

Report from the SMHI's monitoring cruise with R/V Svea



Survey period:

2020-04-14 - 2020-04-19

Principal:

Swedish Meteorological and Hydrological Institute (SMHI),
Swedish Agency for Marine and Water Management (SwAM)

Cooperation partners:

Swedish University of Agricultural Sciences (SLU),
Swedish Maritime Administration (SMA)

SUMMARY

The cruise, which is part of the Swedish national marine monitoring programme visited stations in the Skagerrak, the Kattegat, the Sound and the Baltic Proper

Sea surface temperatures were above normal at all stations sampled in the Baltic Proper, and normal in the Sound, the Kattegat and the Skagerrak. The temperature varied from slightly below 5°C in the northern Baltic Proper up to 7.2°C in the Sound. In the Baltic Proper and the Sound the sea surface salinity was above normal.

Concentrations of dissolved inorganic nitrogen, DIN, at the surface were normal for the season at all stations except at N14 Falkenberg in the Kattegat where concentrations were normal. The silicate concentrations were above normal at most of the stations. Levels of dissolved inorganic phosphorus, DIP, were normal or above normal in the surface except in the Sound where levels were below normal.

Oxygen concentrations in the Arkona Basin were good, and measured minimum concentration in the bottom water was 5.2 ml/l. In the Bight of Hanö, the Bornholm Basin and in the southeastern part of the Baltic Proper, the oxygen concentration in the bottom water had continued to decrease. In March it was above 2 ml/l, which is the limit for acute hypoxia, and in April it was 1.4-1.7 ml/l. In the Eastern Gotland Basin acute hypoxia was found from about 65 meters depth, a little deeper in the northern part. In the Western Gotland Basin acute hypoxia was found from 75-80 meters.

Anoxic conditions, when when hydrogen sulphide can form, were found in the Eastern Gotland Basin from 125 meters depth, and in the Western Gotland Basin from 100 meters depth.

The next cruise is planned to 8th -14th of May with R/V Svea.

RESULTS

The April cruise was conducted aboard the research vessel Svea. It started in Lysekil the 14th, and ended in Kalmar the 19th.

During the first part of the cruise, the winds were mostly brisk from southwest, but the wind dropped, and during the last part the wind was weak or moderate from northwest. The air temperature was between 4°C and 9°C.

During the cruise, extra sampling of DNA for barcoding was performed as part of work on development of the Swedish monitoring programme and eDNA (environmental DNA) was sampled for researchers at the University of Turku. Samples for selenium measurements were taken for EAWAG, Swiss Federal Institute of Aquatic Science and Technology. A sensor for measuring CO₂ close to Östergarnsholm was replaced for Uppsala University. In the Western Gotland Basin the mapping station BY39 was sampled.

In addition to the regular monitoring, measurements with the MVP - Moving Vessel Profiler were made between sampling stations when weather conditions allowed. Measurements were made between BCSIII-10–BY10, BY10–BY15, BY20–BY32, BY32–BY38 and BY38–BY39. Svea's ferrybox was also used during the cruise.

This report is based on data that has undergone an initial quality control. After further quality controls, certain values or quality flags may have changed. Data from this cruise is published as soon as possible on the data host's website; normally this is done within a week after the cruise. Some analyses are done after the expedition and will be published later.

Data and reports can be downloaded here: <https://www.smhi.se/en/theme/marine-environment-2-885>

The Skagerrak

The sea surface temperature was normal for the season, about 6.5°C at all stations. The deep water also had normal or slightly above normal temperatures. The salinity in the surface was normal at the off shore stations and just above normal at the coastal station Släggö. Measurements from the CTD showed values of 28-31 psu. A distinct halocline was present at about 10-20 meters depth at all stations. The temperature showed not the same stratification, and at several stations it varied less than 1°C between surface and bottom.

Concentrations of nutrients in the surface water were in general normal or slightly above normal for the season. Concentrations of phosphorous were 0.09-0.17 µmol/l in open water and 0.23 µmol/l at the coast. This was above normal at Å13 and Släggö. Concentrations of DIN were normal at all stations. At the coastal station Släggö it was 4.4 µmol/l and at the other stations it were between 0.9-2.4 µmol/l, decreasing with distance from the coast. The silicate concentration was 6.3 µmol/l at the coast and 2.4–3.3 µmol/l at the stations in open water. In the deep water, concentrations of nutrients were mostly normal for the season.

CTD fluorescence mirrored the stratification of salinity very clearly at Släggö, with higher levels in the surface and considerable lower values below the halocline. At the other stations the pattern was the same, but levels in the surface were lower compared to the coast.

Oxygen levels were good at all sampled stations in the Skagerrak with values above normal at Släggö, and normal at the other stations.

The Kattegat and the Sound

Sea surface temperatures were normal for the season, and were 6.4-6.9°C in the Kattegat and 7.2°C in the Sound. Surface salinity was 18.8-24.5, lowest in the Sound. This was above normal in the Sound and at N14 Falkenberg and normal at the other stations. Thermocline and halocline were found at about 20 m depth. In the water body below the surface layer the salinity was normal or slightly below normal and the temperature was normal.

Concentrations of DIP in the surface water varied. At N14 Falkenberg, which is close to the coast, concentrations were above normal. At the other stations in the Kattegat concentrations were normal for the season and in the Sound some below normal. Measured levels were 0.17-0.10 $\mu\text{mol/l}$. At N14 Falkenberg concentrations of DIN were above normal, 2.2 $\mu\text{mol/l}$, and at the other stations normal concentrations, 0.1-0.6 $\mu\text{mol/l}$. Silicate levels were normal or slightly above normal for the season, 3.1-5.6 $\mu\text{mol/l}$, highest in the Sound. In the deep water it was mainly concentrations of DIN that were above normal at the station Anholt E and N14 Falkenberg. At the other stations nutrients in the deep water were in general normal for the season.

Oxygen concentration in the bottom water was good. In the Kattegat it was 5.3-6.0 ml/l and in the Sound it was 5.0 ml/l.

Fluorescence measurement at the stations indicated some plankton activity in the surface down to about 15-20 meters.

The Baltic Proper

At all visited stations in the Baltic Proper the sea surface temperature was above normal for the season, 4.9-6.5°C, lowest in the northern part, and highest in southwest. And at several stations the temperature in the deep water was above normal. The salinity in the surface was also above normal for the season at all visited stations and varied from 7.2 to 8.6 psu. The Eastern and Western Gotland Basin deep water salinity was also above normal. Mainly normal salinity in the deep water of the other basins. Thermocline and halocline were generally found at the same depth, at about 35 meters in the Arkona Basin, 50-60 meters in the Bight of Hanö and the Bornholm Basin and at 60-70 meters depth in the Eastern and Western Gotland Basin.

Levels of DIP in the surface water were above normal in the eastern part of the Bornholm Basin, the southeastern Baltic Proper, and the Eastern Gotland Basin and at the coastal station Ref M1V1. At the other stations levels were normal. Concentrations were 0.4-0.7 $\mu\text{mol/l}$. Concentrations of DIN in the surface water were generally below detection, but in the Eastern Gotland Basin and the southeastern Baltic Proper concentrations were 0.16-0.91 $\mu\text{mol/l}$. All stations had for the season normal values. Silicate concentrations in the surface were above normal, except in the Western

Gotland Basin where levels were normal. In the southeastern parts of the Baltic Proper and in the Bornholm Basin concentrations above 20 $\mu\text{mol/l}$ were found, in the other basins 14-19 $\mu\text{mol/l}$ and at the coastal stations Ref M1V1 12.4 $\mu\text{mol/l}$. Nutrients in the deep water were generally normal, but in the Western Gotland Basin levels of mainly DIN were above normal. In the Arkona Basin concentrations of silicate were above normal from surface to bottom.

Oxygen levels in the bottom water of the Arkona Basin were good, with a minimum of 5.15 ml/l. In the Bight of Hanö, the Bornholm Basin and the southeastern Baltic Proper the oxygen concentrations in the bottom water had continued to decrease. In March concentrations of above 2 ml/l, which is the limit for acute hypoxia, were measured. In April concentrations from 1.4 to 1.7 ml/l were found. Acute hypoxia was found from 70-80 meters depth. In the Eastern Gotland Basin, acute hypoxia was found at about 65 meters depth, and in the Western Gotland Basin from 75-80 meters depth.

Anoxic conditions, when hydrogen sulphide can form, were found in the Eastern Gotland Basin from 125 meters depth, and in the Western Gotland Basin from 100 meters depth.

Chlorophyll fluorescence measurements by the CTD indicated low plankton activity in the area.

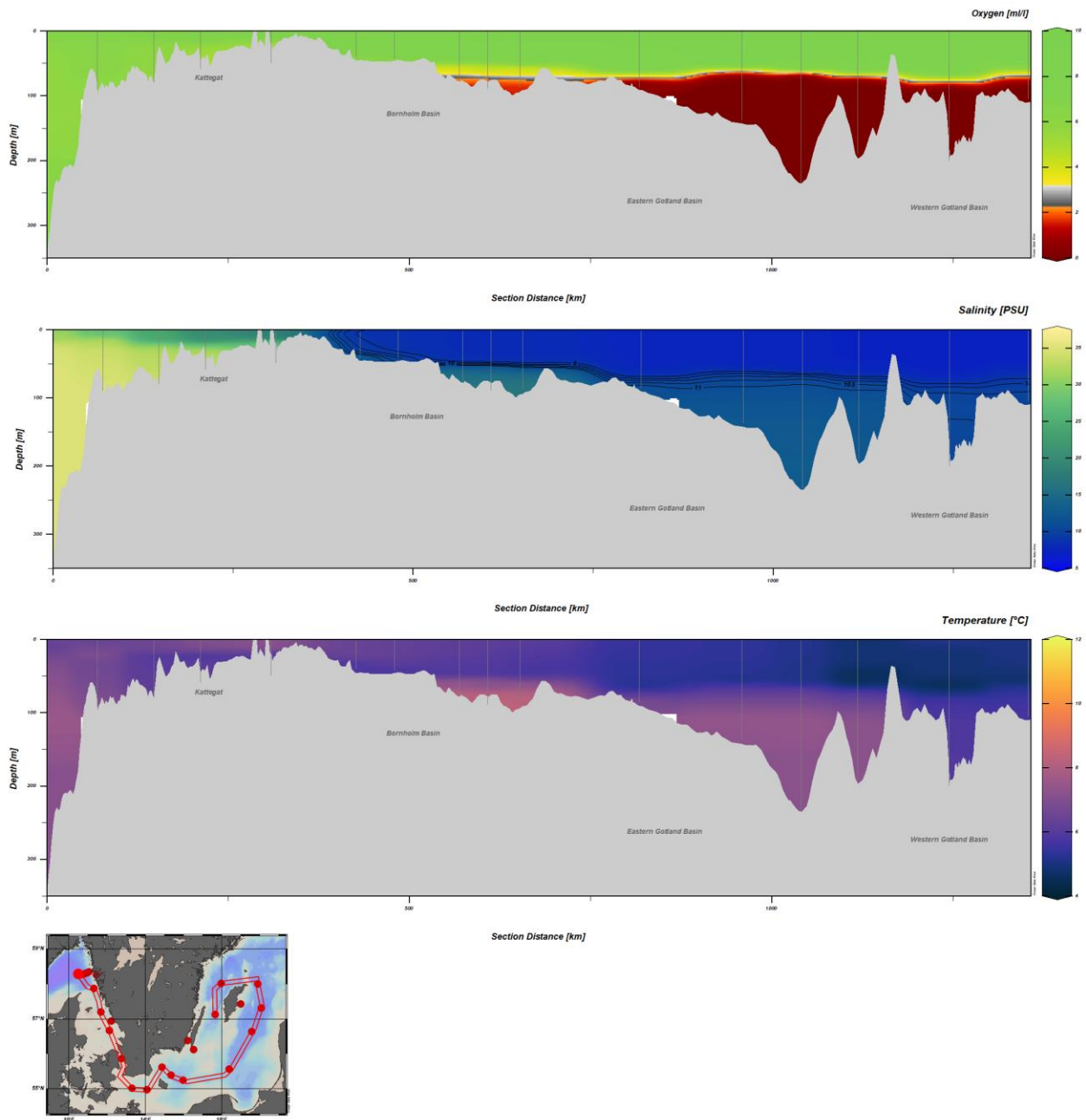


Figure 1. Transect showing dissolved oxygen, salinity and temperature from the Skagerrak, through the Sound and the Eastern Gotland Basin to the Western Gotland Basin.

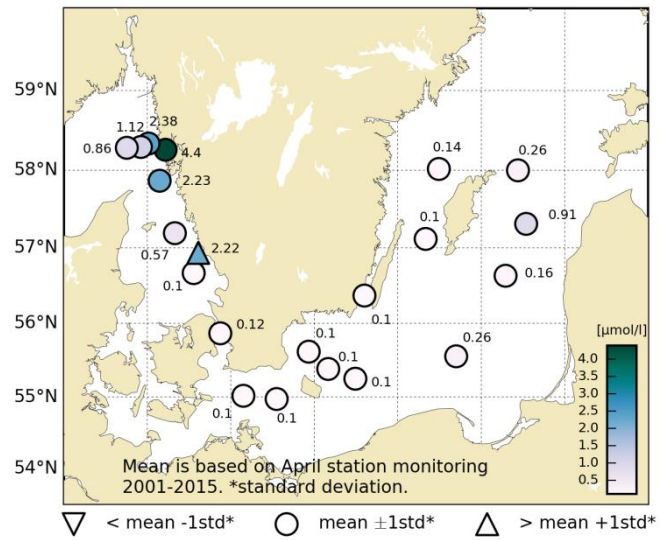


Figure 2. Concentration of dissolved inorganic nitrogen in the surface water (0-10m).

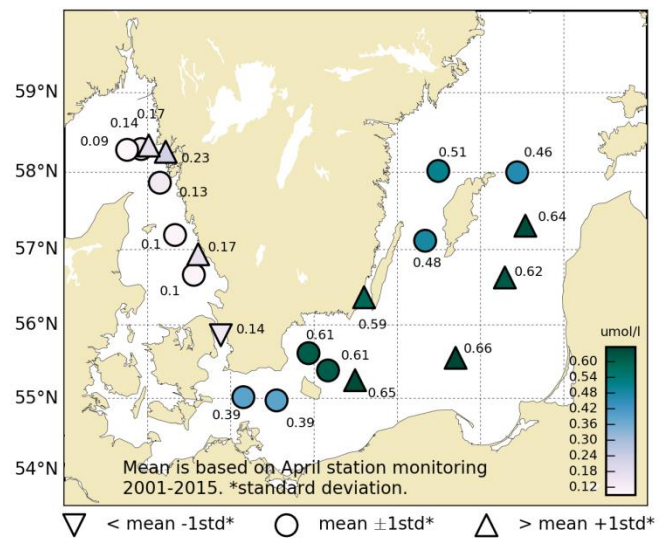


Figure 3. Concentration of phosphate in the surface water (0-10m).

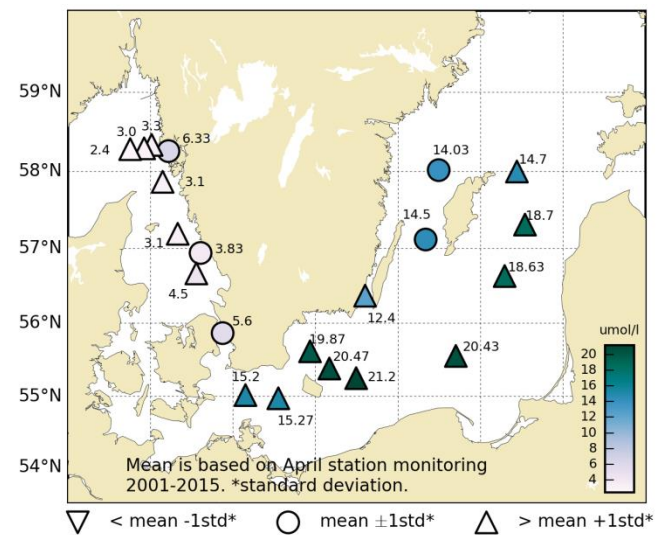


Figure 4. Concentration of silicate in the surface water (0-10m).

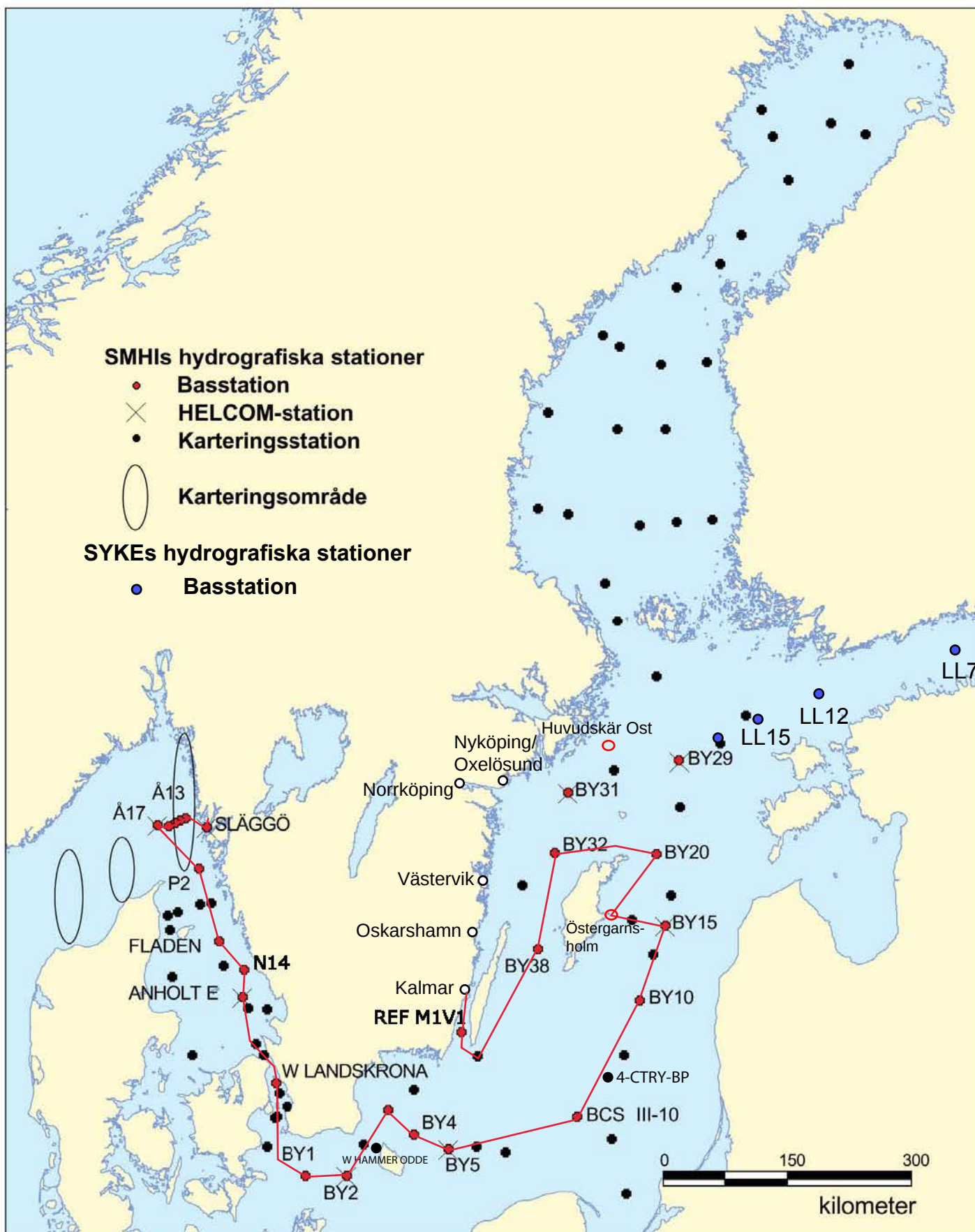
PARTICIPANTS

Name		From
Johan Kronsell	Chief Scientist	SMHI
Kristin Andreasson		SMHI
Sara Johansson		SMHI
Sari Sipilä		SMHI
Madeleine Nilsson		SMHI

APPENDICES

- Track chart
- Table over stations, sampled parameters and number of sampling depths
- Map showing bottom oxygen concentrations
- Vertical profiles for regular monitoring stations
- Monthly average surface water plots for regular monitoring stations

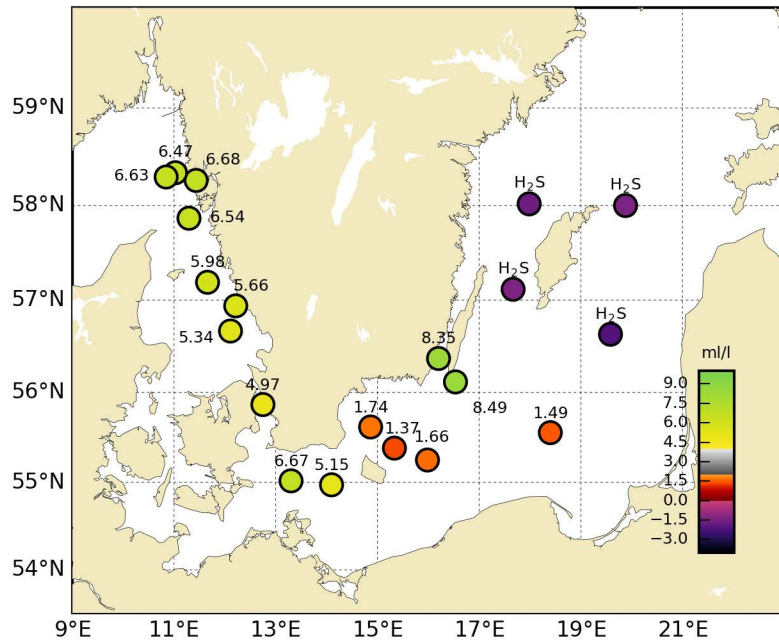
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Ship:	R/V Svea
Date:	20200414-20200419
Series:	0336-0360



Time: 23:08

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0336	7	FIBG27	BAS...	SLÄGGÖ	5815.58	01126.12	20200414	1149	76	4	23 8	5.6	1015	1330	xx--	9	x x x x - x - - x x x x x x x - x - - x	-	-	-	-	-	-	-	-	-	-	-	-
0337	7	SKEX14	BAS...	Å13	5820.34	01101.64	20200414	1453	106	8	27 8	6.5	1013	2840	x---	10	x x x x - x - - x x x x x x x - x - - x	-	-	-	-	-	-	-	-	-	-	-	-
0338	7	SKEX15	BAS...	Å14	5818.87	01056.55	20200414	1640	109		26 9	5.8	1013	2840	----	11	- x - x - - - - - - - - - - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-
0339	7	SKEX16	BAS...	Å15	5817.70	01050.71	20200414	1800	137		24 11	6.7	1012	2840	x---	12	x x x x - x - - x x x x x x x - x - - x	-	-	-	-	-	-	-	-	-	-	-	-
0340	7	SKEX17	BAS...	Å16	5816.05	01043.52	20200414	1920	201		24 12	6.4	1011	9990	----	14	x x - x - - - - - - - - - - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-
0341	7	SKEX18	BAS...	Å17	5817.08	01030.45	20200414	2120	336		23 13	6.4	1010	9990	x---	15	x x - x x x - - x x x x x x x x x - x -	-	-	-	-	-	-	-	-	-	-	-	-
0342	7	SKEX23	BAS...	P2	5751.99	01117.65	20200415	0210	93		24 10	6.5	1008	9990	x---	10	x x x x - x - - x x x x x x x - x - -	-	-	-	-	-	-	-	-	-	-	-	-
0343	7	KANX25	BAS...	FLADEN	5711.48	01139.54	20200415	0730	82	7	25 10	7.5	1010	1340	x---	12	x x x x - x - - x x x x x x x - x - -	-	-	-	-	-	-	-	-	-	-	-	-
0344	7	KANX50	BAS...	N14 FALKENBERG	5656.34	01212.79	20200415	1110	31	7	24 6	8.0	1012	2230	xx--	7	x x x x x x - - x x x x x x x x x - x -	-	-	-	-	-	-	-	-	-	-	-	-
0345	7	KAEX29	BAS...	ANHOLT E	5640.10	01206.62	20200415	1325	63	7	24 11	8.1	1011	1230	xx--	10	x x x x x x - - x x x x x x x x x - x -	-	-	-	-	-	-	-	-	-	-	-	-
0346	7	SOCX39	BAS...	W LANDSKRONA	5551.97	01244.88	20200415	2000	52		25 12	9.0	1011	9990	x---	9	x x x x - x - - x x x x x x x - x - - x	-	-	-	-	-	-	-	-	-	-	-	-
0347	7	BPSA02	BAS...	BY1	5500.95	01318.06	20200416	0340	45		25 14	7.0	1010	1250	x---	8	x x x x - x - - x - x x x x - - x - -	-	-	-	-	-	-	-	-	-	-	-	-
0348	7	BPSA03	BAS...	BY2 ARKONA	5458.29	01405.87	20200416	0640	48	7	25 9	7.3	1010	2730	xx--	8	x x x x - x - - x - x x x x - - x - -	-	-	-	-	-	-	-	-	-	-	-	-
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0350	7	BPSB06	BAS...	BY4 CHRISTIANSÖ	5522.98	01520.03	20200416	1630	93	7	26 9	8.5	1010	1130	x---	12	x x x x - x - - x - x x x x - x - x -	-	-	-	-	-	-	-	-	-	-	-	-
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0352	7	BPSE11	BAS...	BCS III-10	5533.32	01824.00	20200417																						

Bottom water oxygen concentration (ml/l)



STATION SLÄGGÖ SURFACE WATER (0-10 m)

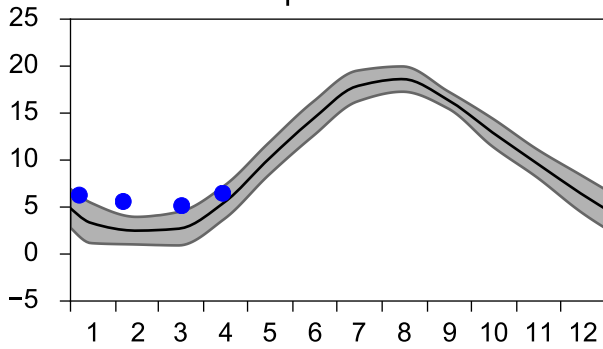
Annual Cycles

— Mean 2001-2015

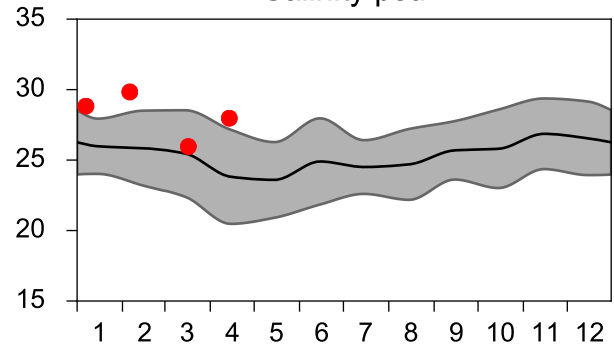
■ St.Dev.

● 2020

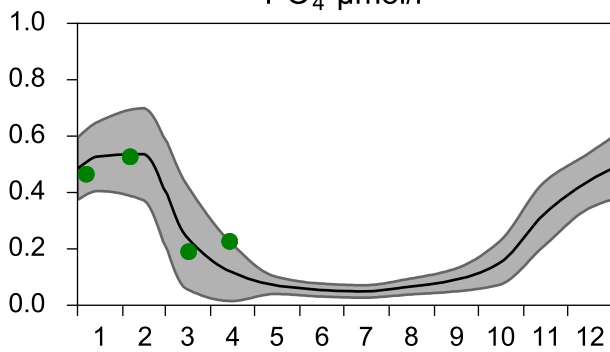
Temperature °C



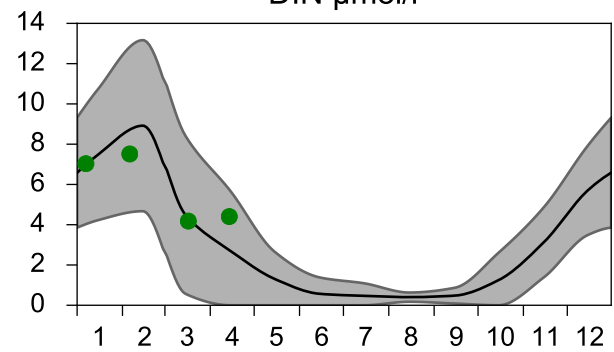
Salinity psu



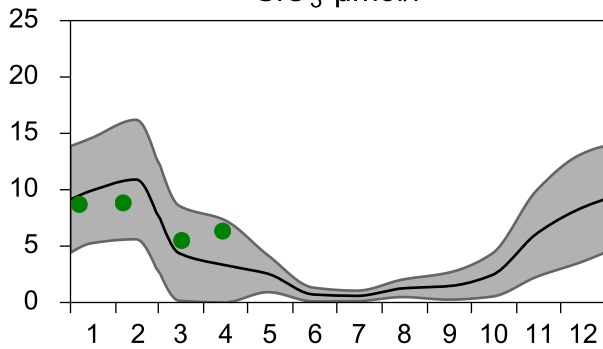
PO₄ µmol/l



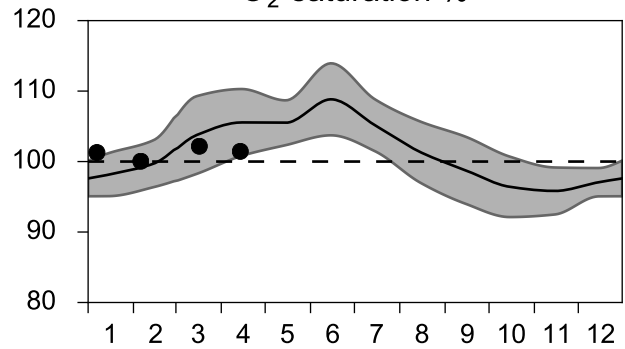
DIN µmol/l



SiO₃ µmol/l

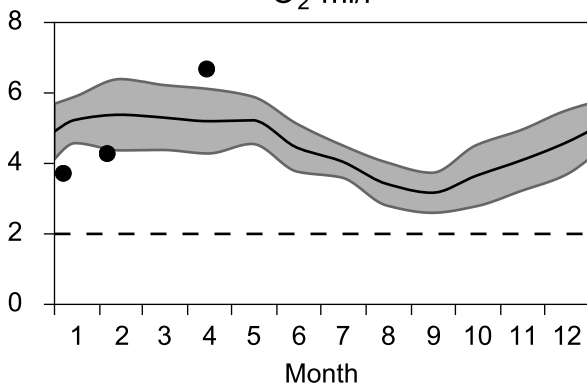


O₂ saturation %

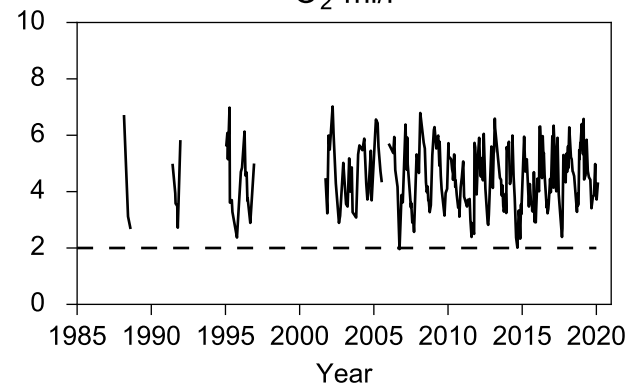


OXYGEN IN BOTTOM WATER (depth >= 64 m)

O₂ ml/l



O₂ ml/l



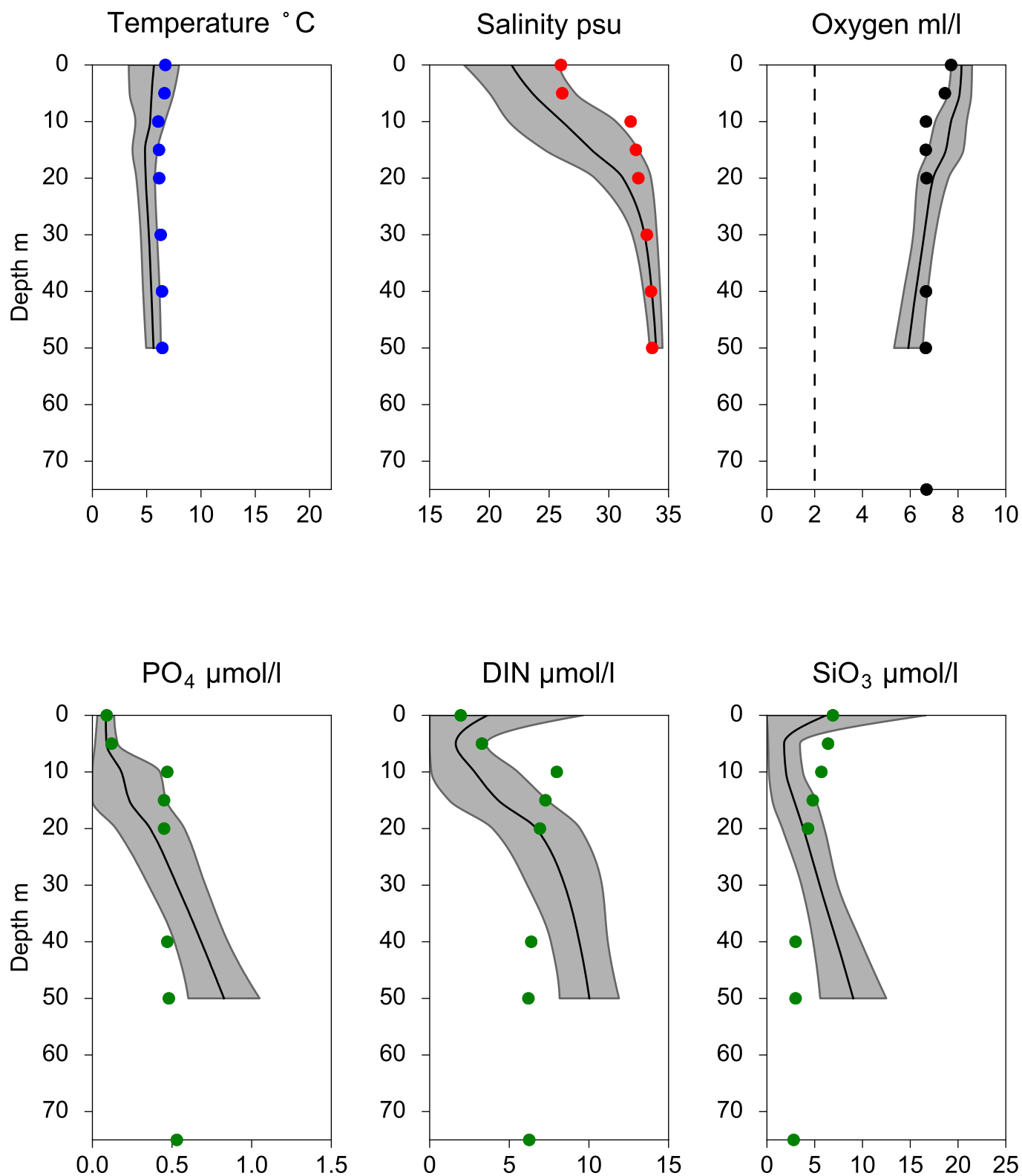
Vertical profiles SLÄGGÖ

April

— Mean 2001-2015

■ St.Dev.

● 2020-04-14



STATION Å13 SURFACE WATER (0-10 m)

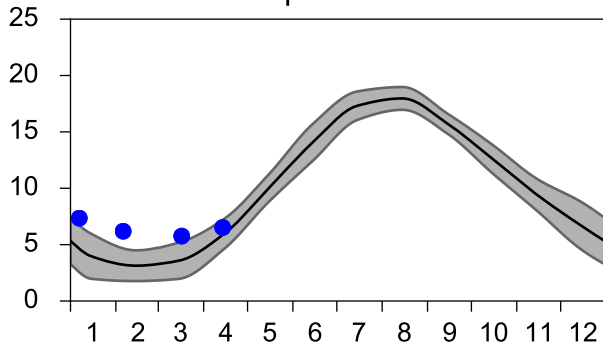
Annual Cycles

— Mean 2001-2015

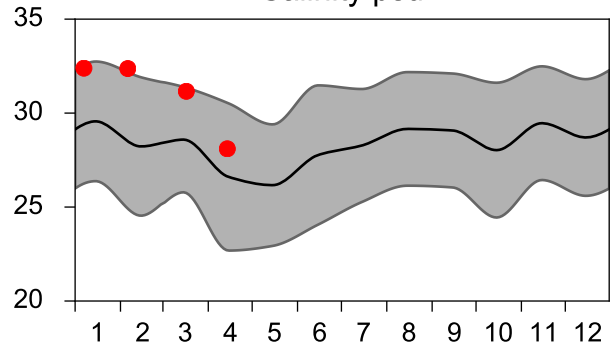
■ St.Dev.

● 2020

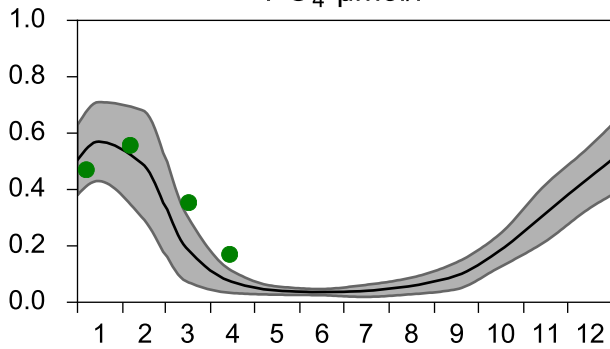
Temperature °C



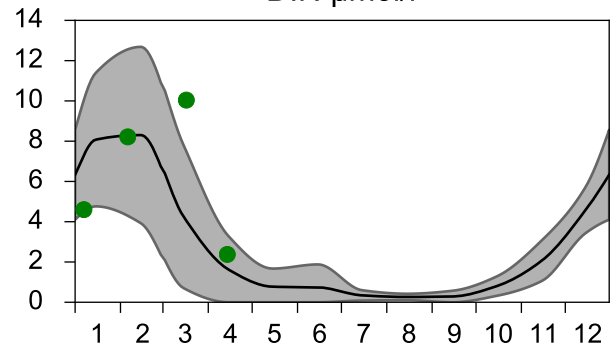
Salinity psu



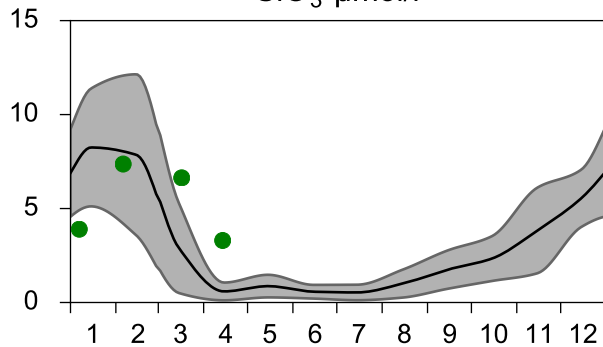
PO₄ μmol/l



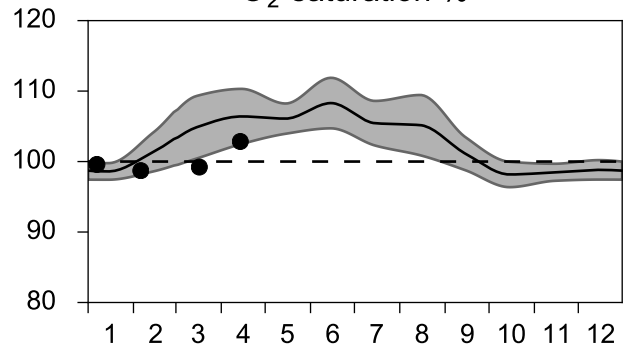
DIN μmol/l



SiO₃ μmol/l

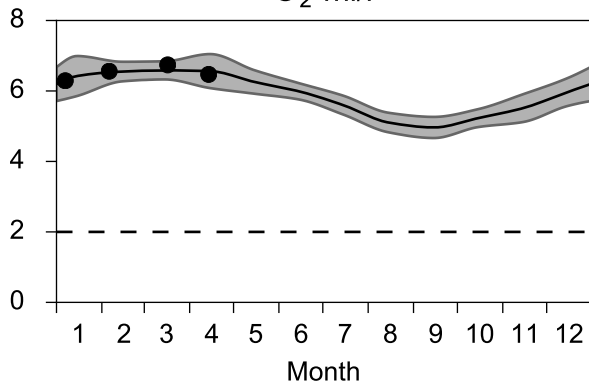


O₂ saturation %

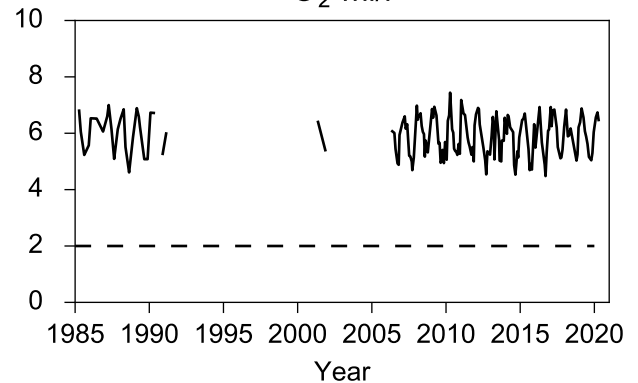


OXYGEN IN BOTTOM WATER (depth >= 80 m)

O₂ ml/l

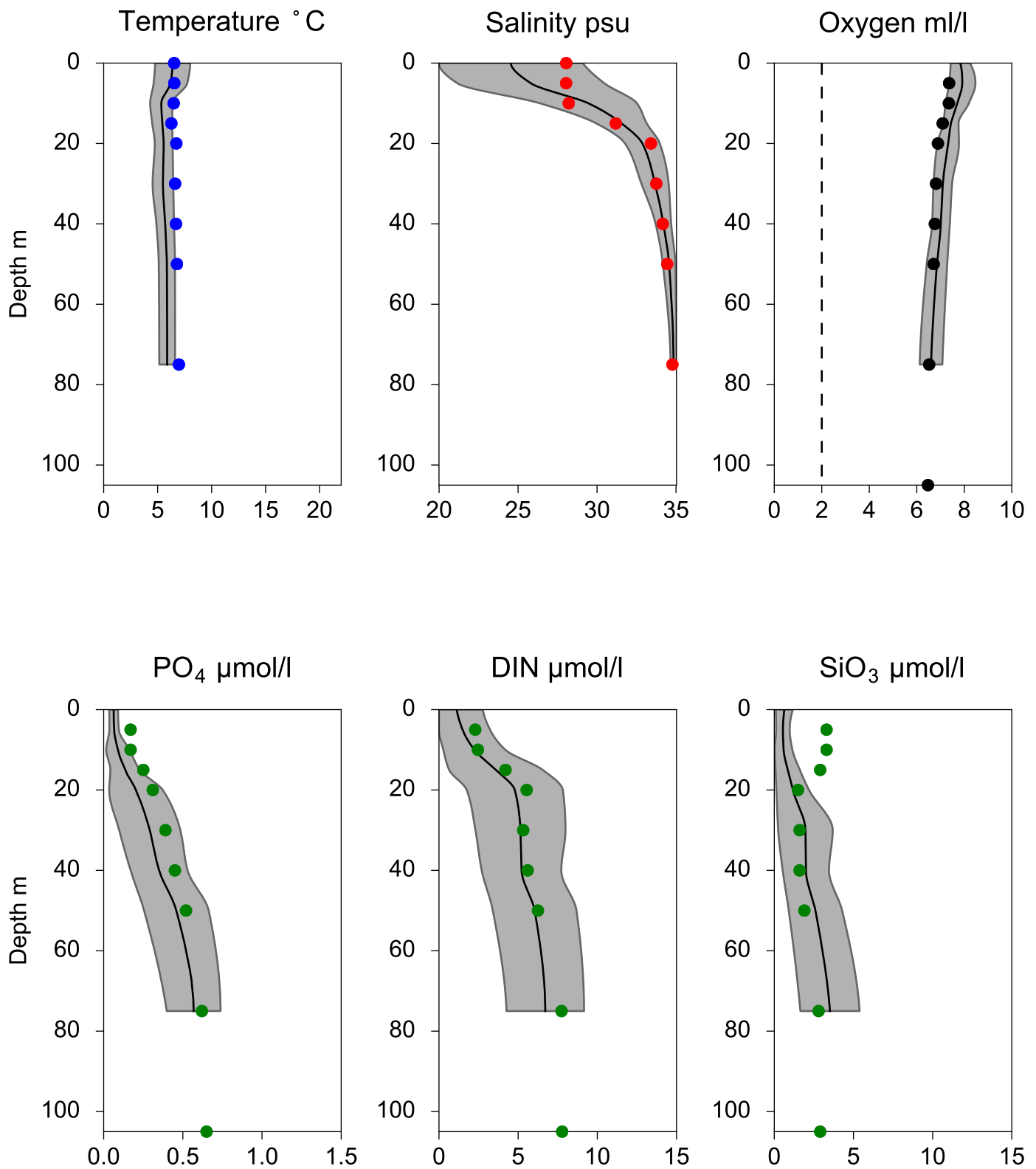


O₂ ml/l



Vertical profiles Å13 April

— Mean 2001-2015 ■ St.Dev. ● 2020-04-14



STATION Å15 SURFACE WATER (0-10 m)

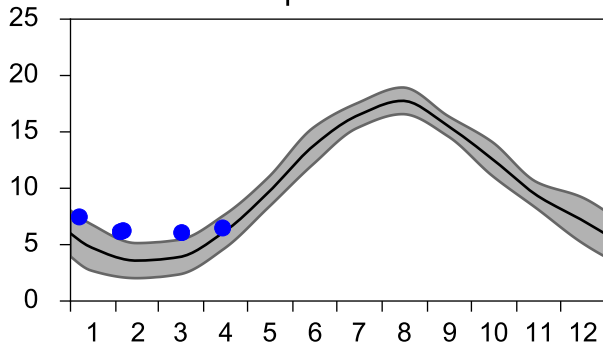
Annual Cycles

— Mean 2001-2015

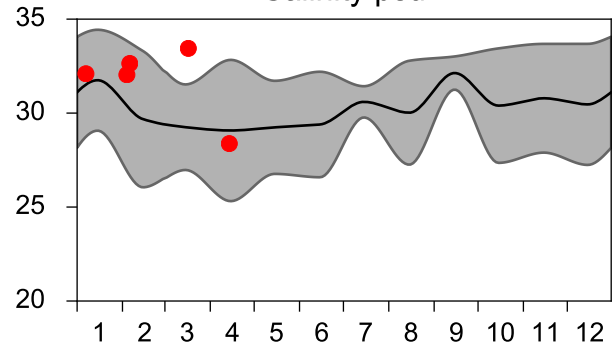
■ St.Dev.

● 2020

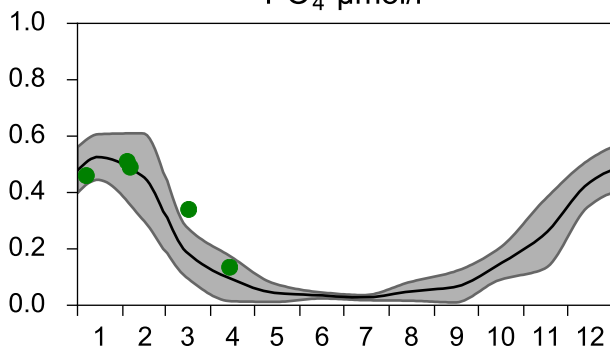
Temperature °C



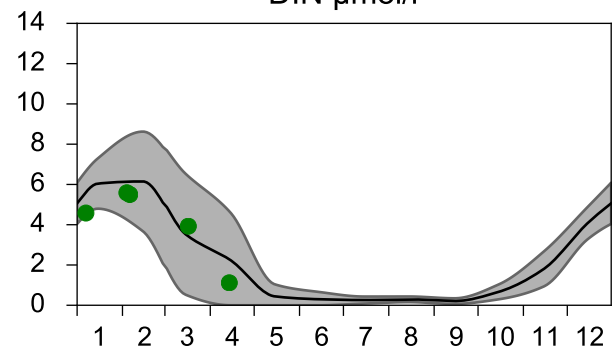
Salinity psu



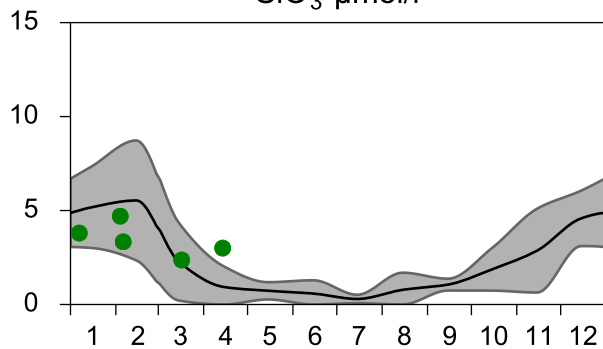
PO₄ µmol/l



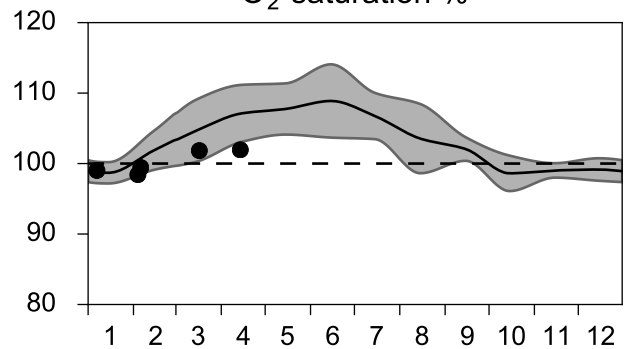
DIN µmol/l



SiO₃ µmol/l

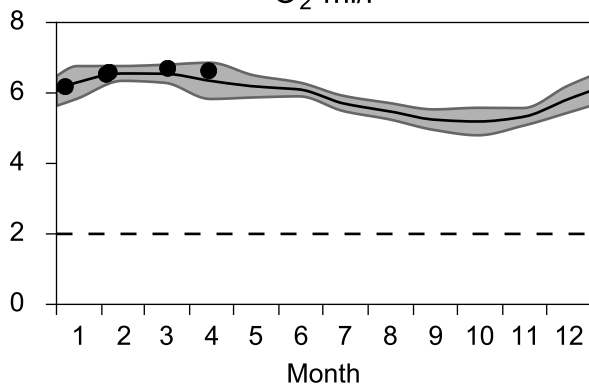


O₂ saturation %

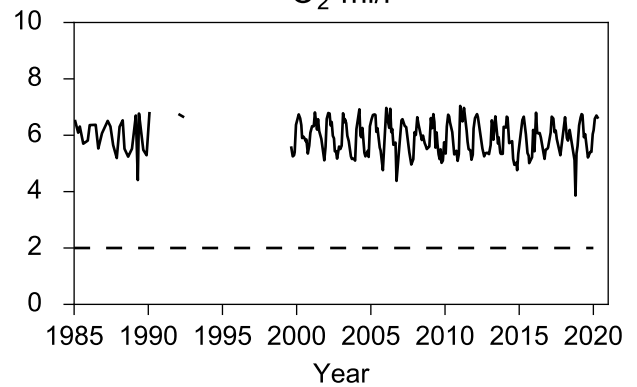


OXYGEN IN BOTTOM WATER (depth >= 125 m)

O₂ ml/l

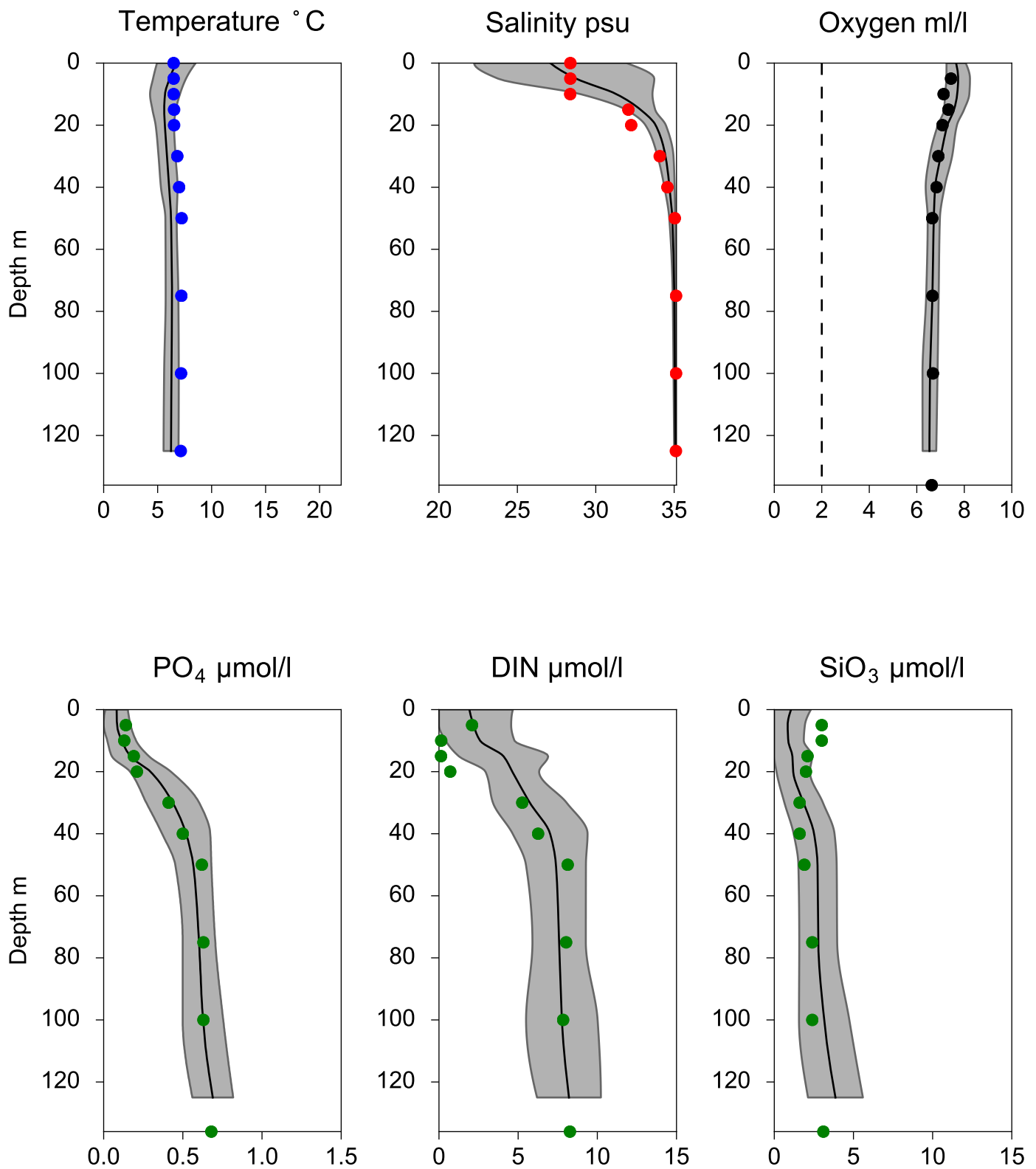


O₂ ml/l



Vertical profiles Å15 April

— Mean 2001-2015 ■ St.Dev. ● 2020-04-14



STATION Å17 SURFACE WATER (0-10 m)

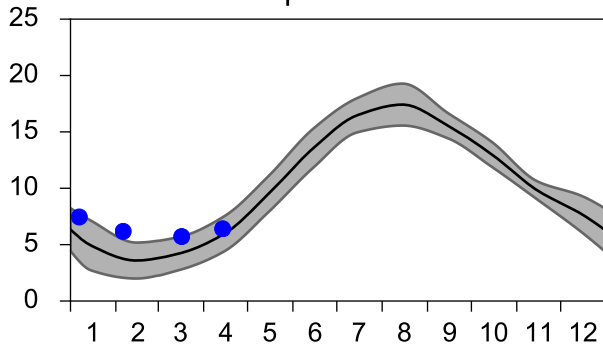
Annual Cycles

— Mean 2001-2015

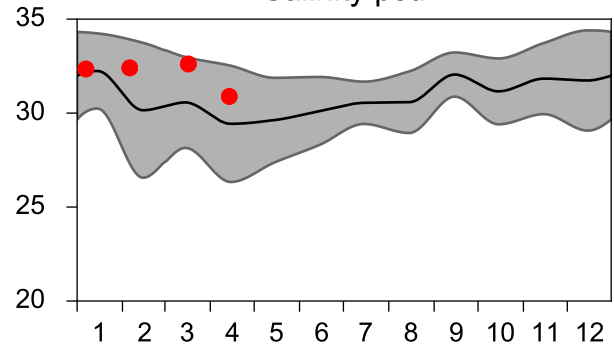
■ St.Dev.

● 2020

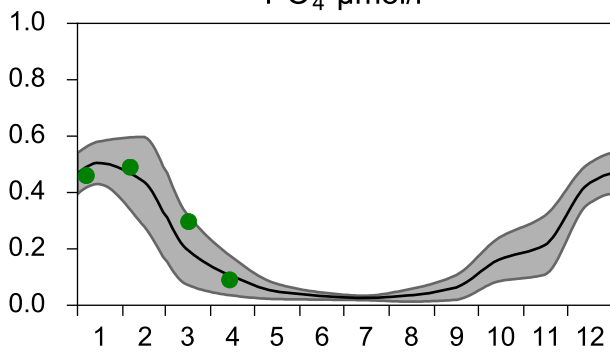
Temperature °C



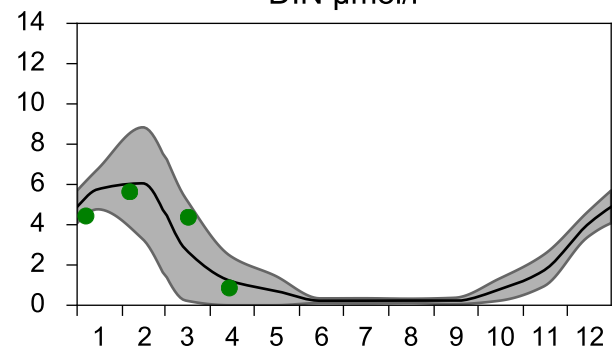
Salinity psu



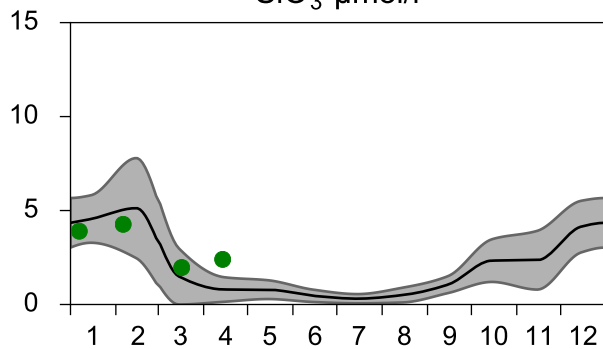
PO₄ µmol/l



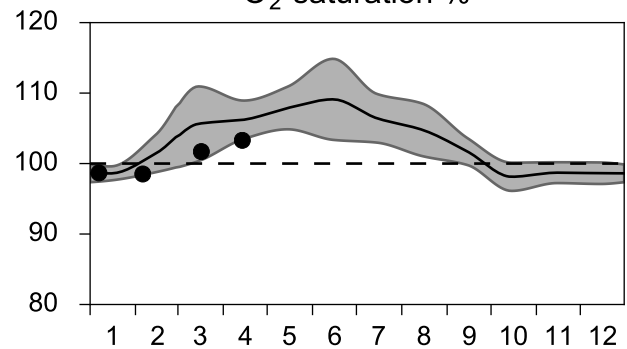
DIN µmol/l



SiO₃ µmol/l

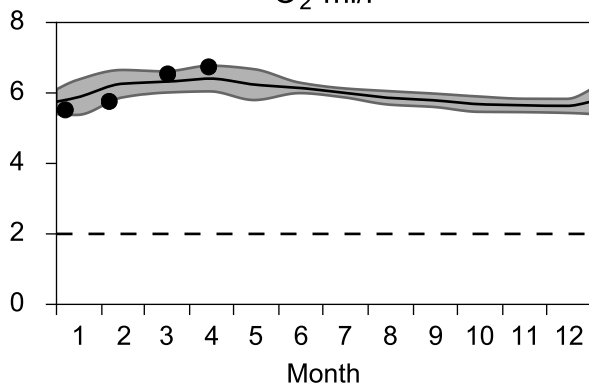


O₂ saturation %

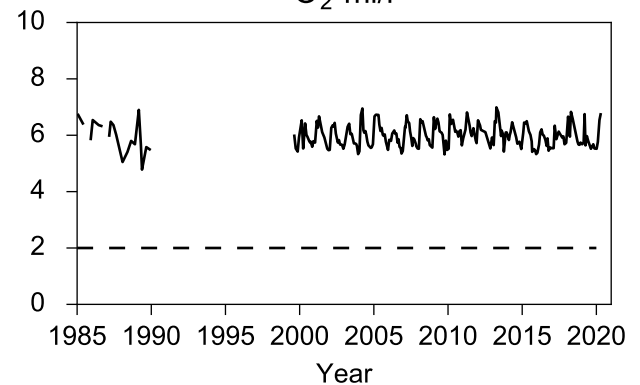


OXYGEN IN BOTTOM WATER (depth >= 300 m)

O₂ ml/l

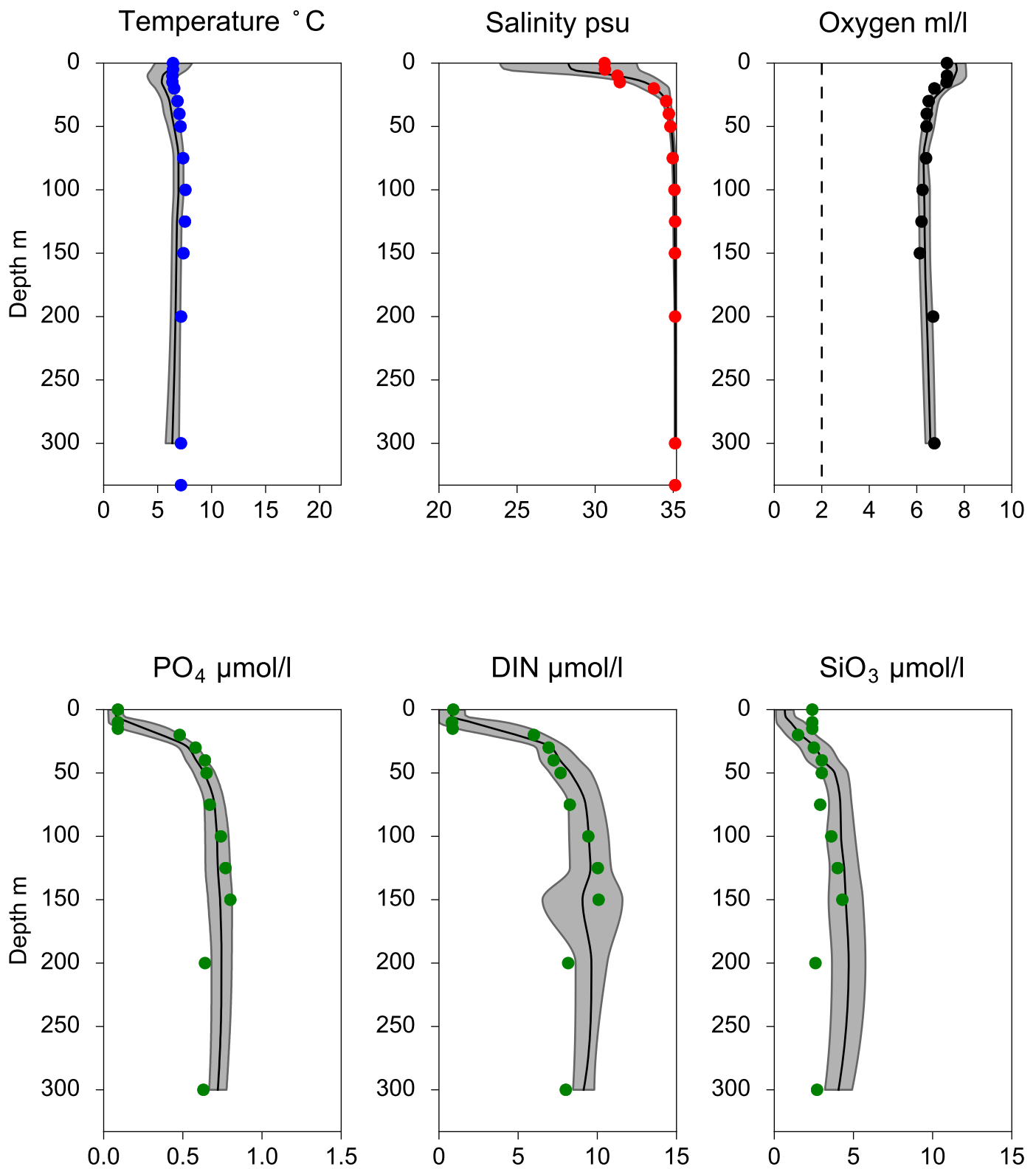


O₂ ml/l



Vertical profiles Å17 April

— Mean 2001-2015 St.Dev. • 2020-04-14



STATION P2 SURFACE WATER (0-10 m)

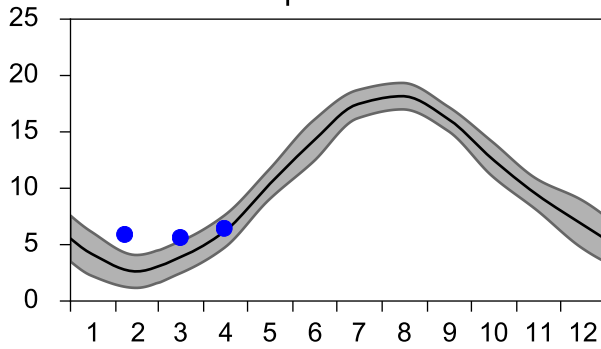
Annual Cycles

— Mean 2001-2015

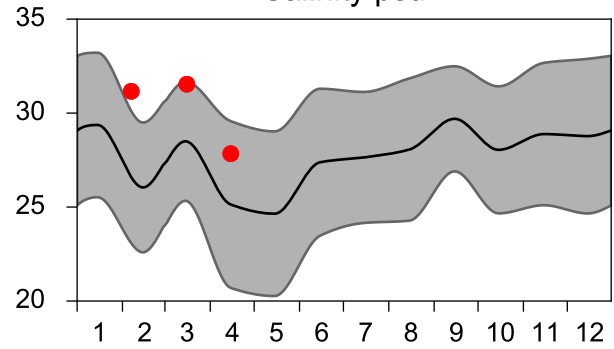
■ St.Dev.

● 2020

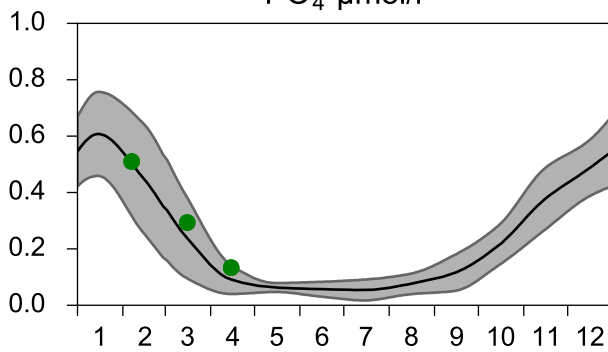
Temperature °C



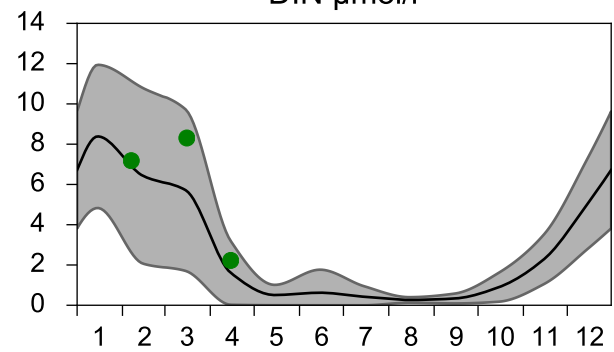
Salinity psu



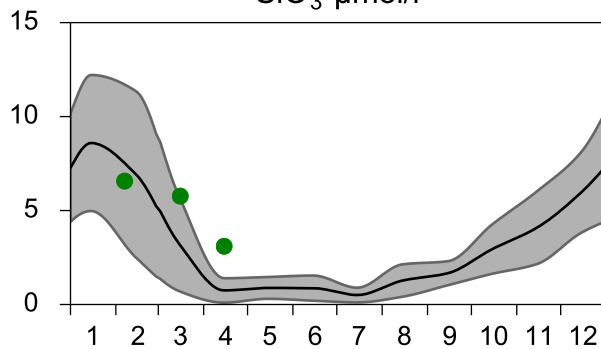
PO₄ µmol/l



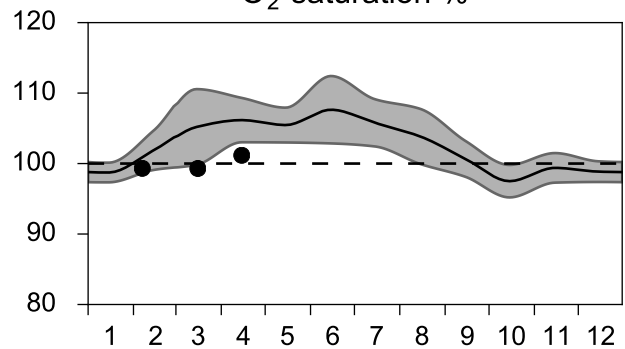
DIN µmol/l



SiO₃ µmol/l

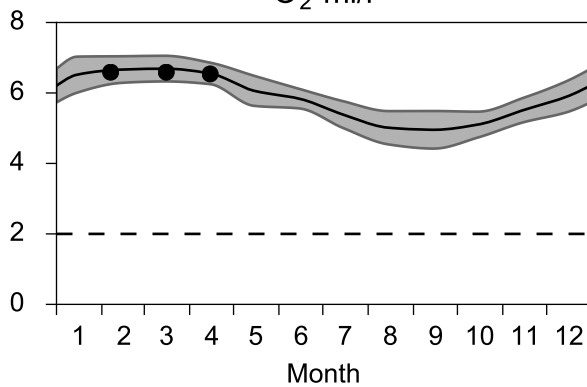


O₂ saturation %

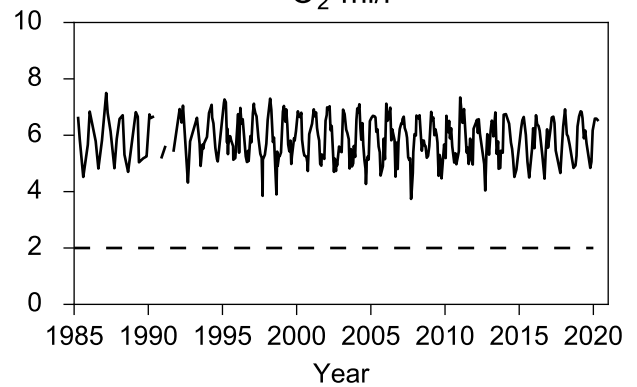


OXYGEN IN BOTTOM WATER (depth >= 75 m)

O₂ ml/l



O₂ ml/l

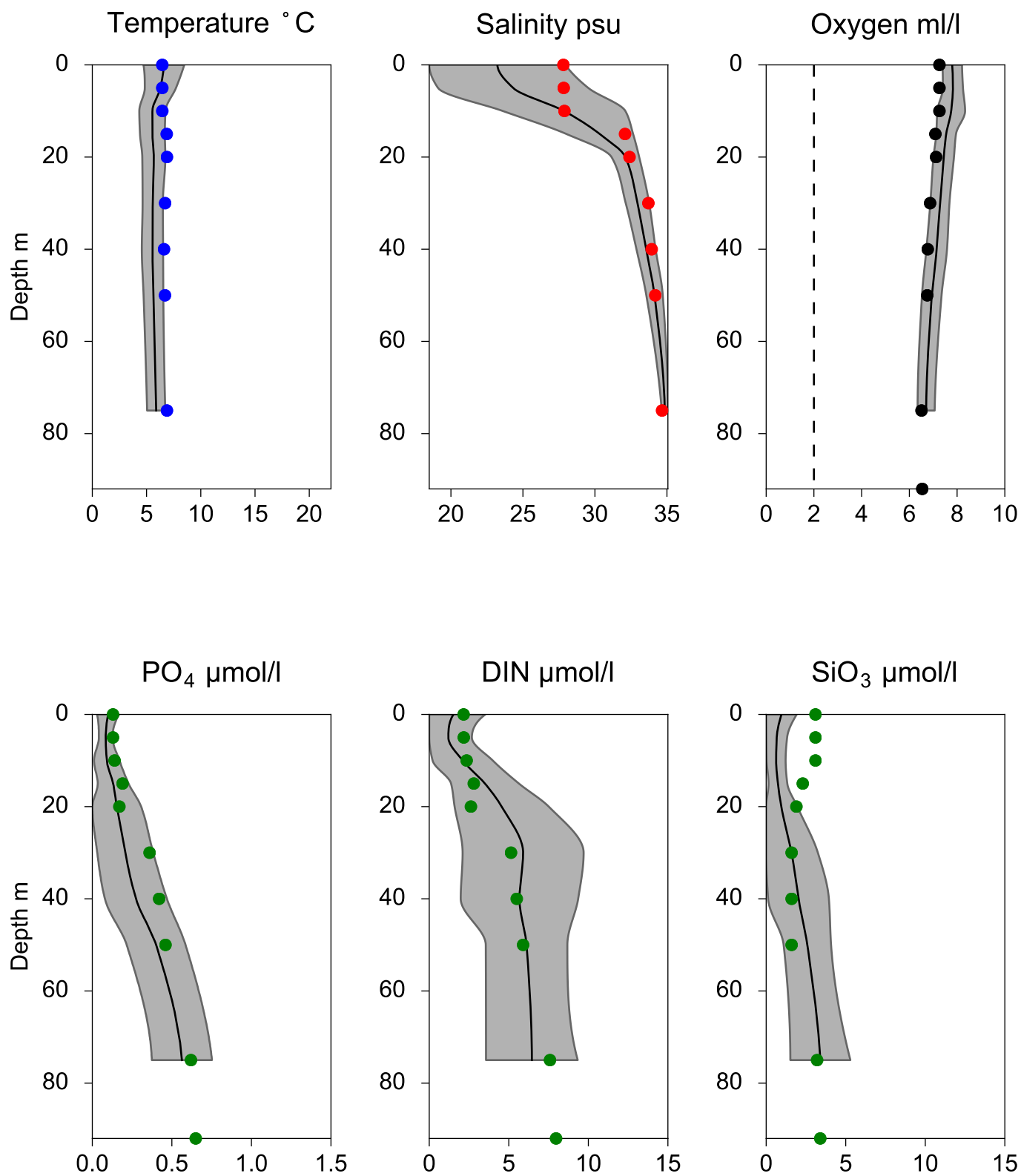


Vertical profiles P2 April

— Mean 2001-2015

■ St.Dev.

● 2020-04-15



STATION FLADEN SURFACE WATER (0-10 m)

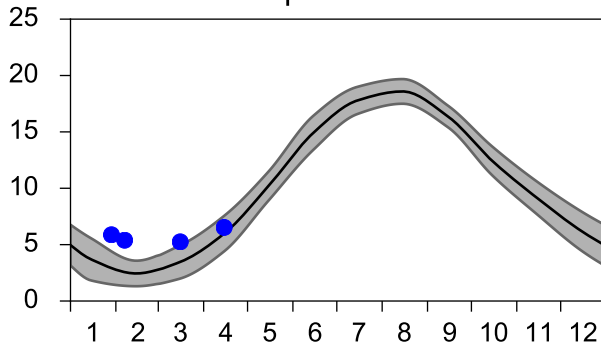
Annual Cycles

— Mean 2001-2015

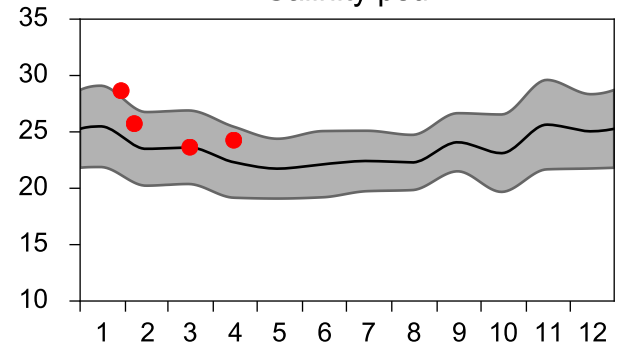
■ St.Dev.

● 2020

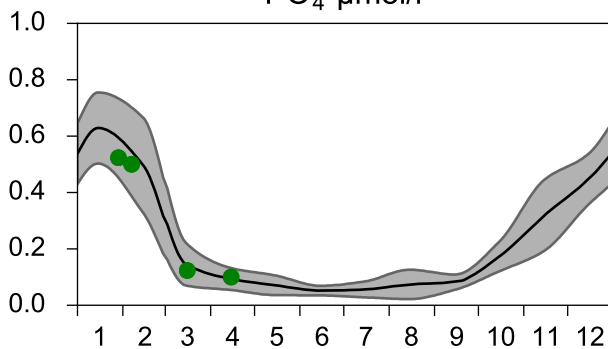
Temperature °C



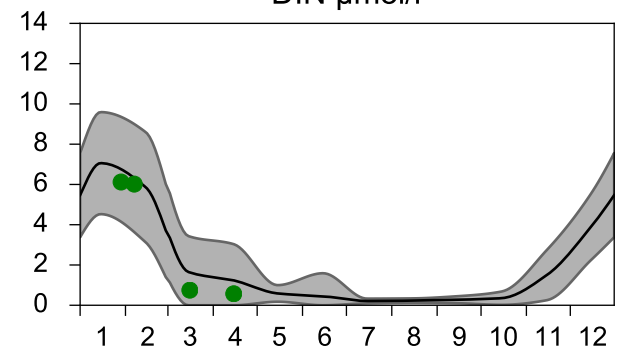
Salinity psu



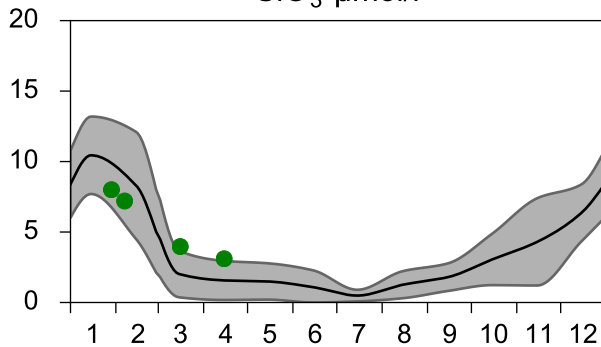
PO₄ µmol/l



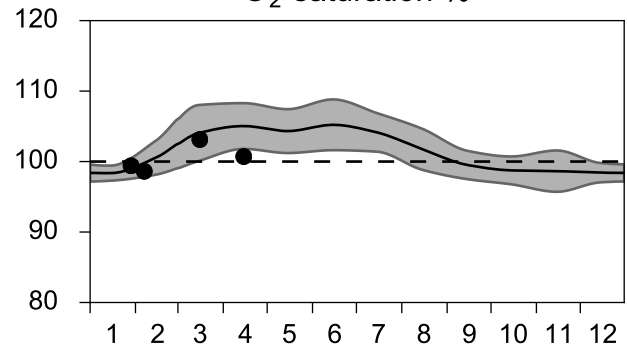
DIN µmol/l



SiO₃ µmol/l

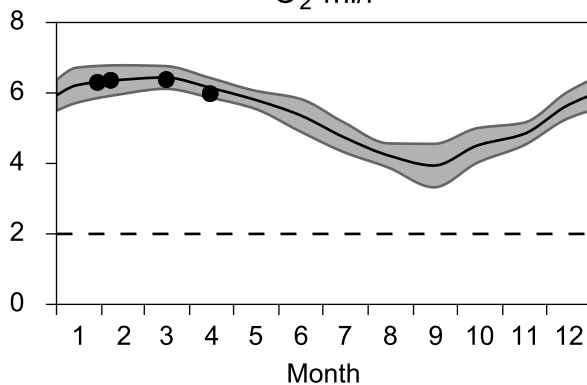


O₂ saturation %

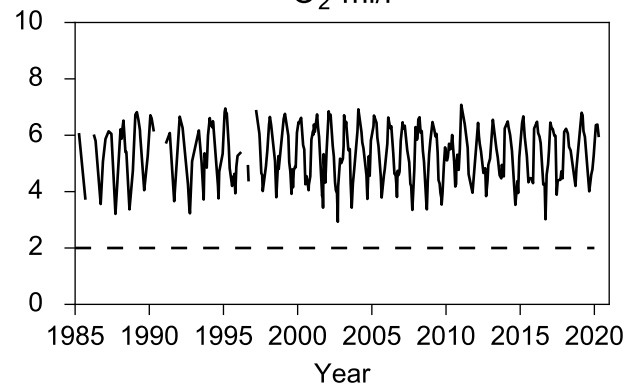


OXYGEN IN BOTTOM WATER (depth >= 74 m)

O₂ ml/l



O₂ ml/l

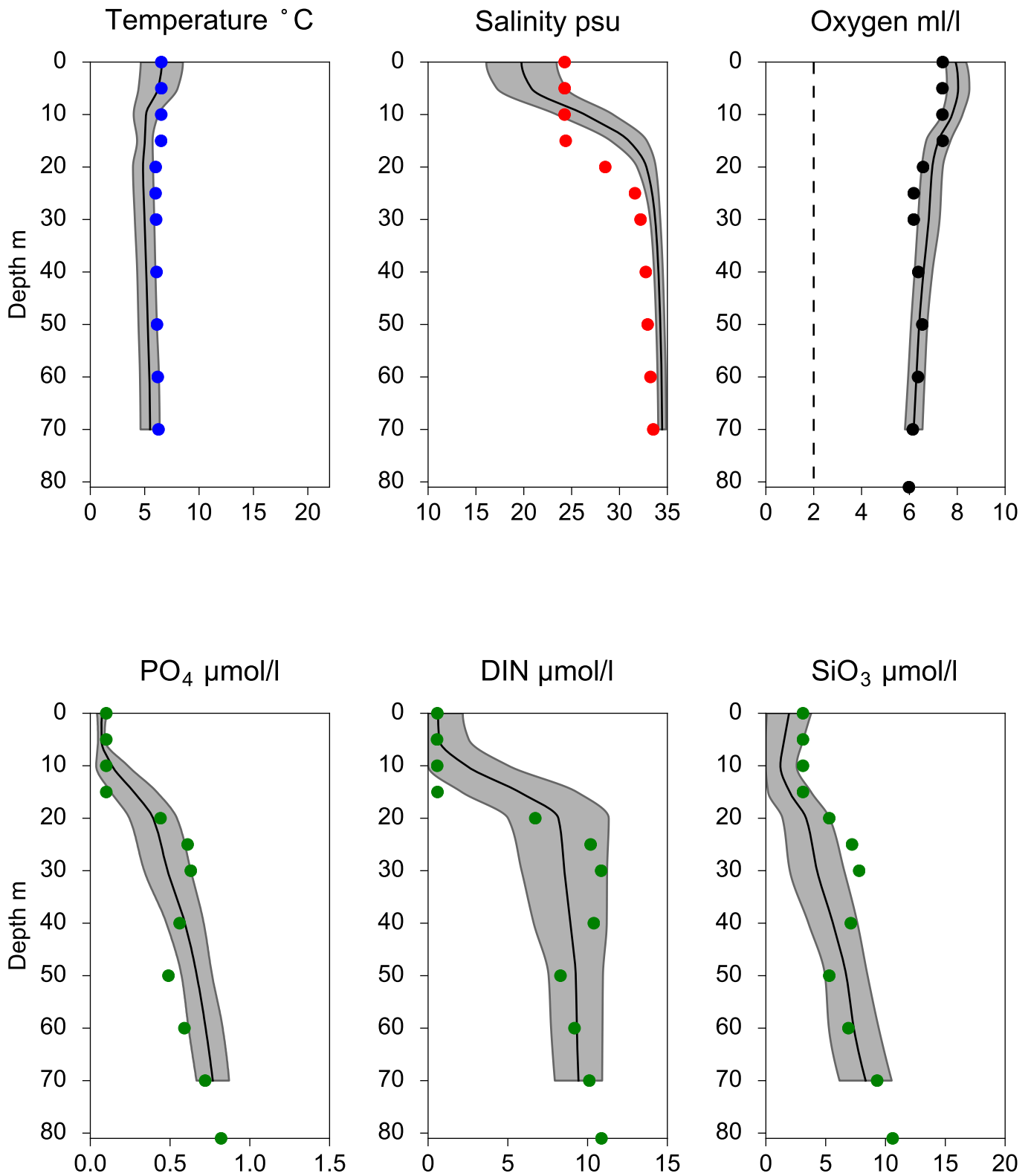


Vertical profiles FLADEN April

— Mean 2001-2015

■ St.Dev.

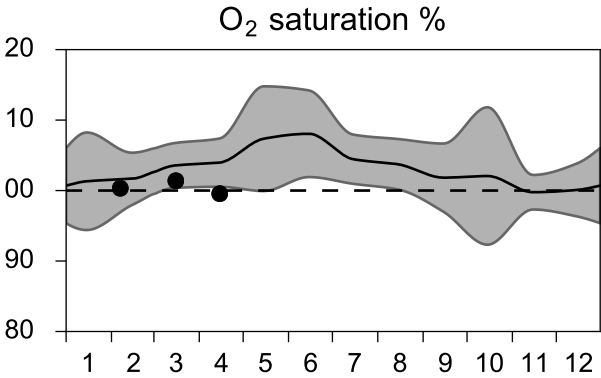
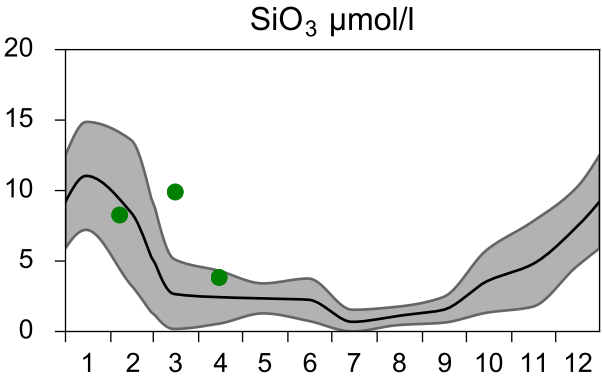
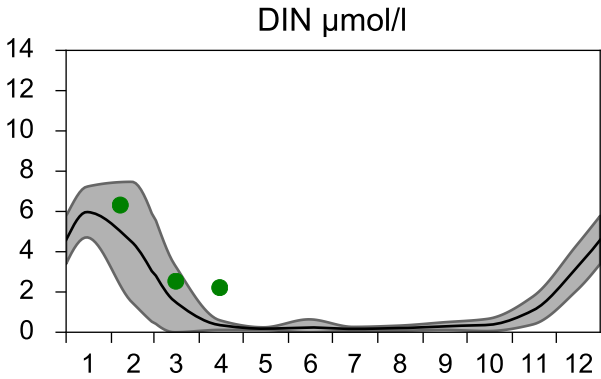
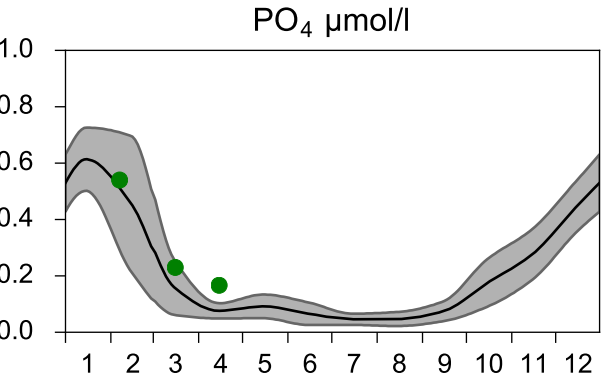
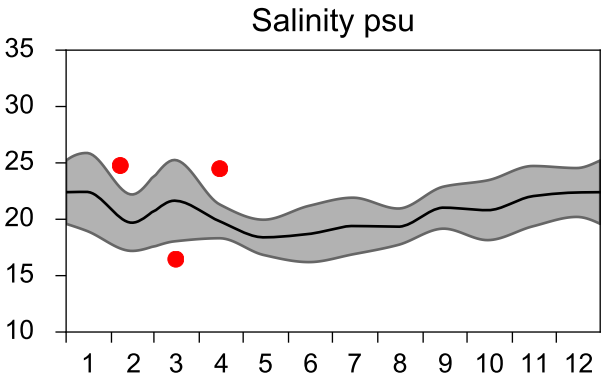
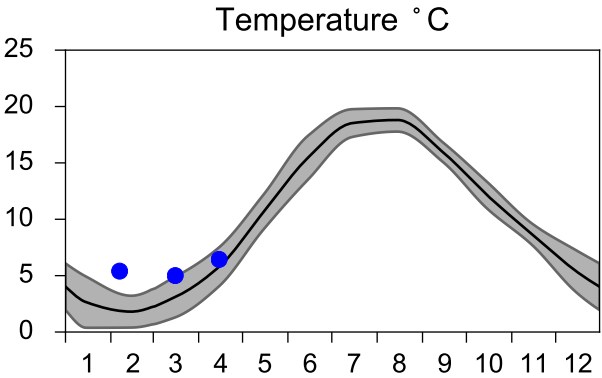
● 2020-04-15



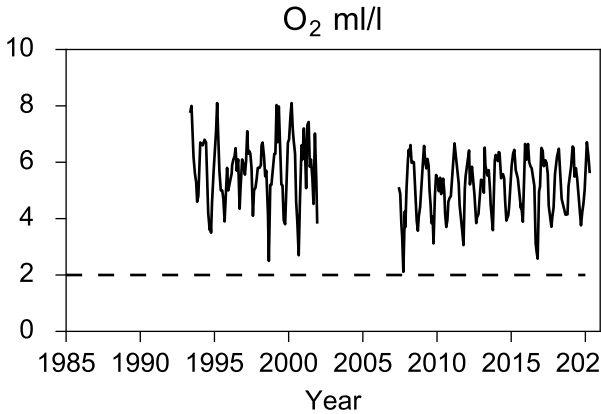
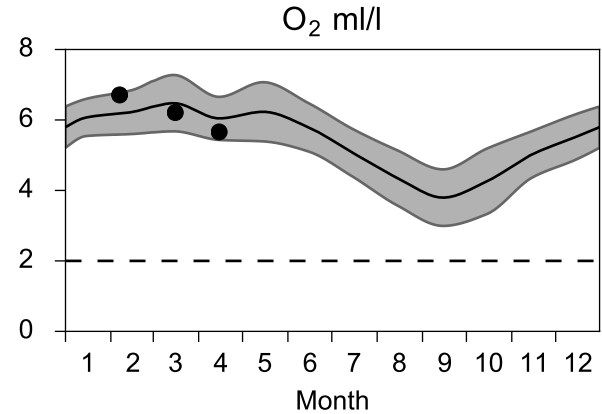
STATION N14 FALKENBERG SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015 St.Dev. ● 2020

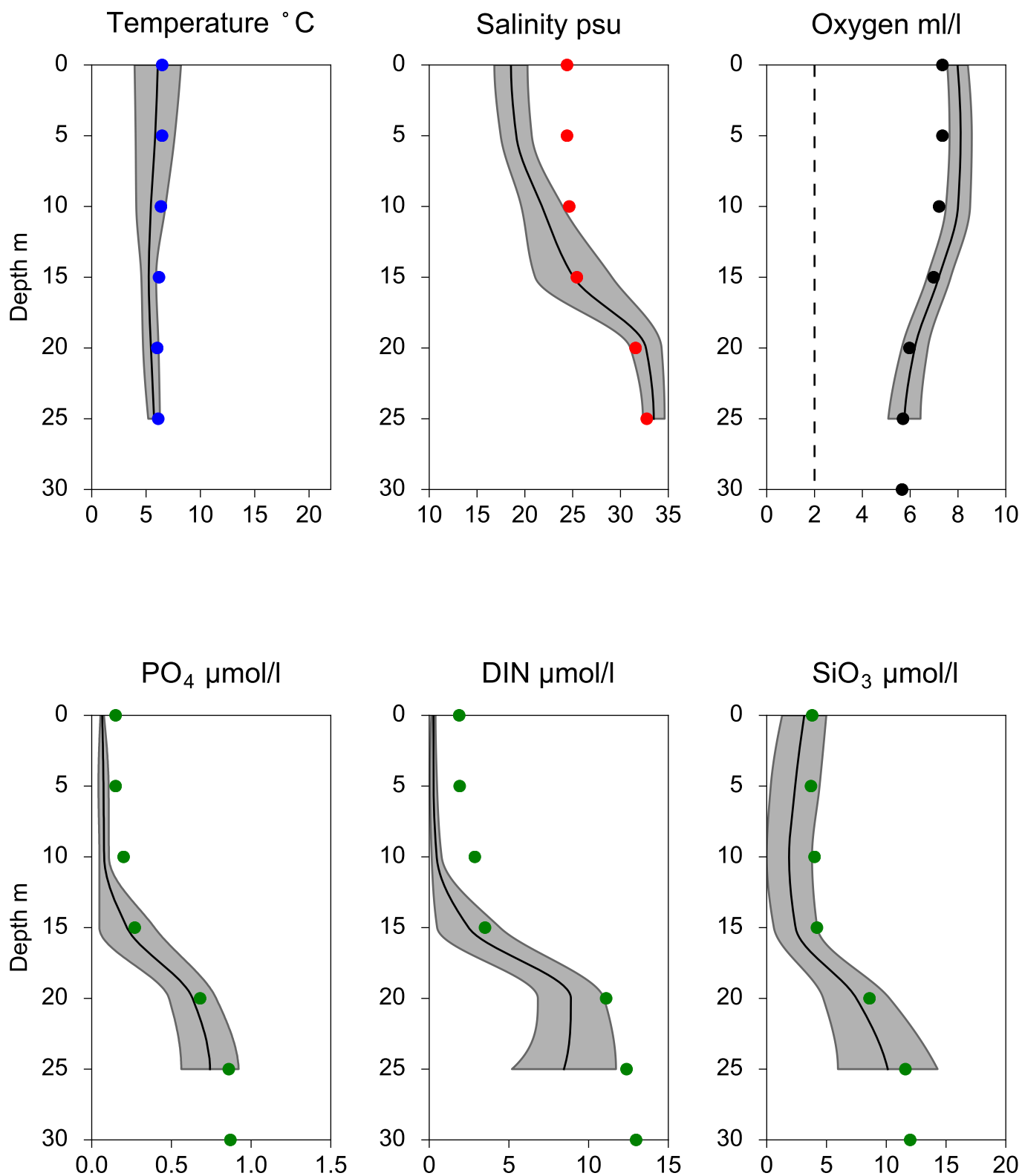


OXYGEN IN BOTTOM WATER (depth >= 20 m)



Vertical profiles N14 FALKENBERG April

— Mean 2001-2015 St.Dev. • 2020-04-15



STATION ANHOLT E SURFACE WATER (0-10 m)

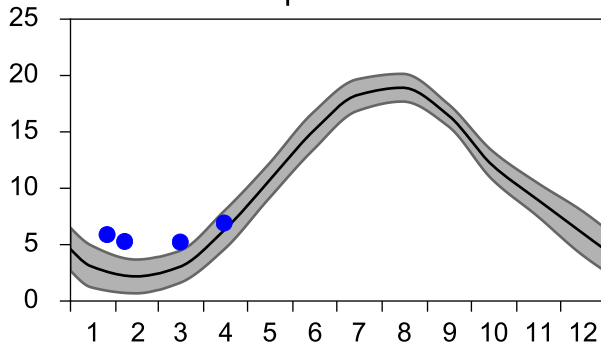
Annual Cycles

— Mean 2001-2015

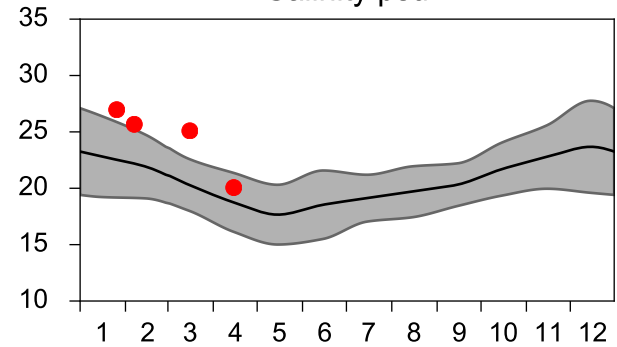
■ St.Dev.

● 2020

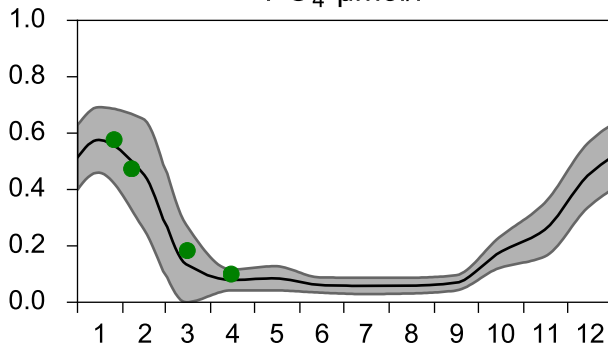
Temperature °C



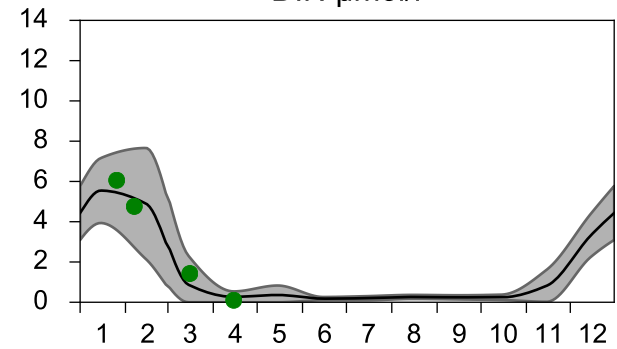
Salinity psu



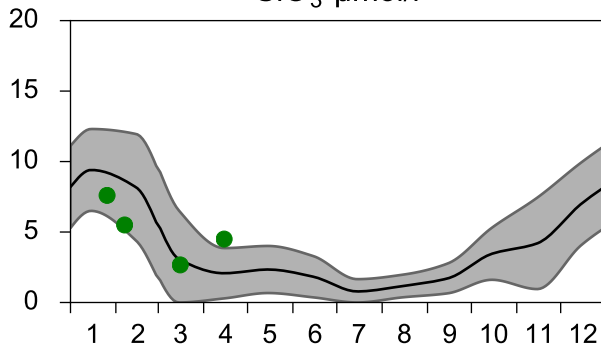
PO₄ µmol/l



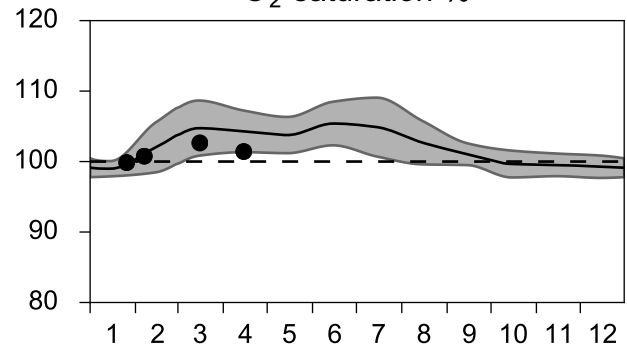
DIN µmol/l



SiO₃ µmol/l

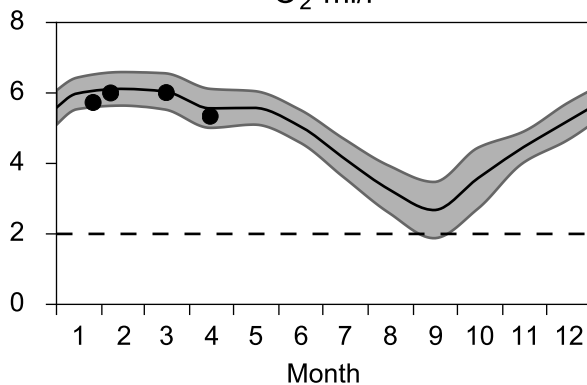


O₂ saturation %

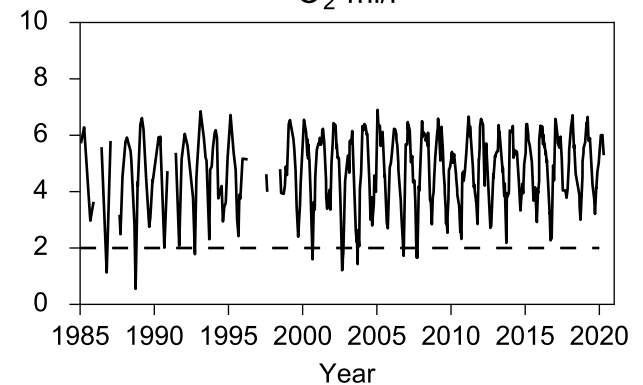


OXYGEN IN BOTTOM WATER (depth >= 52 m)

O₂ ml/l

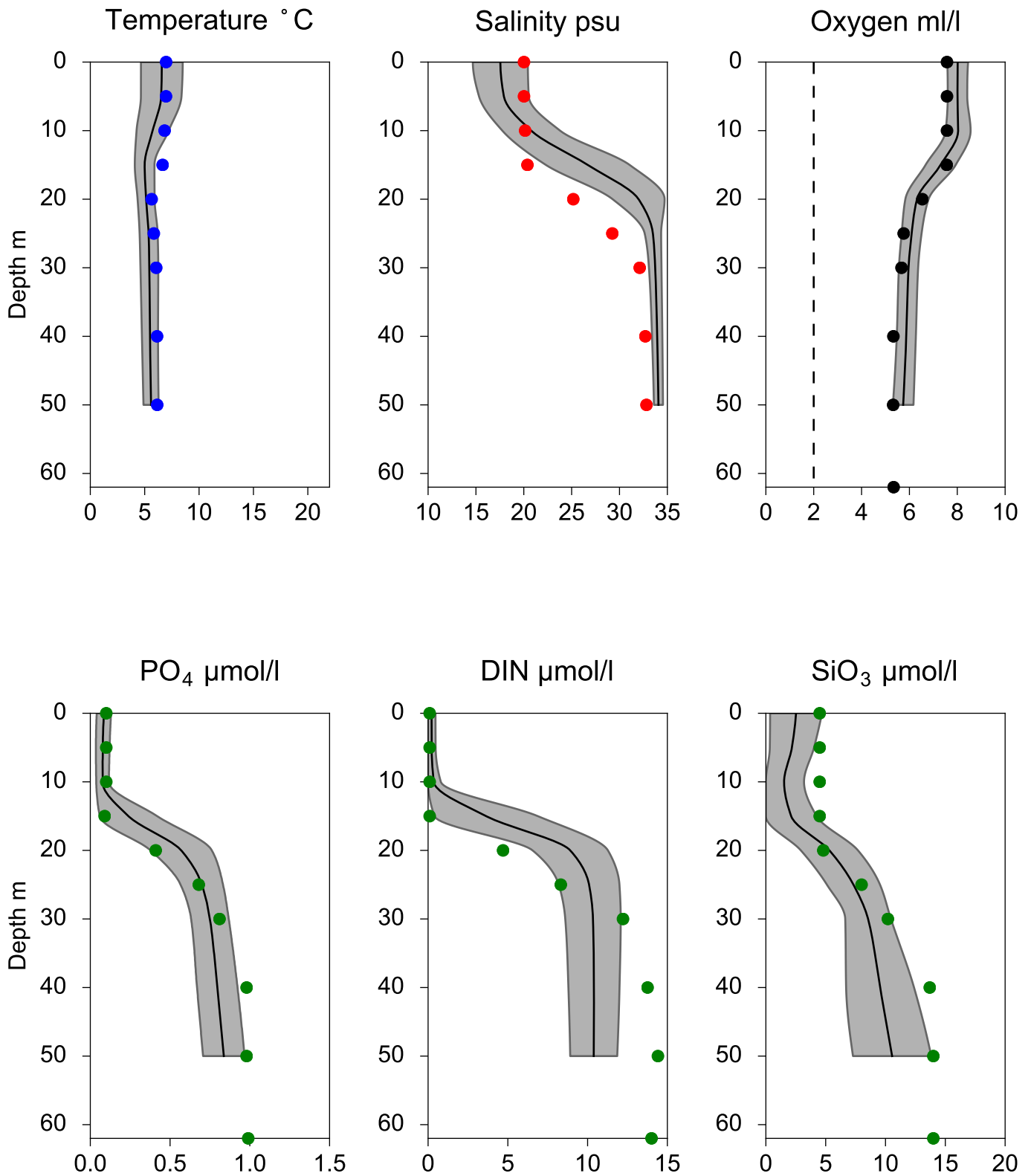


O₂ ml/l



Vertical profiles ANHOLT E April

— Mean 2001-2015 St.Dev. • 2020-04-15



STATION W LANDSKRONA SURFACE WATER (0-10 m)

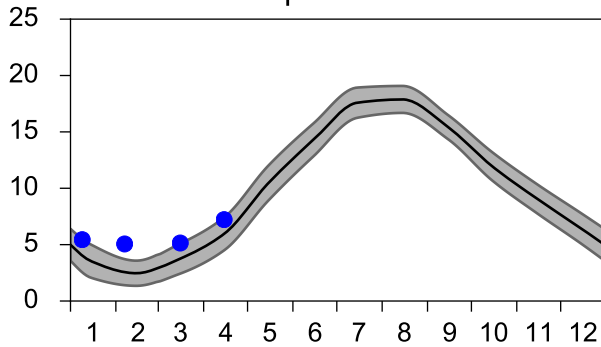
Annual Cycles

— Mean 2001-2015

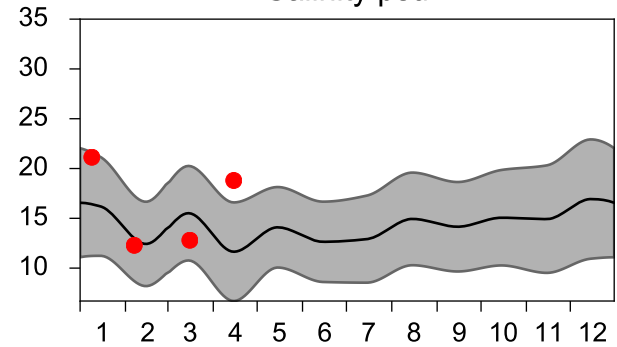
■ St.Dev.

● 2020

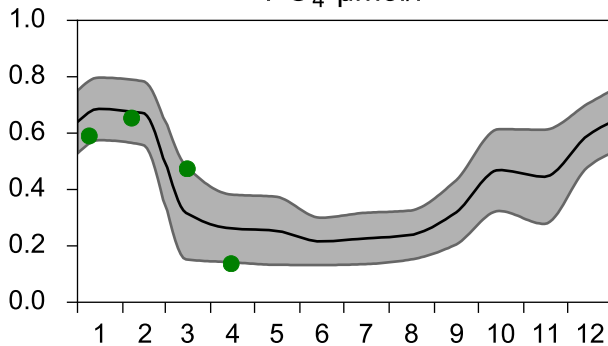
Temperature °C



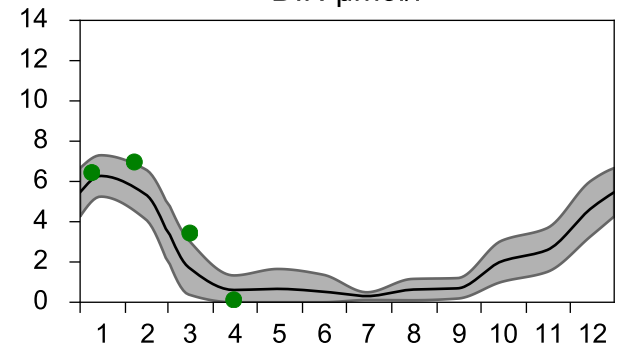
Salinity psu



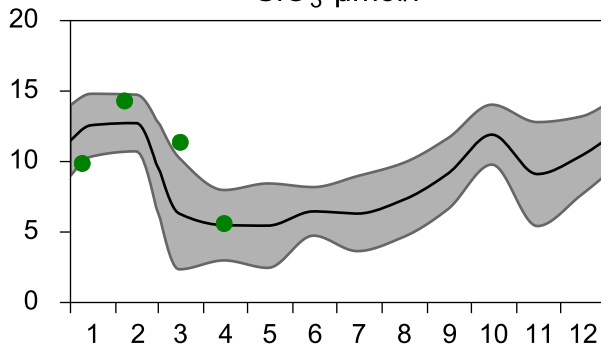
PO₄ µmol/l



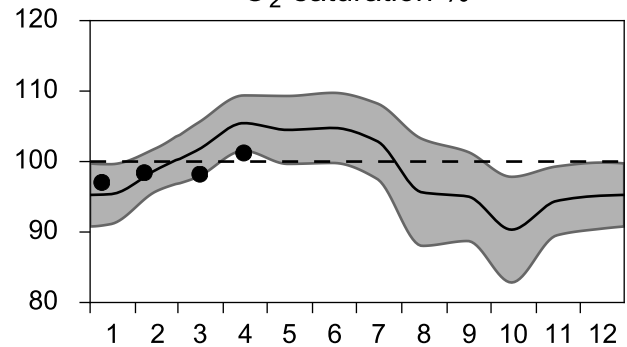
DIN µmol/l



SiO₃ µmol/l

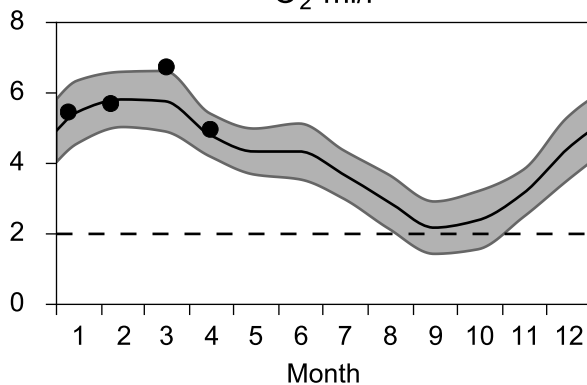


O₂ saturation %

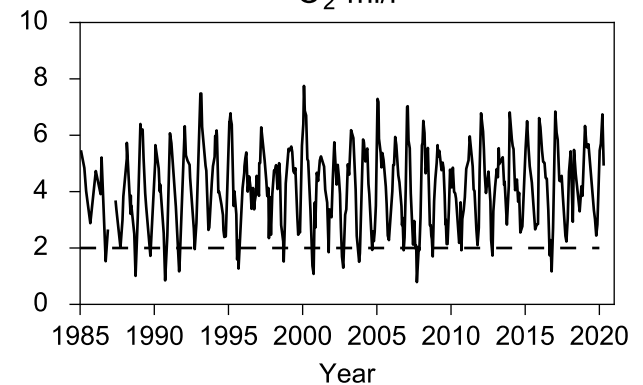


OXYGEN IN BOTTOM WATER (depth >= 40 m)

O₂ ml/l

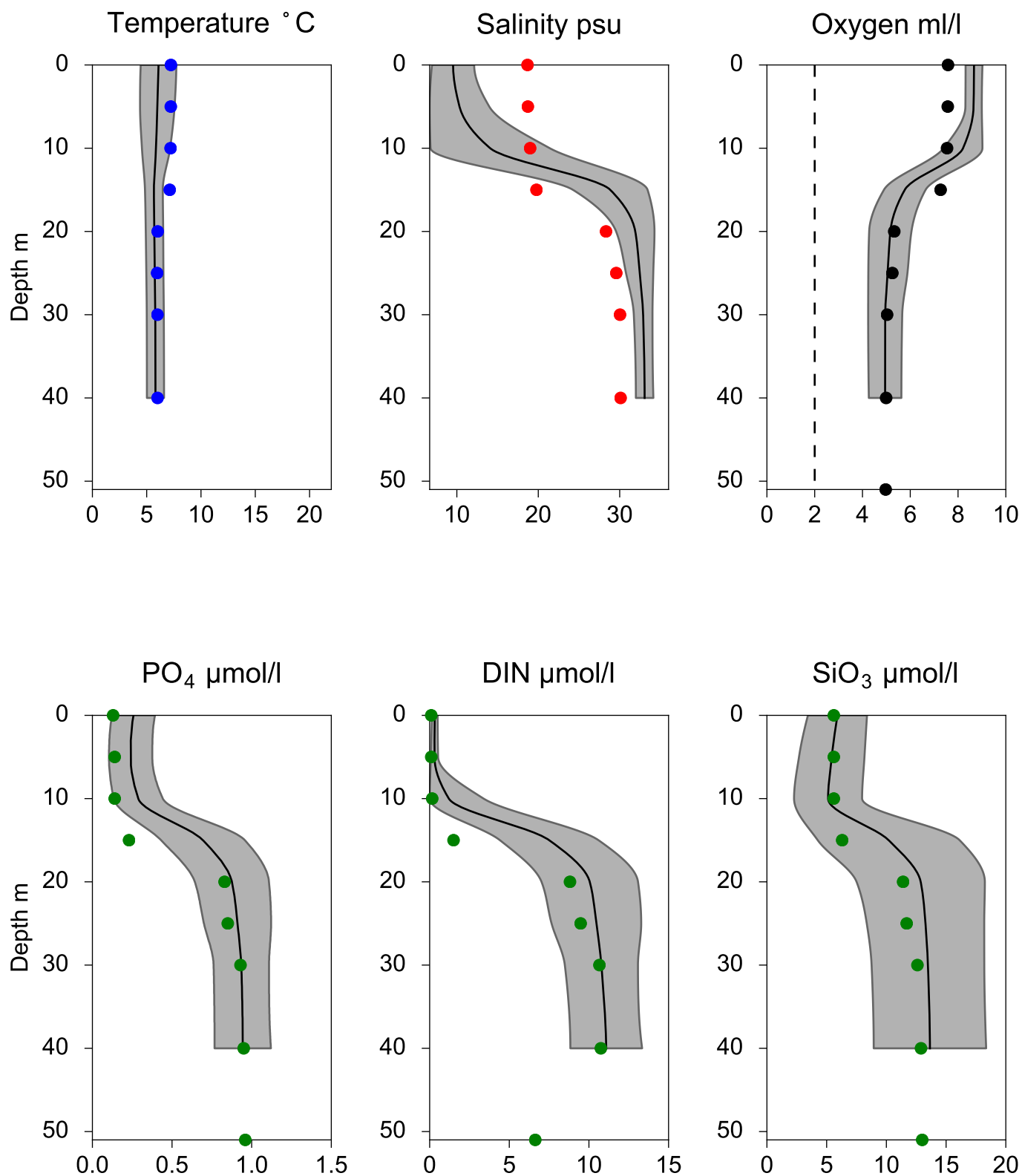


O₂ ml/l



Vertical profiles W LANDSKRONA April

— Mean 2001-2015 ■ St.Dev. ● 2020-04-15



STATION BY1 SURFACE WATER (0-10 m)

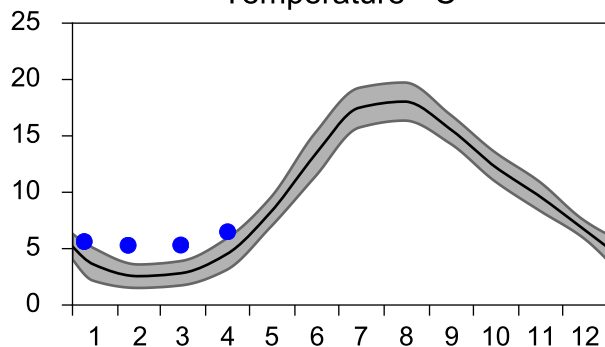
Annual Cycles

— Mean 2001-2015

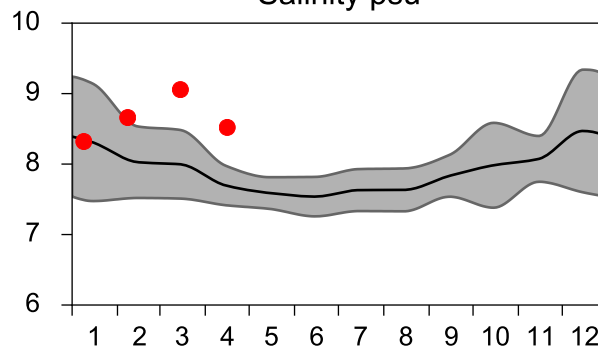
■ St.Dev.

● 2020

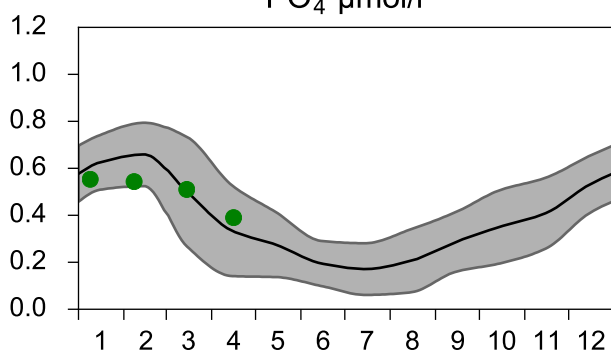
Temperature °C



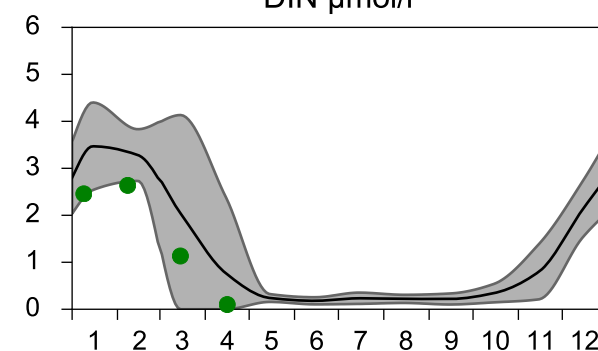
Salinity psu



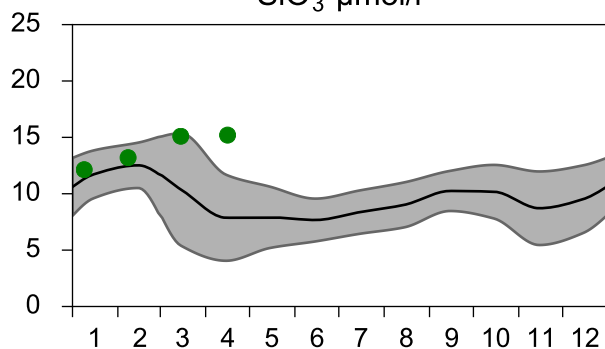
PO₄ µmol/l



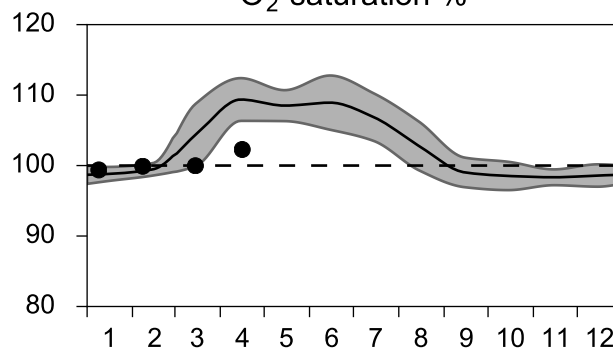
DIN µmol/l



SiO₃ µmol/l

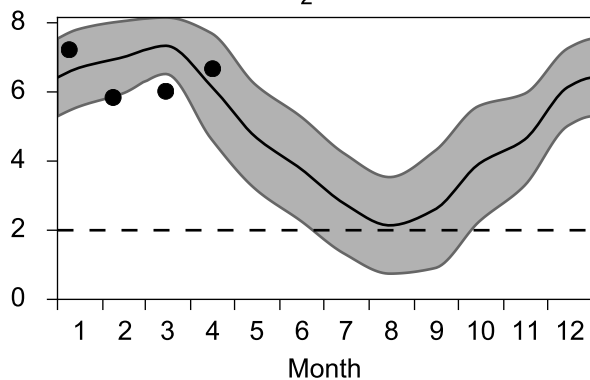


O₂ saturation %

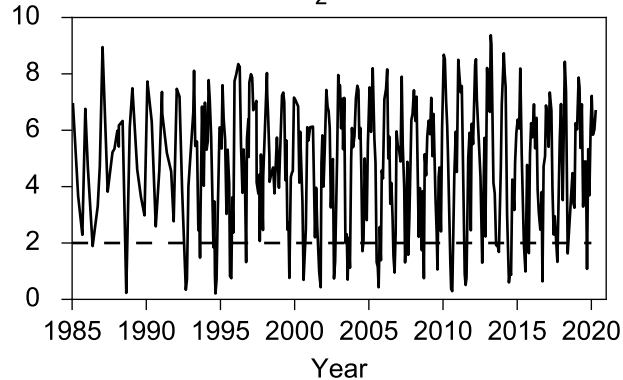


OXYGEN IN BOTTOM WATER (depth >= 40 m)

O₂ ml/l



O₂ ml/l

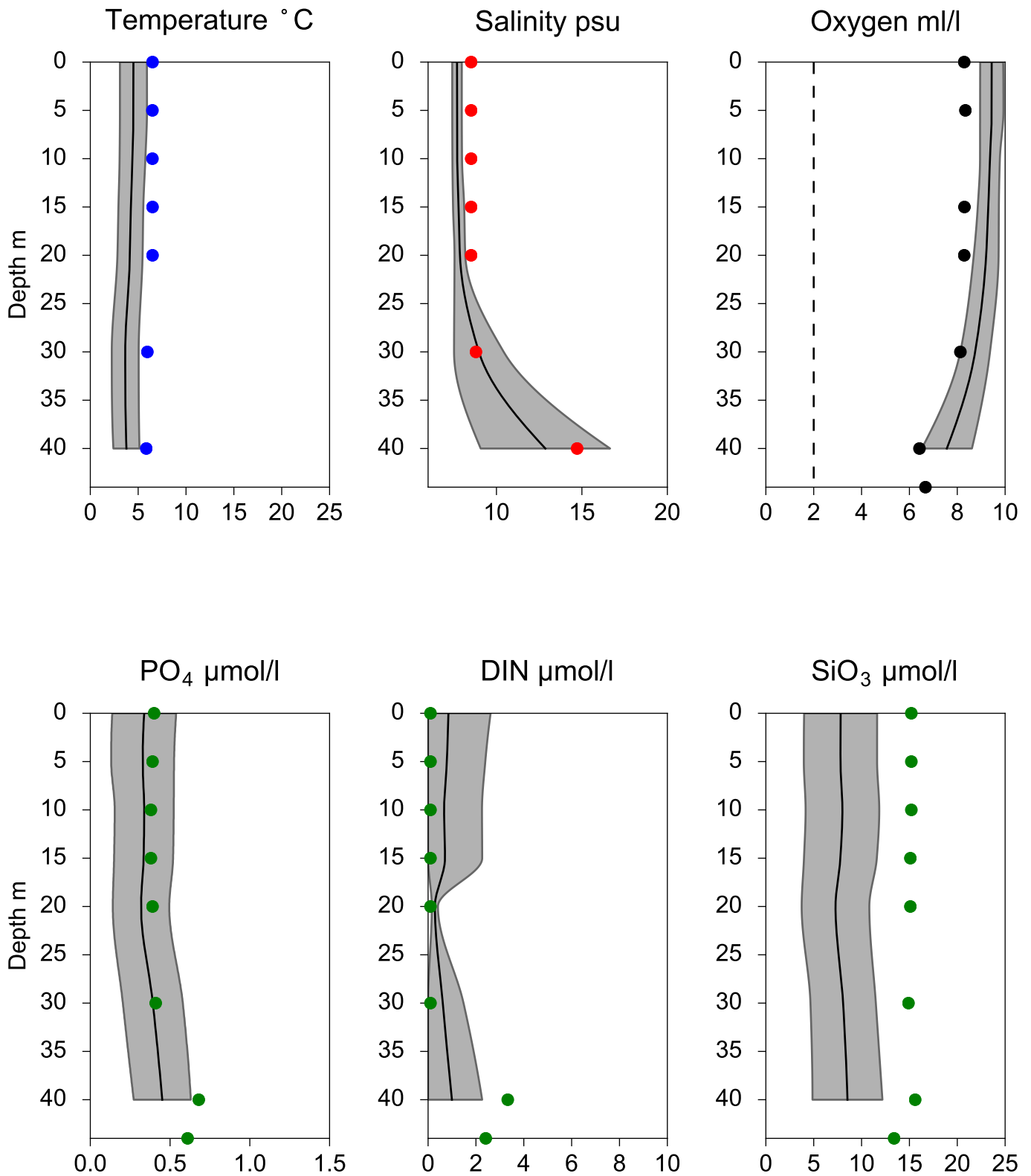


Vertical profiles BY1 April

— Mean 2001-2015

■ St.Dev.

● 2020-04-16



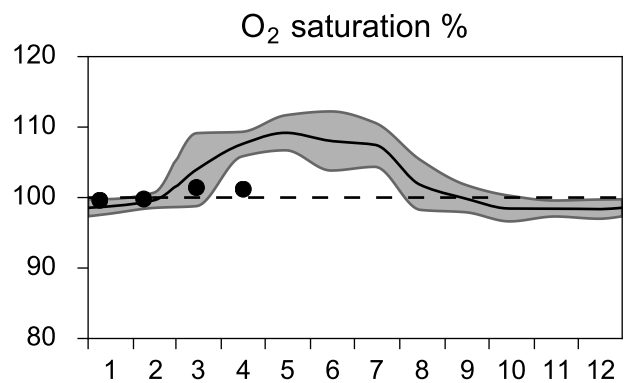
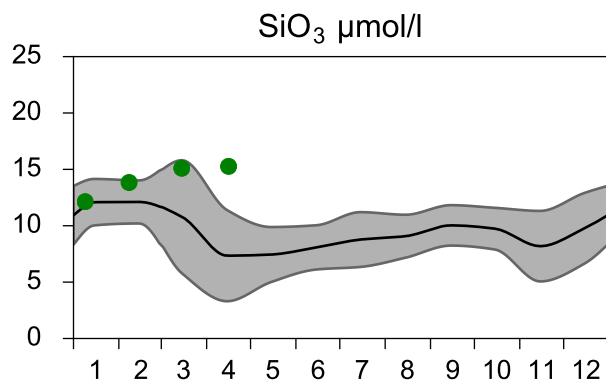
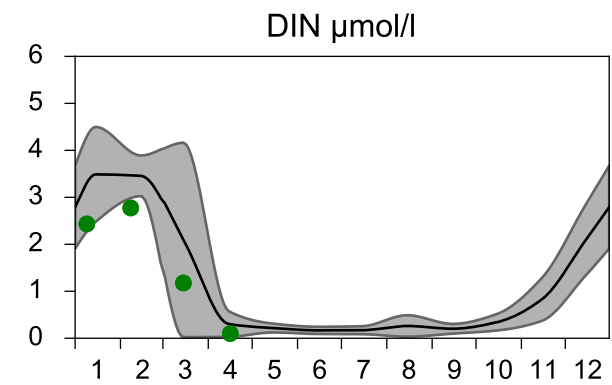
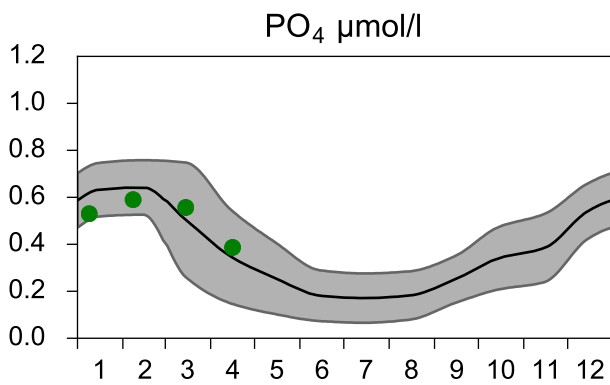
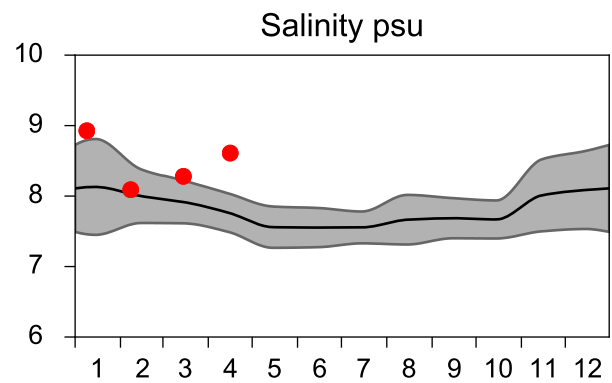
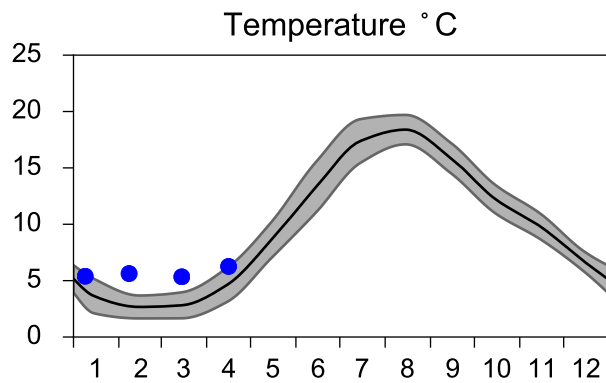
STATION BY2 ARKONA SURFACE WATER (0-10 m)

Annual Cycles

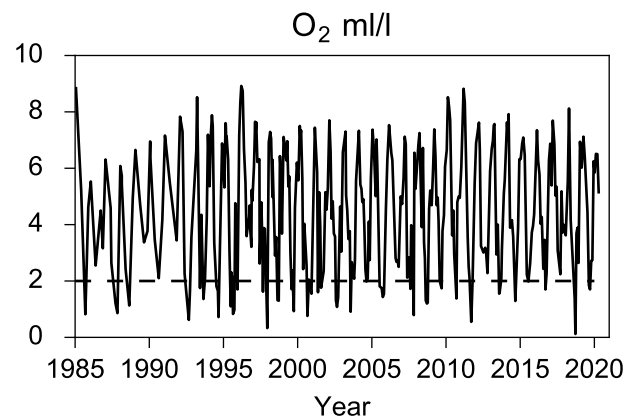
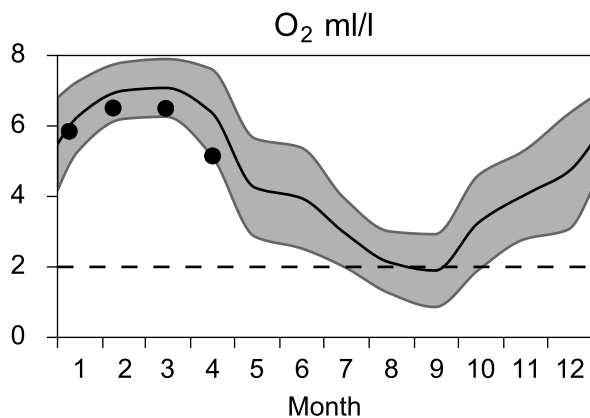
— Mean 2001-2015

■ St.Dev.

● 2020

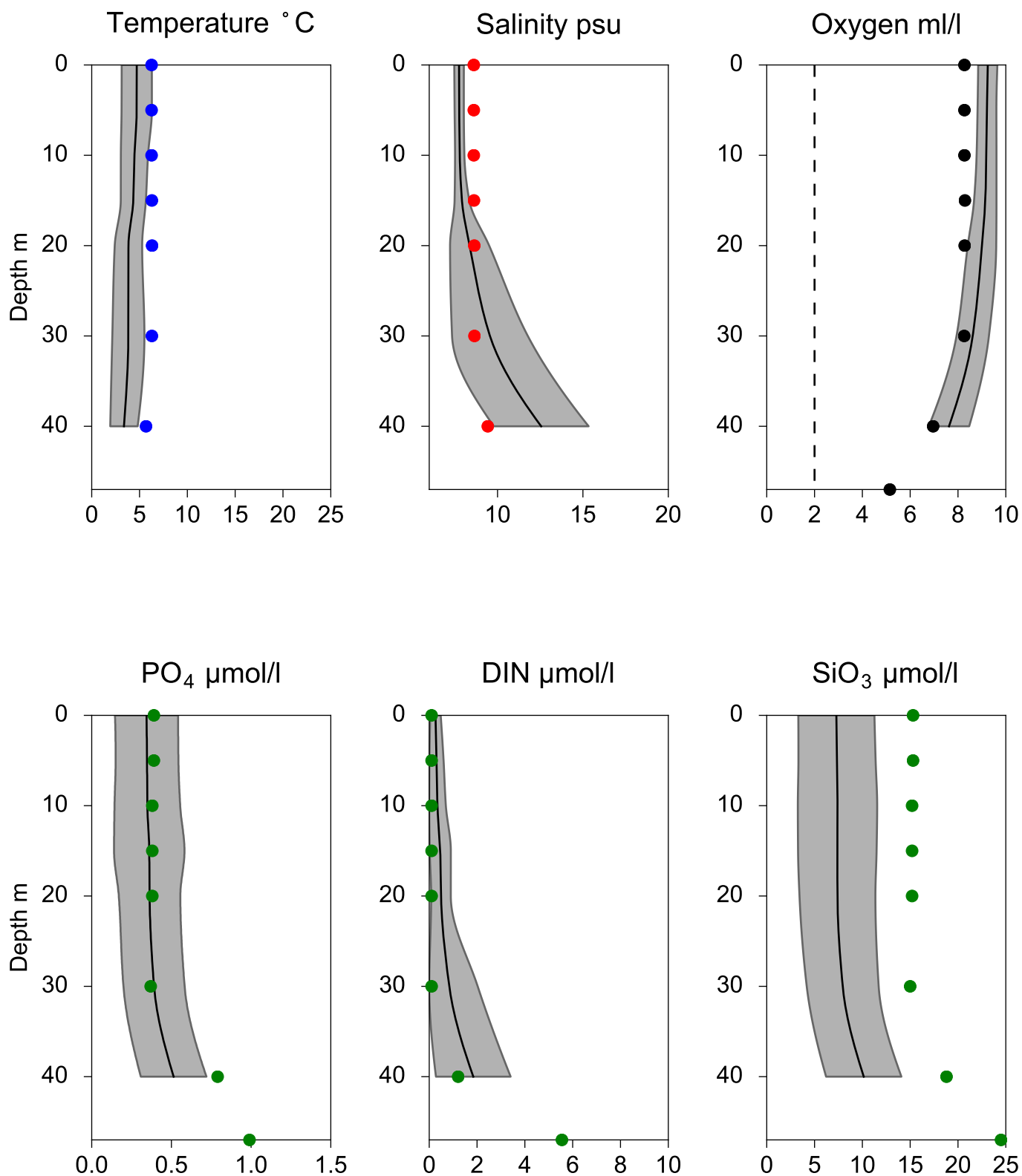


OXYGEN IN BOTTOM WATER (depth >= 40 m)



Vertical profiles BY2 ARKONA April

— Mean 2001-2015 St.Dev. • 2020-04-16



STATION HANÖBUKTEN SURFACE WATER (0-10 m)

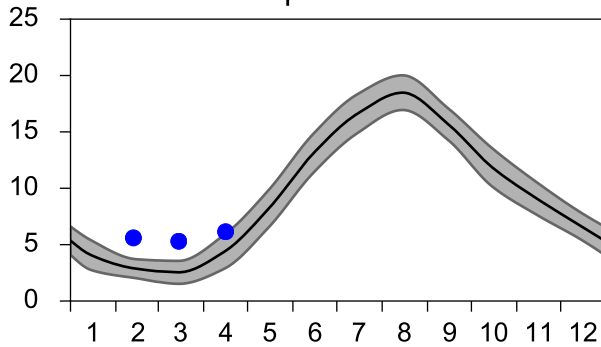
Annual Cycles

— Mean 2001-2015

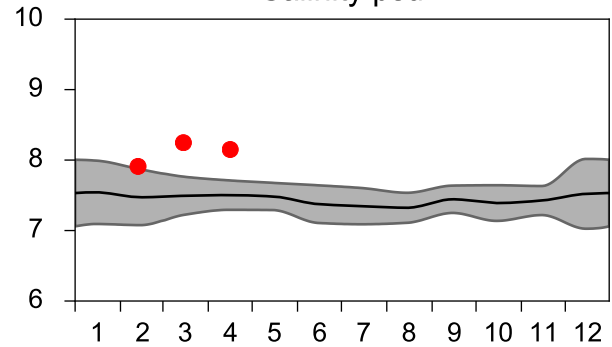
■ St.Dev.

● 2020

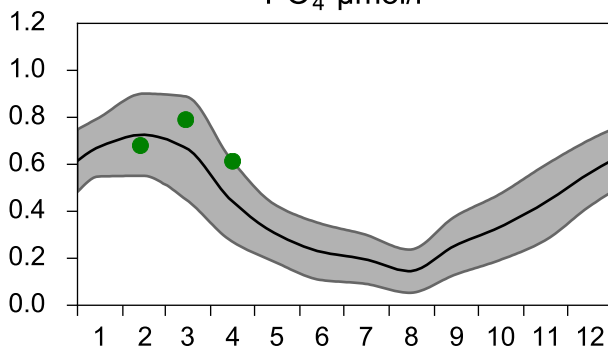
Temperature °C



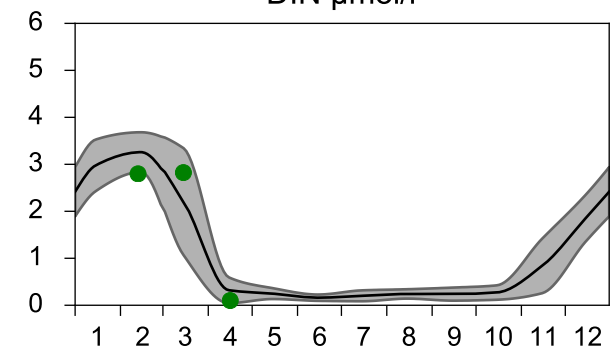
Salinity psu



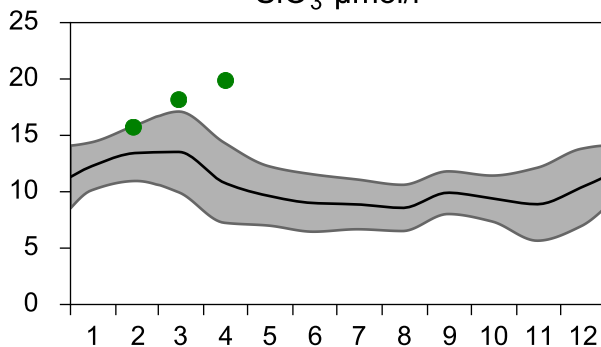
PO₄ µmol/l



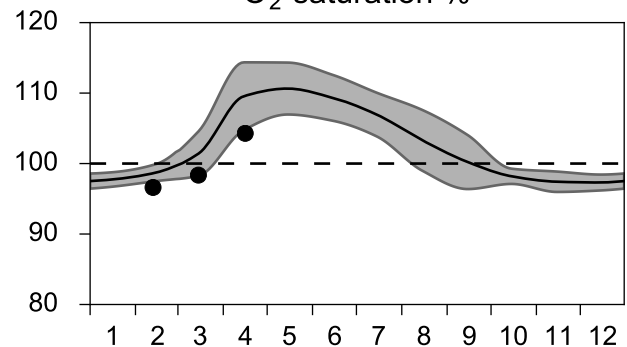
DIN µmol/l



SiO₃ µmol/l

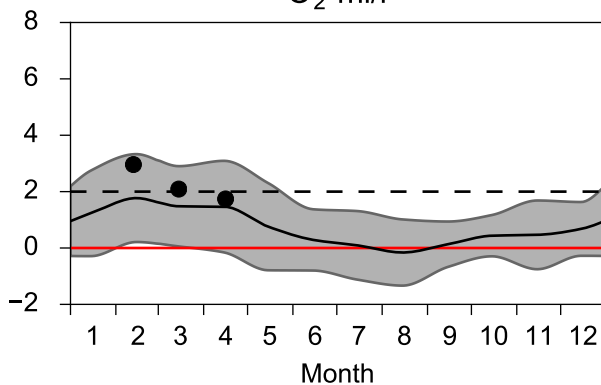


O₂ saturation %

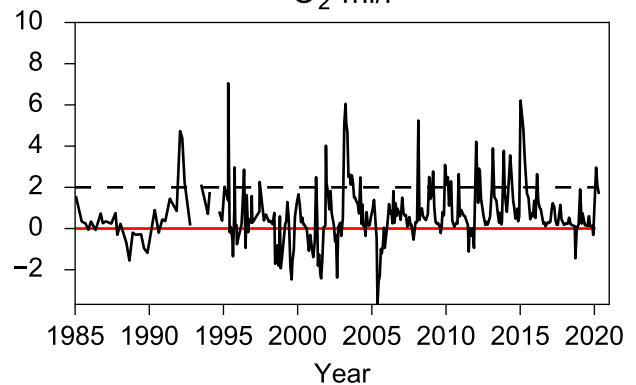


OXYGEN IN BOTTOM WATER (depth >= 70 m)

O₂ ml/l



O₂ ml/l

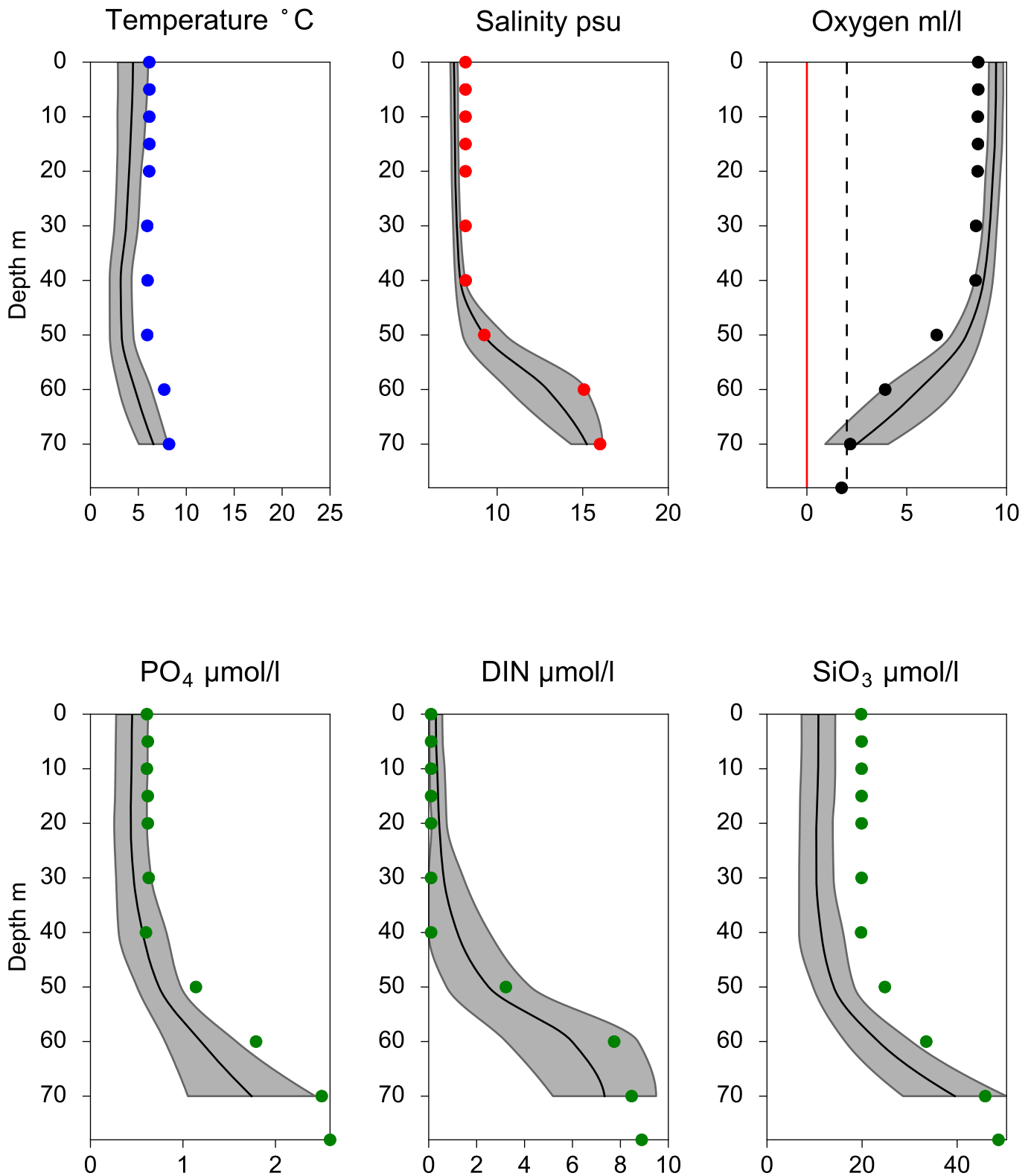


Vertical profiles HANÖBUKTEN April

— Mean 2001-2015

■ St.Dev.

● 2020-04-16



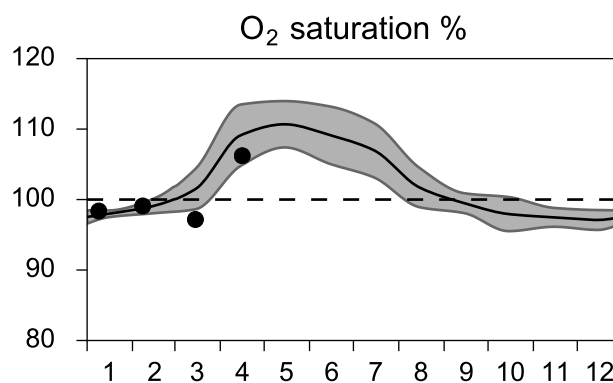
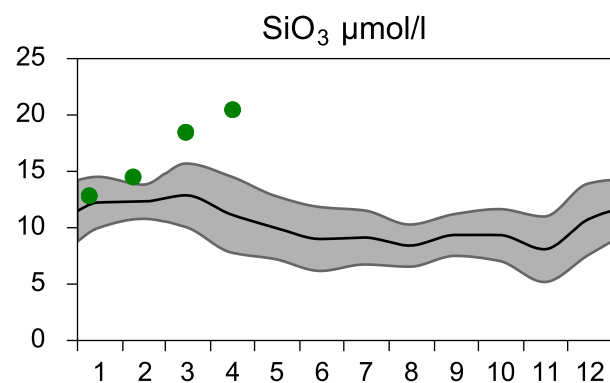
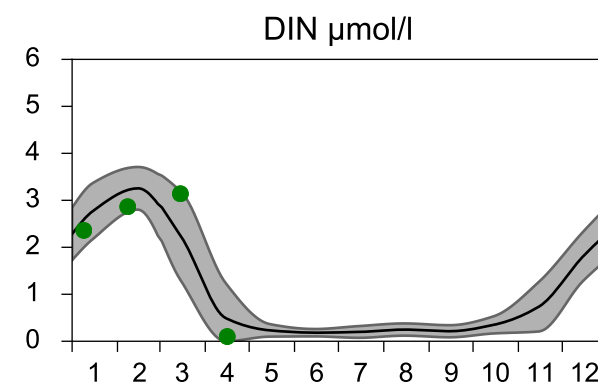
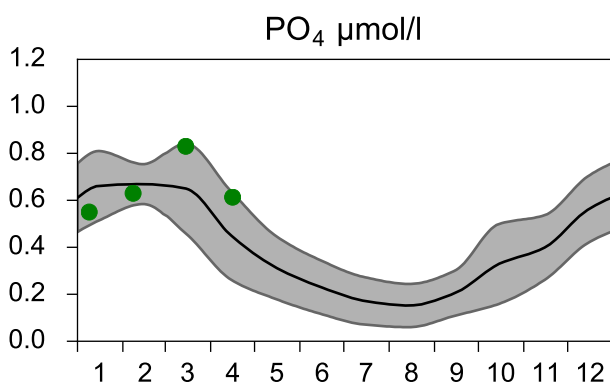
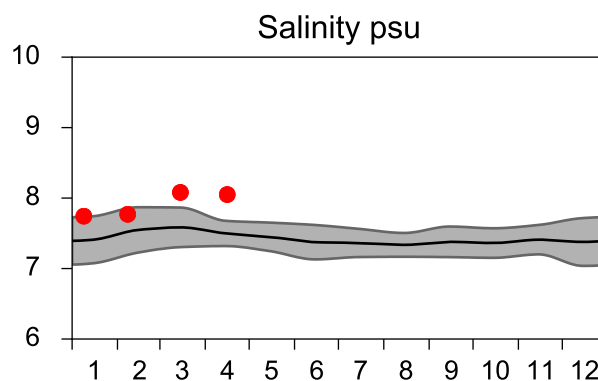
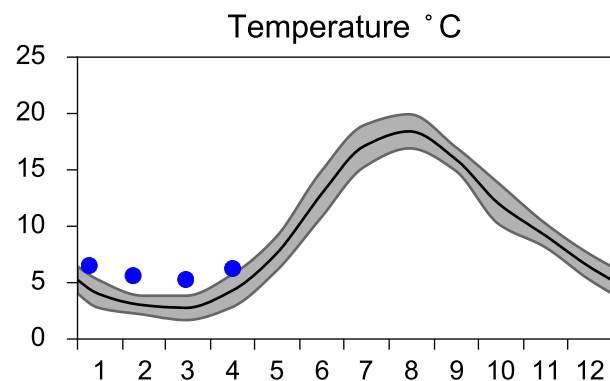
STATION BY4 CHRISTIANSÖ SURFACE WATER (0-10 m)

Annual Cycles

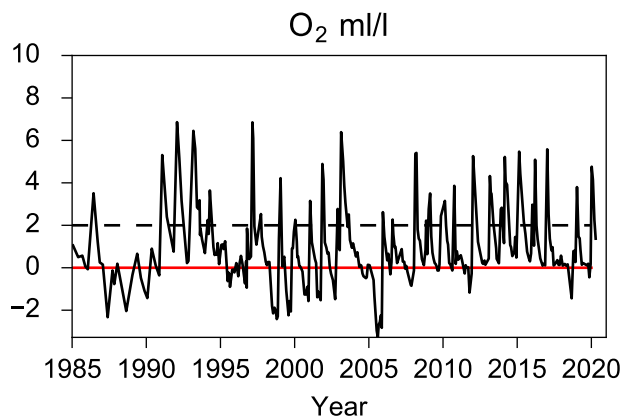
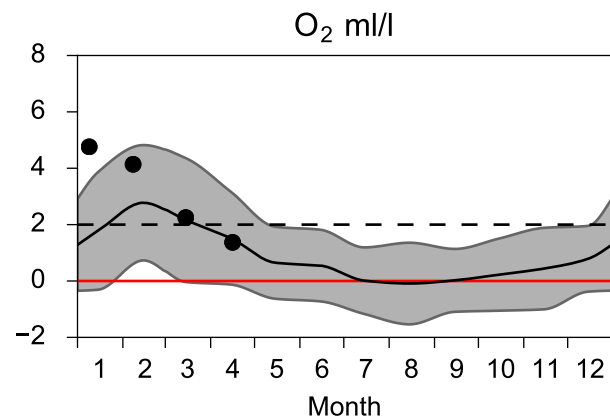
— Mean 2001-2015

■ St.Dev.

● 2020



OXYGEN IN BOTTOM WATER (depth >= 80 m)

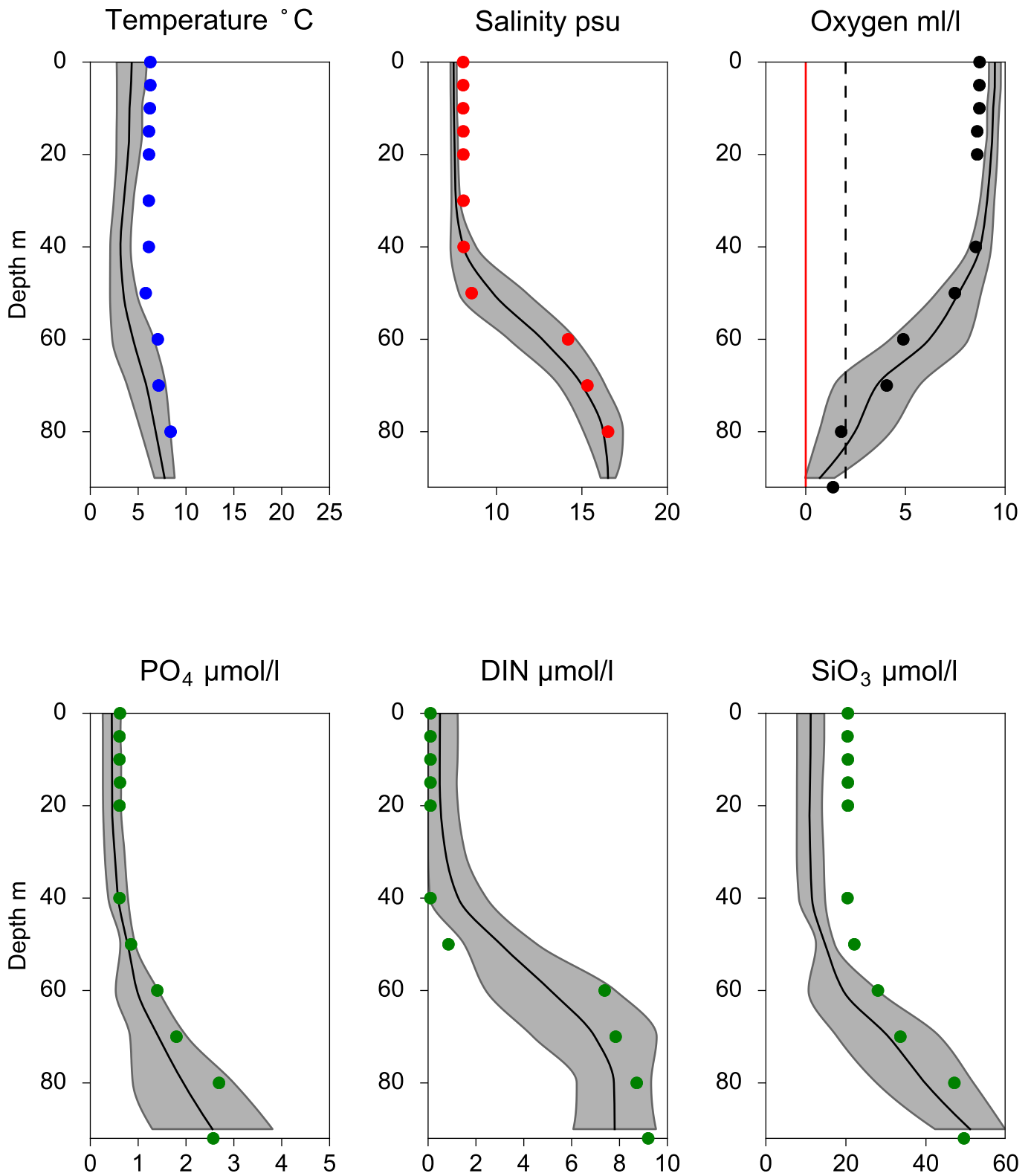


Vertical profiles BY4 CHRISTIANSÖ April

— Mean 2001-2015

■ St.Dev.

● 2020-04-16



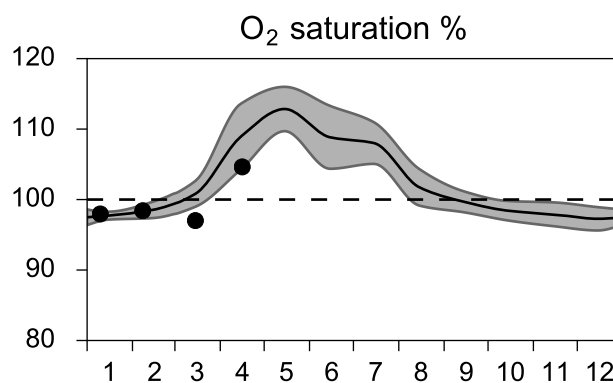
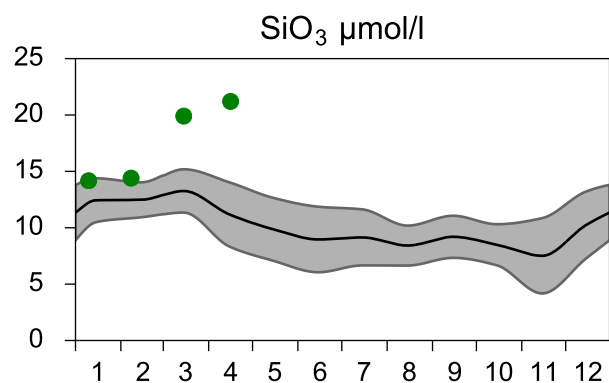
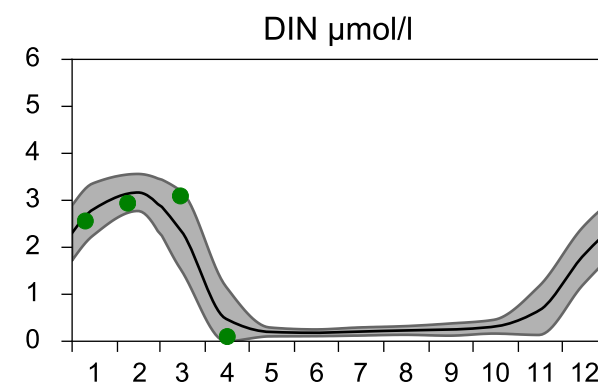
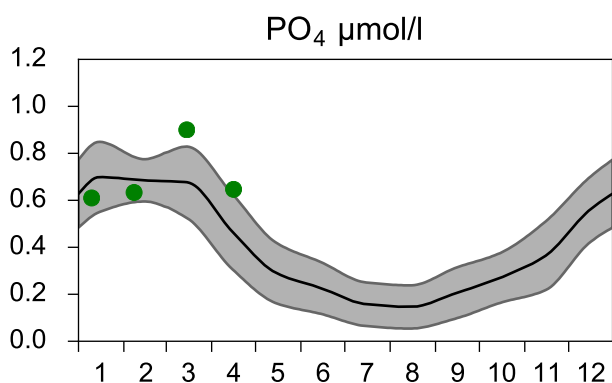
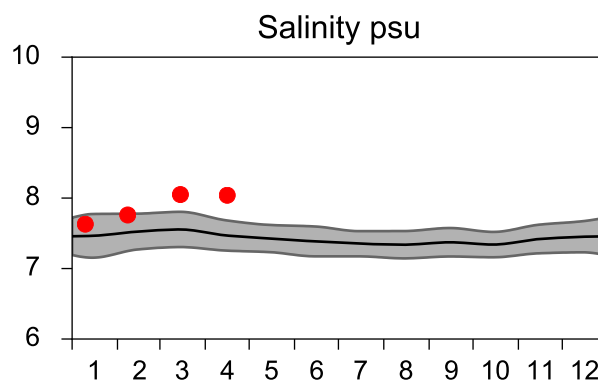
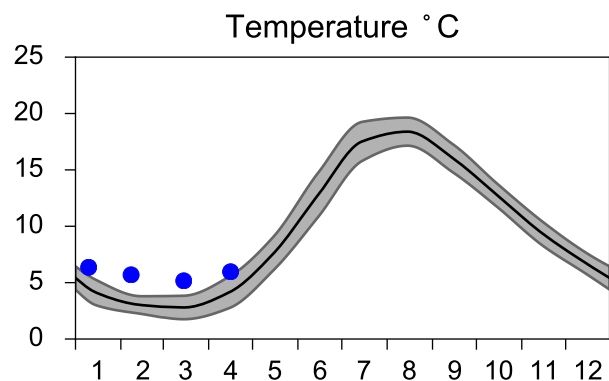
STATION BY5 BORNHOLMSDJ SURFACE WATER (0-10 m)

Annual Cycles

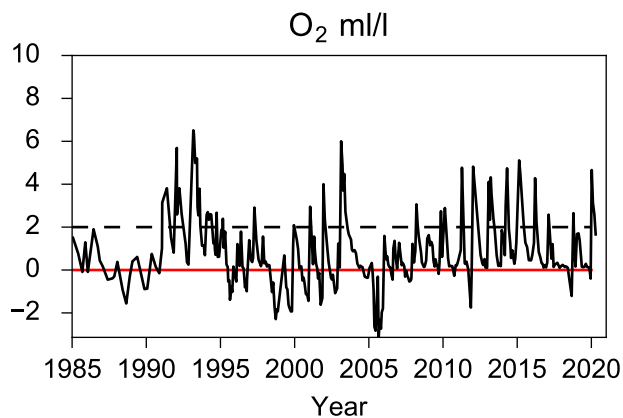
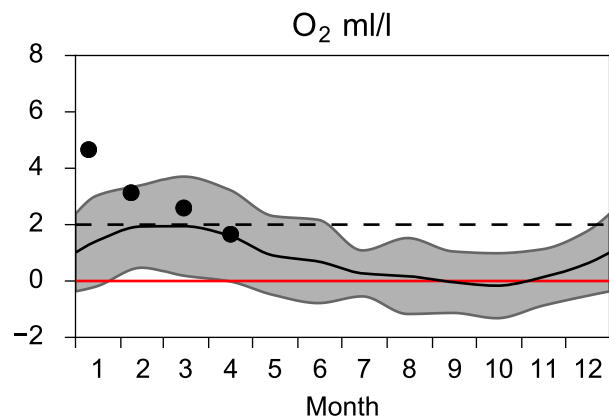
— Mean 2001-2015

■ St.Dev.

● 2020

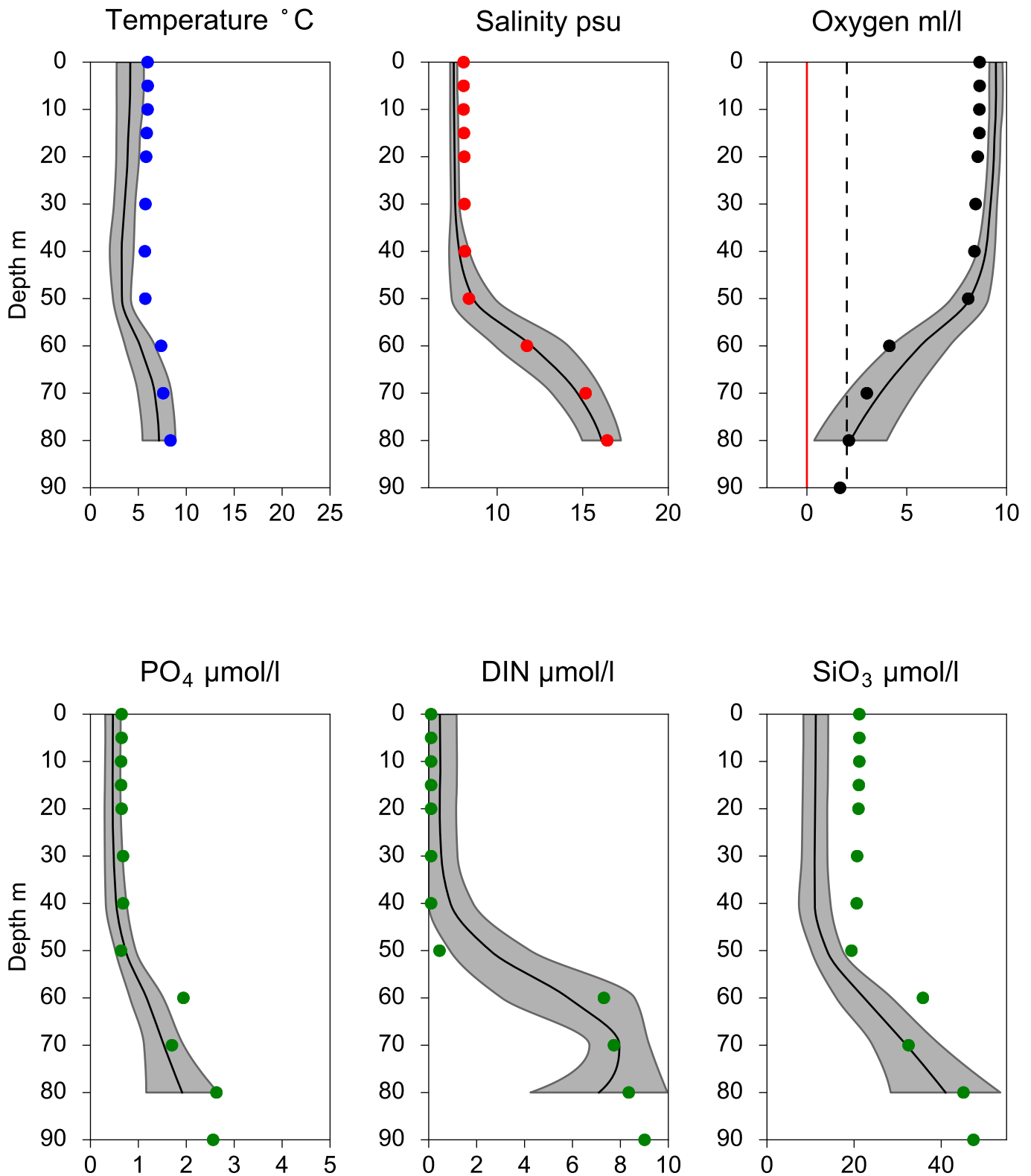


OXYGEN IN BOTTOM WATER (depth >= 80 m)



Vertical profiles BY5 BORNHOLMSDJ April

— Mean 2001-2015 St.Dev. • 2020-04-16



STATION BCS III-10 SURFACE WATER (0-10 m)

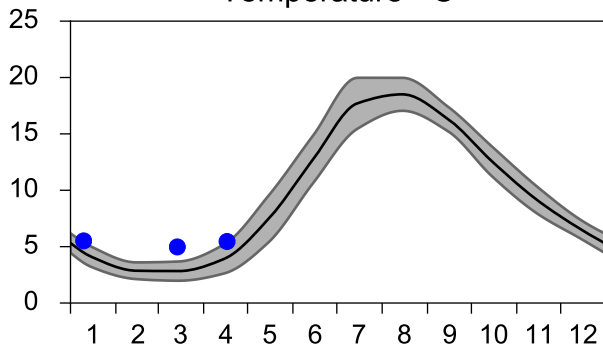
Annual Cycles

— Mean 2001-2015

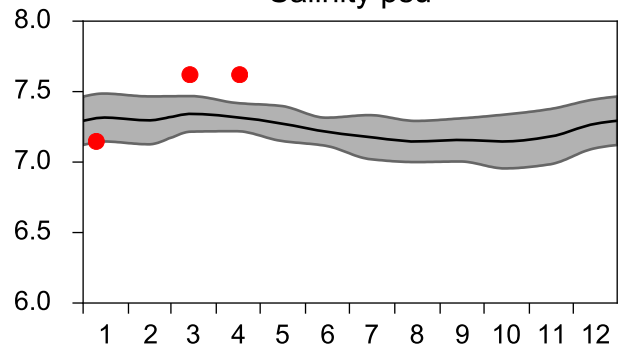
■ St.Dev.

● 2020

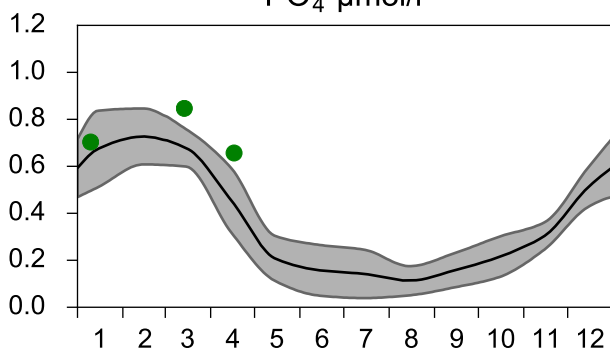
Temperature °C



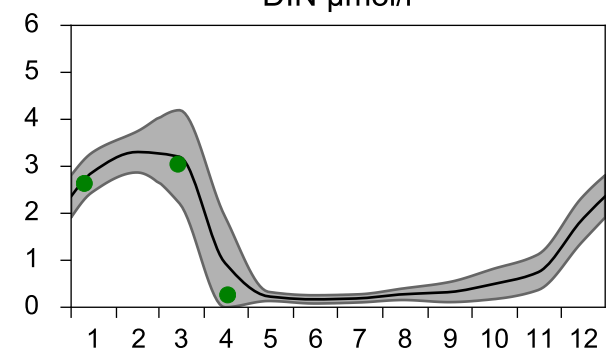
Salinity psu



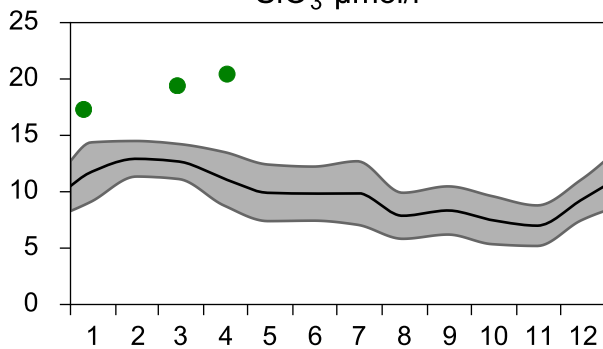
PO₄ μmol/l



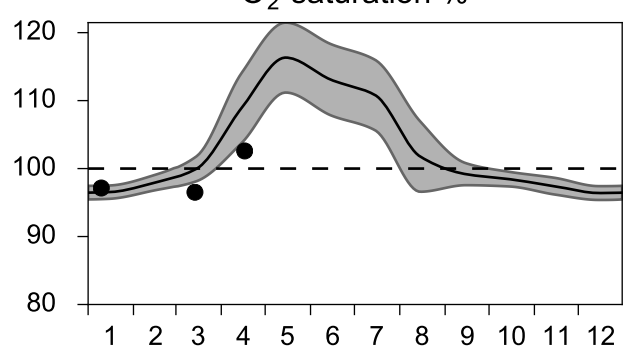
DIN μmol/l



SiO₃ μmol/l

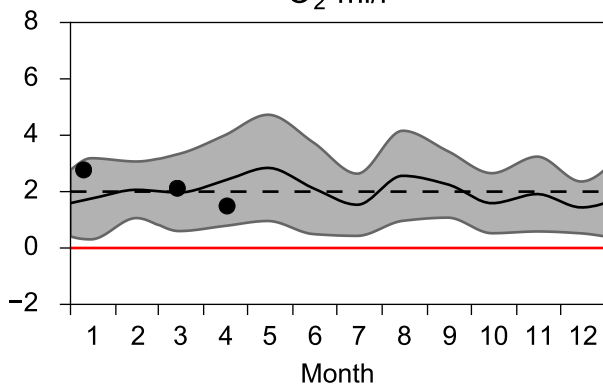


O₂ saturation %

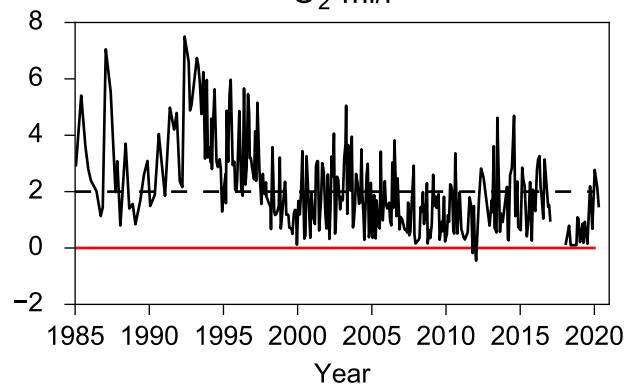


OXYGEN IN BOTTOM WATER (depth >= 80 m)

O₂ ml/l

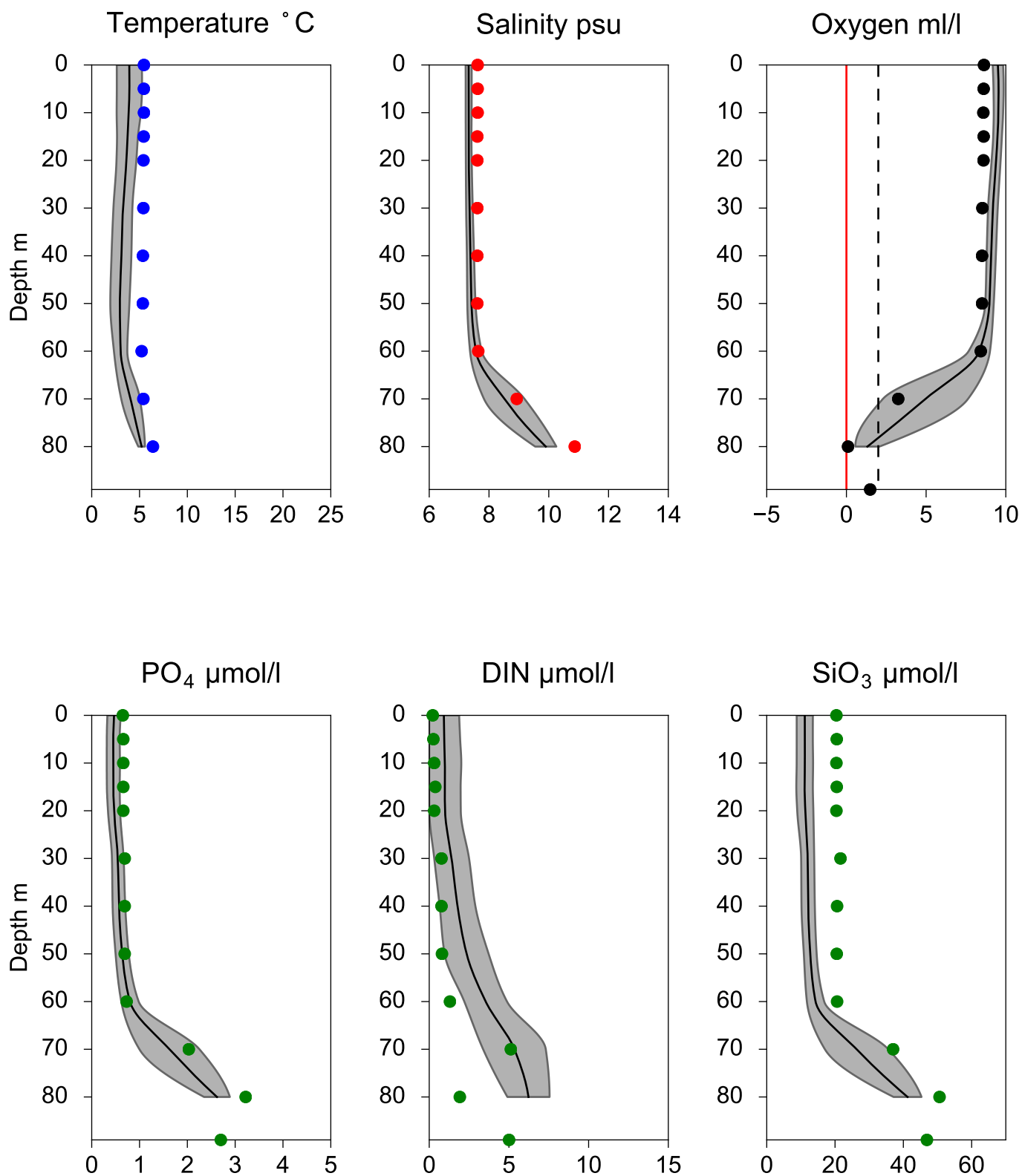


O₂ ml/l



Vertical profiles BCS III-10 April

— Mean 2001-2015 St.Dev. • 2020-04-17



STATION BY10 SURFACE WATER (0-10 m)

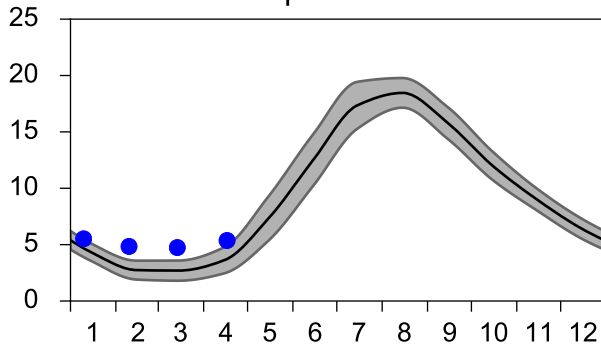
Annual Cycles

— Mean 2001-2015

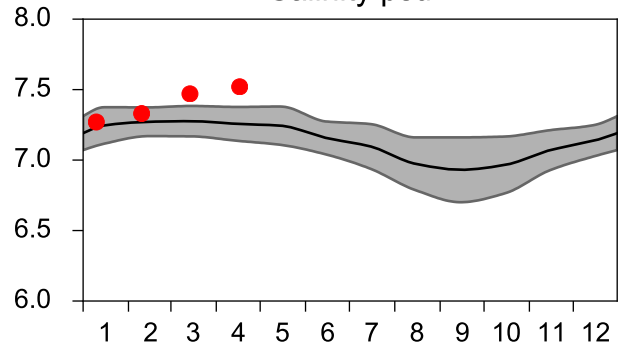
■ St.Dev.

● 2020

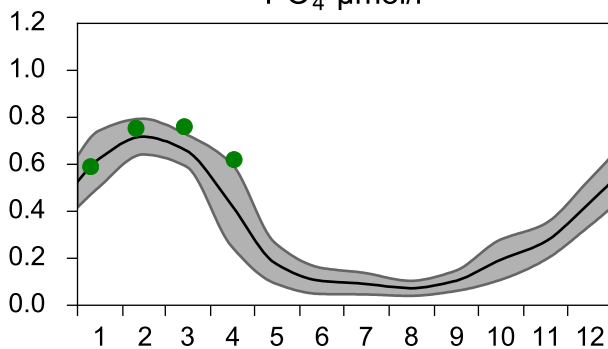
Temperature °C



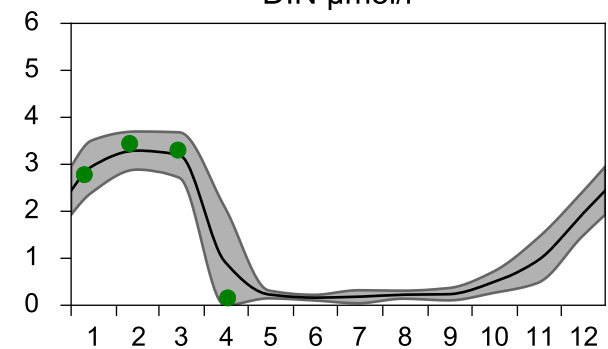
Salinity psu



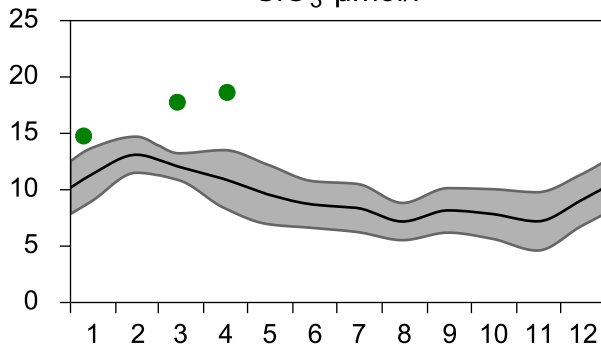
PO₄ μmol/l



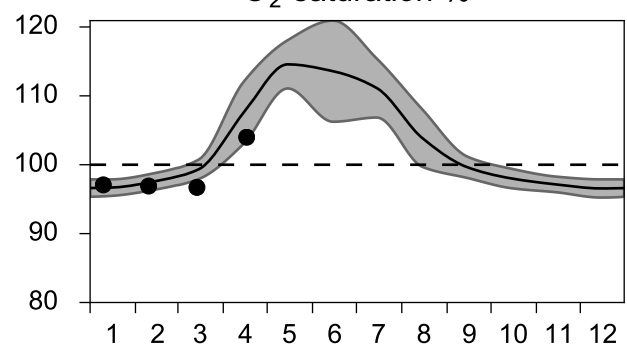
DIN μmol/l



SiO₃ μmol/l

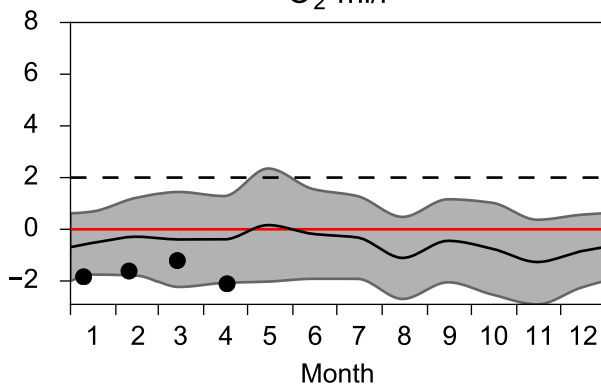


O₂ saturation %

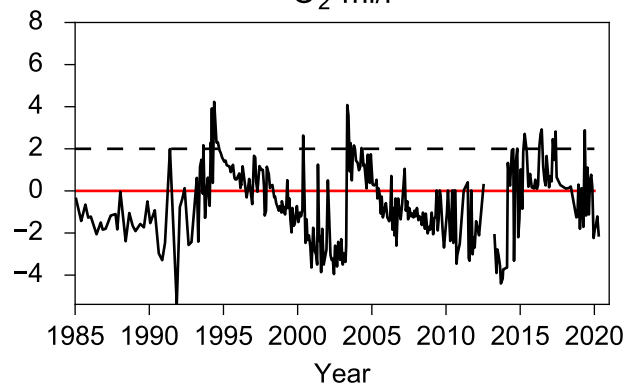


OXYGEN IN BOTTOM WATER (depth ≥ 125 m)

O₂ ml/l

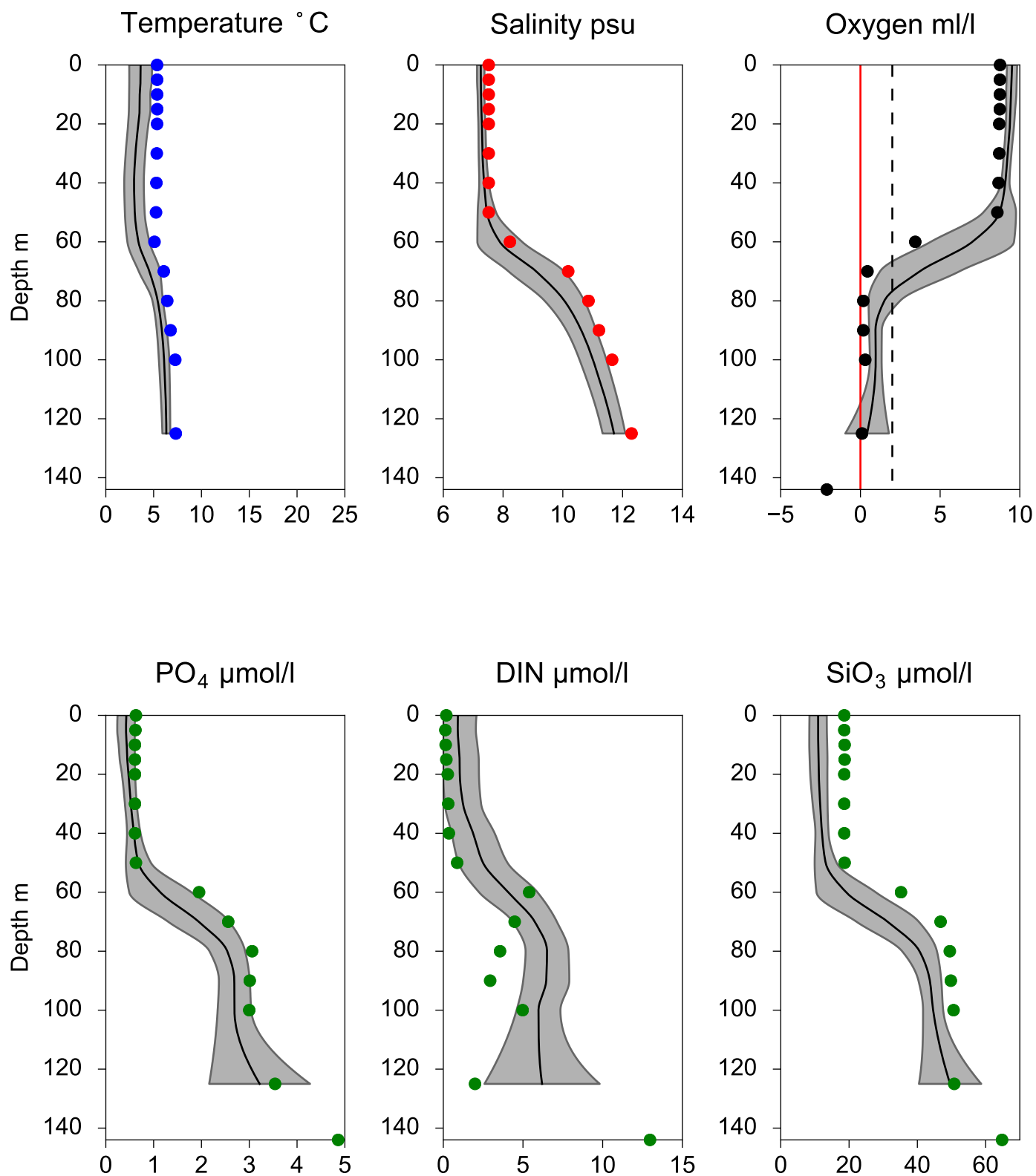


O₂ ml/l



Vertical profiles BY10 April

— Mean 2001-2015 ■ St.Dev. ● 2020-04-17



STATION BY15 GOTLANDSDJ SURFACE WATER (0-10 m)

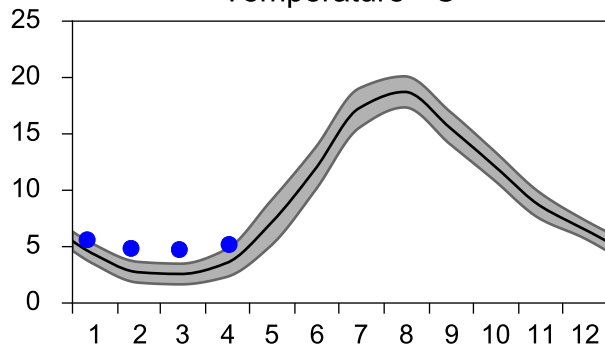
Annual Cycles

— Mean 2001-2015

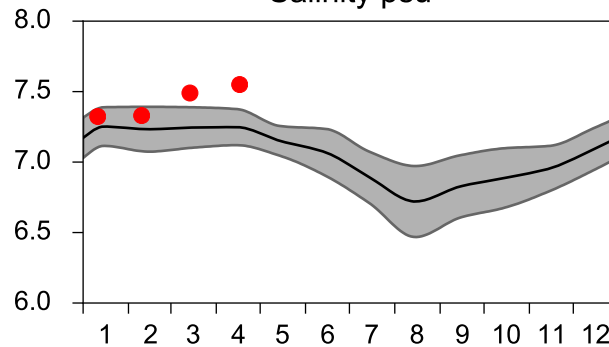
■ St.Dev.

● 2020

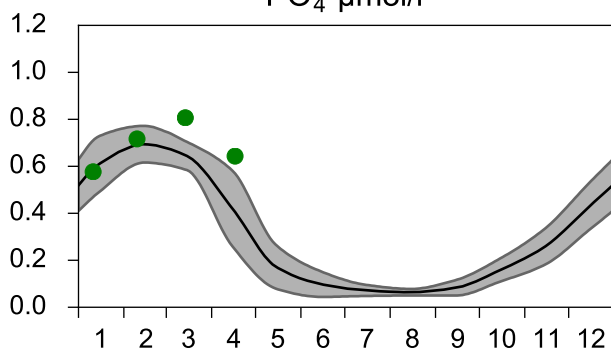
Temperature °C



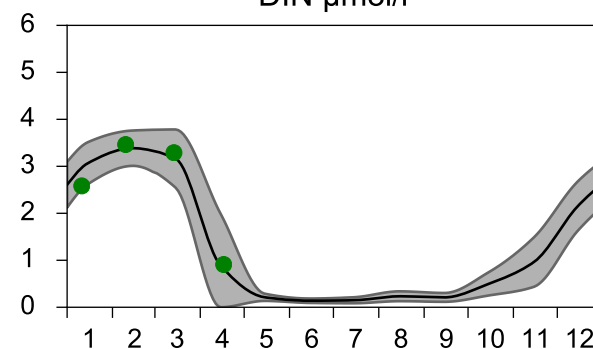
Salinity psu



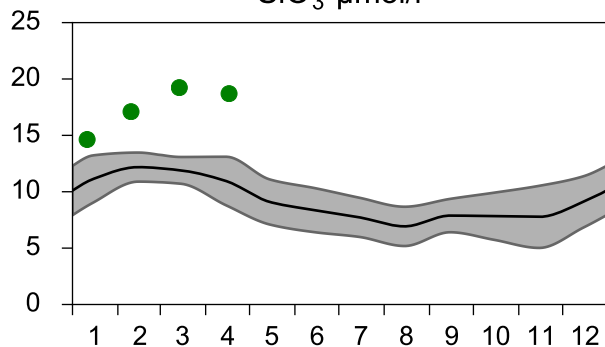
PO₄ µmol/l



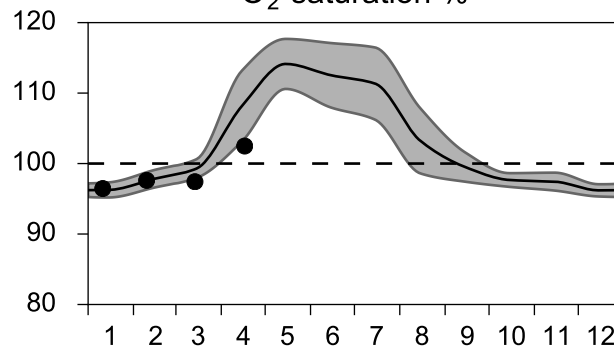
DIN µmol/l



SiO₃ µmol/l

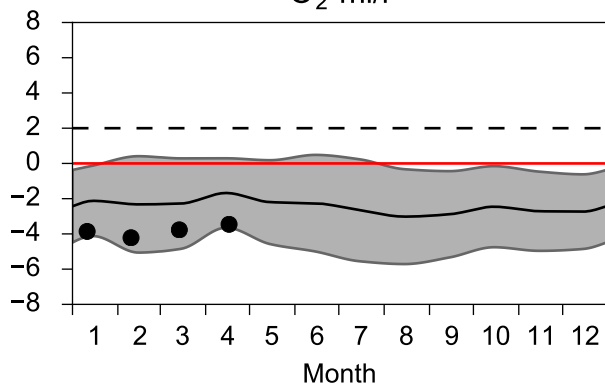


O₂ saturation %

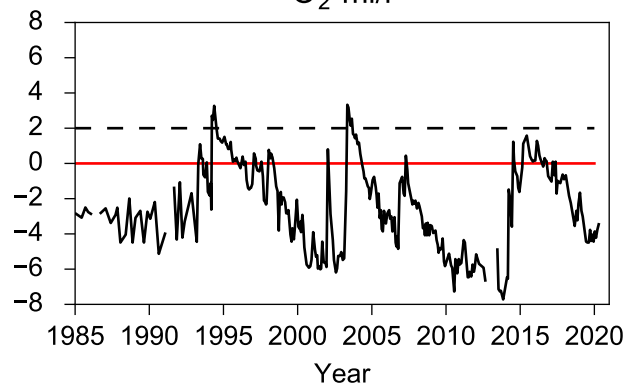


OXYGEN IN BOTTOM WATER (depth >= 225 m)

O₂ ml/l

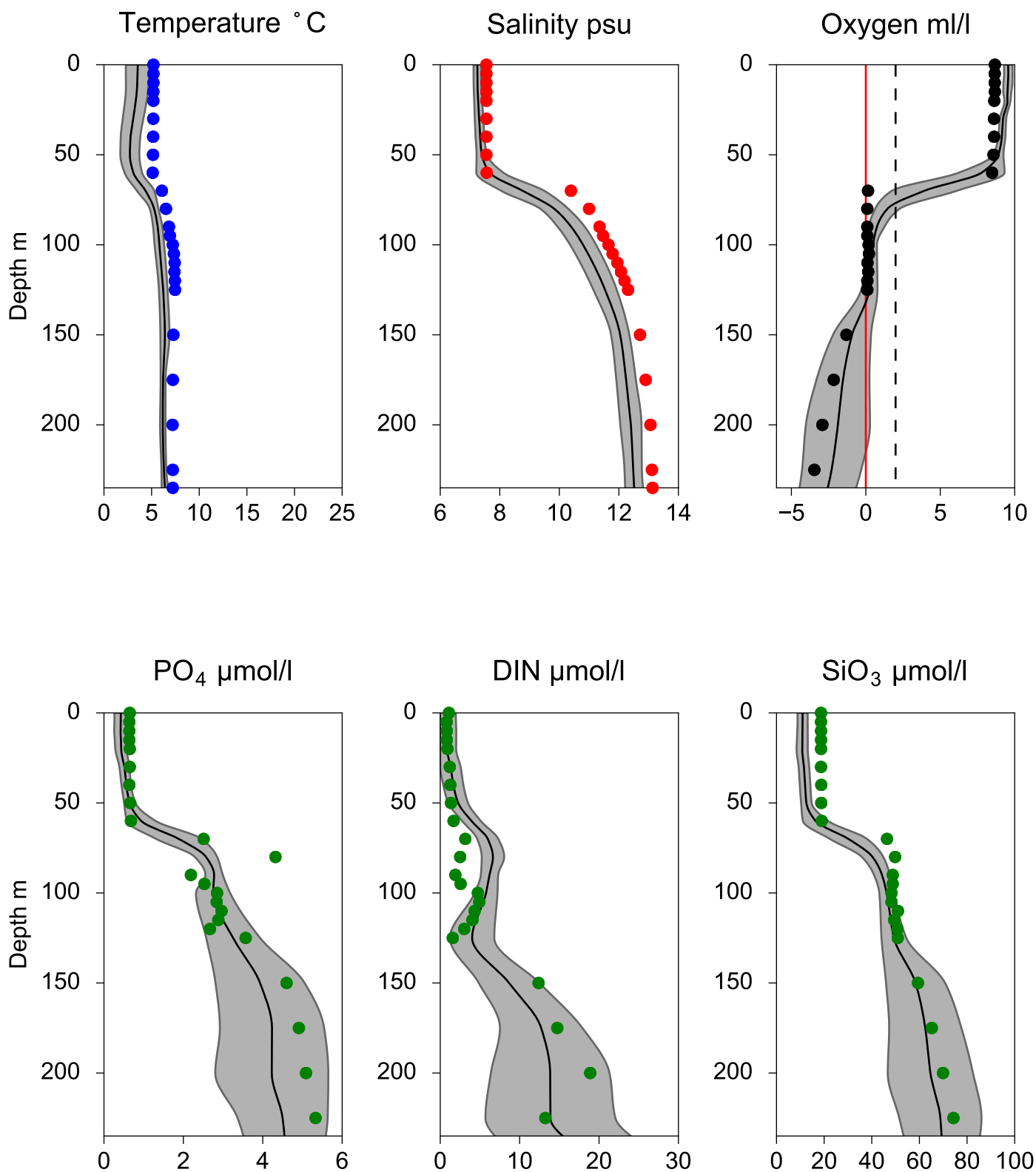


O₂ ml/l



Vertical profiles BY15 GOTLANDSDJ April

— Mean 2001-2015 St.Dev. • 2020-04-17



STATION BY20 FÅRÖDJ SURFACE WATER (0-10 m)

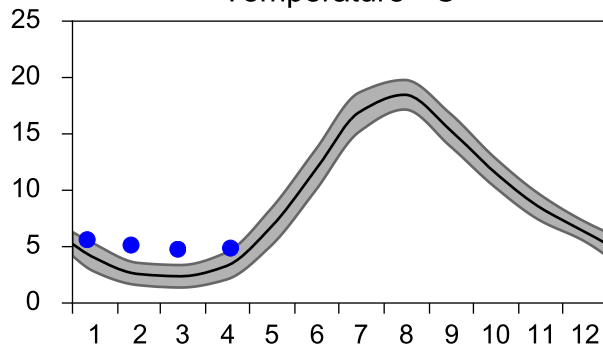
Annual Cycles

— Mean 2001-2015

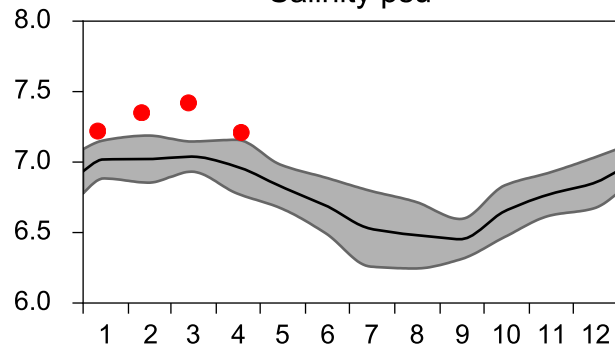
■ St.Dev.

● 2020

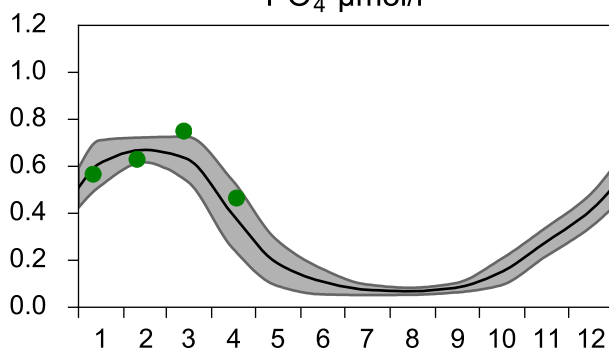
Temperature °C



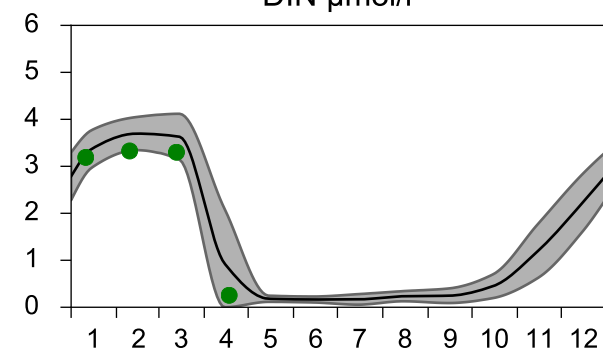
Salinity psu



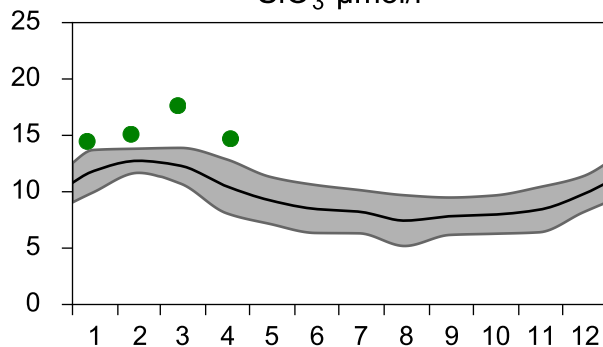
PO₄ µmol/l



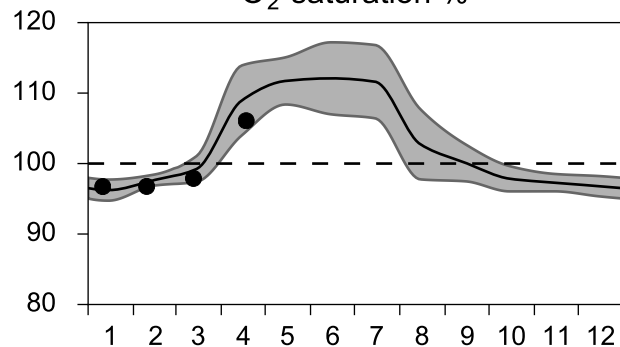
DIN µmol/l



SiO₃ µmol/l

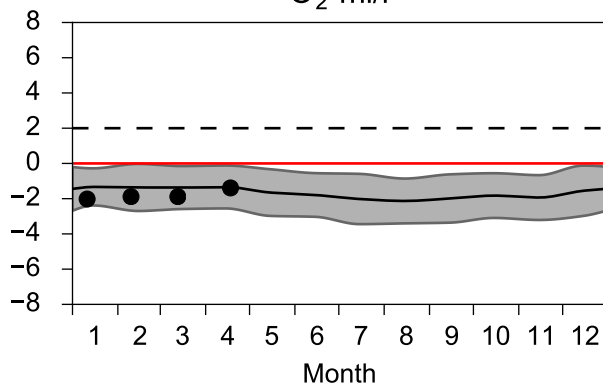


O₂ saturation %

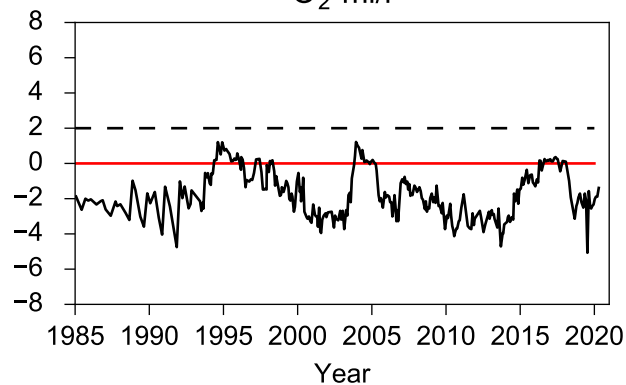


OXYGEN IN BOTTOM WATER (depth >= 175 m)

O₂ ml/l



O₂ ml/l

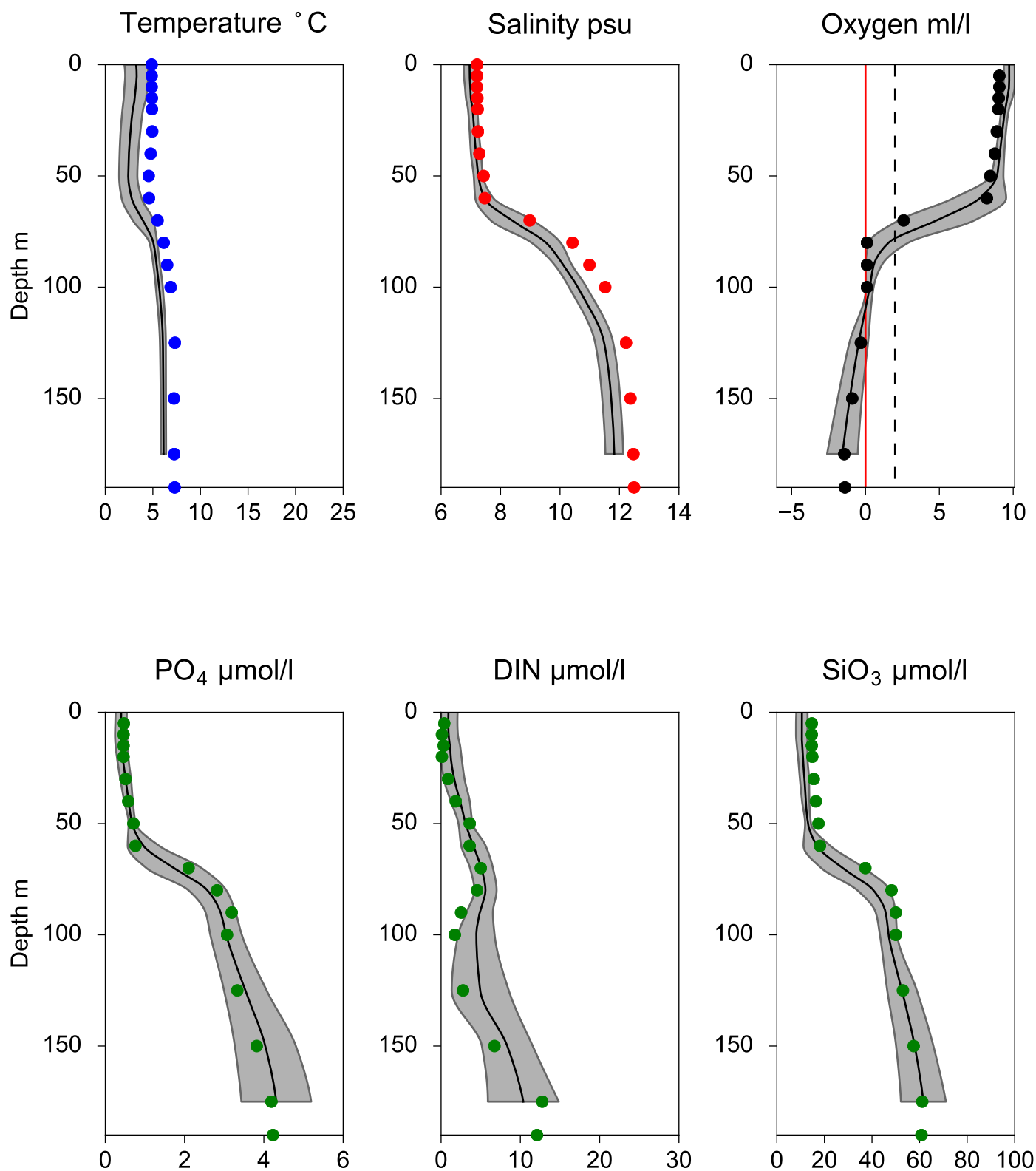


Vertical profiles BY20 FÅRÖDJ April

— Mean 2001-2015

■ St.Dev.

● 2020-04-18



STATION BY32 NORRKÖPINGSDJ SURFACE WATER (0-10 m)

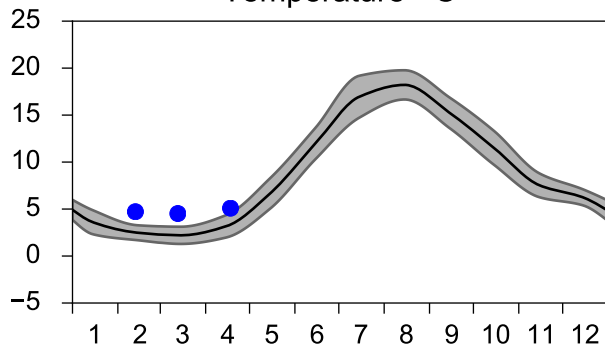
Annual Cycles

— Mean 2001-2015

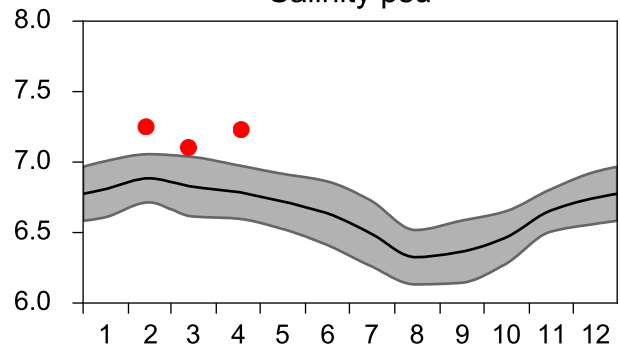
■ St.Dev.

● 2020

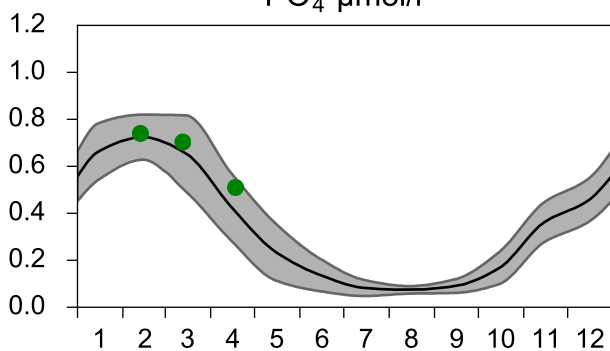
Temperature °C



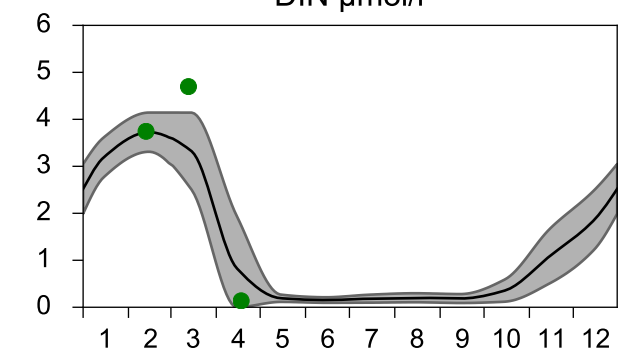
Salinity psu



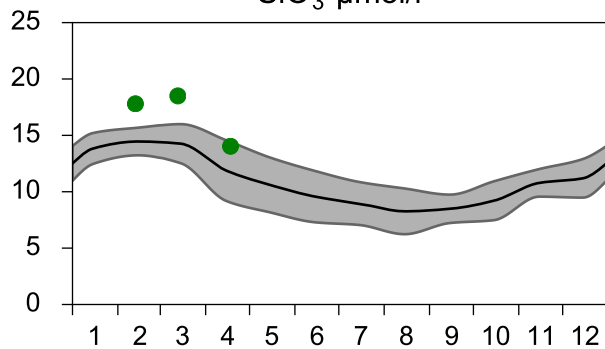
PO₄ μmol/l



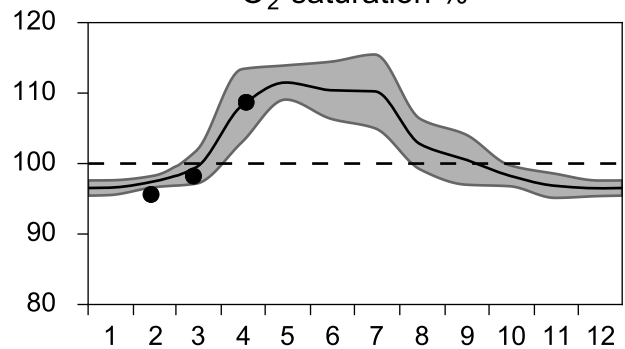
DIN μmol/l



SiO₃ μmol/l

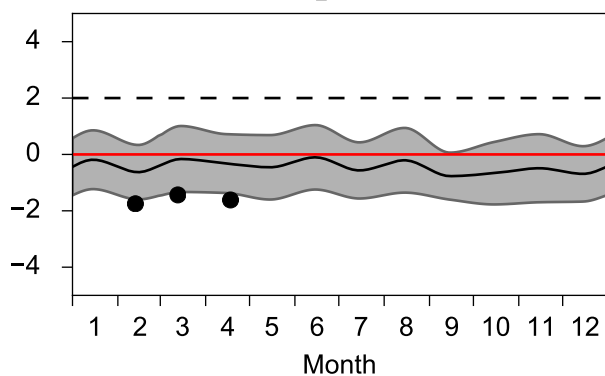


O₂ saturation %

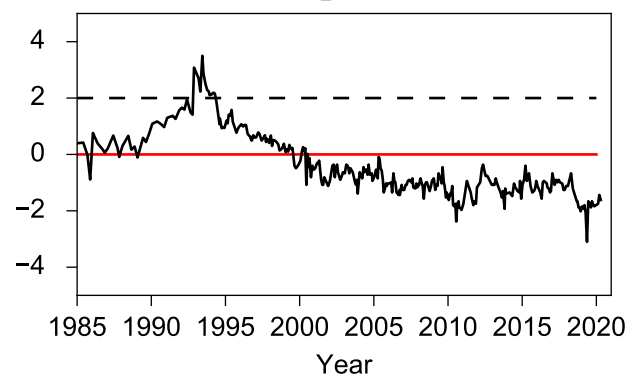


OXYGEN IN BOTTOM WATER (depth >= 175 m)

O₂ ml/l



O₂ ml/l

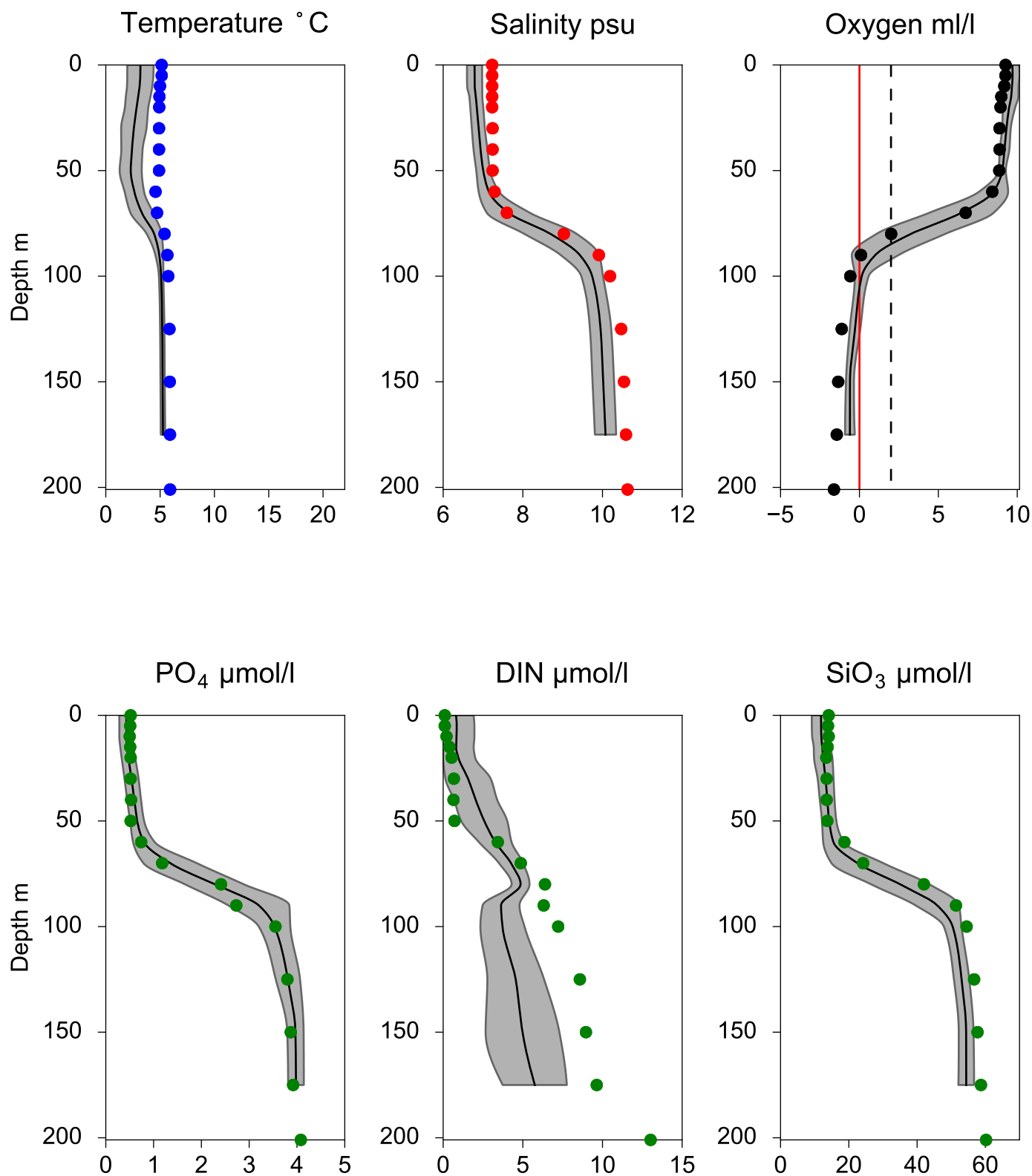


Vertical profiles BY32 NORRKÖPINGSDJ April

— Mean 2001-2015

■ St.Dev.

● 2020-04-18



STATION BY38 KARLSÖDJ SURFACE WATER (0-10 m)

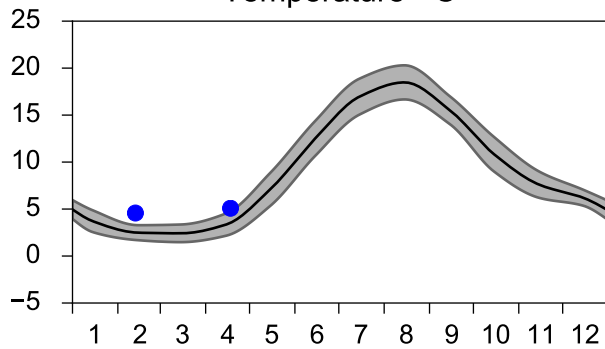
Annual Cycles

— Mean 2001-2015

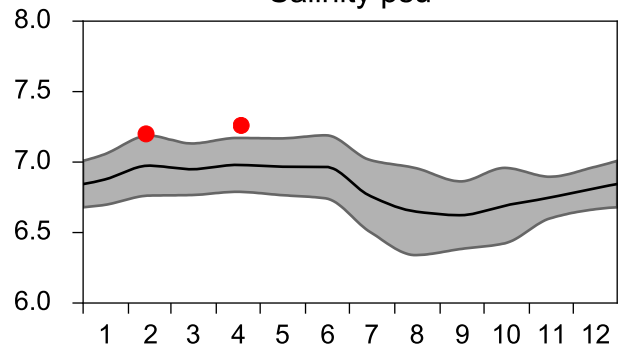
■ St.Dev.

● 2020

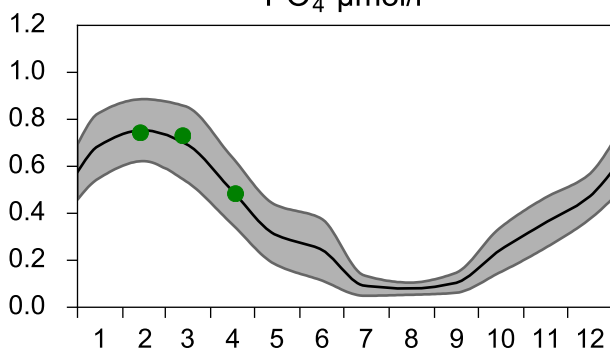
Temperature °C



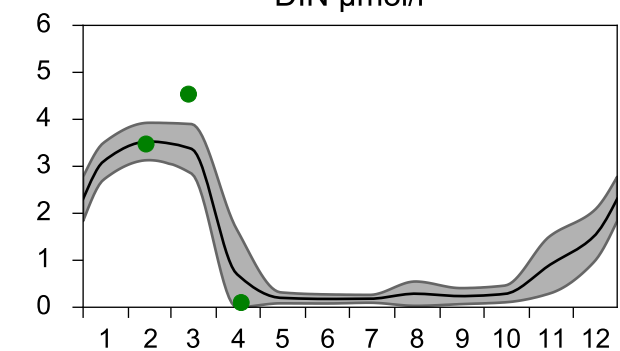
Salinity psu



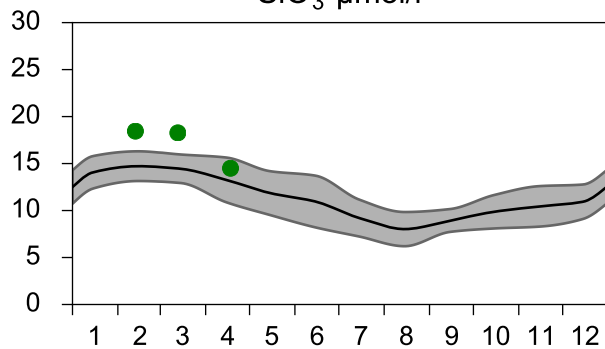
PO₄ μmol/l



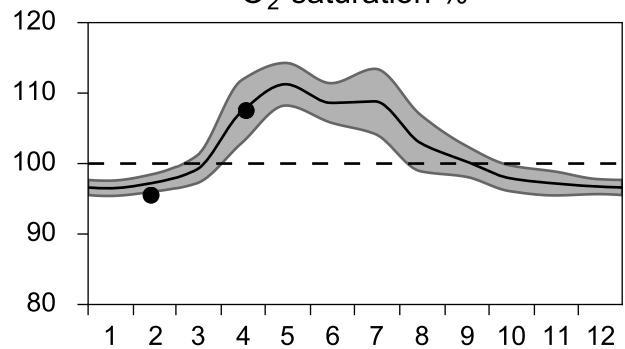
DIN μmol/l



SiO₃ μmol/l

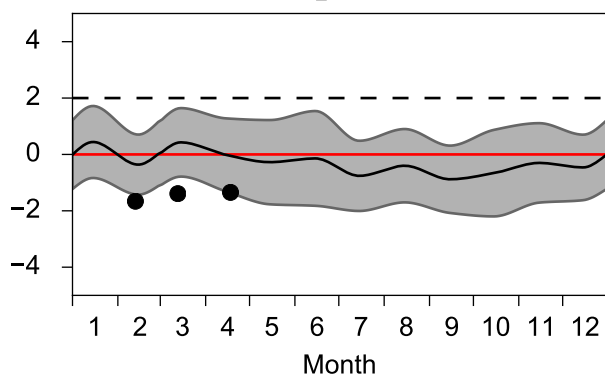


O₂ saturation %

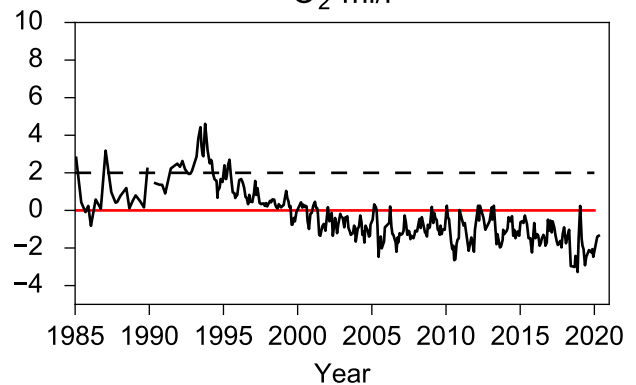


OXYGEN IN BOTTOM WATER (depth >= 100 m)

O₂ ml/l



O₂ ml/l

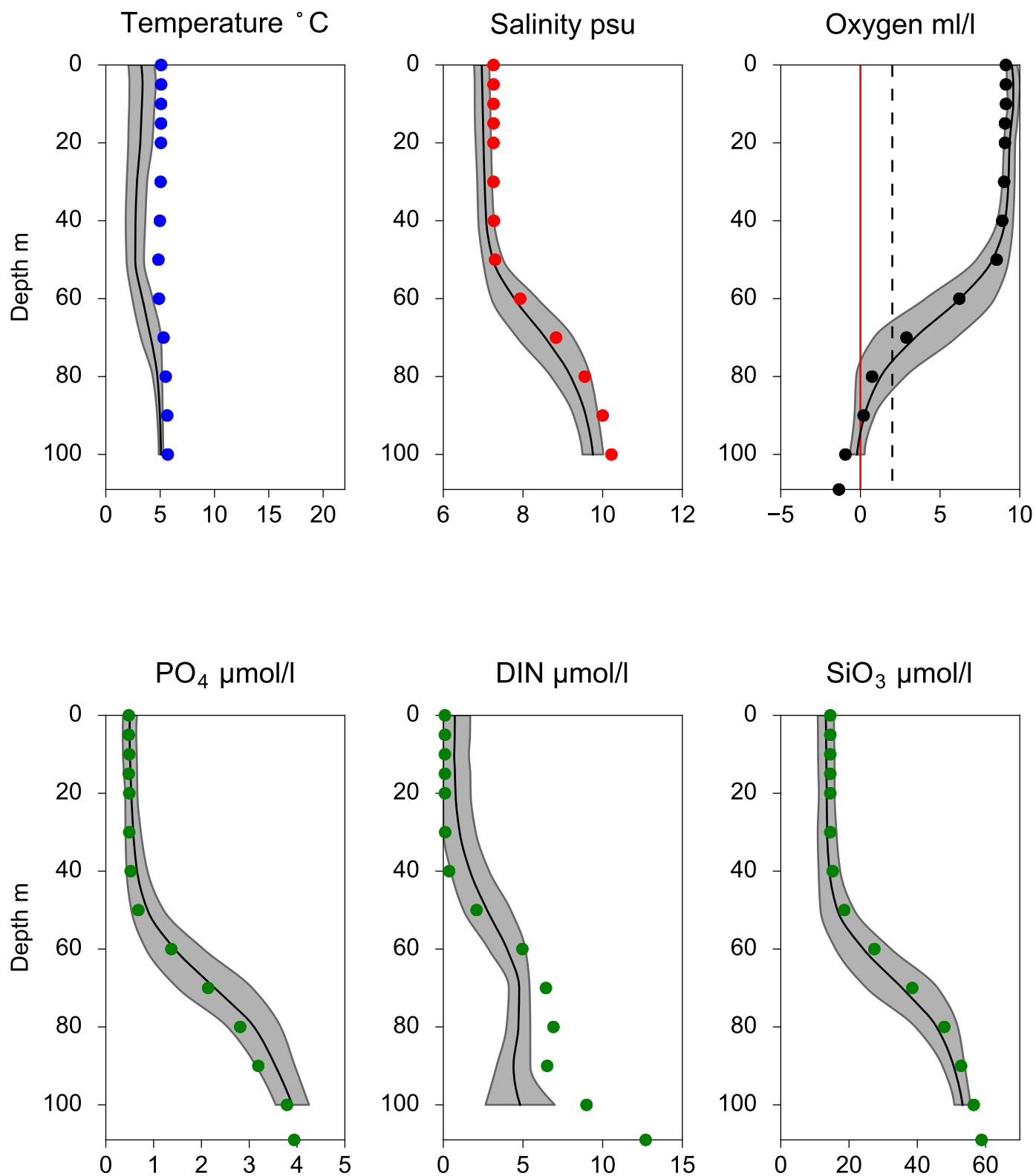


Vertical profiles BY38 KARLSÖDJ April

— Mean 2001-2015

■ St.Dev.

● 2020-04-18



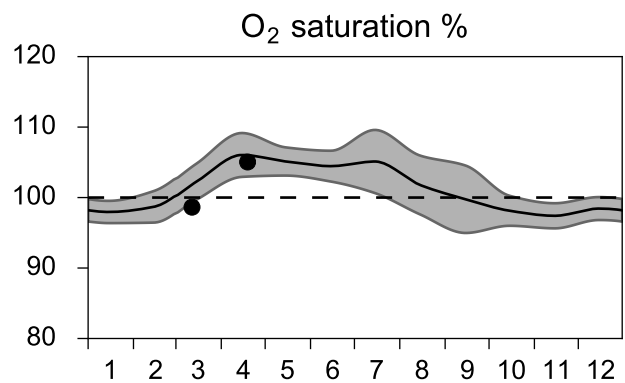
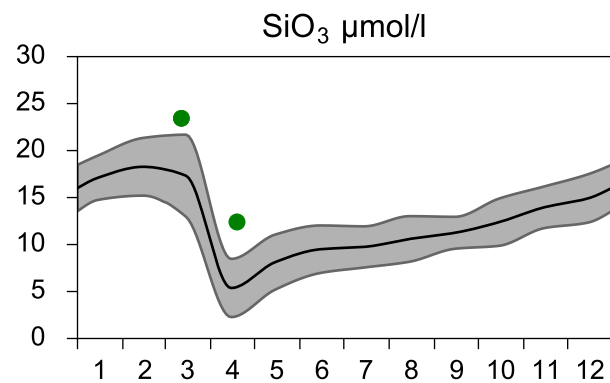
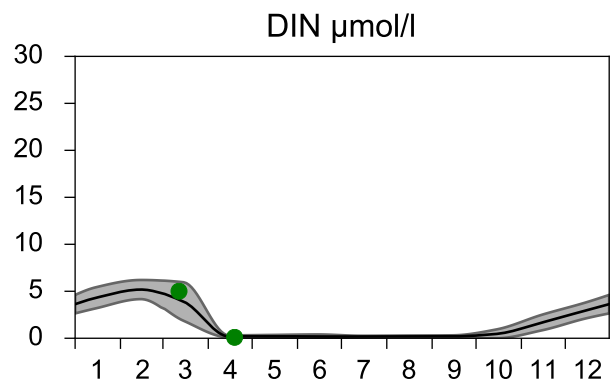
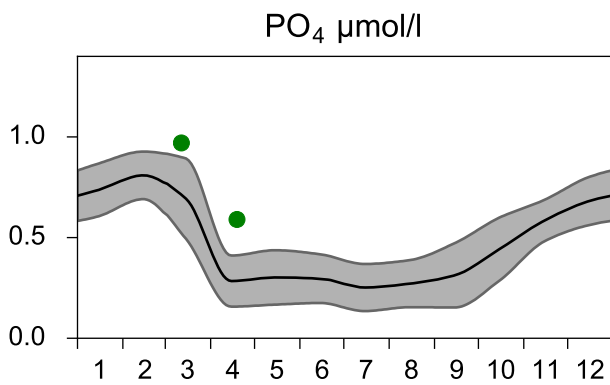
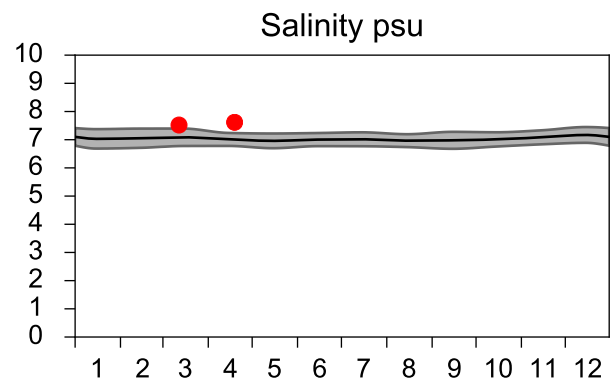
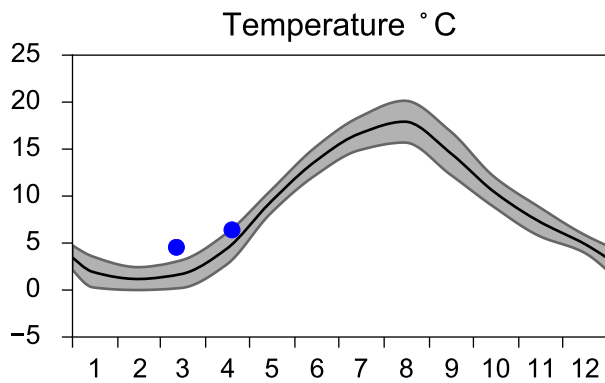
STATION REF M1V1 SURFACE WATER (0-10 m)

Annual Cycles

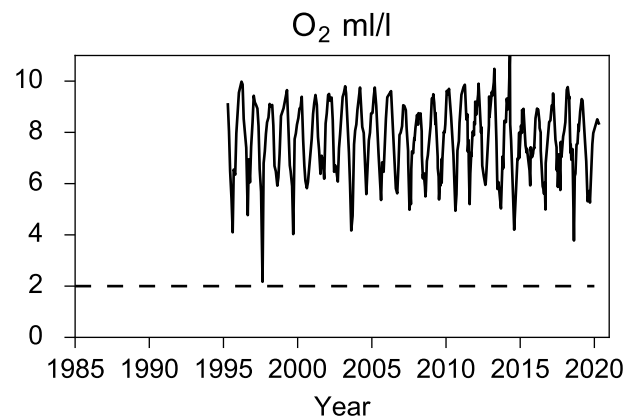
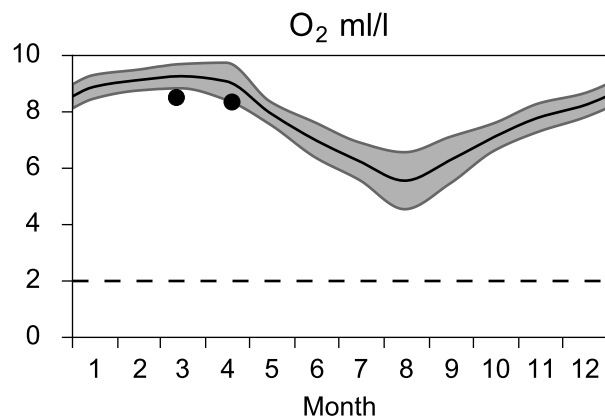
— Mean 2001-2015

■ St.Dev.

● 2020



OXYGEN IN BOTTOM WATER (depth >= 15 m)



Vertical profiles REF M1V1 April

— Mean 2001-2015

■ St.Dev.

● 2020-04-19

