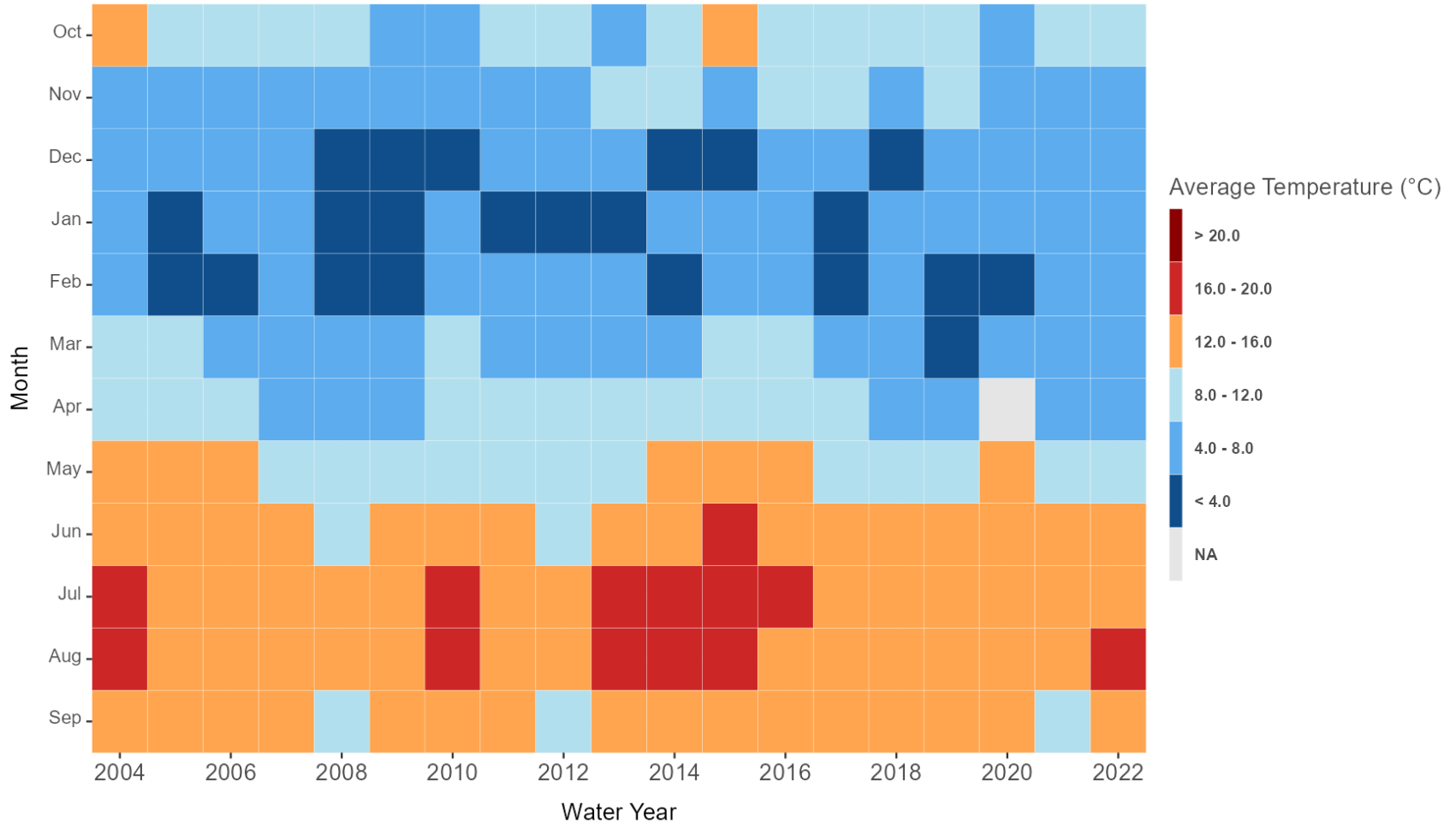


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
74	67	54	81	70	59	77	69	85	89	87	75	84	87	85	87	85

# Monthly Average Temperature

## 48 – Fisher Creek at Franklin Road

Lower Skagit Watershed  
Downstream Ag, TMDL



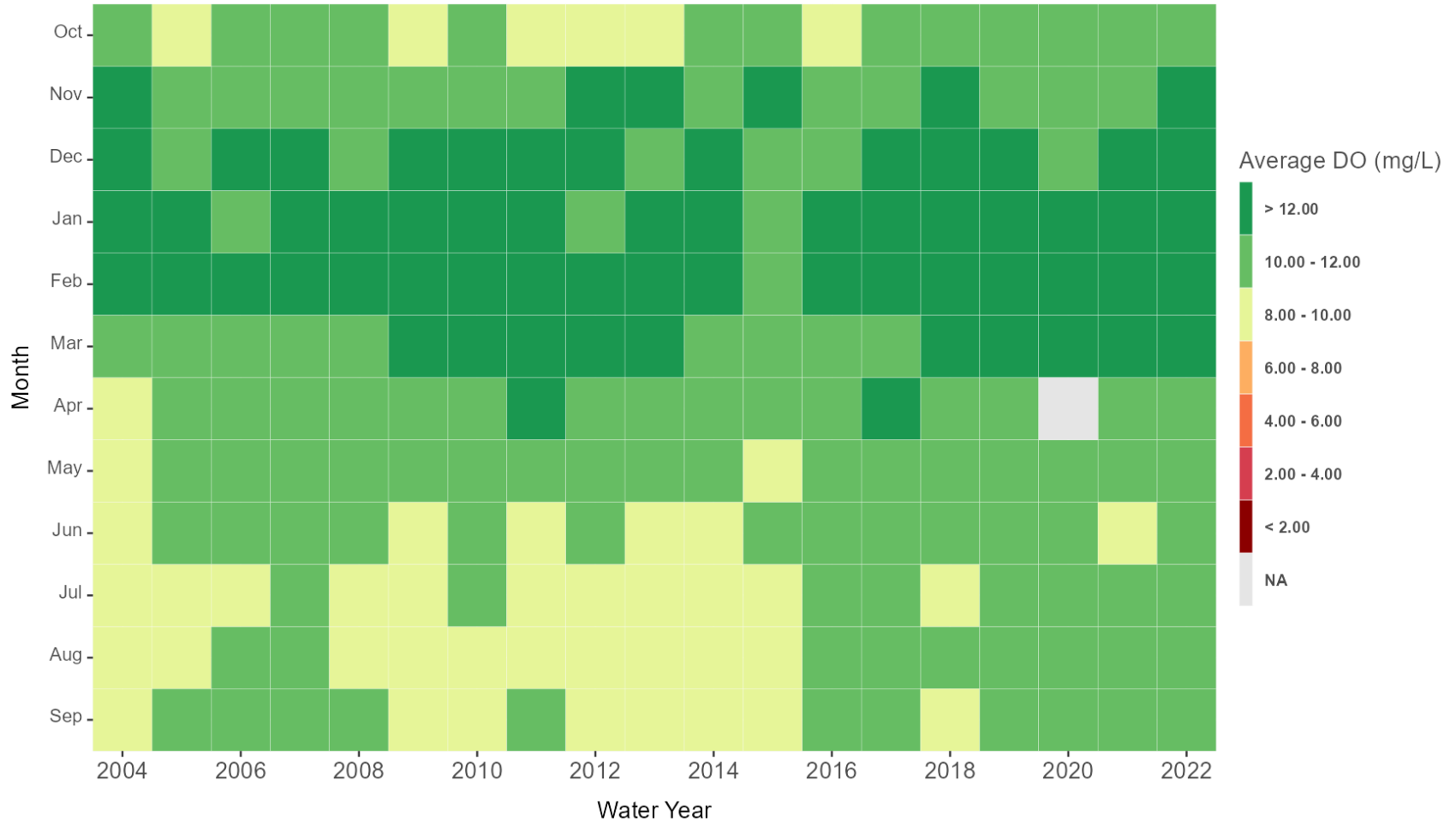
The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 48 – Fisher Creek at Franklin Road

Lower Skagit Watershed  
Downstream Ag, TMDL

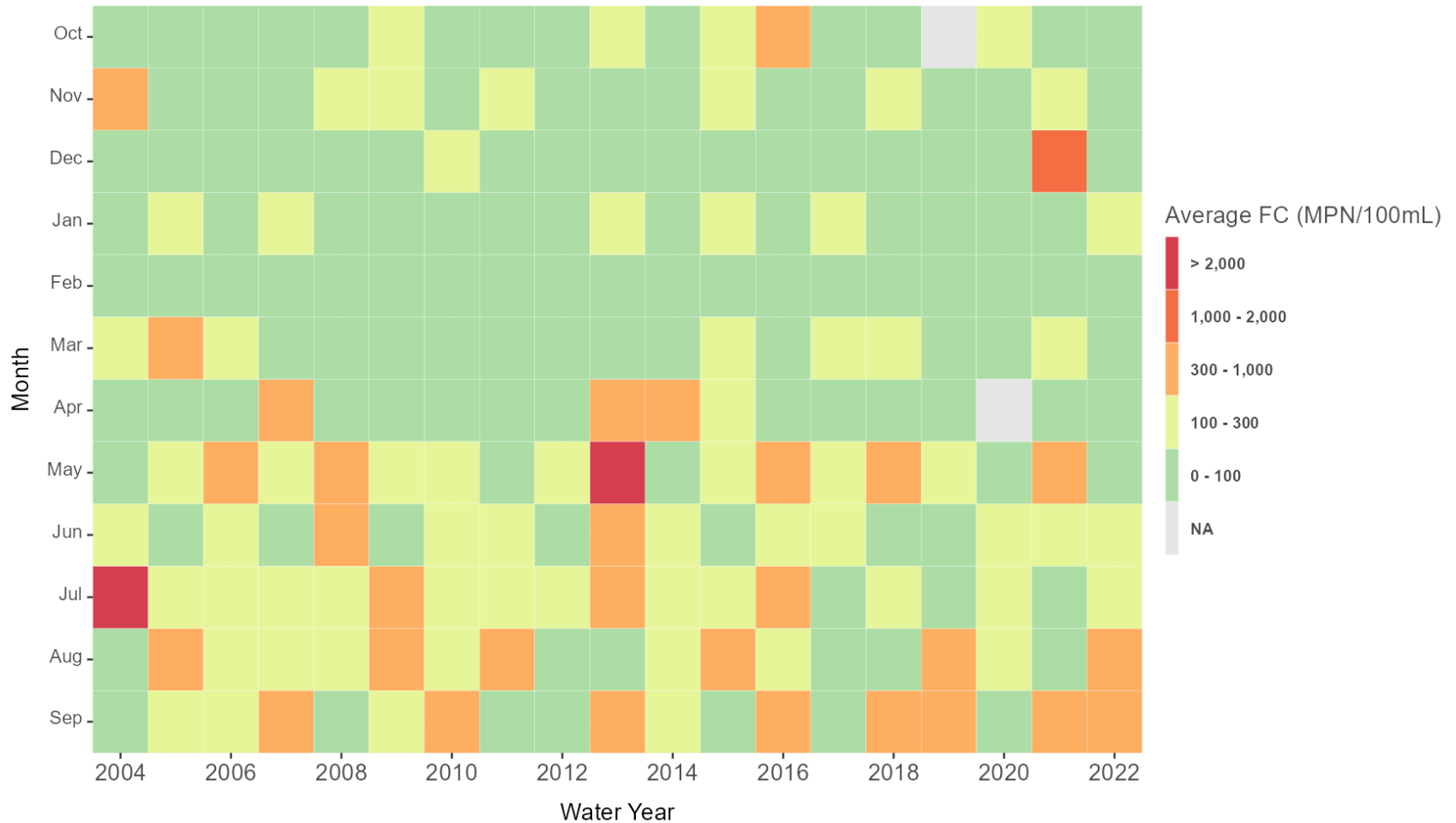


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 48 – Fisher Creek at Franklin Road

Lower Skagit Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 51 – Carpenter Creek at Stackpole Road

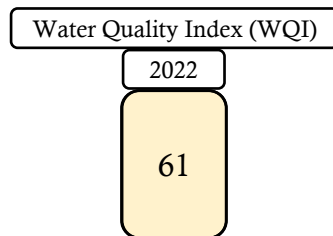
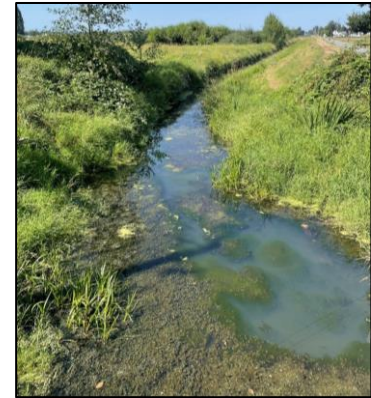
Lower Skagit Watershed  
Upstream Ag, TMDL

Site 51 is located at the confluence of Carpenter and Sandy Creeks. It is approximately 3.7 miles upstream of Site 42, Hill Ditch. This site is influenced by rural residential and agricultural activities. This site is designated as core salmonid habitat. This is the first year that data has been collected at this site for the SCMP.

No statistical tests were run at Site 51 because 5 years of data are required to increase the datasets robustness and reduce the amount of statistical error.

The WQI score for this site (61) is in the moderate concern category.

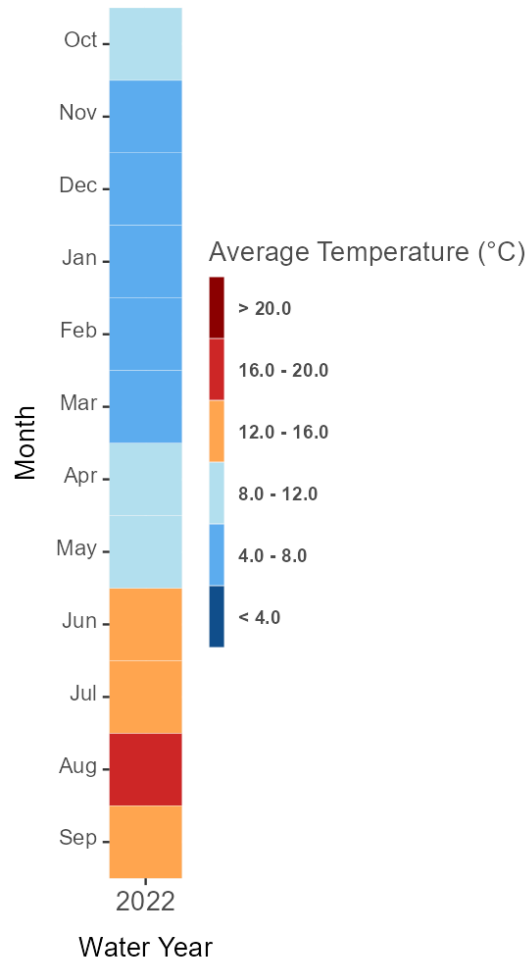
Site 51 failed to meet state standards for DO and water temperature during the summer months. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.



# Monthly Average Temperature

51 - Carpenter Creek  
at Stackpole Road

Lower Skagit Watershed  
Upstream Ag, TMDL

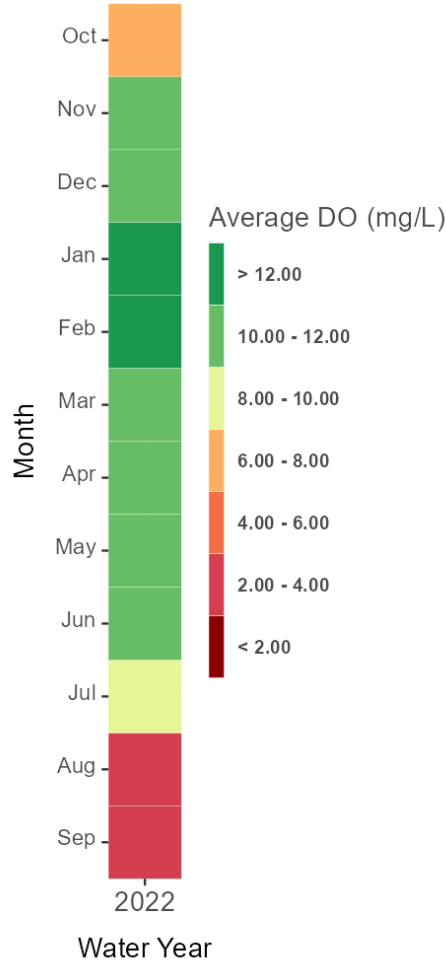


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 51 - Carpenter Creek at Stackpole Road

Lower Skagit Watershed  
Upstream Ag, TMDL

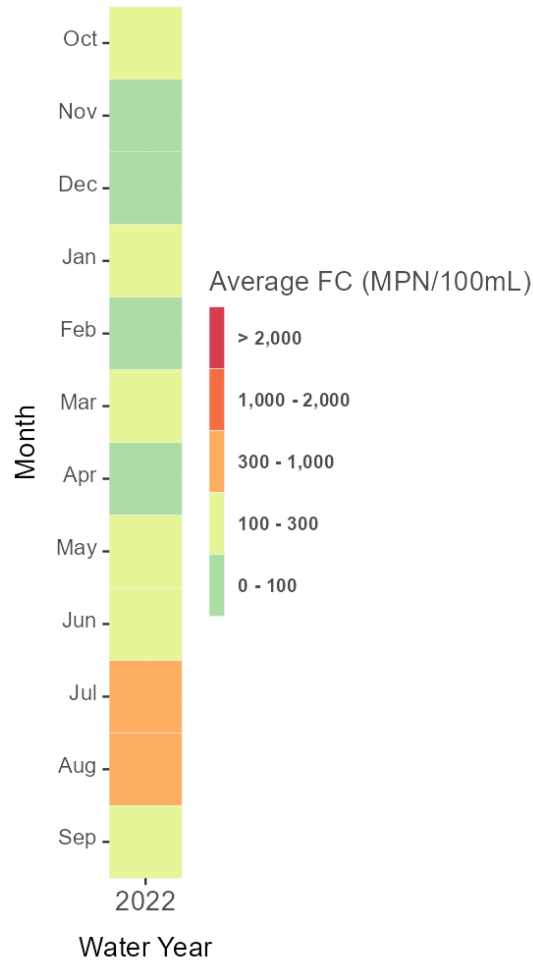


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 51 - Carpenter Creek at Stackpole Road

Lower Skagit Watershed  
Upstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 34 – No Name Slough at Bayview-Edison Road

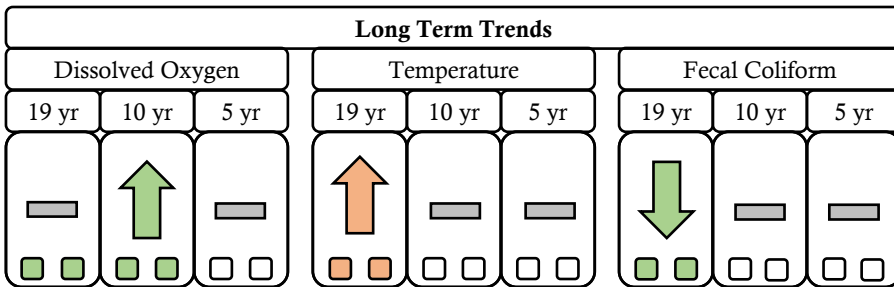
Padilla Watershed  
Downstream Ag

Site 34 is No Name Slough, west of the Skagit Regional Airport, and just prior to terminating in Padilla Bay. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen has significantly increased over the 10-year time frame. This is despite the significantly warmer water temperatures observed across the 19 years of monitoring. Fecal coliform counts are significantly lower than they were at the beginning of this program 19 years ago.

Site 34 regularly fails to meet state standards for DO and water temperature during the summer months. This site passed the FC and EC standards of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirements.

Site 34 is tied for 3<sup>rd</sup> out of 36 sites for number of significant trends, with 17, and is 13<sup>th</sup> out of 36 sites for positive trends, with 65%.

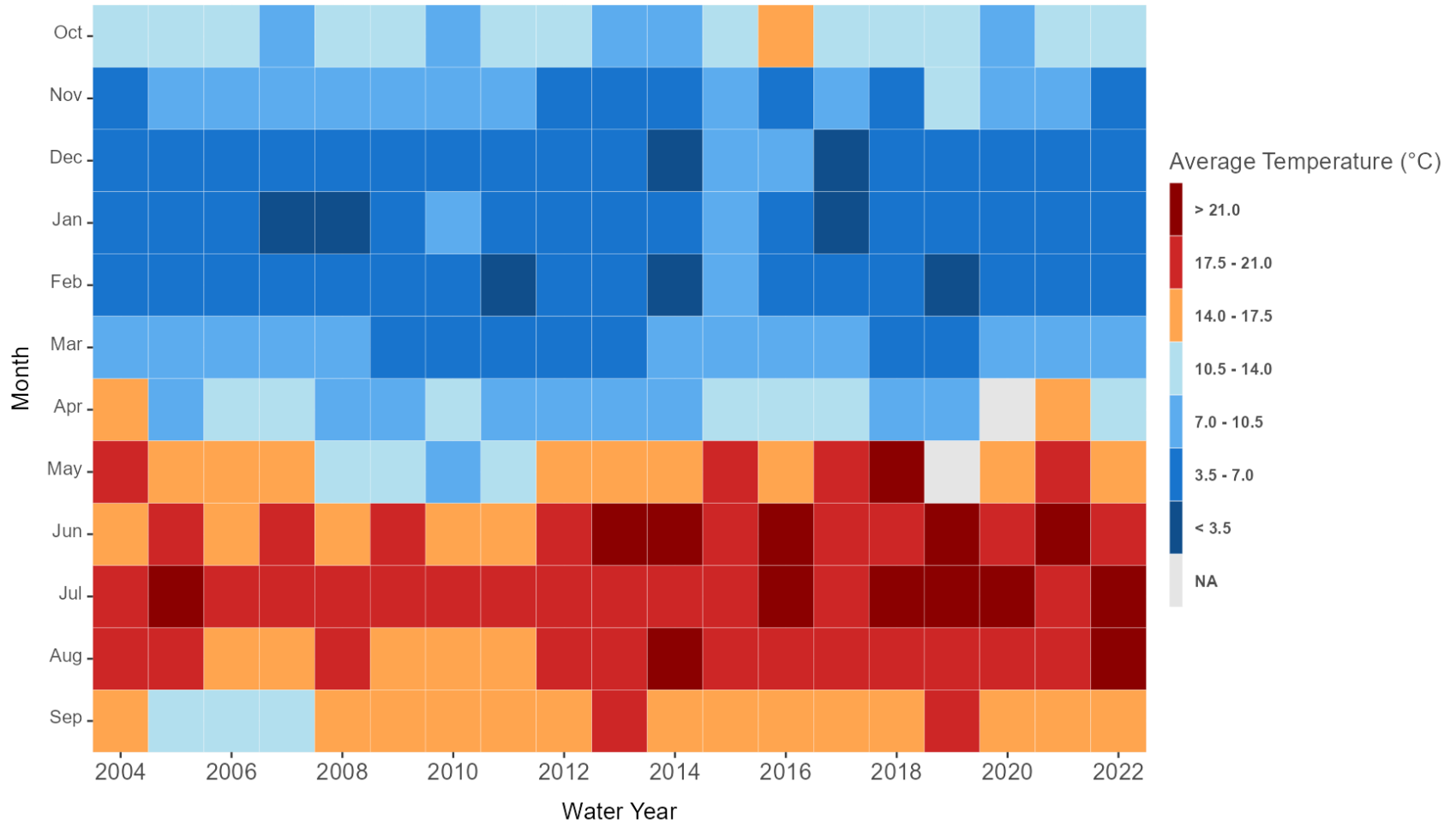


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	1	1	14	11	31	22	13	29	30	51	27	36	27	20	37	29

# Monthly Average Temperature

**34 - No Name Slough**  
at Bayview-Edison Road

Padilla Watershed  
Downstream Ag



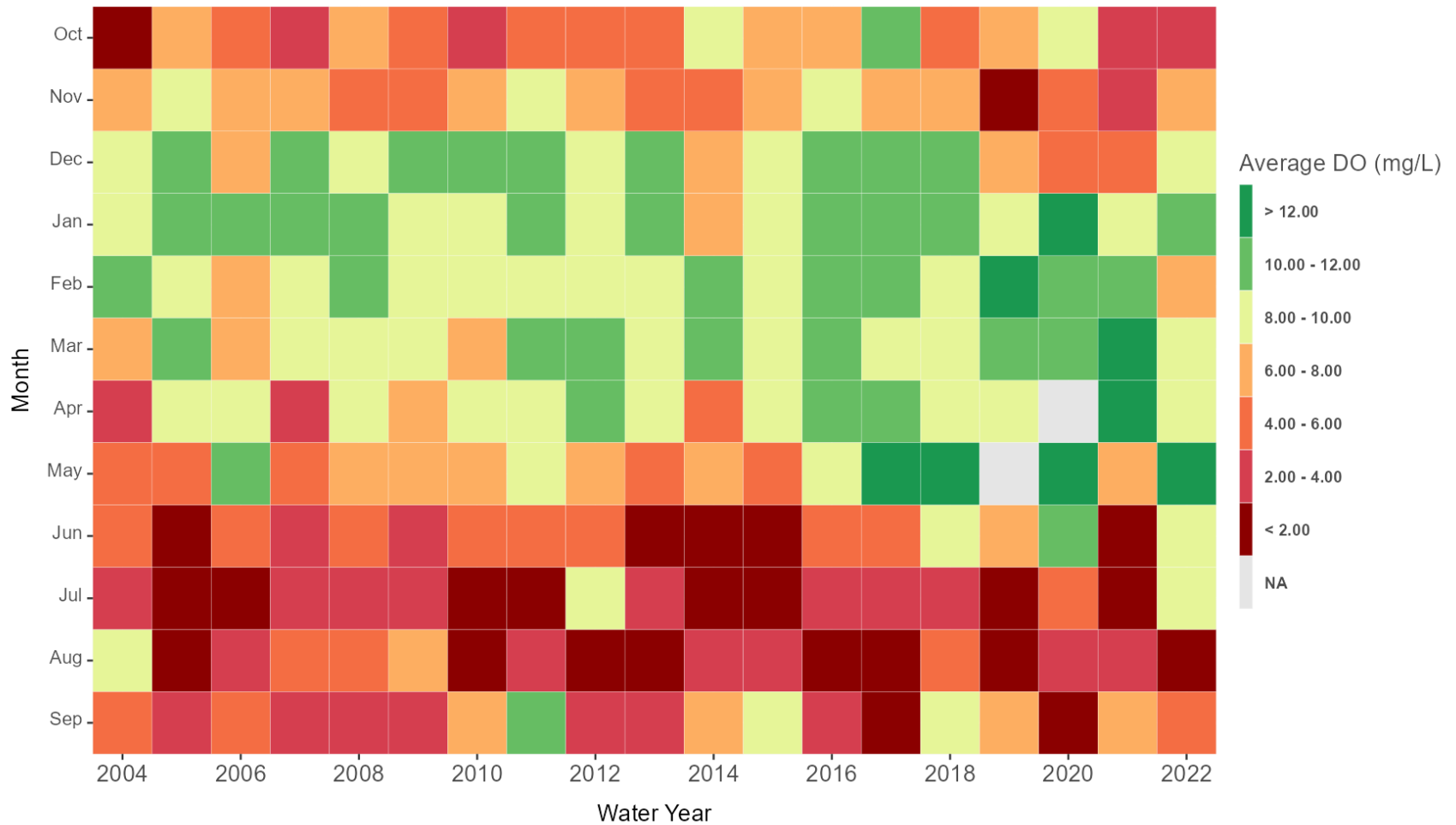
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 34 - No Name Slough at Bayview-Edison Road

Padilla Watershed  
Downstream Ag

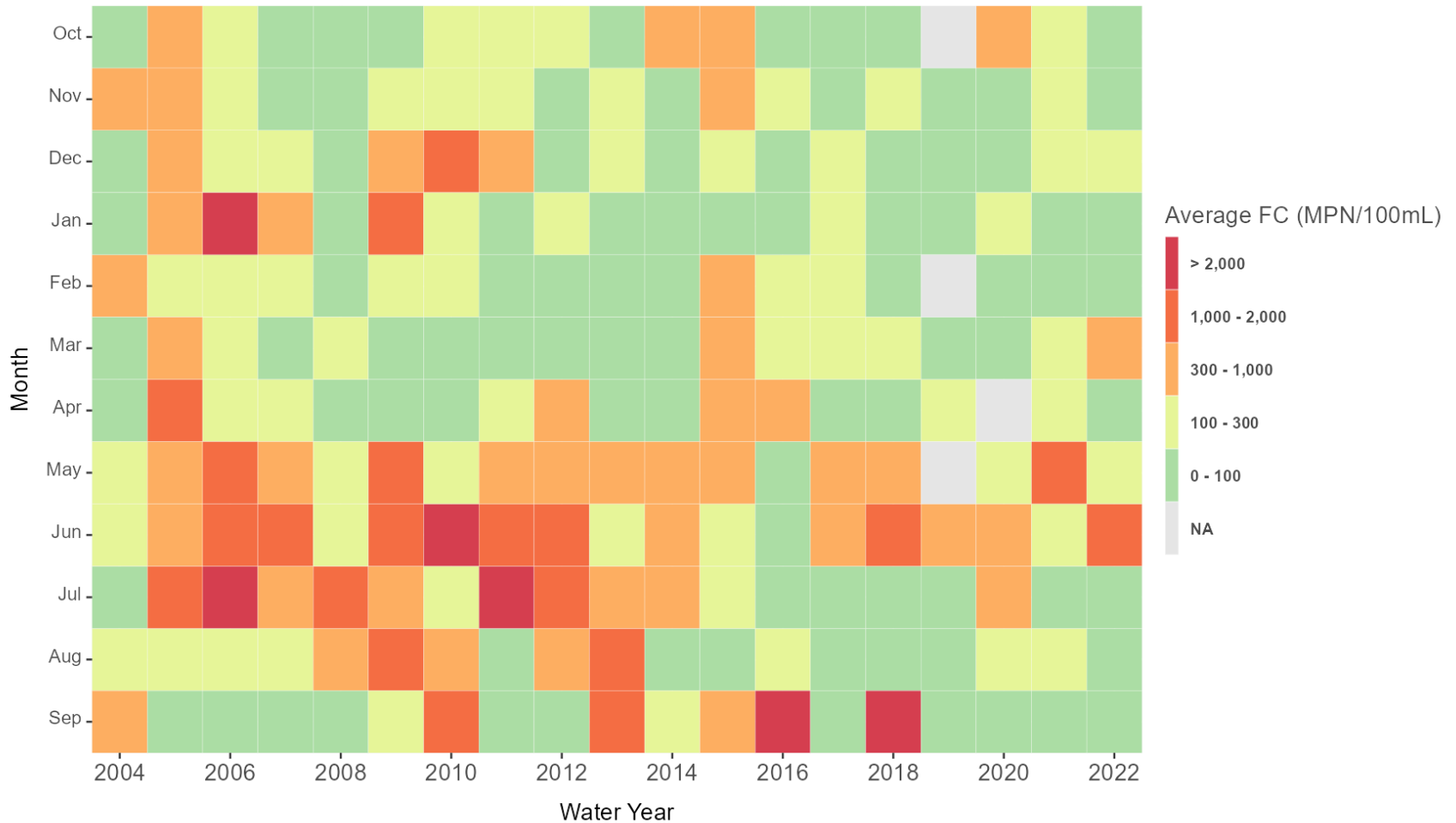


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 34 - No Name Slough at Bayview-Edison Road

Padilla Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 40 – Big Indian Slough at Highway 20

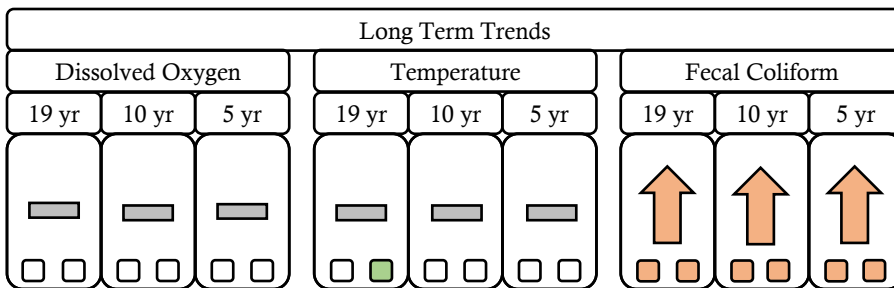
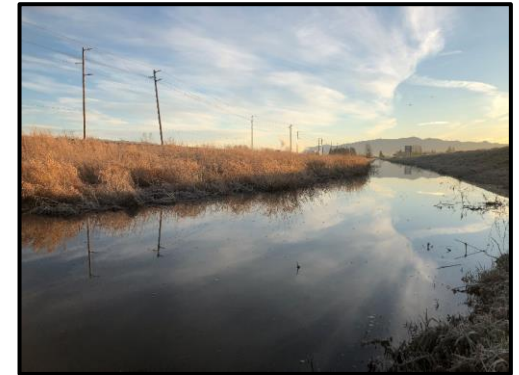
Padilla Watershed  
Midstream Ag

Site 40 is Big Indian Slough, just north of Highway 20 and prior to entering Padilla Bay. This site has industrial, agricultural, and urban influences. Sites like this are characterized by being stagnant or slow-moving and may be tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Fecal coliform counts have significantly increased over the past 19-, 10-, and 5- years. WQI scores are consistently in the category of highest concern.

Site 40 almost always fails to meet state standards for DO. During the summer months the temperature standard is also not met. This site failed the FC state standards for both the geometric mean and 90th percentile requirements. The EC standard for geometric mean was met but did not meet the 90th percentile requirements.

Site 40 is tied for 17<sup>th</sup> out of 36 sites for number of significant trends, with 11, and is tied for 32<sup>nd</sup> out of 36 sites for positive trends, with 18%.

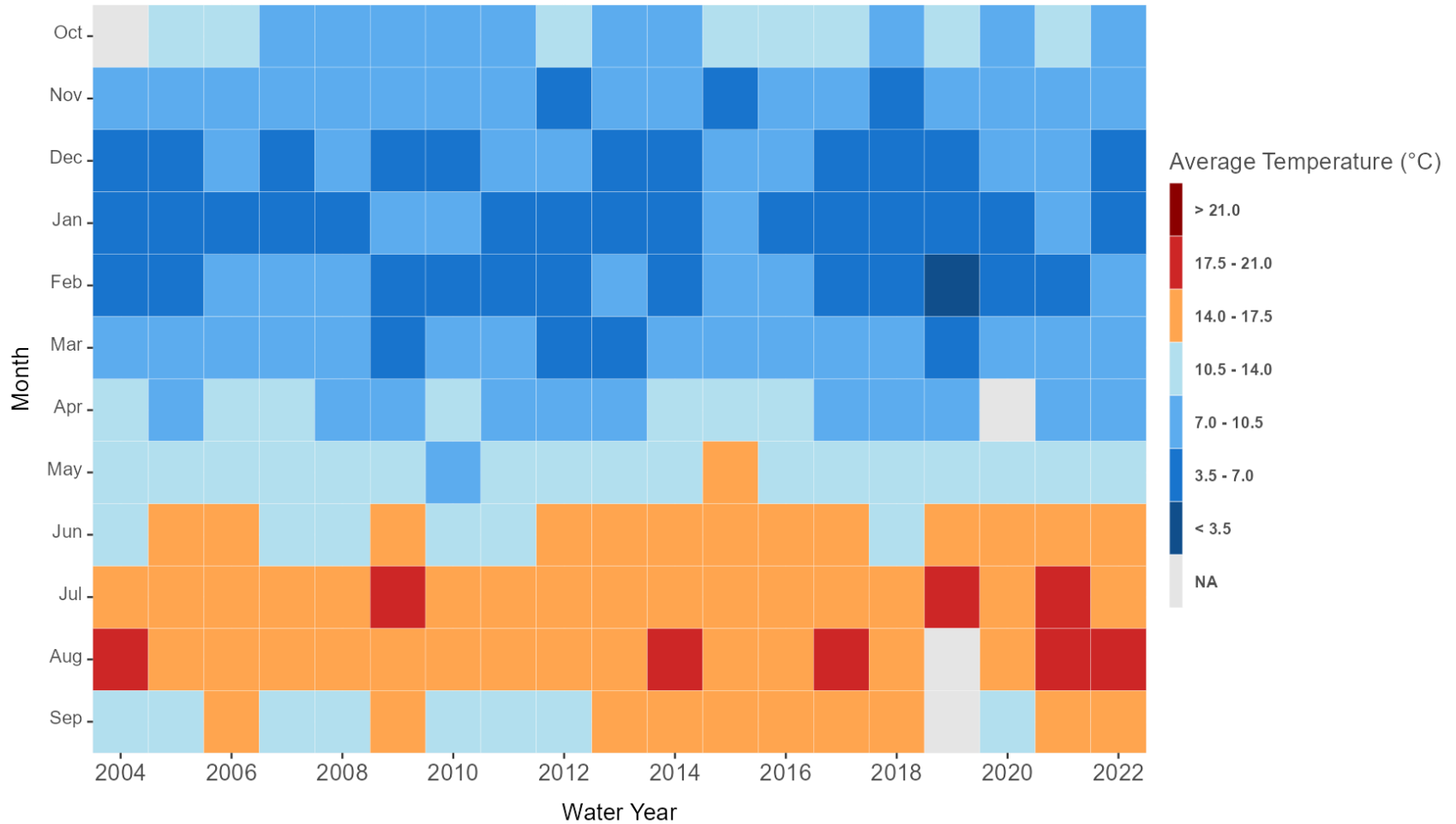


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
6	36	1	11	3	13	19	4	12	23	15	23	23	16	13	44	10

# Monthly Average Temperature

## 40 - Big Indian Slough at Highway 20

Padilla Watershed  
Midstream Ag

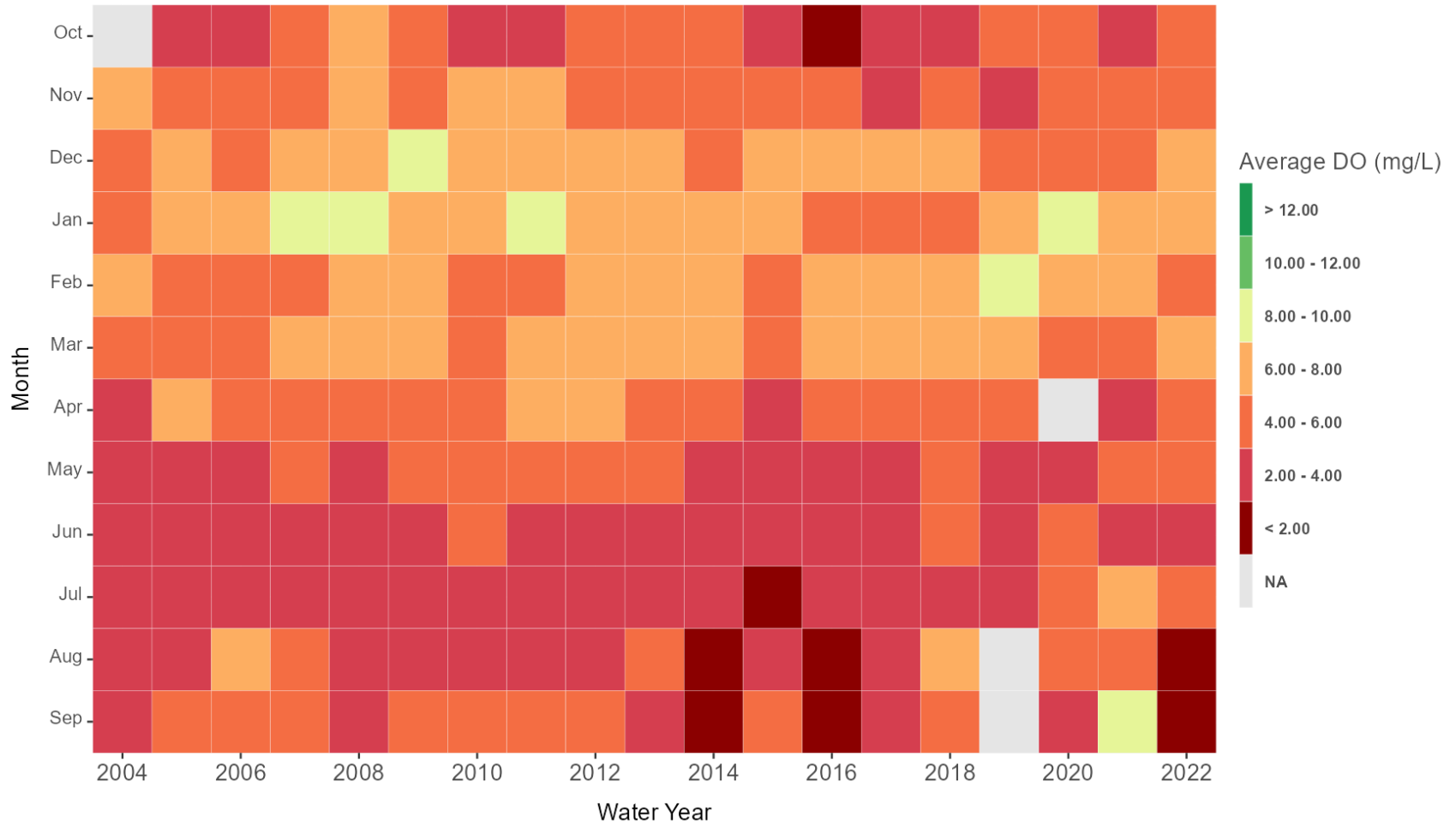


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 40 - Big Indian Slough at Highway 20

Padilla Watershed  
Midstream Ag

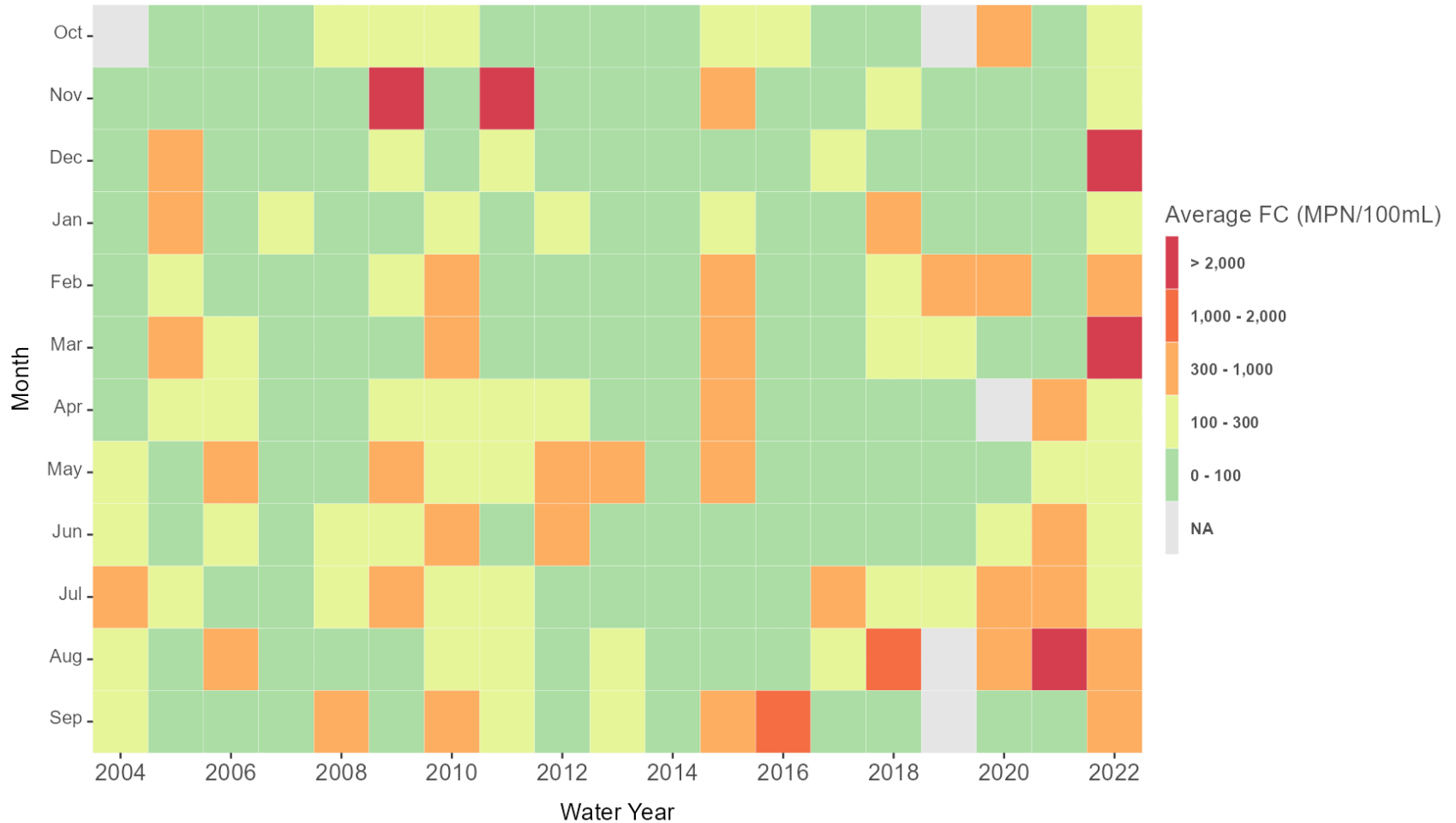


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 40 - Big Indian Slough at Highway 20

Padilla Watershed  
Midstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 44 – Sullivan Slough at La Conner-Whitney Road

Padilla Watershed  
Downstream Ag

Site 44 is Sullivan Slough, at its west end, just prior to entering the Swinomish Channel. Sites like this are characterized by being stagnant or slow-moving and are heavily tidally influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status.

Dissolved oxygen is lower than it was 19 years ago. Fecal coliform counts have decreased over the last 10 years. WQI scores are consistently in the category of highest concern.

Site 44 spends almost all of the year below state standards for DO and occasionally fails to meet state standards for water temperature during the warmer months. This site failed the FC state standards for both the geometric mean and 90th percentile requirements, while EC levels met both the geometric mean and 90th percentile standards.

Site 44 is tied for 17<sup>th</sup> out of 36 sites for number of significant trends, with 11, and is 31<sup>st</sup> out of 36 sites for positive trends, with 27%.



Long Term Trends								
Dissolved Oxygen			Temperature			Fecal Coliform		
19 yr	10 yr	5 yr	19 yr	10 yr	5 yr	19 yr	10 yr	5 yr
↓	—	—	—	—	—	—	↓	—
□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □

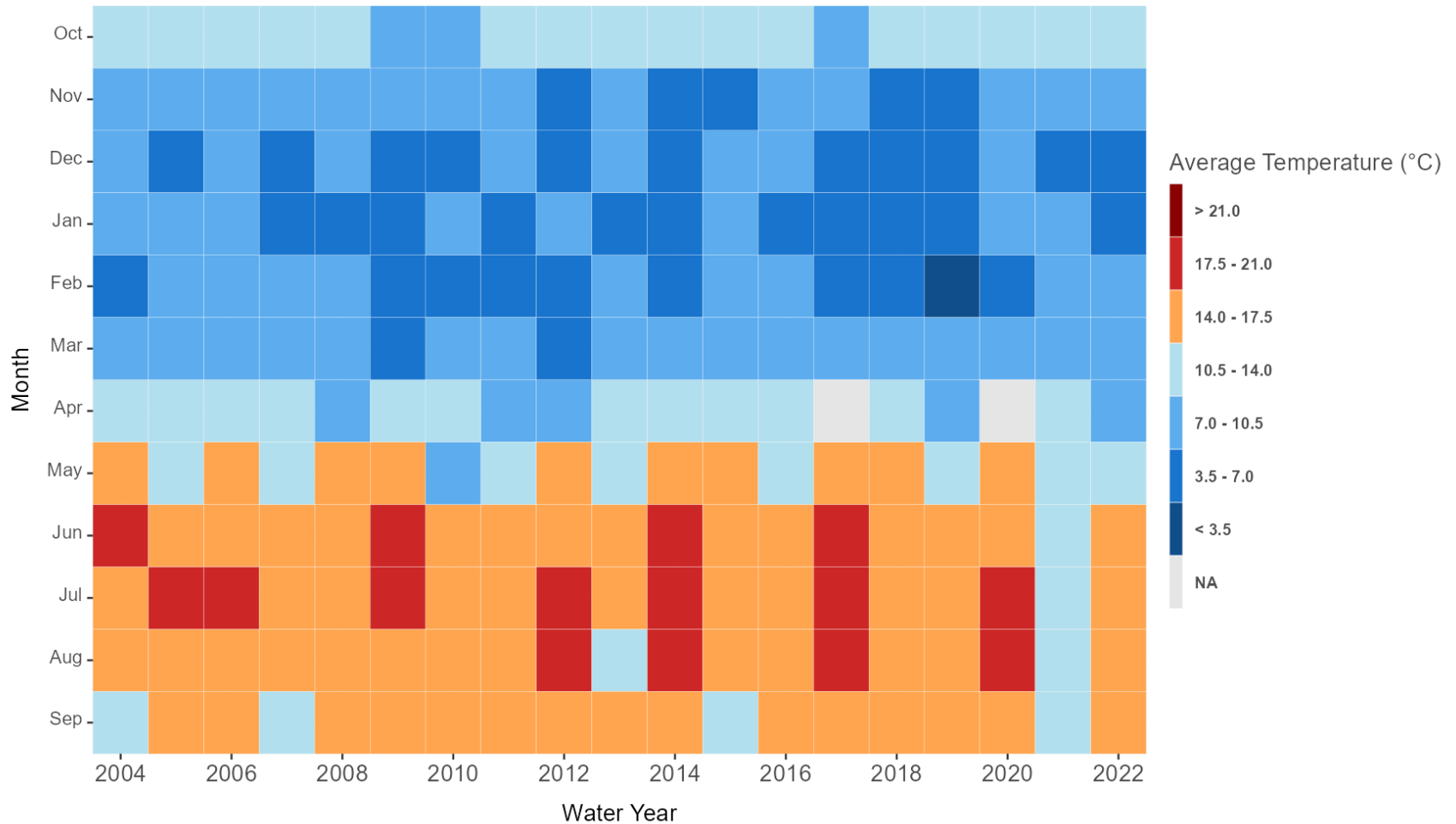


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
28	21	2	33	47	29	36	25	12	11	8	16	8	32	23	18	14

# Monthly Average Temperature

44 - Sullivan Slough  
at La Conner-Whitney Road

Padilla Watershed  
Downstream Ag



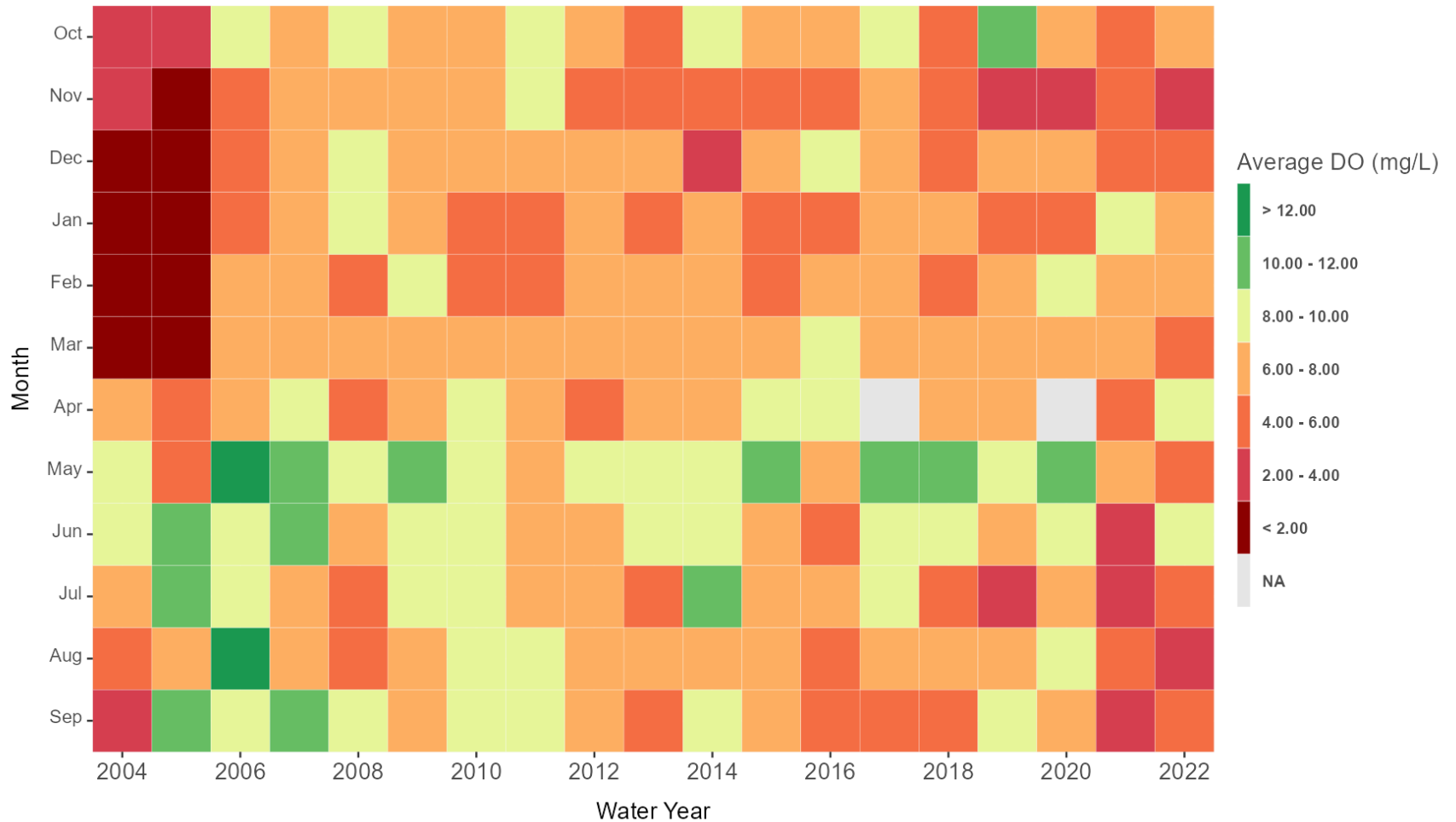
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 44 - Sullivan Slough at La Conner-Whitney Road

Padilla Watershed  
Downstream Ag

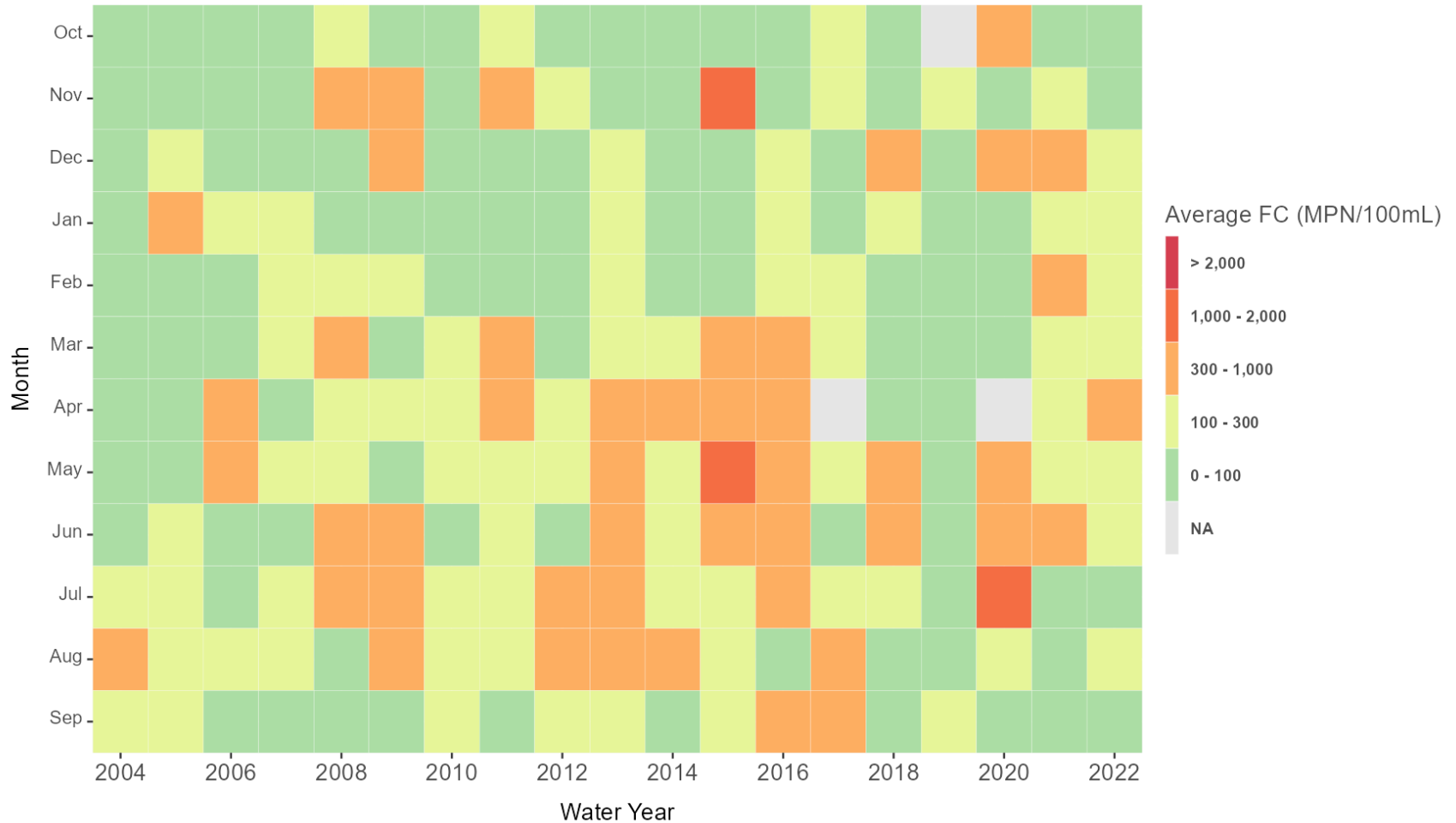


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 44 - Sullivan Slough at La Conner-Whitney Road

Padilla Watershed  
Downstream Ag



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 47 – Swinomish Channel at Twin Bridges Boat Launch

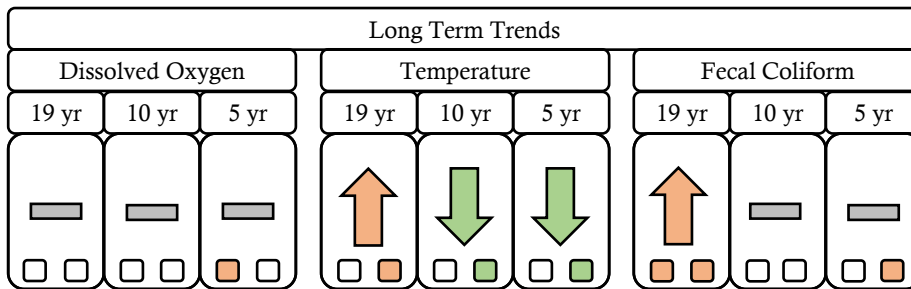
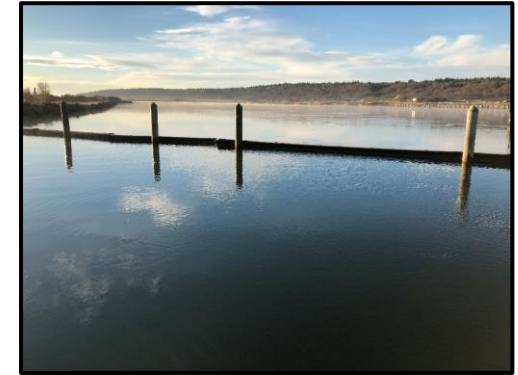
Padilla Watershed  
Reference - Marine

Site 47 is the Swinomish Channel, at the north end, just prior to Padilla Bay, and connects Padilla Bay to Skagit Bay. This site is designated as marine water.

Temperature is higher than it was a beginning of the program, however over the past 10- and 5-years, temperature has decreased. Fecal coliform counts are higher now than they were 19 years ago. WQI scores are generally in the higher-scoring end of the moderate concern category, and often score as least concern.

Site 47 rarely fails to meet state standards for DO and water temperature. This site passed the FC standard of a geometric mean less than 14 MPN/100mL but did not pass the 90th percentile requirement.

Site 47 is tied for 13<sup>th</sup> out of 36 sites for number of significant trends, with 12, and is 27<sup>th</sup> out of 36 sites for positive trends, with 33%.

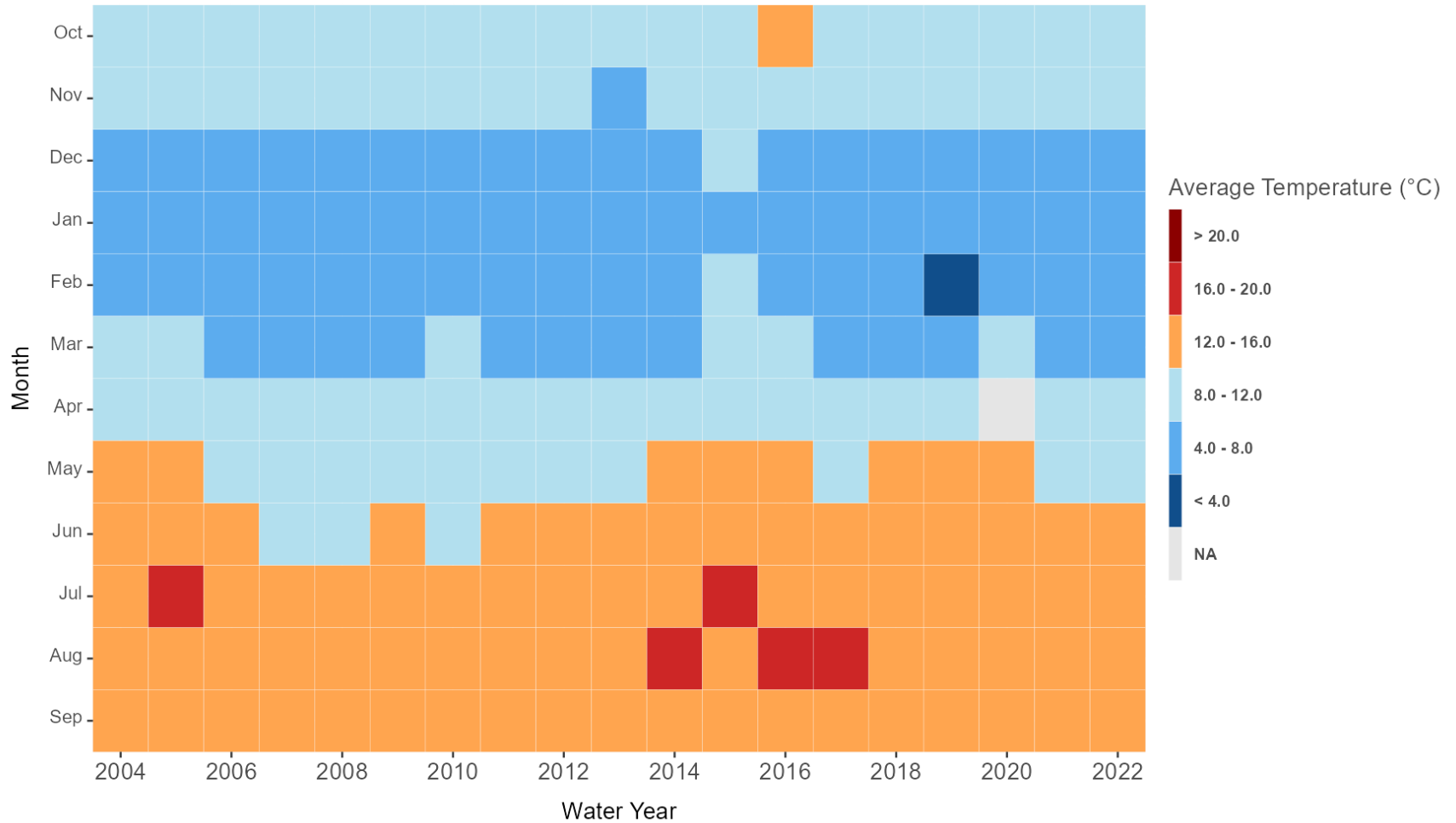


Water Quality Index (WQI)																
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
74	82	68	67	83	79	81	77	78	81	88	87	83	80	75	63	59

# Monthly Average Temperature

## 47 - Swinomish Channel at Twin Bridges Boat Launch

Padilla Watershed  
Reference - Marine

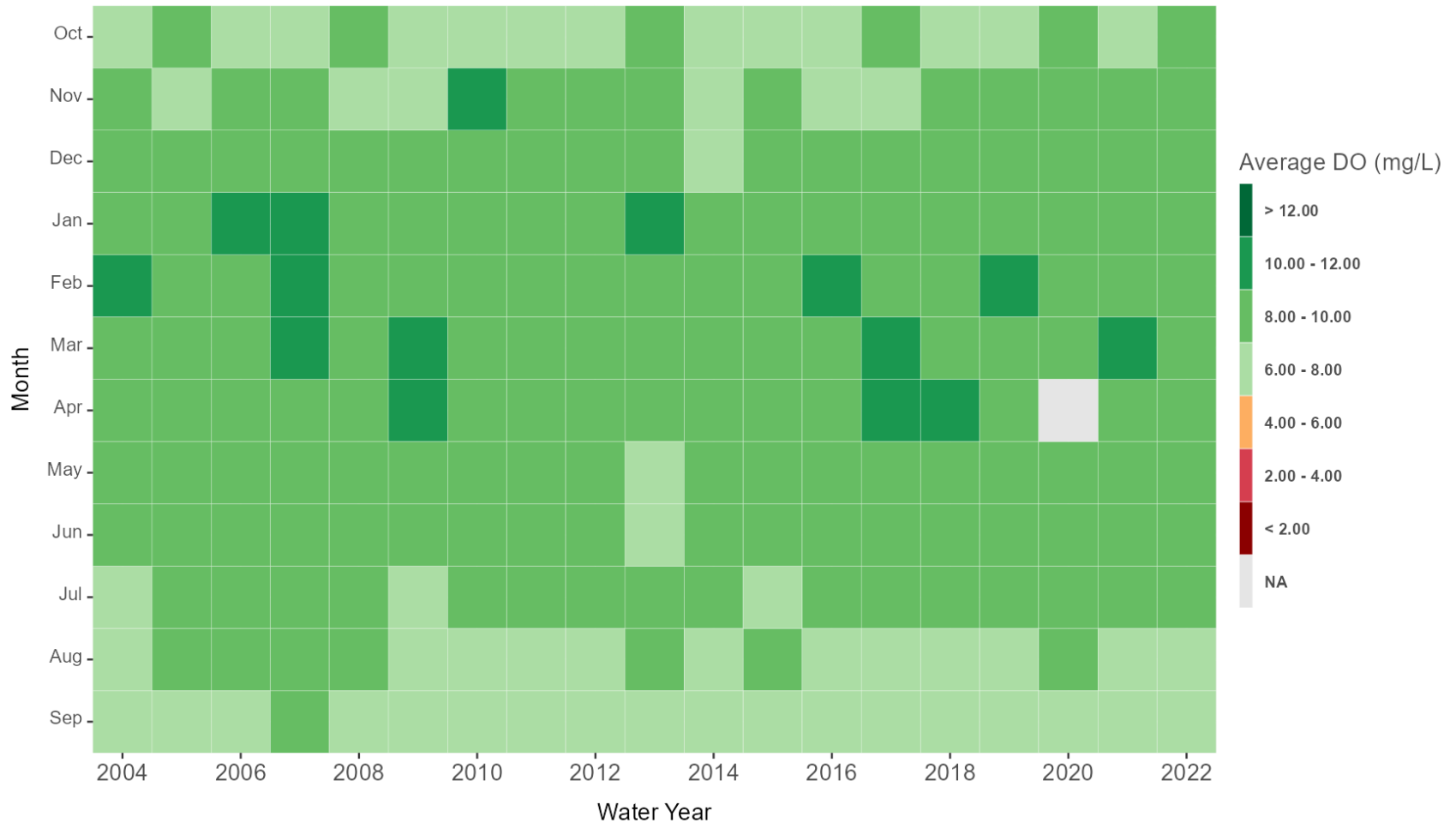


The temperature standard for this site is 16.0 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 47 - Swinomish Channel at Twin Bridges Boat Launch

Padilla Watershed  
Reference - Marine

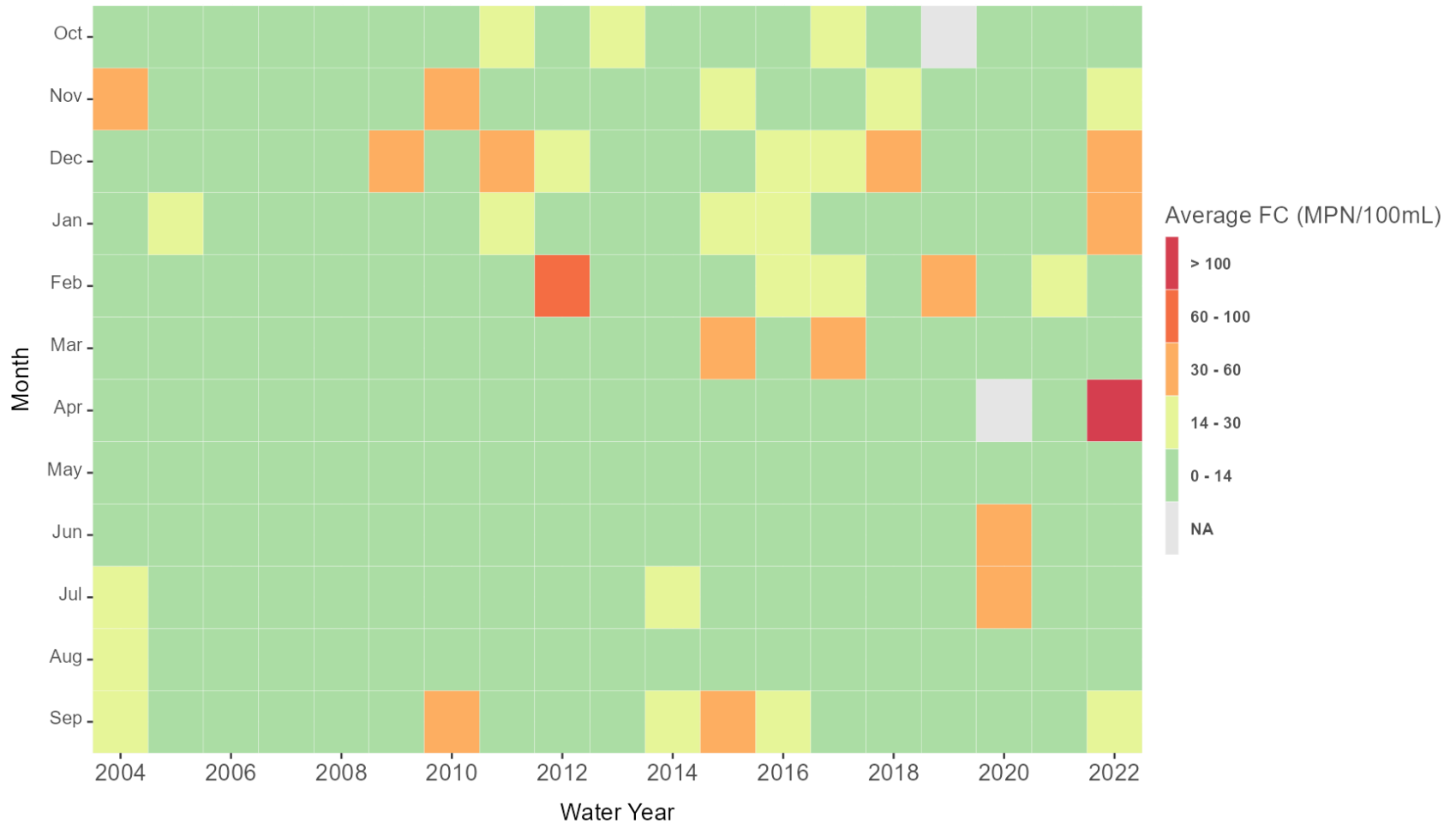


The dissolved oxygen (DO) standard for this marine site is 6.0 mg/L for an “excellent” water quality rating. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 47 - Swinomish Channel at Twin Bridges Boat Launch

Padilla Watershed  
Reference - Marine



The fecal coliform (FC) standard for this site is 14 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

## 49 – Joe Leary Slough at Farm to Market Road

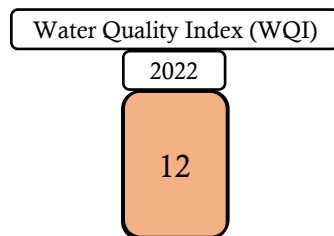
Padilla Watershed  
Downstream Ag, TMDL

Site 49 is Joe Leary Slough, approximately 2 miles upstream of Site 50. This slough was a natural drainage that has been diked and is heavily used for agricultural purposes. Sites like this are characterized by being stagnant or slow-moving, and are heavily tidally-influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status. This is the first year that data has been collected at this site for the SCMP.

No statistical tests were run at Site 49 because 5 years of data are required to increase the datasets robustness and reduce the amount of statistical error.

The WQI score for this site (12) is in the highest concern category. This is similar to the WQI scores found at the former sampling location on Joe Leary Slough, Site 35. EC levels met both the geometric mean and 90th percentile standards.

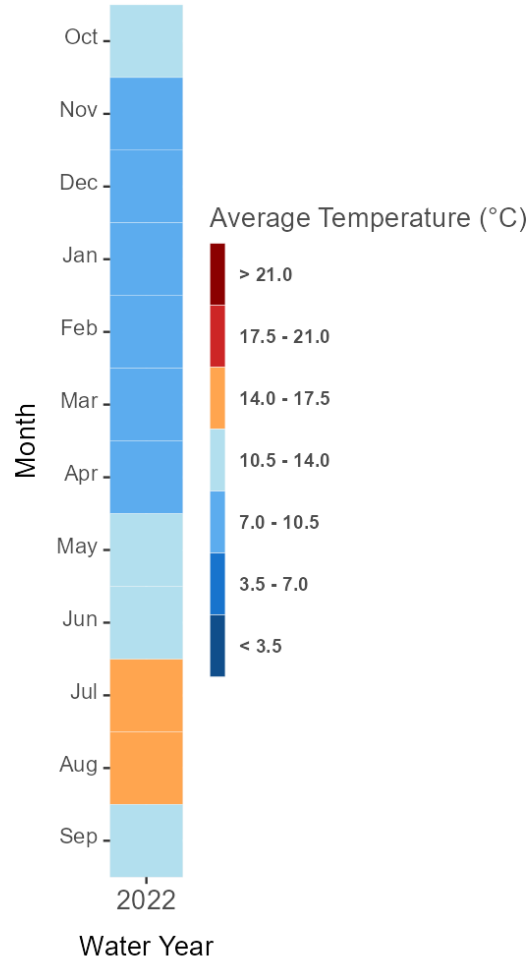
Site 49 did not meet the DO standard throughout the year at all. However, the site did meet temperature standards throughout the year. This site passed the FC standard of a geometric mean less than 100 MPN/100mL but did not pass the 90th percentile requirement.



# Monthly Average Temperature

## 49 – Joe Leary Slough at Farm to Market Road

Padilla Watershed  
Downstream Ag, TMDL



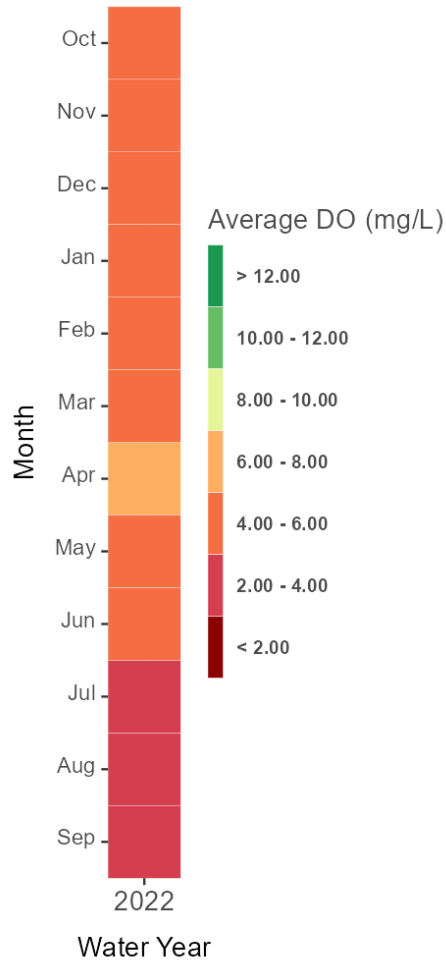
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 49 – Joe Leary Slough at Farm to Market Road

Padilla Watershed  
Downstream Ag, TMDL

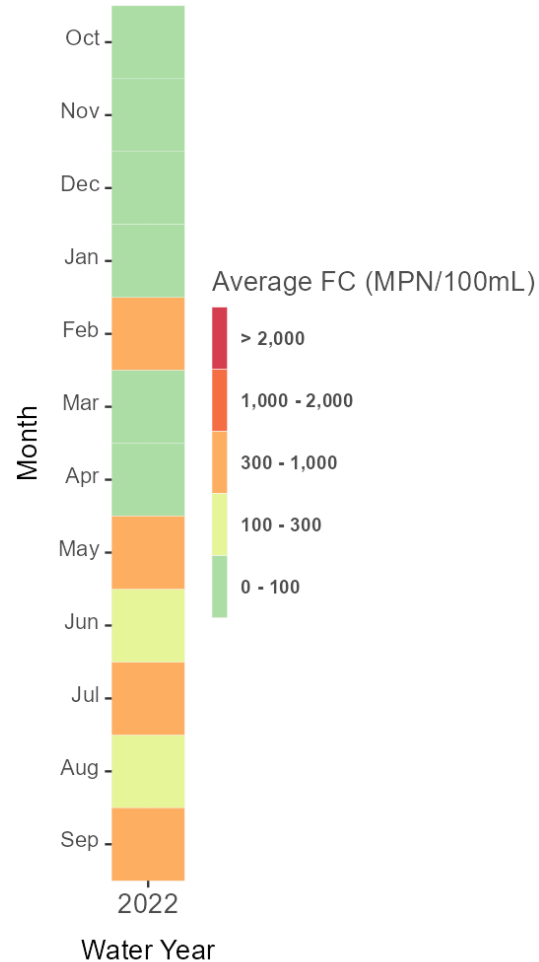


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 49 – Joe Leary Slough at Farm to Market Road

Padilla Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 50 – Joe Leary Slough at Tide Gate

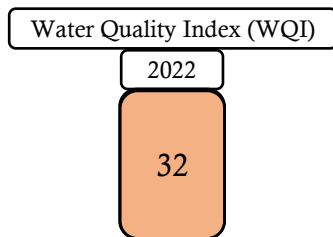
Padilla Watershed  
Downstream Ag, TMDL

Site 51 is Joe Leary Slough, just prior to where it enters Padilla Bay at the tide gate. It is located approximately 2 miles downstream of Site 49. This slough has been diked and is heavily used for agricultural purposes. Sites like this are characterized by being stagnant or slow-moving, and are heavily tidally-influenced. This site is designated as salmonid spawning, rearing, and migration (SRM) status. This is the first year that data has been collected at Site 51 for the SCMP.

No statistical tests were run at Site 50 because 5 years of data are required to increase the datasets robustness and reduce the amount of statistical error.

The WQI score for this site (32) is in the highest concern category. This is similar to the WQI scores found at the former sampling location on Joe Leary Slough, Site 35.

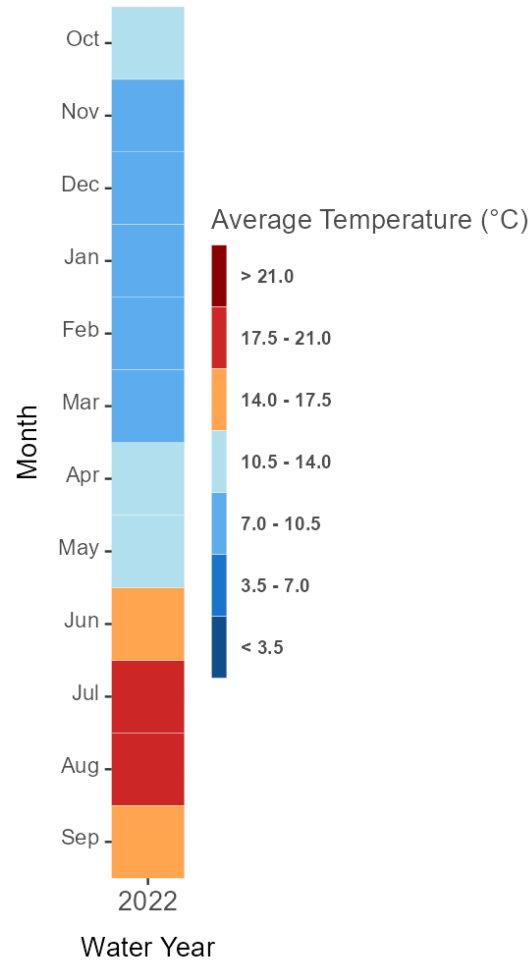
Site 50 did not meet the state standard for DO throughout the year. Most of the year the site meets the temperature standards, other than July and August. This site failed the FC state standards for both the geometric mean and 90th percentile requirements, while EC levels met both the geometric mean and 90th percentile standards.



# Monthly Average Temperature

## 50 – Joe Leary Slough at Tide Gate

Padilla Watershed  
Downstream Ag, TMDL

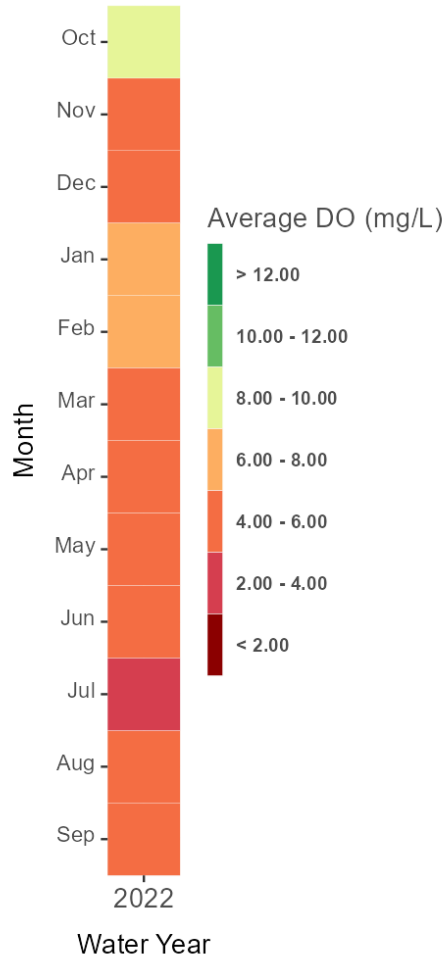


The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average DO

## 50 – Joe Leary Slough at Tide Gate

Padilla Watershed  
Downstream Ag, TMDL

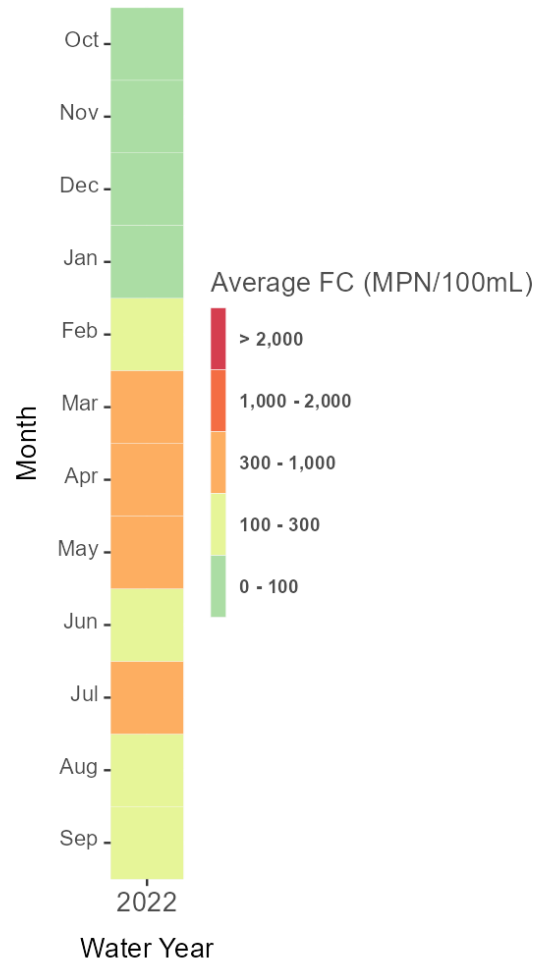


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 50 – Joe Leary Slough at Tide Gate

Padilla Watershed  
Downstream Ag, TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.

# 52 – Little Indian Slough at Farm to Market Road

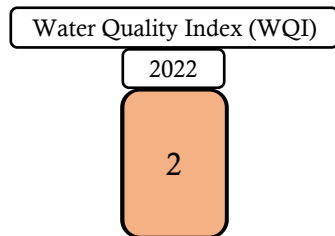
Padilla Watershed  
TMDL

Site 52 is Little Indian Slough, at the first point it is exposed after being piped through a commercial/industrial area. It is located approximately 1.7 miles upstream of its connection with Big Indian Slough. This slough is influenced by commercial and industrial stormwater and run-off. This is the first year that data has been collected at Site 52 for the SCMP.

No statistical tests were run at Site 52 because 5 years of data are required to increase the datasets robustness and reduce the amount of statistical error.

The WQI score for this site (52) is in the highest concern category.

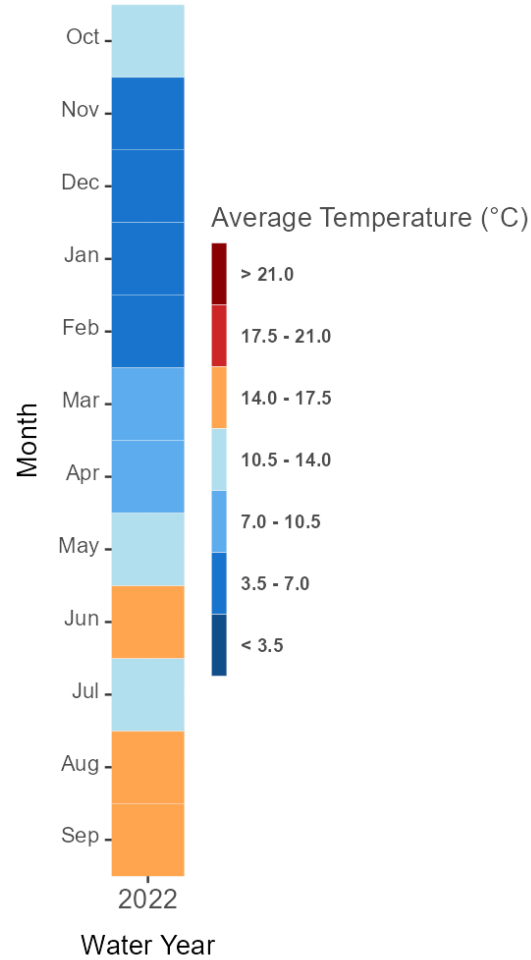
Site 51 very rarely meets state standards for DO. However, this site did meet the temperature standards throughout the year. This site failed the FC and EC state standards for both the geometric mean and 90th percentile requirements.



# Monthly Average Temperature

## 52 - Little Indian Slough at Farm to Market Road

Padilla Watershed  
TMDL



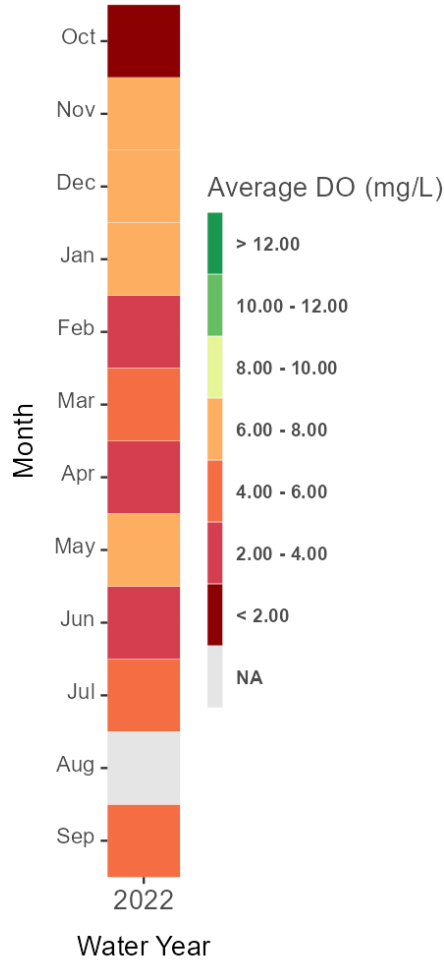
The temperature standard for this site is 17.5 °C. Any part of the plot that is red is hotter than that standard. The water year on the y-axis begins in October and ends in September.



# Monthly Average DO

## 52 - Little Indian Slough at Farm to Market Road

Padilla Watershed  
TMDL

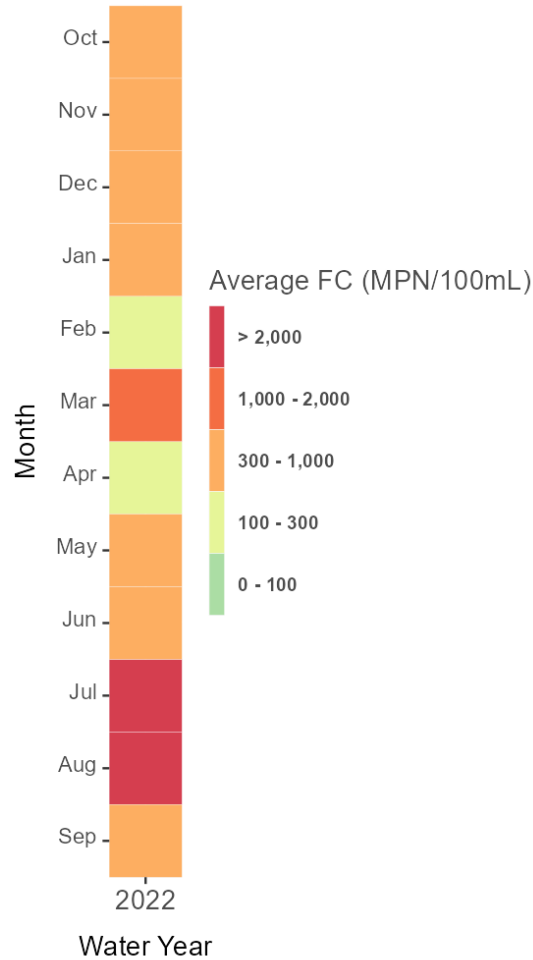


The dissolved oxygen (DO) standard for this site is 10.0 mg/L. Any part of the plot that is in green meets that standard. The water year on the y-axis begins in October and ends in September.

# Monthly Average Fecal Coliform

## 52 - Little Indian Slough at Farm to Market Road

Padilla Watershed  
TMDL



The fecal coliform (FC) standard for this site is 100 MPN/100mL. Any part of the plot that is green meets that standard. The water year on the y-axis begins in October and ends in September.