

## Rapport från SMHIs utsjöexpedition med M/V Aura



<b>Expeditionens varaktighet:</b>	2018-04-15 - 2018-04-21
<b>Uppdragsgivare:</b>	Sveriges Meteorologiska och Hydrologiska Institut, Havs- och Vattenmyndigheten.
<b>Samarbetspartner:</b>	Finlands miljöcentral (SYKE), VG-Shipping.

### SAMMANFATTNING

Under expeditionen, som ingår i det svenska pelagiala övervakningsprogrammet, besöktes Skagerrak, Kattegatt, Öresund och Egentliga Östersjön.

Vårblomningen pågick i nästan hela området vilket noterades med höga fluorescenstoppar från CTD-sonden i ytvattnet.

I stora delar av Egentliga Östersjöns djupvatten påträffades syrgashalter nära noll i djupvattnet. Helt syrefria förhållanden, då svavelväte bildas, uppmättes i Bornholmsbassängen och Västra Gotlandsbassängen från 85 meters djup. I Östra Gotlandsbassängen uppmättes svavelväte från 125 meters djup. Akut syrebrist (< 2ml/l) påträffades i hela området från ca 60-80 meter utom i Arkonabassängen som var väl syresatt.

Närsalter i form av löst oorganiskt kväve (DIN) och fosfor (DIP) i ytskiktet låg på normala nivåer för årstiden i hela området. Silikatkoncentrationerna i ytan var högre än normalt i Bornholmsbassängen, Östra och Västra Gotlandsbassängen, i övriga delar var den normal för årstiden.

Nästa ordinarie expedition planeras till mitten av maj.

## RESULTAT

Aprilexpeditionen genomfördes ombord på det finska fartyget Aura och startade i Göteborg den 15:e april och avslutades i samma hamn den 21:e. Vindarna under expeditionen var svaga och kom i huvudsak från sydost till väst. Lufttemperaturen varierade mellan 5 och 12 °C.

Denna rapport är baserad på data som genomgått en första kvalitetskontroll. När data publiceras hos datavärden kan vissa värden ha ändrats då ytterligare kvalitetsgranskning genomförts. Data från denna expedition publiceras så fort som möjligt på datavärdens hemsida, normalt sker detta inom en till två veckor efter avslutad expedition.

Data kan hämtas här: <http://www.smhi.se/klimatdata/oceanografi/havsmiljodata>

### Skagerrak

Ytvattentemperaturen i Skagerrak var strax under det normala för årstiden och låg mellan 3,2-4,8°C, varmare närmast kusten. Salthalten i ytan var också något under det normala och uppmättes till 21,1-24,8 psu. Termoklin och haloklin sammanföll på samtliga stationer och var mer eller mindre utvecklad mellan 10-20 meters djup.

Närsalterna var påverkade av den pågående vårblomningen och hade delvis eller nästan helt förbrukats. Närsalterna löst oorganiskt kväve (summan av nitrat+nitrit+ammonium, ofta betecknat DIN) låg på normala nivåer i hela området och varierade mellan 0,3-1,3 µmol/l, högst närmast kusten. Löst oorganiskt fosfor (endast i formen fosfat eller DIP) låg också på normala nivåer. Värden i ytvattnet gick från omkring 0,05 till 0,07 µmol/l. Silikathalten var normal för årstiden på alla stationer, med halter omkring 0,1 till 1,6 µmol/l, högst närmast kusten.

Vårblomningen pågick vid de yttre stationerna i området och höga fluorescenstoppar påträffades på omkring 10-20 meters djup på dessa stationer. För mer information om artsammansättning se separat rapport ”AlgAware” som blir tillgänglig en till två veckor efter avslutad expedition.

Syrgasförhållanden var normala till högre än normala i ytvattnet till följd av den pågående vårblomningen och normalt till lägre än normalt i djupvattnet. Halterna i djupvattnet varierade dock mellan 5-6 ml/l vilket är mycket över gränsen för akut syrebrist som går vid 2 ml/l.

### Kattegatt och Öresund

Vattentemperaturen var något under det normala för årstiden och varierade omkring 4,7-5,5°C i ytan, högst närmast kusten. Salthalten var normal och varierade i ytvattnet i Kattegatt mellan 19,4-21,8 psu och i Öresund 14,7 psu. Vid samtliga stationer sammanföll termoklinen med haloklinen mellan 6-15 meter.

Koncentrationerna av närsalter i ytan uppvisade låga halter på grund av den pågående vårblomningen vilket också är normalt för årstiden

Koncentrationerna av DIN uppvisade normala värden för årstiden och var 0,3 µmol/l i Kattegatt och 0,7 µmol/l i Öresund. DIP halterna i ytvattnet i Kattegatt låg mellan 0,06 och 0,09 µmol/l och i

Öresund, 0,20  $\mu\text{mol/l}$ . Silikathalterna var lägre än normalt i området med halter mellan 0,4 och 3,5  $\mu\text{mol/l}$ , högst i Öresund.

Vårblomningen höll fortfarande på i Kattegatt och hade nu även börjat i Öresund. Fluorescensmätningar med ctd:n visade att aktiviteten fanns på djup mellan 10 och 20 meter.

Bottenvattnet i hela området var väl syresatt vilket också är normalt för årstiden. Närmast botten låg syrgashalterna generellt över 5,5 ml/l.

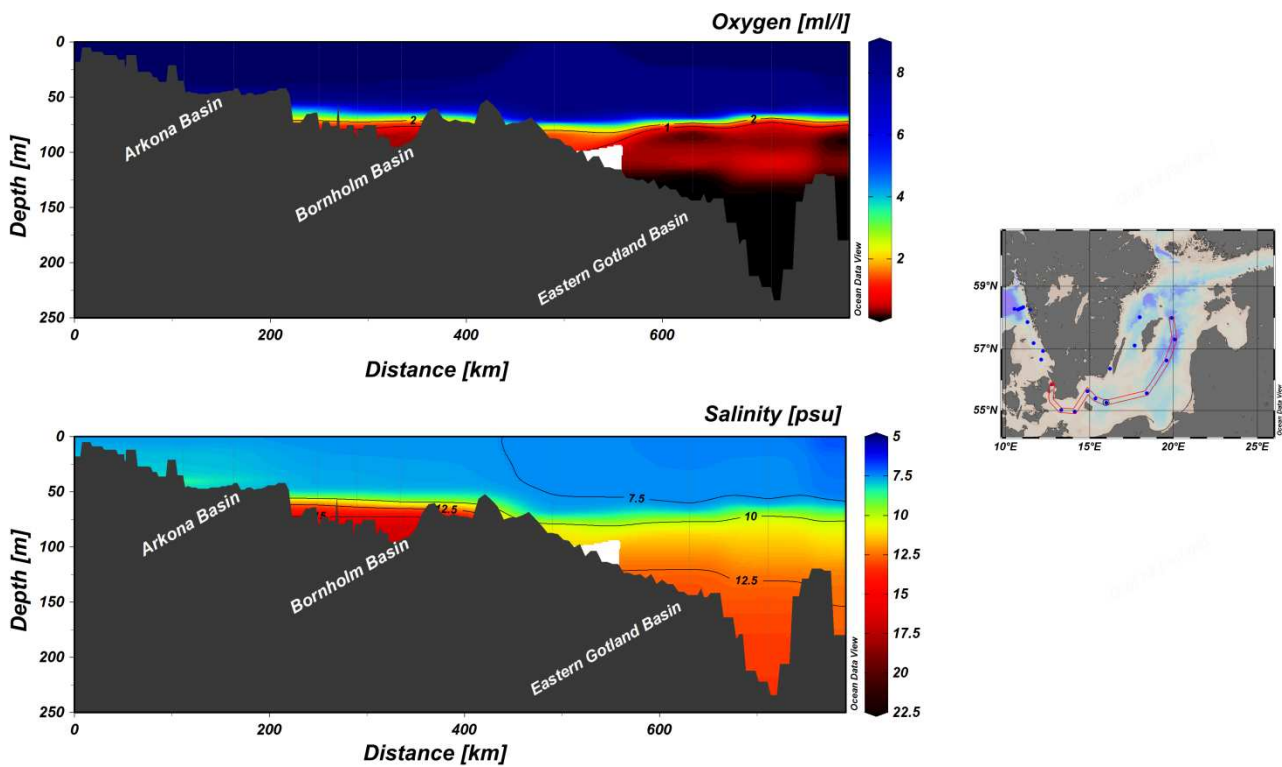
### **Egentliga Östersjön**

Ytvattentemperaturen var något under det normala för årstiden och varierade mellan 3,0-4,5°C. Salthalten i ytvattnet varierade mellan 6,9 och 7,7, vilket är normala nivåer. Det fanns en svag skiktning i ytan på mellan 8-20 meters djup där vårblomningen pågick för fullt. En skarp skiktning återfanns på djup mellan 55-75 meter.

Närsalter i ytvattnet i form av löst oorganiskt kväve (DIN) var normala för årstiden i hela området utom vid BCS III-10 där den var högre än normalt, och låg mellan 0,3 och 2,8  $\mu\text{mol/l}$ . Fosfathalterna var under det normala i Arkonabassängen och normala till något över det normala i resten av det undersökta området, och varierade mellan 0,19-0,67  $\mu\text{mol/l}$ . Silikatkoncentrationerna i ytan var högre än normalt i Bornholmsbassängen, Östra och Västra Gotlandsbassängen och normala för årstiden i Arkonabassängen och vid BY20 och BY32, de varierade mellan 7,5 och 18,8  $\mu\text{mol/l}$

I stora delar av Egentliga Östersjöns djupvatten påträffades syrgashalter nära noll i djupvattnet. Helt syrefria förhållanden, då svavelväte bildas, uppmättes i Bornholmsbassängen och Västra Gotlandsbassängen från 85 meters djup. I Östra Gotlandsbassängen uppmättes svavelväte från 125 meters djup. Akut syrebrist (< 2ml/l) påträffades i hela området från ca 60-80 meter utom i Arkonabassängen som var väl syresatt.

Fluorescensmätningarna från CTDn visade att det blommade för fullt i nästan hela området ovanför termoklinen.



Figur 1. Snitt som visar syre- och salthalt från Öresund, genom Egentliga Östersjön, till Västra Gotlandsbassängen.

## DELTAGARE

### Namn

Anna-Kerstin Thell      Expeditionsledare  
 Sara Johansson  
 Johanna Linders  
 Jenny Lycken  
 Sari Sipilä

### Från

SMHI  
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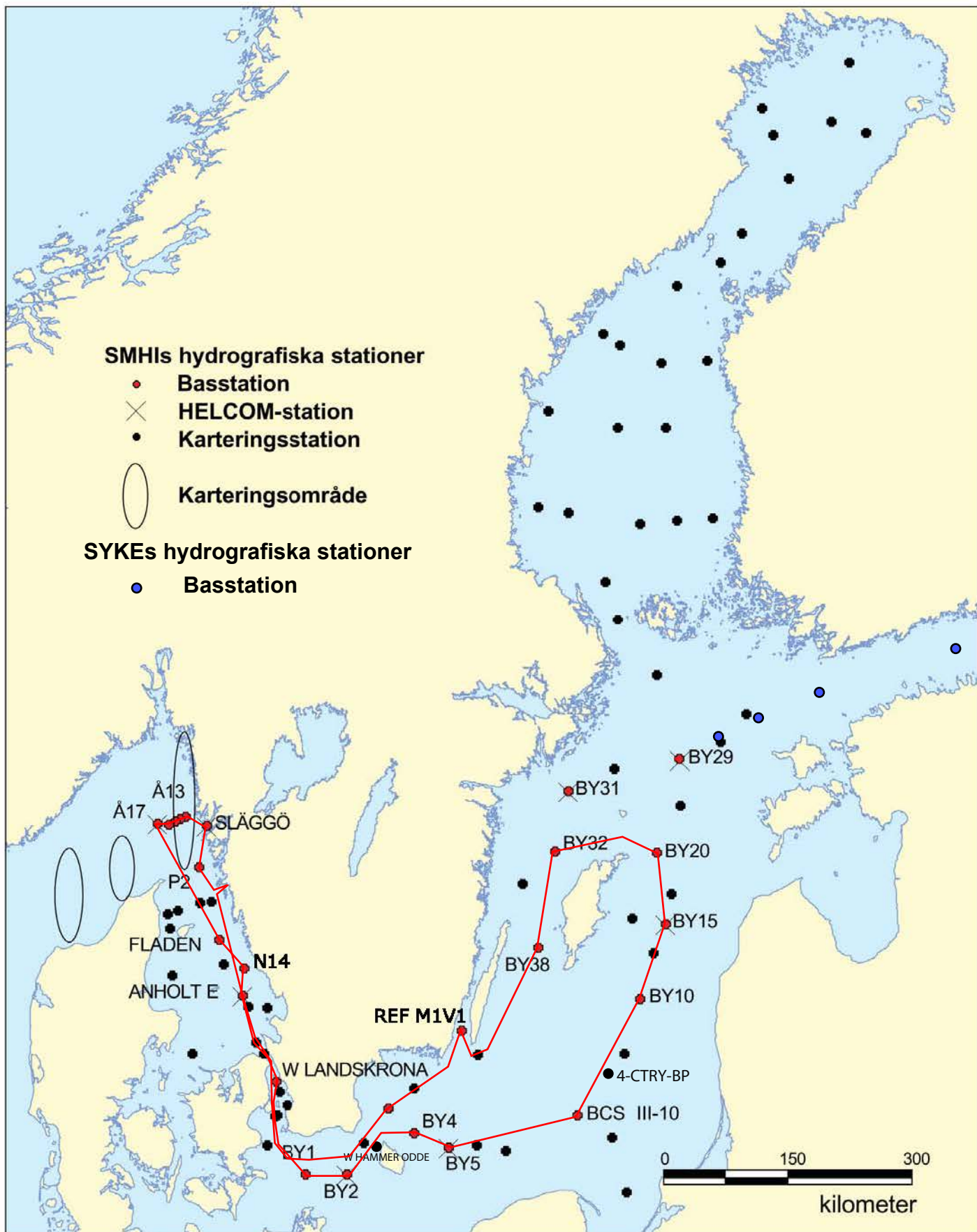
## BILAGOR

- Färdkarta
- Tabell över stationer, analyserade parametrar och antal provtagningsdjup
- Karta över syrehalter i bottenvattnet
- Vertikalprofiler för basstationer
- Figurer över månadsmedelvärden

**SMHI**  
 Havs  
 och Vatten  
 myndigheten

TRACKCHART

Country: Sweden  
Ship: M/V AURA  
Date: 20180415-20180421  
Series: 0001-0025



Date: 2018-04-24

Time: 16:57

Ship: EB  
Year: 2018

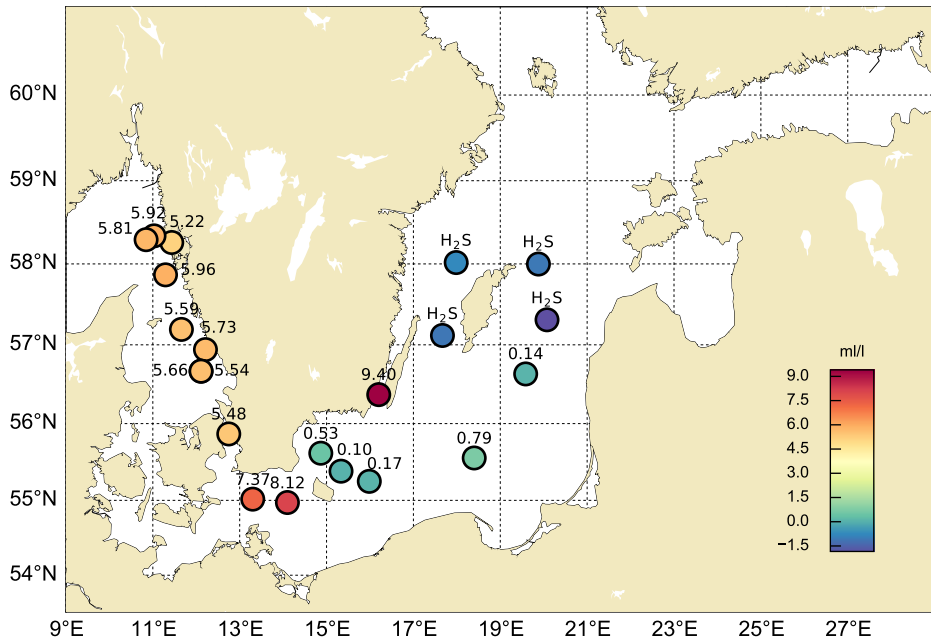
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0001	1	SKEX23	BAS...	P2	5751.99	01117.53	20180415	1900	93		14	6	5.4	1015	6990	x--	10	10	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x
0002	1	FIBG27	BAS...	SLÄGGÖ	5815.59	01126.14	20180415	2315	74		12	2	10	1014	9990	xxx-	9	9	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x
0003	1	SKEX14	BAS...	Å13	5820.41	01101.66	20180416	0145	90		14	4	6.4	1014	9990	x--	10	10	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x
0004	1	SKEX15	BAS...	Å14	5818.92	01056.55	20180416	0320	110		14	5	5.6	1014	9990	----	11	0	-	x	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-	
0005	1	SKEX16	BAS...	Å15	5817.64	01050.71	20180416	0440	135		15	4	9	1014	4920	x--	12	12	x	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x
0006	1	SKEX17	BAS...	Å16	5816.02	01043.43	20180416	0630	202		14	3	5.7	1014	4920	----	14	0	-	x	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-	
0007	1	SKEX18	BAS...	Å17	5817.04	01030.26	20180416	0830	340	14	13	1	5.4	1015	4920	xxx-	15	14	x	x	-	x	x	x	x	-	x	x	x	x	x	x	x	-	x	x
0008	1	KANX25	BAS...	FLADEN	5711.56	01139.49	20180416	1700	84	7	23	1	11	1017	4910	x--x	12	12	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	x	x
0009	1	KANX50	BAS...	N14 FALKENBERG	5656.40	01212.71	20180416	2020	30		36	2	10	1017	9990	xxx-	7	7	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	x	x
0010	1	KAEX29	BAS...	ANHOLT E	5640.11	01206.67	20180416	2320	62		19	3	7.7	1019	9990	xxx-	10	10	x	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x
0011	1	SOCX39	BAS...	W LANDSKRONA	5551.99	01244.91	20180417	0445	50		29	1	8.2	1020	4920	x--	9	9	x	x	x	-	x	x	-	x	x	x	x	x	x	x	-	x	x	
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0025	1	KAEX29	BAS...	ANHOLT E	5640.11	01206.64	20180421	0400	62		28	13	8.9	1015	0030	xxx-	10	10	x	x	x	x	-	x	x	x	x	x	x	x	x	x	-	-	-	

# Bottom water oxygen concentration (ml/l)

Ship: Aura

Date: 20180415-20180421

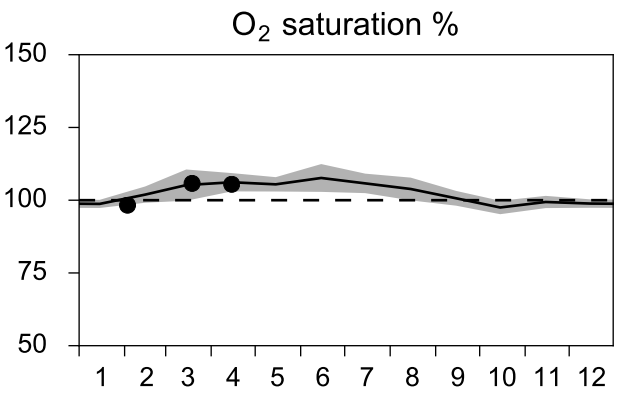
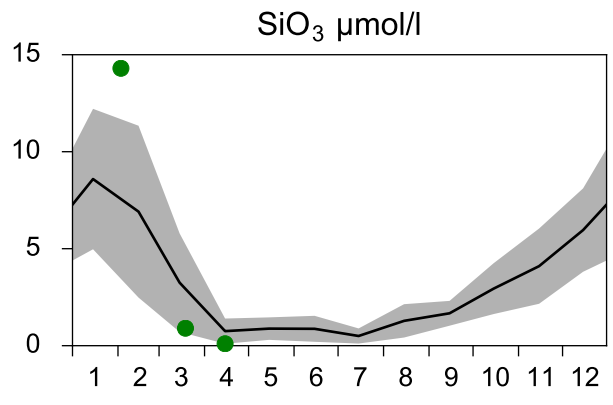
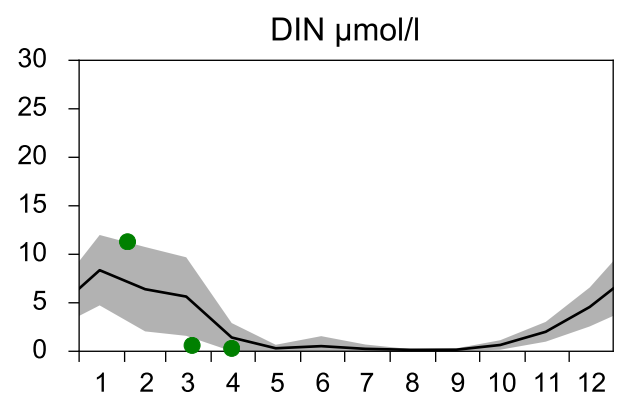
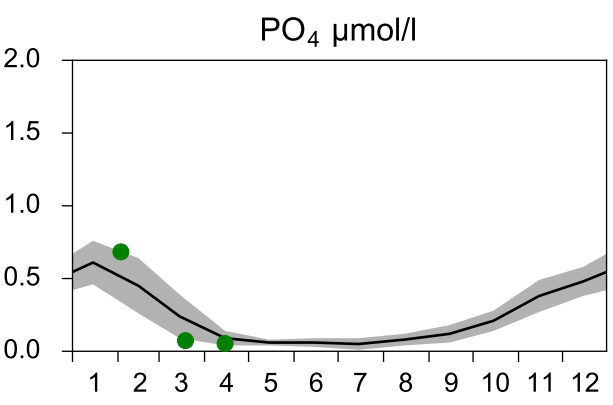
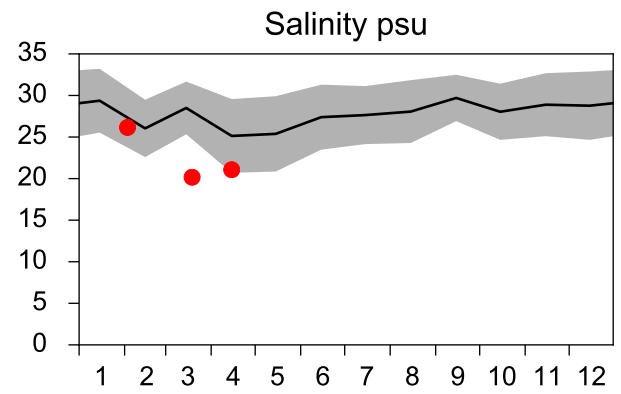
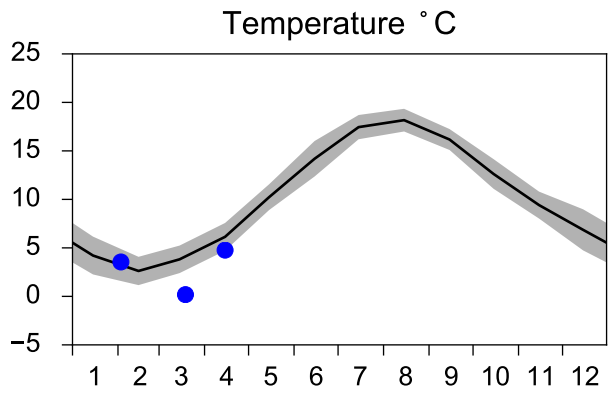
Series: 0001-0025



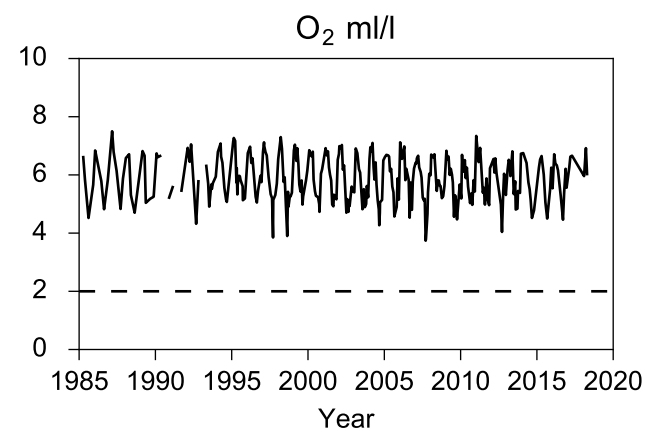
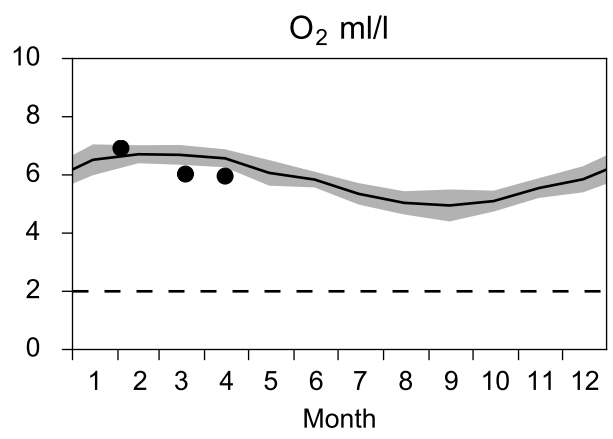
# STATION P2 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018



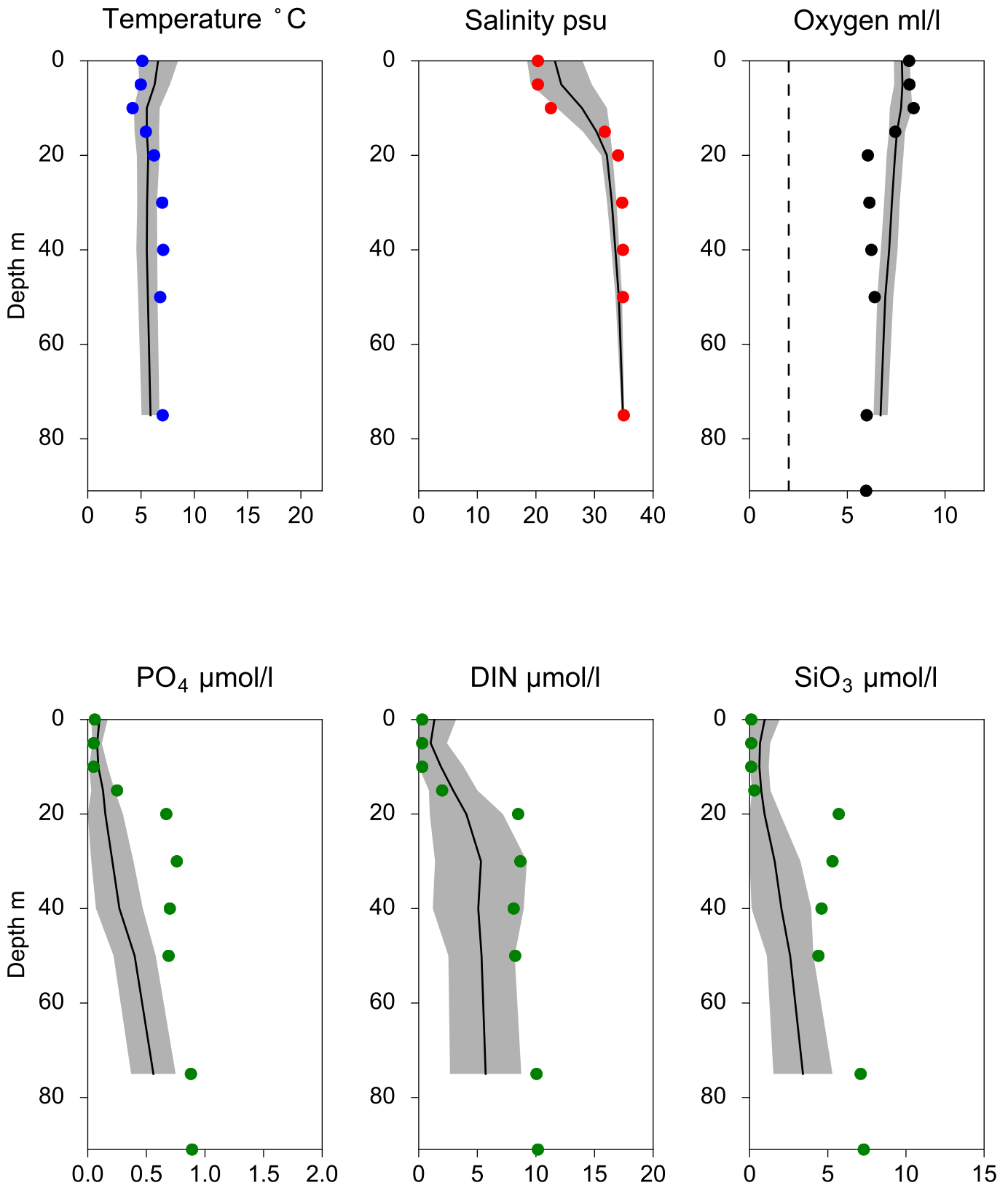
## OXYGEN IN BOTTOM WATER (depth >= 75 m)





# Vertical profiles P2 April

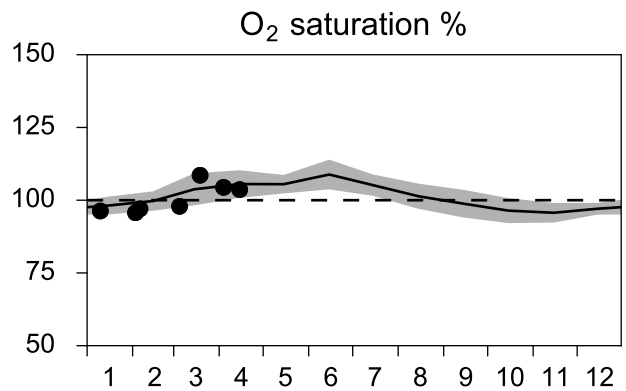
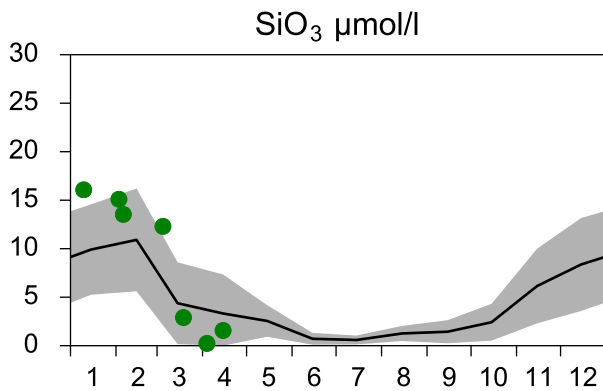
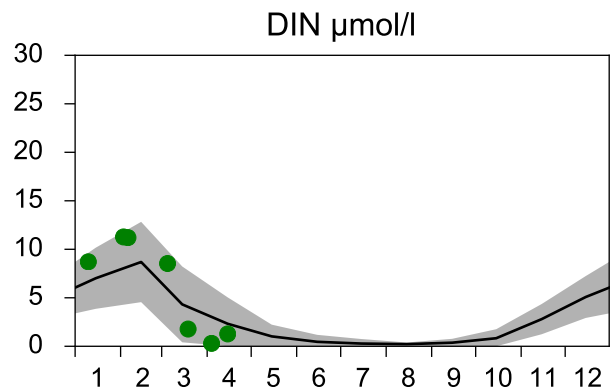
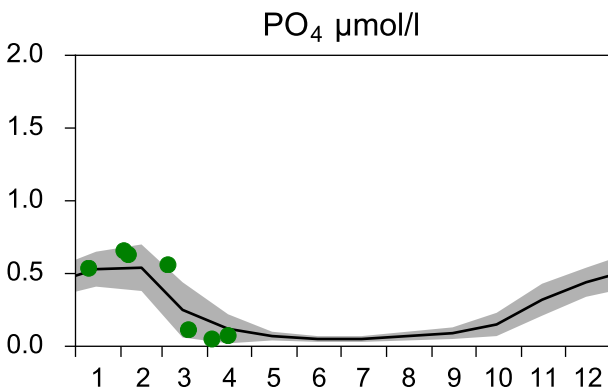
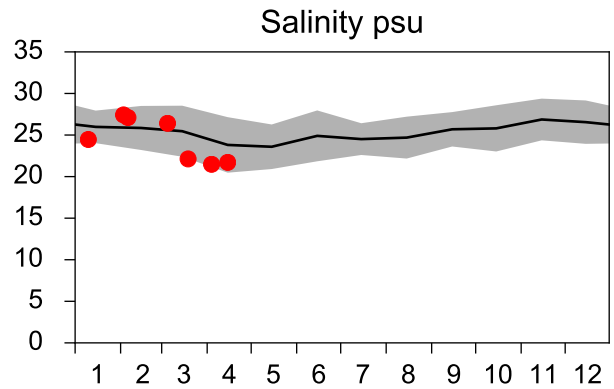
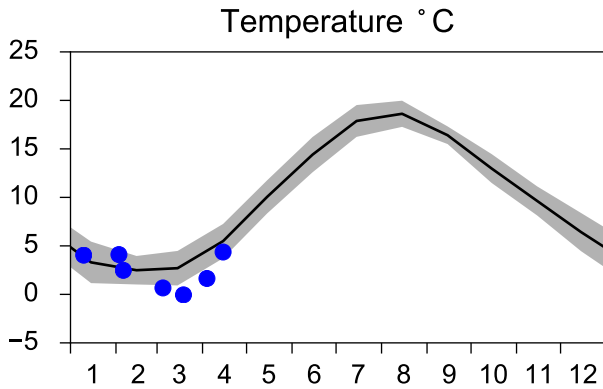
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-15



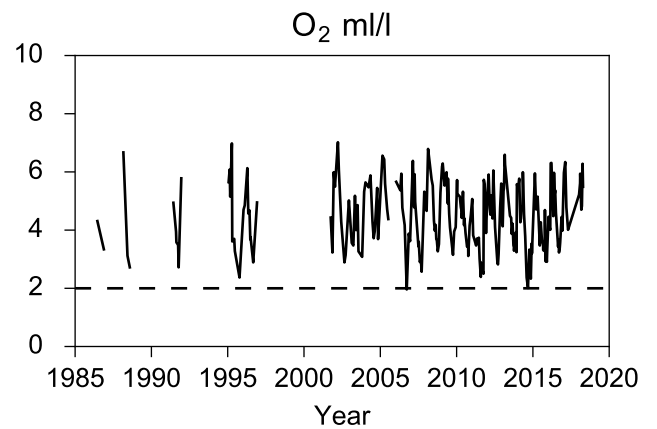
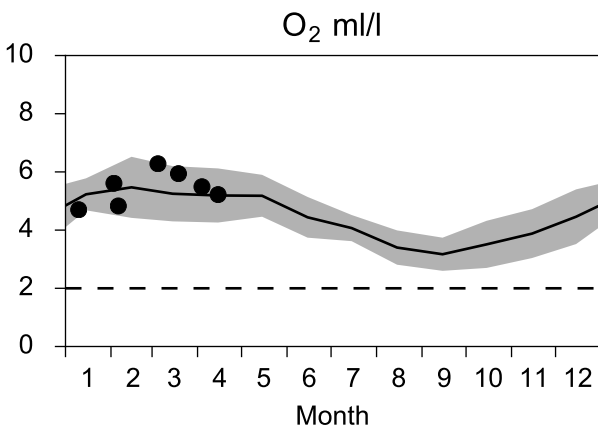
# STATION SLÄGGÖ SURFACE WATER (0-10 m)

## Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

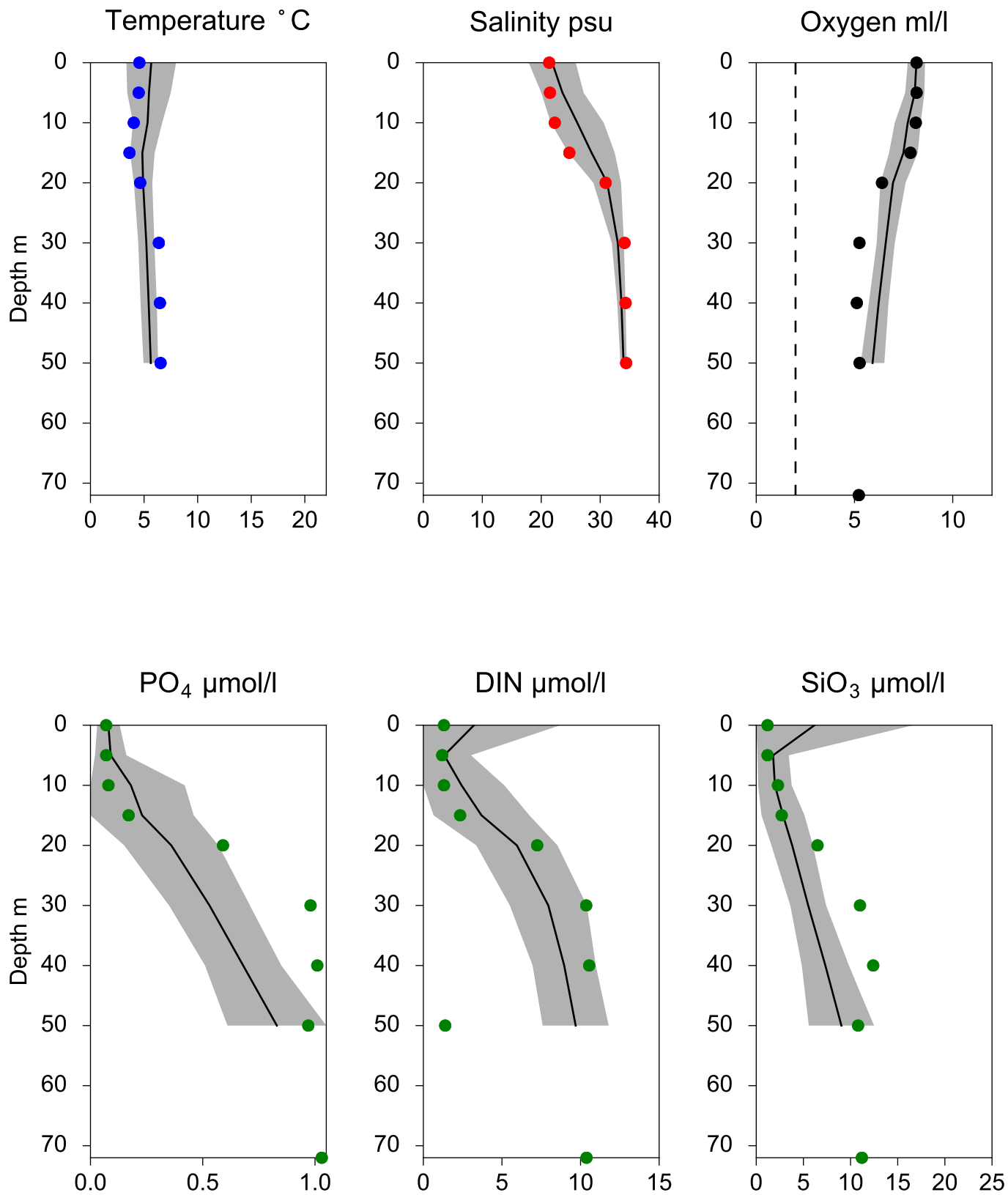


## OXYGEN IN BOTTOM WATER (depth >= 64 m)



# Vertical profiles SLÄGGÖ April

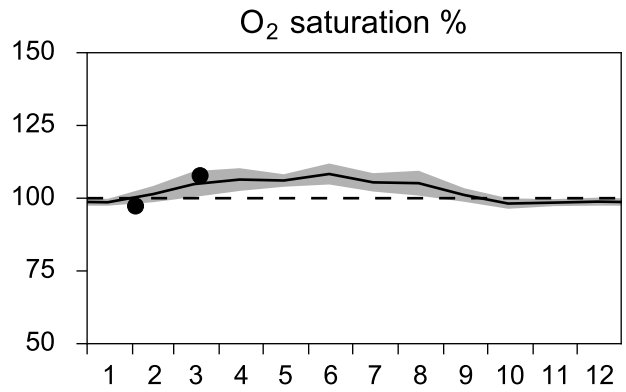
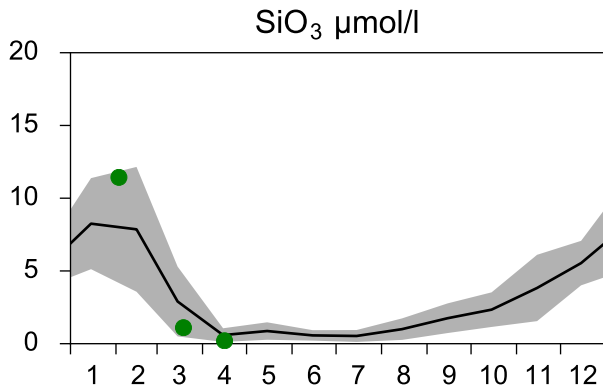
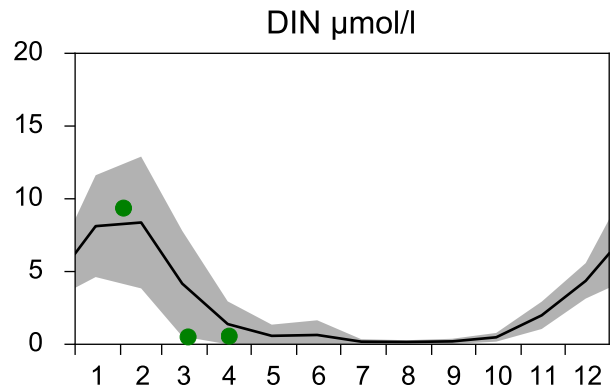
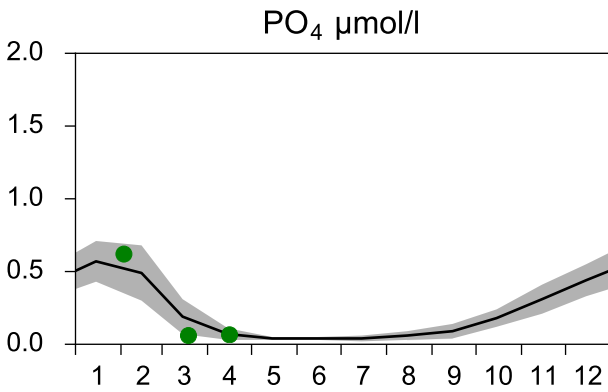
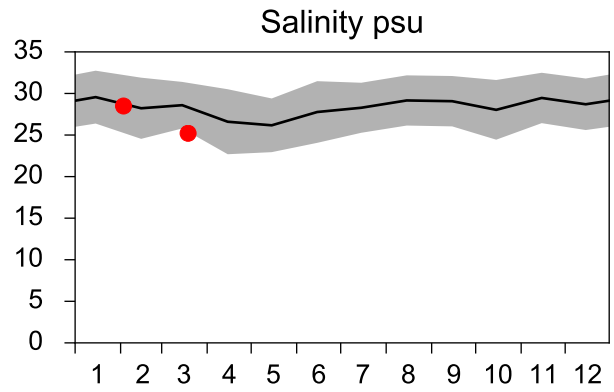
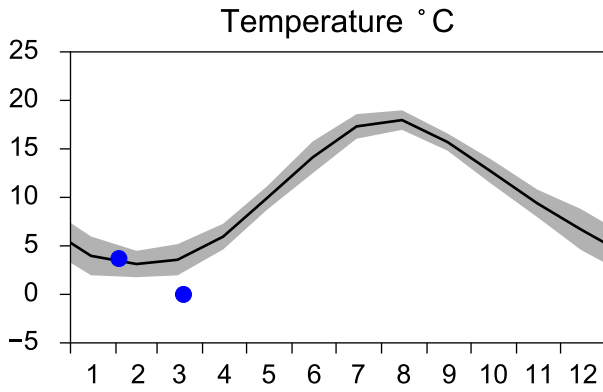
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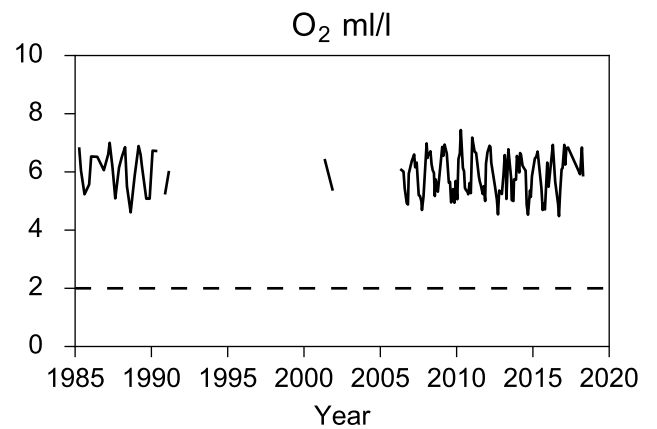
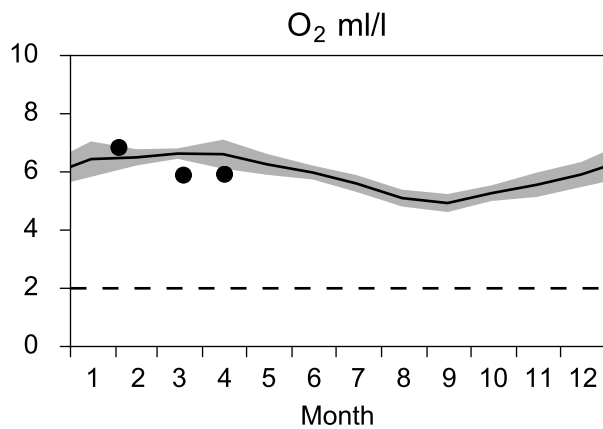
# STATION Å13 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

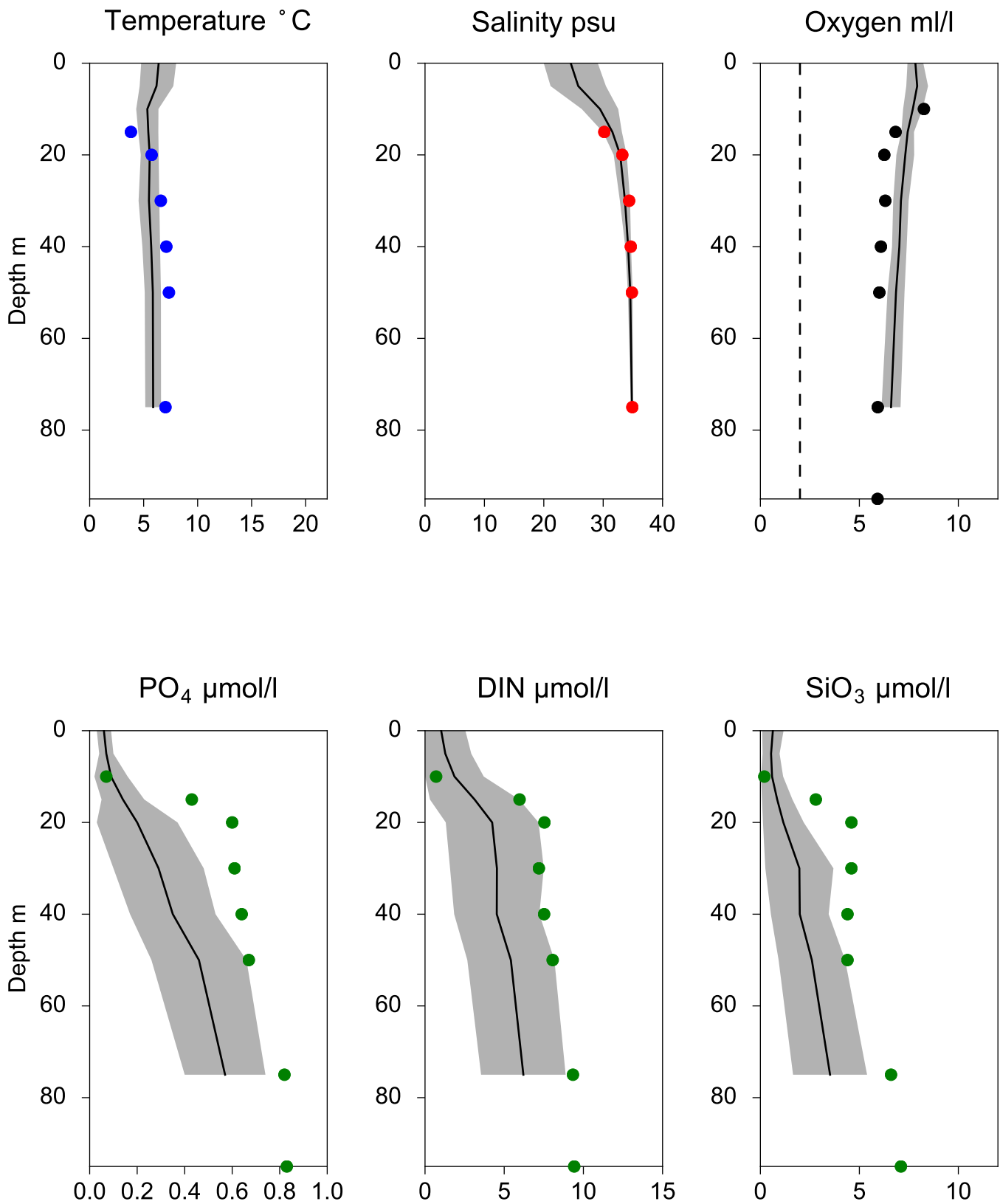


## OXYGEN IN BOTTOM WATER (depth >= 80 m)



# Vertical profiles Å13 April

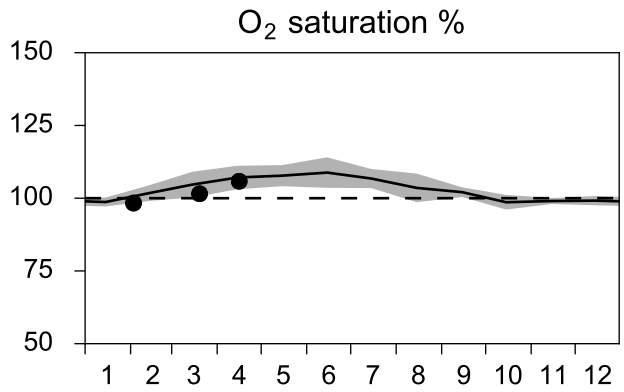
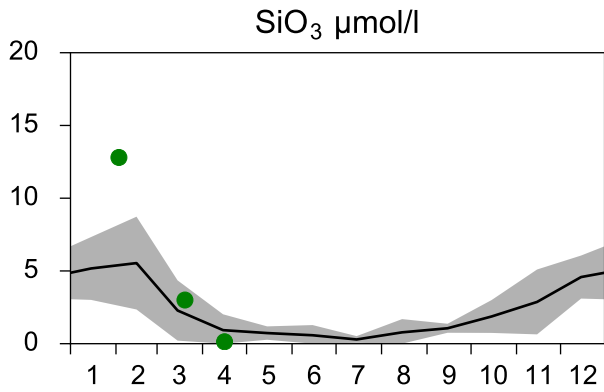
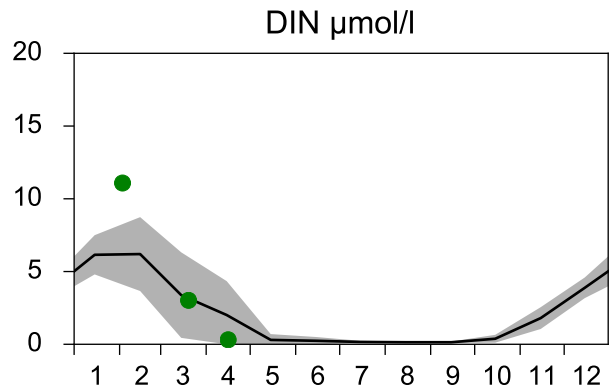
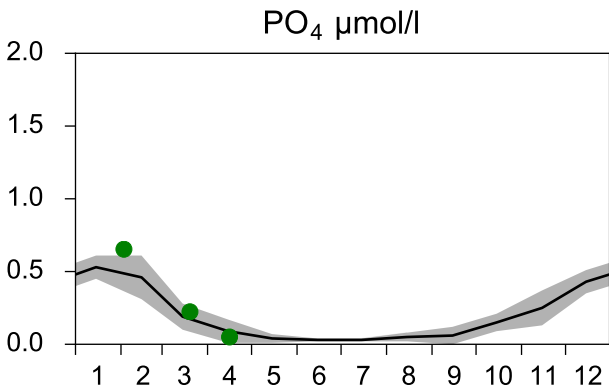
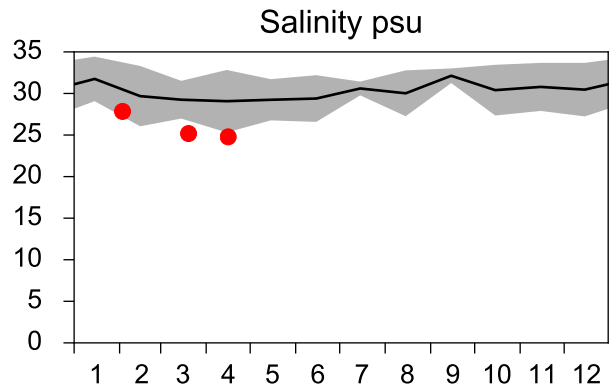
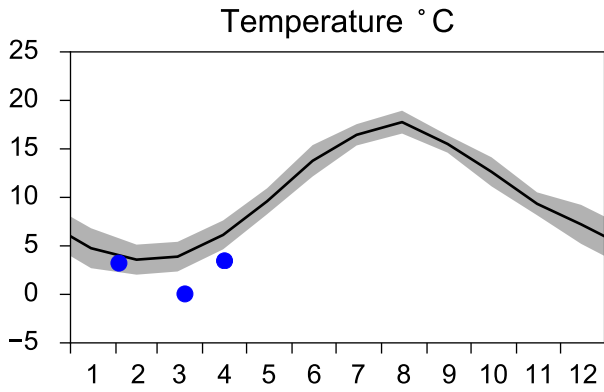
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



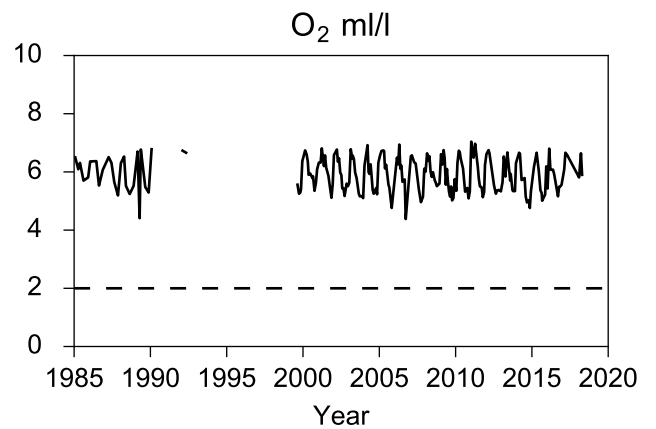
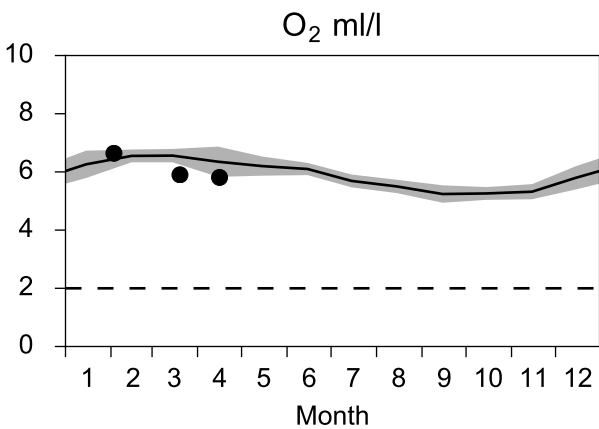
# STATION Å15 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

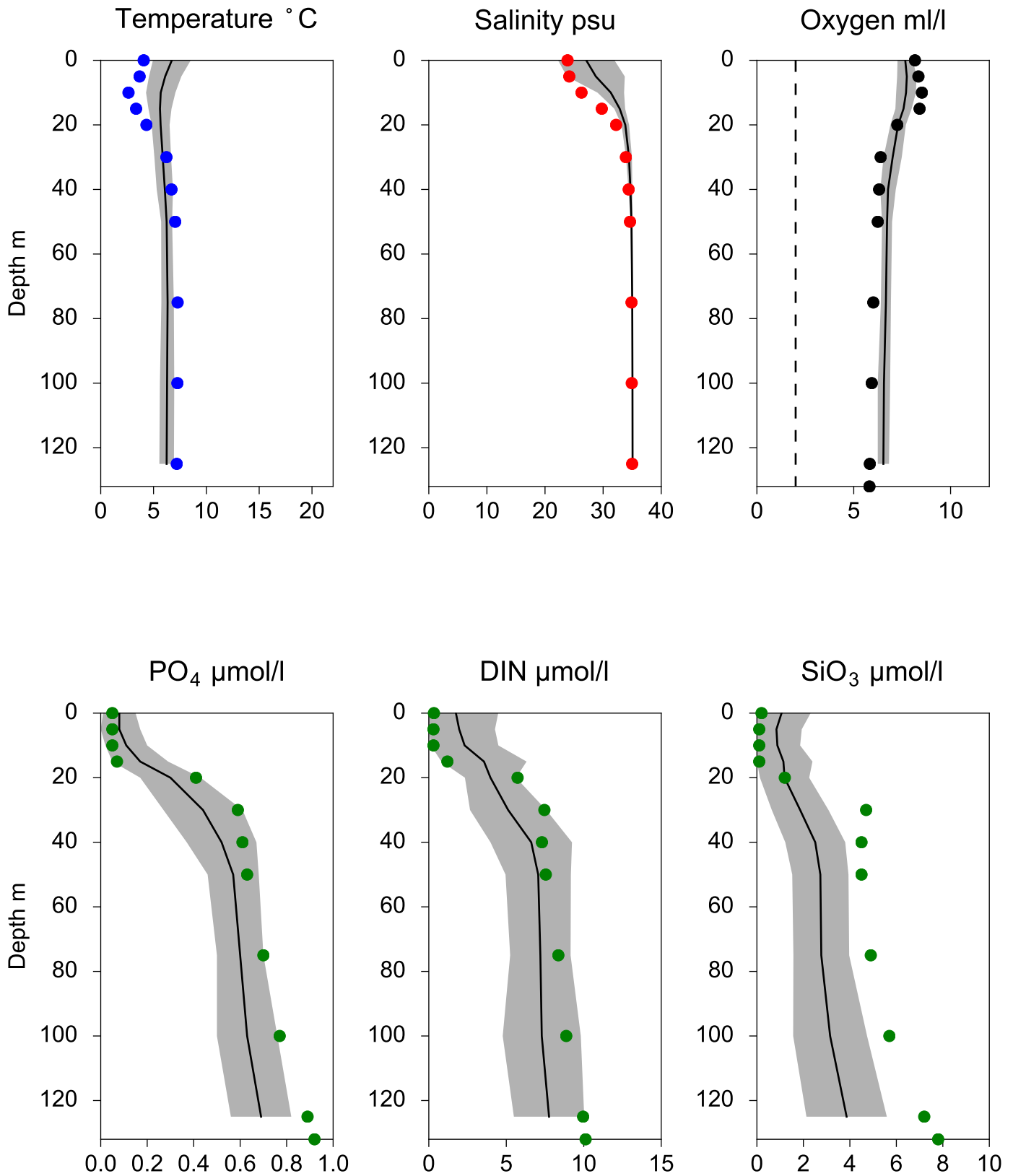


## OXYGEN IN BOTTOM WATER (depth >= 125 m)



# Vertical profiles Å15 April

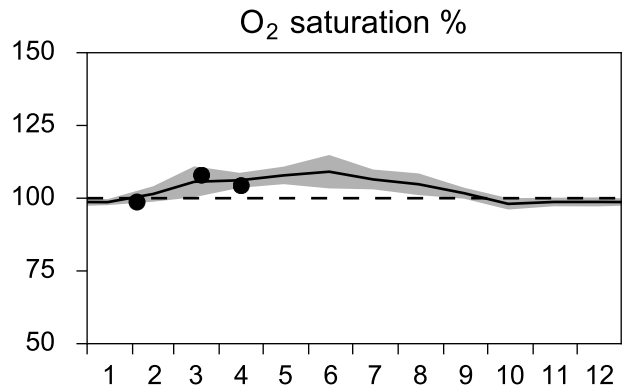
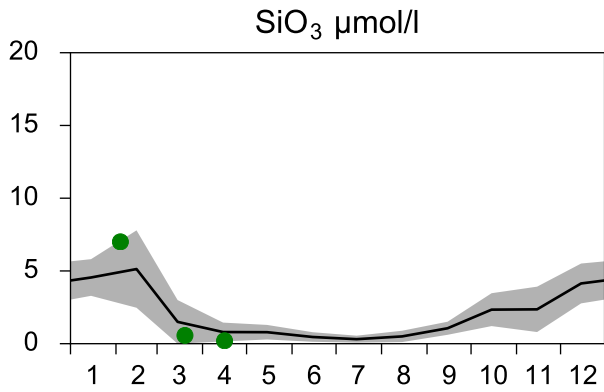
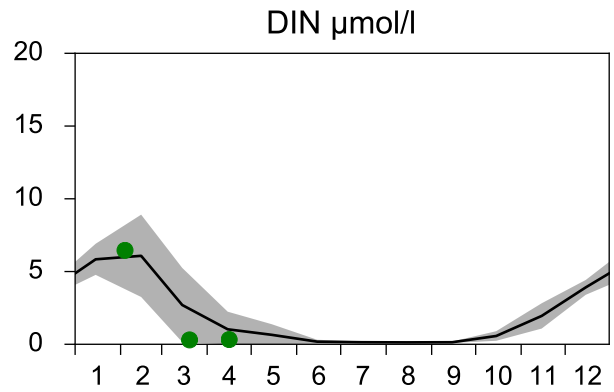
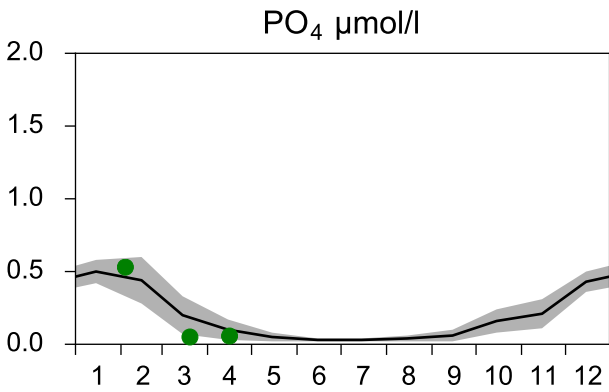
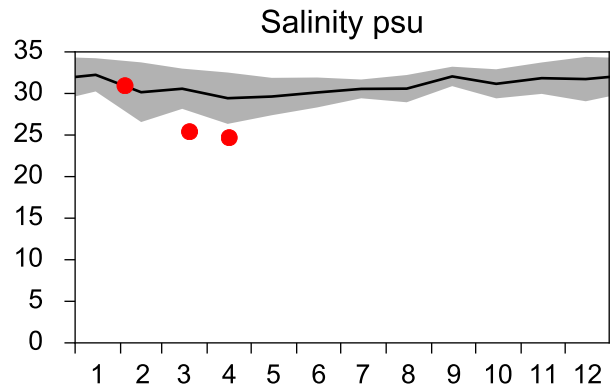
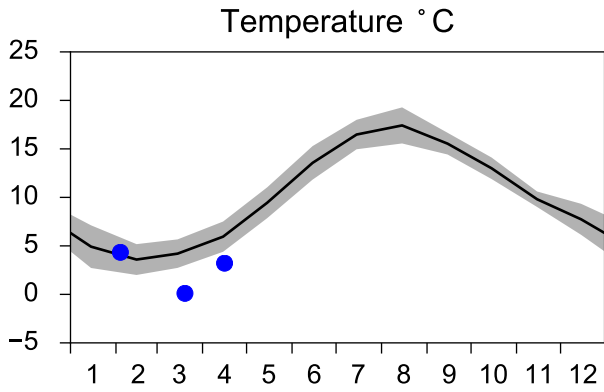
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



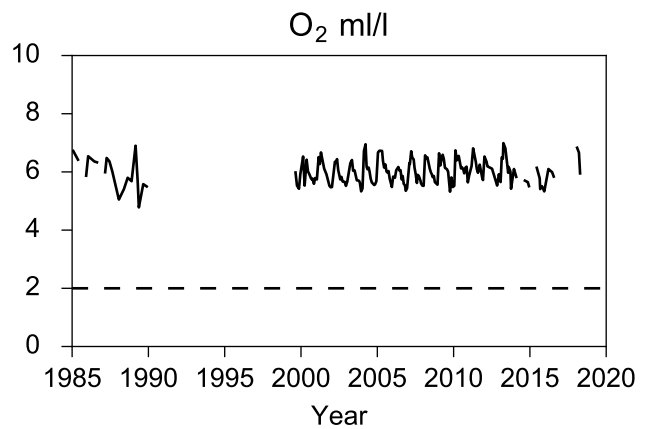
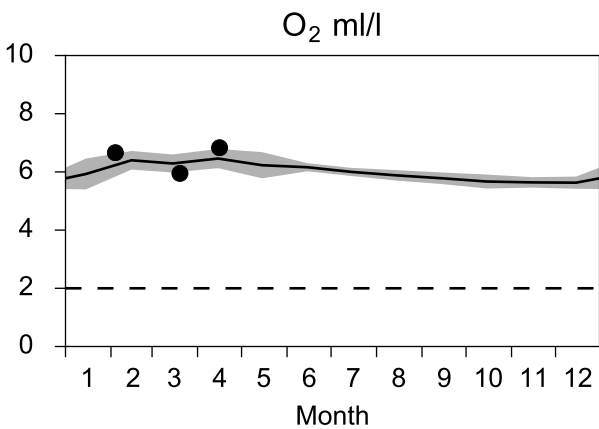
# STATION Å17 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018



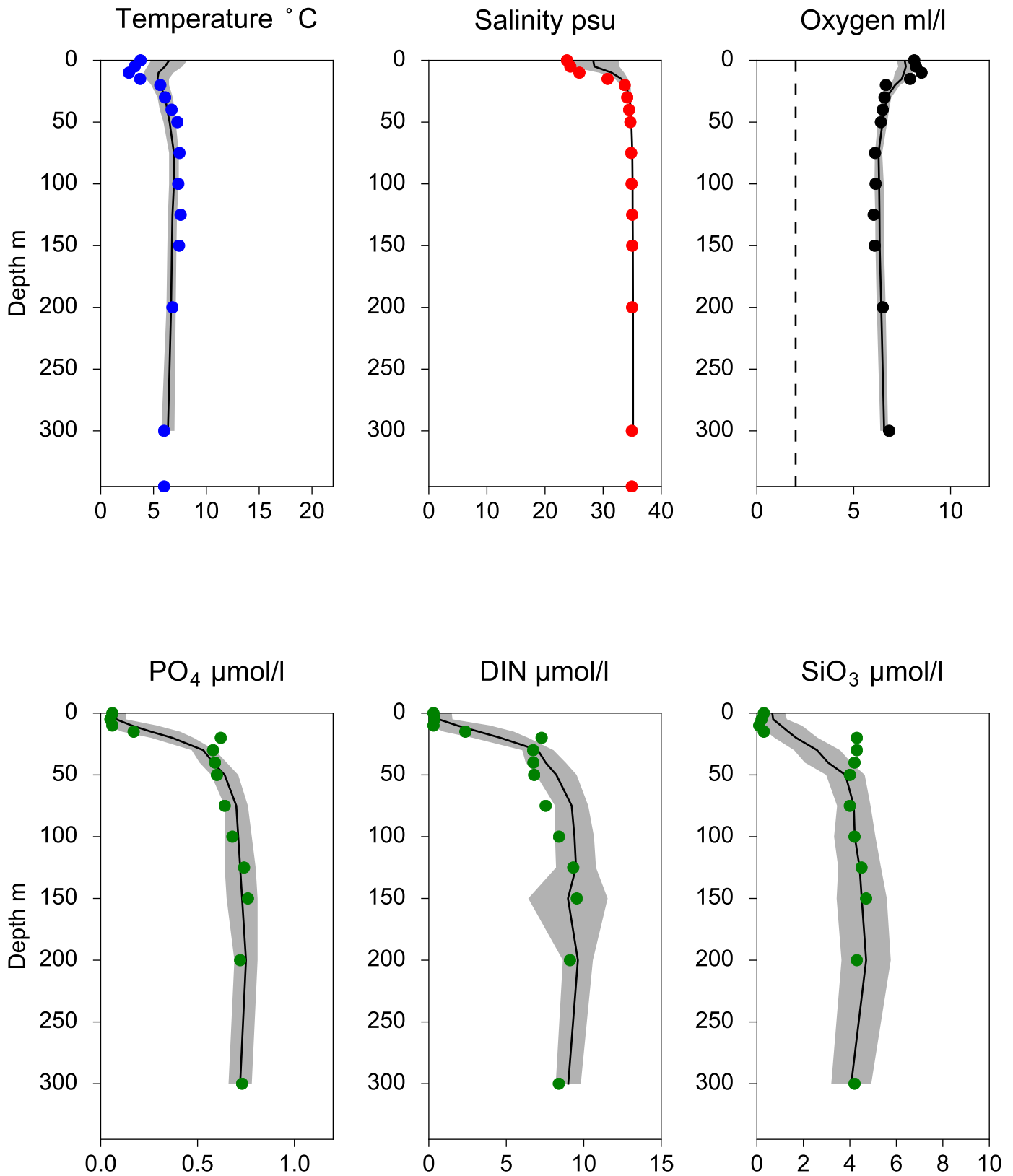
## OXYGEN IN BOTTOM WATER (depth >= 300 m)





# Vertical profiles Å17 April

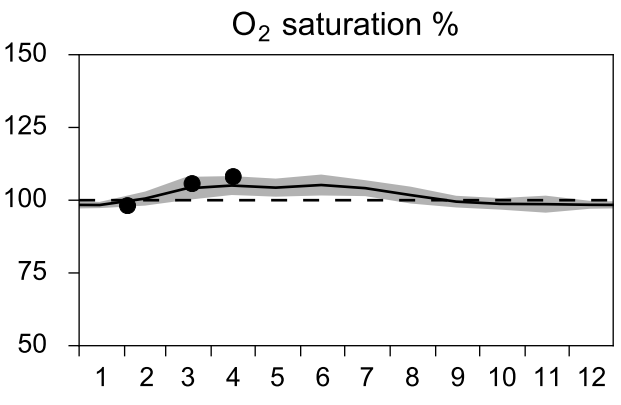
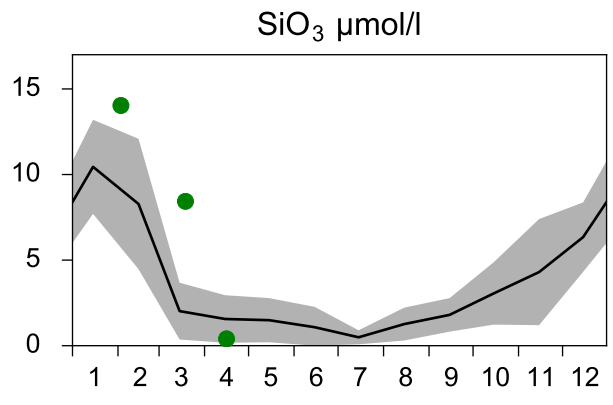
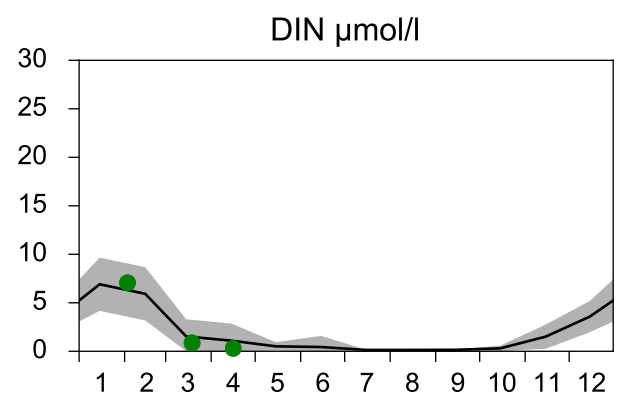
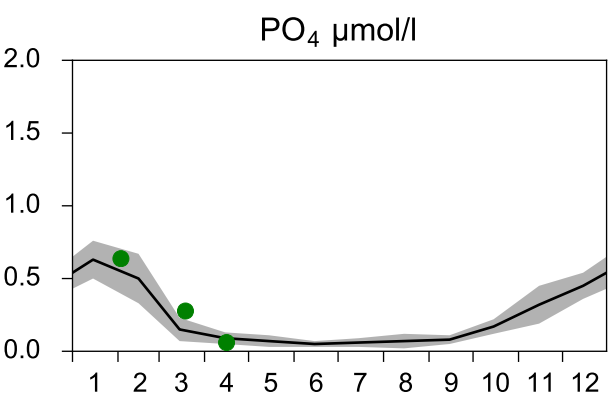
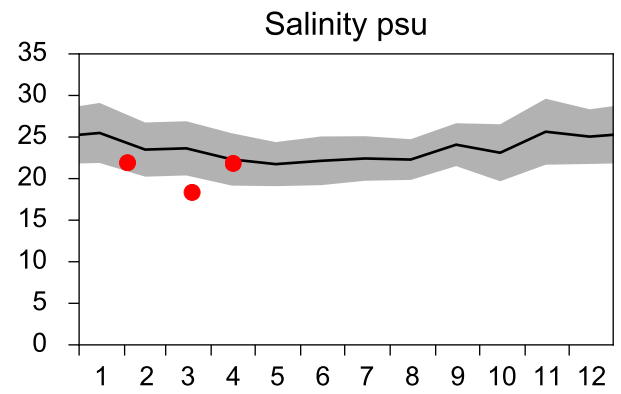
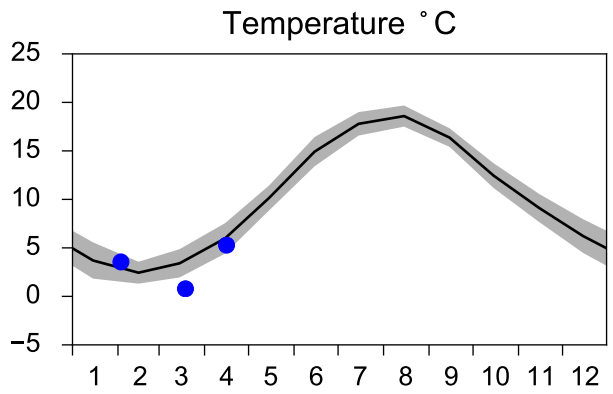
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



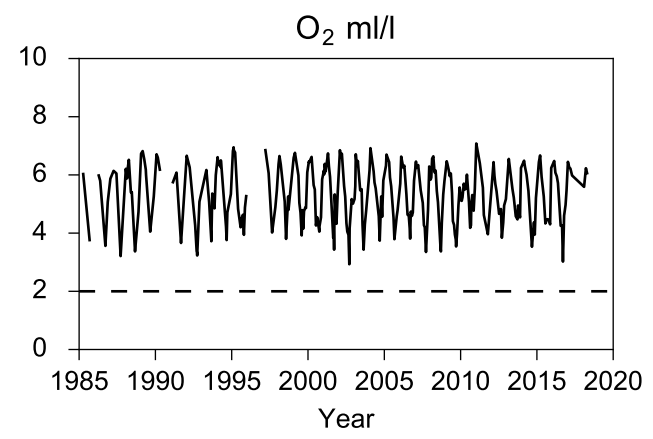
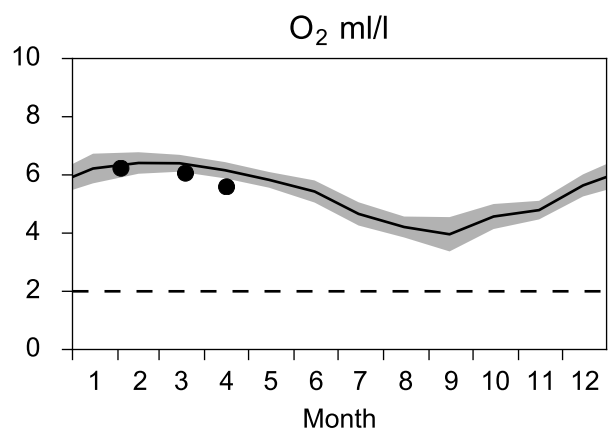
# STATION FLADEN SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

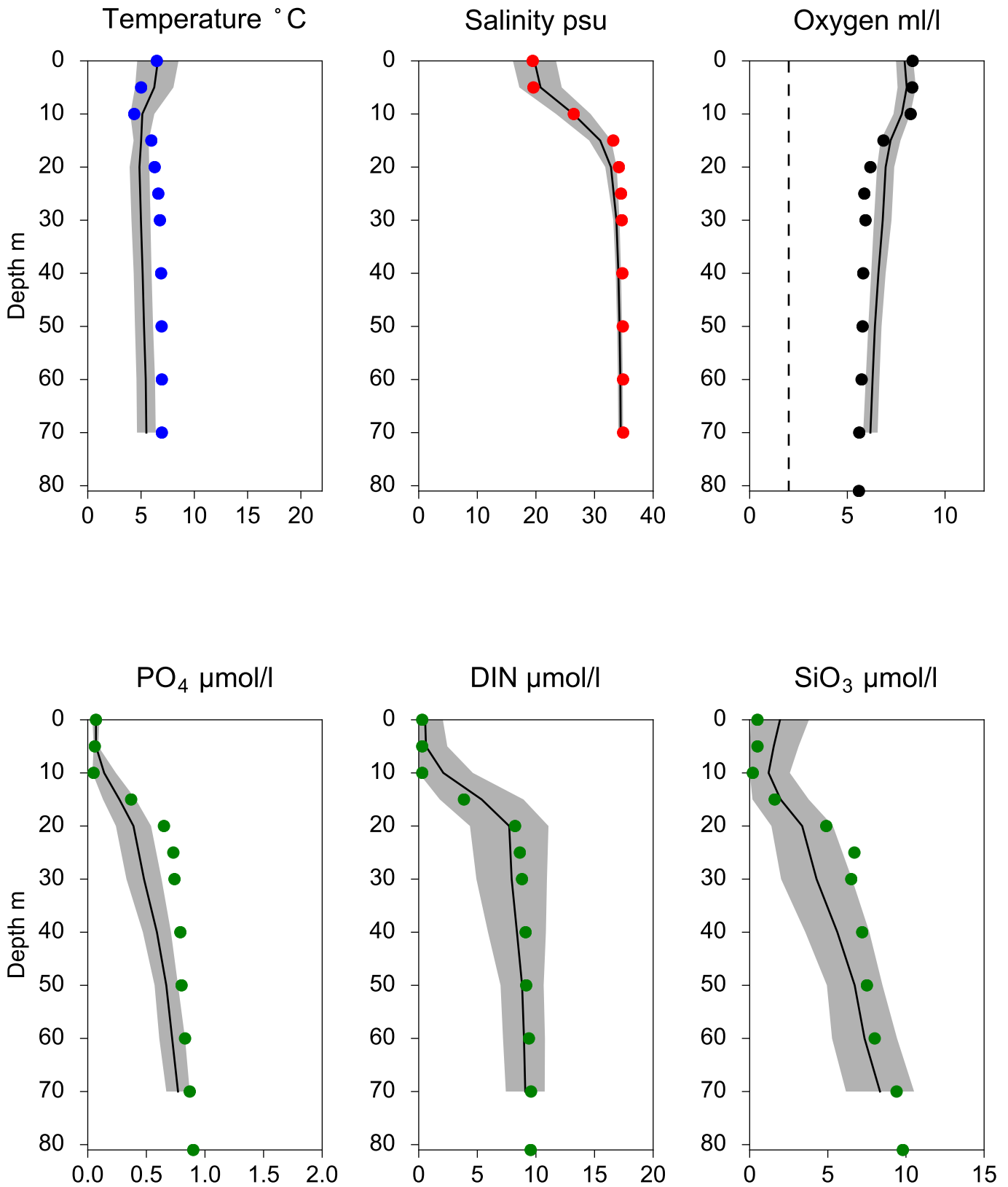


## OXYGEN IN BOTTOM WATER (depth >= 74 m)



# Vertical profiles FLADEN April

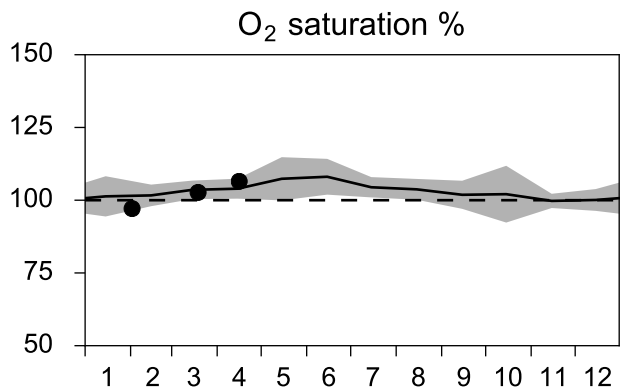
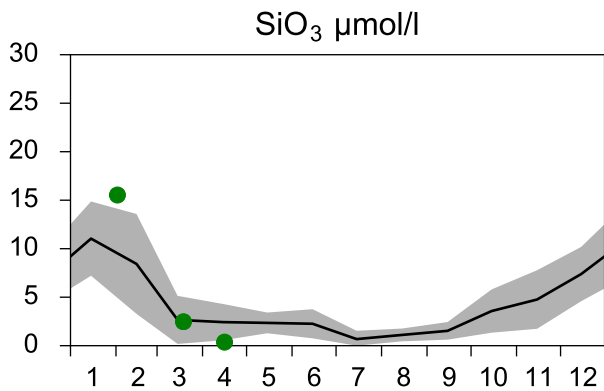
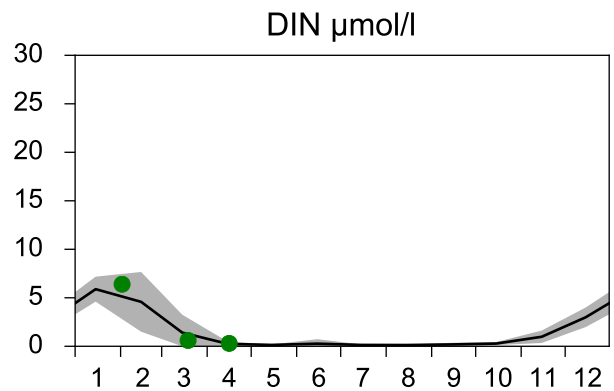
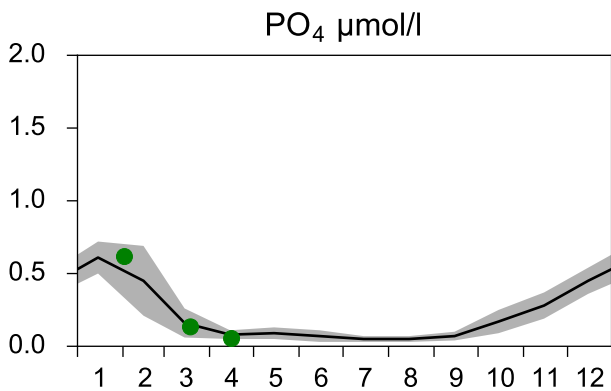
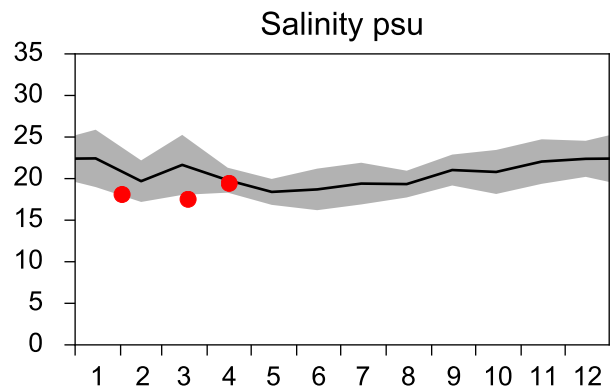
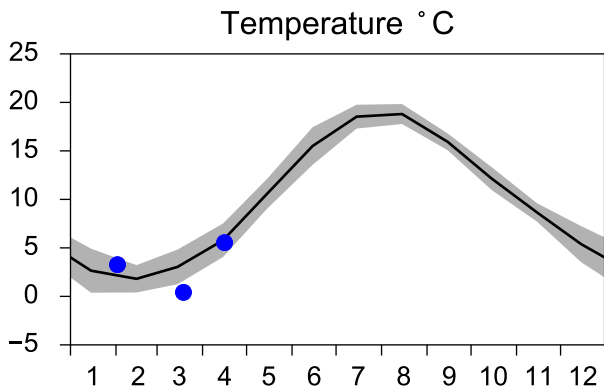
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



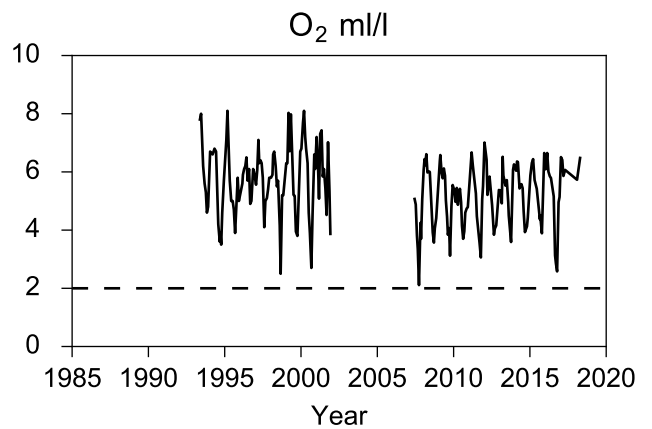
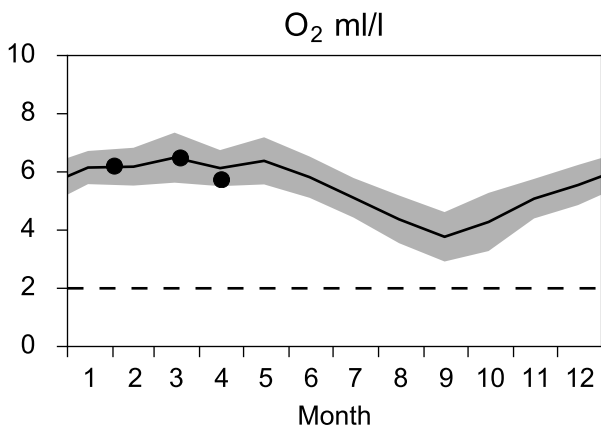
# STATION N14 FALKENBERG SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

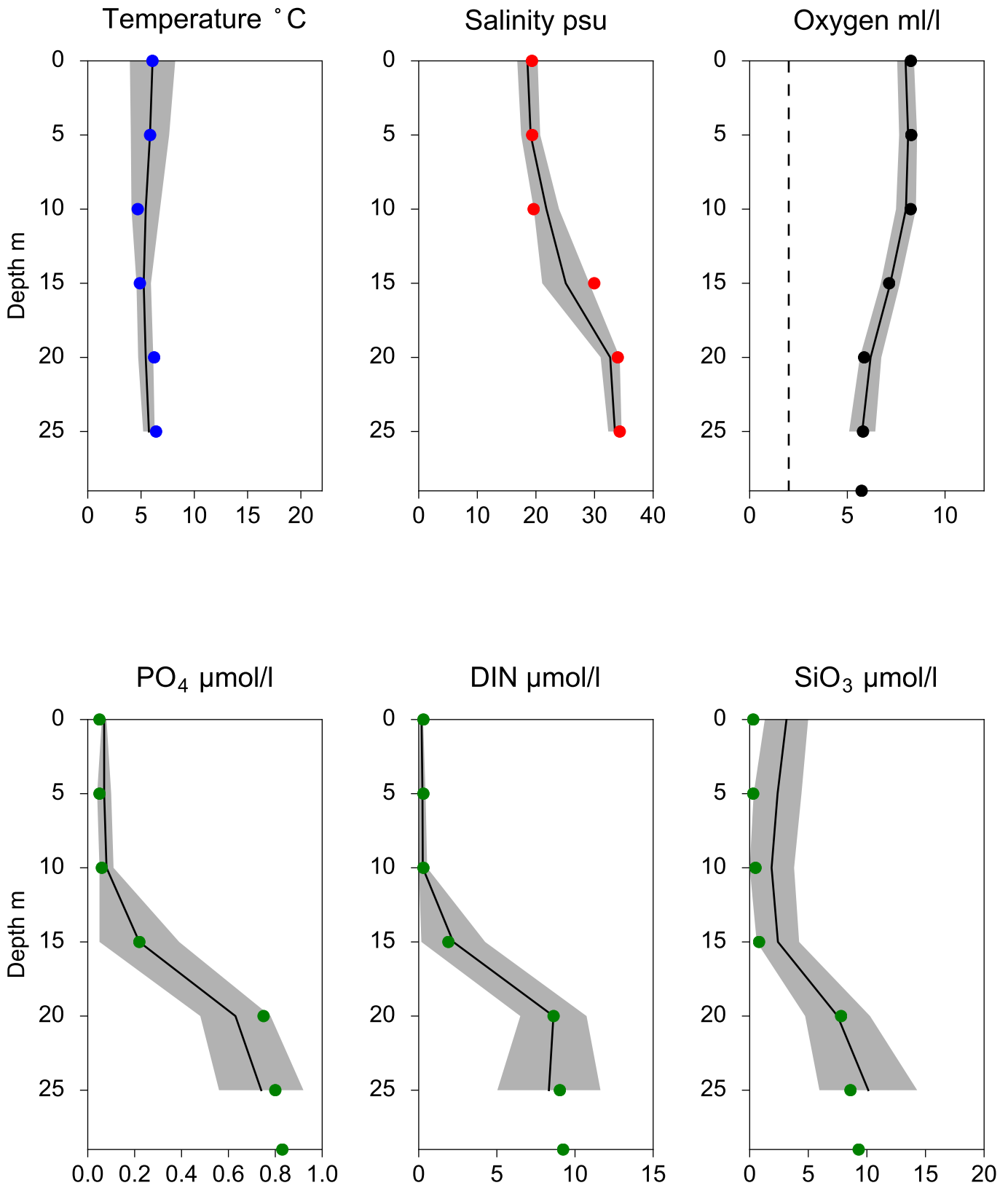


## OXYGEN IN BOTTOM WATER (depth >= 25 m)



# Vertical profiles N14 FALKENBERG April

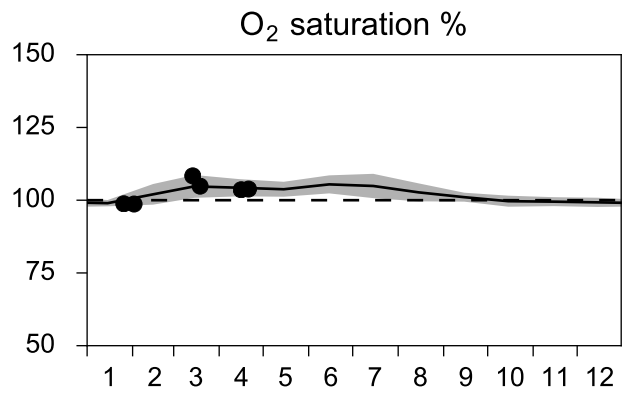
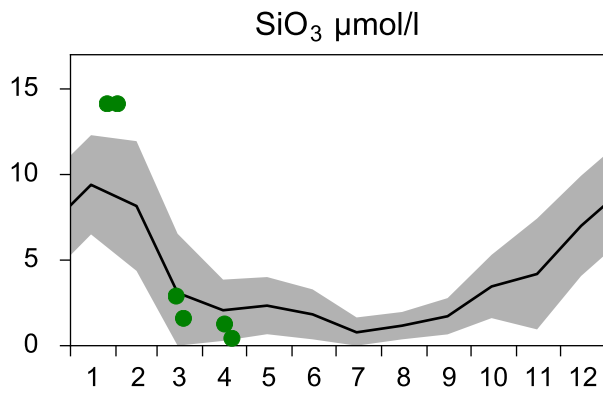
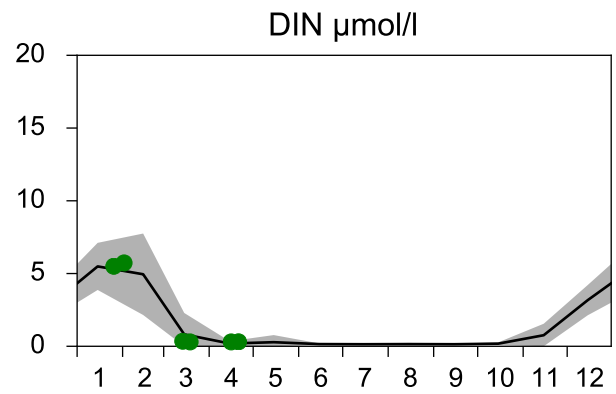
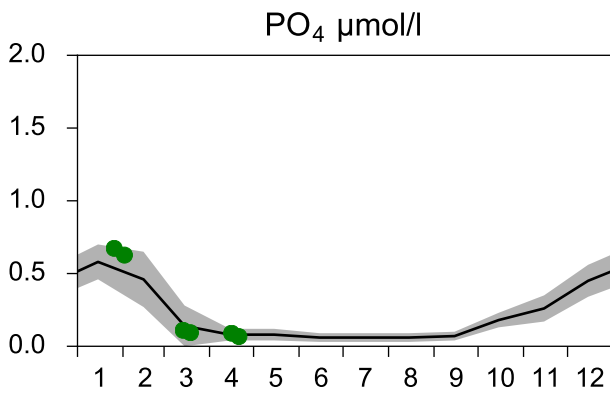
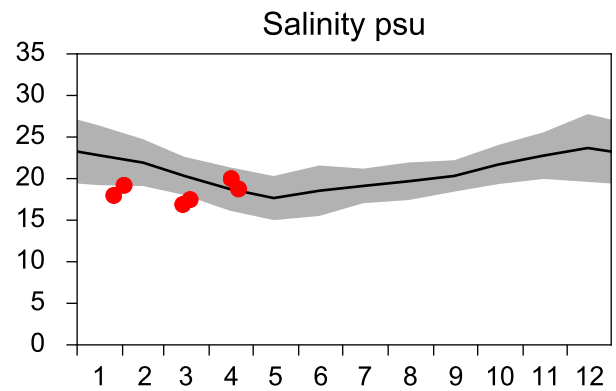
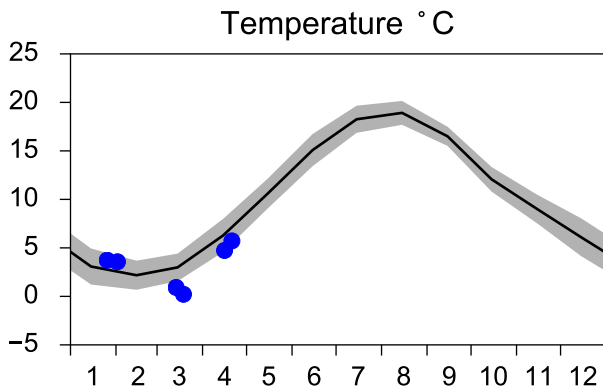
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



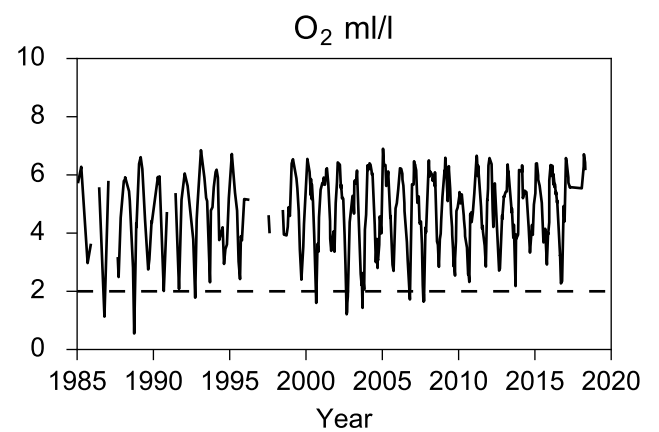
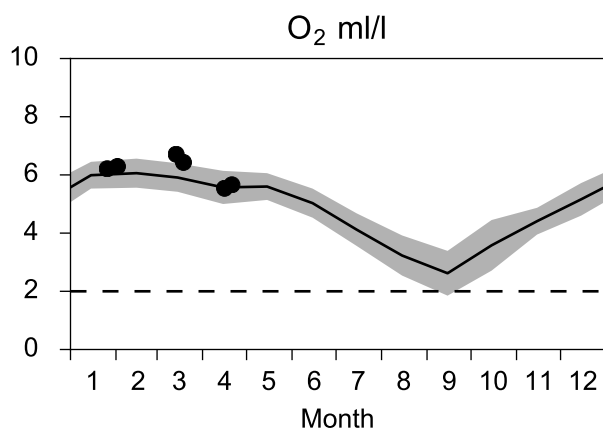
# STATION ANHOLT E SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

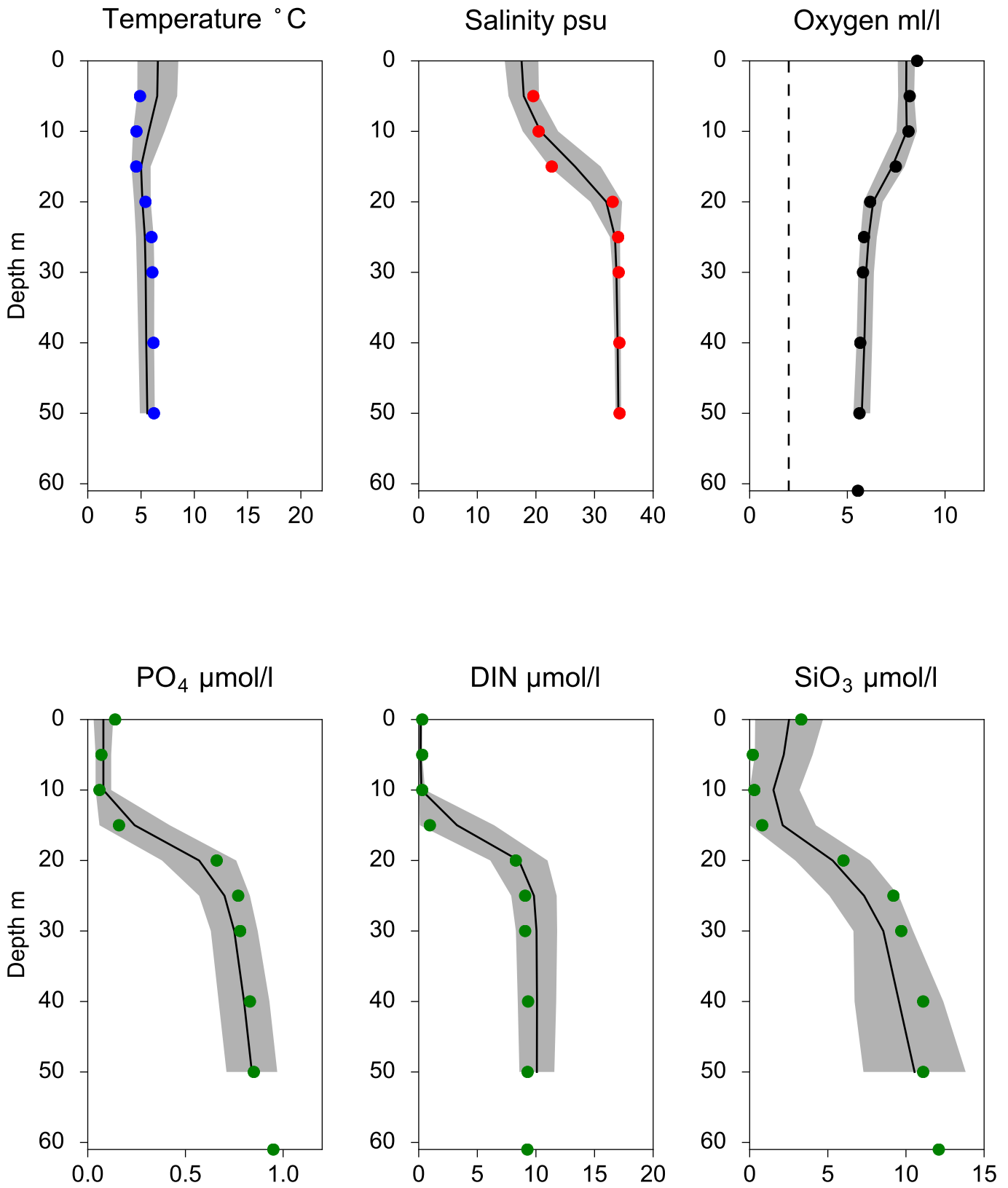


## OXYGEN IN BOTTOM WATER (depth >= 52 m)



# Vertical profiles ANHOLT E April

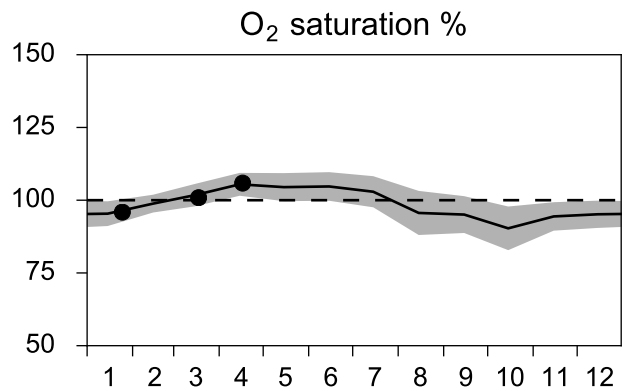
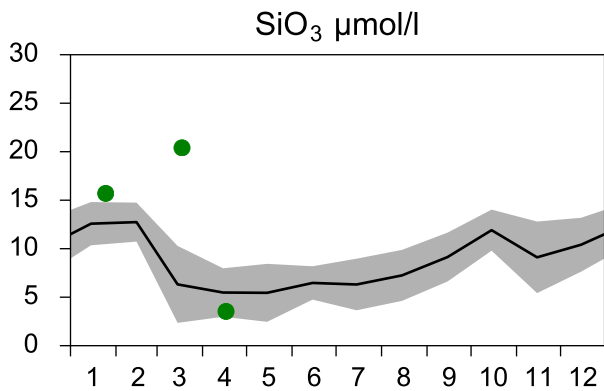
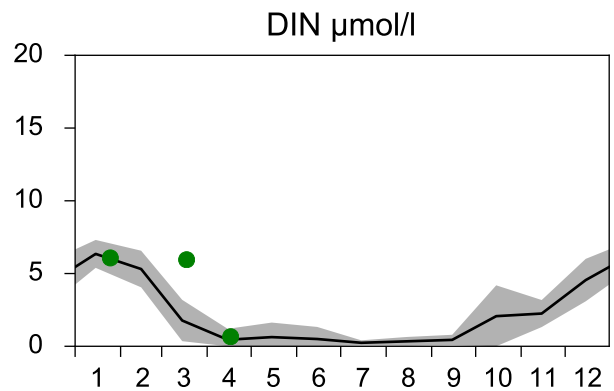
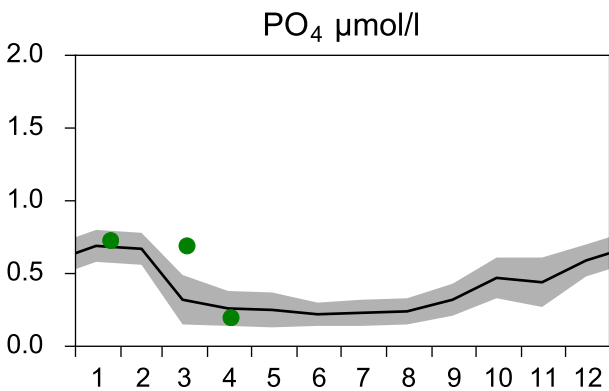
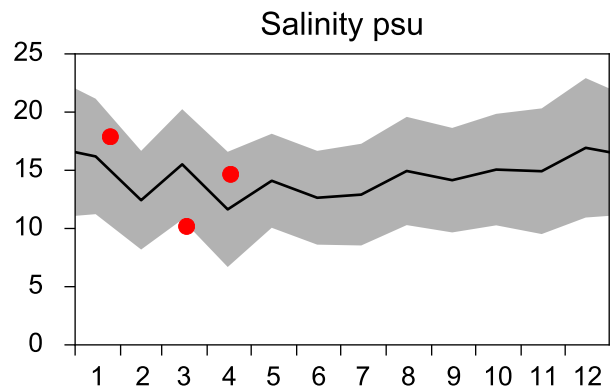
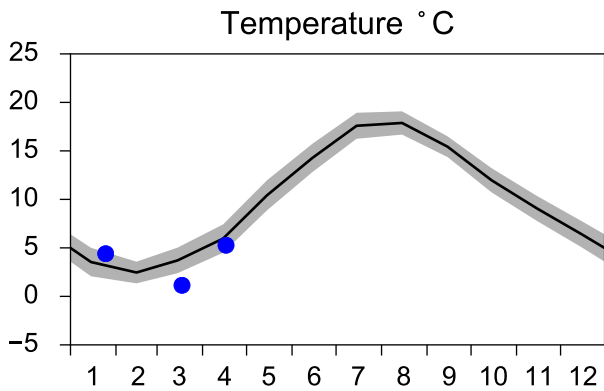
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-16



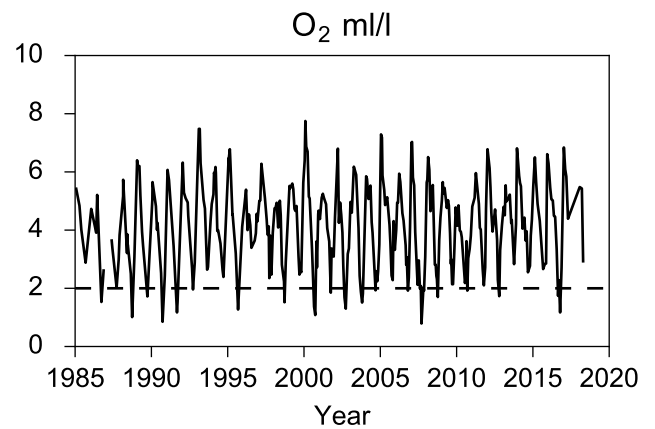
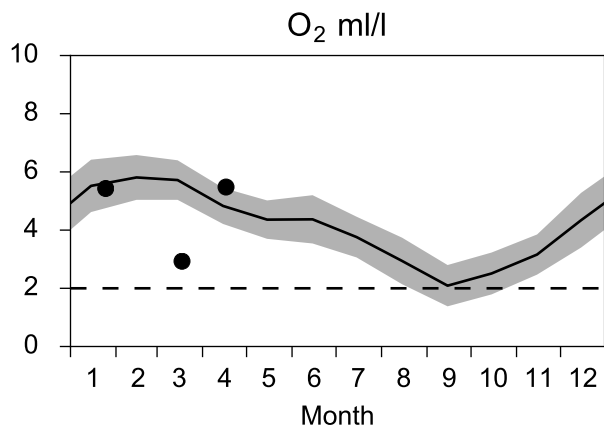
# STATION W LANDSKRONA SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018



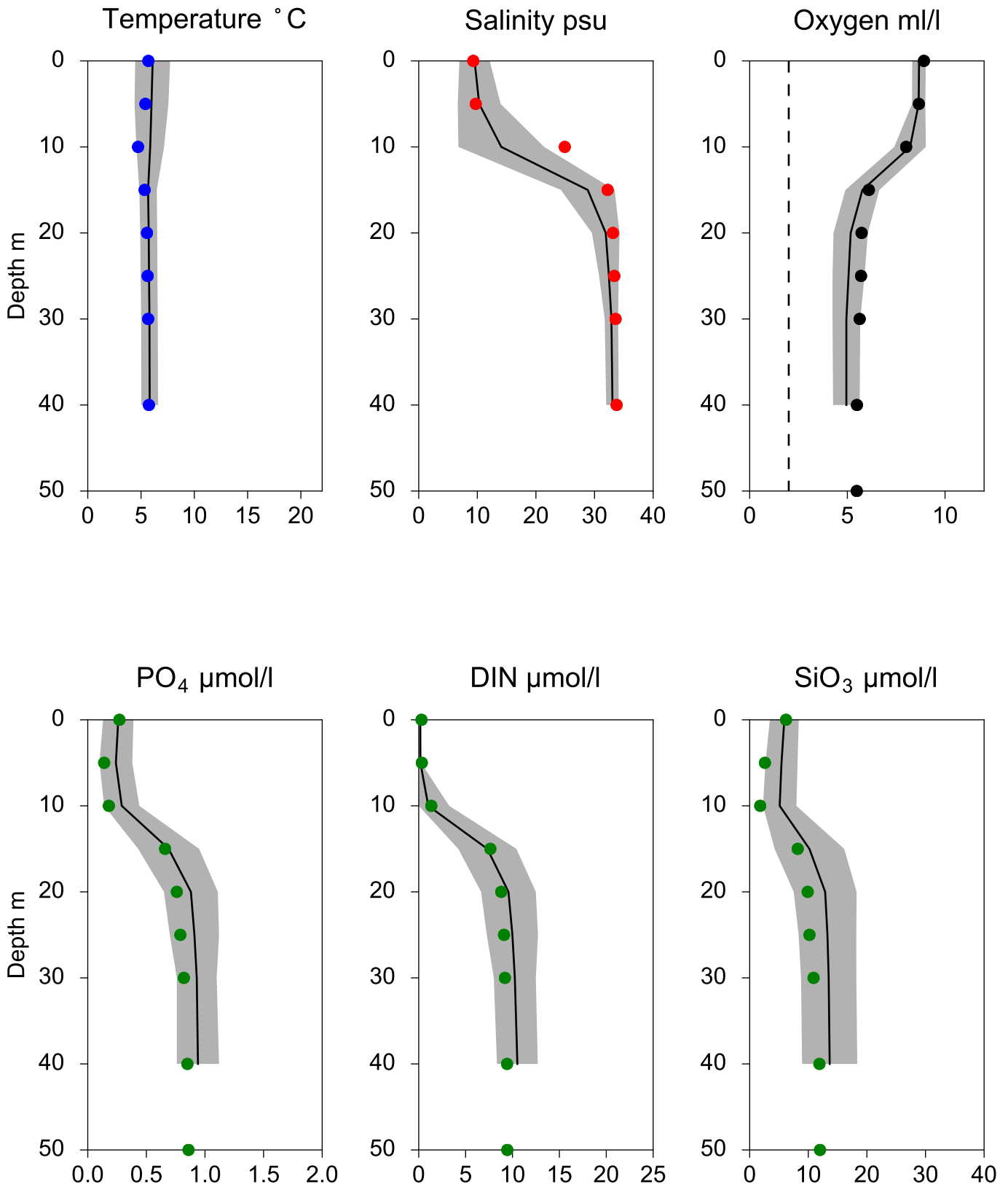
## OXYGEN IN BOTTOM WATER (depth >= 40 m)





# Vertical profiles W LANDSKRONA April

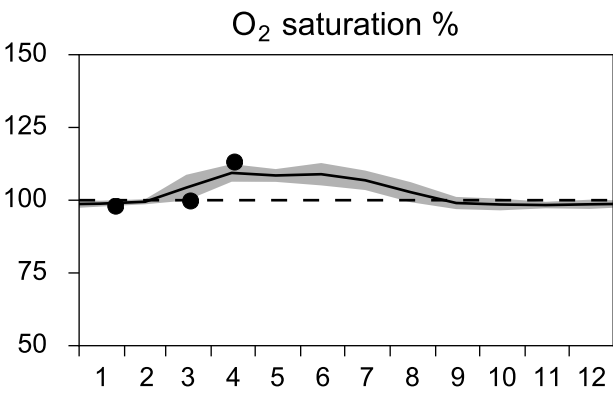
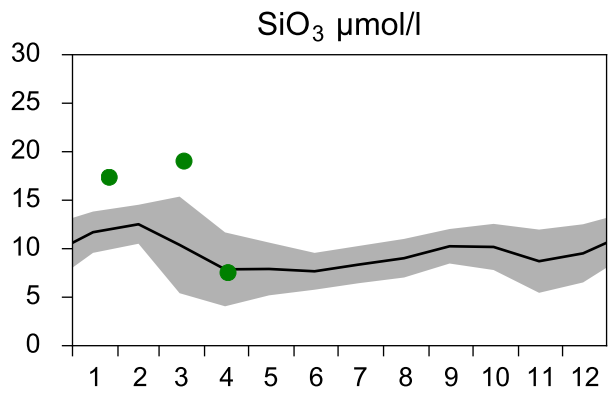
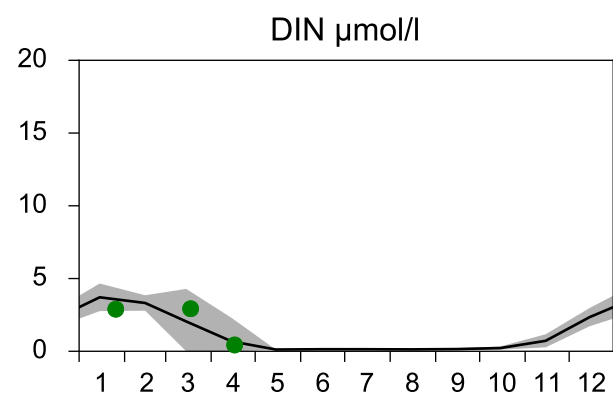
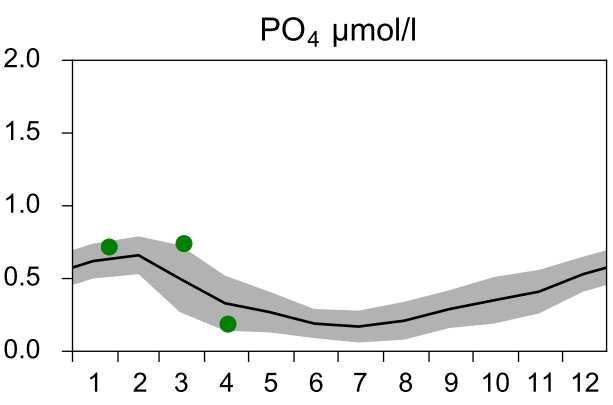
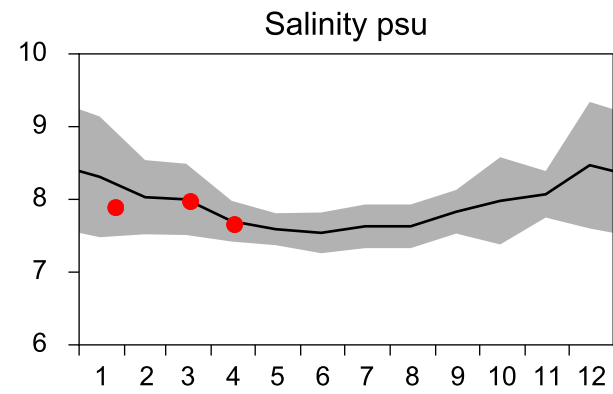
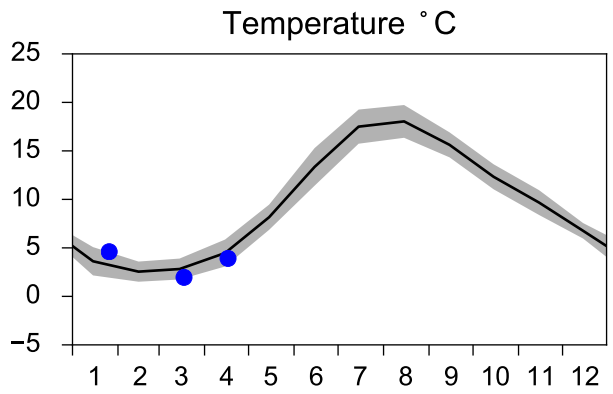
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-17



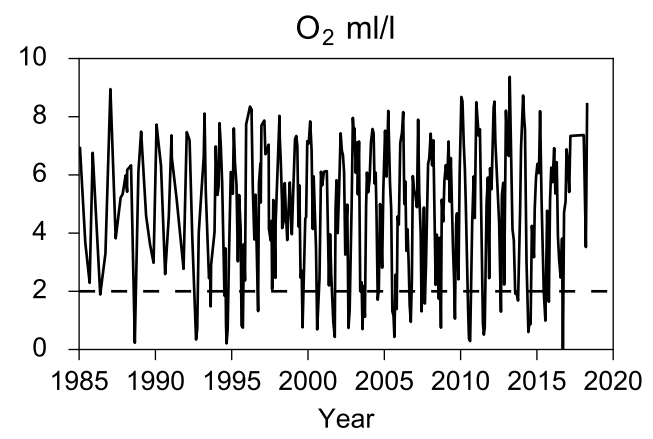
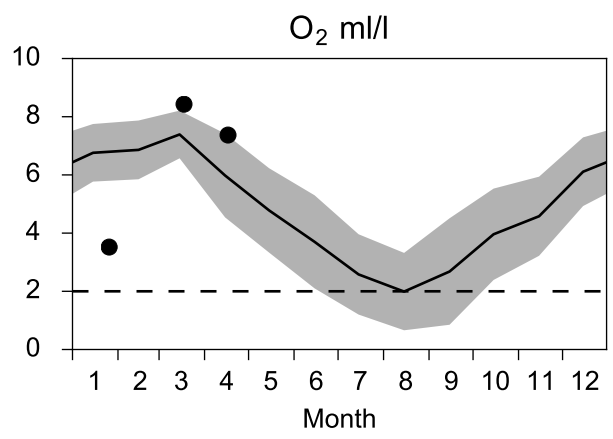
# STATION BY1 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

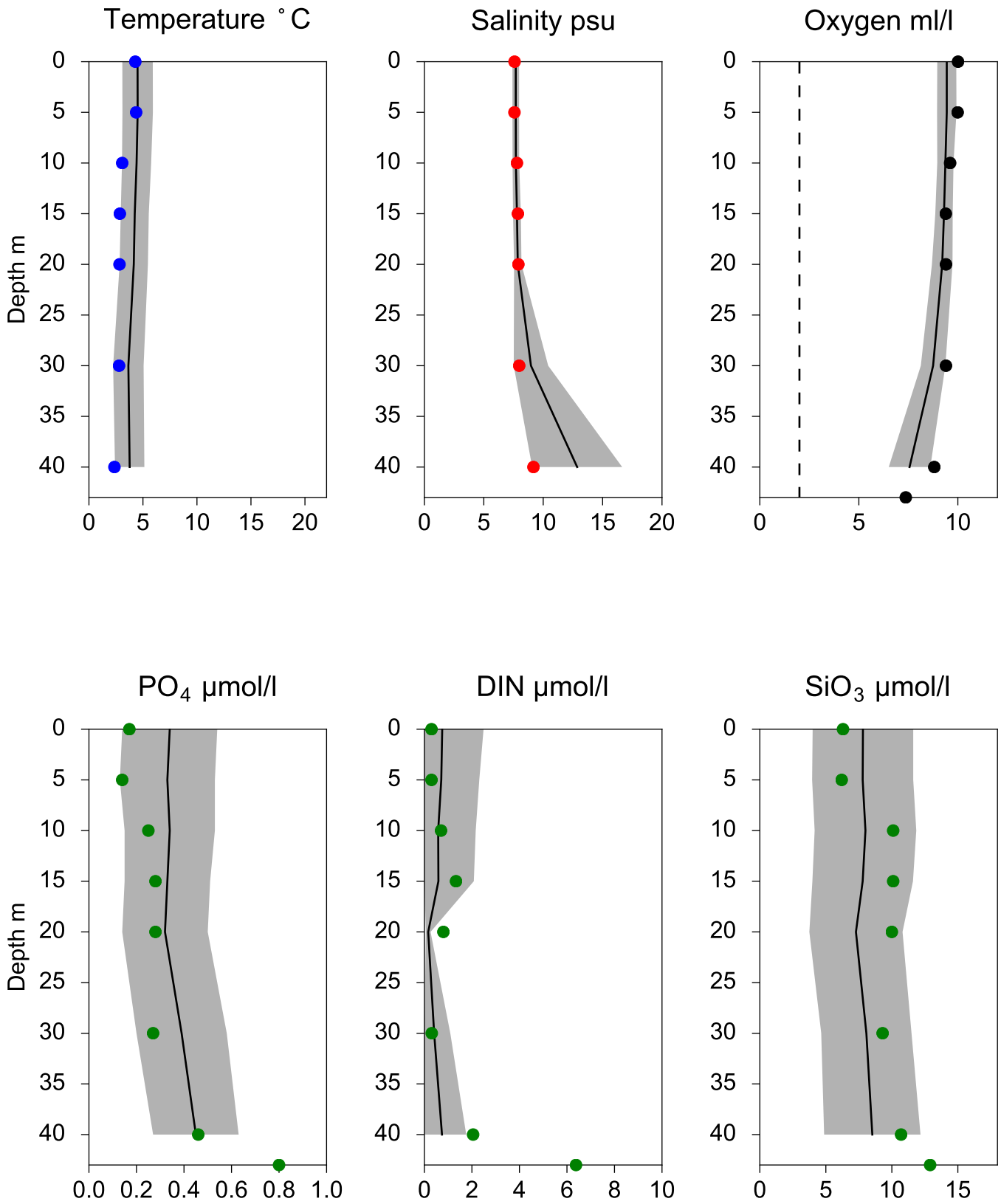


# OXYGEN IN BOTTOM WATER (depth >= 40 m)



# Vertical profiles BY1 April

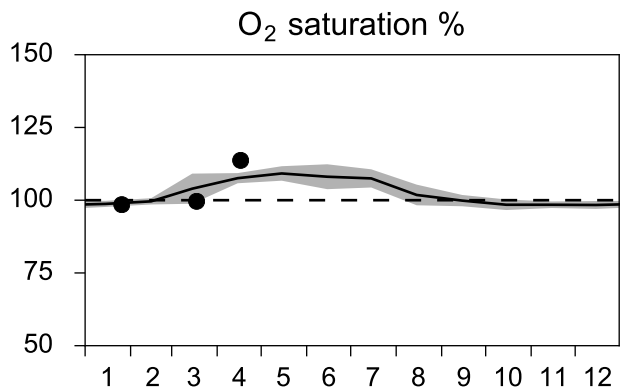
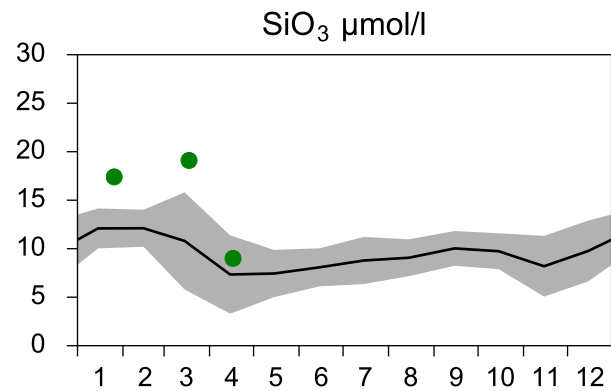
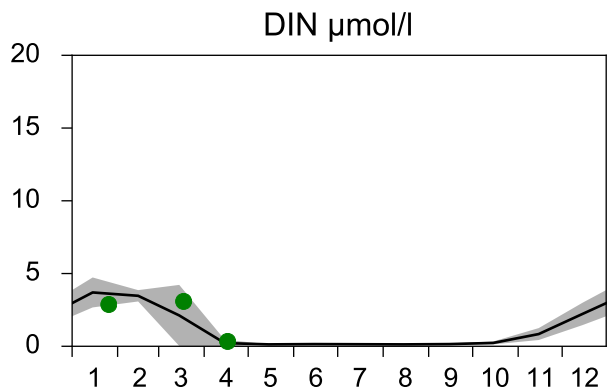
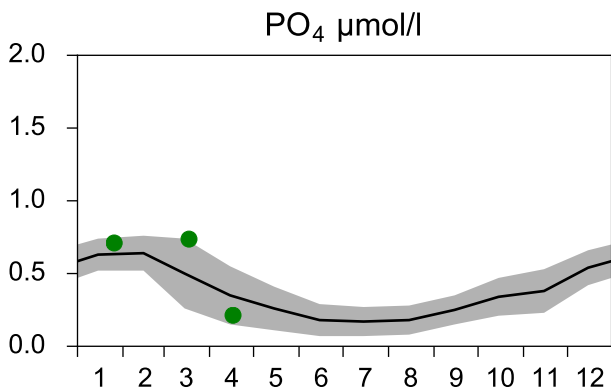
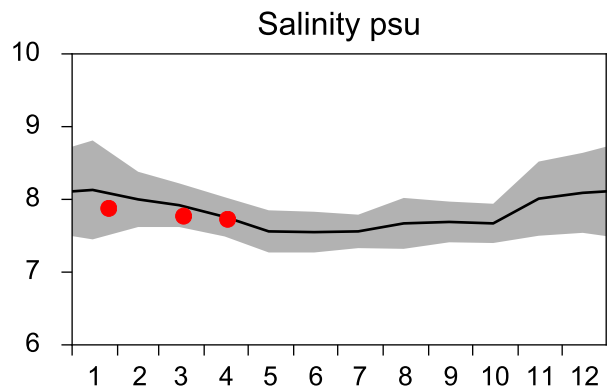
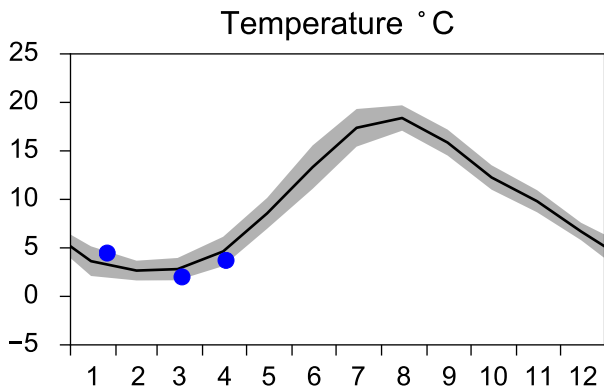
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-17



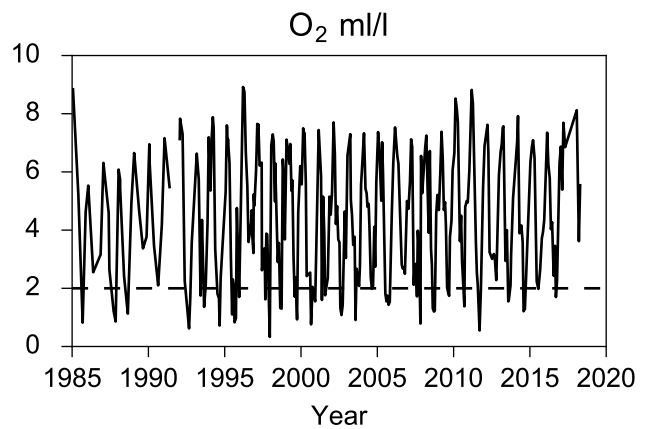
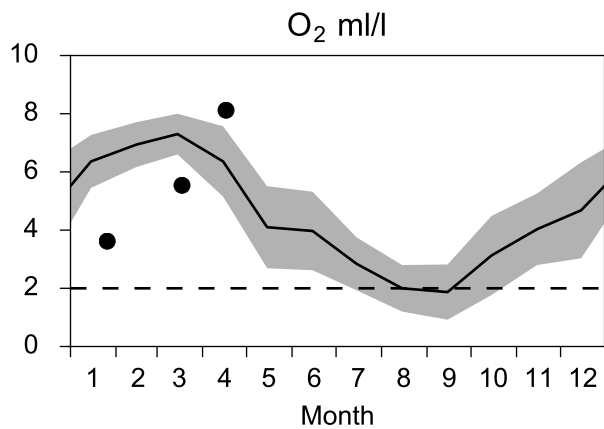
# STATION BY2 ARKONA SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

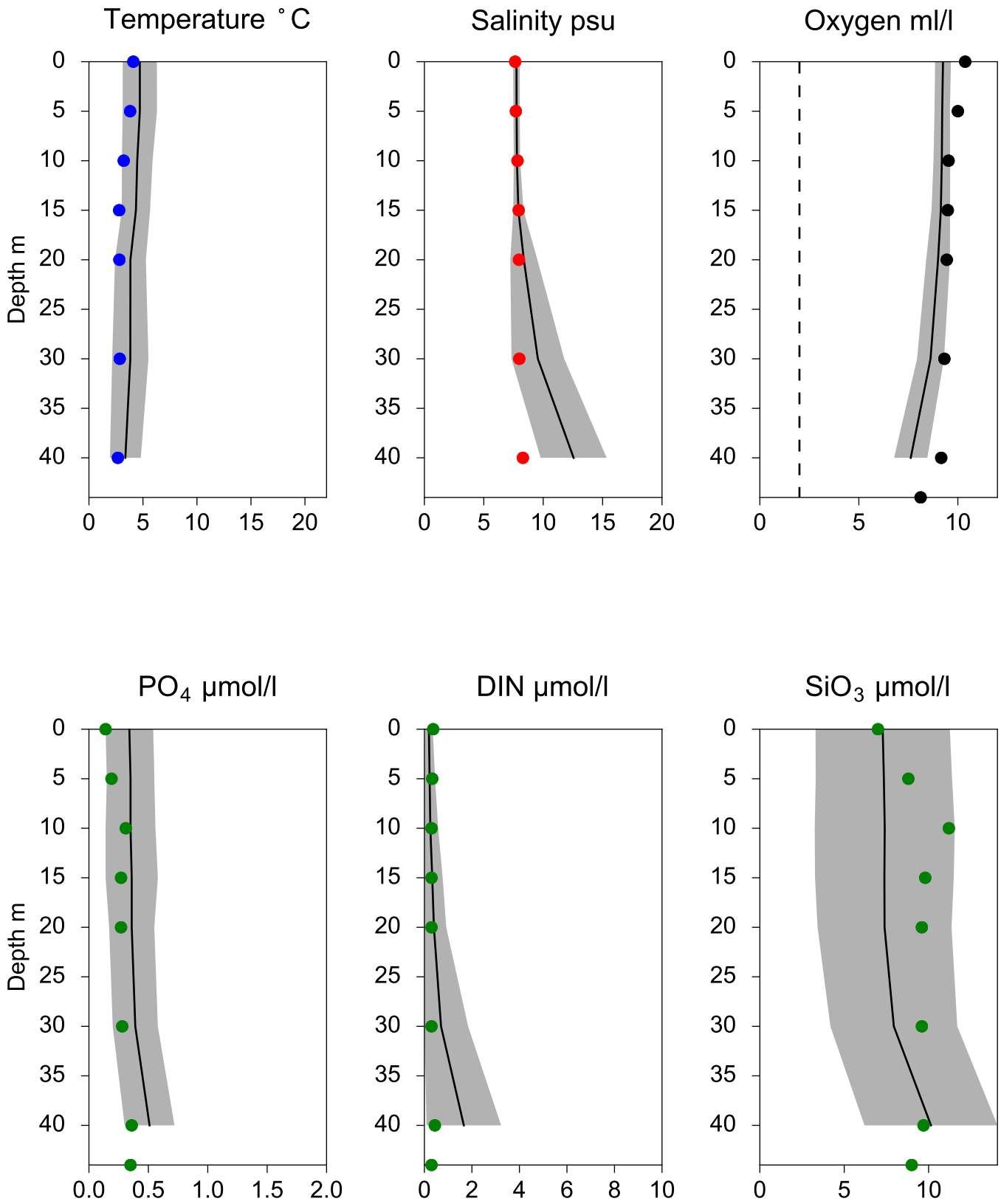


## OXYGEN IN BOTTOM WATER (depth >= 40 m)



# Vertical profiles BY2 ARKONA April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-17

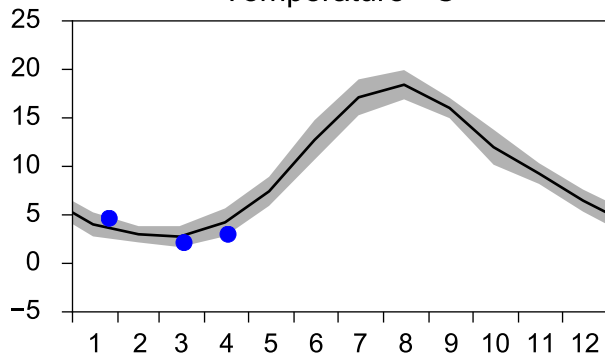


# STATION BY4 CHRISTIANSÖ SURFACE WATER (0-10 m)

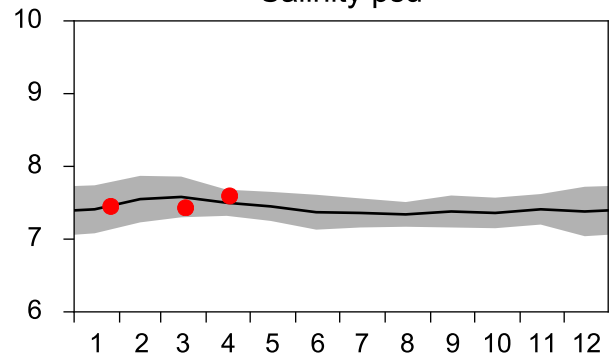
Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

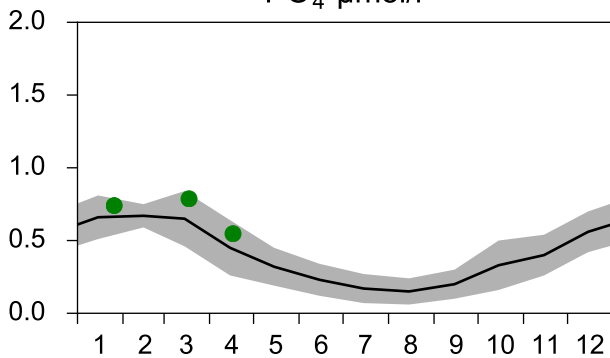
Temperature °C



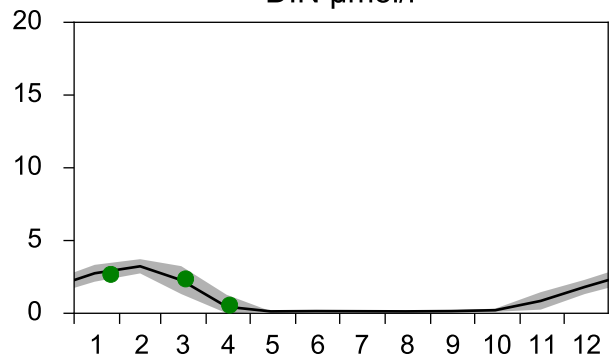
Salinity psu



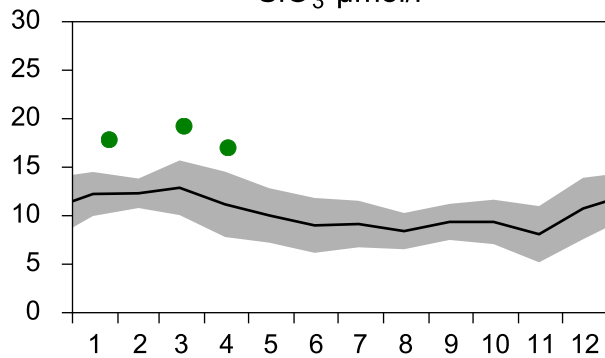
PO<sub>4</sub> μmol/l



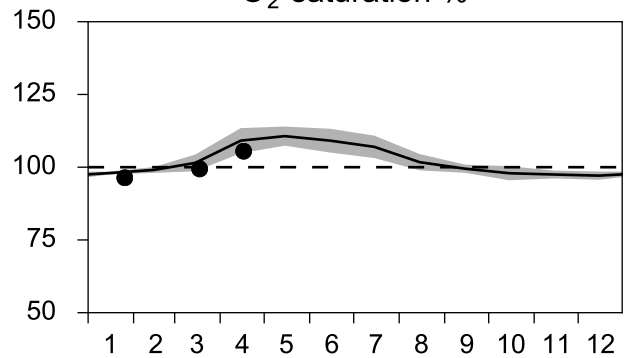
DIN μmol/l



SiO<sub>3</sub> μmol/l

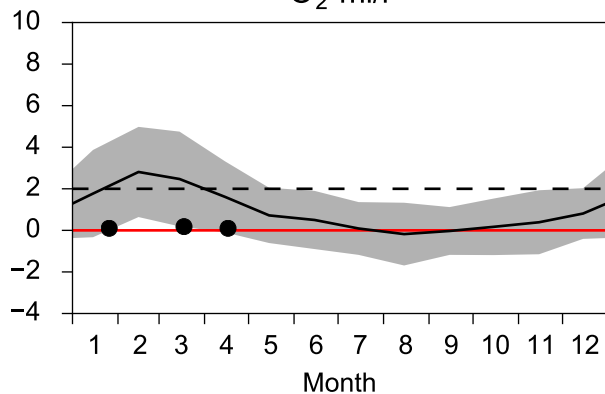


O<sub>2</sub> saturation %

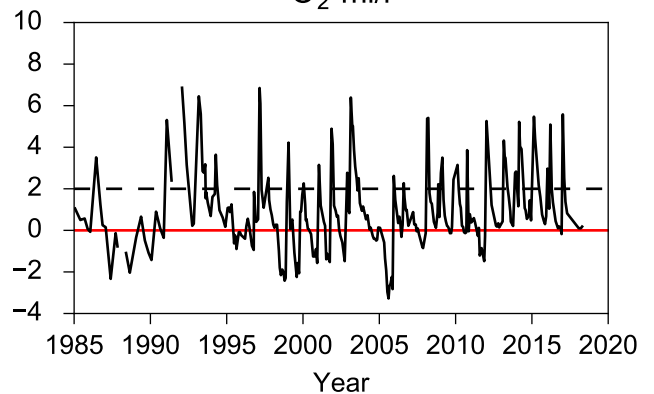


## OXYGEN IN BOTTOM WATER (depth >= 80 m)

O<sub>2</sub> ml/l

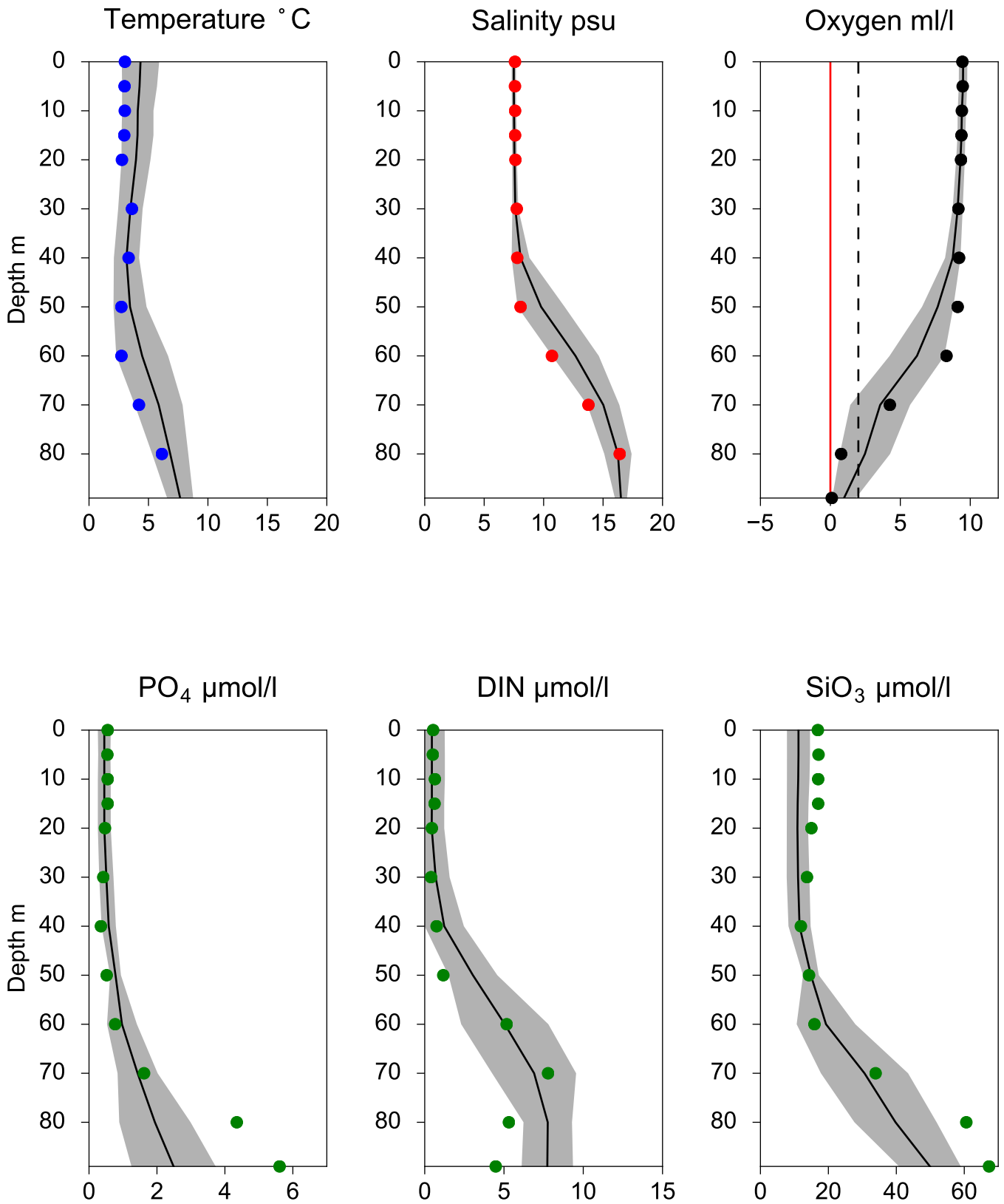


O<sub>2</sub> ml/l



# Vertical profiles BY4 CHRISTIANSÖ April

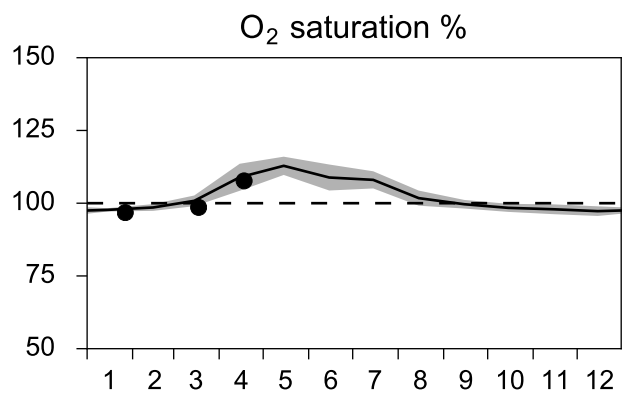
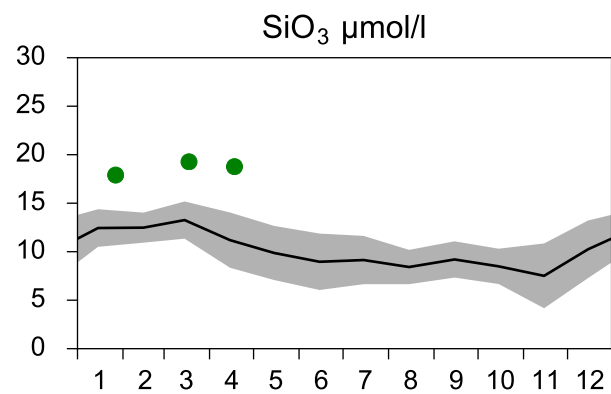
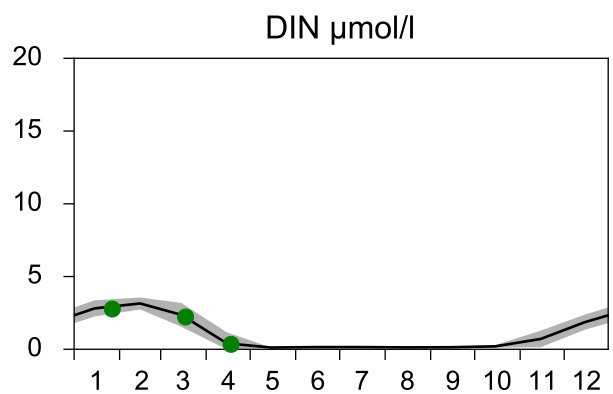
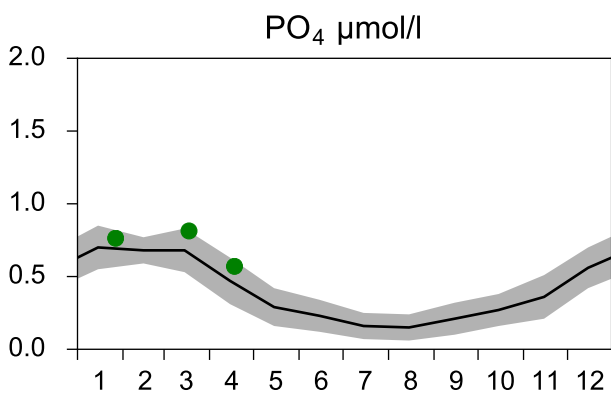
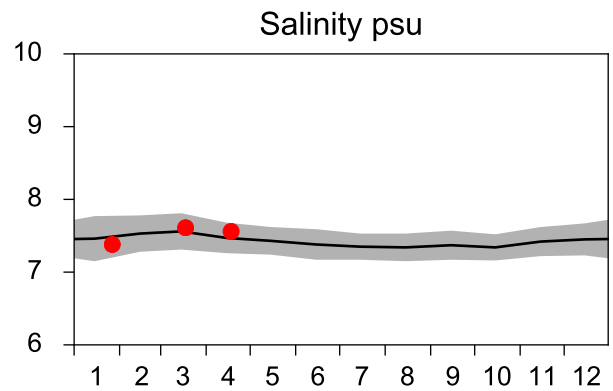
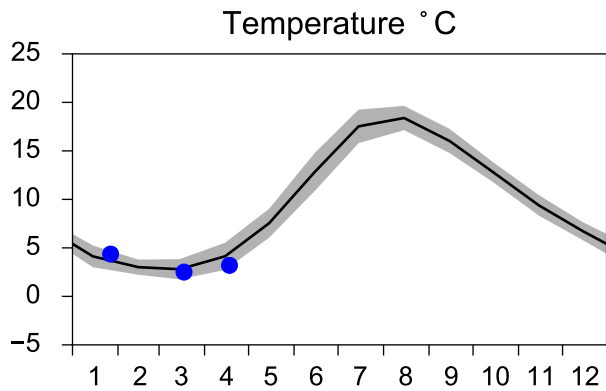
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-17



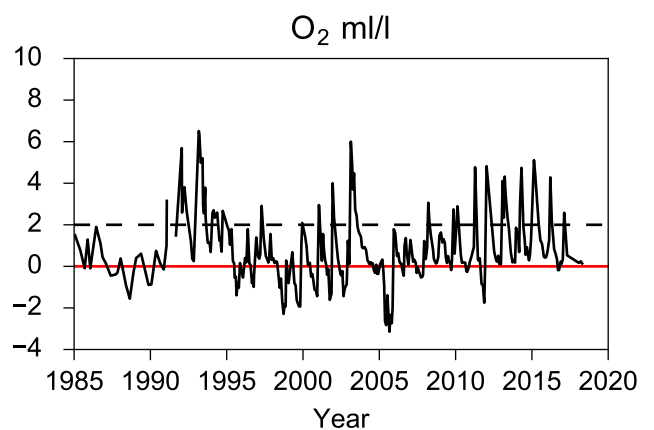
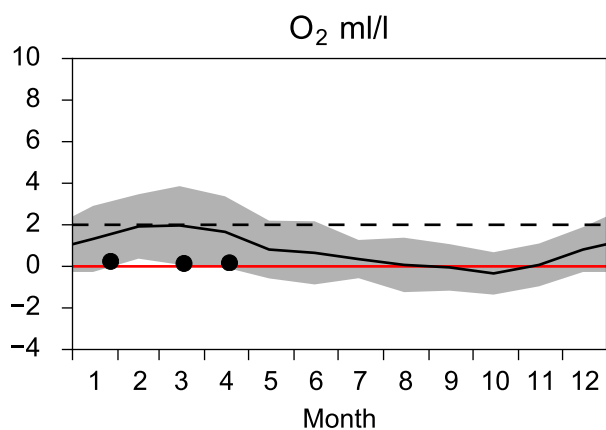
# STATION BY5 BORNHOLMSDJ SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018



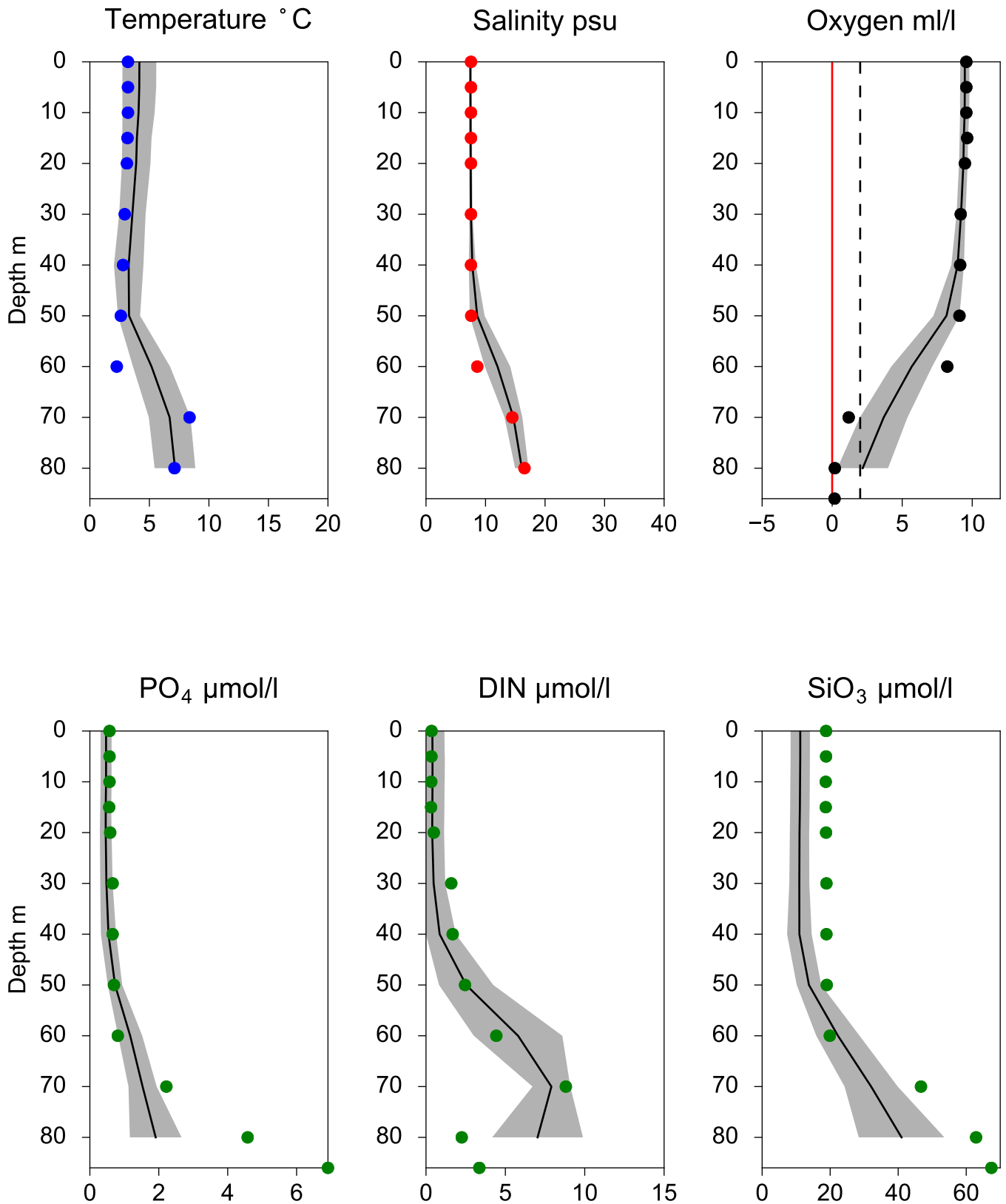
## OXYGEN IN BOTTOM WATER (depth >= 80 m)





# Vertical profiles BY5 BORNHOLMSDJ April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-18



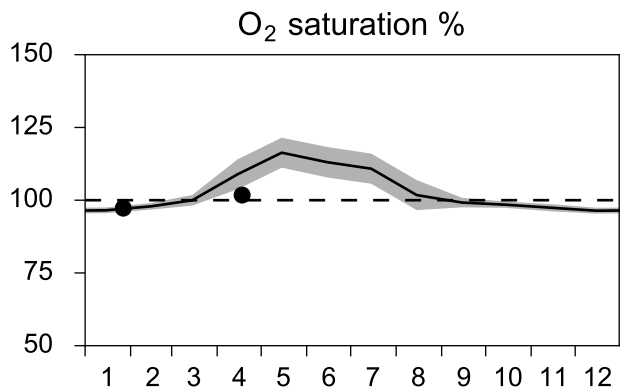
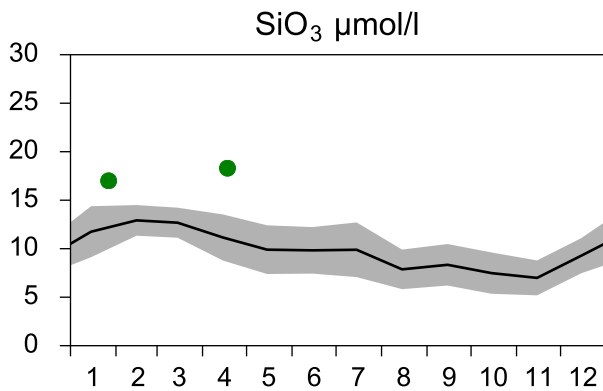
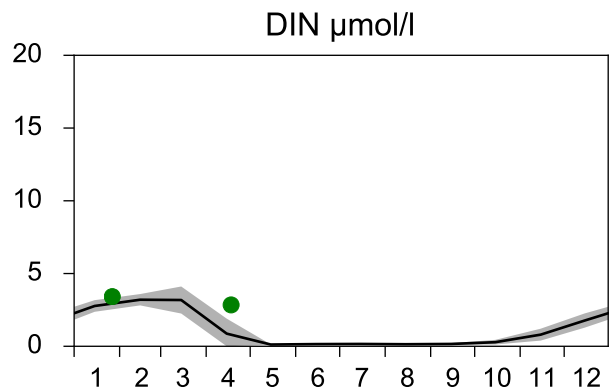
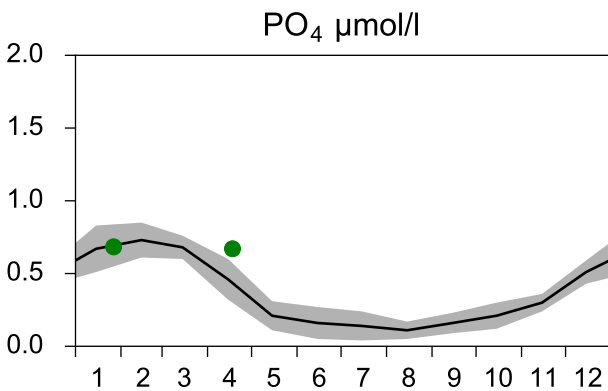
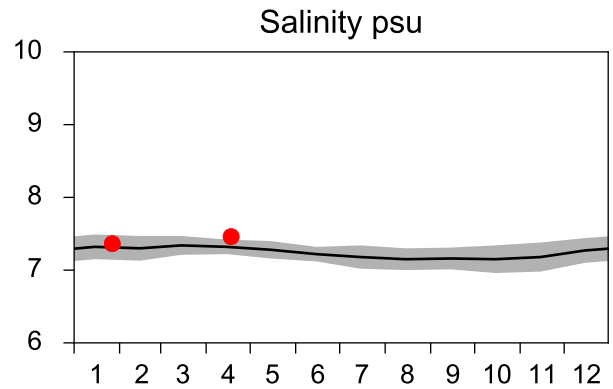
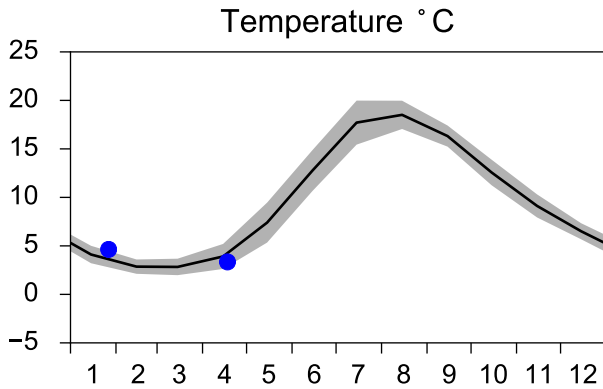
# STATION BCS III-10 SURFACE WATER (0-10 m)

Annual Cycles

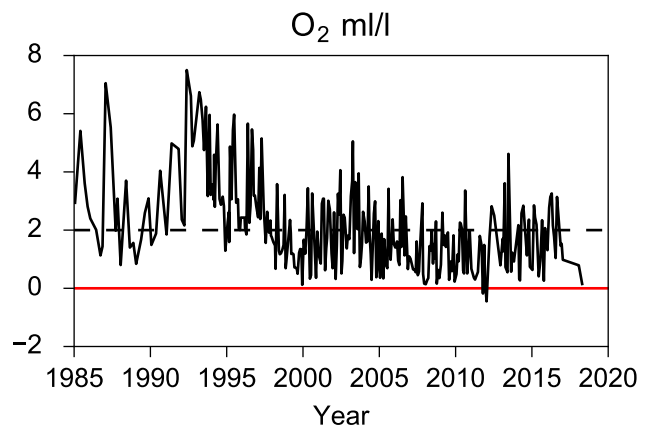
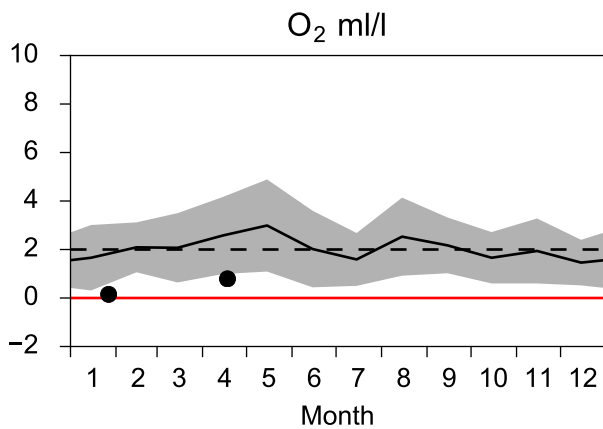
— Mean 2001-2015

■ St.Dev.

● 2018

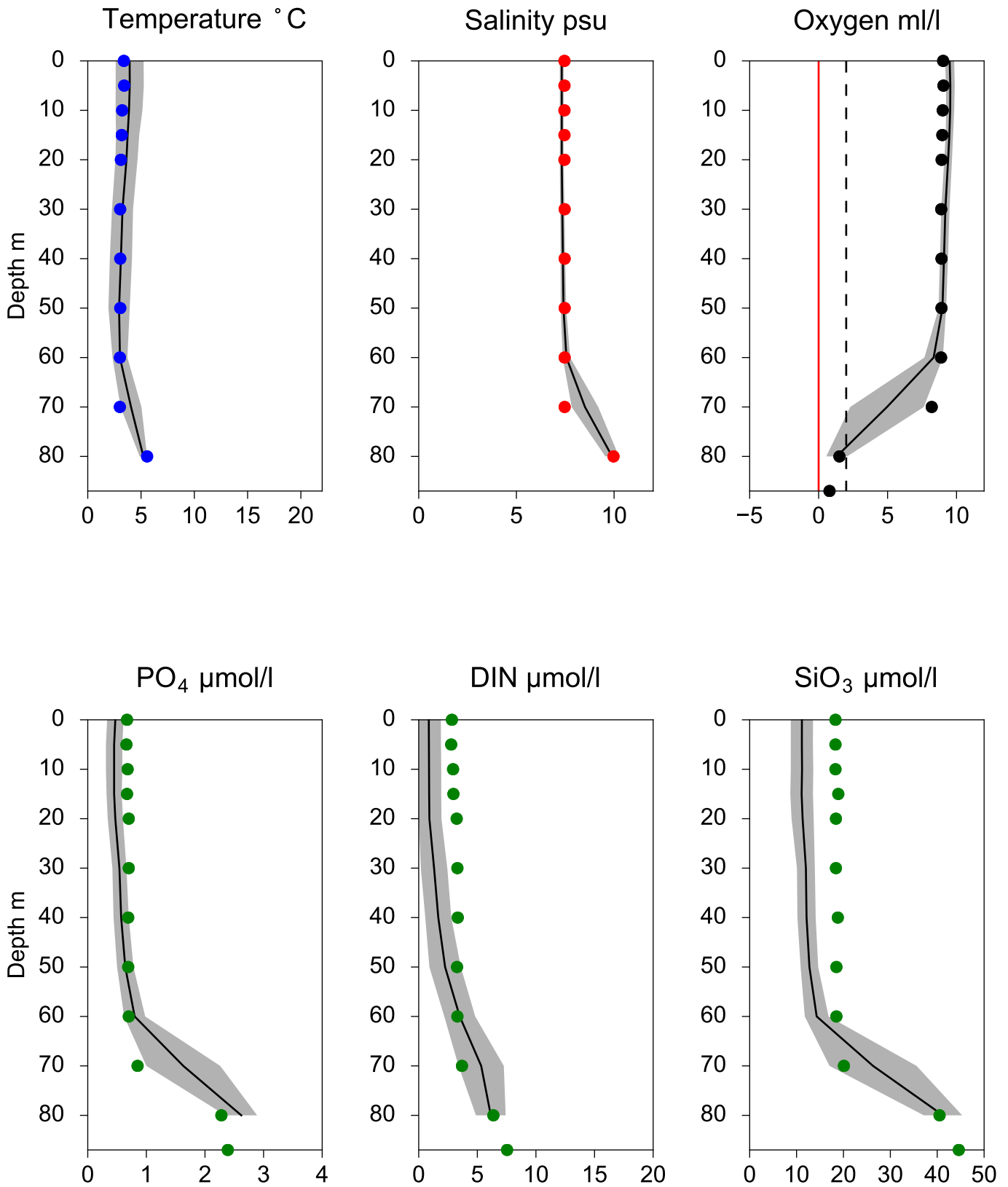


## OXYGEN IN BOTTOM WATER (depth >= 80 m)



# Vertical profiles BCS III-10 April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-18

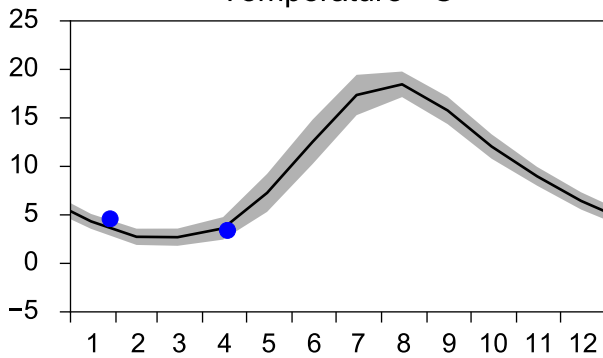


# STATION BY10 SURFACE WATER (0-10 m)

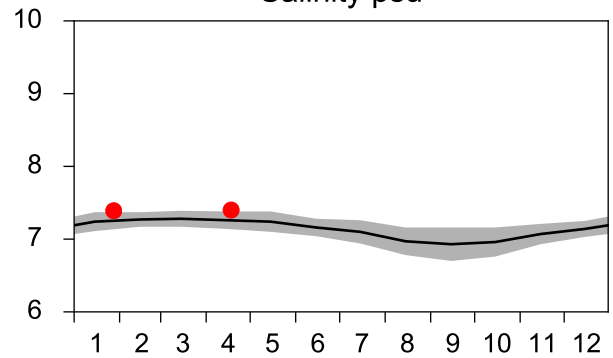
Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

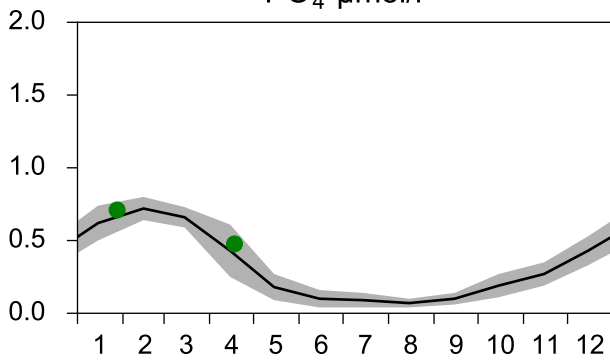
Temperature °C



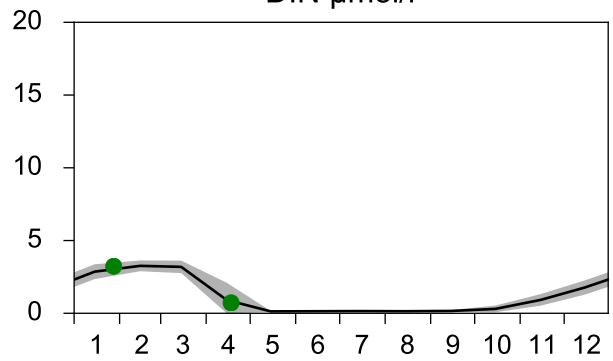
Salinity psu



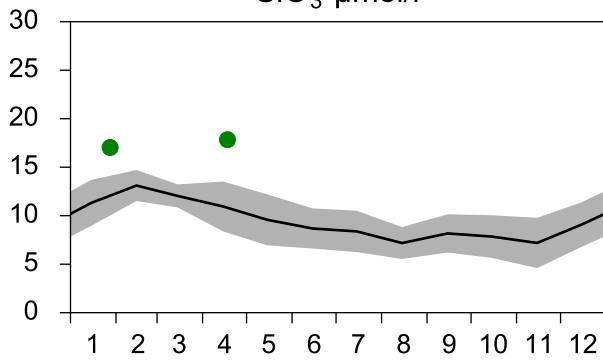
PO<sub>4</sub> μmol/l



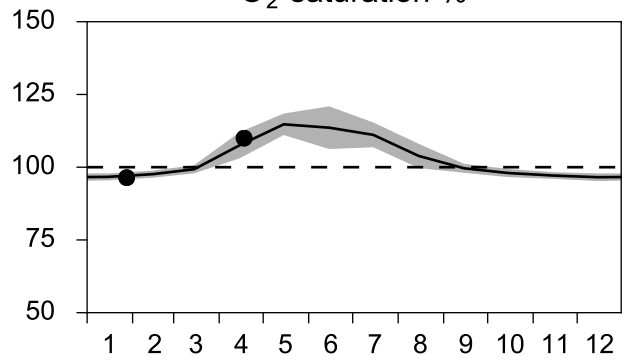
DIN μmol/l



SiO<sub>3</sub> μmol/l

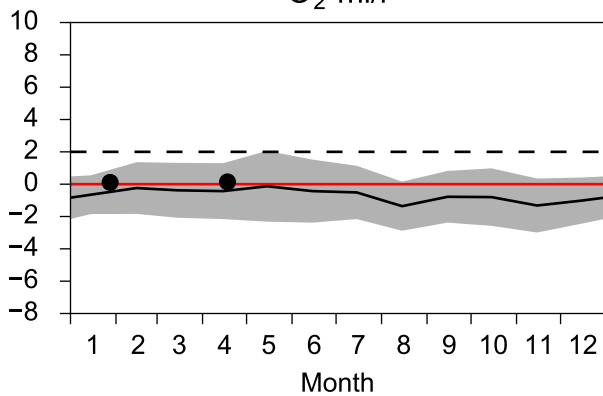


O<sub>2</sub> saturation %

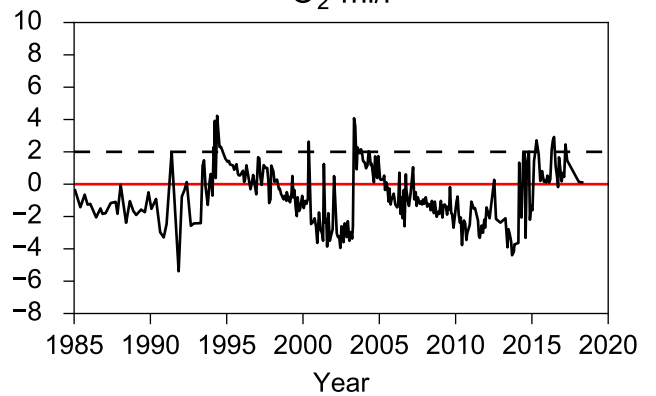


# OXYGEN IN BOTTOM WATER (depth >= 125 m)

O<sub>2</sub> ml/l

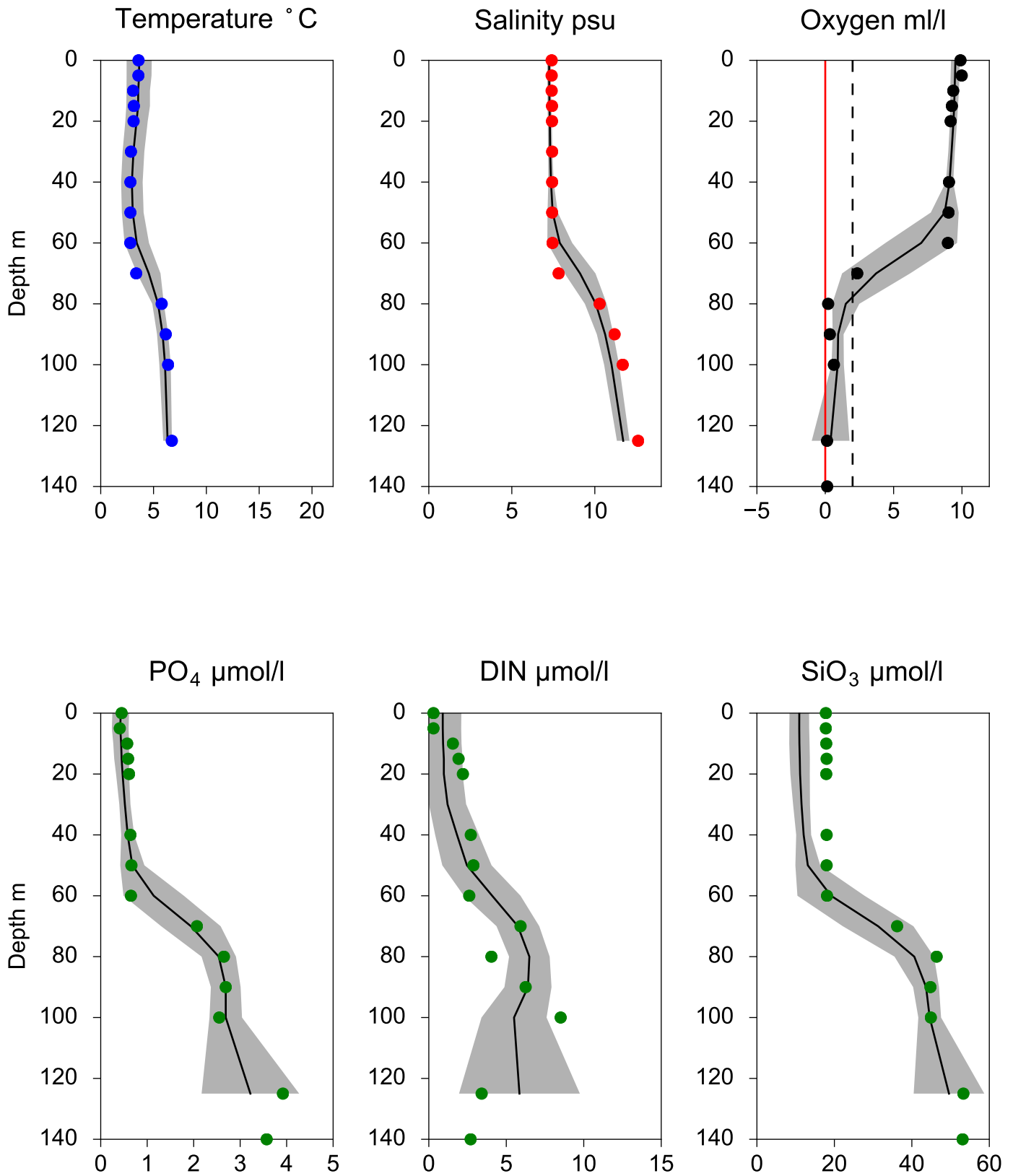


O<sub>2</sub> ml/l



# Vertical profiles BY10 April

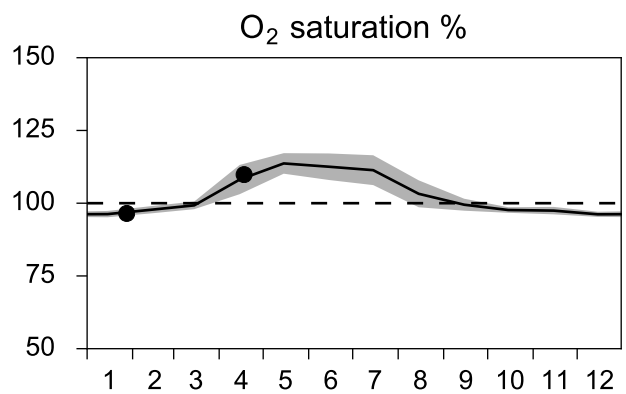
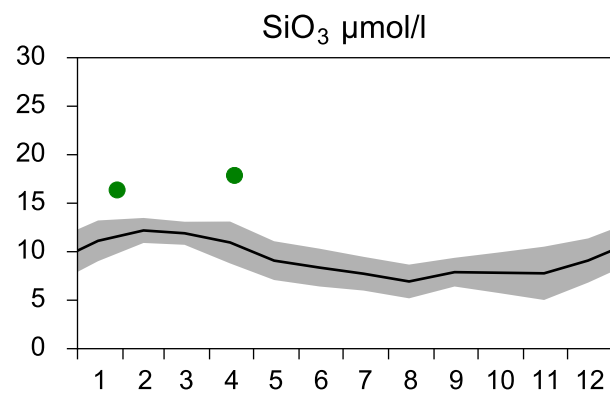
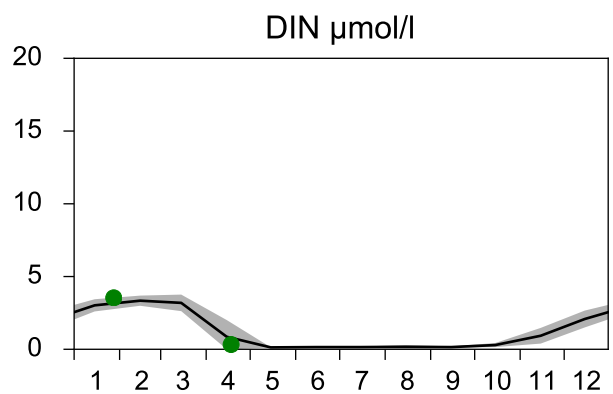
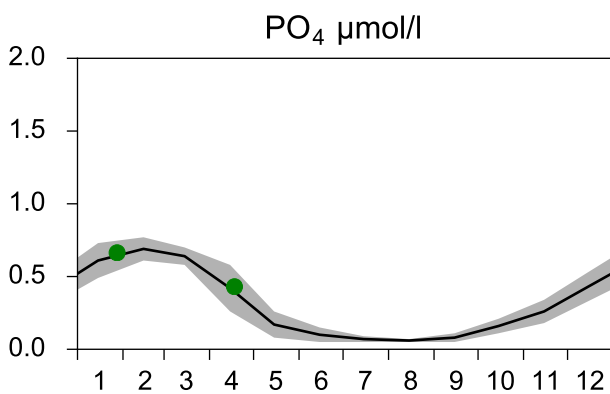
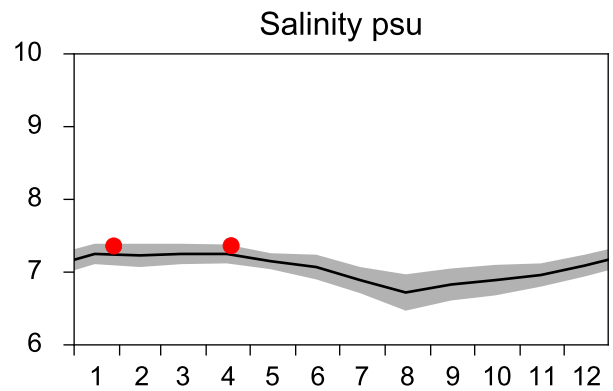
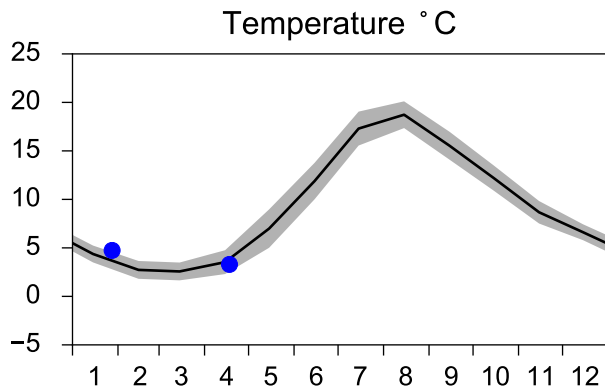
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-18



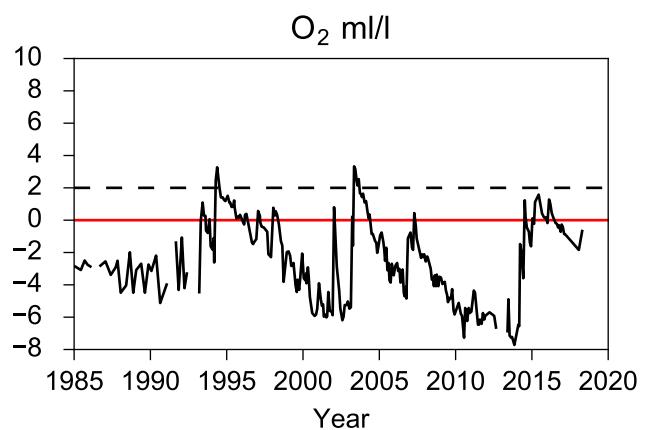
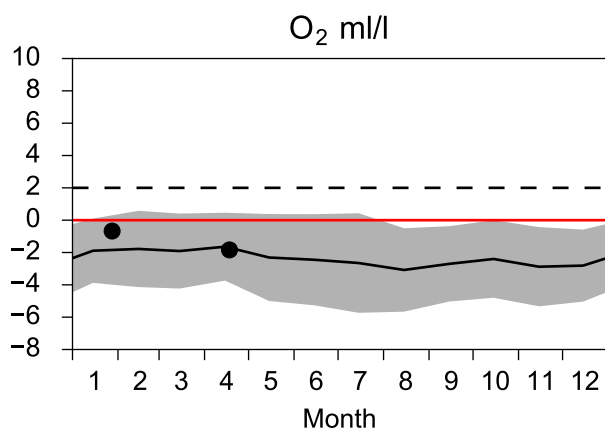
# STATION BY15 GOTLANDSDJ SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

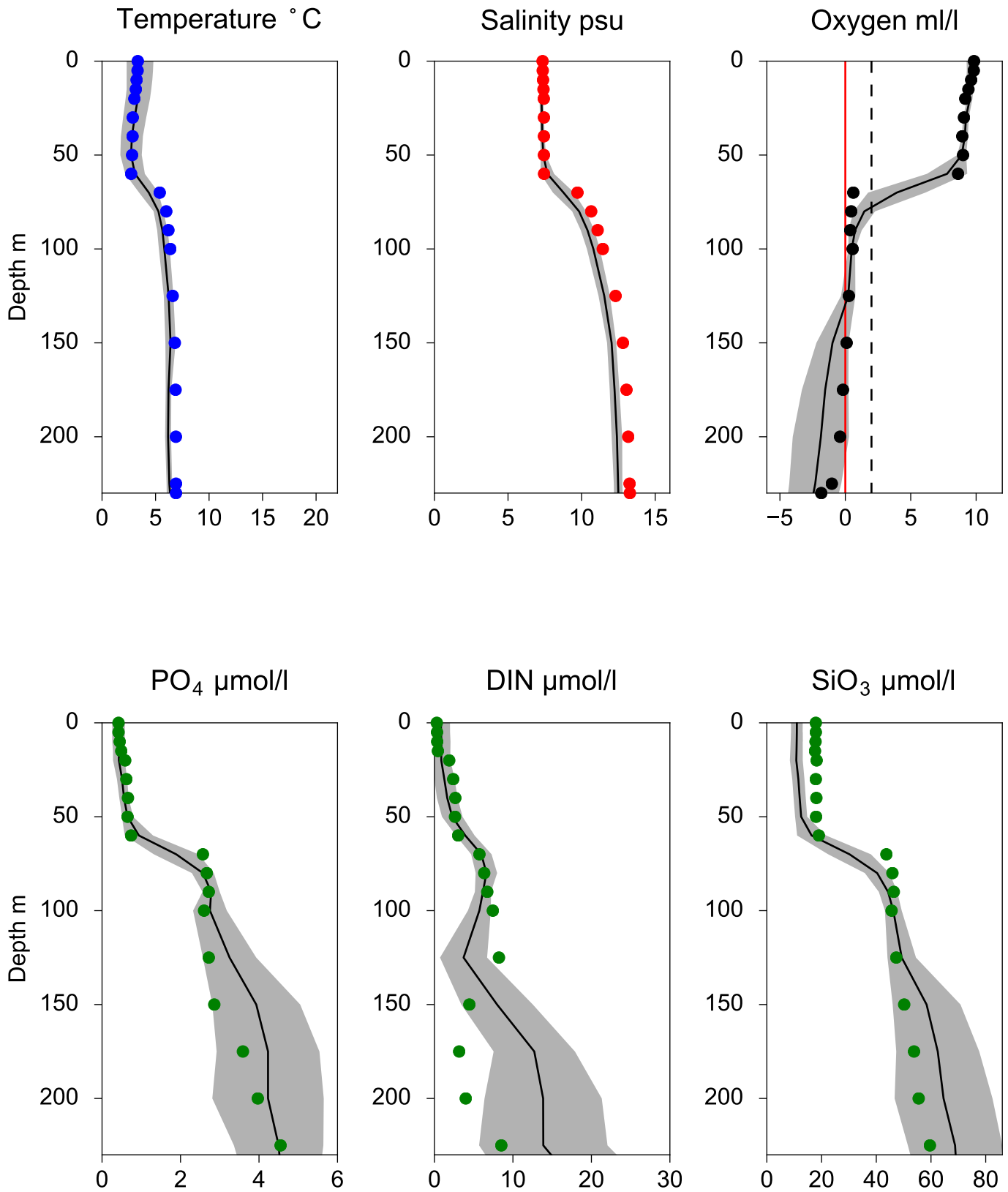


## OXYGEN IN BOTTOM WATER (depth >= 225 m)



# Vertical profiles BY15 GOTLANDSDJ April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-18

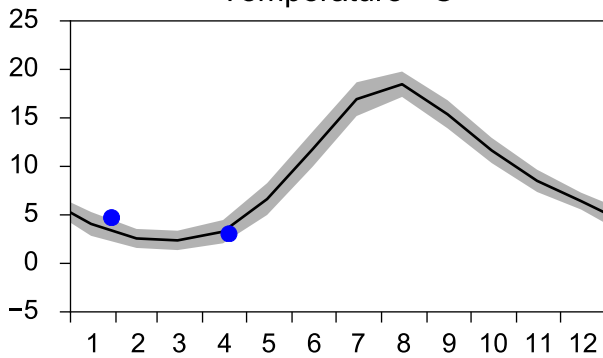


# STATION BY20 FÅRÖDJ SURFACE WATER (0-10 m)

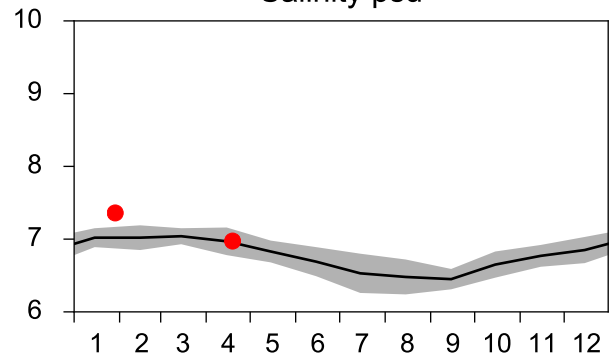
Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

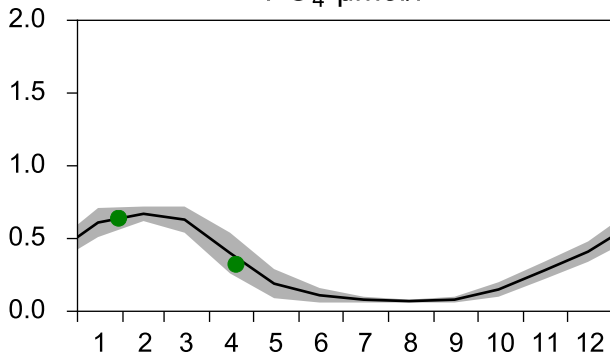
Temperature °C



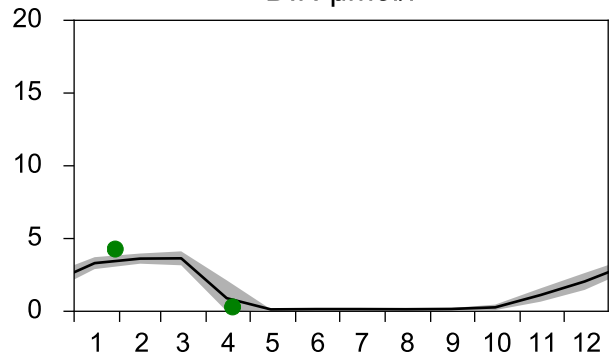
Salinity psu



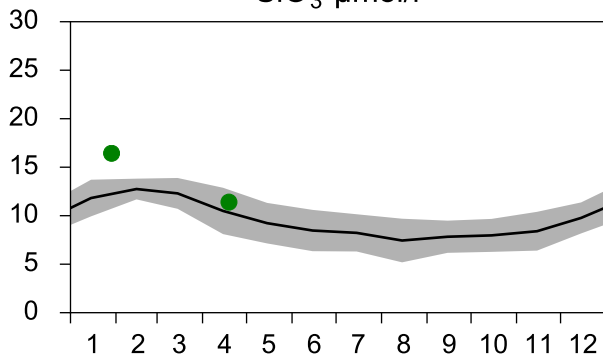
PO<sub>4</sub> µmol/l



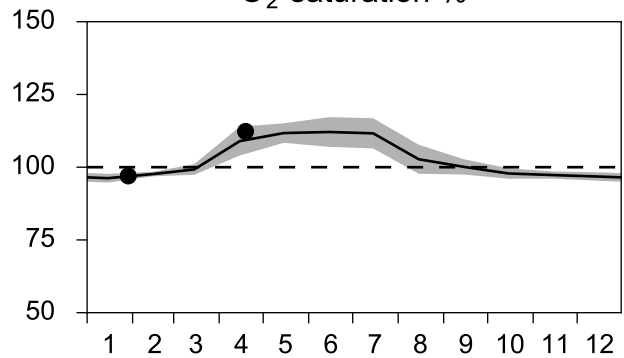
DIN µmol/l



SiO<sub>3</sub> µmol/l

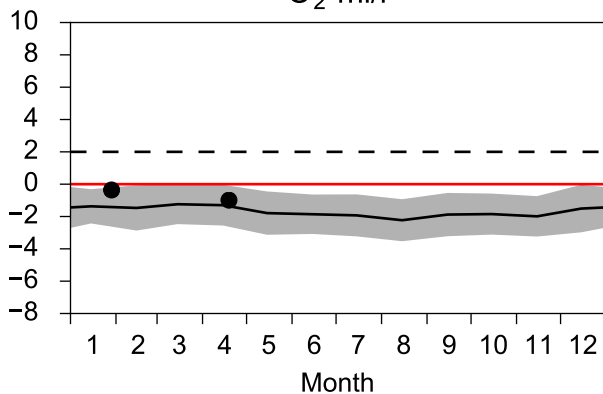


O<sub>2</sub> saturation %

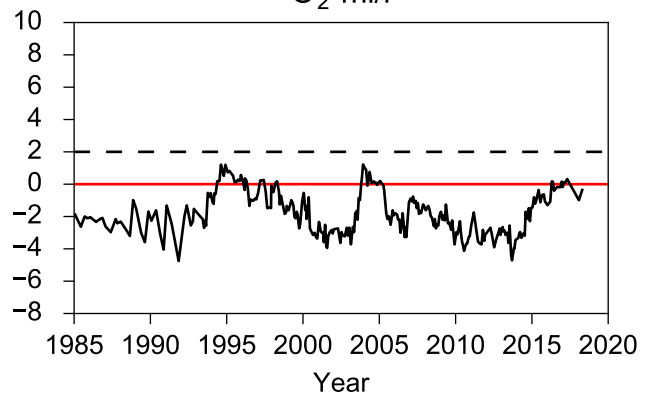


## OXYGEN IN BOTTOM WATER (depth >= 175 m)

O<sub>2</sub> ml/l



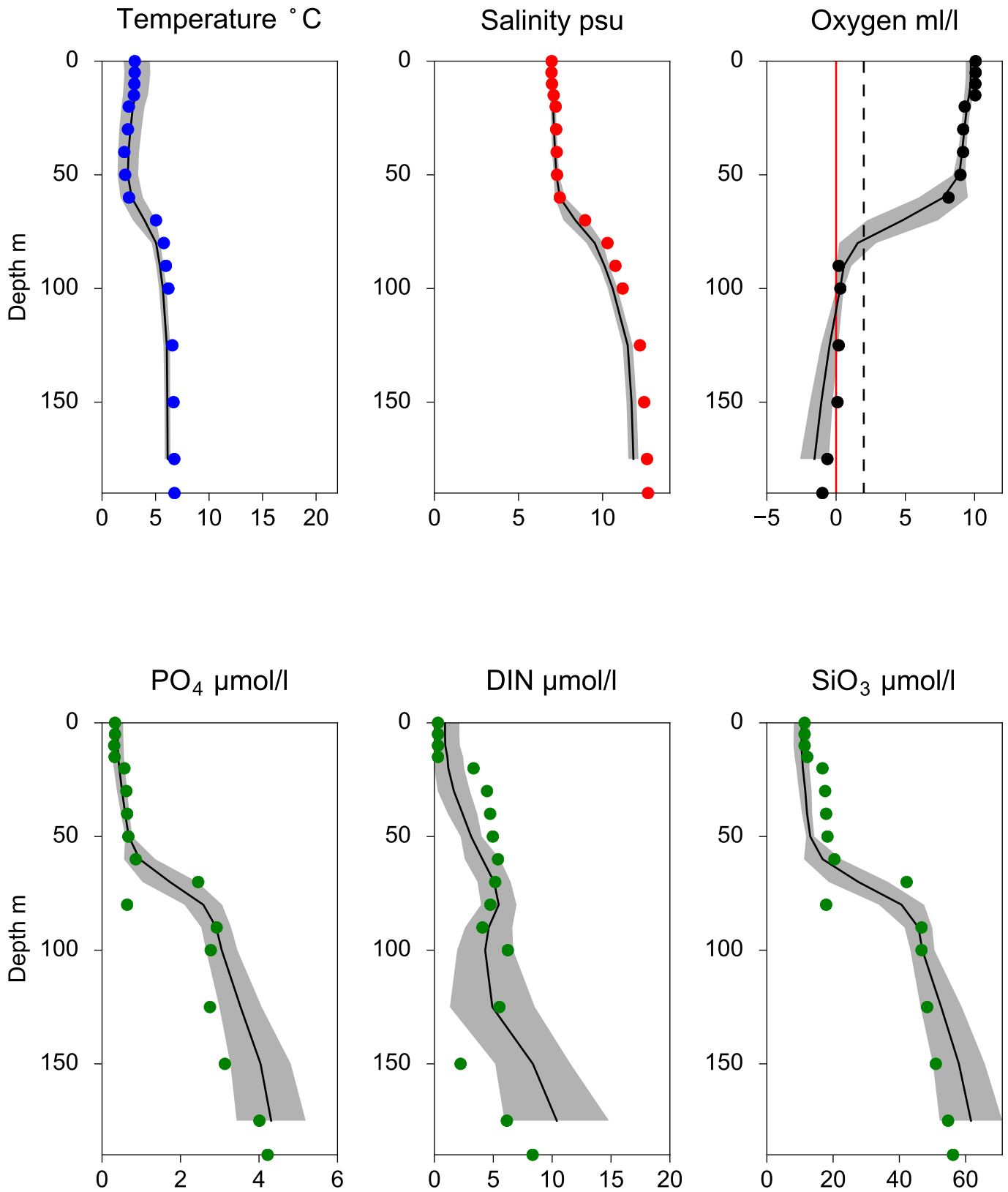
O<sub>2</sub> ml/l





# Vertical profiles BY20 FÅRÖDJ April

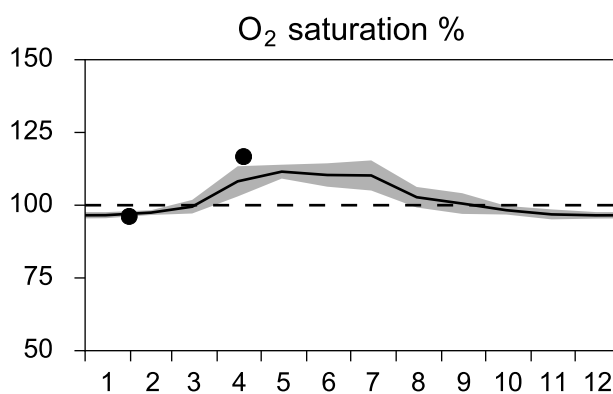
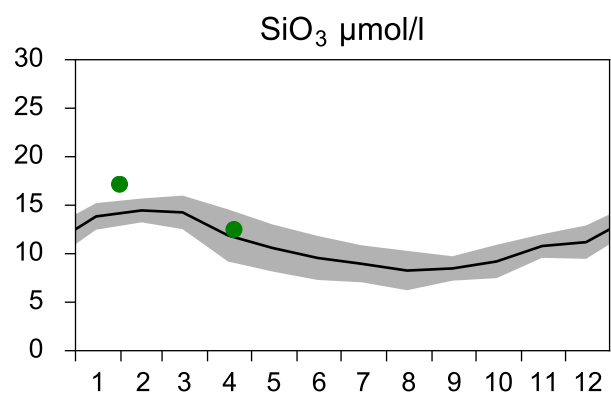
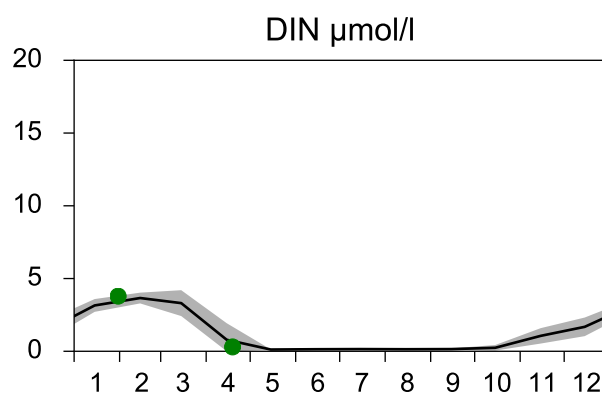
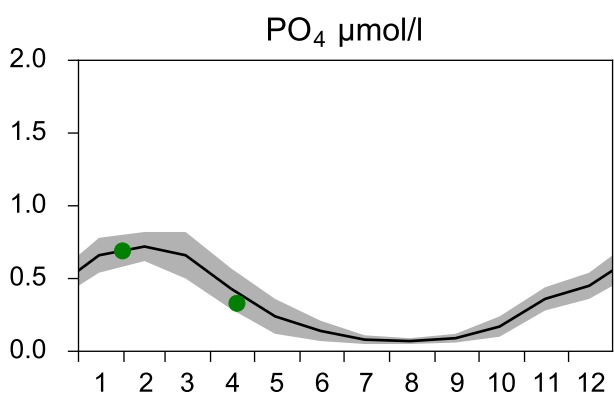
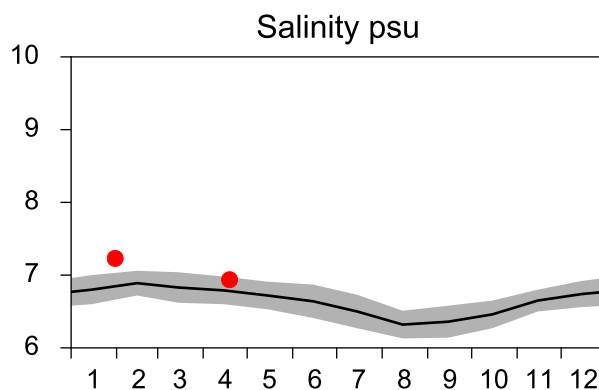
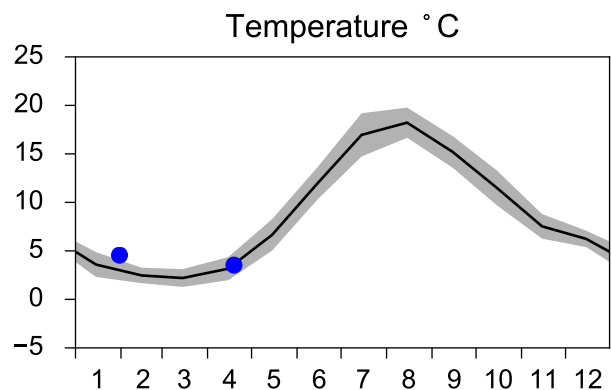
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-19



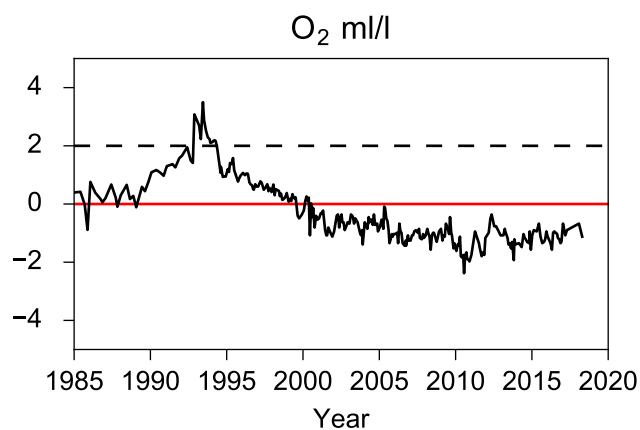
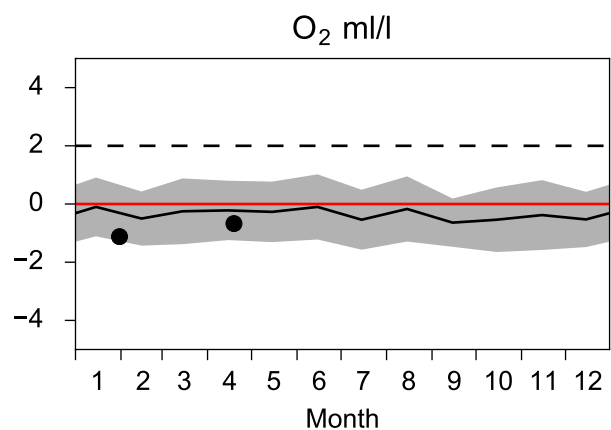
# STATION BY32 NORRKÖPINGSDJ SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

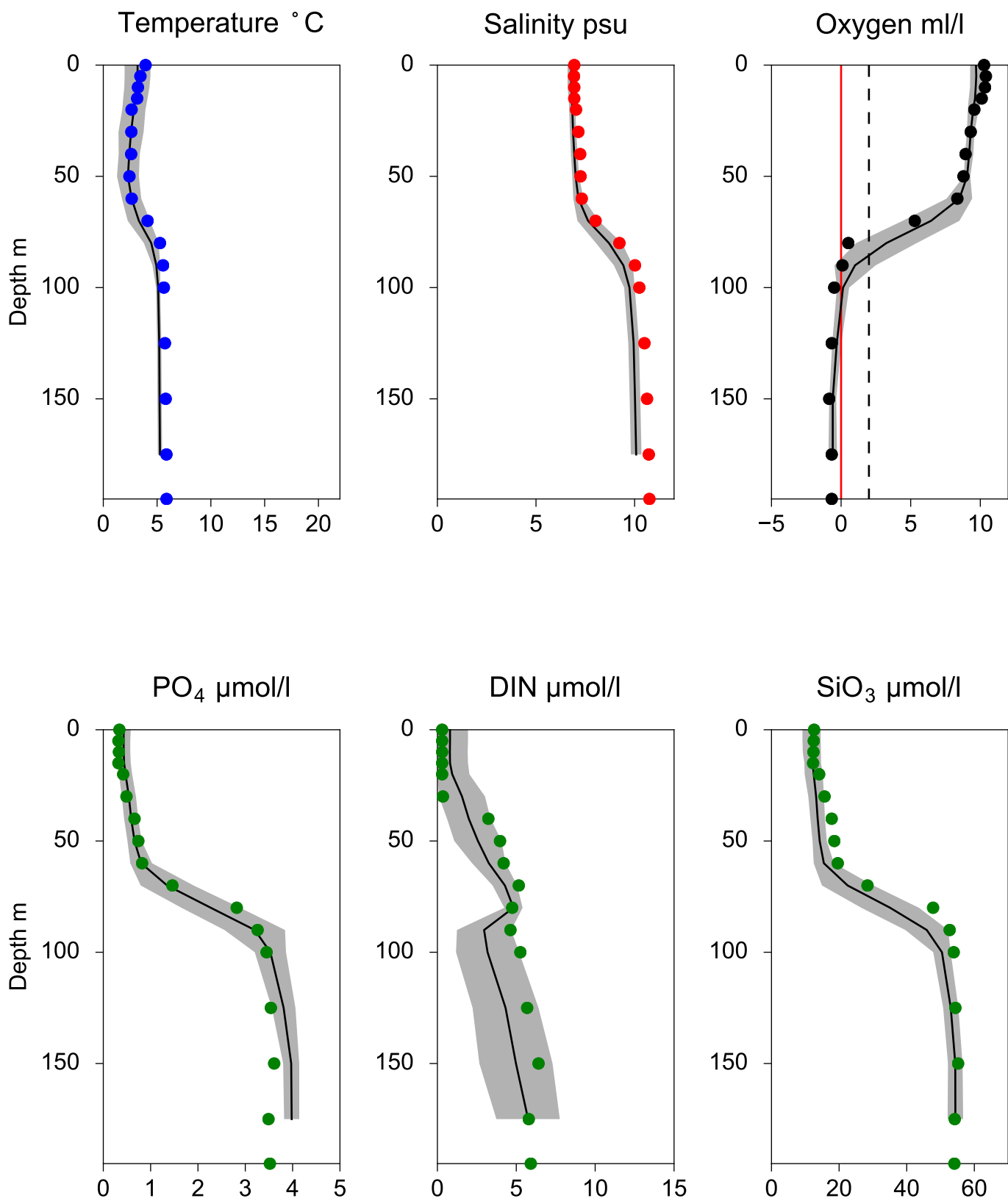


## OXYGEN IN BOTTOM WATER (depth >= 175 m)



# Vertical profiles BY32 NORRKÖPINGSDJ April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-19



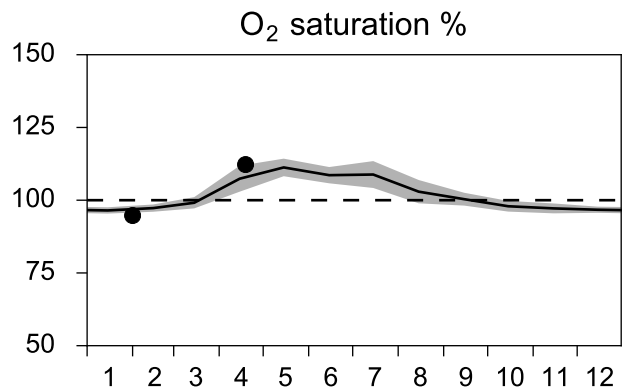
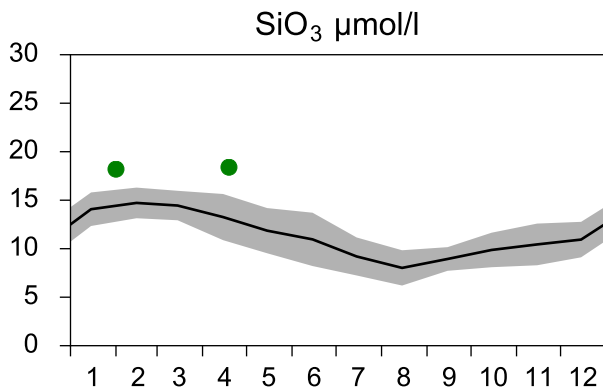
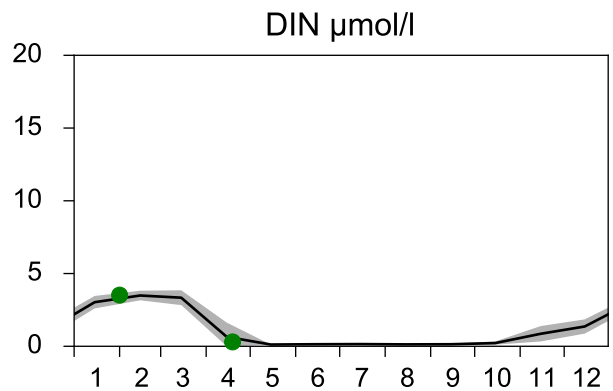
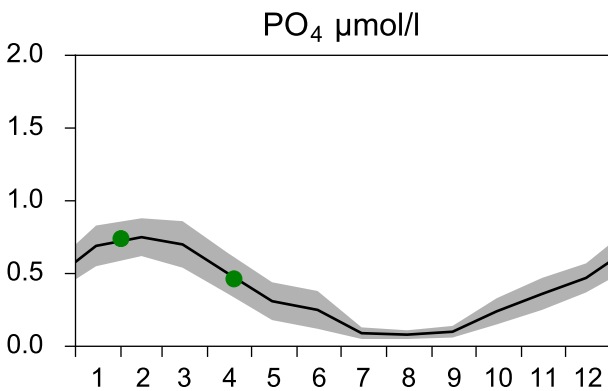
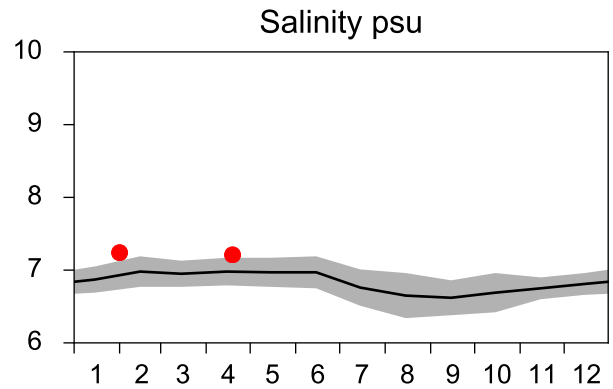
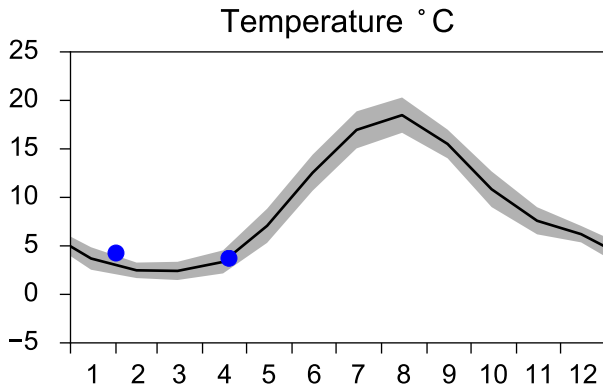
# STATION BY38 KARLSÖDJ SURFACE WATER (0-10 m)

Annual Cycles

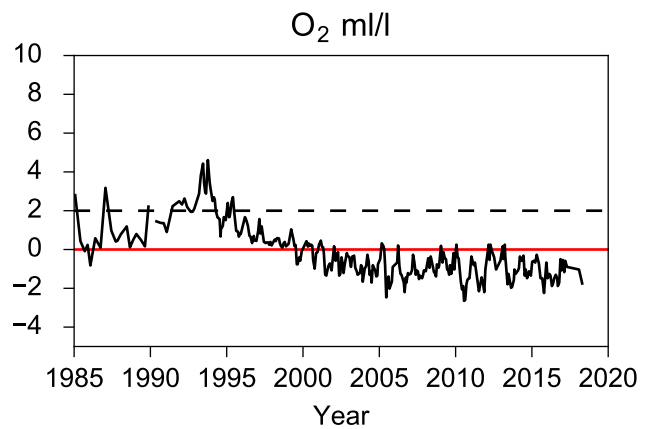
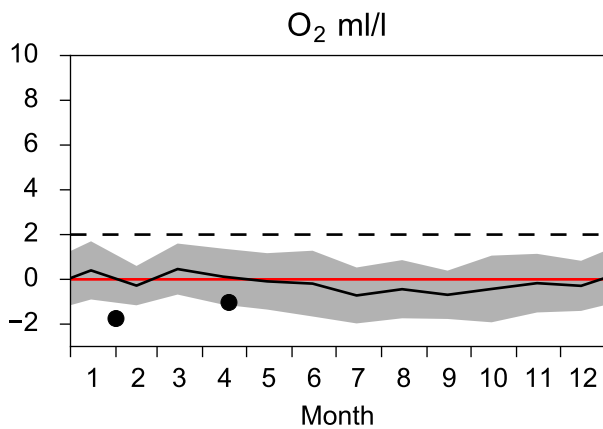
— Mean 2001-2015

■ St.Dev.

● 2018

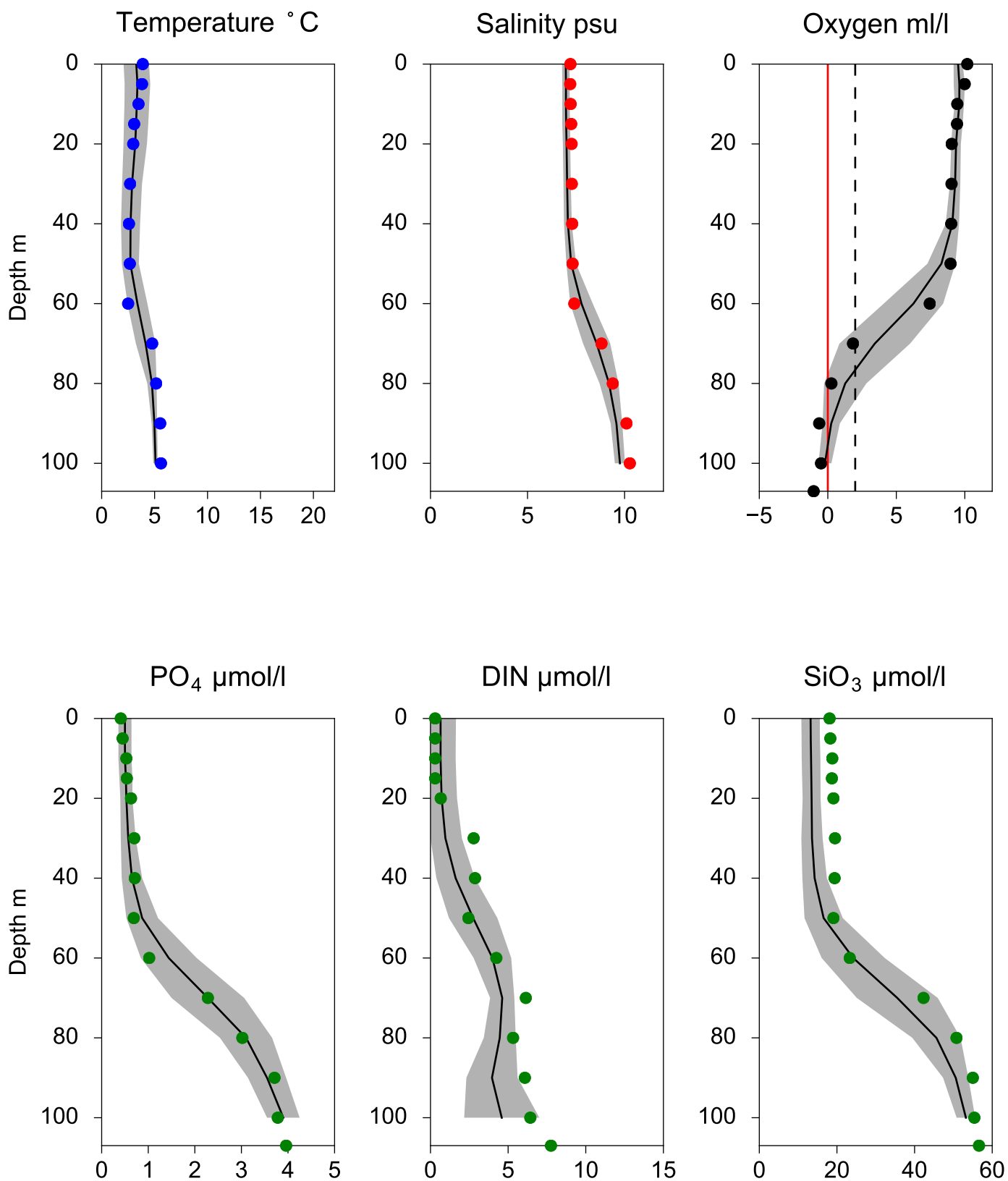


## OXYGEN IN BOTTOM WATER (depth >= 100 m)



# Vertical profiles BY38 KARLSÖDJ April

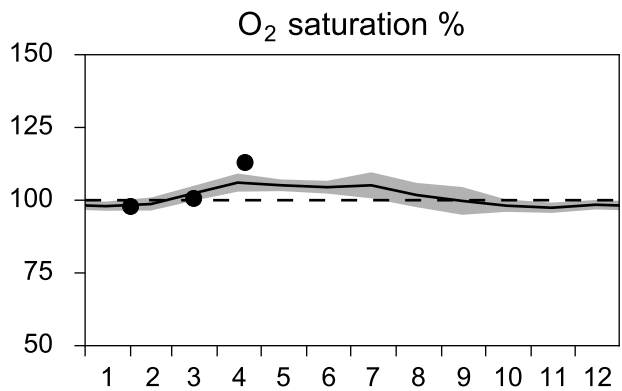
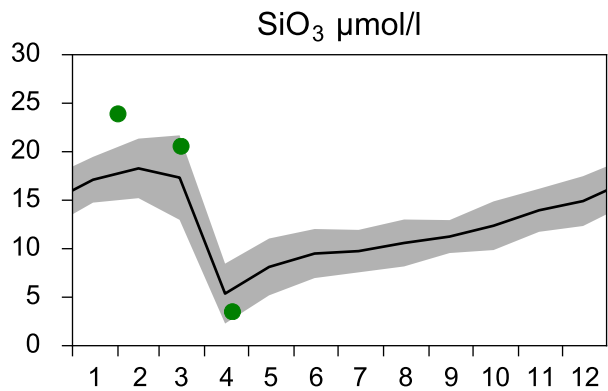
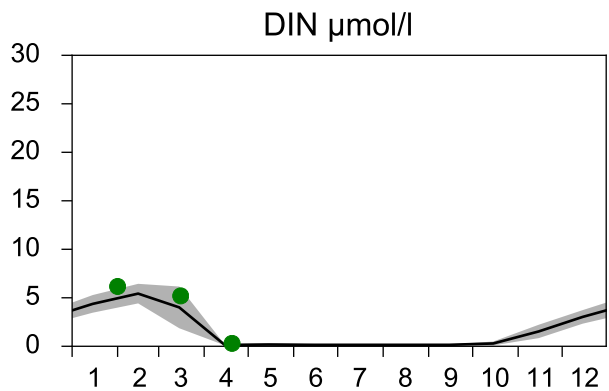
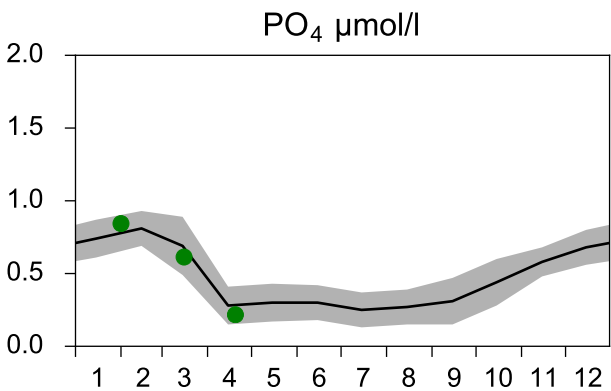
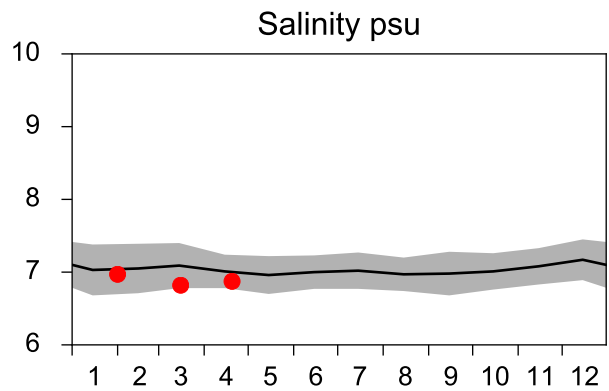
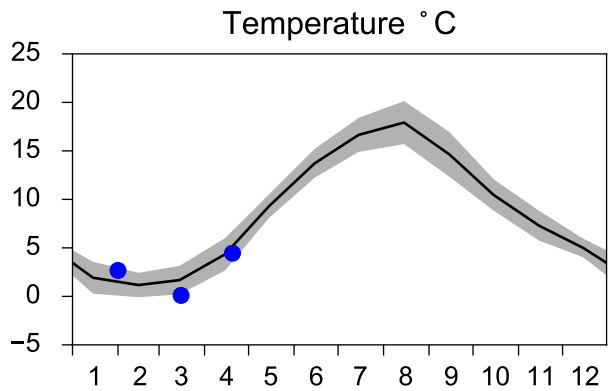
— Mean 2001-2015    ■ St.Dev.    ● 2018-04-19



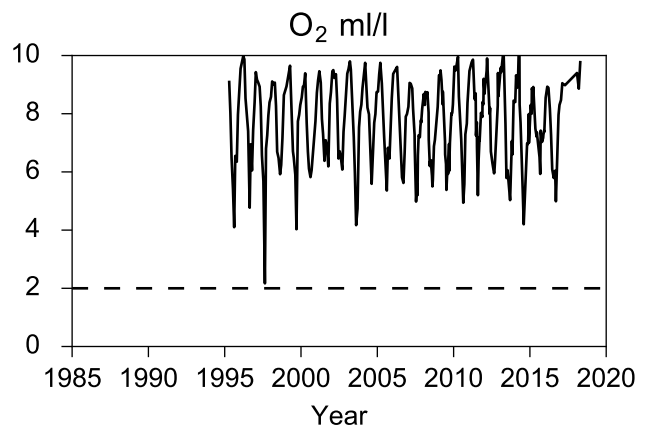
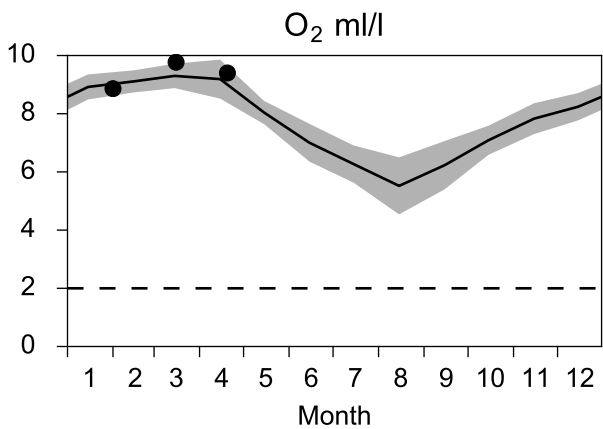
# STATION REF M1V1 SURFACE WATER (0-10 m)

Annual Cycles

— Mean 2001-2015    St.Dev.    ● 2018

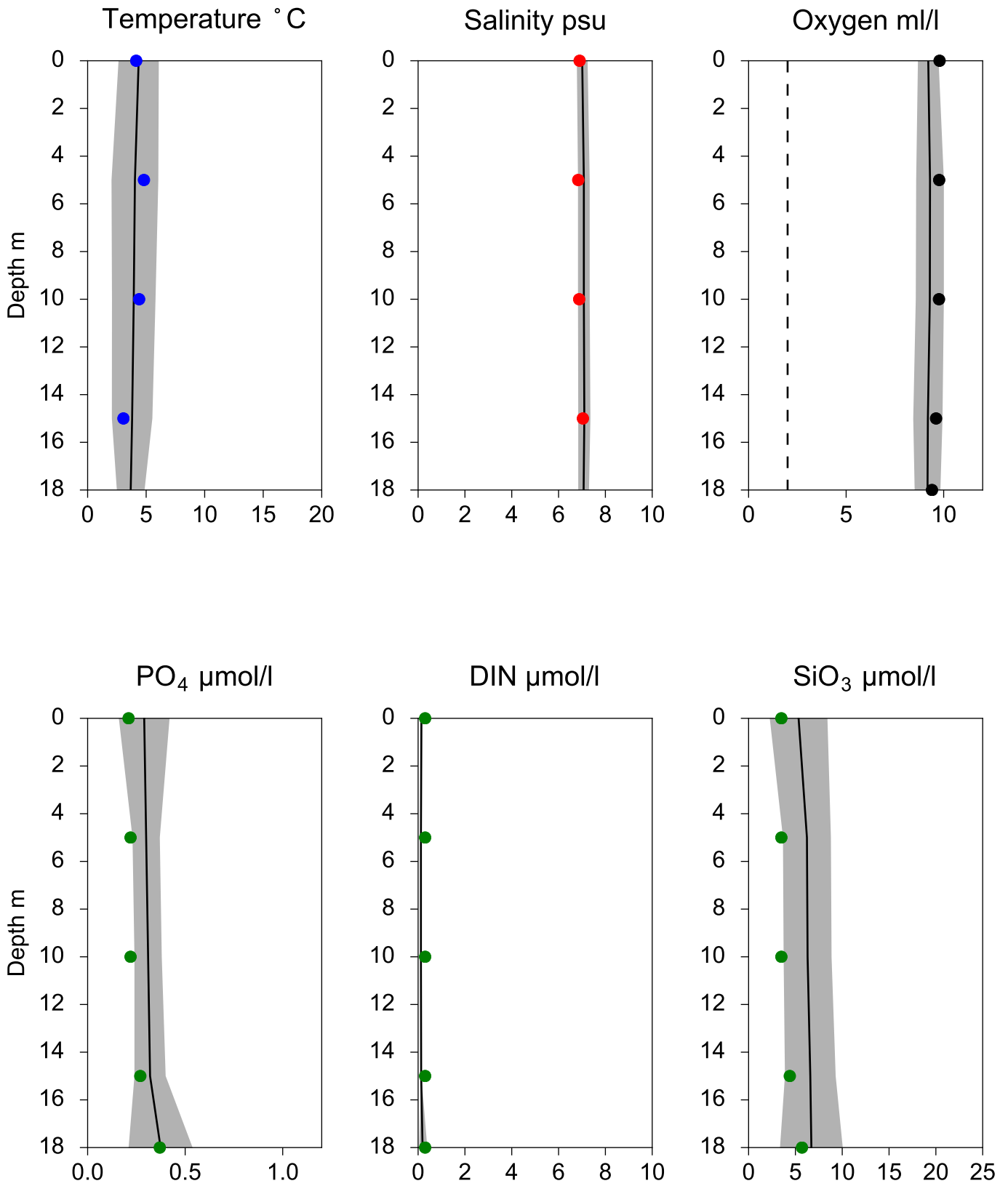


## OXYGEN IN BOTTOM WATER (depth >= 17 m)



# Vertical profiles REF M1V1 April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-20

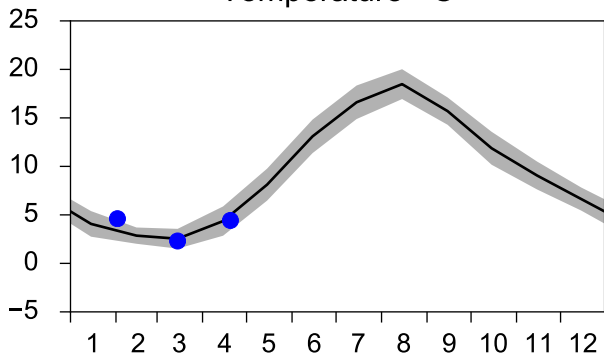


# STATION HANÖBUKTEN SURFACE WATER (0-10 m)

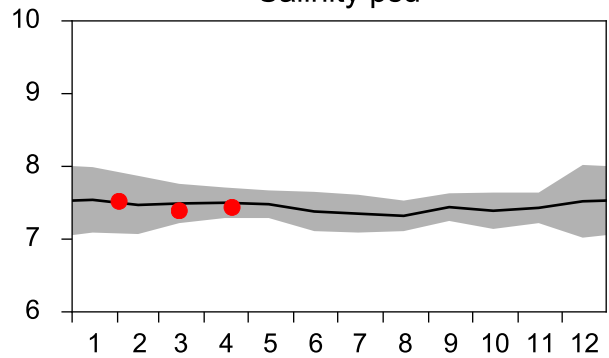
## Annual Cycles

— Mean 2001-2015    ■ St.Dev.    ● 2018

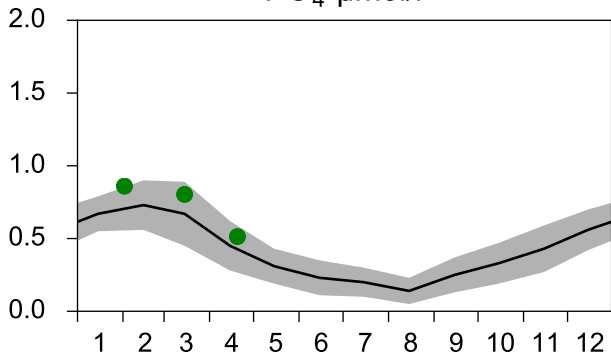
Temperature °C



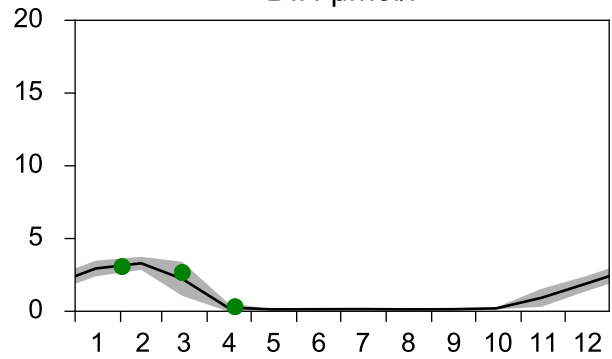
Salinity psu



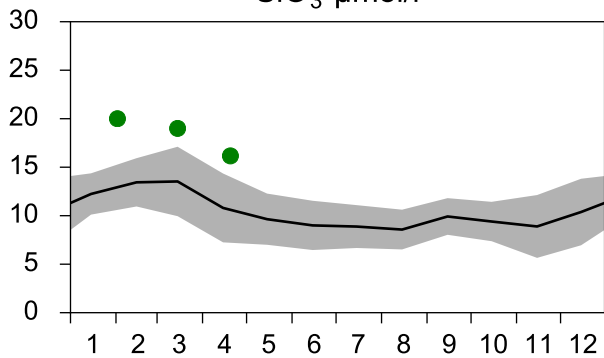
PO<sub>4</sub> μmol/l



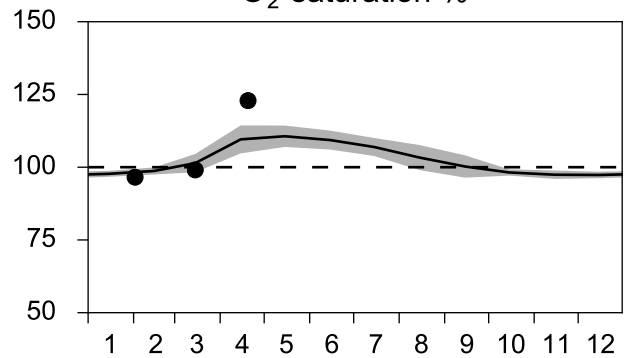
DIN μmol/l



SiO<sub>3</sub> μmol/l

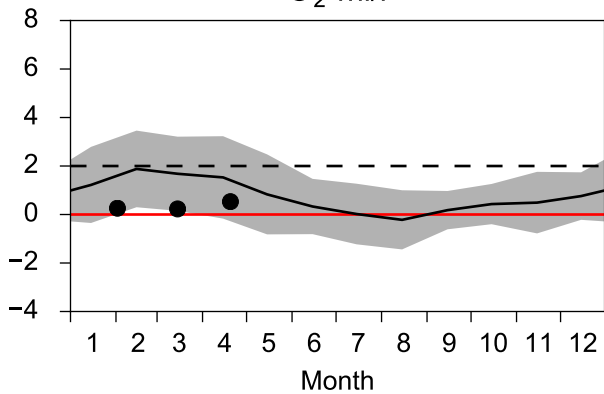


O<sub>2</sub> saturation %

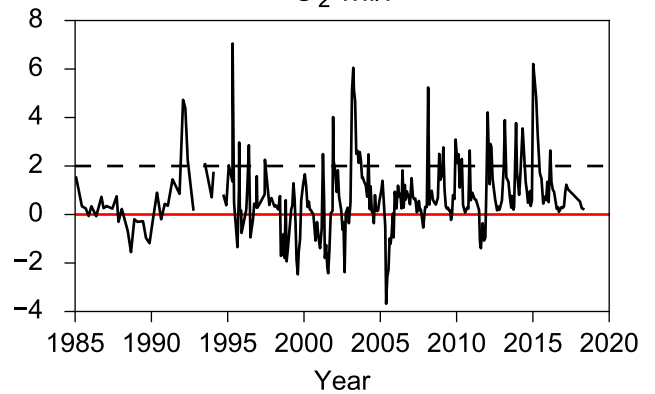


## OXYGEN IN BOTTOM WATER (depth >= 70 m)

O<sub>2</sub> ml/l



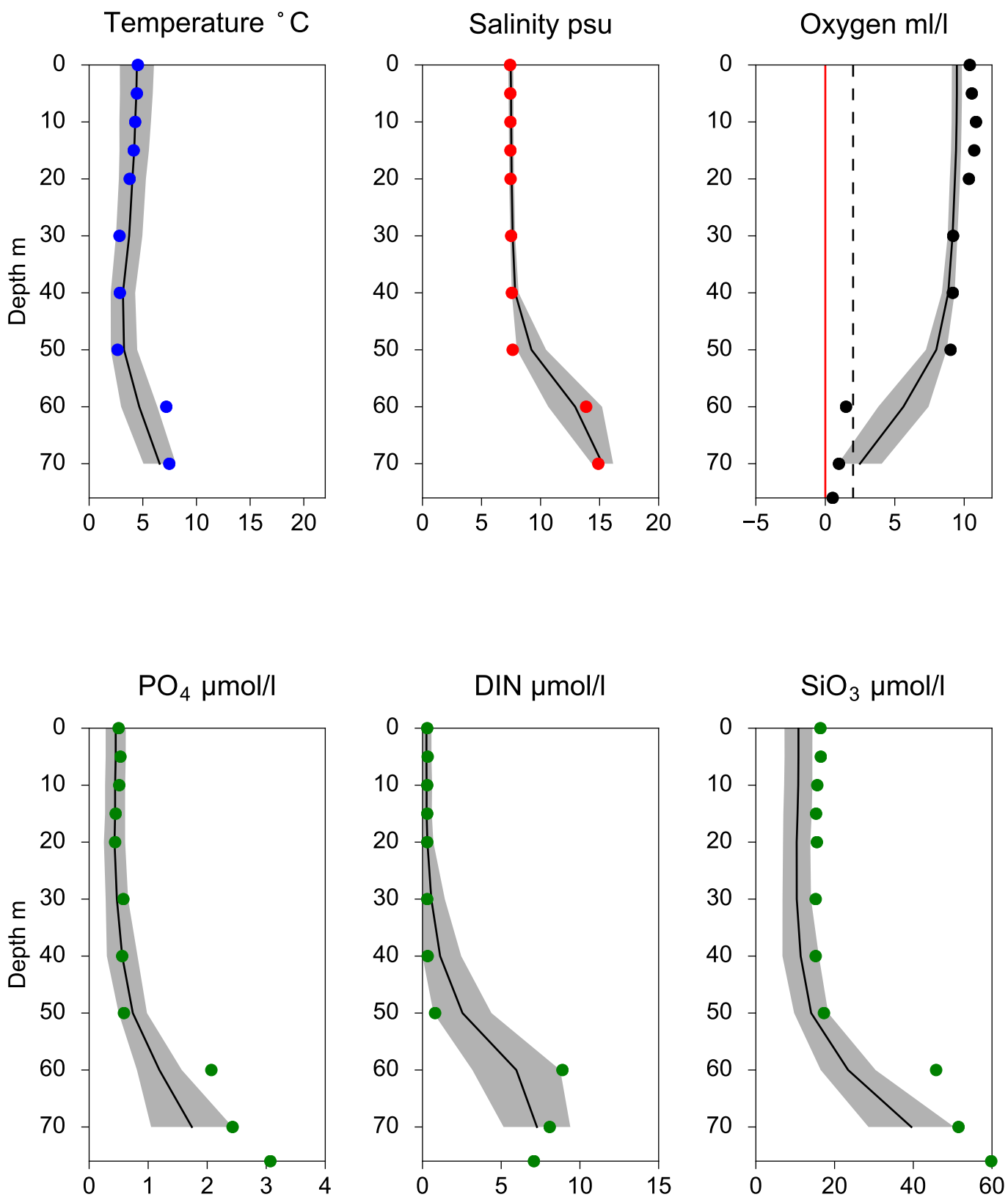
O<sub>2</sub> ml/l





# Vertical profiles HANÖBUKTEN April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-20



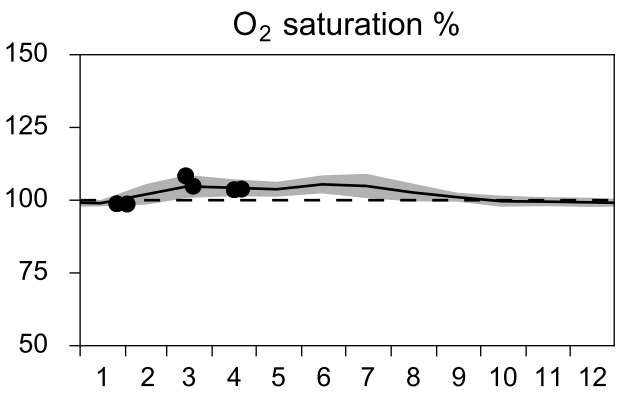
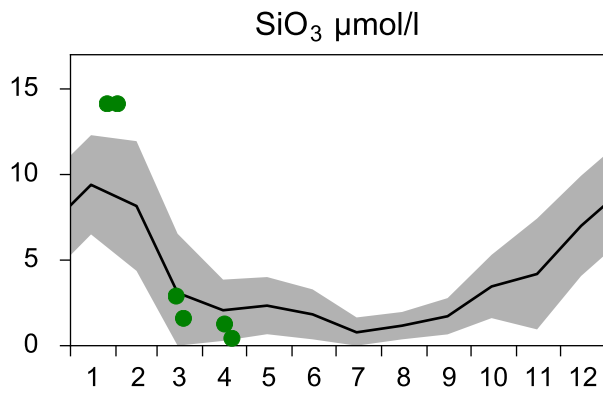
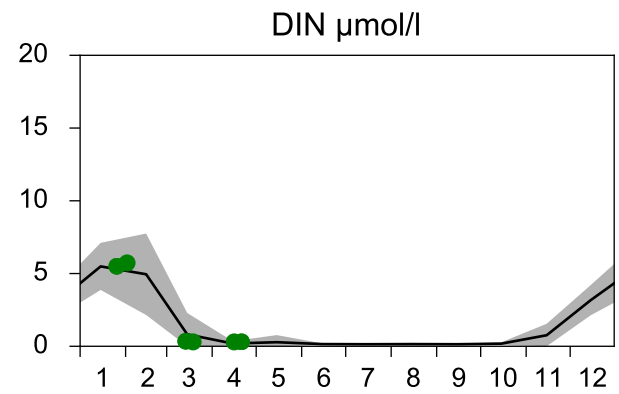
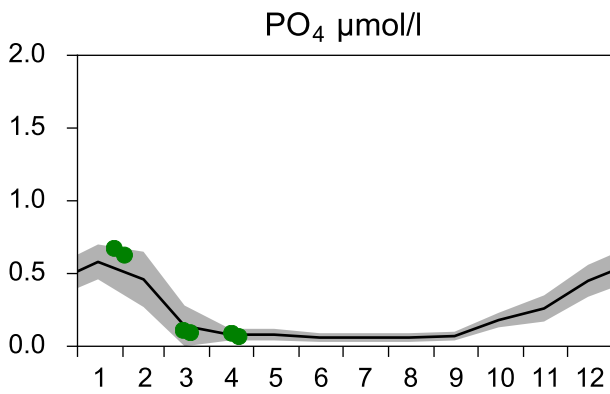
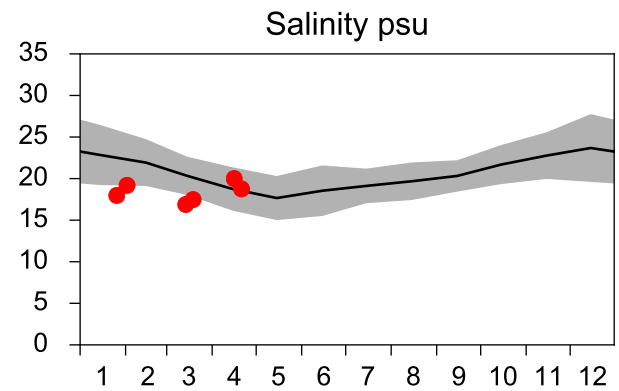
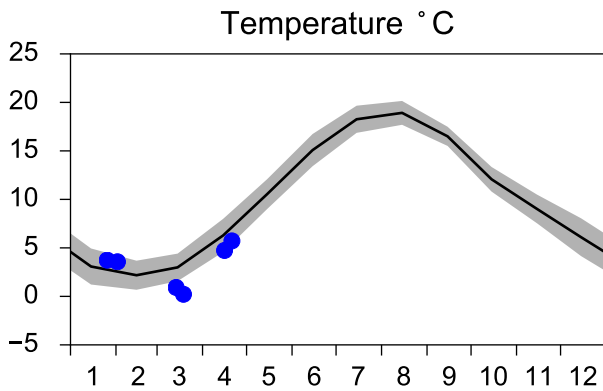
# STATION ANHOLT E SURFACE WATER (0-10 m)

Annual Cycles

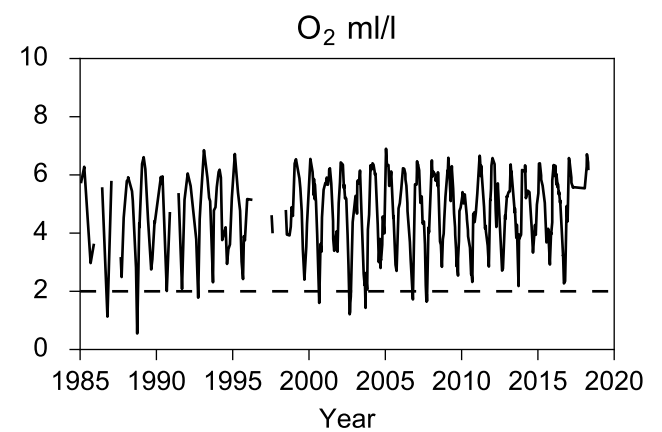
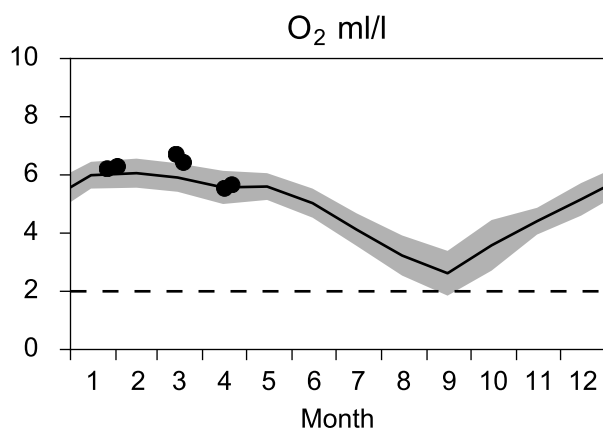
— Mean 2001-2015

■ St.Dev.

● 2018



## OXYGEN IN BOTTOM WATER (depth >= 52 m)



# Vertical profiles ANHOLT E April

— Mean 2001-2015    ■ St.Dev.    ● 2018-04-21

