Örjan Bäck
Johan Kronsell

Swedish Meteorological and Hydrological Institute
Oceanographic Laboratory

2018-02-07
Dnr: S/Gbg-2018-10

Report from the SMHI monitoring cruise with M/V Meri

Survey period: 2018-01-24 - 2018-02-04
Principal: Swedish Meteorological and Hydrological Institute (SMHI), Swedish Agency for Marine and Water Management (SwAM)
Cooperation partners: Finnish Environment Institute (SYKE), VG-Shipping

SUMMARY

During the cruise, which is part of the Swedish national marine monitoring programme, stations in the Skagerrak, the Kattegat, the Sound, the Baltic Proper and the Sea of Åland were visited. In the Kattegat, the Sound and the Baltic Proper the winter pool of nutrients was mapped.

In large areas of the Baltic Proper, the oxygen concentration in the deep water was close to zero. Anoxic conditions, when hydrogen sulfide can form, were found in the Western Gotland Basin from 80 meters depth and from 90-125 meters in the northern parts. In the Eastern Gotland Basin low levels of hydrogen sulfide were found, but only close to the bottom. Acute hypoxia (oxygen < 2ml/l) was found in the Bornholm Basin, and in the Bight of Hanö at about 40-50 meters depth, in southeastern Baltic Proper at 60 meters, and in Eastern and Western Gotland Basin at 70 meters depth. In the Arkona Basin the oxygen concentration closest to the bottom was about 3.5 ml/l.

The surface concentration of dissolved inorganic nitrogen (DIN) and dissolved inorganic phosphorus (DIP) was in general on normal levels for all of the areas monitored. The silicate concentration in all of the Baltic Proper was still above normal.

The next cruise is planned to start in the middle of March.

Adress:
Sven Källfelts Gata 15
426 71 Västra Frölunda

Telefon:
011-495 80 00

E-post:
johan.kronsell@smhi.se
WWW:
http://www.smhi.se/

RESULTS

The planned January and February cruise were combined into a somewhat longer cruise. It was conducted aboard the Finnish vessel Meri, and it started in Gothenburg on the 24th of January and ended in the same port the 4th of February.

The winds were mostly fresh from southwest during the cruise, but changed to strong northerly winds in the Skagerrak at the end of the cruise. The temperature was somewhat above 0 °C for most of the cruise, but dropped below 0 °C in the Kattegat and the Skagerrak.

No primary production was measured during the cruise due to problems with water temperature in the incubator.

This report is based on data that have passed a first quality control. When data are published at the National Oceanographic Data Centre some values might have changed after further quality controls have been performed. Data from this cruise will be published as soon as possible on the data center's webpage, normally within a week after the cruise.

Download data here: http://www.smhi.se/klimatdata/oceanografi/havsmiljodata (only available in Swedish).

The Skagerrak

The surface water temperature was for the season normal, and varied between 3-5.2 °C. Below the cooled surface water, temperatures were, for the season, above normal at the offshore stations. The salinity was normal, around 24 psu in the surface close to the coast and up to 31 psu at Å17. Thermocline and halocline coincided at all stations, and was found at 7-12 meters depth.

Nutrients in the form of dissolved inorganic nitrogen, DIN (the sum of nitrate, nitrite and ammonia), were on normal levels for the season in the surface water. Values varied between 10-11 µmol/l, except at Å17, where the concentration was 6.3 µmol/l. Concentrations below normal was in general found in the water mass below the stratification. Concentrations of dissolved inorganic phosphorus, DIP, in the water column were also on normal levels, between 0.6-0.7 µmol/l. Silicate concentrations were higher than normal for the season in the surface water at the stations P2, Å13 and Å15, and varied between 13-14.5 µmol/l. Otherwise concentrations were normal.

No large peaks in fluorescence were found, and this indicates low phytoplankton activity.

Oxygen conditions were good at all visited stations with normal concentrations for the season.

The Kattegat and the Sound

The water temperature was for the season normal. It was about 3.5 °C in the surface, somewhat higher, 4-5.5 °C in northwestern part of the Kattegat and about 4 °C in the southern Sound. Temperature increased with depth, and was slightly above 7 °C in the bottom water of the Kattegat, and just over 8 °C in the Sound. The salinity was for the season normal. It varied between 15 and 30 psu in the surface water of the Kattegat – highest in northwest, and lowest in the southwest. In the Sound the salinity was 12-15 psu in the surface and up to 32 psu at the bottom. Thermocline and halocline coincided at all stations, it was found at 10-20 meters depth at most stations, but somewhat more shallow in the Sound and at the western stations of the Kattegat.

Concentrations of DIN were for the season normal. The levels had increased since last measurements in December and varied between 5-6 µmol/l, with an exception for the station GF9 in the northwest, with 9 µmol/l. The DIP concentration in the surface water was 0.60-0.65 µmol/l, and a little higher, 0.7-0.8 µmol/l in the Sound. The concentration of both DIN and DIP increased somewhat with depth. DIN concentrations above normal were found at about 30 meters depth at Fladen. Silicate concentrations were above normal in the surface water, most obvious in the southeastern parts of the Kattegat, with concentrations of about 15 µmol/l and in the Sound with concentrations of about 17 µmol/l. The concentration in the surface water at the sampling points in the northwestern Kattegat was about 12 µmol/l.

Fluorescence measurements from the CTD showed low levels, which indicate low phytoplankton concentrations.

The deep water was well oxygenated in the whole area which is normal for the season. The oxygen concentrations near the bottom were generally above 6 ml/l. In the Sound it was just above 5 ml/l.

The Baltic Proper and the Sea of Åland

The surface water temperature was slightly above normal in the Baltic Proper. At the coastal station Ref M1V1 it was about 2.5 °C, and at the other stations the surface temperature was 4-4.5 °C. In the Sea of Åland the upper part of the water column was about 3 °C. Surface salinity in the Arkona Basin varied between 7.5-8.0 psu, and 7.0-7.5 psu in the other parts of the Baltic Proper. This is somewhat above normal for the Western Gotland Basin and normal of the rest of the Baltic Proper. In the Sea of Åland the surface salinity was slightly above 5.6 psu and at the station Tröskeln Ålands Hav it was 6.0 psu

The surface was cooled down and well mixed with a distinct surface layer – both thermocline and halocline coincided at stations in the Baltic Proper. In the Arkona basin the surface layer extended down to 40 meters, in the Bornholm Basin down to 45 meters, in the southeastern part of the Baltic Proper and in the Western Gotland Basin down to 60 meter and in the Eastern Gotland Basin down to between 70 and 80 meter. In the Sea of Åland there was a weak stratification at around 50 meters depth.

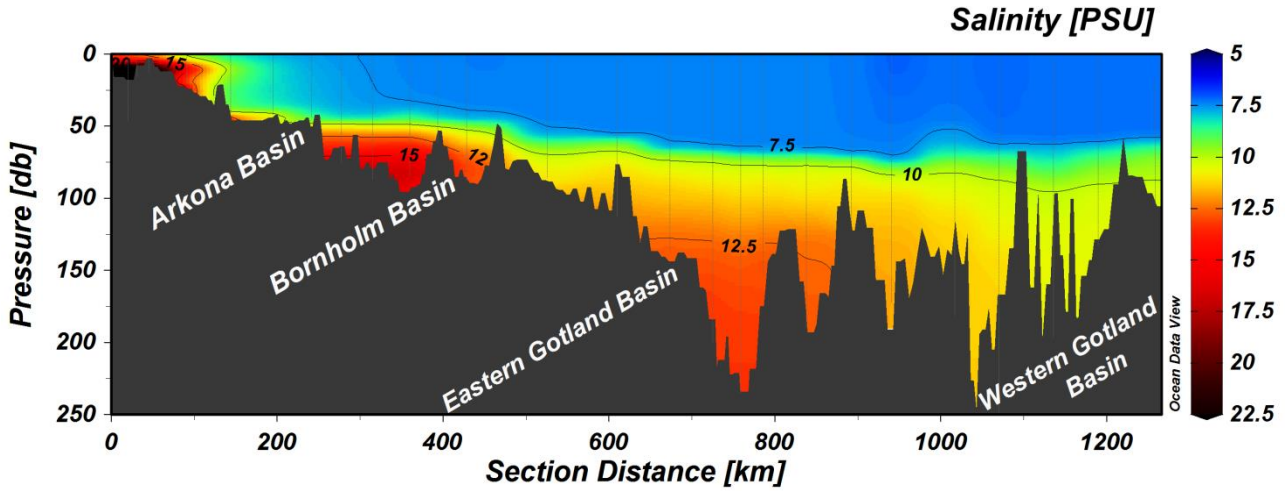
Nutrient concentrations of DIN and DIP in the surface layer were overall normal, but slightly above in southeastern part of the Baltic Proper and in the northern part of the Eastern Gotland Basin. Concentrations of DIN were between 2.5-4 µmol/l, except in the southeastern and northeastern part, where it was about 5-6.5 µmol/l. Concentration of DIP was around 0.5 µmol/l in the Sea of Åland, and between 0.65-0.90 µmol/l in the Baltic Proper. Highest concentrations were found in an around the Bight of Hanö. In the deep water, the concentrations of DIP were normal, or slightly below. Concentrations of DIN were normal, except for the Western Gotland Basin, where concentrations close to the bottom were higher, especially at BY38 where the concentration was 20 µmol/l in the samples closest to the bottom.

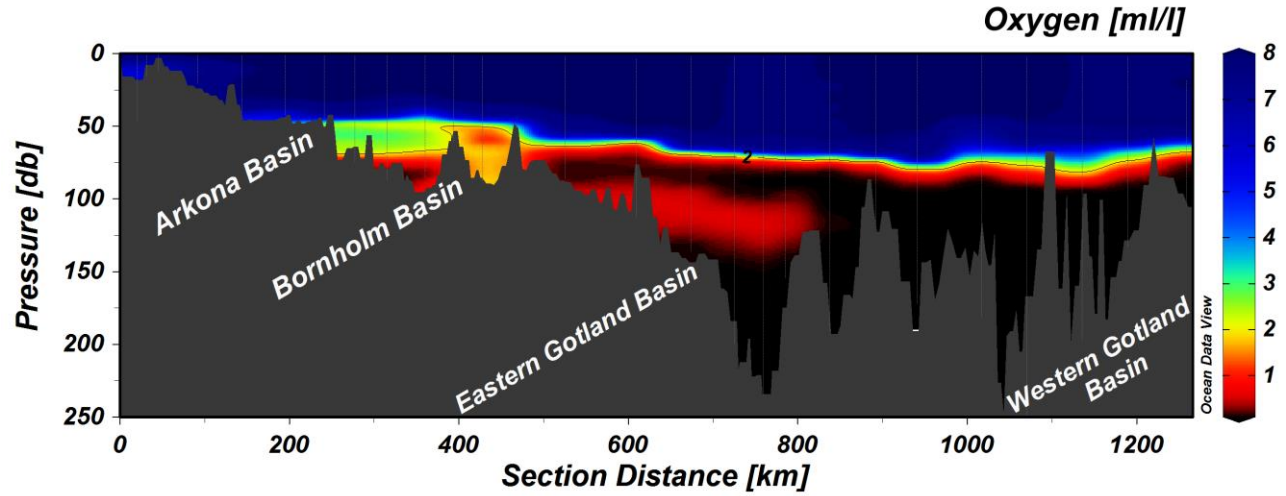
The silicate concentration in all of the Baltic Proper was still above normal down to the halocline. This was most obvious in the southern parts. The concentrations varied between 16-20 µmol/l, slightly higher at the coastal station Ref M1V1 and in the Sea of Åland.

Large parts of the deep water of the Baltic Proper had oxygen concentrations close to zero. Anoxic conditions, when hydrogen sulfide can form, were found in the Western Gotland Basin from 80 meters depth, and from 90-125 meters depth in the Northern Gotland Basin. In the Eastern Gotland Basin hydrogen sulfide were measured close to the bottom, but levels were low. Water with acute

hypoxia (oxygen < 2ml/l) was found in the Bornholm Basin and in the Bight of Hanö at about 40-45 meters depth, in the south eastern part of the Baltic Proper at 60 meters and in the Eastern and Western Gotland Basin at about 70 meters. In the Arkona Basin the oxygen concentration closest to the bottom was about 3.5 ml/l.

Fluorescence measurements from the CTD showed low levels of phytoplankton activity, and no larger peaks were present at any station





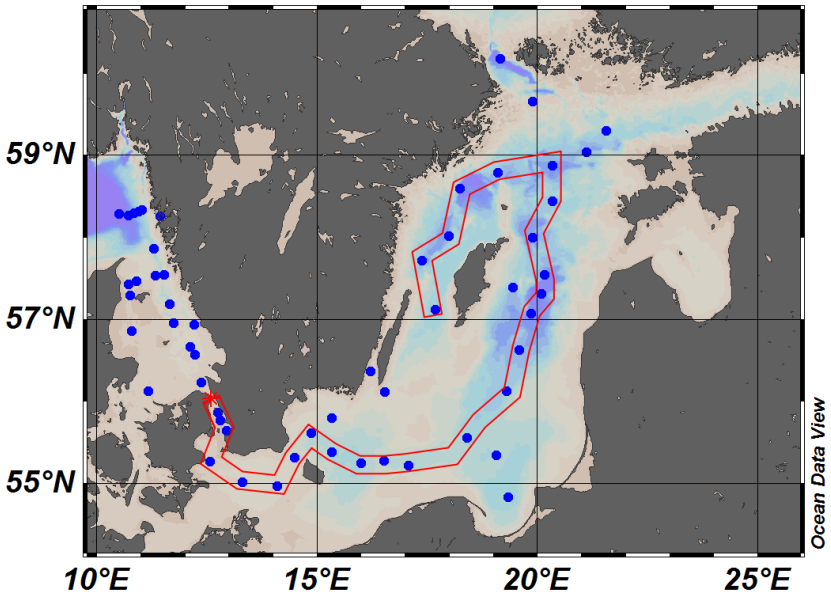


Figure 1. Transect showing dissolved oxygen and salinity from the Sound, through the Baltic Proper, to the Western Gotland Basin.

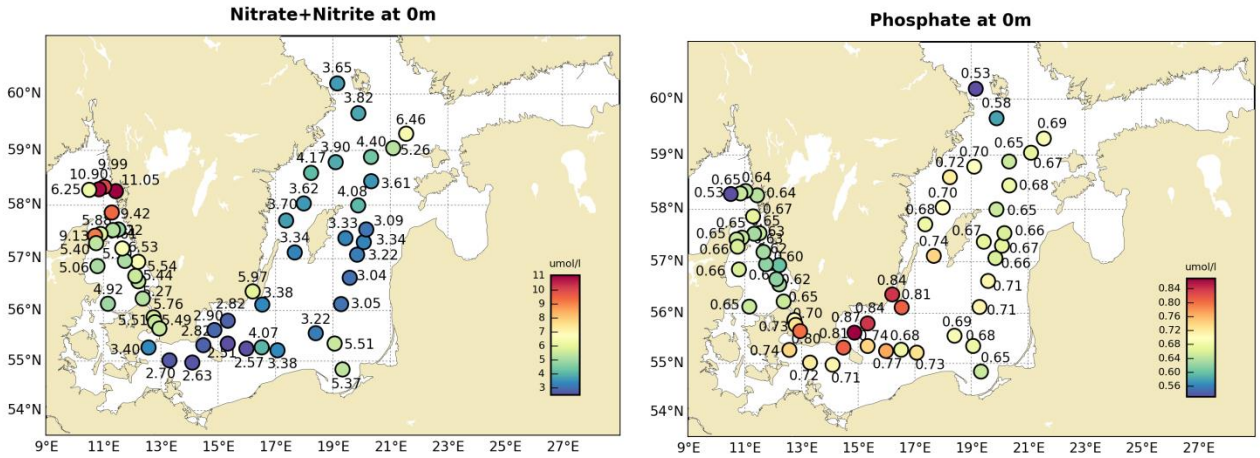


Figure 2. Map showing surface values of nitrate+nitrite (left) and phosphate (right) in µmol/l.

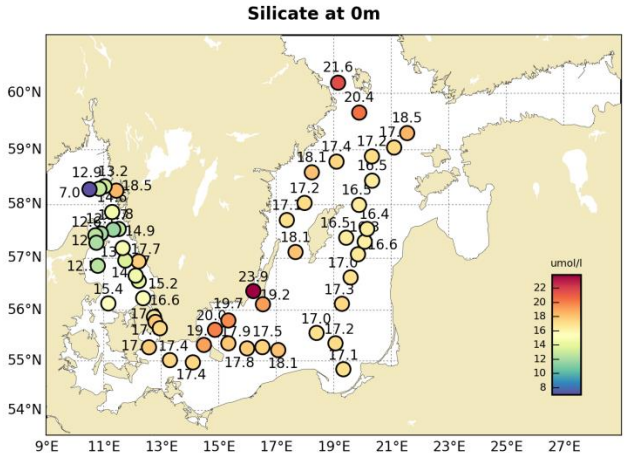


Figure 3. Map showing surface values of silicate in µmol/l.

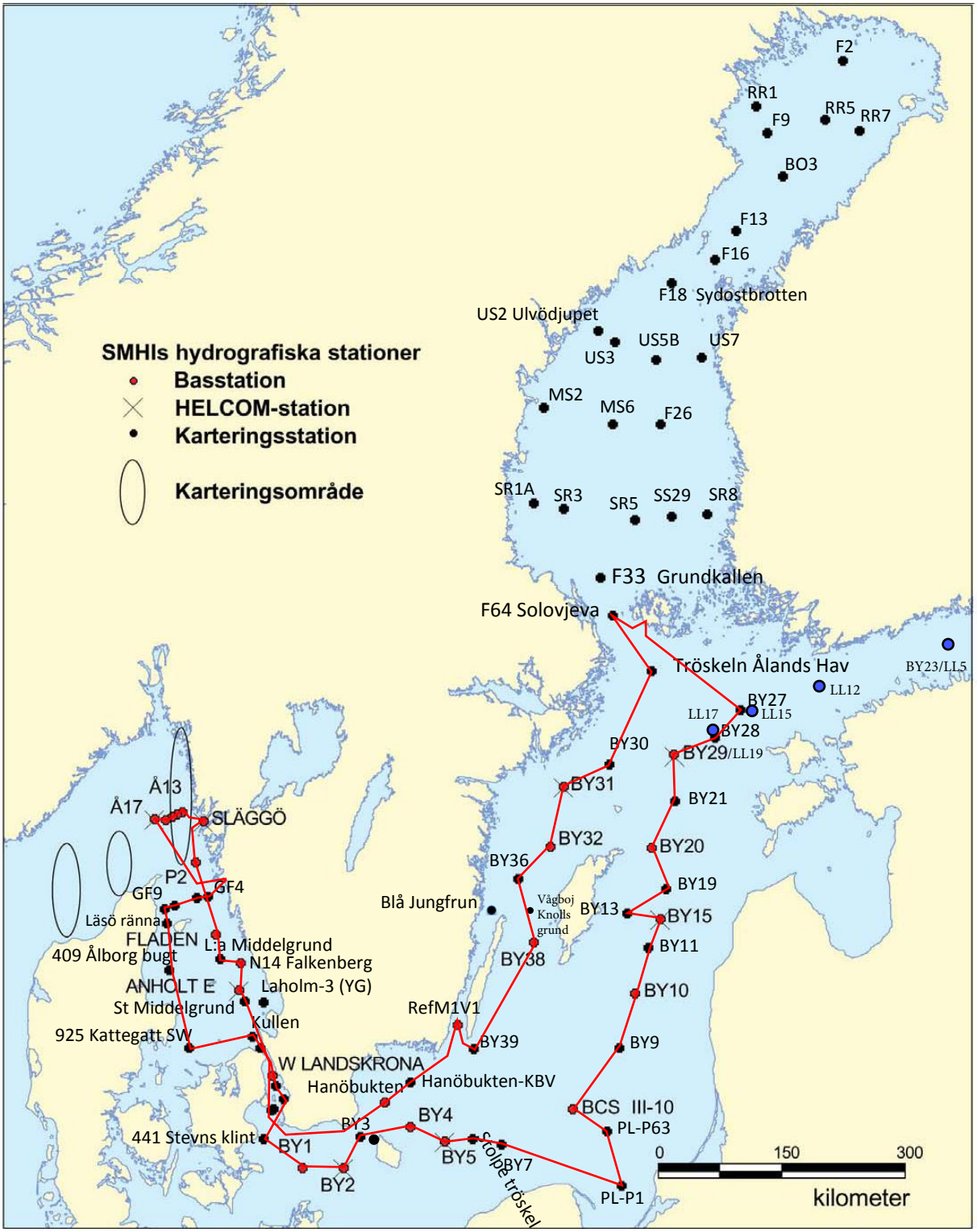
PARTICIPANTS

Name		From
Johan Kronsell	Chief Scientist	SMHI
Kristin Andreasson		SMHI
Johan Håkansson		SMHI
Sari Sipilä		SMHI
Lena Viktorsson		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

SMHI
Havs och Vatten myndigheten


SMHIs hydrografiska stationer
Basstation
HELCOM-station
Karteringsstation
Karteringsområde
F2
RR1
F9
RR5
RR7
BO3
F13
F16
F18 Sydostbrotten
US2 Ulvödjupet
US3
US5B
US7
MS2
MS6
F26
SR1A
SR3
SR5
SS29
SR8
F33 Grundkallen
F64 Solovjeva
Tröskeln Ålands Hav
BY23/LL5
LL12
BY27
LL17
LL15
BY28
BY30
BY29/LL19
BY31
BY21
BY32
BY20
BY36
BY19
Blå Jungfrun
Vågboj Knolls grund
BY13
BY15
BY11
BY38
BY10
RefM1V1
BY39
BY9
BCS III-10
PL-P63
PL-P1
Stolpe tröskel
BY7
BY5
BY4
BY3
BY2
BY1
441 Stevns klint
W LANDSKRONA
Hanöbukten
Hanöbukten-KBV
925 Kattegatt SW
Kullen
St Middelgrund
ANHOLT E
Laholm-3 (YG)
409 Ålborg bugt
L:a Middelgrund
N14 Falkenberg
FLADEN
Läsö ränna
GF9
P2
GF4
Å17
Å13
SLÄGGÖ
0
150
300
kilometer

Date: 2018-02-09
Time: 11:51

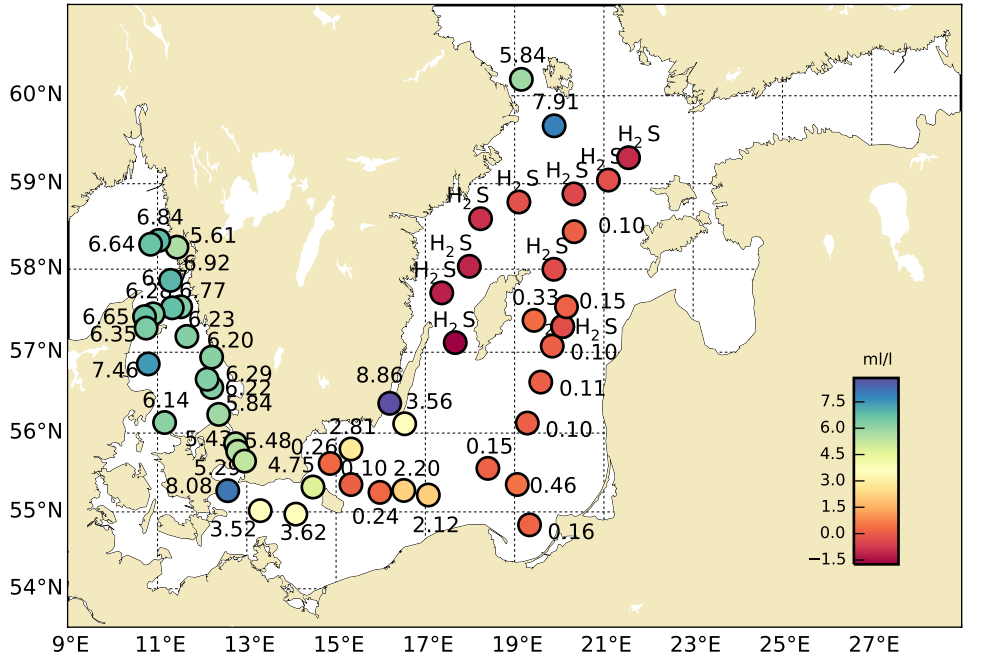
Ship: 347V
Year: 2018

Ser no	Cru no	Stat code	Proj	Stat name	Lat	Lon	Start date yyyymmdd	Start time hhmm	Bottom depth m	Secchi depth m	Wind dir	Wind vel	Air temp C	Air pres hPa	WCWI Weath Cloud Waves Iceob	CZPP Chla Zoop Phyto Ppop	No de	No btl	Temp_btl	Temp_ctd	Salt_btl	Salt_ctd	Ph	Doxy_btl	Doxy_ctd	H2S	Phos	Ptot	Ntri	Ntra	Ntrz	Amon	Ntot	Alky	Sio3-si	Humus	Comnt_visit	Comnt_samp
0001	1	KANX02	BAS...	SW VINGA GF4	5732.98	01131.12	20180124	1620	79		12	17	6.4	993	9990	x---	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	x	-
0002	1	KANX04	BAS...	GF6	5732.27	01119.78	20180124	1850	46		23	16	6.8	994	9990	x---	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	x	-
0003	1	KANX06	BAS...	GF8	5727.92	01054.06	20180124	2120	40		21	17	6.5	994	9990	x---	8	8	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0004	1	KANX07	BAS...	GF9	5725.91	01042.53	20180124	2335	26		24	19	7.4	994	9990	x---	6	6	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0005	1	KANX09	BAS...	LÄSÖ RÄNNA	5717.58	01044.65	20180125	0125	45		24	17	6.0	996	9990	x---	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0006	1	KAWA11	BAS...	409 ÅLBORG BUGT	5651.40	01047.50	20180125	0510	15		23	13	6.1	1000	9990	x---	4	4	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0007	1	KAWX14	BAS...	925 KATTEGAT SW	5607.92	01109.45	20180125	1030	45		21	17	5.5	1006	1730	x---	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	x	-
0008	1	KAEX33	BAS...	KULLEN	5614.02	01222.22	20180125	1550	23		21	8	5.3	1009	1440	x---	6	6	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0009	1	SOCX39	BAS...	W LANDSKRONA	5551.99	01244.86	20180125	1900	50		19	10	5.1	1011	9990	x---	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0010	1	SOCX41	BAS...	ÖRESUND-7	5546.29	01247.69	20180125	2120	20		21	9	5.1	1012	9990	x---	5	5	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0011	1	SOCX44	BAS...	ÖRESUND-4	5538.84	01257.00	20180126	0015	16		21	5	5.1	1012	9990	x---	4	4	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0012	1	BPSA01	BAS...	441 STEVNS KLINT	5516.29	01234.34	20180126	0126	26		22	7	5.4	1013	9990	x---	6	6	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0013	1	BPSA02	BAS...	BY1	5500.96	01318.03	20180126	0730	47	11	20	2	5.1	1015	1720	x---	8	8	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0014	1	BPSA03	BAS...	BY2 ARKONA	5458.28	01405.89	20180126	1130	47	13	00	2	6.9	1017	2720	xxx-	8	8	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x	-	-
0015	1	BPSA00	BAS...	BY3 HAMRARNE SUND	5519.10	01428.93	20180126	1540	48		02	2	4.9	1018	4900	x---	8	8	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0016	1	BPSB06	BAS...	BY4 CHRISTIANSÖ	5520.99	01520.01	20180126	1940	94		26	3	5.1	1020	9990	x---	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0017	1	BPSB07	BAS...	BY5 BORNHOLMSDJ	5515.01	01559.01	20180127	0010	91		31	4	4.8	1022	9990	xxx-	12	12	x	x	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	-
0018	1	BPSE08	BAS...	STOLPE TRÖSKEL	5516.48	01631.02	20180127	0315	63		30	9	4.6	1023	9990	----	10	10	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0019	1	BPSE09	BAS...	BY7 STOLPE RÄNNA	5512.99	01703.99	20180127	0600	91		24	12	4.5	1024	1740	----	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	x
0020	1	BPSG71	BAS...	PL-P1	5450.01	01920.03	20180127	1505	110		25	10	5.6	1028	2730	----	14	14	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	x
0021	1	BPSE70	BAS...	PL-P63	5521.04	01903.52	20180127	1930	83		24	12	4.5	1026	9990	----	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0022	1	BPSE11	BAS...	BCS III-10	5533.33	01824.03	20180127	2340	90		20	15	4.5	1021	9990	x-x-	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x	-	-
0023	1	BPSE12	BAS...	BY9 KLAIPEDA	5607.52	01917.02	20180128	0525	127		22	23	4.4	1010	6990	----	14	14	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	x	-
0024	1	BPEX13	BAS...	BY10	5638.02	01935.11	20180128	1010	147		26	15	5.3	1007	1760	x---	15	15	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0025	1	BPEX14	BAS...	BY11	5704.47	01950.57	20180128	1420	213		25	17	4.5	1004	6860	----	17	17	x	x	-	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0026	1	BPEX21	BAS...	BY15 GOTLANDSDJ	5718.73	02004.59	20180128	1810	249		27	13	5.4	1002	6990	xxx-	19	19	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
0027	1	BPEX21	BAS...	BY15 GOTLANDSDJ	5718.73	02004.60	20180128	2050	249		27	13	5.5	1003	6990	----	6	6	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0028	1	BPEX19	BAS...	BY13	5723.21	01926.03	20180129	0100	122		31	14	4.3	1005	9990	----	14	14	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0029	1	BPEX25	BAS...	BY19	5733.02	02009.69	20180129	0450	160		29	11	3.9	1006	9990	----	15	15	x	x	-	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0030	1	BPEX26	BAS...	BY20 FÅRÖDJ	5759.87	01952.75	20180129	0930	203	12	25	6	3.5	1004	2830	x---	17	17	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0031	1	BPNX27	BAS...	BY21	5826.51	02020.04	20180129	1440	122	12	18	2	3.4	999	2830	----	14	14	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0032	1	BPNX35	BAS...	BY29 / LL19	5852.92	02019.64	20180129	1945	178		08	12	2.4	997	7990	x-x-	16	16	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0033	1	BPNX34	BAS...	BY28	5902.50	02106.01	20180130	0030	200		04	12	1.1	997	7990	----	17	17	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0034	1	BPNX33	BAS...	BY27	5917.92	02133.14	20180130	0400	180		12	12	0.6	999	7990	----	16	16	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-

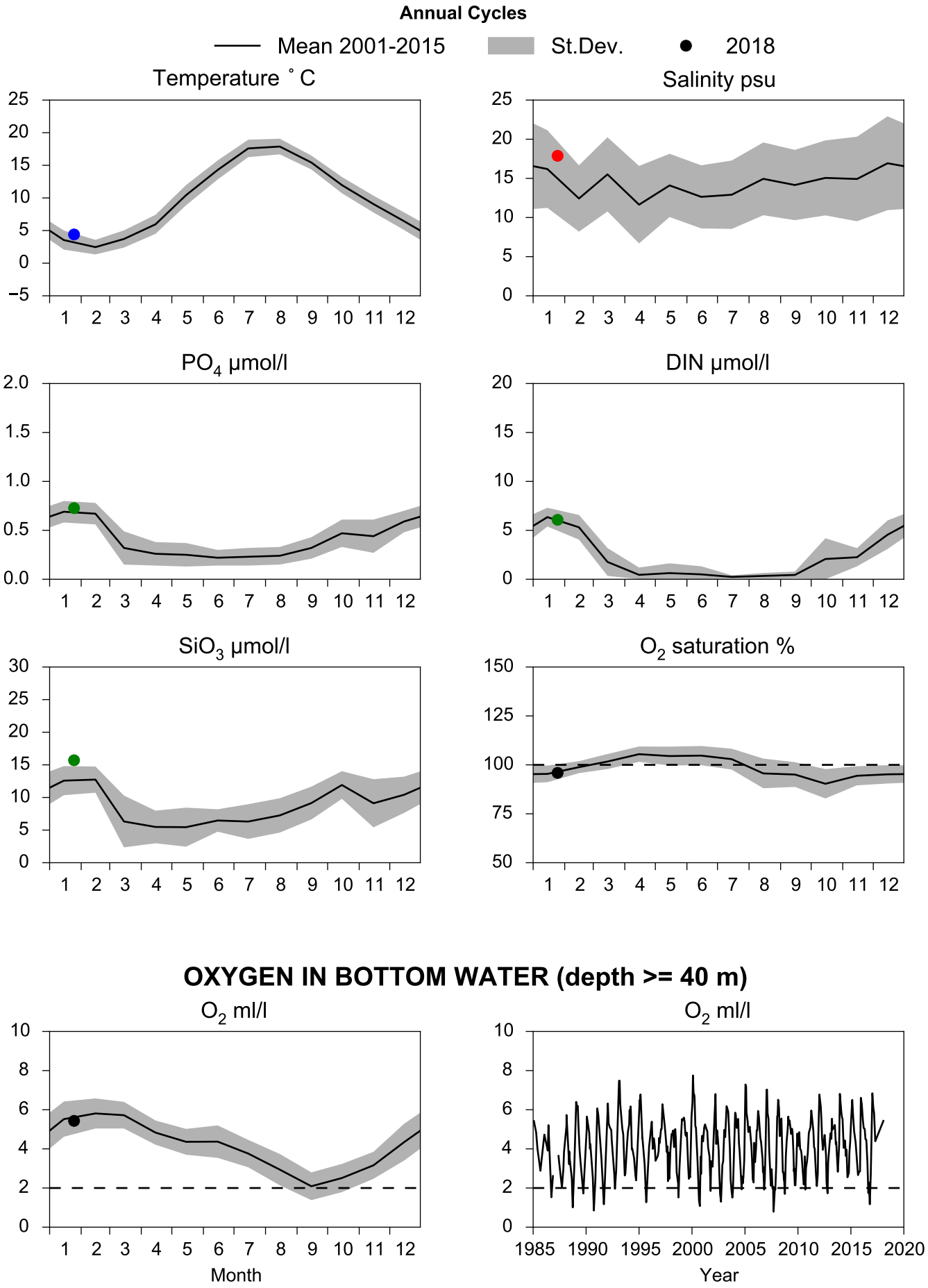
Date: 2018-02-09
Time: 11:51

Ship: 347V
Year: 2018

Ser no	Cru no	Stat code	Proj	Stat name	Lat	Lon	Start date yyyymmdd	Start time hhmm	Bottom depth m	Secchi depth m	Wind dir	Wind vel	Air temp C	Air pres hPa	WCWI (Weath Cloud Waves Iceob)	CZPP (Chla Zoop Phytop Pp)	No de	No btl	Temp_btl	Temp_ctd	Salt_btl	Salt_ctd	Ph	Doxy_btl	Doxy_ctd	H2s	Phos	Ptot	Ntri	Ntra	Ntrz	Amon	Ntot	Alky	Sio3-si	Humus	Comnt_visit	Comnt_samp
0035	1	GBAX02	BAS...	F64 SOLOVJEVA	6010.99	01908.99	20180130	1730	290		32	7	1.0	1010	9990	----	20	20	x	x	-	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0036	1	GBAX01	BAS...	TRÖSKELN ÅLANDS HAV	5939.69	01953.12	20180130	2340	60		25	6	0.4	1011	9990	----	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0037	1	BPNX36	BAS...	BY30	5847.30	01905.73	20180131	0615	191		19	10	3.3	1008	2830	----	16	16	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0038	1	BPNX37	BAS...	BY31 LANDSORTSDJ	5835.63	01814.20	20180131	1125	459		21	16	4.4	1003	6850	xxx-	23	23	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
0039	1	BPWX38	BAS...	BY32 NORRKÖPINGSDJ	5802.02	01759.07	20180131	1835	205		17	17	2.5	992	9950	x---	17	17	x	x	-	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	-
0040	1	BPWX42	BAS...	BY36	5743.02	01722.01	20180131	2340	140		20	13	4.9	988	9990	----	15	15	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	x	-	-	x
0041	1	BPWX45	BAS...	BY38 KARLSÖDJ	5707.04	01740.14	20180201	0515	114		24	11	3.1	990	9990	x-x-	14	14	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	x	x	-	-
0042	1	BPSE49	BAS...	BY39 ÖLANDS S UDDE	5606.98	01632.19	20180201	1320	50		23	15	4.4	995	2850	----	8	8	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0043	1	BPWK01	BAS...	REF M1V1	5622.26	01612.13	20180201	1720	21		21	8	2.5	996	9990	xxx-	5	5	x	x	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	-	-
0044	1	BPSH51	BAS...	HANÖBUKTEN-KBV	5548.03	01520.02	20180201	2340	60		21	13	4.8	998	9990	----	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0045	1	BPSH05	BAS...	HANÖBUKTEN	5537.04	01452.05	20180202	0230	80		28	11	4.3	998	9990	x---	11	11	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0046	1	KAEX30	BAS...	ST MIDDELGRUND	5634.00	01213	20180202	1810	44		03	10	-2.2	1003	9990	x---	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0047	1	KAEX29	BAS...	ANHOLT E	5640.11	01206.64	20180202	2025	62		03	12	-3.4	1004	9990	xxx-	10	10	x	x	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	-	-
0048	1	KANX50	BAS...	N14 FALKENBERG	5656.38	01212.70	20180202	2355	30		01	4	-3.7	1005	9990	xxx-	7	7	x	x	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	-	-
0049	1	KANX26	BAS...	L:A MIDDELGRUND	5657.39	01144.84	20180203	0300	100		03	11	-2.4	1005	9990	x---	14	14	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0050	1	KANX25	BAS...	FLADEN	5711.55	01139.46	20180203	0545	84		02	13	-2.2	1005	9990	x---	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0051	1	SKEX23	BAS...	P2	5751.99	01117.49	20180203	1100	93		04	16	-2.7	1008	1440	x---	10	10	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0052	1	FIBG27	BAS...	SLÄGGÖ	5815.59	01126.11	20180203	1510	74		03	13	-3.7	1011	2830	xxx-	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	x	-
0053	1	SKEX14	BAS...	Å13	5820.36	01101.63	20180203	1755	90		03	16	-3.4	1014	9990	x---	10	10	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0054	1	SKEX15	BAS...	Å14	5818.92	01056.51	20180203	1915	110		03	16	-3.1	1014	9990	----	11	0	-	x	-	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
0055	1	SKEX16	BAS...	Å15	5817.65	01050.66	20180203	2050	135		04	17	-2.9	1017	9990	x---	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	-	-	-
0056	1	SKEX17	BAS...	Å16	5816.03	01043.44	20180203	2215	202		04	17	-2.9	1017	9990	----	14	0	-	x	-	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
0057	1	SKEX18	BAS...	Å17	5817.04	01030.22	20180204	0030	340		04	18	-3.1	1020	9990	xxx-	15	14	x	x	-	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	x	-

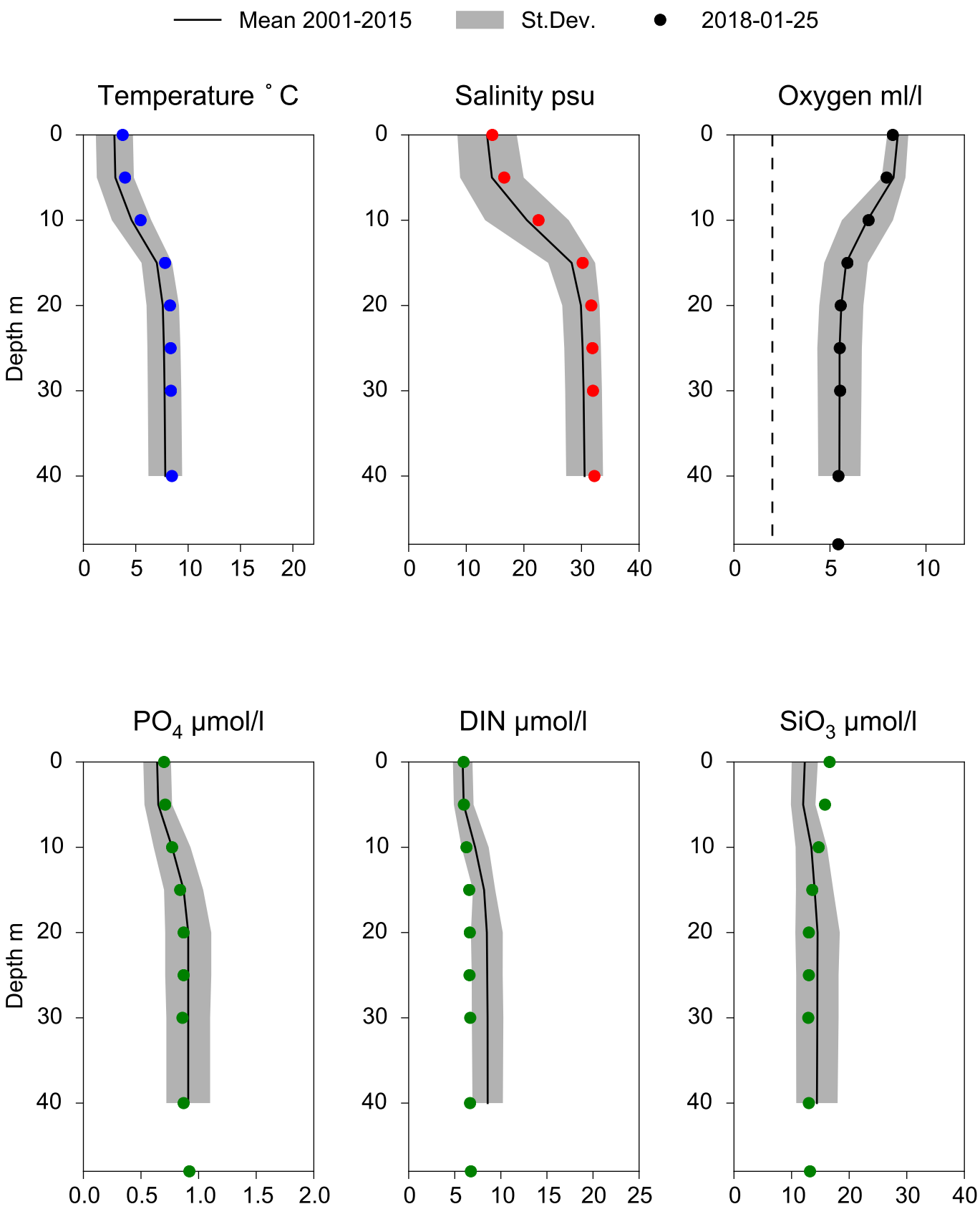

Bottom water oxygen concentration (ml/l)
Ship: Meri
Date: 20180124-20180204
Series: 0001-0057
ml/l
7.5
6.0
4.5
3.0
1.5
0.0
−1.5
60°N
59°N
58°N
57°N
56°N
55°N
54°N
9°E
11°E
13°E
15°E
17°E
19°E
21°E
23°E
25°E
27°E
5.84
7.91
H2S
0.10
6.84
6.64
5.61
6.92
6.77
6.65
6.23
6.35
6.20
7.46
6.29
6.22
5.84
6.14
0.33
0.15
0.10
8.86
3.56
0.11
2.81
0.10
5.43
5.48
0.26
4.75
0.10
2.20
0.15
5.25
8.08
0.46
0.24
2.12
3.52
3.62
0.16

STATION W LANDSKRONA SURFACE WATER (0-10 m)

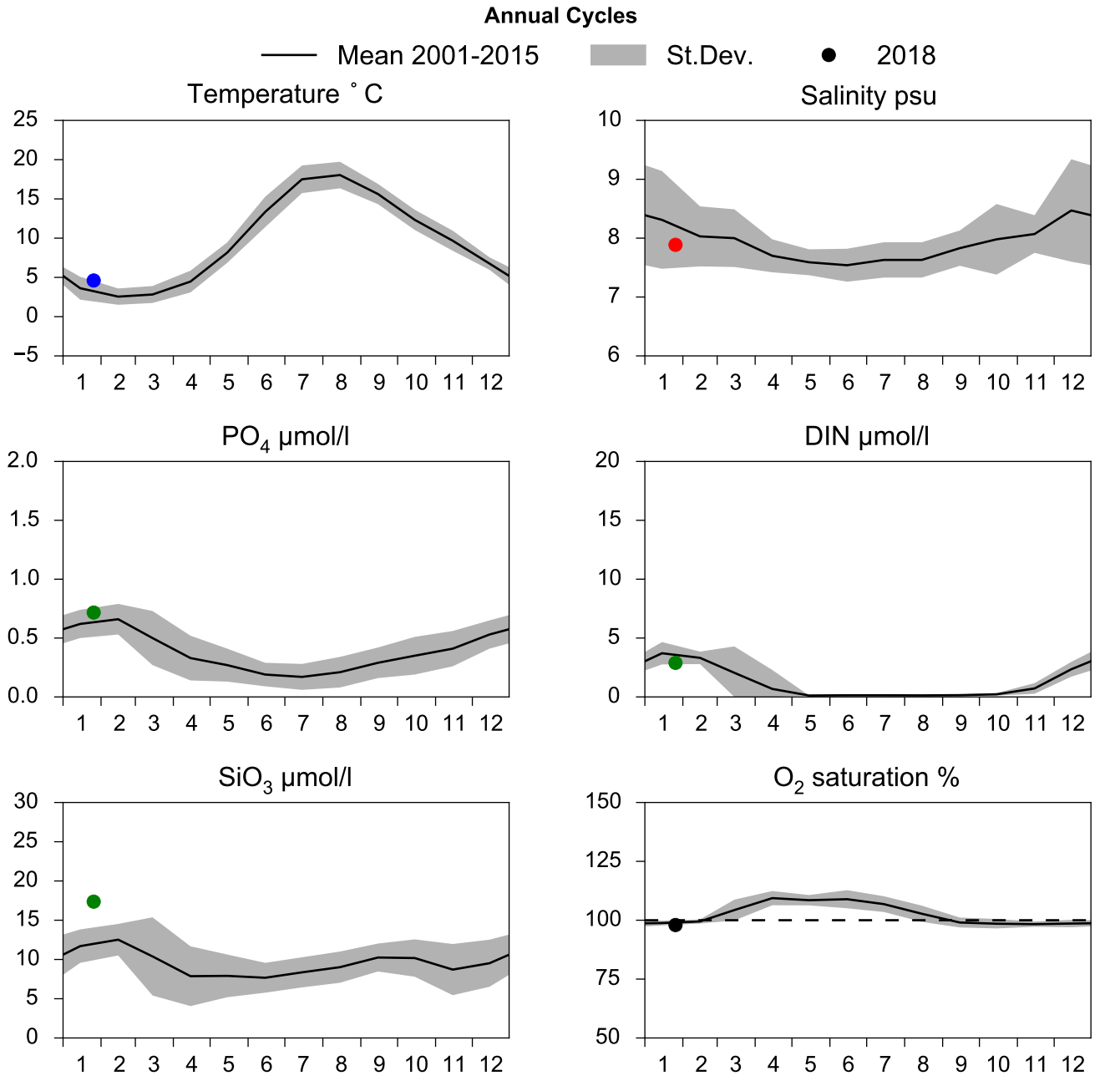


OXYGEN IN BOTTOM WATER (depth >= 40 m)

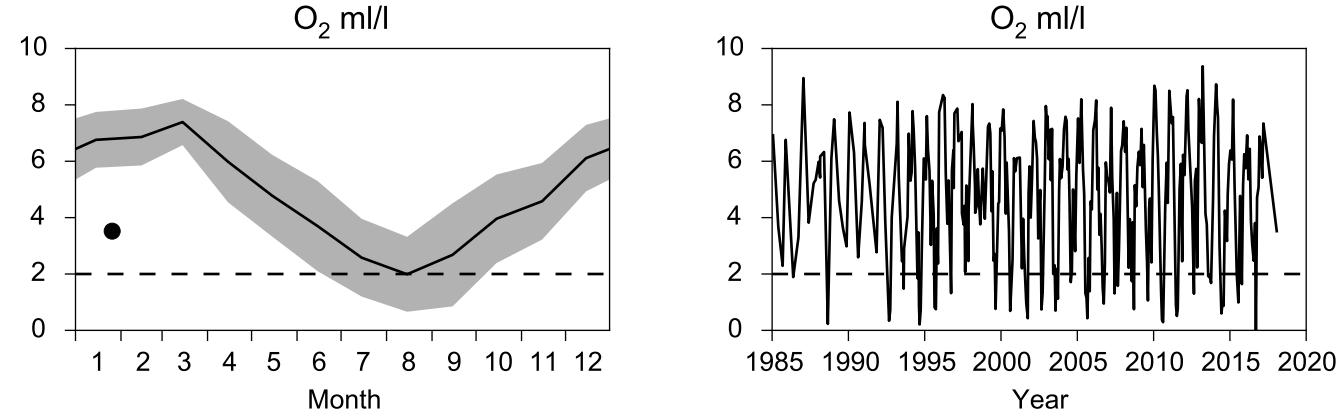
Vertical profiles W LANDSKRONA
January



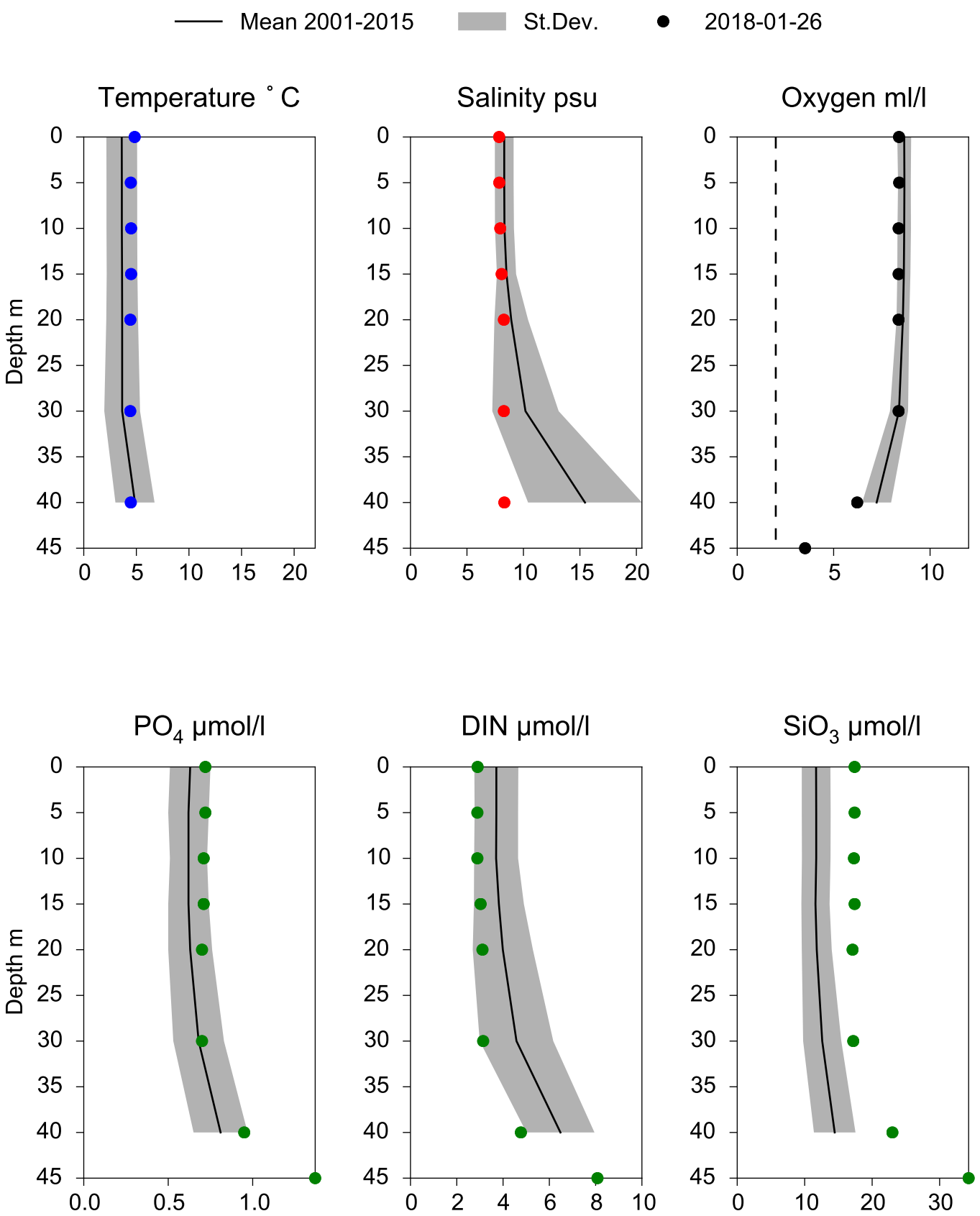
STATION BY1 SURFACE WATER (0-10 m)



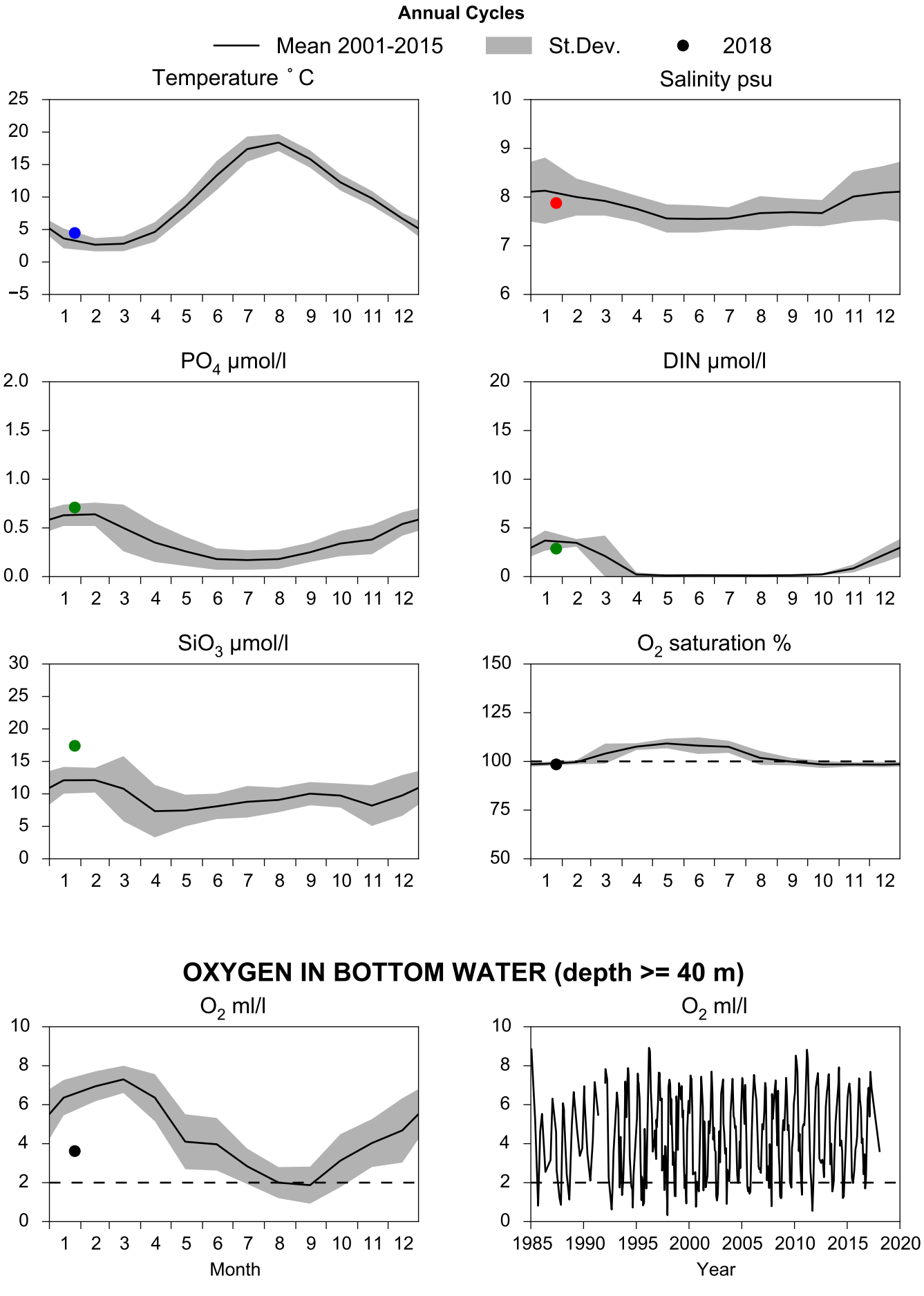
OXYGEN IN BOTTOM WATER (depth >= 40 m)



Vertical profiles BY1
January

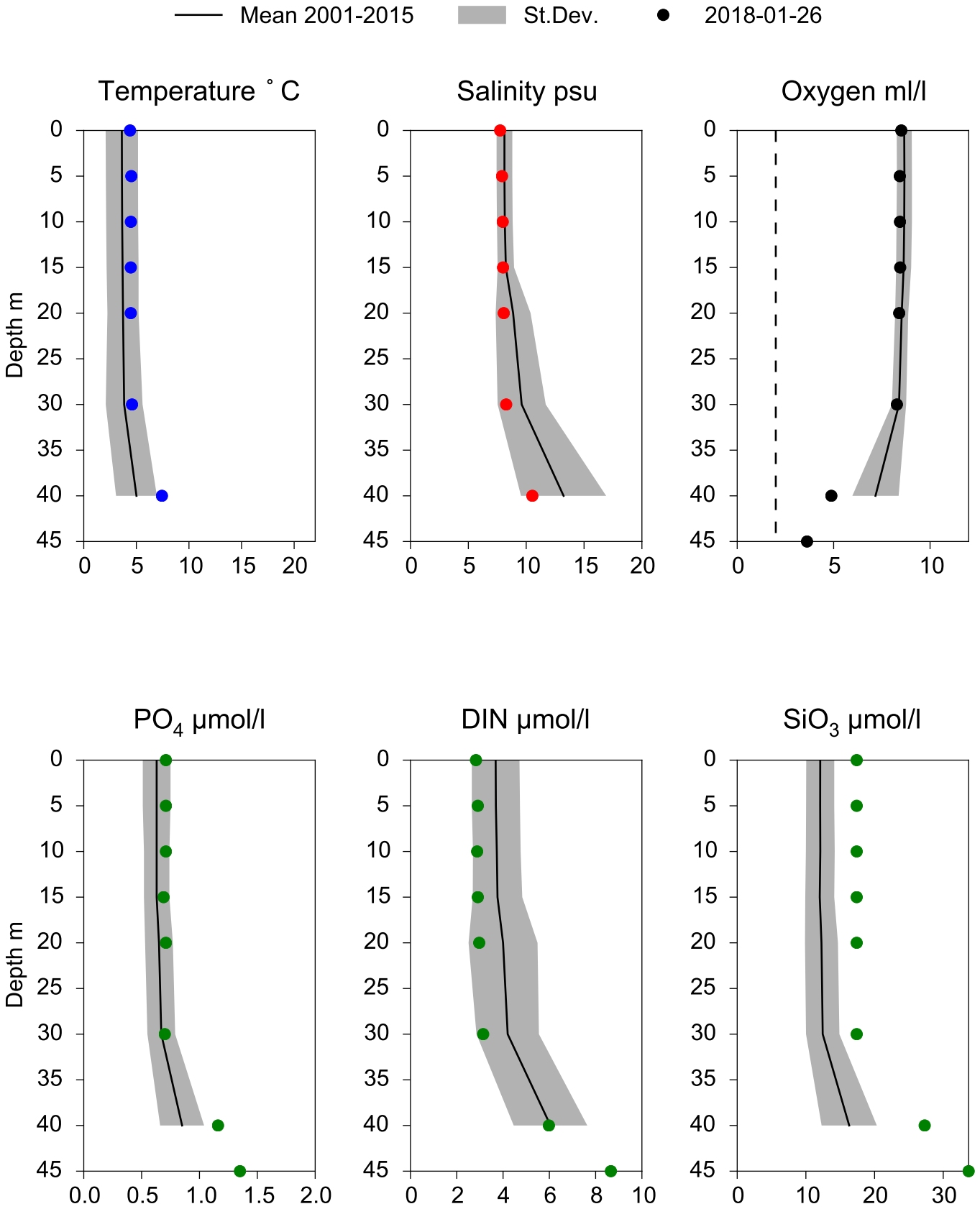


STATION BY2 ARKONA SURFACE WATER (0-10 m)

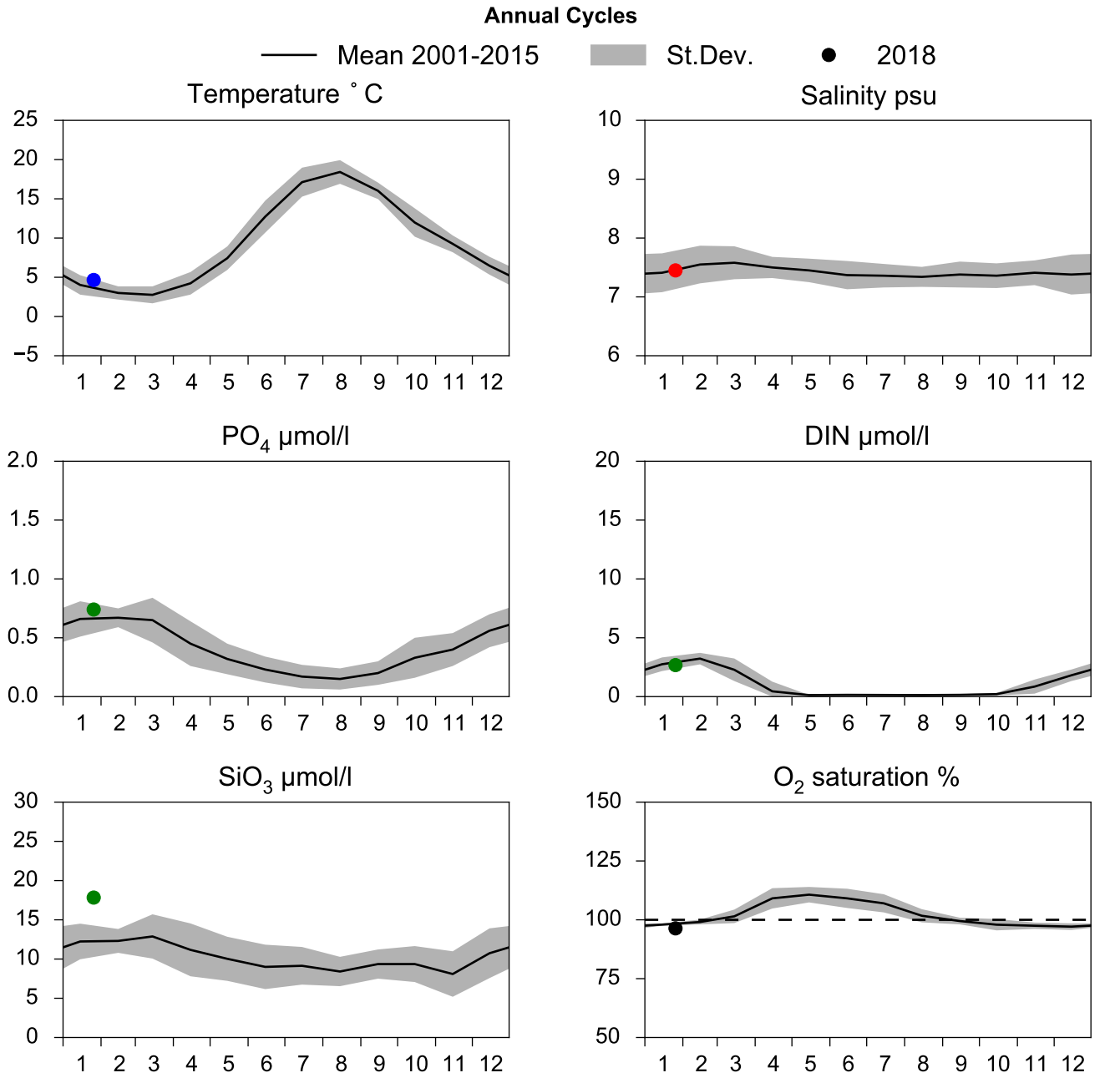


OXYGEN IN BOTTOM WATER (depth >= 40 m)

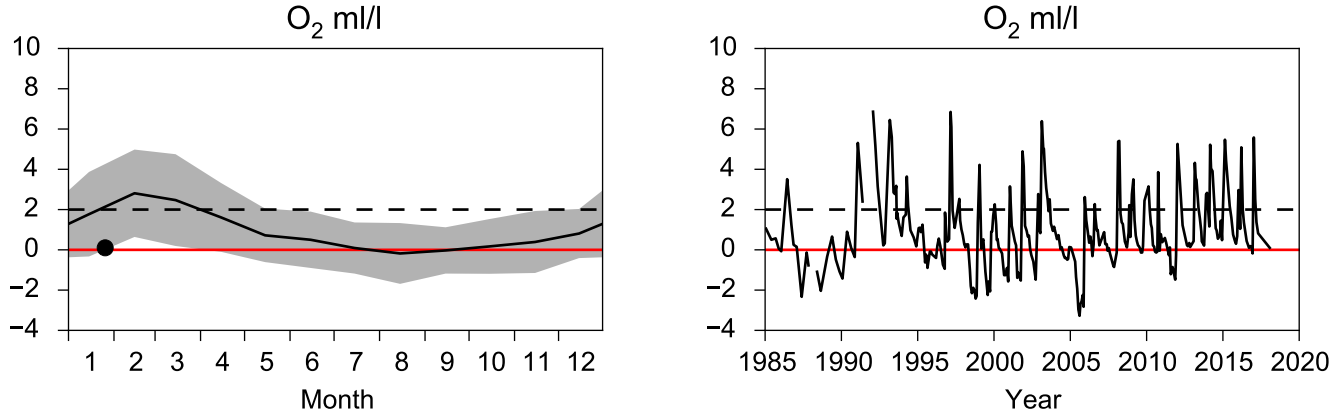
Vertical profiles BY2 ARKONA
January



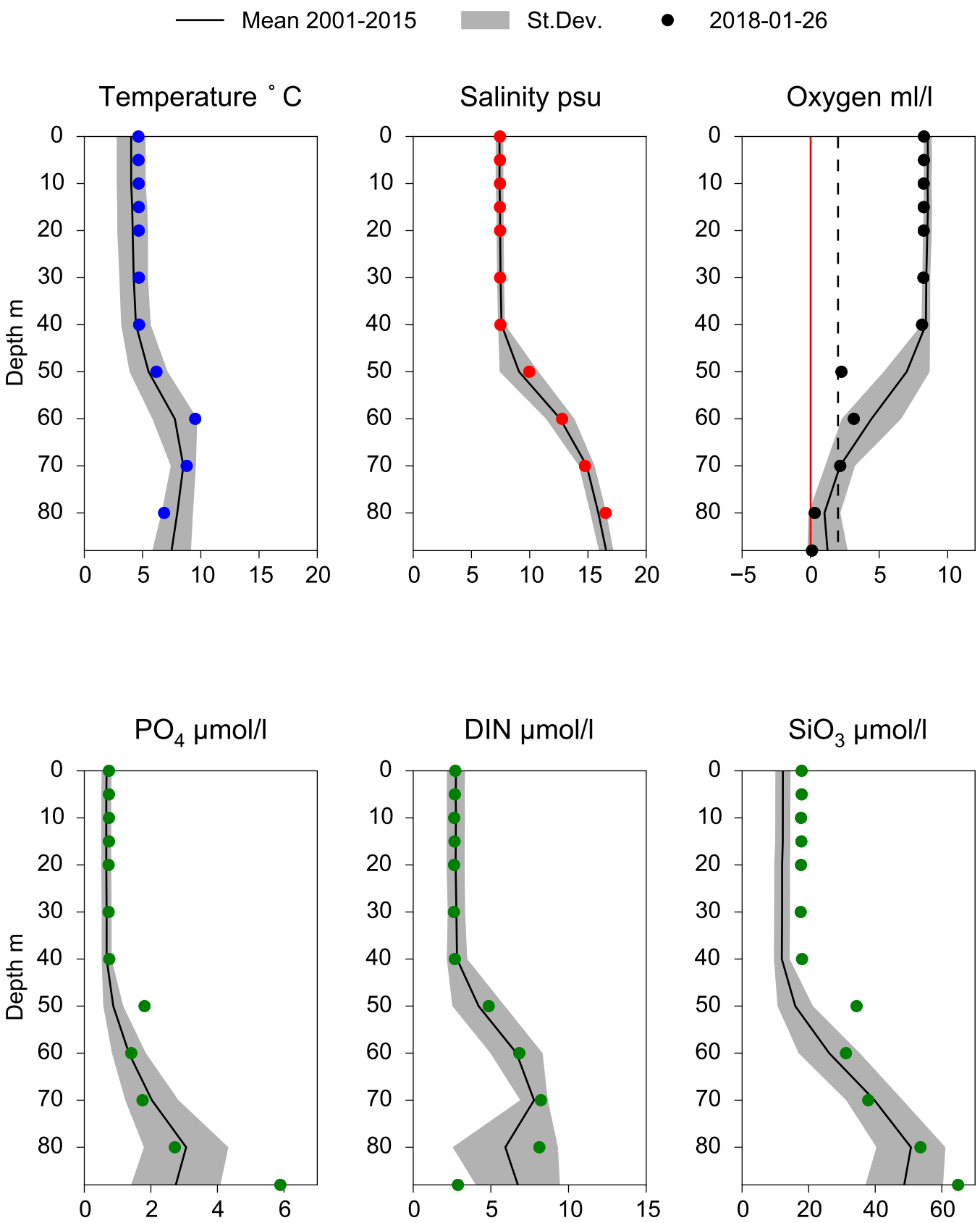
STATION BY4 CHRISTIANSÖ SURFACE WATER (0-10 m)



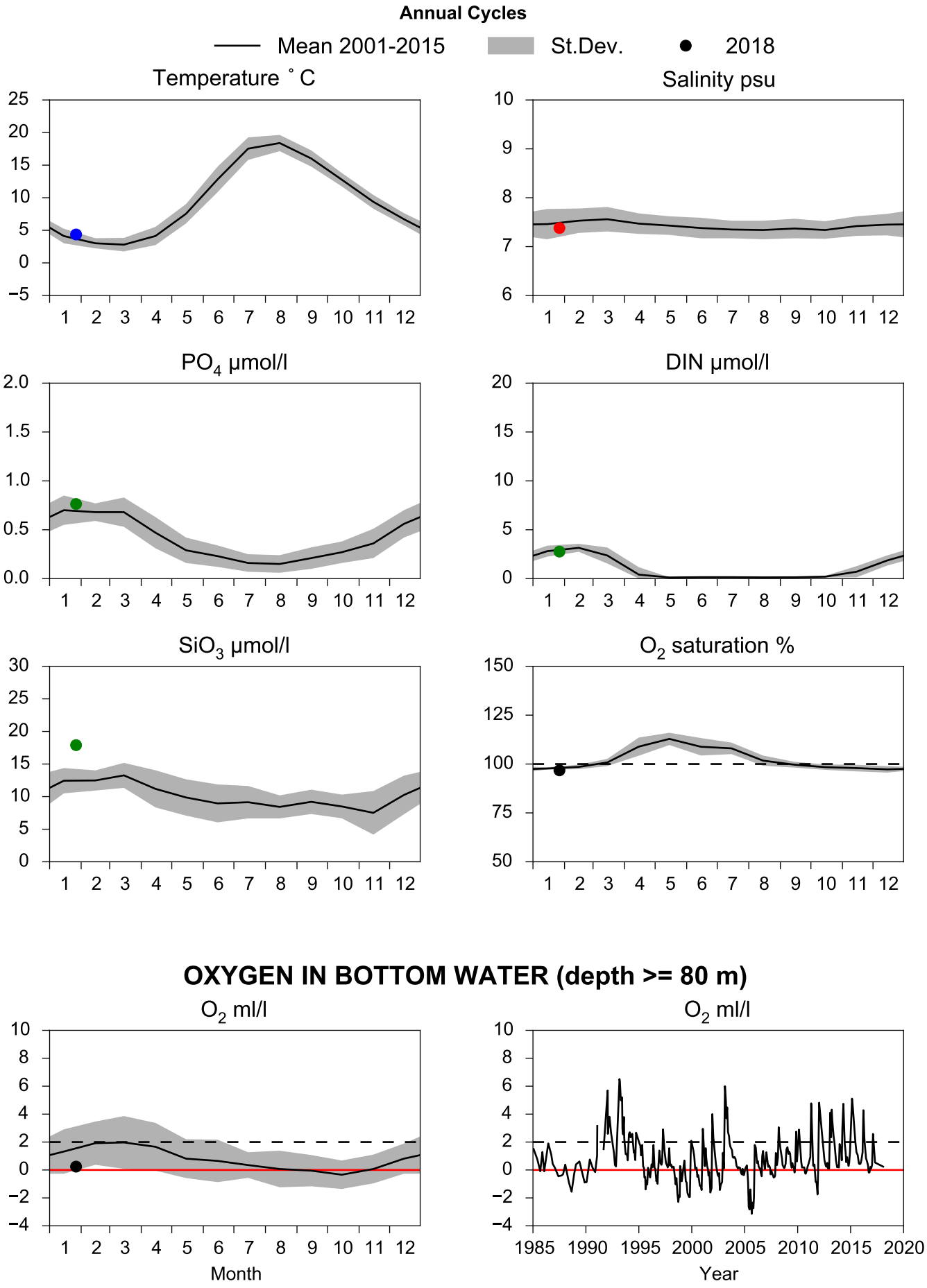
OXYGEN IN BOTTOM WATER (depth >= 80 m)



Vertical profiles BY4 CHRISTIANSÖ
January

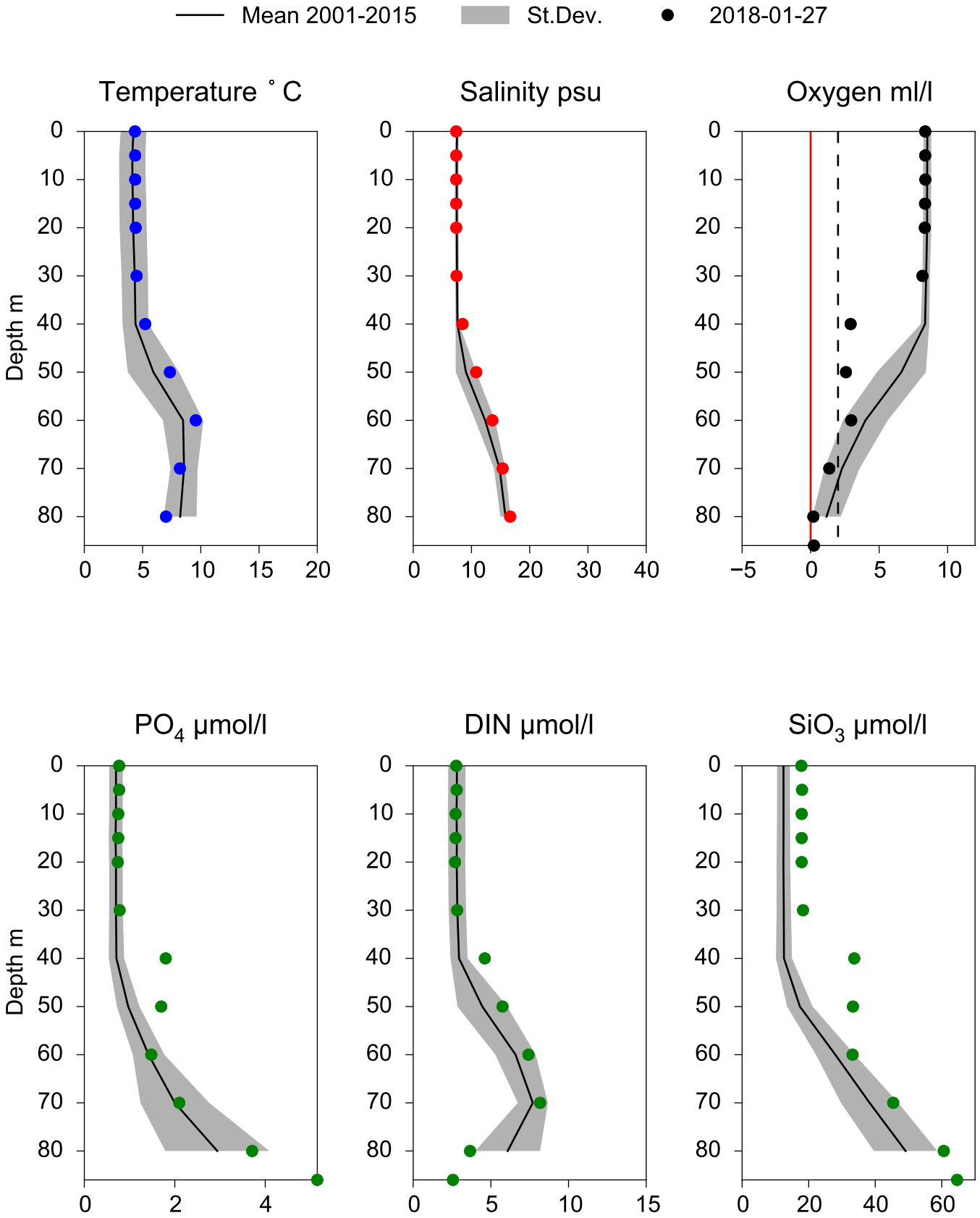


STATION BY5 BORNHOLMSDJ SURFACE WATER (0-10 m)



OXYGEN IN BOTTOM WATER (depth >= 80 m)

Vertical profiles BY5 BORNHOLMSDJ
January

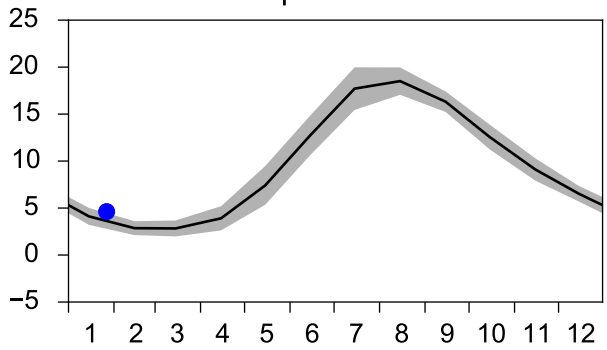


STATION BCS III-10 SURFACE WATER (0-10 m)

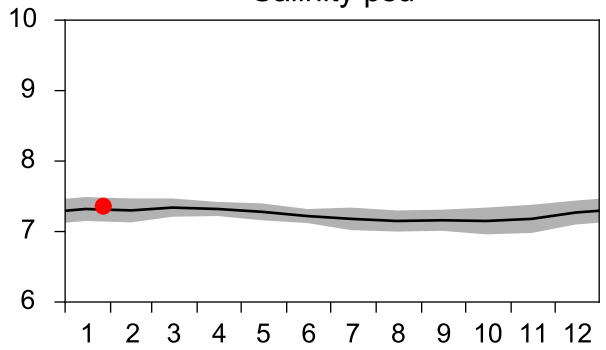
Annual Cycles

Mean 2001-2015 St.Dev. 2018

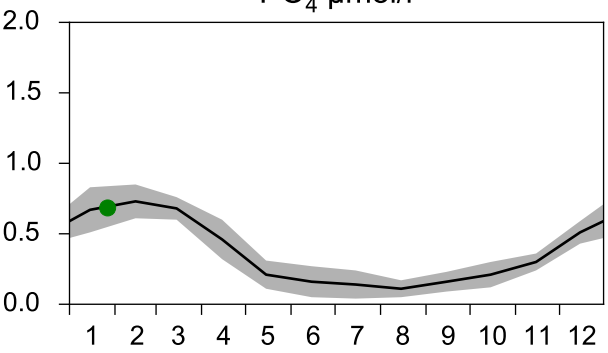
Temperature ˚C



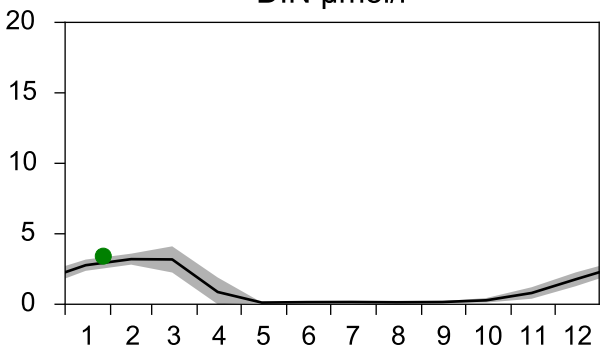
Salinity psu



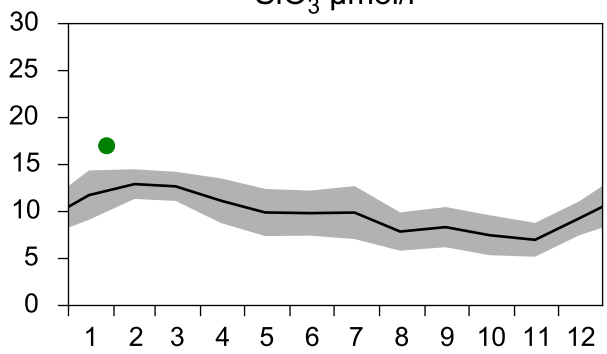
PO_4 µmol/l



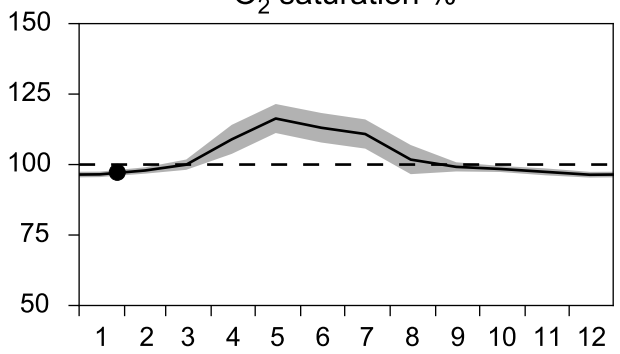
DIN µmol/l



SiO_3 µmol/l

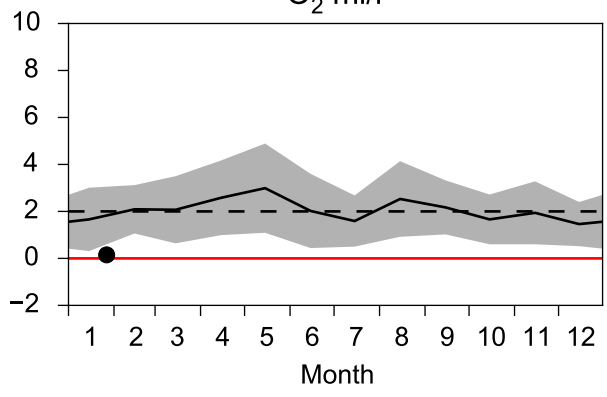


O_2 saturation %

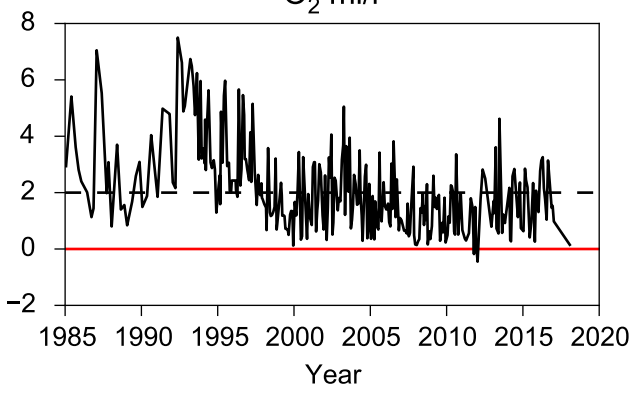


OXYGEN IN BOTTOM WATER (depth >= 80 m)

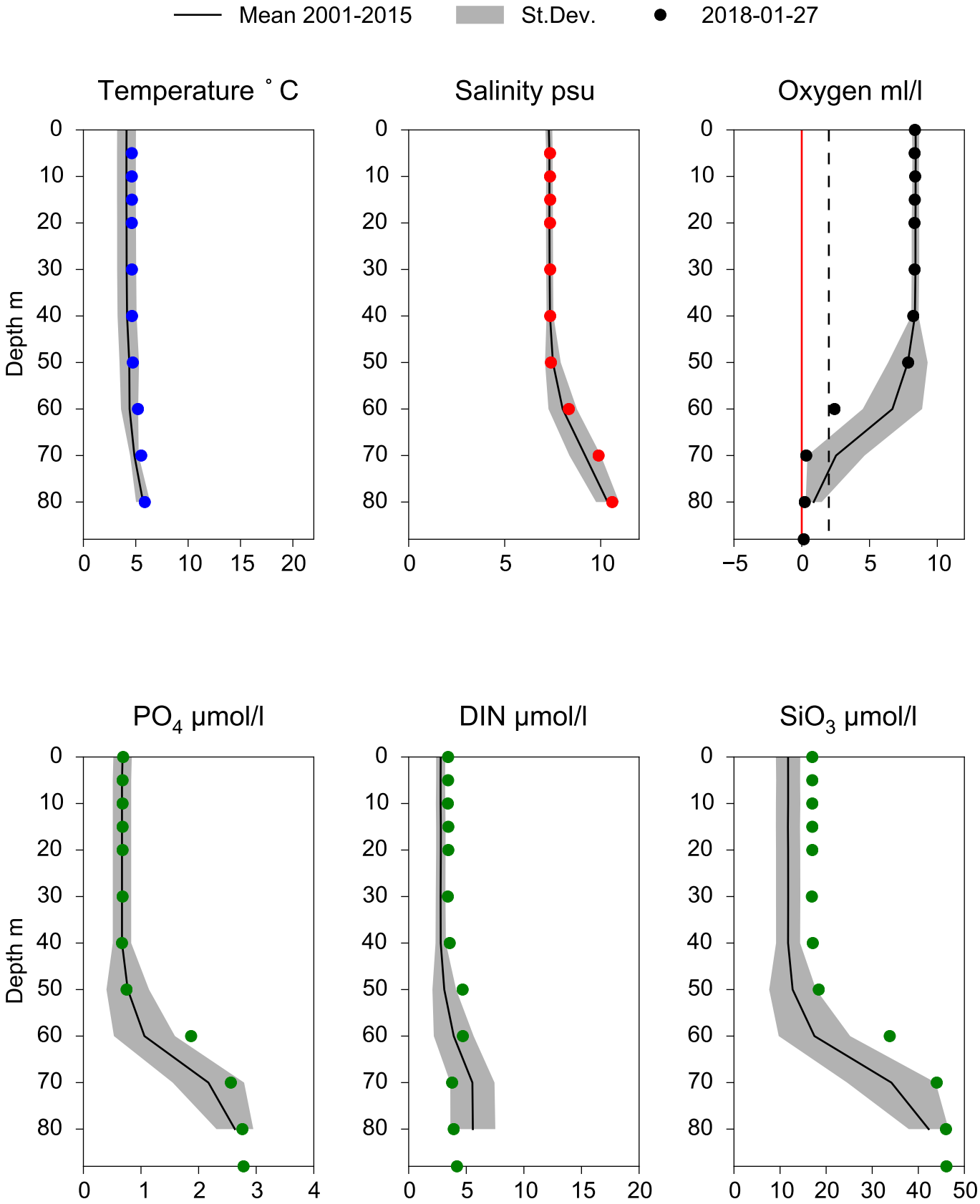
O_2 ml/l



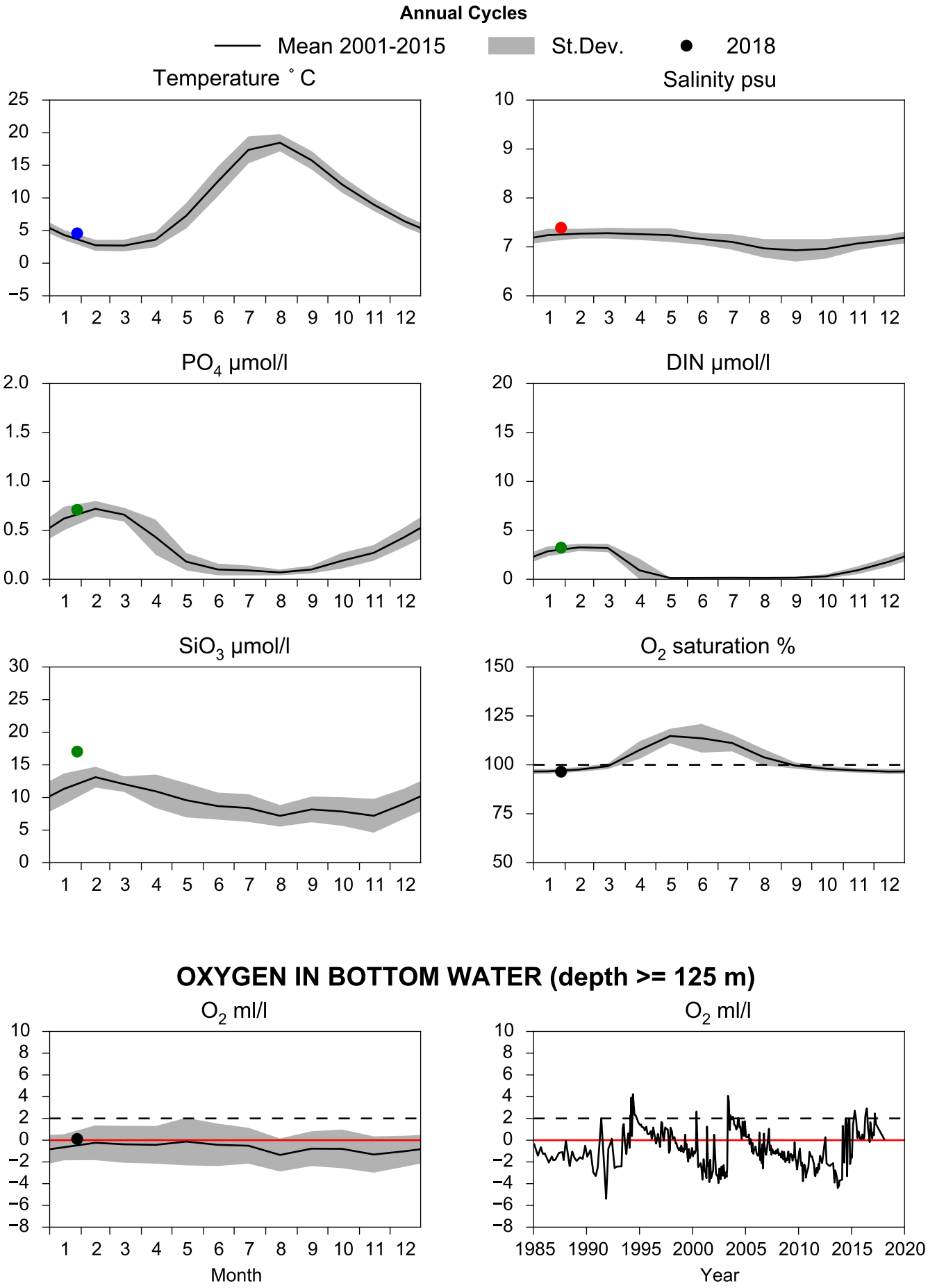
O_2 ml/l



Vertical profiles BCS III-10
January

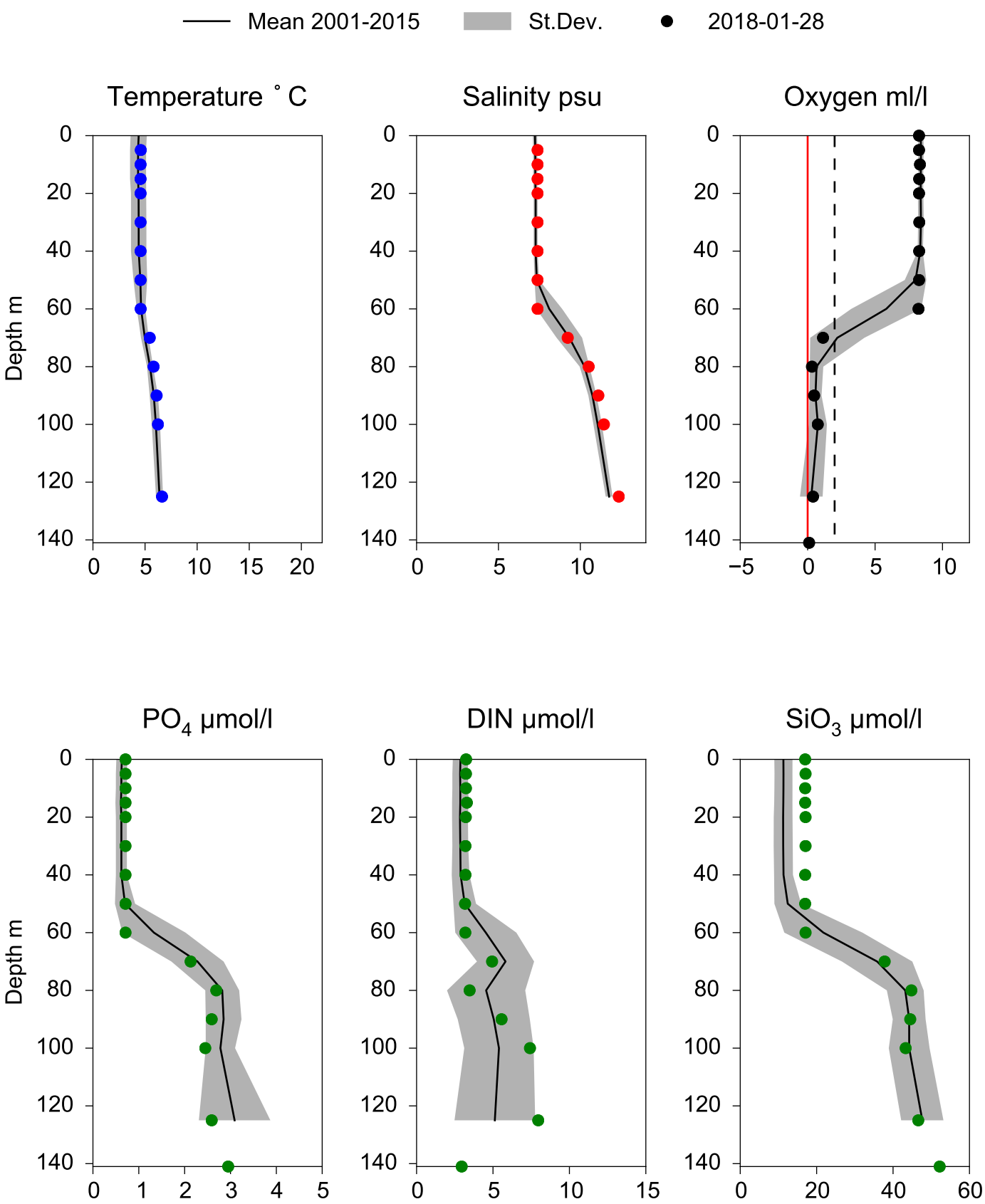


STATION BY10 SURFACE WATER (0-10 m)

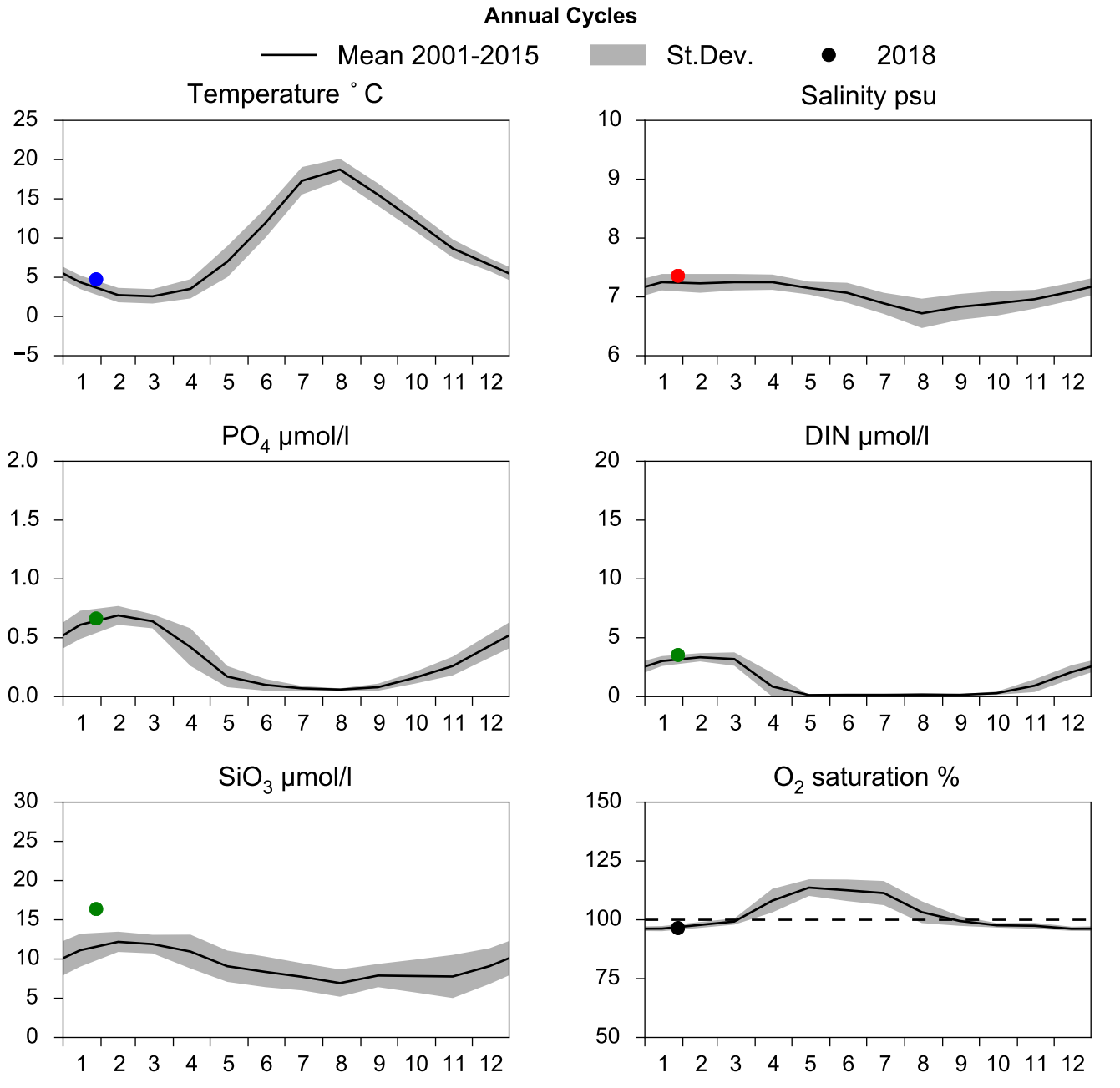


OXYGEN IN BOTTOM WATER (depth >= 125 m)

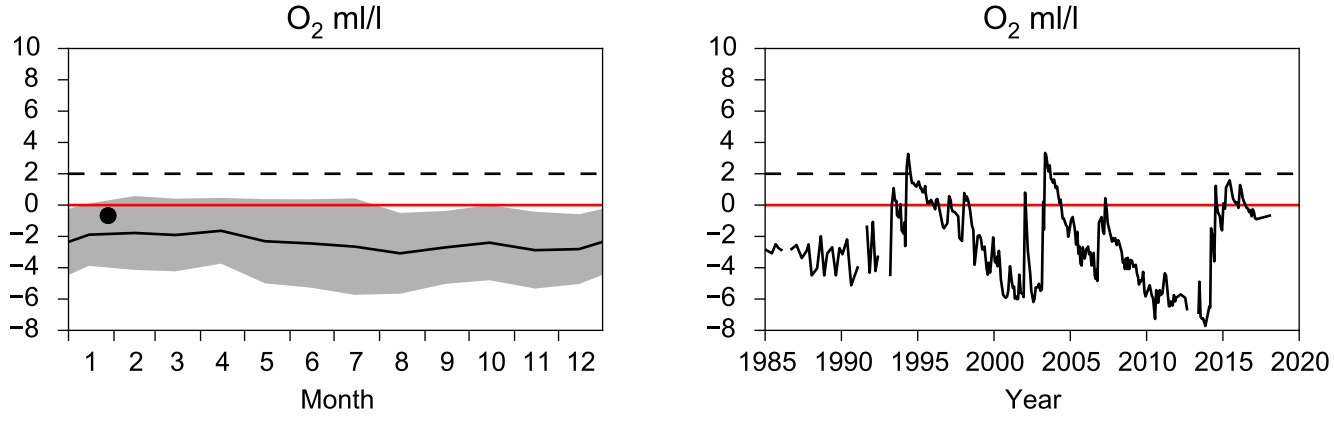
Vertical profiles BY10
January



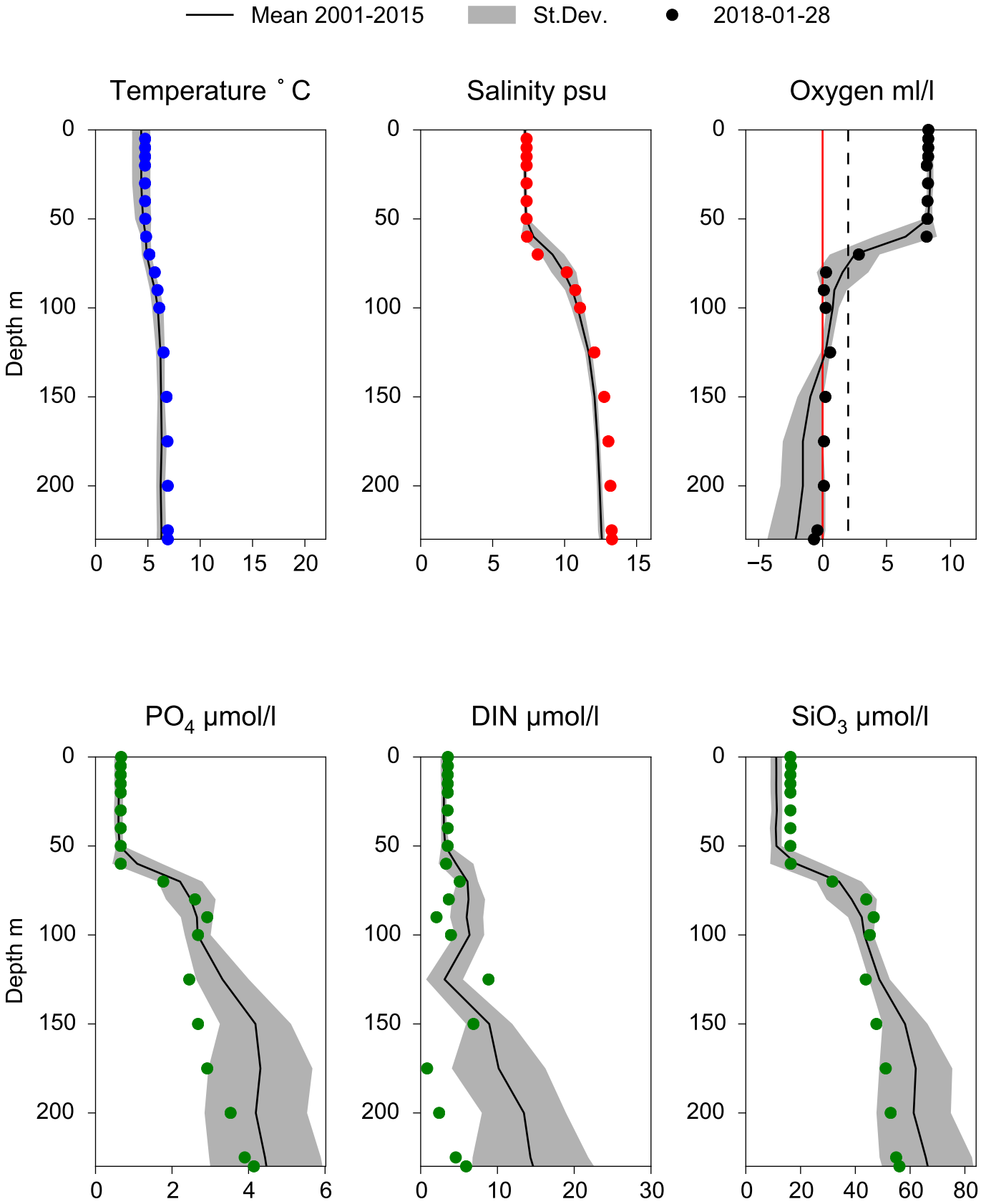
STATION BY15 GOTLANDSDJ SURFACE WATER (0-10 m)



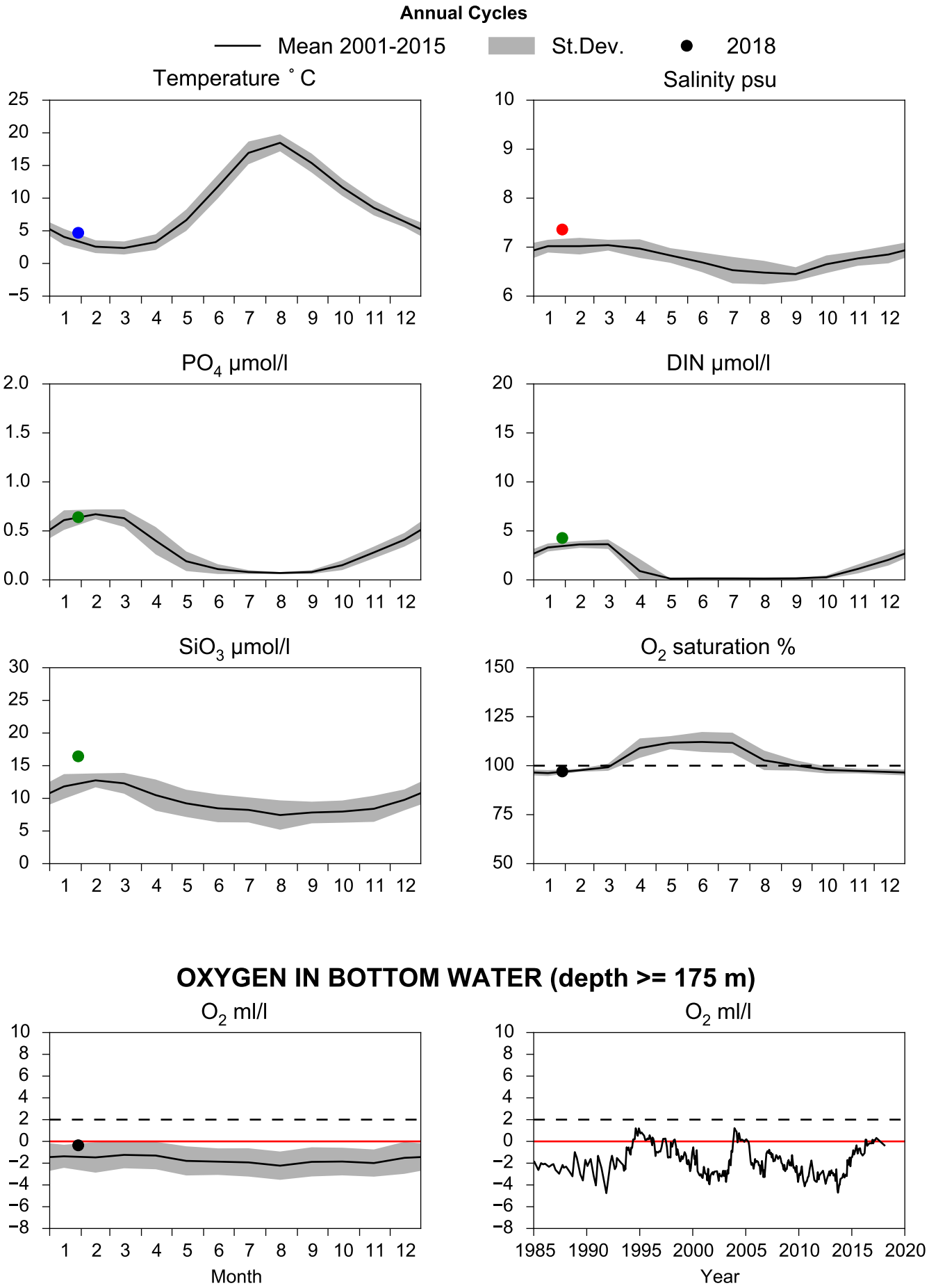
OXYGEN IN BOTTOM WATER (depth >= 225 m)



Vertical profiles BY15 GOTLANDSDJ
January

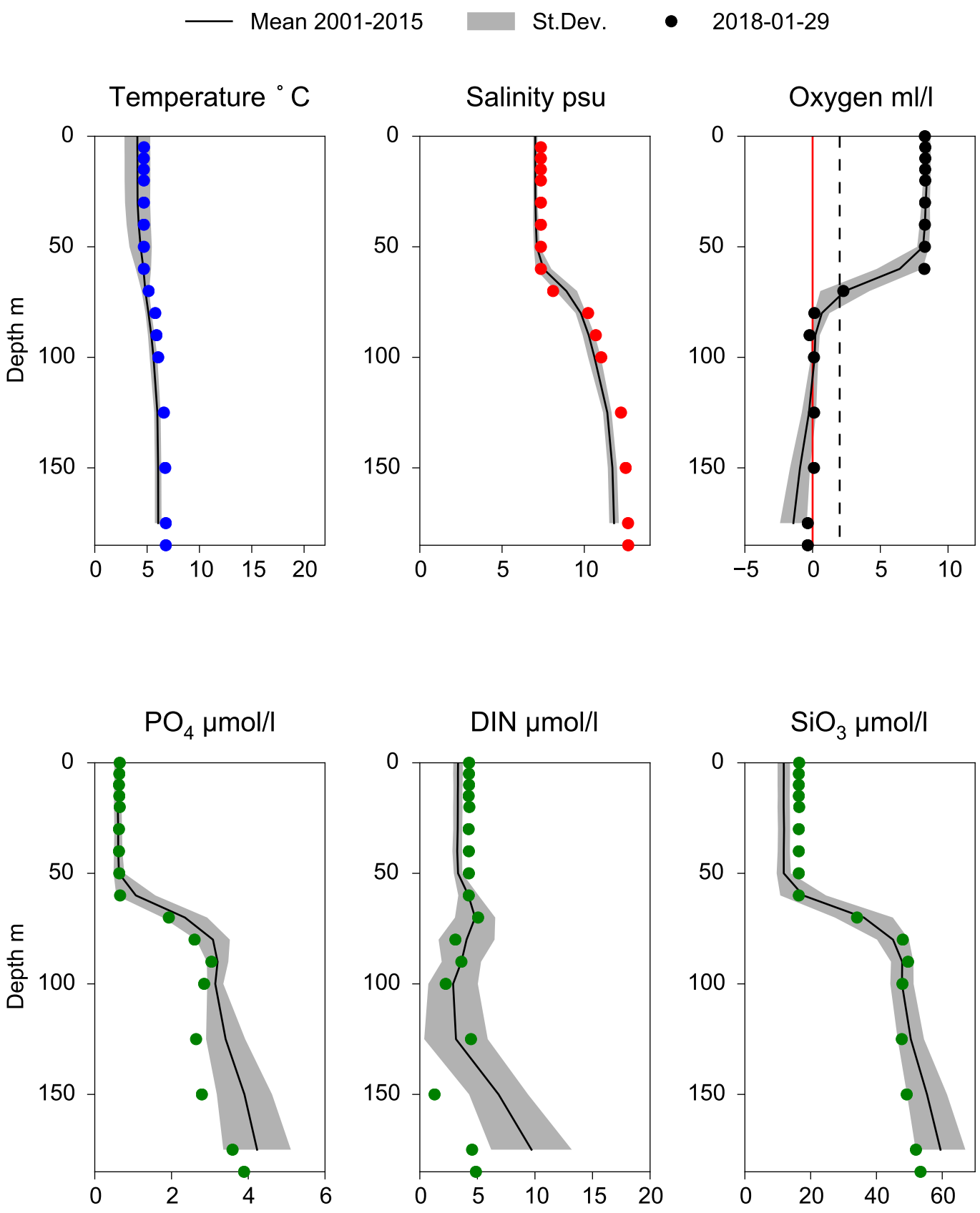


STATION BY20 FÅRÖDJ SURFACE WATER (0-10 m)

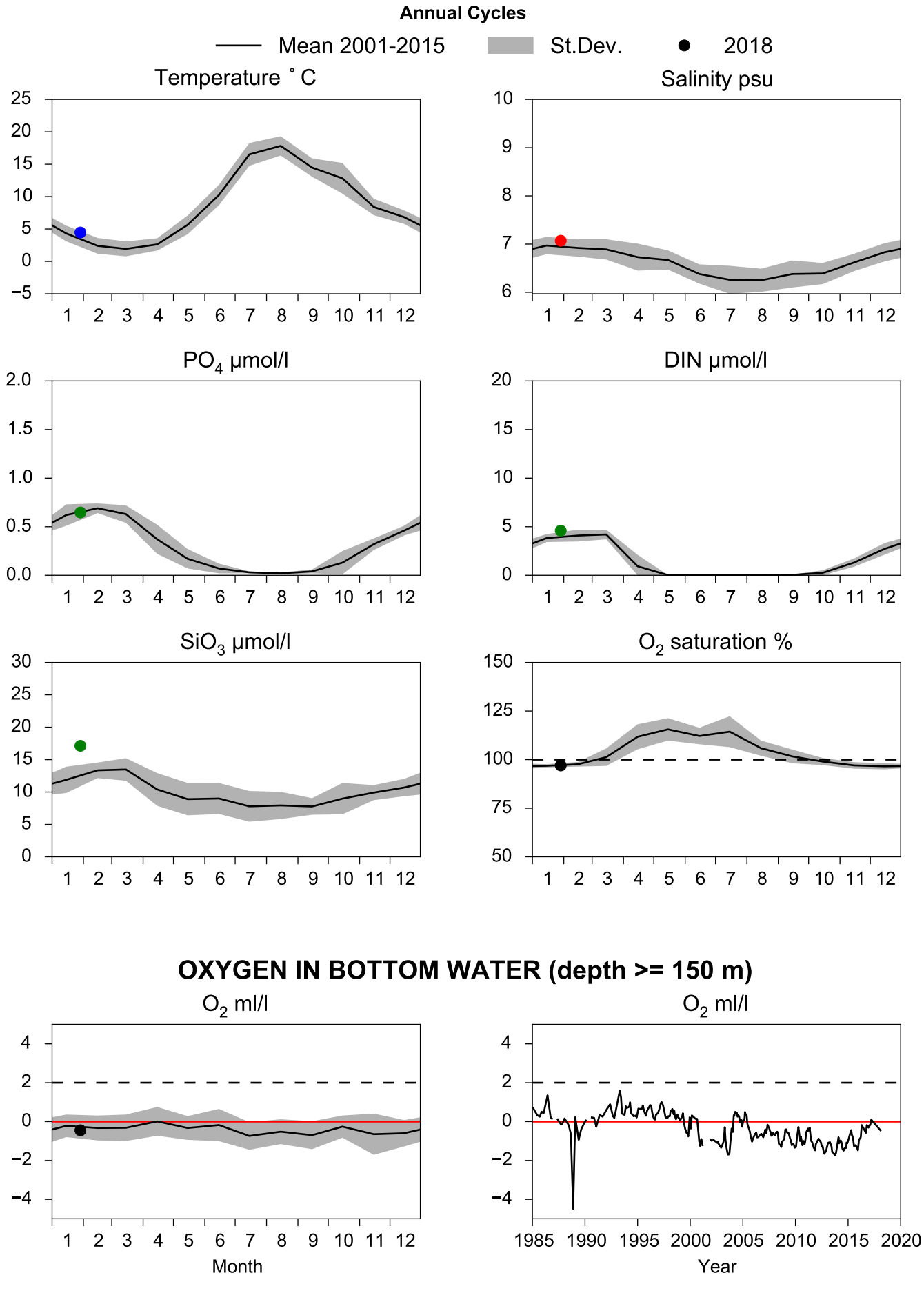


OXYGEN IN BOTTOM WATER (depth >= 175 m)

Vertical profiles BY20 FÅRÖDJ
January

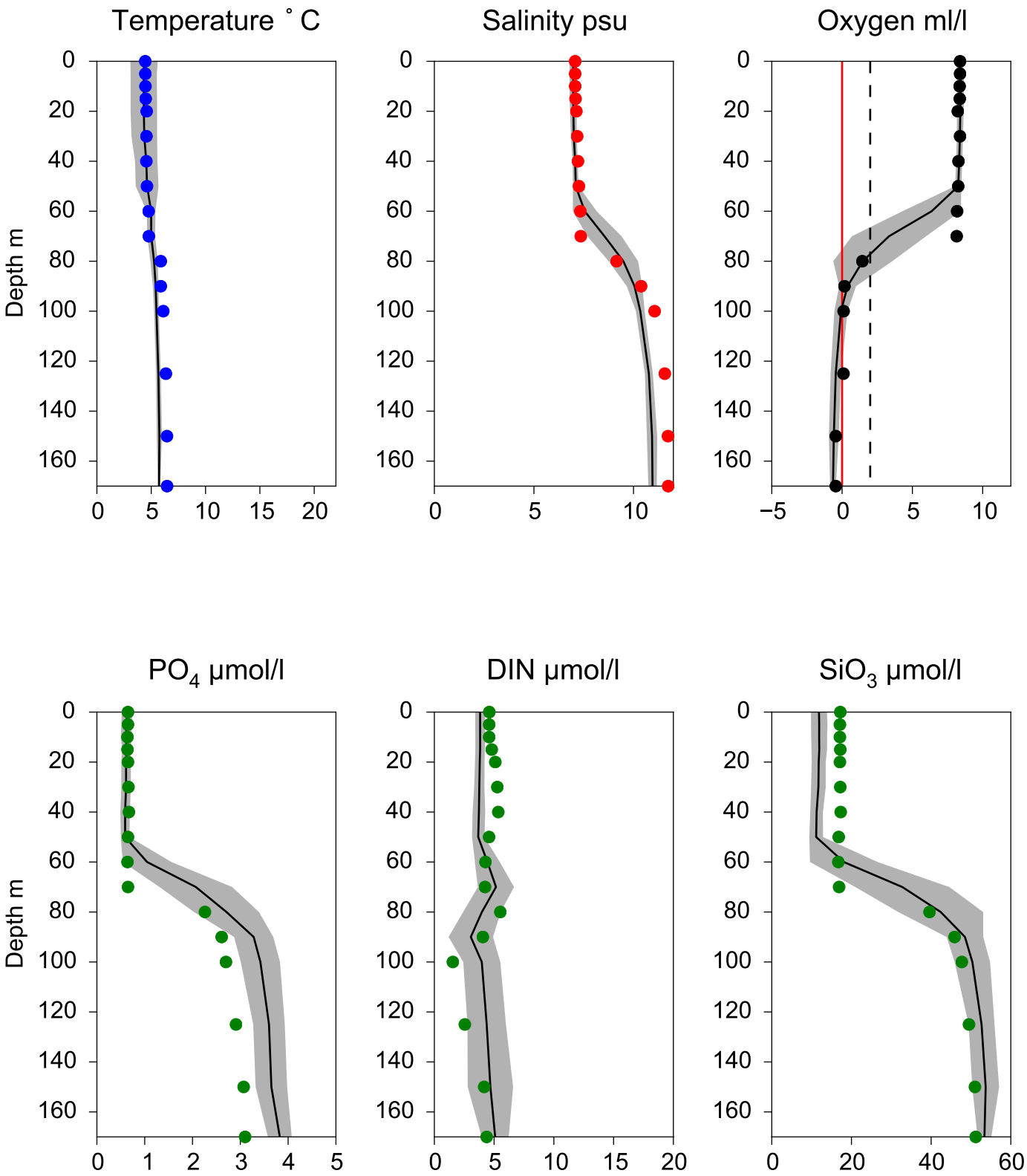


STATION BY29 / LL19 SURFACE WATER (0-10 m)



OXYGEN IN BOTTOM WATER (depth >= 150 m)

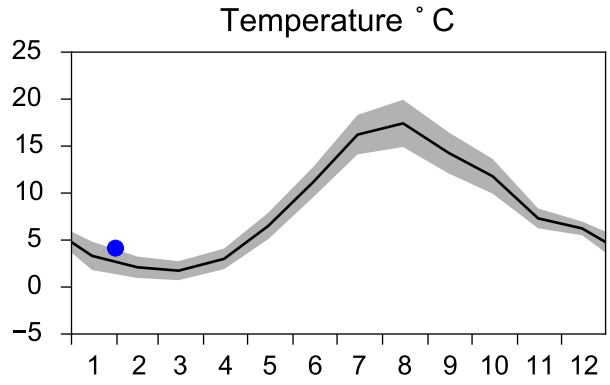
Vertical profiles BY29 / LL19
January

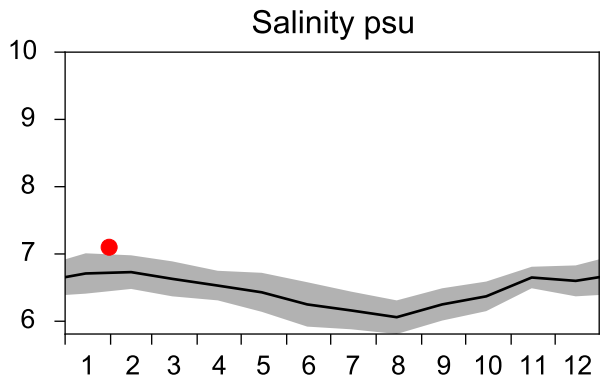


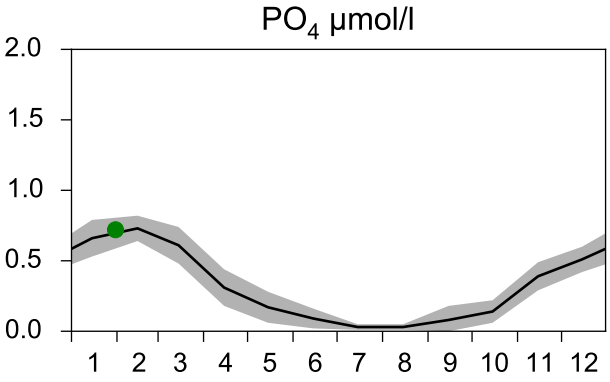
STATION BY31 LANDSORTSDJ SURFACE WATER (0-10 m)

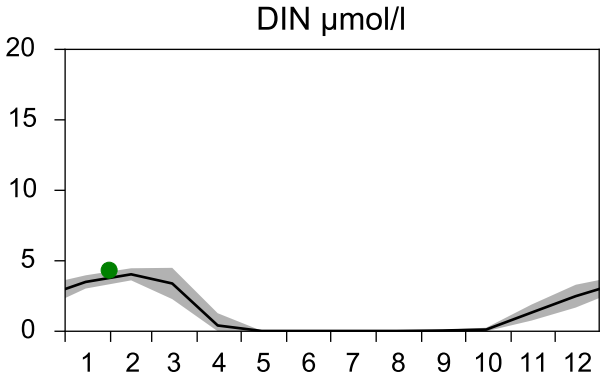
Annual Cycles

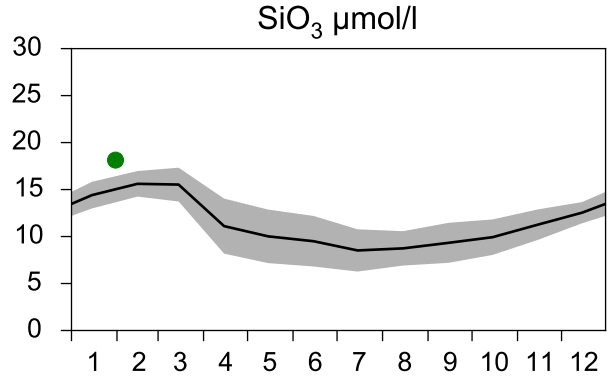
Mean 2001-2015 St.Dev. 2018

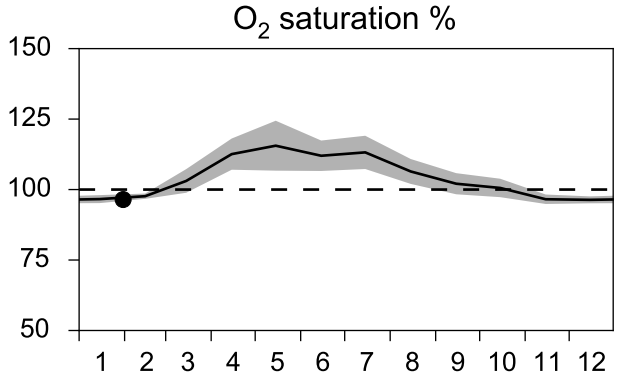




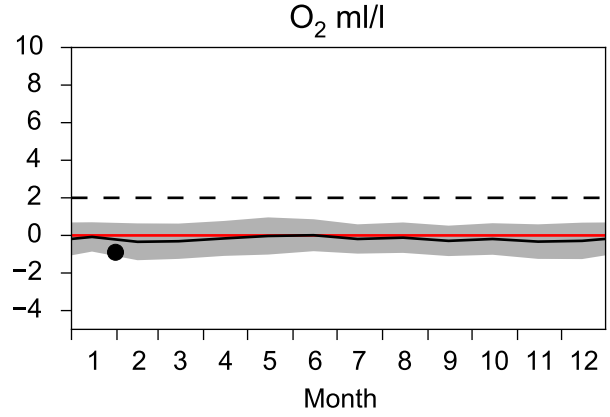


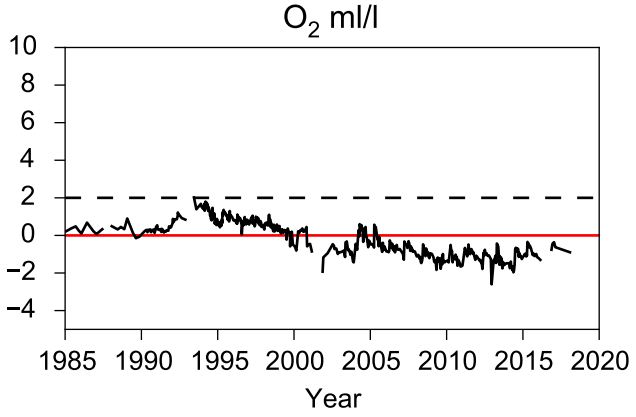




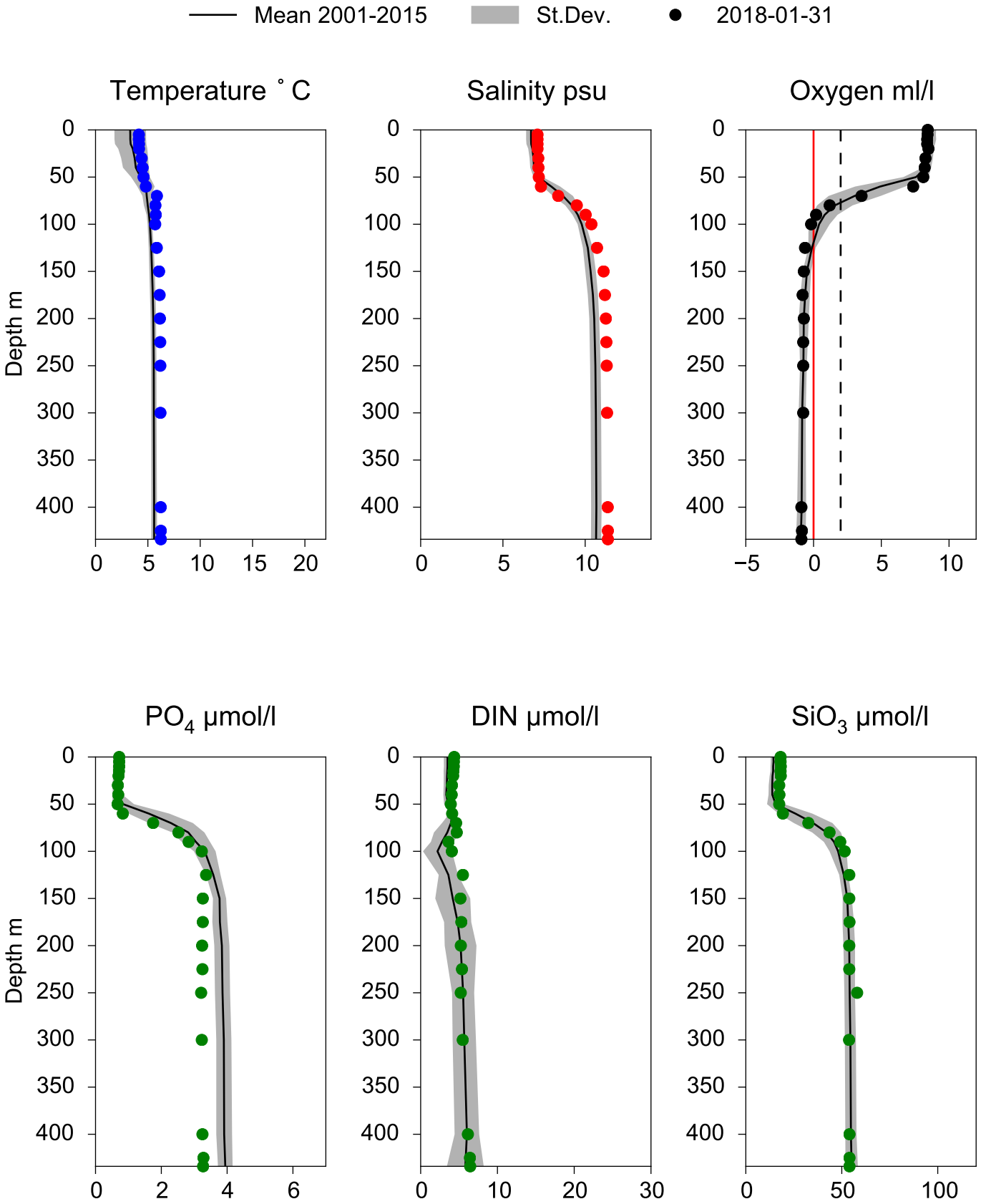


OXYGEN IN BOTTOM WATER (depth >= 425 m)

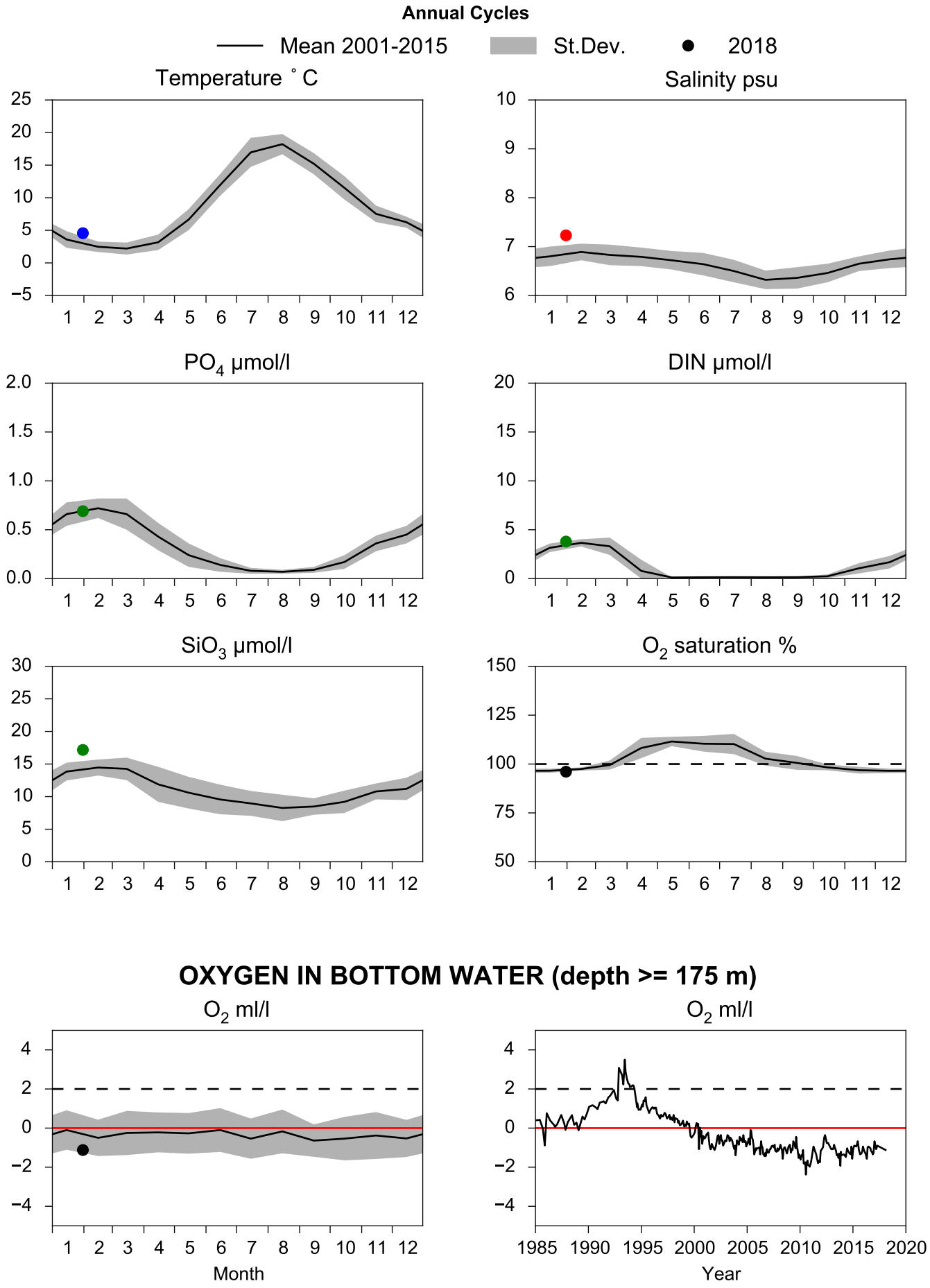




Vertical profiles BY31 LANDSORTSDJ
January

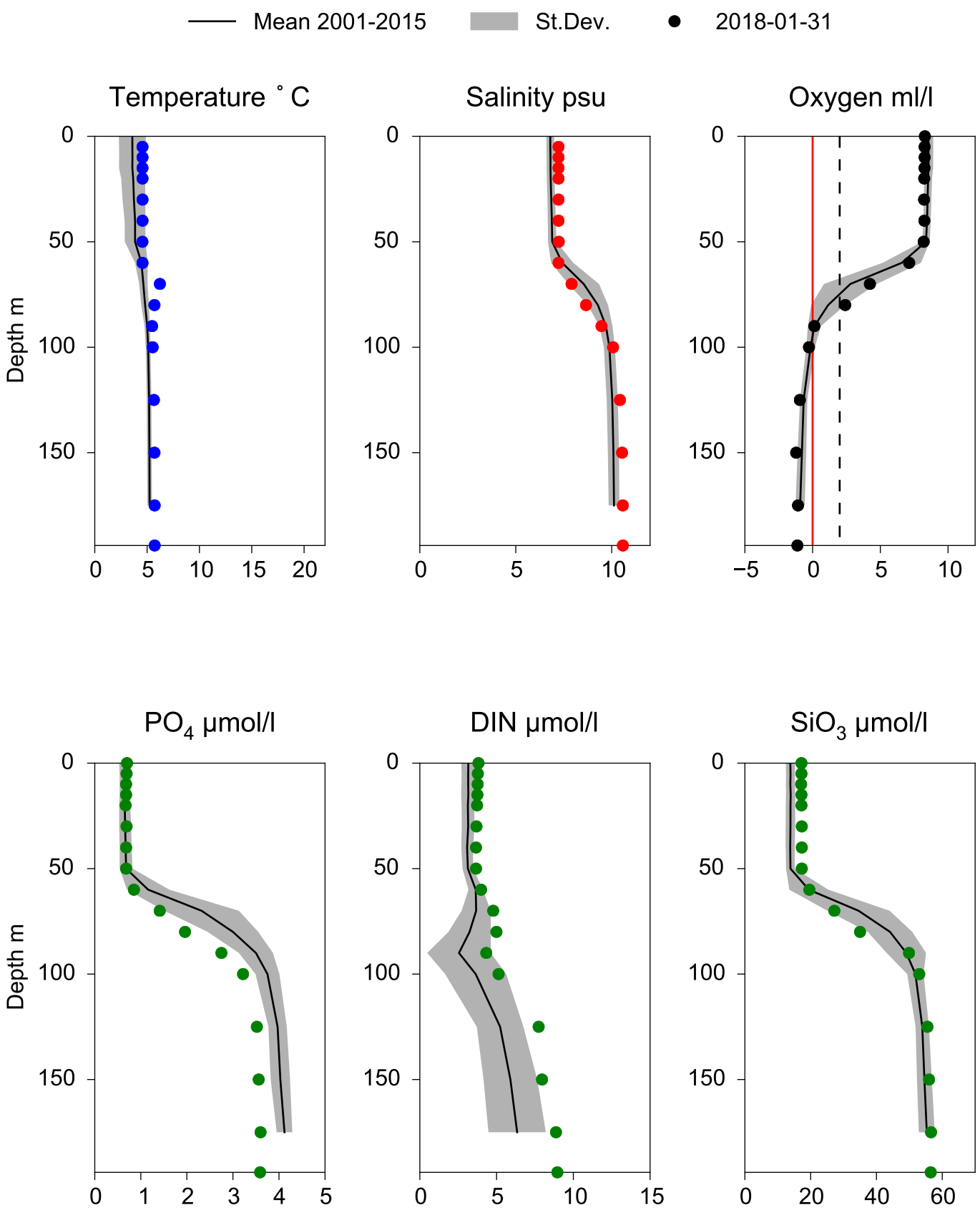


STATION BY32 NORRKÖPINGSDJ SURFACE WATER (0-10 m)



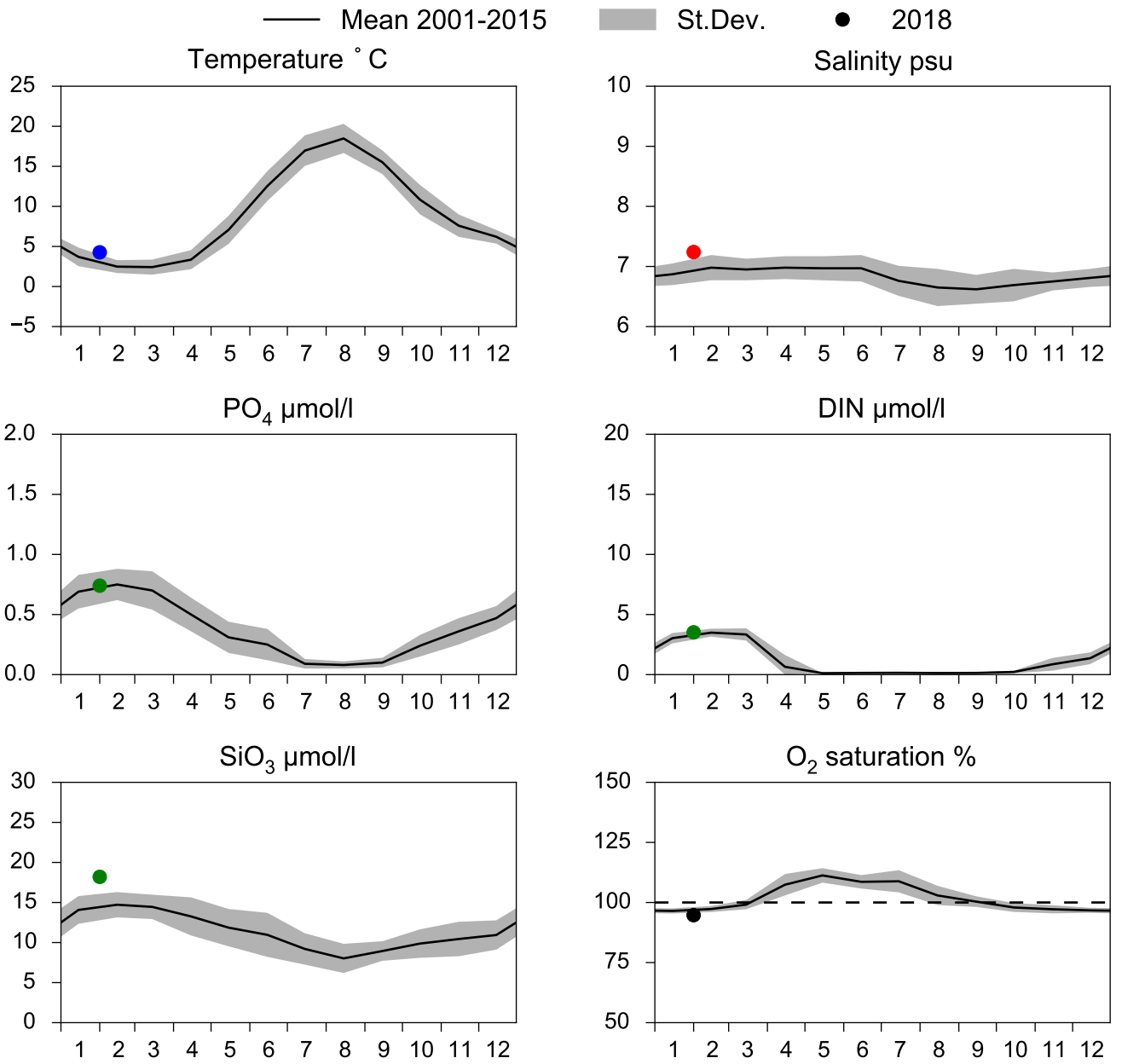
OXYGEN IN BOTTOM WATER (depth >= 175 m)

Vertical profiles BY32 NORRKÖPINGSDJ
January

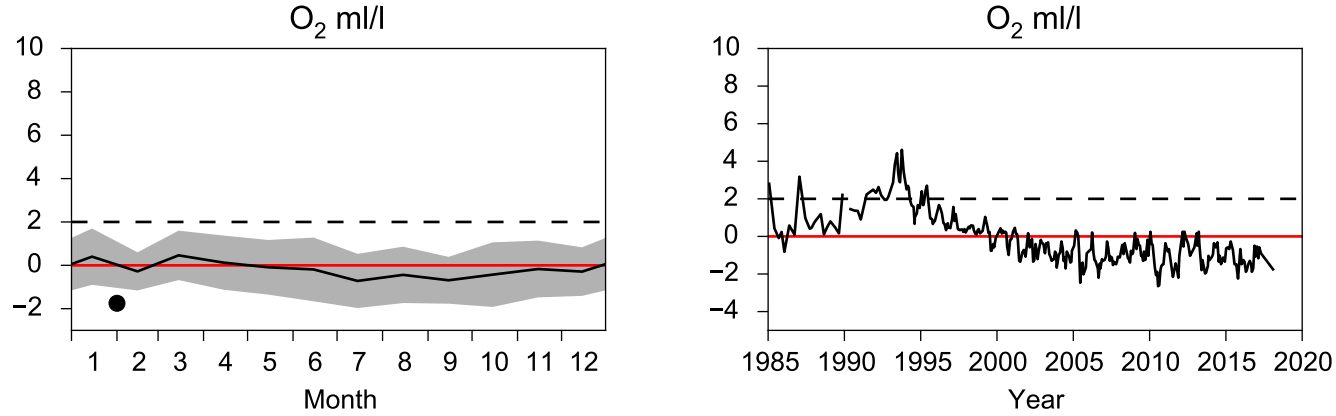


STATION BY38 KARLSÖDJ SURFACE WATER (0-10 m)

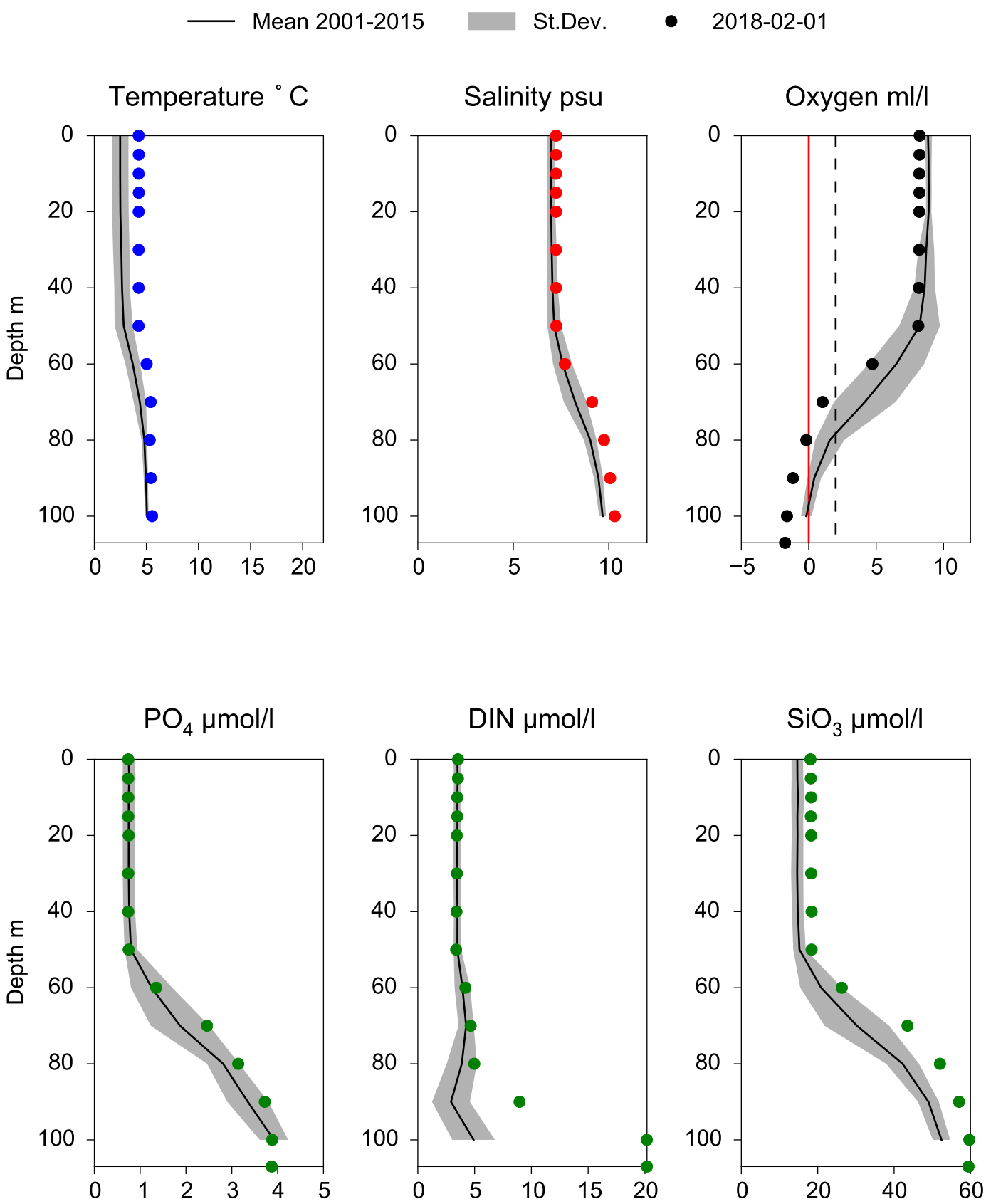
Annual Cycles



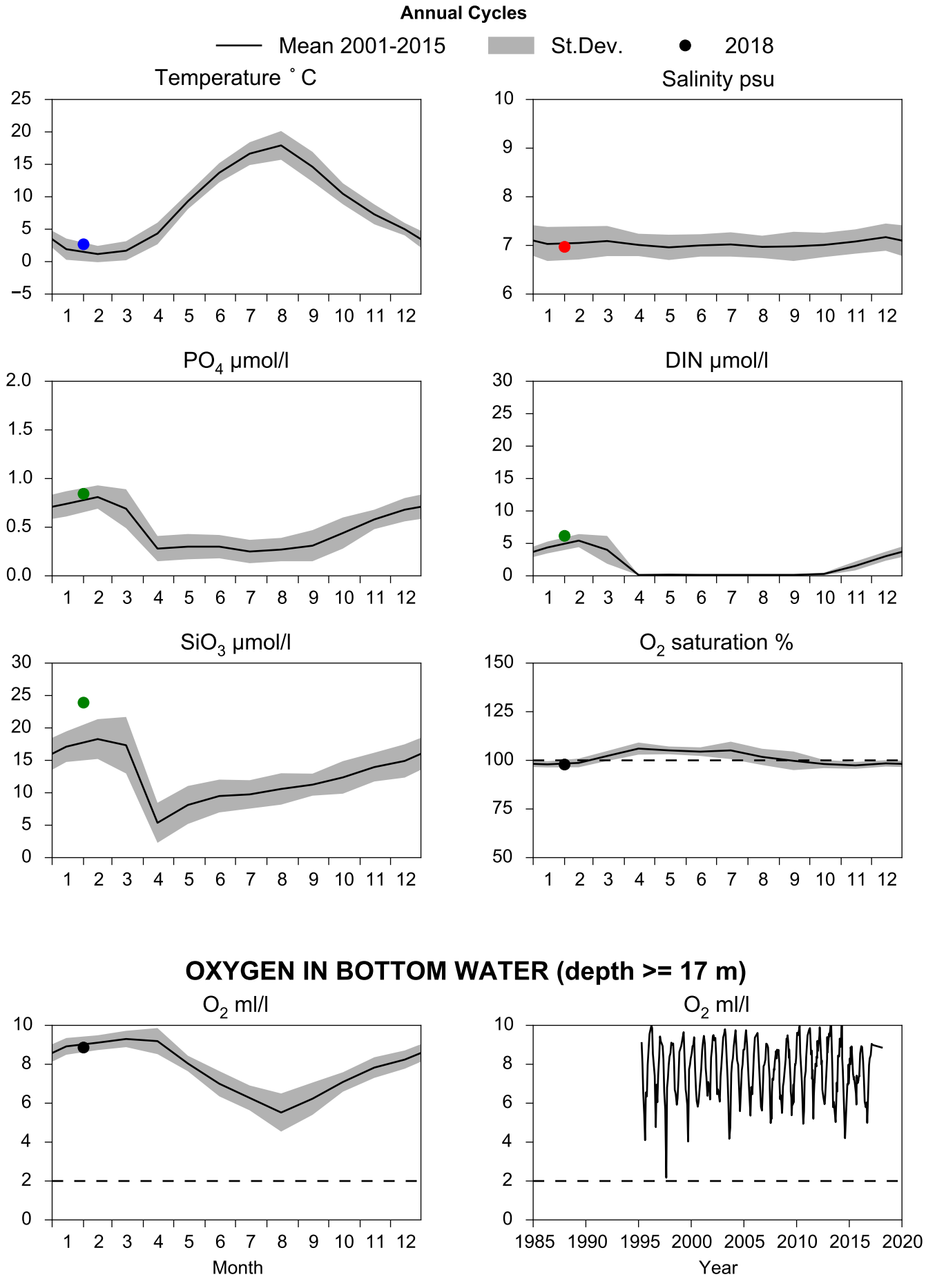
OXYGEN IN BOTTOM WATER (depth >= 100 m)



Vertical profiles BY38 KARLSÖDJ
February

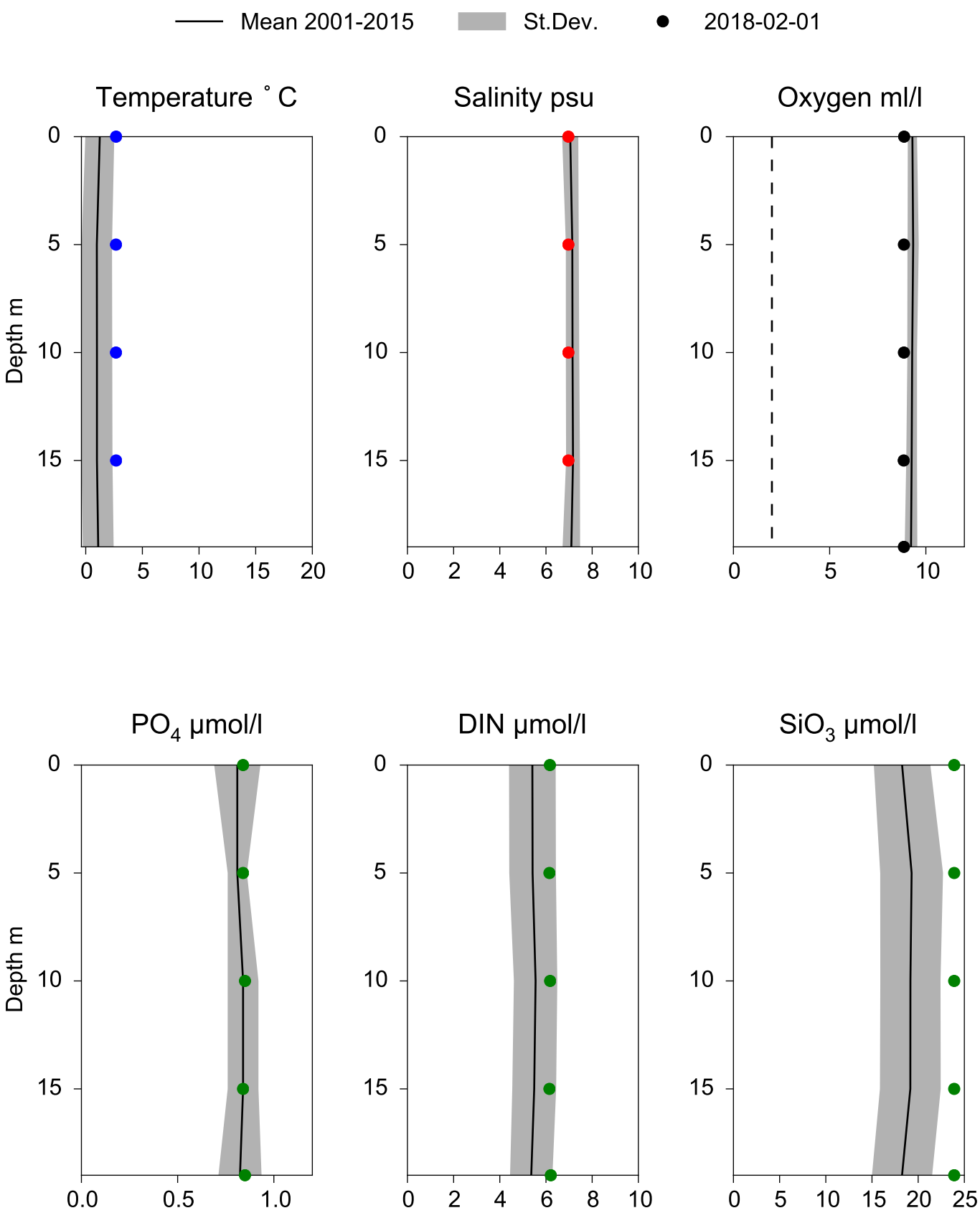


STATION REF M1V1 SURFACE WATER (0-10 m)

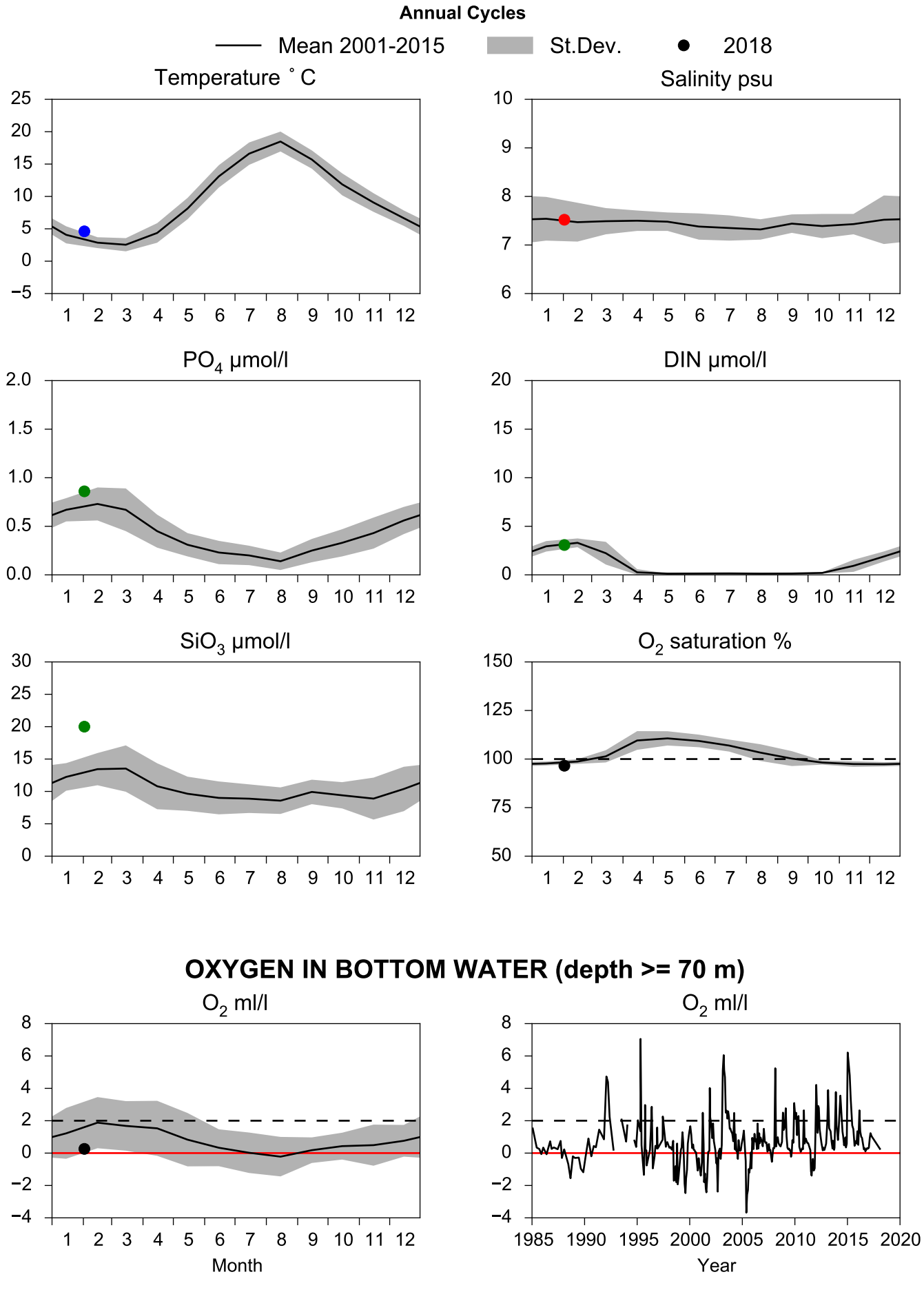


OXYGEN IN BOTTOM WATER (depth >= 17 m)

Vertical profiles REF M1V1
February

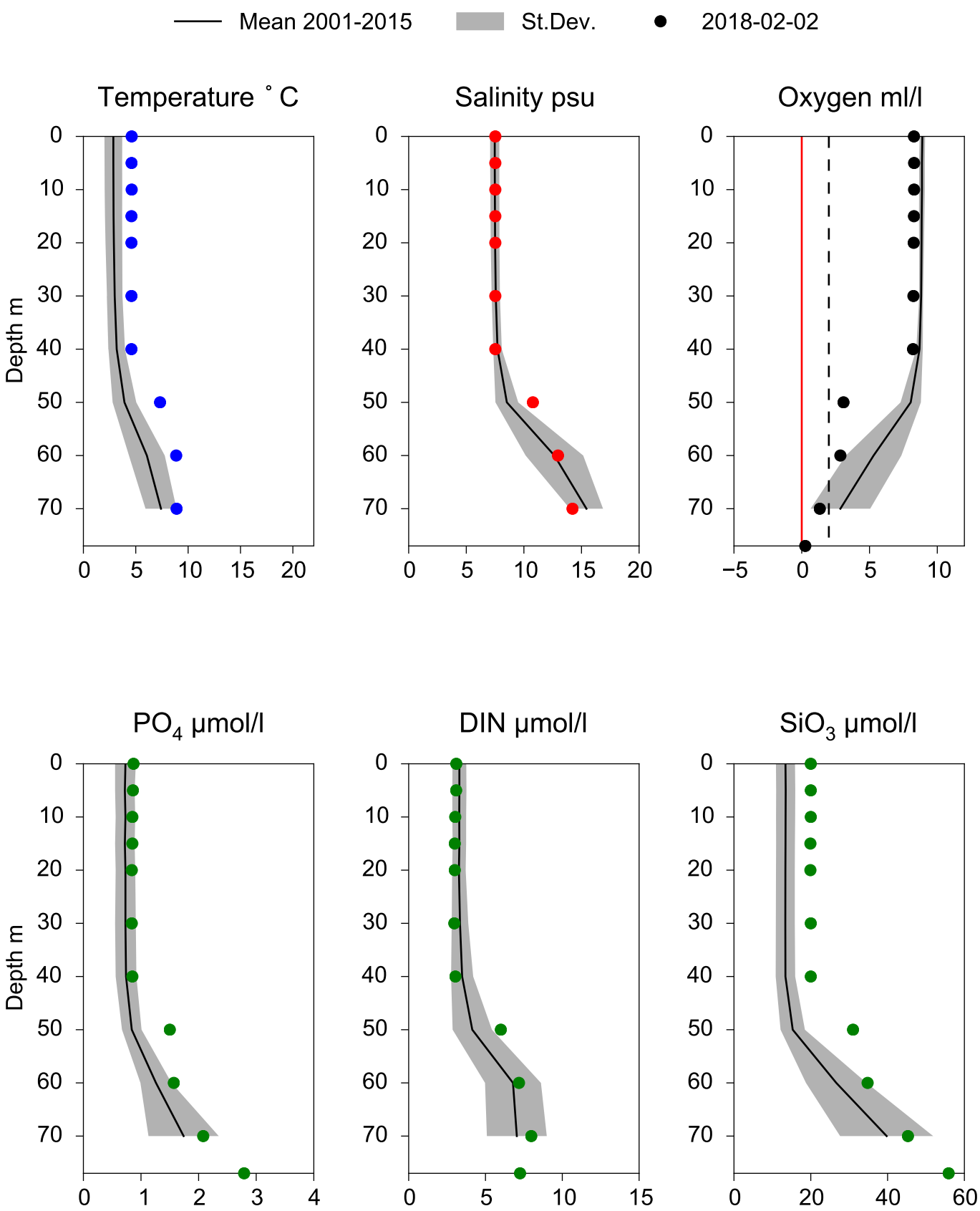


STATION HANÖBUKTEN SURFACE WATER (0-10 m)

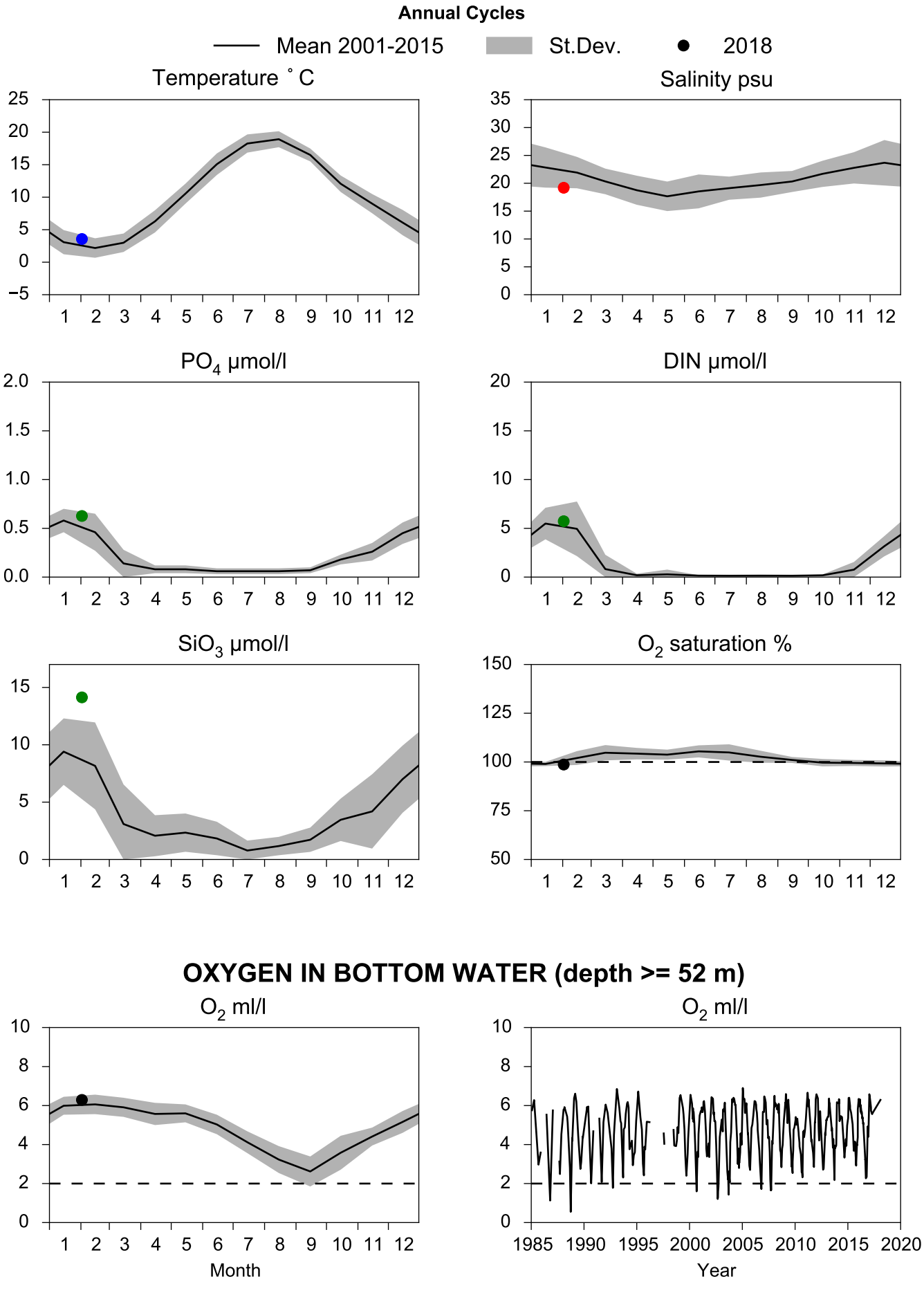


OXYGEN IN BOTTOM WATER (depth >= 70 m)

Vertical profiles HANÖBUKTEN
February

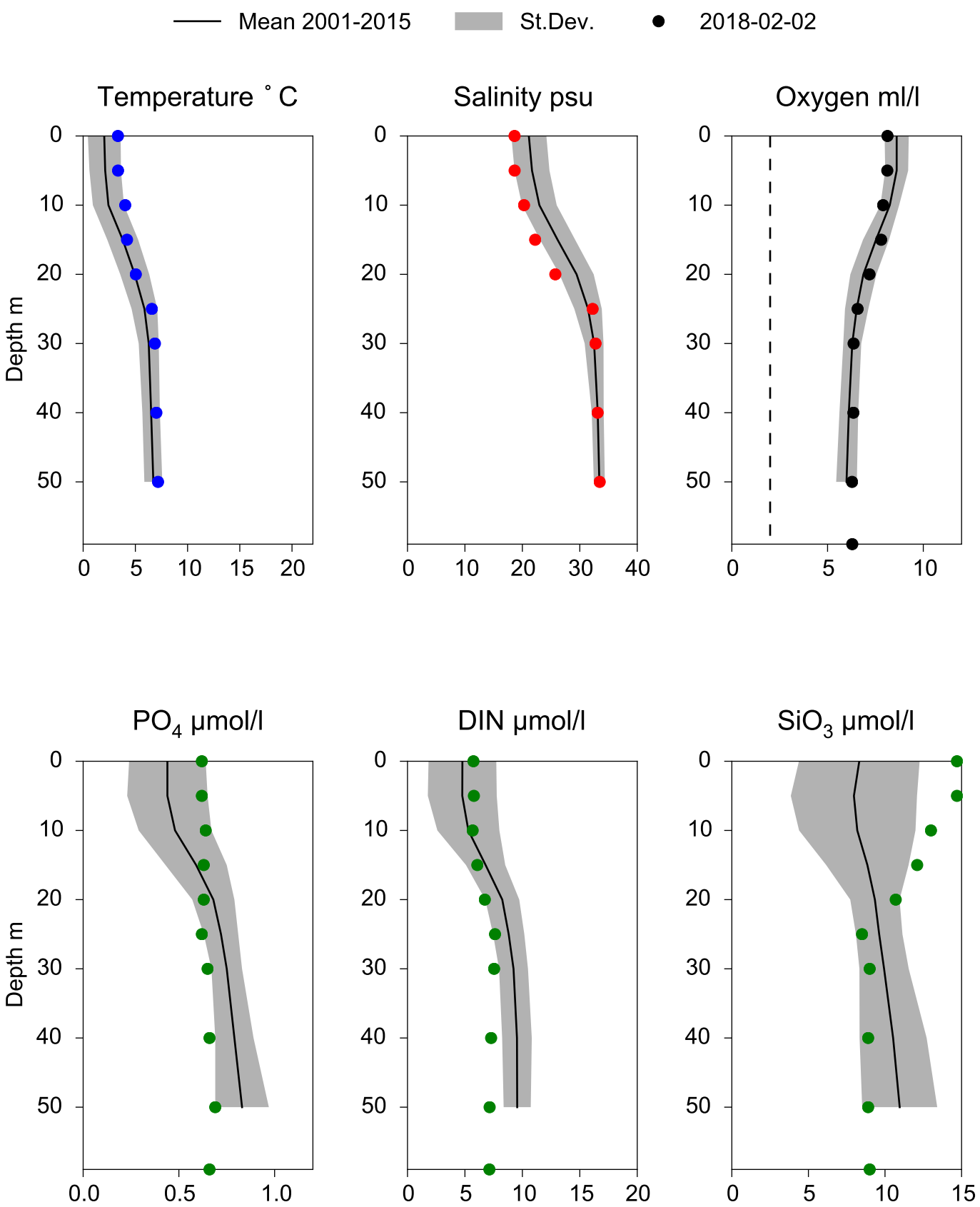


STATION ANHOLT E SURFACE WATER (0-10 m)



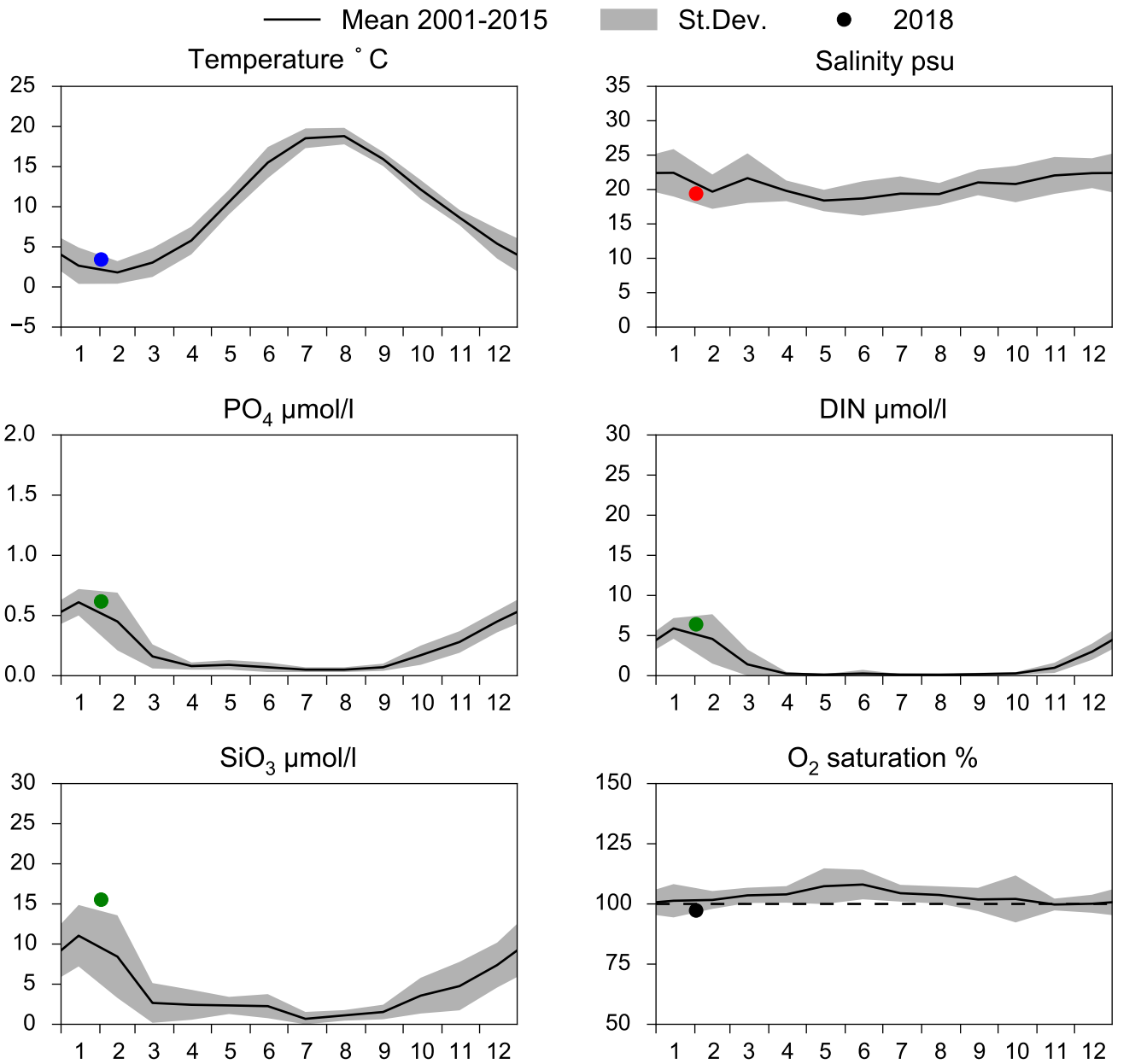
OXYGEN IN BOTTOM WATER (depth >= 52 m)

Vertical profiles ANHOLT E
February

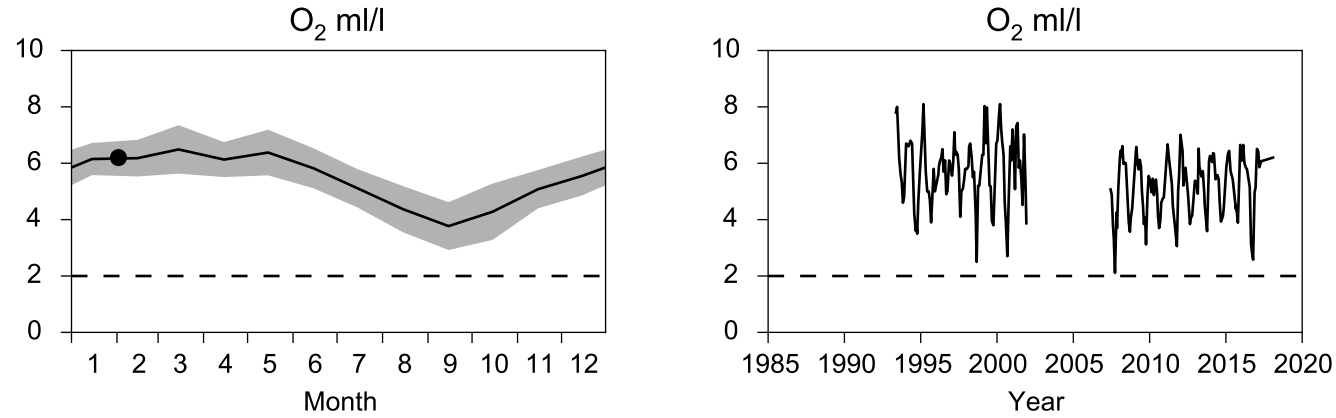


STATION N14 FALKENBERG SURFACE WATER (0-10 m)

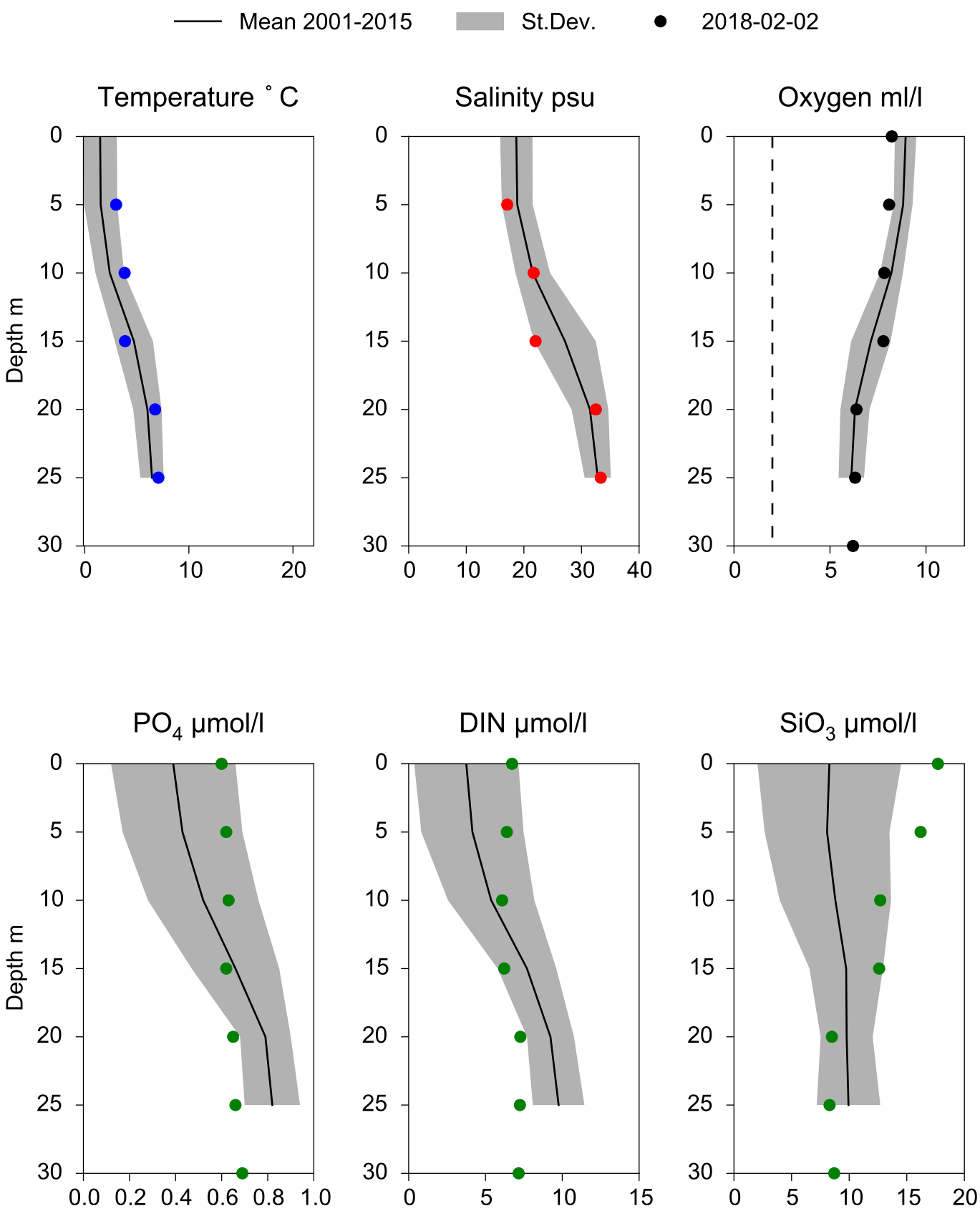
Annual Cycles



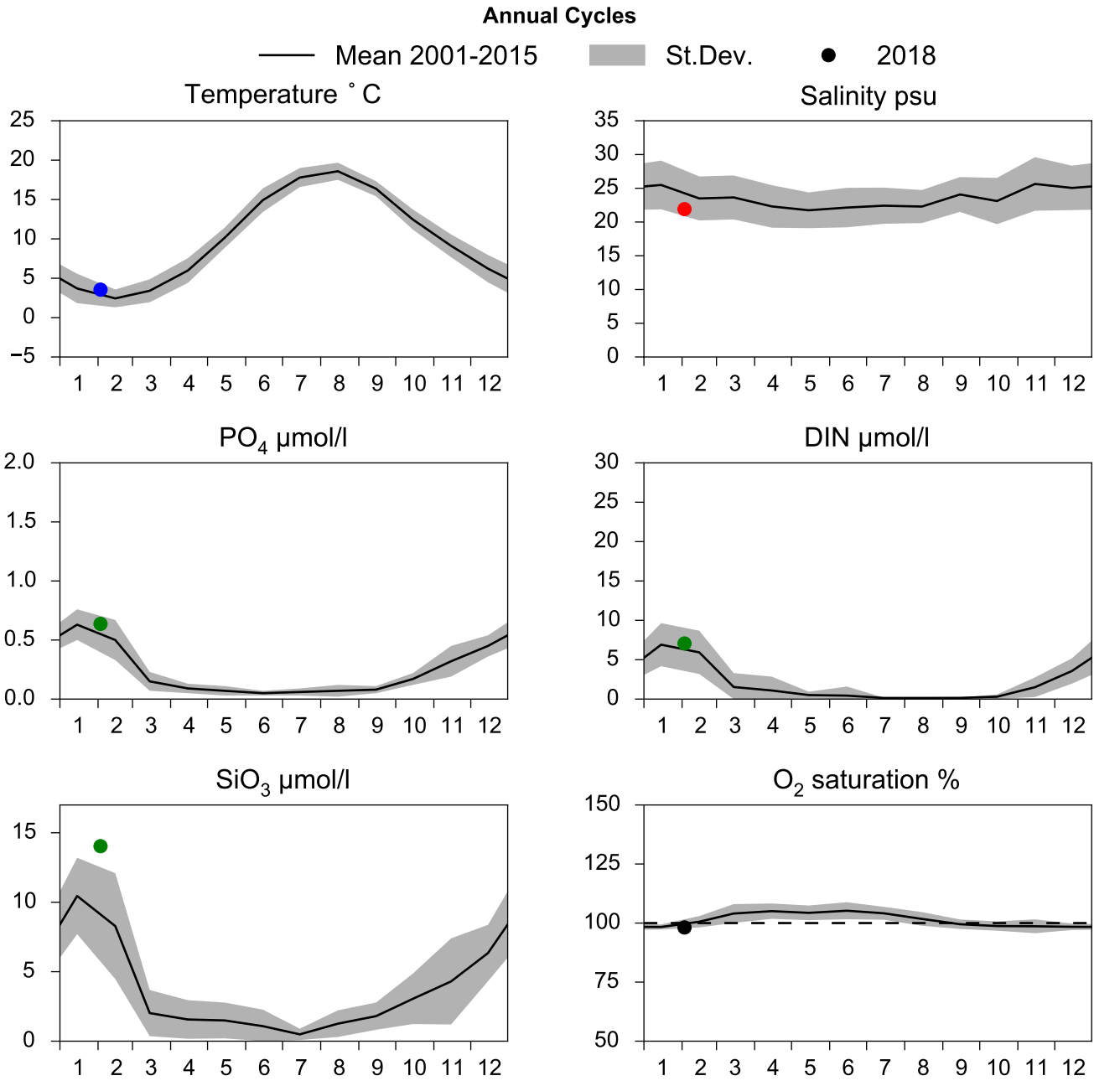
OXYGEN IN BOTTOM WATER (depth >= 25 m)



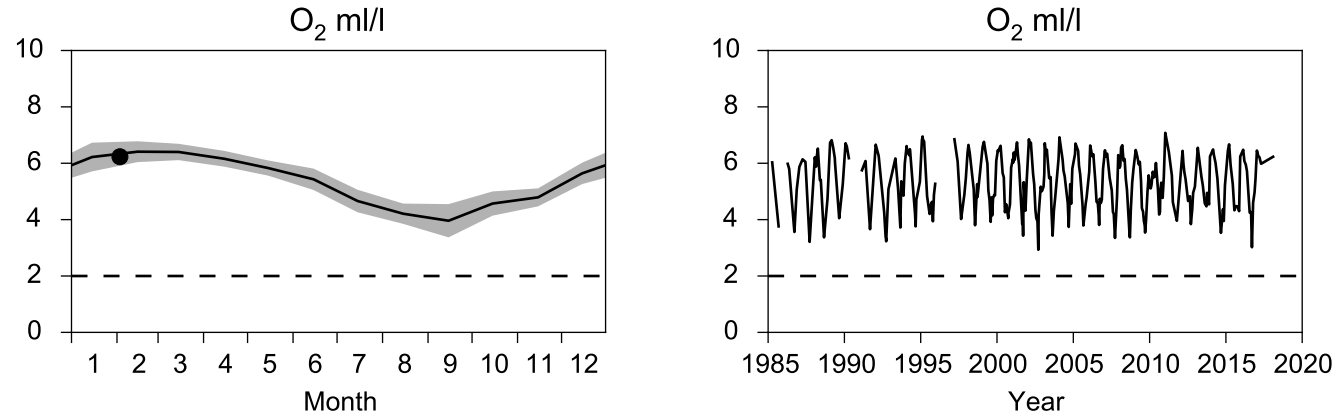
Vertical profiles N14 FALKENBERG
February



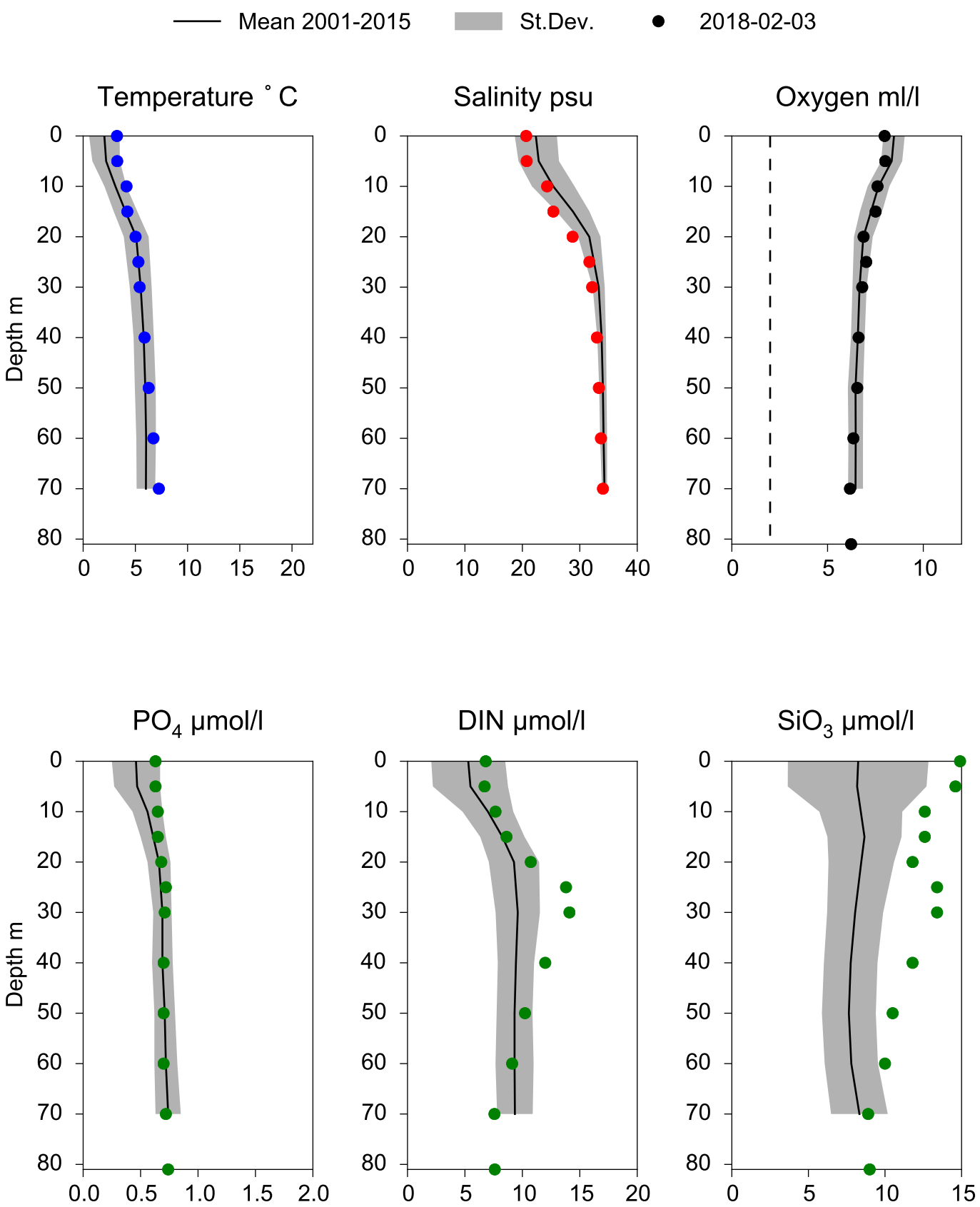
STATION FLADEN SURFACE WATER (0-10 m)



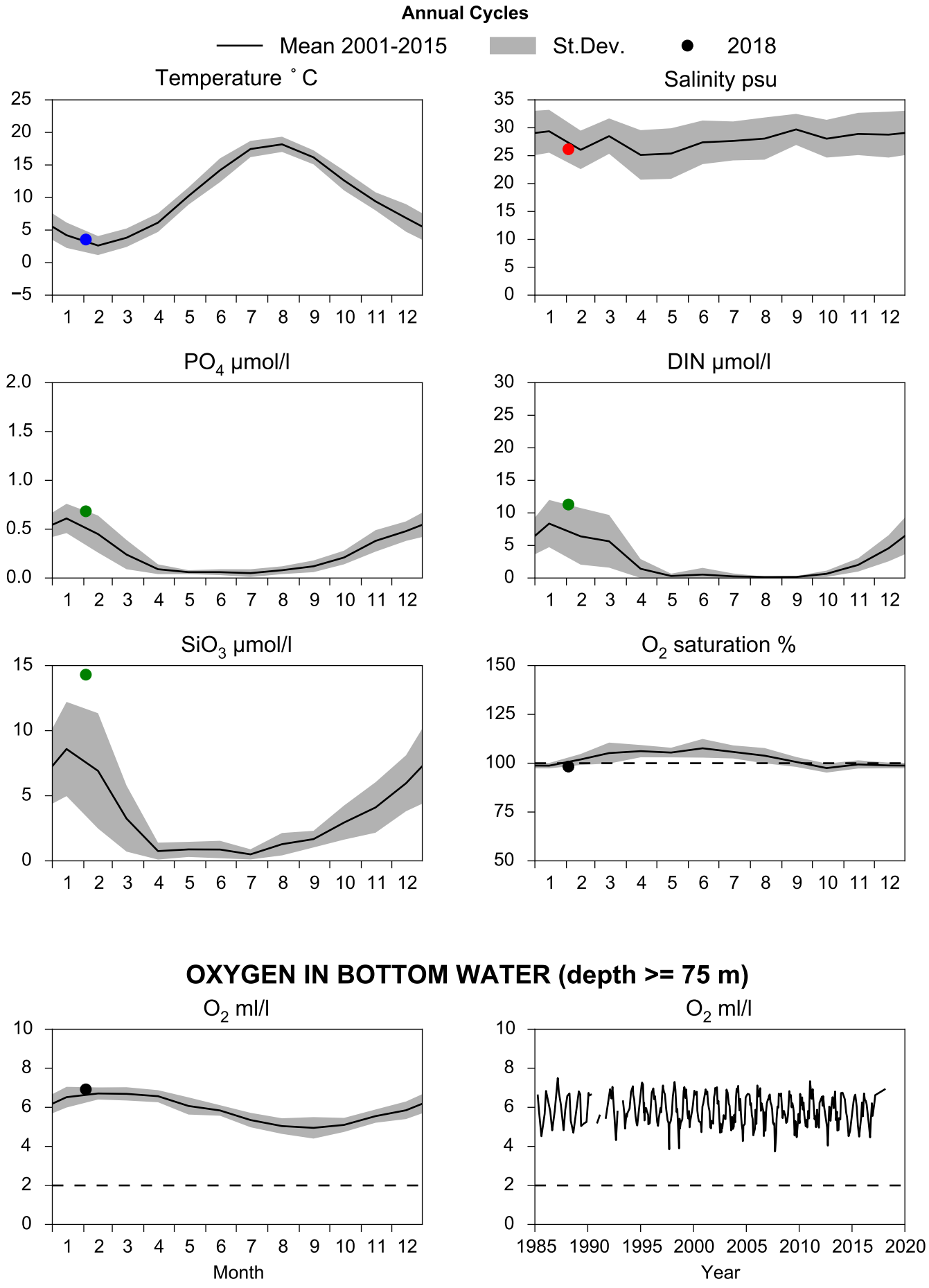
OXYGEN IN BOTTOM WATER (depth >= 74 m)



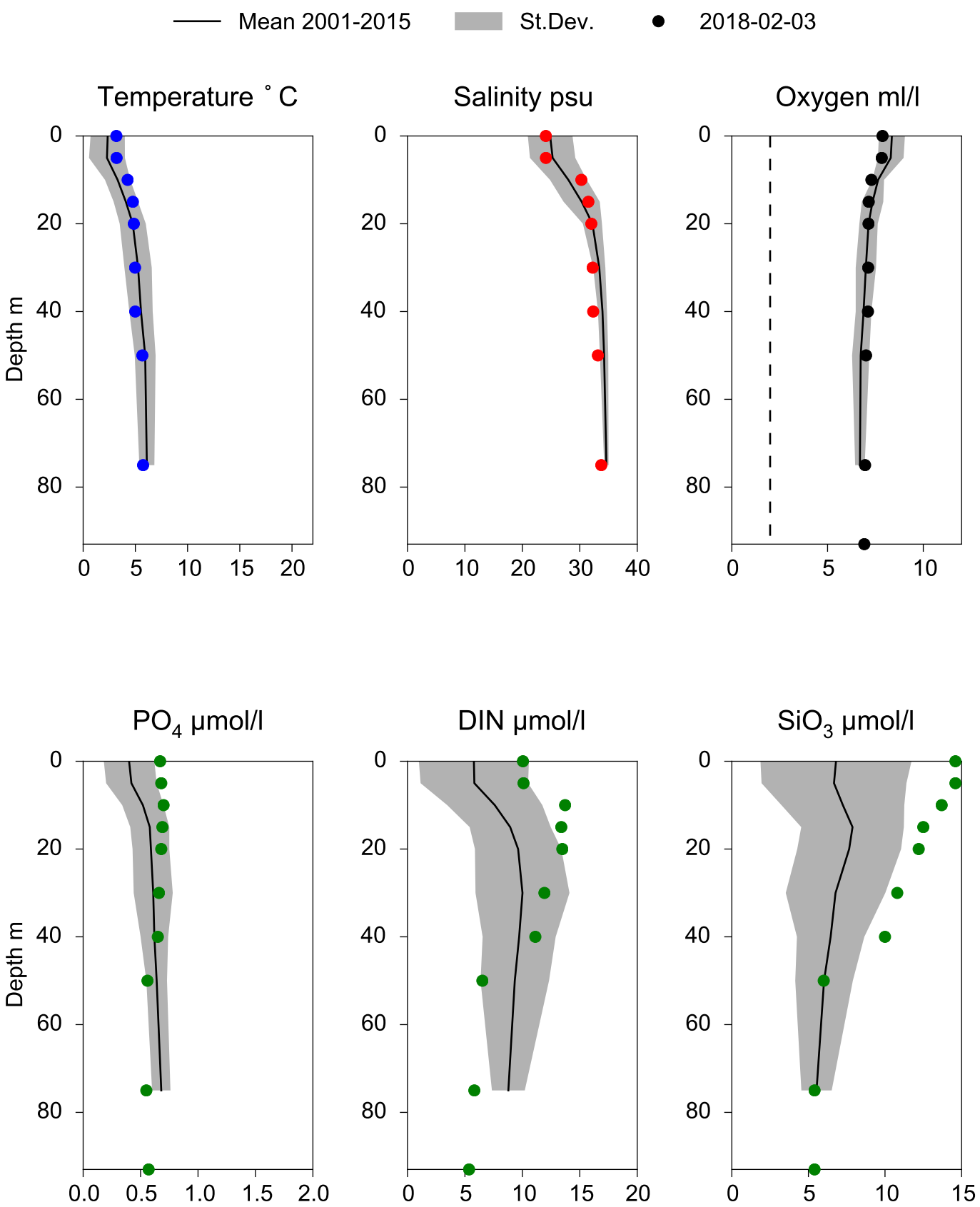
Vertical profiles FLADEN
February



STATION P2 SURFACE WATER (0-10 m)



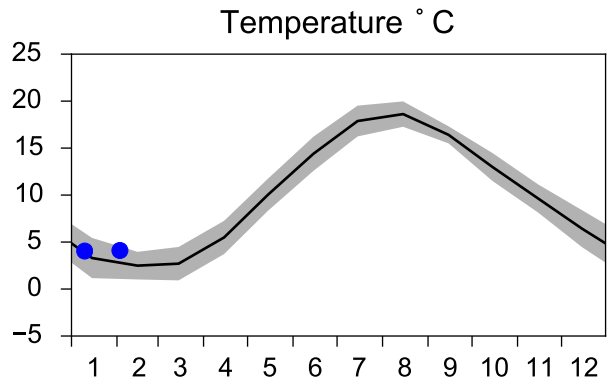
Vertical profiles P2
February

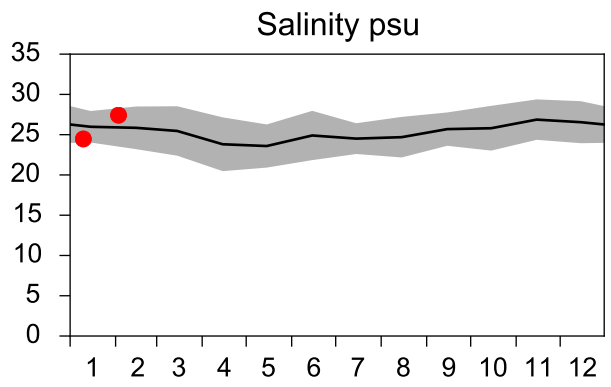


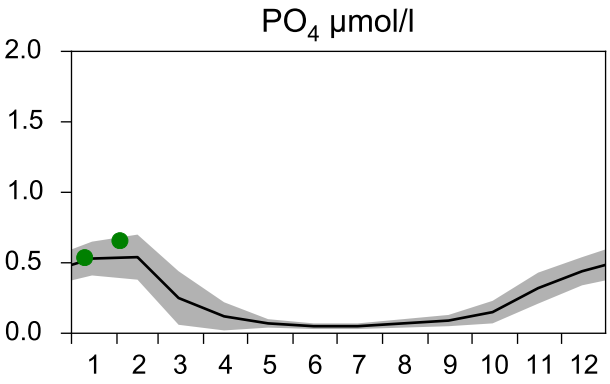
STATION SLÄGGÖ SURFACE WATER (0-10 m)

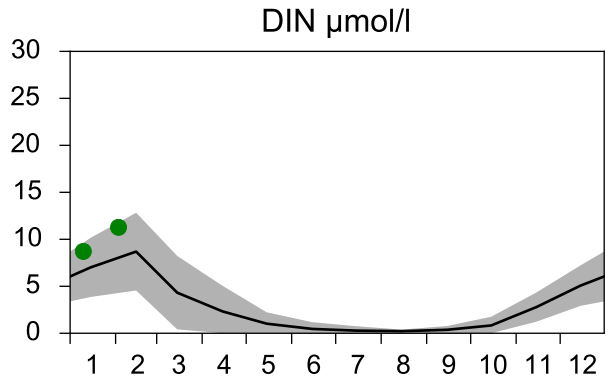
Annual Cycles

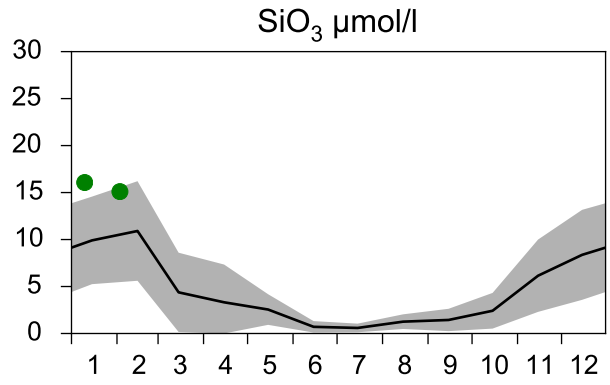
Mean 2001-2015 St.Dev. 2018

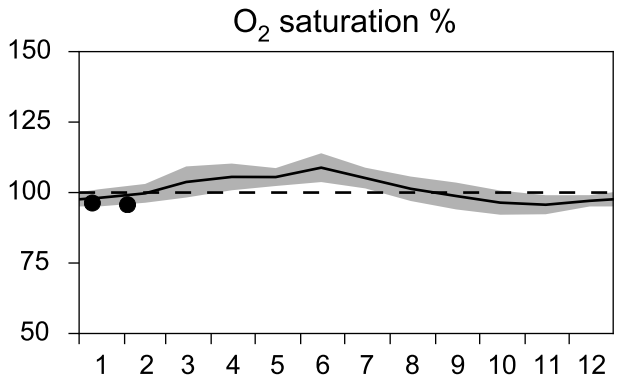




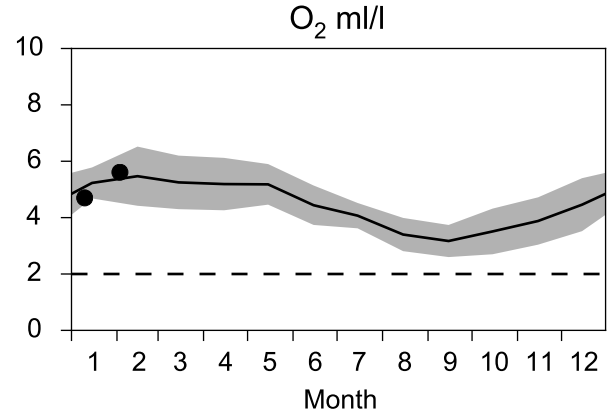


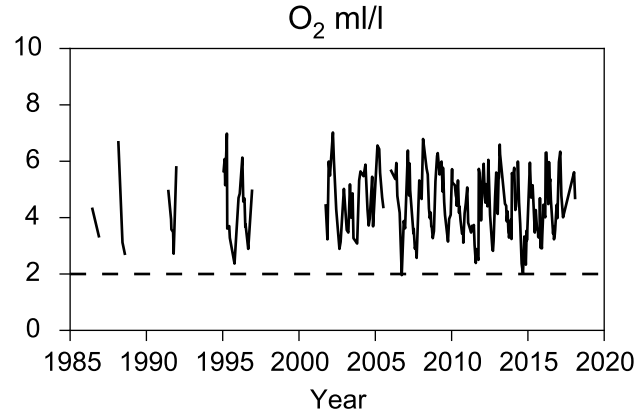




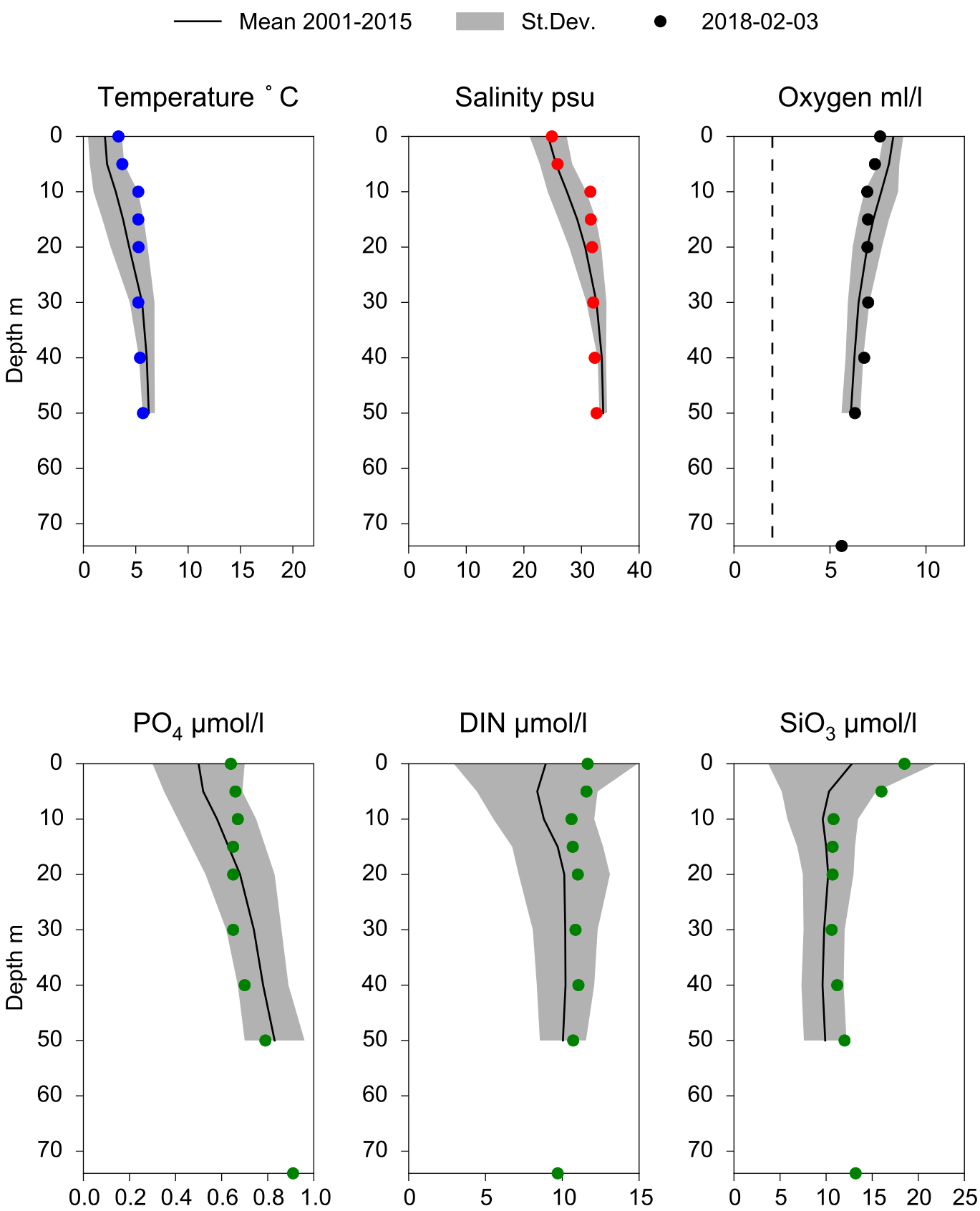


OXYGEN IN BOTTOM WATER (depth >= 64 m)



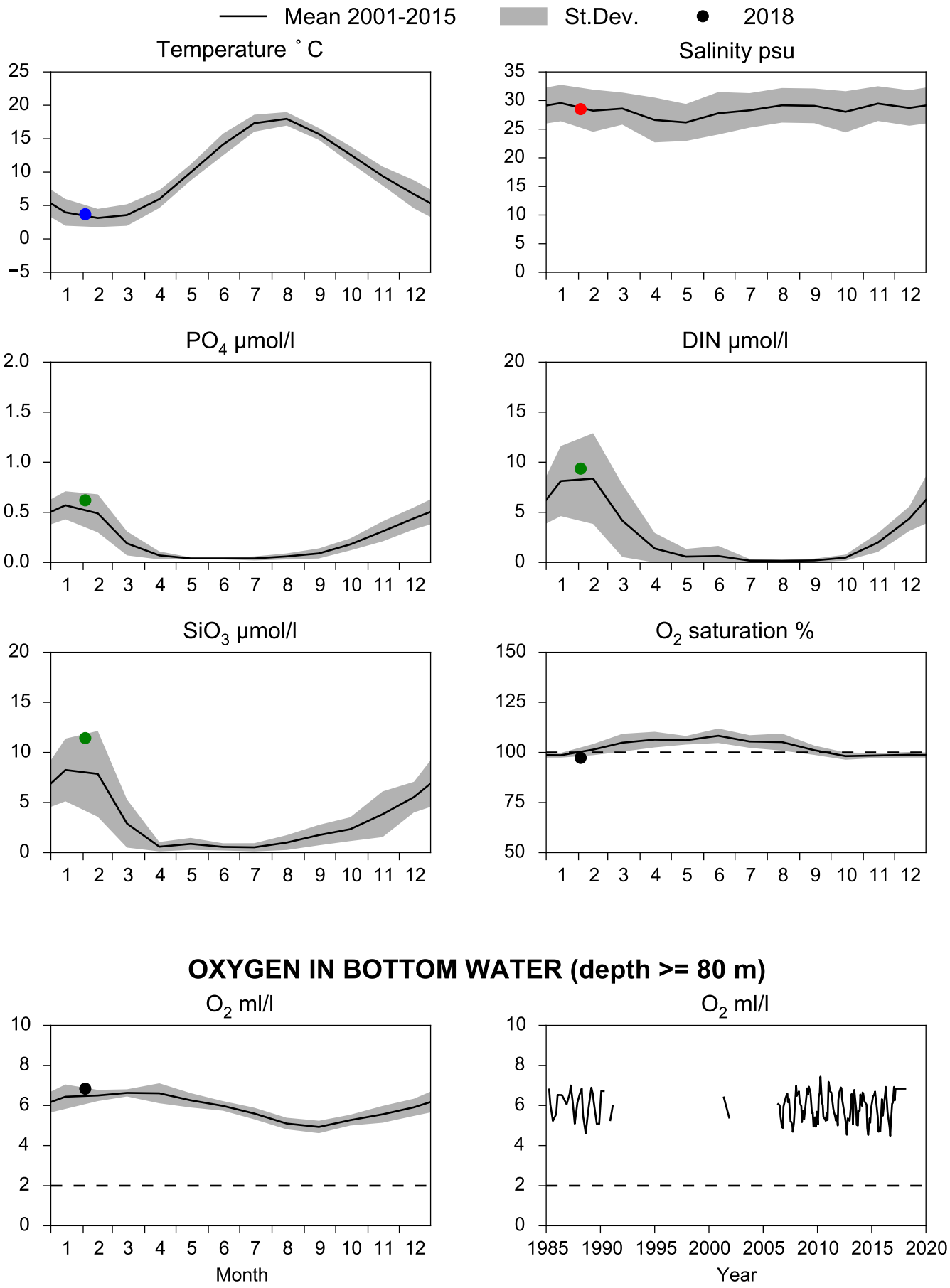


Vertical profiles SLÄGGÖ
February



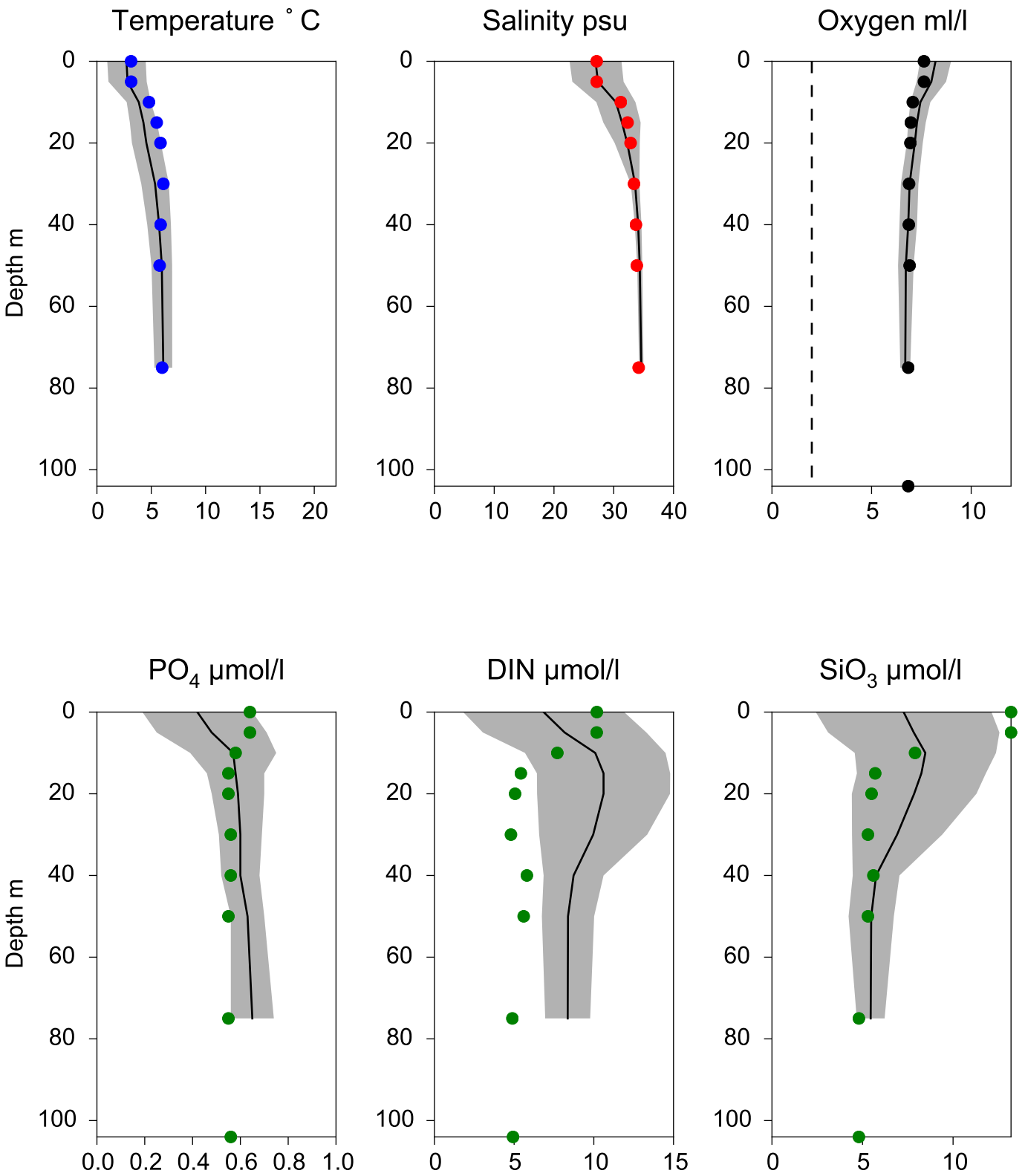
STATION Å13 SURFACE WATER (0-10 m)

Annual Cycles



OXYGEN IN BOTTOM WATER (depth >= 80 m)

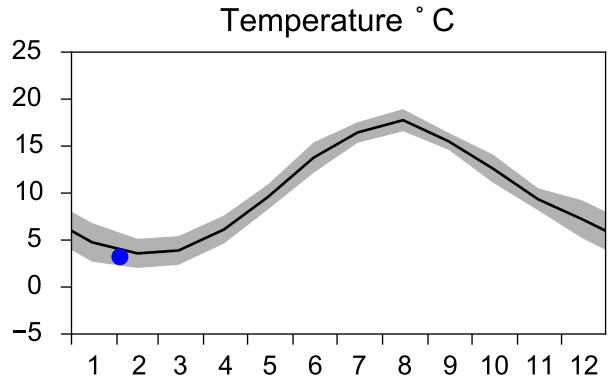
Vertical profiles Å13
February

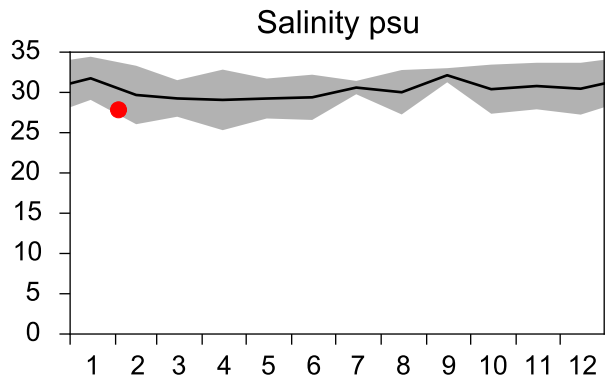


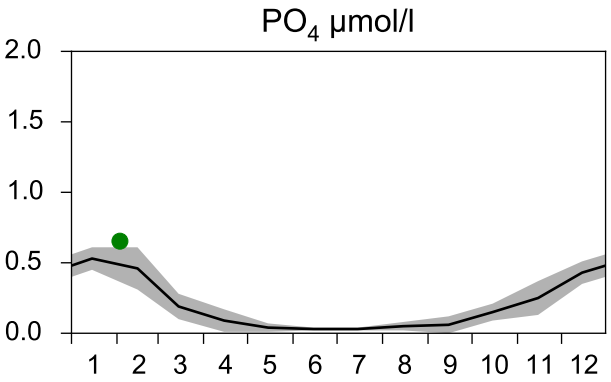
STATION Å15 SURFACE WATER (0-10 m)

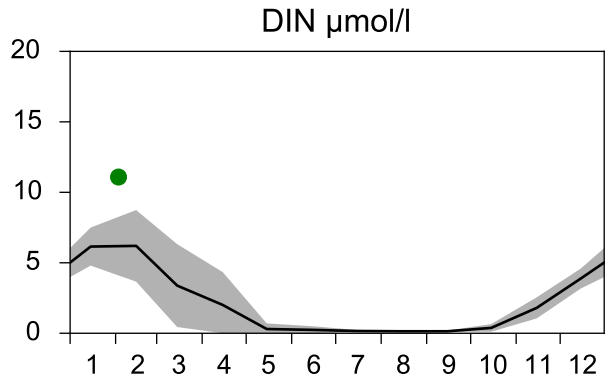
Annual Cycles

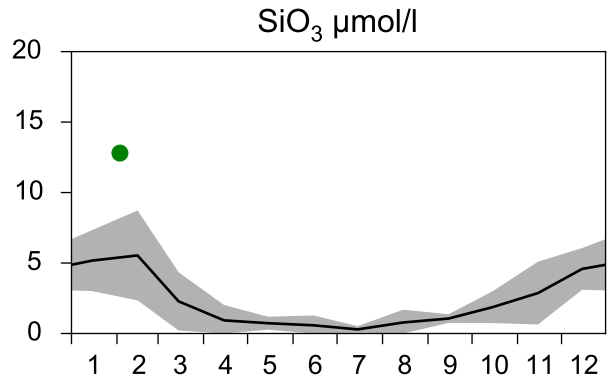
Mean 2001-2015 St.Dev. 2018

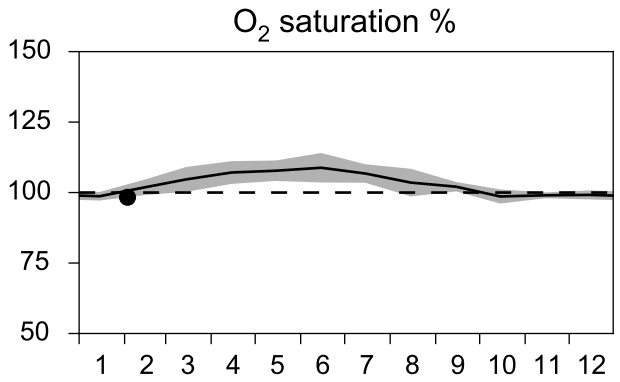




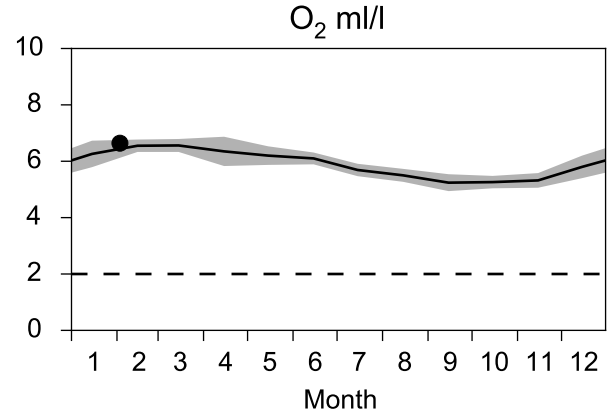


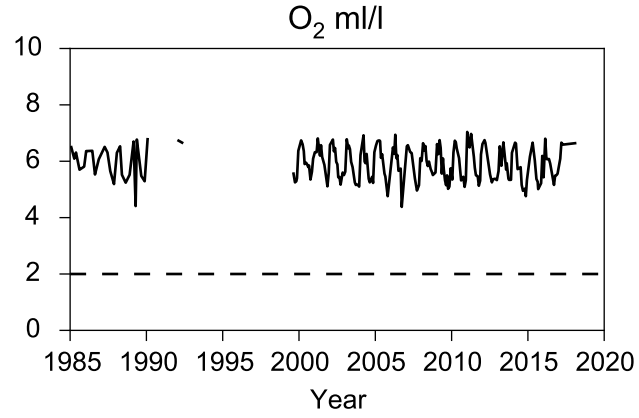




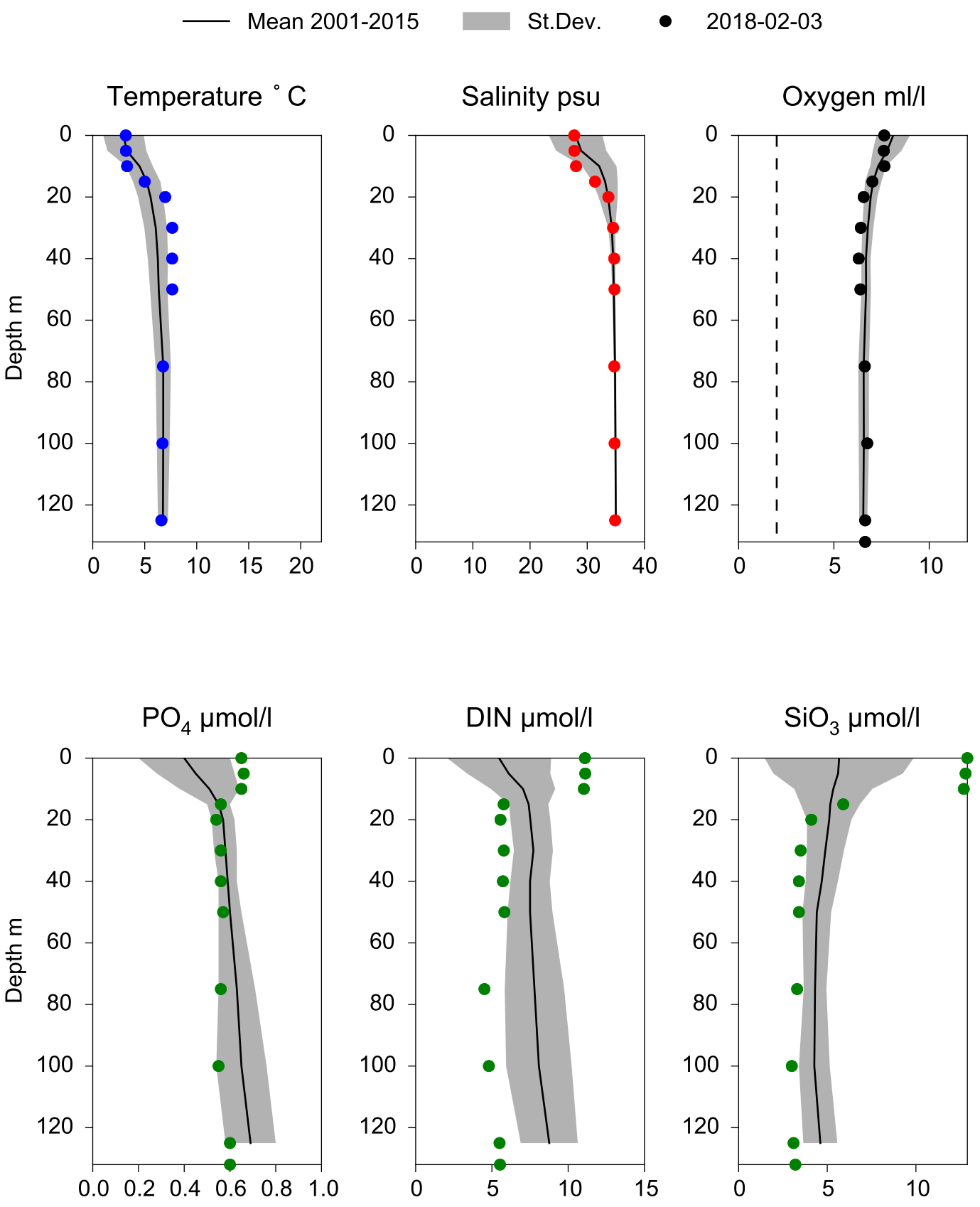


OXYGEN IN BOTTOM WATER (depth >= 125 m)





Vertical profiles Å15
February

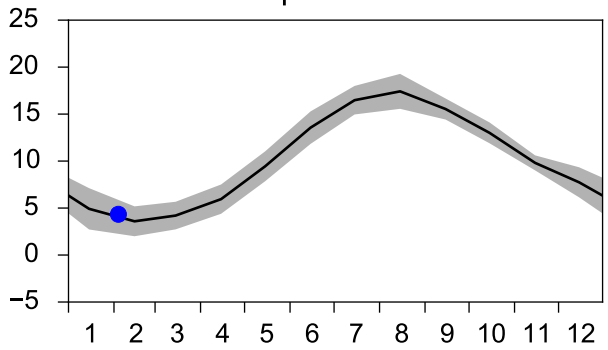


STATION Å17 SURFACE WATER (0-10 m)

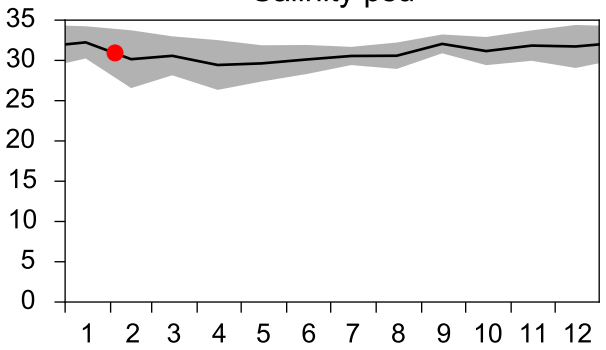
Annual Cycles

Mean 2001-2015 St.Dev. 2018

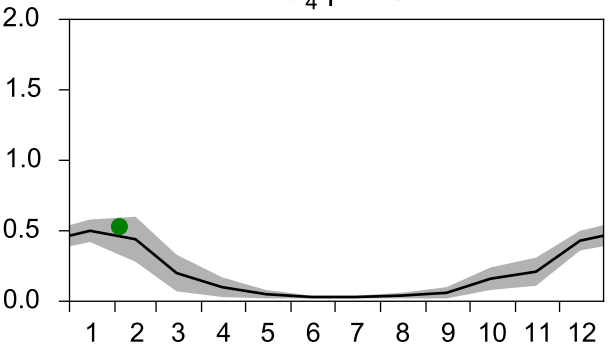
Temperature ˚C



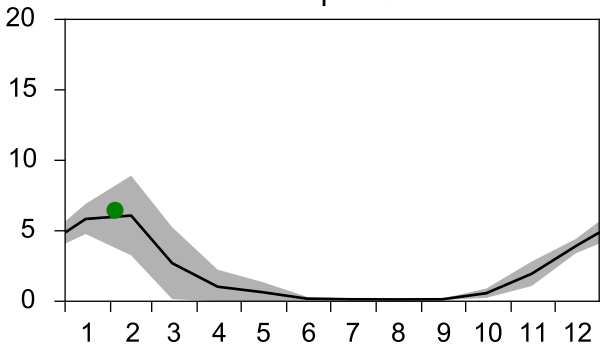
Salinity psu



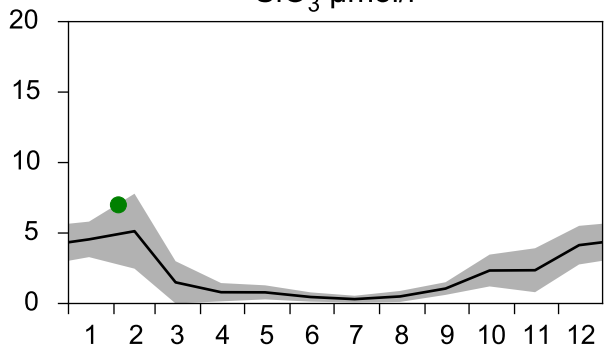
PO_4 µmol/l



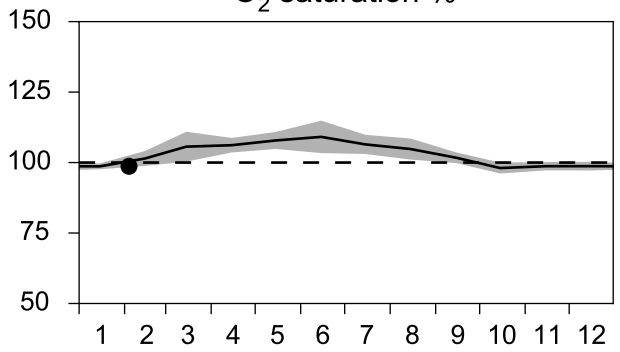
DIN µmol/l



SiO_3 µmol/l

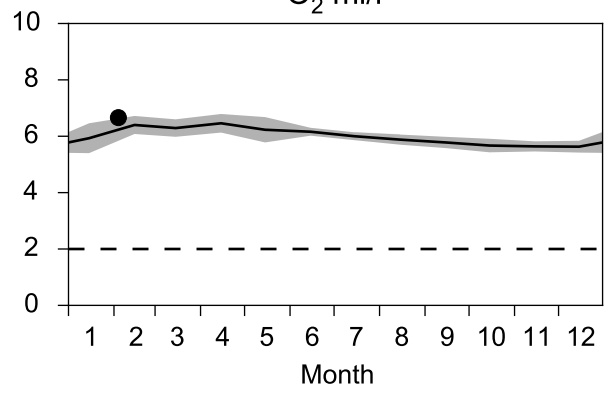


O_2 saturation %

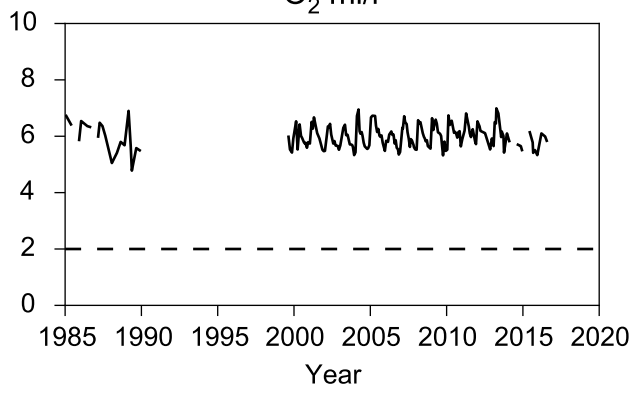


OXYGEN IN BOTTOM WATER (depth >= 300 m)

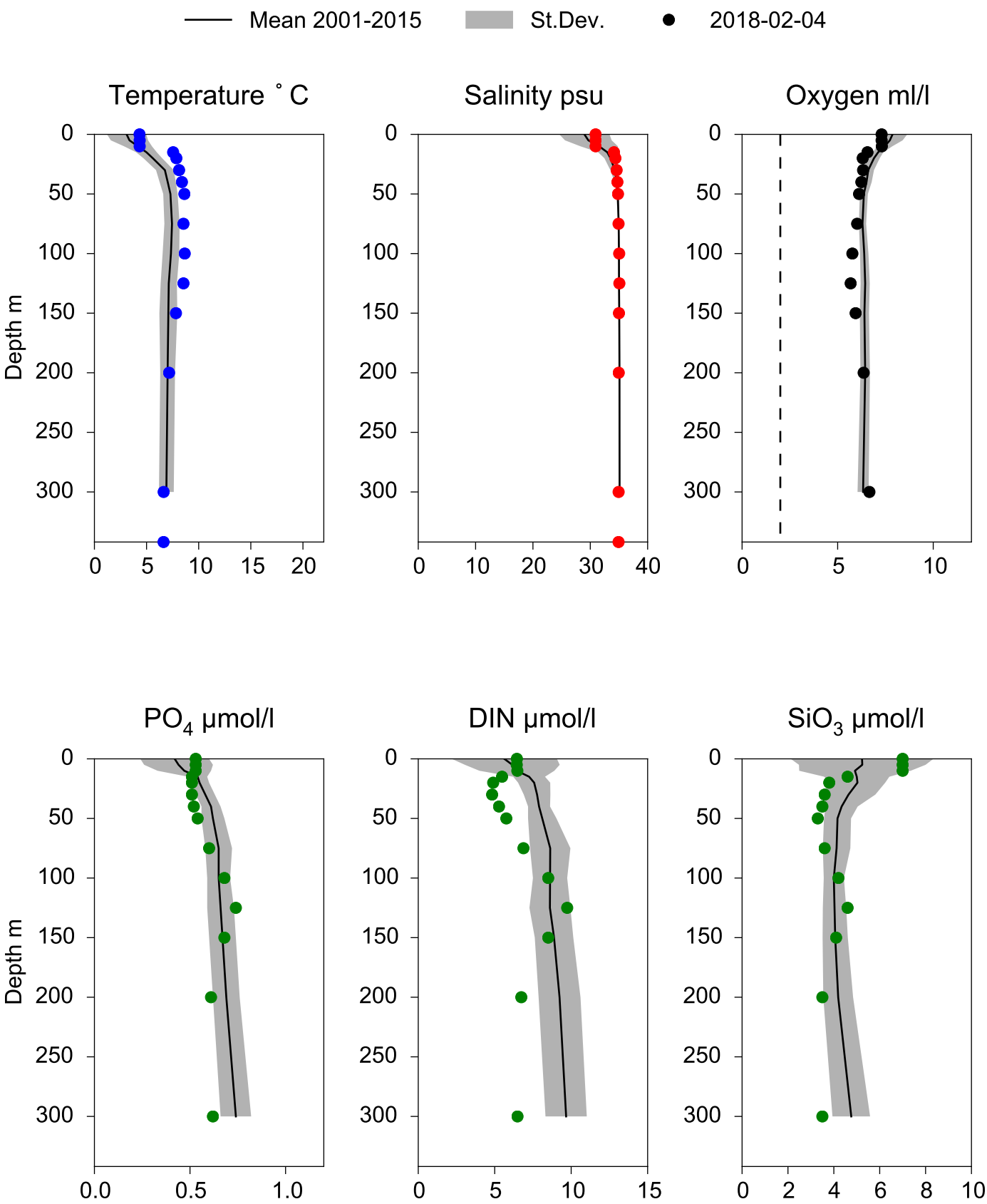
O_2 ml/l



O_2 ml/l



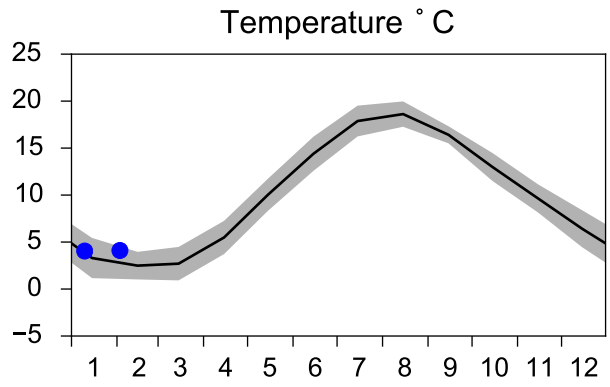
Vertical profiles Å17
February

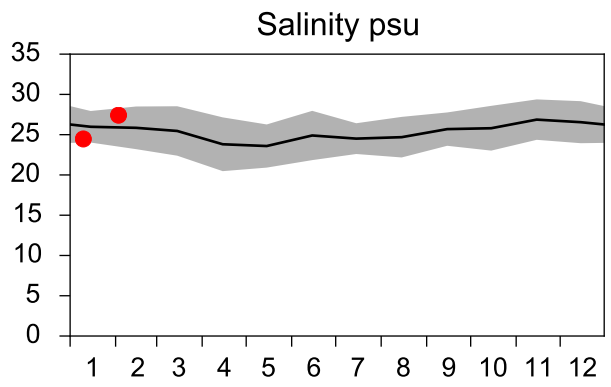


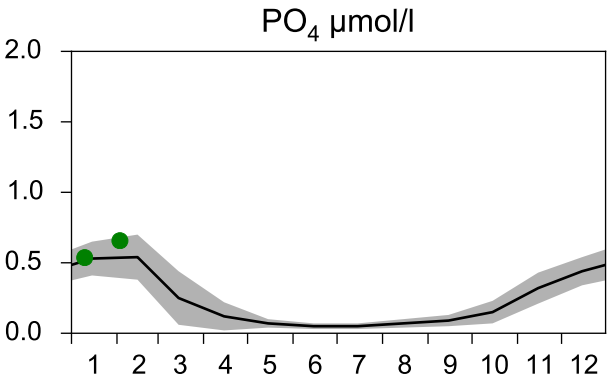
STATION SLÄGGÖ SURFACE WATER (0-10 m)

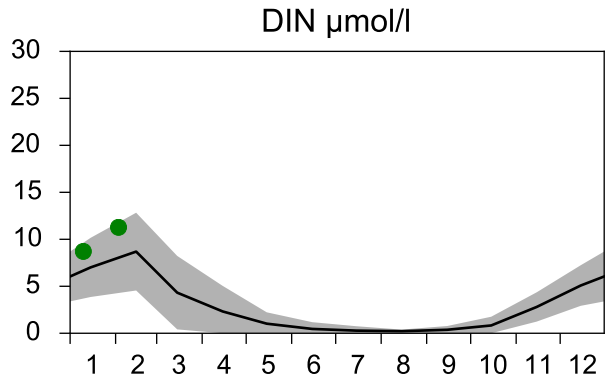
Annual Cycles

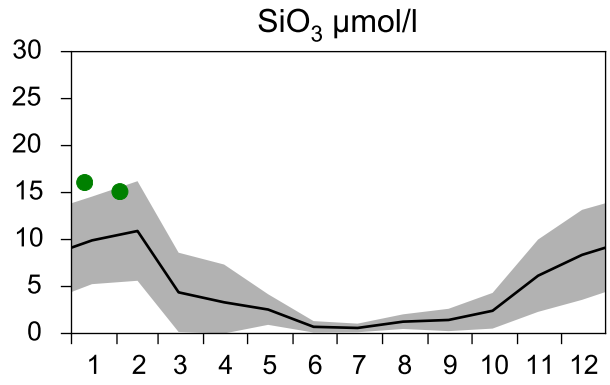
Mean 2001-2015 St.Dev. 2018

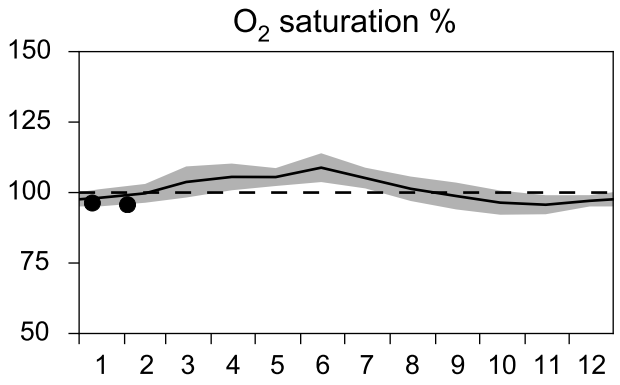




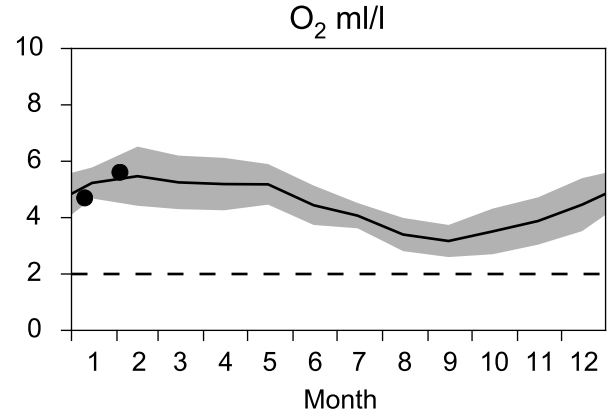


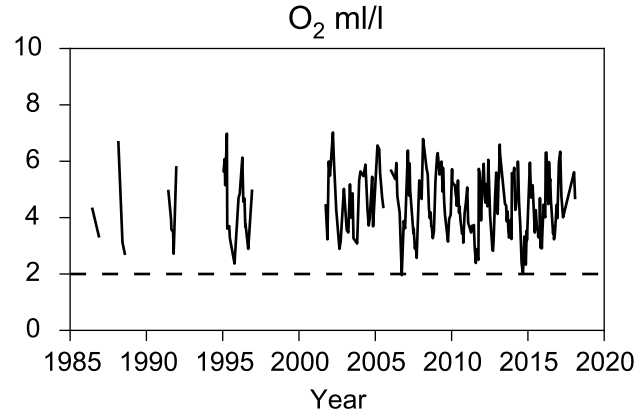






OXYGEN IN BOTTOM WATER (depth >= 64 m)





Vertical profiles SLÄGGÖ
January