Biodiversity and Conservation Science

Swan Canning Catchment Data Report

January – December 2020

Technical Report prepared by the Department of Biodiversity, Conservation and Attractions (DBCA) Rivers and Estuaries Science Branch.

July 2023

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

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Preface

The Swan Canning Water Quality Monitoring Project consists of long-term routine monitoring of the Swan Canning Estuary and selected tributaries within its catchments. This has allowed for the regular reporting on water quality and the annual reporting on estuarine and catchment compliance against short and long-term management targets and/or the ANZECC guidelines for estuaries and lowland rivers.

The Project was initially designed in 1994 by the Swan River Trust and Waters and Rivers Commission (now Department of Biodiversity, Conservation and Attractions (DBCA) and Department of Water and Environment Regulation (DWER), respectively) and is part of a reporting framework under DBCA's River Protection Strategy. Project management transitioned in July 2020 from being jointly managed by the DWER and DBCA to being managed solely by the Rivers and Estuaries Science program, DBCA.

Data from the monitoring program is captured in the DWER WIN database under the project code SG-C-SCCATCH. The catchment monitoring consists of the fortnightly sampling of 32 sites.

Changes to this long-standing monitoring program are captured in Appendix C

*Table 1. SCCATCH catchment site coordinates. *For the 2020 reporting period sites were sampled under the historical site code.*

Greater Catchment	Swan-Canning Sub catchment	Site	Historical Site Code*	Current Site Code	Latitude	Longitude	Flow Status
Swan	Avon River (Millendon)	Swan River, Upper Swan Bridge, Great Northern Highway	**SWN5**	**SWANR**	-31.781685	116.022904	Perennial
Canning	Bannister Creek	Bannister Creek, Hybanthus Rd, Ferndale	**SWS2**	**BANNC**	-32.038306	115.917321	Perennial
Swan	Bayswater Main Drain	Bayswater Main Drain, Slade St, Bayswater	**SWS10**	**BAYMD**	-31.924246	115.921949	Perennial
Swan	Bennett Brook	Bennett Brook, Brook Rd, Whiteman	**SWN12**	**BENNB**	-31.877703	115.959526	Perennial
Canning	Bickley Brook	Bickley Brook Main Drain, Austin Ave, Kenwick	**SWS4**	**BICKB**	-32.043205	115.976086	Ephemeral
Swan	Blackadder Creek	Blackadder Creek, Francis Street, Midland	**SWN8**	**BLACKC**	-31.876150	116.017298	Ephemeral
Canning	Bull Creek	Holmes St, Shelley	**SCCIS2**	**SHELLD1**	-32.029429	115.888092	Perennial
Canning	Bull Creek	Beatrice Ave Main Drain, Shelley	**BAMDKD**	**SHELLD2**	-32.035010	115.883725	Perennial
Canning	Upper Canning River	Canning River, Seaforth, Gosnells	**SWS12**	**CANNR**	-32.092305	116.016772	Perennial
Swan	Claise Brook Main Drain	Claise Brook Fountain Lake Bridge	**CB13**	**CLAISB**	-31.952561	115.876925	Ephemeral
Swan	Ellen Brook	Ellen Brook, Almeria Pde, Upper Swan	**SWN3**	**ELLENB1**	-31.751071	116.024830	Ephemeral
Swan	Ellen Brook Bridge	Ellen Brook Bridge, West Swan Road, Upper Swan	**SWN9**	**ELLENB2**	-31.789477	116.003947	Ephemeral
Canning	Ellis Brook	Ellis Brook, Mills St, Maddington	**EBGS01**	**ELLISB**	-32.066042	116.001554	Ephemeral
Swan	Helena River	Helena River, Whiteman Rd, Midland	**SWN10**	**HELENR**	-31.900081	116.007611	Ephemeral
Canning	Helm Street Drain	Helm St Drain, Maddington	**SCCIS4**	**MADDD**	-32.056492	115.996684	Ephemeral
Swan	Henley Brook	Henley Brook, Brockman St, Millendon	**HBBROCK**	**HENLB**	-31.804066	116.003019	Ephemeral
Swan	Jane Brook	Jane Brook, Sweeting Bridge, Great Northern Highway, Middle Swan	**SWN7**	**JANEB**	-31.862701	116.013985	Ephemeral
Canning	Lower Canning	Cockram St Drain, Grose Av, Cannington	**SCCIS3**	**CANND**	-32.016435	115.942555	Perennial
Swan	Maylands	Maylands/Inglewood Main Drain	**MIMDOUT**	**MAYMD**	-31.936890	115.891175	Perennial
Canning	Mills Street Main Drain	Mills St Main Drain, Palm Place, Cannington	**SWS1**	**MILLMD**	-32.016546	115.919366	Perennial
Swan	Perth Airport North Drain	Limestone Creek, Great Eastern Hwy Bypass	**SCCIS12**	**LIMEC**	-31.920049	115.961796	Perennial
Swan	Perth Airport South Drain	Perth Airport Drain, Kanowna Ave, Ascot	**KANAV**	**AIRSMD**	-31.931225	115.940908	Perennial
Swan	Saint Leonards Creek	George St access, West Swan	**SCCIN3**	**STLEOC**	-31.837107	115.997803	Ephemeral
Swan	South Belmont Main Drain	South Belmont Main Drain, Severin Walk, Abernathy Road, Belmont	**SWS13**	**SBELMD**	-31.949031	115.919732	Perennial
Canning	South Perth	Galway Rd, Manning	**SCCIS1**	**BODD**	-32.017333	115.883103	Perennial
Canning	South Perth	Wilson Main Drain	**WIFRD**	**WILMD**	-32.020262	115.915023	Perennial
Canning	Southern River	Southern River, Anaconda Drive, Huntingdale	**SWS7**	**STHNR**	-32.078355	115.978799	Perennial

Canning	Southern River	Neerigen Brook, Armadale	**AW05**	**NEERB**	-32.152688	116.002540	Ephemeral
Swan	Susannah Brook	Susannah Brook, River Rd, Millendon	**SWN11**	**SUSANB**	-31.817712	116.014051	Ephemeral
Swan	Upper Swan	Chapman St drain, Ashfield	**CSMDREID**	**ASHD**	-31.914643	115.949454	Perennial
Swan	Wandoo Creek	Wandoo Creek, West Swan	**WNDCK**	**WNDCK**	-31.848024	115.992263	Ephemeral
Canning	Yule Brook	Yule Brook, Brixton St, Beckenham	**SWS3**	**YULEB**	-32.025406	115.967146	Ephemeral
Swan	Mount's Bay Main Drain	Perth Convention Centre car park (bay #1237), CBD	**CCDRMBRD**	**CBDMD**	-31.955570	115.851251	Perennial

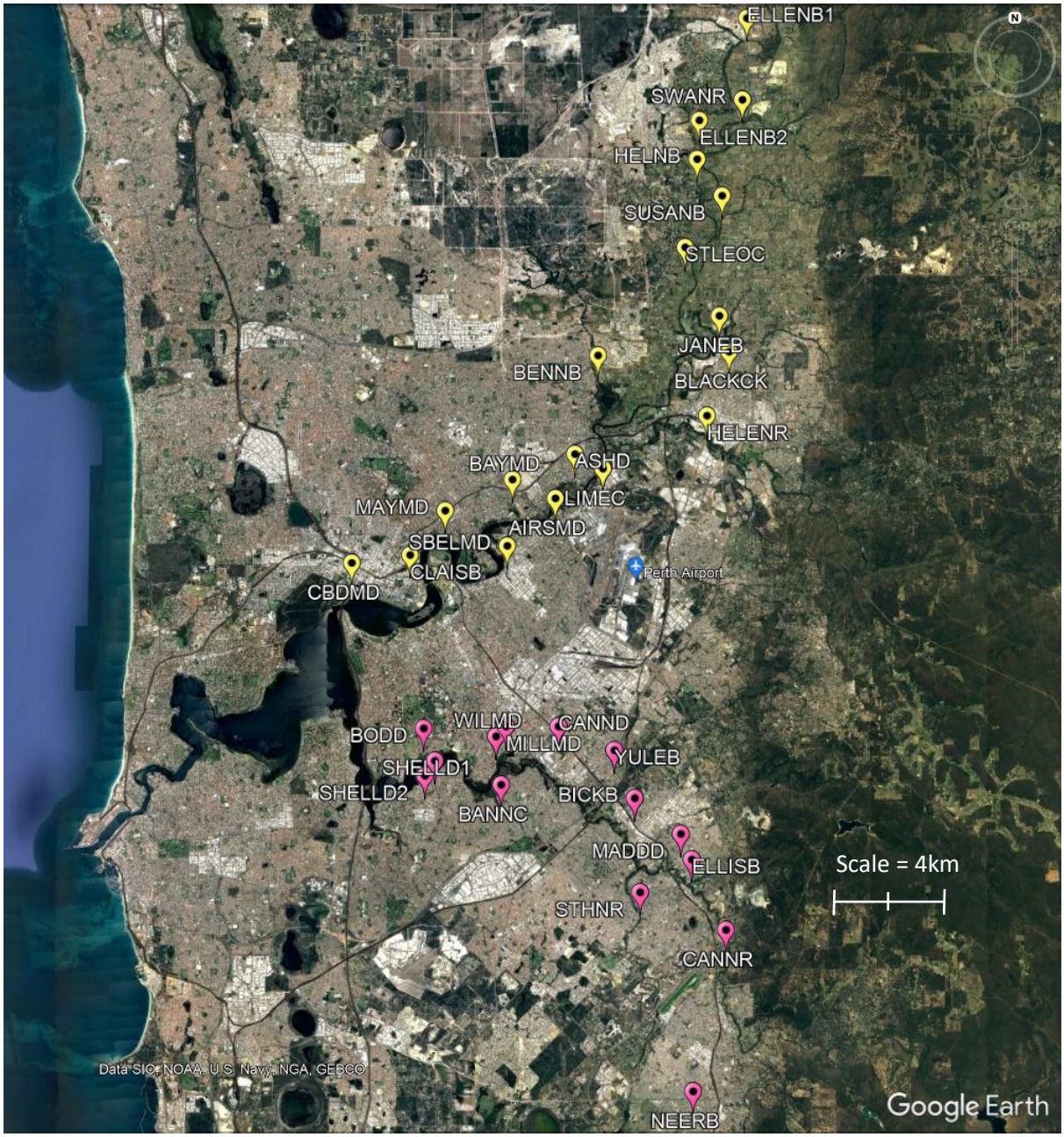

Figure 1. The distribution of routine SCCATCH monitoring sites within the sub catchments of the Swan Canning Estuary. Yellow waypoints indicate sites within the greater Swan Catchment and pink waypoints indicate sites within the greater Canning catchment.

Table 2. The Swan Canning catchment monitoring regime.

Parameter measured	**Swan Canning catchment sites**
Temporal pattern	All year, when flowing
Number of sites	32
Spatial pattern	Fixed
Sampling frequency	Fortnightly
Total suspended solids (TSS)	Grab sample
Total nitrogen and phosphorus (TN & TP)	Grab sample
Filterable reactive phosphorus, nitrogen as ammonia, total oxidised nitrogen& dissolved organic nitrogen (FRP, NH_3-N, NO_x-N, DOrgN)	Grab sample (filtered)
Dissolved organic Carbon (DOC)	Grab sample (filtered)
YSI pro DSS (dissolved oxygen, pH, temperature & Specific Conductivity)	In-situ
Field Observations (flow, weather, water Appearance and stage height at gauged sites)	All sites

Executive Summary

Total annual rainfall in 2020 for the Perth Metro region was 673.4 mm and below the long-term historical average (730.9 mm) and accounted for the 4th driest winter on record. Annual rainfall was also below average for most sites within the greater Perth region however the Bickley region, specifically Perth hills, recorded above average rainfall up to 1200mm. Late spring rainfall was also atypical, with 92 mm of rainfall recorded for Perth Metro in November, the highest for any central Perth Site since 1867. Other notable rainfall events prior to winter occurred from 26 - 28 February (32.2 mm), 18 March (19.8 mm) and 25 - 31 May (79.4 mm). Annual mean day-time and night-time temperatures for Perth Metro were 25.3°C & 13.5°C which was 0.5°C and 0.7°C above the historical average respectively (BOM, 2020).

Over the typically dry Summer/Autumn period, many groundwater influenced sites saw significant reductions in flow while most of the ephemeral and surface run-off driven creeks, rivers, drains and brooks ceased flowing completely. This period of no flow or reduced flow slows the magnitude of release and transport of nutrients throughout the systems and facilitates nutrient accumulation within the associated subcatchments. Accumulated nutrients are typically released into the waterways the following winter where general increases in nutrients can be observed across most sites.

During the 2020 reporting period, most analytes, displayed a positive correlation with flow, typically peaking over winter and early spring before decreasing towards late spring and early summer as stream flow reduces. This trend can be observed at a number of sites such as BENNB, ELLENB2, MADDD, SHELLD1, SBELMD, BICKB and STHNR. In 2020 we saw notable rainfall events in February and March that constituted the first significant flush triggering streamflow responses in a number of monitored sites including CANNR, CLAISB BICKB, SHELLD2, CANND, AIRSMD and ASHD. Nutrient concentrations among these sites were generally elevated with notable increases in Nitrogen (particularly NOx-N) observed. This is thought to be a response to the rainfall and dormant nutrients within the catchment being released and flushed downstream after the summer accumulation period. A number of these sites are perennial and respond quickly to rainfall events, unlike ephemeral sites that generally require saturation of the catchment before streamflow begins and run off occurs following the onset of regular rainfall over winter.

Ephemeral sites such as SWANR (Avon), HELENR and NEERB, often displayed greatest nutrient concentrations at the beginning of their respective flow periods and gradually declined over time as flow subsided and nutrients are gradually diminished from the associated catchment.

Physical parameters such as Dissolved Oxygen and Specific Conductivity displayed strong relationships with stream flow. Typically, DO increases were observed across most sites during winter and early spring as result of stream flow with cooler water temperatures, while decreases in DO occurred in late spring through summer as water temperature and biological oxygen demand increased. Flow events were linked to notable variations (decreases and increases) in specific conductivity at a

number of sites including BANNC, BLACKC, MILLMD and SBELMD. Sharp increases in total suspended solids were often a product of significant flow events outside of the winter period as shown by BANNC, BAYMD, BENNB. This can be attributed to rainfall washing particulate matter into the system and elevated flows disturbing sediment beds, however elevated TSS is also evident at some sites (including STLEOC, MILLMD and CANND) in summer and could be linked to summer flow washing down contaminated water from the catchment, algal build up or suspended minerals such as iron from increased bacterial activity. Other notable variations in water quality occurred at BAYMD and MAYMD in May where large increases in TP, FRP and TSS were observed along with a sharp decrease in DOC and specific conductivity and is indicative of a sudden response to a significant rainfall event observed in May.

A localised bushfire in the immediate vicinity of the BLACKC sample location was noted in January 2020 that severely burned the surrounding vegetation at this site while the creek was not flowing. In March 2020, following a notable rainfall event that triggered a flow response, BLACKC saw a significant pulse of Nitrogen (as ammonium and nitrates), Phosphorus and Dissolved Organic Carbon. The chemical reactions triggered by the combustion involved in fires are known to release nutrients and other minerals stored in the surrounding vegetation and soil through volatilisation of organic matter which is then distributed into waterways and this process is apparent at this site (Raoelison *et al*. 2023). Notably, there is also a significant reduction is Dissolved Organic Nitrogen during this period, which is likely due to the organic matter stored in plants being converted to inorganic compounds during the fire and provides an excellent example of the immediate effect localised burns can have on water quality and nutrient availability in an urban waterway post-fire.

The ANZECC exceedances for each greater catchment (Swan or Canning) included:

- Total Nitrogen concentrations across all sites within the greater Swan catchment. These exceeded the ANZECC trigger value for lowland rivers (1.2mg/L) in 17.9% of months during the 2020 reporting period.
- Total oxidised Nitrogen for all sites within the greater Swan catchment (where data was available) exceeded the ANZECC trigger value for lowland rivers (0.15 mg/L) in 47.7% of months during the 2020 reporting period.
- Total Phosphorus for all sites within the greater Canning catchment (where data was available) exceeded the ANZECC trigger value for lowland rivers (0.065 mg/L) in 61.1% of months during the 2020 reporting period.
- Filterable Reactive Phosphorus for all sites within the greater Canning catchment exceeded the ANZECC trigger value for lowland rivers (value) in 60.4% of months during the 2020 reporting period.

Overall, water quality parameters were more favourable compared to the historical 5-year average for much of the 2020 calendar year, however unseasonal rainfall, discharge events and fires resulted in some periods of poor water quality throughout the catchments. Furthermore, it is evident that the available (dissolved) nitrogen

remains an issue within the greater Swan Catchment, while the available (dissolved) phosphorous remains a key issue within the greater Canning catchment.

Data Interpretation

The annual Swan Canning catchment data report presents the 2020 data collected from the 32 sites that comprise the SCCATCH catchment monitoring project. For each site data for the following ten key analytes are presented:

- Total nitrogen (TN)
- Ammoniacal nitrogen (NH_3-N)
- Total oxidised nitrogen (NO_x-N)
- Dissolved organic nitrogen (DOrgN)
- Total phosphorus (TP)
- Filterable reactive phosphorus (FRP)
- Dissolved organic carbon (DOC)
- Total suspended solids (TSS)
- Dissolved oxygen (DO)
- Specific Conductivity

At each site, the data for these analytes are presented showing the previous five years data as monthly box plots overlain with the current year's monthly medians. Monthly boxplots display the median, 25th, 75th, 10th and 90th percentiles of the historical background data, where adequate data exists. Background data for this report was collected between the 1 January 2015 and 31 December 2019. Data for the current reporting period was collected between 1 January and 31 December 2020.

Exceptions to this approach were:

- No data for SCCATCH site WNDCK was collected in 2020 due to restricted access. Boxplots of the previous five year's data are provided.

The available ANZECC trigger values for lowland rivers for TN (1.2 mg/L), NO_x-N (0.15 mg/L), TP (0.065 mg/L) and FRP (0.04 µg/L) have been incorporated on the respective plots for each site. Catchment water quality targets for total nitrogen (short-term 2mg/L; long-term 1mg/L) and total phosphorus (short term 0.2mg/L; long-term 0.1mg/L) that were established as part of the Swan Canning Cleanup Program are not shown on these plots as compliance against these targets is discerned from a three year dataset and included in reporting against the Swan Canning River Protection Strategy.

The number of monitoring events comprising the background data (n) have been detailed on each graph and are dictated by the fortnightly monitoring frequency and the ephemeral nature of certain sites during the warmer, drier months of the year. Where data fell below the limit of reporting (LOR), the value of the LOR was halved to allow the data to be analysed and displayed graphically.

The 2020 water quality data for each site is tabulated in each section to display the monthly minimum, maximum and median values along with the number of monitoring events (n). The monthly medians and standard deviations for each site are also tabulated in a comparison table (Table 37) toward the end of the report.

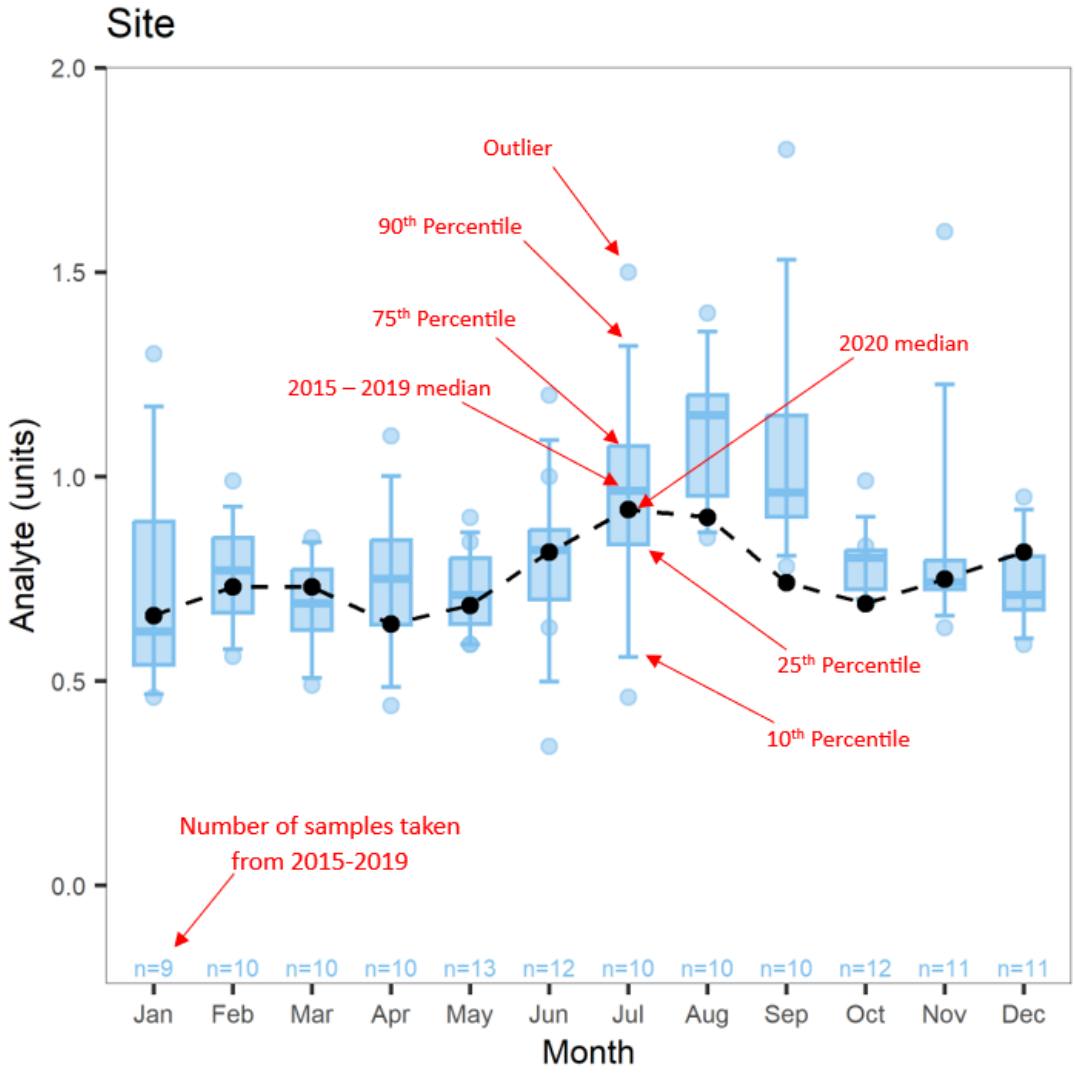

Figure 2. Example figure with explanatory keys to interpreting boxplots.

1. Avon River (SWANR)

SWANR total nitrogen (TN)

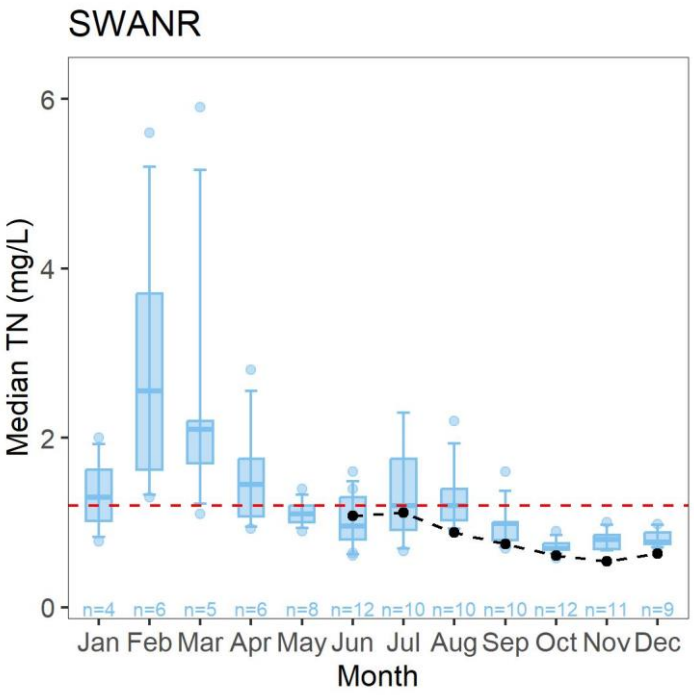

Figure 3. Monthly median total nitrogen (TN) concentrations (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

SWANR ammoniacal nitrogen (NH_3-N)

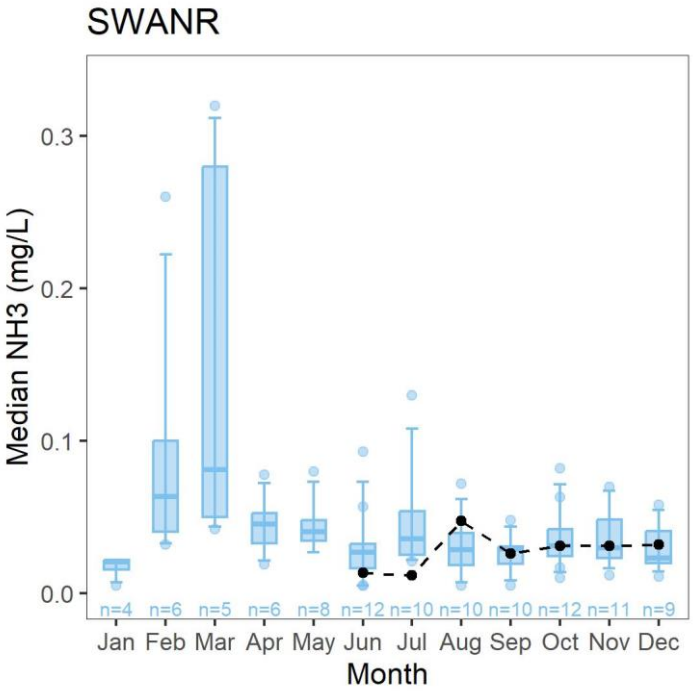

Figure 4. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data.

SWANR total oxidised nitrogen (NO_x-N)

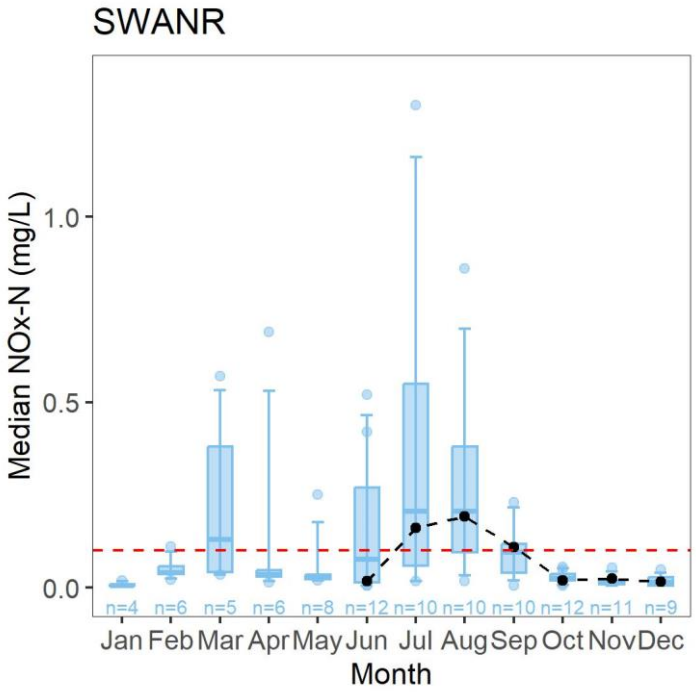

Figure 5. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

SWANR dissolved organic nitrogen (DOrgN)

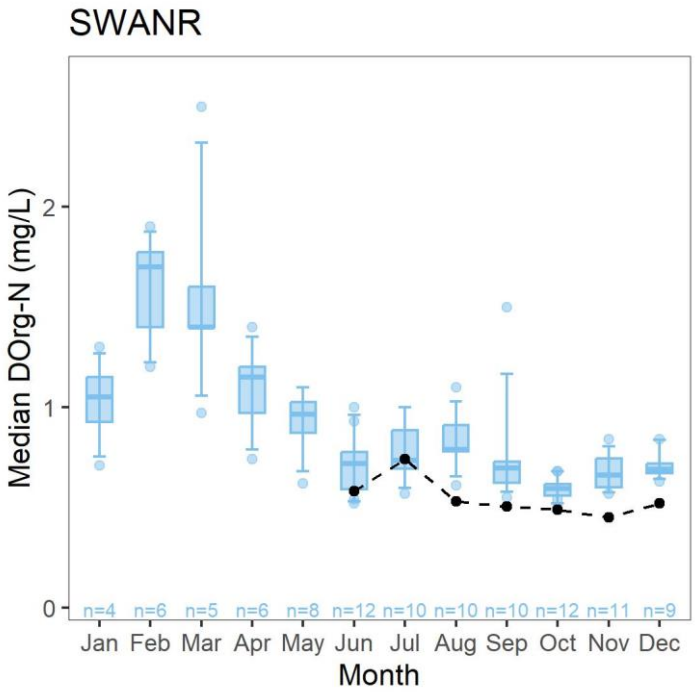

Figure 6. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR (Avon River). Number of samples (n) is provided for the historical data.

SWANR total phosphorus (TP)

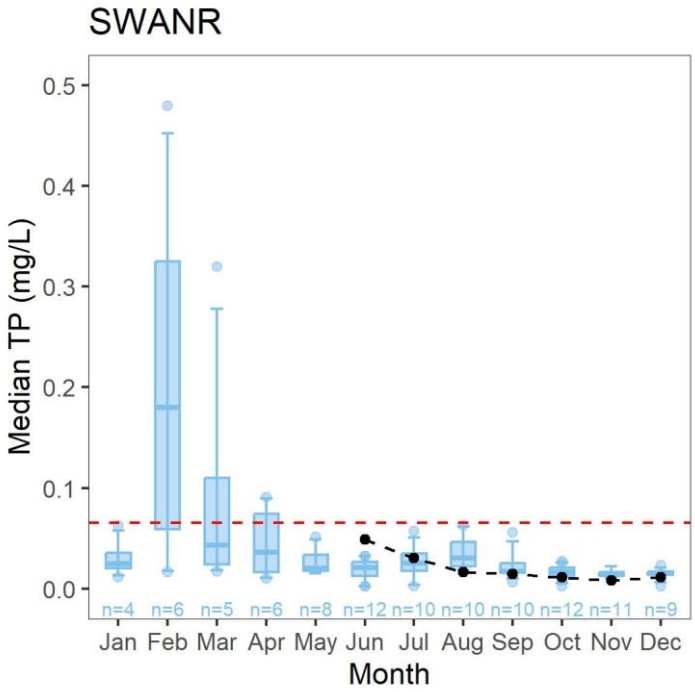

Figure 7. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

SWANR filterable reactive phosphorus (FRP)

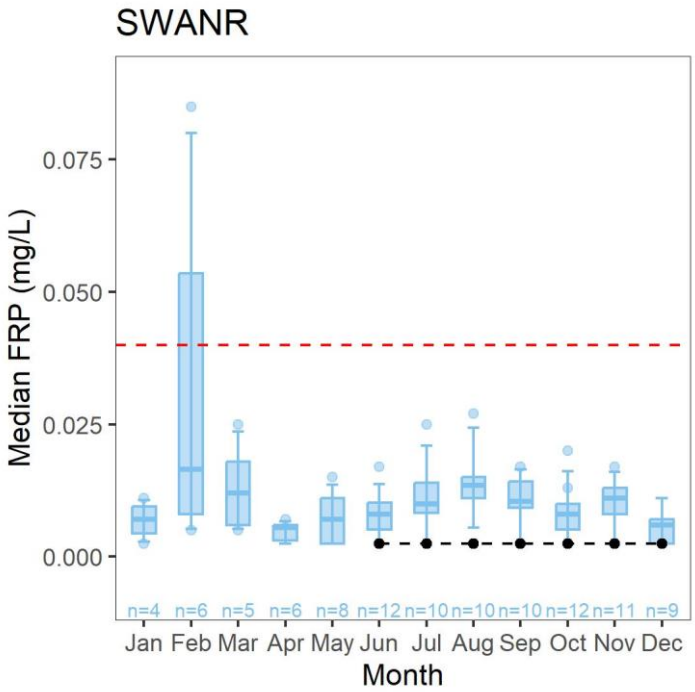

Figure 8. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

SWANR dissolved organic carbon (DOC)

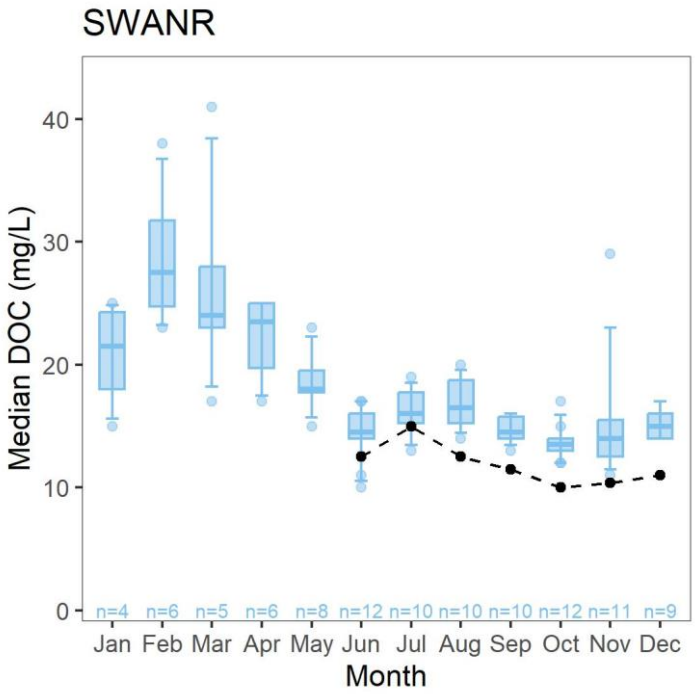

Figure 9. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data.

SWANR total suspended solids (TSS)

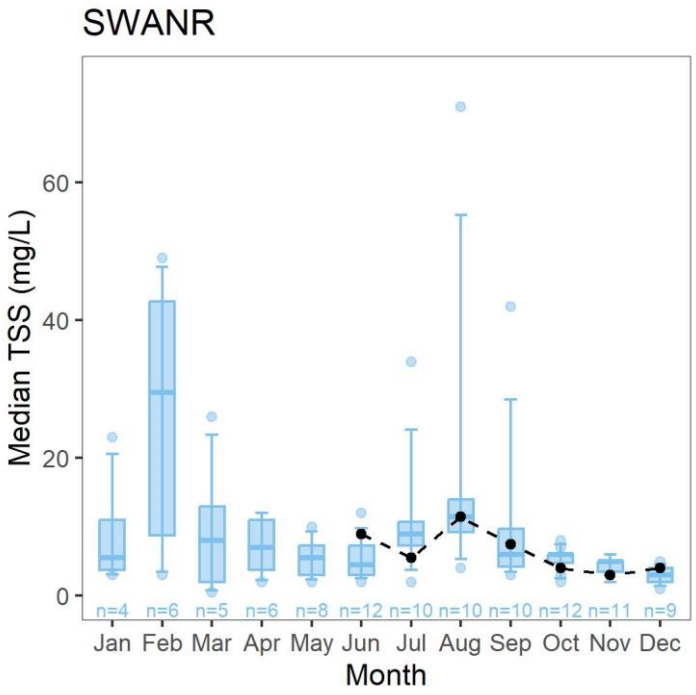

Figure 10. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data.

SWANR dissolved oxygen (DO)

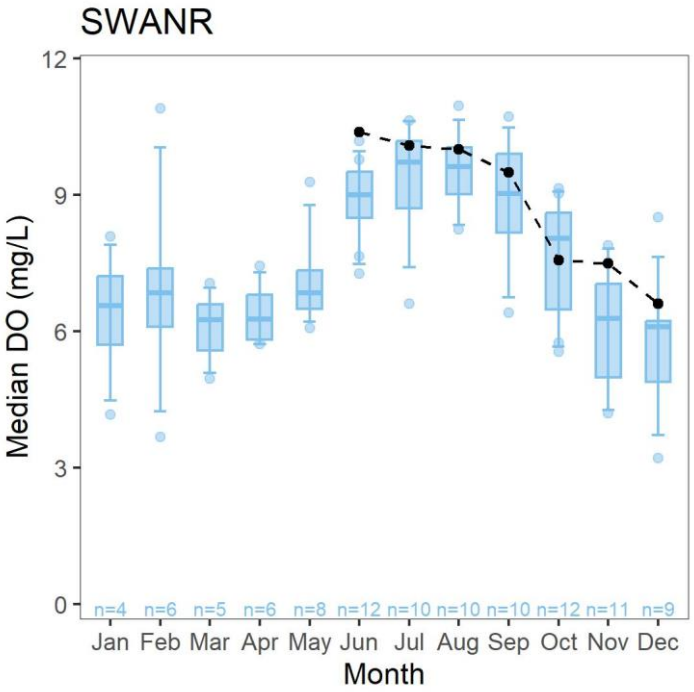

Figure 11. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR. Number of samples (n) is provided for the historical data.

SWANR specific conductivity (Sp. cond)

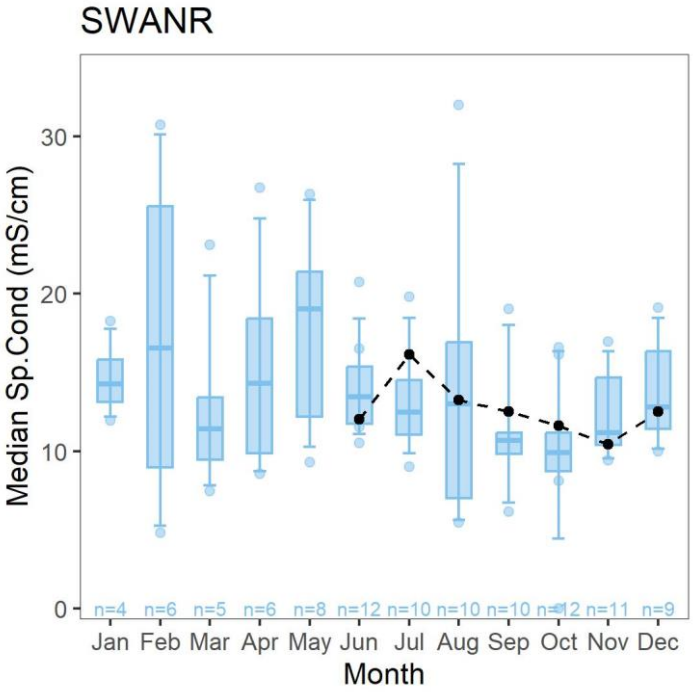

Figure 12. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SWANR (Avon River). Number of samples (n) is provided for the historical data.

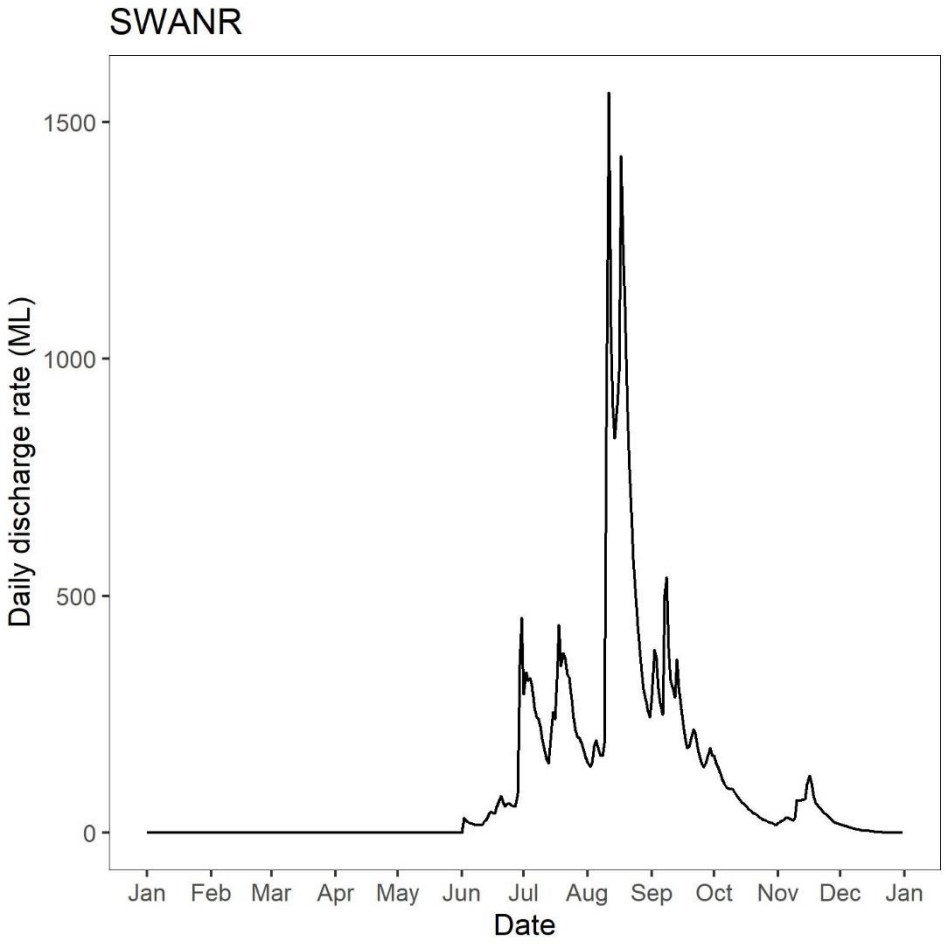

Figure 13. Daily discharge (ML) at Walyunga gauging station (616011- approx. 7km upstream of SWANR) for the 2020 calendar year.

Table 3. 2020 monthly sample numbers, minimum and maximum values at SWANR.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						1.08	1.12	0.885	0.745	0.61	0.54	0.63
min						0.86	0.94	0.78	0.74	0.58	0.51	0.63
max						1.3	1.3	0.99	0.75	0.62	0.57	0.63
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						0.0135	0.012	0.0475	0.026	0.031	0.031	0.032
min						0.012	0.012	0.047	0.016	0.021	0.03	0.032
max						0.015	0.012	0.048	0.036	0.053	0.032	0.032
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						0.0175	0.16	0.1915	0.1095	0.02	0.0245	0.015
min						0.014	0.14	0.093	0.069	0.012	0.02	0.015
max						0.021	0.18	0.29	0.15	0.14	0.029	0.015
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						0.58	0.74	0.53	0.505	0.49	0.45	0.52
min						0.56	0.68	0.5	0.45	0.44	0.42	0.52
max						0.6	0.8	0.56	0.56	0.52	0.48	0.52
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						0.049	0.0305	0.0165	0.0145	0.011	0.008	0.011
min						0.035	0.011	0.01	0.014	0.009	0.008	0.011
max						0.063	0.05	0.023	0.015	0.013	0.008	0.011
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						0.005	0.005	0.005	0.005	0.005	0.005	0.005
min						0.005	0.005	0.005	0.005	0.005	0.005	0.005
max						0.005	0.005	0.005	0.005	0.005	0.005	0.005
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						12.5	15	12.5	11.5	10	10.4	11
min						11	14	12	11	10	9.8	11
max						14	16	13	12	11	11	11
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						9	5.5	11.5	7.5	4	3	4
min						6	4	7	5	4	3	4
max						12	7	16	10	5	3	4
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						10.375	10.085	10	9.485	7.56	7.485	6.61
min						9.54	9.93	9.76	9.42	6.16	6.65	6.61
max						11.21	10.24	10.24	9.55	8.97	8.32	6.61
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	2	2	2	2	3	2	1
med						11.999	16.15	13.243	12.497	11.616	10.44115	12.4926
min						11.835	14.351	11.599	11.372	10.187	9.9734	12.4926
max						12.163	17.949	14.887	13.622	12.4049	10.9089	12.4926

NB: Flow ceased in the Avon and Upper Swan catchment from January to May 2020 and as a result no samples were collected in those months.

2. Bannister Creek (BANNC)

BANNC total nitrogen (TN)

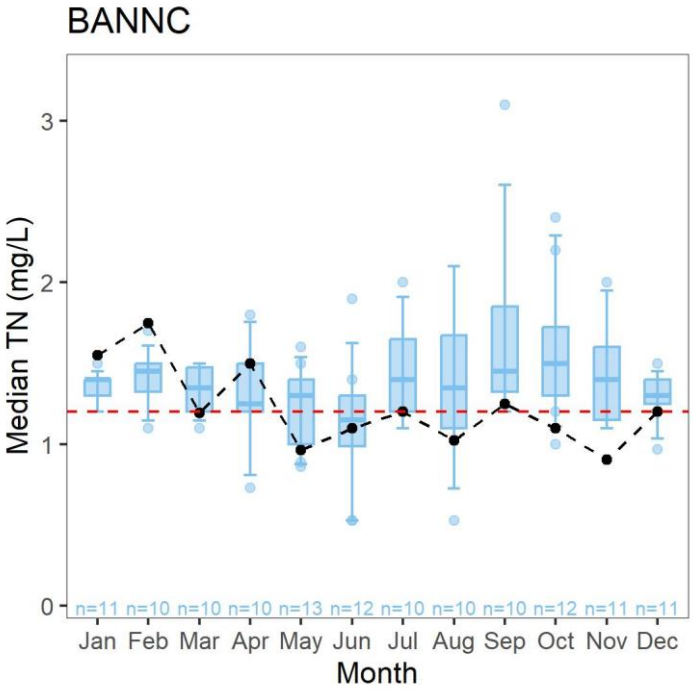

Figure 14. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BANNC ammoniacal nitrogen (NH_3-N)

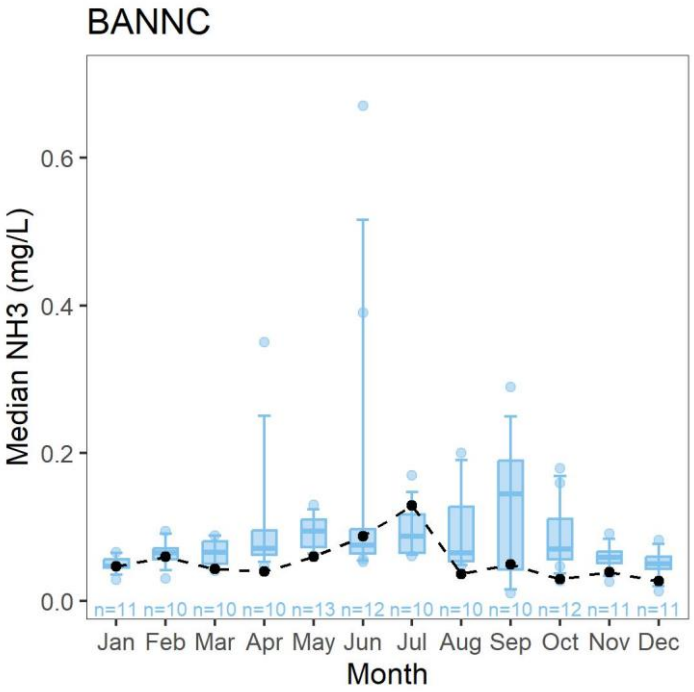

Figure 15. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

BANNC total oxidised nitrogen (NO_x-N)

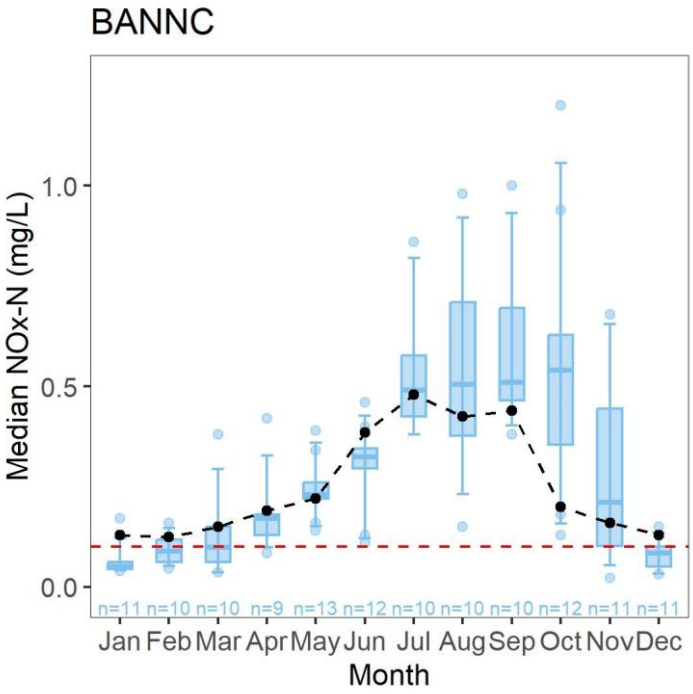

Figure 16. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BANNC dissolved organic nitrogen (DOrgN)

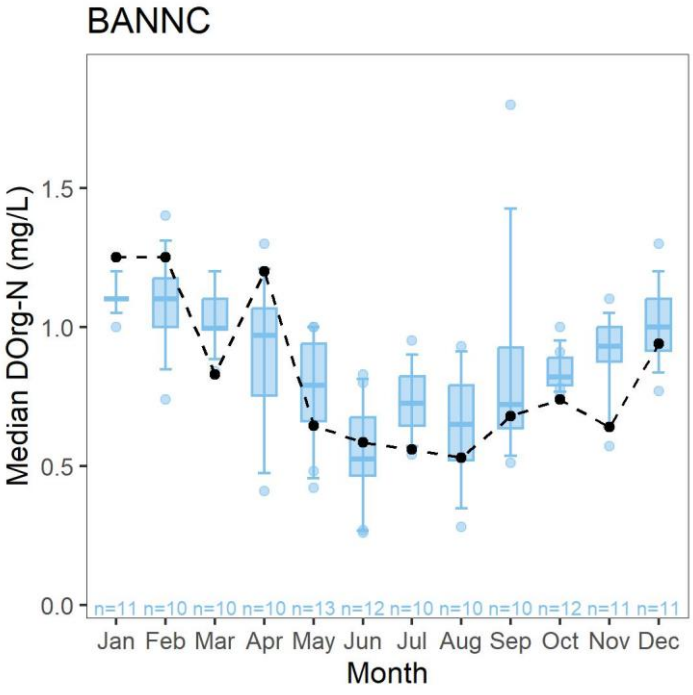

Figure 17. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

BANNC total phosphorus (TP)

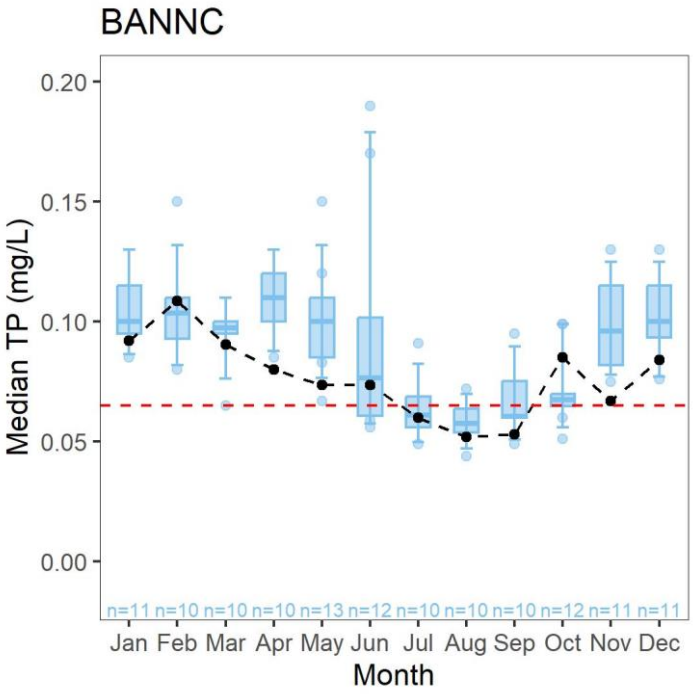

Figure 18. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BANNC filterable reactive phosphorus (FRP)

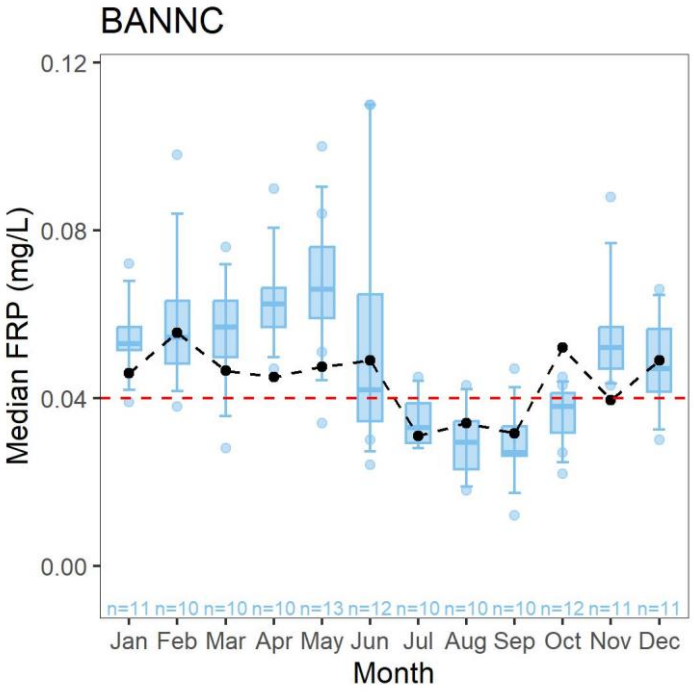

Figure 19. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BANNC dissolved organic carbon (DOC)

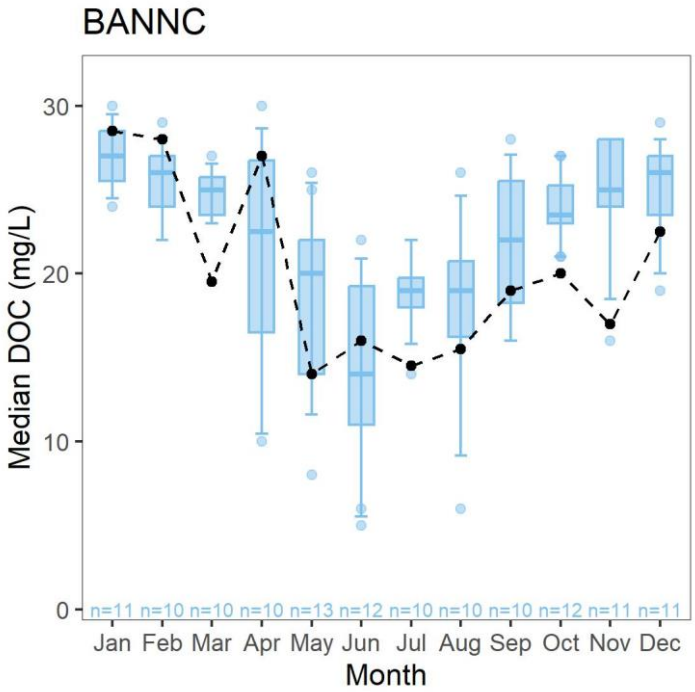

Figure 20. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

BANNC total suspended solids (TSS)

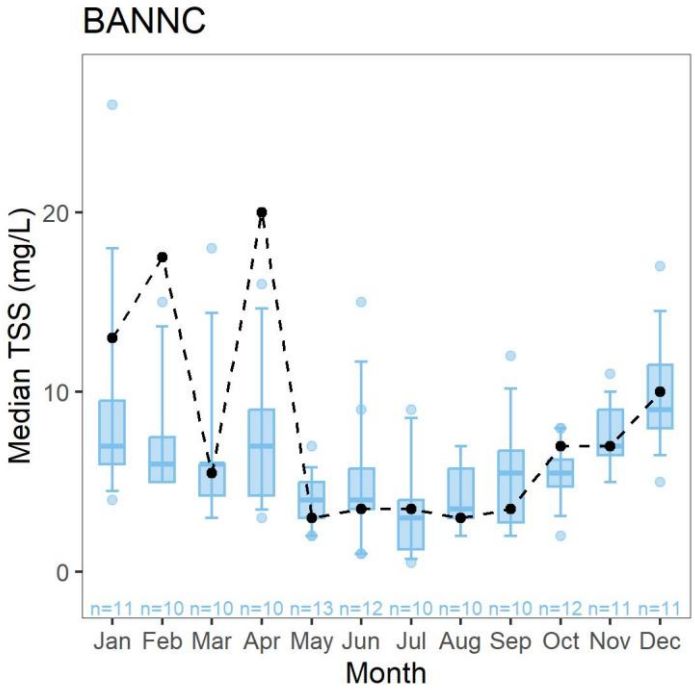

Figure 21. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

BANNC dissolved oxygen (DO)

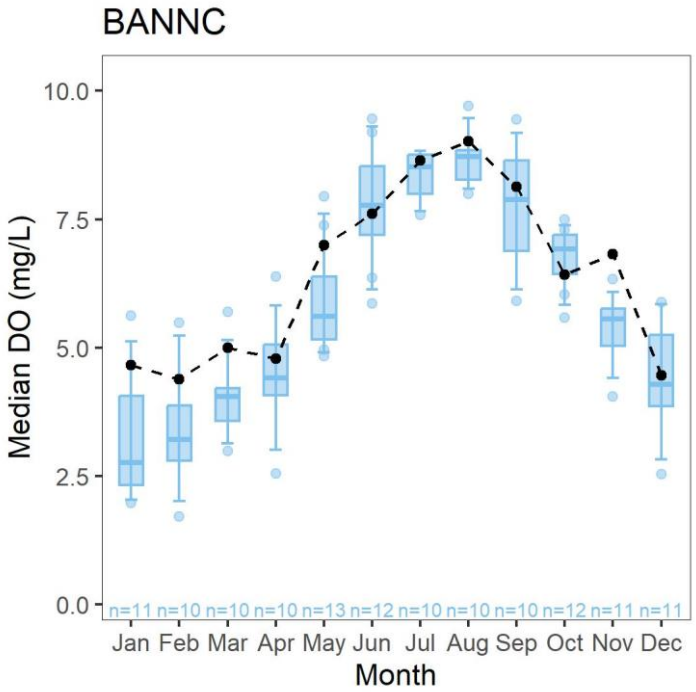

Figure 22. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

BANNC specific conductivity (Sp. cond)

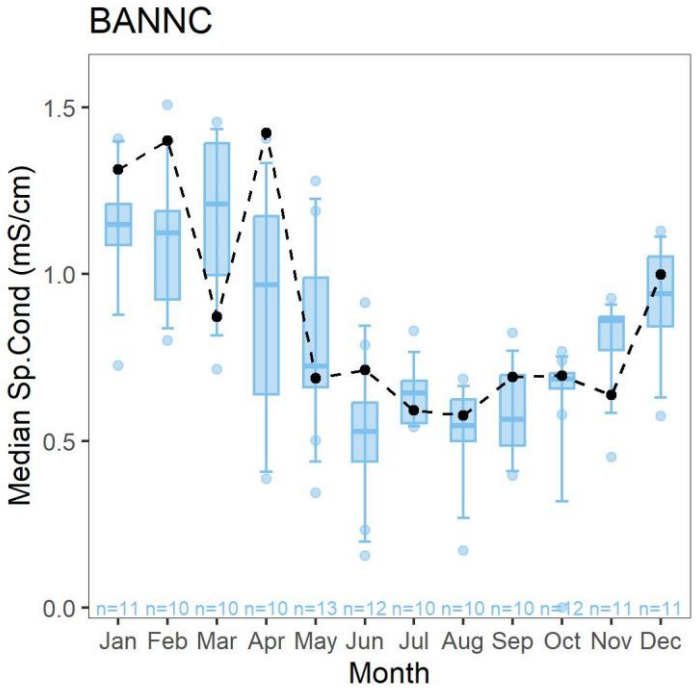

Figure 23. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BANNC. Number of samples (n) is provided for the historical data.

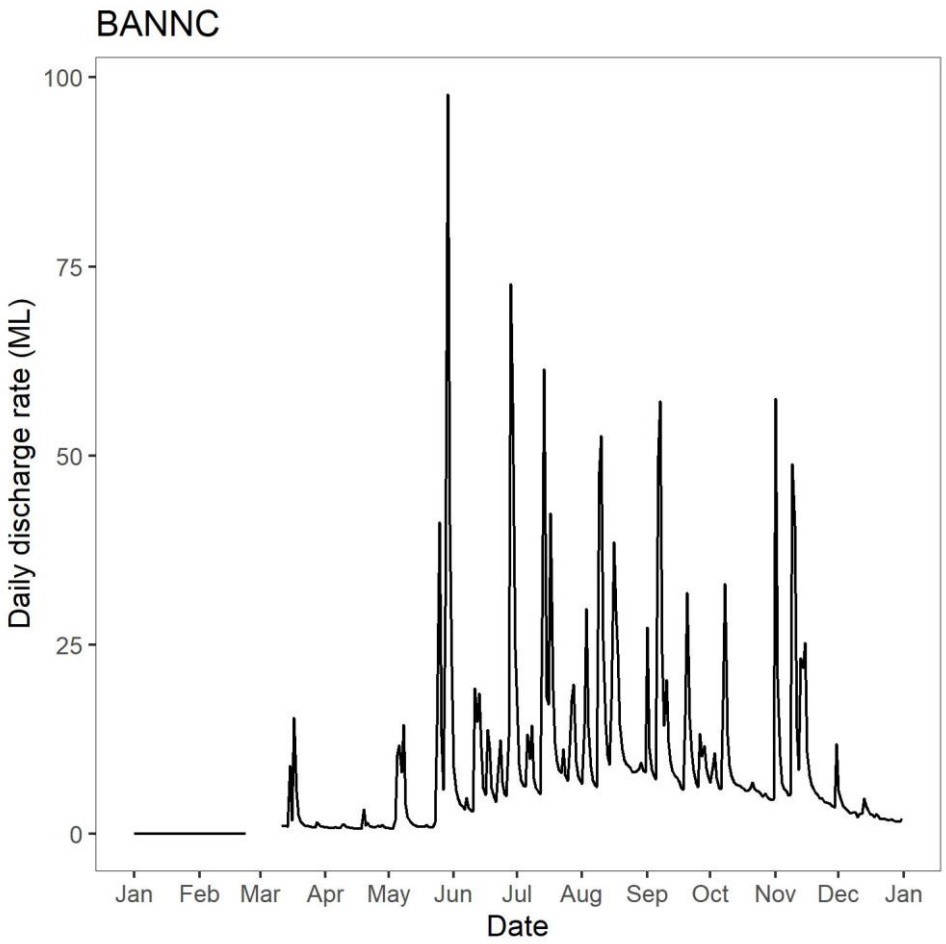

Figure 24. Daily discharge (ML) at Acacia Place gauging station (616134 - approx. 1km upstream of BANNC).

Table 4. 2020 monthly sample numbers, minimum and maximum values at BANNC.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	1.55	1.75	1.195	1.5	0.965	1.1	1.2	1.025	1.25	1.1	0.905	1.2
min	1.5	1.7	0.99	1.4	0.83	1	1.2	0.95	1.2	1.1	0.71	1.2
max	1.6	1.8	1.4	1.8	1.1	1.2	1.2	1.1	1.3	1.2	1.1	1.2
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0475	0.0605	0.044	0.04	0.0605	0.088	0.1295	0.037	0.05	0.03	0.039	0.027
min	0.042	0.043	0.028	0.036	0.042	0.08	0.059	0.028	0.033	0.01	0.038	0.014
max	0.053	0.078	0.06	0.046	0.079	0.096	0.2	0.046	0.067	0.046	0.04	0.04
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.13	0.125	0.15	0.19	0.22	0.385	0.48	0.425	0.44	0.2	0.16	0.13
min	0.12	0.11	0.14	0.19	0.22	0.37	0.4	0.39	0.38	0.12	0.16	0.13
max	0.14	0.14	0.16	0.21	0.22	0.4	0.56	0.46	0.5	0.4	0.16	0.13
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	1.25	1.25	0.83	1.2	0.645	0.585	0.56	0.53	0.68	0.74	0.64	0.94
min	1.2	1.2	0.66	1.1	0.55	0.49	0.53	0.49	0.66	0.66	0.49	0.9
max	1.3	1.3	1	1.2	0.74	0.68	0.59	0.57	0.7	0.92	0.79	0.98
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.092	0.1085	0.0905	0.08	0.0735	0.0735	0.06	0.052	0.053	0.085	0.067	0.084
min	0.091	0.097	0.085	0.079	0.068	0.071	0.05	0.049	0.046	0.066	0.054	0.078
max	0.093	0.12	0.096	0.14	0.079	0.076	0.07	0.055	0.06	0.086	0.08	0.09
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.046	0.0555	0.0465	0.045	0.0475	0.049	0.031	0.034	0.0315	0.052	0.0395	0.049
min	0.041	0.05	0.042	0.044	0.037	0.043	0.028	0.034	0.025	0.033	0.035	0.043
max	0.051	0.061	0.051	0.061	0.058	0.055	0.034	0.034	0.038	0.054	0.044	0.055
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	28.5	28	19.5	27	14	16	14.5	15.5	19	20	17	22.5
min	28	28	15	26	11	13	13	13	18	20	13	22
max	29	28	24	30	17	19	16	18	20	24	21	23
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	13	17.5	5.5	20	3	3.5	3.5	3	3.5	7	7	10
min	9	10	5	7	3	3	3	2	2	6	4	9
max	17	25	6	51	3	4	4	4	5	11	10	11
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	4.66	4.385	4.995	4.79	6.99	7.61	8.645	9.015	8.13	6.42	6.815	4.465
min	4.45	4.05	3.8	4.75	5.85	7.09	8.43	8.81	7.59	5.8	5.54	4.27
max	4.87	4.72	6.19	6.47	8.13	8.13	8.86	9.22	8.67	7.28	8.09	4.66
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	1.31	1.40	0.87	1.42	0.69	0.71	0.59	0.58	0.69	0.70	0.64	1.00
min	1.28	1.36	0.51	1.32	0.53	0.54	0.49	0.54	0.66	0.69	0.44	0.91
max	1.34	1.45	1.23	1.61	0.84	0.89	0.69	0.62	0.72	1.03	0.83	1.09

3. Bayswater Main Drain (BAYMD)

BAYMD total nitrogen (TN)

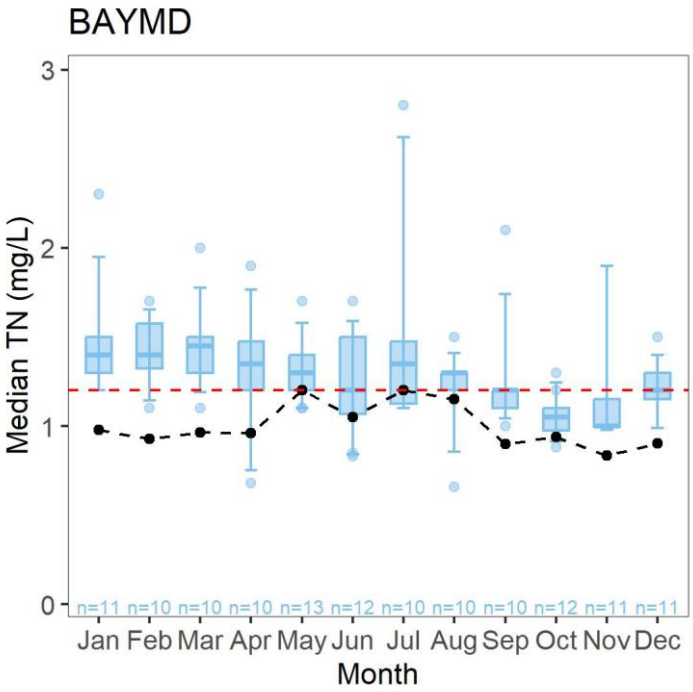

Figure 25. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BAYMD ammoniacal nitrogen (NH_3-N)

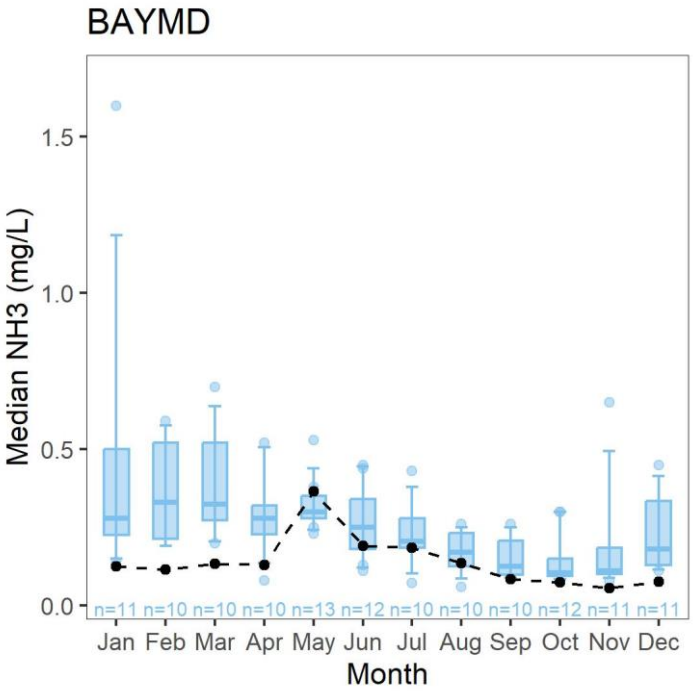

Figure 26. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD (Bayswater MD). Number of samples (n) is provided for the historical data.

BAYMD total oxidised nitrogen (NO_x-N)

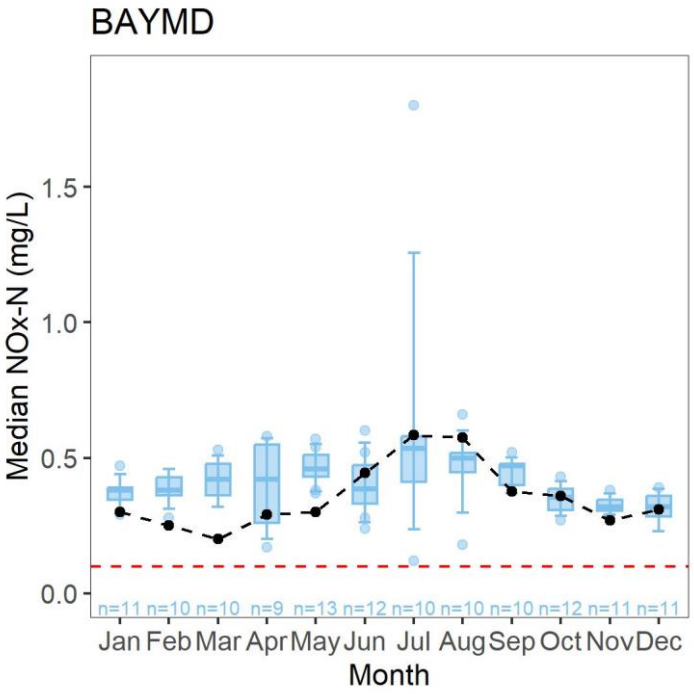

Figure 27. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BAYMD dissolved organic nitrogen (DOrgN)

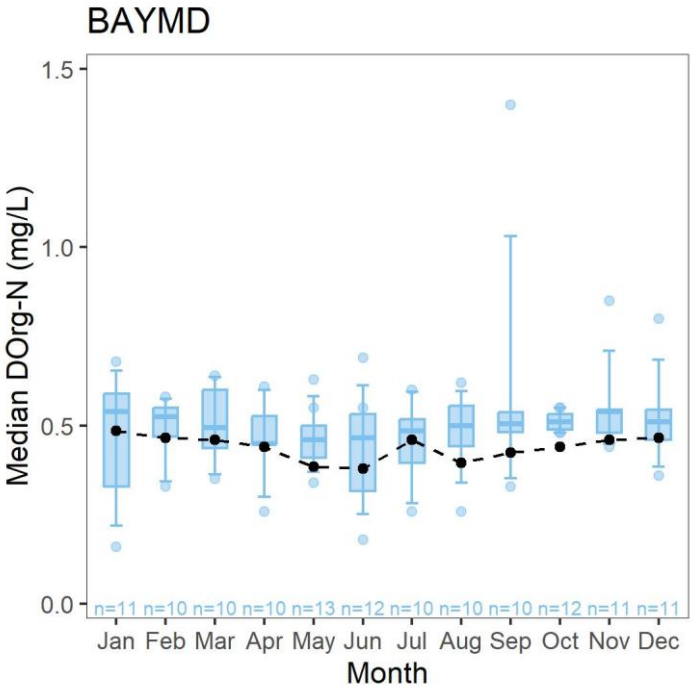

Figure 28. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data.

BAYMD total phosphorus (TP)

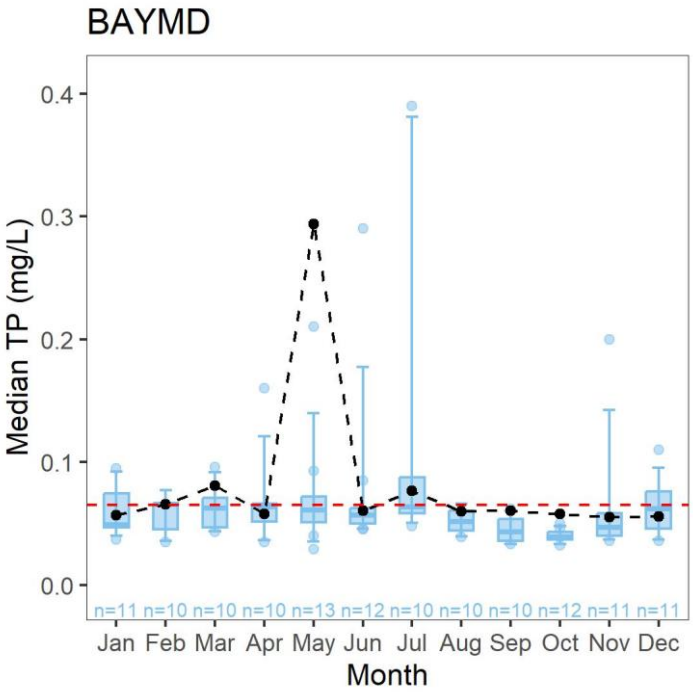

Figure 29. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BAYMD filterable reactive phosphorus (FRP)

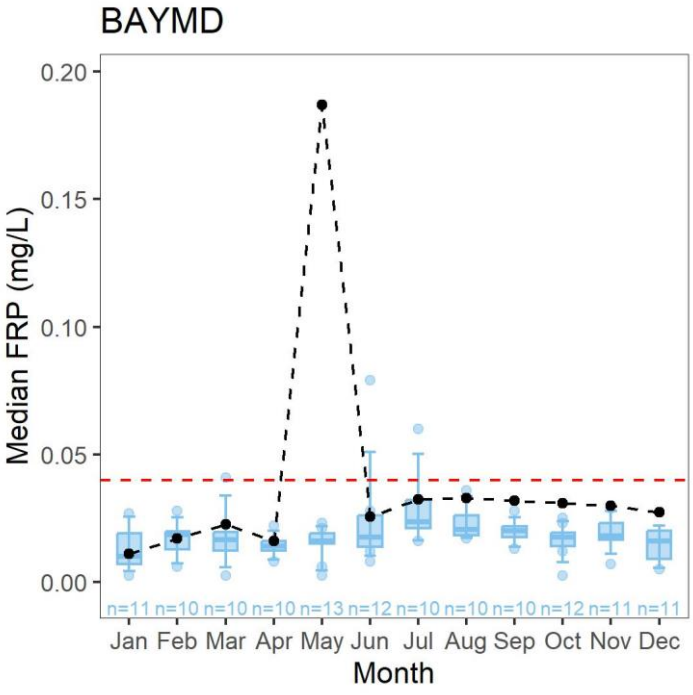

Figure 30. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BAYMD dissolved organic carbon (DOC)

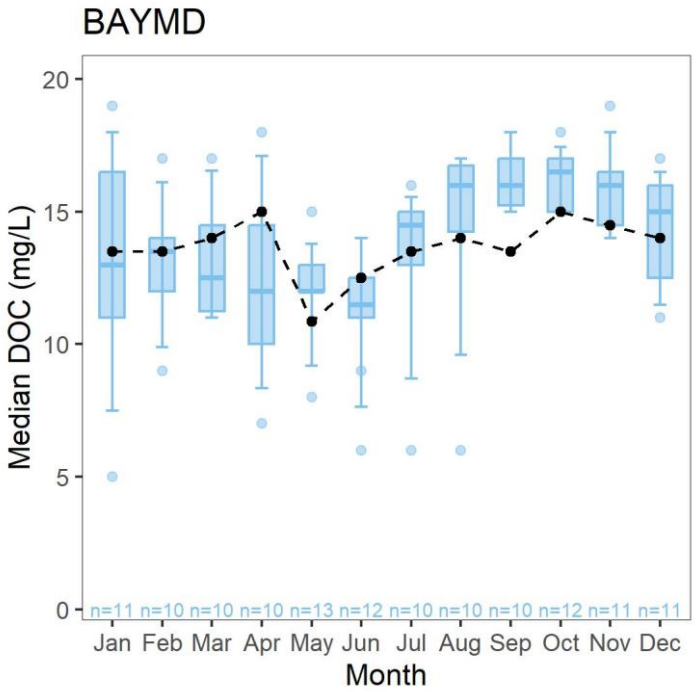

Figure 31. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data.

BAYMD total suspended solids (TSS)

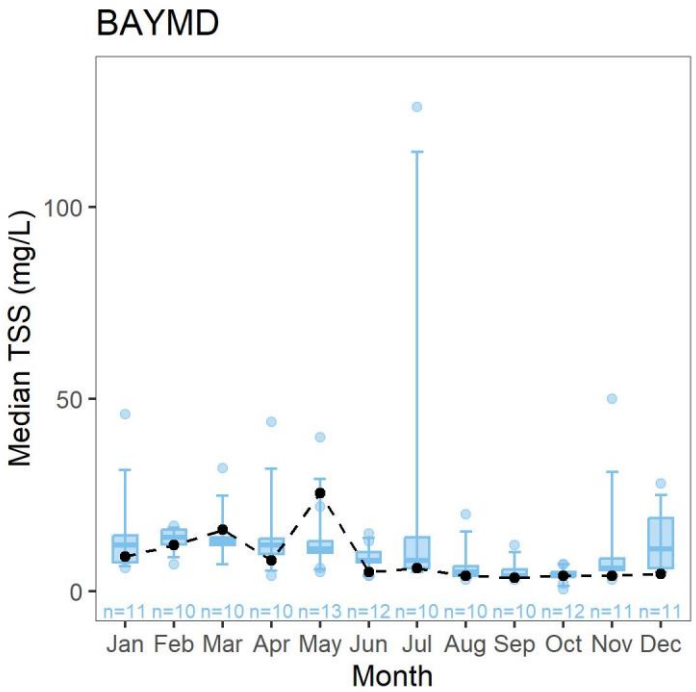

Figure 32. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data.

BAYMD dissolved oxygen (DO)

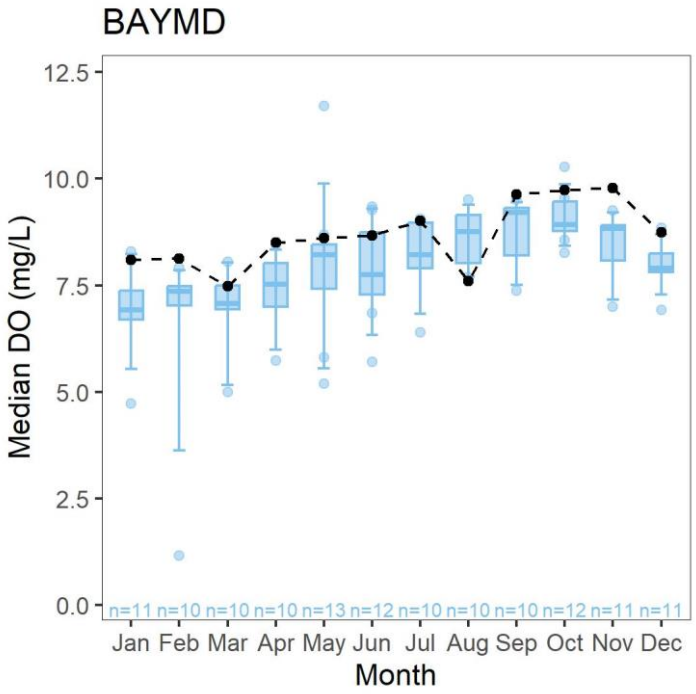

Figure 33. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data.

BAYMD specific conductivity (Sp. cond)

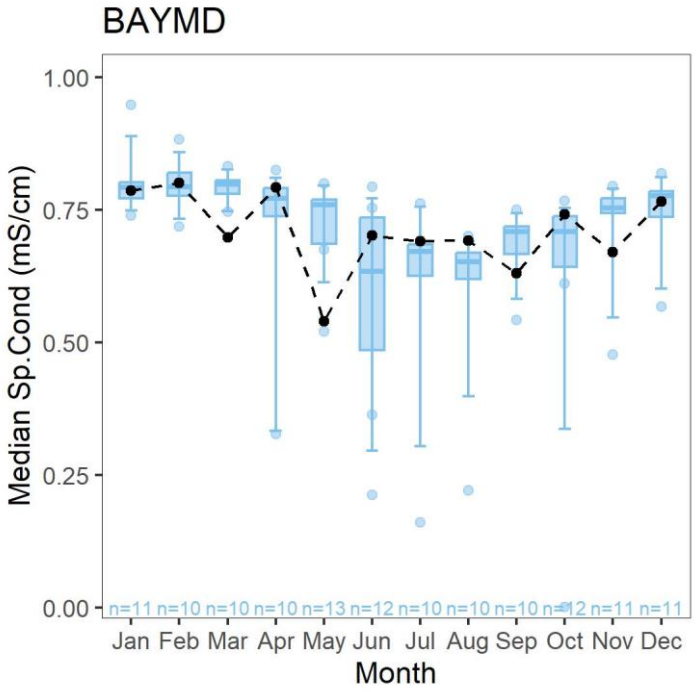

Figure 34. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BAYMD. Number of samples (n) is provided for the historical data.

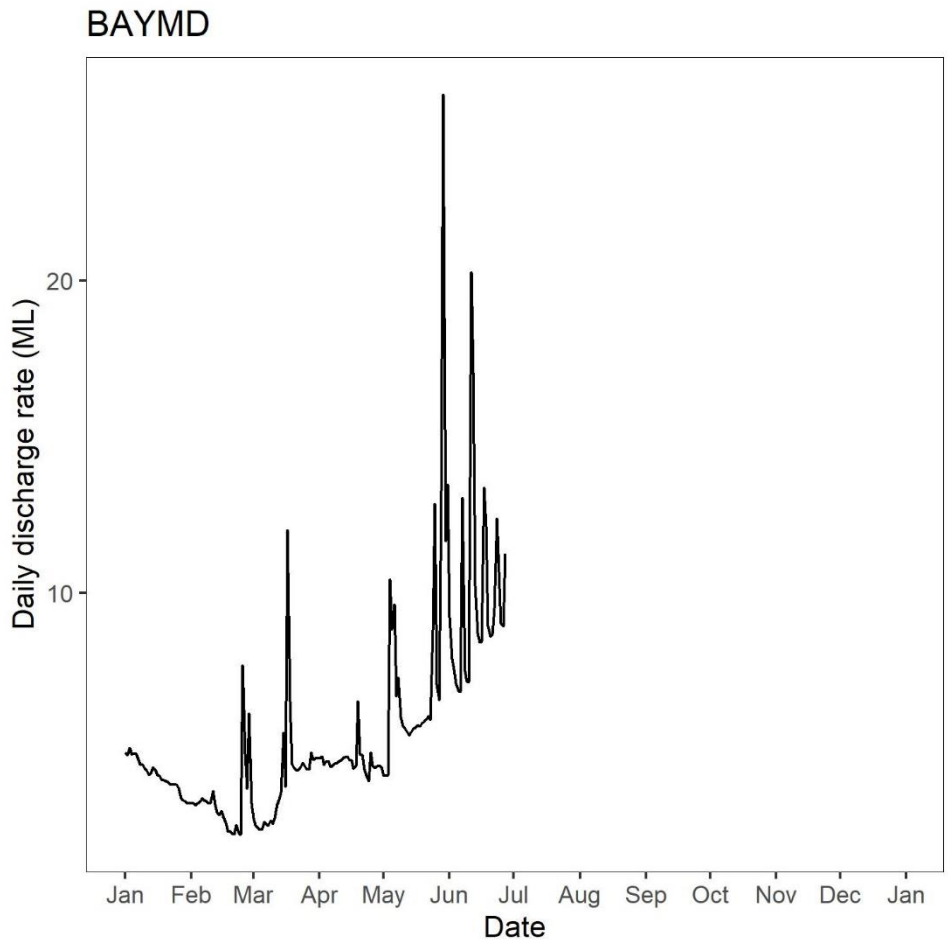

Figure 35: Daily discharge (ML) at Slade St gauging station (616082 - approx. 20m upstream of BAYMD).

Table 5. 2020 monthly sample numbers, minimum and maximum values at BAYMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.98	0.93	0.965	0.96	1.2	1.05	1.2	1.15	0.9	0.94	0.835	0.905
min	0.96	0.86	0.83	0.9	1.1	1	1.1	1.1	0.8	0.83	0.81	0.88
max	1	1	1.1	1	1.3	1.1	1.3	1.2	1	0.98	0.86	0.93
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.125	0.115	0.1325	0.13	0.365	0.19	0.185	0.135	0.084	0.074	0.0565	0.077
min	0.12	0.11	0.085	0.12	0.21	0.15	0.18	0.13	0.072	0.042	0.049	0.064
max	0.13	0.12	0.18	0.18	0.52	0.23	0.19	0.14	0.096	0.085	0.064	0.09
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.3	0.25	0.2	0.29	0.3	0.445	0.585	0.575	0.375	0.36	0.27	0.31
min	0.27	0.25	0.17	0.29	0.23	0.42	0.45	0.57	0.34	0.33	0.27	0.28
max	0.33	0.25	0.23	0.34	0.37	0.47	0.72	0.58	0.41	0.39	0.27	0.34
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.485	0.465	0.46	0.44	0.385	0.38	0.46	0.395	0.425	0.44	0.46	0.465
min	0.46	0.44	0.44	0.44	0.34	0.36	0.22	0.37	0.36	0.42	0.42	0.45
max	0.51	0.49	0.48	0.48	0.43	0.4	0.7	0.42	0.49	0.46	0.5	0.48
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0565	0.0655	0.081	0.058	0.294	0.0605	0.0765	0.06	0.0605	0.058	0.055	0.0555
min	0.053	0.06	0.062	0.051	0.078	0.057	0.063	0.056	0.055	0.046	0.053	0.053
max	0.06	0.071	0.1	0.06	0.51	0.064	0.09	0.064	0.066	0.059	0.057	0.058
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.011	0.017	0.0225	0.016	0.187	0.0255	0.0325	0.033	0.032	0.031	0.03	0.0275
min	0.008	0.014	0.022	0.015	0.024	0.025	0.032	0.029	0.026	0.026	0.028	0.026
max	0.014	0.02	0.023	0.018	0.35	0.026	0.033	0.037	0.038	0.032	0.032	0.029
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	13.5	13.5	14	15	10.85	12.5	13.5	14	13.5	15	14.5	14
min	13	13	14	14	7.7	12	12	14	11	15	13	14
max	14	14	14	15	14	13	15	14	16	15	16	14
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	9	12	16	8	25.5	5	6	4	3.5	4	4	4.5
min	8	11	13	7	10	4	3	4	3	3	3	4
max	10	13	19	8	41	6	9	4	4	4	5	5
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	8.095	8.12	7.48	8.5	8.605	8.675	9.02	7.6	9.635	9.73	9.78	8.75
min	7.71	7.83	7.45	8.16	8.46	8.47	8.98	6.06	9.63	9.55	9.73	8.36
max	8.48	8.41	7.51	9.2	8.75	8.88	9.06	9.14	9.64	9.79	9.83	9.14
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.79	0.80	0.70	0.79	0.54	0.70	0.69	0.69	0.63	0.74	0.67	0.77
min	0.78	0.77	0.62	0.79	0.29	0.63	0.63	0.69	0.52	0.71	0.60	0.75
max	0.80	0.83	0.78	0.79	0.79	0.78	0.75	0.70	0.75	0.76	0.75	0.78

NB: Daily discharge data was only available for this site between July and December 2020.

4. Bennett Brook (BENNB)

BENNB total nitrogen (TN)

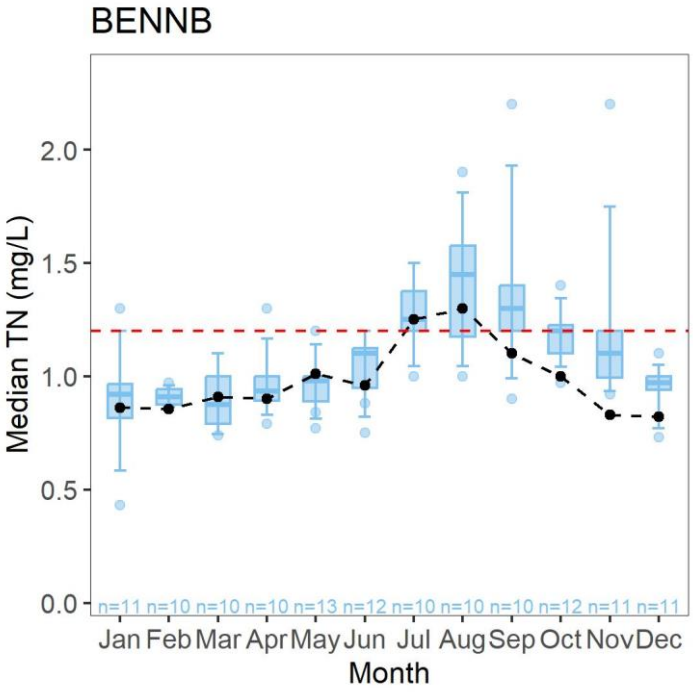

Figure 36. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BENNB ammoniacal nitrogen (NH_3-N)

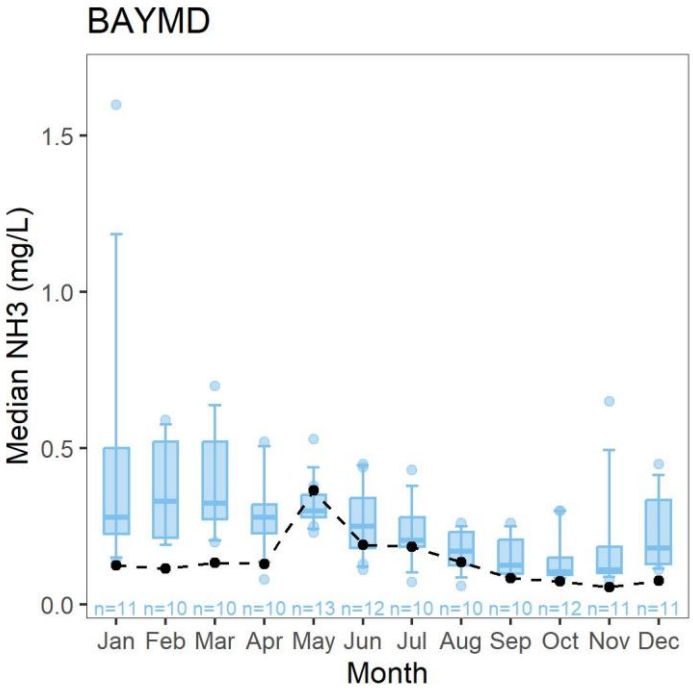

Figure 37. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

BENNB dissolved organic nitrogen (NO_x-N)

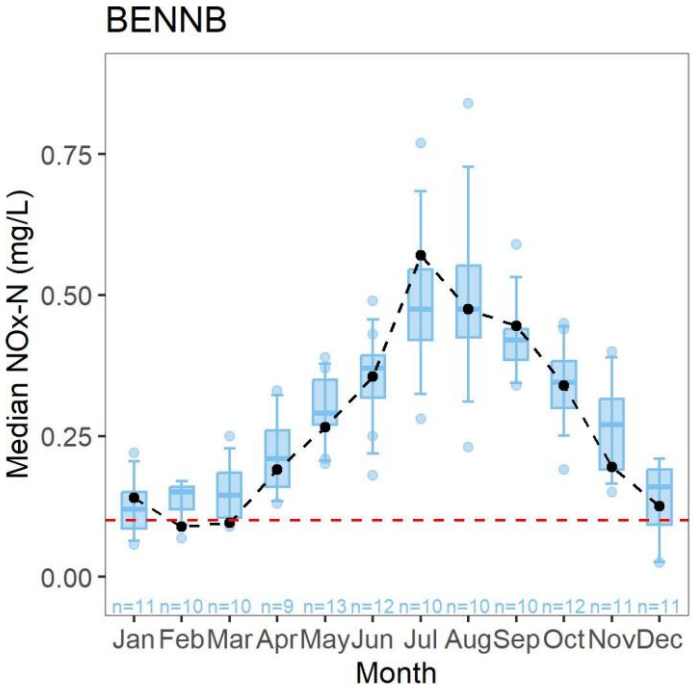

Figure 38. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BENNB dissolved organic nitrogen (DOrgN)

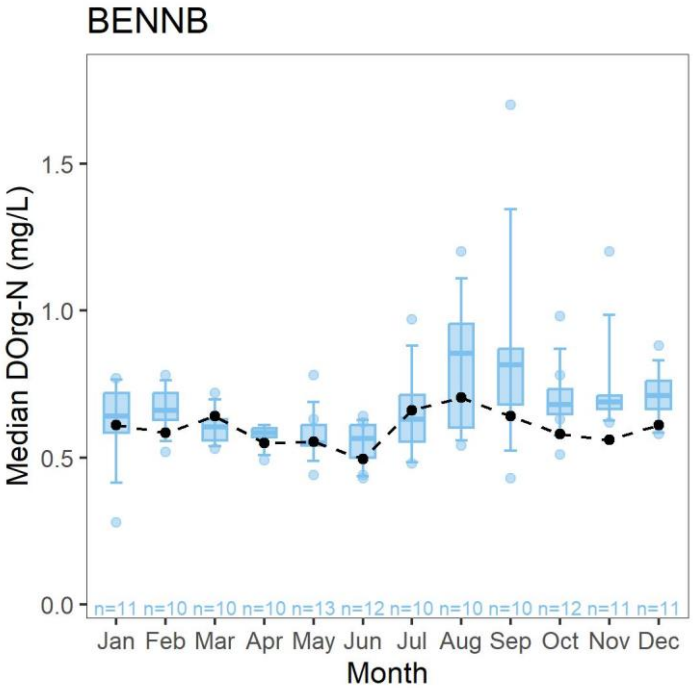

Figure 39. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

BENNB total phosphorus (TP)

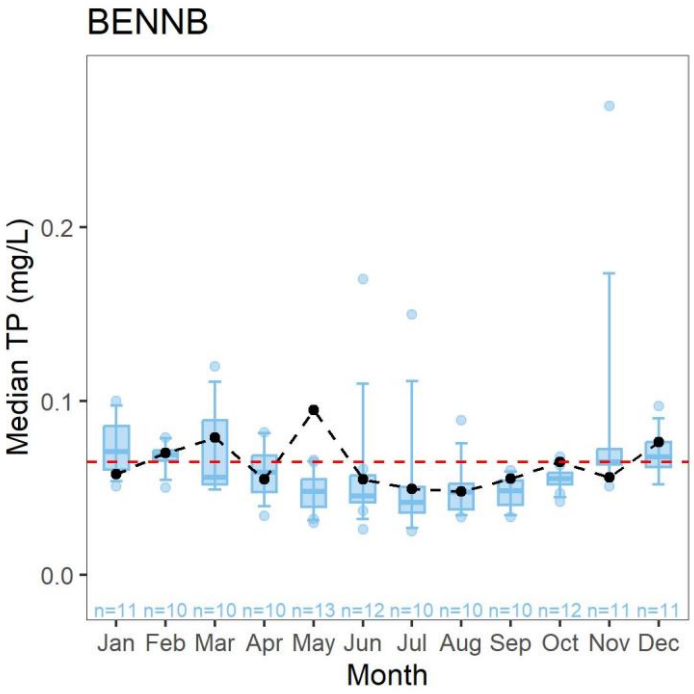

Figure 40. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BENNB filterable reactive phosphorus (FRP)

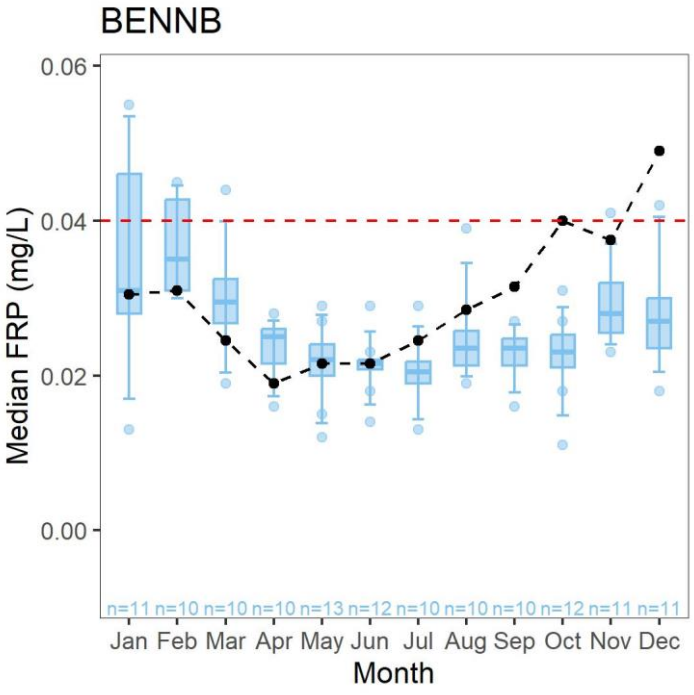

Figure 41. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BENNB dissolved organic carbon (DOC)

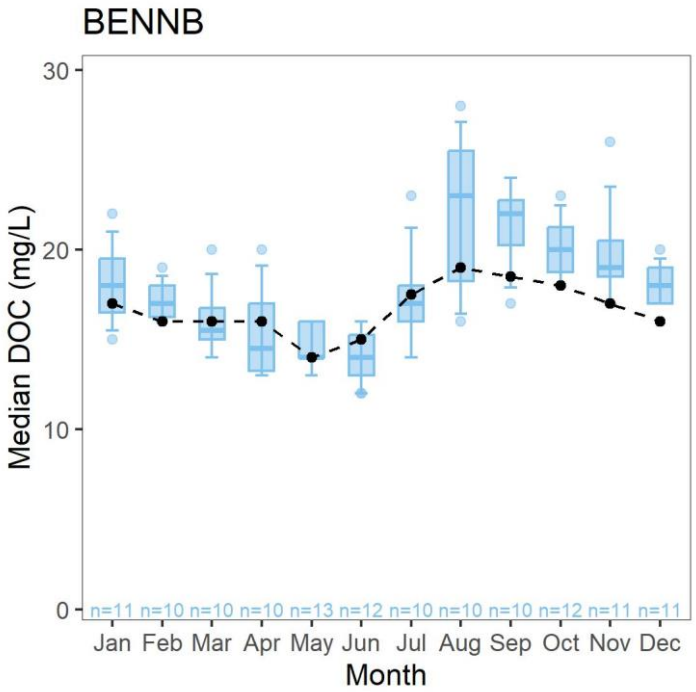

Figure 42. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

BENNB total suspended solids (TSS)

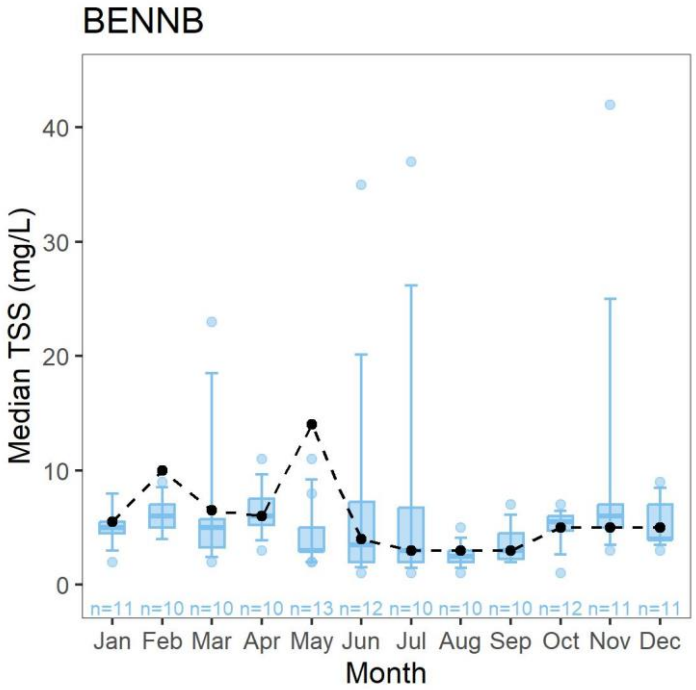

Figure 43. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

BENNB dissolved oxygen (DO)

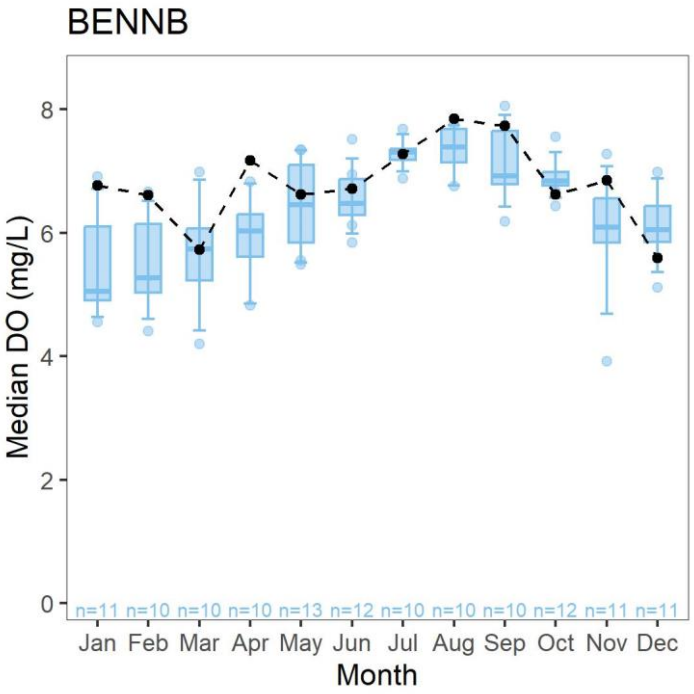

Figure 44. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

BENNB specific conductivity (Sp. cond)

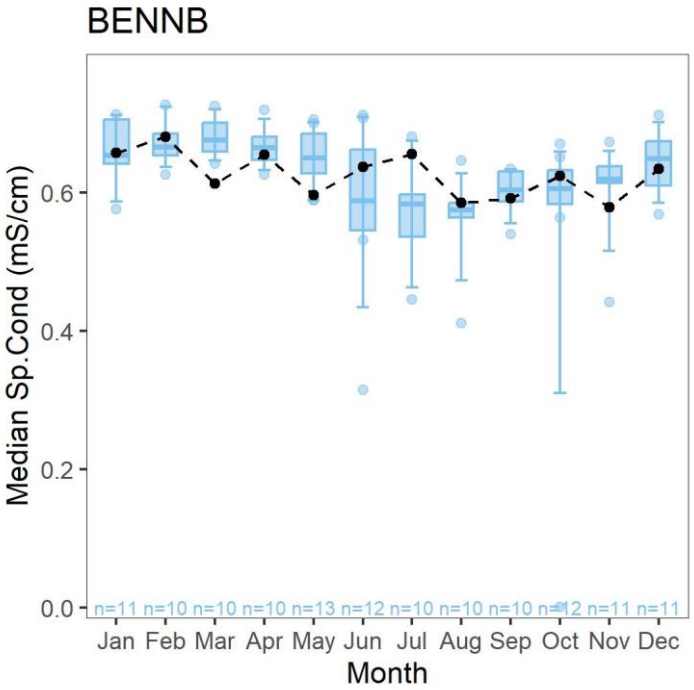

Figure 45. Monthly median Specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BENNB. Number of samples (n) is provided for the historical data.

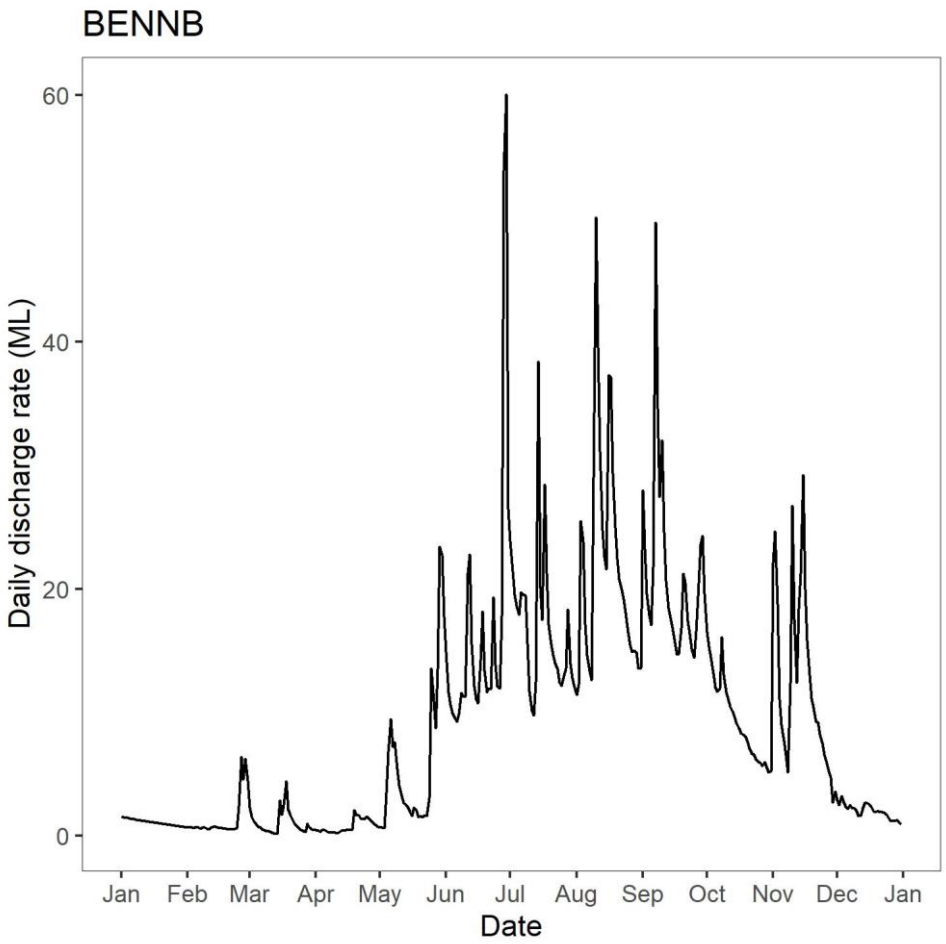

Figure 46. Daily discharge (ML) at Bennett Brook gauging station (616084 – at site of BENNB).

Table 6. 2020 monthly sample numbers, minimum and maximum values at BENNB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.86	0.855	0.91	0.9	1.01	0.96	1.25	1.3	1.1	1	0.83	0.82
min	0.82	0.8	0.91	0.84	0.92	0.92	1.2	1.2	1.1	0.97	0.81	0.82
max	0.9	0.91	0.91	0.93	1.1	1	1.3	1.4	1.1	1	0.85	0.82
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.025	0.035	0.0335	0.027	0.0215	0.0385	0.0345	0.03	0.0275	0.026	0.033	0.0225
min	0.019	0.035	0.028	0.024	0.012	0.033	0.033	0.027	0.027	0.01	0.033	0.01
max	0.031	0.035	0.039	0.028	0.031	0.044	0.036	0.033	0.028	0.046	0.033	0.035
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.14	0.0885	0.096	0.19	0.265	0.355	0.57	0.475	0.445	0.34	0.195	0.125
min	0.11	0.077	0.082	0.17	0.21	0.32	0.48	0.47	0.44	0.28	0.15	0.12
max	0.17	0.1	0.11	0.29	0.32	0.39	0.66	0.48	0.45	0.42	0.24	0.13
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.61	0.585	0.64	0.55	0.555	0.495	0.66	0.705	0.64	0.58	0.56	0.61
min	0.59	0.56	0.63	0.52	0.55	0.48	0.48	0.6	0.61	0.58	0.53	0.58
max	0.63	0.61	0.65	0.59	0.56	0.51	0.84	0.81	0.67	0.59	0.59	0.64
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.058	0.07	0.079	0.055	0.095	0.055	0.0495	0.048	0.0555	0.065	0.056	0.0765
min	0.056	0.068	0.079	0.049	0.05	0.055	0.048	0.045	0.055	0.053	0.043	0.069
max	0.06	0.072	0.079	0.063	0.14	0.055	0.051	0.051	0.056	0.088	0.069	0.084
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0305	0.031	0.0245	0.019	0.0215	0.0215	0.0245	0.0285	0.0315	0.04	0.0375	0.049
min	0.028	0.029	0.024	0.016	0.021	0.02	0.023	0.025	0.026	0.027	0.033	0.04
max	0.033	0.033	0.025	0.026	0.022	0.023	0.026	0.032	0.037	0.066	0.042	0.058
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	17	16	16	16	14	15	17.5	19	18.5	18	17	16
min	16	15	16	15	14	14	17	18	18	18	16	16
max	18	17	16	16	14	16	18	20	19	18	18	16
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	5.5	10	6.5	6	14	4	3	3	3	5	5	5
min	5	9	6	5	5	4	3	3	3	2	5	5
max	6	11	7	6	23	4	3	3	3	6	5	5
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	6.765	6.615	5.73	7.17	6.62	6.715	7.275	7.85	7.73	6.62	6.85	5.59
min	6.49	6.34	5.63	6.84	6.51	6.65	6.96	7.76	7.27	6.28	6.34	5.54
max	7.04	6.89	5.83	7.81	6.73	6.78	7.59	7.94	8.19	7.21	7.36	5.64
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.66	0.68	0.61	0.65	0.60	0.64	0.66	0.59	0.59	0.62	0.58	0.63
min	0.65	0.68	0.57	0.63	0.54	0.59	0.65	0.58	0.56	0.59	0.54	0.62
max	0.67	0.68	0.66	0.66	0.65	0.68	0.66	0.59	0.62	0.63	0.62	0.65

5. Bickley Brook (BICKB)

BICKB total nitrogen (TN)

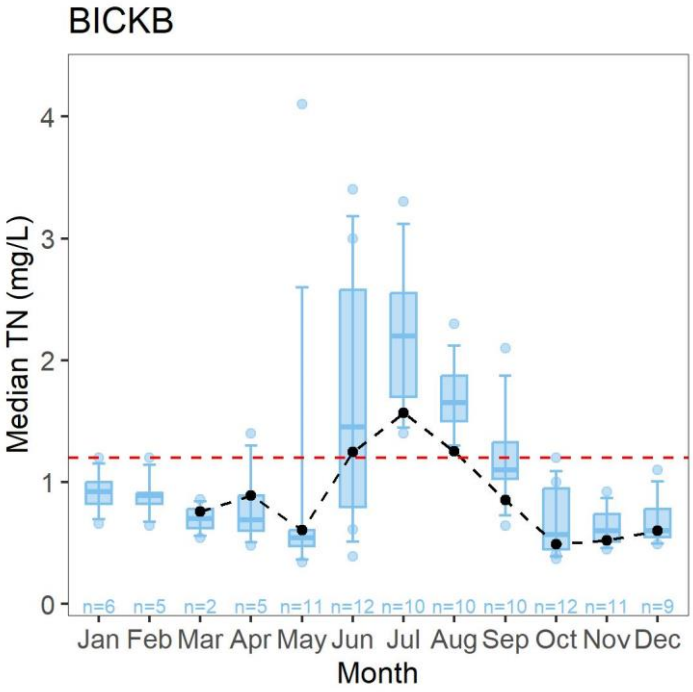

Figure 47. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BICKB ammoniacal nitrogen (NH_3-N)

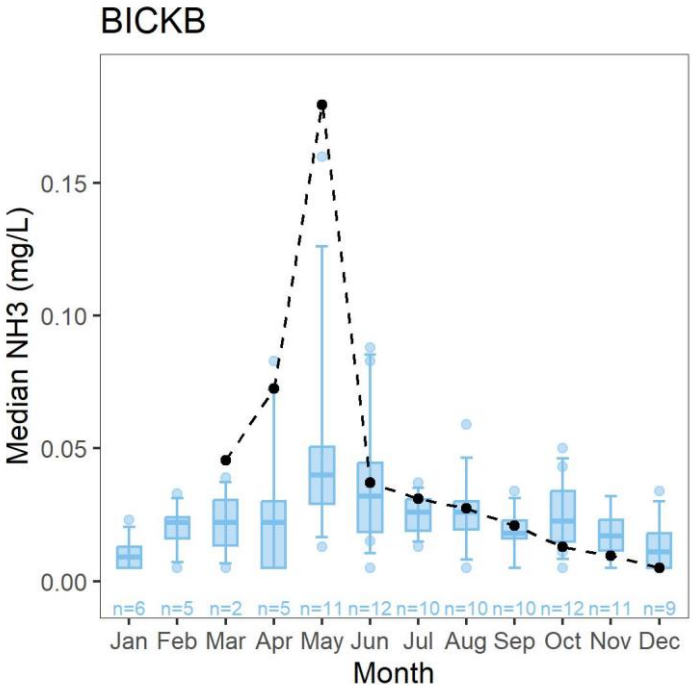

Figure 48. Monthly median ammoniacal nitrogen (NH_3-N) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

BICKB total oxidised nitrogen (NO_x-N)

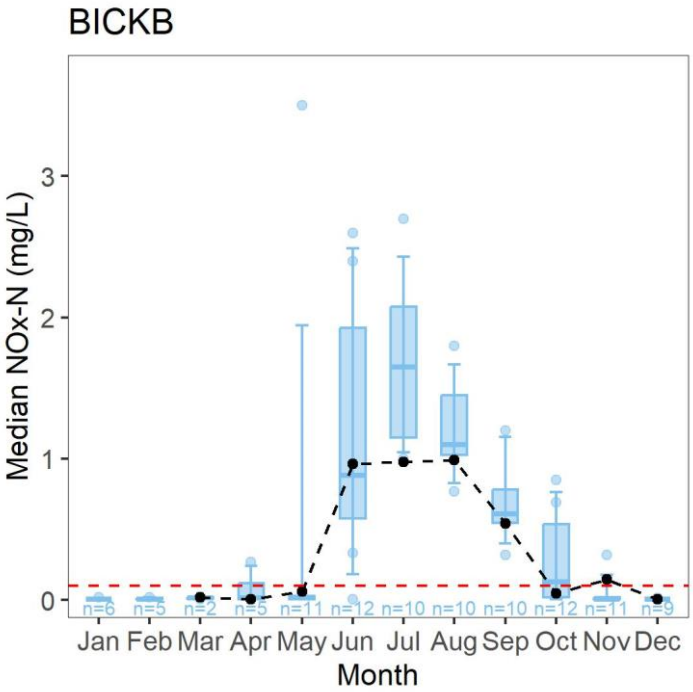

Figure 49. Monthly median Total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BICKB dissolved organic nitrogen (DOrgN)

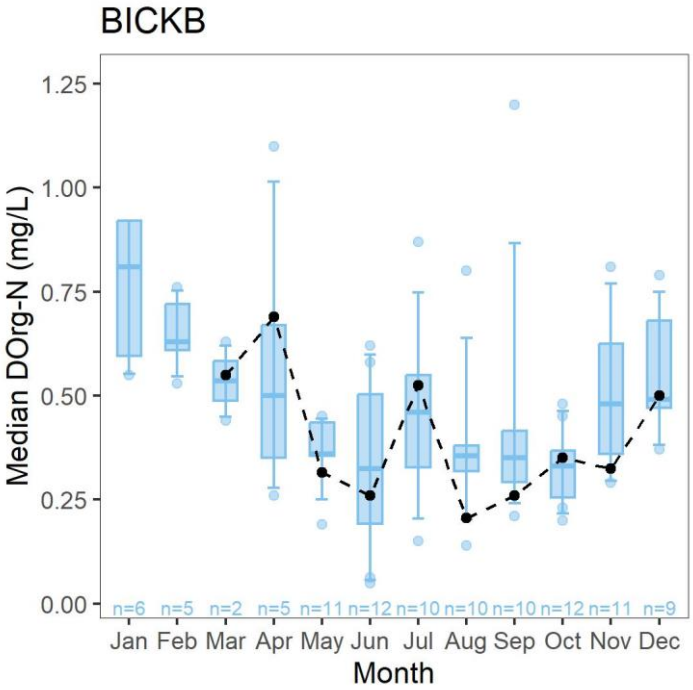

Figure 50. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

BICKB total phosphorus (TP)

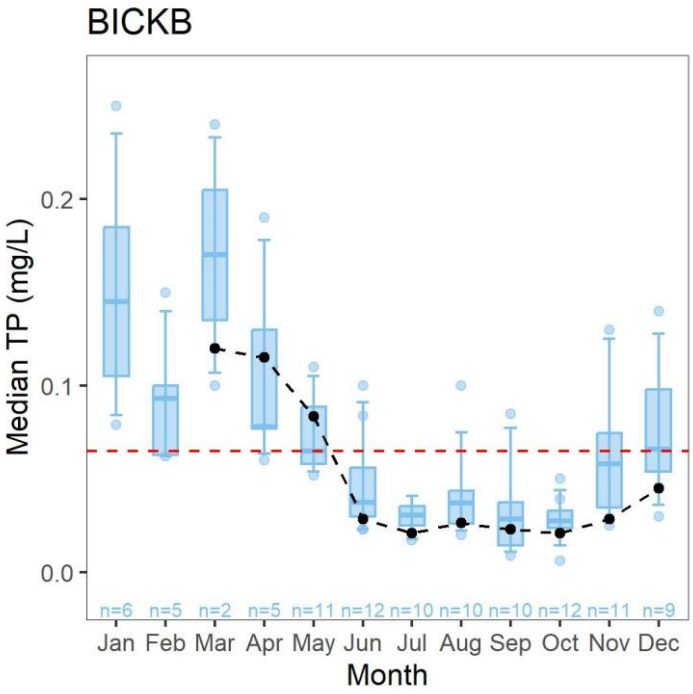

Figure 51. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BICKB filterable reactive phosphorus (FRP)

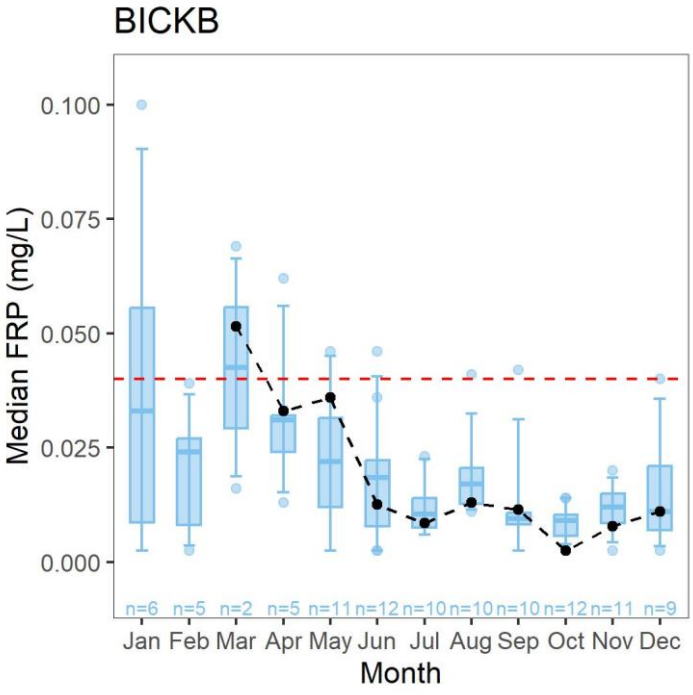

Figure 52. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BICKB dissolved organic carbon (DOC)

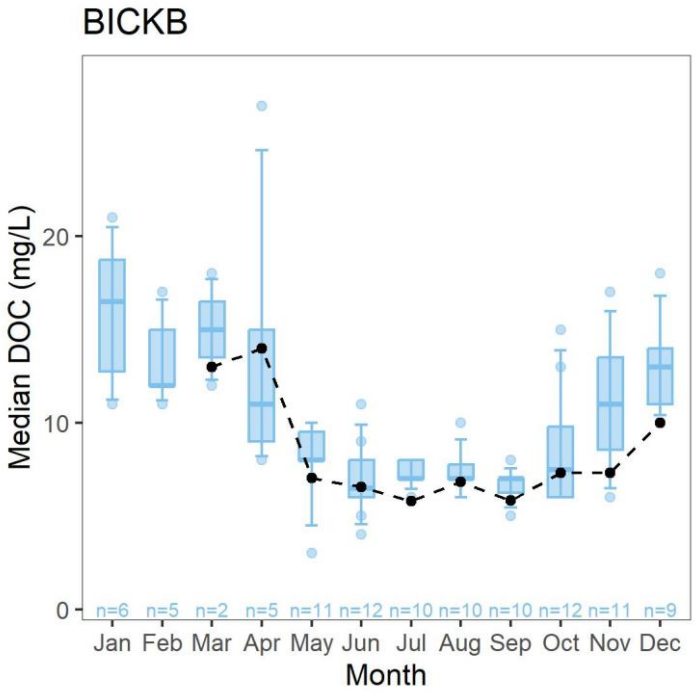

Figure 53. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

BICKB total suspended solids (TSS)

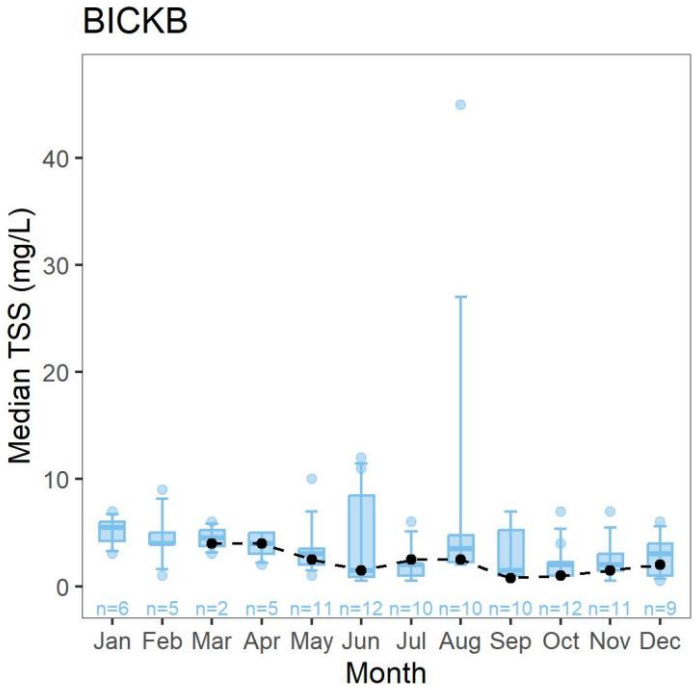

Figure 54. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

BICKB dissolved oxygen (DO)

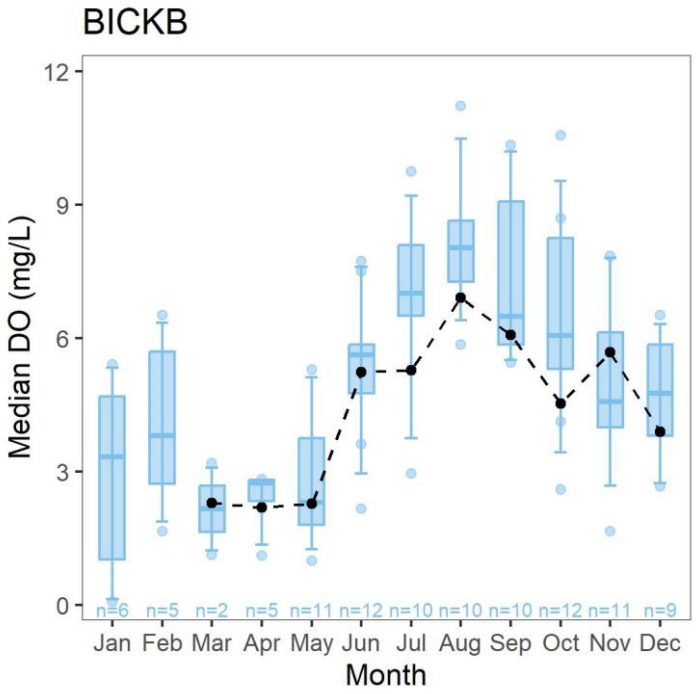

Figure 55. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

BICKB specific conductivity (Sp. cond)

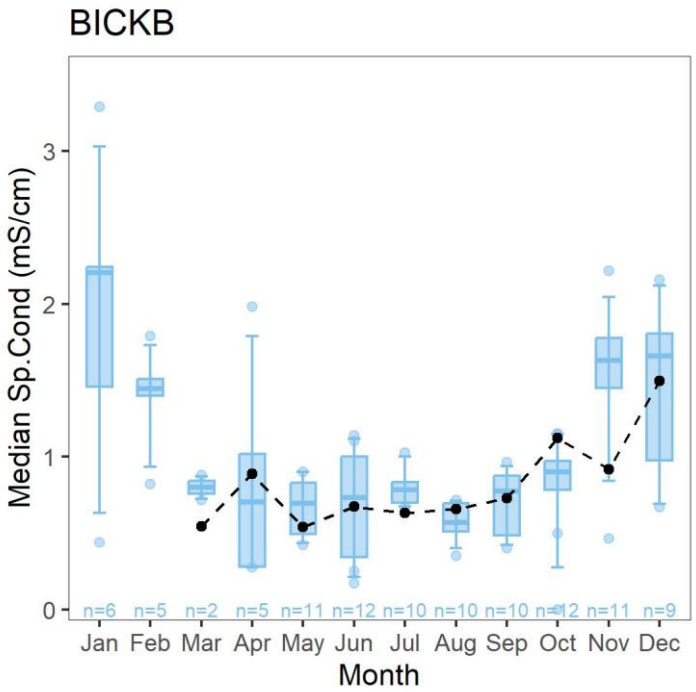

Figure 56. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BICKB. Number of samples (n) is provided for the historical data.

Table 7. 2020 monthly sample numbers, minimum and maximum values at BICKB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.76	0.89	0.605	1.245	1.57	1.25	0.85	0.49	0.52	0.6
min			0.66	0.84	0.46	0.79	0.94	1.2	0.85	0.44	0.5	0.6
max			0.86	0.94	0.75	1.7	2.2	1.3	0.85	0.54	0.54	0.6
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.0455	0.075	0.1795	0.037	0.031	0.0275	0.021	0.013	0.012	0.01
min			0.028	0.01	0.019	0.019	0.014	0.019	0.015	0.01	0.01	0.01
max			0.063	0.14	0.34	0.055	0.048	0.036	0.027	0.019	0.014	0.01
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.0195	0.01	0.06	0.965	0.975	0.99	0.54	0.045	0.147	0.01
min			0.01	0.01	0.01	0.53	0.55	0.88	0.54	0.01	0.024	0.01
max			0.029	0.01	0.11	1.4	1.4	1.1	0.54	0.23	0.27	0.01
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.55	0.69	0.315	0.26	0.525	0.205	0.26	0.35	0.325	0.5
min			0.47	0.62	0.3	0.22	0.35	0.19	0.25	0.29	0.23	0.5
max			0.63	0.76	0.33	0.3	0.7	0.22	0.27	0.42	0.42	0.5
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.12	0.115	0.0835	0.0285	0.021	0.0265	0.023	0.021	0.0285	0.045
min			0.11	0.1	0.047	0.024	0.016	0.021	0.021	0.017	0.028	0.045
max			0.13	0.13	0.12	0.033	0.026	0.032	0.025	0.03	0.029	0.045
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.0515	0.033	0.036	0.0125	0.0085	0.013	0.0115	0.005	0.009	0.011
min			0.05	0.026	0.021	0.012	0.008	0.009	0.011	0.005	0.005	0.011
max			0.053	0.04	0.051	0.013	0.009	0.017	0.012	0.005	0.013	0.011
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			13	14	7.05	6.55	5.8	6.85	5.85	7.3	7.3	10
min			12	12	6.4	5.2	4.9	6.7	5.7	7.1	5.8	10
max			14	16	7.7	7.9	6.7	7	6	8.9	8.8	10
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			4	4	2.5	1.5	2.5	2.5	1	1	1.5	2
min			4	4	1	1	2	2	1	1	1	2
max			4	4	4	2	3	3	1	2	2	2
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			2.295	2.185	2.28	5.23	5.275	6.9	6.07	4.52	5.675	3.89
min			1.13	1.93	1.64	3.91	5.1	4.51	5.56	4.29	5.18	3.89
max			3.46	2.44	2.92	6.55	5.45	9.29	6.58	6.59	6.17	3.89
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	2	2	2	2	2	2	2	3	2	1
med			0.54	0.89	0.54	0.68	0.63	0.66	0.73	1.12	0.92	1.49
min			0.38	0.83	0.52	0.44	0.42	0.61	0.59	0.90	0.59	1.49
max			0.71	0.95	0.56	0.91	0.85	0.71	0.86	1.60	1.25	1.49

NB: Daily discharge data was not available for this site for the duration of the 2020 sampling period. No samples were collected from Bickley Brook in January and February 2020 due to the absence of flow.

6. Blackadder Creek (BLACKC)

BLACKC total nitrogen (TN)

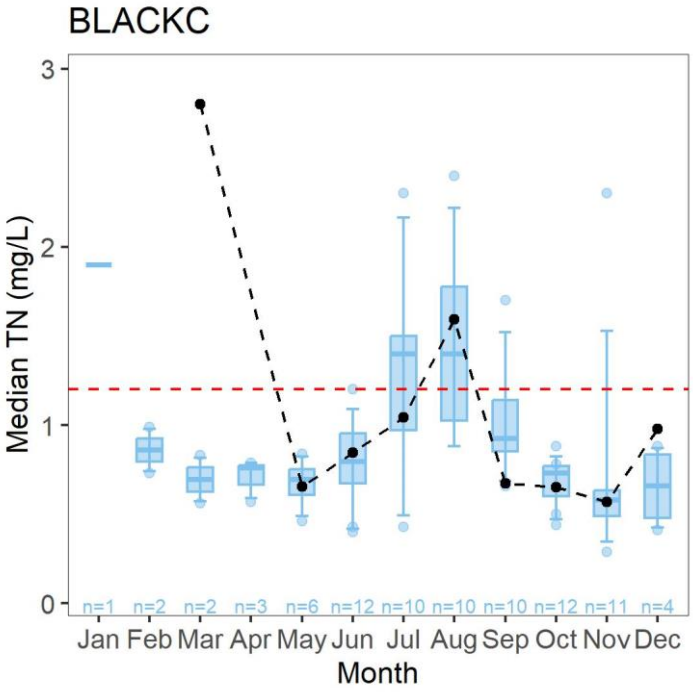

Figure 57. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BLACKC ammoniacal nitrogen (NH_3-N)

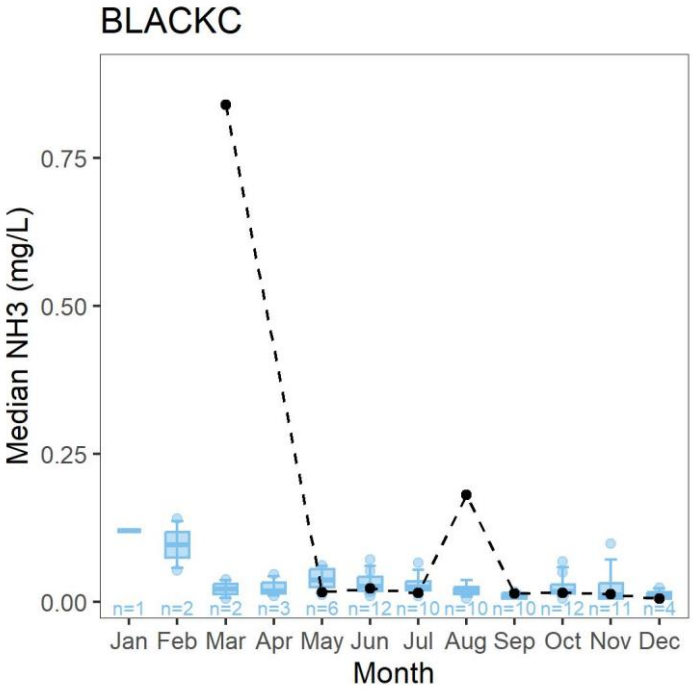

Figure 58. Ammoniacal nitrogen Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

BLACKC total oxidised nitrogen (NO_x-N)

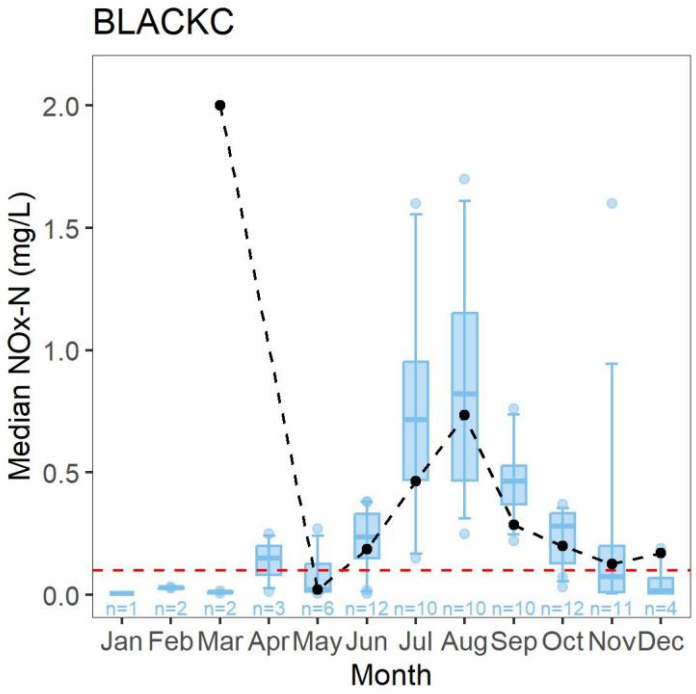

Figure 59. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BLACKC dissolved organic nitrogen (DOrgN)

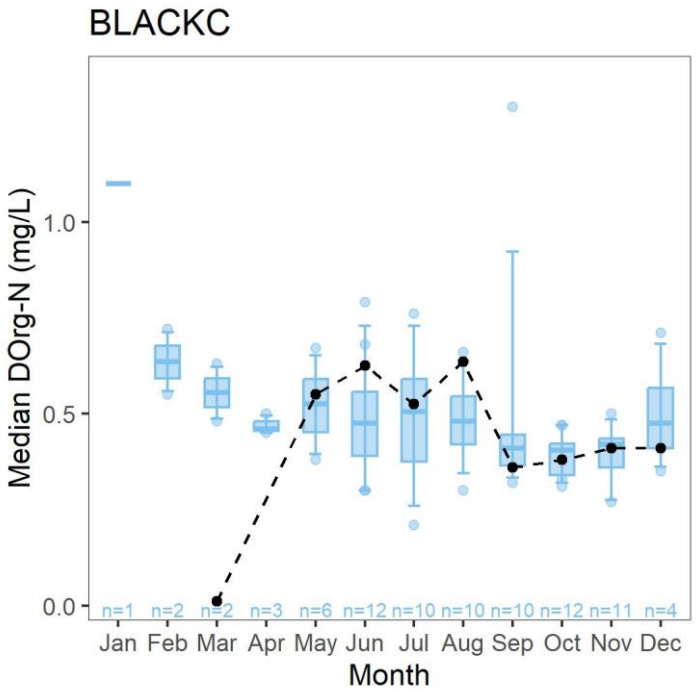

Figure 60. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

BLACKC total phosphorus (TP)

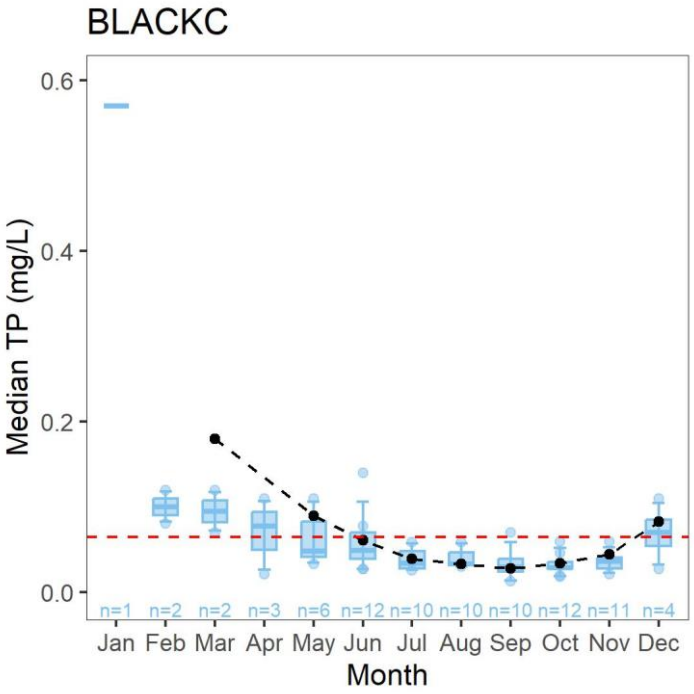

Figure 61. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BLACKC filterable reactive phosphorus (FRP)

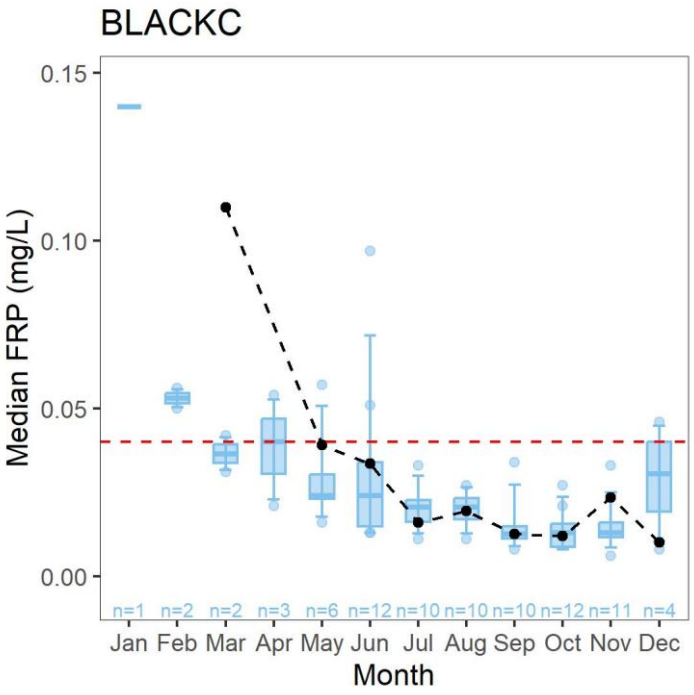

Figure 62. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BLACKC dissolved organic carbon (DOC)

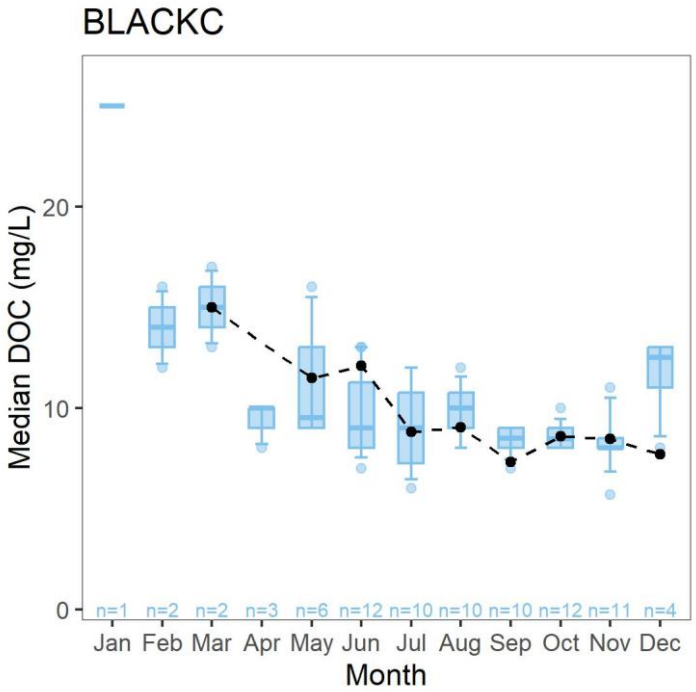

Figure 63. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

BLACKC total suspended solids (TSS)

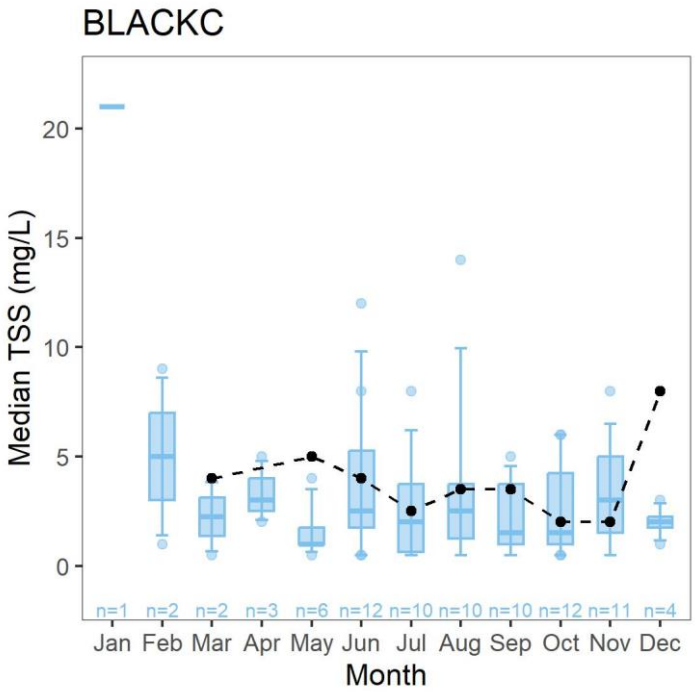

Figure 64. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

BLACKC dissolved oxygen (DO)

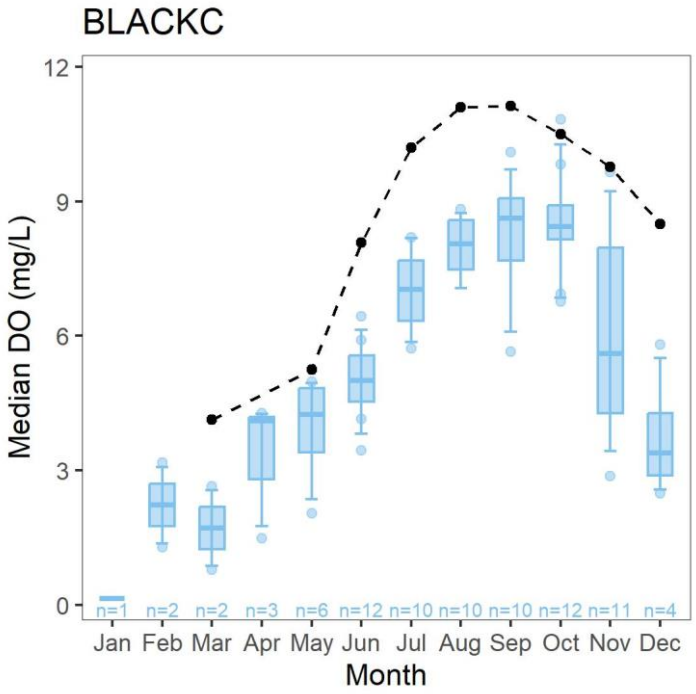

Figure 65. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

BLACKC specific conductivity (Sp. cond)

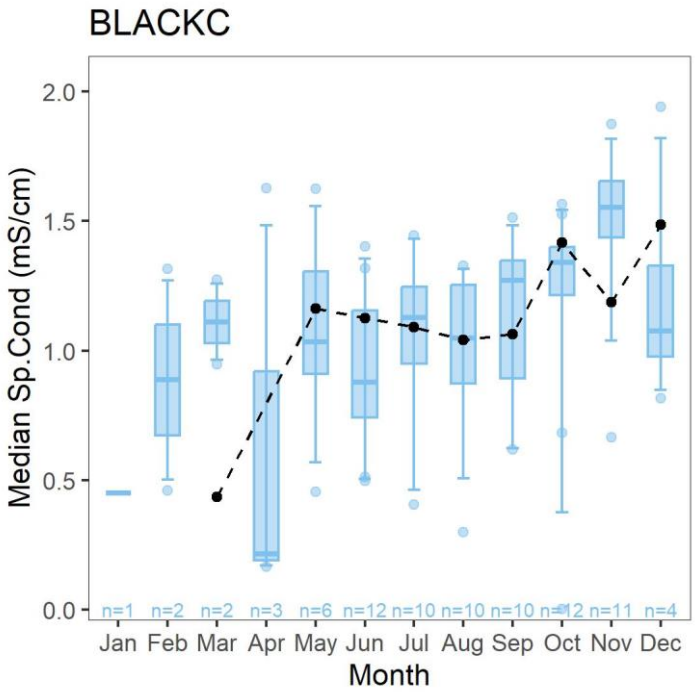

Figure 66. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BLACKC. Number of samples (n) is provided for the historical data.

Table 8. 2020 monthly sample numbers, minimum and maximum values at BLACKC.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			2.8		0.655	0.845	1.045	1.595	0.675	0.65	0.57	0.98
min			2.8		0.64	0.82	0.99	0.79	0.66	0.58	0.56	0.98
max			2.8		0.67	0.87	1.1	2.4	0.69	0.67	0.58	0.98
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			0.84		0.0185	0.022	0.0145	0.18	0.014	0.015	0.0125	0.01
min			0.84		0.01	0.014	0.01	0.02	0.011	0.01	0.011	0.01
max			0.84		0.027	0.03	0.019	0.34	0.017	0.016	0.014	0.01
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			2		0.0205	0.185	0.465	0.735	0.285	0.2	0.125	0.17
min			2		0.013	0.12	0.42	0.37	0.26	0.19	0.11	0.17
max			2		0.028	0.25	0.51	1.1	0.31	0.23	0.14	0.17
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			0.025		0.55	0.625	0.525	0.635	0.36	0.38	0.41	0.41
min			0.025		0.55	0.55	0.42	0.39	0.33	0.36	0.39	0.41
max			0.025		0.55	0.7	0.63	0.88	0.39	0.38	0.43	0.41
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			0.18		0.09	0.0615	0.039	0.033	0.028	0.034	0.0445	0.083
min			0.18		0.07	0.048	0.032	0.03	0.025	0.032	0.039	0.083
max			0.18		0.11	0.075	0.046	0.036	0.031	0.035	0.05	0.083
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			0.11		0.039	0.0335	0.016	0.0195	0.0125	0.012	0.0235	0.01
min			0.11		0.029	0.028	0.012	0.019	0.012	0.012	0.013	0.01
max			0.11		0.049	0.039	0.02	0.02	0.013	0.012	0.034	0.01
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			15		11.5	12.1	8.8	9.05	7.3	8.6	8.45	7.7
min			15		11	9.2	8.5	9	7.1	8	8.3	7.7
max			15		12	15	9.1	9.1	7.5	8.8	8.6	7.7
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			4		5	4	2.5	3.5	3.5	2	2	8
min			4		3	2	2	3	2	2	1	8
max			4		7	6	3	4	5	2	3	8
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			4.13		5.255	8.075	10.195	11.095	11.13	10.5	9.76	8.49
min			4.13		4.72	7.25	9.09	10.93	10.43	10.04	9.54	8.49
max			4.13		5.79	8.9	11.3	11.26	11.83	11.27	9.98	8.49
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	1	0	2	2	2	2	2	3	2	1
med			0.43		1.16	1.12	1.09	1.04	1.06	1.42	1.19	1.49
min			0.43		1.04	0.80	0.88	0.98	0.80	1.17	0.89	1.49
max			0.43		1.29	1.45	1.31	1.10	1.33	1.61	1.48	1.49

NB: Daily discharge data is not available for BLACKC as this site is not gauged. Due to the ephemeral nature of flow in Blackadder Creek and the below average rainfall in 2020, samples were not collected for January, February and April 2020.

7. Bull Creek (SHELLD1)

SHELLD1 total nitrogen (TN)

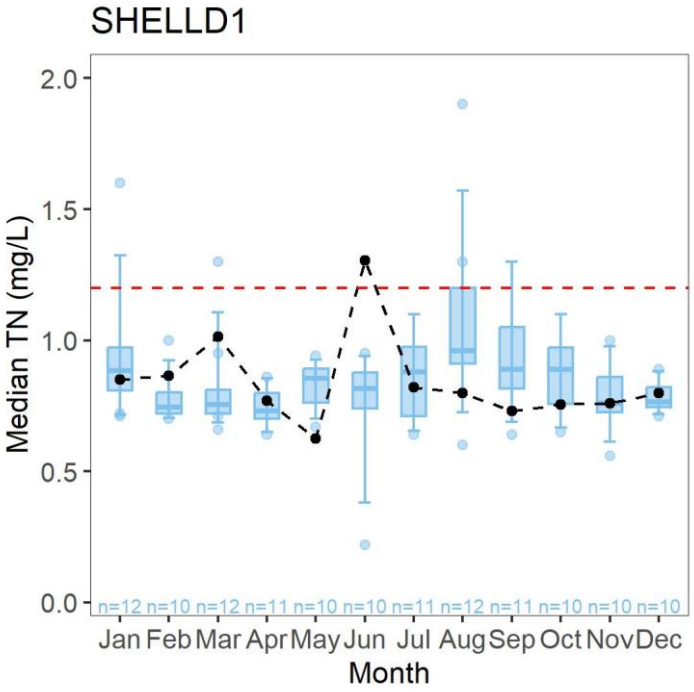

Figure 67. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

SHELLD1 ammoniacal nitrogen (NH_3-N)

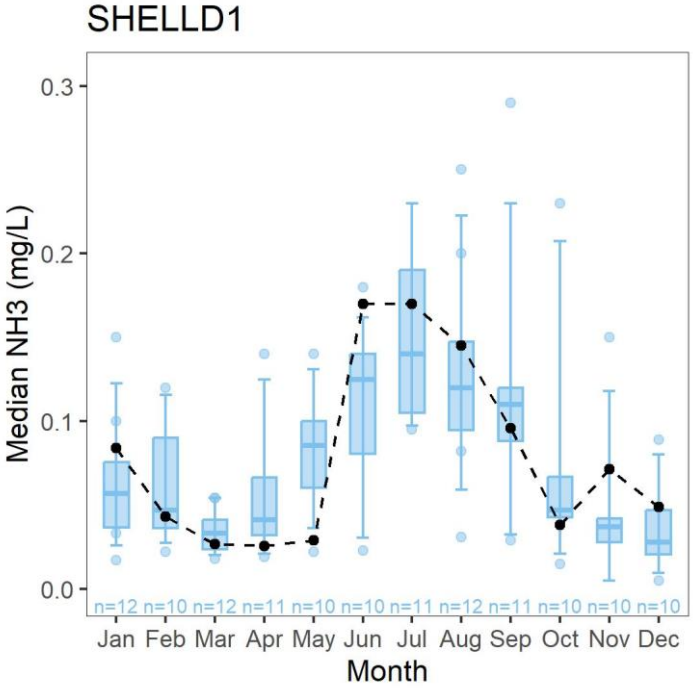

Figure 68. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

SHELLD1 total oxidised nitrogen (NO_x-N)

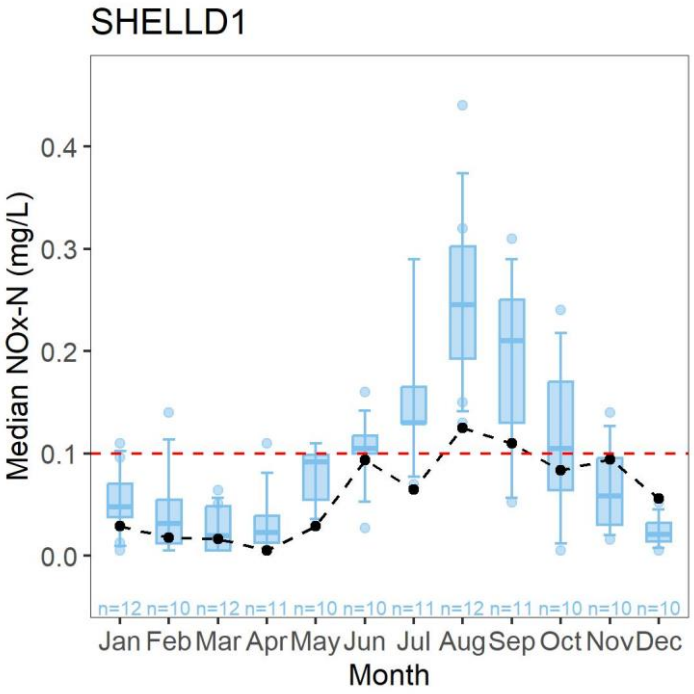

Figure 69. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

SHELLD1 dissolved organic nitrogen (DOrgN)

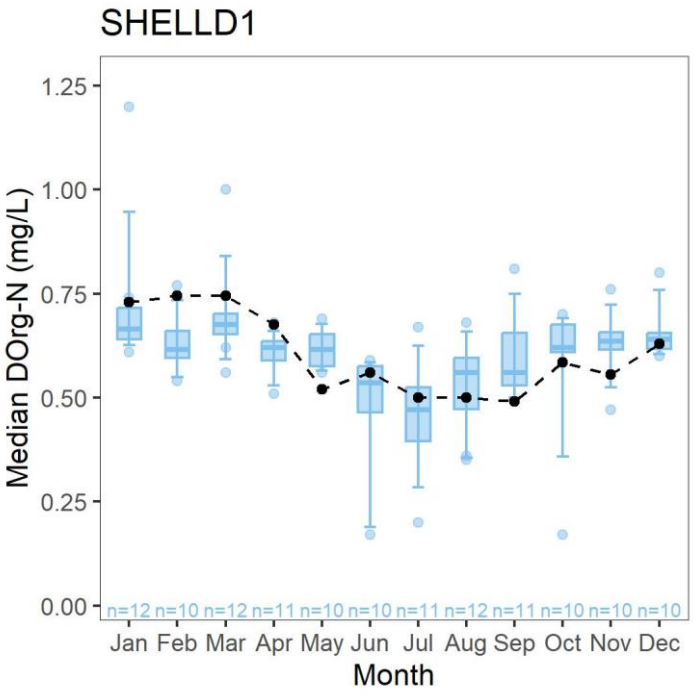

Figure 70. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

SHELLD1 total phosphorus (TP)

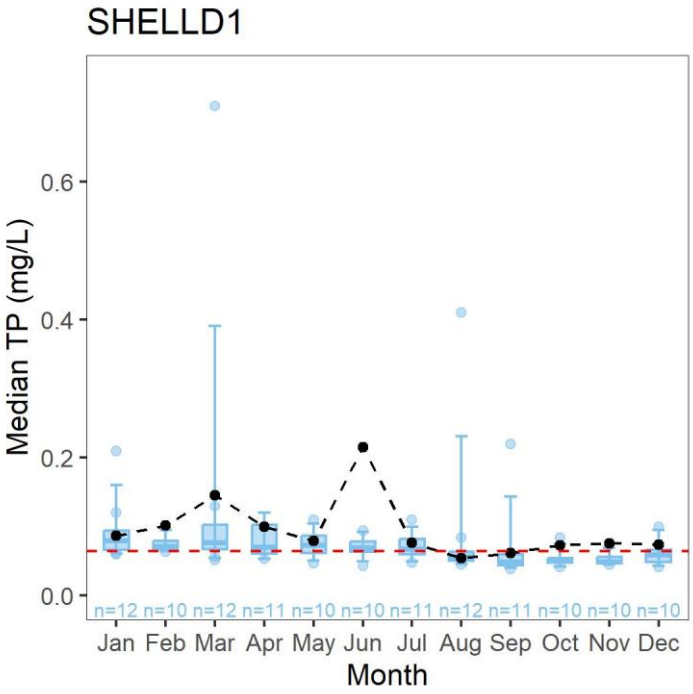

Figure 71. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

SHELLD1 filterable reactive phosphorus (FRP)

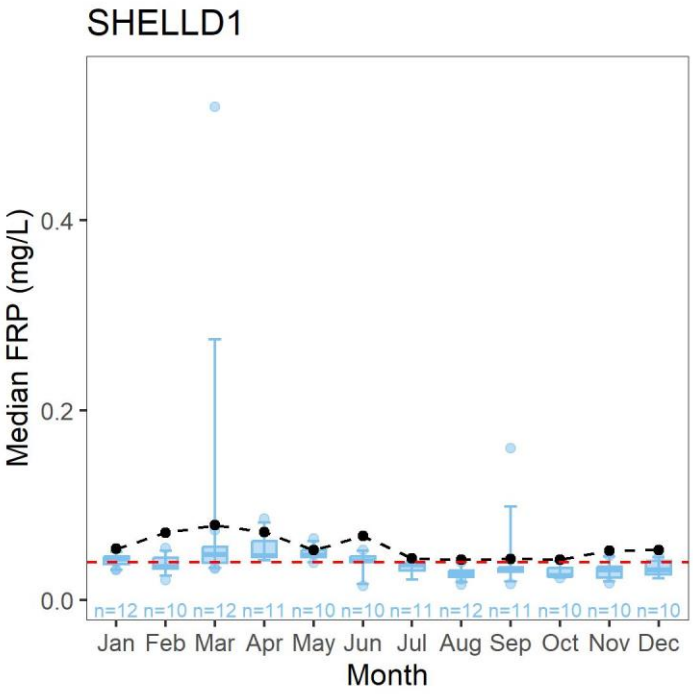

Figure 72. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

SHELLD1 dissolved organic carbon (DOC)

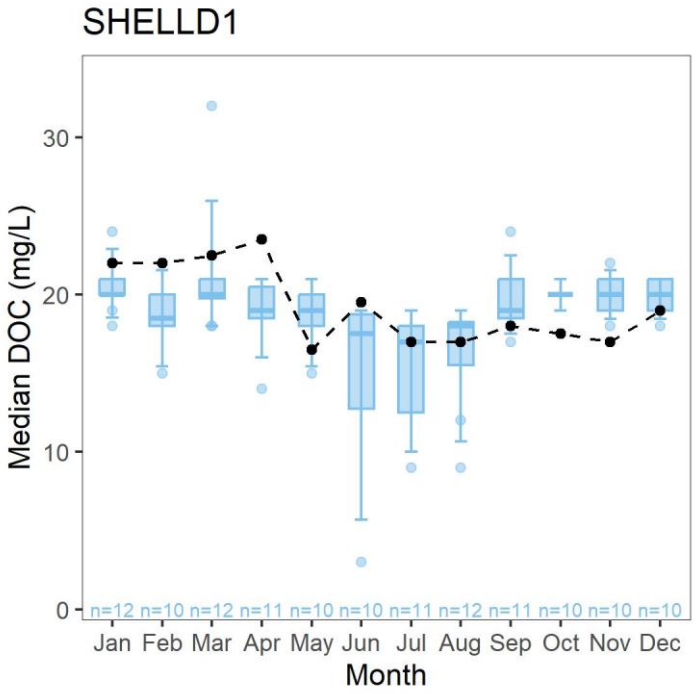

Figure 73. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

SHELLD1 total suspended solids (TSS)

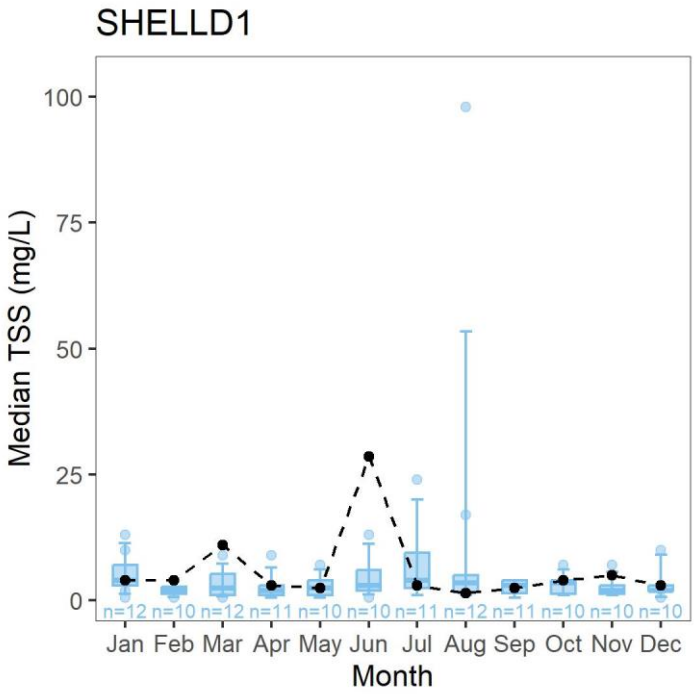

Figure 74. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

SHELLD1 dissolved oxygen (DO)

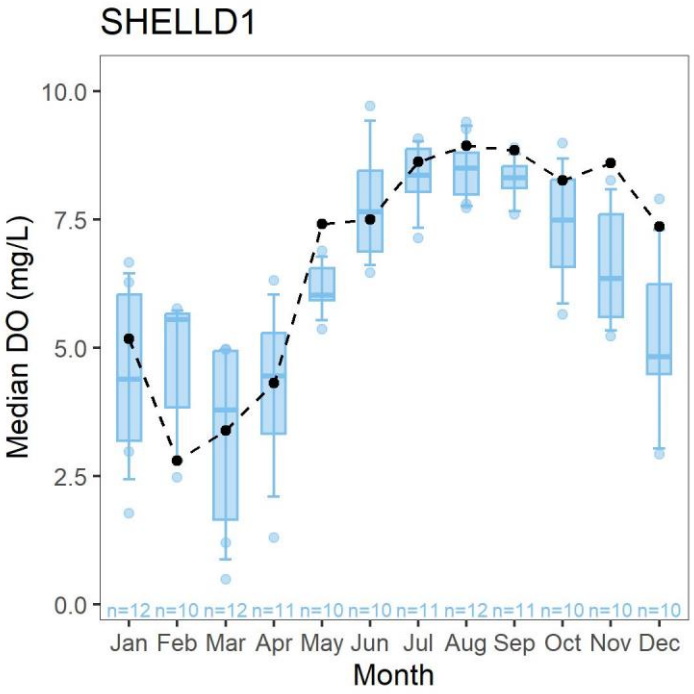

Figure 75. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

SHELLD1 specific conductivity (Sp. cond)

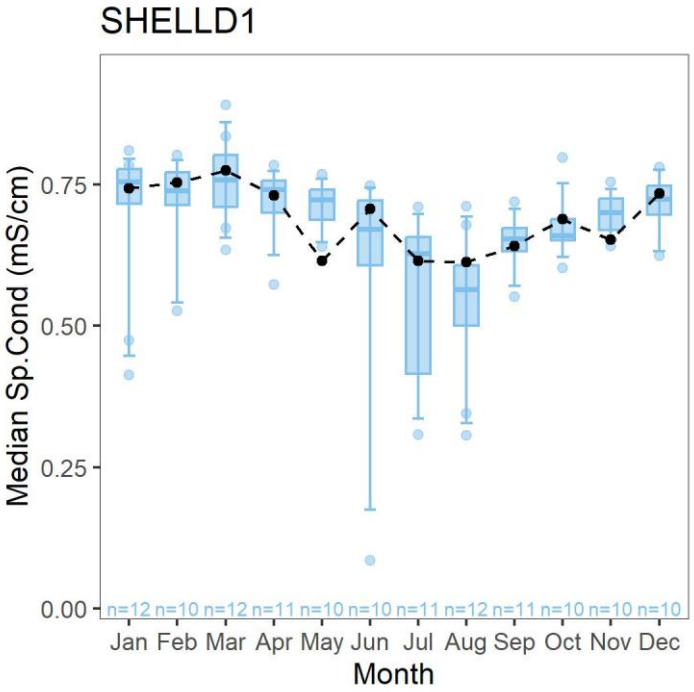

Figure 76. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD1. Number of samples (n) is provided for the historical data.

Table 9. 2020 monthly sample numbers, minimum and maximum values at SHELLD1.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.85	0.865	1.015	0.77	0.625	1.305	0.82	0.8	0.73	0.755	0.76	0.8
min	0.84	0.84	0.93	0.74	0.46	0.91	0.75	0.78	0.71	0.72	0.74	0.77
max	0.9	0.89	1.1	0.8	0.79	1.7	0.91	0.82	0.75	0.79	0.78	0.8
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.084	0.043	0.0265	0.0255	0.0315	0.17	0.17	0.145	0.096	0.038	0.0715	0.049
min	0.054	0.04	0.018	0.021	0.01	0.17	0.12	0.14	0.082	0.013	0.056	0.048
max	0.094	0.046	0.035	0.03	0.053	0.17	0.22	0.15	0.11	0.063	0.087	0.05
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.029	0.0175	0.0165	0.01	0.029	0.0935	0.065	0.125	0.11	0.0835	0.094	0.056
min	0.025	0.016	0.013	0.01	0.018	0.077	0.063	0.11	0.1	0.074	0.089	0.029
max	0.043	0.019	0.02	0.01	0.04	0.11	0.11	0.14	0.12	0.093	0.099	0.061
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.73	0.745	0.745	0.675	0.52	0.56	0.5	0.5	0.49	0.585	0.555	0.63
min	0.67	0.71	0.73	0.65	0.41	0.56	0.5	0.48	0.46	0.56	0.55	0.63
max	0.76	0.78	0.76	0.7	0.63	0.56	0.57	0.52	0.52	0.61	0.56	0.64
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.087	0.102	0.145	0.1	0.0795	0.215	0.077	0.054	0.062	0.073	0.0755	0.074
min	0.077	0.094	0.12	0.1	0.063	0.11	0.075	0.051	0.057	0.06	0.07	0.068
max	0.094	0.11	0.17	0.1	0.096	0.32	0.08	0.057	0.067	0.086	0.081	0.079
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.054	0.071	0.079	0.0715	0.0525	0.0675	0.044	0.0425	0.0435	0.0425	0.052	0.053
min	0.044	0.069	0.079	0.071	0.035	0.062	0.038	0.042	0.043	0.039	0.05	0.045
max	0.061	0.073	0.079	0.072	0.07	0.073	0.054	0.043	0.044	0.046	0.054	0.062
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	22	22	22.5	23.5	16.5	19.5	17	17	18	17.5	17	19
min	22	22	22	22	13	19	15	16	17	17	16	19
max	23	22	23	25	20	20	17	18	19	18	18	20
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	4	4	11	3	2.5	28.5	3	1.5	2.5	4	5	3
min	2	4	5	3	2	3	3	1	2	2	4	2
max	7	4	17	3	3	54	7	2	3	6	6	6
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	5.18	2.805	3.395	4.32	7.41	7.505	8.63	8.94	8.85	8.265	8.6	7.37
min	5.02	2.33	2.73	3.77	6.69	7.29	8.58	8.82	8.81	7.86	8.45	6.59
max	6.05	3.28	4.06	4.87	8.13	7.72	8.63	9.06	8.89	8.67	8.75	8.17
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.74	0.75	0.77	0.73	0.62	0.71	0.62	0.61	0.64	0.69	0.65	0.73
min	0.70	0.73	0.77	0.70	0.49	0.69	0.58	0.55	0.63	0.68	0.65	0.68
max	0.75	0.77	0.78	0.76	0.74	0.73	0.64	0.67	0.65	0.70	0.66	0.76

NB: Daily discharge data is not available for SHELLD1 as this site is not gauged.

NB: Daily discharge data is not available for SHELLD1 as this site is not gauged.

8. Bull Creek (SHELLD2)

SHELLD2 total nitrogen (TN)

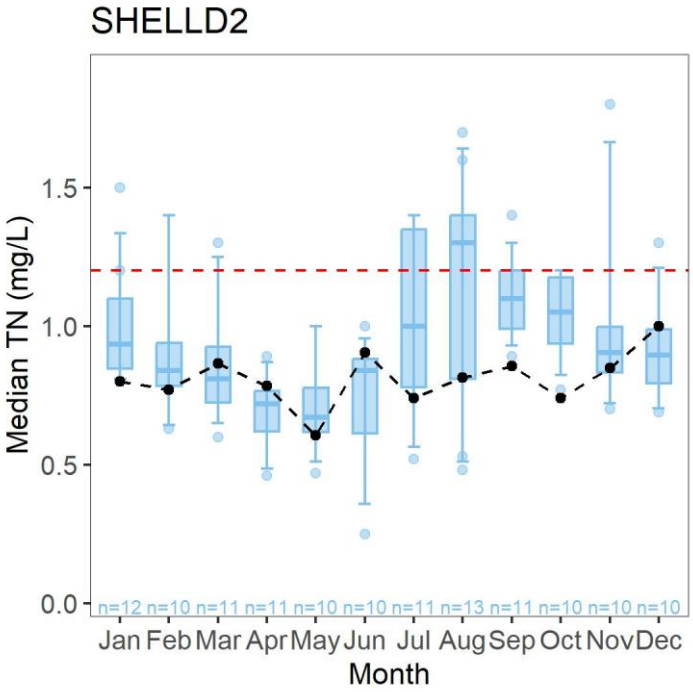

Figure 77. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

SHELLD2 ammoniacal nitrogen (NH_3-N)

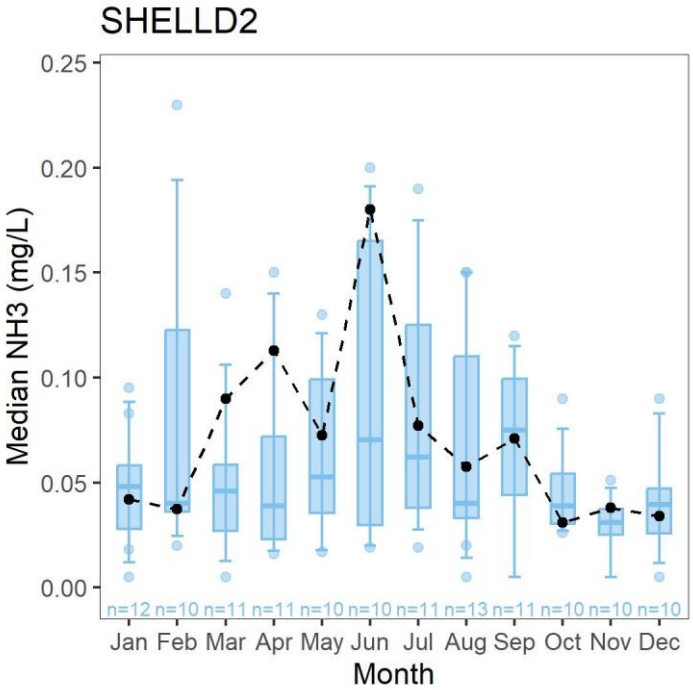

Figure 78. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

SHELLD2 total oxidised nitrogen (NO_x-N)

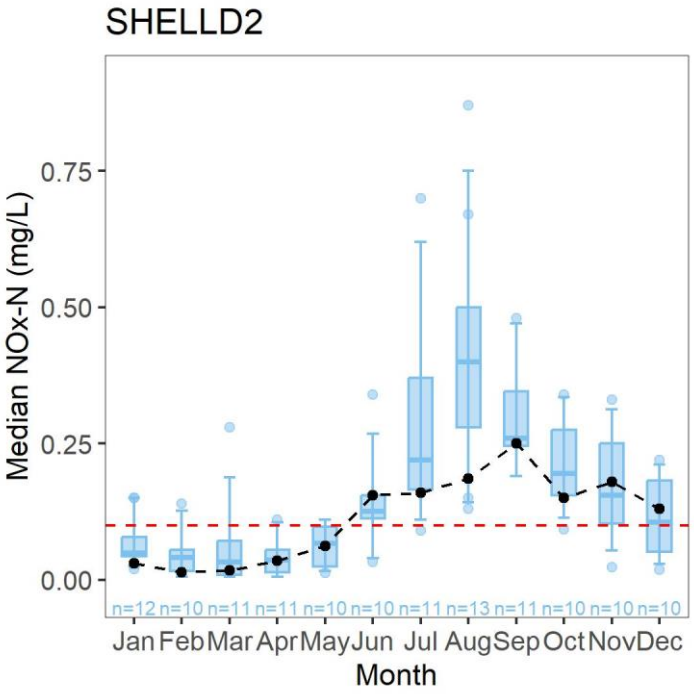

Figure 79. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

SHELLD2 dissolved organic nitrogen (DOrgN)

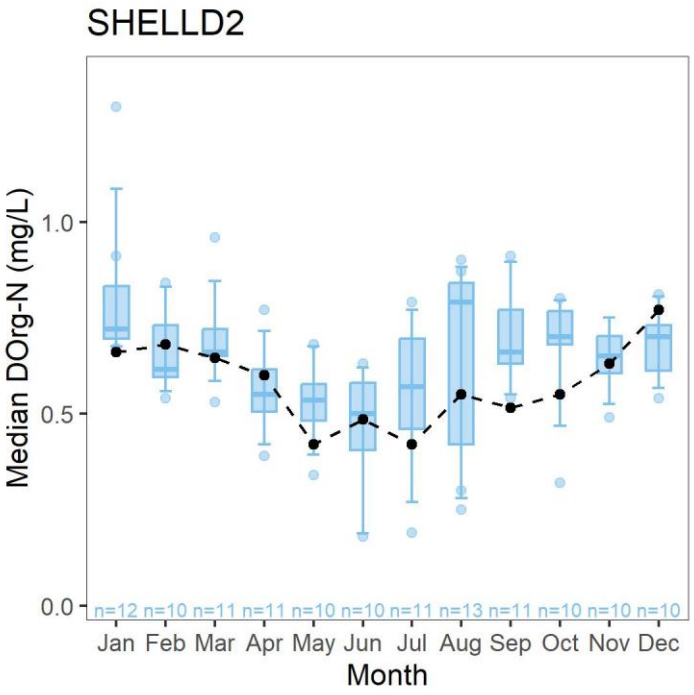

Figure 80. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

SHELLD2 total phosphorus (TP)

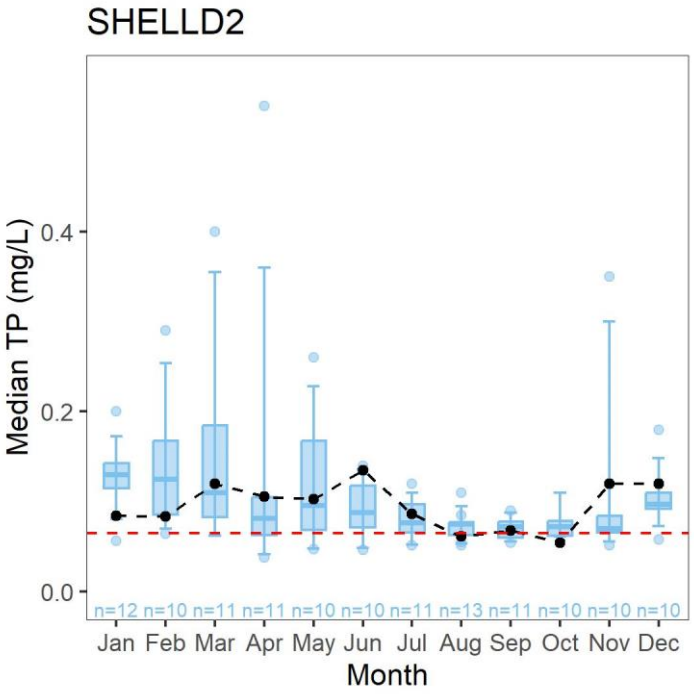

Figure 81. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

SHELLD2 filterable reactive phosphorus (FRP)

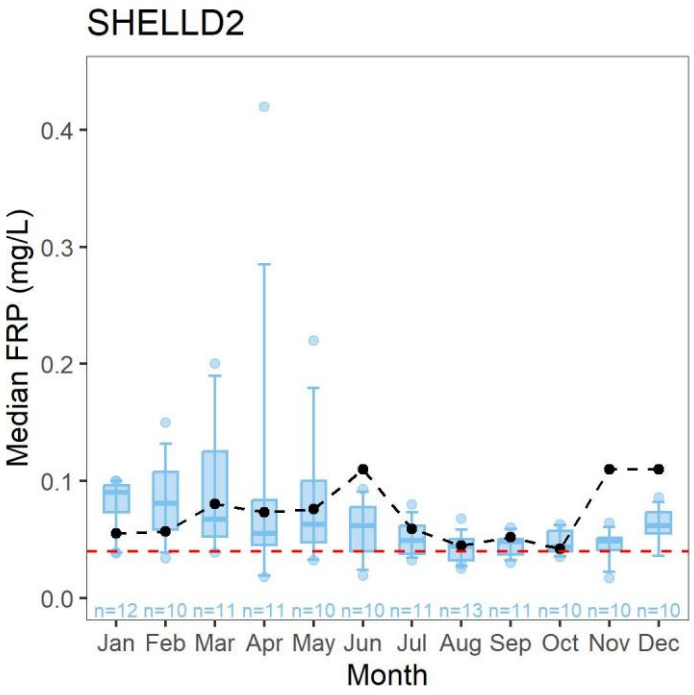

Figure 82. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

SHELLD2 dissolved organic carbon (DOC)

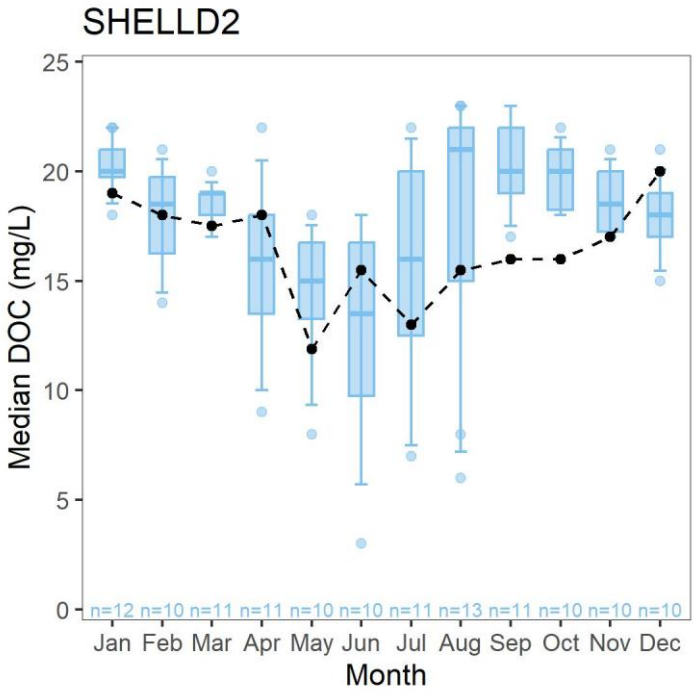

Figure 83. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

SHELLD2 total suspended solids (TSS)

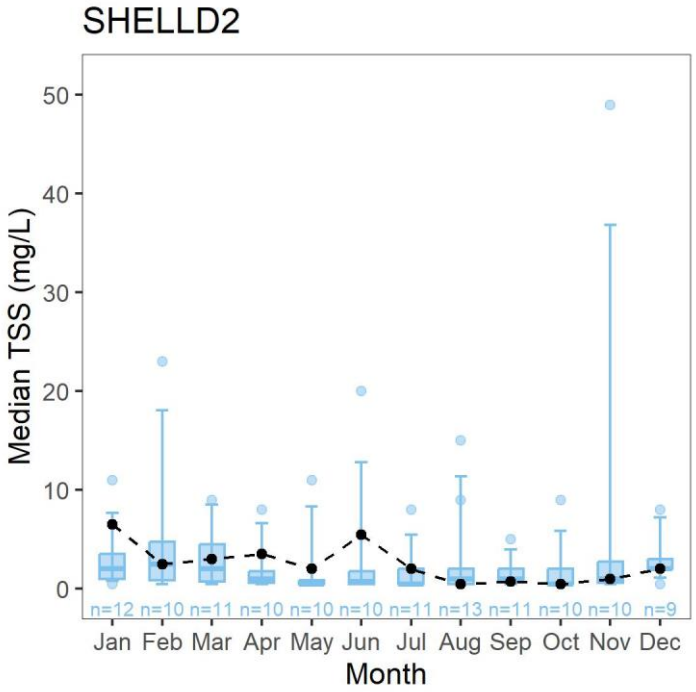

Figure 84. Total suspended solids Monthly median Total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

SHELLD2 dissolved oxygen (DO)

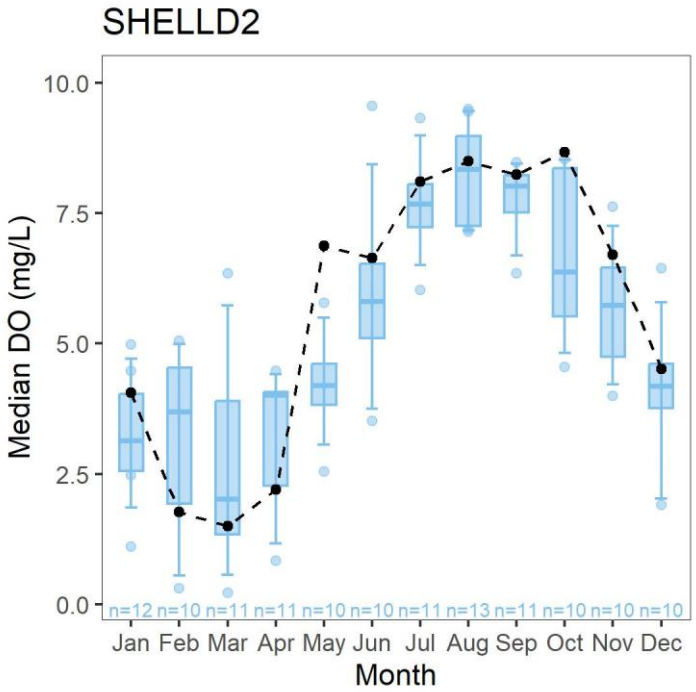

Figure 85. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

SHELLD2 specific conductivity (Sp. cond)

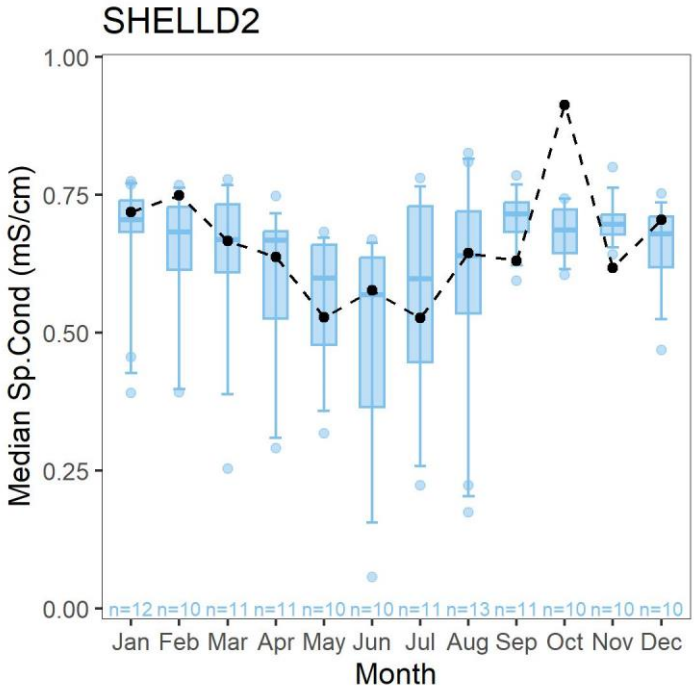

Figure 86. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SHELLD2. Number of samples (n) is provided for the historical data.

Table 10. 2020 monthly sample numbers, minimum and maximum values at SHELLD2.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.8	0.77	0.865	0.785	0.605	0.905	0.74	0.815	0.855	0.74	0.85	1
min	0.73	0.76	0.8	0.76	0.41	0.83	0.63	0.72	0.83	0.74	0.85	0.83
max	0.83	0.78	0.93	0.81	0.8	0.98	0.79	0.91	0.88	0.74	0.85	1.1
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.042	0.0375	0.09	0.113	0.075	0.18	0.077	0.0575	0.071	0.031	0.038	0.034
min	0.035	0.034	0.03	0.096	0.01	0.14	0.067	0.052	0.056	0.031	0.038	0.031
max	0.057	0.041	0.15	0.13	0.14	0.22	0.085	0.063	0.086	0.031	0.038	0.047
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.03	0.0135	0.017	0.0345	0.0615	0.155	0.16	0.185	0.25	0.15	0.18	0.13
min	0.027	0.012	0.011	0.023	0.023	0.15	0.15	0.16	0.21	0.15	0.18	0.096
max	0.052	0.015	0.023	0.046	0.1	0.16	0.17	0.21	0.29	0.15	0.18	0.21
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.66	0.68	0.645	0.6	0.42	0.485	0.42	0.55	0.515	0.55	0.63	0.77
min	0.62	0.66	0.64	0.57	0.3	0.48	0.38	0.47	0.51	0.55	0.63	0.7
max	0.68	0.7	0.65	0.63	0.54	0.49	0.53	0.63	0.52	0.55	0.63	0.86
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.084	0.0835	0.12	0.1055	0.103	0.135	0.086	0.061	0.068	0.054	0.12	0.12
min	0.062	0.079	0.12	0.091	0.096	0.12	0.085	0.058	0.067	0.054	0.12	0.097
max	0.087	0.088	0.12	0.12	0.11	0.15	0.089	0.064	0.069	0.054	0.12	0.13
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.055	0.057	0.0805	0.073	0.076	0.11	0.059	0.0445	0.052	0.042	0.11	0.11
min	0.048	0.048	0.079	0.064	0.056	0.1	0.053	0.044	0.048	0.042	0.11	0.072
max	0.056	0.066	0.082	0.082	0.096	0.12	0.059	0.045	0.056	0.042	0.11	0.13
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	19	18	17.5	18	11.9	15.5	13	15.5	16	16	17	20
min	18	17	17	17	7.8	15	11	13	15	16	17	17
max	19	19	18	19	16	16	14	18	17	16	17	23
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	3	2.5	3	3.5	2	5.5	2	1	1	1	1	2
min	2	2	3	3	2	1	2	1	1	1	1	1
max	10	3	3	4	2	10	2	1	1	1	1	2
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	4.06	1.775	1.505	2.2	6.87	6.645	8.11	8.5	8.235	8.67	6.7	4.51
min	4.01	1.27	1.42	1.88	4.68	6.63	7.89	8.34	7.96	8.67	6.7	3.95
max	4.55	2.28	1.59	2.52	9.06	6.66	8.53	8.66	8.51	8.67	6.7	5.08
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	1	1	3
med	0.72	0.75	0.67	0.64	0.53	0.58	0.53	0.64	0.63	0.91	0.62	0.71
min	0.71	0.74	0.63	0.60	0.42	0.57	0.45	0.53	0.63	0.91	0.62	0.58
max	0.72	0.76	0.70	0.68	0.64	0.58	0.53	0.76	0.63	0.91	0.62	0.82

NB: Daily discharge data is not available for SHELLD2 as this site is not gauged.

9. Canning River (CANNR)

CANNR total nitrogen (TN)

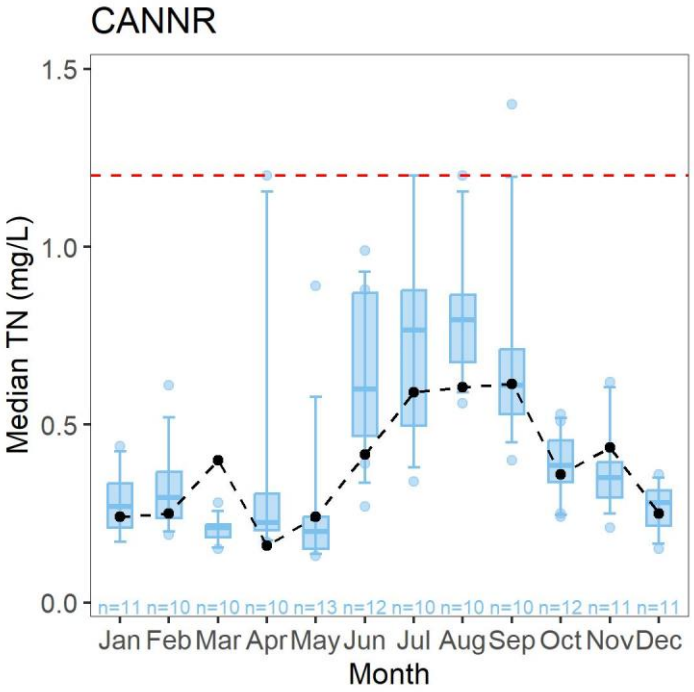

Figure 87. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

CANNR ammoniacal nitrogen (NH_3-N)

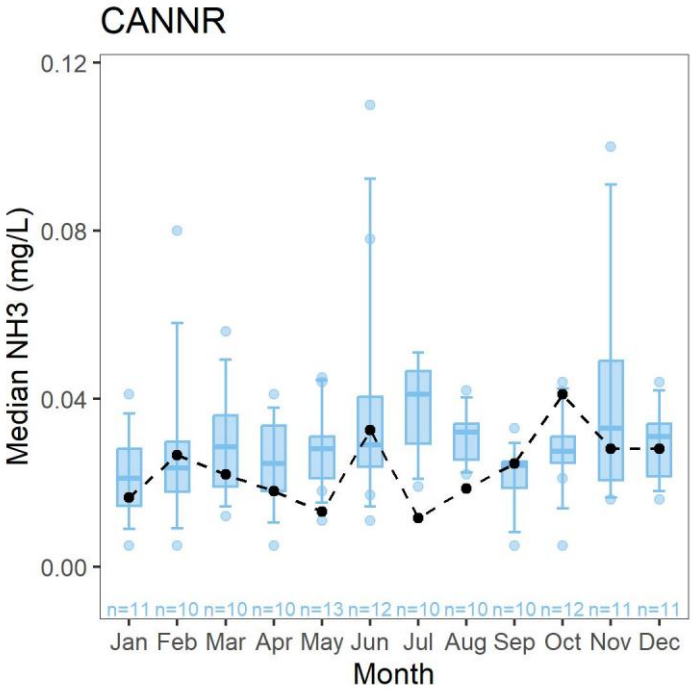

Figure 88. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

CANNR total oxidised nitrogen (NO_x-N)

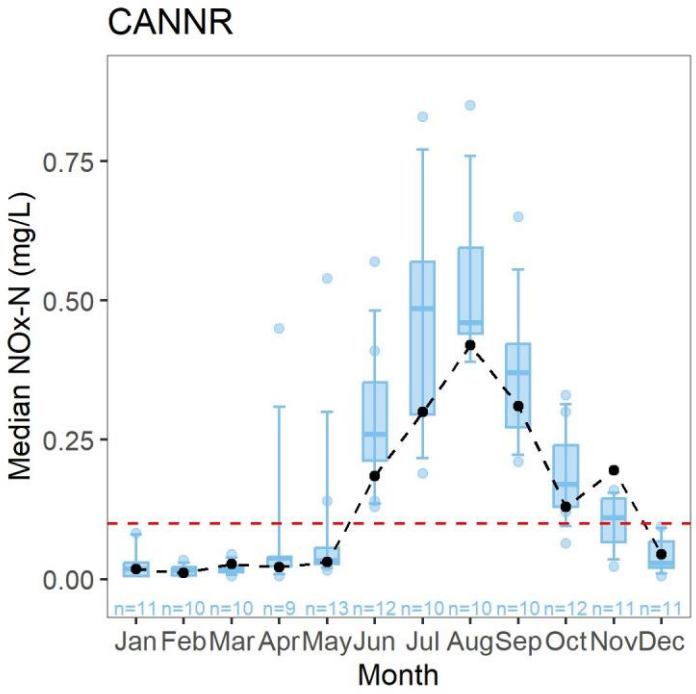

Figure 89. Monthly median Total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

CANNR dissolved organic nitrogen (DOrgN)

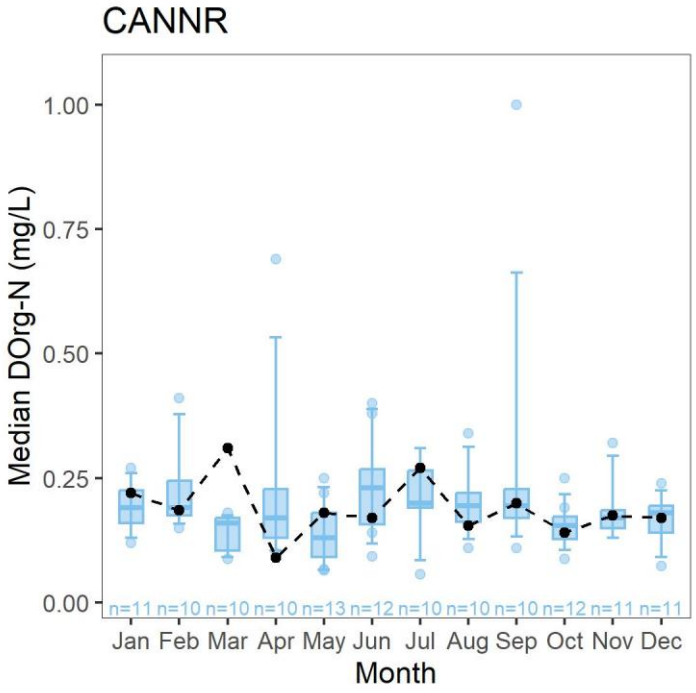

Figure 90. Monthly median Dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

CANNR total phosphorus (TP)

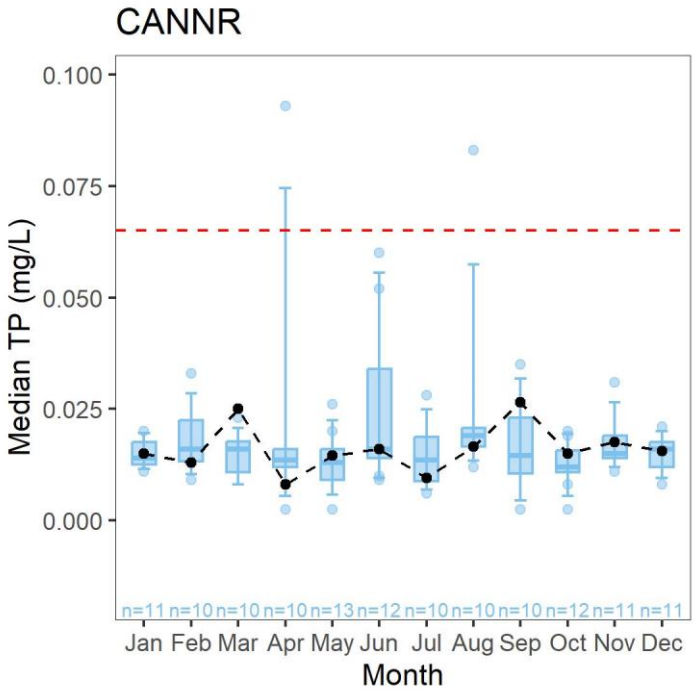

Figure 91. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

CANNR filterable reactive phosphorus (FRP)

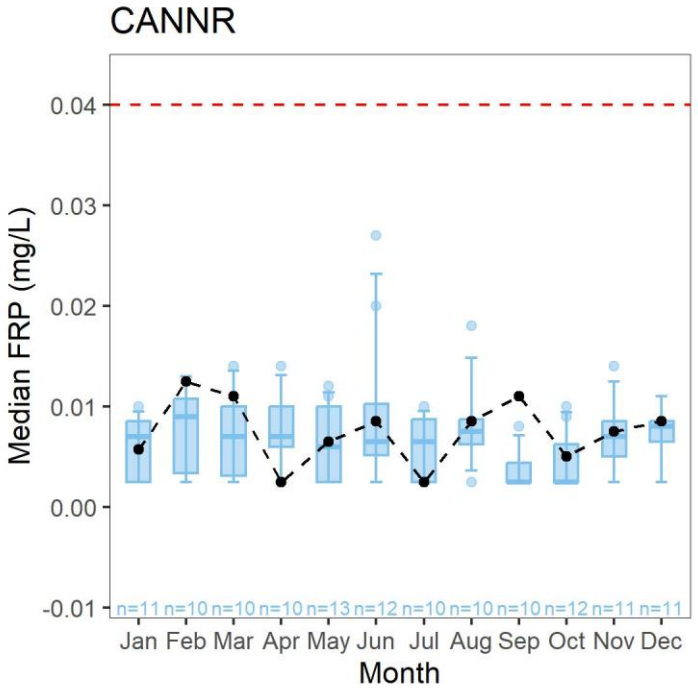

Figure 92. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

CANNR dissolved organic carbon (DOC)

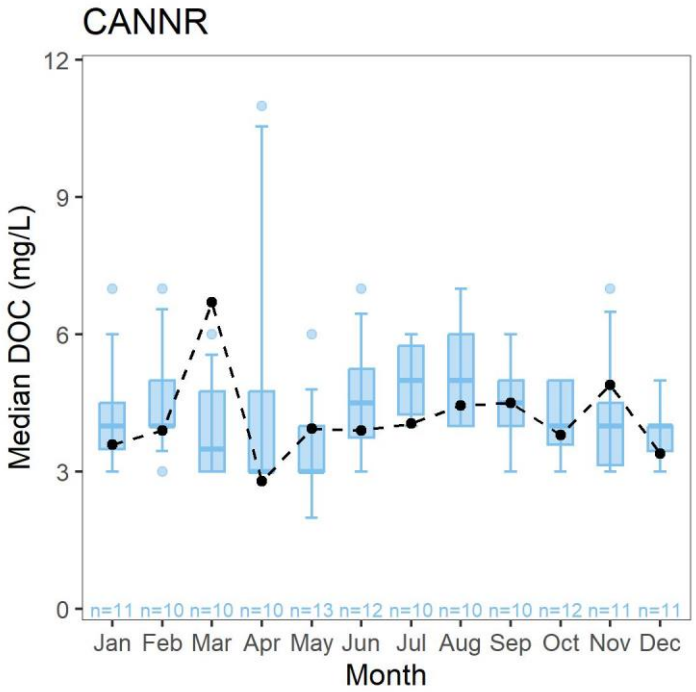

Figure 93. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

CANNR total suspended solids (TSS)

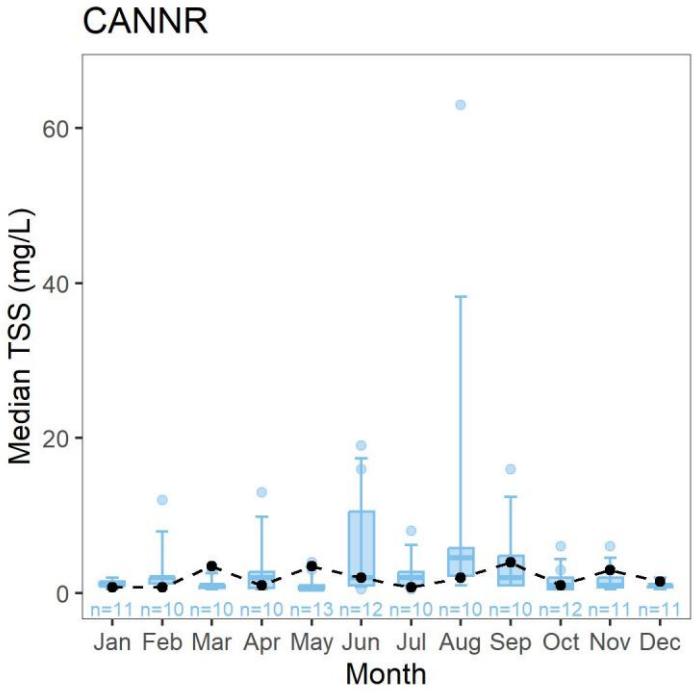

Figure 94. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

CANNR dissolved oxygen (DO)

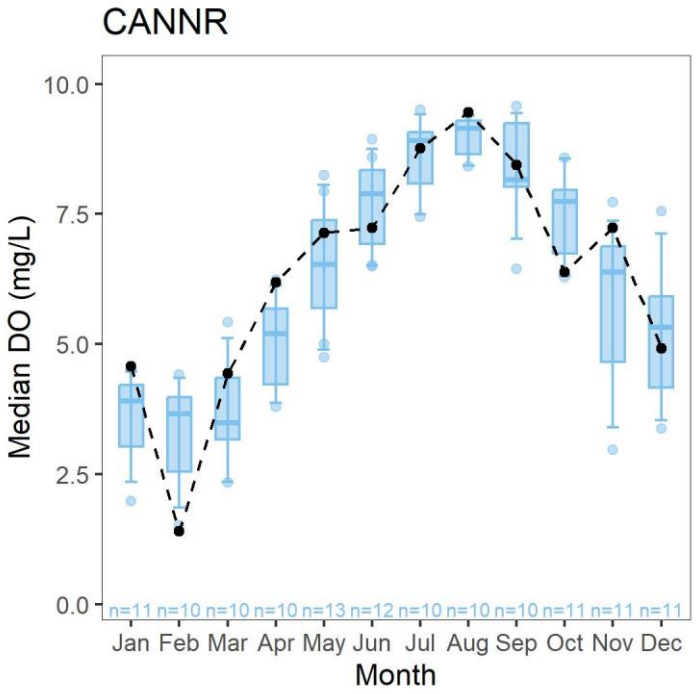

Figure 95. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

CANNR specific conductivity (Sp. cond)

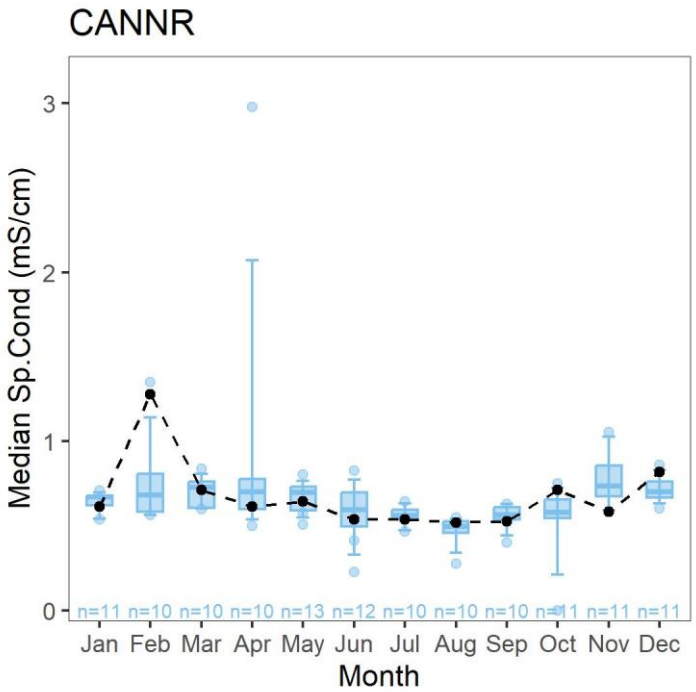

Figure 96. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANNR. Number of samples (n) is provided for the historical data.

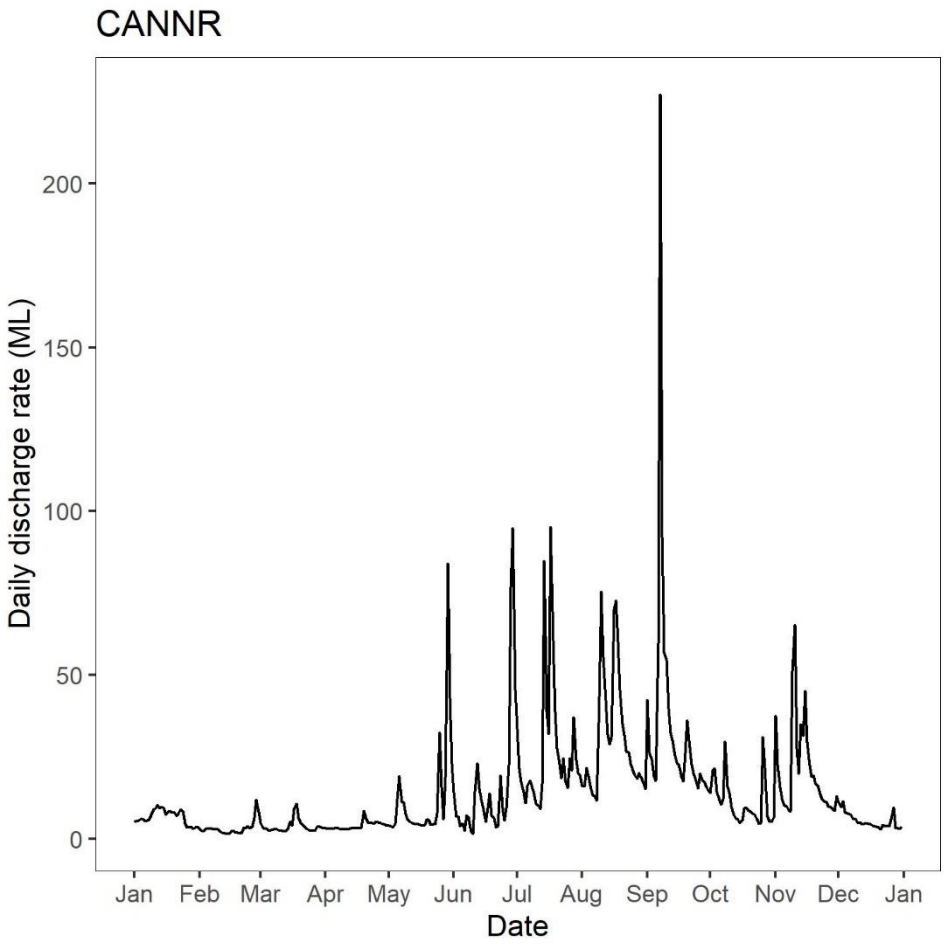

Figure 97. Daily discharge (ML) at Canning River gauging station (616027 – at site of CANNR).

Table 11. 2020 monthly sample numbers, minimum and maximum values at CANNR.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.24	0.25	0.4	0.16	0.24	0.415	0.59	0.605	0.615	0.36	0.435	0.25
min	0.22	0.25	0.24	0.13	0.2	0.38	0.54	0.49	0.49	0.27	0.43	0.22
max	0.26	0.25	0.56	0.35	0.28	0.45	0.64	0.72	0.74	0.37	0.44	0.28
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.019	0.0265	0.022	0.018	0.0155	0.0325	0.014	0.0185	0.0245	0.041	0.028	0.028
min	0.01	0.017	0.011	0.016	0.01	0.023	0.01	0.018	0.012	0.01	0.027	0.022
max	0.028	0.036	0.033	0.019	0.021	0.042	0.018	0.019	0.037	0.046	0.029	0.034
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0175	0.011	0.027	0.021	0.0305	0.185	0.3	0.42	0.31	0.13	0.195	0.0445
min	0.014	0.011	0.026	0.02	0.03	0.17	0.23	0.33	0.25	0.096	0.16	0.024
max	0.021	0.011	0.028	0.023	0.031	0.2	0.37	0.51	0.37	0.21	0.23	0.065
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.22	0.185	0.31	0.09	0.18	0.17	0.27	0.155	0.2	0.14	0.175	0.17
min	0.21	0.18	0.18	0.079	0.14	0.14	0.24	0.14	0.14	0.1	0.13	0.15
max	0.23	0.19	0.44	0.12	0.22	0.2	0.3	0.17	0.26	0.18	0.22	0.19
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.015	0.013	0.025	0.008	0.0145	0.016	0.0095	0.0165	0.0265	0.015	0.0175	0.0155
min	0.012	0.011	0.013	0.008	0.011	0.012	0.008	0.009	0.017	0.01	0.015	0.014
max	0.018	0.015	0.037	0.01	0.018	0.02	0.011	0.024	0.036	0.016	0.02	0.017
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.007	0.0125	0.011	0.005	0.0065	0.0085	0.005	0.0085	0.011	0.005	0.0075	0.0085
min	0.005	0.01	0.008	0.005	0.006	0.007	0.005	0.007	0.006	0.005	0.007	0.008
max	0.009	0.015	0.014	0.007	0.007	0.01	0.005	0.01	0.016	0.009	0.008	0.009
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	3.6	3.9	6.7	2.8	3.95	3.9	4.05	4.45	4.5	3.8	4.9	3.4
min	3.3	3.7	3.5	2.7	3.1	3.7	3.7	3.7	3.9	3.2	3.6	3.2
max	3.9	4.1	9.9	2.9	4.8	4.1	4.4	5.2	5.1	3.9	6.2	3.6
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	1	1	3.5	1	3.5	2	1	2	4	1	3	1.5
min	1	1	1	1	2	2	1	1	2	1	3	1
max	1	1	6	3	5	2	1	3	6	1	3	2
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	4.57	1.4	4.43	6.19	7.13	7.235	8.76	9.455	8.44	6.38	7.23	4.915
min	4.16	0.26	3.84	5.98	7.03	6.41	8.19	9.31	8.02	6.12	6.33	4.7
max	4.98	2.54	5.02	7.63	7.23	8.06	9.33	9.6	8.86	8.07	8.13	5.13
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.61	1.28	0.71	0.61	0.64	0.54	0.54	0.52	0.53	0.72	0.59	0.82
min	0.58	0.59	0.64	0.61	0.62	0.45	0.48	0.48	0.48	0.58	0.46	0.78
max	0.65	1.96	0.78	0.64	0.67	0.63	0.59	0.56	0.57	0.87	0.71	0.86

10. Claise Brook (CLAISB)

CLAISB total nitrogen (TN)

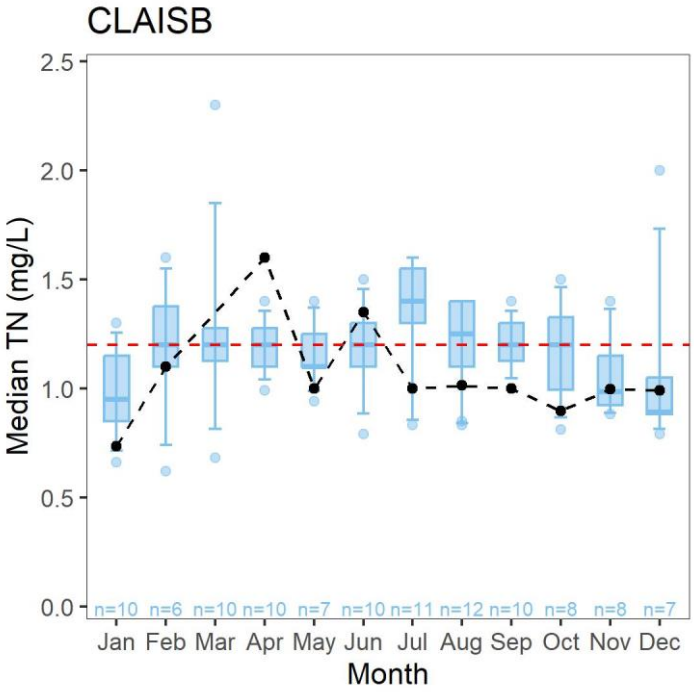

Figure 98. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

CLAISB ammoniacal nitrogen (NH_3-N)

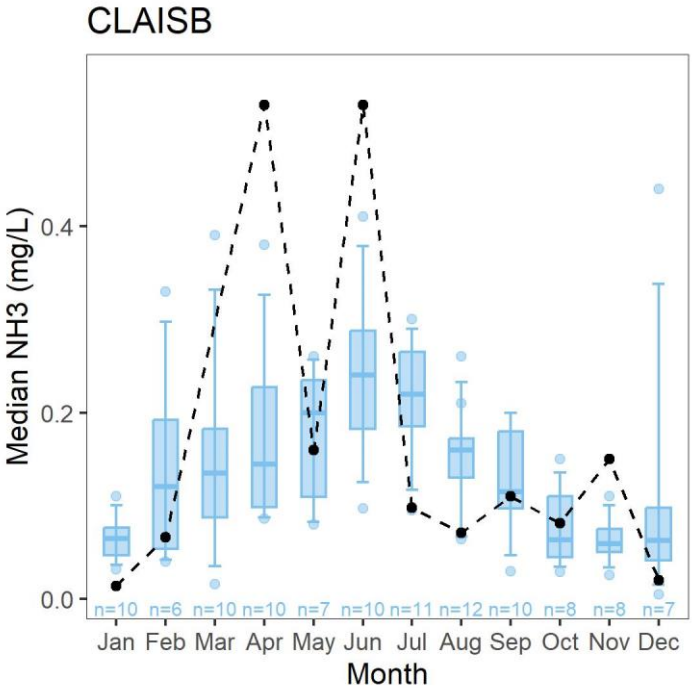

Figure 99. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

CLAISB total oxidised nitrogen (NO_x-N)

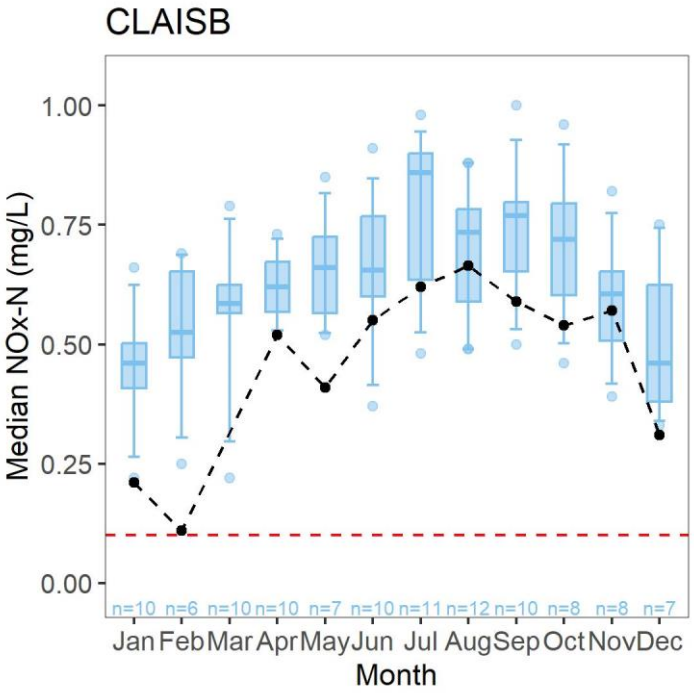

Figure 100. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

CLAISB dissolved organic nitrogen (DOrgN)

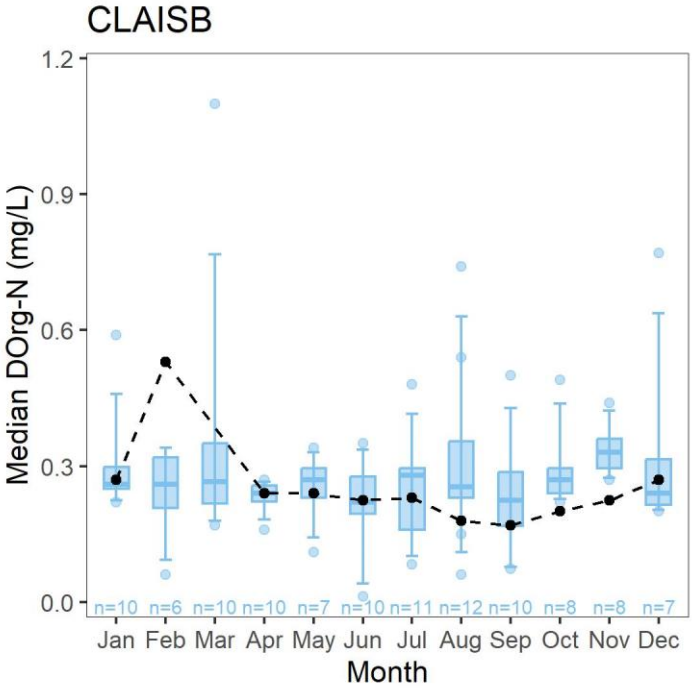

Figure 101. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

CLAISB total phosphorus (TP)

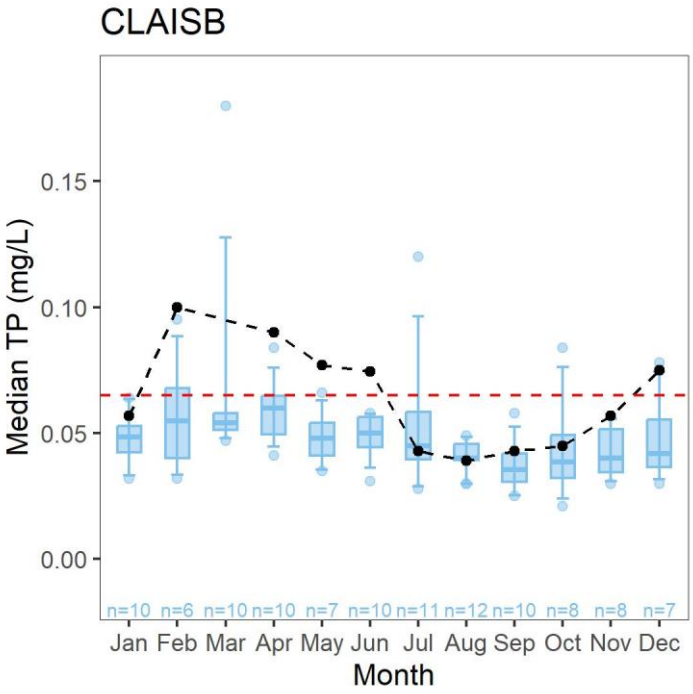

Figure 102. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

CLAISB filterable reactive phosphorus (FRP)

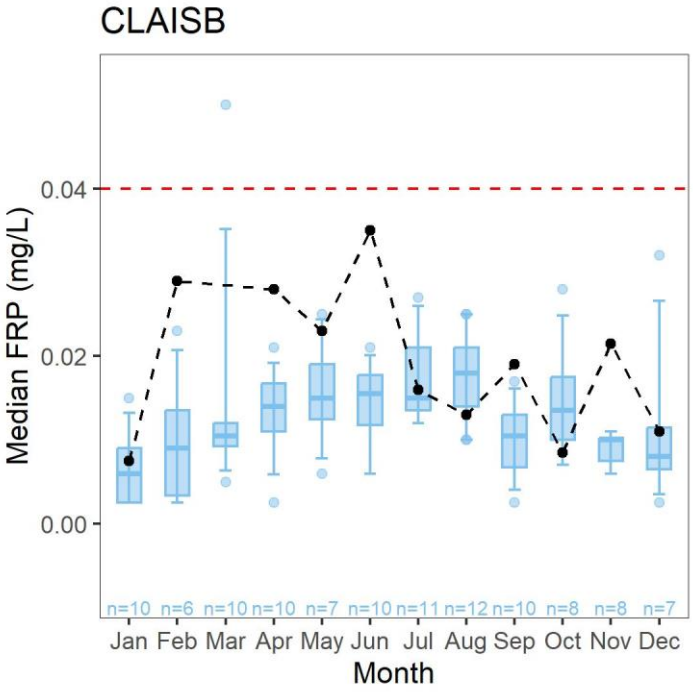

Figure 103. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

CLAISB dissolved organic carbon (DOC)

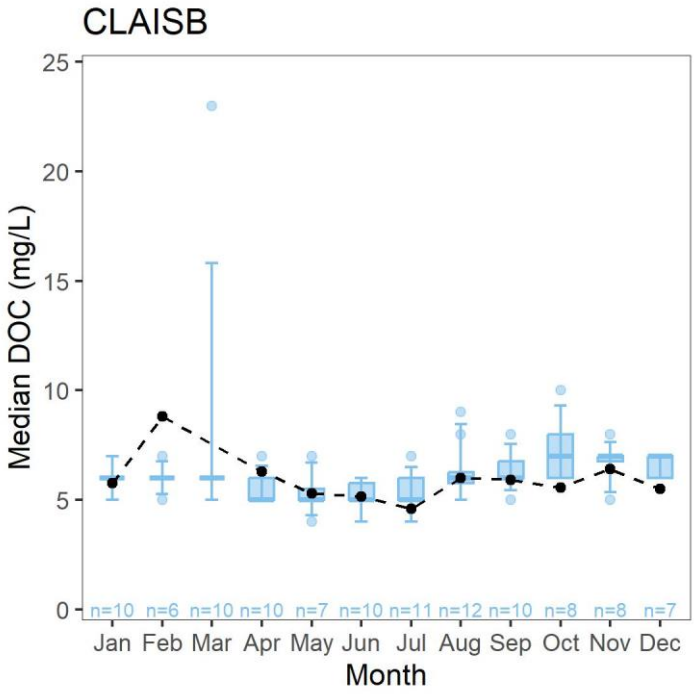

Figure 104. Monthly median 2020 dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

CLAISB total suspended solids (TSS)

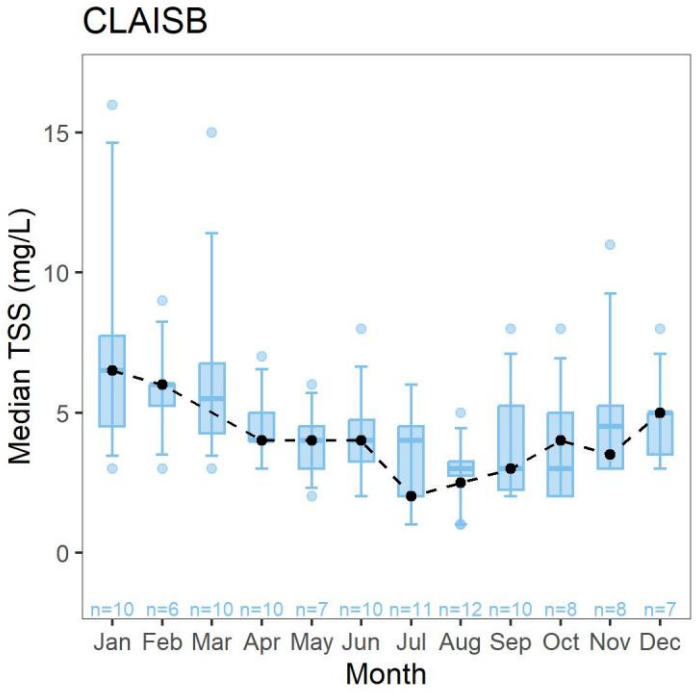

Figure 105. Monthly median 2020 total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

CLAISB dissolved oxygen (DO)

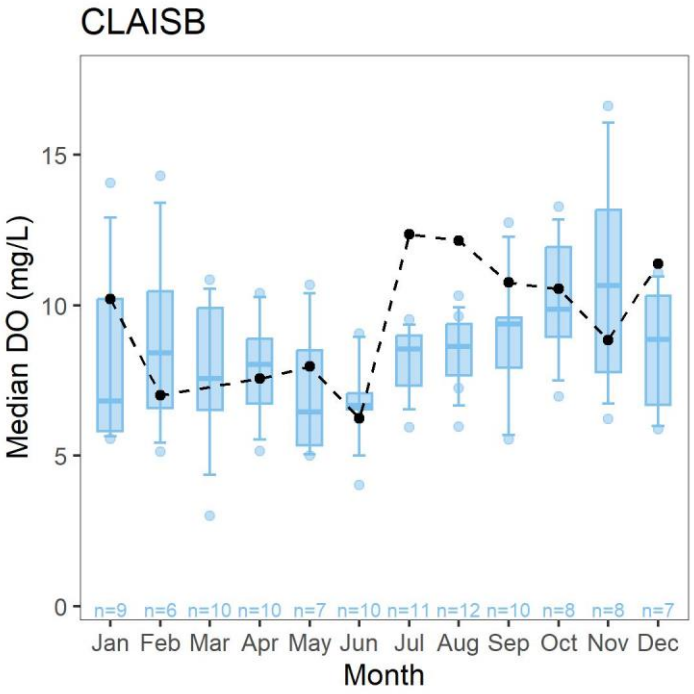

Figure 106. Monthly median 2020 dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

CLAISB specific conductivity (Sp. cond)

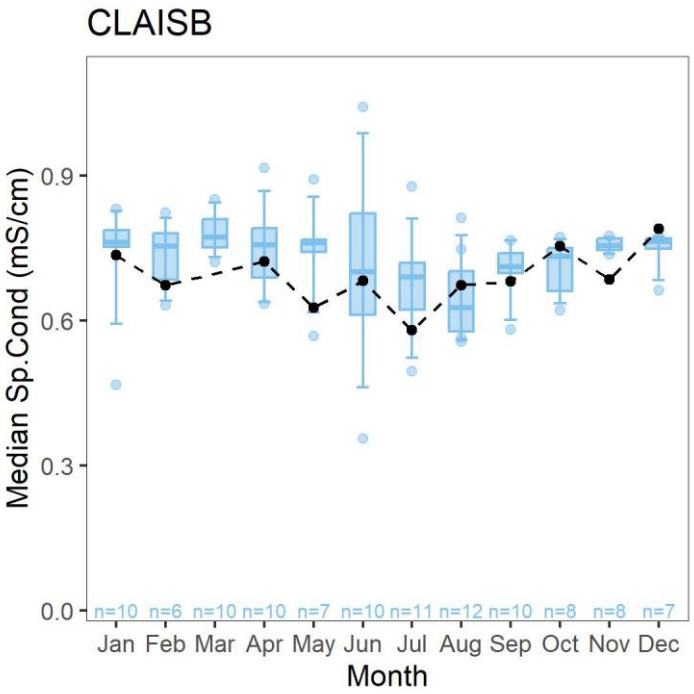

Figure 107. Monthly median 2020 Specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CLAISB. Number of samples (n) is provided for the historical data.

Table 12. 2020 monthly sample numbers, minimum and maximum values at CLAISB.

TN (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.735	1.1		1.6	1	1.35	1	1.015	1	0.895	0.995	0.99
min	0.66	1.1		1.6	1	1.1	1	0.93	1	0.86	0.89	0.99
max	0.81	1.1		1.6	1	1.6	1.1	1.1	1	0.93	1.1	0.99
NH3-N (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.014	0.066		0.53	0.16	0.53	0.098	0.071	0.11	0.0815	0.15	0.02
min	0.01	0.066		0.53	0.16	0.44	0.065	0.064	0.11	0.064	0.11	0.02
max	0.018	0.066		0.53	0.16	0.62	0.16	0.078	0.11	0.099	0.19	0.02
Nox-N (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.21	0.11		0.52	0.41	0.55	0.62	0.665	0.59	0.54	0.57	0.31
min	0.19	0.11		0.52	0.41	0.53	0.51	0.65	0.59	0.51	0.54	0.31
max	0.23	0.11		0.52	0.41	0.57	0.67	0.68	0.59	0.57	0.6	0.31
DorgN (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.27	0.53		0.24	0.24	0.225	0.23	0.18	0.17	0.2	0.225	0.27
min	0.26	0.53		0.24	0.24	0.13	0.18	0.17	0.17	0.19	0.21	0.27
max	0.28	0.53		0.24	0.24	0.32	0.32	0.19	0.17	0.21	0.24	0.27
TP (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.057	0.1		0.09	0.077	0.0745	0.043	0.039	0.043	0.045	0.057	0.075
min	0.045	0.1		0.09	0.077	0.05	0.034	0.038	0.043	0.043	0.04	0.075
max	0.069	0.1		0.09	0.077	0.099	0.055	0.04	0.043	0.047	0.074	0.075
FRP (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.0075	0.029		0.028	0.023	0.035	0.016	0.013	0.019	0.0085	0.0215	0.011
min	0.007	0.029		0.028	0.023	0.029	0.012	0.008	0.019	0.007	0.015	0.011
max	0.008	0.029		0.028	0.023	0.041	0.024	0.018	0.019	0.01	0.028	0.011
DOC (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	5.75	8.8		6.3	5.3	5.15	4.6	6	5.9	5.55	6.4	5.5
min	5.5	8.8		6.3	5.3	5	4.6	5.4	5.9	5.3	5.7	5.5
max	6	8.8		6.3	5.3	5.3	4.8	6.6	5.9	5.8	7.1	5.5
TSS (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	6.5	6		4	4	3	2	2.5	3	4	3.5	5
min	4	6		4	4	2	1	1	3	4	2	5
max	9	6		4	4	4	4	4	3	4	5	5
DO (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	10.195	7.01		7.56	7.96	6.24	12.35	12.135	10.76	10.54	8.84	11.37
min	9.42	7.01		7.56	7.96	4.81	9.18	12.07	10.76	10.53	7.85	11.37
max	10.97	7.01		7.56	7.96	7.67	12.79	12.2	10.76	10.55	9.83	11.37
Sp.Cond (mS/cm)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	0	1	1	2	3	2	1	2	2	1
med	0.74	0.67	0.00	0.72	0.63	0.68	0.58	0.67	0.68	0.75	0.69	0.79
min	0.72	0.67	0.00	0.72	0.63	0.65	0.54	0.60	0.68	0.75	0.68	0.79
max	0.75	0.67	0.00	0.72	0.63	0.71	0.66	0.75	0.68	0.76	0.69	0.79

NB: Daily discharge data is not available for CLAISB as this site is not gauged. Due to the ephemeral/ heavily modified nature of the Claise Brook site and below average rainfall in 2020, no samples were collected in March 2020 and only 1 sample could be collected in February, April, May, September and December.

11. Ellen Brook (ELLENB1)

ELLENB1 total nitrogen (TN)

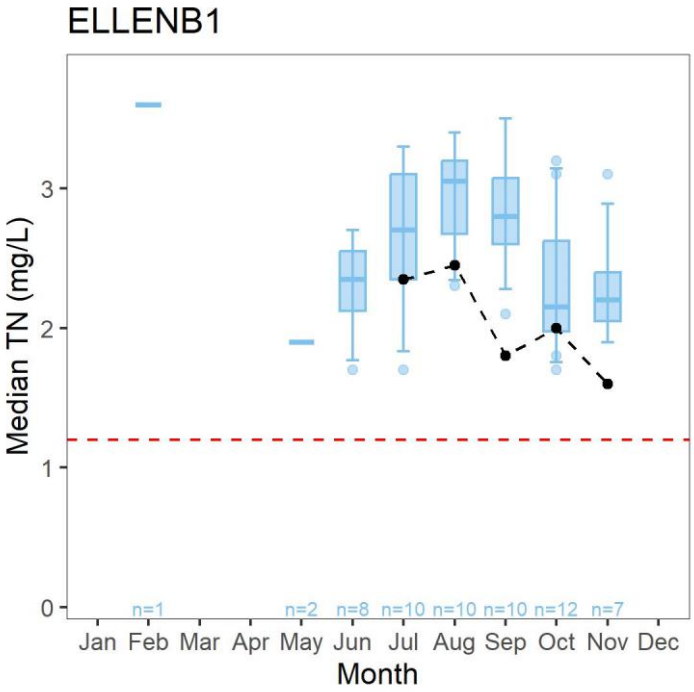

Figure 108. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

ELLENB1 ammoniacal nitrogen (NH_3-N)

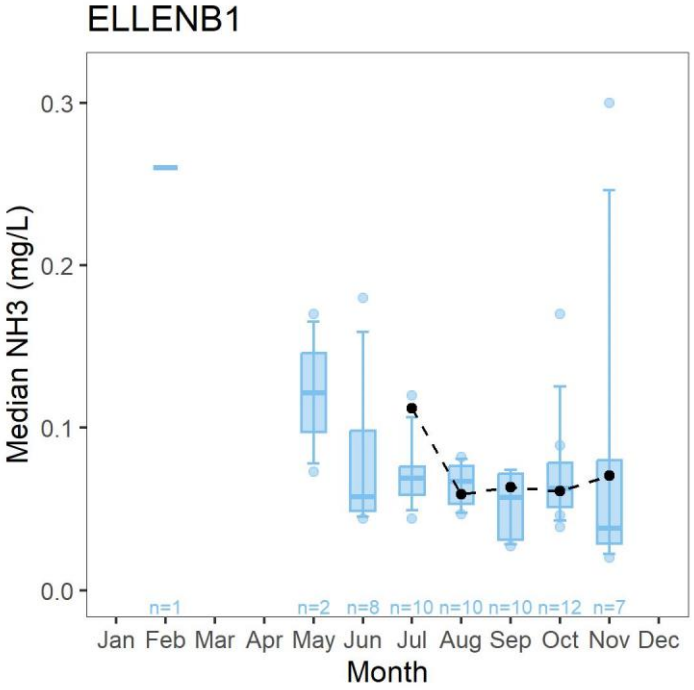

Figure 109. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

ELLENB1 total oxidised nitrogen (NO_x-N)

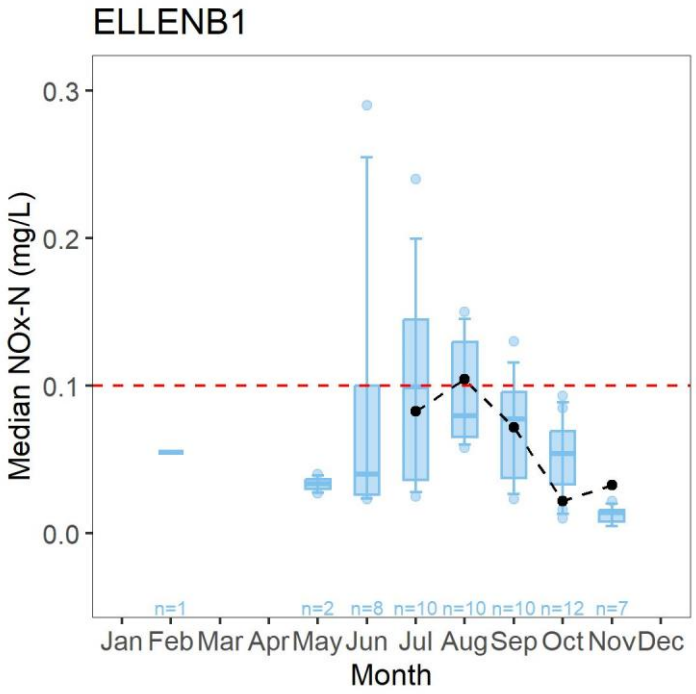

Figure 110. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

ELLENB1 dissolved organic nitrogen (DOrgN)

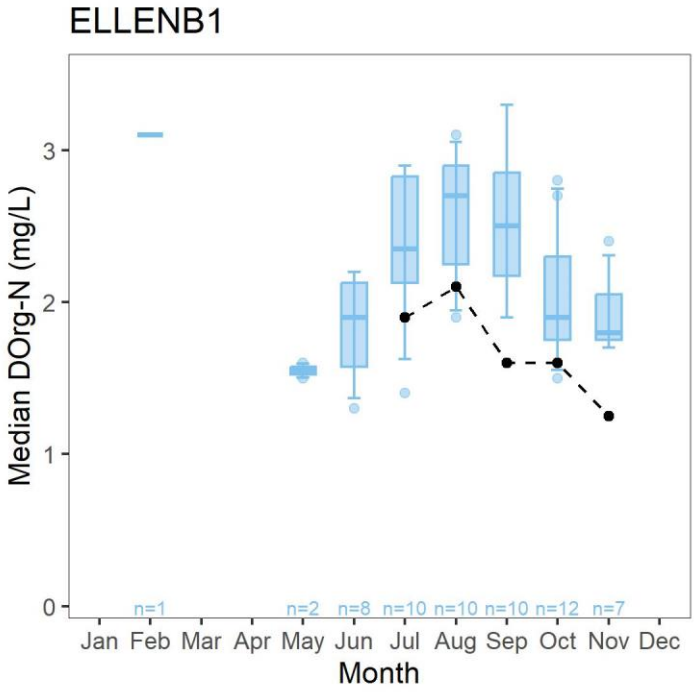

Figure 111. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

ELLENB1 total phosphorus (TP)

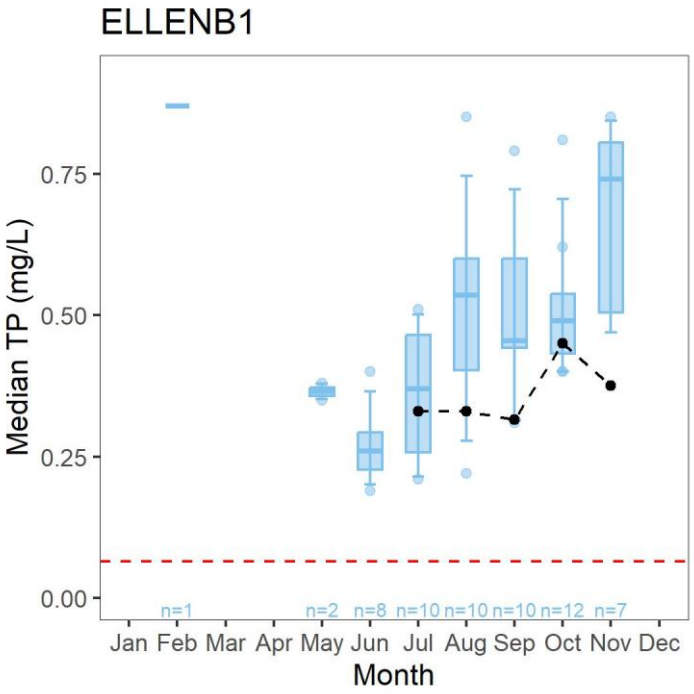

Figure 112. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

ELLENB1 filterable reactive phosphorus (FRP)

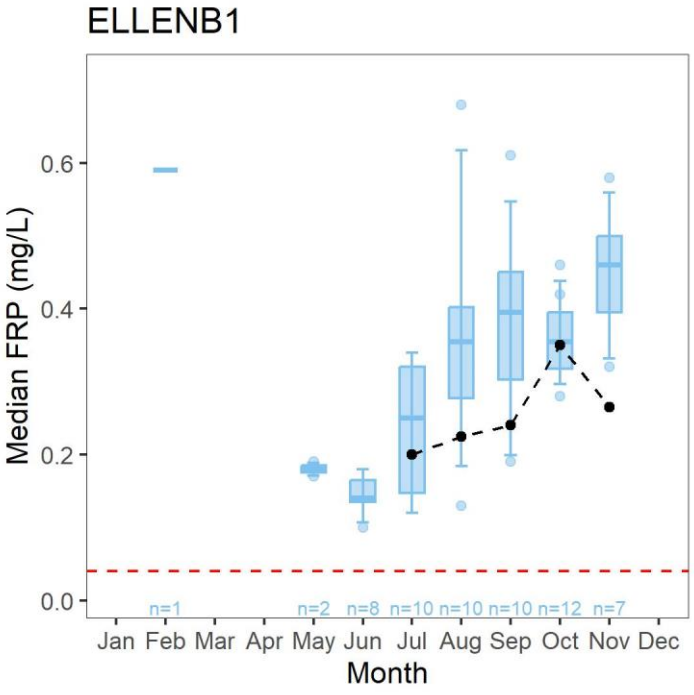

Figure 113. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

ELLENB1 dissolved organic carbon (DOC)

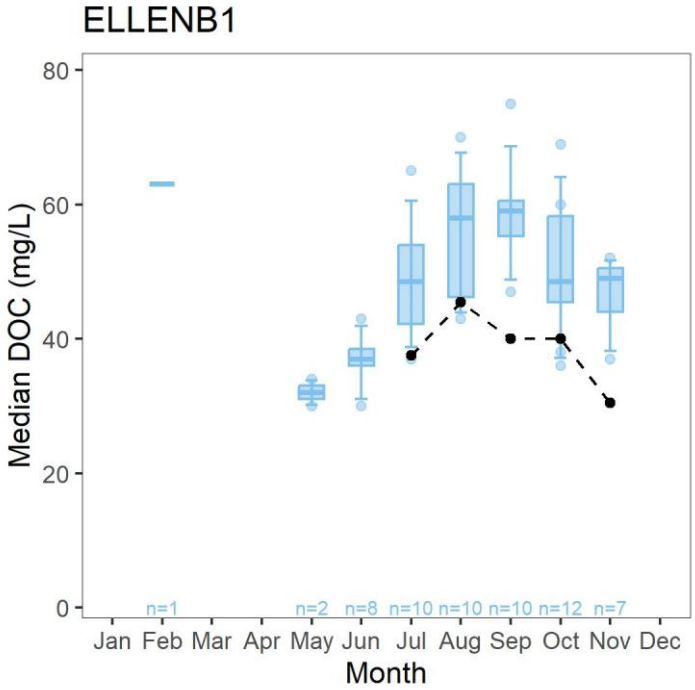

Figure 114. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

ELLENB1 total suspended solids (TSS)

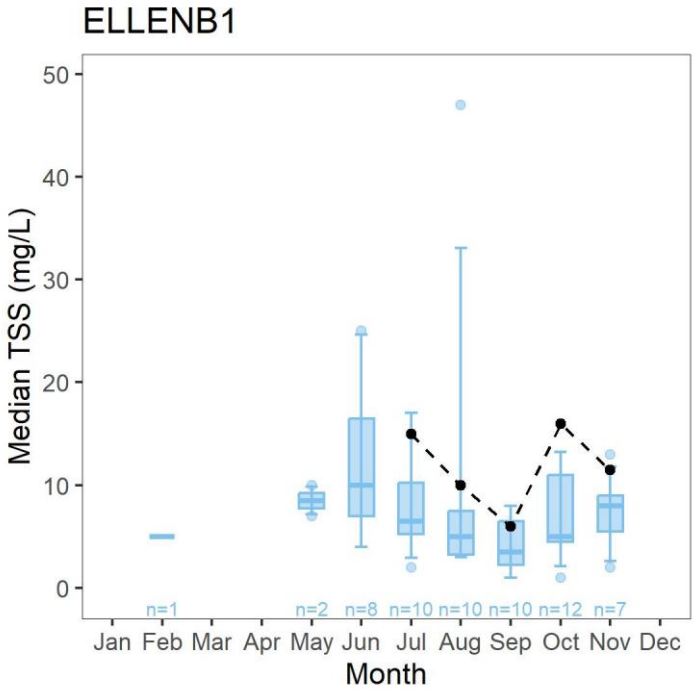

Figure 115. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

ELLENB1 dissolved oxygen (DO)

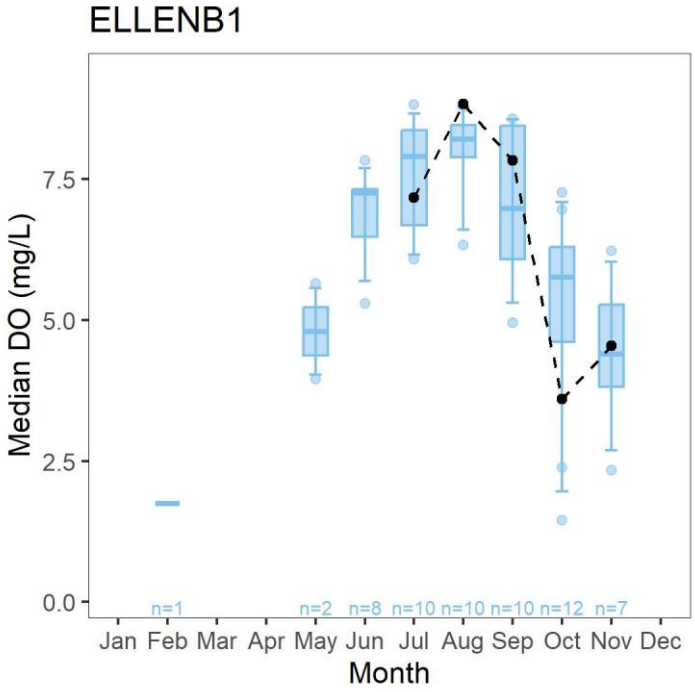

Figure 116. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

ELLENB1 specific conductivity (Sp. cond)

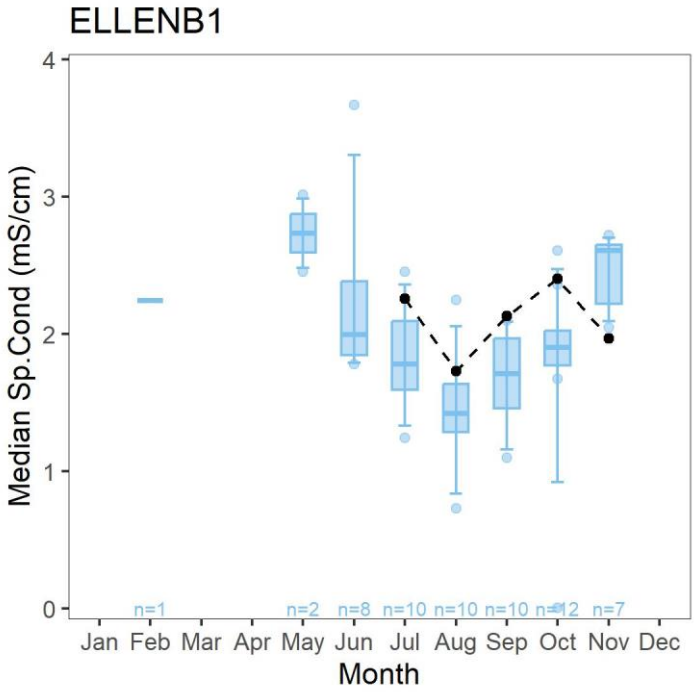

Figure 117. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB1. Number of samples (n) is provided for the historical data.

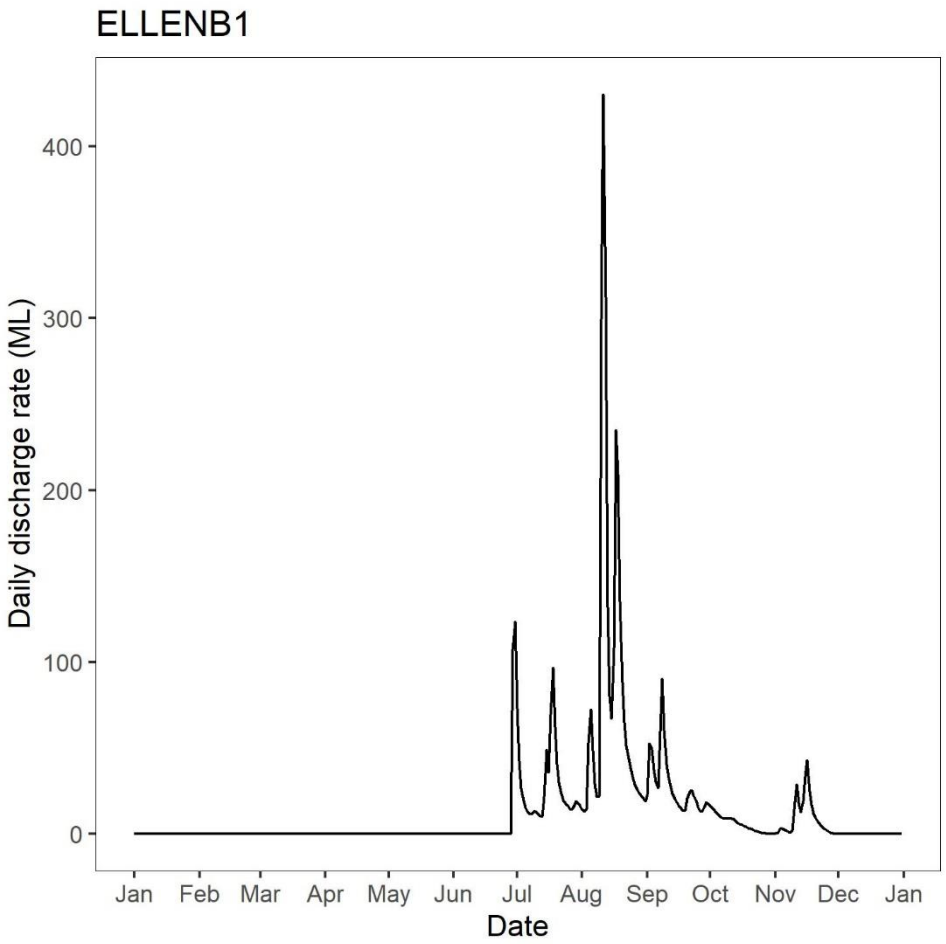

Figure 118. Daily discharge (ML) at Ellen Brook gauging station (616189 – at site of ELLENB1).

Table 13. 2020 monthly sample numbers, minimum and maximum values at ELLENB1.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							2.35	2.45	1.8	2	1.6	
min							2.2	2	1.6	1.6	1.1	
max							2.5	2.9	2	3.8	2.1	
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							0.112	0.059	0.0635	0.061	0.0705	
min							0.094	0.057	0.05	0.01	0.031	
max							0.13	0.061	0.077	0.87	0.11	
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							0.0825	0.1045	0.072	0.022	0.0325	
min							0.079	0.099	0.066	0.013	0.025	
max							0.086	0.11	0.078	0.034	0.04	
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							1.9	2.1	1.6	1.6	1.25	
min							1.8	1.6	1.5	1.5	0.9	
max							2	2.6	1.7	2.1	1.6	
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							0.33	0.33	0.315	0.45	0.375	
min							0.3	0.25	0.28	0.35	0.25	
max							0.36	0.41	0.35	1.2	0.5	
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							0.2	0.225	0.24	0.35	0.265	
min							0.16	0.15	0.2	0.26	0.17	
max							0.24	0.3	0.28	0.79	0.36	
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							37.5	45.5	40	40	30.5	
min							36	38	37	37	22	
max							39	53	43	43	39	
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							15	10	6	16	11.5	
min							13	10	4	8	11	
max							17	10	8	26	12	
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							7.17	8.84	7.835	3.6	4.545	
min							6.5	8.77	6.99	0.32	1.3	
max							7.84	8.91	8.68	6.72	7.79	
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	2	2	2	3	2	0
med							2.26	1.73	2.13	2.40	1.97	
min							2.23	1.40	2.02	1.97	1.17	
max							2.28	2.05	2.25	2.81	2.77	

NB: Due to the ephemeral nature of flow at the ELLENB1 site in Ellen Brook and the below average rainfall in 2020, samples were only collected between July and November 2020.

12. Ellen Brook (ELLENB2)

ELLENB2 total nitrogen (TN)

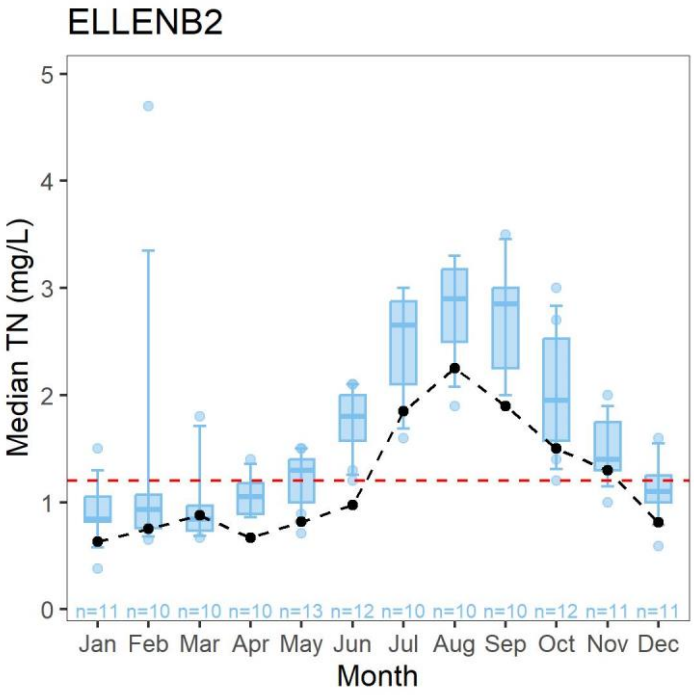

Figure 119. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

ELLENB2 ammoniacal nitrogen (NH_3-N)

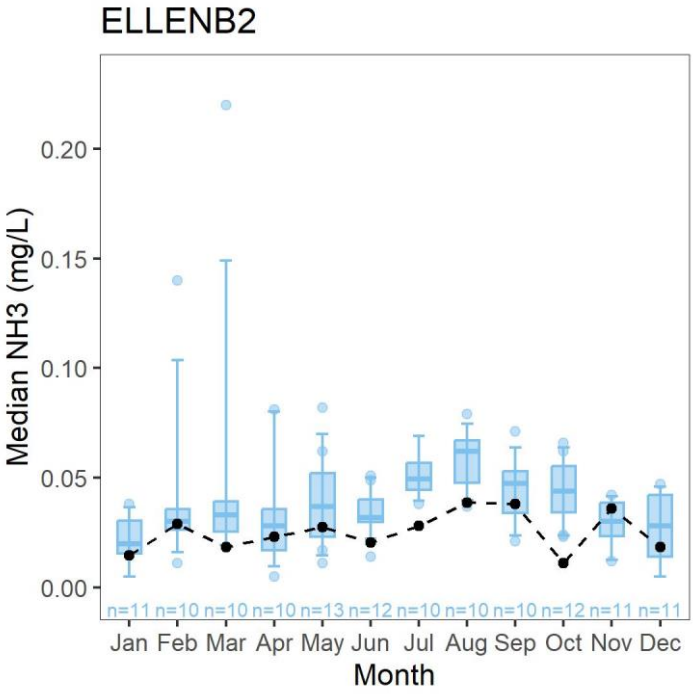

Figure 120. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

ELLENB2 total oxidised nitrogen (NO_x-N)

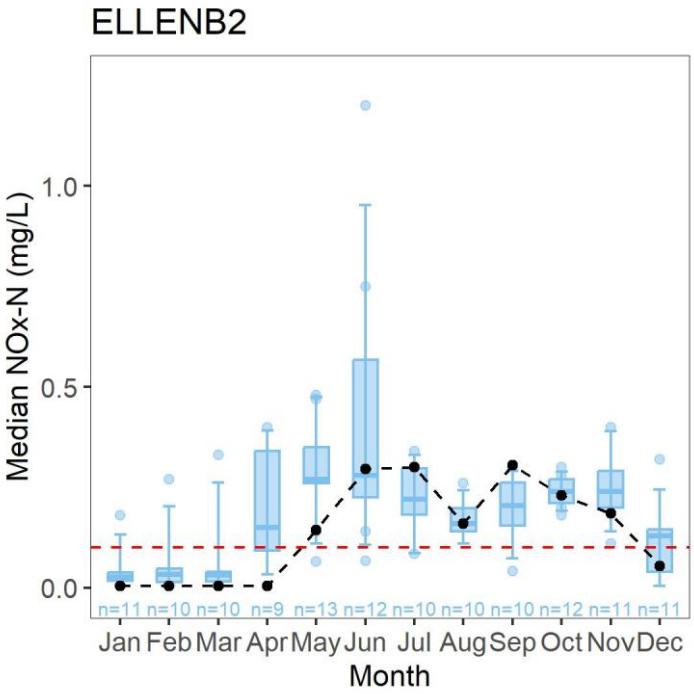

Figure 121. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

ELLENB2 dissolved organic nitrogen (DOrgN)

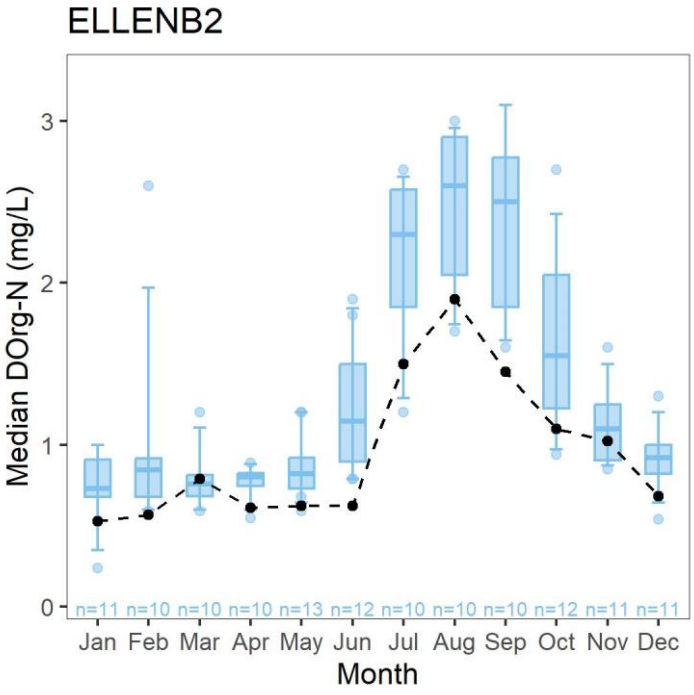

Figure 122. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

ELLENB2 total phosphorus (TP)

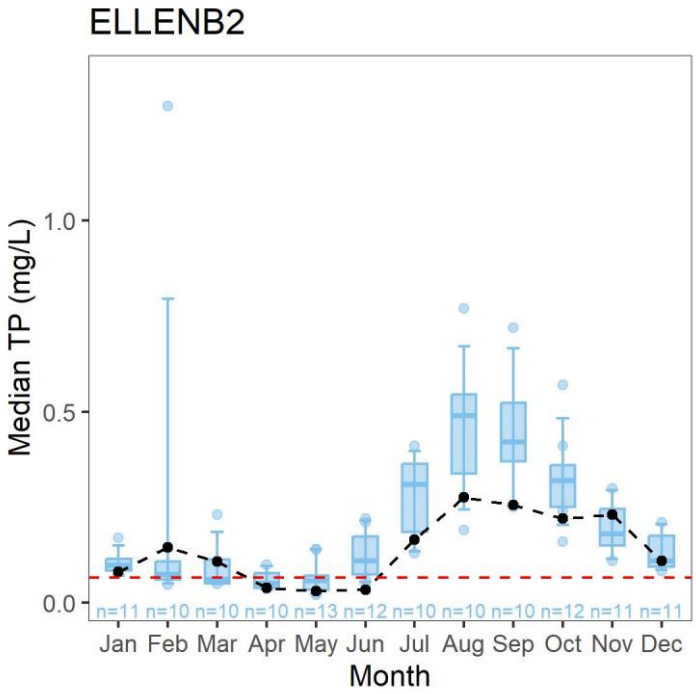

Figure 123. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

ELLENB2 filterable reactive phosphorus (FRP)

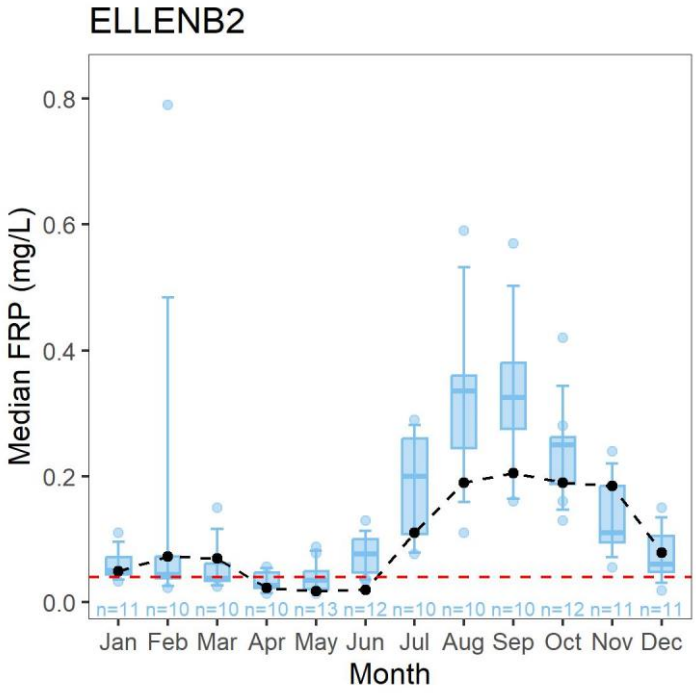

Figure 124. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

ELLENB2 dissolved organic carbon (DOC)

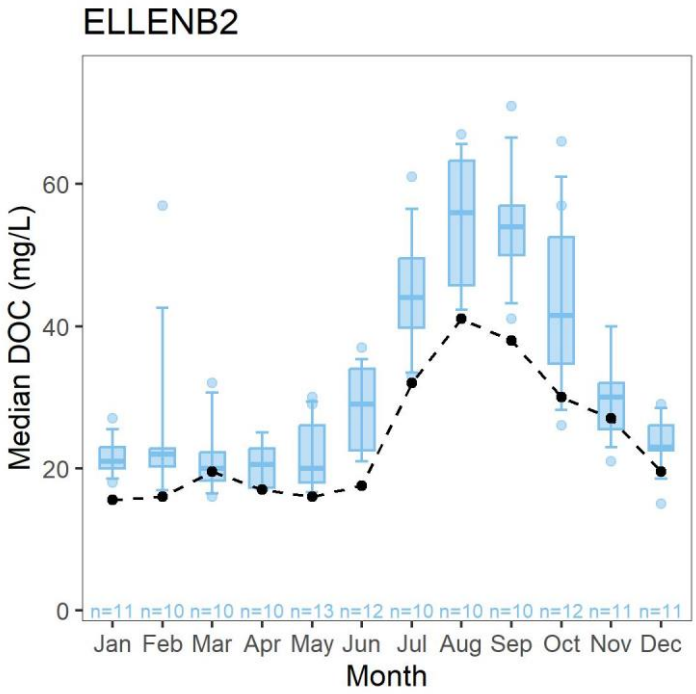

Figure 125. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

ELLENB2 total suspended solids (TSS)

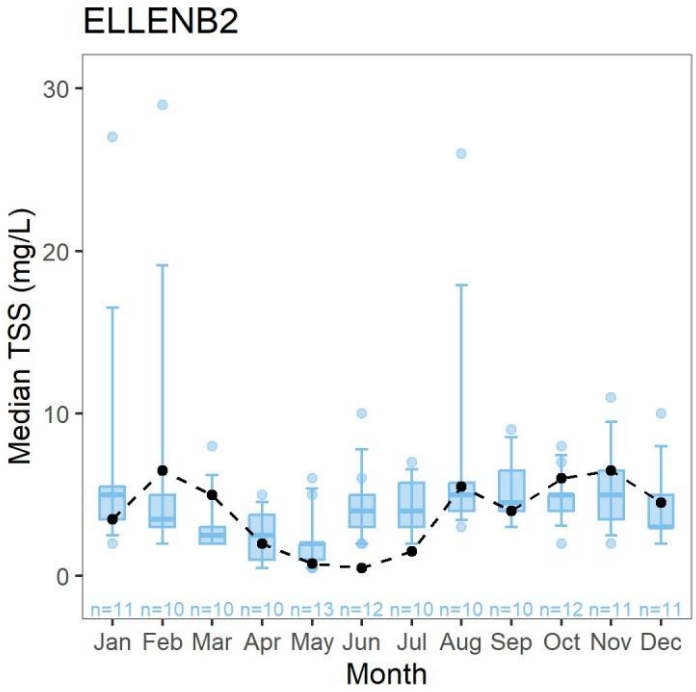

Figure 126. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

ELLENB2 dissolved oxygen (DO)

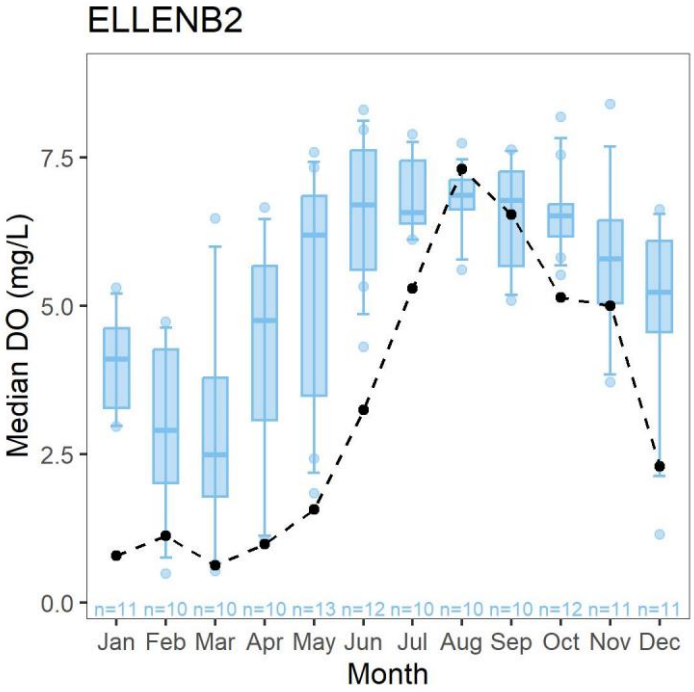

Figure 127. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

ELLENB2 specific conductivity (Sp. cond)

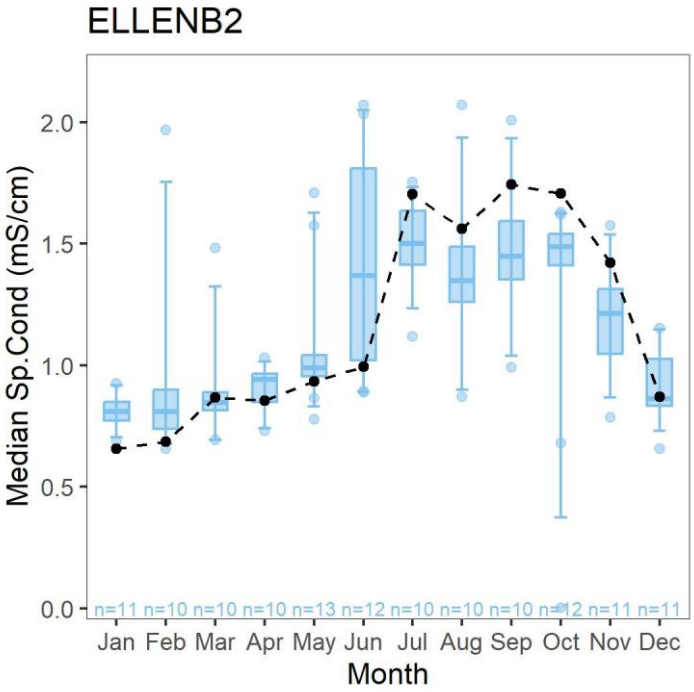

Figure 128. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLENB2. Number of samples (n) is provided for the historical data.

Table 14. 2020 monthly sample numbers, minimum and maximum values at ELLENB2.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.63	0.75	0.875	0.67	0.815	0.975	1.85	2.25	1.9	1.5	1.3	0.81
min	0.63	0.72	0.87	0.64	0.69	0.85	1.7	1.6	1.8	1.1	1.2	0.68
max	0.63	0.78	0.88	0.77	0.94	1.1	2	2.9	2	1.5	1.4	0.94
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0145	0.029	0.0185	0.023	0.0275	0.0205	0.028	0.0385	0.038	0.011	0.036	0.021
min	0.014	0.023	0.017	0.022	0.024	0.018	0.024	0.031	0.035	0.01	0.022	0.01
max	0.015	0.035	0.02	0.023	0.031	0.023	0.032	0.046	0.041	0.028	0.05	0.032
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.01	0.01	0.01	0.01	0.1435	0.295	0.3	0.16	0.305	0.23	0.185	0.0535
min	0.01	0.01	0.01	0.01	0.037	0.23	0.19	0.15	0.3	0.16	0.17	0.027
max	0.01	0.01	0.01	0.01	0.25	0.36	0.41	0.17	0.31	0.24	0.2	0.08
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.53	0.57	0.79	0.61	0.625	0.625	1.5	1.9	1.45	1.1	1.025	0.685
min	0.52	0.56	0.77	0.59	0.6	0.58	1.2	1.3	1.3	0.89	0.95	0.57
max	0.54	0.58	0.81	0.74	0.65	0.67	1.8	2.5	1.6	1.2	1.1	0.8
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0815	0.145	0.1075	0.039	0.0305	0.033	0.165	0.275	0.255	0.22	0.23	0.11
min	0.08	0.13	0.065	0.037	0.03	0.027	0.15	0.2	0.24	0.16	0.2	0.11
max	0.083	0.16	0.15	0.071	0.031	0.039	0.18	0.35	0.27	0.25	0.26	0.11
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.049	0.0725	0.0695	0.023	0.018	0.02	0.11	0.19	0.205	0.19	0.185	0.079
min	0.045	0.067	0.039	0.02	0.016	0.017	0.11	0.13	0.18	0.13	0.16	0.071
max	0.053	0.078	0.1	0.035	0.02	0.023	0.11	0.25	0.23	0.2	0.21	0.087
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	15.5	16	19.5	17	16	17.5	32	41	38	30	27	19.5
min	15	16	19	16	16	17	28	33	35	26	25	18
max	16	16	20	19	16	18	36	49	41	34	29	21
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	3.5	6.5	5	2	1	1.5	1.5	5.5	4	6	6.5	4.5
min	3	6	1	2	1	1	1	5	3	6	6	3
max	4	7	9	4	1	2	2	6	5	6	7	6
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.79	1.125	0.63	0.98	1.565	3.24	5.285	7.3	6.53	5.14	5	2.29
min	0.55	0.41	0.43	0.62	1.38	1.93	4.48	7.19	5.31	4.42	3.28	2.11
max	1.03	1.84	0.83	1.06	1.75	4.55	6.09	7.41	7.75	6.32	6.72	2.47
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.66	0.68	0.87	0.86	0.93	1.00	1.71	1.56	1.74	1.71	1.42	0.87
min	0.66	0.67	0.85	0.83	0.89	0.95	1.55	1.42	1.70	1.25	1.28	0.75
max	0.66	0.70	0.88	0.87	0.97	1.04	1.86	1.71	1.79	1.71	1.57	0.99

NB: Daily discharge data is not available for ELLENB2 as this site is not gauged.

13. Ellis Brook (ELLISB)

ELLISB total nitrogen (TN)

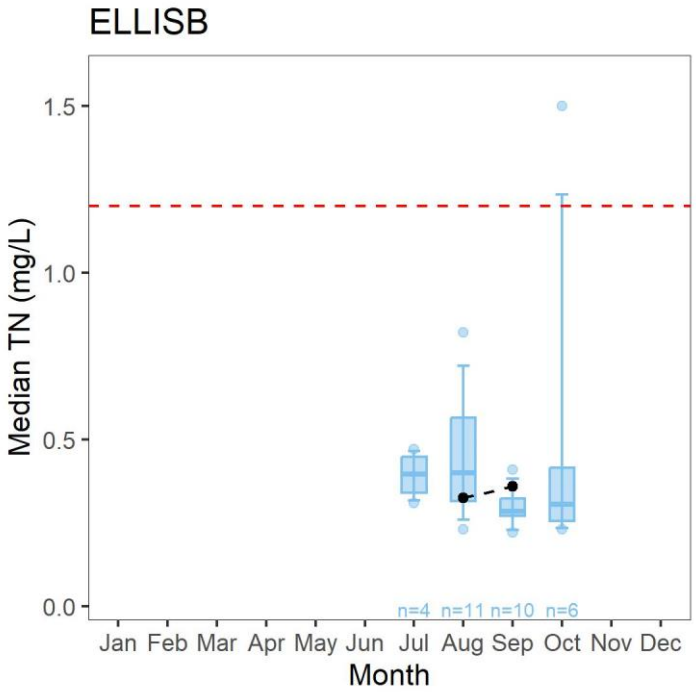

Figure 129. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

ELLISB ammoniacal nitrogen (NH_3-N)

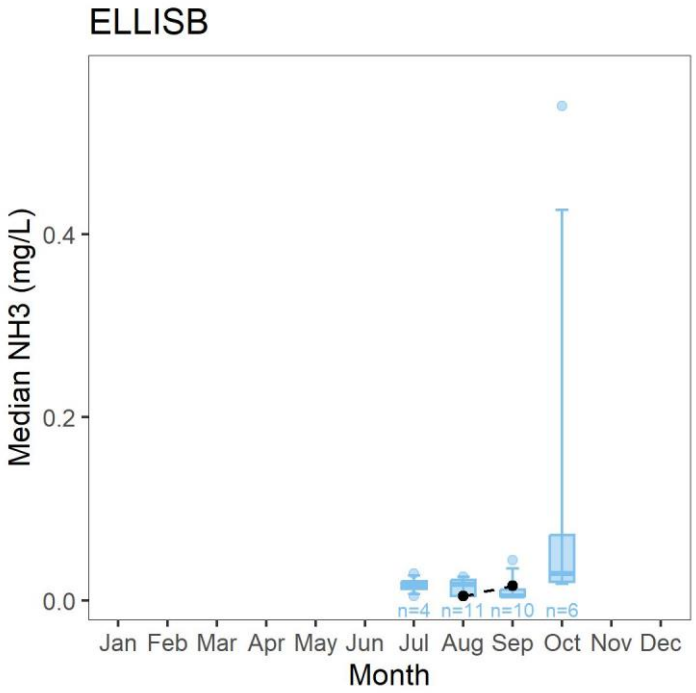

Figure 130. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

ELLISB total oxidised nitrogen (NO_x-N)

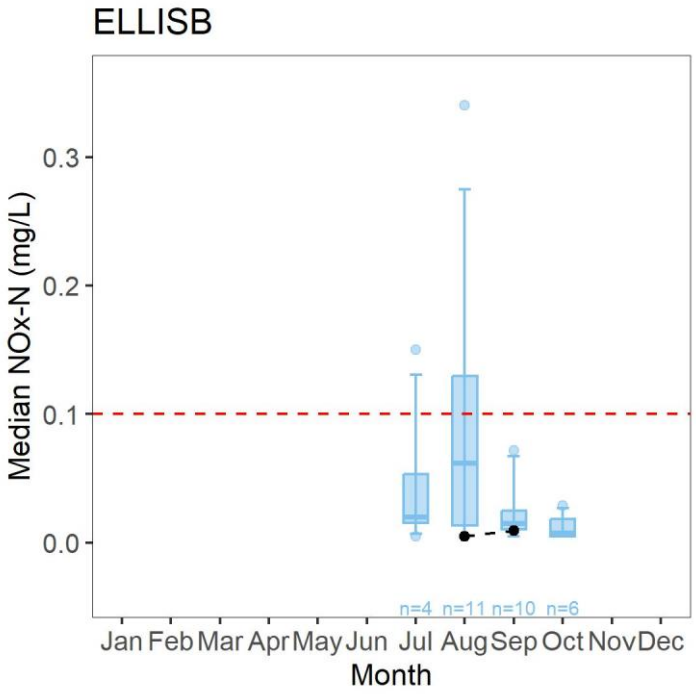

Figure 131. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

ELLISB dissolved organic nitrogen (DOrgN)

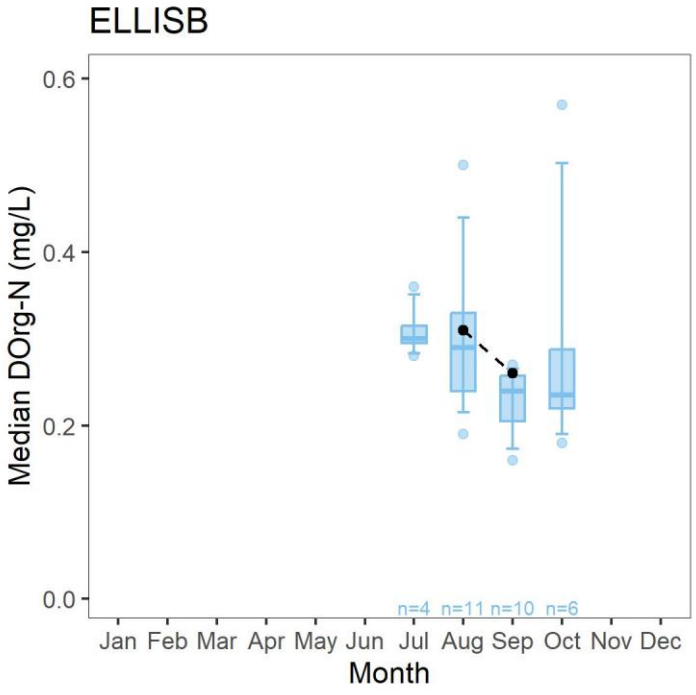

Figure 132. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

ELLISB total phosphorus (TP)

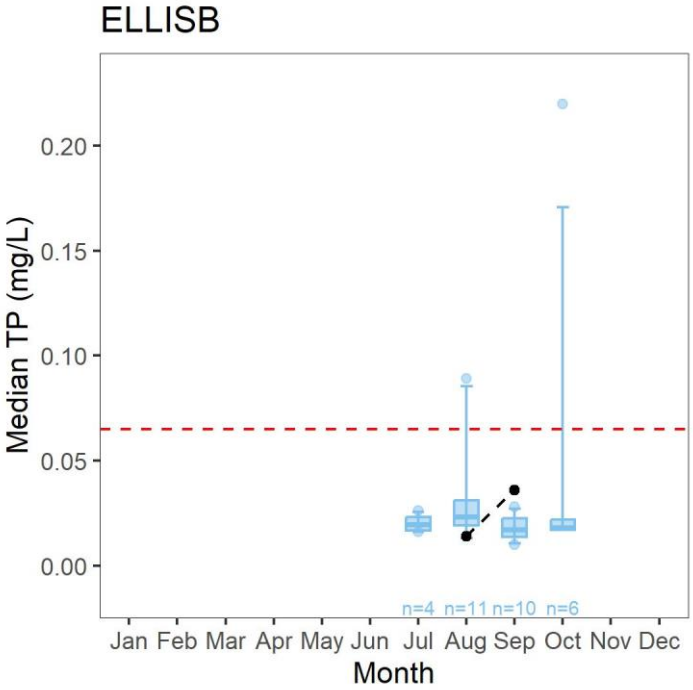

Figure 133. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

ELLISB filterable reactive phosphorus (FRP)

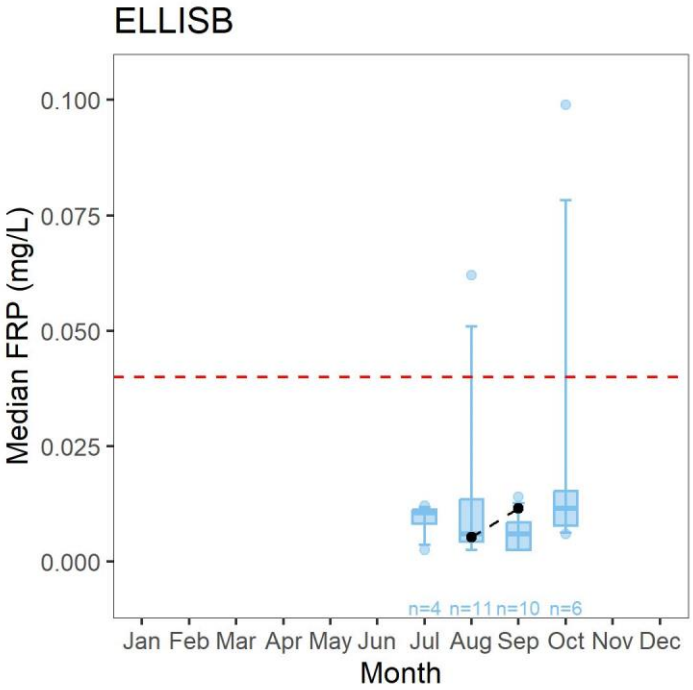

Figure 134. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

ELLISB dissolved organic carbon (DOC)

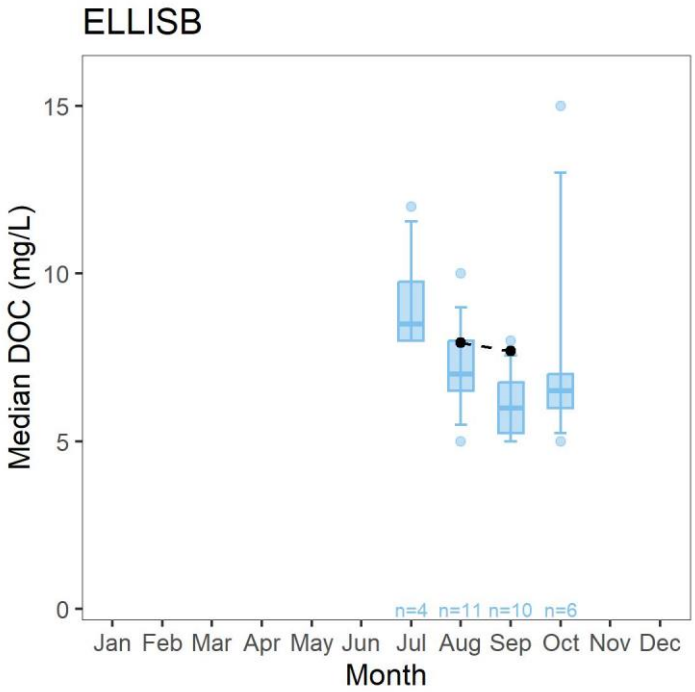

Figure 135. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

ELLISB total suspended solids (TSS)

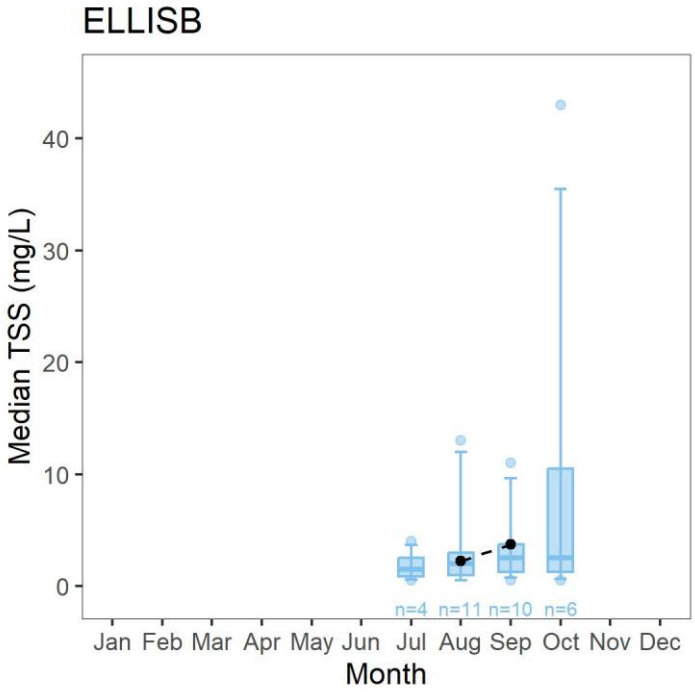

Figure 136. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

ELLISB dissolved oxygen (DO)

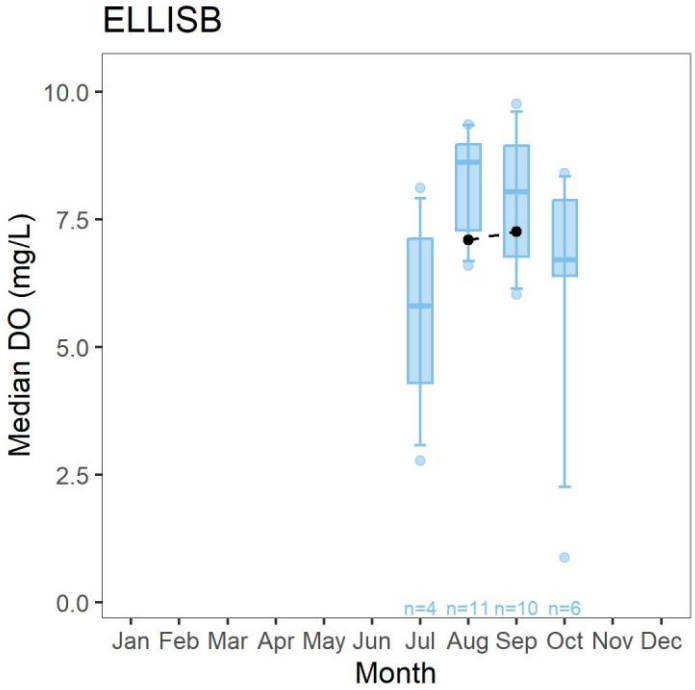

Figure 137. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

ELLISB specific conductivity (Sp. cond)

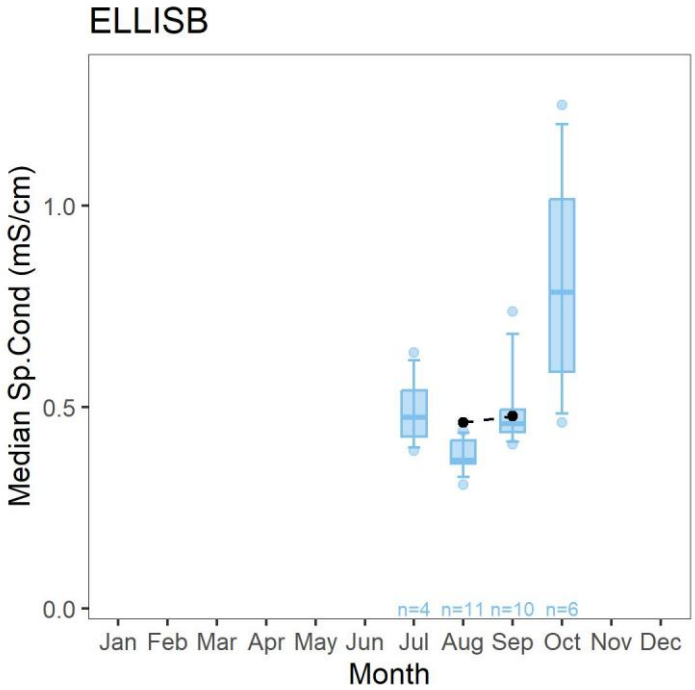

Figure 138. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ELLISB. Number of samples (n) is provided for the historical data.

Table 15. 2020 monthly sample numbers, minimum and maximum values at ELLISB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.325	0.36			
min								0.31	0.25			
max								0.34	0.47			
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.01	0.016			
min								0.01	0.011			
max								0.01	0.021			
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.01	0.012			
min								0.01	0.01			
max								0.01	0.014			
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.31	0.26			
min								0.29	0.23			
max								0.33	0.29			
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.014	0.036			
min								0.012	0.019			
max								0.016	0.053			
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.0065	0.0115			
min								0.005	0.007			
max								0.008	0.016			
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								7.95	7.7			
min								7.8	6.5			
max								8.1	8.9			
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								2.5	4			
min								1	1			
max								4	7			
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								7.09	7.255			
min								6.29	6.3			
max								7.89	8.21			
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	2	2	0	0	0
med								0.46	0.48			
min								0.45	0.44			
max								0.48	0.52			

NB: Daily discharge data is not available for ELLISB as this site is not gauged. Due to the highly ephemeral nature of flow in Ellis Brook and below average rainfall in 2020, samples were only collected for August and September 2020.

14. Helena River (HELENR)

HELENR total nitrogen (TN)

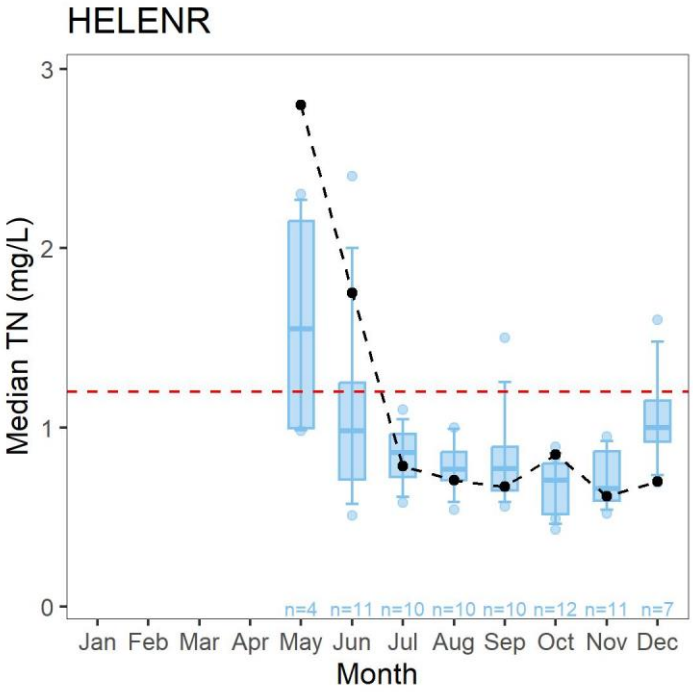

Figure 139. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

HELENR ammoniacal nitrogen (NH_3-N)

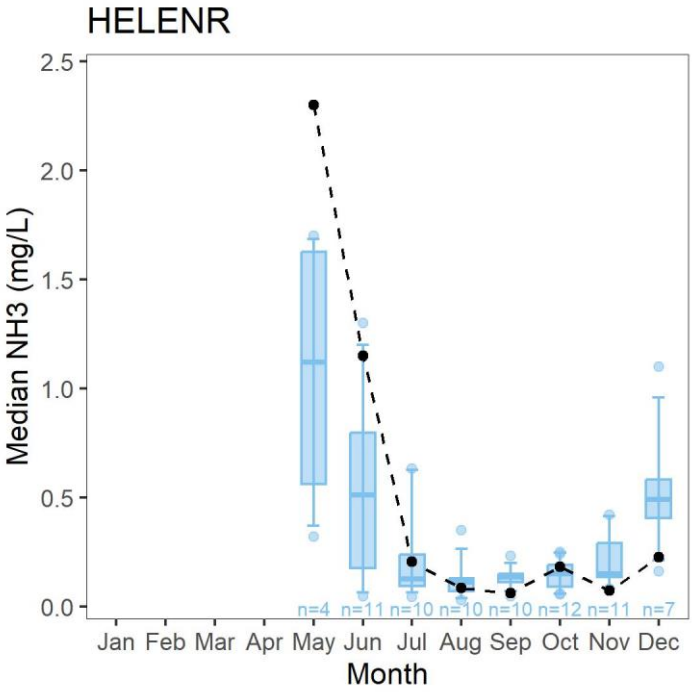

Figure 140. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

HELENR total oxidised nitrogen (NO_x-N)

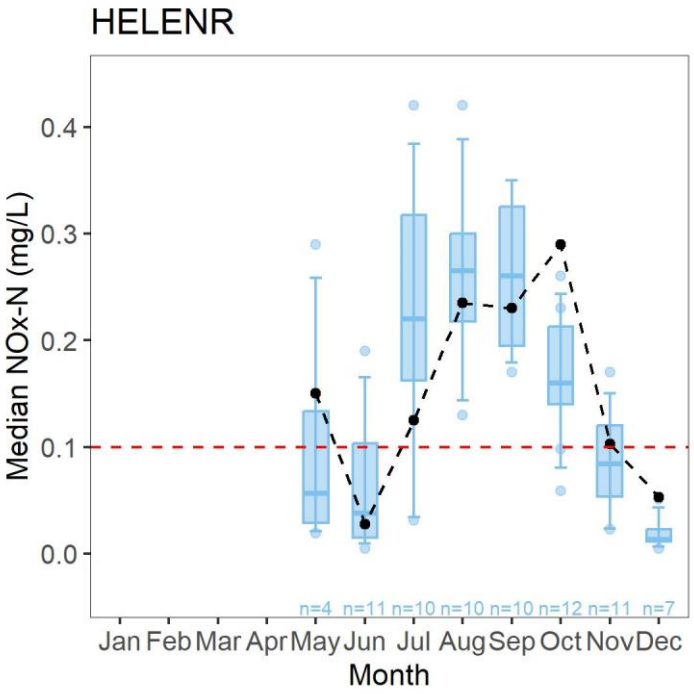

Figure 141. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

HELENR dissolved organic nitrogen (DOrgN)

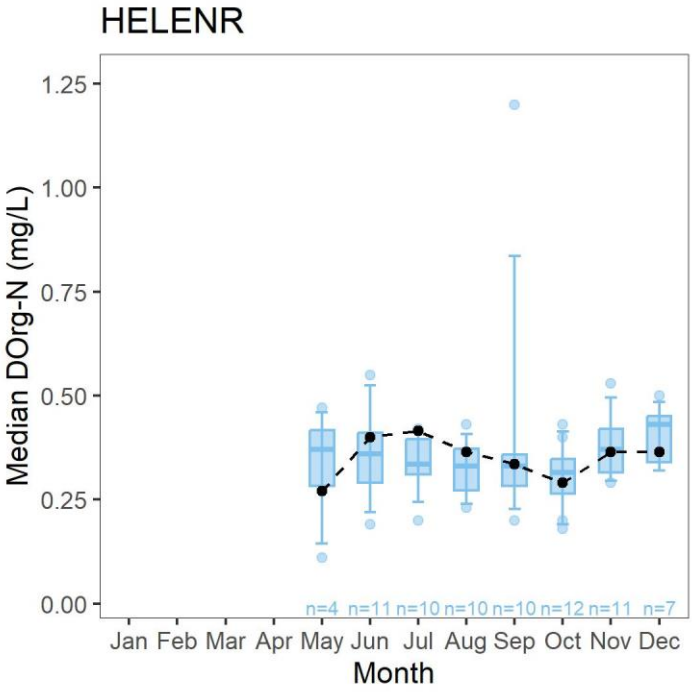

Figure 142. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

HELENR total phosphorus (TP)

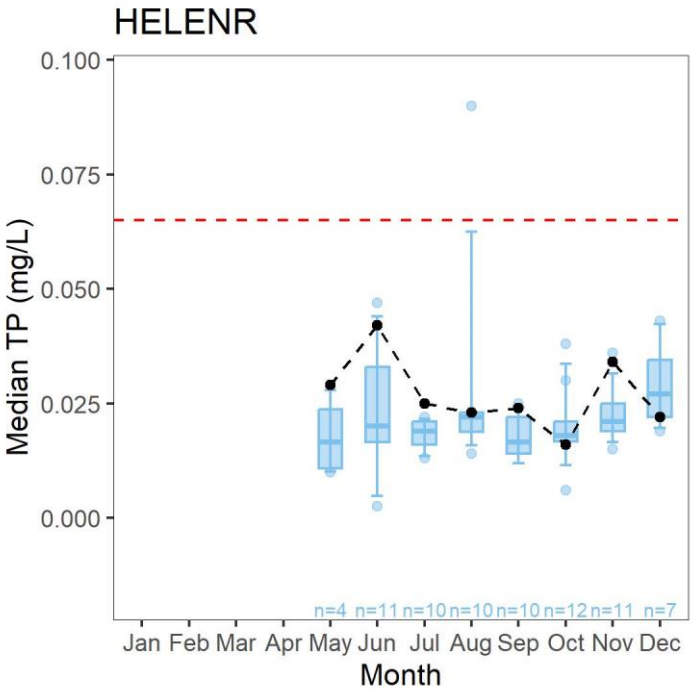

Figure 143. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

HELENR filterable reactive phosphorus (FRP)

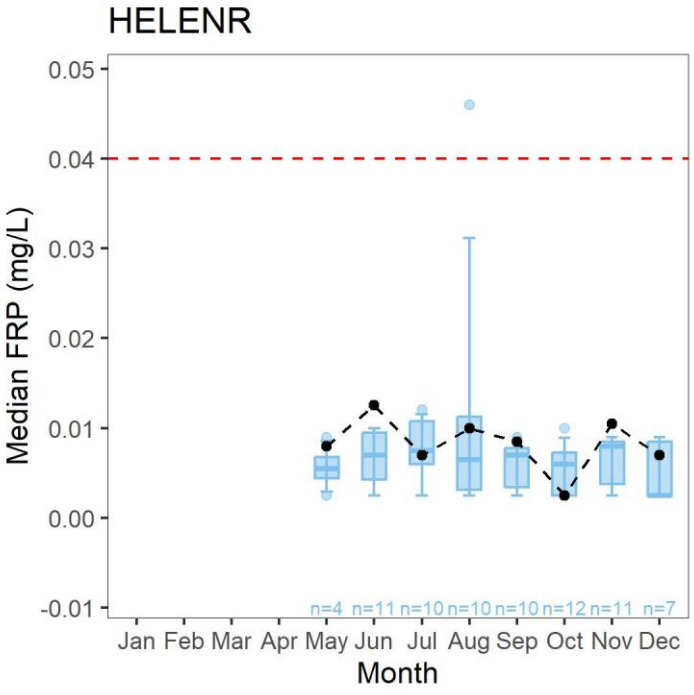

Figure 144. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

HELENR dissolved organic carbon (DOC)

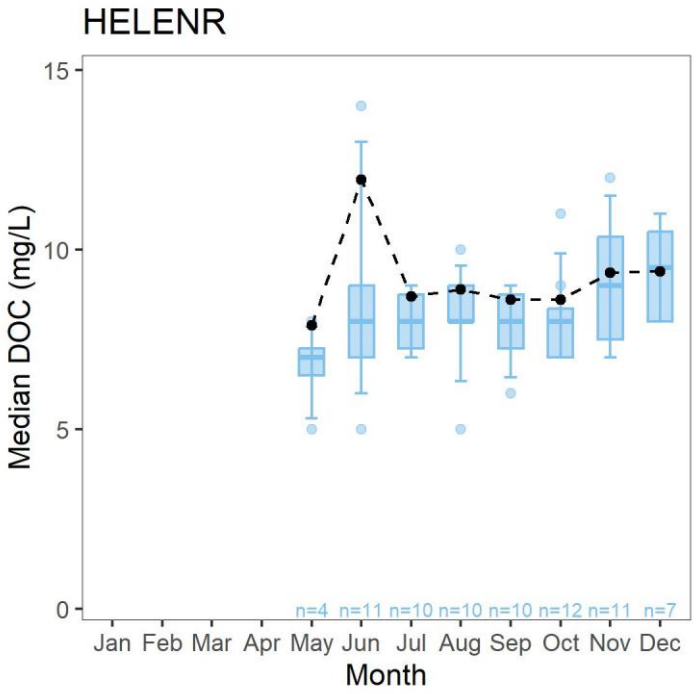

Figure 145. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

HELENR total suspended solids (TSS)

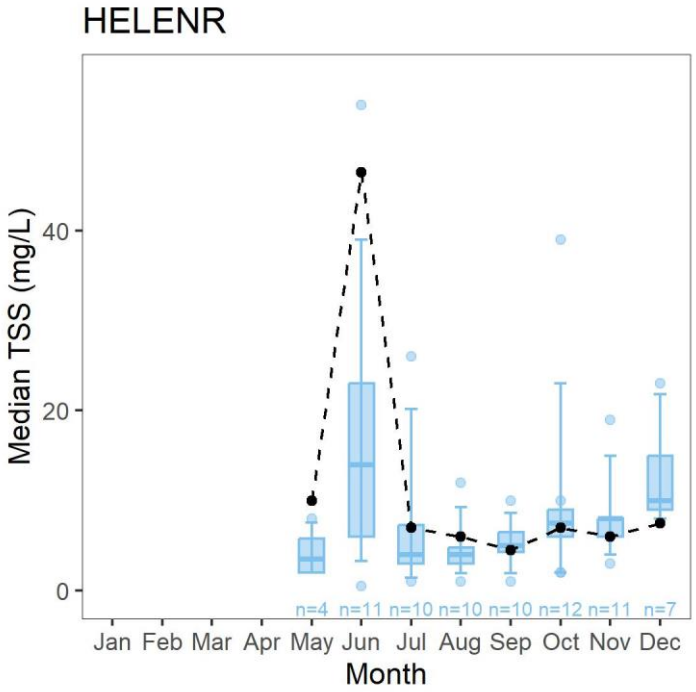

Figure 146. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

HELENR dissolved oxygen (DO)

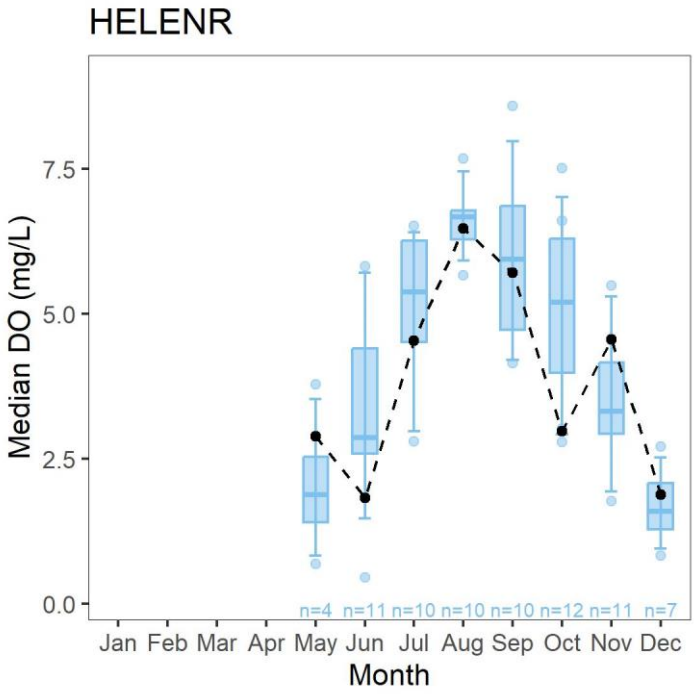

Figure 147. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

HELENR specific conductivity (Sp. cond)

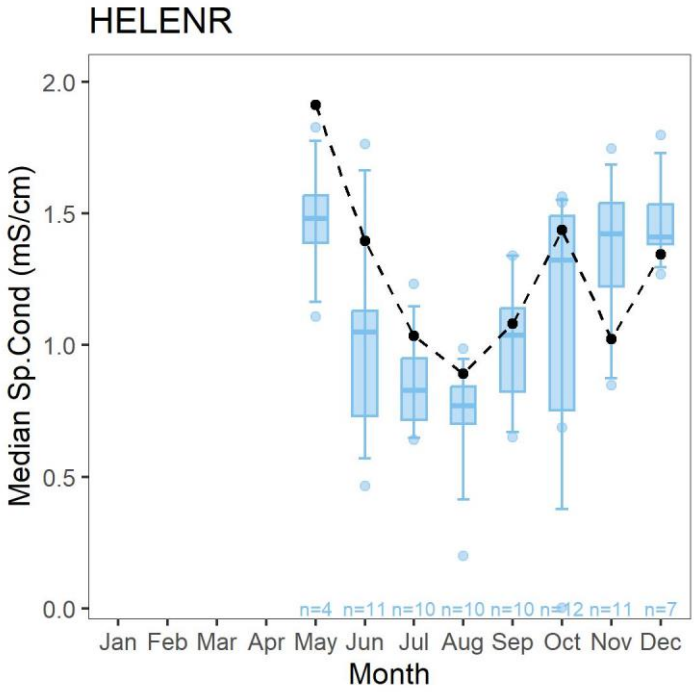

Figure 148. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HELENR. Number of samples (n) is provided for the historical data.

Table 16. 2020 monthly sample numbers, minimum and maximum values at HELENR.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					2.8	1.75	0.785	0.705	0.67	0.85	0.615	0.7
min					2.8	1.5	0.74	0.62	0.64	0.71	0.49	0.63
max					2.8	2	0.83	0.79	0.7	0.86	0.74	0.77
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					0.15	0.0275	0.125	0.235	0.23	0.29	0.1025	0.053
min					0.15	0.022	0.11	0.14	0.19	0.2	0.075	0.011
max					0.15	0.033	0.14	0.33	0.27	0.29	0.13	0.095
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					0.15	0.0275	0.125	0.235	0.23	0.29	0.1025	0.053
min					0.15	0.022	0.11	0.14	0.19	0.2	0.075	0.011
max					0.15	0.033	0.14	0.33	0.27	0.29	0.13	0.095
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					0.27	0.4	0.415	0.365	0.335	0.29	0.365	0.365
min					0.27	0.34	0.35	0.36	0.32	0.28	0.32	0.36
max					0.27	0.46	0.48	0.37	0.35	0.34	0.41	0.37
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					0.029	0.042	0.025	0.023	0.024	0.016	0.034	0.022
min					0.029	0.031	0.022	0.023	0.019	0.016	0.027	0.019
max					0.029	0.053	0.028	0.023	0.029	0.03	0.041	0.025
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					0.008	0.0125	0.007	0.01	0.0085	0.005	0.0105	0.007
min					0.008	0.012	0.005	0.01	0.008	0.005	0.009	0.007
max					0.008	0.013	0.009	0.01	0.009	0.005	0.012	0.007
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					7.9	11.95	8.7	8.9	8.6	8.6	9.35	9.4
min					7.9	8.9	7.9	8.5	8.1	8.4	8.7	9.1
max					7.9	15	9.5	9.3	9.1	9.8	10	9.7
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					10	46.5	7	6	4.5	7	6	7.5
min					10	16	3	4	3	4	4	5
max					10	77	11	8	6	13	8	10
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					2.89	1.825	4.54	6.475	5.705	2.98	4.56	1.88
min					2.89	0.4	3.93	6.1	4.98	2.65	3.68	1.51
max					2.89	3.25	5.15	6.85	6.43	4.19	5.44	2.25
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	2	2	2	3	2	2
med					1.91	1.39	1.03	0.89	1.08	1.44	1.02	1.34
min					1.91	1.08	1.01	0.81	1.03	1.28	0.97	1.31
max					1.91	1.71	1.06	0.97	1.13	1.50	1.07	1.37

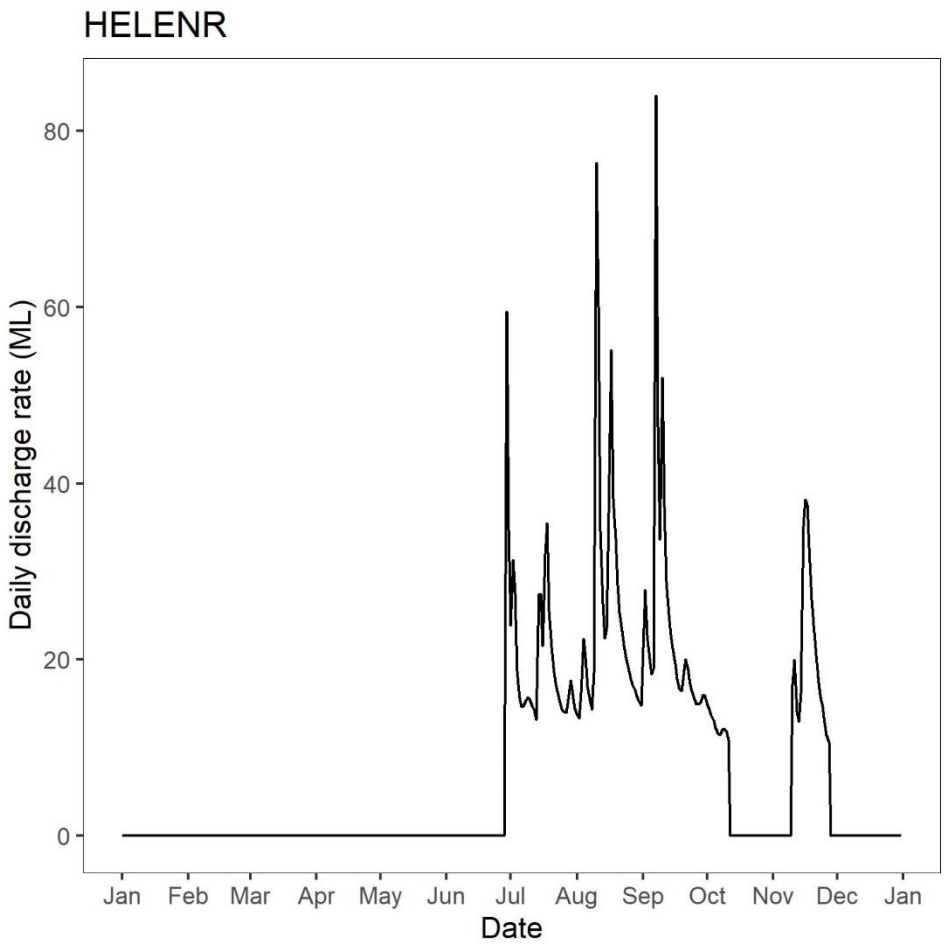

Figure 149. Daily discharge (ML) at Helena river gauging station (616086 – at site of HELENR).

Due to the ephemeral nature of flow in the Helena River and the below average rainfall in 2020, samples were only collected between May and December 2020.

15. Helm Street Main Drain (MADDD)

MADDD total nitrogen (TN)

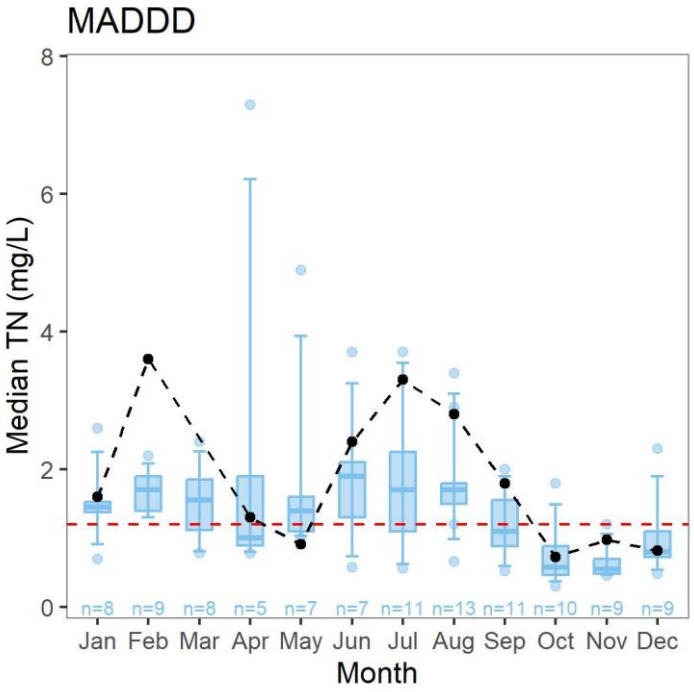

Figure 150. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

MADDD ammoniacal nitrogen (NH_3-N)

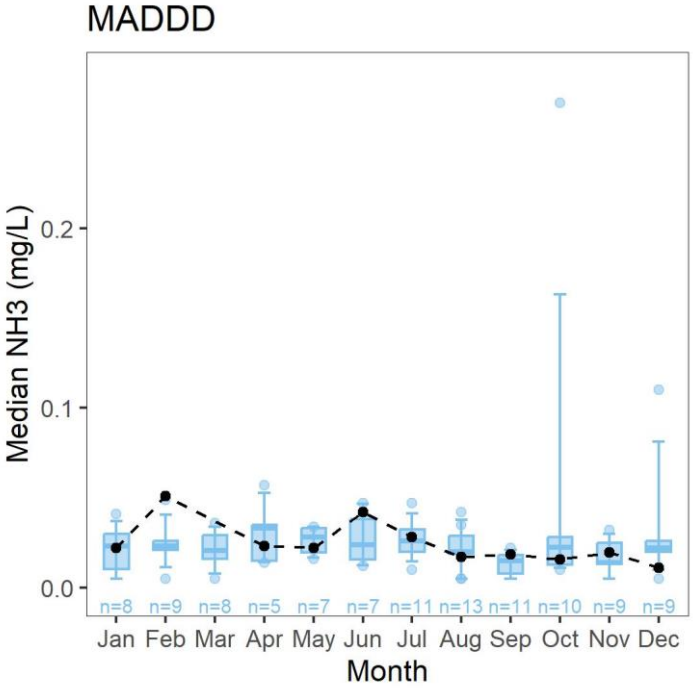

Figure 151. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

MADDD total oxidised nitrogen (NO_x-N)

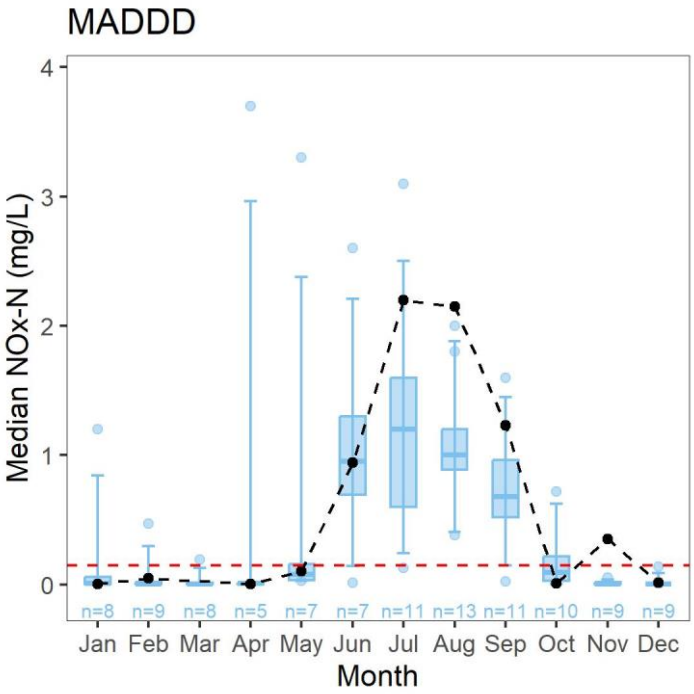

Figure 152. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

MADDD dissolved organic nitrogen (DOrgN)

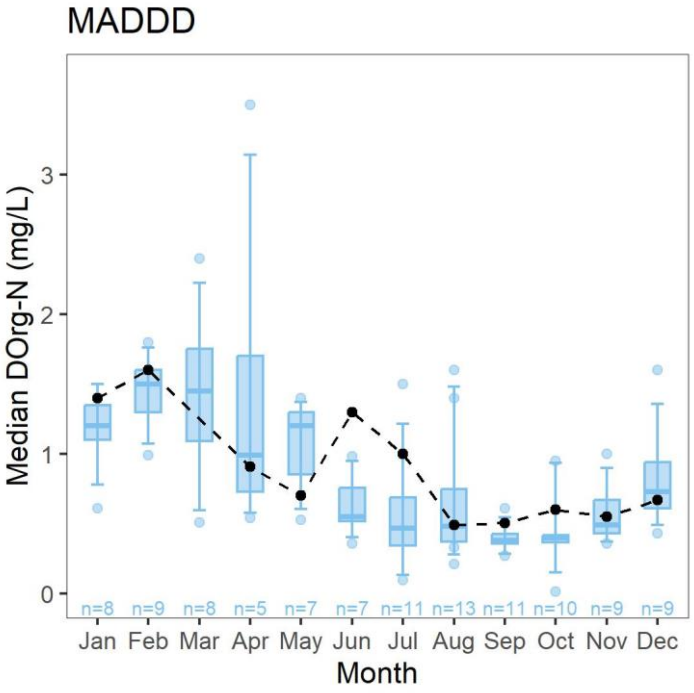

Figure 153. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

MADDD total phosphorus (TP)

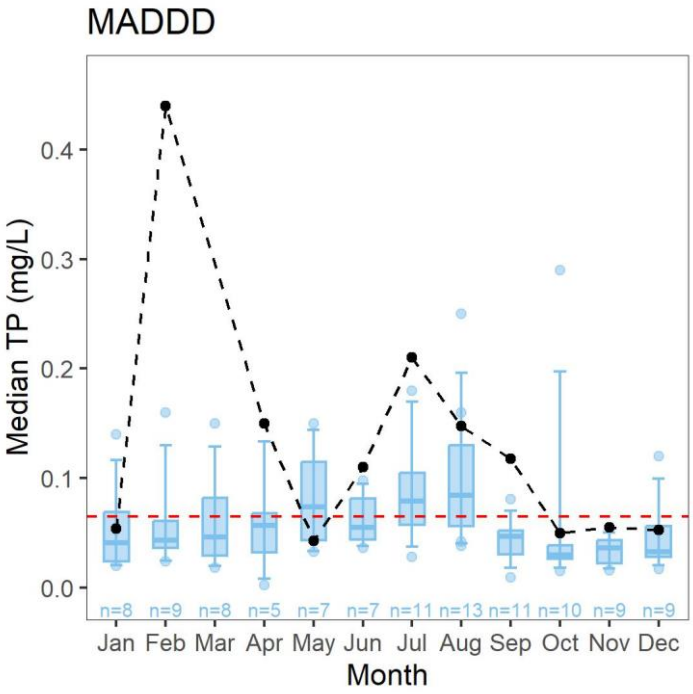

Figure 154. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

MADDD filterable reactive phosphorus (FRP)

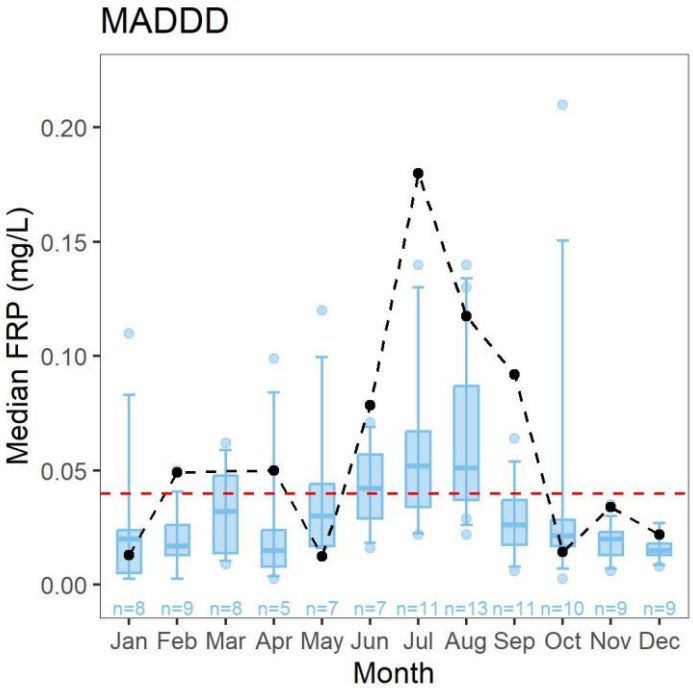

Figure 155. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

MADDD dissolved organic carbon (DOC)

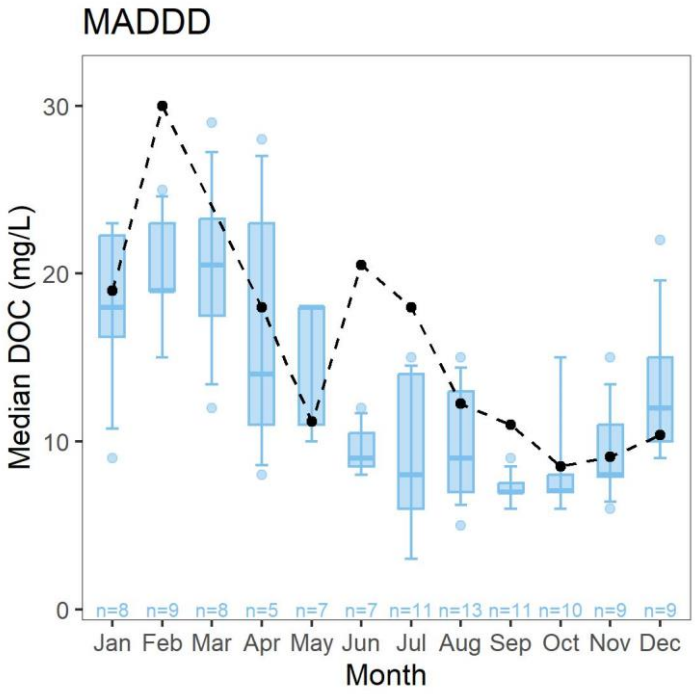

Figure 156. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

MADDD total suspended solids (TSS)

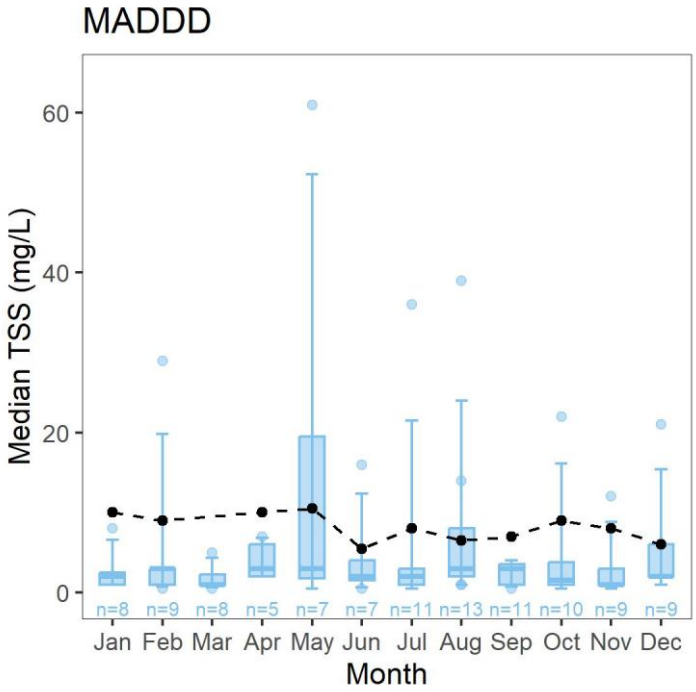

Figure 157. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

MADDD dissolved oxygen (DO)

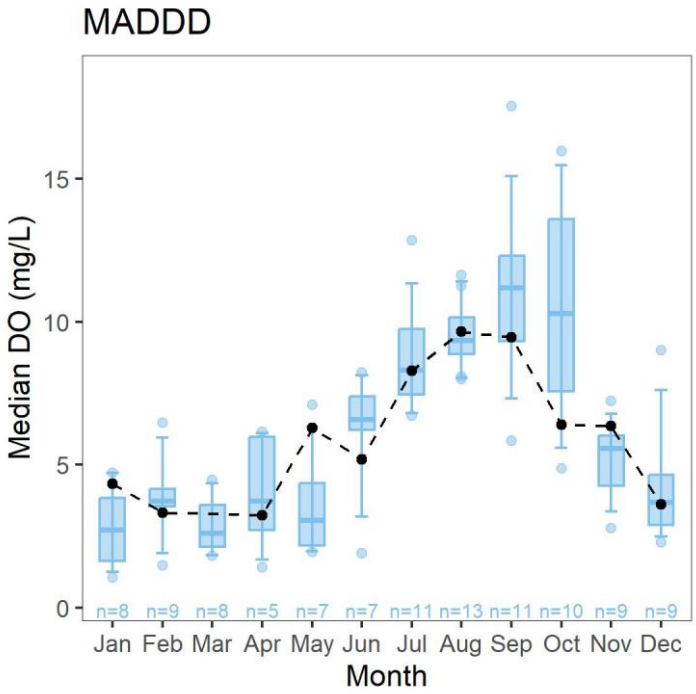

Figure 158. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

MADDD specific conductivity (Sp. cond)

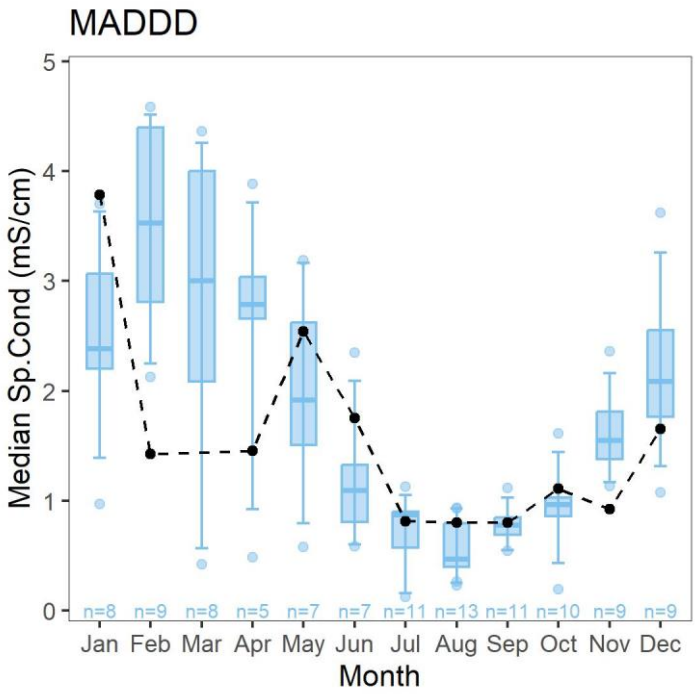

Figure 159. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MADDD. Number of samples (n) is provided for the historical data.

Table 17. 2020 monthly sample numbers, minimum and maximum values at MADDD.

TN (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	1.6	3.6		1.3	0.91	2.4	3.3	2.8	1.8	0.725	0.975	0.82
min	1.3	3.6		1.3	0.52	2.1	2.2	2.2	1.2	0.52	0.75	0.54
max	2	3.6		1.3	1.3	2.7	4	3.4	2.4	0.93	1.2	1.1
NH3-N (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	0.022	0.051		0.023	0.0245	0.042	0.028	0.017	0.0185	0.018	0.0195	0.0135
min	0.01	0.051		0.023	0.01	0.025	0.02	0.012	0.018	0.01	0.015	0.01
max	0.041	0.051		0.023	0.039	0.059	0.03	0.022	0.019	0.026	0.024	0.017
Nox-N (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	0.01	0.049		0.01	0.101	0.94	2.2	2.15	1.23	0.011	0.3535	0.018
min	0.01	0.049		0.01	0.012	0.78	1.7	1.6	0.66	0.01	0.017	0.01
max	0.01	0.049		0.01	0.19	1.1	2.7	2.7	1.8	0.012	0.69	0.026
DorgN (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	1.4	1.6		0.91	0.7	1.3	1	0.49	0.505	0.6	0.55	0.67
min	1.2	1.6		0.91	0.3	1.2	0.44	0.43	0.5	0.43	0.46	0.39
max	1.5	1.6		0.91	1.1	1.4	1.3	0.55	0.51	0.77	0.64	0.95
TP (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	0.054	0.44		0.15	0.0425	0.11	0.21	0.1475	0.1175	0.0495	0.055	0.0525
min	0.053	0.44		0.15	0.037	0.11	0.089	0.075	0.085	0.043	0.043	0.051
max	0.098	0.44		0.15	0.048	0.11	0.25	0.22	0.15	0.056	0.067	0.054
FRP (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	0.013	0.049		0.05	0.0125	0.0785	0.18	0.1175	0.092	0.0145	0.034	0.022
min	0.012	0.049		0.05	0.006	0.078	0.052	0.045	0.054	0.007	0.033	0.019
max	0.019	0.049		0.05	0.019	0.079	0.21	0.19	0.13	0.022	0.035	0.025
DOC (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	19	30		18	11.2	20.5	18	12.25	11	8.5	9.1	10.4
min	17	30		18	6.4	19	9.4	8.5	11	7	8.2	6.8
max	22	30		18	16	22	19	16	11	10	10	14
TSS (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	10	9		10	10.5	5.5	8	6.5	7	9	8	6
min	9	9		10	2	4	6	4	4	8	4	4
max	87	9		10	19	7	10	9	10	10	12	8
DO (mg/L)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	4.33	3.31		3.23	6.275	5.175	8.28	9.66	9.445	6.39	6.355	3.6
min	0.25	3.31		3.23	4.94	4.78	7.73	8.75	8.73	6.09	5.59	2.77
max	8.85	3.31		3.23	7.61	5.57	9.16	10.57	10.16	6.69	7.12	4.43
Sp.Cond (mS/cm)	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	1	0	1	2	2	3	2	2	2	2	2
med	3.78	1.43		1.46	2.54	1.75	0.81	0.80	0.80	1.11	0.92	1.65
min	3.27	1.43		1.46	0.85	1.46	0.73	0.73	0.78	0.86	0.85	0.75
max	5.35	1.43		1.46	4.23	2.05	0.94	0.87	0.82	1.36	0.99	2.56

NB: Daily discharge data is not available for MADDD as this site is not gauged.

16. Henley Brook (HENLB)

HENLB total nitrogen (TN)

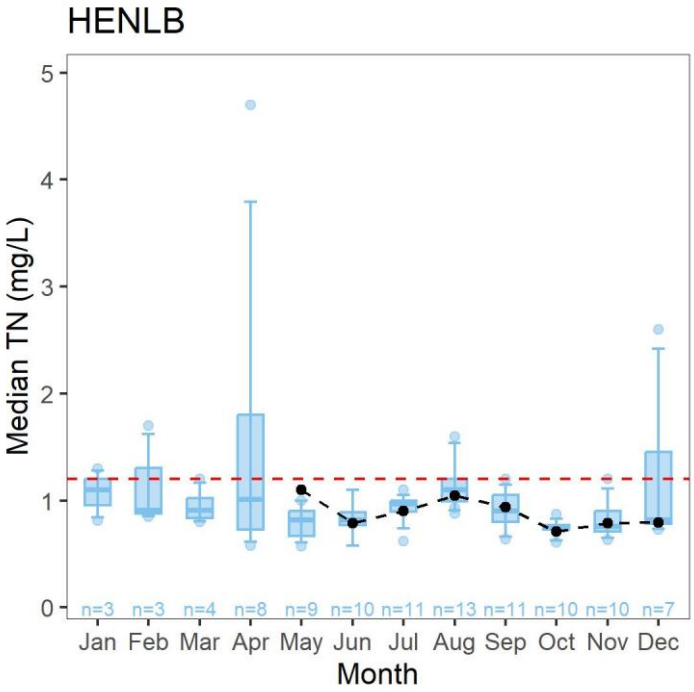

Figure 160. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

HENLB ammoniacal nitrogen (NH_3-N)

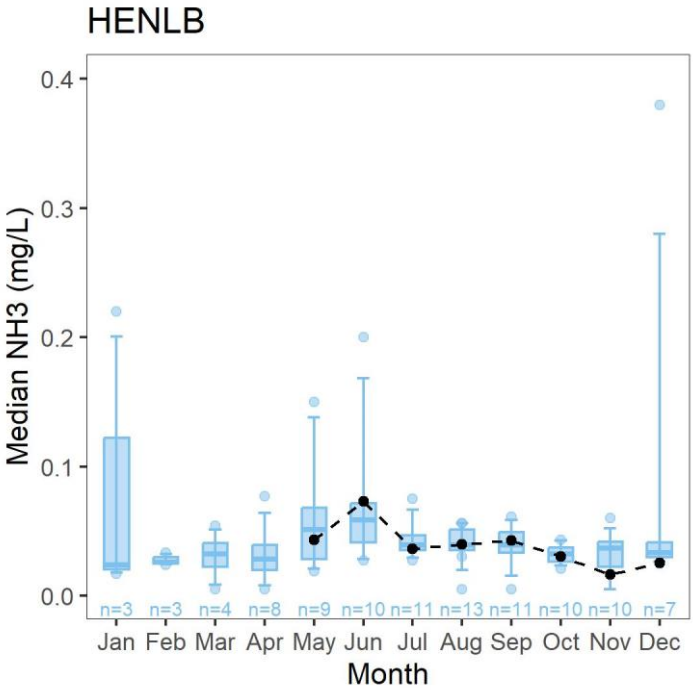

Figure 161. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

HENLB total oxidised nitrogen (NO_x-N)

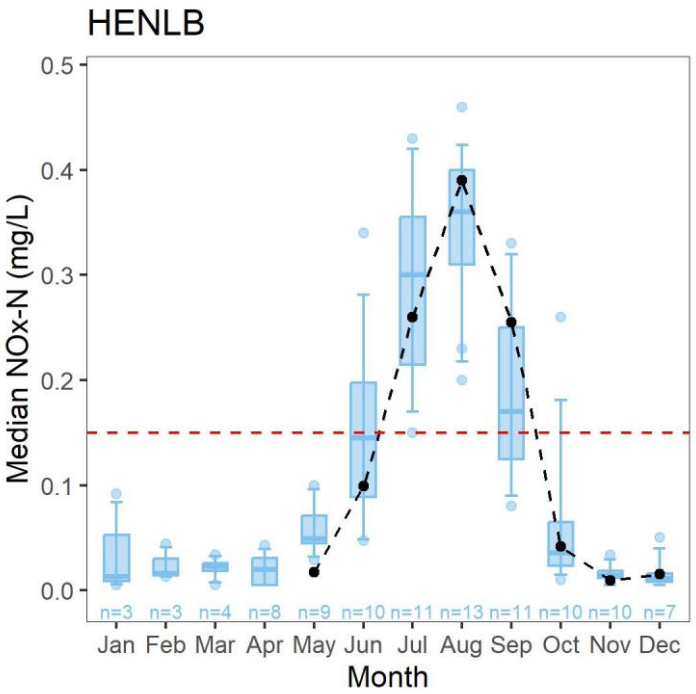

Figure 162. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

HENLB dissolved organic nitrogen (DOrgN)

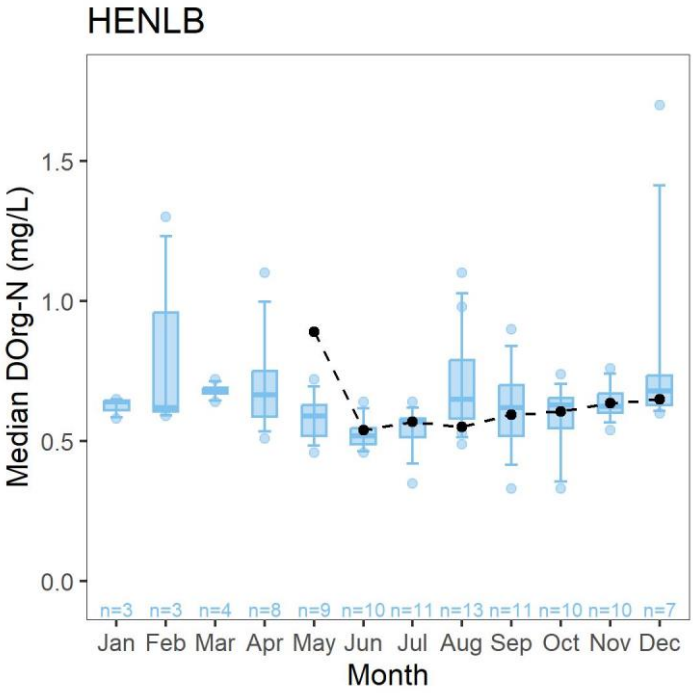

Figure 163. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

HENLB total phosphorus (TP)

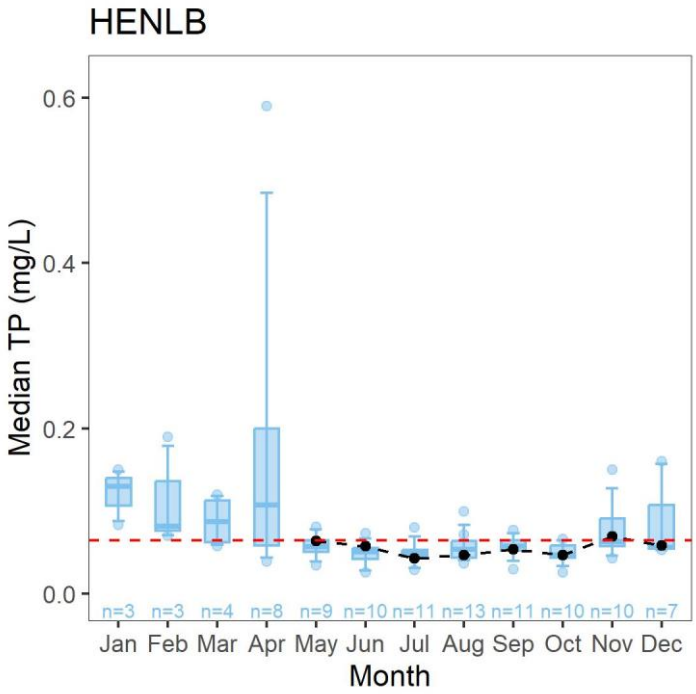

Figure 164. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

HENLB filterable reactive phosphorus (FRP)

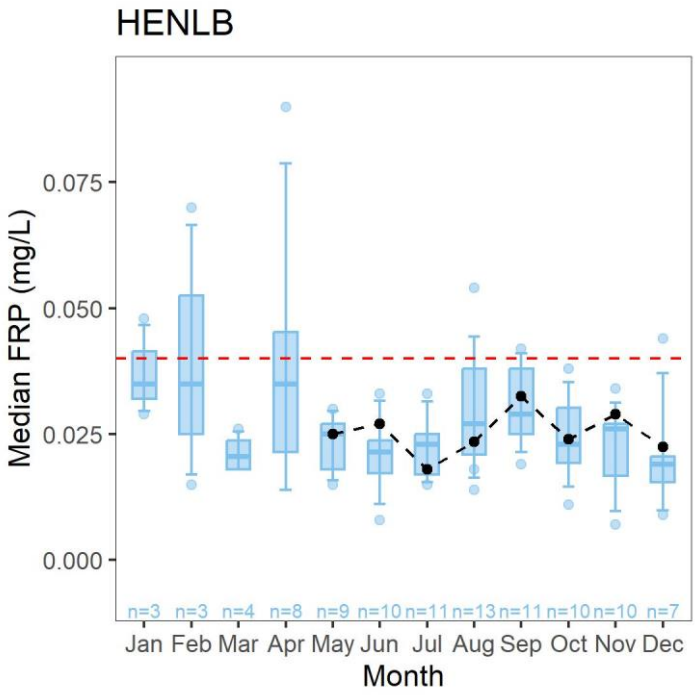

Figure 165. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

HENLB dissolved organic carbon (DOC)

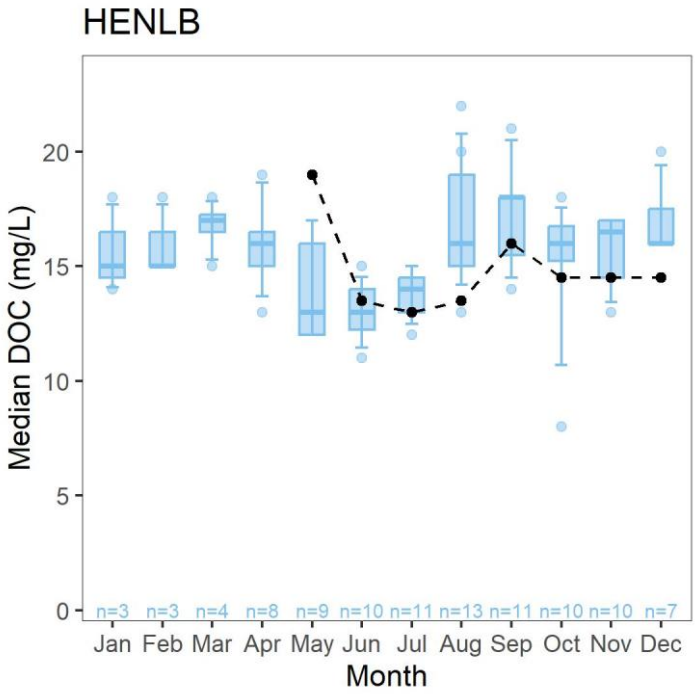

Figure 166. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

HENLB total suspended solids (TSS)

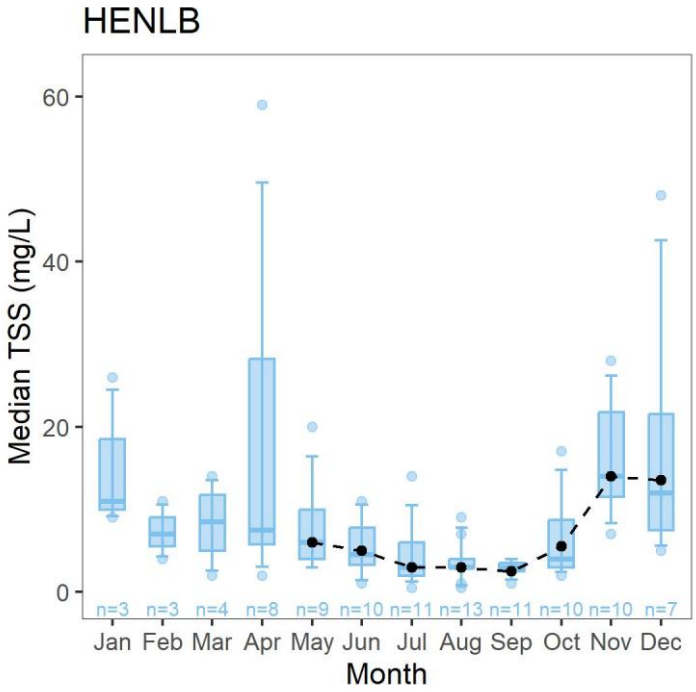

Figure 167. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

HENLB dissolved oxygen (DO)

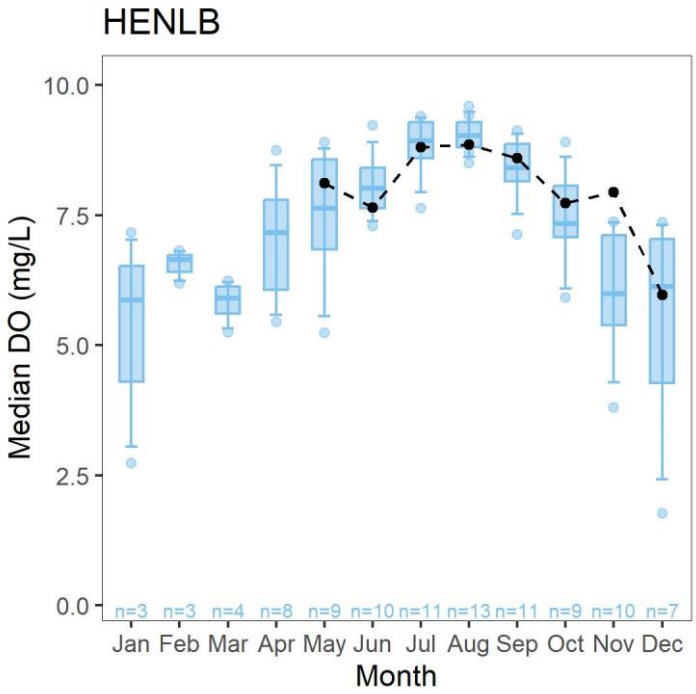

Figure 168. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

HENLB specific conductivity (Sp. cond)

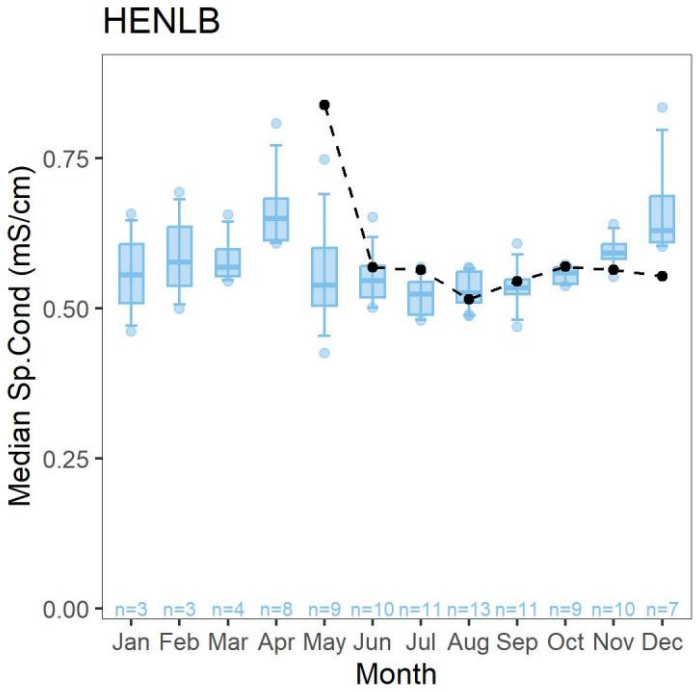

Figure 169. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site HENLB. Number of samples (n) is provided for the historical data.

Table 18. 2020 monthly sample numbers, minimum and maximum values at HENLB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					1.1	0.785	0.9	1.045	0.935	0.71	0.785	0.795
min					1.1	0.77	0.89	0.99	0.87	0.71	0.7	0.76
max					1.1	0.8	0.95	1.1	1	0.71	0.87	0.83
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.043	0.073	0.036	0.0395	0.0425	0.03	0.0165	0.0255
min					0.043	0.071	0.034	0.034	0.041	0.014	0.01	0.021
max					0.043	0.075	0.043	0.045	0.044	0.046	0.023	0.03
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.017	0.099	0.26	0.39	0.255	0.0415	0.012	0.0155
min					0.017	0.058	0.22	0.36	0.19	0.019	0.01	0.013
max					0.017	0.14	0.36	0.42	0.32	0.064	0.014	0.018
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.89	0.54	0.57	0.55	0.595	0.605	0.635	0.65
min					0.89	0.54	0.52	0.55	0.58	0.6	0.63	0.65
max					0.89	0.54	0.58	0.55	0.61	0.61	0.64	0.65
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.064	0.058	0.043	0.0465	0.0535	0.0465	0.069	0.0585
min					0.064	0.055	0.041	0.039	0.053	0.045	0.054	0.05
max					0.064	0.061	0.055	0.054	0.054	0.048	0.084	0.067
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.025	0.027	0.018	0.0235	0.0325	0.024	0.029	0.0225
min					0.025	0.027	0.018	0.023	0.032	0.024	0.026	0.019
max					0.025	0.027	0.021	0.024	0.033	0.024	0.032	0.026
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					19	13.5	13	13.5	16	14.5	14.5	14.5
min					19	13	12	13	15	14	14	14
max					19	14	14	14	17	15	15	15
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					6	5	3	3	2.5	5.5	14	13.5
min					6	5	2	2	2	2	9	9
max					6	5	4	4	3	9	19	18
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					8.11	7.64	8.81	8.86	8.595	7.73	7.94	5.97
min					8.11	7.58	8.57	8.62	8.47	7.02	7.65	-
max					8.11	7.7	8.89	9.1	8.72	8.44	8.23	7.58
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	1	2	3	2	2	2	2	3
med					0.84	0.57	0.56	0.52	0.54	0.57	0.56	0.55
min					0.84	0.57	0.49	0.47	0.52	0.56	0.55	-
max					0.84	0.57	0.57	0.56	0.57	0.58	0.58	0.65

NB: Daily discharge data is not available for HENLB as this site is not gauged. Due to the ephemeral nature of flow in Henley Brook and the below average rainfall in 2020, samples were only collected between May and December 2020.

17. Jane Brook (JANEB)

JANEB total nitrogen (TN)

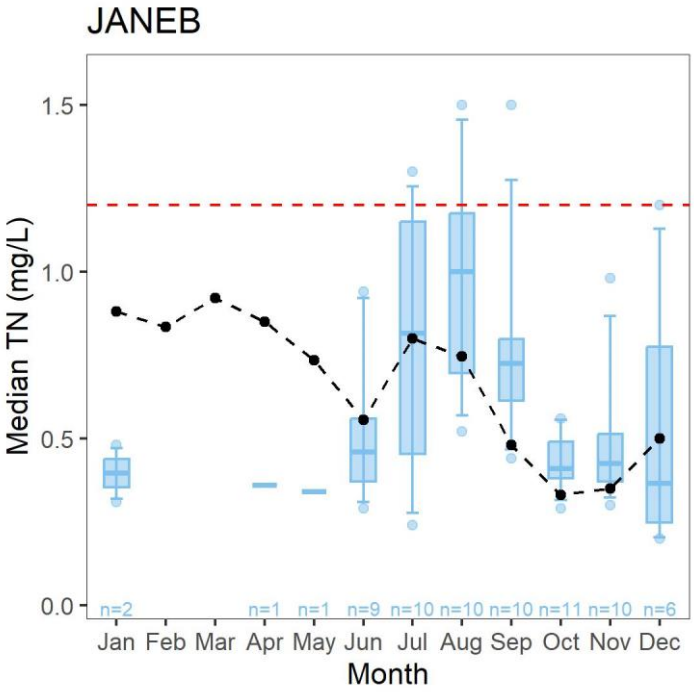

Figure 170. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

JANEB ammoniacal nitrogen (NH_3-N)

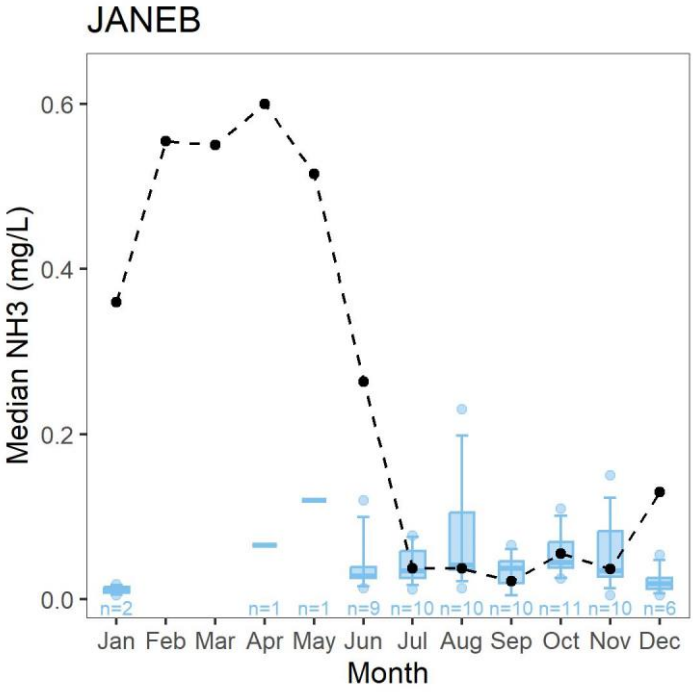

Figure 171. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

JANEB total oxidised nitrogen (NO_x-N)

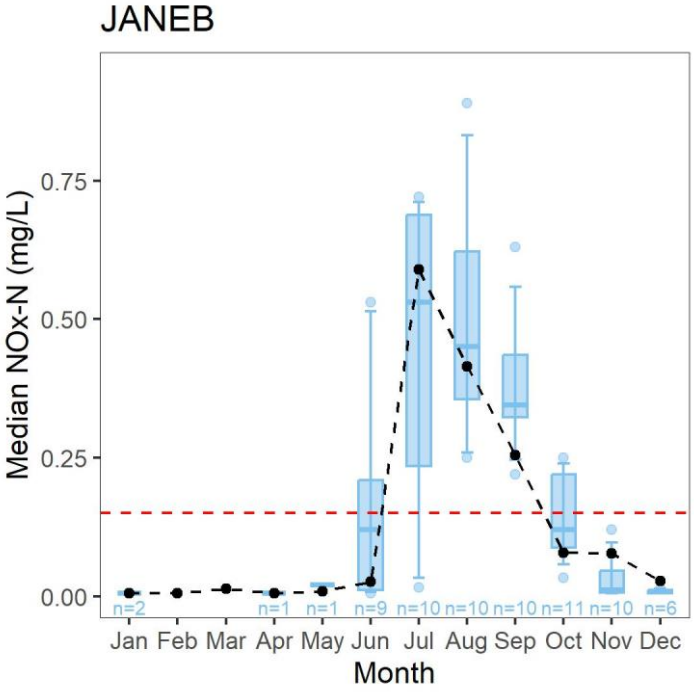

Figure 172. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

JANEB dissolved organic nitrogen (DOrgN)

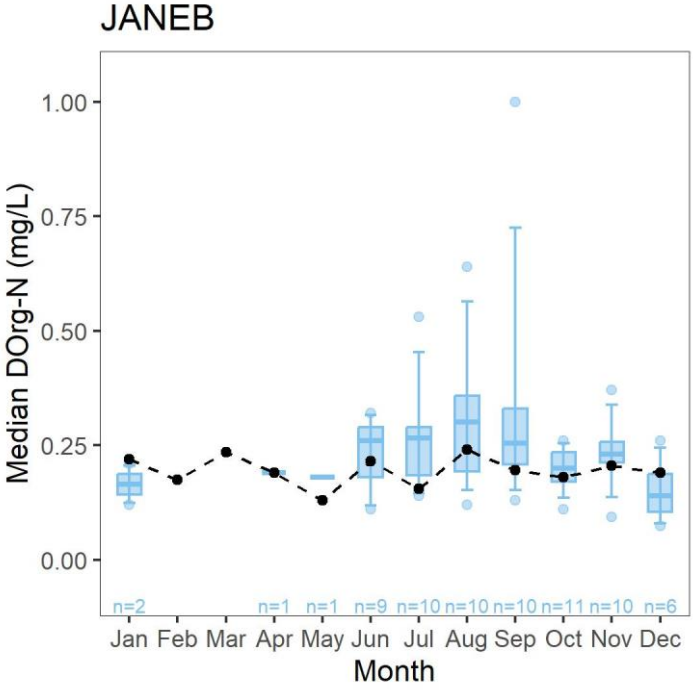

Figure 173. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

JANEB total phosphorus (TP)

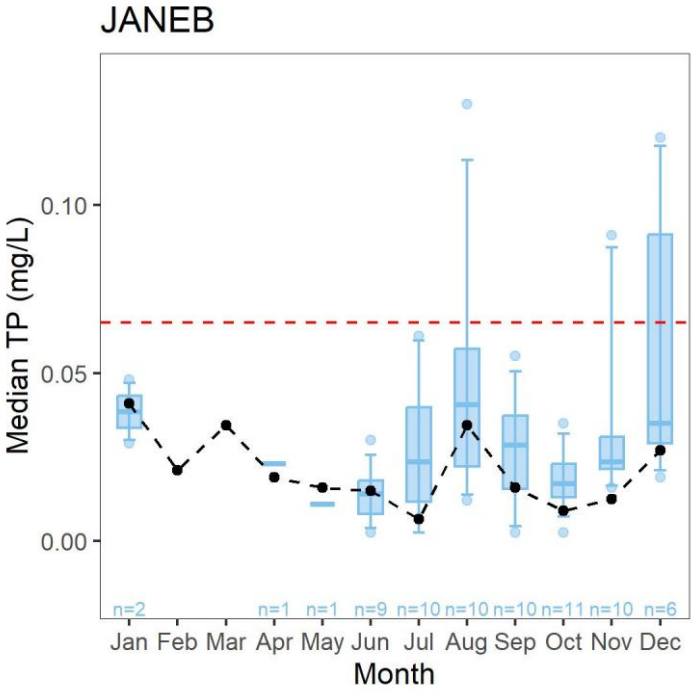

Figure 174. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

JANEB filterable reactive phosphorus (FRP)

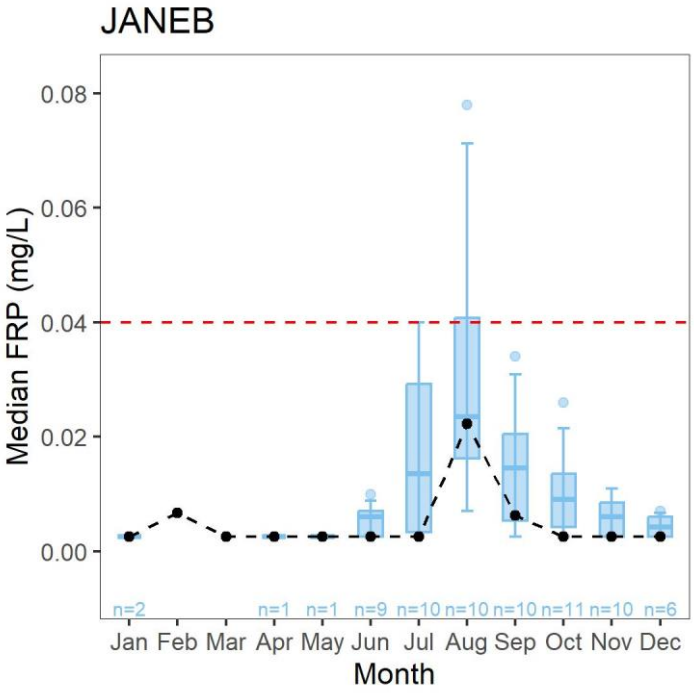

Figure 175. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

JANEB dissolved organic carbon (DOC)

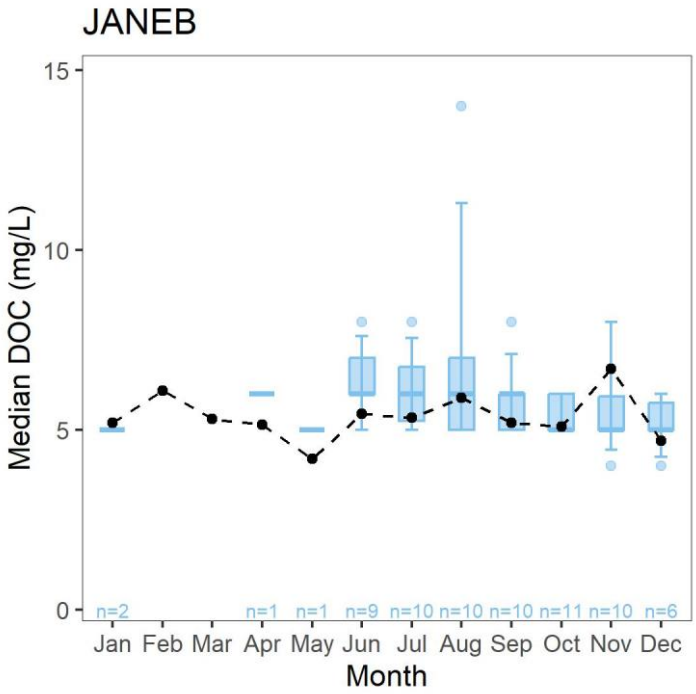

Figure 176. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

JANEB total suspended solids (TSS)

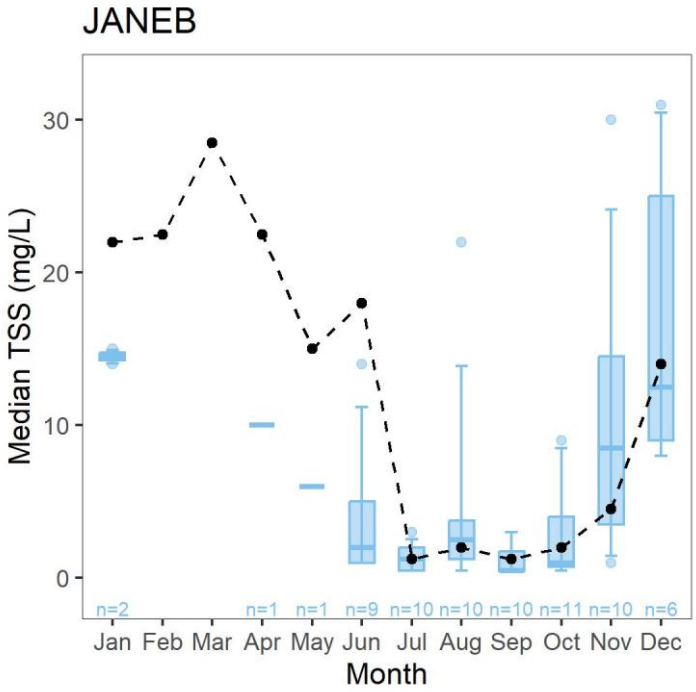

Figure 177. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

JANEB dissolved oxygen (DO)

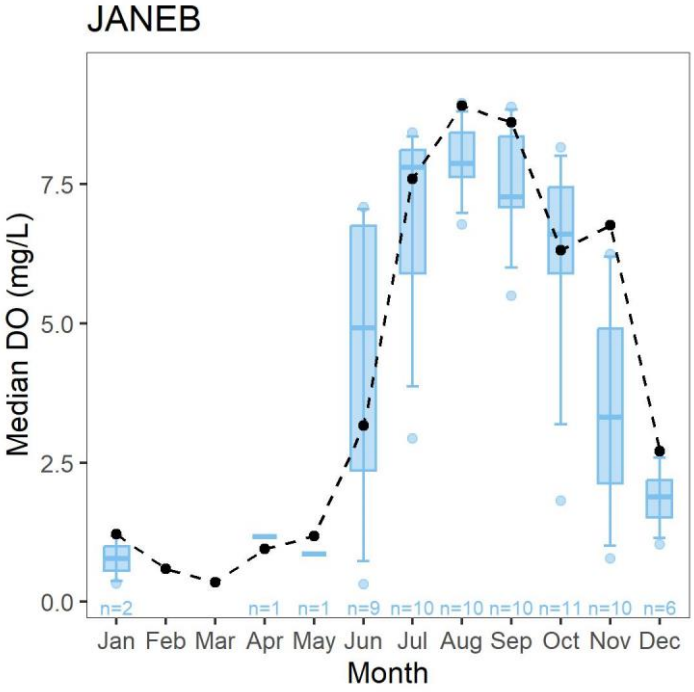

Figure 178. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

JANEB specific conductivity (Sp. cond)

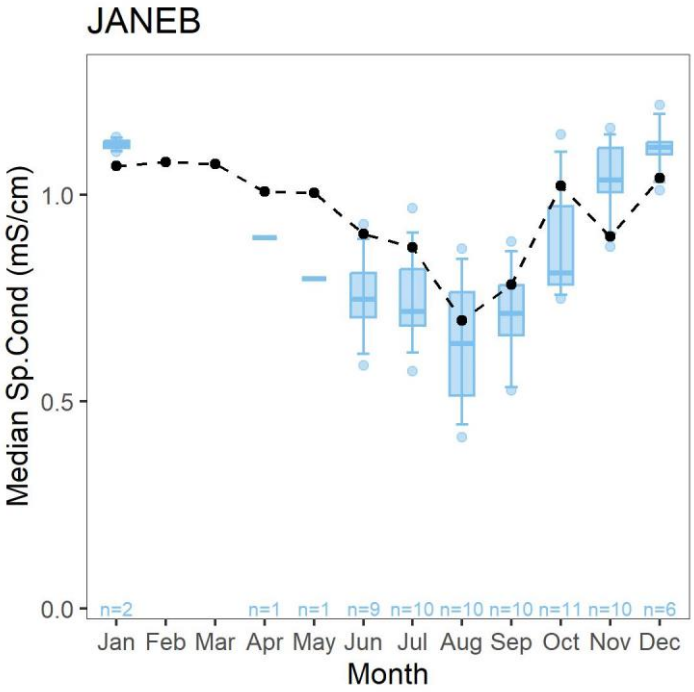

Figure 179. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site JANEB. Number of samples (n) is provided for the historical data.

Table 19. 2020 monthly sample numbers, minimum and maximum values at JANEB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.88	0.835	0.92	0.85	0.735	0.555	0.8	0.745	0.48	0.33	0.35	0.5
min	0.88	0.81	0.88	0.85	0.67	0.41	0.7	0.51	0.47	0.28	0.27	0.5
max	0.88	0.86	0.96	0.85	0.8	0.7	0.9	0.98	0.49	0.7	0.43	0.5
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.36	0.555	0.55	0.6	0.515	0.2635	0.037	0.0375	0.022	0.055	0.0365	0.13
min	0.36	0.53	0.54	0.55	0.48	0.037	0.025	0.014	0.013	0.01	0.019	0.13
max	0.36	0.58	0.56	0.65	0.55	0.49	0.049	0.061	0.031	0.38	0.054	0.13
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.01	0.01	0.016	0.01	0.0115	0.0265	0.59	0.415	0.255	0.079	0.077	0.027
min	0.01	0.01	0.01	0.01	0.01	0.013	0.41	0.26	0.22	0.01	0.034	0.027
max	0.01	0.01	0.022	0.01	0.013	0.04	0.77	0.57	0.29	0.098	0.12	0.027
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.22	0.175	0.235	0.19	0.13	0.215	0.1555	0.24	0.195	0.18	0.205	0.19
min	0.22	0.17	0.22	0.16	0.11	0.14	0.061	0.18	0.18	0.13	0.18	0.19
max	0.22	0.18	0.25	0.22	0.15	0.29	0.25	0.3	0.21	0.2	0.23	0.19
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.041	0.021	0.0345	0.019	0.016	0.015	0.0065	0.0345	0.016	0.009	0.0125	0.027
min	0.041	0.021	0.032	0.017	0.014	0.013	0.005	0.008	0.015	0.008	0.01	0.027
max	0.041	0.021	0.037	0.021	0.018	0.017	0.008	0.061	0.017	0.023	0.015	0.027
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	0.005	0.008	0.005	0.005	0.005	0.005	0.005	0.0235	0.0075	0.005	0.005	0.005
min	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
max	0.005	0.011	0.005	0.005	0.005	0.005	0.005	0.042	0.01	0.005	0.005	0.005
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	5.2	6.1	5.3	5.15	4.2	5.45	5.35	5.9	5.2	5.1	6.7	4.7
min	5.2	6.1	5.1	5.1	3.8	4.6	5.2	5.1	5.2	4.9	6.6	4.7
max	5.2	6.1	5.5	5.2	4.6	6.3	5.5	6.7	5.2	5.2	6.8	4.7
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	22	22.5	28.5	22.5	15	18	1.5	2	1.5	2	4.5	14
min	22	18	23	18	10	3	1	2	1	1	4	14
max	22	27	34	27	20	33	2	2	2	16	5	14
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	1.21	0.595	0.35	0.95	1.18	3.16	7.59	8.905	8.615	6.32	6.77	2.7
min	1.21	0.31	0.27	0.88	0.96	0.75	6.76	8.79	7.9	0.8	5.25	2.7
max	1.21	0.88	0.43	1.02	1.4	5.57	8.42	9.02	9.33	7.71	8.29	2.7
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	2	2	2	2	2	2	2	2	3	2	1
med	1.07	1.08	1.07	1.01	1.00	0.91	0.87	0.70	0.78	1.02	0.90	1.04
min	1.07	1.04	1.03	1.01	0.99	0.77	0.87	0.67	0.76	0.86	0.81	1.04
max	1.07	1.12	1.12	1.01	1.02	1.04	0.88	0.73	0.81	1.12	0.99	1.04

NB: Daily discharge data was not available in 2020 for JANEB as this site is not currently gauged. Due to the ephemeral nature of flow in Jane Brook and the below average rainfall in 2020, only 1 sample could be collected in January and December

18. Lower Canning (CANND)

CANND total nitrogen (TN)

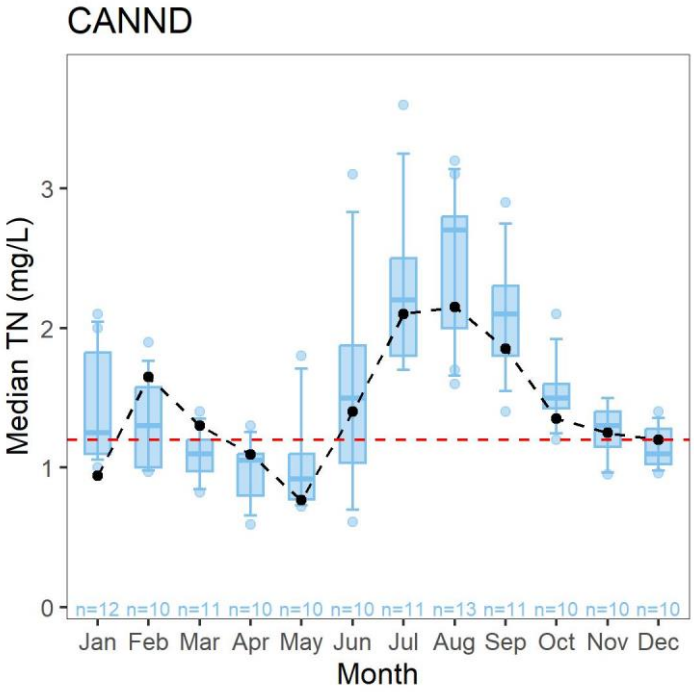

Figure 180. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

CANND ammoniacal nitrogen (NH_3-N)

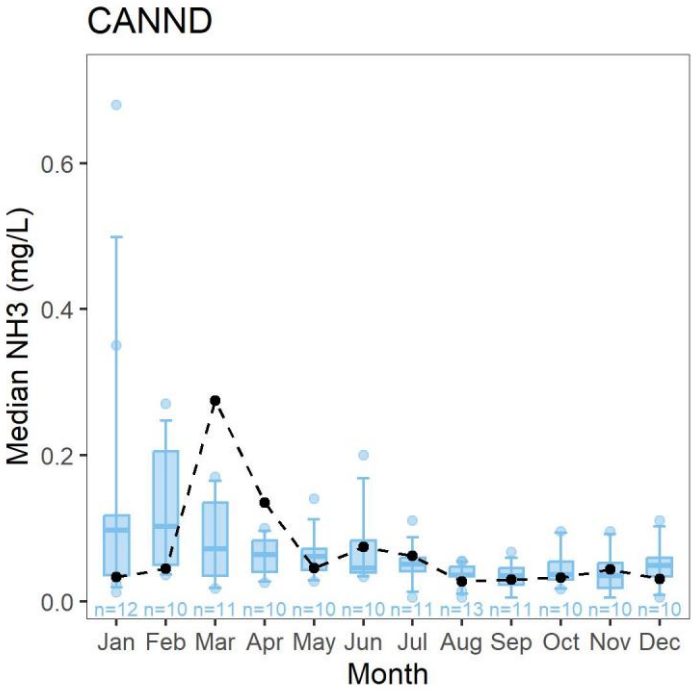

Figure 181. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

CANND total oxidised nitrogen (NO_x-N)

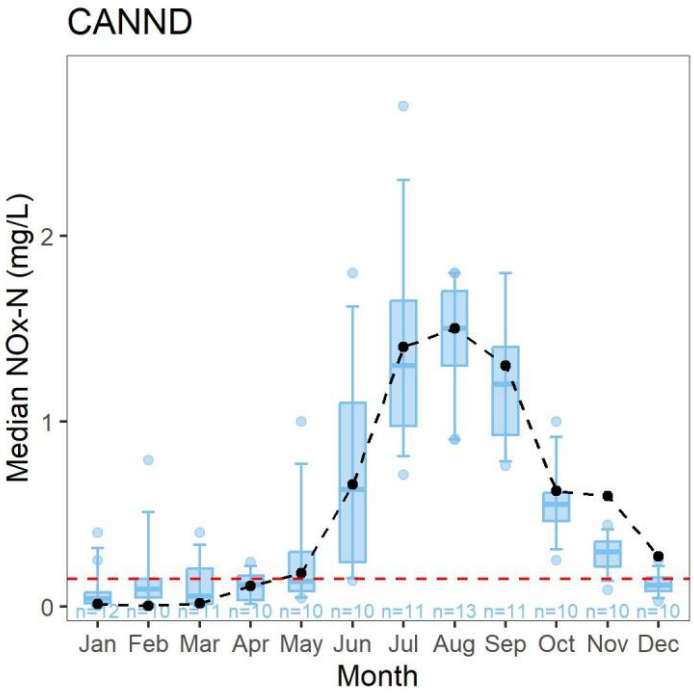

Figure 182. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

CANND dissolved organic nitrogen (DOrgN)

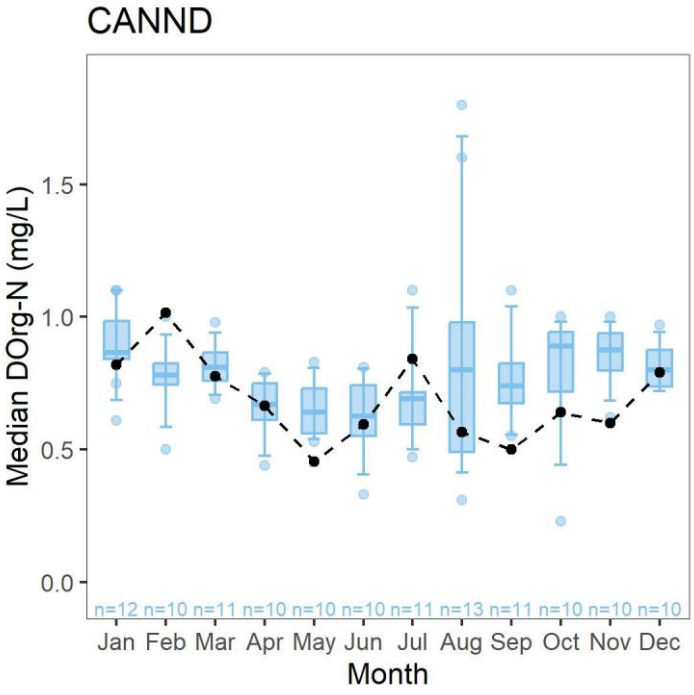

Figure 183. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

CANND total phosphorus (TP)

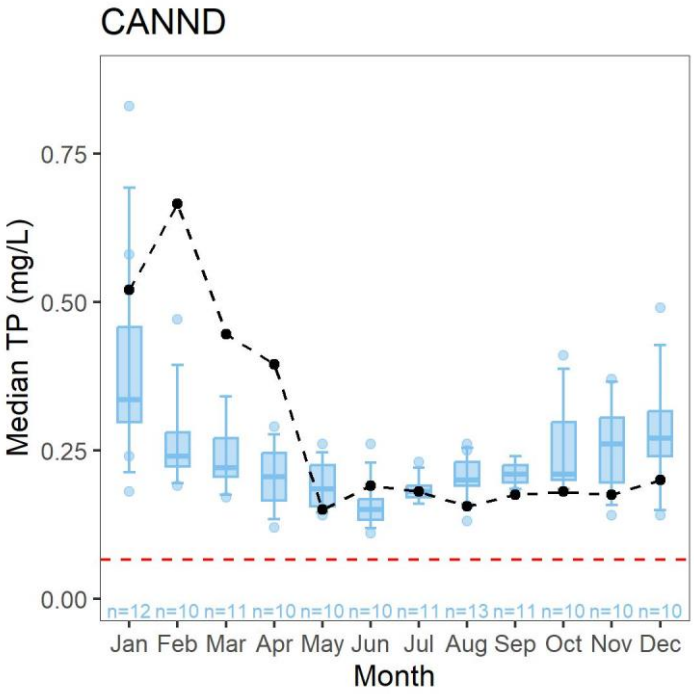

Figure 184. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

CANND filterable reactive phosphorus (FRP)

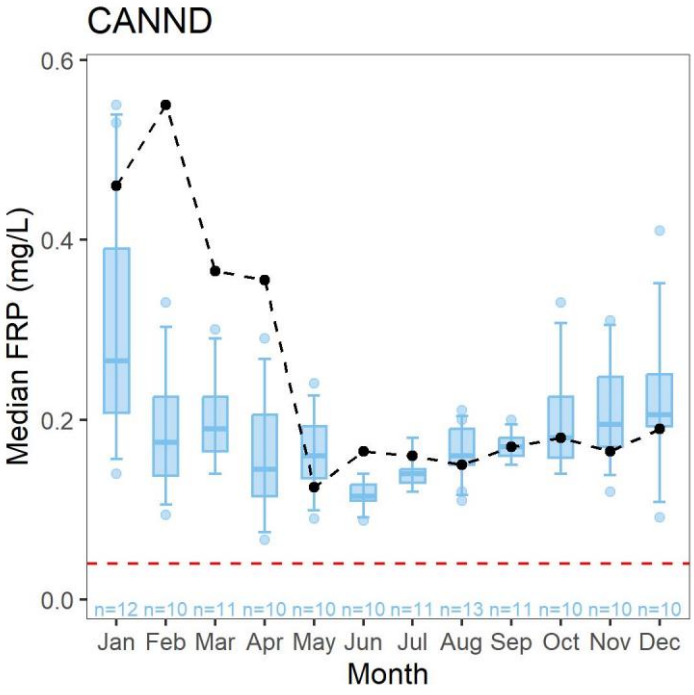

Figure 185. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

CANND dissolved organic carbon (DOC)

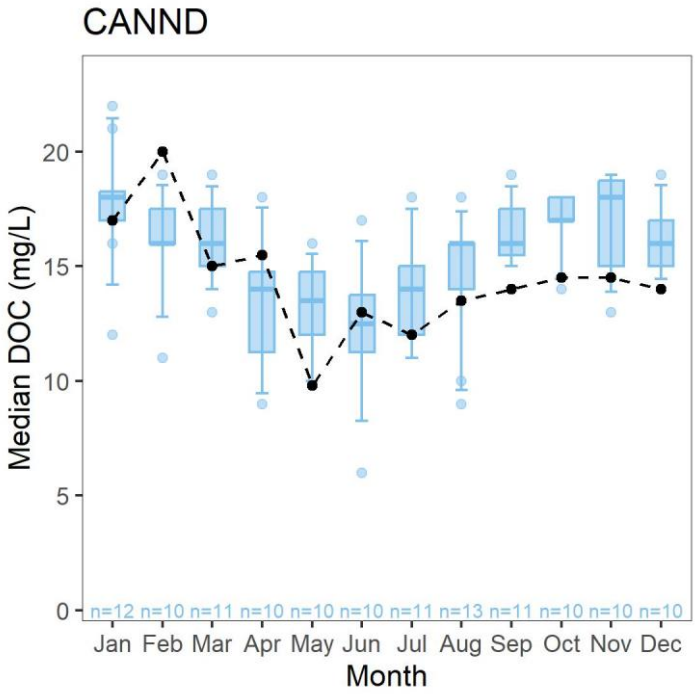

Figure 186. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

CANND total suspended solids (TSS)

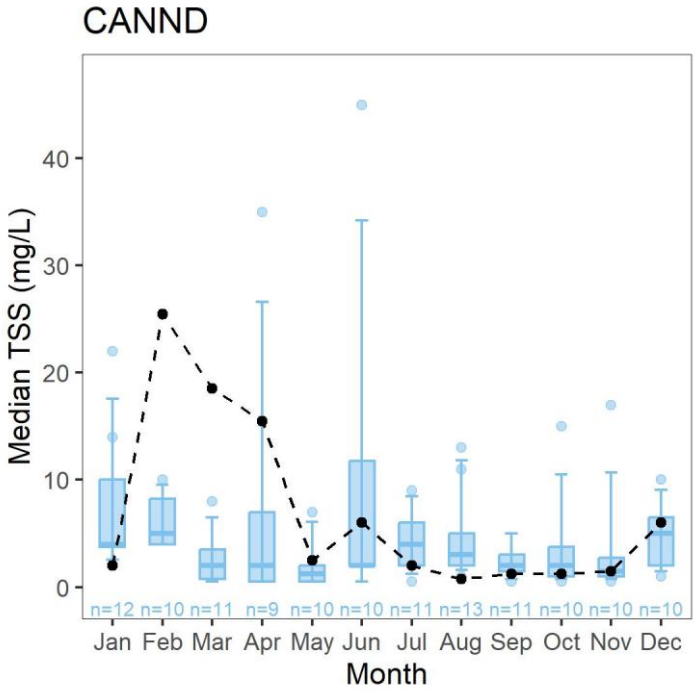

Figure 187. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

CANND dissolved oxygen (DO)

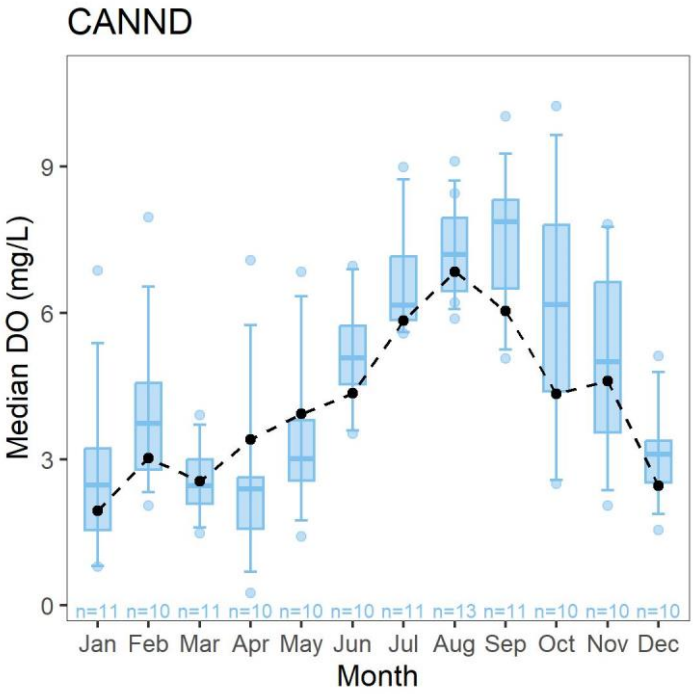

Figure 188. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

CANND specific conductivity (Sp. cond)

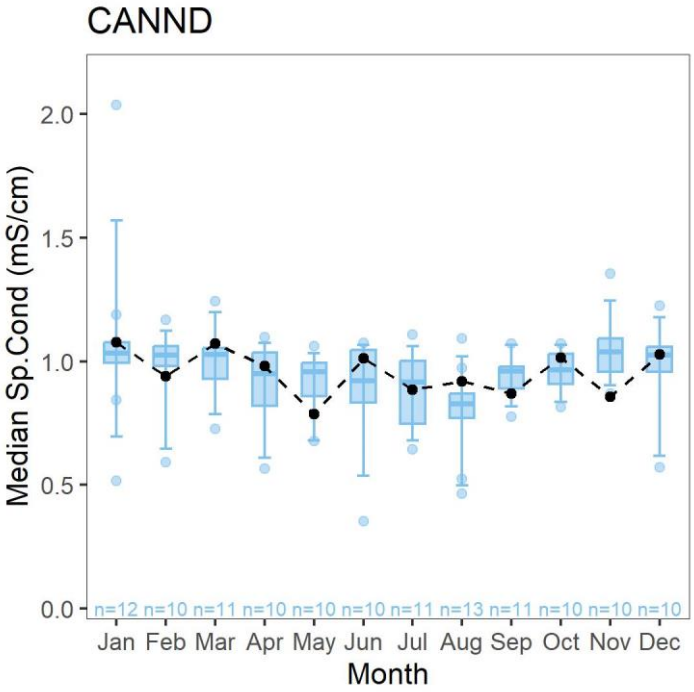

Figure 189. Monthly median specific conductivity (Sp.cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CANND. Number of samples (n) is provided for the historical data.

Table 20. 2020 monthly sample numbers, minimum and maximum values at CANND.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.94	1.65	1.3	1.095	0.765	1.4	2.1	2.15	1.85	1.35	1.25	1.2
min	0.93	1.1	1	0.99	0.7	1.3	2.1	2.1	1.8	1.3	1.1	1.1
max	1	2.2	1.6	1.2	0.83	1.5	2.3	2.2	1.9	1.4	1.4	1.3
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.033	0.0445	0.275	0.135	0.0455	0.0745	0.062	0.0265	0.0295	0.032	0.0435	0.03
min	0.02	0.023	0.17	0.1	0.018	0.049	0.053	0.02	0.024	0.022	0.04	0.022
max	0.09	0.066	0.38	0.17	0.073	0.1	0.065	0.033	0.035	0.042	0.047	0.07
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.013	0.01	0.017	0.11	0.18	0.66	1.4	1.5	1.3	0.625	0.595	0.27
min	0.01	0.01	0.012	0.07	0.15	0.57	1.1	1.4	1.2	0.5	0.45	0.083
max	0.036	0.01	0.022	0.15	0.21	0.75	1.5	1.6	1.4	0.75	0.74	0.39
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.82	1.015	0.775	0.665	0.455	0.595	0.84	0.565	0.5	0.64	0.6	0.79
min	0.82	0.83	0.75	0.63	0.35	0.58	0.53	0.5	0.48	0.58	0.6	0.78
max	0.85	1.2	0.8	0.7	0.56	0.61	0.87	0.63	0.52	0.7	0.6	0.84
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.52	0.665	0.445	0.395	0.15	0.19	0.18	0.155	0.175	0.18	0.175	0.2
min	0.35	0.63	0.43	0.37	0.14	0.19	0.16	0.14	0.17	0.15	0.17	0.14
max	0.69	0.7	0.46	0.42	0.16	0.19	0.19	0.17	0.18	0.21	0.18	0.32
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.46	0.55	0.365	0.355	0.125	0.165	0.16	0.15	0.17	0.18	0.165	0.19
min	0.33	0.51	0.36	0.32	0.12	0.16	0.14	0.14	0.17	0.15	0.16	0.13
max	0.69	0.59	0.37	0.39	0.13	0.17	0.16	0.16	0.17	0.21	0.17	0.32
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	17	20	15	15.5	9.8	13	12	13.5	14	14.5	14.5	14
min	17	17	15	15	7.6	13	12	13	13	14	14	14
max	18	23	15	16	12	13	14	14	15	15	15	16
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	2	25.5	18.5	15.5	2.5	4	2	1	1.5	1.5	1.5	6
min	1	16	6	9	2	2	1	1	1	1	1	1
max	6	35	31	22	3	6	3	1	2	2	2	13
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	1.94	3.015	2.55	3.4	3.93	4.345	5.84	6.84	6.03	4.34	4.595	2.46
min	1.92	1.12	2.2	3.2	2.06	3.48	5.73	6.66	5.72	3.62	4.22	0.92
max	4.64	4.91	2.9	3.6	5.8	5.21	6.36	7.02	6.34	5.06	4.97	3.74
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	1.08	0.94	1.07	0.98	0.79	1.01	0.89	0.92	0.87	1.01	0.86	1.03
min	1.05	0.78	1.03	0.90	0.58	1.01	0.81	0.81	0.83	1.00	0.84	0.96
max	1.09	1.10	1.11	1.06	0.99	1.02	0.90	1.03	0.91	1.03	0.87	1.09

NB: Daily discharge data is not available for CANND as this site is not gauged.

19. Maylands-Inglewood MD (MAYMD)

MAYMD total nitrogen (TN)

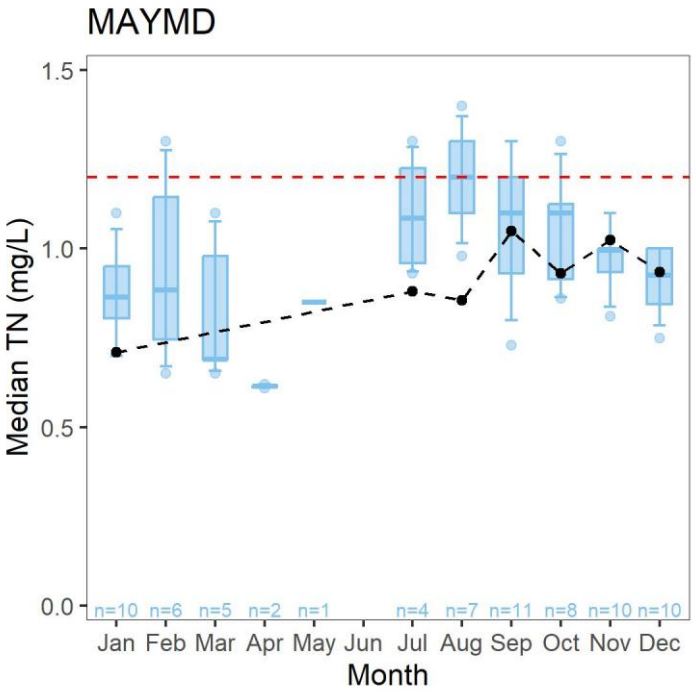

Figure 190. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

MAYMD ammoniacal nitrogen (NH_3-N)

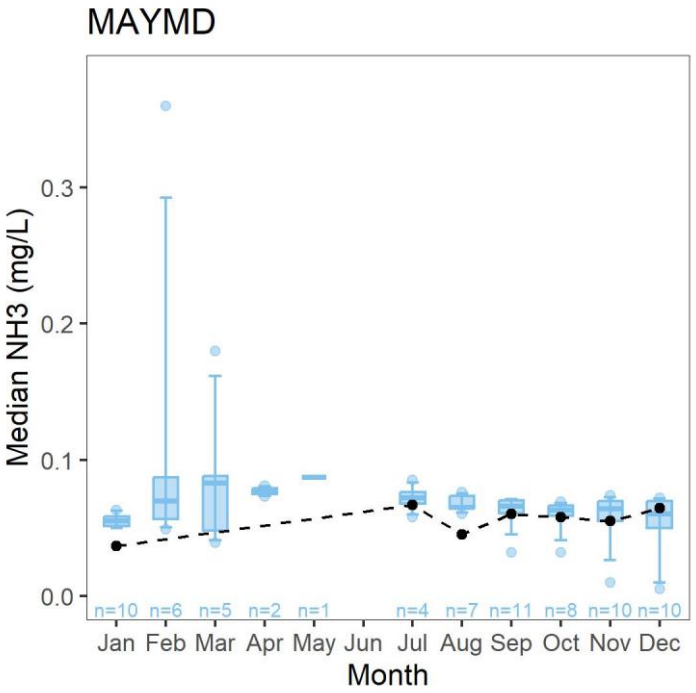

Figure 191. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

MAYMD total oxidised nitrogen (NO_x-N)

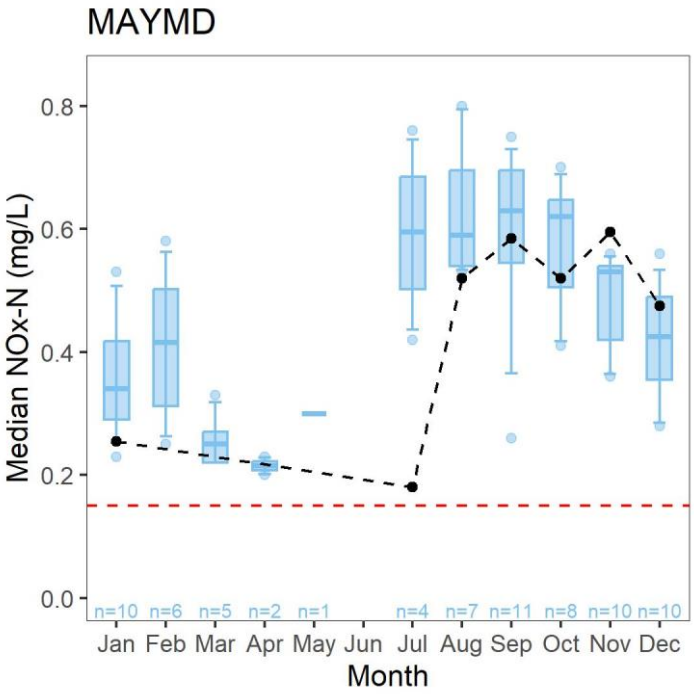

Figure 192. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

MAYMD dissolved organic nitrogen (DOrgN)

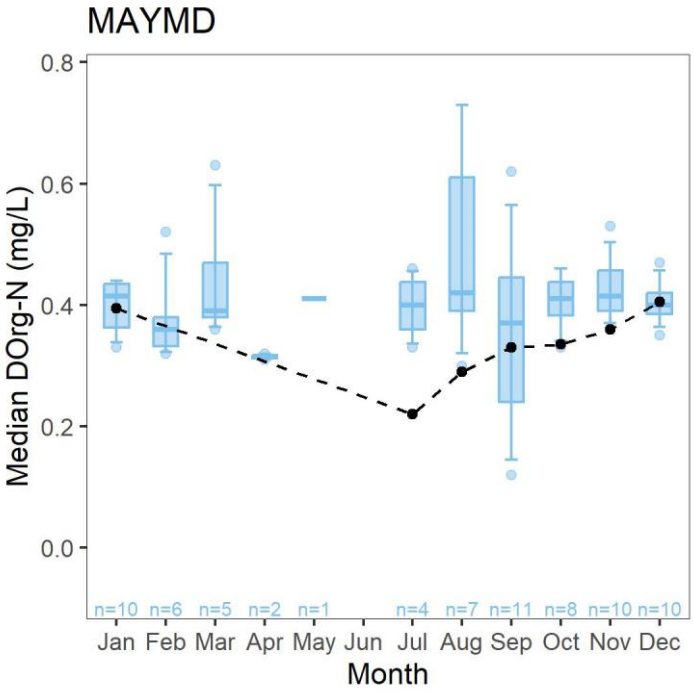

Figure 193. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

MAYMD total phosphorus (TP)

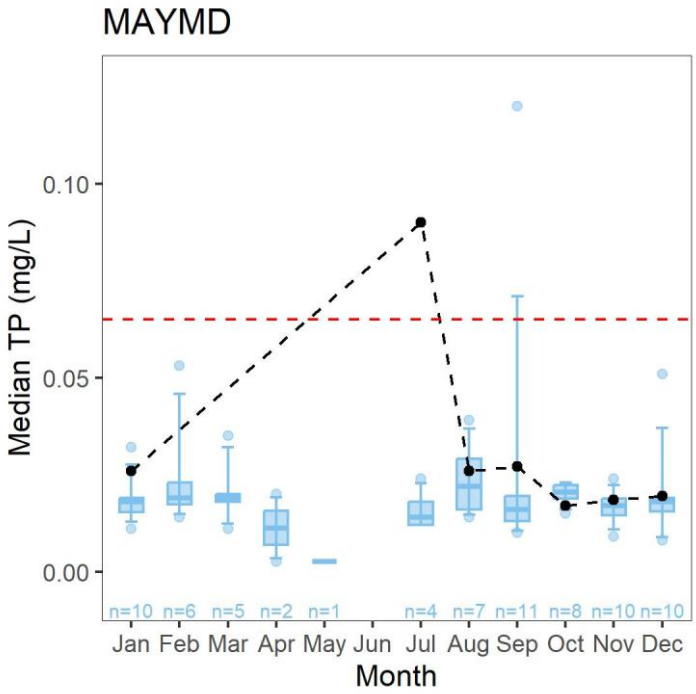

Figure 194. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

MAYMD filterable reactive phosphorus (FRP)

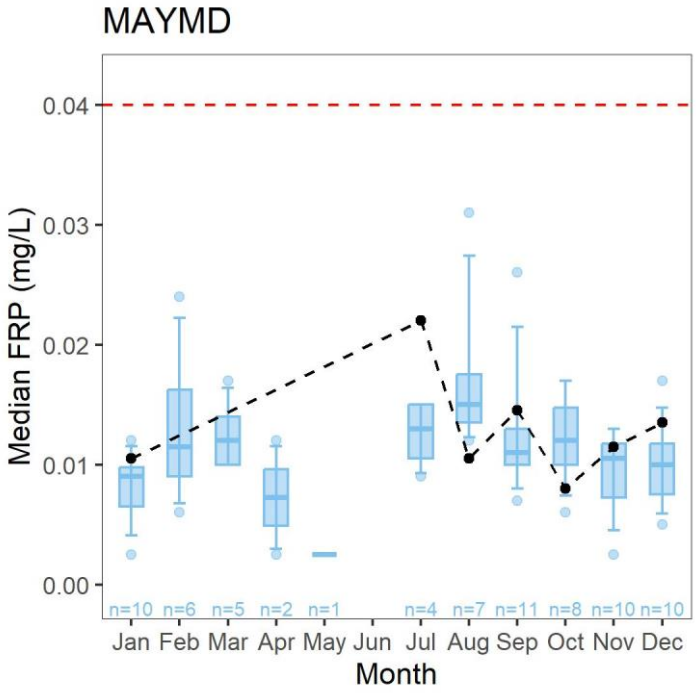

Figure 195. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

MAYMD dissolved organic carbon (DOC)

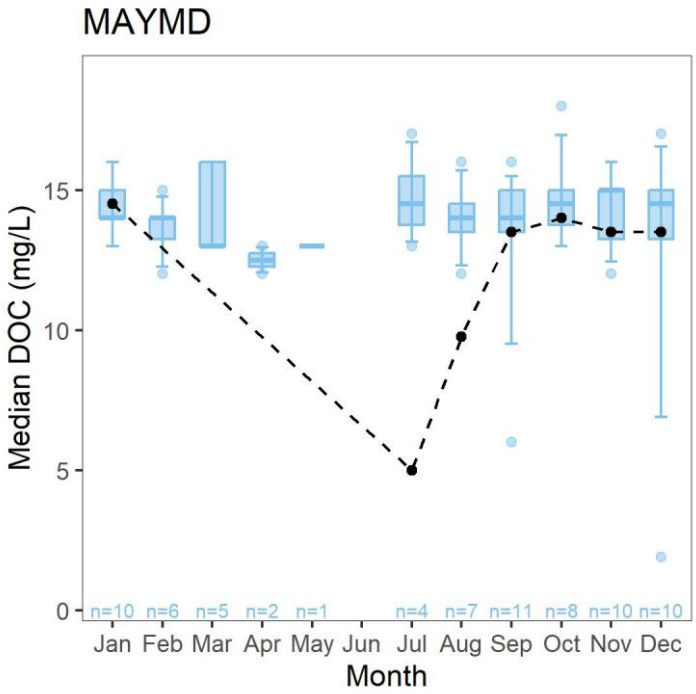

Figure 196. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

MAYMD total suspended solids (TSS)

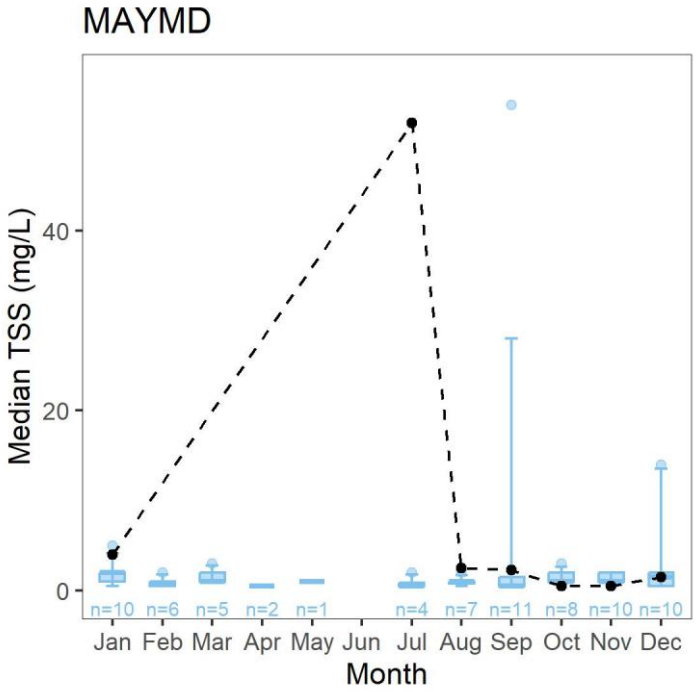

Figure 197. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

MAYMD dissolved oxygen (DO)

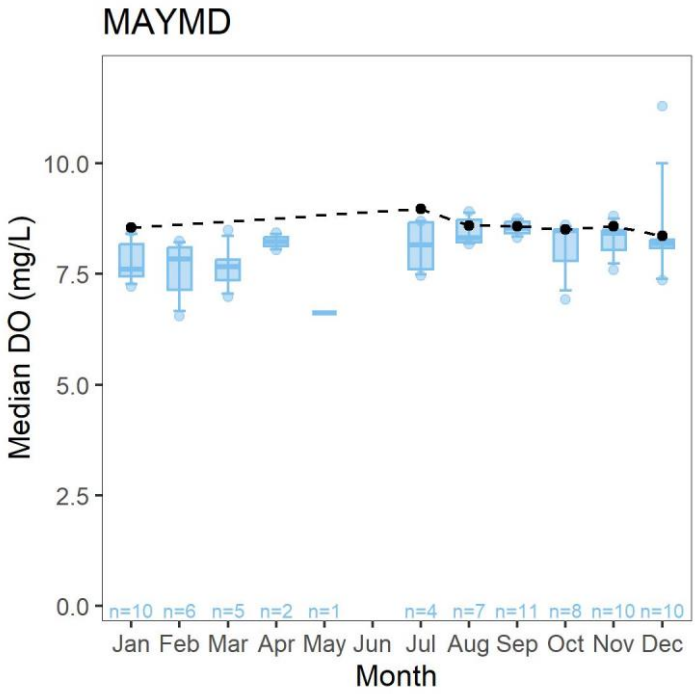

Figure 198. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

MAYMD specific conductivity (Sp. cond)

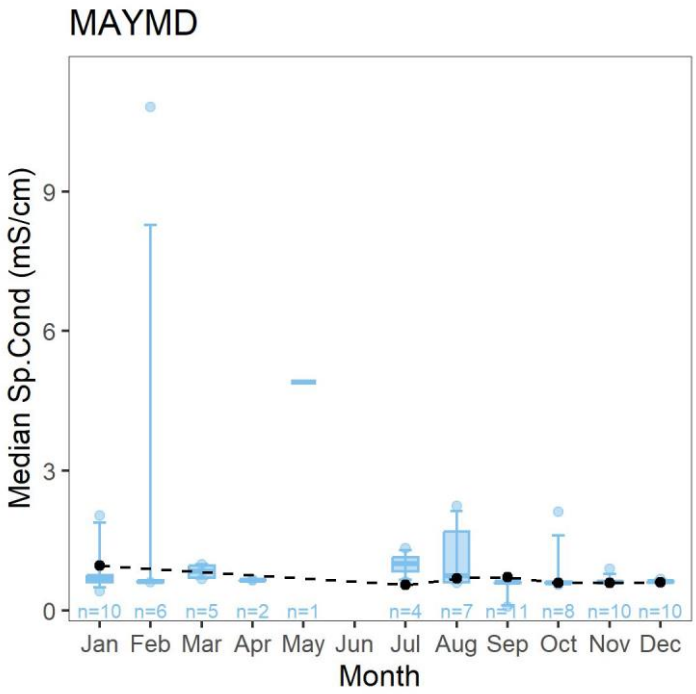

Figure 199. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MAYMD. Number of samples (n) is provided for the historical data.

Table 21. 2020 monthly sample numbers, minimum and maximum values at MAYMD.

TN (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.71						0.88	0.855	1.05	0.93	1.025	0.935
min	0.71						0.88	0.855	1.05	0.93	1.025	0.935
max	0.7						0.88	0.61	1	0.91	0.95	0.87
NH3-N (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.0365						0.067	0.045	0.06	0.058	0.055	0.0645
min	0.027						0.067	0.028	0.057	0.053	0.046	0.059
max	0.046						0.067	0.062	0.063	0.063	0.064	0.07
Nox-N (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.255						0.18	0.52	0.585	0.52	0.595	0.475
min	0.23						0.18	0.35	0.56	0.5	0.55	0.44
max	0.28						0.18	0.69	0.61	0.54	0.64	0.51
DorgN (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.395						0.22	0.29	0.33	0.335	0.36	0.405
min	0.395						0.22	0.29	0.33	0.335	0.36	0.405
max	0.36						0.22	0.22	0.31	0.32	0.35	0.35
TP (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.026						0.09	0.026	0.027	0.017	0.0185	0.0195
min	0.024						0.09	0.023	0.02	0.015	0.017	0.019
max	0.028						0.09	0.029	0.034	0.019	0.02	0.02
FRP (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	0.0105						0.022	0.0105	0.0145	0.008	0.0115	0.0135
min	0.01						0.022	0.009	0.013	0.006	0.009	0.012
max	0.011						0.022	0.012	0.016	0.01	0.014	0.015
DOC (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	14.5						5	9.75	13.5	14	13.5	13.5
min	14						5	6.5	13	14	13	13
max	15						5	13	14	14	14	14
TSS (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	4						52	2.5	2.5	1	1	1.5
min	3						52	1	1	1	1	1
max	5						52	4	4	1	1	2
DO (mg/L)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1	2	2	2	2	2
med	8.545						8.98	8.59	8.585	8.515	8.58	8.365
min	8.38						8.98	8.48	8.53	8.4	8.55	8.22
max	8.71						8.98	8.7	8.64	8.63	8.61	8.51
Sp.Cond (mS/cm)	Jan	Febuary	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
n	2	0	0	0	0	0	1.00	2.00	2.00	2.00	2.00	2.00
med	959.2						0.55	0.68	0.72	0.60	0.59	0.61
min	730.6						0.55	0.61	0.60	0.60	0.59	0.57
max	1187.8						0.55	0.76	0.83	0.60	0.60	0.65

NB: Daily discharge data is not available for MAYMD as this site is not gauged. The MAYMD sampling site is located at the point that this main drain discharges to the estuary and, as such, can be influenced by estuarine waters during high tides and storm surges. Water samples are therefore only collected when the drain is flowing freely and during a low tide, which is determined visually and by the conductivity of site water prior to sampling (conductivity must not exceed 3mS/cm). Due to the influence of estuarine waters, samples were not taken between February and June and reduced in July.

20. Mills Street Main Drain (MILLMD)

MILLMD total nitrogen (TN)

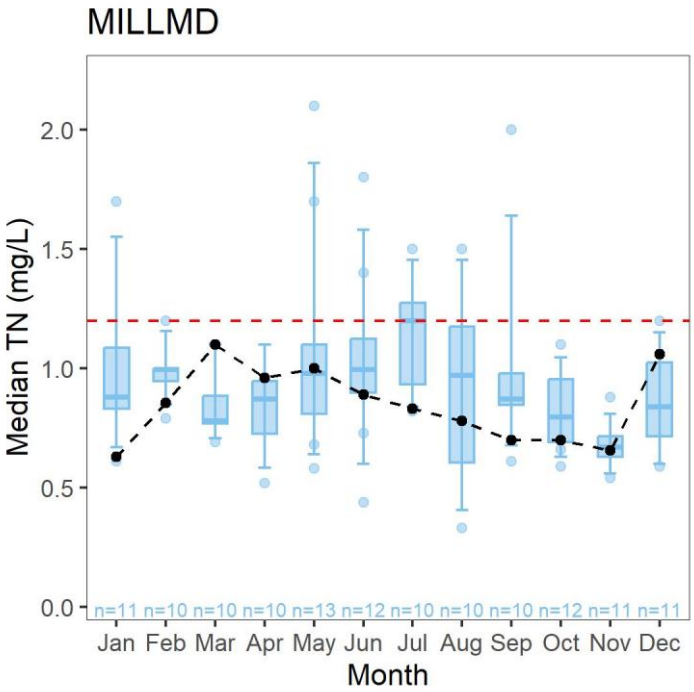

Figure 200. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

MILLMD ammoniacal nitrogen (NH_3-N)

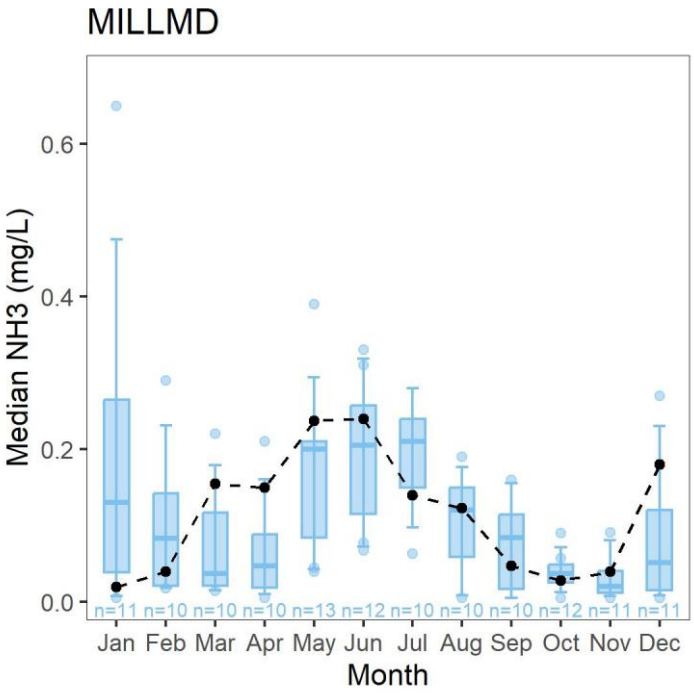

Figure 201. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

MILLMD total oxidisable nitrogen (NO_x-N)

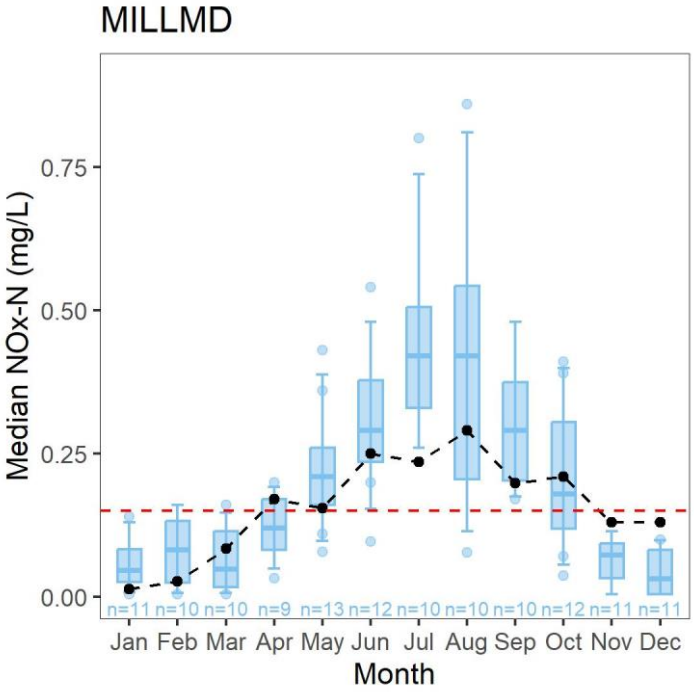

Figure 202. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

MILLMD dissolved organic nitrogen (DOrgN)

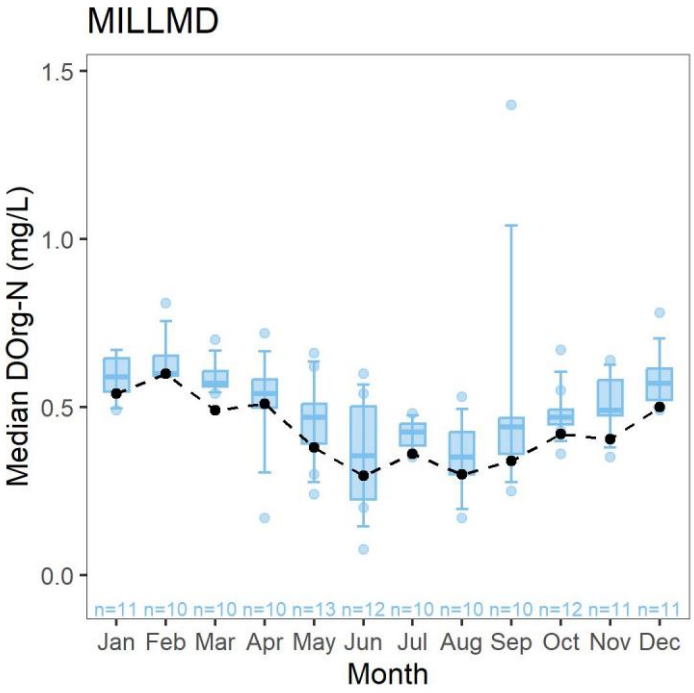

Figure 203. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

MILLMD total phosphorus (TP)

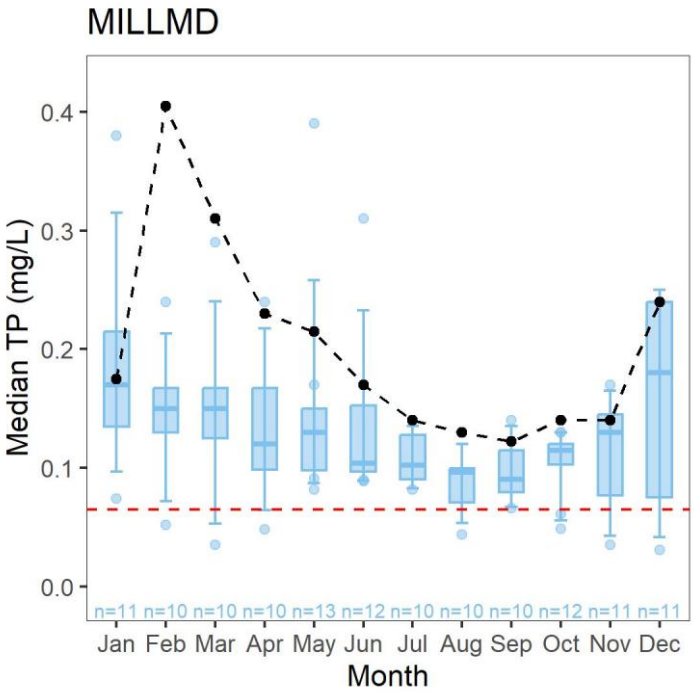

Figure 204. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

MILLMD filterable reactive phosphorus (FRP)

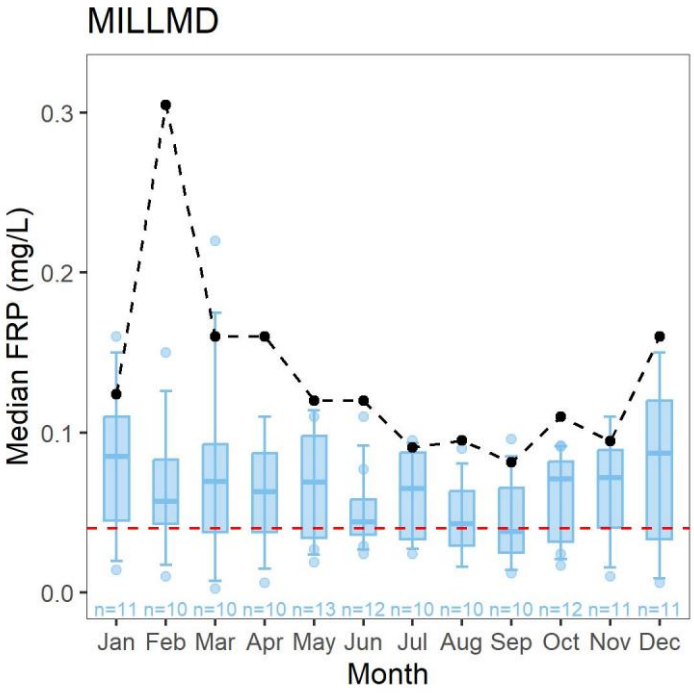

Figure 205. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

MILLMD dissolved organic carbon (DOC)

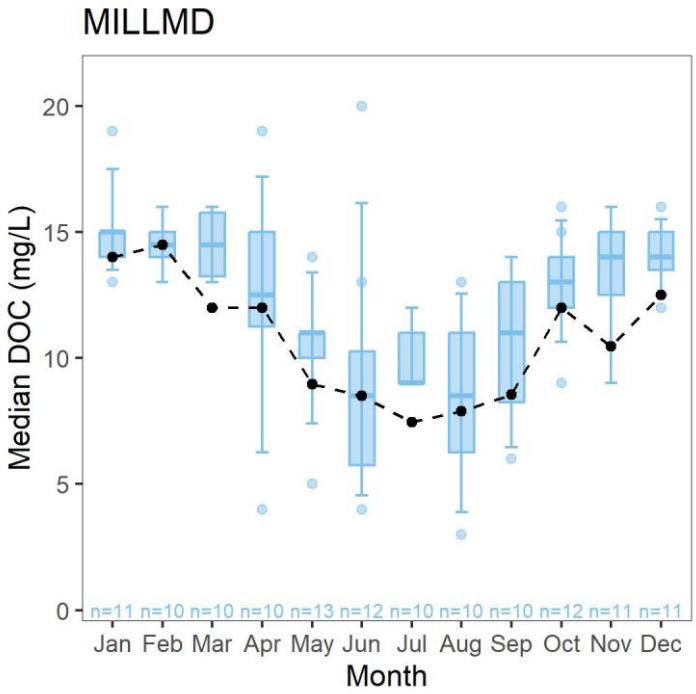

Figure 206. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

MILLMD total suspended solids (TSS)

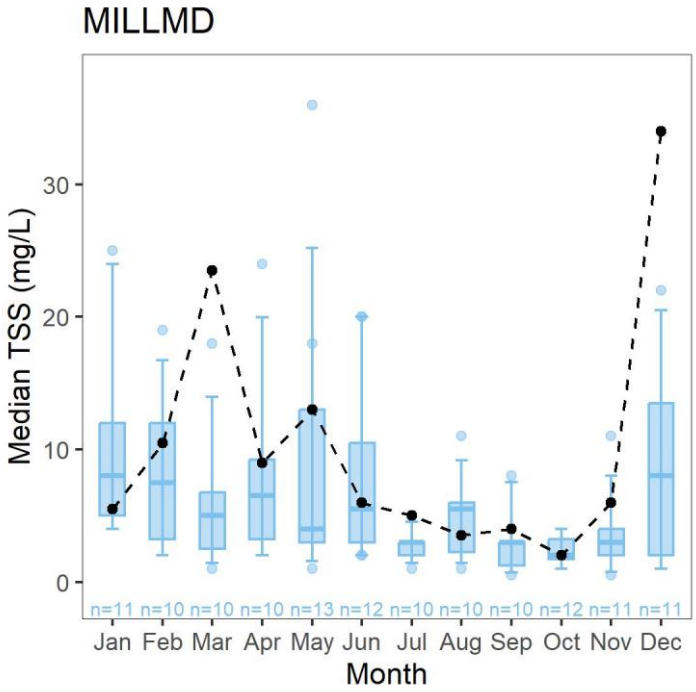

Figure 207. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

MILLMD dissolved oxygen (DO)

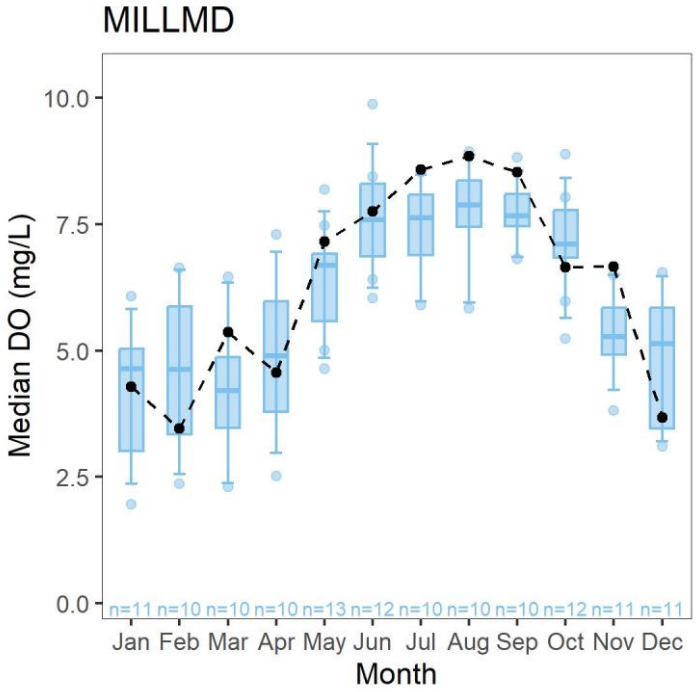

Figure 208. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

MILLMD specific conductivity (Sp. cond)

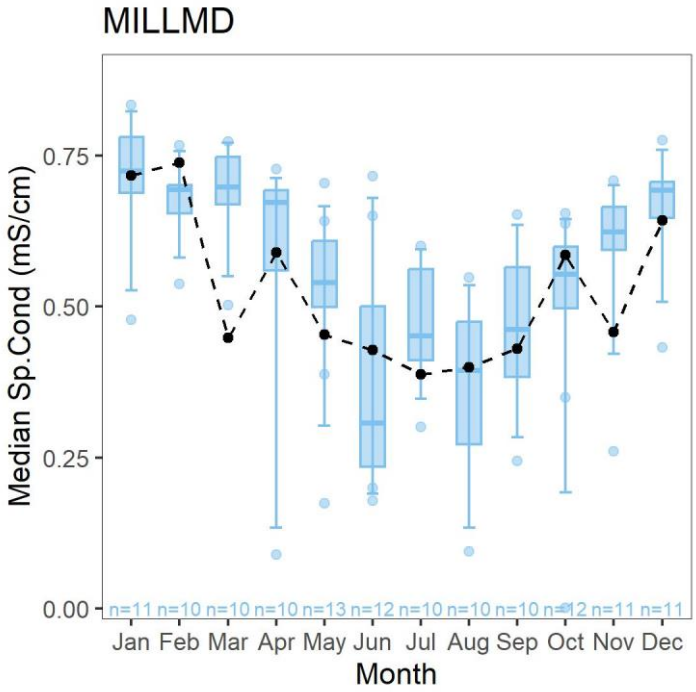

Figure 209. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site MILLMD. Number of samples (n) is provided for the historical data.

Table 22. 2020 monthly sample numbers, minimum and maximum values at MILLMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.63	0.855	1.1	0.96	1	0.89	0.83	0.78	0.7	0.7	0.655	1.06
min	0.62	0.79	1.1	0.82	0.9	0.79	0.74	0.76	0.49	0.57	0.53	0.92
max	0.64	0.92	1.1	1.1	1.1	0.99	0.92	0.8	0.91	0.85	0.78	1.2
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0195	0.0395	0.155	0.15	0.2375	0.24	0.14	0.123	0.047	0.028	0.04	0.18
min	0.017	0.028	0.09	0.068	0.095	0.18	0.12	0.096	0.032	0.018	0.037	0.15
max	0.022	0.051	0.22	0.22	0.38	0.3	0.16	0.15	0.062	0.029	0.043	0.21
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.0165	0.0275	0.0845	0.17	0.155	0.25	0.235	0.29	0.198	0.21	0.13	0.13
min	0.01	0.027	0.059	0.15	0.1	0.22	0.18	0.28	0.086	0.039	0.13	0.11
max	0.023	0.028	0.11	0.24	0.21	0.28	0.29	0.3	0.31	0.39	0.13	0.15
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.54	0.6	0.49	0.51	0.38	0.295	0.36	0.3	0.34	0.42	0.405	0.5
min	0.5	0.58	0.47	0.43	0.36	0.29	0.32	0.29	0.24	0.39	0.29	0.49
max	0.58	0.62	0.51	0.53	0.4	0.3	0.4	0.31	0.44	0.44	0.52	0.51
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.175	0.405	0.31	0.23	0.215	0.17	0.14	0.13	0.1225	0.14	0.14	0.24
min	0.17	0.34	0.28	0.23	0.2	0.15	0.14	0.13	0.095	0.13	0.13	0.2
max	0.18	0.47	0.34	0.24	0.23	0.19	0.14	0.13	0.15	0.15	0.15	0.28
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.124	0.305	0.16	0.16	0.12	0.12	0.0905	0.095	0.0815	0.11	0.0945	0.16
min	0.088	0.21	0.12	0.14	0.09	0.1	0.09	0.095	0.053	0.099	0.093	0.16
max	0.16	0.4	0.2	0.17	0.15	0.14	0.091	0.095	0.11	0.12	0.096	0.16
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	14	14.5	12	12	8.95	8.5	7.45	7.9	8.55	12	10.45	12.5
min	14	14	11	12	7.9	7.4	6.4	7.6	6.1	11	7.9	12
max	14	15	13	13	10	9.6	8.5	8.2	11	12	13	13
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	5.5	10.5	23.5	9	13	6	5	3.5	4	2	6	34
min	3	4	16	5	12	5	4	2	3	2	5	22
max	8	17	31	12	14	7	6	5	5	3	7	46
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	4.285	3.455	5.37	4.56	7.16	7.76	8.585	8.845	8.525	6.65	6.665	3.68
min	3.55	3.32	3.67	4.56	6.28	7.09	8.58	8.74	7.75	4.1	5.1	3.34
max	5.02	3.59	7.07	6.2	8.04	8.43	8.59	8.95	9.3	8.22	8.23	4.02
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.72	0.74	0.45	0.59	0.45	0.43	0.39	0.40	0.43	0.59	0.46	0.64
min	0.71	0.73	0.34	0.56	0.40	0.36	0.30	0.39	0.29	0.51	0.28	0.62
max	0.72	0.74	0.55	0.64	0.51	0.50	0.48	0.41	0.57	0.65	0.64	0.66

NB: Daily discharge data is not available for MILLMD as this site is not gauged.

21. Perth Airport North (LIMEC)

LIMEC total nitrogen (TN)

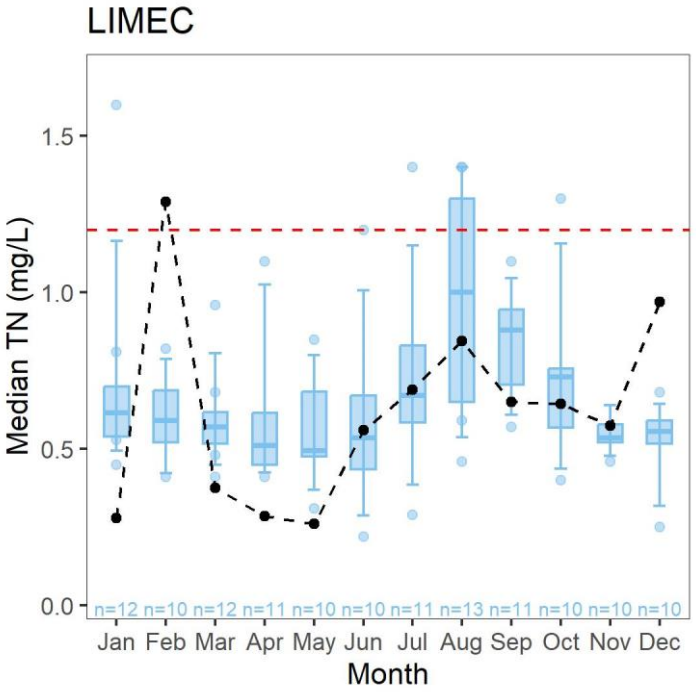

Figure 210. Monthly median Total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

LIMEC ammoniacal nitrogen (NH_3-N)

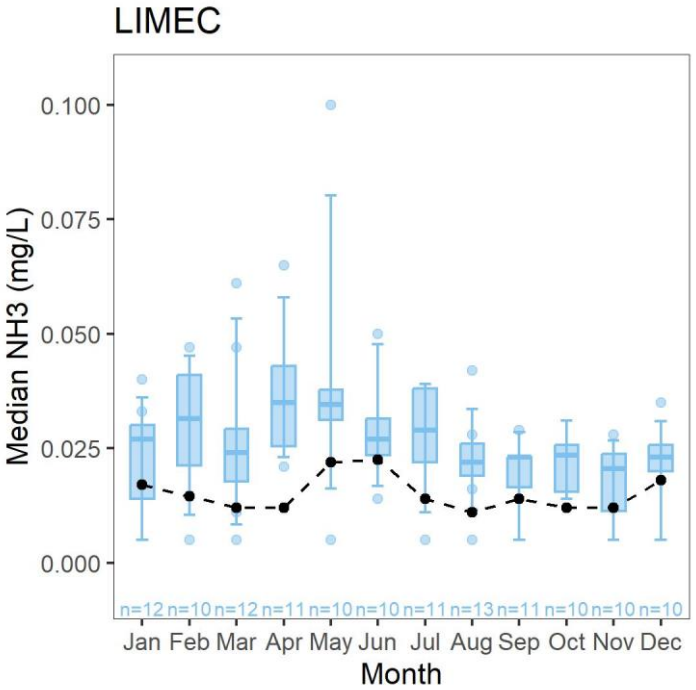

Figure 211. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

LIMEC total oxidised nitrogen (NO_x-N)

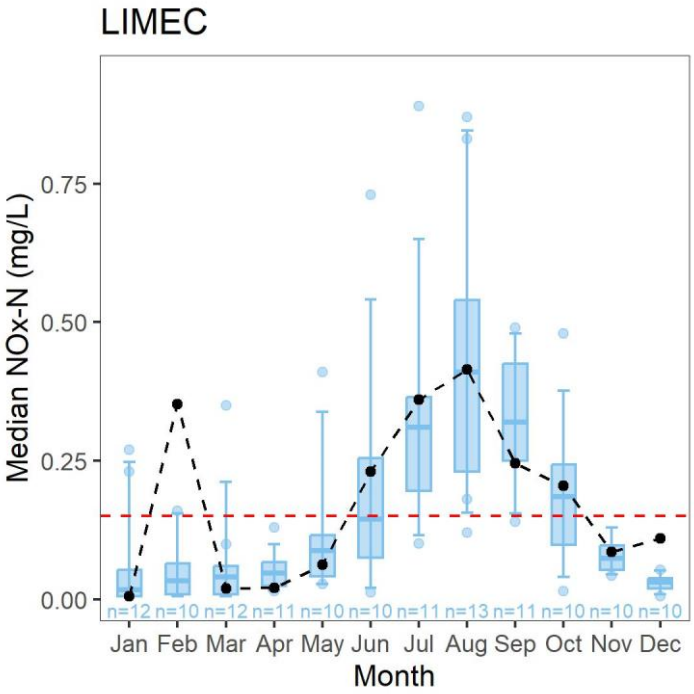

Figure 212. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

LIMEC dissolved organic nitrogen (DOrgN)

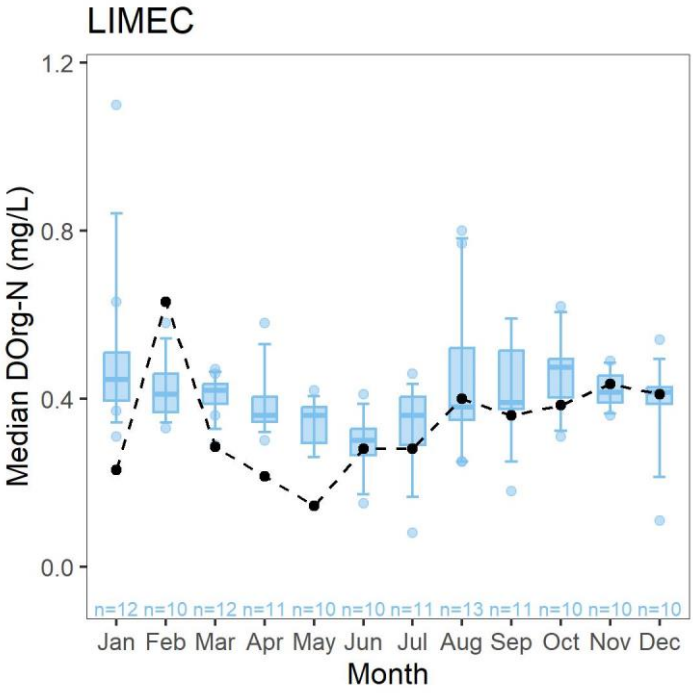

Figure 213. Monthly dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

LIMEC total phosphorus (TP)

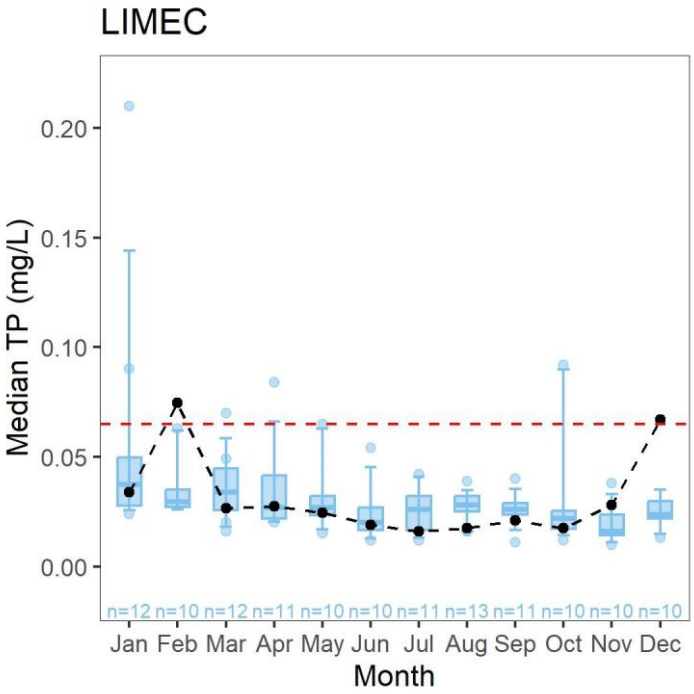

Figure 214. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

LIMEC filterable reactive phosphorus (FRP)

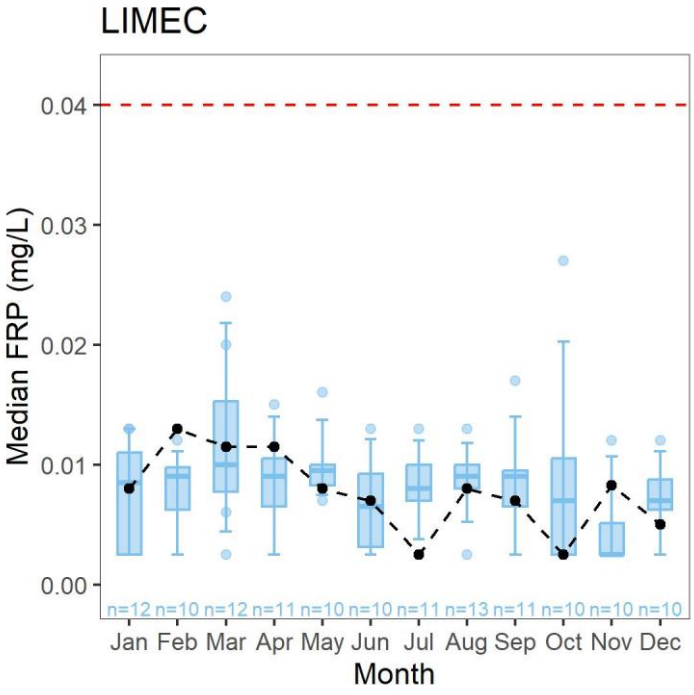

Figure 215. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

LIMEC dissolved organic carbon (DOC)

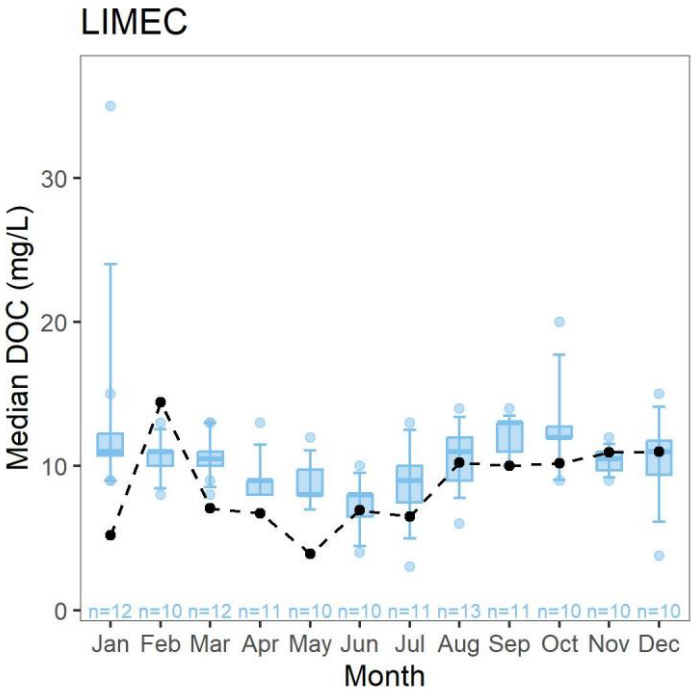

Figure 216. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

LIMEC total suspended sediment (TSS)

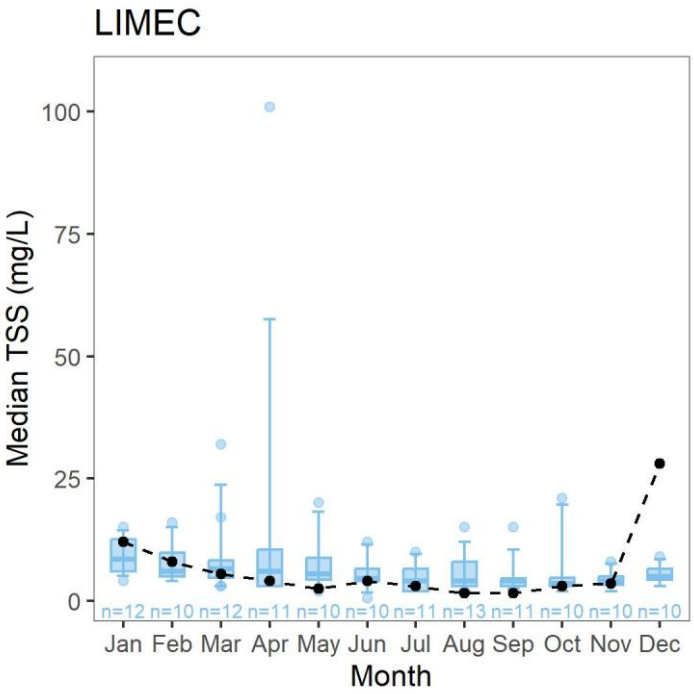

Figure 217. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

LIMEC dissolved oxygen (DO)

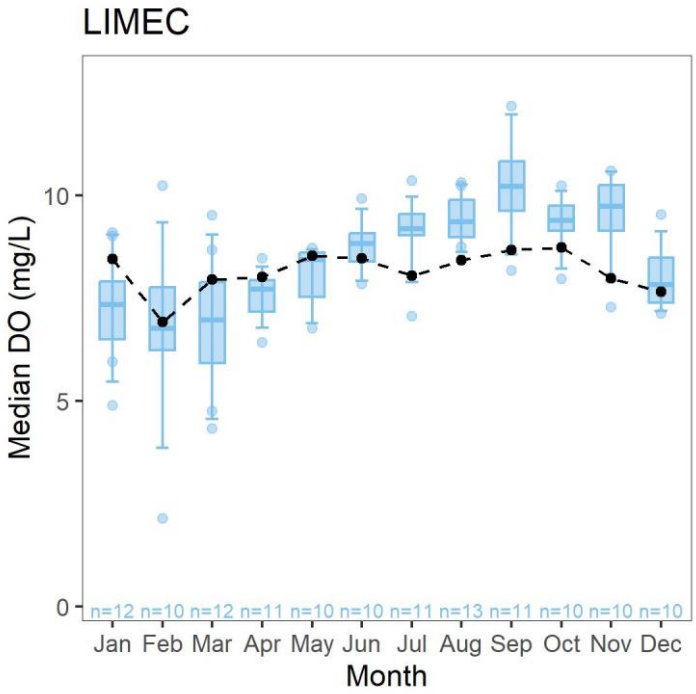

Figure 218. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

LIMEC specific conductivity (Sp. cond)

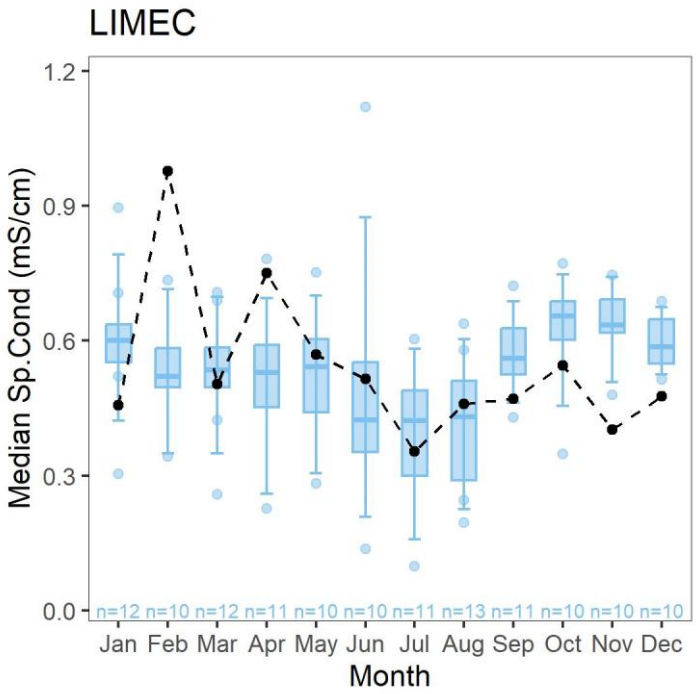

Figure 219. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site LIMEC. Number of samples (n) is provided for the historical data.

Table 23. 2020 monthly sample numbers, minimum and maximum values at LIMEC.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.28	1.29	0.375	0.285	0.26	0.56	0.69	0.845	0.65	0.645	0.575	0.97
min	0.28	0.38	0.22	0.28	0.26	0.55	0.58	0.84	0.63	0.64	0.54	0.55
max	0.58	2.2	0.53	0.29	0.26	0.57	0.8	0.85	0.67	0.65	0.61	1.2
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.017	0.017	0.0145	0.0145	0.022	0.0225	0.014	0.011	0.014	0.0145	0.0145	0.018
min	0.01	0.01	0.01	0.01	0.012	0.017	0.013	0.01	0.012	0.01	0.01	0.01
max	0.019	0.024	0.019	0.019	0.032	0.028	0.018	0.012	0.016	0.019	0.019	0.02
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.01	0.355	0.019	0.023	0.062	0.23	0.36	0.415	0.245	0.205	0.085	0.11
min	0.01	0.01	0.016	0.01	0.061	0.23	0.25	0.41	0.24	0.17	0.07	0.054
max	0.02	0.7	0.022	0.036	0.063	0.23	0.43	0.42	0.25	0.24	0.1	0.11
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.23	0.63	0.285	0.215	0.145	0.28	0.28	0.4	0.36	0.385	0.435	0.41
min	0.14	0.31	0.16	0.2	0.14	0.26	0.22	0.39	0.35	0.35	0.41	0.4
max	0.26	0.95	0.41	0.23	0.15	0.3	0.42	0.41	0.37	0.42	0.46	0.47
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.034	0.0745	0.0265	0.0275	0.0245	0.019	0.016	0.0175	0.021	0.0175	0.028	0.067
min	0.029	0.029	0.024	0.023	0.018	0.016	0.016	0.016	0.02	0.016	0.027	0.022
max	0.049	0.12	0.029	0.032	0.031	0.022	0.017	0.019	0.022	0.019	0.029	0.11
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.008	0.013	0.0115	0.0115	0.008	0.007	0.005	0.008	0.007	0.005	0.0095	0.005
min	0.005	0.008	0.011	0.009	0.008	0.005	0.005	0.007	0.005	0.005	0.005	0.005
max	0.008	0.018	0.012	0.014	0.008	0.009	0.005	0.009	0.009	0.005	0.014	0.009
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	5.2	14.45	7.1	6.7	3.9	6.95	6.5	10.25	10	10.2	10.95	11
min	3.8	4.9	4.2	6.2	3.7	6.7	6	9.5	10	9.4	9.9	11
max	6.3	24	10	7.2	4.1	7.2	6.5	11	10	11	12	11
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	12	8	5.5	4	2.5	4	3	1.5	1.5	3	3.5	28
min	6	6	3	4	1	4	3	1	1	3	3	12
max	58	10	8	4	4	4	3	2	2	3	4	62
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	8.45	6.915	7.94	8.015	8.52	8.455	8.04	8.41	8.67	8.73	7.98	7.65
min	7.75	5.42	7.9	7.52	8.32	8.38	7.8	8.04	8.28	8.44	7.8	6.57
max	8.53	8.41	7.98	8.51	8.72	8.53	8.21	8.78	9.06	9.02	8.16	8.19
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.46	0.98	0.50	0.75	0.57	0.52	0.35	0.46	0.47	0.55	0.40	0.48
min	0.43	0.67	0.48	0.66	0.38	0.51	0.35	0.36	0.43	0.54	0.38	0.47
max	0.47	1.28	0.52	0.84	0.75	0.53	0.40	0.55	0.51	0.55	0.42	0.48

NB: Daily discharge data is not available for LIMEC as this site is not gauged.

22. Perth Airport South (AIRSMD)

AIRSMD total nitrogen (TN)

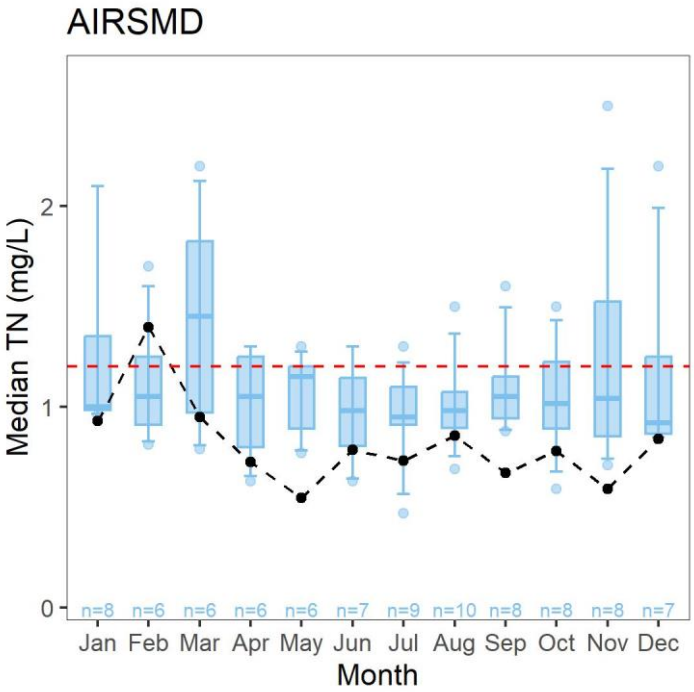

Figure 220. Monthly median Total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

AIRSMD ammoniacal nitrogen (NH_3-N)

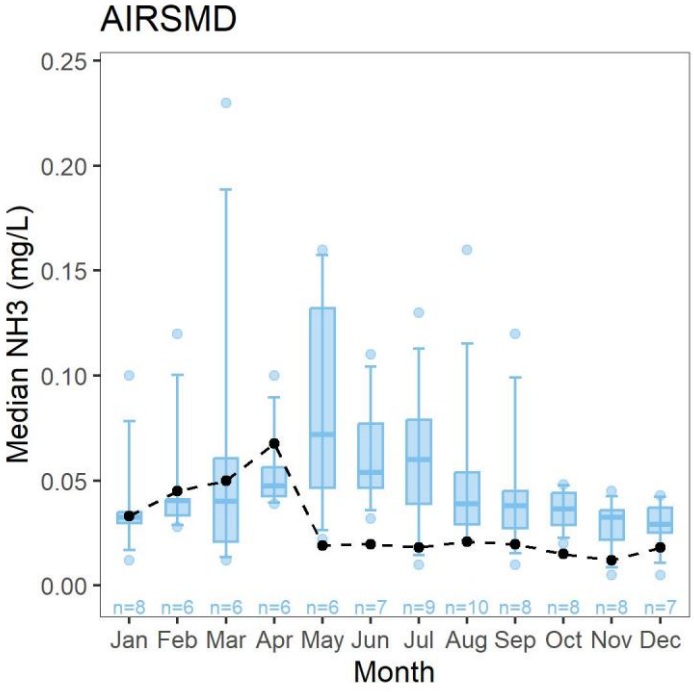

Figure 221. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

AIRSMD total oxidisable nitrogen (NO_x-N)

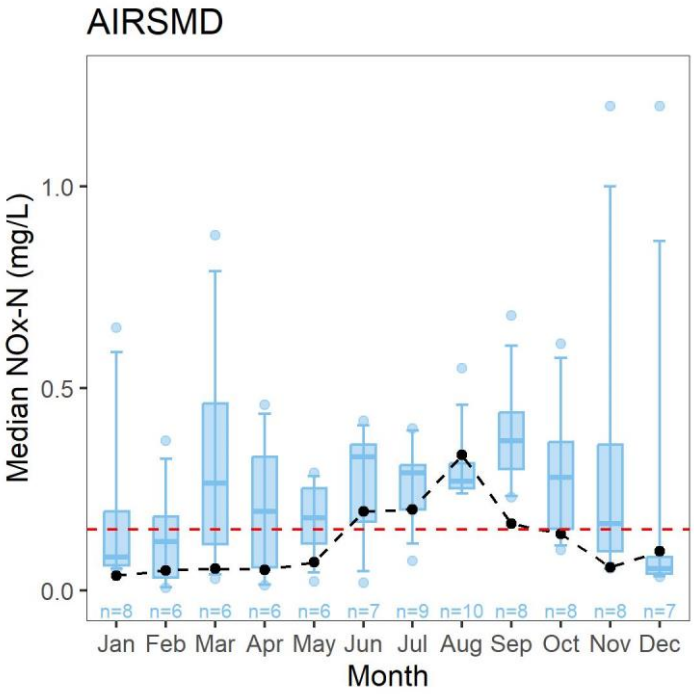

Figure 222. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

AIRSMD dissolved organic nitrogen (DOrgN)

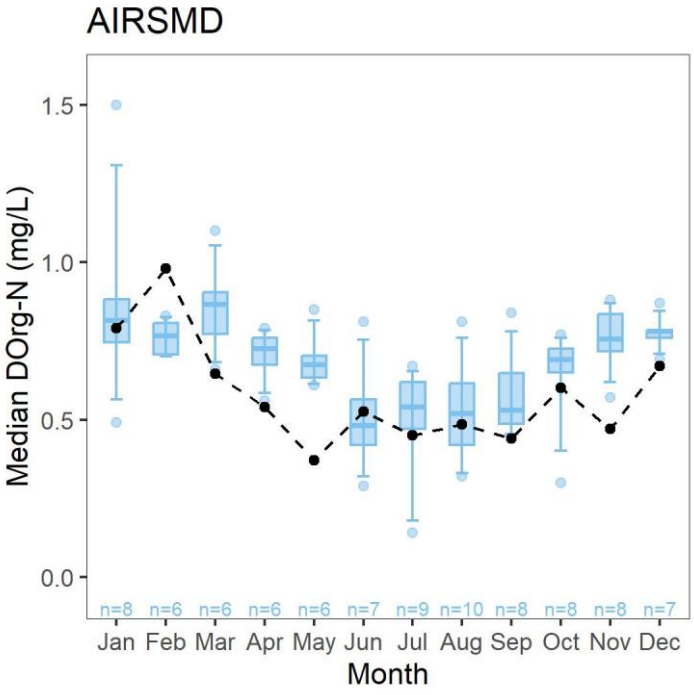

Figure 223. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

AIRSMD total phosphorus (TP)

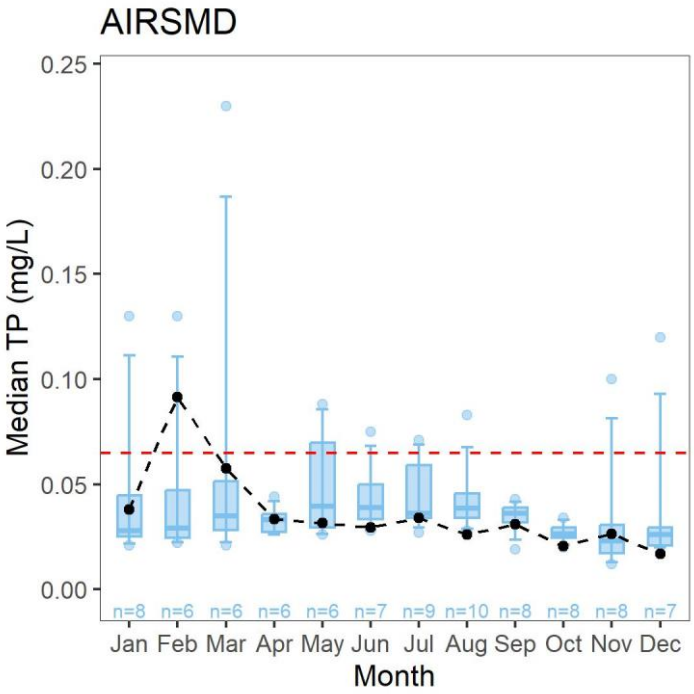

Figure 224. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

AIRSMD filterable reactive phosphorus (FRP)

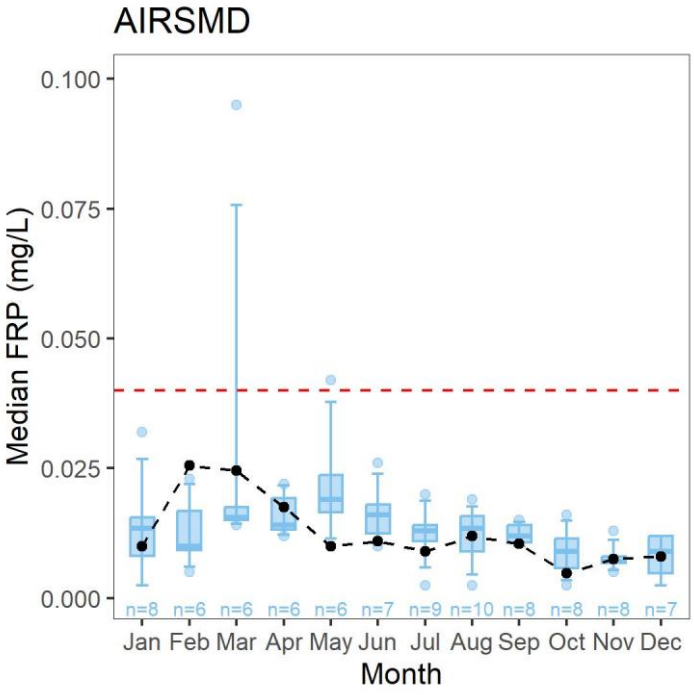

Figure 225. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

AIRSMD dissolved organic carbon (DOC)

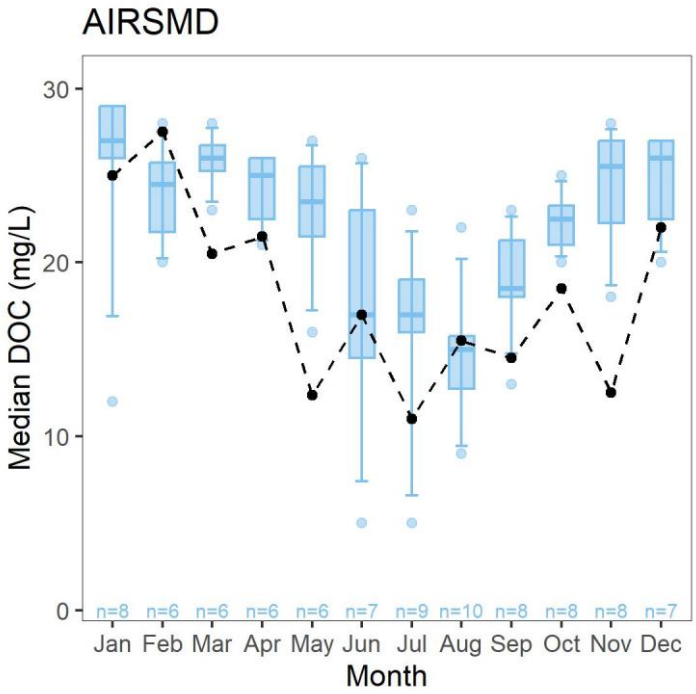

Figure 226. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

AIRSMD total suspended solids (TSS)

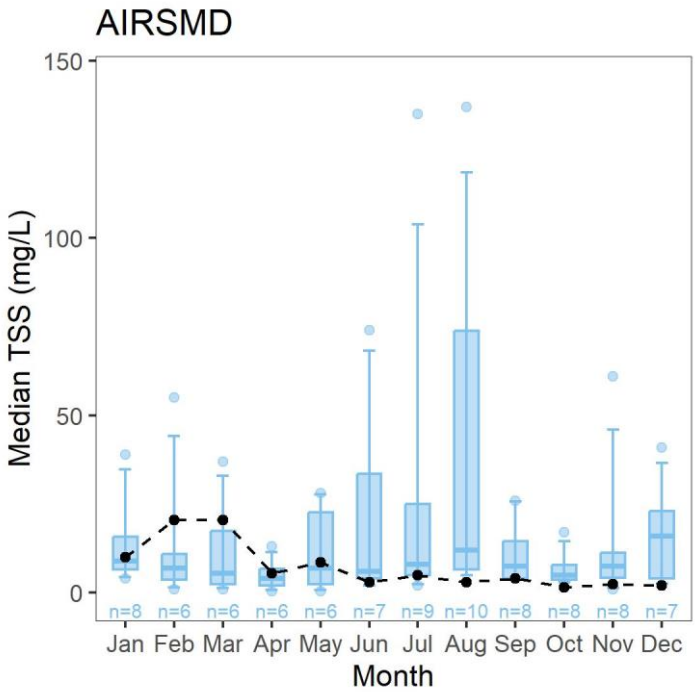

Figure 227. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

AIRSMD dissolved oxygen (DO)

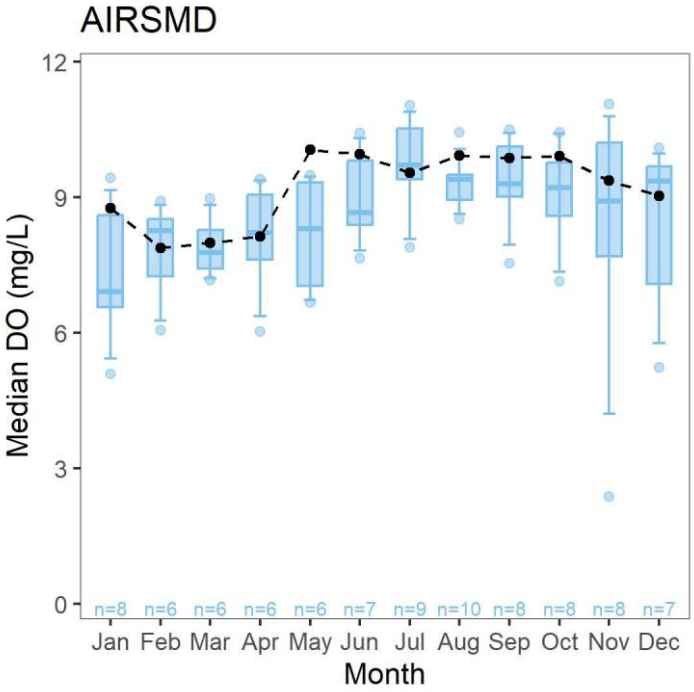

Figure 228. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

AIRSMD specific conductivity (Sp. cond)

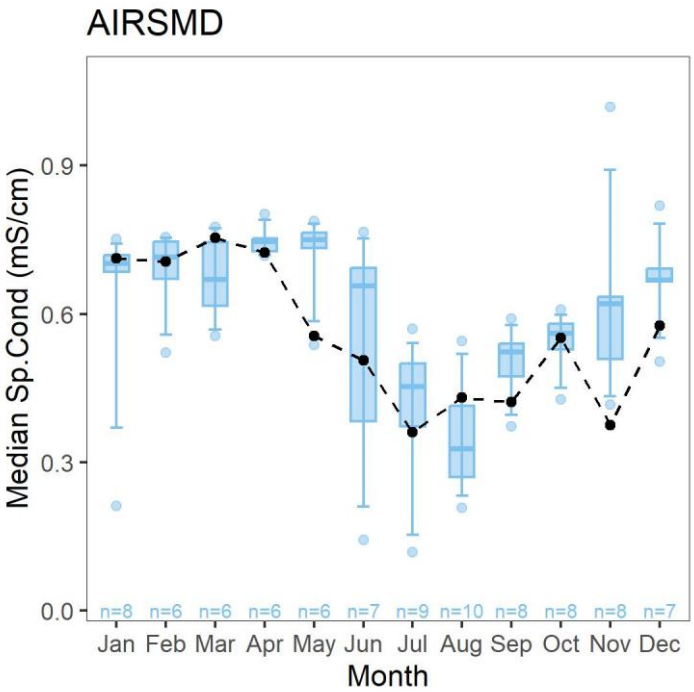

Figure 229. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site AIRSMD. Number of samples (n) is provided for the historical data.

Table 24. 2020 monthly sample numbers, minimum and maximum values at AIRSMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.93	1.395	0.95	0.725	0.545	0.785	0.73	0.855	0.67	0.78	0.59	0.84
min	0.92	0.99	0.9	0.7	0.34	0.75	0.71	0.77	0.63	0.78	0.57	0.79
max	1.1	1.8	1	0.75	0.75	0.82	0.77	0.94	0.71	0.78	0.61	0.85
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.033	0.045	0.05	0.0675	0.0215	0.0195	0.018	0.021	0.0195	0.0175	0.0145	0.018
min	0.023	0.032	0.039	0.062	0.01	0.019	0.014	0.02	0.019	0.01	0.01	0.017
max	0.037	0.058	0.061	0.073	0.033	0.02	0.026	0.022	0.02	0.025	0.019	0.033
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.036	0.048	0.054	0.051	0.069	0.195	0.2	0.335	0.165	0.14	0.057	0.096
min	0.027	0.044	0.033	0.047	0.051	0.18	0.16	0.33	0.16	0.11	0.054	0.055
max	0.13	0.052	0.075	0.055	0.087	0.21	0.27	0.34	0.17	0.17	0.06	0.11
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.79	0.98	0.645	0.54	0.37	0.525	0.45	0.485	0.44	0.6	0.47	0.67
min	0.73	0.66	0.61	0.52	0.2	0.51	0.44	0.39	0.4	0.59	0.45	0.63
max	0.91	1.3	0.68	0.56	0.54	0.54	0.48	0.58	0.48	0.61	0.49	0.71
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.038	0.0915	0.0575	0.0335	0.0315	0.0295	0.034	0.026	0.031	0.0205	0.0265	0.017
min	0.034	0.063	0.041	0.033	0.025	0.028	0.029	0.025	0.029	0.02	0.02	0.016
max	0.039	0.12	0.074	0.034	0.038	0.031	0.038	0.027	0.033	0.021	0.033	0.023
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.01	0.0255	0.0245	0.0175	0.01	0.011	0.009	0.012	0.0105	0.006	0.0075	0.008
min	0.01	0.025	0.021	0.016	0.009	0.01	0.006	0.011	0.01	0.005	0.006	0.005
max	0.011	0.026	0.028	0.019	0.011	0.012	0.009	0.013	0.011	0.007	0.009	0.015
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	25	27.5	20.5	21.5	12.35	17	11	15.5	14.5	18.5	12.5	22
min	24	22	20	21	5.7	16	9.4	12	12	18	12	20
max	26	33	21	22	19	18	12	19	17	19	13	24
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	10	20.5	20.5	5.5	8.5	3	5	3	4	1.5	2.5	2
min	9	20	15	5	7	3	3	2	3	1	1	2
max	10	21	26	6	10	3	6	4	5	2	4	9
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	8.75	7.875	7.985	8.135	10.05	9.945	9.53	9.925	9.855	9.905	9.365	9.02
min	7.78	7.49	7.83	7.85	9.8	9.92	9.38	9.75	9.76	9.7	9.34	8.34
max	9.41	8.26	8.14	8.42	10.3	9.97	9.57	10.1	9.95	10.11	9.39	9.76
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.71	0.71	0.75	0.72	0.56	0.51	0.36	0.43	0.42	0.55	0.37	0.58
min	0.71	0.65	0.75	0.70	0.38	0.51	0.29	0.33	0.36	0.55	0.37	0.54
max	0.73	0.76	0.76	0.75	0.73	0.51	0.43	0.53	0.48	0.56	0.38	0.70

NB: Daily discharge data is not available for AIRSMD as this site is not gauged.

23. St Leonard's Creek (STLEOC)

STLEOC total nitrogen (TN)

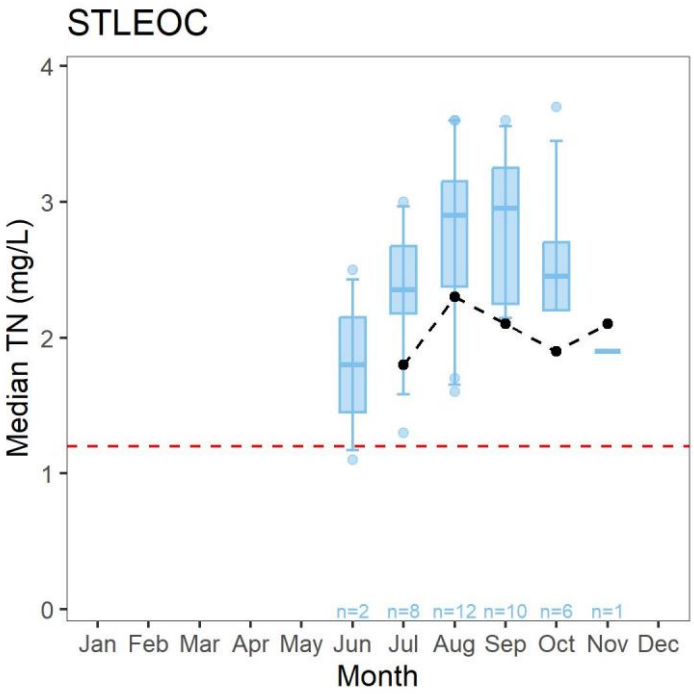

Figure 230. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

STLEOC ammoniacal nitrogen (NH_3-N)

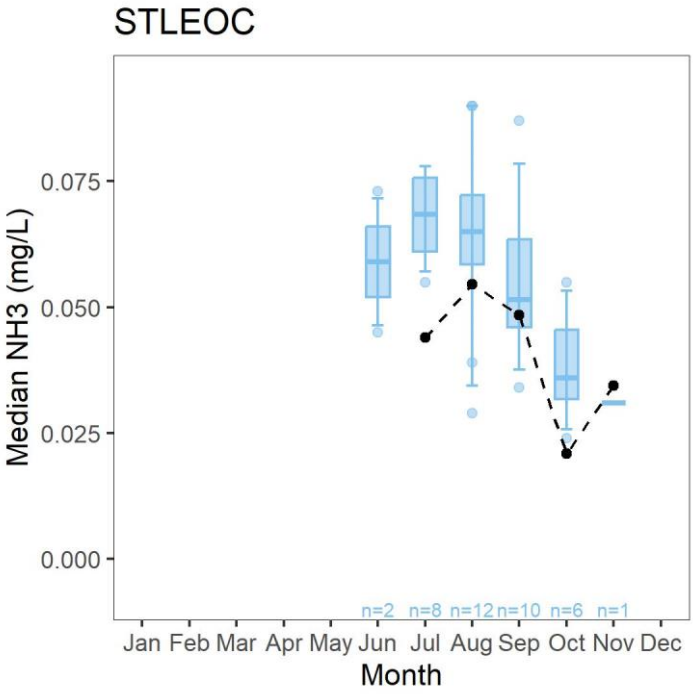

Figure 231. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

STLEOC total oxidised nitrogen (NO_x-N)

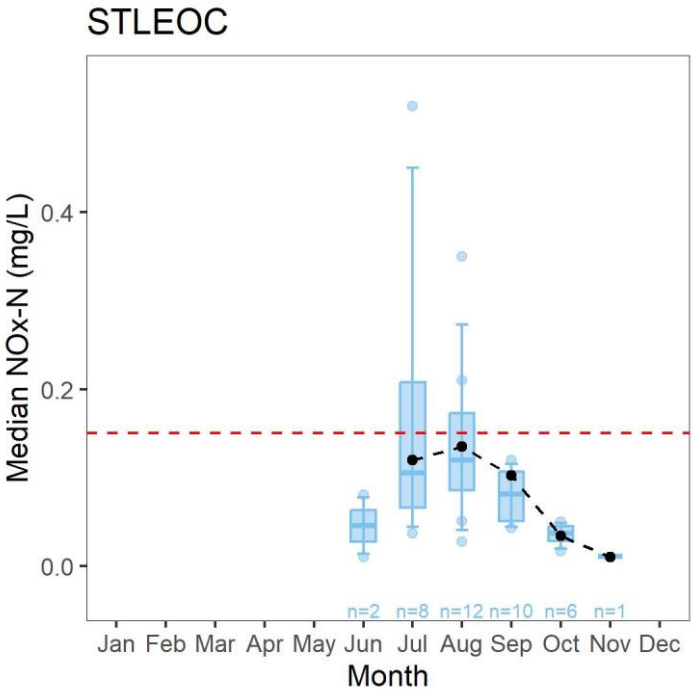

Figure 232. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

STLEOC dissolved organic nitrogen (DOrgN)

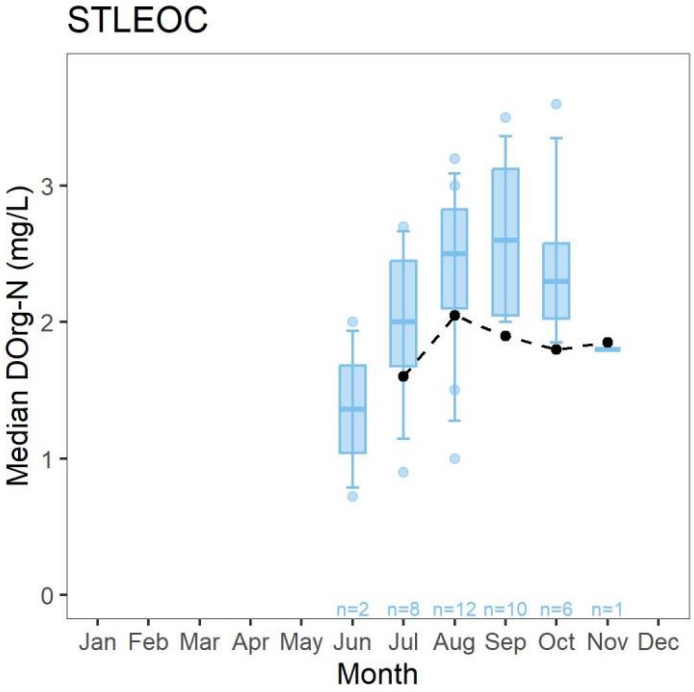

Figure 233. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

STLEOC total phosphorus (TP)

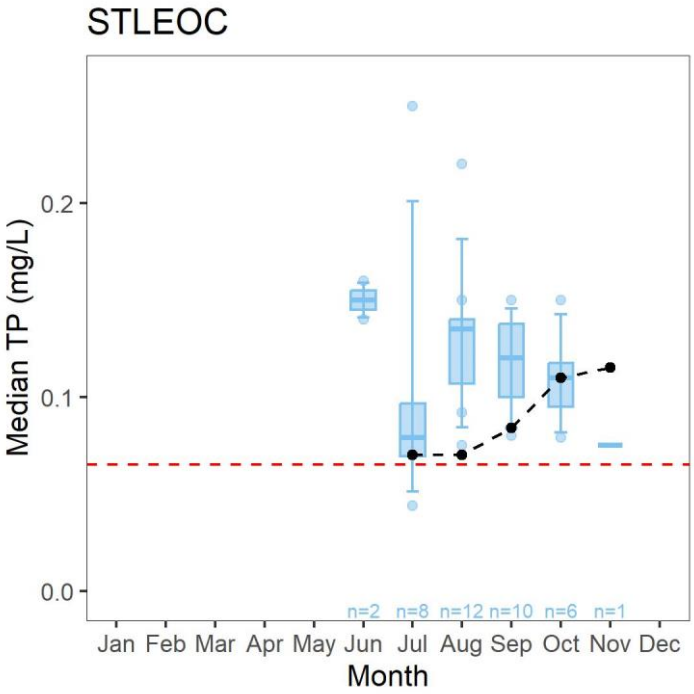

Figure 234. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

STLEOC filterable reactive phosphorus (FRP)

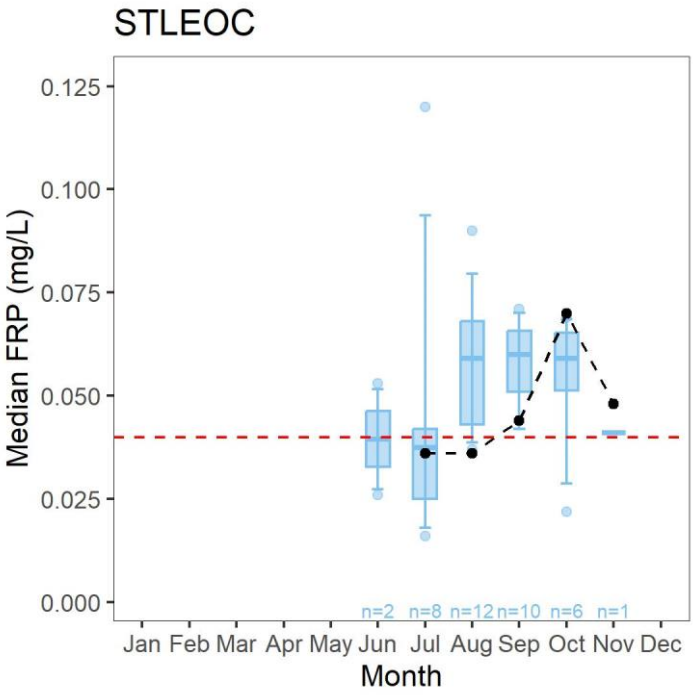

Figure 235. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

STLEOC dissolved organic carbon (DOC)

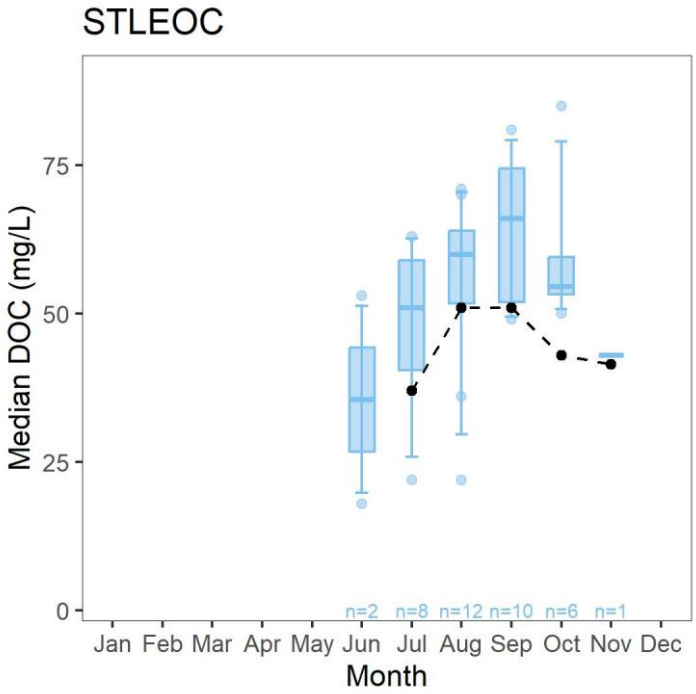

Figure 236. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

STLEOC total suspended solids (TSS)

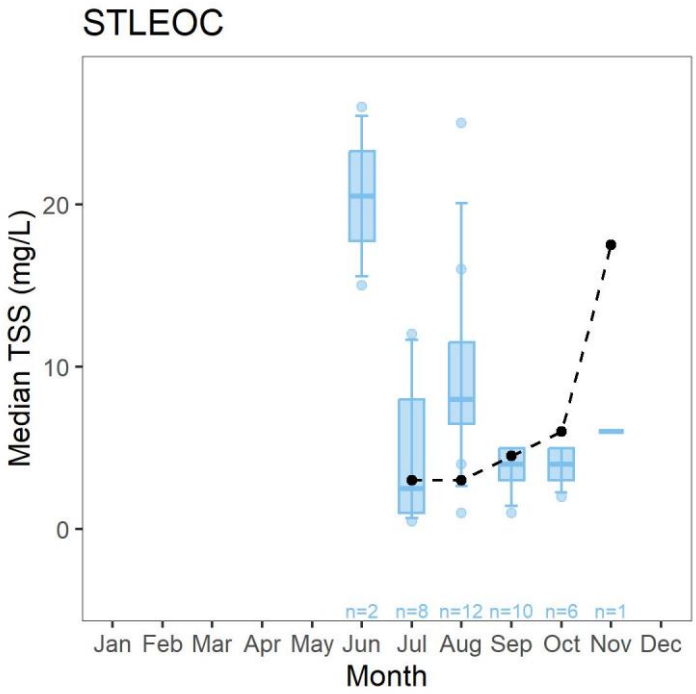

Figure 237. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

STLEOC dissolved oxygen (DO)

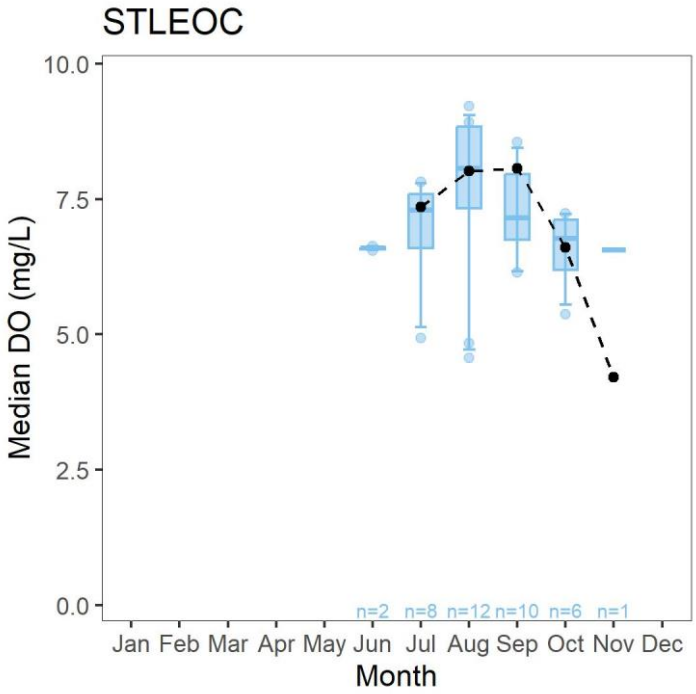

Figure 238. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

STLEOC specific conductivity (Sp. cond)

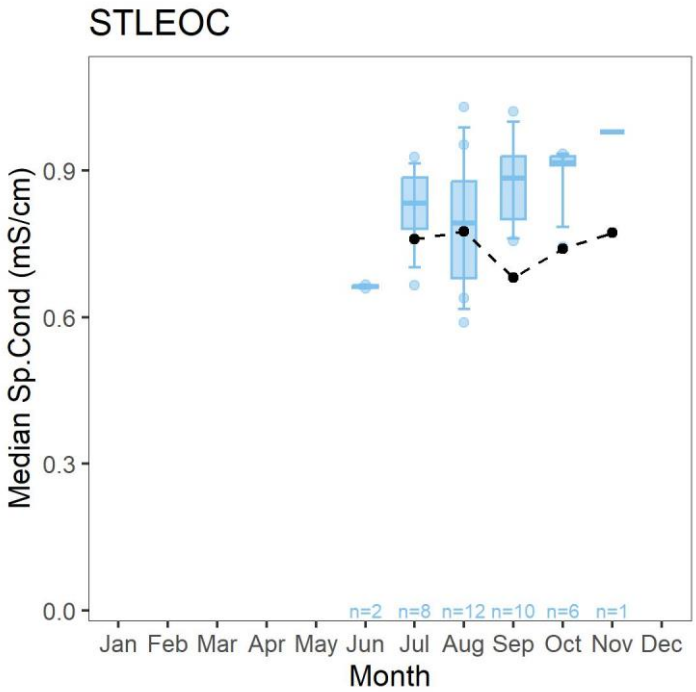

Figure 239. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STLEOC. Number of samples (n) is provided for the historical data.

Table 25. 2020 monthly sample numbers, minimum and maximum values at STLEOC.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							1.8	2.3	2.1	1.9	2.1	
min							1.3	2.3	1.9	1.9	2.1	
max							2	2.3	2.3	1.9	2.1	
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							0.044	0.0545	0.0485	0.021	0.0345	
min							0.042	0.047	0.046	0.021	0.028	
max							0.06	0.062	0.051	0.021	0.041	
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							0.12	0.135	0.1025	0.034	0.013	
min							0.047	0.1	0.065	0.034	0.01	
max							0.26	0.17	0.14	0.034	0.016	
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							1.6	2.05	1.9	1.8	1.85	
min							0.87	2	1.7	1.8	1.7	
max							1.8	2.1	2.1	1.8	2	
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							0.07	0.07	0.084	0.11	0.115	
min							0.06	0.063	0.083	0.11	0.1	
max							0.13	0.077	0.085	0.11	0.13	
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							0.036	0.036	0.044	0.07	0.048	
min							0.029	0.028	0.043	0.07	0.036	
max							0.083	0.044	0.045	0.07	0.06	
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							37	51	51	43	41.5	
min							18	50	49	43	34	
max							45	52	53	43	49	
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							3	3	4.5	6	17.5	
min							1	3	4	6	9	
max							4	3	5	6	26	
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							7.35	8.02	8.065	6.61	4.21	
min							7.22	7.69	7.86	6.61	1.86	
max							7.89	8.35	8.27	6.61	6.56	
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	3	2	2	1	2	0
med							0.76	0.78	0.68	0.74	0.77	
min							0.69	0.72	0.66	0.74	0.74	
max							0.80	0.84	0.71	0.74	0.80	

NB: Daily discharge data is not available for STLEOC as this site is not gauged. Due to the ephemeral nature of flow in St Leonard's Creek and the below average rainfall in 2020, samples were only collected between July and November 2020.

24. South Belmont Main Drain (SBELMD)

SBELMD total nitrogen (TN)

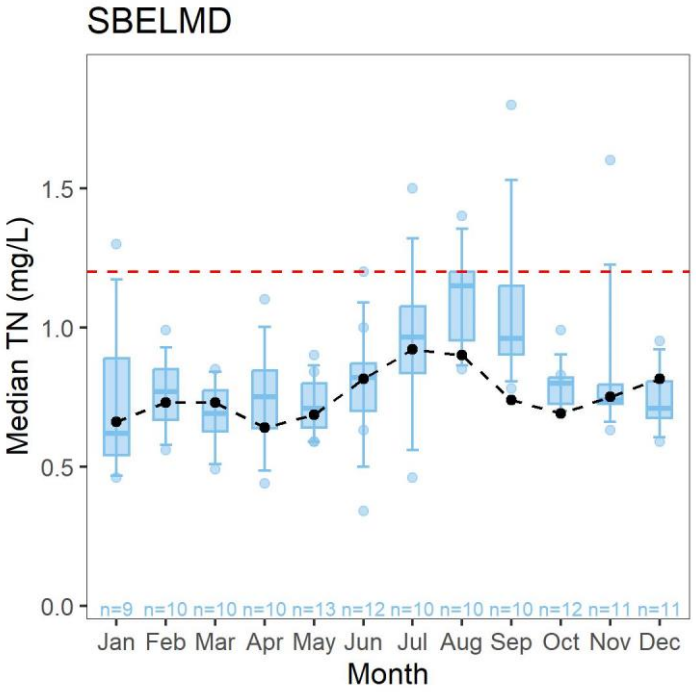

Figure 240. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

SBELMD ammoniacal nitrogen (NH_3-N)

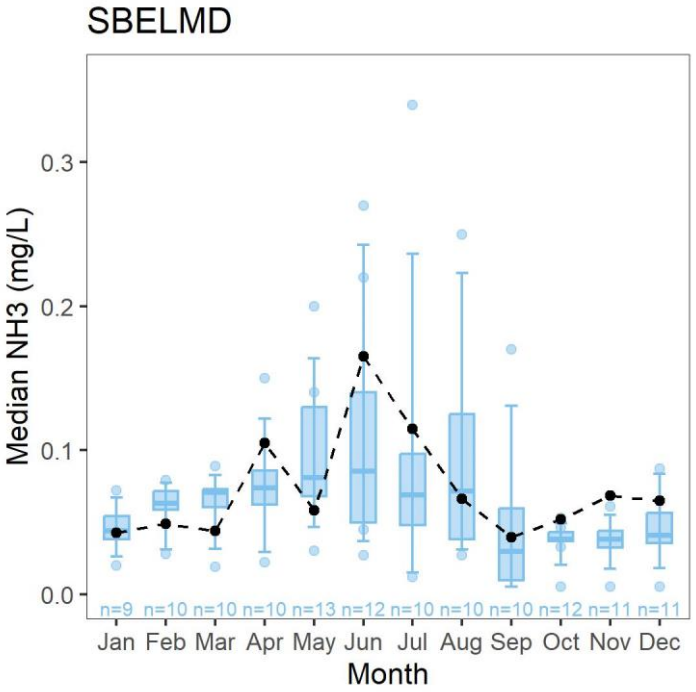

Figure 241. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

SBELMD total oxidised nitrogen (NO_x-N)

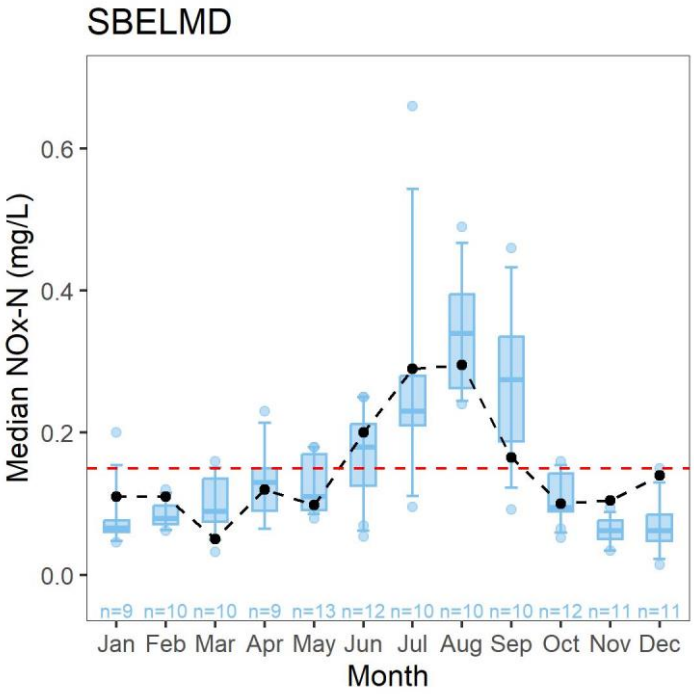

Figure 242. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

SBELMD dissolved organic nitrogen (DOrgN)

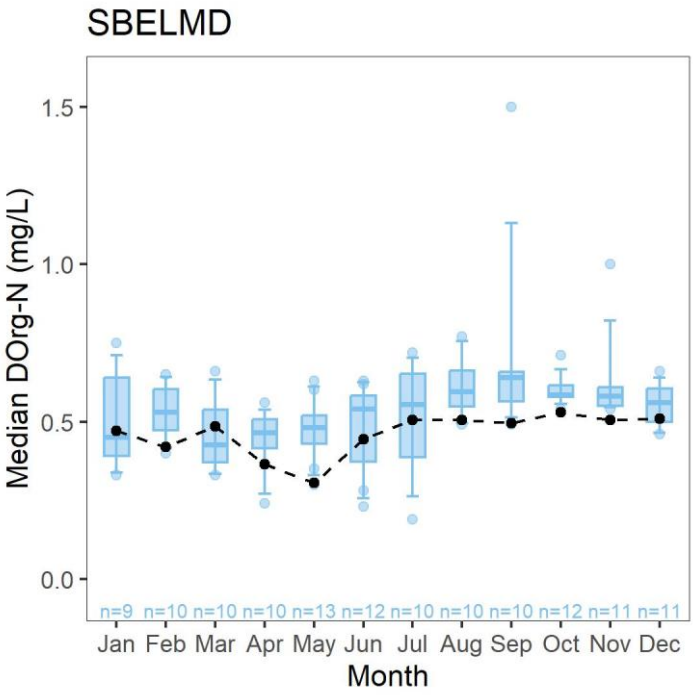

Figure 243. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

SBELMD total phosphorus (TP)

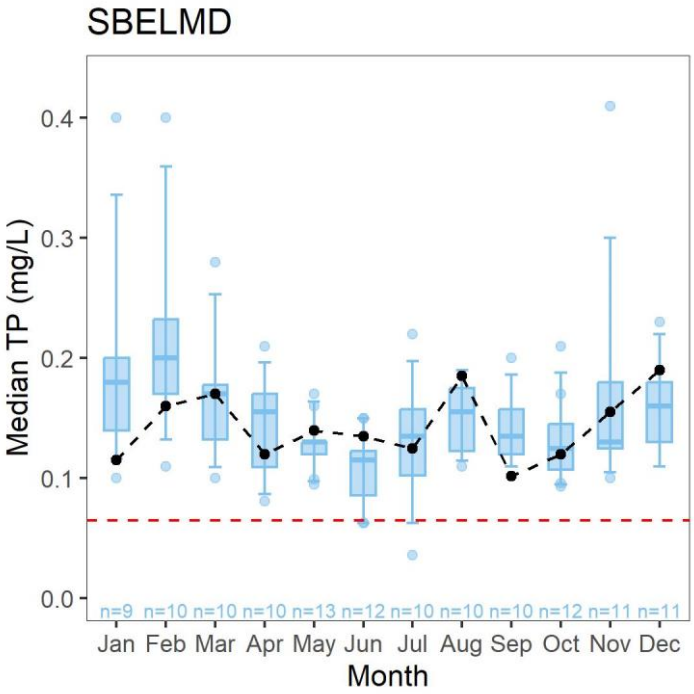

Figure 244. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

SBELMD filterable reactive phosphorus (FRP)

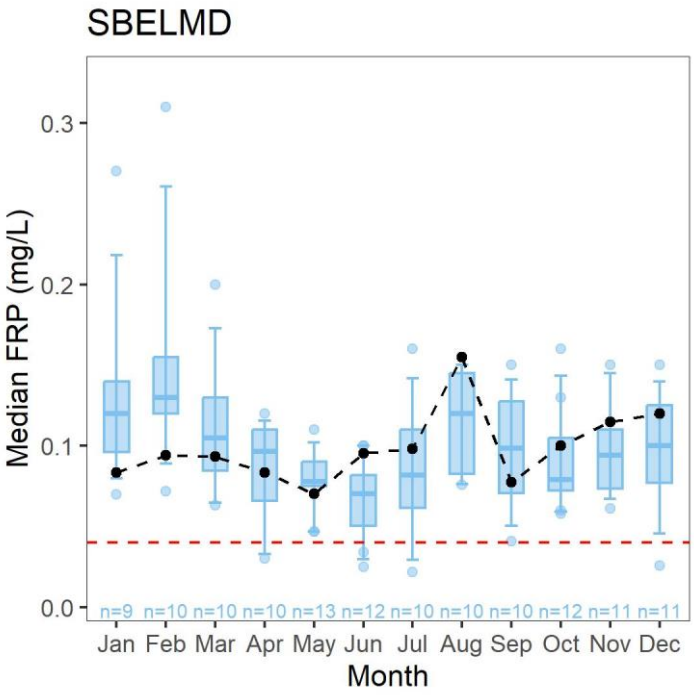

Figure 245. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

SBELMD dissolved organic carbon (DOC)

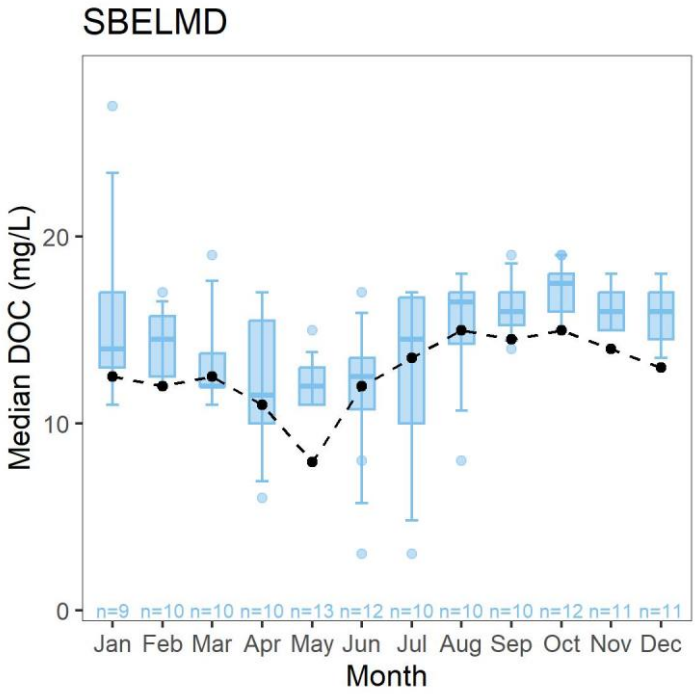

Figure 246. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

SBELMD total suspended solids (TSS)

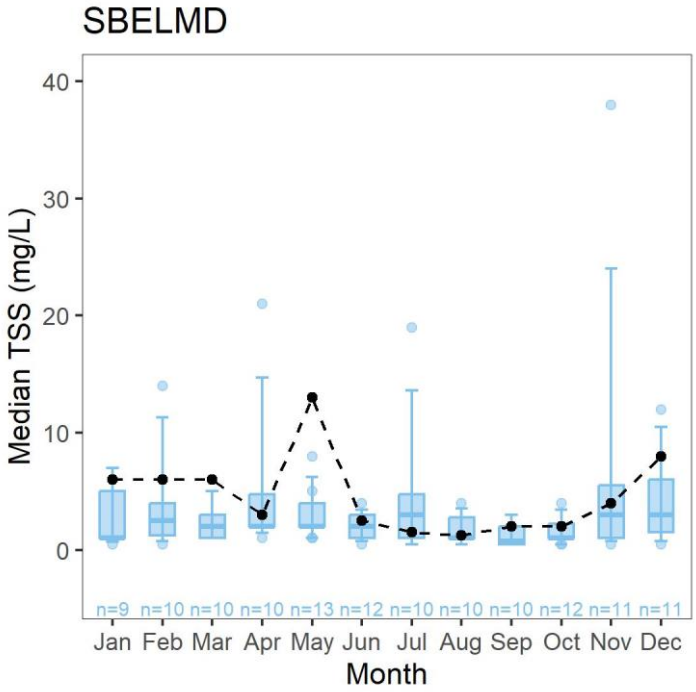

Figure 247. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

SBELMD dissolved oxygen (DO)

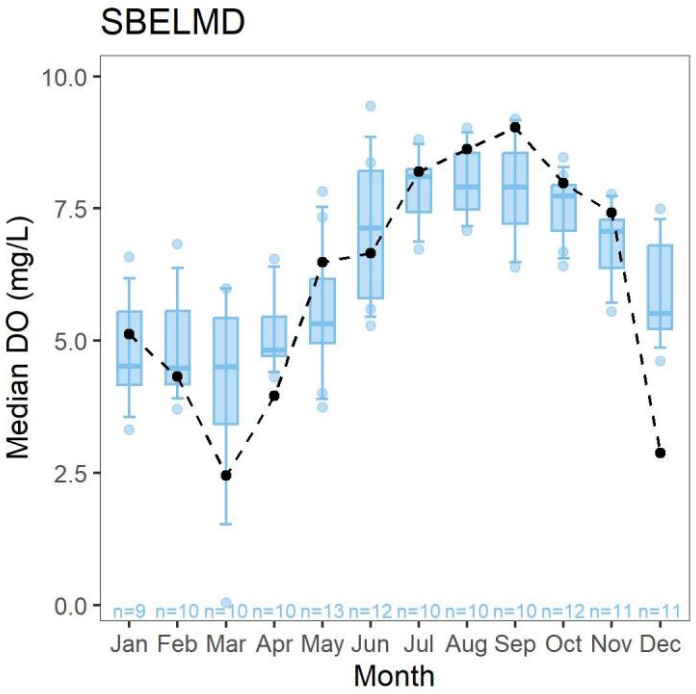

Figure 248. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

SBELMD specific conductivity (Sp. cond)

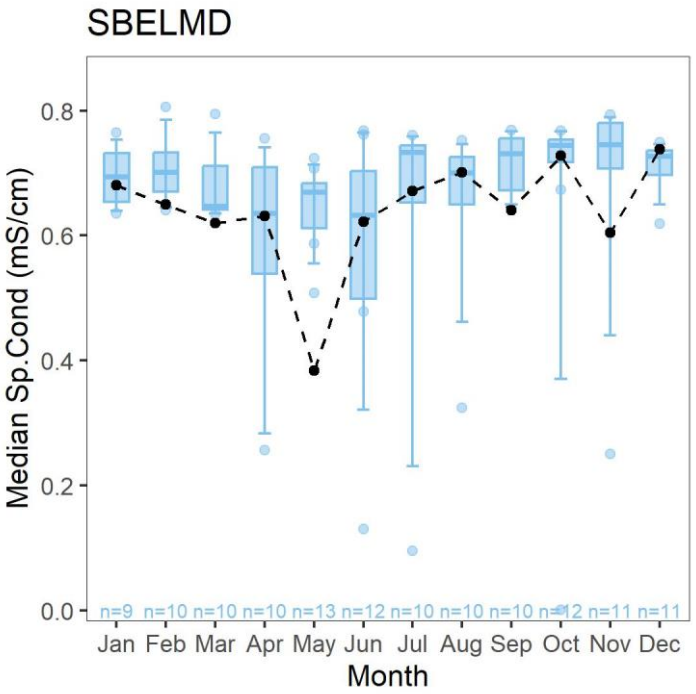

Figure 249. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SBELMD. Number of samples (n) is provided for the historical data.

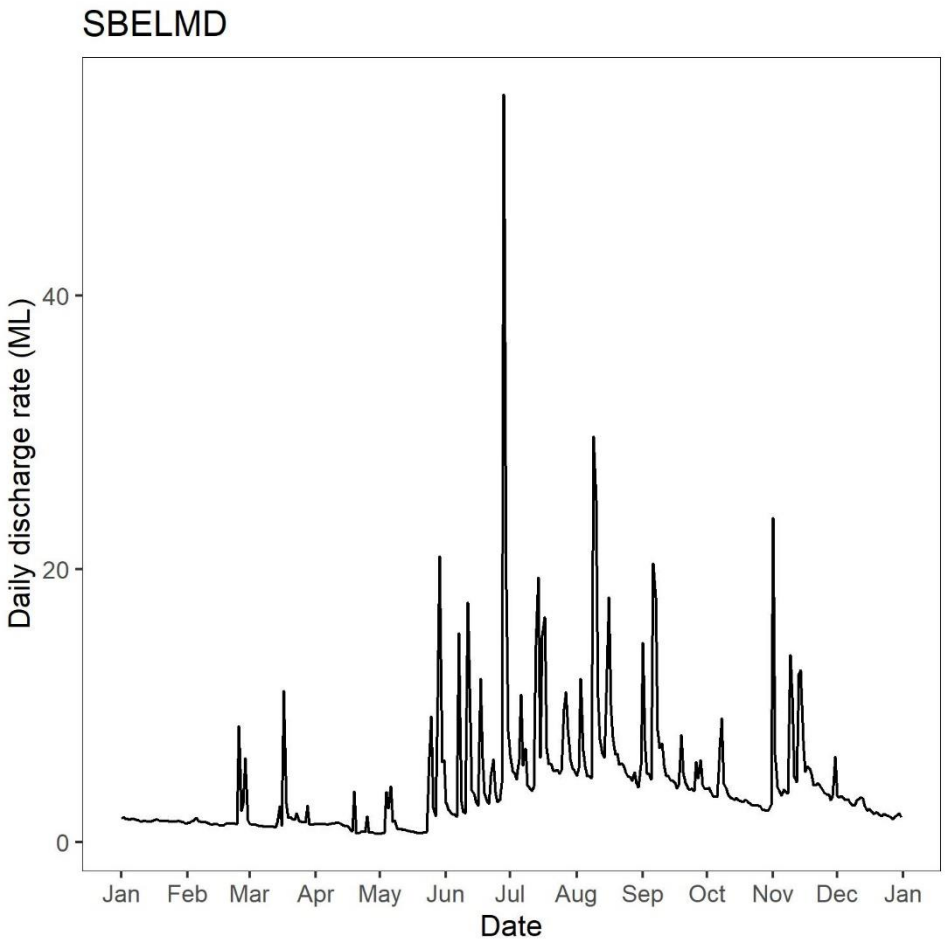

Figure 250. Daily discharge (ML) at Cleaver Terrace gauging station (616133– approximately 0.5 km upstream of SBELMD).

Table 26. 2020 monthly sample numbers, minimum and maximum values at SBELMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.66	0.73	0.73	0.64	0.685	0.815	0.92	0.9	0.74	0.69	0.75	0.815
min	0.57	0.73	0.7	0.64	0.65	0.74	0.86	0.86	0.67	0.64	0.72	0.74
max	0.75	0.73	0.76	0.64	0.72	0.89	0.98	0.94	0.81	0.73	0.78	0.89
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.0425	0.049	0.044	0.105	0.058	0.165	0.115	0.066	0.0395	0.052	0.0685	0.065
min	0.034	0.049	0.044	0.1	0.018	0.16	0.11	0.057	0.032	0.01	0.061	0.064
max	0.051	0.049	0.044	0.11	0.098	0.17	0.12	0.075	0.047	0.059	0.076	0.066
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.11	0.11	0.05	0.12	0.098	0.2	0.29	0.295	0.165	0.1	0.105	0.14
min	0.1	0.11	0.042	0.1	0.076	0.15	0.28	0.26	0.16	0.085	0.1	0.12
max	0.12	0.11	0.058	0.14	0.12	0.25	0.3	0.33	0.17	0.11	0.11	0.16
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.47	0.42	0.485	0.365	0.305	0.445	0.505	0.505	0.495	0.53	0.505	0.51
min	0.43	0.42	0.43	0.33	0.21	0.42	0.42	0.49	0.43	0.49	0.5	0.45
max	0.51	0.42	0.54	0.4	0.4	0.47	0.59	0.52	0.56	0.59	0.51	0.57
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.115	0.16	0.17	0.12	0.14	0.135	0.125	0.185	0.102	0.12	0.155	0.19
min	0.1	0.16	0.11	0.11	0.14	0.13	0.12	0.14	0.094	0.11	0.14	0.18
max	0.13	0.16	0.23	0.13	0.14	0.14	0.13	0.23	0.11	0.14	0.17	0.2
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.0835	0.094	0.0935	0.0835	0.0705	0.0955	0.098	0.155	0.0775	0.1	0.115	0.12
min	0.08	0.094	0.057	0.077	0.042	0.095	0.096	0.12	0.063	0.083	0.11	0.11
max	0.087	0.094	0.13	0.09	0.099	0.096	0.1	0.19	0.092	0.12	0.12	0.13
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	12.5	12	12.5	11	7.95	12	13.5	15	14.5	15	14	13
min	11	12	12	11	3.9	11	11	14	13	14	13	12
max	14	12	13	11	12	13	16	16	16	16	15	14
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	6	6	6	3	13	2.5	1.5	1.5	2	2	4	8
min	6	6	5	2	4	2	1	1	2	1	3	7
max	6	6	7	4	22	3	2	2	2	3	5	9
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	5.125	4.32	2.45	3.955	6.48	6.65	8.2	8.62	9.04	7.98	7.425	2.88
min	4.63	4.32	0.84	2.69	4.19	6.47	8.18	8.47	8.71	7.55	6.64	0.45
max	5.62	4.32	4.06	5.22	8.77	6.83	8.22	8.77	9.37	8.45	8.21	5.31
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	1	2	2	2	2	2	2	2	3	2	2
med	0.68	0.65	0.62	0.63	0.38	0.62	0.67	0.70	0.64	0.73	0.60	0.74
min	0.67	0.65	0.59	0.63	0.11	0.55	0.59	0.70	0.52	0.72	0.46	0.72
max	0.69	0.65	0.65	0.63	0.66	0.70	0.75	0.70	0.76	0.73	0.75	0.75

25. South Perth (BODD)

BODD total nitrogen (TN)

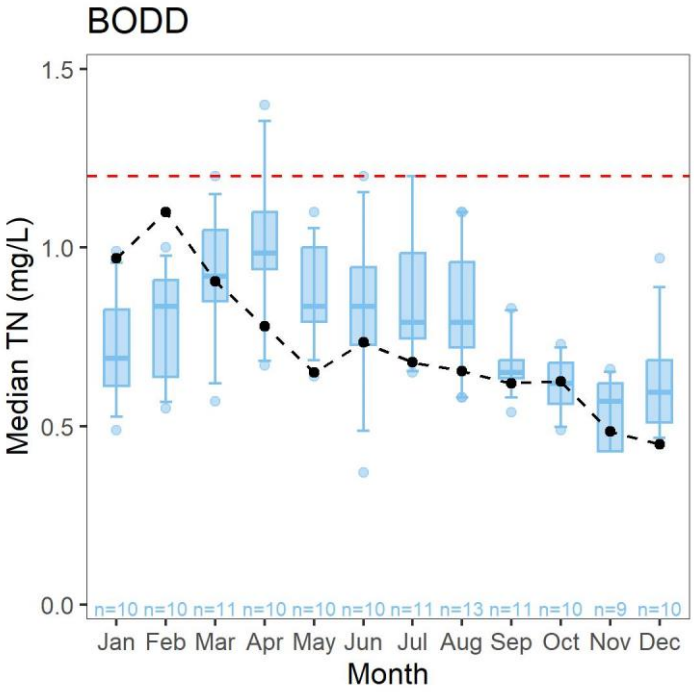

Figure 251. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

BODD ammoniacal nitrogen (NH_3-N)

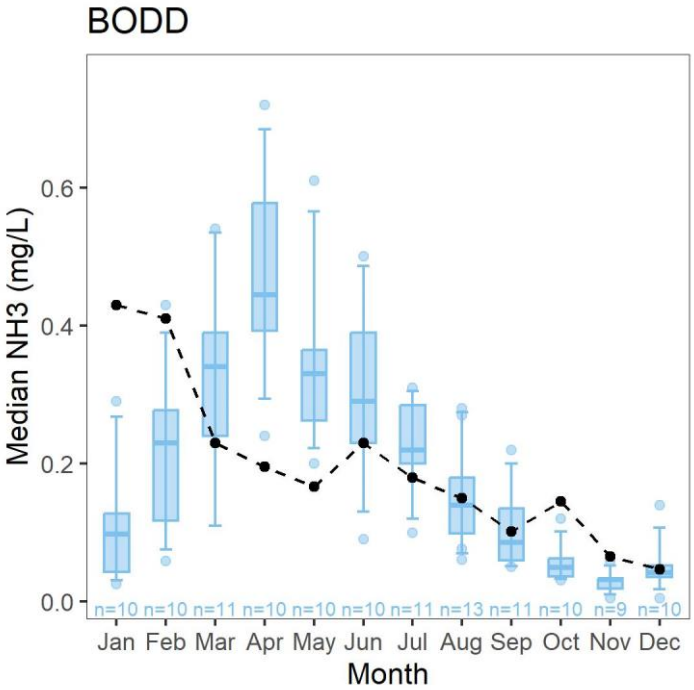

Figure 252. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

BODD total oxidised nitrogen (NO_x-N)

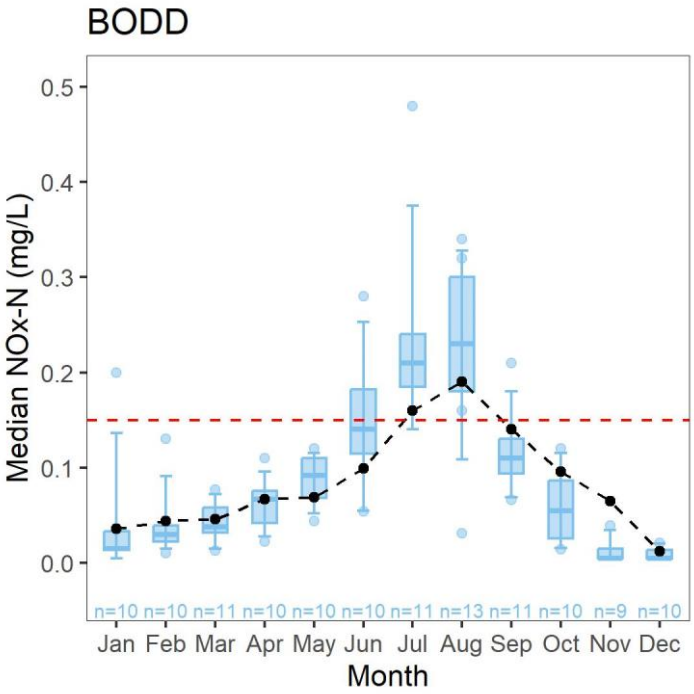

Figure 253. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

BODD dissolved organic nitrogen (DOrgN)

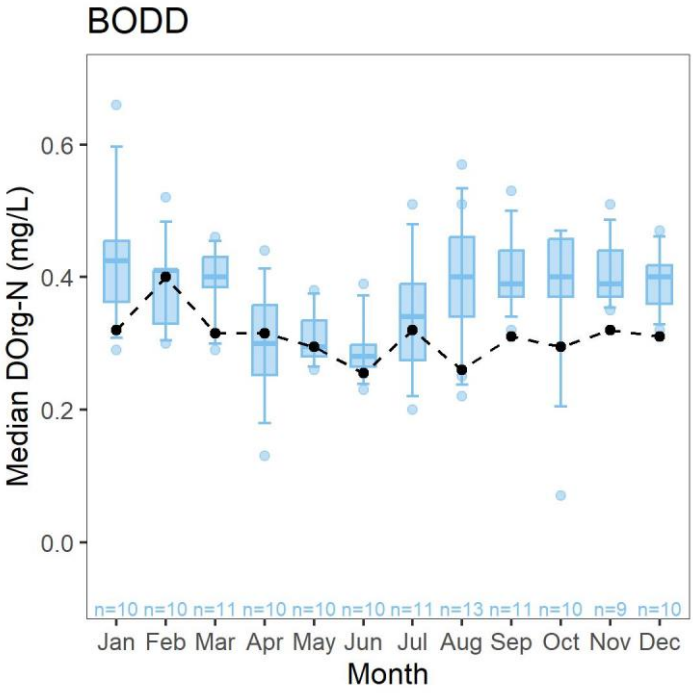

Figure 254. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

BODD total phosphorus (TP)

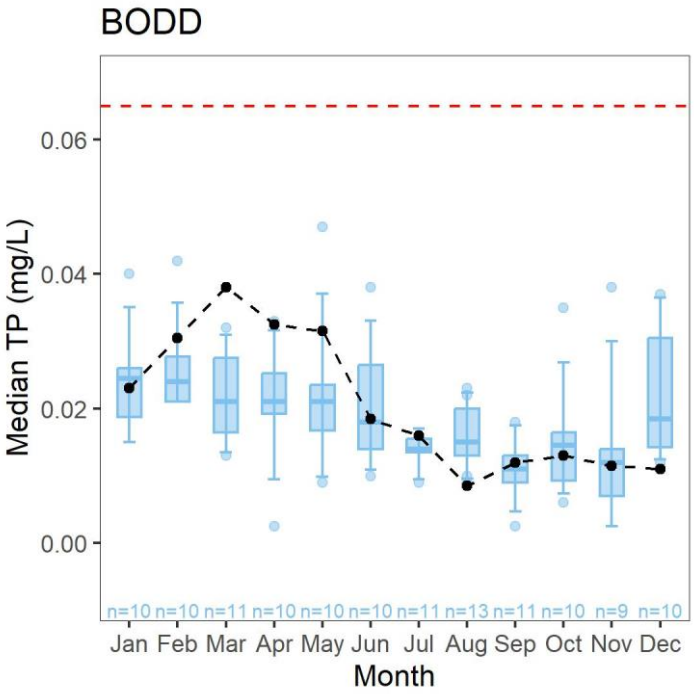

Figure 255. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

BODD filterable reactive phosphorus (FRP)

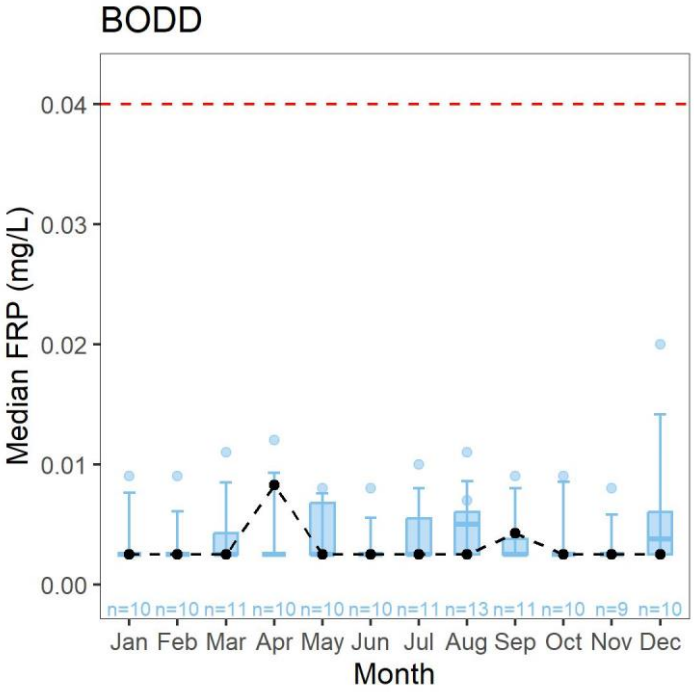

Figure 256. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

BODD dissolved organic carbon (DOC)

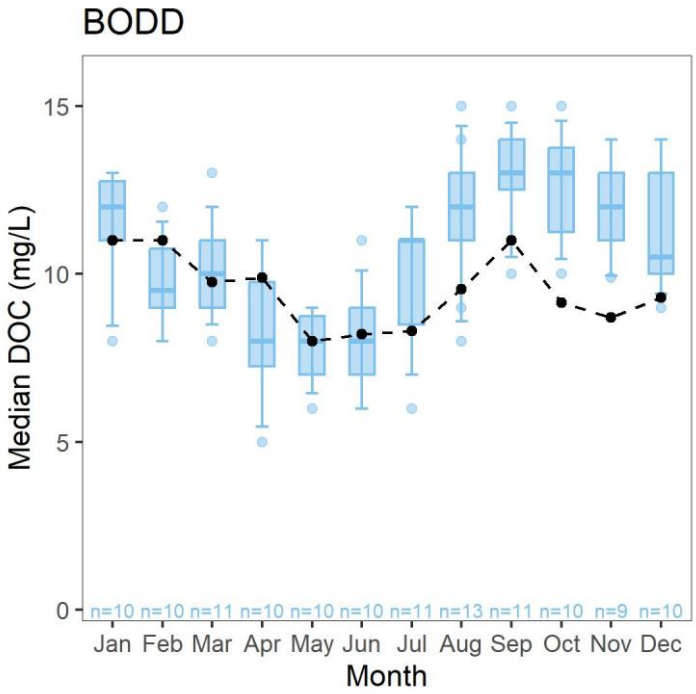

Figure 257. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

BODD total suspended solids (TSS)

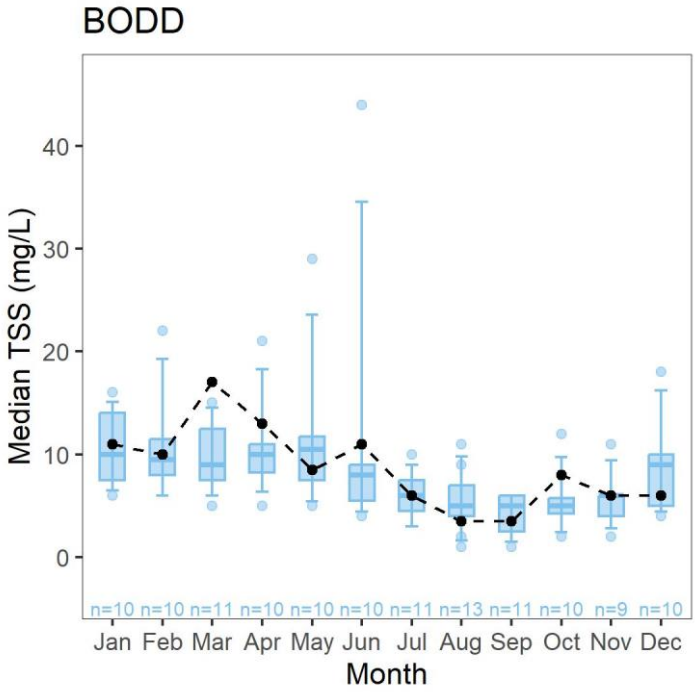

Figure 258. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

BODD dissolved oxygen (DO)

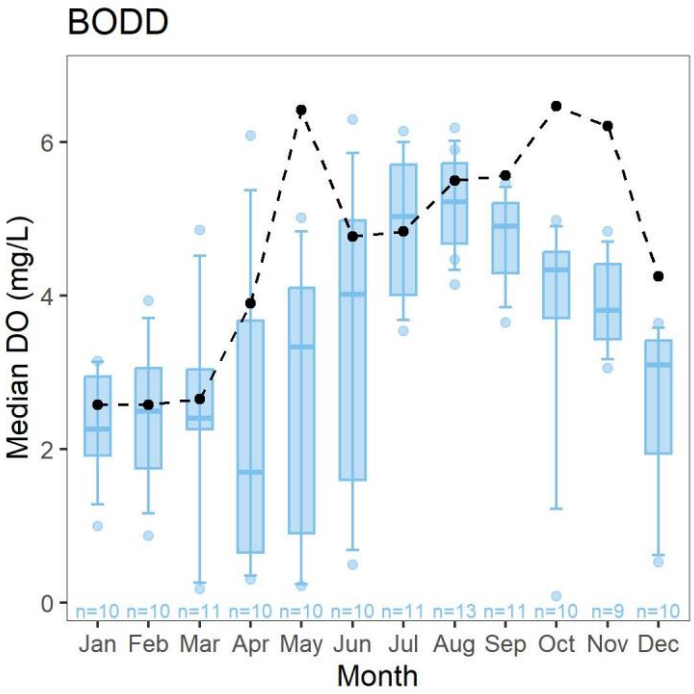

Figure 259. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

BODD specific conductivity (Sp. cond)

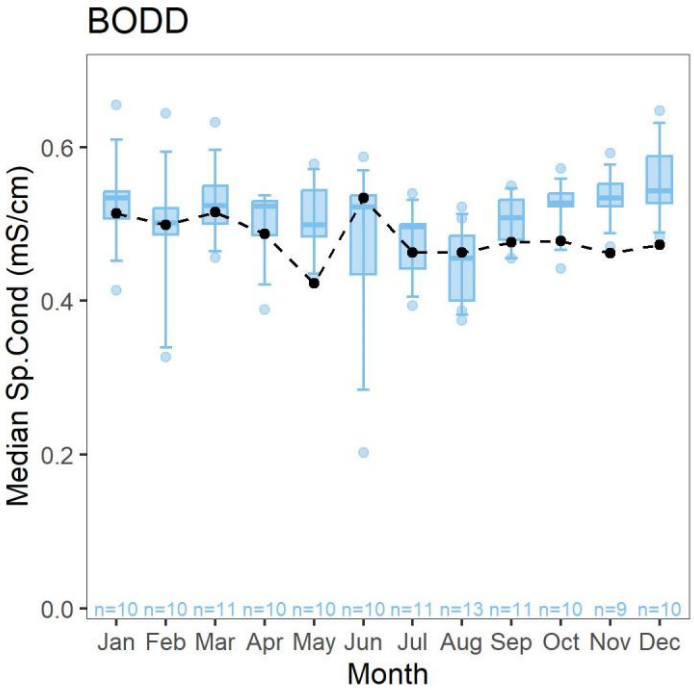

Figure 260. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site BODD. Number of samples (n) is provided for the historical data.

Table 27. 2020 monthly sample numbers, minimum and maximum values at BODD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.97	1.1	0.905	0.78	0.65	0.735	0.68	0.655	0.62	0.625	0.485	0.45
min	0.95	1.1	0.88	0.75	0.65	0.66	0.67	0.65	0.59	0.62	0.46	0.38
max	1	1.1	0.93	0.81	0.65	0.81	0.73	0.66	0.65	0.63	0.51	0.48
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.43	0.41	0.23	0.195	0.1665	0.23	0.18	0.15	0.1015	0.145	0.0655	0.047
min	0.38	0.39	0.21	0.16	0.083	0.2	0.17	0.14	0.083	0.13	0.054	0.039
max	0.52	0.43	0.25	0.23	0.25	0.26	0.2	0.16	0.12	0.16	0.077	0.051
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.036	0.0435	0.0455	0.067	0.069	0.099	0.16	0.19	0.14	0.096	0.065	0.012
min	0.029	0.041	0.044	0.065	0.064	0.088	0.14	0.17	0.13	0.062	0.03	0.011
max	0.038	0.046	0.047	0.069	0.074	0.11	0.18	0.21	0.15	0.13	0.1	0.013
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.32	0.4	0.315	0.315	0.295	0.255	0.32	0.26	0.31	0.295	0.32	0.31
min	0.32	0.34	0.28	0.31	0.27	0.24	0.25	0.25	0.3	0.28	0.32	0.31
max	0.34	0.46	0.35	0.32	0.32	0.27	0.34	0.27	0.32	0.31	0.32	0.33
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.023	0.0305	0.038	0.0325	0.0315	0.0185	0.016	0.0085	0.012	0.013	0.0115	0.011
min	0.022	0.025	0.035	0.031	0.017	0.009	0.014	0.008	0.009	0.011	0.008	0.007
max	0.024	0.036	0.041	0.034	0.046	0.028	0.019	0.009	0.015	0.015	0.015	0.014
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.005	0.005	0.005	0.0095	0.005	0.005	0.005	0.005	0.0055	0.005	0.005	0.005
min	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
max	0.005	0.005	0.005	0.014	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.005
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	11	11	9.75	9.9	8	8.2	8.3	9.55	11	9.15	8.7	9.3
min	11	11	9.6	9.8	7.7	8.1	7.8	9.1	11	8.8	8.1	9.1
max	11	11	9.9	10	8.3	8.3	9	10	11	9.5	9.3	9.9
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	11	10	17	13	8.5	11	6	3.5	3.5	8	6	6
min	11	9	16	12	8	7	5	3	3	5	5	4
max	15	11	18	14	9	15	6	4	4	11	7	6
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	2.58	2.575	2.655	3.895	6.415	4.77	4.84	5.495	5.565	6.47	6.205	4.25
min	0.1	2.56	2.22	3.84	6.33	4.47	4.52	5.11	5.45	5.65	5.7	2.55
max	2.68	2.59	3.09	3.95	6.5	5.07	5.44	5.88	5.68	7.29	6.71	6.3
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.51	0.50	0.52	0.49	0.42	0.53	0.46	0.46	0.48	0.48	0.46	0.47
min	0.49	0.49	0.48	0.48	0.35	0.52	0.44	0.44	0.48	0.47	0.44	0.43
max	0.55	0.50	0.55	0.49	0.49	0.55	0.47	0.48	0.48	0.48	0.49	0.65

NB: Daily discharge data is not available for BODD as this site is not gauged.

26. South Perth (WILMD)

WILMD total nitrogen (TN)

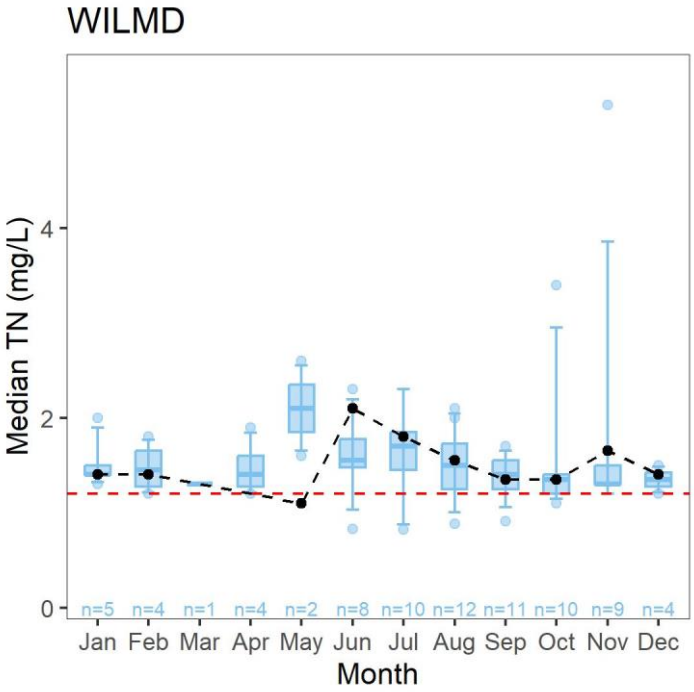

Figure 261. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

WILMD ammoniacal nitrogen (NH_3-N)

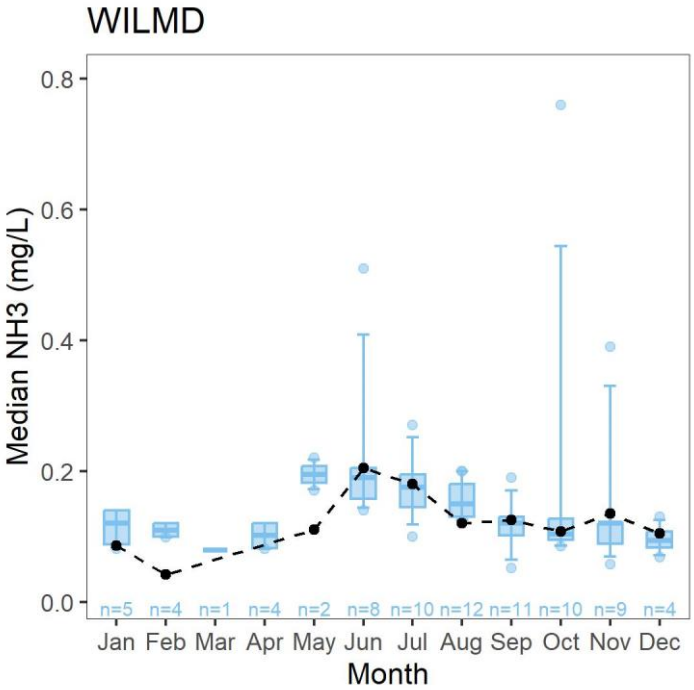

Figure 262. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

WILMD total oxidised nitrogen (NO_x-N)

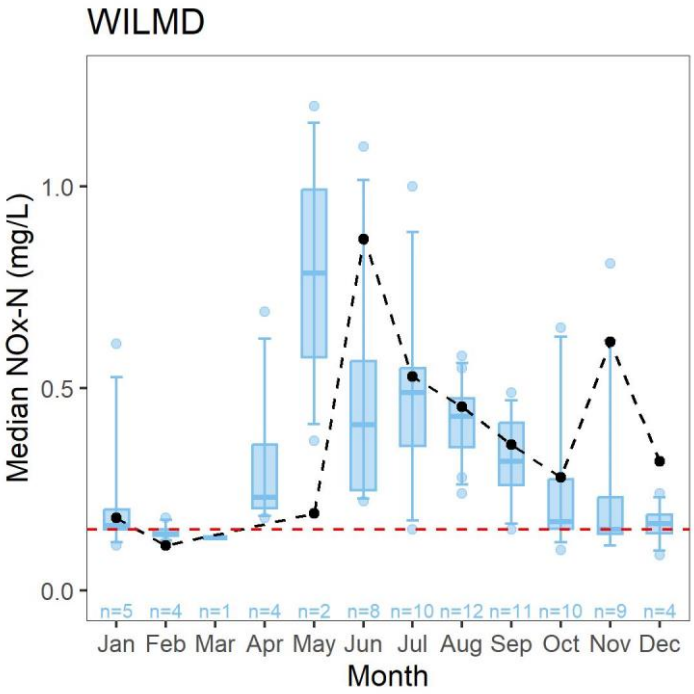

Figure 263. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

WILMD dissolved organic nitrogen (DOrgN)

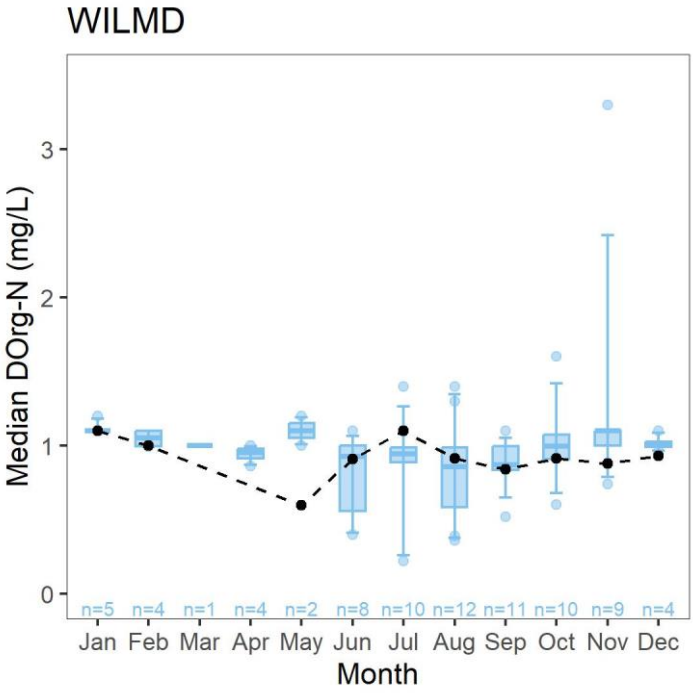

Figure 264. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

WILMD total phosphorus (TP)

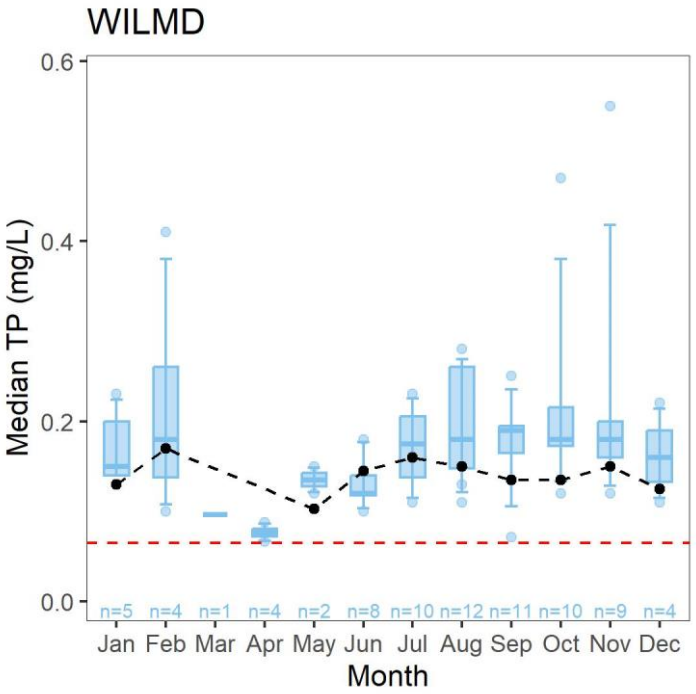

Figure 265. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

WILMD filterable reactive phosphors (FRP)

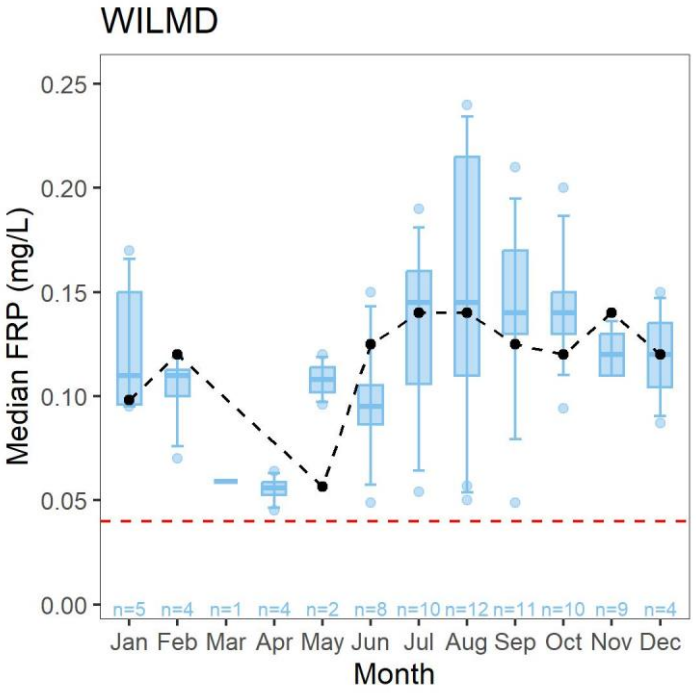

Figure 266. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

WILMD dissolved organic carbon (DOC)

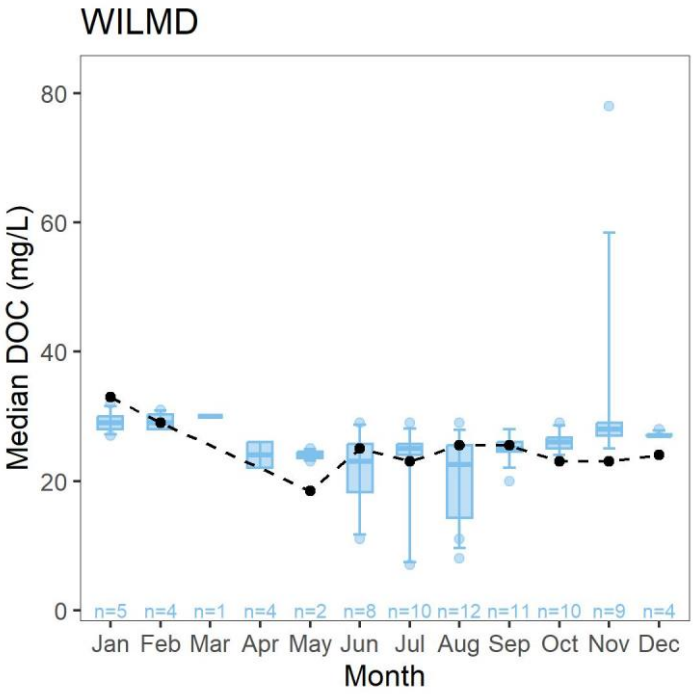

Figure 267. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

WILMD total suspended solids (TSS)

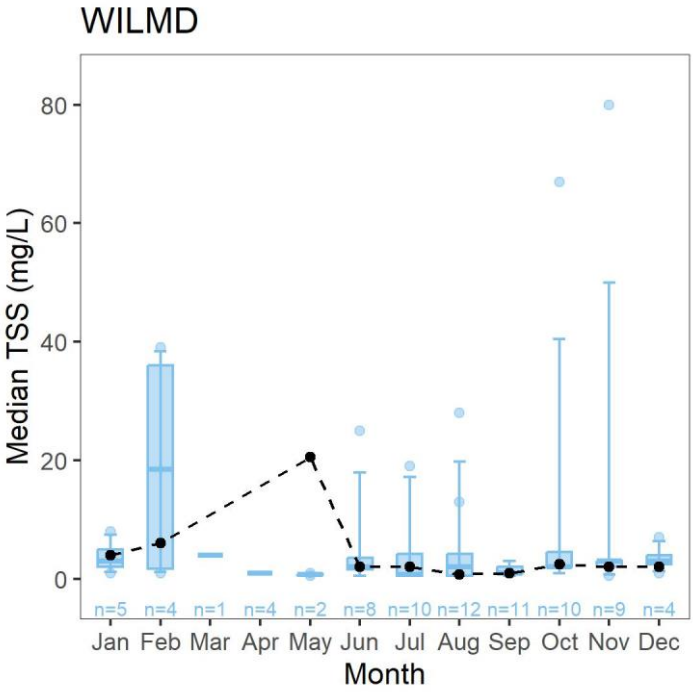

Figure 268. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

WILMD dissolved oxygen (DO)

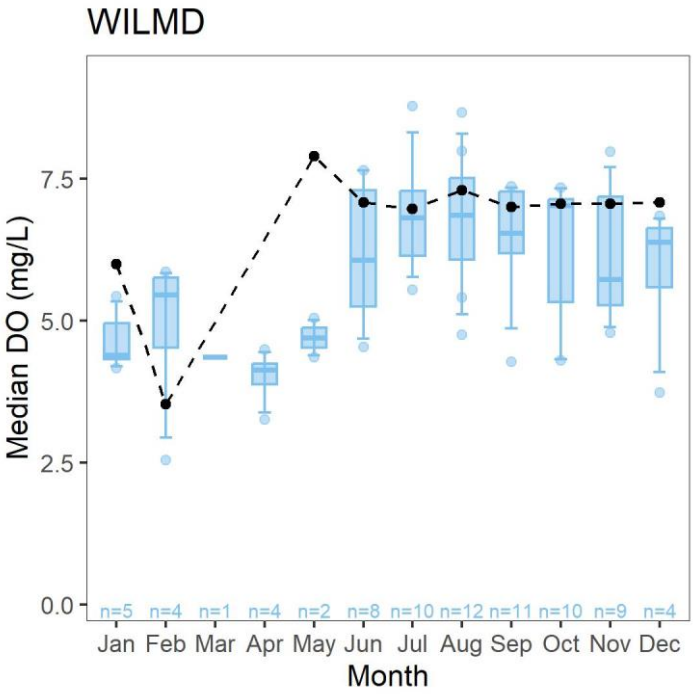

Figure 269. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

WILMD specific conductivity (Sp. cond)

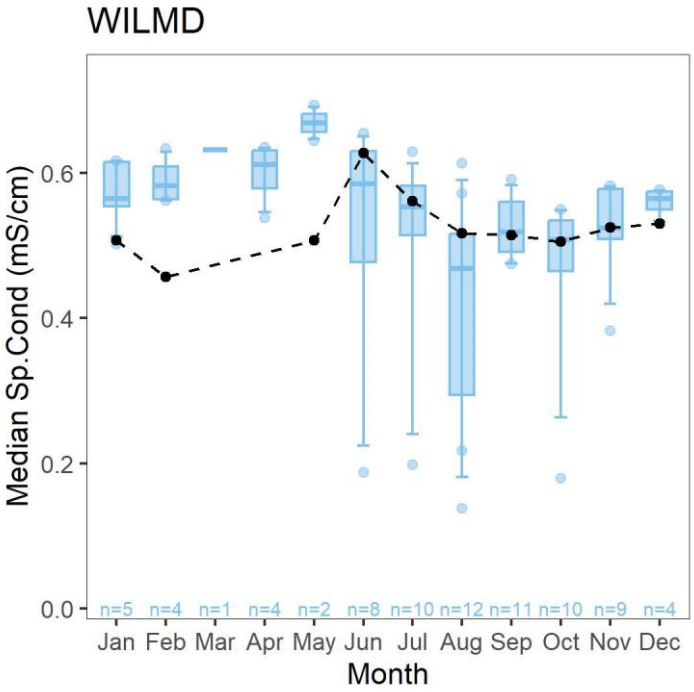

Figure 270. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WILMD. Number of samples (n) is provided for the historical data.

Table 28. 2020 monthly sample numbers, minimum and maximum values at WILMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	1.4	1.4			1.1	2.1	1.8	1.55	1.35	1.35	1.65	1.4
min	1.4	1.4			1	1.9	1.7	1.5	1.3	1.3	1.4	1.3
max	1.4	1.4			1.2	2.3	2.1	1.6	1.4	1.4	1.9	1.5
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	0.086	0.042			0.111	0.205	0.18	0.12	0.125	0.1075	0.135	0.105
min	0.086	0.042			0.092	0.18	0.14	0.11	0.11	0.095	0.13	0.1
max	0.086	0.042			0.13	0.23	0.21	0.13	0.14	0.12	0.14	0.11
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	0.18	0.11			0.19	0.87	0.53	0.455	0.36	0.28	0.615	0.32
min	0.18	0.11			0.13	0.74	0.52	0.4	0.3	0.24	0.38	0.29
max	0.18	0.11			0.25	1	0.74	0.51	0.42	0.32	0.85	0.35
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	1.1	1			0.595	0.91	1.1	0.915	0.84	0.915	0.88	0.93
min	1.1	1			0.37	0.86	0.92	0.9	0.8	0.9	0.85	0.76
max	1.1	1			0.82	0.96	1.1	0.93	0.88	0.93	0.91	1.1
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	0.13	0.17			0.1025	0.145	0.16	0.15	0.135	0.135	0.15	0.125
min	0.13	0.17			0.075	0.14	0.16	0.15	0.13	0.13	0.13	0.12
max	0.13	0.17			0.13	0.15	0.18	0.15	0.14	0.14	0.17	0.13
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	0.098	0.12			0.0565	0.125	0.14	0.14	0.125	0.12	0.14	0.12
min	0.098	0.12			0.056	0.12	0.13	0.14	0.11	0.11	0.11	0.12
max	0.098	0.12			0.057	0.13	0.14	0.14	0.14	0.13	0.17	0.12
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	33	29			18.5	25	23	25.5	25.5	23	23	24
min	33	29			11	24	23	25	24	22	21	23
max	33	29			26	26	25	26	27	24	25	25
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	4	6			20.5	2	2	1	1	2.5	2	2
min	4	6			13	2	2	1	1	2	1	2
max	4	6			28	2	3	1	1	3	3	2
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	6	3.53			7.9	7.08	6.97	7.29	7.005	7.06	7.06	7.085
min	6	3.53			6.82	7.03	6.91	7.11	6.97	6.86	7.01	7.02
max	6	3.53			8.98	7.13	7.13	7.47	7.04	7.26	7.11	7.15
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	1			2	2	3	2	2	2	2	2
med	0.51	0.46			0.51	0.63	0.56	0.52	0.51	0.51	0.53	0.53
min	0.51	0.46			0.47	0.61	0.54	0.51	0.51	0.48	0.52	0.52
max	0.51	0.46			0.55	0.64	0.58	0.52	0.52	0.53	0.53	0.54

NB: Daily discharge data is not available for WILMD as this site is not gauged. Due to the ephemeral nature of flow in WILMD and the below average rainfall in 2020, samples were only collected once in January and February 2020.

27. Southern River (STHNR)

STHNR total nitrogen (TN)

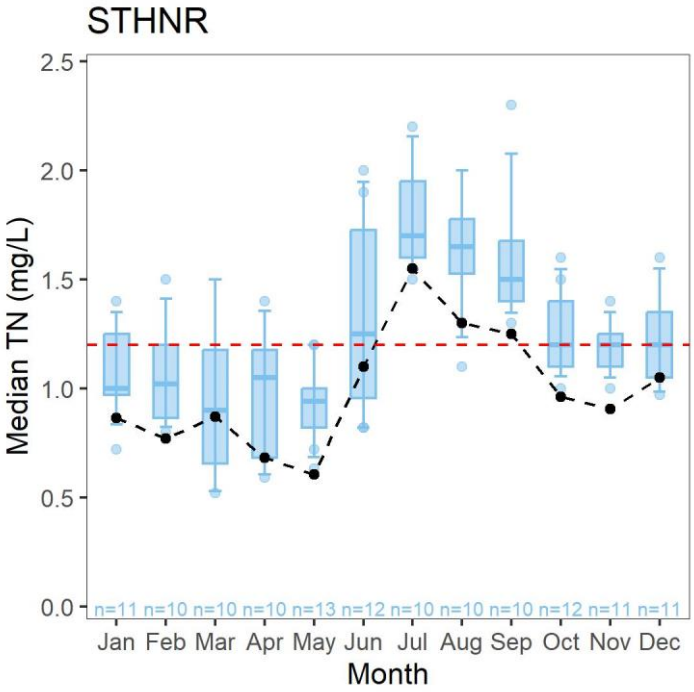

Figure 271. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

STHNR ammoniacal nitrogen (NH_3-N)

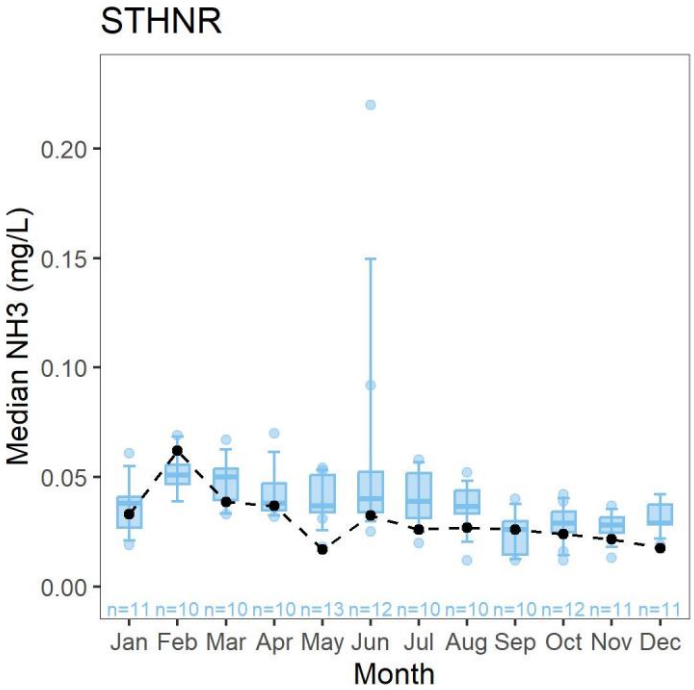

Figure 272. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

STHNR total oxidised nitrogen (NO_x-N)

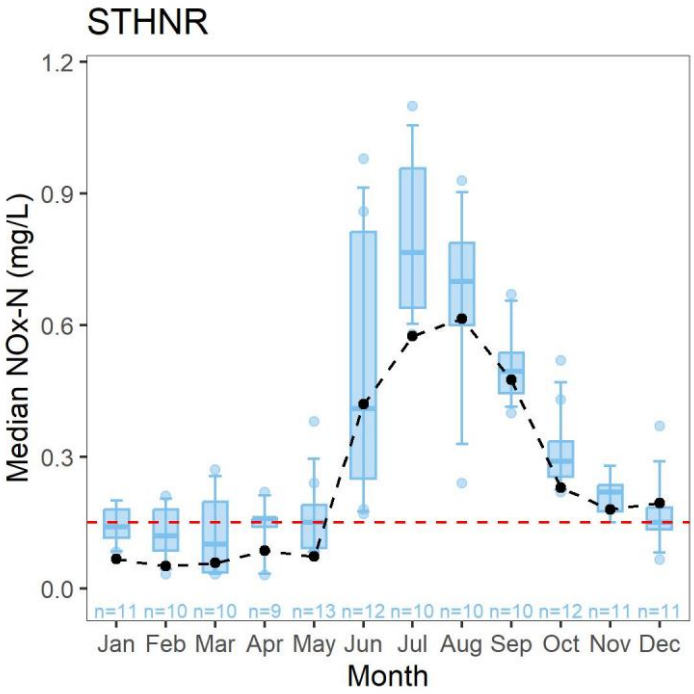

Figure 273. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

STHNR dissolved organic nitrogen (DOrgN)

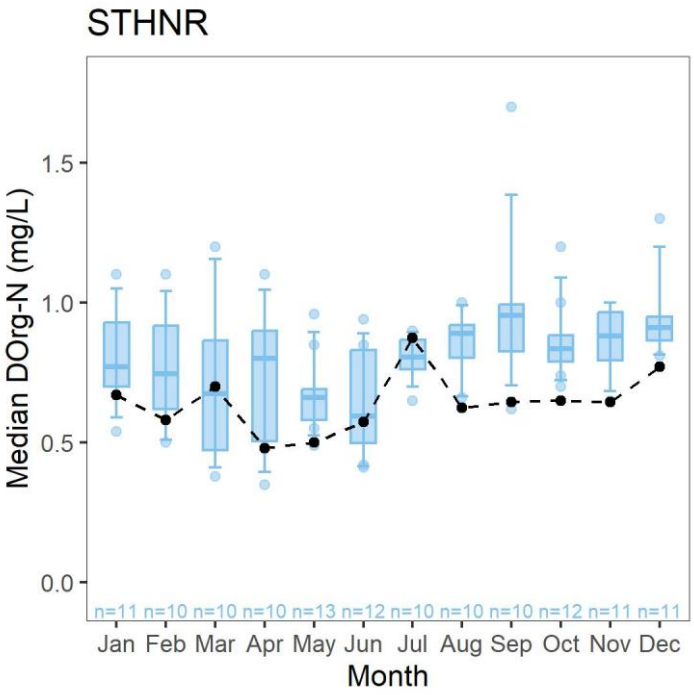

Figure 274. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

STHNR total phosphorus (TP)

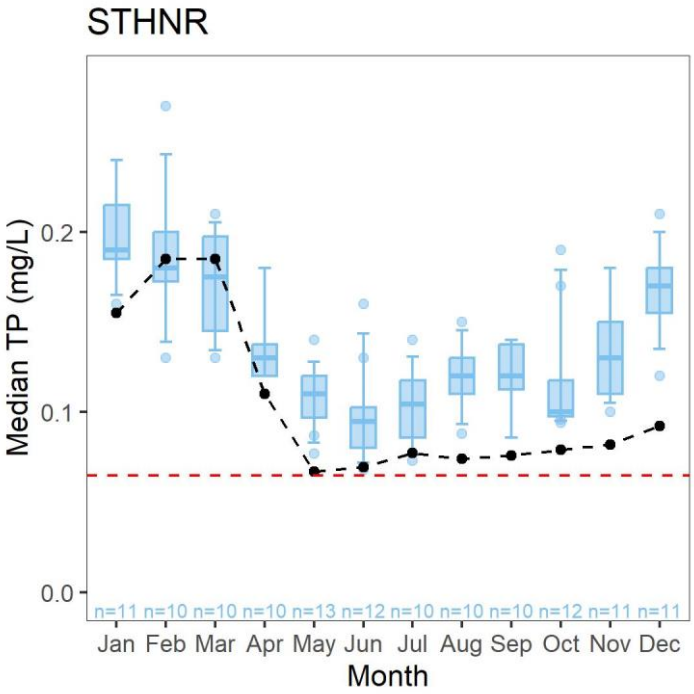

Figure 275. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

STHNR filterable reactive phosphorus (FRP)

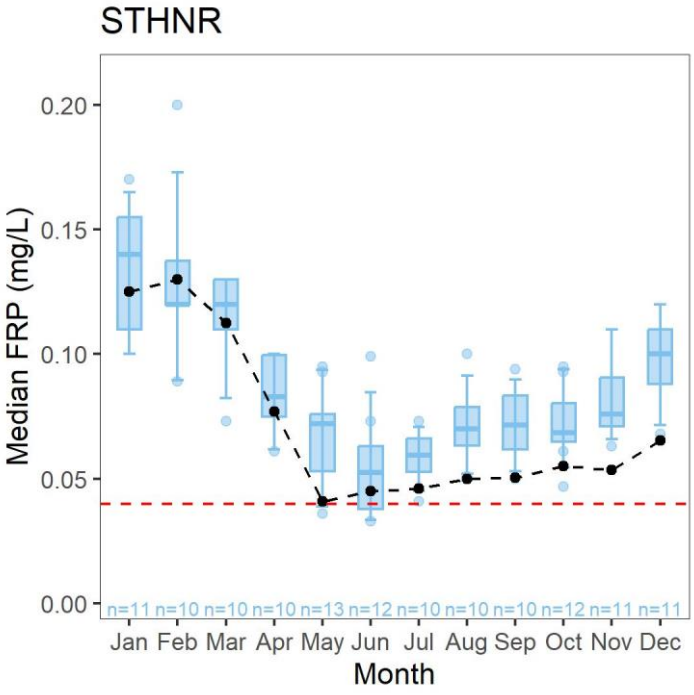

Figure 276. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

STHNR dissolved organic carbon (DOC)

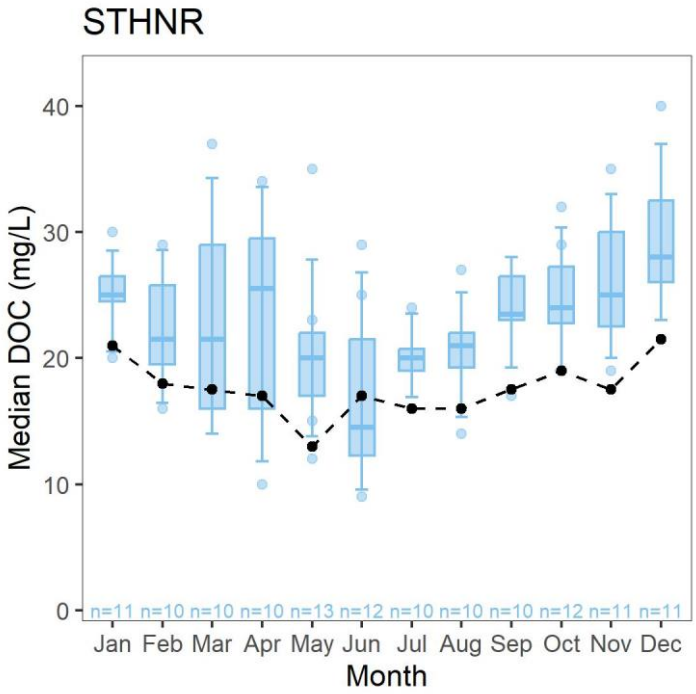

Figure 277. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

STHNR total suspended solids (TSS)

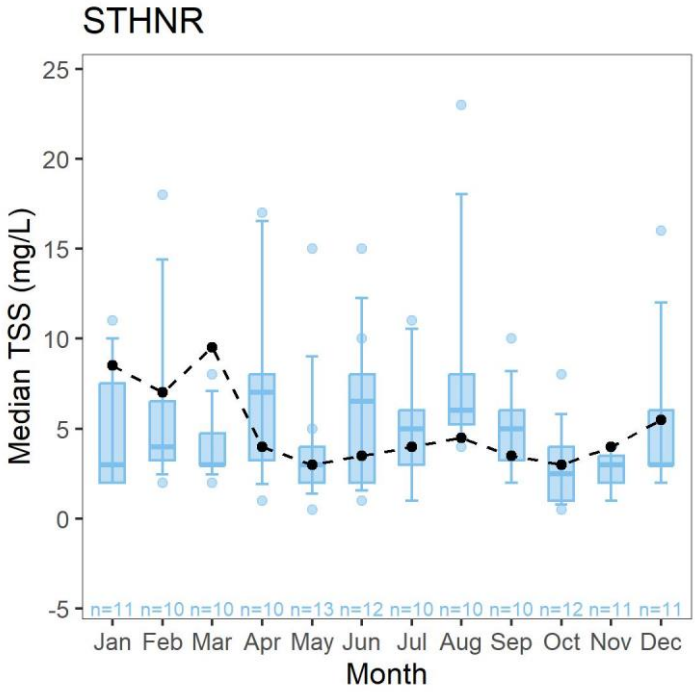

Figure 278. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

STHNR dissolved oxygen (DO)

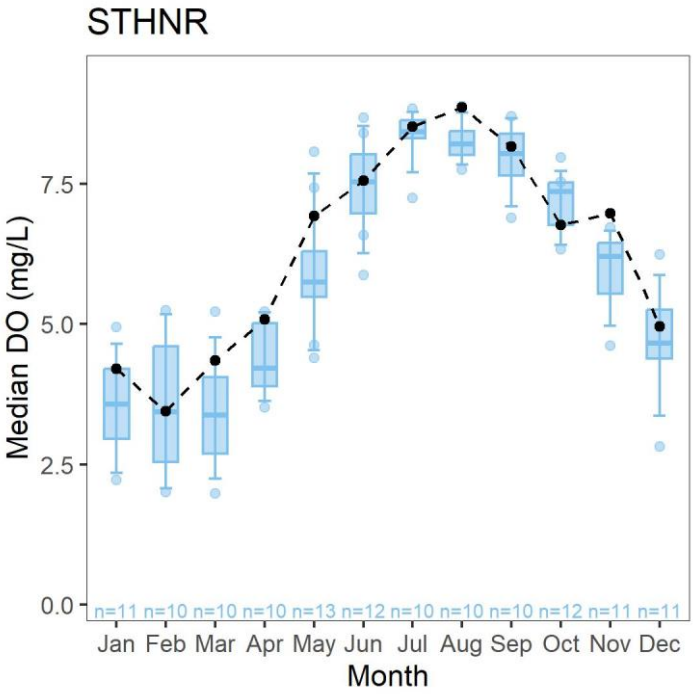

Figure 279. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

STHNR specific conductivity (Sp. cond)

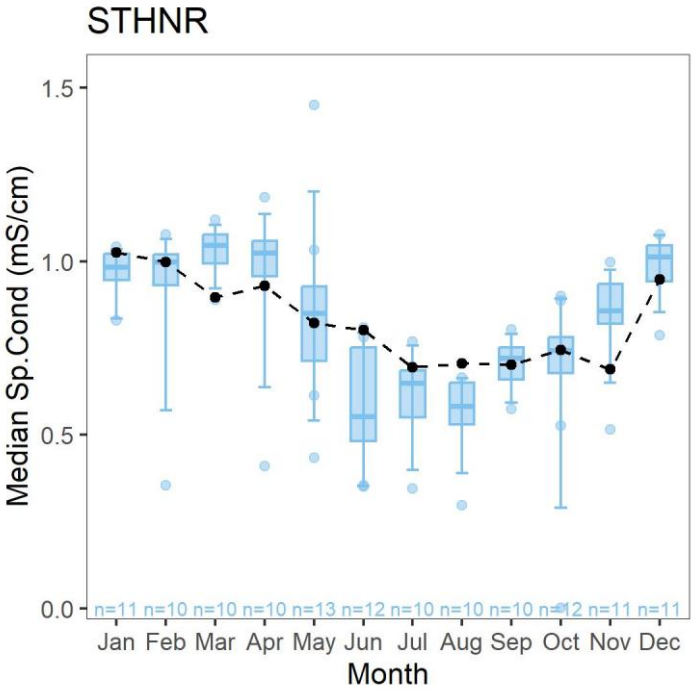

Figure 280. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site STHNR. Number of samples (n) is provided for the historical data.

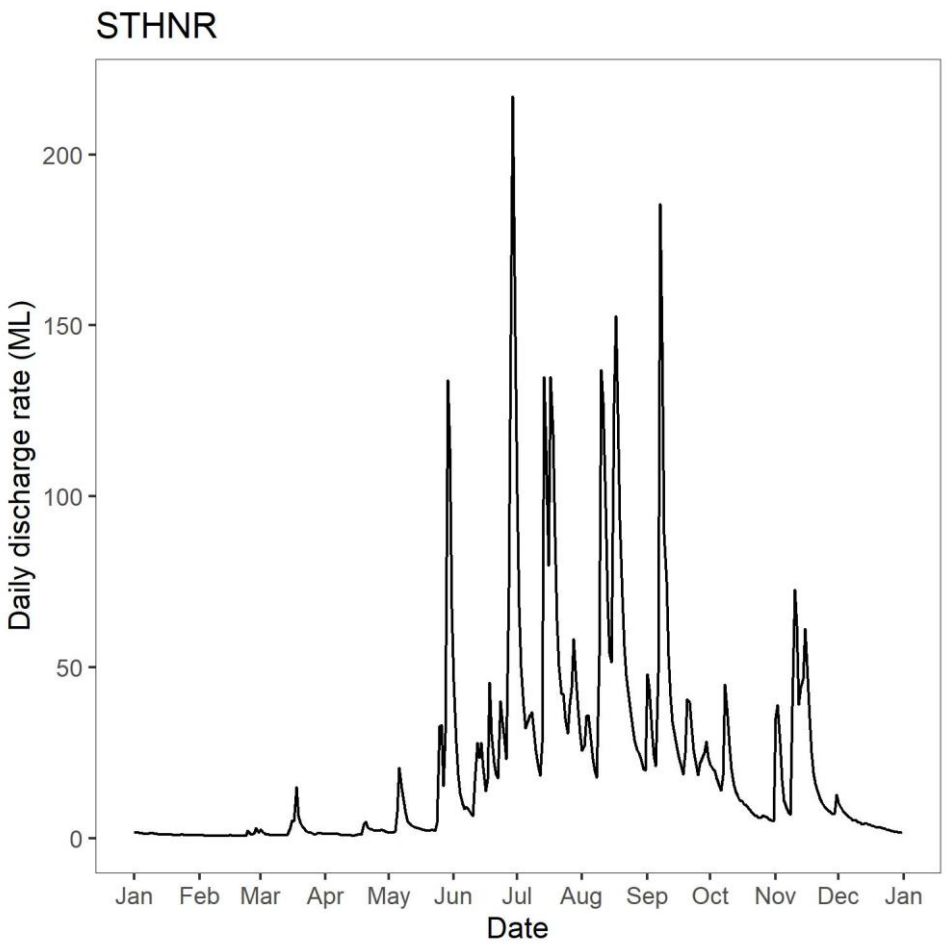

Figure 281. Daily discharge (ML) at the Southern River gauging station (616092 – at site of STHNR).

Table 29. 2020 monthly sample numbers, minimum and maximum values at STHNR.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.865	0.77	0.87	0.68	0.605	1.1	1.55	1.3	1.25	0.96	0.905	1.05
min	0.82	0.72	0.78	0.61	0.55	1.1	1.5	1.2	1.2	0.94	0.71	1
max	0.91	0.82	0.96	0.76	0.66	1.1	1.6	1.4	1.3	1	1.1	1.1
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.033	0.062	0.0385	0.037	0.0195	0.0325	0.026	0.027	0.026	0.024	0.0215	0.02
min	0.032	0.061	0.024	0.033	0.01	0.029	0.026	0.024	0.02	0.01	0.017	0.01
max	0.034	0.063	0.053	0.038	0.029	0.036	0.026	0.03	0.032	0.038	0.026	0.03
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.067	0.0505	0.0585	0.086	0.073	0.42	0.575	0.615	0.475	0.23	0.18	0.195
min	0.048	0.044	0.048	0.074	0.071	0.39	0.57	0.61	0.44	0.22	0.14	0.19
max	0.086	0.057	0.069	0.096	0.075	0.45	0.58	0.62	0.51	0.3	0.22	0.2
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.67	0.58	0.7	0.48	0.5	0.575	0.875	0.625	0.645	0.65	0.645	0.77
min	0.64	0.57	0.64	0.43	0.48	0.53	0.78	0.58	0.6	0.62	0.55	0.72
max	0.7	0.59	0.76	0.62	0.52	0.62	0.97	0.67	0.69	0.67	0.74	0.82
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.155	0.185	0.185	0.11	0.067	0.0695	0.0775	0.074	0.076	0.079	0.082	0.0925
min	0.14	0.18	0.17	0.09	0.059	0.067	0.071	0.062	0.067	0.072	0.069	0.085
max	0.17	0.19	0.2	0.14	0.075	0.072	0.084	0.086	0.085	0.088	0.095	0.1
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	0.125	0.13	0.1125	0.077	0.041	0.045	0.046	0.05	0.0505	0.055	0.0535	0.0655
min	0.12	0.12	0.095	0.057	0.031	0.04	0.041	0.042	0.037	0.05	0.042	0.059
max	0.13	0.14	0.13	0.082	0.051	0.05	0.051	0.058	0.064	0.069	0.065	0.072
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	21	18	17.5	17	13	17	16	16	17.5	19	17.5	21.5
min	19	18	17	14	11	14	15	15	16	19	13	21
max	23	18	18	17	15	20	17	17	19	21	22	22
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	8.5	7	9.5	4	3	3.5	4	4.5	3.5	3	4	5.5
min	8	7	9	4	3	3	4	3	3	2	3	5
max	9	7	10	9	3	4	4	6	4	4	5	6
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	4.205	3.45	4.355	5.09	6.925	7.555	8.515	8.865	8.17	6.77	6.97	4.96
min	4.17	3.19	3.39	4.62	6.44	7.15	8.16	8.81	7.63	6.28	6.1	4.6
max	4.24	3.71	5.32	6.28	7.41	7.96	8.87	8.92	8.71	7.5	7.84	5.32
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	2	3	2	2	2	2	2	3	2	2
med	1.03	1.00	0.90	0.93	0.82	0.80	0.69	0.71	0.70	0.75	0.69	0.95
min	1.03	0.99	0.79	0.91	0.77	0.63	0.68	0.70	0.64	0.73	0.54	0.90
max	1.03	1.01	1.00	0.94	0.87	0.97	0.71	0.71	0.76	0.88	0.83	1.00

28. Neerigen Brook (NEERB)

NEERB total nitrogen (TN)

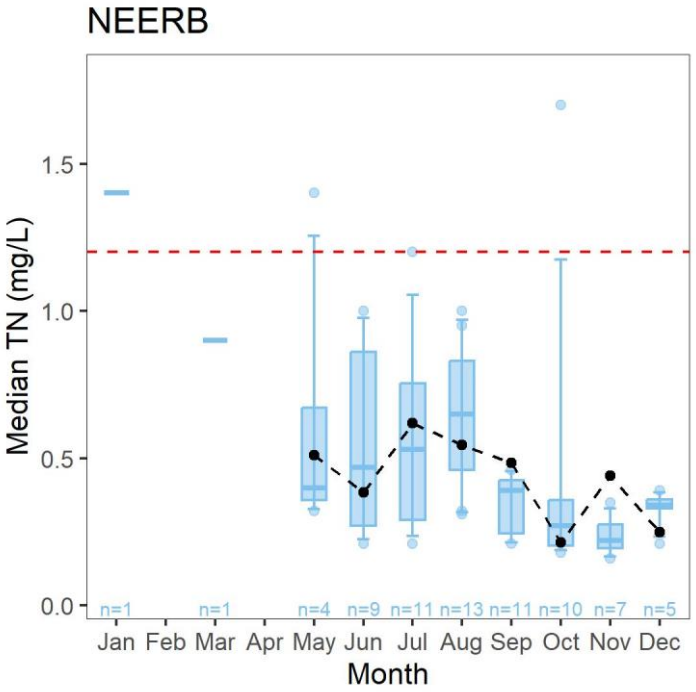

Figure 282. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

NEERB ammoniacal nitrogen (NH_3-N)

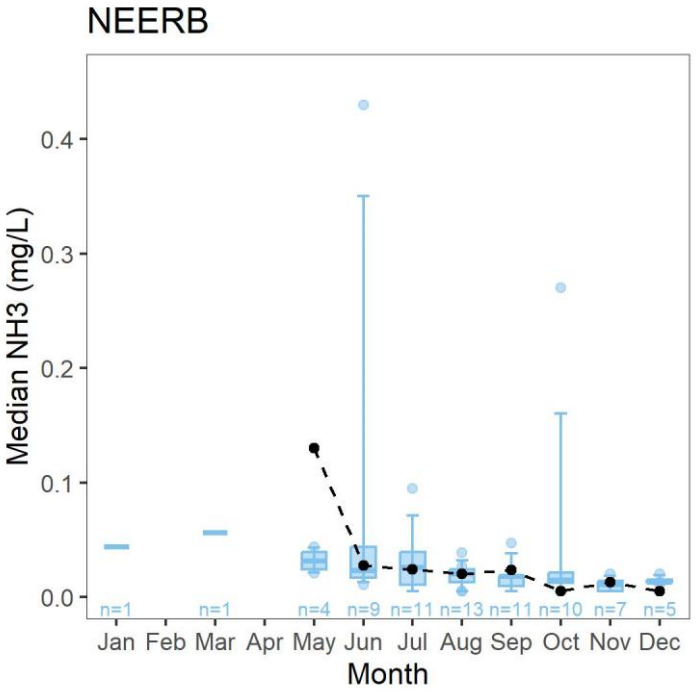

Figure 283. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

NEERB total oxidised nitrogen (NO_x-N)

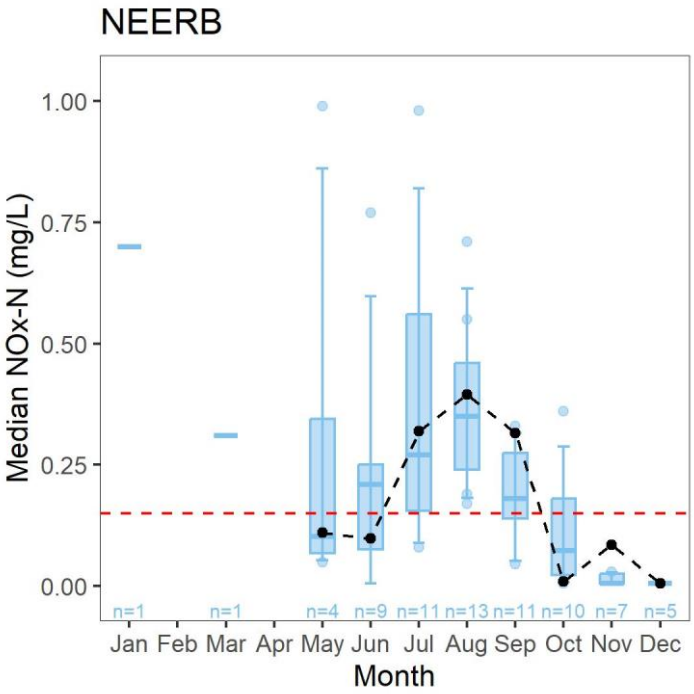

Figure 284. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

NEERB dissolved organic nitrogen (DOrgN)

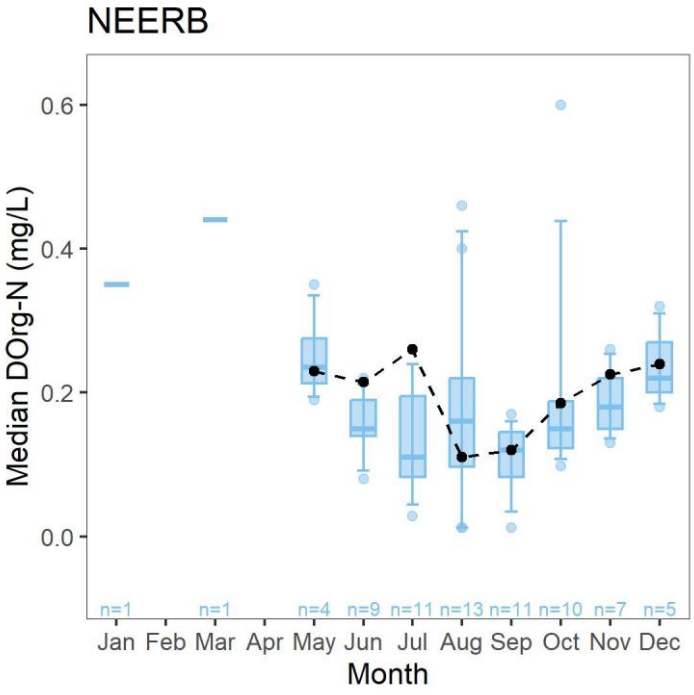

Figure 285. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

NEERB total phosphorus (TP)

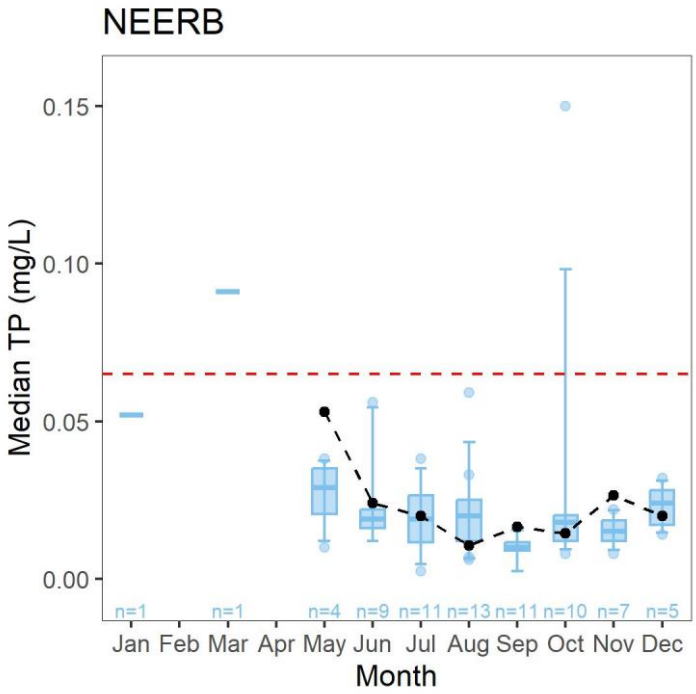

Figure 286. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

NEERB filterable reactive phosphorus (FRP)

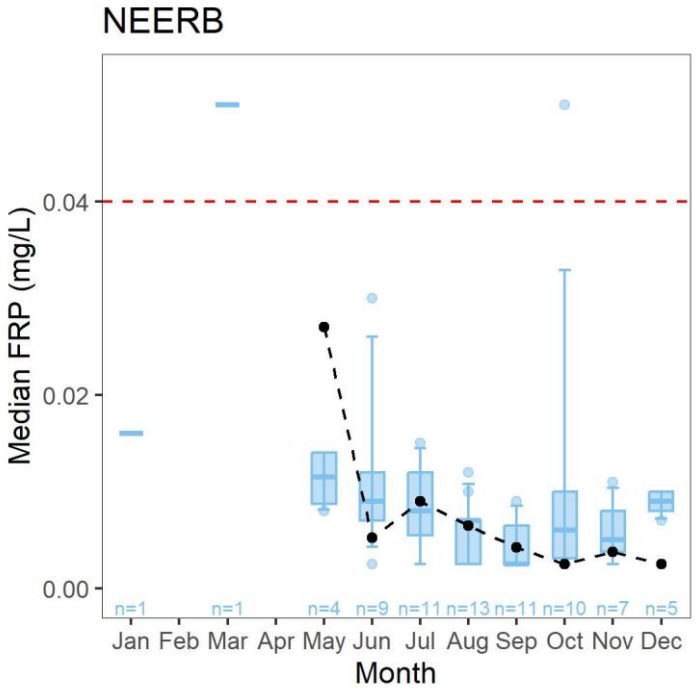

Figure 287. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

NEERB dissolved organic carbon (DOC)

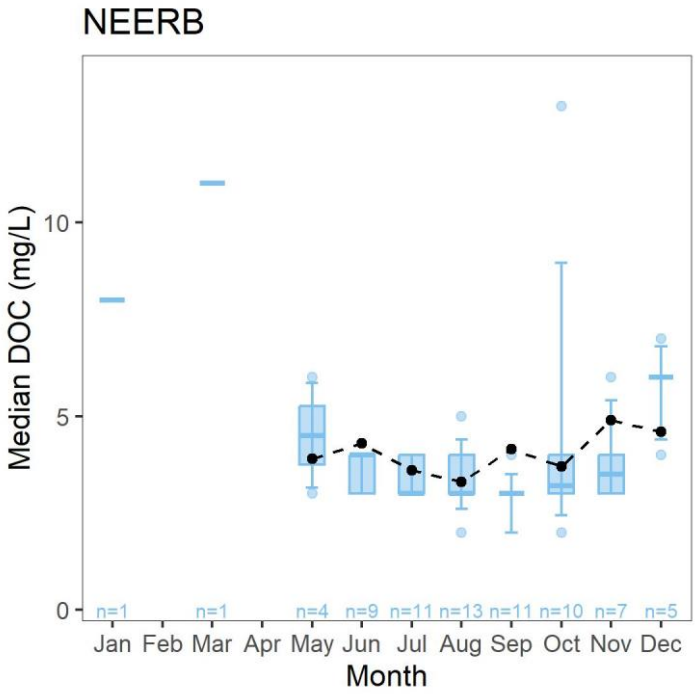

Figure 288. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

NEERB total suspended solids (TSS)

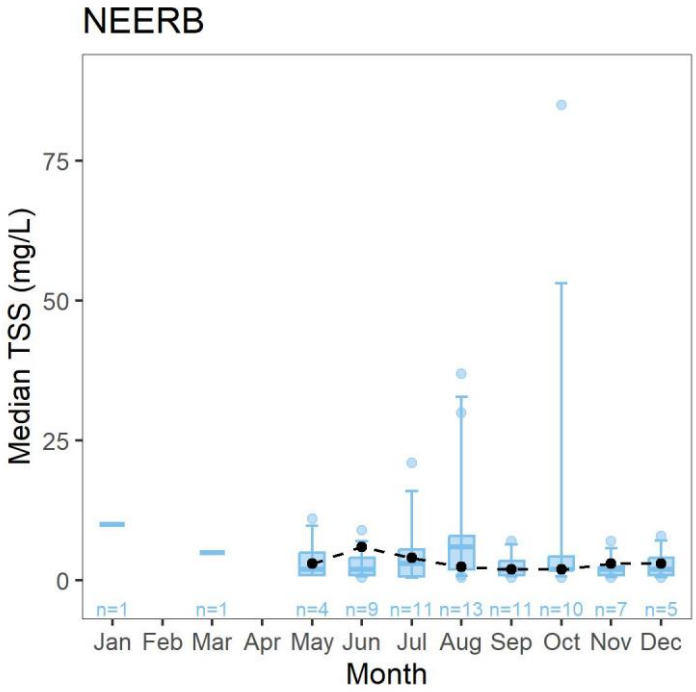

Figure 289. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

NEERB dissolved oxygen (DO)

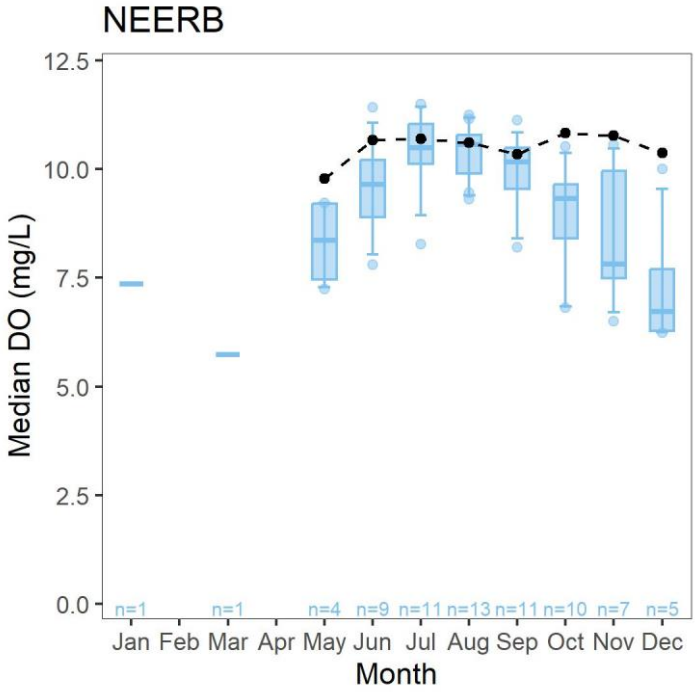

Figure 290. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

NEERB specific conductivity (Sp. cond)

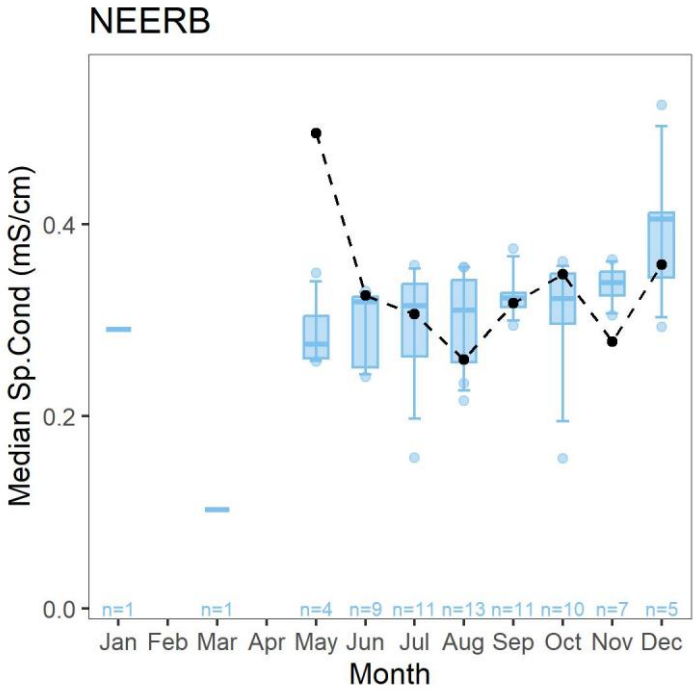

Figure 291. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site NEERB. Number of samples (n) is provided for the historical data.

Table 30. 2020 monthly sample numbers, minimum and maximum values at NEERB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.51	0.385	0.62	0.545	0.485	0.215	0.44	0.25
min					0.51	0.34	0.41	0.38	0.27	0.17	0.2	0.25
max					0.51	0.43	1.4	0.71	0.7	0.26	0.68	0.25
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.13	0.0275	0.024	0.0205	0.0235	0.01	0.0155	0.01
min					0.13	0.013	0.01	0.013	0.023	0.01	0.01	0.01
max					0.13	0.042	0.03	0.028	0.024	0.01	0.021	0.01
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.11	0.098	0.32	0.395	0.315	0.0115	0.0855	0.01
min					0.11	0.046	0.23	0.26	0.12	0.01	0.011	0.01
max					0.11	0.15	1.1	0.53	0.51	0.013	0.16	0.01
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.23	0.215	0.26	0.1105	0.12	0.185	0.225	0.24
min					0.23	0.2	0.17	0.091	0.12	0.14	0.18	0.24
max					0.23	0.23	0.29	0.13	0.12	0.23	0.27	0.24
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.053	0.024	0.02	0.0105	0.0165	0.0145	0.0265	0.02
min					0.053	0.023	0.014	0.01	0.014	0.011	0.01	0.02
max					0.053	0.025	0.024	0.011	0.019	0.018	0.043	0.02
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.027	0.0065	0.009	0.0065	0.0055	0.005	0.005	0.005
min					0.027	0.005	0.005	0.006	0.005	0.005	0.005	0.005
max					0.027	0.008	0.011	0.007	0.006	0.005	0.005	0.005
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					3.9	4.3	3.6	3.3	4.15	3.7	4.9	4.6
min					3.9	4.2	2.7	2.9	4	3.1	3.7	4.6
max					3.9	4.4	3.7	3.7	4.3	4.3	6.1	4.6
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					3	4	4	2.5	2	2	3	3
min					3	2	2	2	2	1	1	3
max					3	6	16	3	2	3	5	3
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					9.78	10.67	10.7	10.61	10.35	10.835	10.765	10.37
min					9.78	10.32	10.45	10.57	10.32	10.82	10.59	10.37
max					9.78	11.02	10.81	10.65	10.38	10.85	10.94	10.37
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n					1	2	3	2	2	2	2	1
med					0.49	0.33	0.31	0.26	0.32	0.35	0.28	0.36
min					0.49	0.31	0.28	0.21	0.31	0.32	0.25	0.36
max					0.49	0.34	0.33	0.31	0.33	0.37	0.30	0.36

NB: Daily discharge data is not available for NEERB as this site is not gauged. Due to the ephemeral nature of flow in Neerigen Brook and the below average rainfall in 2020, samples were only collected between May and December 2020.

29. Susannah Brook (SUSANB)

SUSANB total nitrogen (TN)

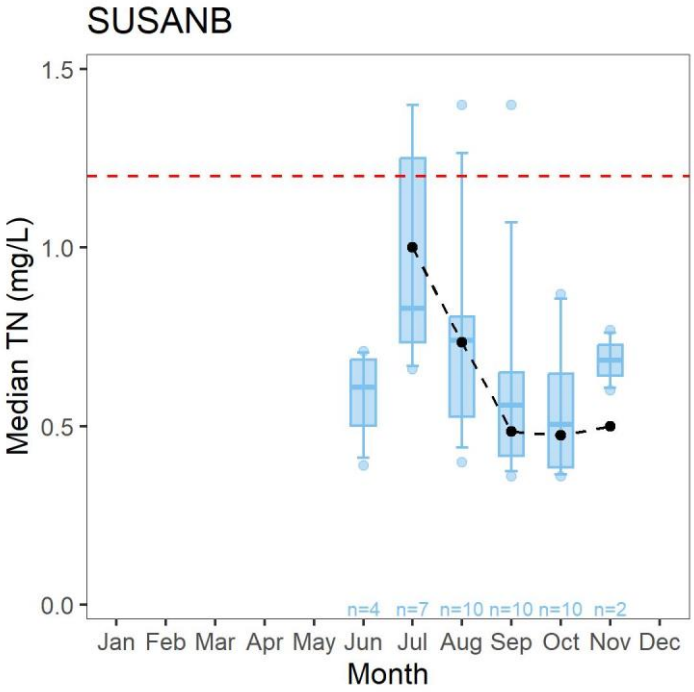

Figure 292. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

SUSANB ammoniacal nitrogen (NH_3-N)

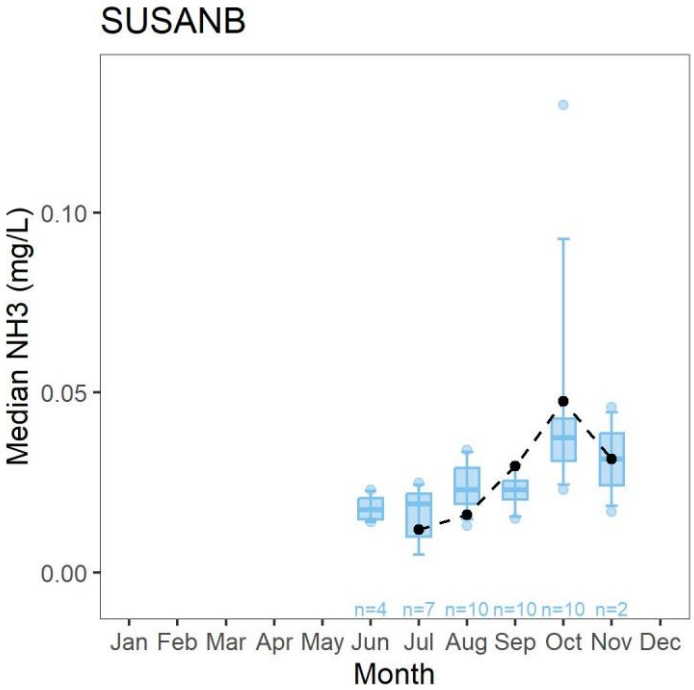

Figure 293. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

SUSANB total oxidised nitrogen (NO_x-N)

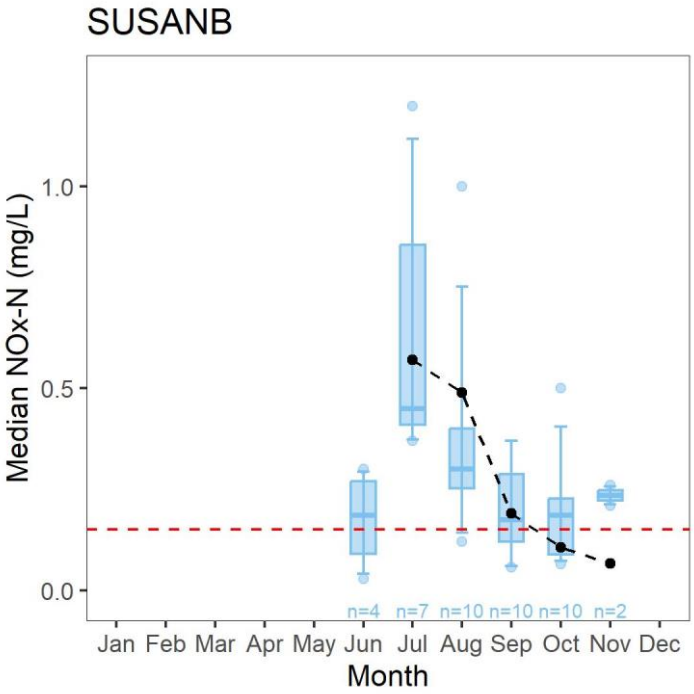

Figure 294. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

SUSANB dissolved organic nitrogen (DOrgN)

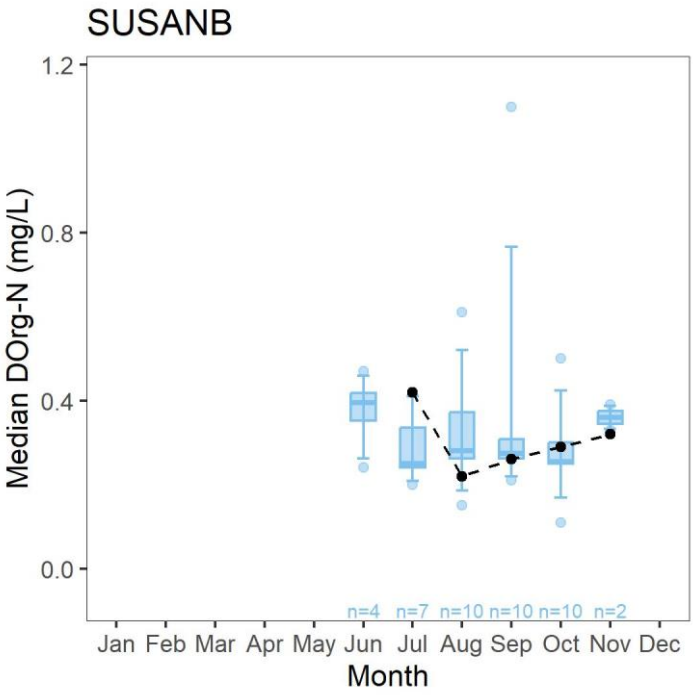

Figure 295. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

SUSANB total phosphorus (TP)

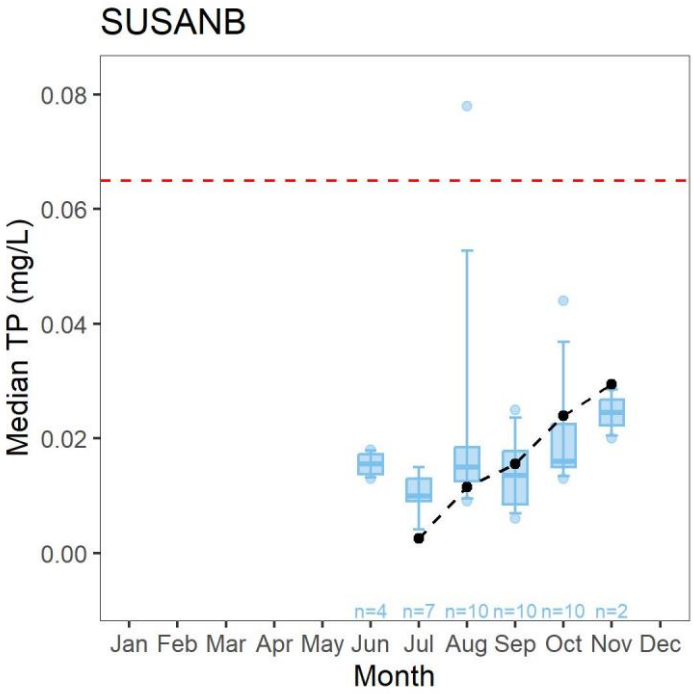

Figure 296. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

SUSANB filterable reactive phosphorus (FRP)

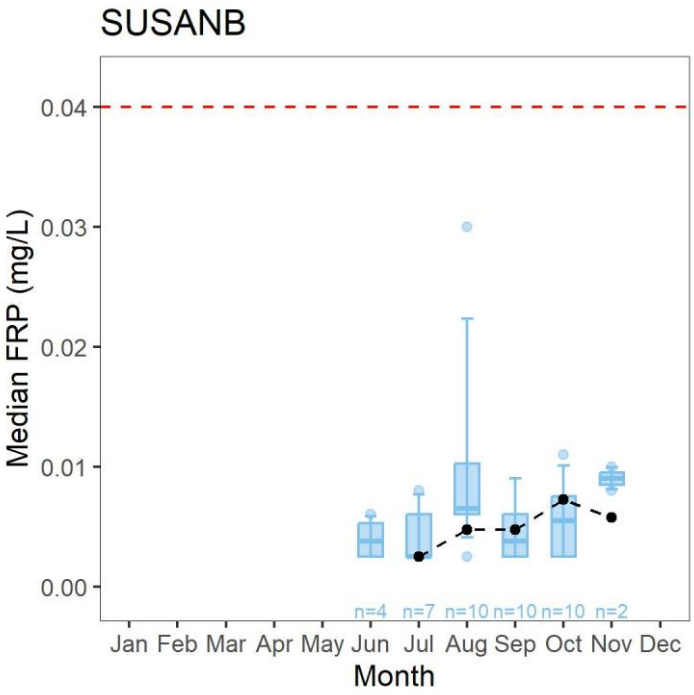

Figure 297. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

SUSANB dissolved organic carbon (DOC)

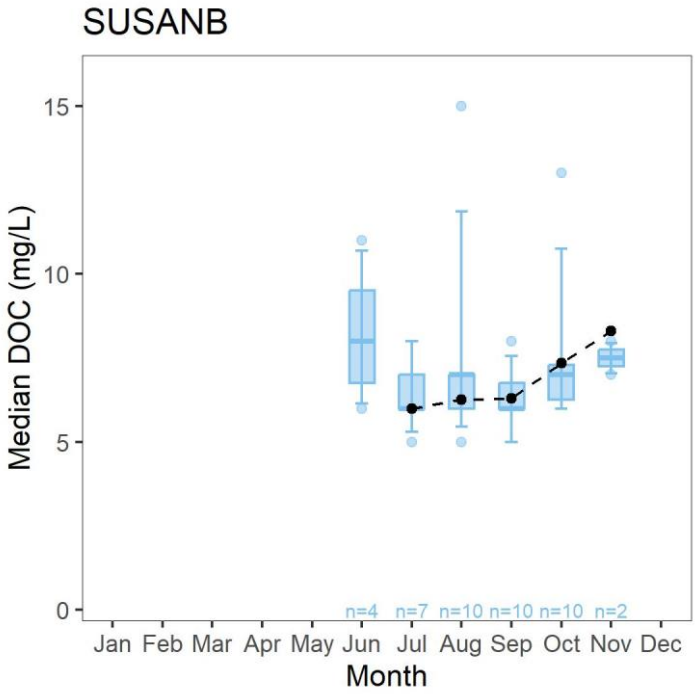

Figure 298. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

SUSANB total suspended solids (TSS)

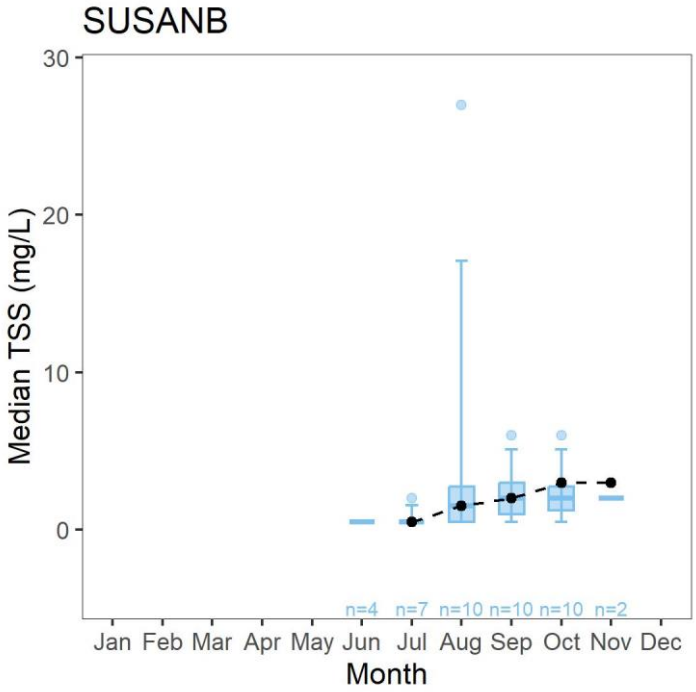

Figure 299. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

SUSANB dissolved oxygen (DO)

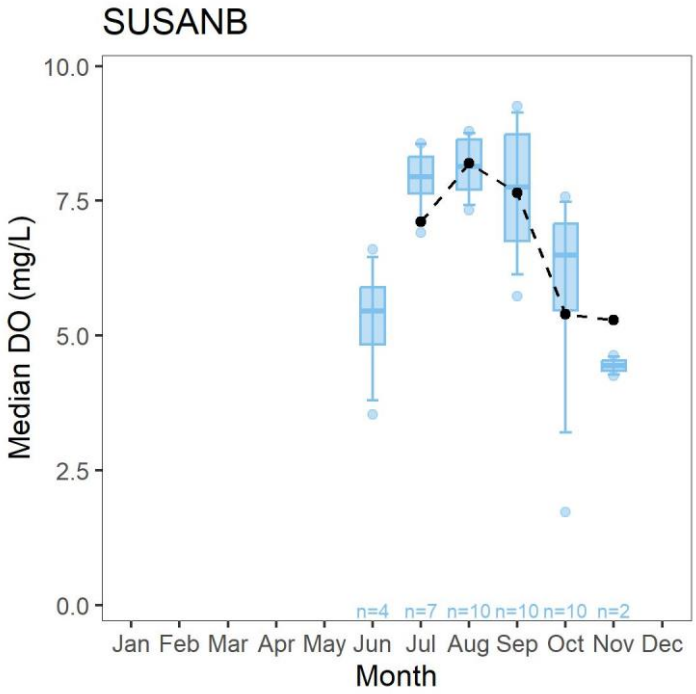

Figure 300. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

SUSANB specific conductivity (Sp. cond)

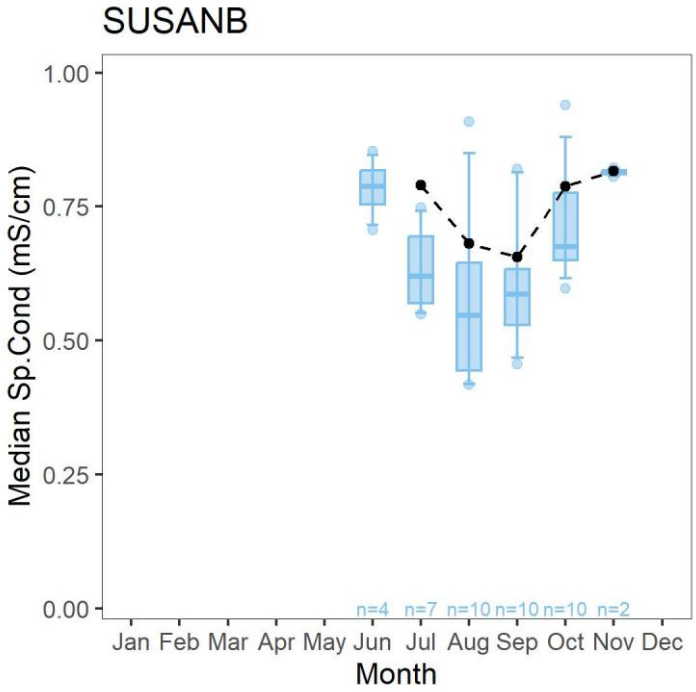

Figure 301. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site SUSANB. Number of samples (n) is provided for the historical data.

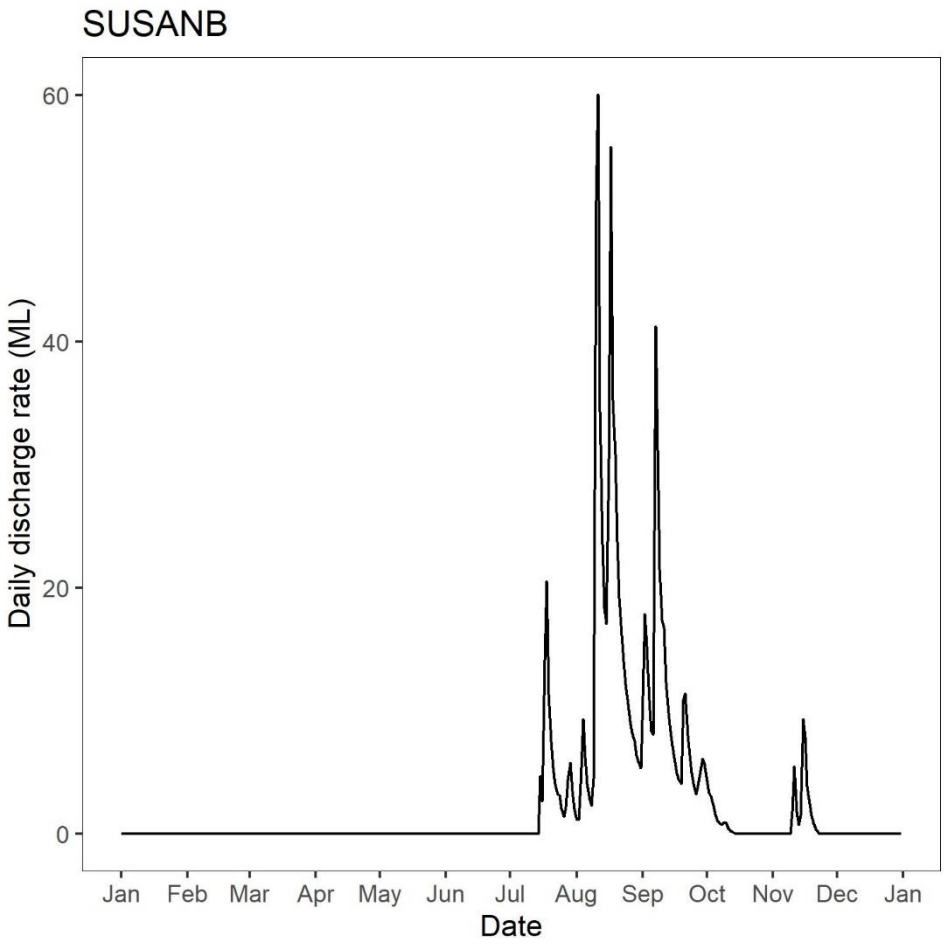

Figure 302. Daily discharge (ML) at the Susannah Brook gauging station (616099 – at site of SUSANB).

NB: Due to the highly ephemeral nature of flow in Susannah Brook and the below average rainfall in 2020, samples were only collected between July and October 2020.

Table 31. 2020 monthly sample numbers, minimum and maximum values at SUSANB.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							1	0.735	0.485	0.475	0.5	
min							1	0.57	0.47	0.36	0.49	
max							1	0.9	0.5	0.59	0.51	
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.012	0.016	0.0295	0.0475	0.0315	
min							0.012	0.016	0.019	0.012	0.016	
max							0.012	0.016	0.04	0.083	0.047	
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.57	0.49	0.19	0.106	0.0665	
min							0.57	0.33	0.13	0.082	0.038	
max							0.57	0.65	0.25	0.13	0.095	
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.42	0.22	0.26	0.29	0.32	
min							0.42	0.21	0.23	0.26	0.3	
max							0.42	0.23	0.29	0.32	0.34	
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.005	0.0115	0.0155	0.024	0.0295	
min							0.005	0.008	0.012	0.014	0.025	
max							0.005	0.015	0.019	0.034	0.034	
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.005	0.006	0.006	0.0085	0.007	
min							0.005	0.005	0.005	0.005	0.005	
max							0.005	0.007	0.007	0.012	0.009	
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							6	6.25	6.3	7.35	8.3	
min							6	5.8	5.9	6.5	7.9	
max							6	6.7	6.7	8.2	8.7	
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							1	1.5	2	3	3	
min							1	1	2	2	2	
max							1	2	2	4	4	
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							7.11	8.19	7.645	5.395	5.29	
min							7.11	7.69	6.83	3.99	3.35	
max							7.11	8.69	8.46	6.8	7.23	
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	1	2	2	2	2	0
med							0.79	0.68	0.66	0.79	0.82	
min							0.79	0.59	0.65	0.74	0.72	
max							0.79	0.78	0.66	0.83	0.91	

30. Ashfield Drain (ASHD)

ASHD total nitrogen (TN)

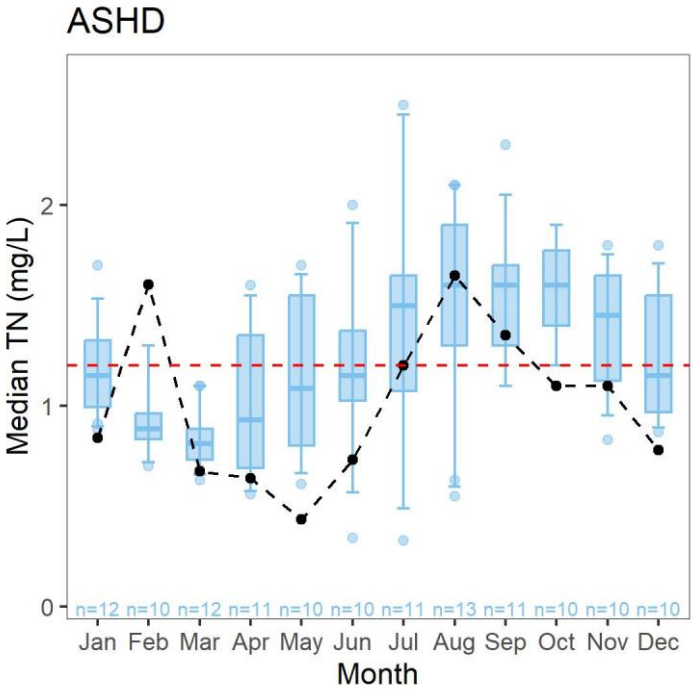

Figure 303. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

ASHD ammoniacal nitrogen (NH_3-N)

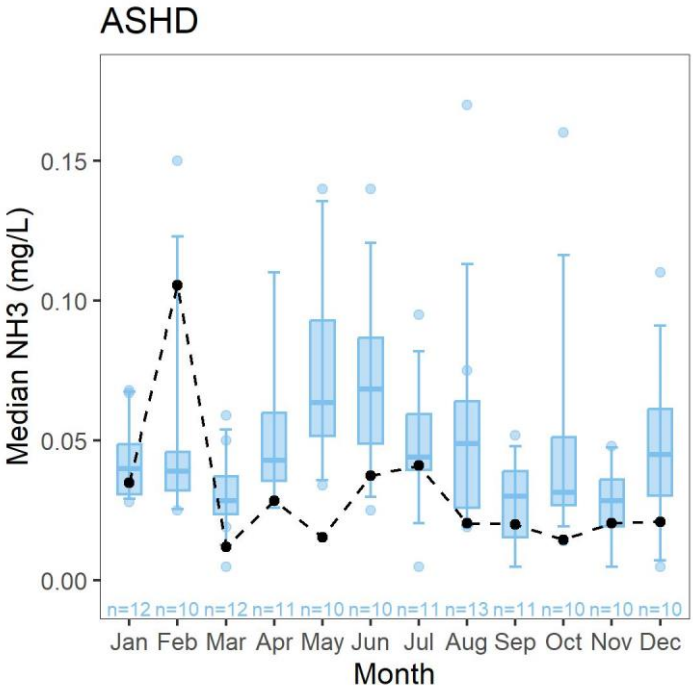

Figure 304. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

ASHD total oxidised nitrogen (NO_x-N)

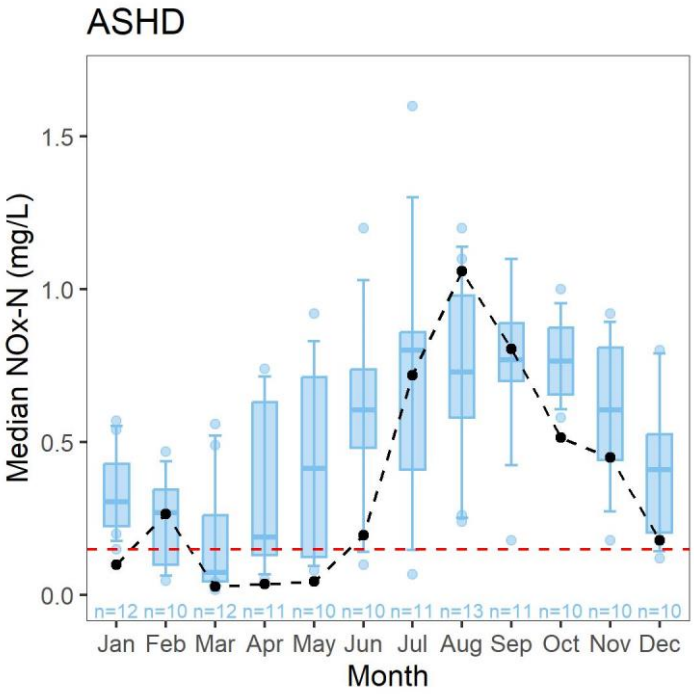

Figure 305. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

ASHD dissolved organic nitrogen (DOrgN)

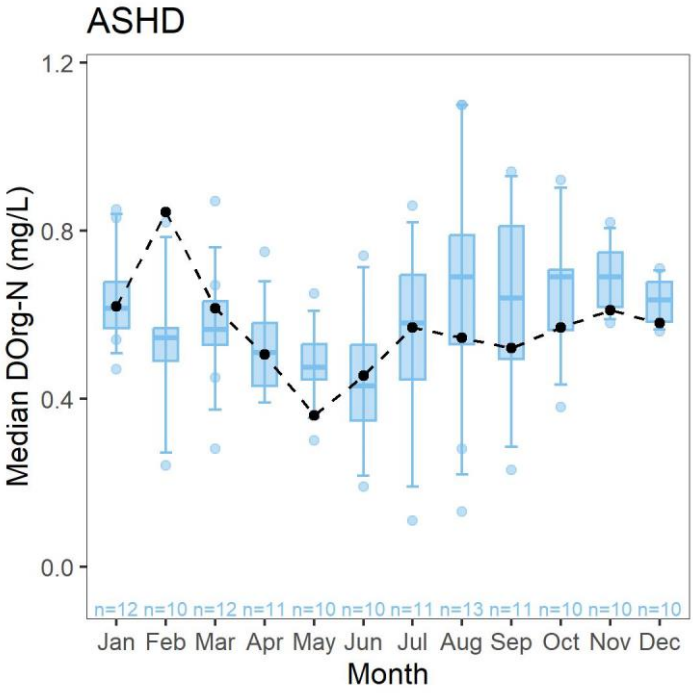

Figure 306. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

ASHD total phosphorus (TP)

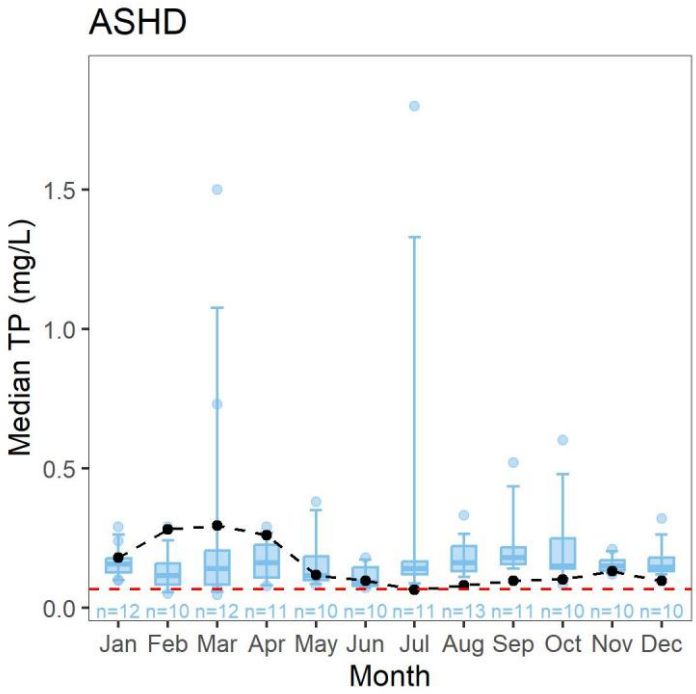

Figure 307. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

ASHD filterable reactive phosphorus (FRP)

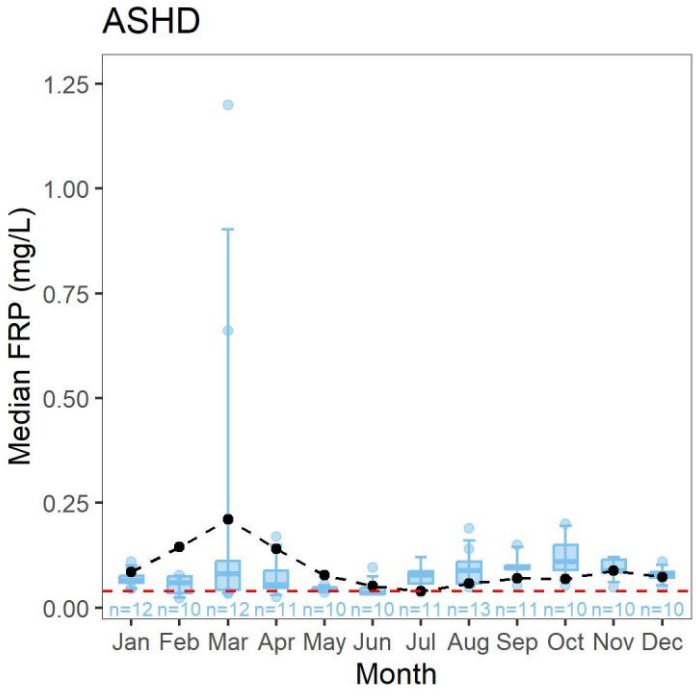

Figure 308. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

ASHD dissolved organic carbon (DOC)

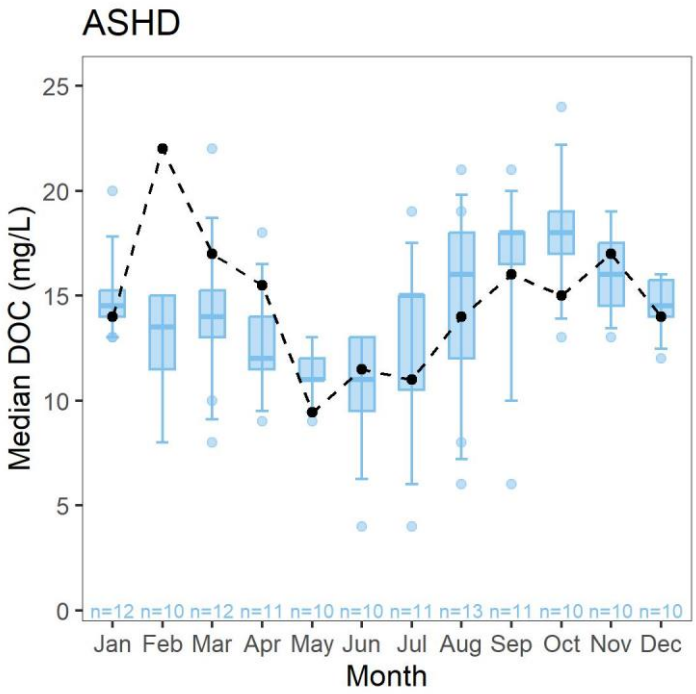

Figure 309. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

ASHD total suspended solids (TSS)

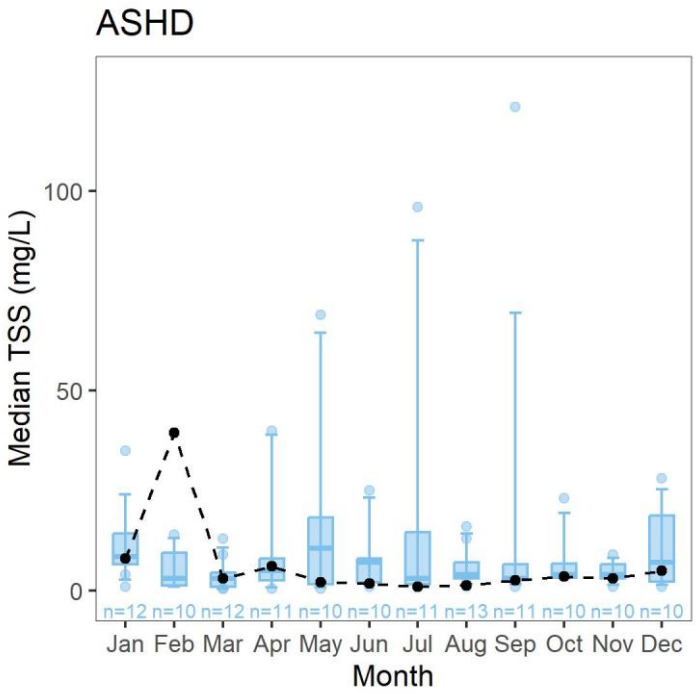

Figure 310. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

ASHD dissolved oxygen (DO)

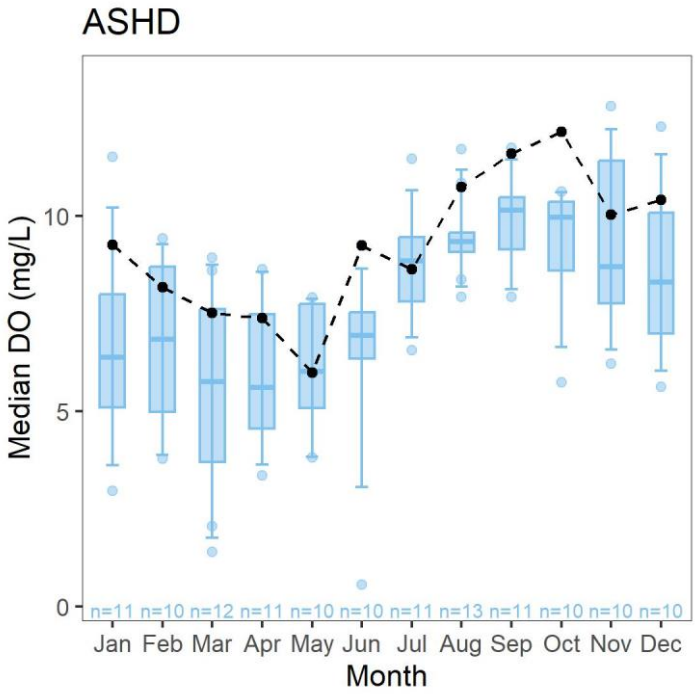

Figure 311. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

ASHD specific conductivity (Sp. cond)

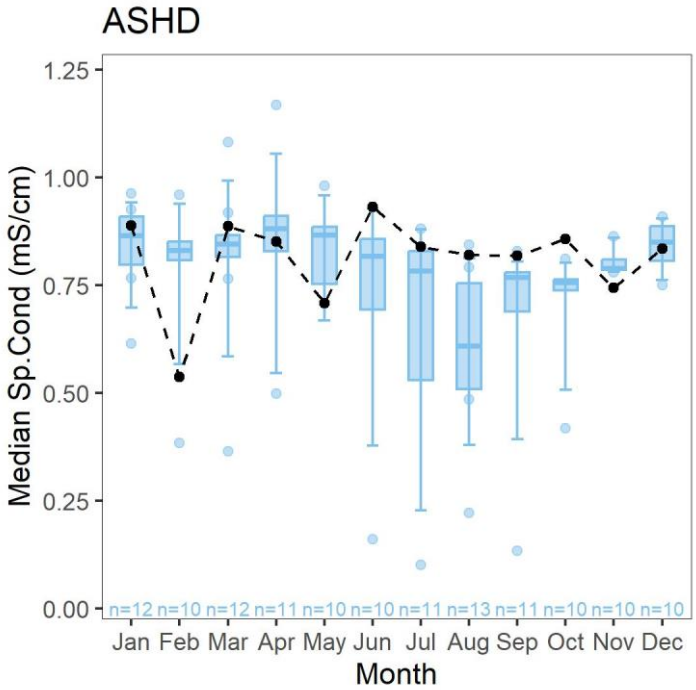

Figure 312. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site ASHD. Number of samples (n) is provided for the historical data.

Table 32. 2020 monthly sample numbers, minimum and maximum values at ASHD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.84	1.605	0.675	0.64	0.435	0.73	1.2	1.65	1.35	1.1	1.1	0.78
min	0.67	0.71	0.64	0.61	0.29	0.72	1.1	1.4	1.2	1.1	1	0.78
max	0.96	2.5	0.71	0.67	0.58	0.74	1.6	1.9	1.5	1.1	1.2	0.9
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.035	0.1055	0.0145	0.0285	0.018	0.0375	0.041	0.0205	0.02	0.017	0.0205	0.021
min	0.01	0.021	0.01	0.018	0.01	0.022	0.022	0.02	0.019	0.01	0.017	0.02
max	0.1	0.19	0.019	0.039	0.026	0.053	0.044	0.021	0.021	0.024	0.024	0.026
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.099	0.2645	0.028	0.036	0.0435	0.195	0.72	1.06	0.805	0.515	0.45	0.18
min	0.05	0.039	0.025	0.017	0.037	0.17	0.53	0.82	0.71	0.49	0.44	0.094
max	0.11	0.49	0.031	0.055	0.05	0.22	0.85	1.3	0.9	0.54	0.46	0.25
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.62	0.845	0.615	0.505	0.36	0.455	0.57	0.545	0.52	0.57	0.61	0.58
min	0.55	0.59	0.61	0.47	0.22	0.45	0.39	0.53	0.49	0.56	0.54	0.58
max	0.62	1.1	0.62	0.54	0.5	0.46	0.66	0.56	0.55	0.58	0.68	0.61
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.18	0.28	0.295	0.26	0.116	0.0955	0.064	0.0805	0.096	0.1	0.13	0.097
min	0.13	0.15	0.18	0.19	0.092	0.071	0.059	0.076	0.092	0.09	0.12	0.089
max	0.25	0.41	0.41	0.33	0.14	0.12	0.072	0.085	0.1	0.11	0.14	0.11
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.085	0.1445	0.21	0.14	0.0775	0.052	0.04	0.0575	0.07	0.068	0.0885	0.073
min	0.058	0.089	0.11	0.13	0.061	0.043	0.039	0.051	0.065	0.059	0.067	0.069
max	0.097	0.2	0.31	0.15	0.094	0.061	0.046	0.064	0.075	0.077	0.11	0.074
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	14	22	17	15.5	9.45	11.5	11	14	16	15	17	14
min	14	14	16	15	5.9	11	9.6	14	16	14	17	13
max	15	30	18	16	13	12	12	14	16	16	17	14
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	8	39.5	3	6	2	2	1	1.5	2.5	3.5	3	5
min	5	5	3	2	2	1	1	1	2	3	2	4
max	15	74	3	10	2	3	10	2	3	4	4	7
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	9.26	8.165	7.515	7.38	5.98	9.235	8.63	10.74	11.595	12.14	10.025	10.41
min	7.45	7.16	7.08	7.36	5.39	7.67	8.26	9.7	11.22	11.03	8.64	2.37
max	9.4	9.17	7.95	7.4	6.57	10.8	10.69	11.78	11.97	13.25	11.41	12.17
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	3	2	2	2	2	2	3	2	2	2	2	3
med	0.89	0.54	0.89	0.85	0.71	0.93	0.84	0.82	0.82	0.86	0.74	0.83
min	0.86	0.18	0.86	0.82	0.48	0.92	0.70	0.79	0.81	0.85	0.73	0.76
max	0.91	0.89	0.91	0.88	0.94	0.94	0.85	0.86	0.83	0.86	0.75	0.89

NB: Daily discharge data is not available for ASHD as this site is not gauged.

31. Upper Swan (WNDCK)

WNDCK total nitrogen (TN)

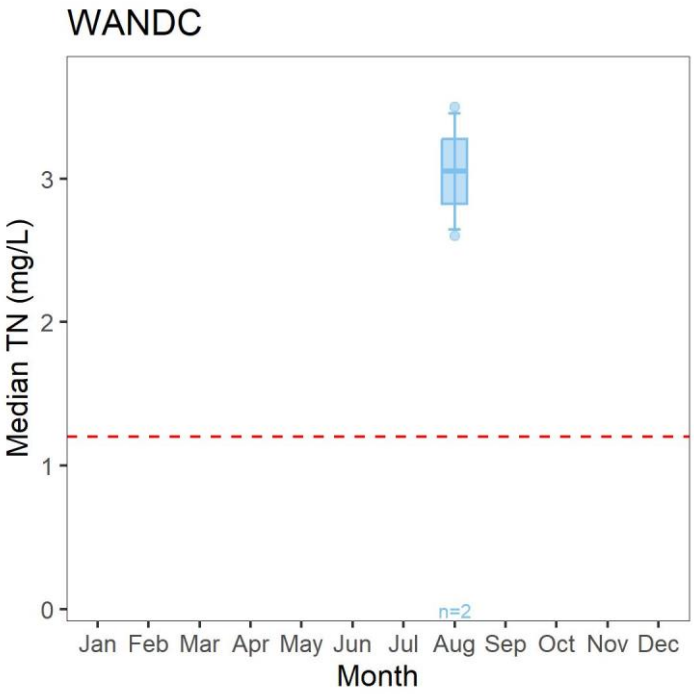

Figure 313. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

WNDCK ammoniacal nitrogen (NH_3-N)

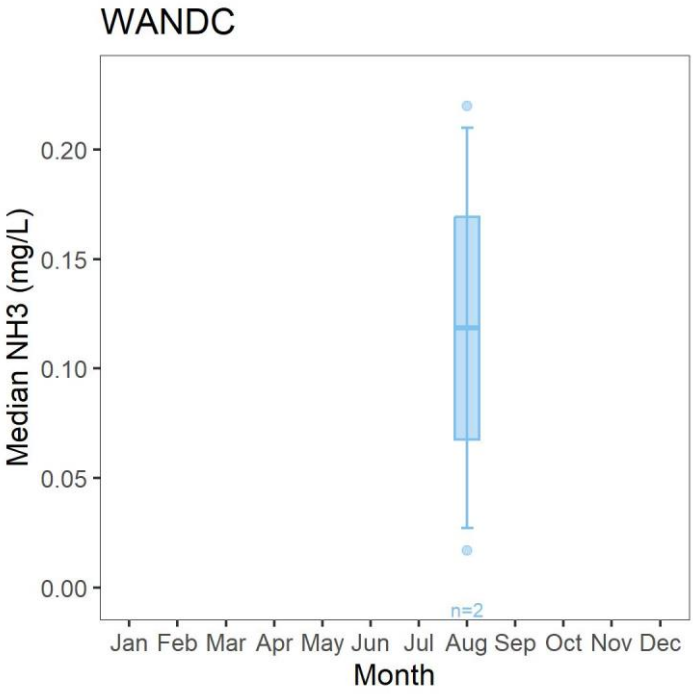

Figure 314. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

WNDCK total oxidised nitrogen (NO_x-N)

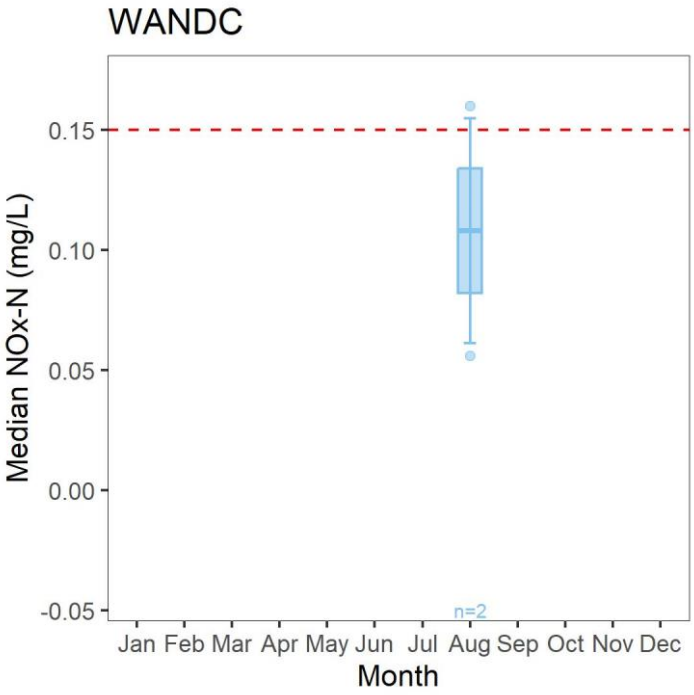

Figure 315. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

WNDCK dissolved organic nitrogen (DOrgN)

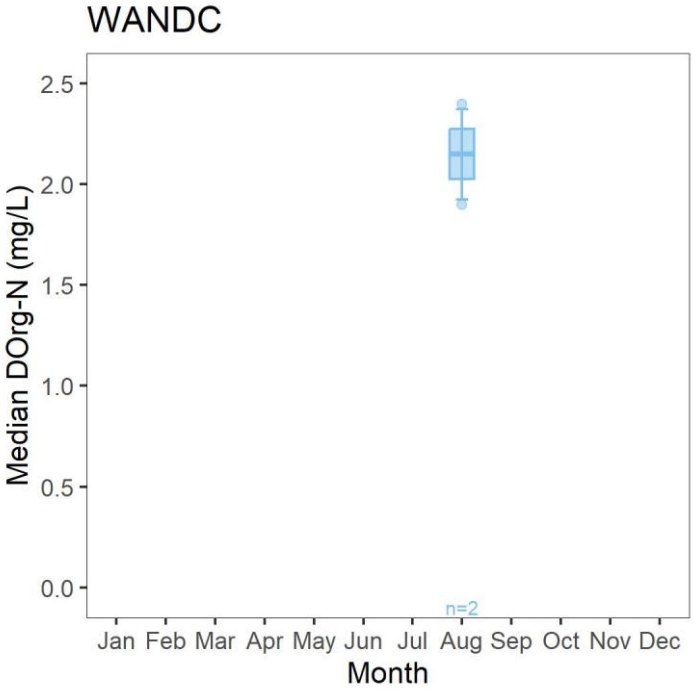

Figure 316. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

WNDCK total phosphorus (TP)

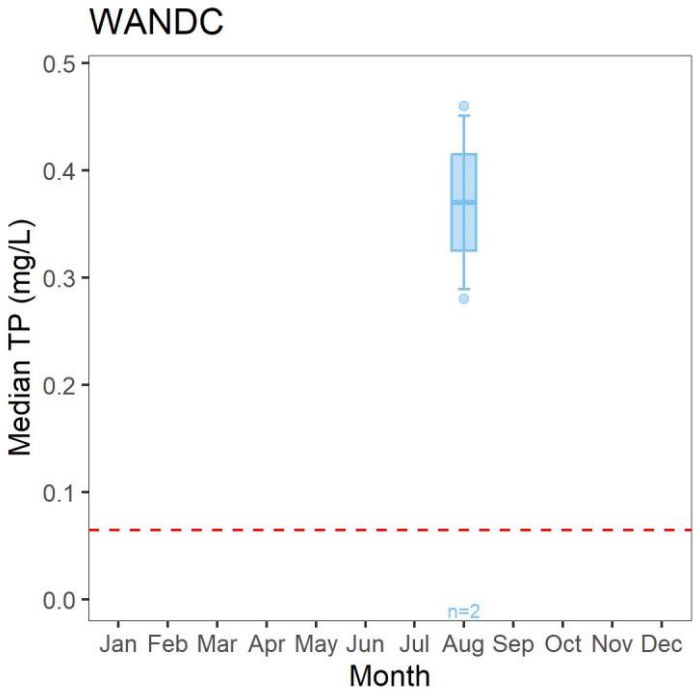

Figure 317. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

WNDCK filterable reactive phosphorus (FRP)

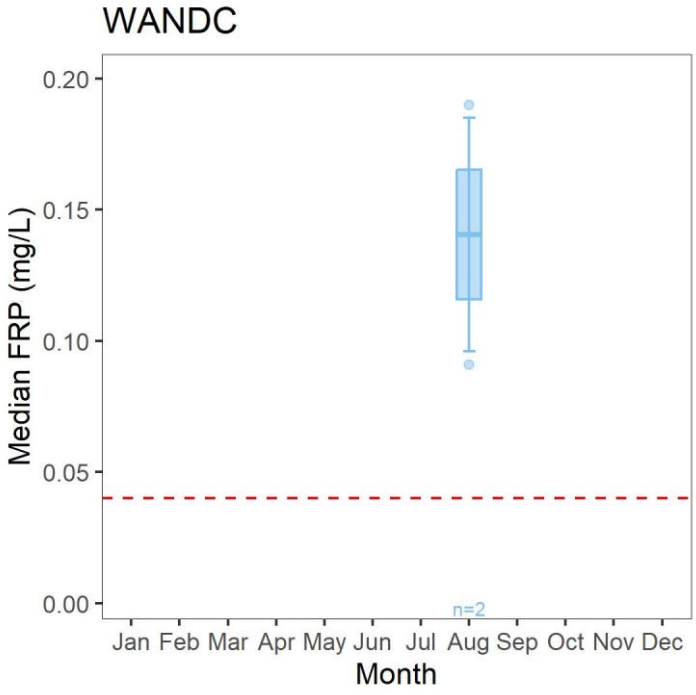

Figure 318. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

WNDCK dissolved organic carbon (DOC)

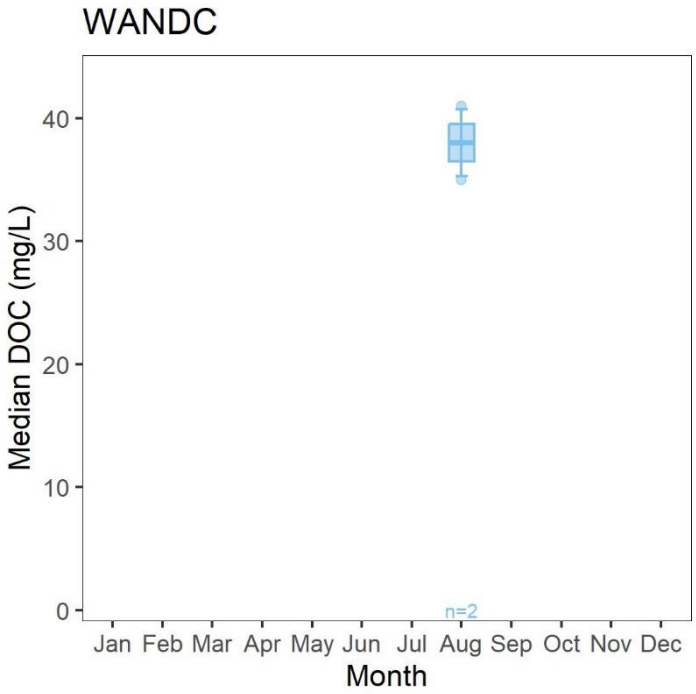

Figure 319. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

WNDCK total suspended solids (TSS)

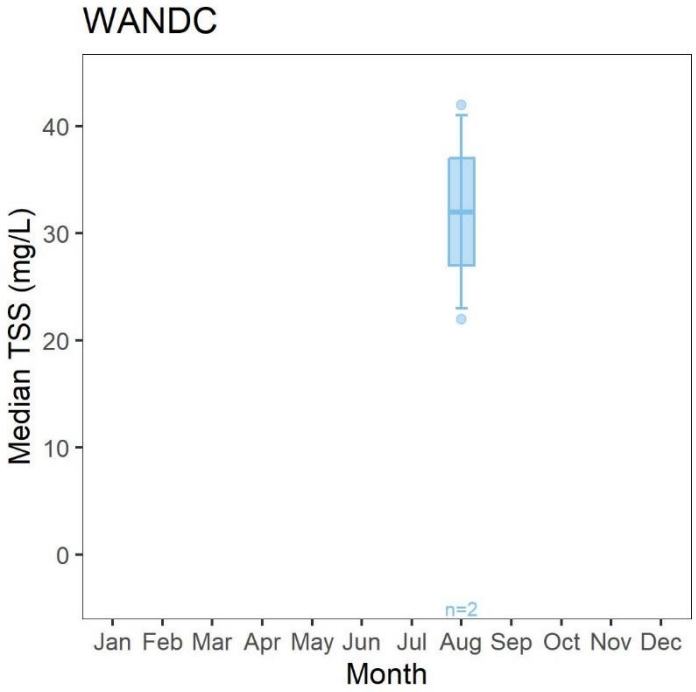

Figure 320. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

WNDCK dissolved oxygen (DO)

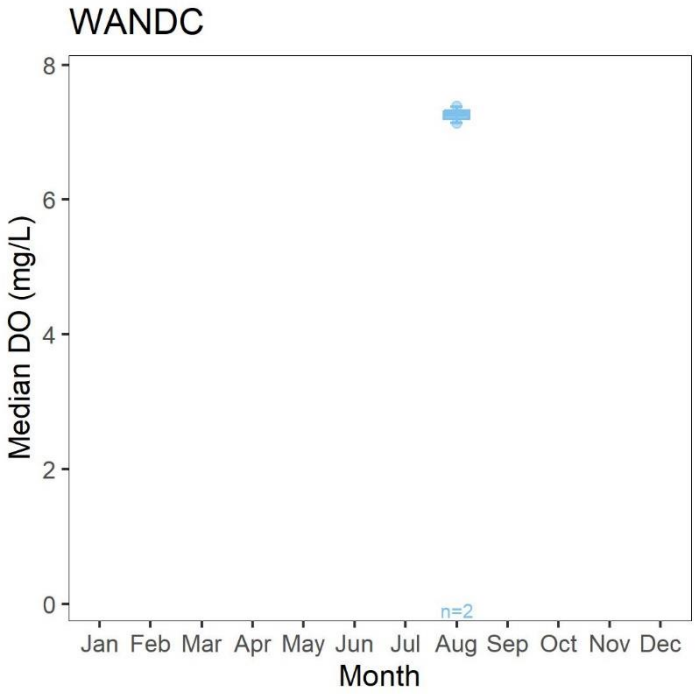

Figure 321. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

WNDCK specific conductivity (Sp. cond)

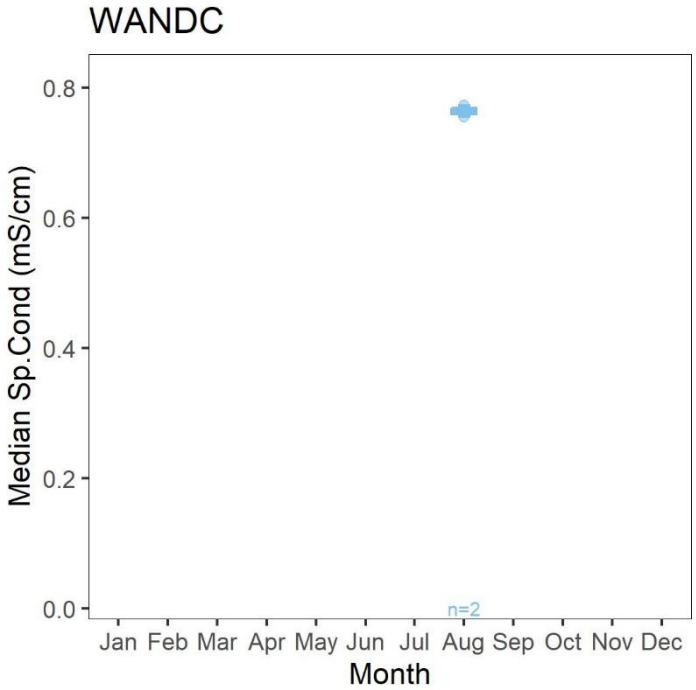

Figure 322. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site WNDCK. Number of samples (n) is provided for the historical data.

Table 33. 2020 monthly sample numbers, minimum and maximum values at WNDCK.

TN (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
NH3-N (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
Nox-N (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
DorgN (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
TP (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
FRP (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
DOC (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
TSS (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
DO (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											
Sp.Cond (mS/cm)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	0	0	0	0	0	0	0	0	0	0	0
med											
min											
max											

Due to restricted access, no data was collected from Wandoo Creek in 2020 (Table 33). There is also limited background data available for this site (Figures 311-320).

32. Yule Brook (YULEB)

YULEB total nitrogen (TN)

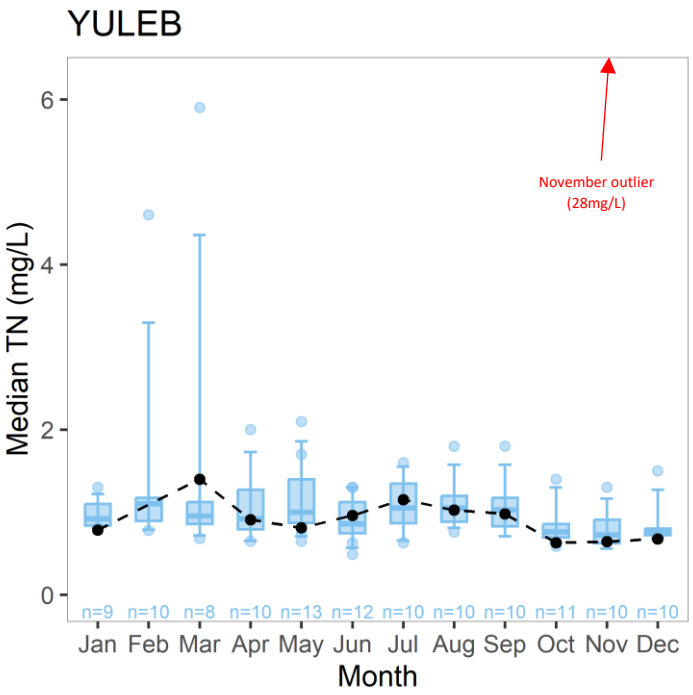

Figure 323. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

YULEB ammoniacal nitrogen (NH_3-N)

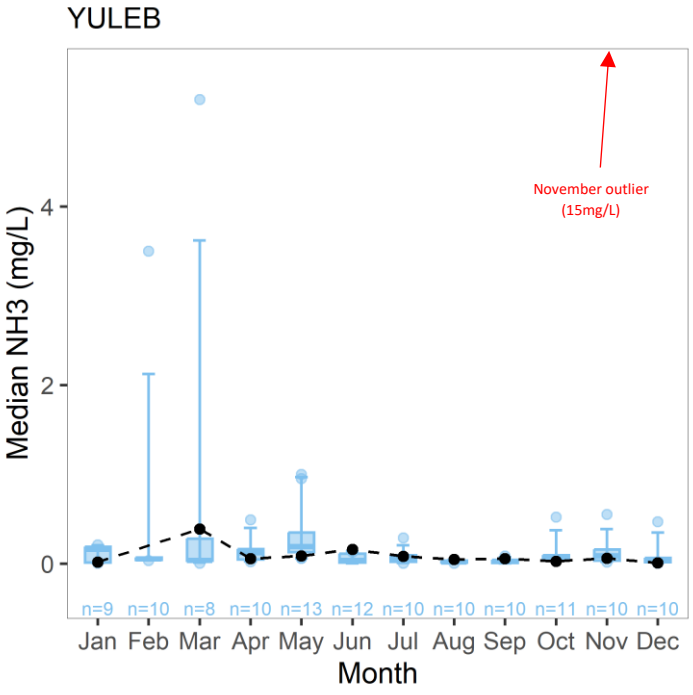

Figure 324. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

YULEB total oxidised nitrogen (NO_x-N)

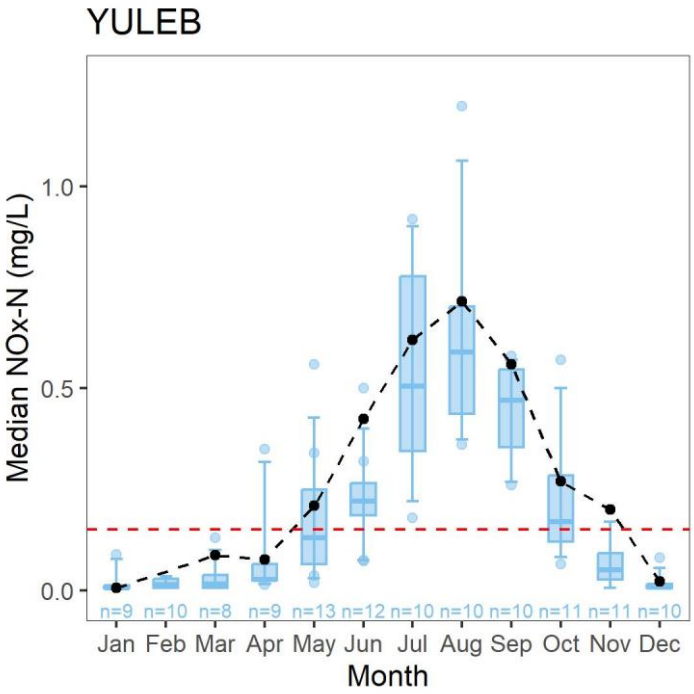

Figure 325. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

YULEB dissolved organic nitrogen (DOrgN)

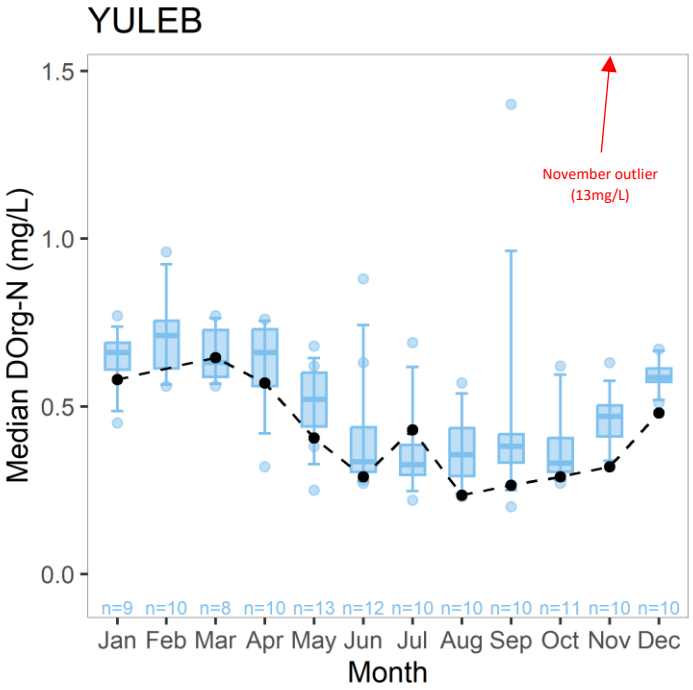

Figure 326. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

YULEB total phosphorus (TP)

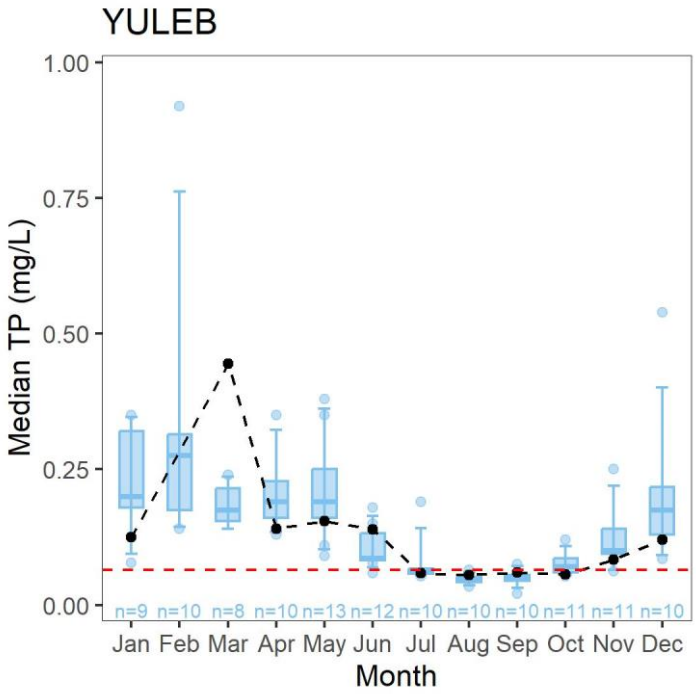

Figure 327. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

YULEB filterable reactive phosphorus (FRP)

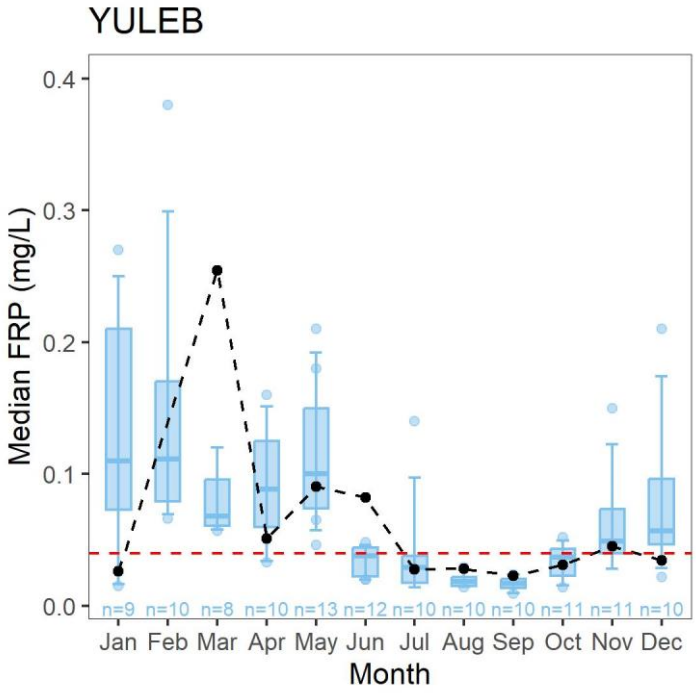

Figure 328. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

YULEB dissolved organic carbon (DOC)

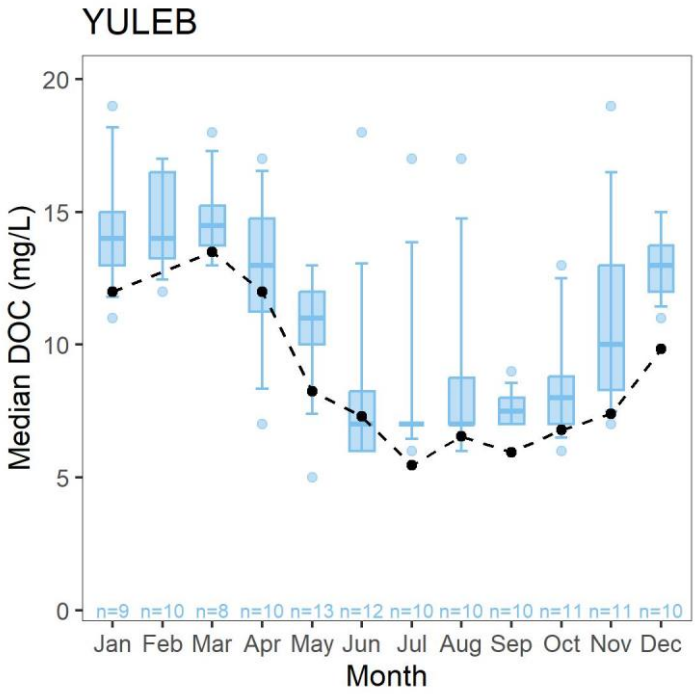

Figure 329. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

YULEB total suspended solids (TSS)

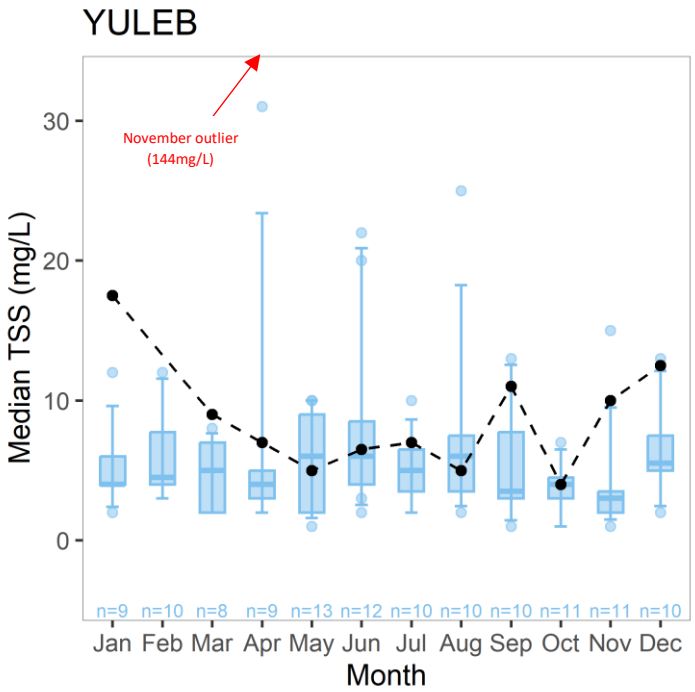

Figure 330. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

YULEB dissolved oxygen (DO)

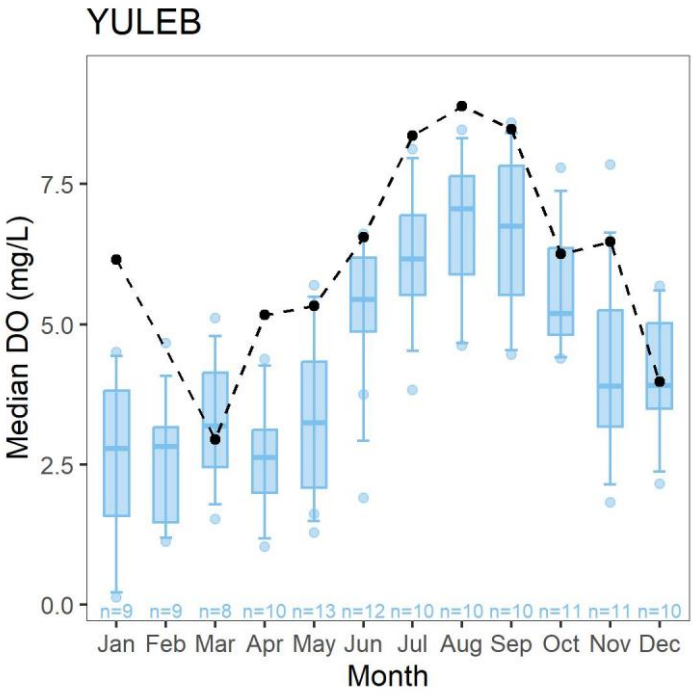

Figure 331. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

YULEB specific conductivity (Sp. cond)

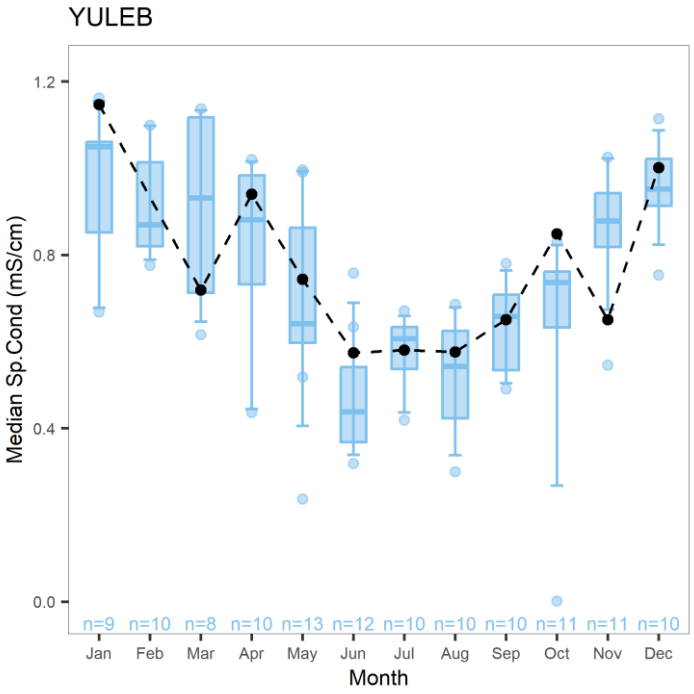

Figure 332. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site YULEB. Number of samples (n) is provided for the historical data.

Table 34. 2020 monthly sample numbers, minimum and maximum values at YULEB.

TN (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.785	1.4	0.91	0.81	0.96	1.15	1.025	0.98	0.63	0.645	0.675
min	0.77	1.2	0.82	0.81	0.82	1	0.95	0.97	0.54	0.64	0.64
max	0.8	1.6	1	0.81	1.1	1.3	1.1	0.99	0.73	0.65	0.71
NH3-N (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.0165	0.385	0.057	0.0845	0.16	0.082	0.0445	0.0565	0.025	0.059	0.011
min	0.015	0.13	0.019	0.083	0.11	0.075	0.032	0.034	0.01	0.052	0.01
max	0.018	0.64	0.079	0.086	0.21	0.089	0.057	0.079	0.037	0.066	0.012
Nox-N (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.01	0.09	0.075	0.21	0.425	0.62	0.715	0.56	0.27	0.2	0.021
min	0.01	0.01	0.021	0.2	0.32	0.46	0.61	0.5	0.043	0.16	0.014
max	0.01	0.17	0.22	0.22	0.53	0.78	0.82	0.62	0.43	0.24	0.028
DorgN (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.58	0.645	0.57	0.405	0.29	0.43	0.235	0.265	0.29	0.32	0.48
min	0.56	0.55	0.51	0.39	0.29	0.39	0.23	0.24	0.24	0.32	0.46
max	0.6	0.74	0.6	0.42	0.29	0.47	0.24	0.29	0.39	0.32	0.5
TP (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.125	0.445	0.14	0.155	0.139	0.0585	0.0555	0.06	0.056	0.084	0.12
min	0.12	0.19	0.13	0.15	0.098	0.051	0.055	0.055	0.053	0.079	0.12
max	0.13	0.7	0.2	0.16	0.18	0.066	0.056	0.065	0.12	0.089	0.12
FRP (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	0.026	0.2545	0.051	0.0905	0.082	0.0275	0.028	0.023	0.031	0.045	0.0345
min	0.02	0.089	0.039	0.081	0.054	0.024	0.028	0.021	0.022	0.036	0.031
max	0.032	0.42	0.07	0.1	0.11	0.031	0.028	0.025	0.063	0.054	0.038
DOC (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	12	13.5	12	8.25	7.3	5.45	6.55	5.95	6.8	7.4	9.85
min	12	11	11	7.6	6.1	5.2	6.2	5.8	6.7	6.8	9.7
max	12	16	12	8.9	8.5	5.7	6.9	6.1	9.4	8	10
TSS (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	17.5	9	7	5	6.5	7	5	11	4	10	12.5
min	16	8	3	4	4	5	3	7	3	9	12
max	19	10	9	6	9	9	7	15	5	11	13
DO (mg/L)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	6.15	2.945	5.17	5.325	6.56	8.365	8.895	8.475	6.26	6.475	3.98
min	5.7	2.53	3.74	4.58	5.47	7.98	8.74	8.03	4.48	5.61	3.22
max	6.6	3.36	6.66	6.07	7.65	8.75	9.05	8.92	7.86	7.34	4.74
Sp.Cond (mS/cm)	Jan	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	2	2	3	2	2	2	2	2	3	2	2
med	1146.7	718.55	940	743.6	574	580.5	576	650.5	849	650.5	1001.15
min	1137.7	528.2	887.2	670.2	491	483	538	543	730	482.6	959.3
max	1155.7	908.9	1012	817	657	678	614	758	962.7	818.4	1043

NB: Daily discharge data is not available for YULEB as this site is not gauged.

33. Mount's Bay Main Drain (CBDMD)

CBDMD total nitrogen (TN)

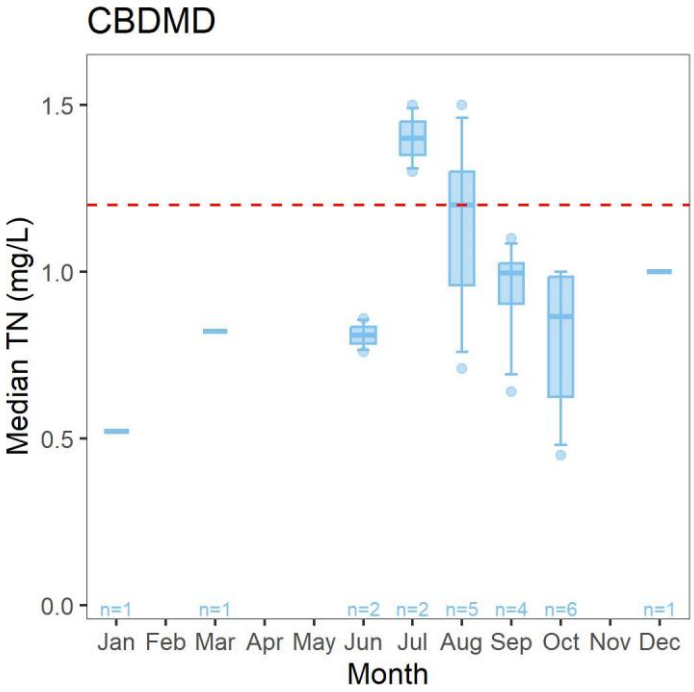

Figure 333. Monthly median total nitrogen (TN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TN is provided for comparison against the current and historical data (red dotted line).

CBDMD ammoniacal nitrogen (NH_3-N)

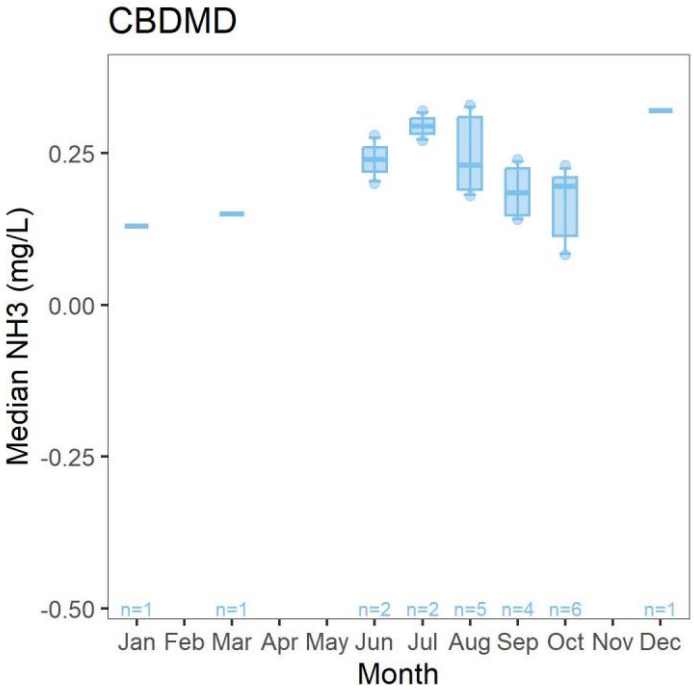

Figure 334. Monthly median ammoniacal nitrogen (NH_3-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

CBDMD total oxidised nitrogen (NO_x-N)

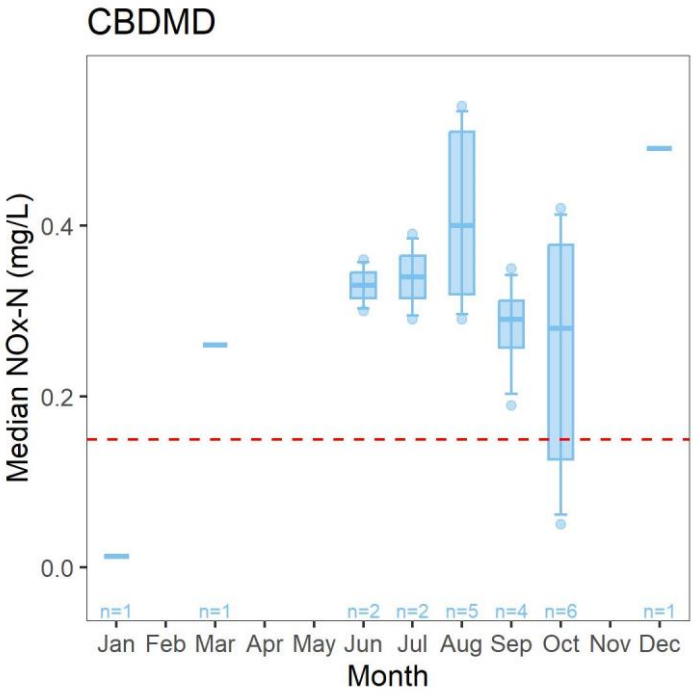

Figure 335. Monthly median total oxidised nitrogen (NO_x-N) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for NO_x-N is provided for comparison against the current and historical data (red dotted line).

CBDMD dissolved organic nitrogen (DOrgN)

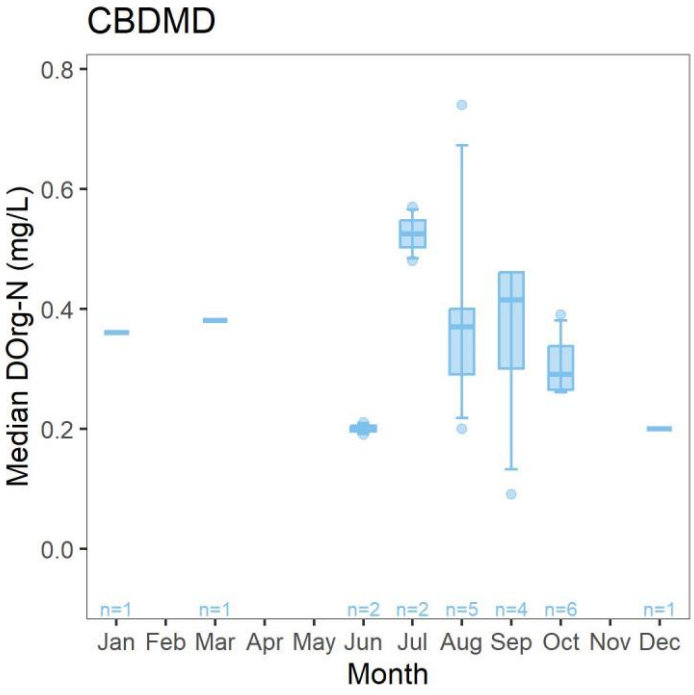

Figure 336. Monthly median dissolved organic nitrogen (DOrgN) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

CBDMD total phosphorus (TP)

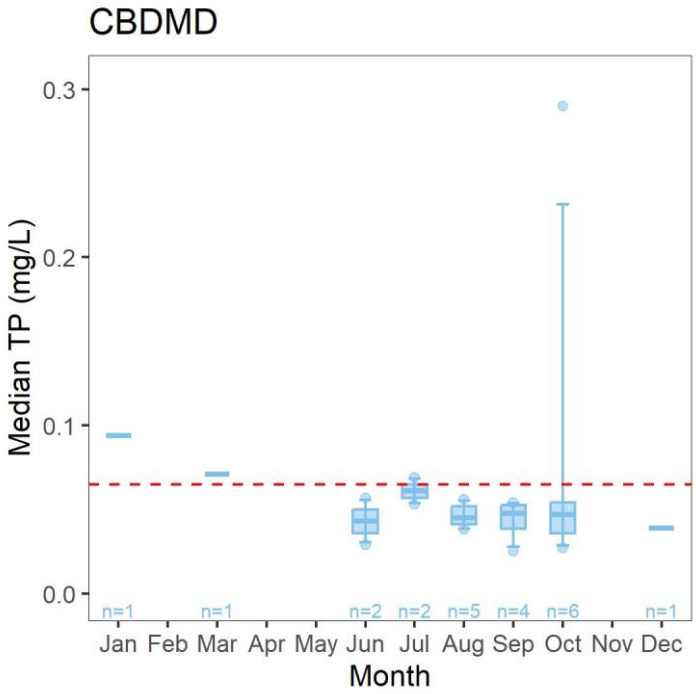

Figure 337. Monthly median total phosphorus (TP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for TP is provided for comparison against the current and historical data (red dotted line).

CBDMD filterable reactive phosphorus (FRP)

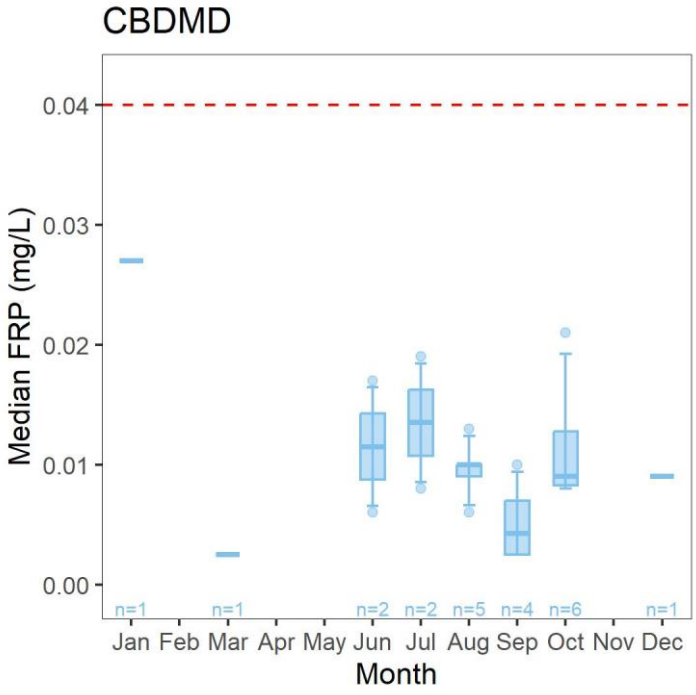

Figure 338. Monthly median filterable reactive phosphorus (FRP) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data. The ANZECC trigger value for FRP is provided for comparison against the current and historical data (red dotted line).

CBDMD dissolved organic carbon (DOC)

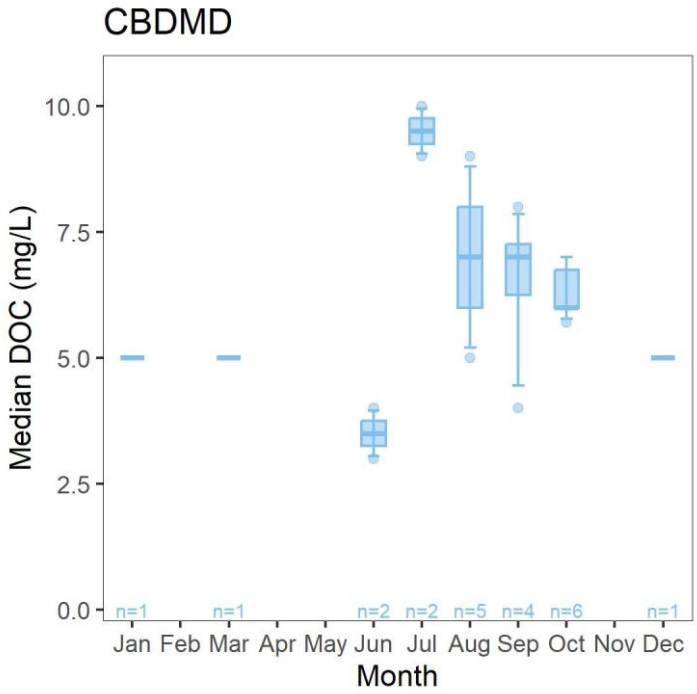

Figure 339. Monthly median dissolved organic carbon (DOC) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

CBDMD total suspended solids (TSS)

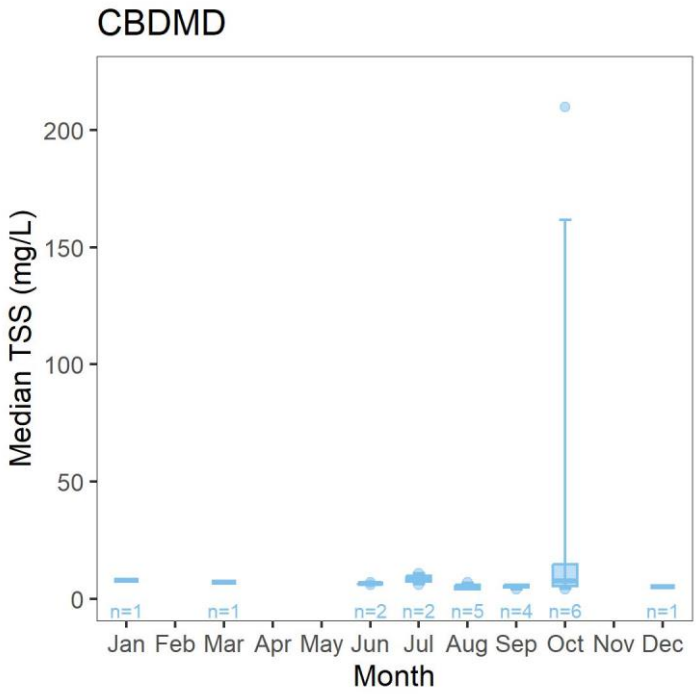

Figure 340. Monthly median total suspended solids (TSS) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

CBDMD dissolved oxygen (DO)

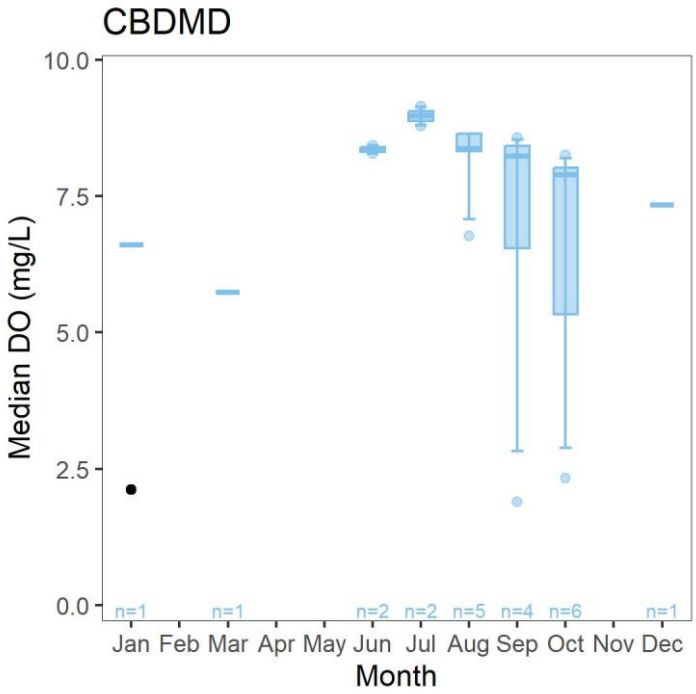

Figure 341. Monthly median dissolved oxygen (DO) (mg/L) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

CBDMD specific conductivity (Sp. cond)

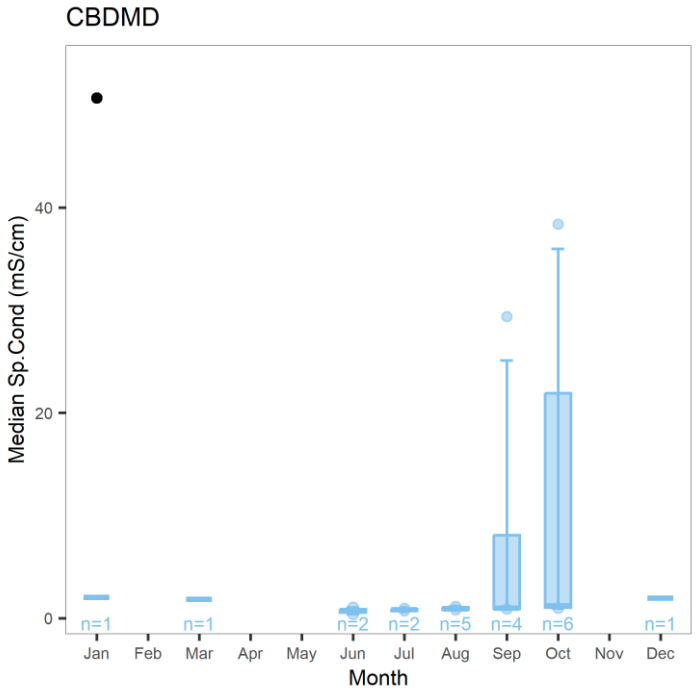

Figure 342. Monthly median specific conductivity (Sp. cond) (mS/cm) in 2020 (line graph) and monthly medians, 25th, 75th, 10th and 90th percentiles for the period 2015-2019 (box plot) for site CBDMD. Number of samples (n) is provided for the historical data.

Table 35. 2020 monthly sample numbers, minimum and maximum values at CBDMD.

TN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
NH3-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
Nox-N (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
DorgN (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
TP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
FRP (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
DOC (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
TSS (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med												
min												
max												
DO (mg/L)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med	2.12											
min	2.12											
max	2.12											
Sp.Cond (mS/cm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
n	1	0	0	0	0	0	0	0	0	0	0	0
med	50670.2											
min	50670.2											
max	50670.2											

NB: Daily discharge data is not available for CBDMD as this site is not gauged. The access point for this drain is within the Perth Convention Centre car park and sampling is dependent on whether the site can be accessed. This site is also heavily influenced by tidal height within the estuary and sampling can only take place during a low tide when the drain is flowing freely. Specific conductivity indicates that samples collected in January were influenced by estuarine waters and this data should be disregarded (Figure 340, Table 35). Infrequent access to this site and unfavourable tides have resulted in no samples being available for 2020.

34. SCCATCH data comparison

Table 36. 2020 mean ± standard deviation for all SCCATCH sites.

	TN		NH3-N		Nox-N		DOrgN		TP		FRP		DOC		TSS		DO		Specific Conductivity	
Site	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)	Mean	SD(±)
AIRSMD	0.823	0.247	0.029	0.017	0.123	0.089	0.590	0.200	0.036	0.021	0.012	0.006	18.263	5.992	7.185	6.481	9.171	0.847	0.560	0.157
ASHD	1.015	0.464	0.033	0.036	0.358	0.347	0.564	0.141	0.147	0.097	0.089	0.057	14.500	4.011	6.741	13.844	9.044	2.399	0.809	0.156
BANNC	1.245	0.277	0.053	0.036	0.254	0.138	0.832	0.276	0.079	0.021	0.044	0.010	20.615	5.762	9.269	10.224	6.420	1.745	0.913	0.357
BAYMD	0.994	0.138	0.137	0.093	0.355	0.124	0.440	0.081	0.079	0.089	0.037	0.064	13.719	1.705	8.192	7.777	8.710	0.901	0.713	0.115
BENNB	0.978	0.159	0.029	0.009	0.277	0.158	0.597	0.083	0.064	0.020	0.031	0.011	16.654	1.573	5.692	4.038	6.823	0.718	0.625	0.042
BICKB	0.873	0.444	0.045	0.076	0.385	0.473	0.391	0.171	0.050	0.041	0.019	0.016	8.305	3.039	2.250	1.209	4.556	2.002	0.815	0.340
BLACKC	0.968	0.638	0.083	0.210	0.378	0.487	0.457	0.183	0.056	0.039	0.026	0.024	9.559	2.364	3.471	1.972	9.144	2.362	1.145	0.317
BODD	0.719	0.195	0.200	0.130	0.083	0.057	0.310	0.042	0.020	0.011	0.005	0.002	9.515	1.112	8.556	4.326	4.494	1.726	0.487	0.051
CANND	1.429	0.485	0.069	0.074	0.548	0.555	0.695	0.172	0.289	0.177	0.260	0.156	14.578	2.674	6.593	9.200	4.135	1.780	0.955	0.124
CANNR	0.374	0.167	0.023	0.011	0.138	0.140	0.184	0.074	0.016	0.007	0.008	0.003	4.077	1.427	2.038	1.536	6.442	2.220	0.676	0.285
CBDMD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.120	NA	50.670	NA
CLAISB	1.043	0.234	0.161	0.179	0.489	0.170	0.243	0.088	0.059	0.022	0.019	0.010	5.750	1.006	3.778	1.896	9.716	2.197	0.686	0.067
ELLENB1	2.164	0.720	0.141	0.244	0.059	0.034	1.718	0.426	0.427	0.268	0.296	0.179	38.818	7.319	12.273	5.850	6.129	3.026	2.122	0.499
ELLENB2	1.173	0.566	0.025	0.010	0.139	0.127	0.943	0.471	0.140	0.090	0.100	0.074	24.077	9.278	4.038	2.341	3.310	2.508	1.158	0.413
ELLISB	0.343	0.093	0.013	0.005	0.011	0.002	0.285	0.041	0.025	0.019	0.009	0.005	7.825	0.998	3.250	2.872	7.173	1.022	0.470	0.035
HELENR	0.979	0.613	0.398	0.619	0.155	0.100	0.354	0.058	0.027	0.009	0.008	0.003	9.281	1.660	11.813	17.788	3.918	1.820	1.228	0.297
HENLB	0.872	0.130	0.038	0.018	0.155	0.149	0.607	0.086	0.054	0.011	0.025	0.005	14.438	1.672	6.375	5.353	NA	NA	NA	NA
JANEB	0.662	0.228	0.268	0.250	0.132	0.204	0.191	0.055	0.020	0.013	0.007	0.008	5.383	0.741	12.478	11.297	4.129	3.536	0.946	0.137
LIMEC	0.626	0.395	0.016	0.006	0.172	0.173	0.337	0.160	0.032	0.026	0.008	0.003	8.456	4.076	9.407	15.562	8.091	0.736	0.528	0.192
MADDD	1.825	1.052	0.024	0.013	0.741	0.946	0.863	0.420	0.113	0.096	0.060	0.061	14.468	6.160	11.545	17.245	6.315	2.657	1.678	1.323
MAYMD	0.915	0.158	0.054	0.014	0.468	0.161	0.342	0.067	0.028	0.020	0.012	0.004	12.500	3.069	5.923	13.919	8.565	0.186	0.683	0.172
MILLMD	0.846	0.189	0.114	0.095	0.163	0.105	0.428	0.105	0.201	0.085	0.135	0.066	10.831	2.602	9.808	10.127	6.267	2.092	0.528	0.145
NEERB	0.489	0.312	0.027	0.030	0.239	0.292	0.193	0.063	0.021	0.012	0.008	0.006	3.947	0.813	3.667	3.677	10.571	0.316	0.321	0.062
SBELMD	0.754	0.104	0.071	0.041	0.148	0.079	0.467	0.087	0.142	0.037	0.099	0.029	12.871	2.591	4.458	4.344	6.248	2.539	0.642	0.138
SHELLD1	0.840	0.202	0.081	0.057	0.061	0.040	0.607	0.101	0.093	0.051	0.056	0.014	19.296	2.853	5.963	10.071	6.830	2.143	0.687	0.072
SHELLD2	0.810	0.130	0.072	0.050	0.112	0.081	0.584	0.124	0.095	0.025	0.071	0.026	16.472	3.093	2.600	2.380	5.501	2.687	0.646	0.113
STHNR	0.980	0.275	0.030	0.013	0.247	0.203	0.640	0.117	0.104	0.044	0.070	0.032	17.577	2.969	5.077	2.331	6.326	1.815	0.834	0.141
STLEOC	2.000	0.306	0.044	0.013	0.096	0.079	1.767	0.361	0.091	0.026	0.047	0.018	43.000	10.791	6.400	7.214	6.966	1.896	0.745	0.057
SUSANB	0.599	0.211	0.029	0.024	0.253	0.222	0.289	0.066	0.018	0.011	0.007	0.002	6.933	1.071	2.222	1.093	6.683	1.840	0.741	0.100
SWANR	0.799	0.255	0.028	0.014	0.085	0.084	0.541	0.101	0.020	0.017	0.005	0.000	11.843	1.808	6.429	3.797	8.869	1.563	12.526	2.108
WILMD	1.547	0.327	0.130	0.045	0.435	0.247	0.905	0.166	0.141	0.023	0.120	0.028	24.316	4.177	4.158	6.397	6.921	0.980	0.531	0.045
YULEB	0.895	0.245	0.084	0.127	0.282	0.255	0.413	0.143	0.133	0.129	0.062	0.081	8.767	2.768	8.250	4.366	6.188	1.955	0.778	0.211

35. Perth rainfall

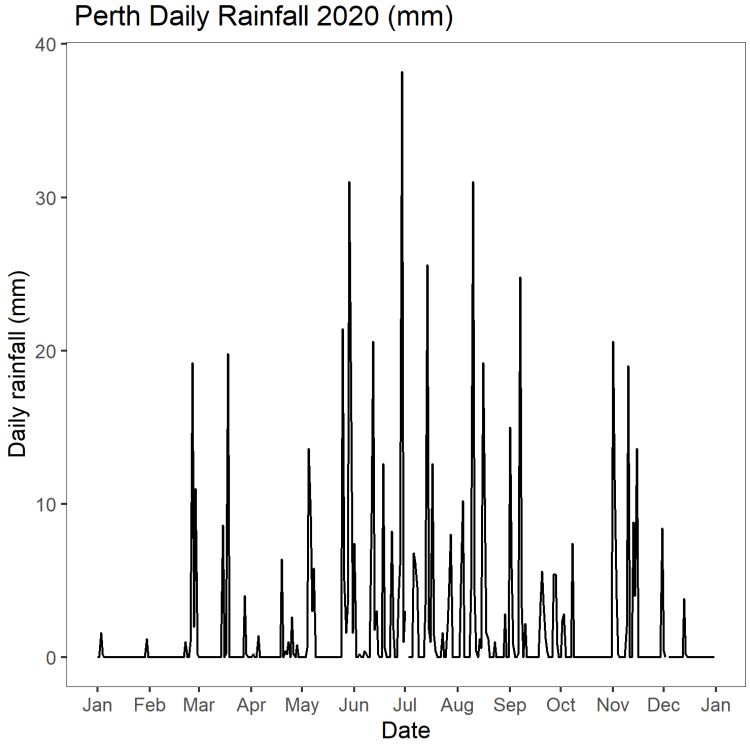

Figure 343. Perth daily rainfall (mm) recorded from 1st January to 31st December 2020 recorded by the Bureau of Meteorology at the Perth Metro station (009225).

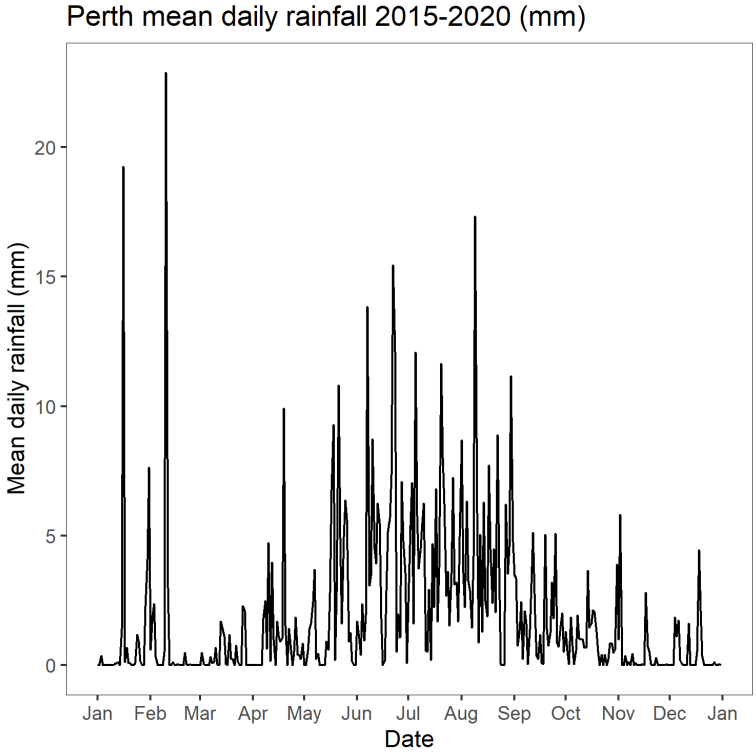

Figure 344. Perth mean daily rainfall (mm) recorded from the 1 January 2015 to 31 December 2020 recorded by the Bureau of Meteorology at Perth Metro station (009225). The unseasonal summer rainfall events of 2017 and 2018 are apparent.

36. Appendices

Appendix A: Swan-Canning Catchment Monitoring Program Quality Control Sampling Report SG-C-SCCATCH 2020

Background

As part of the SG-C-SCCATCH sampling program quality control samples are collected quarterly. These comprise of a field blank, a field replicate and a field duplicate sample collected from a randomly selected site. However, at the time of sampling the precursor SG-C-SWANCATCH and SG-C-SCWQIP programs were running simultaneously and QAQC sampling occurred for both programs, therefore two sets of QAQC data are presented below for each quarter of the 2020 reporting period.

The field blank was collected by taking deionised (DI) water into the field and, at the randomly selected site, filling a full set of sample bottles with the DI water using standard sampling protocols (e.g. parameters that would ordinarily be filtered prior to analysis were filtered).

The field replicate was collected by taking a second set of samples directly after the routine samples at the randomly selected site.

The field duplicate was collected by taking a large, clean, container into the field. At the randomly selected site it was rinsed with sample water and filled. It was then inverted several times to homogenise the sample after which the sample bottles are filled (with parameters requiring filtering, being filtered).

Quality Control Data 8th January 2020

Using a random site selection strategy, BENNB (Bennett Brook) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 37. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
BENNB DOC	1.000	**1.2**
BENNB DON	0.025	**0.082**
BENNB NO_x-N	0.010	**<0.01**
BENNB TN-N	0.025	**0.1**
BENNB NH_3-N	0.010	**0.015**
BENNB TP	0.005	**<0.005**
BENNB FRP	0.005	**<0.005**
BENNB TSS	**1.000**	**<1**

Field blank samples exceeded the LOR for DOC, DON, TN & NH_3.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 38, below.

Table 38. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD (%)
SBELMD DOC	1.000	18.000	17.000	**5.71**
SBELMD DON	0.025	0.630	0.620	**1.6**
SBELMD NO_x-N	0.010	0.170	0.170	**0**
SBELMD TN-N	0.025	0.900	0.870	**3.39**
SBELMD NH_3-N	0.010	0.031	0.034	**-9.23**
SBELMD TP	0.005	0.06	0.053	**12.39**
SBELMD FRP	0.005	0.033	0.028	**16.39**
SBELMD TSS	**1.000**	**5.000**	**5.000**	**0**

The maximum acceptable relative percentage difference (RPD) is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 39, below.

Table 39. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
SBELMD DOC	1.000	17.000	17.000	**0**
SBELMD DON	0.025	0.670	0.670	**0**
SBELMD NO_x-N	0.010	0.180	0.170	**5.71**
SBELMD TN-N	0.025	0.910	0.950	**4.3**
SBELMD NH_3-N	0.010	0.034	0.032	**6.06**
SBELMD TP	0.005	0.059	0.067	**-12.69**
SBELMD FRP	0.005	0.030	0.030	**0**
SBELMD TSS	**1.000**	**5.000**	**6.000**	**-18.18**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

Field blank samples exceeded the LOR for DOC, DON, TN & NH_3-N, indicating partial contamination of this sample indicating introduced contamination of this sample during the sampling process. All remaining QC samples collected were acceptable.

Quality Control Data 15th January 2020

Using a random site selection strategy, CANND (Cannington Drain) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 40. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
CANND DOC	1.000	**1.5**
CANND DON	0.025	**<0.025**
CANND NO_x-N	0.010	**<0.01**
CANND TN-N	0.025	**<0.025**
CANND NH_3-N	0.010	**0.010**
CANND TP	0.005	**0.007**
CANND FRP	0.005	**<0.005**
CANND TSS	**1.000**	**<1**

Field blank samples exceeded the LOR for DOC and TP.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 38, below.

Table 41. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
CANND DOC	1.000	18.000	17.000	**5.71**
CANND DON	0.025	0.850	0.890	**-4.59**
CANND NO_x-N	0.010	<0.010	<0.010	**0**
CANND TN-N	0.025	0.930	0.950	**-2.12**
CANND NH_3-N	0.010	0.020	<0.010	**N/A**
CANND TP	0.005	0.520	0.530	**-1.90**
CANND FRP	0.005	0.460	0.460	**0**
CANND TSS	**1.000**	**<1.000**	**<1.000**	**0**

The maximum acceptable relative percentage difference (RPD) is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 39, below.

Table 42. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
CANND DOC	1.000	17.000	17.000	**0**
CANND DON	0.025	0.930	0.930	**0**
CANND NO_x-N	0.010	0.019	0.022	**-1.015**
CANND TN-N	0.025	0.990	1.000	**4.12**
CANND NH_3-N	0.010	<0.010	<0.010	**0**
CANND TP	0.005	0.530	0.540	**-1.87**
CANND FRP	0.005	0.460	0.460	**0**
CANND TSS	**1.000**	**3.000**	**3.000**	**0**

The maximum acceptable RPD is 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

Field blank samples exceeded the LOR for DOC and TP indicating partial contamination of this sample indicating introduced contamination of this sample during the sampling process. All remaining QC samples collected were acceptable.

Quality Control Data 16th April 2020

Using a random site selection strategy, YULEB (Yule Brook) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 43. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
YULEB DOC	1.000	**<1**
YULEB DON	0.025	**<0.025**
YULEB NO_x-N	0.010	**<0.010**
YULEB TN-N	0.025	**<0.025**
YULEB NH_3-N	0.010	**<0.01**
YULEB TP	0.005	**<0.005**
YULEB FRP	0.005	**<0.005**
YULEB TSS	**1.000**	**<1**

All parameters recorded concentrations below their respective LORs.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 41, below.

Table 44. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
YULEB DOC	1.000	12.000	12.000	**0**
YULEB DON	0.025	0.51	0.520	**-1.94**
YULEB NO_x-N	0.010	0.021	0.020	**4.88**
YULEB TN-N	0.025	1.000	1.000	**0**
YULEB NH_3-N	0.010	0.019	0.018	**5.41**
YULEB TP	0.005	0.2	0.180	**10.52**
YULEB FRP	0.005	0.039	0.033	**16.66**
YULEB TSS	**1.000**	**9.000**	**7.000**	**25**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 42, below.

Table 45. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
YULEB DOC	1.000	12.000	12.000	**0**
YULEB DON	0.025	0.530	0.530	**0**
YULEB NO_x-N	0.010	0.018	0.013	**32.25**
YULEB TN-N	0.025	0.970	0.970	**0**
YULEB NH_3-N	0.010	0.012	0.014	**-15.38**
YULEB TP	0.005	0.190	0.180	**5.41**
YULEB FRP	0.005	0.038	0.040	**-5.13**
YULEB TSS	**1.000**	**7.000**	**7.000**	**0**

The maximum acceptable RPD is 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All the QC samples collected in April 2020 were acceptable.

Quality Control Data 22nd April 2020

Using a random site selection strategy, SHELLD2 (Shelley Drain 2) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 46. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
SHELLD2 DOC	1.000	**<1**
SHELLD2 DON	0.025	**<0.025**
SHELLD2 NO_x-N	0.010	**<0.010**
SHELLD2 TN-N	0.025	**<0.025**
SHELLD2 NH_3-N	0.010	**<0.01**
SHELLD2 TP	0.005	**<0.005**
SHELLD2 FRP	0.005	**<0.005**
SHELLD2 TSS	**1.000**	**<1**

All parameters recorded concentrations below their respective LORs.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 41, below.

Table 47. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
SHELLD2 DOC	1.000	17.000	18.000	**-5.71**
SHELLD2 DON	0.025	0.570	0.530	**7.27**
SHELLD2 NO_x-N	0.010	0.046	0.042	**9.09**
SHELLD2 TN-N	0.025	0.760	0.750	**1.324**
SHELLD2 NH_3-N	0.010	0.130	0.120	**8**
SHELLD2 TP	0.005	0.091	0.090	**1.15**
SHELLD2 FRP	0.005	0.064	0.064	**0**
SHELLD2 TSS	**1.000**	**3.000**	**2.000**	**40**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 42, below.

Table 48. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
SHELLD2 DOC	1.000	18.000	18.000	**0**
SHELLD2 DON	0.025	0.570	0.540	**0**
SHELLD2 NO_x-N	0.010	0.042	0.039	**5.41**
SHELLD2 TN-N	0.025	0.770	0.770	**0**
SHELLD2 NH_3-N	0.010	0.012	0.012	**0**
SHELLD2 TP	0.005	0.095	0.098	**-3.10**
SHELLD2 FRP	0.005	0.065	0.062	**4.72**
SHELLD2 TSS	**1.000**	**3.000**	**3.000**	**0**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All the QC samples collected were acceptable.

Quality Control Data 8th July 2020

Using a random site selection strategy, SWANR (Avon River) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 49. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
SWANR DOC	1.000	**<1**
SWANR DON	0.025	**<0.025**
SWANR NO_x-N	0.010	**<0.010**
SWANR TN-N	0.025	**<0.025**
SWANR NH_3-N	0.010	**<0.01**
SWANR TP	0.005	**<0.005**
SWANR FRP	0.005	**<0.005**
SWANR TSS	**1.000**	**<1**

All parameters recorded concentrations below their respective LORs.

Replicate Sample

A replicate sample was collected for all chemical analytes monitored in this program; results are shown in Table 44, below.

Table 50. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
SWANR DOC	1.000	16.000	15.000	**6.45**
SWANR DON	0.025	0.800	0.870	**-8.38**
SWANR NO_x-N	0.010	0.180	0.130	**32.25**
SWANR TN-N	0.025	1.300	1.300	**0**
SWANR NH_3-N	0.010	0.012	0.010	**18.18**
SWANR TP	0.005	<0.005	<0.005	**0**
SWANR FRP	0.005	<0.005	<0.005	**0**
SWANR TSS	**1.000**	**7.000**	**9.000**	**-25**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPDs returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 45, below.

Table 51. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
SWANR DOC	1.000	15.000	16.000	**-6.45**
SWANR DON	0.025	0.840	0.870	**-3.51**
SWANR NO_x-N	0.010	0.150	0.110	**30.76**
SWANR TN-N	0.025	1.300	1.300	**0**
SWANR NH_3-N	0.010	0.011	<0.010	**N/A**
SWANR TP	0.005	0.055	0.050	**9.52**
SWANR FRP	0.005	0.005	<0.005	**N/A**
SWANR TSS	**1.000**	**8.000**	**9.000**	**-11.76**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All QC samples collected in July 2020 were acceptable.

Quality Control Data 16th July 2020

Using a random site selection strategy, STLEOC (St Leonards Creek) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 52. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
STLEOC DOC	1.000	**<1**
STLEOC DON	0.025	**<0.025**
STLEOC NO_x-N	0.010	**<0.010**
STLEOC TN-N	0.025	**<0.025**
STLEOC NH_3-N	0.010	**<0.01**
STLEOC TP	0.005	**<0.005**
STLEOC FRP	0.005	**<0.005**
STLEOC TSS	**1.000**	**<1**

All parameters recorded concentrations below their respective LORs

Replicate Sample

A replicate sample was collected for all chemical analytes monitored in this program; results are shown in Table 44, below.

Table 53. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
STLEOC DOC	1.000	37.000	37.000	**0**
STLEOC DON	0.025	1.600	1.700	**-6.06**
STLEOC NO_x-N	0.010	0.12	0.075	**46.15**
STLEOC TN-N	0.025	1.300	1.800	**-32.25**
STLEOC NH_3-N	0.010	0.042	0.045	**-6.89**
STLEOC TP	0.005	0.060	0.057	**5.12**
STLEOC FRP	0.005	0.029	0.027	**7.17**

STLEOC TSS	**1.000**	**1.000**	**1.000**	**0**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPDs returned except for NOx-N were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 45, below.

Table 54. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
STLEOC DOC	1.000	37.000	37.000	**0**
STLEOC DON	0.025	1.600	1.600	**0**
STLEOC NO_x-N	0.010	0.078	0.098	**-22.72**
STLEOC TN-N	0.025	1.700	1.800	**-5.71**
STLEOC NH_3-N	0.010	0.045	0.045	**0**
STLEOC TP	0.005	0.055	0.058	**-5.31**
STLEOC FRP	0.005	0.027	0.028	**-3.63**
STLEOC TSS	**1.000**	**2.000**	**2.000**	**0**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All QC samples collected were acceptable.

Quality Control Data 16th October 2020

Using a random site selection strategy, BAYMD (Bayswater Main Drain) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 55. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
BAYMD DOC	1.000	**<1**
BAYMD DON	0.025	**<0.025**
BAYMD NO_x-N	0.010	**<0.010**
BAYMD TN-N	0.025	**<0.025**
BAYMD NH_3-N	0.010	**0.010**
BAYMD TP	0.005	**<0.005**
BAYMD FRP	0.005	**<0.005**
BAYMD TSS	**1.000**	**<1**

All parameters recorded concentrations below their LORs except NH_3-N which was detected at the LOR.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 47, below.

Table 56. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
BAYMD DOC	1.000	15.000	14.000	**6.89**
BAYMD DON	0.025	0.440	0.420	**4.65**
BAYMD NO_x-N	0.010	0.36	0.36	**0**
BAYMD TN-N	0.025	0.980	0.910	**7.41**
BAYMD NH_3-N	0.010	0.085	0.084	**1.18**
BAYMD TP	0.005	0.058	0.056	**3.51**
BAYMD FRP	0.005	0.031	0.029	**6.66**
BAYMD TSS	**1.000**	**4.000**	**4.000**	**0**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 48, below.

Table 57. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
BAYMD DOC	1.000	14.000	14.000	**0**
BAYMD DON	0.025	0.430	0.420	**2.35**
BAYMD NO_x-N	0.0100	0.350	0.360	**-2.82**
BAYMD TN-N	0.025	0.900	0.930	**-3.27**
BAYMD NH_3-N	0.010	0.083	0.082	**1.21**
BAYMD TP	0.005	0.054	0.058	**-7.14**
BAYMD FRP	0.005	0.030	0.027	**10.52**
BAYMD TSS	**1.000**	**4.000**	**3.000**	**28.57**

The maximum acceptable RPD is (+/-) 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All the QC samples collected in October 2020 were acceptable.

Quality Control Data 21st October 2020

Using a random site selection strategy, WILMD (WILSON Main Drain) was selected as the site at which to collect quality control samples. No problems with the sampling equipment used to collect the chemical samples were recorded.

Blank Sample

A field blank sample was collected.

Table 58. Results of blank QC sample analysis

Parameter	LOR (mg/L)	Blank sample (mg/L)
WILMD DOC	1.000	**<1**
WILMD DON	0.025	**<0.025**
WILMD NO_x-N	0.010	**<0.010**
WILMD TN-N	0.025	**<0.025**
WILMD NH_3-N	0.010	**0.010**
WILMD TP	0.005	**<0.005**

WILMD FRP	0.005	**<0.005**
WILMD TSS	**1.000**	**<1**

All parameters recorded concentrations below their LOR.

Replicate Sample

A replicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 47, below.

Table 59. Results of Replicate QC sample analysis

Parameter	LOR (mg/L)	Original Sample (mg/L)	Replicate Sample (mg/L)	RPD
WILMD DOC	1.000	22.000	26.000	**-16.66**
WILMD DON	0.025	0.930	0.880	**5.52**
WILMD NO_x-N	0.010	0.320	0.330	**-3.07**
WILMD TN-N	0.025	1.400	1.300	**7.41**
WILMD NH_3-N	0.010	0.120	0.120	**0**
WILMD TP	0.005	0.130	0.120	**8**
WILMD FRP	0.005	0.110	0.110	**0**
WILMD TSS	**1.000**	**2.000**	**2.000**	**0**

The maximum acceptable RPD is 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Duplicate Sample

A duplicate sample was collected for all chemical parameters monitored in this program; results are shown in Table 48, below.

Table 60. Results of Duplicate QC sample analysis

Parameter	LOR (mg/L)	Duplicate Sample #1 (mg/L)	Duplicate Sample #2 (mg/L)	RPD
WILMD DOC	1.000	26.000	26.000	**0**
WILMD DON	0.025	0.920	0.910	**1.09**
WILMD NO_x-N	0.010	0.340	0.330	**2.99**
WILMD TN-N	0.025	1.400	1.400	**0**
WILMD NH_3-N	0.010	0.120	0.120	**0**
WILMD TP	0.005	0.130	0.130	**0**
WILMD FRP	0.005	0.120	0.120	**0**

WILMD TSS	**1.000**	**2.000**	**2.000**	**0**

The maximum acceptable RPD is 44% where the concentration is greater than 5 times the LOR. All the RPD's returned were within this range.

Summary

All the QC samples collected were acceptable.

Appendix B: Abbreviations used

DI water - De-ionised water
DOC - Dissolved organic carbon
DON - Dissolved organic nitrogen
FRP - Filterable reactive phosphorus
LOR - Limit of reporting
NH_3-N – Ammoniacal nitrogen
NO_x-N - Nitrogen oxides (sum of nitrite and nitrate)
QC - Quality control
RPD - Relative percent difference
TN - Total nitrogen
TOC - Total organic carbon
TP - Total phosphorus
TSS - Total suspended solids

Appendix C: Important historical changes to the SCCATCH program (2015 – present)[1]

- Until 31 December 2020, this catchment monitoring program was classified under two separate project codes, SWANCATCH and SCWQIP. In 2021 the two projects were amalgamated to create the current all-encompassing SCCATCH program and site names were changed. Though reporting a period immediately prior to the project amalgamation, the current site names have been applied, as readers will have more familiarity with these rather than the superseded codes. Reference to the old codes has been provided in Table 1 to assist if needing to cross-reference to older data reports.
- Use of Microsoft Surface Pro for digital input of field data and observations commenced on 3/08/2020 to auto populate run specific FOFs, COCs, PRFs and Electronic Field Observation Forms (EFOFs).
- Changed the bottle preparation procedures on 3/08/2020 from manually filling out FOF and COC, paperwork and sample label stickers to using electronic input forms that automate sample label generation and pre-fill electronic paperwork forms with sample numbers and COC numbers prior to the next two weeks field sampling.
- After review with ChemCentre the water sample bottle sizes used for analytes were changed on 13/01/2020.
- Changed to new sampling run specific Field Observation Forms (FOFs) on 13/01/2020 using COC numbers supplied by DWER.
- Changed to new sampling run specific COC forms on 13/01/2020 from the carbon copy COC booklets supplied from DWER, however allocated unique COC numbers were still supplied by DWER.
- From 1 July 2019 the Swan Canning Water Quality Monitoring Project has been conducted by DBCA.
- In the 2020 Swan Canning Catchment Data Report, ANZECC trigger values for lowland rivers have been included in the plots for Total nitrogen (TN), Total oxidised nitrogen (NO_x-N), Total Phosphorus (TP) and Filterable Reactive Phosphorus (FRP).
- From September 2016, a new site was added to the SCWQIP project on Mount's Bay Main Drain at the Perth Convention Centre car park (CBDMD).
- In August 2016, sampling of the Perth Airport South drain was switched from BODD1 to AIRSMD, after a period of sampling both sites (from June 2016), due to piping of the drain at the original site (BODD1).

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[1] For information on changes prior to 2015, please refer to Baker, J.D., Hoeksema, S.D., 2022. Swan Canning catchment data report January – December 2019, Department of Biodiversity, Conservation and Attractions, Perth.