

Rapport från SMHIs utsjöexpedition med R/V Svea



Foto: Anna-Kerstin Thell, SMHI

Expeditionens varaktighet:	2024-07-14 till 2024-07-20
Uppdragsgivare:	Sveriges Meteorologiska och Hydrologiska Institut (SMHI), Havs- och Vattenmyndigheten (HaV)
Samarbetspartners:	Sveriges Lantbruksuniversitet (SLU), Sjöfartsverket (SjöV)

SAMMANFATTNING

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

Ytvattentemperaturerna i samtliga havsområden låg runt det normala, mellan 13,7 – 18,6 °C, utom för BY39 Ölands södra udde där den var 9,4 °C, vilket är under det normala.

Löst oorganiskt kväve och fosfor i ytvattnet uppvisade låga halter, något som är normalt för säsongen. Kiselhalterna i ytvattnet var något över till över det normala på samtliga stationer i Egentliga Östersjön, Öresund samt de södra och kustnära stationerna i Skagerrak.

I Egentliga Östersjön är syresituationen fortsatt mycket dålig, endast i Arkonabassängen och på BY39 återfanns bra syreförhållanden. Akut syrebrist, det vill säga syrehalter mindre än 2 ml/l, noterades från 55 - 75 meter i Västra och Östra Gotlandsbassängen med undantag av den grunda stationen BY39. Svavelväte uppmättes från 70 till 80 meters djup i Västra Gotlandsbassängen och från 80 till 125 meters djup i Östra Gotlandsbassängen. I Bornholmsbassängen och Hanöbukten rådde akut syrebrist från 70 meters djup, men inget svavelväte i bottenvattnet.

Vid flera stationer i Egentliga Östersjön förkom höga toppar av klorofyllfluorescens från ytan och ner till 15 meters djup. Ytansamlingar av cyanobakterier noterades på stationerna BY2 och BY4 i Arkona- och Bornholmsbassängerna. Mer information om algsituationen finns att läsa i Algaware-rapporten för juli; <https://www.smhi.se/publikationer/publikationer/algrapporter>.

Nästa ordinarie expedition är planerad att starta 10:e augusti i Lysekil.

RESULTAT

Expeditionen genomfördes ombord på R/V Svea och startade i Falkenberg den 14:e juli och avslutades i Lysekil den 20:e juli. Expeditionen dominerades av varmt, lugnt och klart väder med svaga vindar, som mest blåste det 14 m/s i västra Gotlandsbassängen. Lufttemperaturen varierade mellan 17 - 28°C.

Sveas instrument för kontinuerliga mätningar av ytvatten, Ferrybox, var i gång under hela expeditionen. I Skagerrak mellan Å17 och Å15 samt mellan Å15 och Å13 kördes Sveas MVP (Moving Vessel Profiler), som ger profiler med temperatur, salthalt, syre och klorofyll-fluorescens under gång.

Vid samtliga stationer provtogs ytvatten för ett projekt där man undersöker algtoxiner som bildas av cyanobakterier. Projektet är ett samarbete mellan SMHI, SLU och Livsmedelsverket, och provtagning är planerad att genomföras under expeditionerna i juni, juli, augusti och september.

Vid två stationer i Östersjön, BY38 och BY2, togs extra prover inom ett samarbete med VOTO. Vattenprover från standarddjupen från ytan ner till 30 meter provtogs för att undersöka förekomst av cyanobakterier i vattenkolumnen och målet är att undersöka om det går att förutsäga kommande blomningar av cyanobakterier. Dessa mätningar ska göras vid expeditionerna juni, juli och augusti.

Det togs även prover inom AMIME-projektet där vattenprover togs från Ferryboxen och bilder togs med IFCBn. Mätningar inom projektet ska göras vid expeditionerna i juni-oktober.

Extra växtplanktonprover från ytvattnet togs vid stationerna Anholt E och Å17 åt Uppsala Universitet. Vid Anholt E togs även extra prover av mikrozooplankton åt Göteborgs Universitet.

Under expeditionen analyserades växtplanktonprover ombord av växtplanktonexperten Anders Torstensson. Resultaten presenteras i AlgAware-rapporten för juli:

<https://www.smhi.se/publikationer/publikationer/algrapporter>.

Daglig algövervakning via satellit utförs av SMHI under sommaren och finns tillgänglig på:

<https://www.smhi.se/vader/observationer/algsituationen/alger>

Denna rapport är baserad på data som genomgått en första kvalitetskontroll. När ytterligare kvalitetsgranskning genomförts kan vissa värden ändras. Data från expeditionen publiceras så fort som möjligt på datavärden, SMHIs, hemsida. Normalt sker detta inom en till två veckor efter avslutad expedition. Vissa analyser görs efter expeditionen och publiceras senare.

Data kan laddas ner här: <https://sharkweb.smhi.se/hamta-data/>

Skagerrak

Ytvattentemperaturen varierade mellan 16,1 - 18,6°C, vilket är normalt för årstiden. Salthalterna i ytvattnet varierade mellan 20 – 32 psu, med de lägsta halterna uppmätta vid kusten och högsta i söder, vilket är något lägre än normalt vid kusten och något högre än normalt i söder.

Haloklinen var svagt utvecklad i området. Termoklinen syntes tydligt på de flesta stationerna på djup mellan 45 och 75 meter. Å13 och Släggö hade ytterligare en temperaturskiktning på 10-40 meters djup.

Halterna i ytan av löst oorganiskt kväve (DIN) var normala för årstiden och var lägre än detektionsgräns (0,1 µmol/l) i utsjön och 1,2 µmol/l vid Släggö. Fosfathalterna varierade mellan 0,03 – 0,07 µmol/l, vilket är normalt för årstiden. Koncentrationen av kisel i ytvattnet var normala för årstiden i det norra området medan i de södra och kustnära områdena var halterna över det normala. Uppmätta halter i utsjön var 0,1–0,7 µmol/l och vid P2 och Släggö var nivån 3,0 µmol/l.

Den lägsta syrgaskoncentrationen i bottenvattnet uppmättes vid Släggö, 3,3 ml/l. I utsjön uppmättes nivåer i djupvattnet på 4,8 - 5,8 ml/l vilket är normalt.

Klorofyllfluorescensmätningar med CTD, som är ett mått på växtplanktonaktivitet, visade på aktivitet mellan 5 och 40 meter i området.

Kattegatt och Öresund

Temperaturen i ytvattnet låg omkring 17,3 – 18,2°C, vilket är normalt för årstiden. Salthalten i ytan i Kattegatt varierade mellan 19 – 22 psu, vilket är normalt. I Öresund var salthalten i ytan 8 psu, vilket är lägre än normalt. I Kattegatt och i Öresund återfanns temperatur- och salthaltsprångskiktet mellan 10 och 20 meter. Vid Anholt E och N14 Falkenberg fanns ytterligare en temperaturskiktning på 25-30 meters djup.

Halterna av närsalter i ytvattnet var nästan alla normala till något lägre än normala i området. Halten av DIN var <0,1 µmol/l och fosfat varierade mellan 0,05-0,13 µmol/l. Kiselkoncentrationen varierade mellan 0,1-12,3 µmol/l, den högsta halten uppmättes i Öresund, vilket är mycket över det normala.

Syremätningar visade på normala värden i bottenvattnet: omkring 4,3 – 4,5 ml/l i Kattegatt och 4,0 ml/l i Öresund.

I Öresund noterades en klorofyllfluorescens runt 15 meter. I Kattegatt var aktiviteten låg enligt klorofyllfluorescensmätningar med CTD, endast lite aktivitet vid 15 meter på Anholt E.

Egentliga Östersjön

Temperaturen i ytvattnet var runt det normala i hela Östersjön, med temperaturer mellan 13,7 – 18,5°C. Vid BY39 Ölands södra udde var yttemperaturen 9,4°C, vilket är lägre än normalt. Salthalten i ytan var 6,4-7,4 psu och varierade mellan att vara normal till något över det normala i hela det undersökta området. En temperaturskiktning fanns mellan 15 och 30 meter i området. Ytterligare en skiktning av både temperatur och salthalt påträffades på djup mellan 35 och 70 meter.

Halterna av löst oorganiskt kväve (DIN) i ytvattnet låg på nivåer under detektionsgräns, <0,10 µmol/l, på samtliga stationer.

Fosfathalten i ytvattnet var normal för säsongen på de flesta stationerna och varierade mellan 0,07 – 0,49 $\mu\text{mol/l}$. I Västra Gotlandsbassängen noterades högre fosfathalter än normalt. Koncentrationen av kisel i ytvattnet var något över till över det normala på samtliga stationer, med koncentrationer mellan 10,6 – 14,9 $\mu\text{mol/l}$.

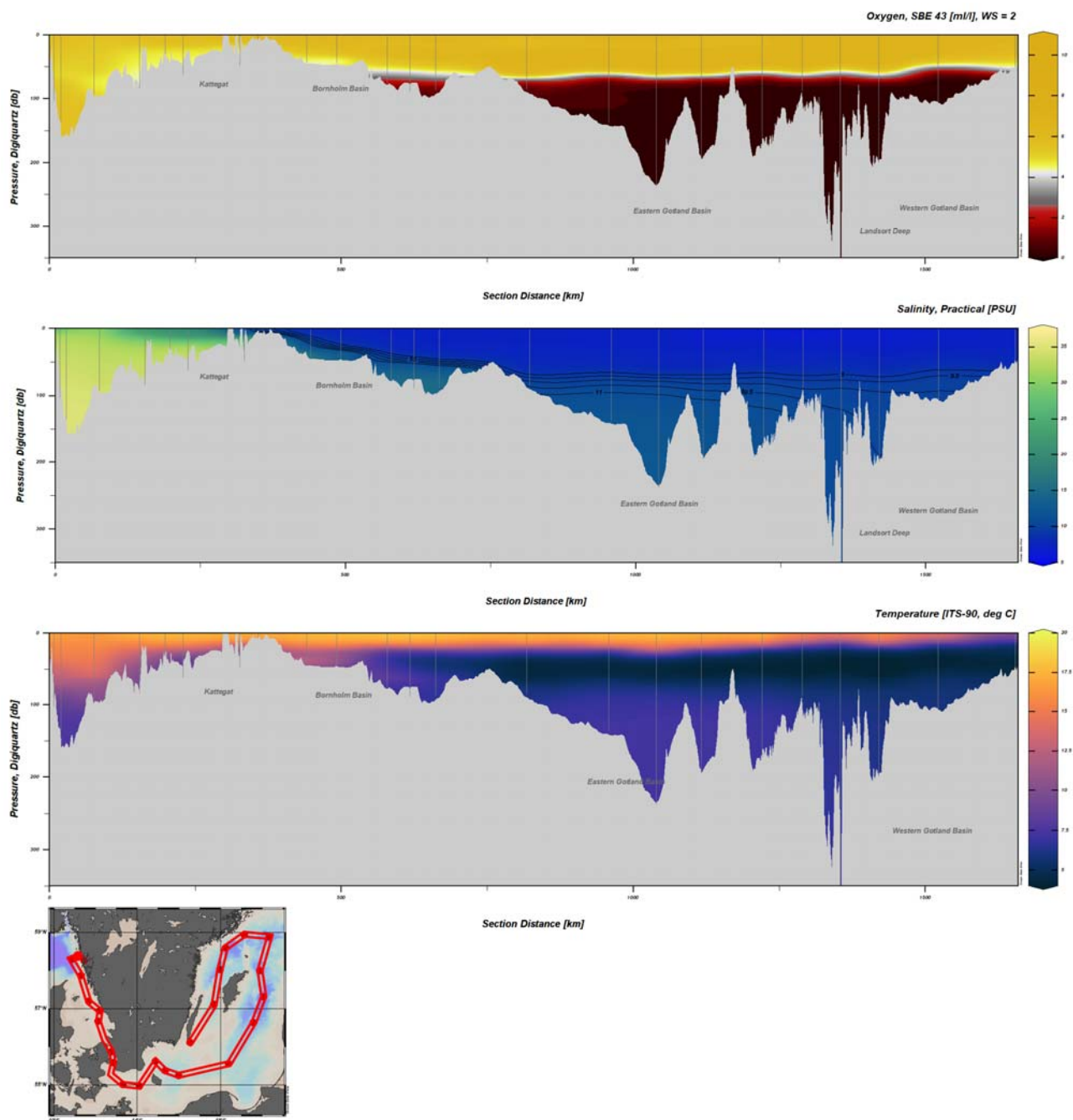
I Egentliga Östersjön är syresituationen fortsatt mycket dålig, endast i Arkonabassängen och på BY39 återfanns bra syreförhållanden.

Akut syrebrist, det vill säga syrehalter mindre än 2 ml/l, noterades från 55 - 75 meter i Västra och Östra Gotlandsbassängen med undantag av den grunda stationen BY39. Svavelväte uppmättes från 70 till 80 meters djup i Västra Gotlandsbassängen och från 80 till 125 meters djup i Östra Gotlandsbassängen.

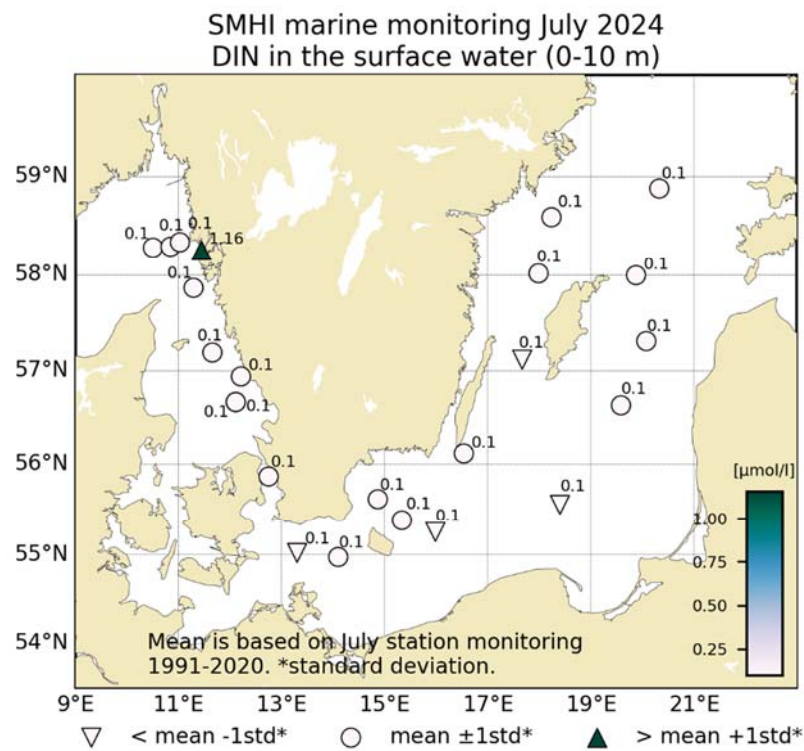
I Bornholmsbassängen och Hanöbukten rådde akut syrebrist från 70 meters djup, men inget svavelväte i bottenvattnet.

I Arkonabassängen var situationen något bättre med halter på mellan 3,0 - 3,8 ml/l i bottenvattnet.

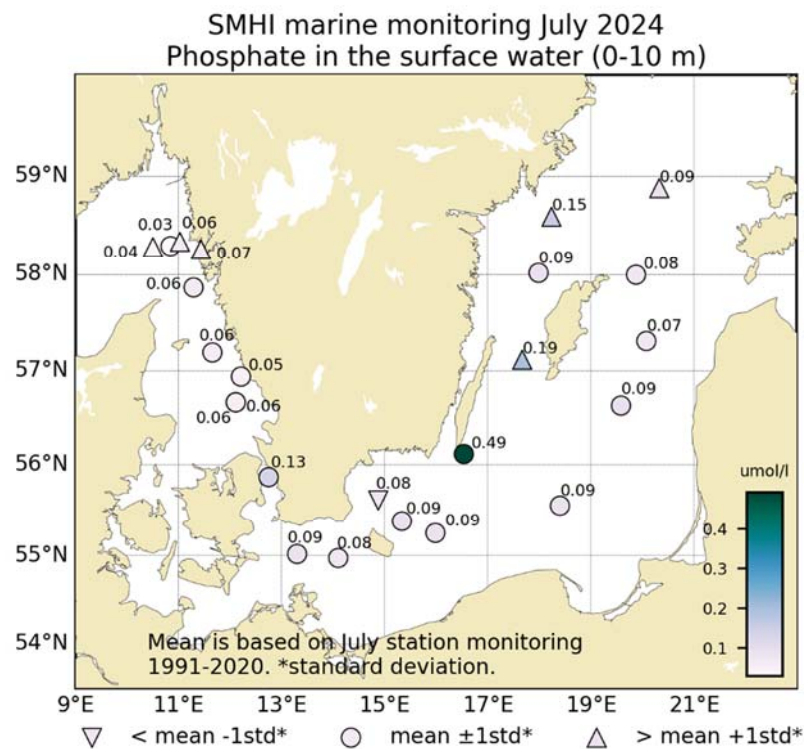
Vid flera stationer förkom höga toppar av klorofyllfluorescens från ytan och ner till 15 meters djup. Ytansamlingar av cyanobakterier noterades på stationerna BY2 och BY4 i Arkona- och Bornholmsbassängerna. Mer information om algsituationen finns att läsa i Algaware-rapporten för juli; <https://www.smhi.se/publikationer/publikationer/algrapporter>.



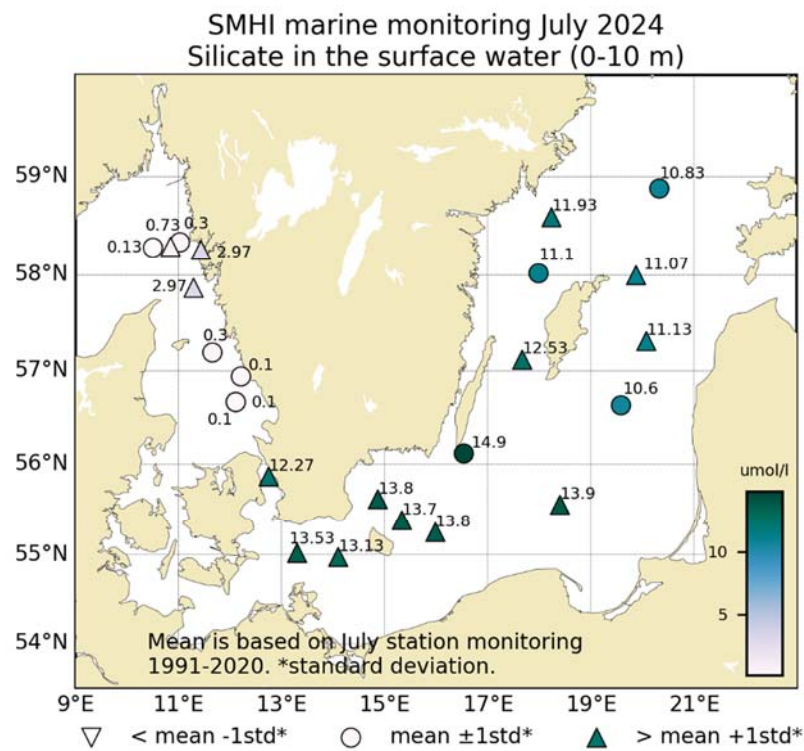
Figur 1. Snitt som visar syrekonzentration, salthalt och temperatur från mätningar med CTD, från Skagerrak via Öresund till Östra Gotlandsbassängen och vidare in i Västra Gotlandsbassängen.



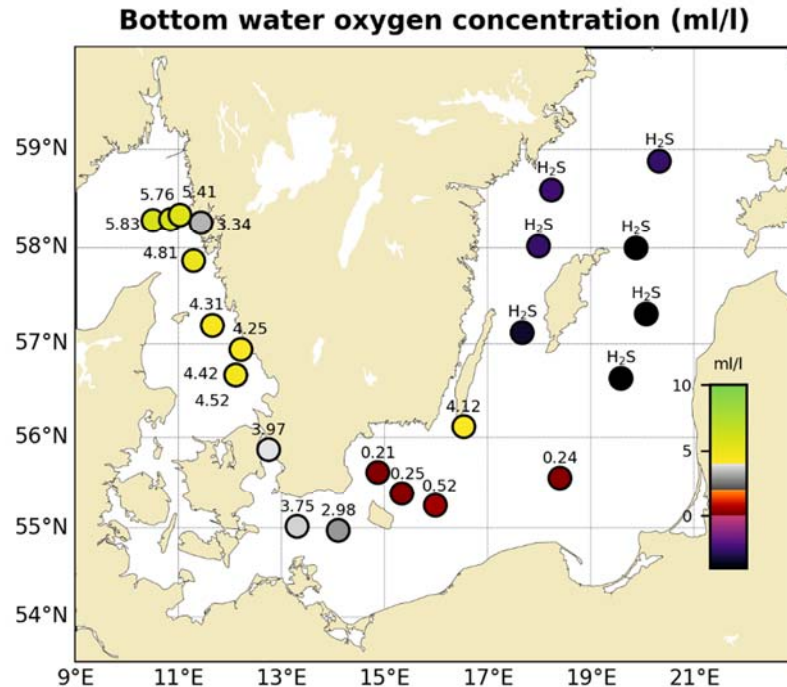
Figur 2. Koncentrationen av oorganiskt kväve (DIN) i ytvattnet (0-10m).



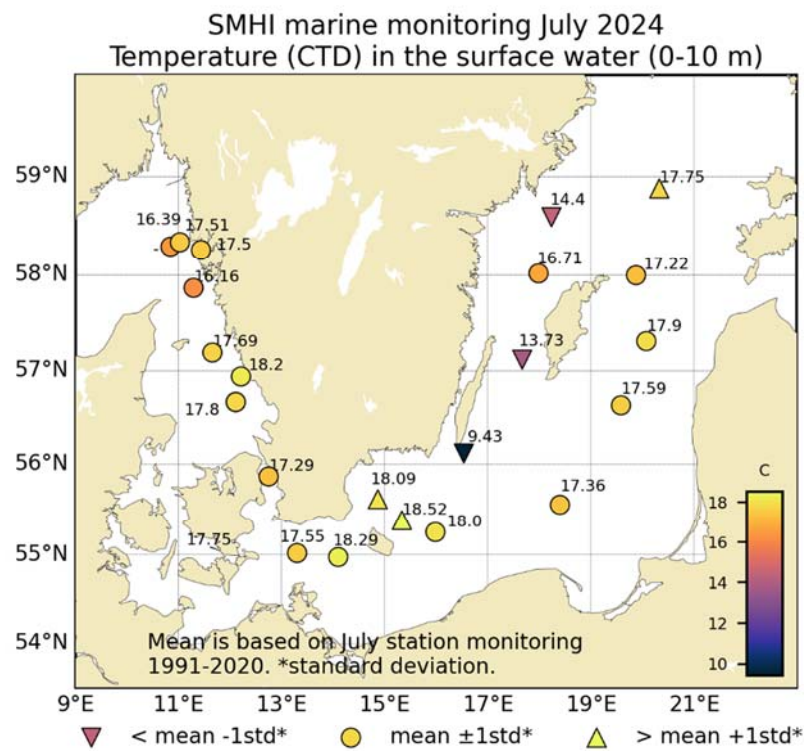
Figur 3. Koncentrationen av fosfat i ytvattnet (0-10m).



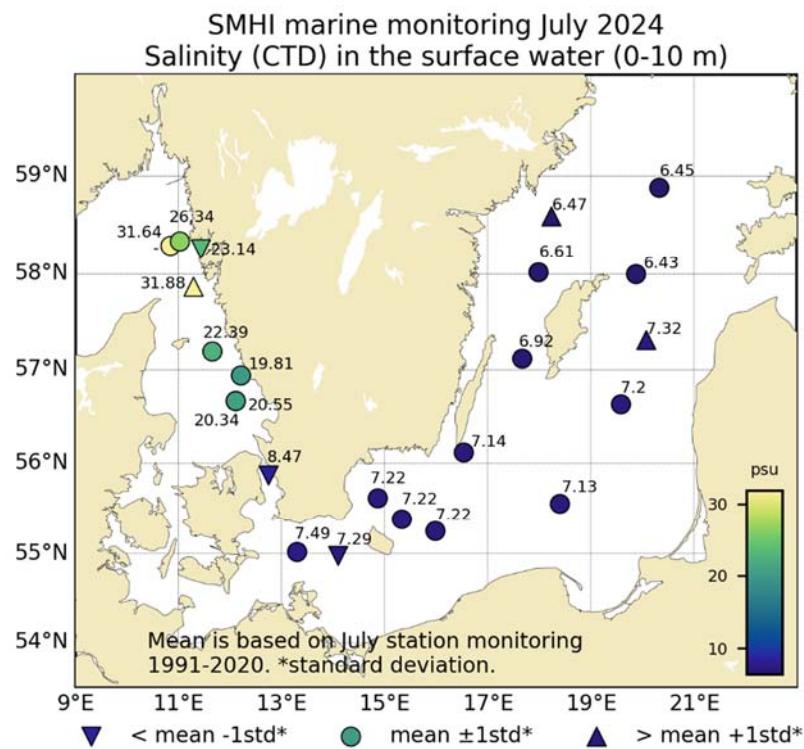
Figur 4. Koncentrationen av silikat (kisel) i ytvattnet (0-10m).



Figur 5. Koncentrationen av syre i bottenvattnet, ca 1 m ovanför botten. Observera att värdet inte jämförts mot statistik på samma sätt som figur 2-4, 6-7 och därför visas bara cirklar i diagrammet.



Figur 6. Temperatur i ytvattnet (0-10m).



Figur 7. Salthalt i ytvattnet (0-10m).

DELTAGARE

Namn	Roll	Från
Anna-Kerstin Thell	Expeditionsledare, marinkemist	SMHI
Sara Johansson	Marinkemist	SMHI
Johanna Linders	Oceanograf	SMHI
Sari Sipilä	Marinkemist	SMHI
Ann-Turi Skjevik	Marinbiolog	SMHI
Anders Torstensson	Planktonbiolog	SMHI

BILAGOR

- Färdkarta
- Tabell över stationer, analyserade parametrar och antal provtagningsdjup
- Vertikalprofiler
- Figurer över månadsmedelvärden

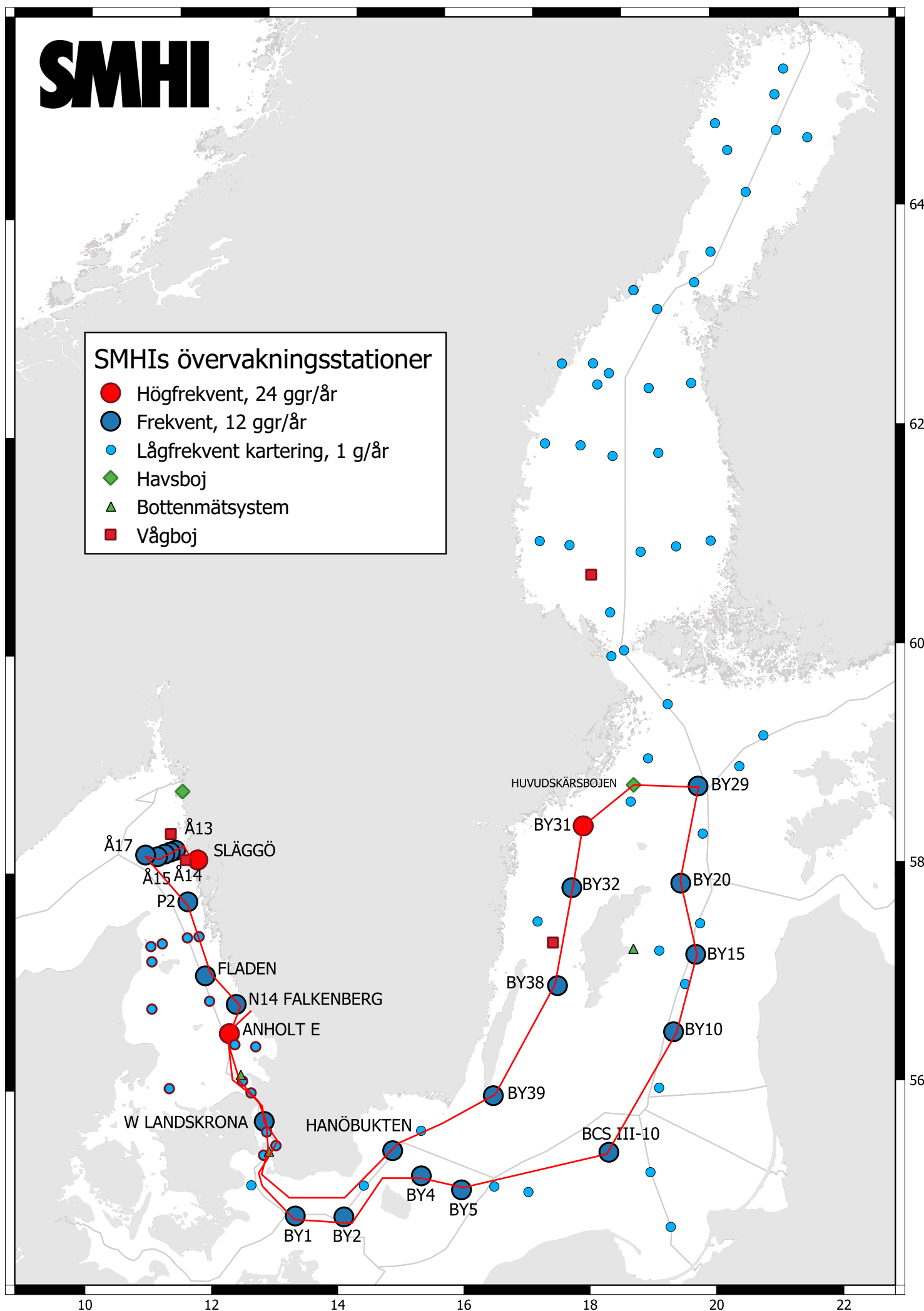
SMHI



**Havs
och Vatten
myndigheten**

SMHIs övervakningsstationer

- Högfrekvent, 24 ggr/år
- Frekvent, 12 ggr/år
- Lågfrekvent kartering, 1 g/år
- ◆ Havsboj
- ▲ Bottenmätsystem
- Vågboj



Ship: 77SE
Year: 2024

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 vel	Air temp C	Air pres hPa	WCWI elac	CZPP hohp	No No de btl	T T S S P D D H P P N N N A N A S H C C	e e a a h o o 2 h t t t t m t l i u o o	m m l l x x s o o r r r o o k o m m m	p p t t y y s t i a z n t y 3 u n n	- - - - - b c b c b c t t t t t t l d l d l d	- - - - - s _ _ i v s i a s m i p t
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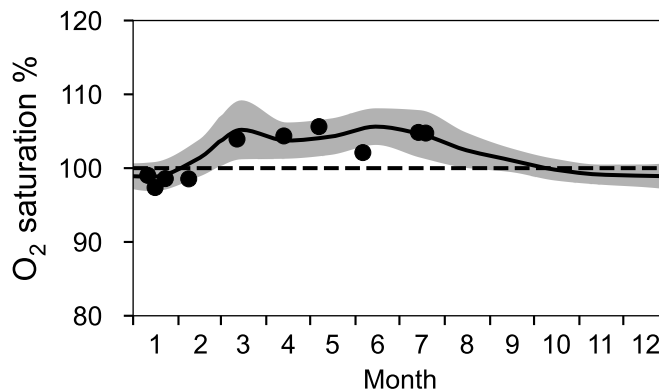
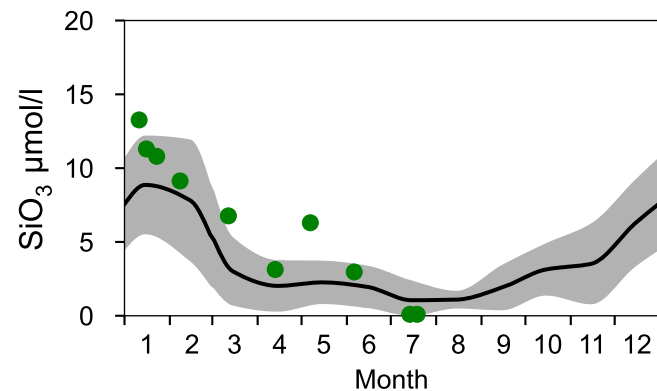
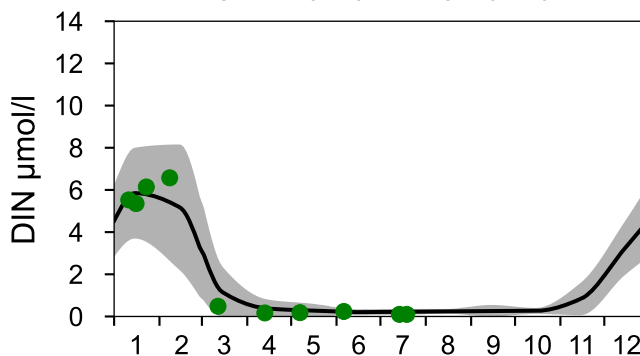
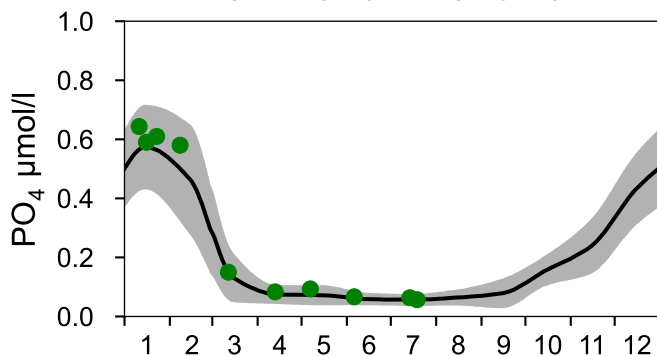
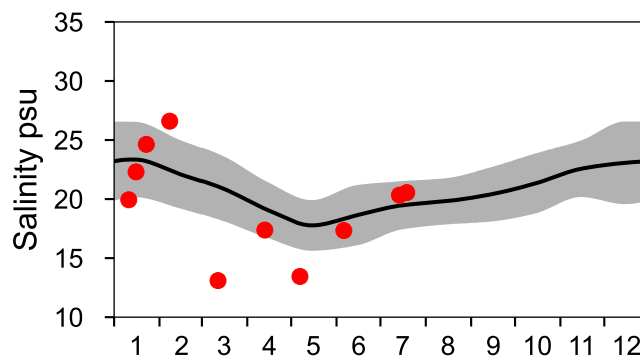
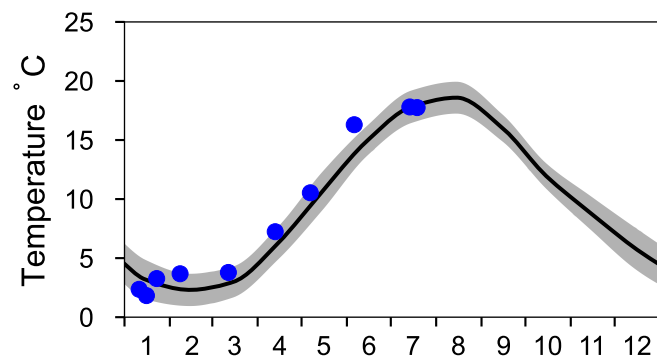
STATION ANHOLT E SURFACE WATER (0-10 m)

Annual Cycles

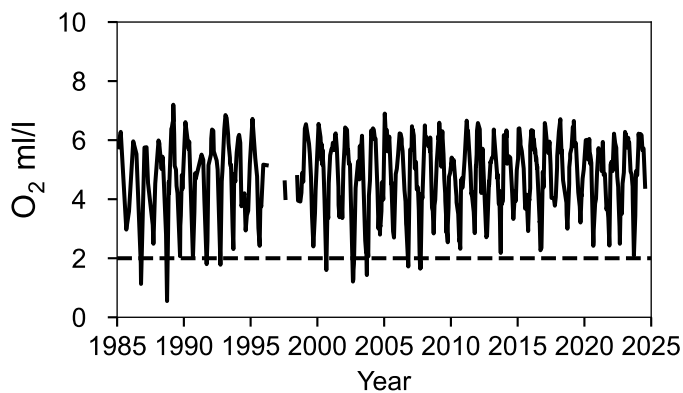
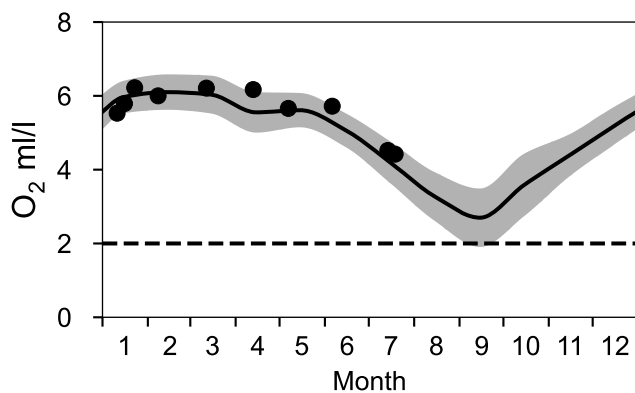
— Mean 1991-2020

■ St.Dev.

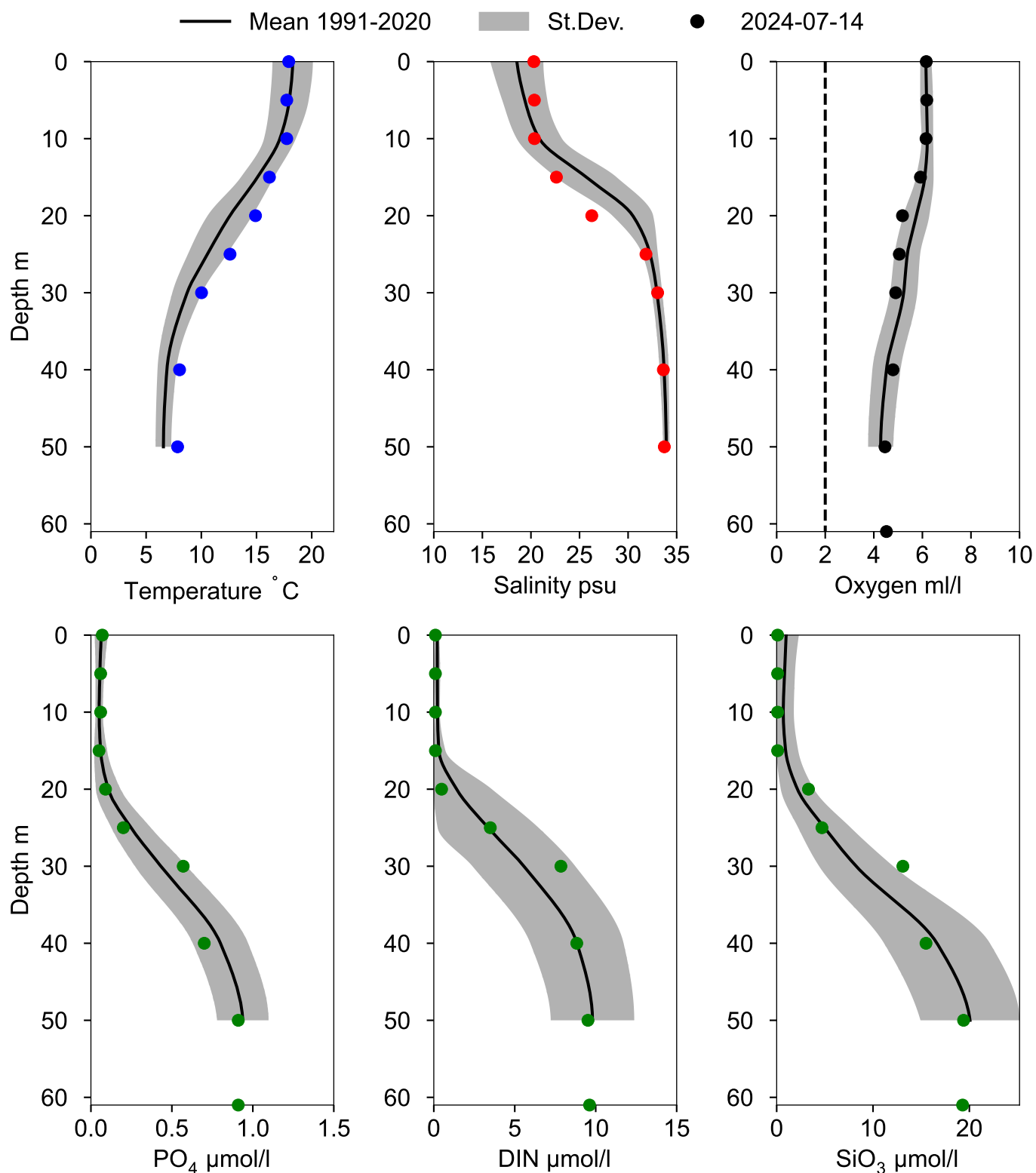
● 2024



OXYGEN IN BOTTOM WATER (depth >= 52 m)



Vertical profiles ANHOLT E July



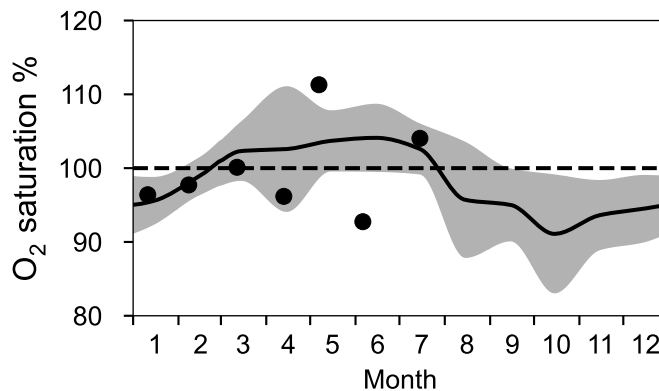
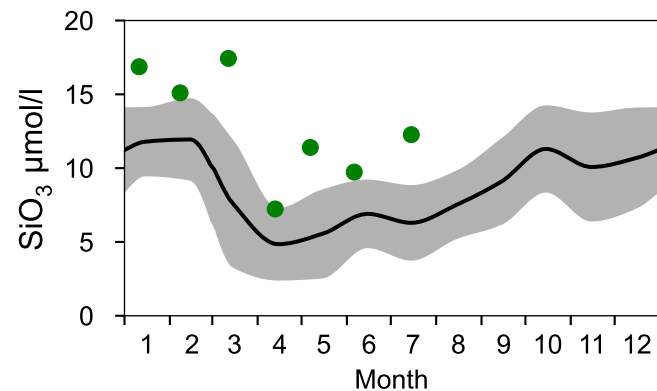
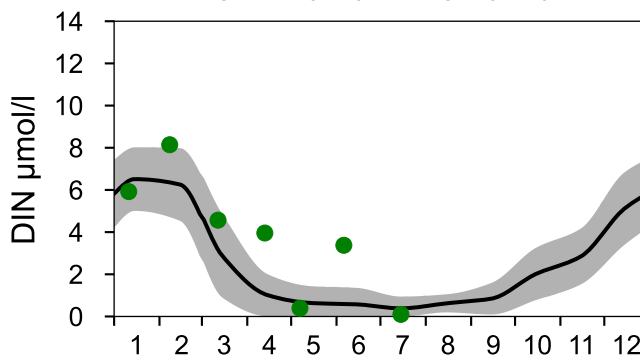
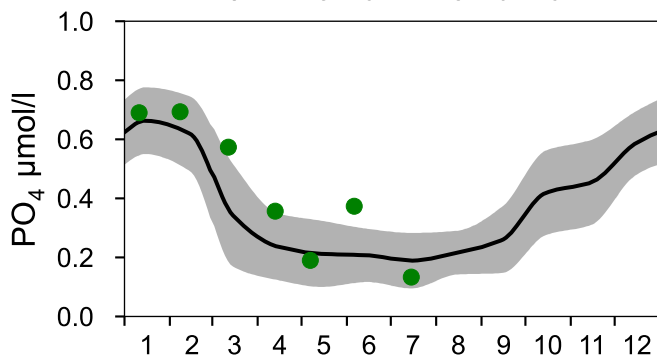
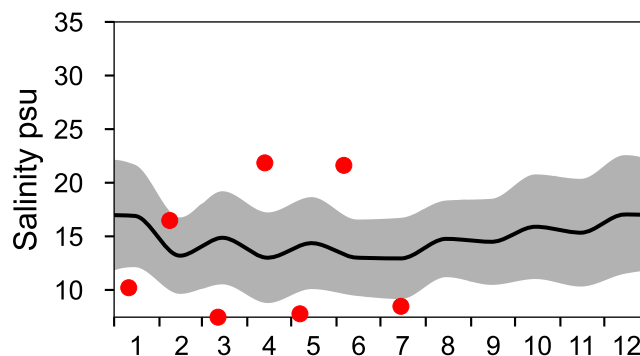
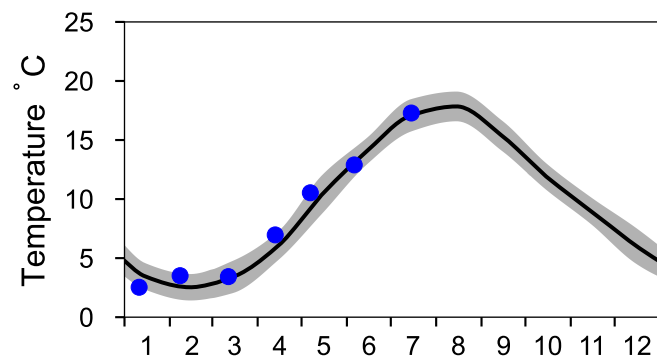
STATION W LANDSKRONA SURFACE WATER (0-10 m)

Annual Cycles

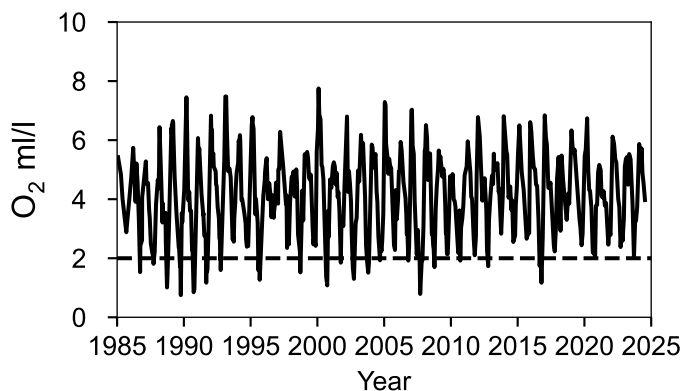
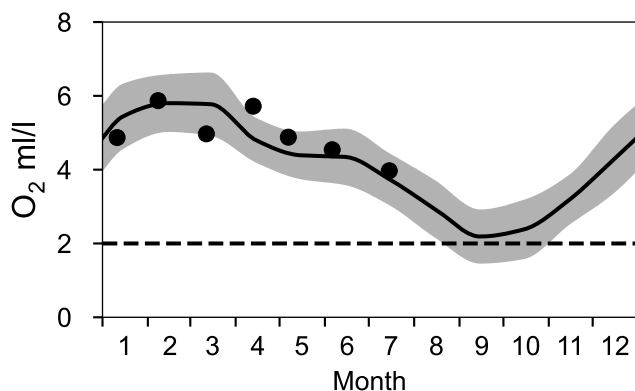
— Mean 1991-2020

■ St.Dev.

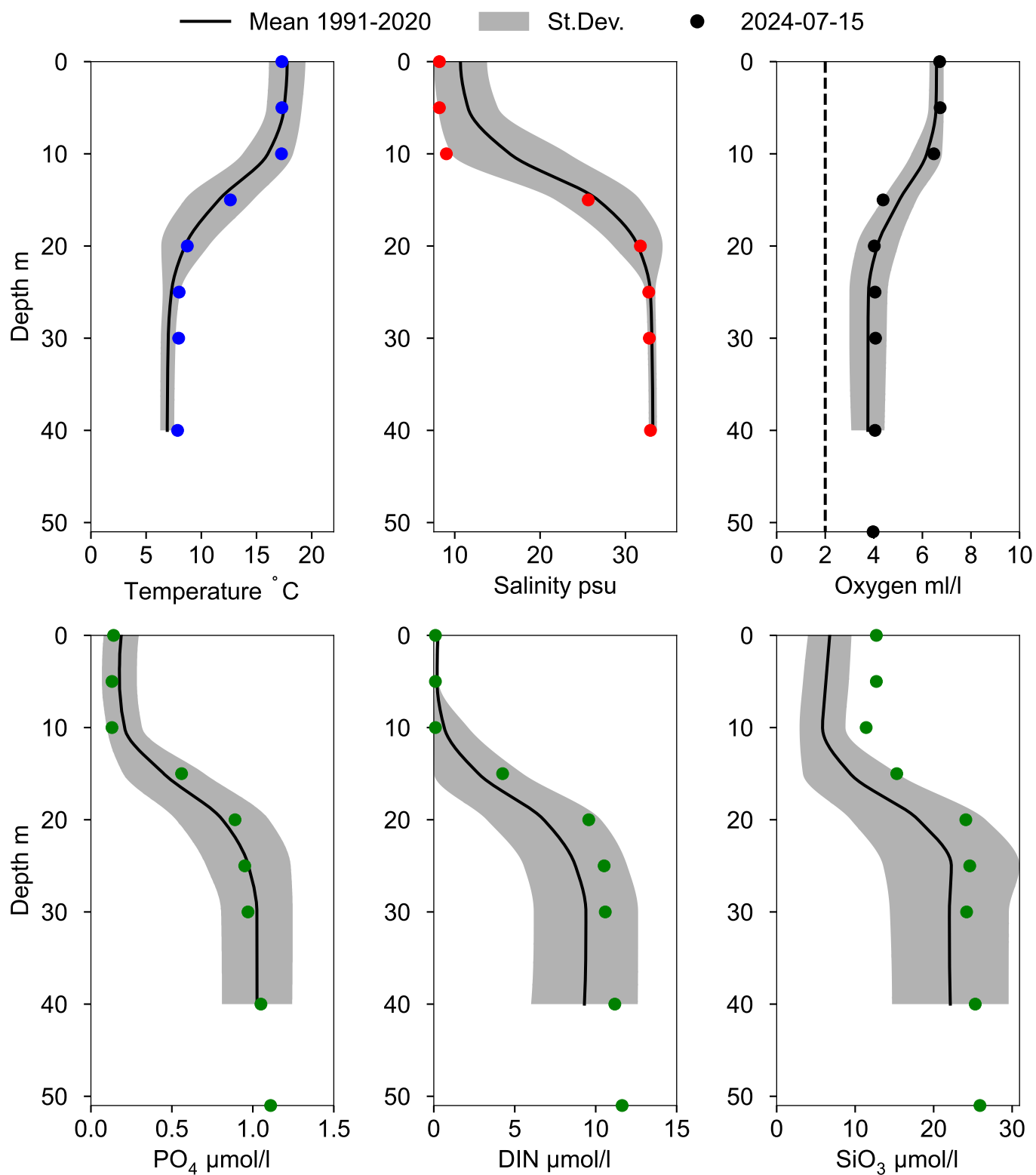
● 2024



OXYGEN IN BOTTOM WATER (depth >= 40 m)



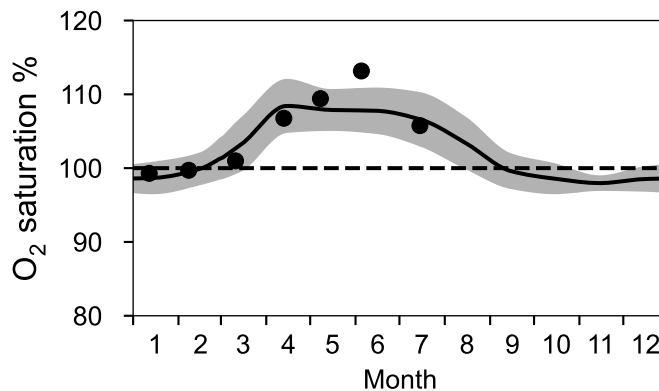
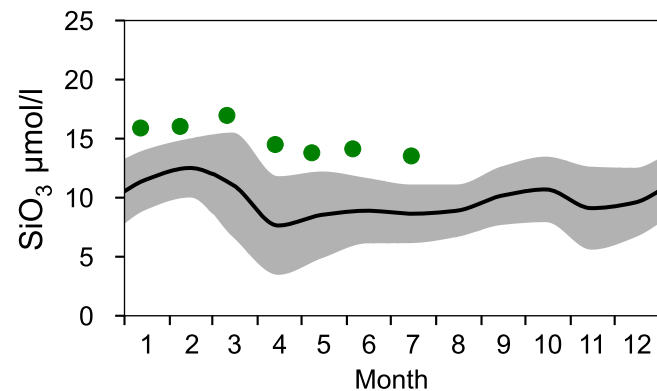
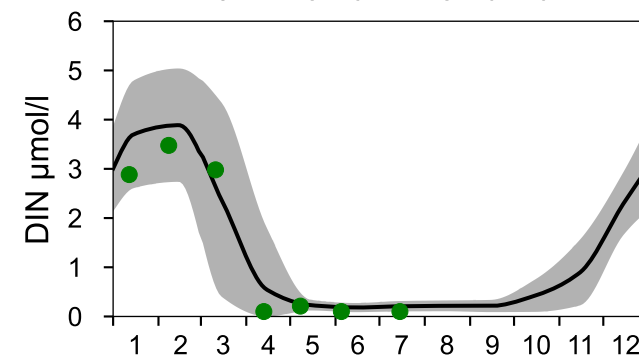
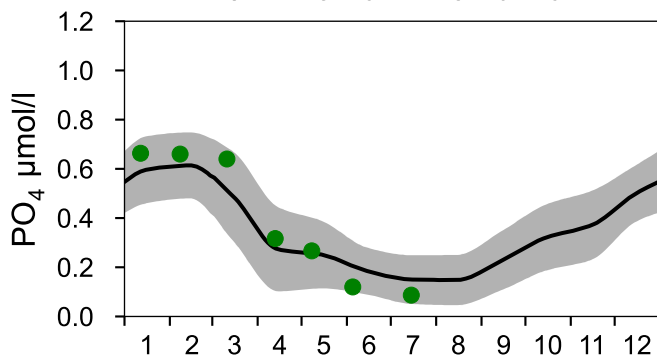
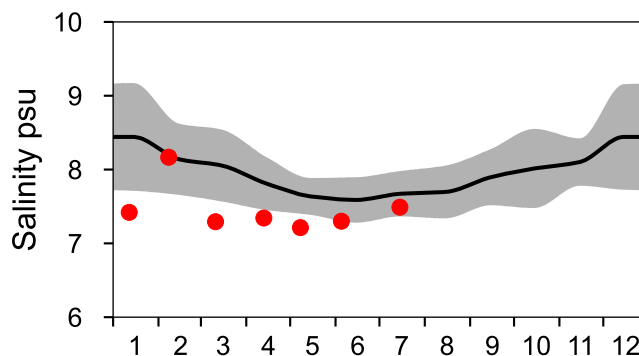
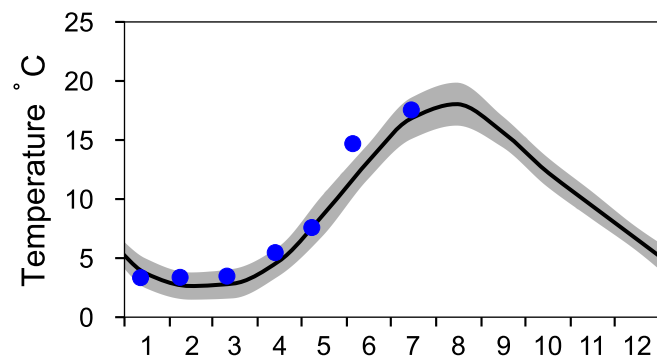
Vertical profiles W LANDSKRONA July



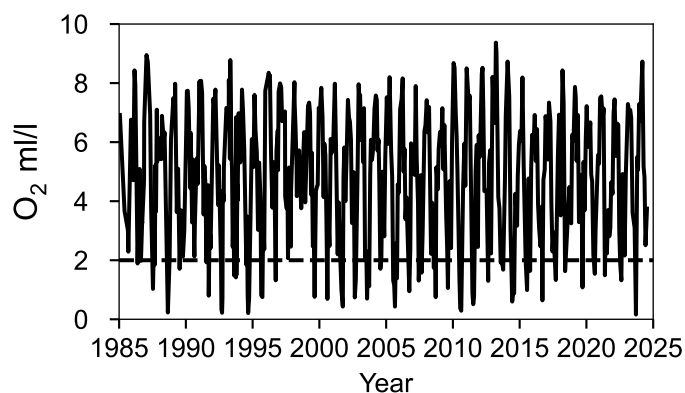
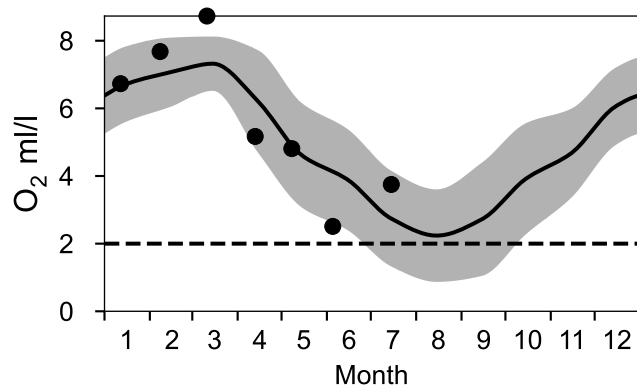
STATION BY1 SURFACE WATER (0-10 m)

Annual Cycles

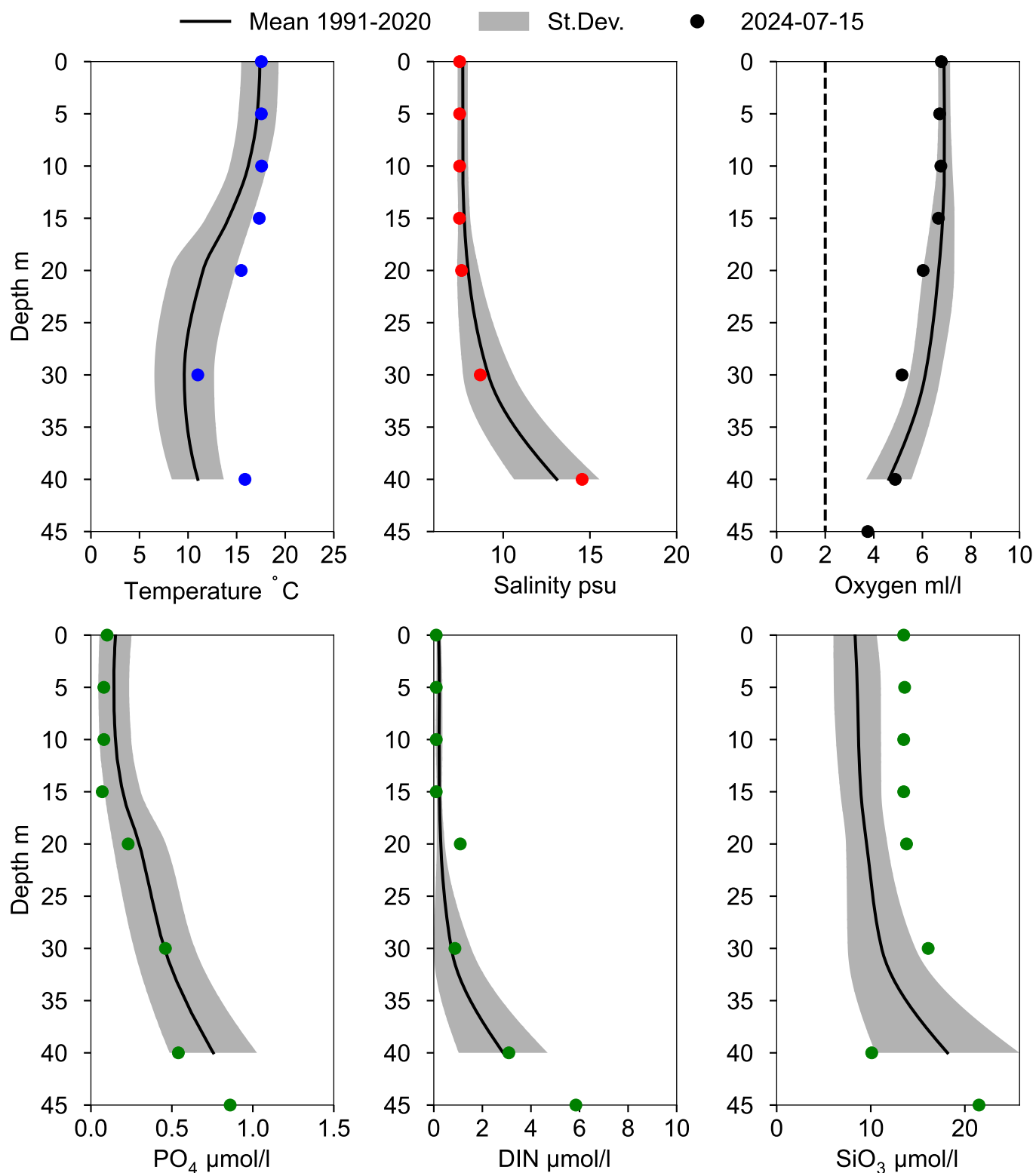
— Mean 1991-2020 St.Dev. ● 2024



OXYGEN IN BOTTOM WATER (depth >= 39 m)



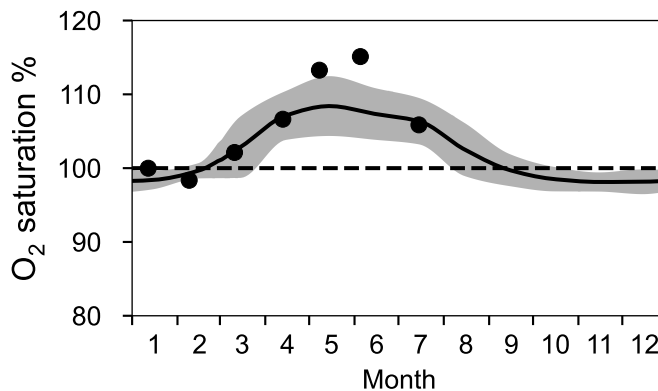
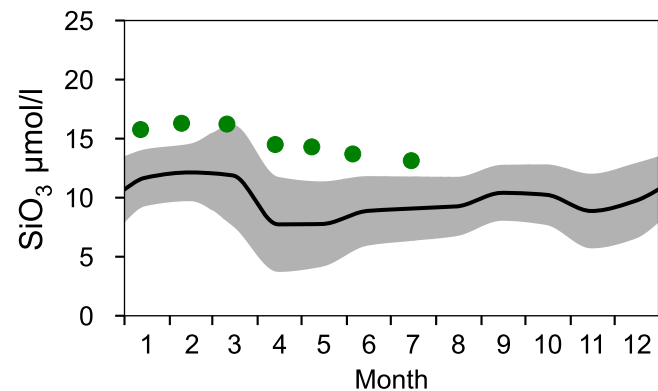
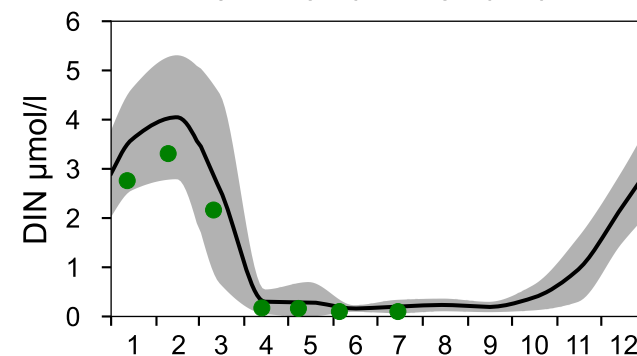
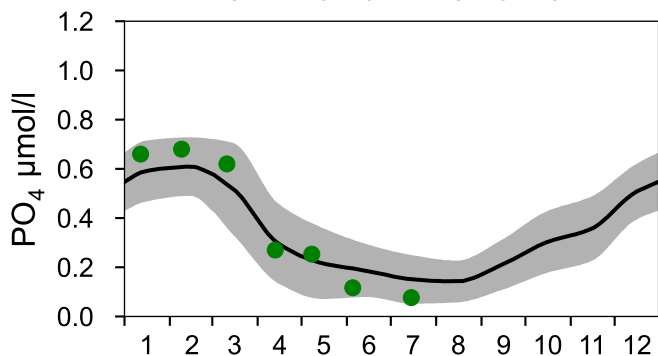
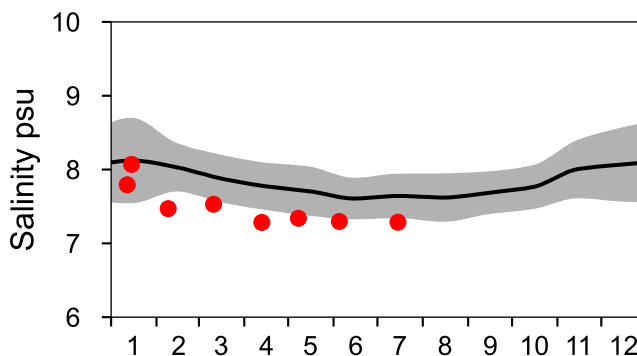
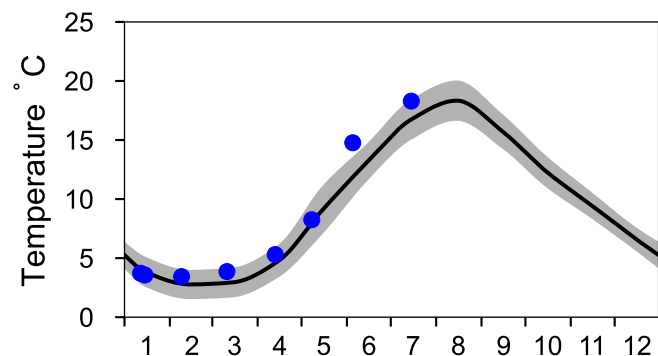
Vertical profiles BY1 July



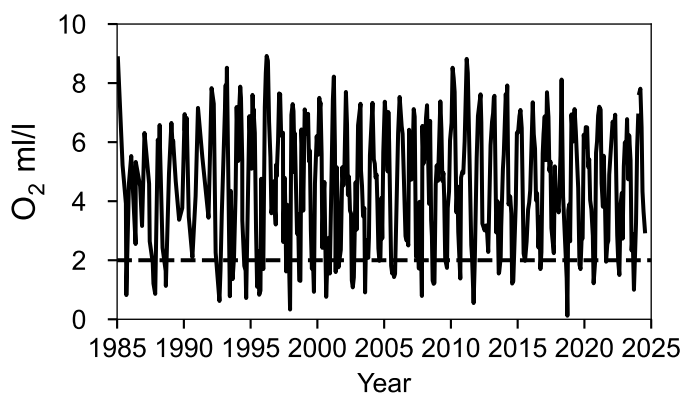
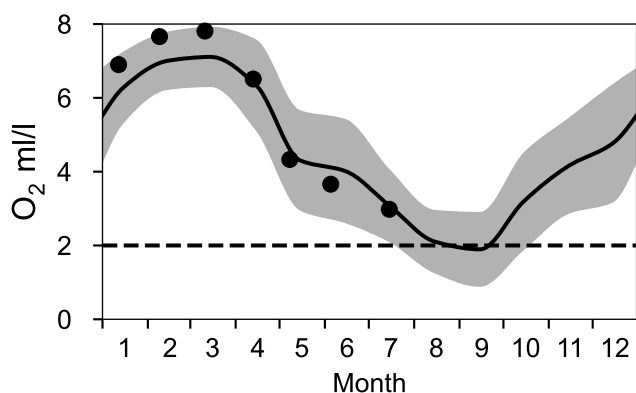
STATION BY2 ARKONA SURFACE WATER (0-10 m)

Annual Cycles

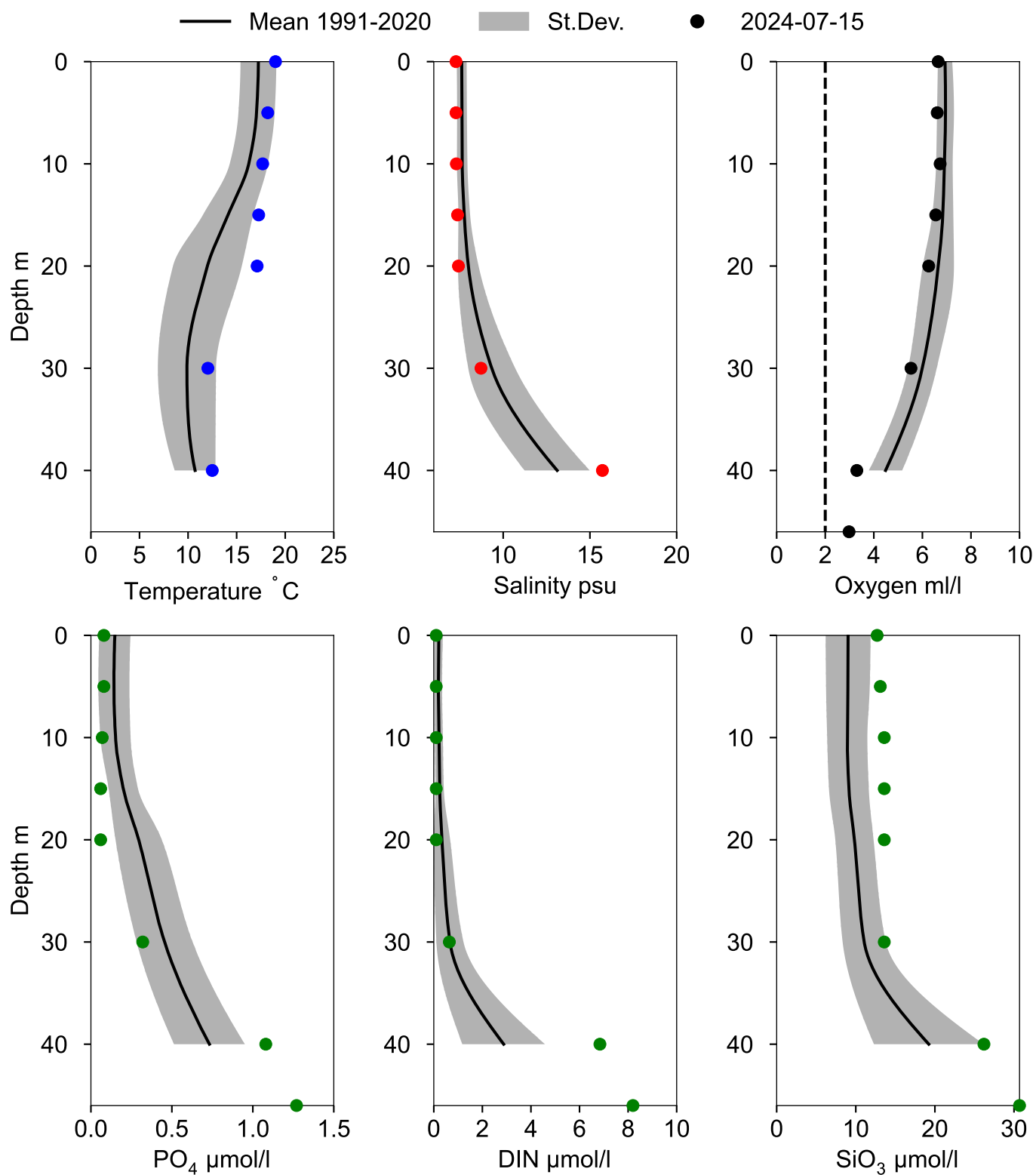
— Mean 1991-2020 St.Dev. ● 2024



OXYGEN IN BOTTOM WATER (depth >= 40 m)



Vertical profiles BY2 ARKONA July



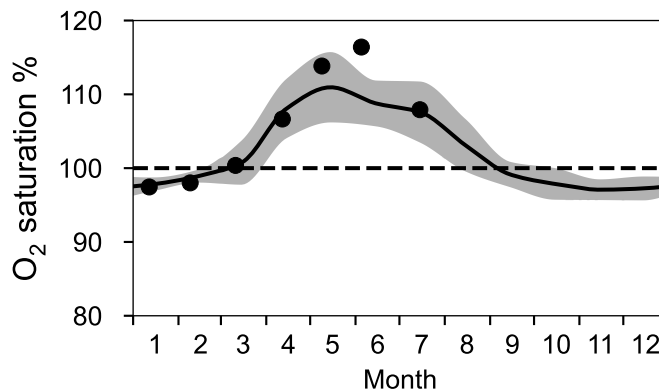
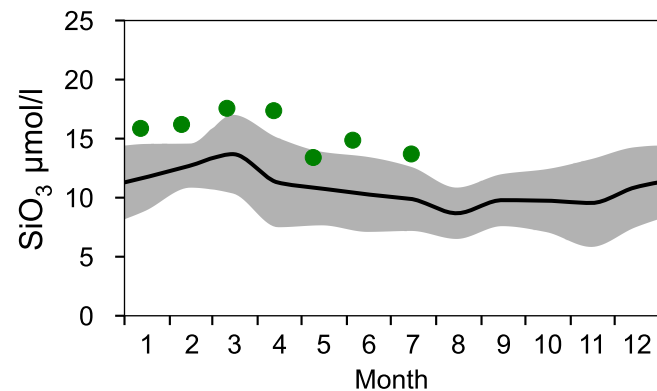
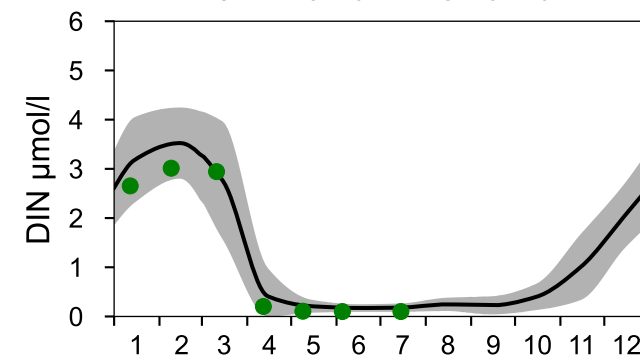
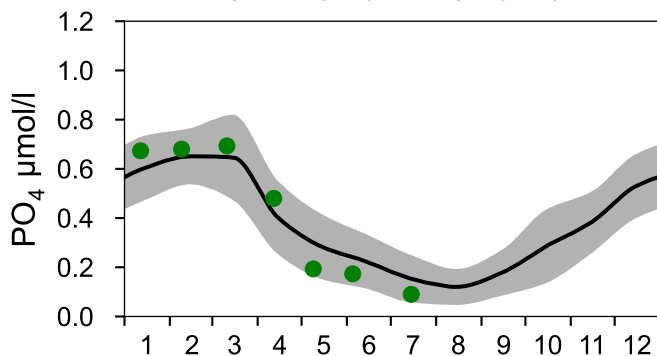
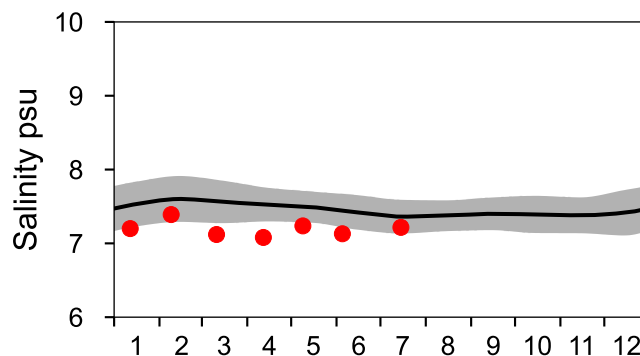
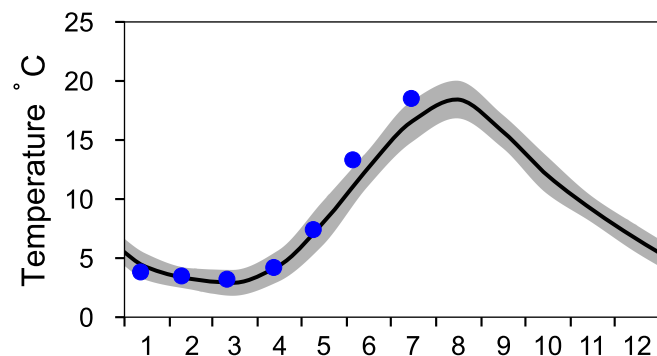
STATION BY4 CHRISTIANSÖ SURFACE WATER (0-10 m)

Annual Cycles

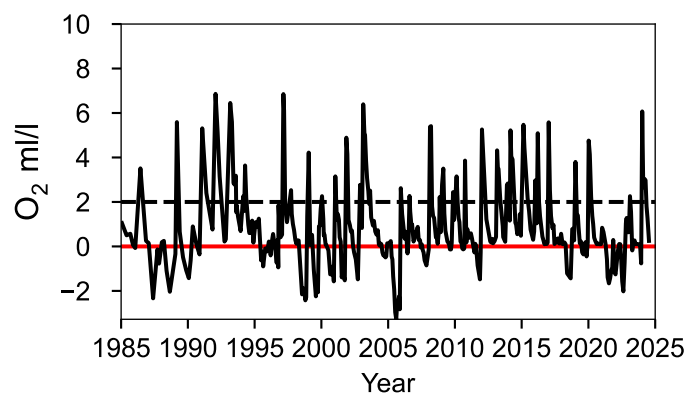
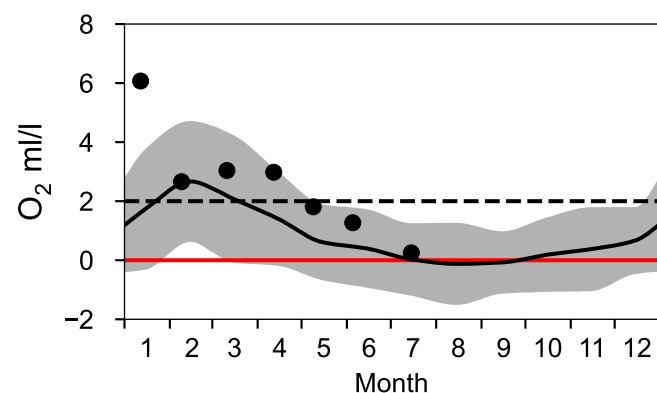
— Mean 1991-2020

■ St.Dev.

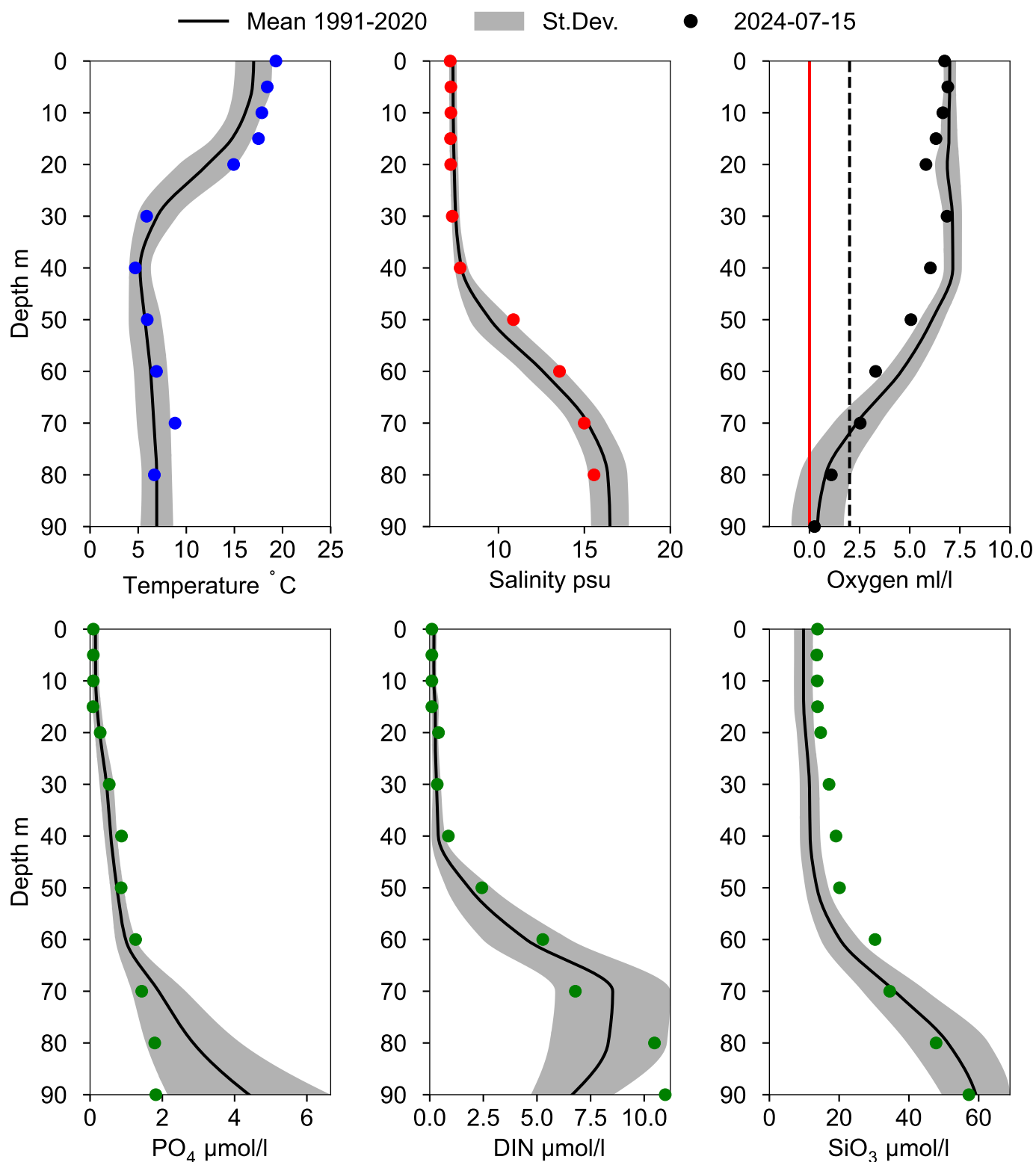
● 2024



OXYGEN IN BOTTOM WATER (depth >= 80 m)



Vertical profiles BY4 CHRISTIANSÖ July



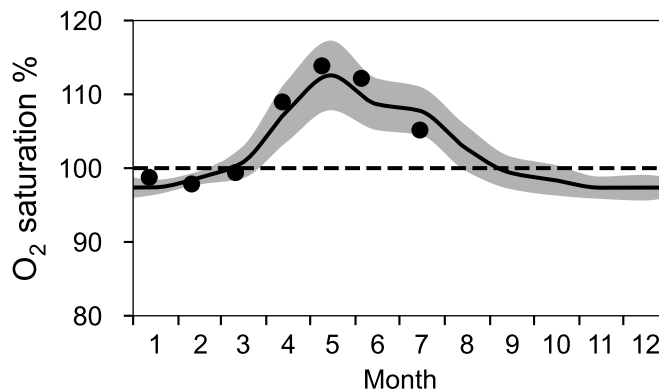
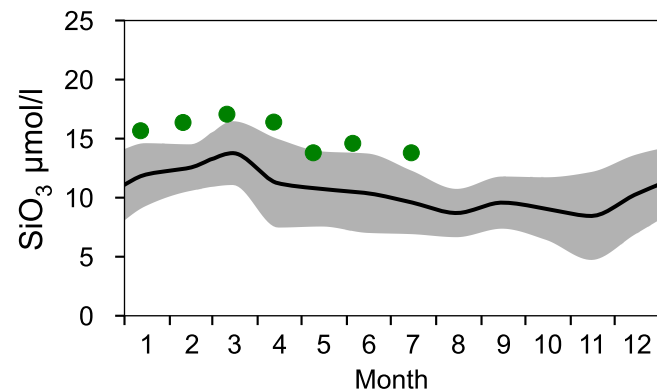
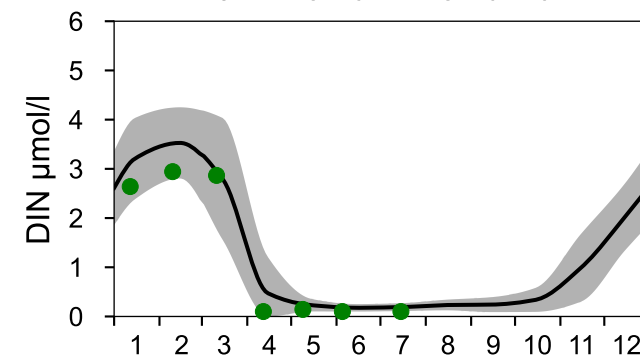
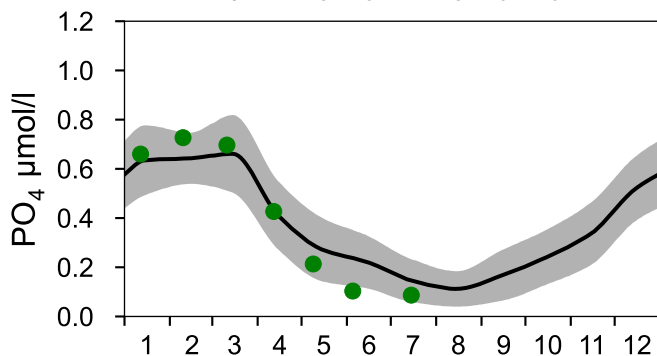
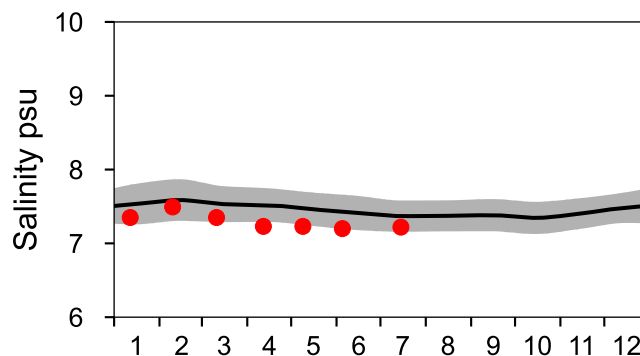
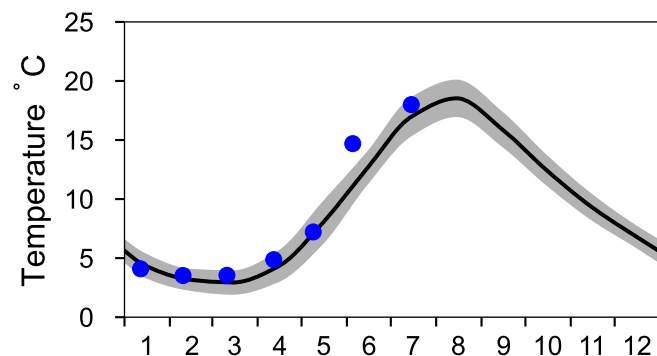
STATION BY5 BORNHOLMSDJ SURFACE WATER (0-10 m)

Annual Cycles

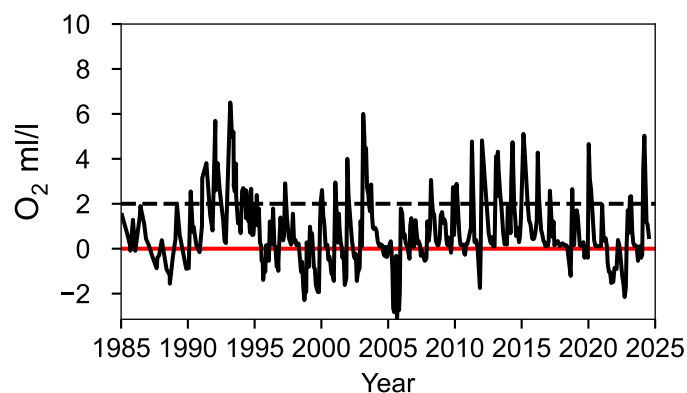
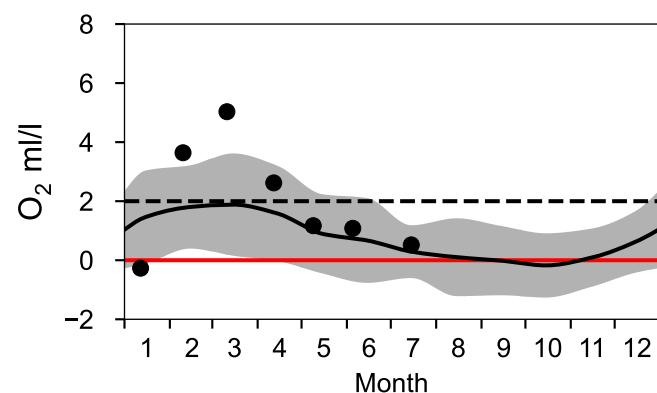
— Mean 1991-2020

■ St.Dev.

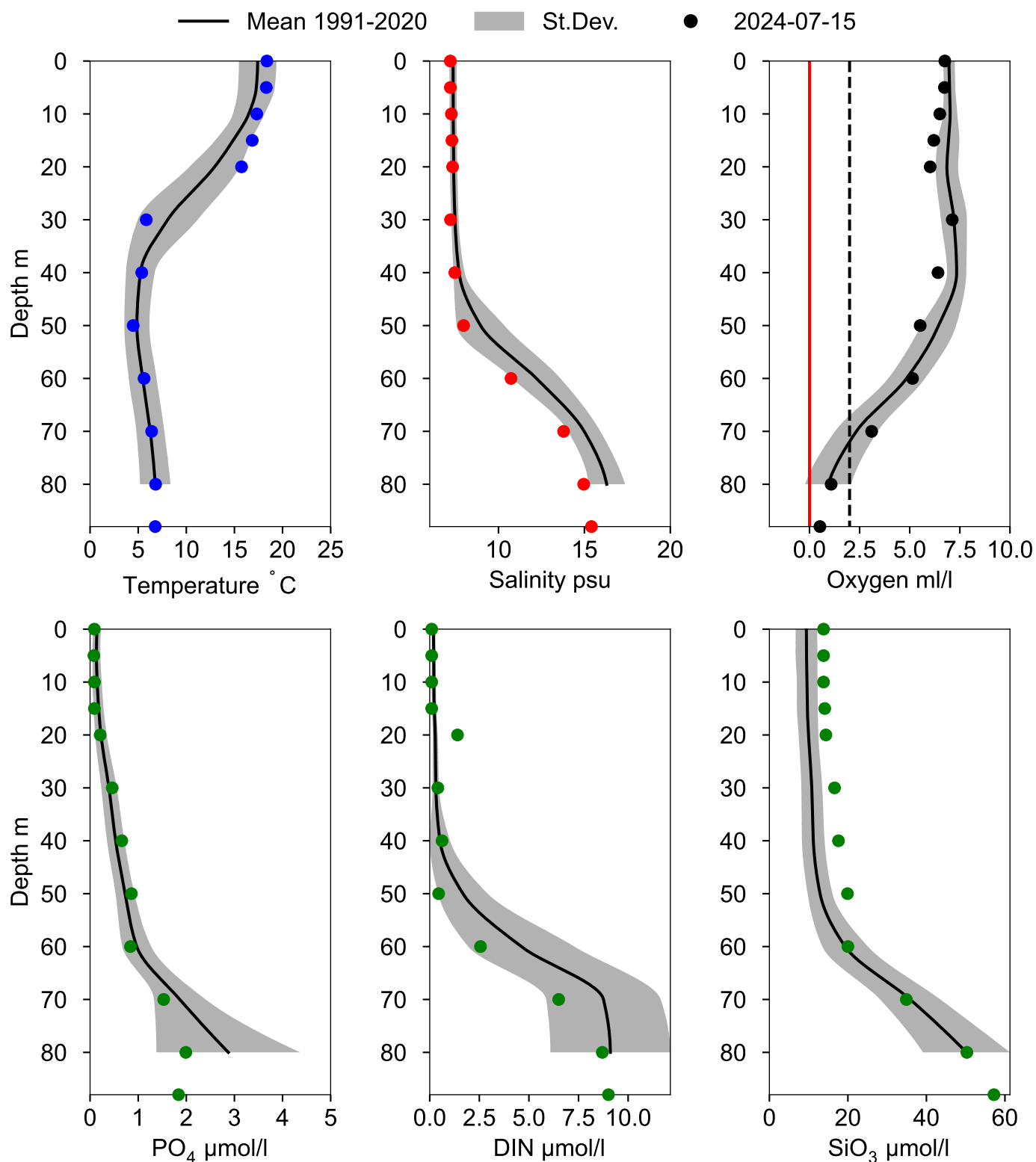
● 2024



OXYGEN IN BOTTOM WATER (depth >= 80 m)



Vertical profiles BY5 BORNHOLMSDJ July



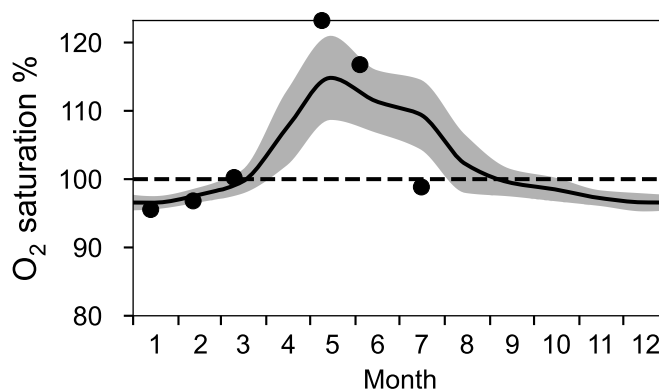
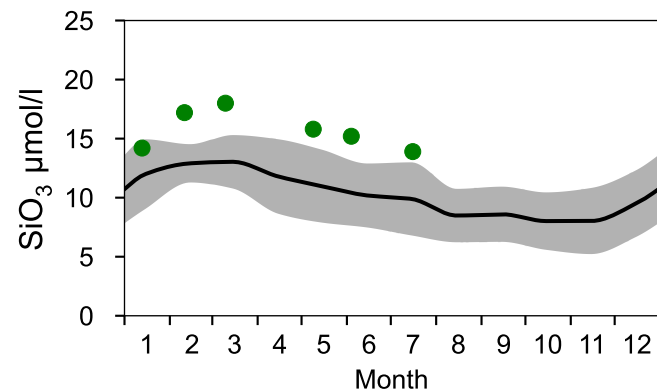
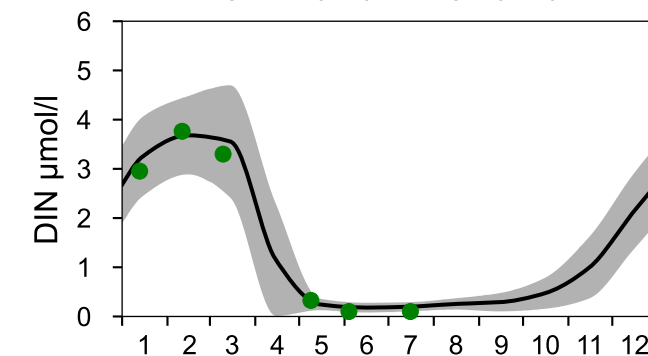
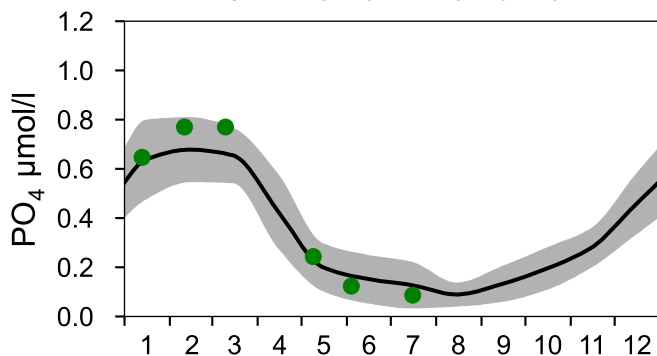
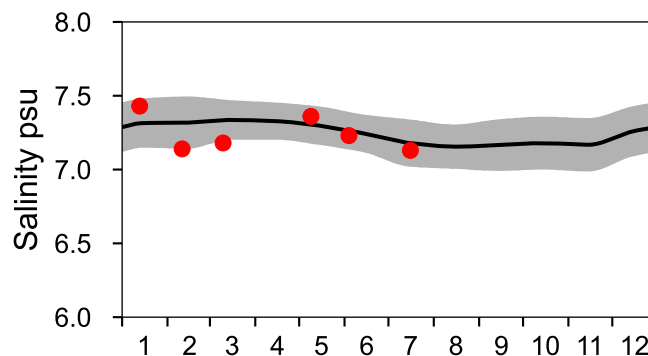
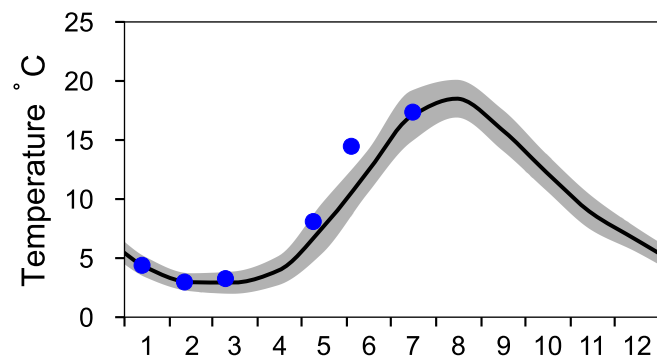
STATION BCS III-10 SURFACE WATER (0-10 m)

Annual Cycles

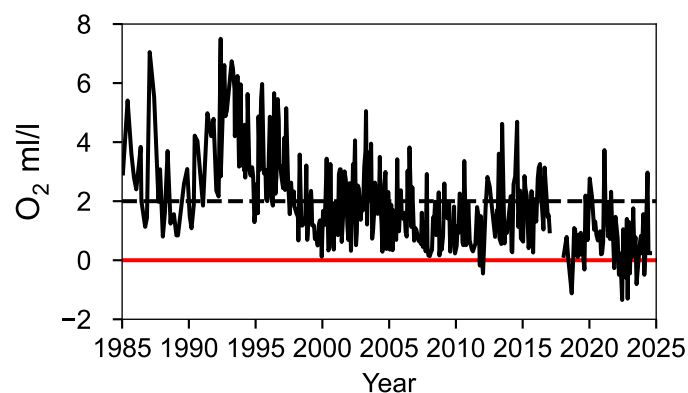
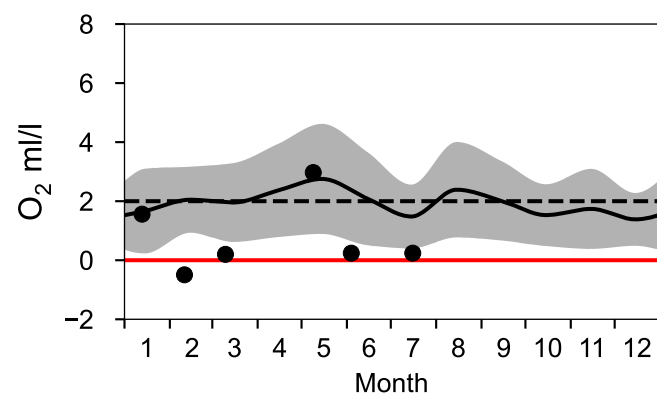
— Mean 1991-2020

■ St.Dev.

● 2024



OXYGEN IN BOTTOM WATER (depth >= 80 m)

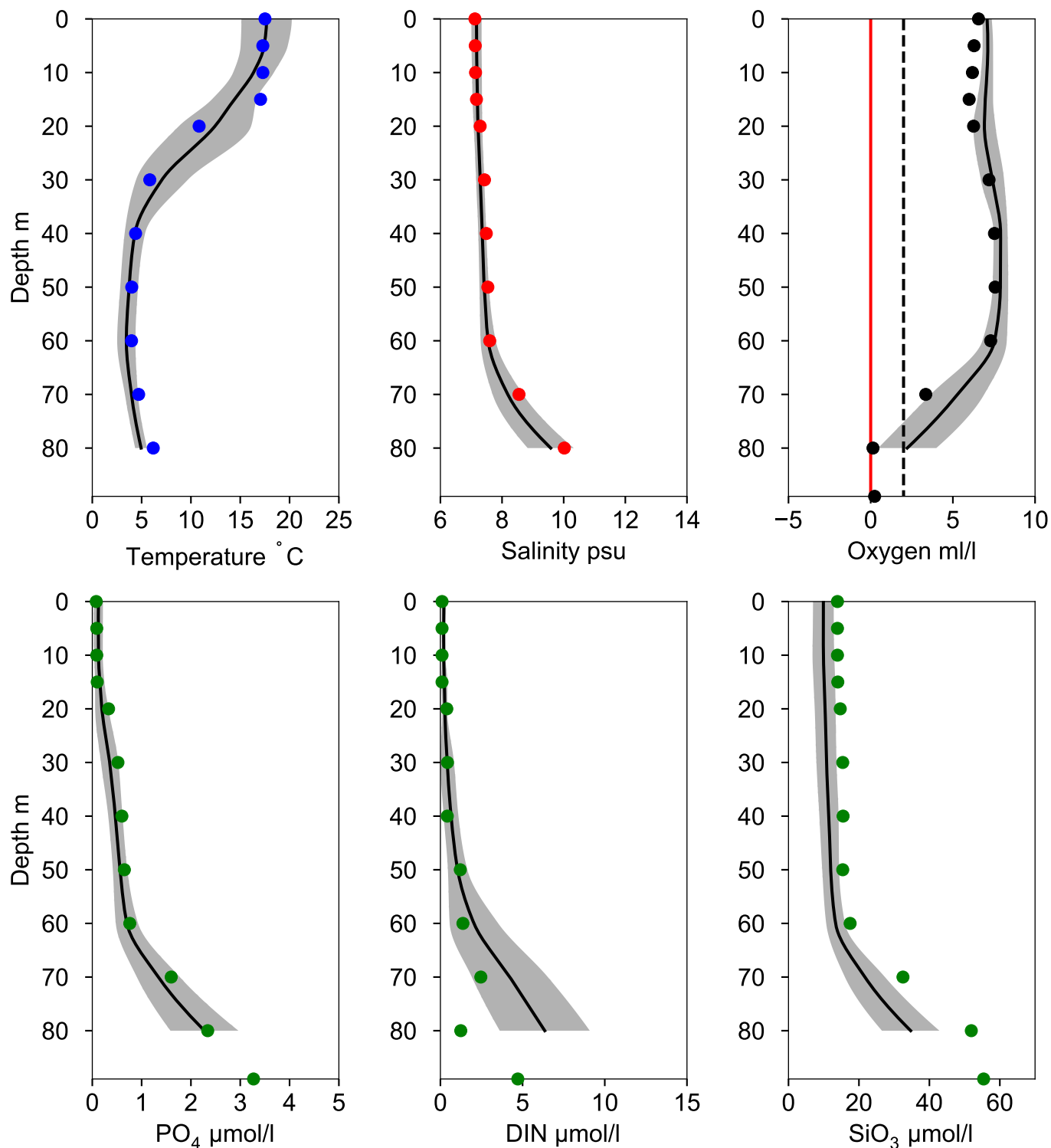


Vertical profiles BCS III-10 July

— Mean 1991-2020

■ St.Dev.

● 2024-07-16



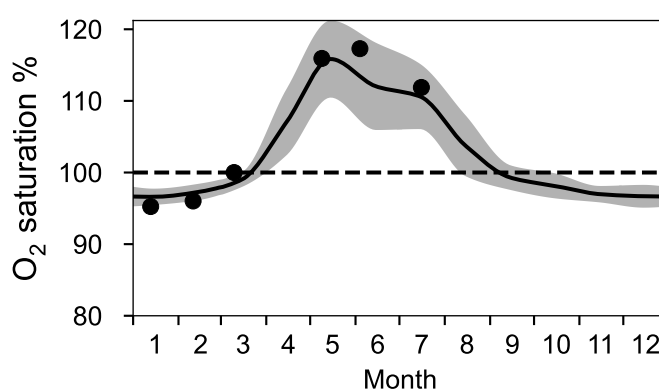
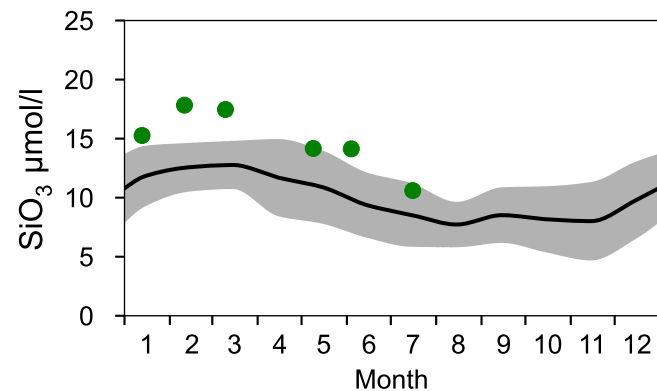
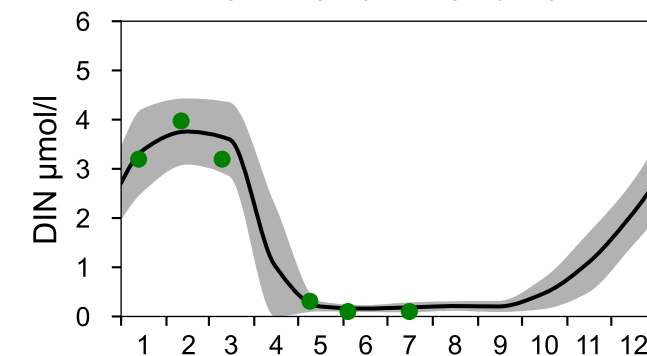
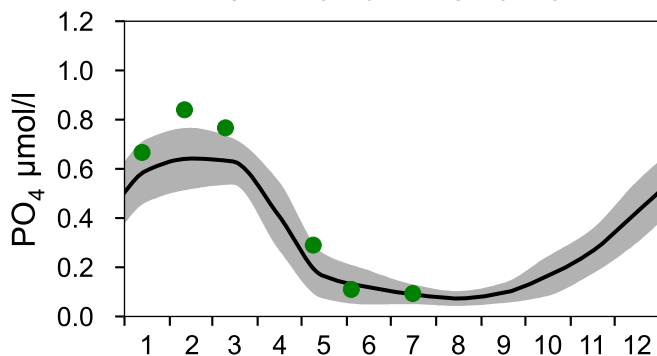
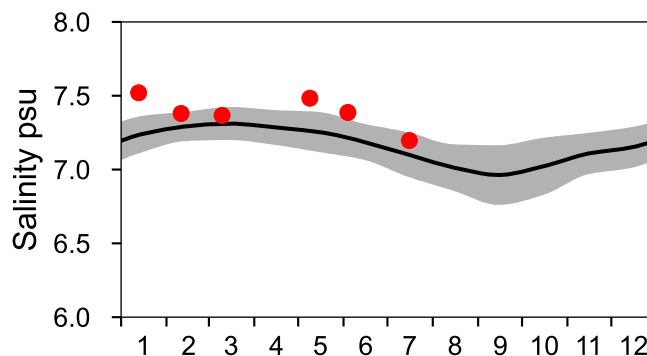
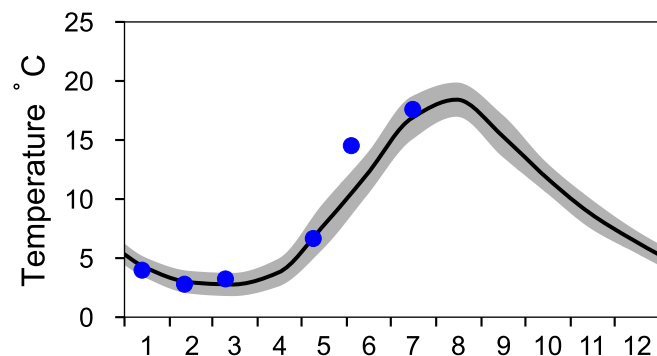
STATION BY10 SURFACE WATER (0-10 m)

Annual Cycles

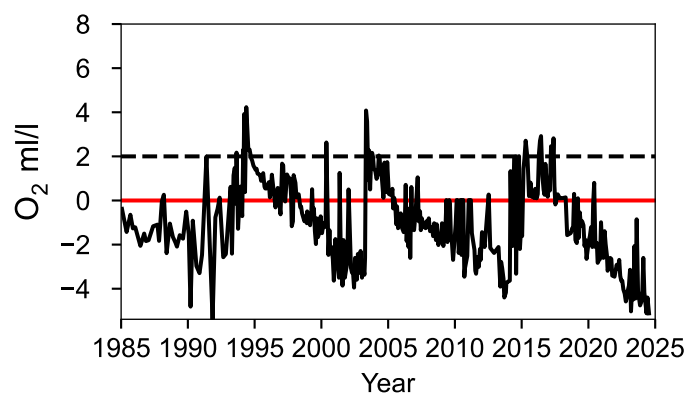
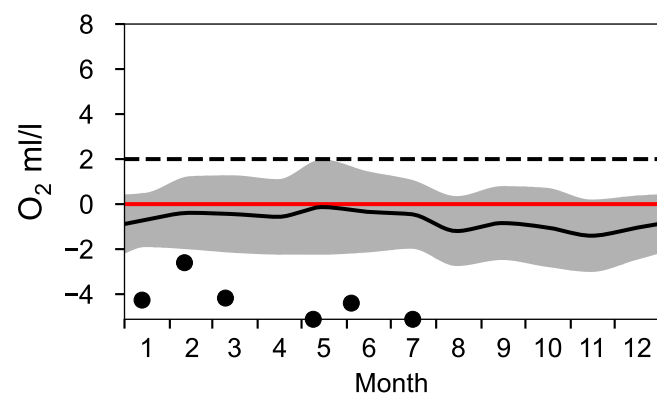
— Mean 1991-2020

■ St.Dev.

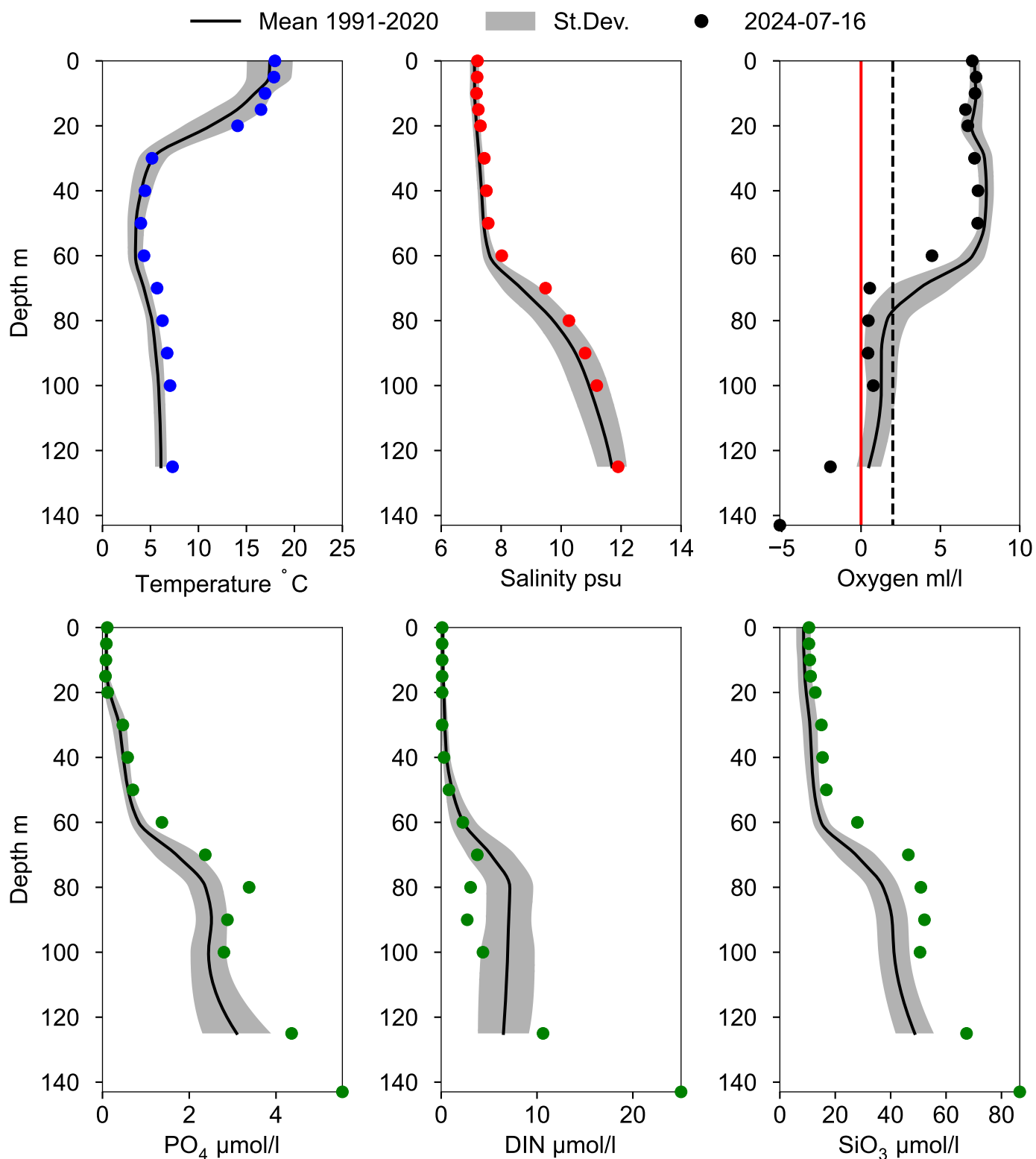
● 2024



OXYGEN IN BOTTOM WATER (depth >= 125 m)



Vertical profiles BY10 July



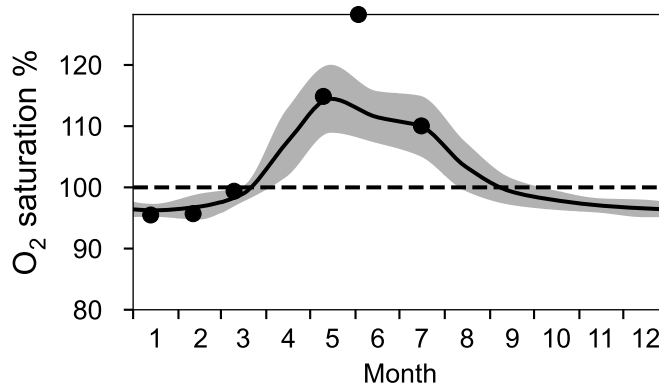
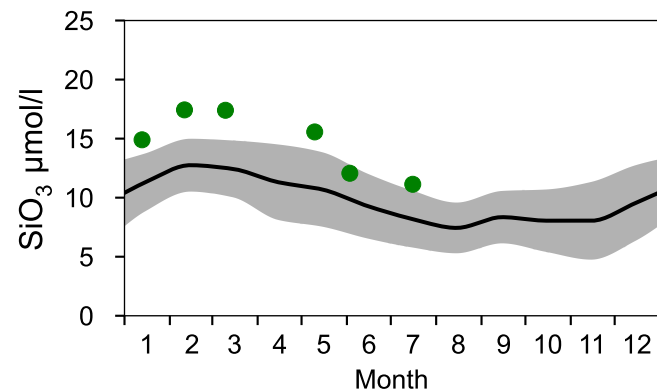
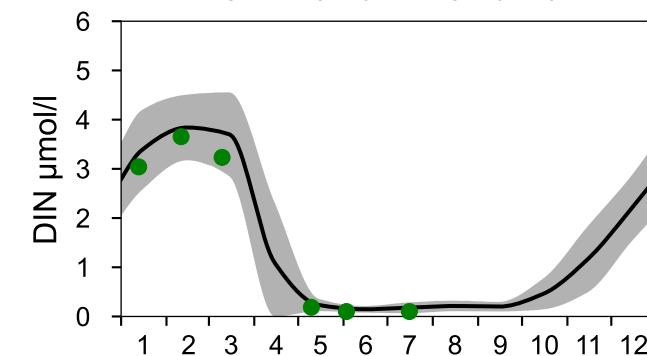
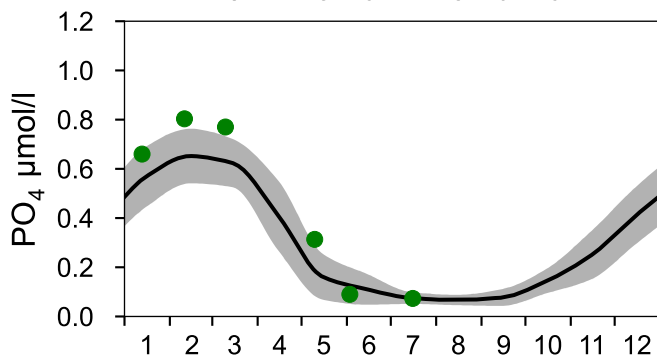
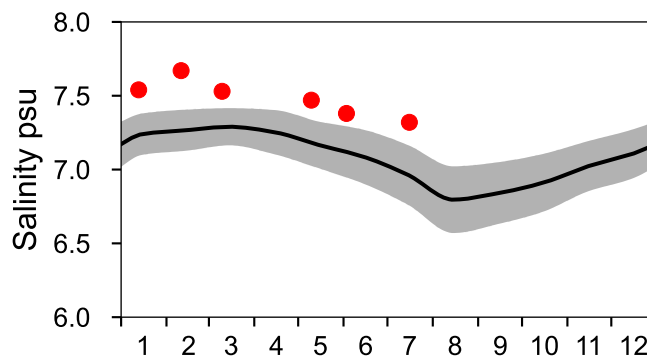
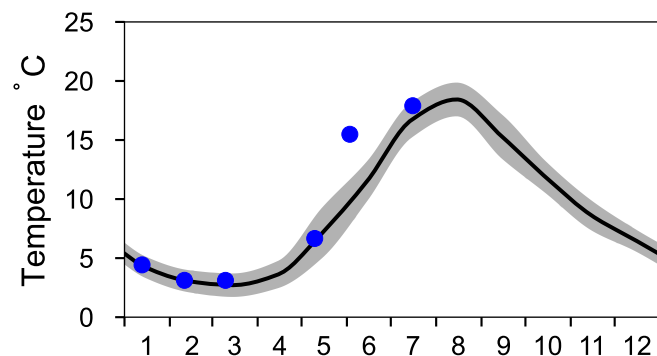
STATION BY15 GOTLANDSDJ SURFACE WATER (0-10 m)

Annual Cycles

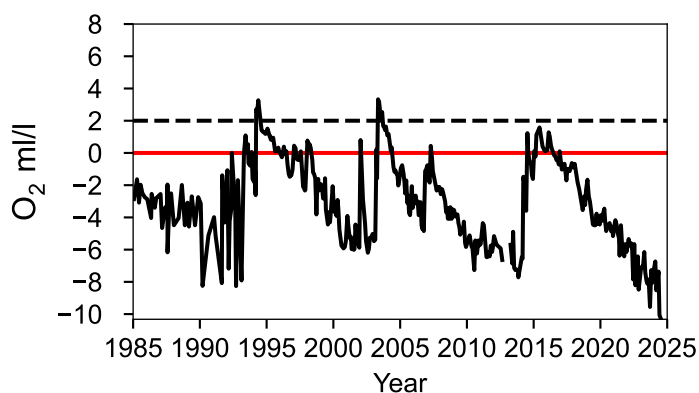
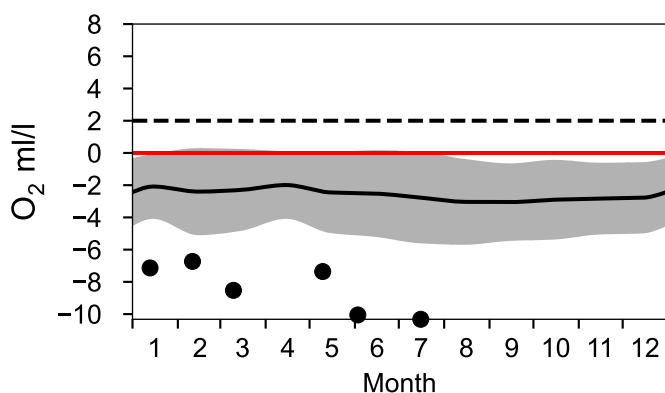
— Mean 1991-2020

■ St.Dev.

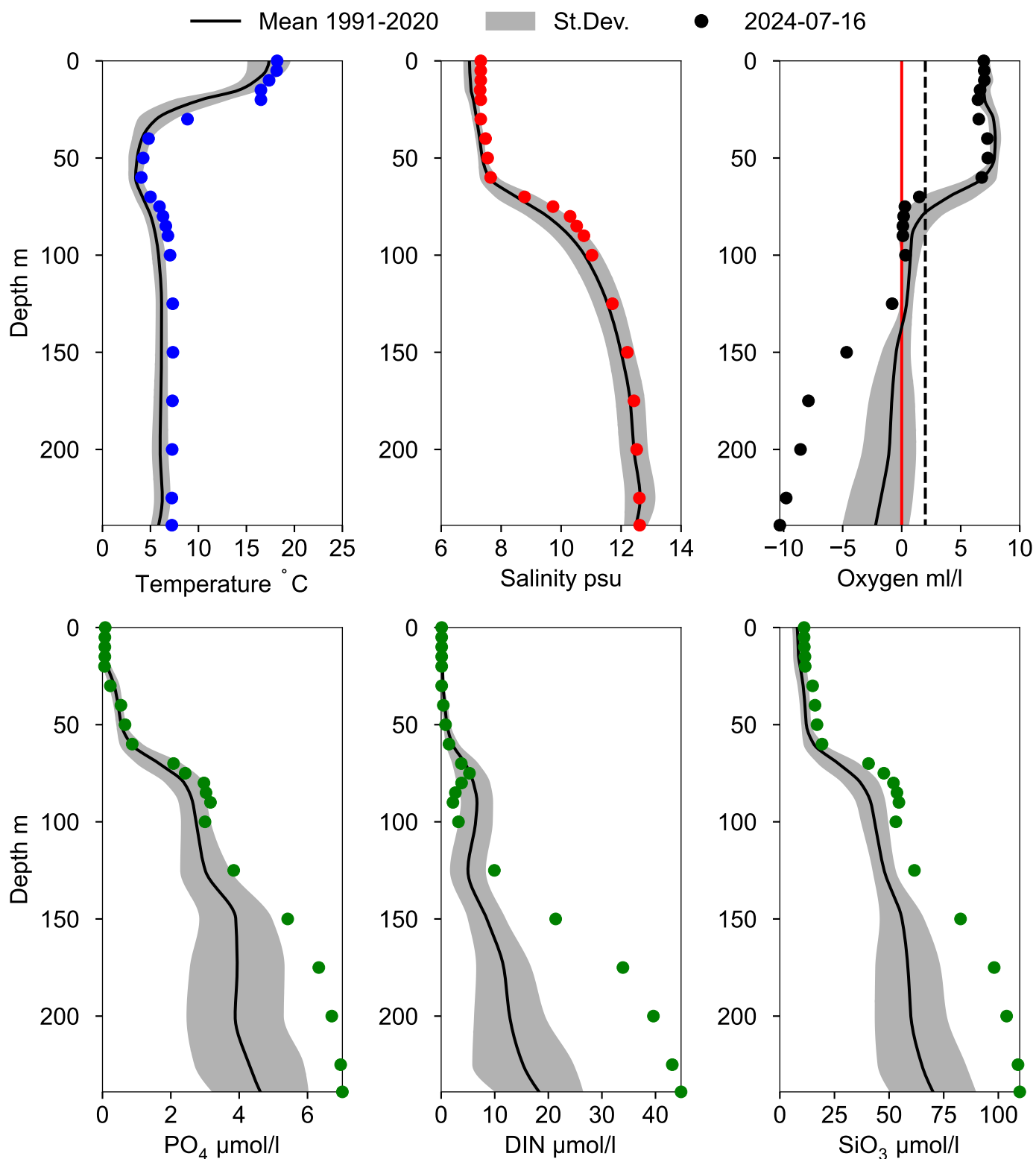
● 2024



OXYGEN IN BOTTOM WATER (depth >= 225 m)



Vertical profiles BY15 GOTLANDSDJ July



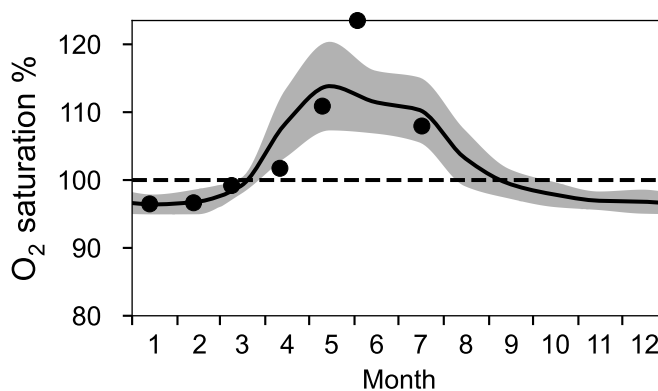
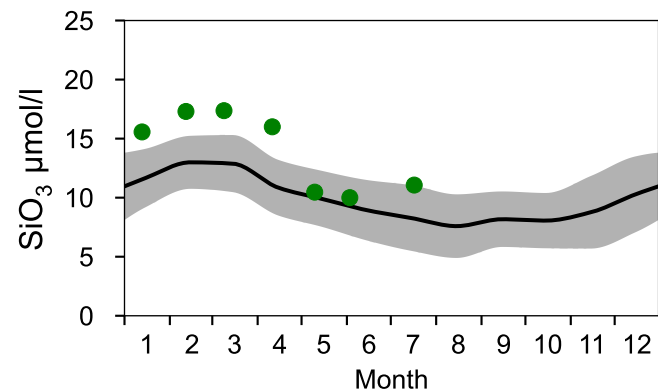
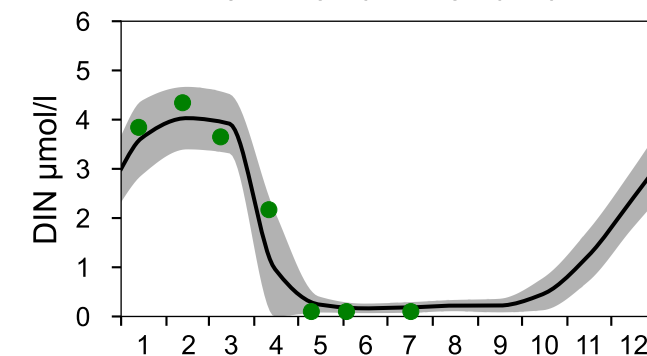
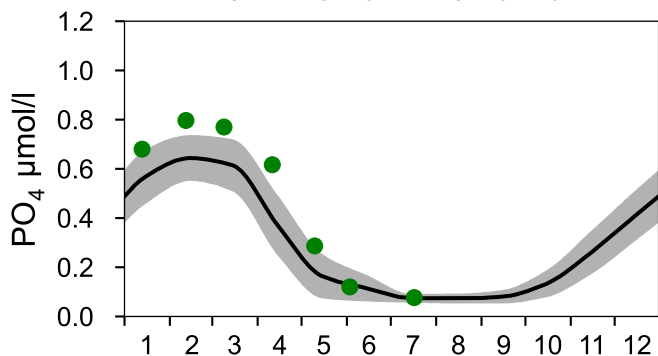
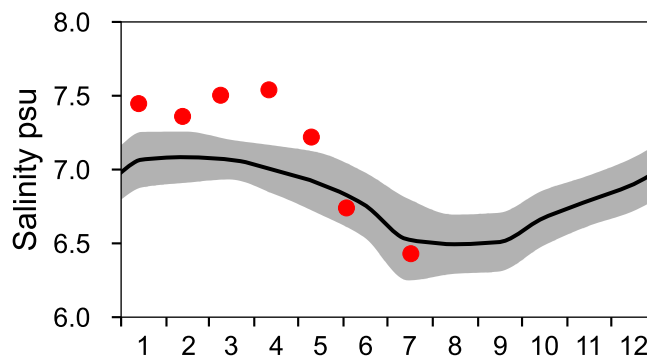
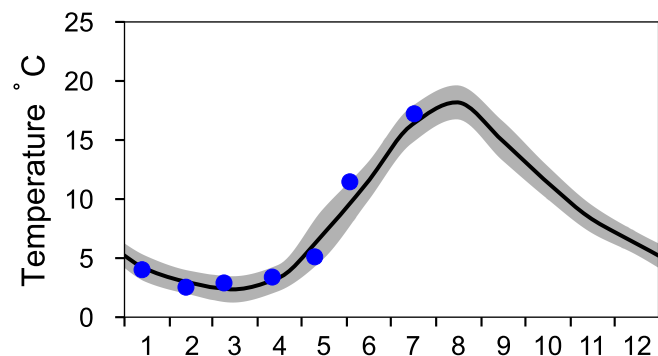
STATION BY20 FÄRÖDJ SURFACE WATER (0-10 m)

Annual Cycles

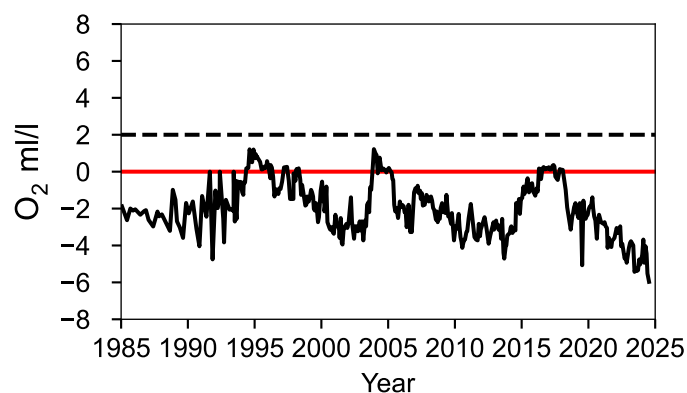
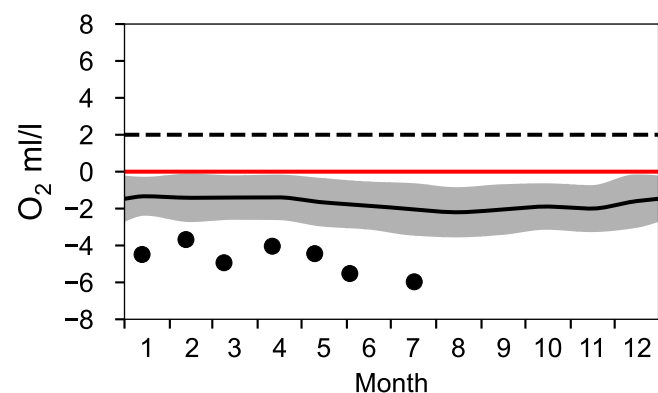
— Mean 1991-2020

■ St.Dev.

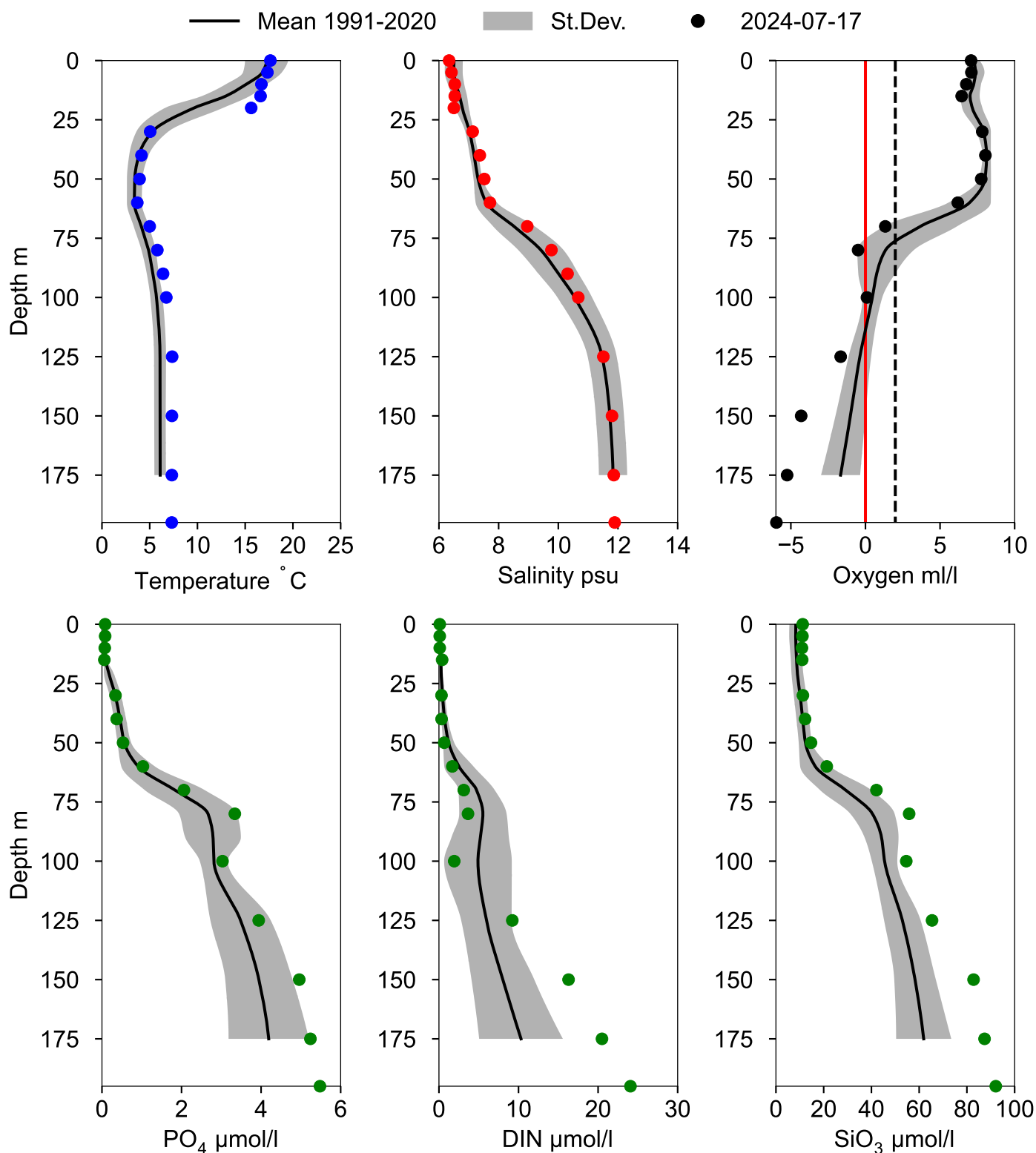
● 2024



OXYGEN IN BOTTOM WATER (depth >= 175 m)



Vertical profiles BY20 FÅRÖDJ July



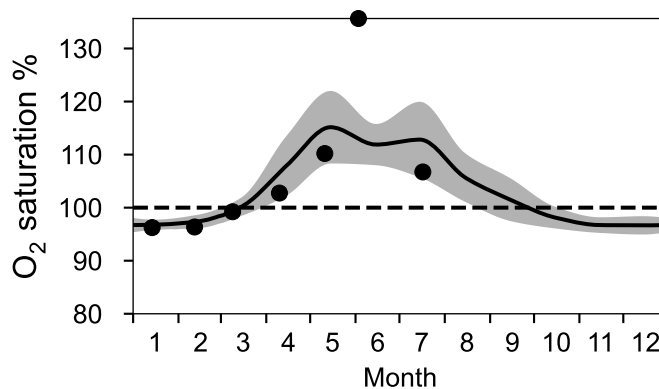
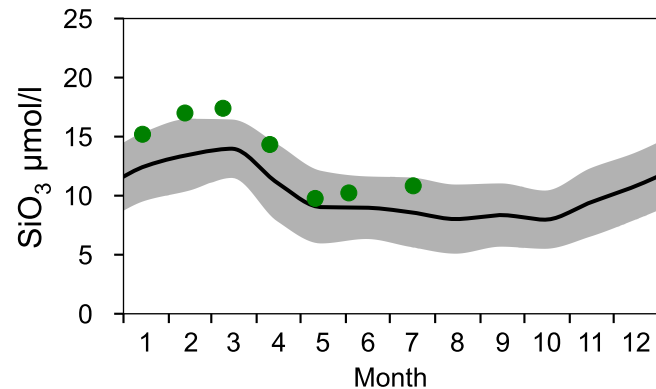
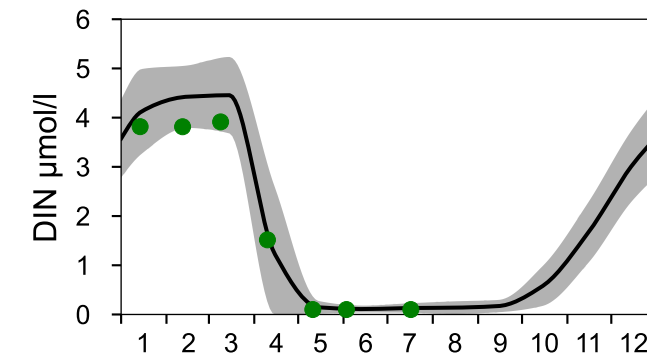
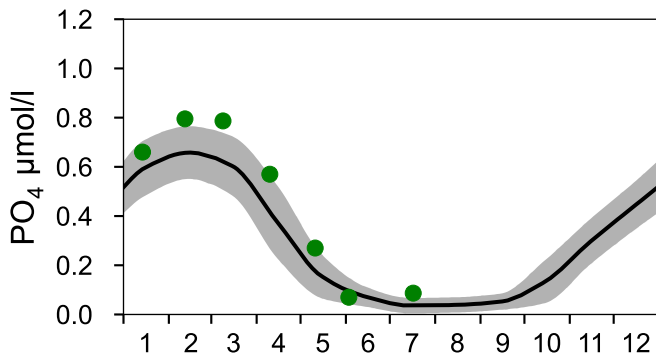
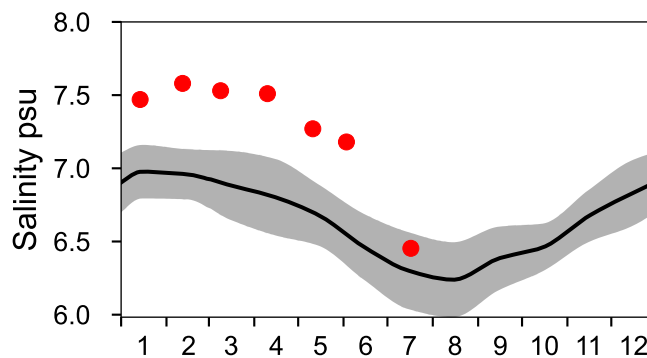
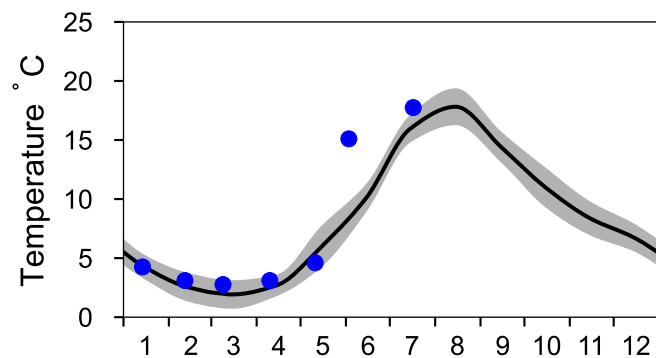
STATION BY29 / LL19 SURFACE WATER (0-10 m)

Annual Cycles

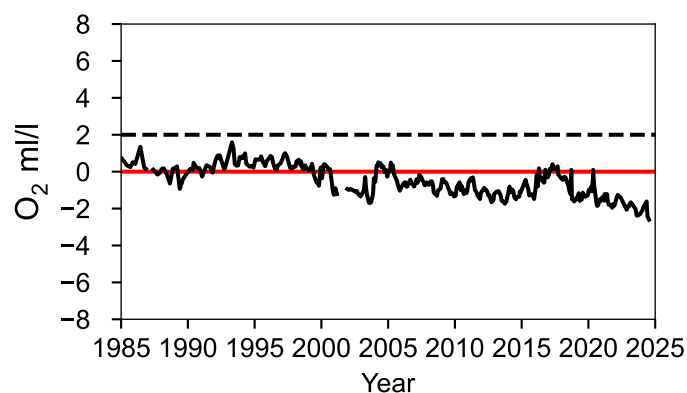
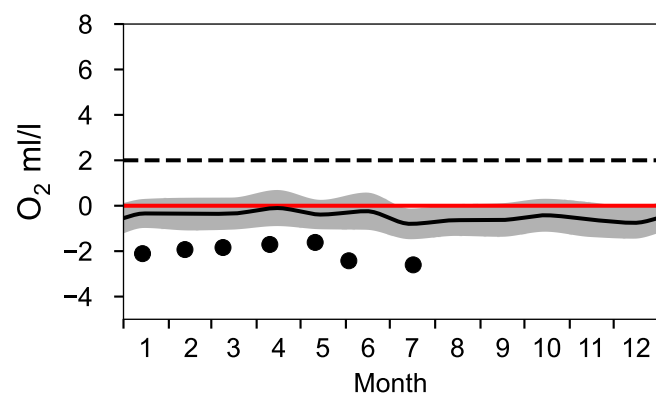
— Mean 1991-2020

■ St.Dev.

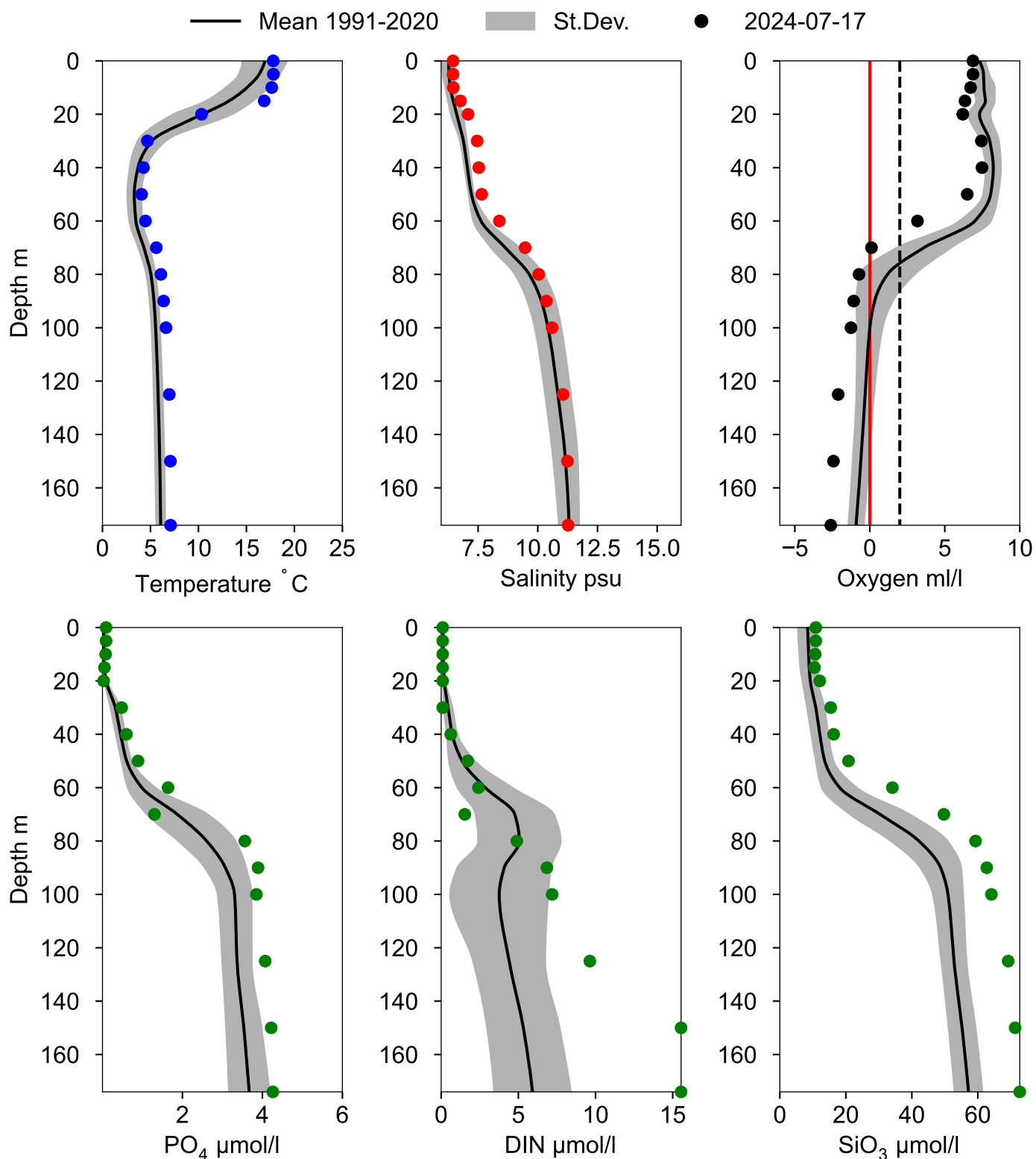
● 2024



OXYGEN IN BOTTOM WATER (depth >= 150 m)



Vertical profiles BY29 / LL19 July



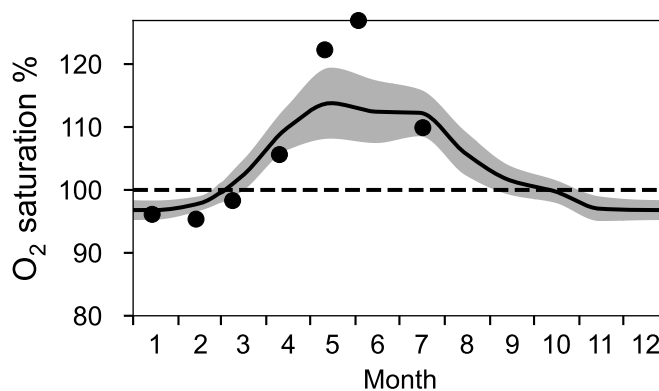
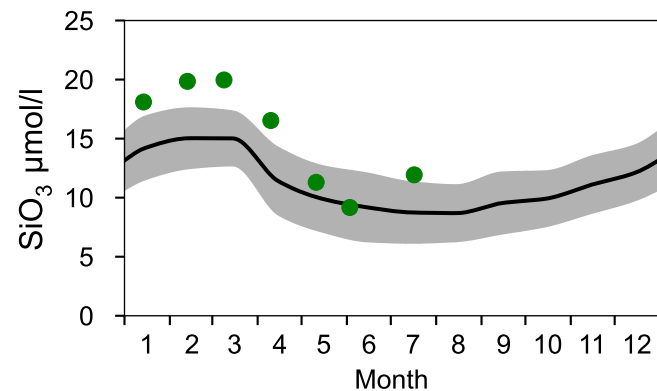
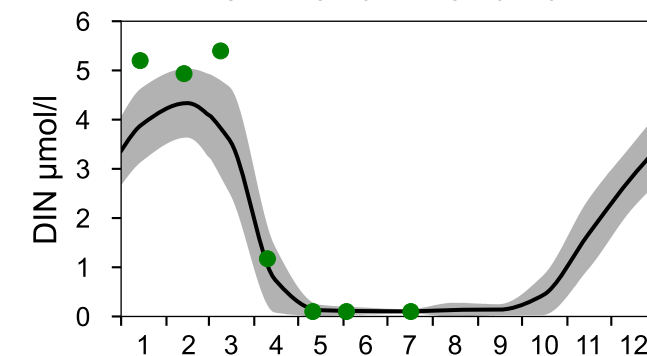
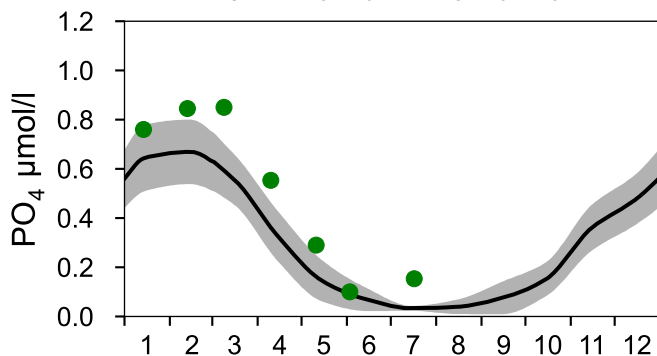
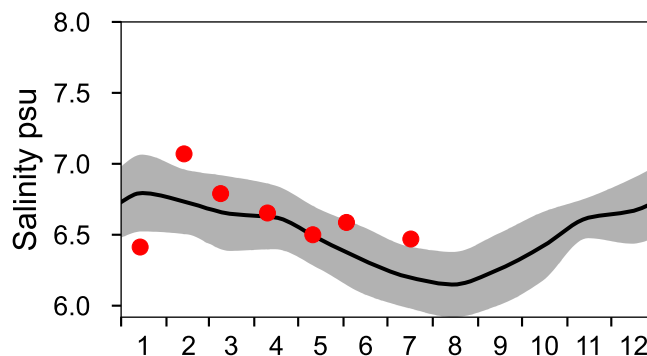
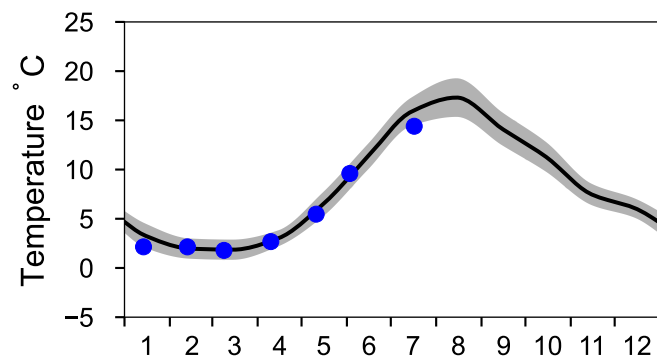
STATION BY31 LANDSORTSDJ SURFACE WATER (0-10 m)

Annual Cycles

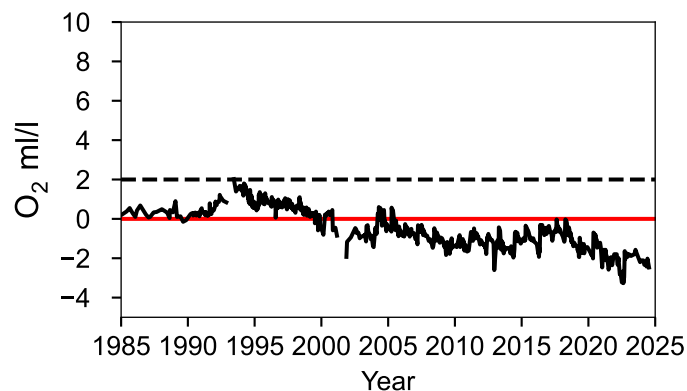
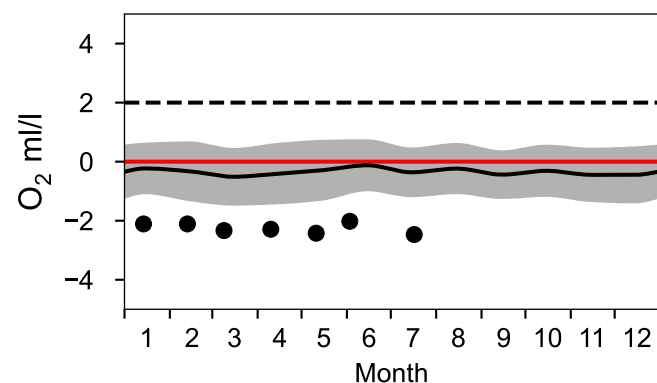
— Mean 1991-2020

■ St.Dev.

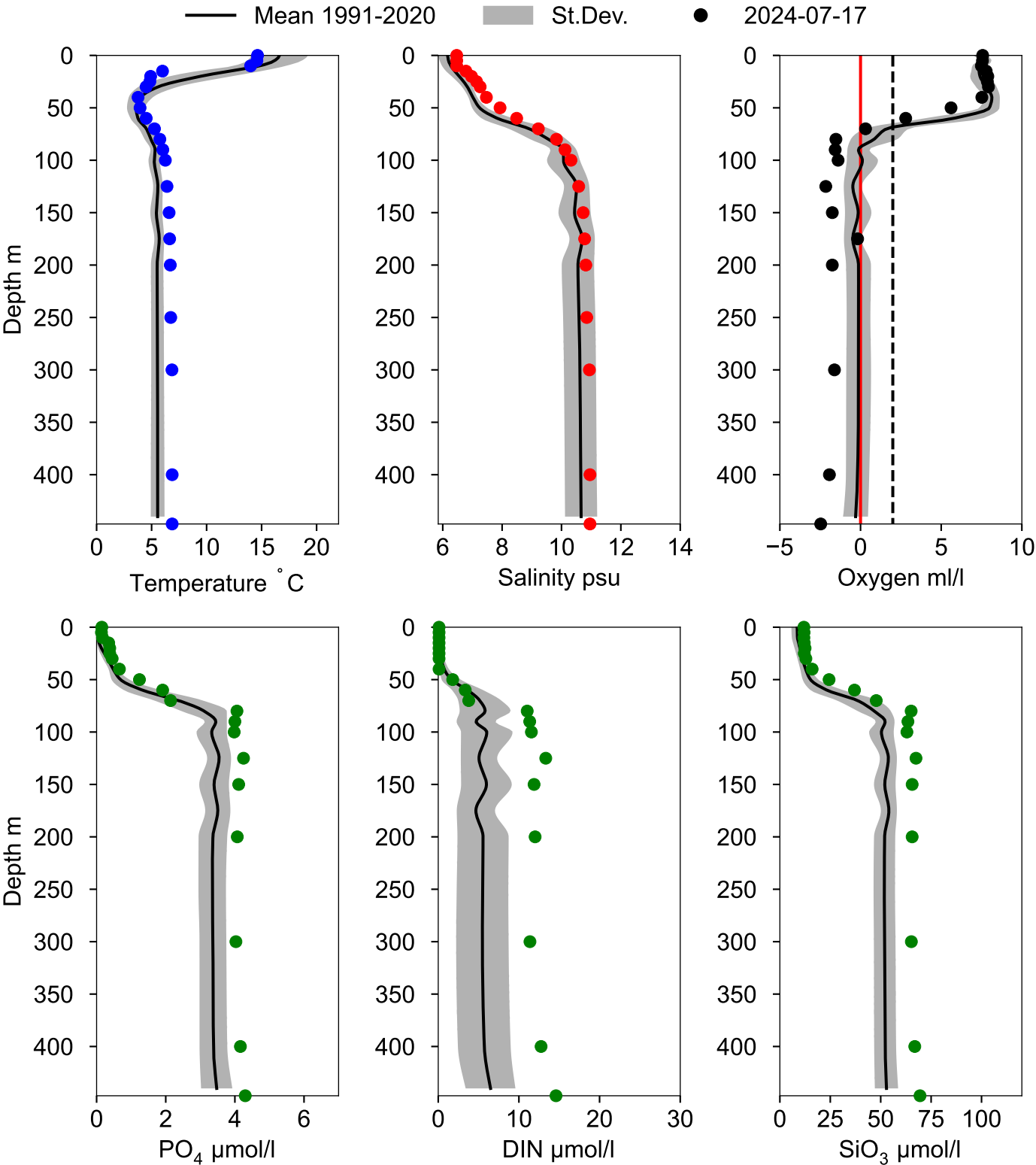
● 2024



OXYGEN IN BOTTOM WATER (depth >= 419 m)



Vertical profiles BY31 LANDSORTSDJ
July



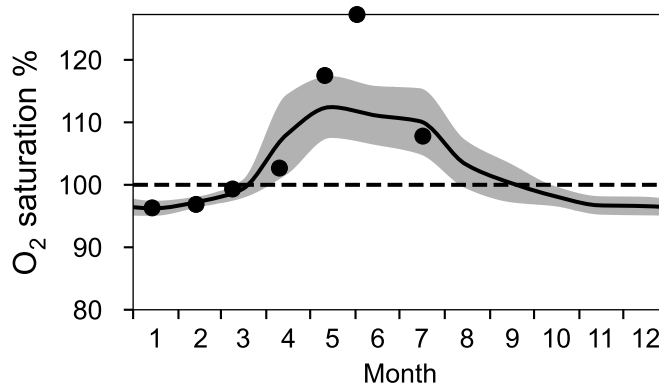
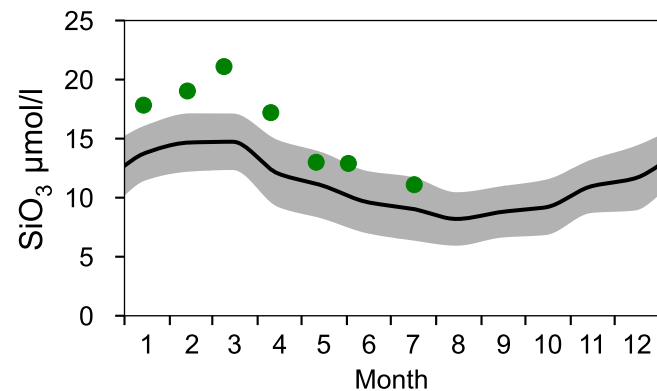
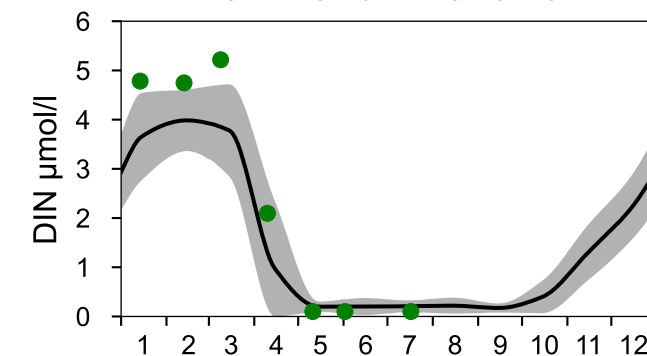
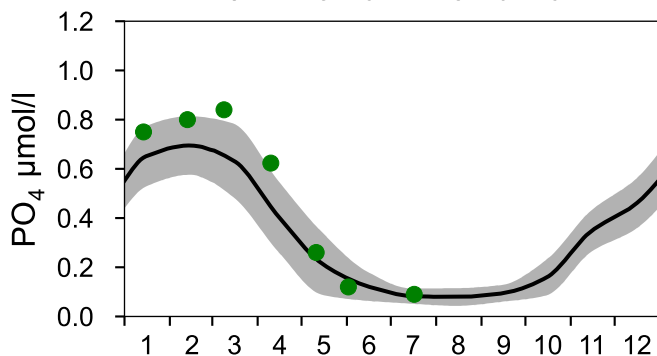
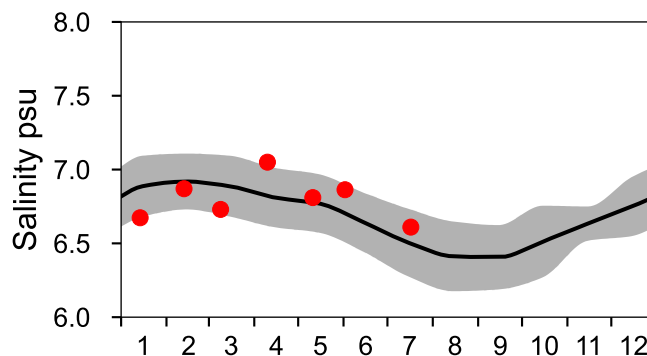
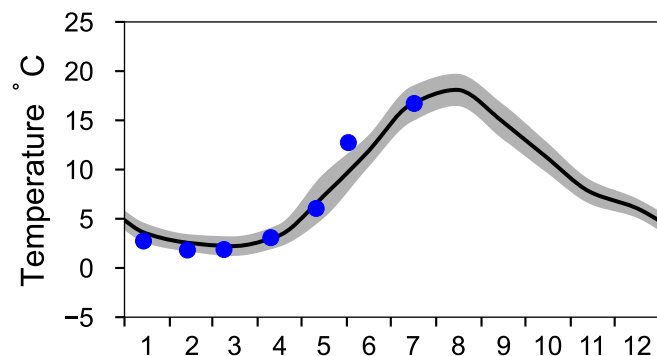
STATION BY32 NORRKÖPINGSDJ SURFACE WATER (0-10 m)

Annual Cycles

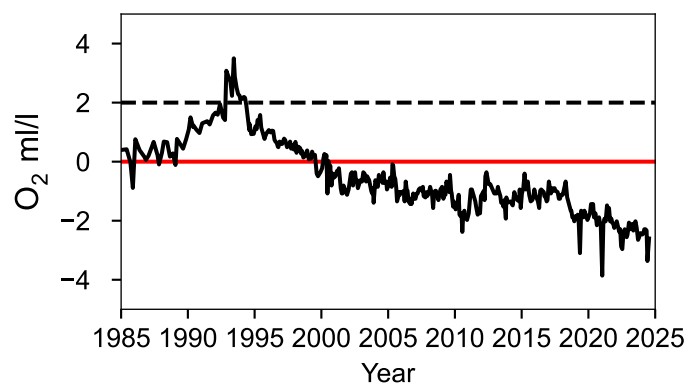
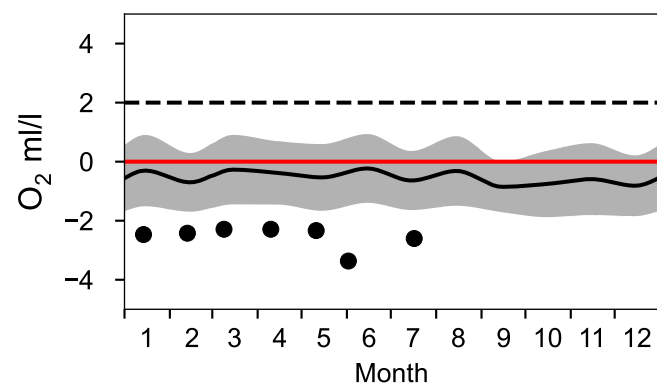
— Mean 1991-2020

■ St.Dev.

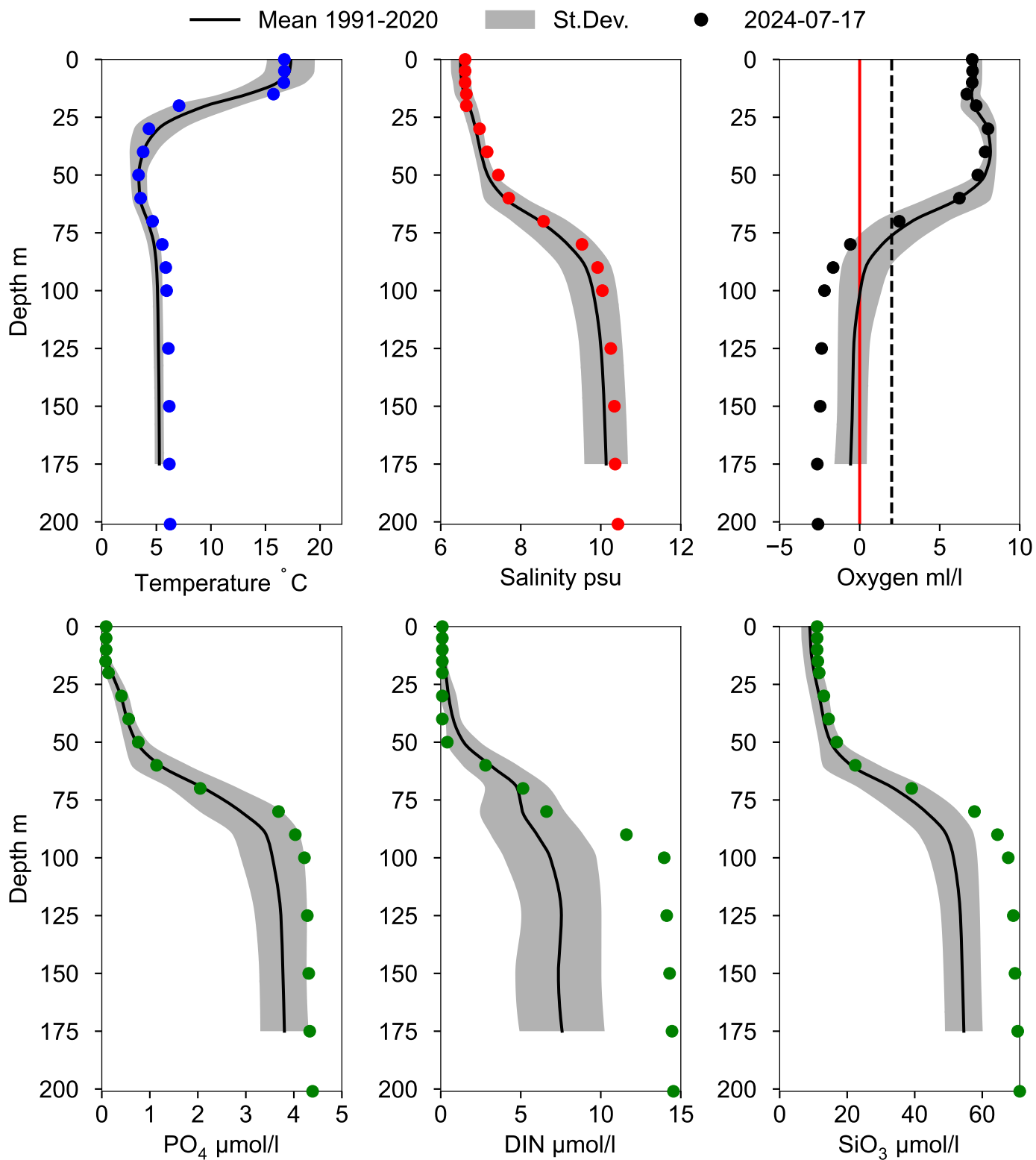
● 2024



OXYGEN IN BOTTOM WATER (depth >= 175 m)



Vertical profiles BY32 NORRKÖPINGSDJ July



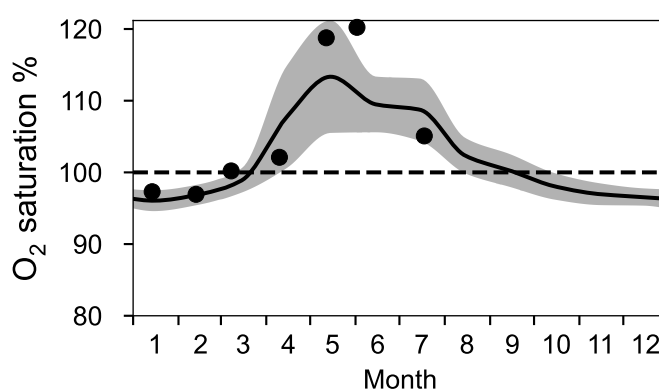
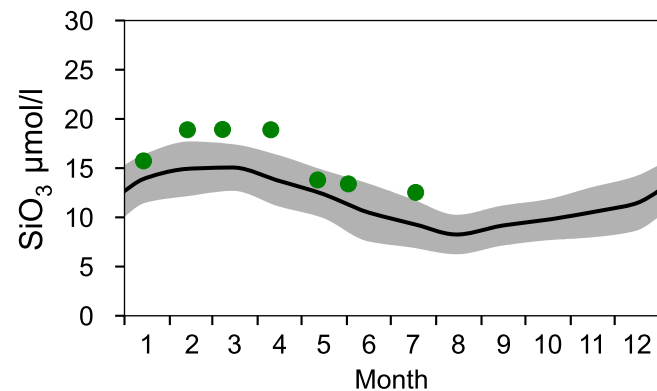
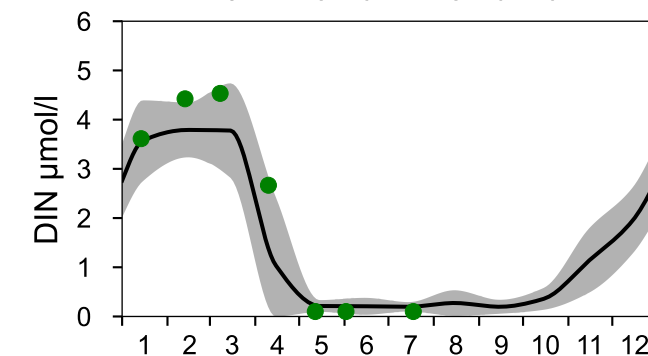
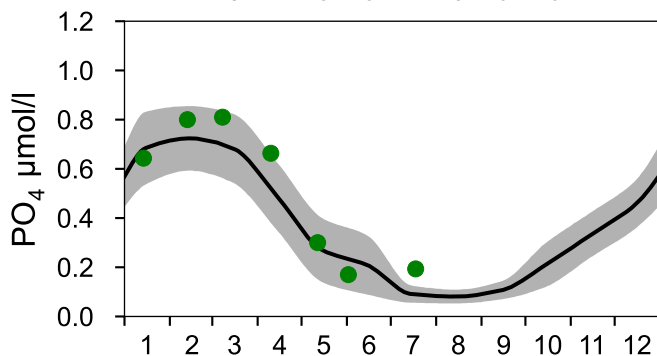
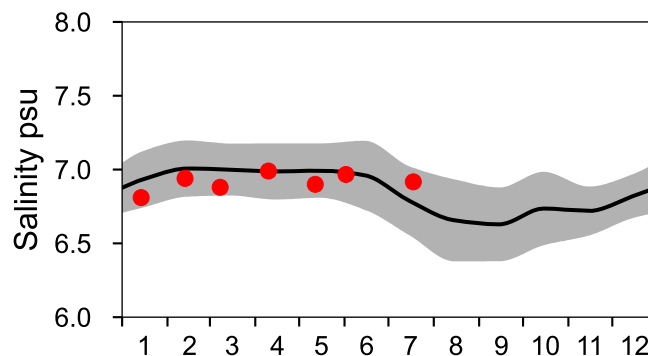
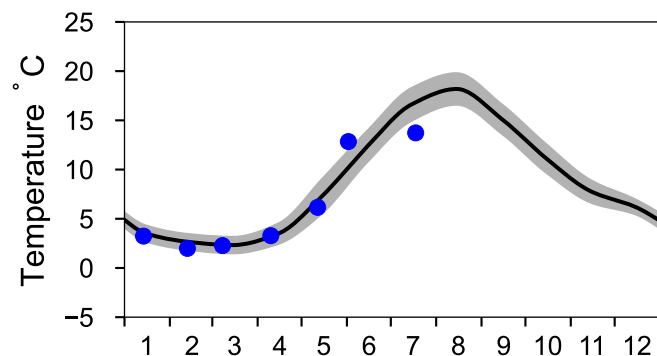
STATION BY38 KARLSÖDJ SURFACE WATER (0-10 m)

Annual Cycles

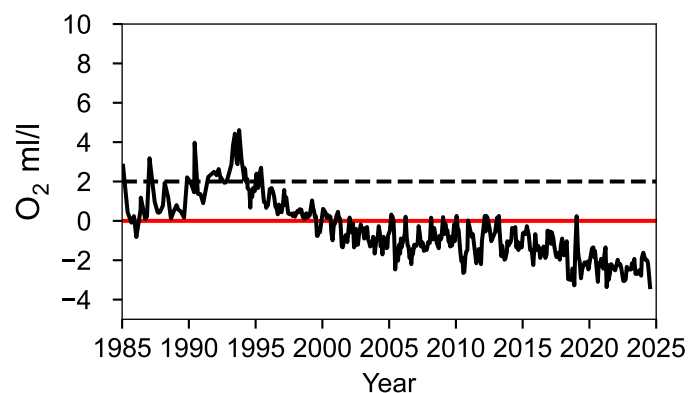
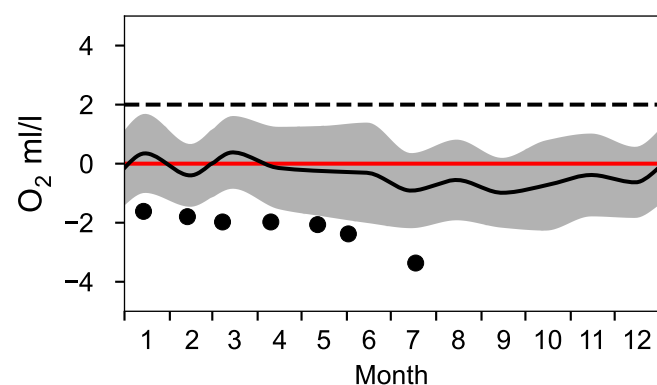
— Mean 1991-2020

■ St.Dev.

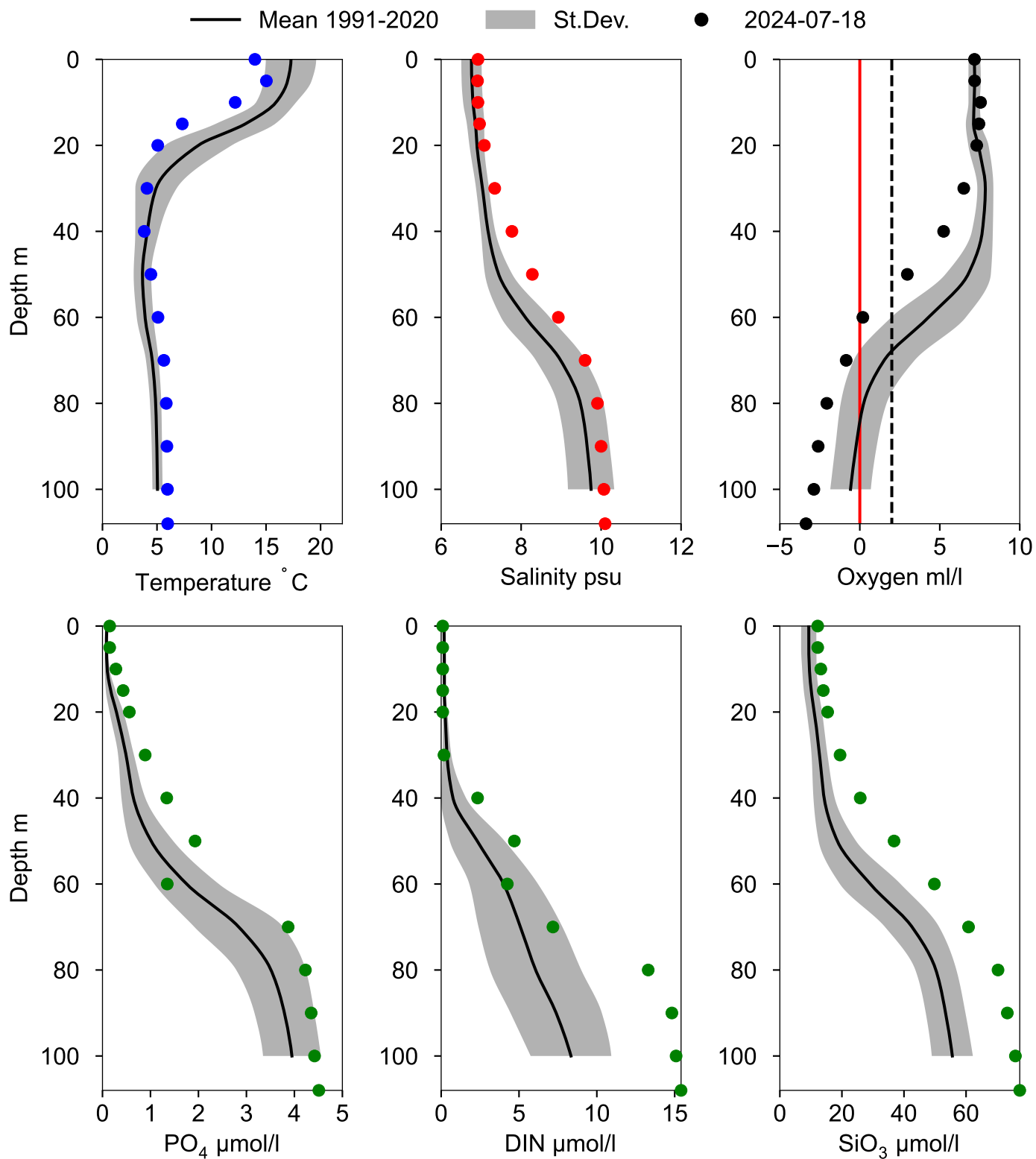
● 2024



OXYGEN IN BOTTOM WATER (depth >= 100 m)



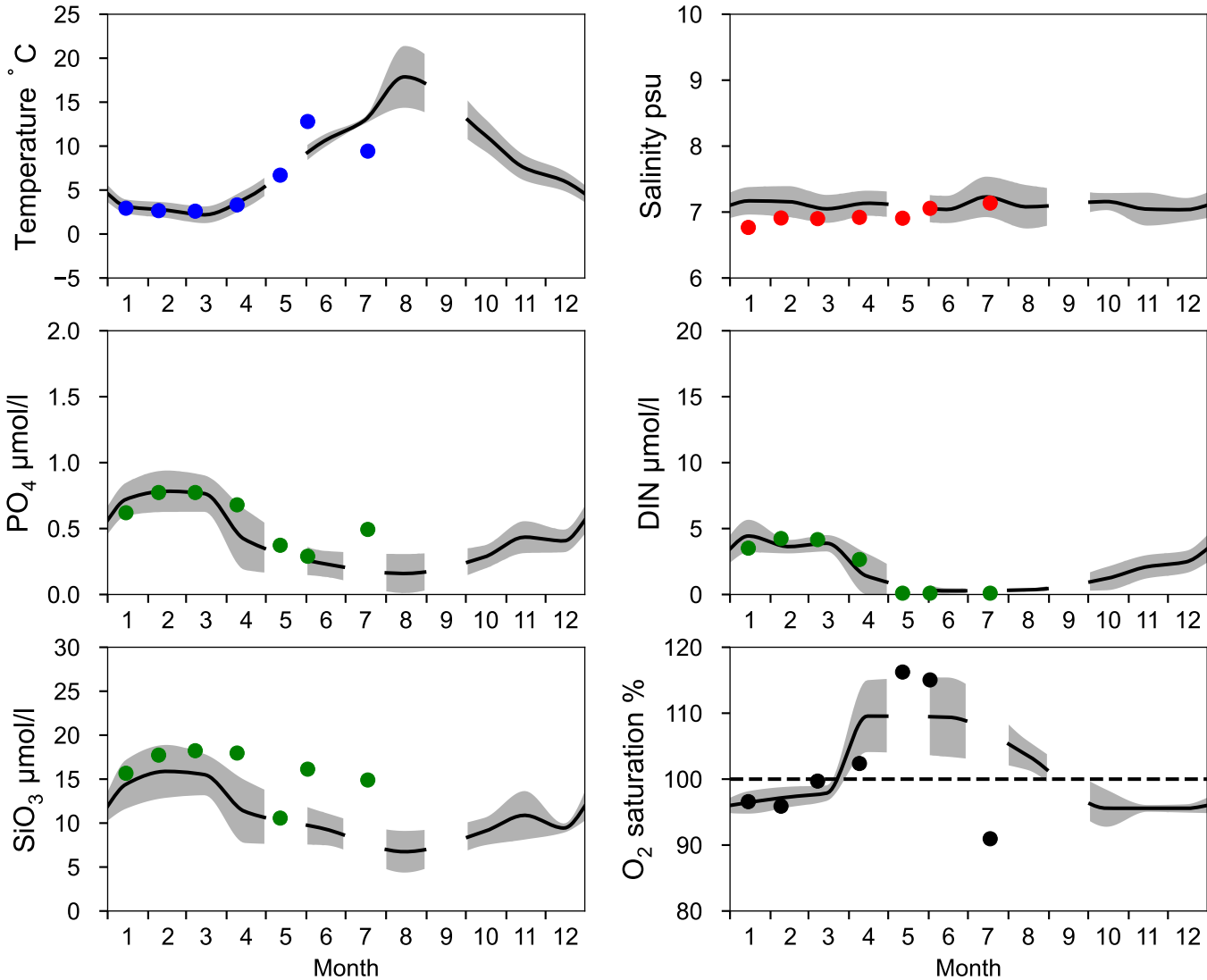
Vertical profiles BY38 KARLSÖDJ July



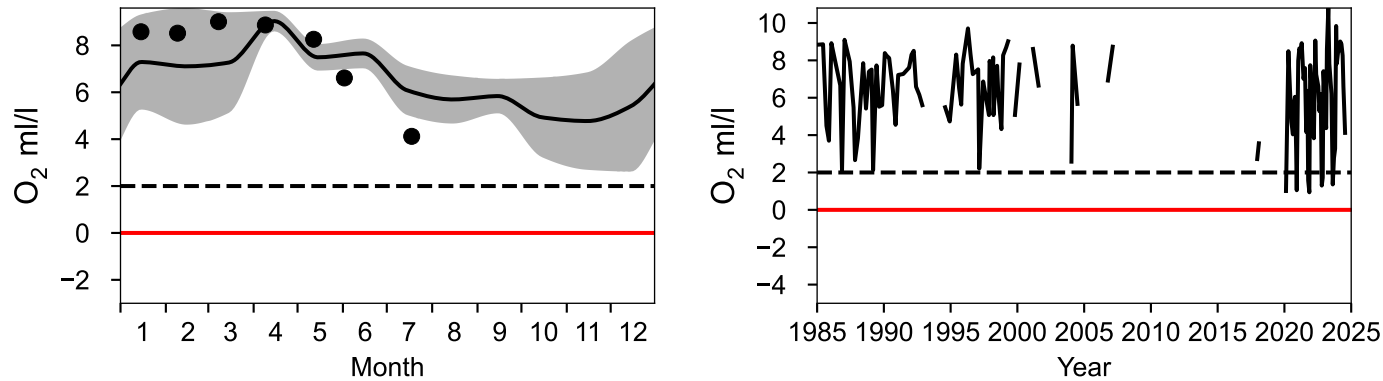
STATION BY39 ÖLANDS S UDDE SURFACE WATER (0-10 m)

Annual Cycles

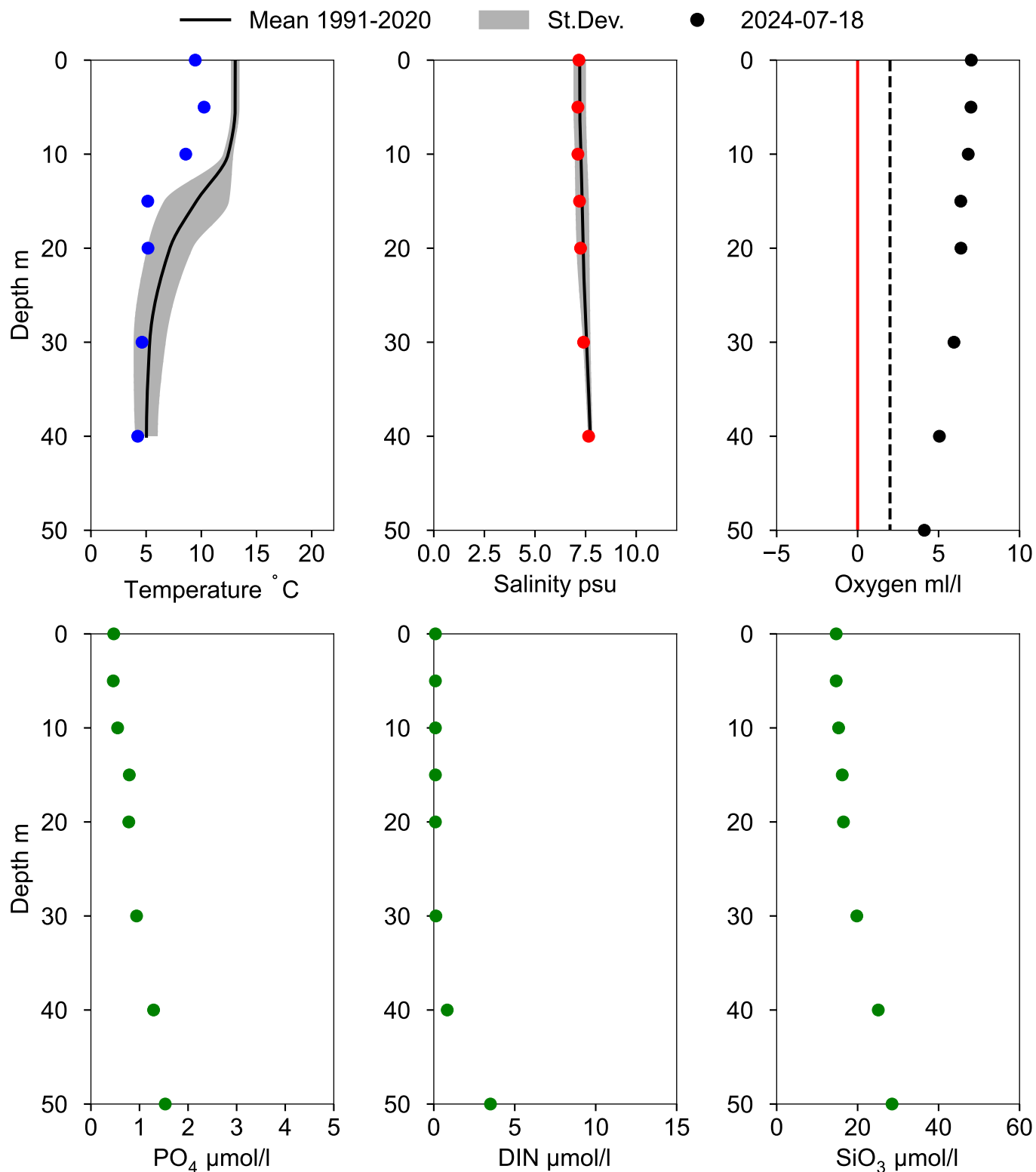
— Mean 1991-2020 St.Dev. ● 2024



OXYGEN IN BOTTOM WATER (depth >= 40 m)



Vertical profiles BY39 ÖLANDS S UDDE July



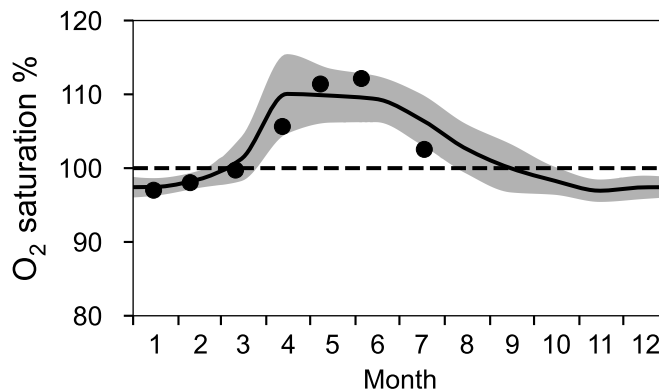
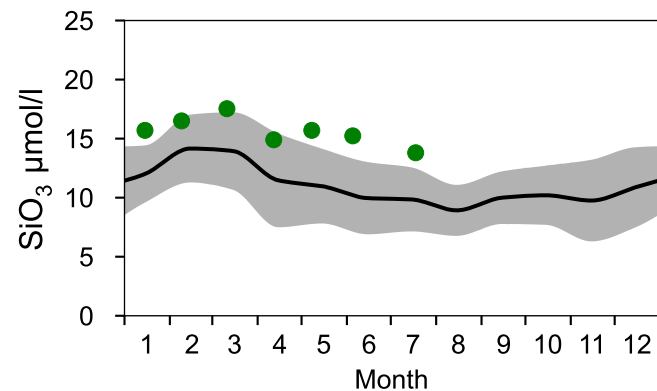
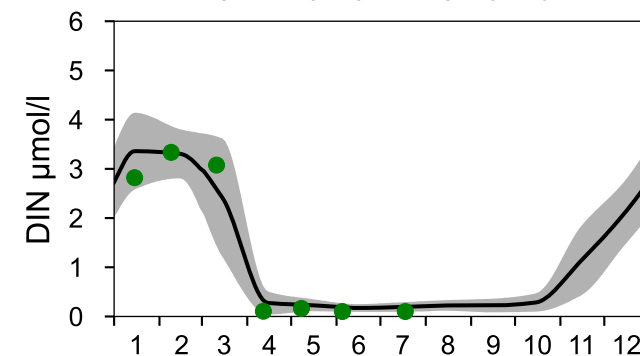
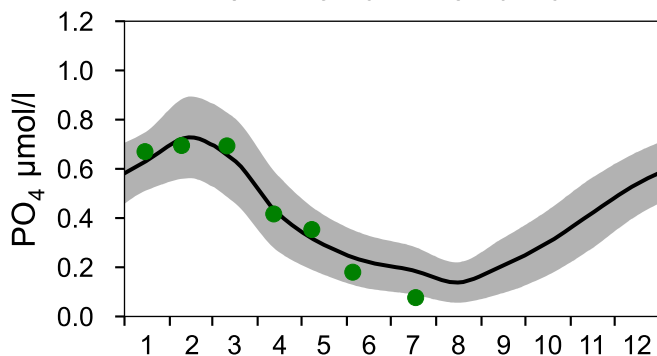
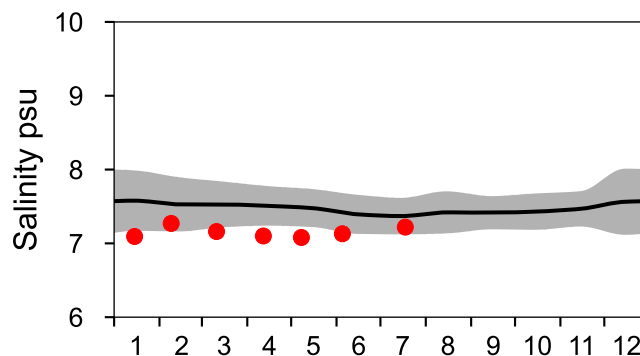
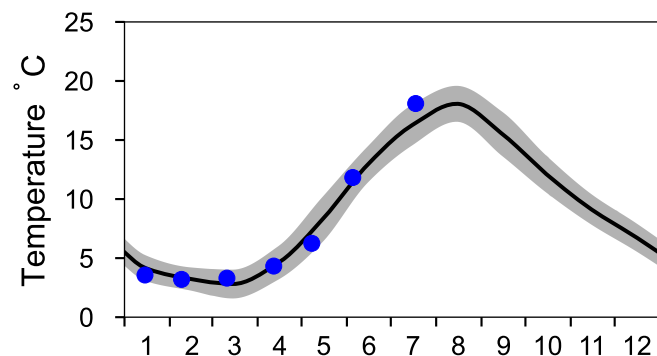
STATION HANÖBUKTEN SURFACE WATER (0-10 m)

Annual Cycles

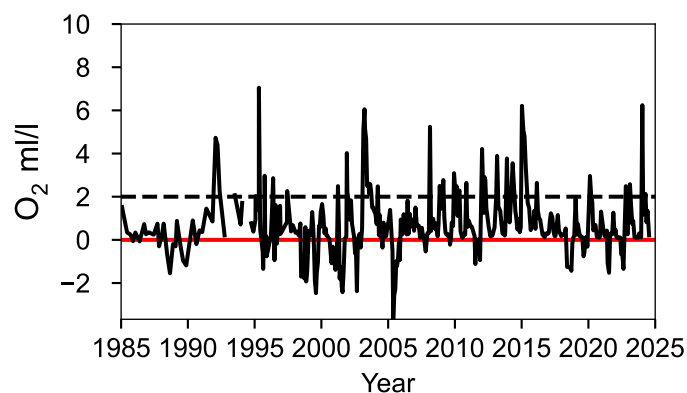
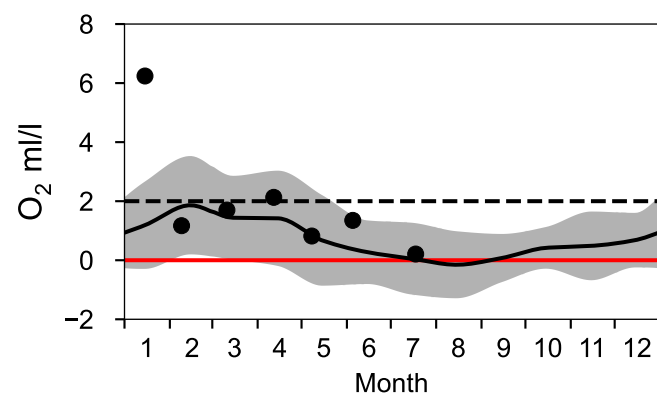
— Mean 1991-2020

■ St.Dev.

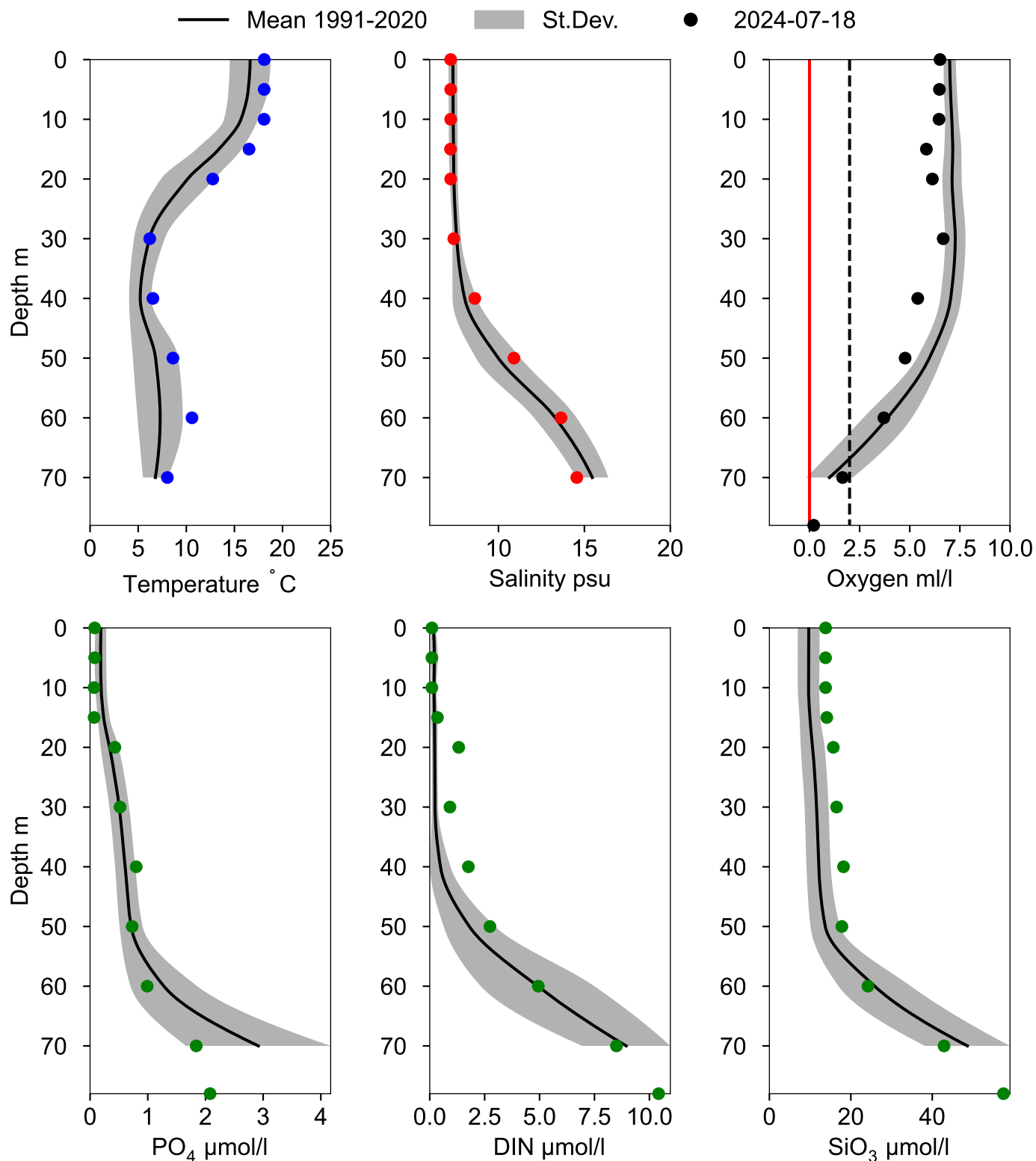
● 2024



OXYGEN IN BOTTOM WATER (depth >= 70 m)



Vertical profiles HANÖBUKTEN July



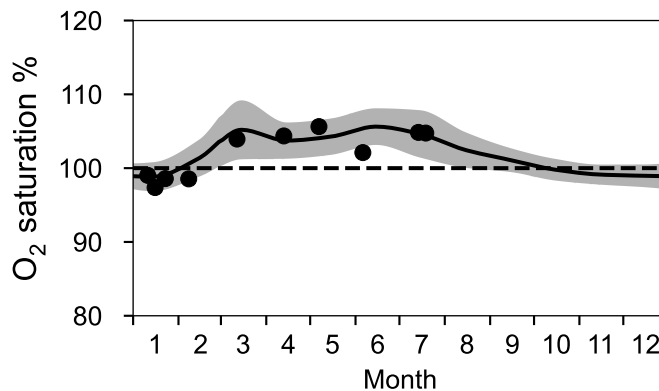
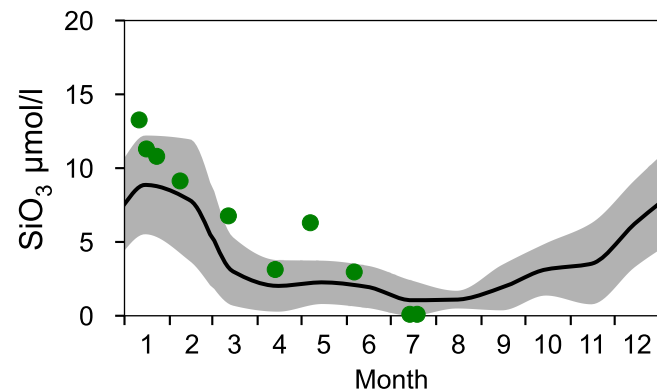
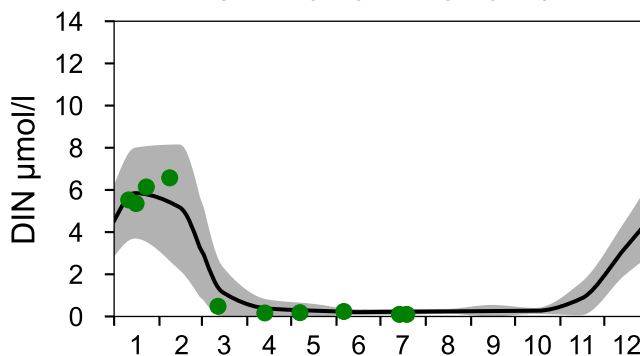
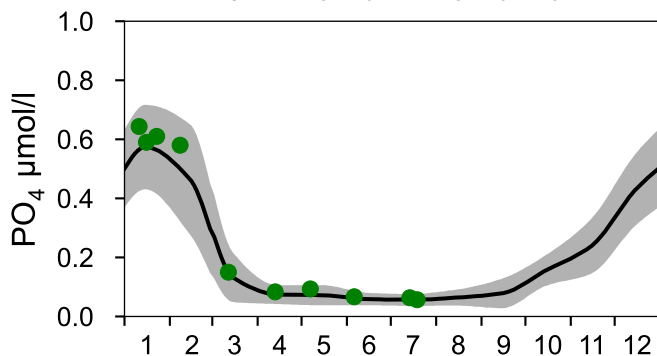
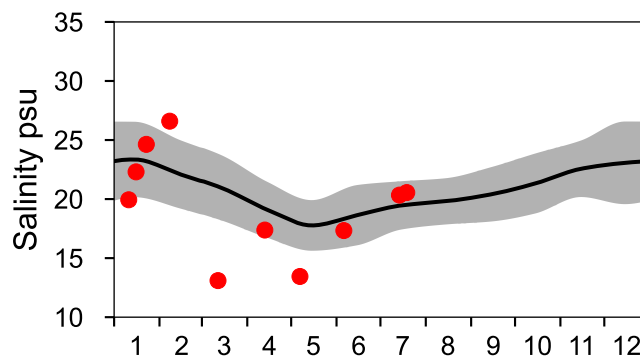
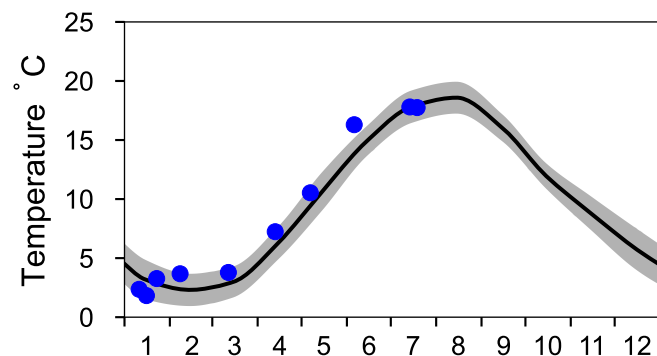
STATION ANHOLT E SURFACE WATER (0-10 m)

Annual Cycles

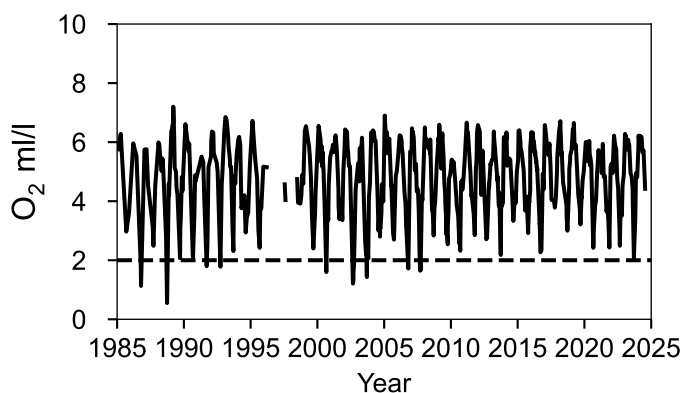
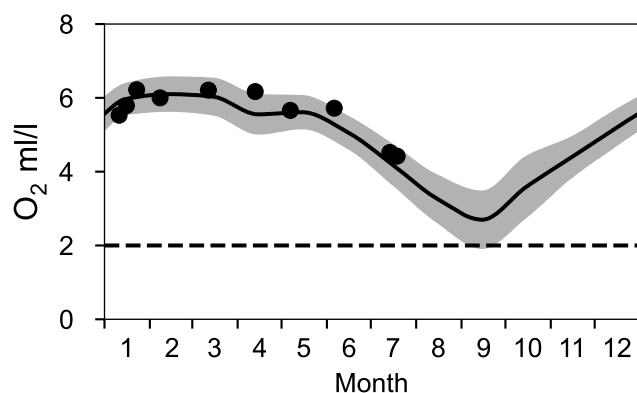
— Mean 1991-2020

■ St.Dev.

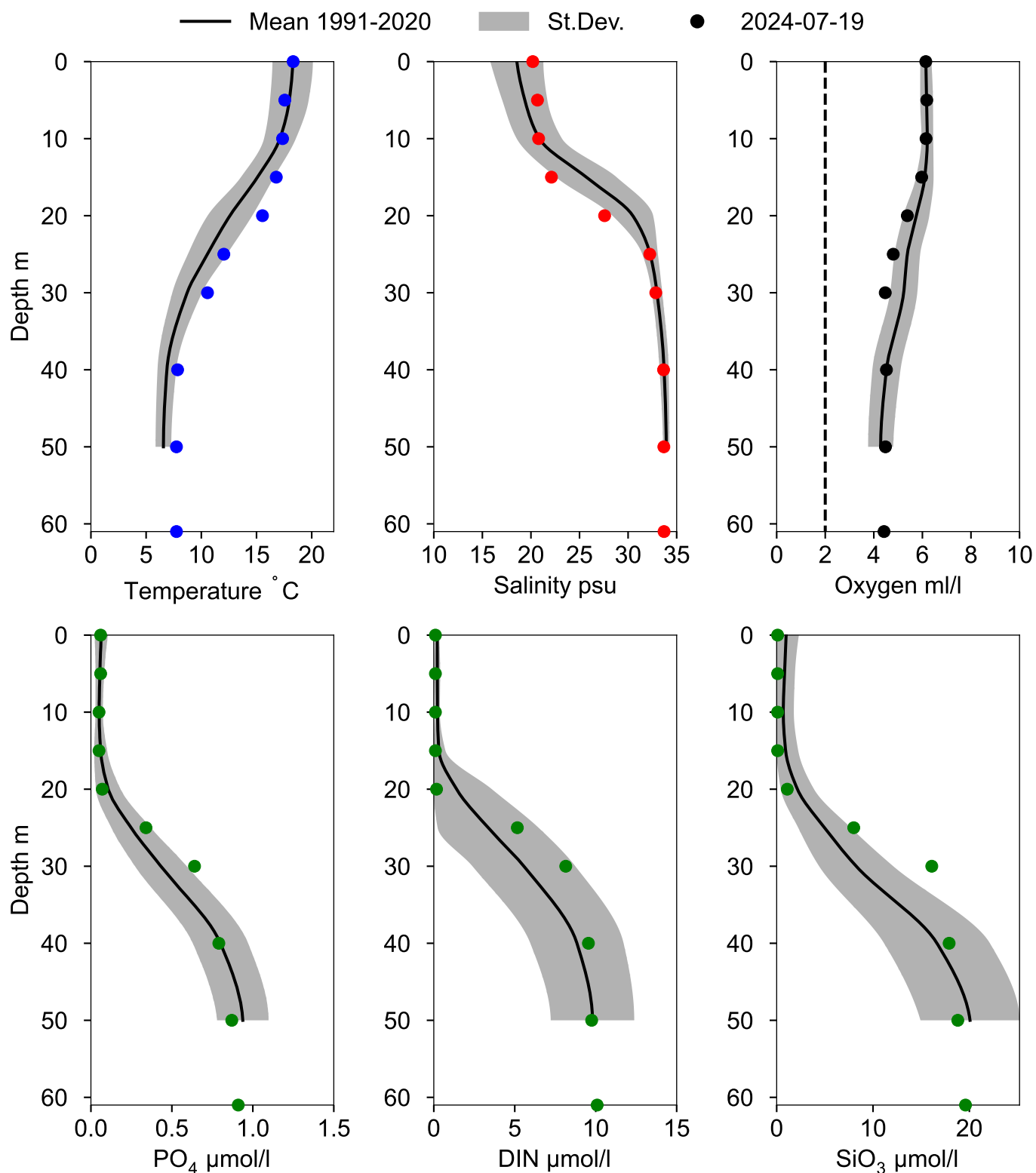
● 2024



OXYGEN IN BOTTOM WATER (depth >= 52 m)



Vertical profiles ANHOLT E July



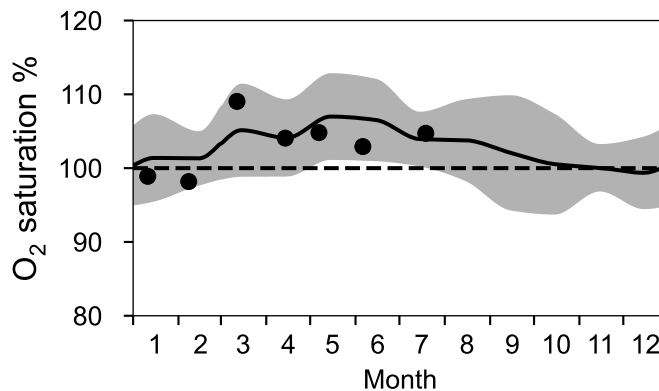
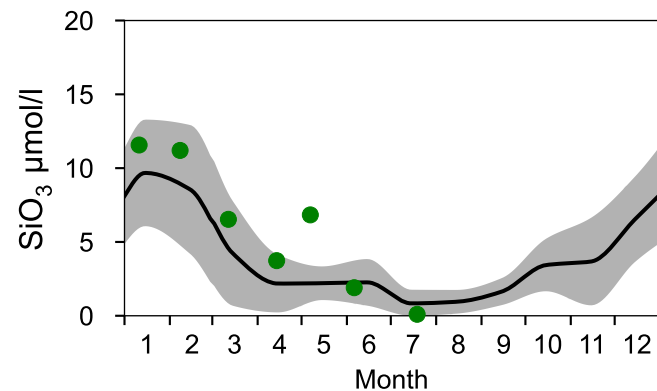
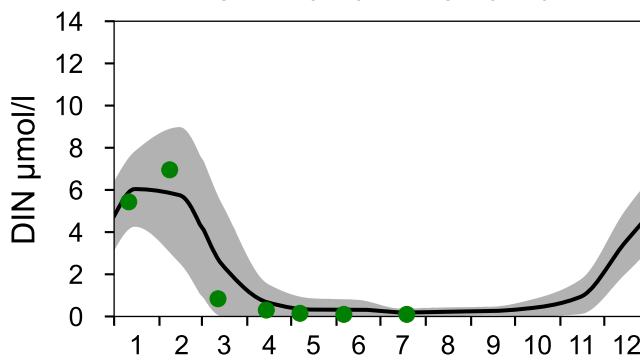
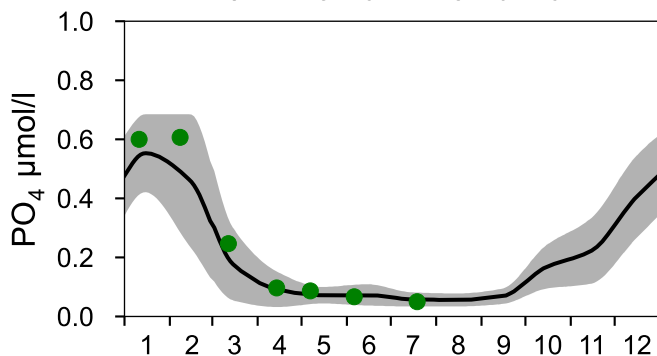
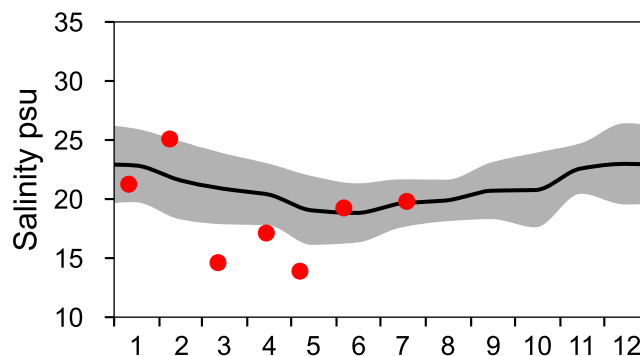
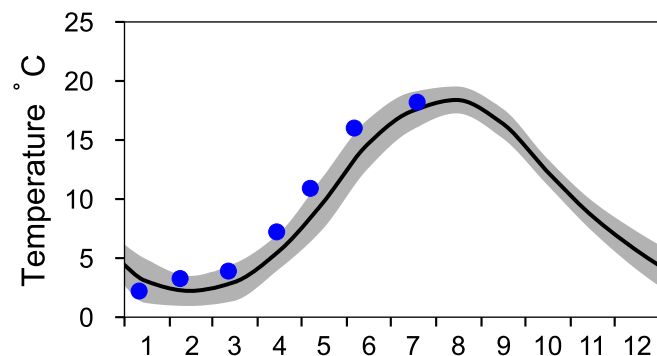
STATION N14 FALKENBERG SURFACE WATER (0-10 m)

Annual Cycles

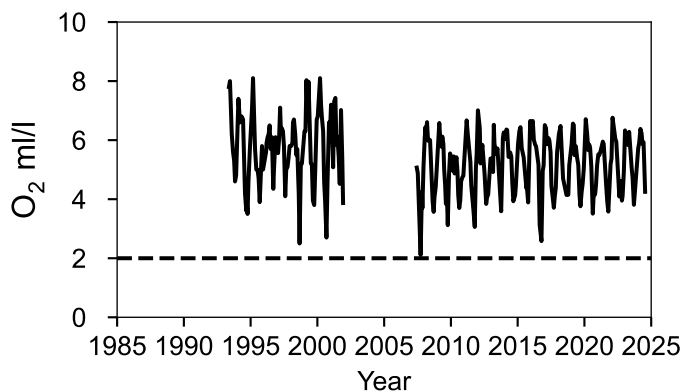
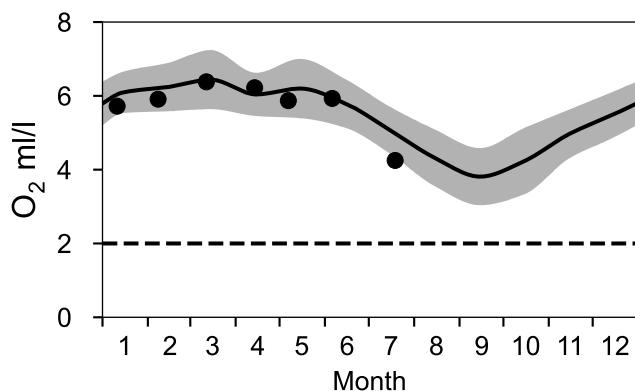
— Mean 1991-2020

■ St.Dev.

● 2024



OXYGEN IN BOTTOM WATER (depth >= 25 m)

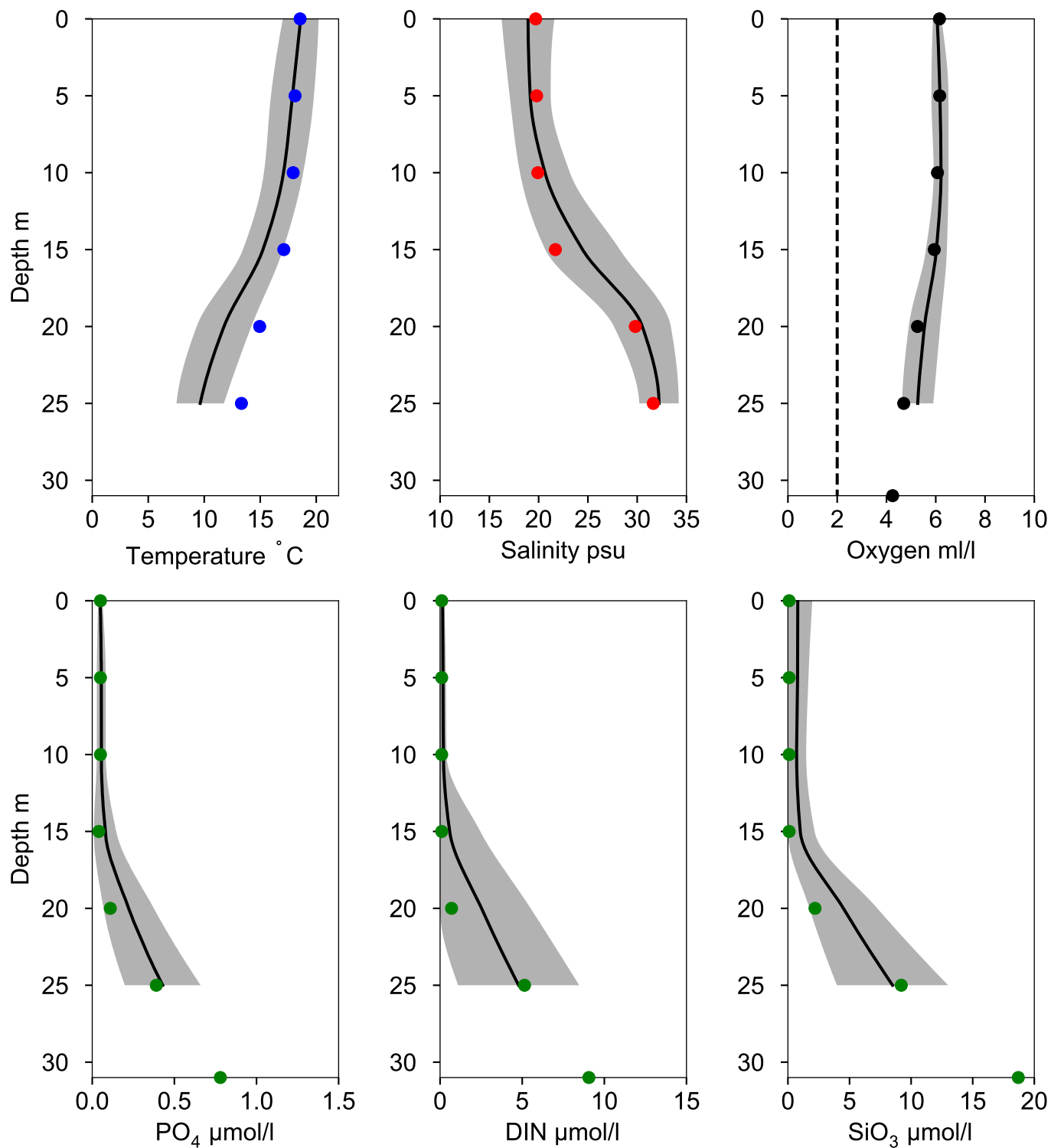


Vertical profiles N14 FALKENBERG July

— Mean 1991-2020

■ St.Dev.

● 2024-07-19



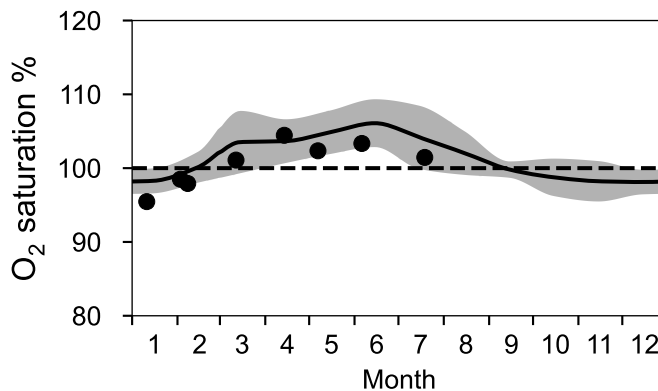
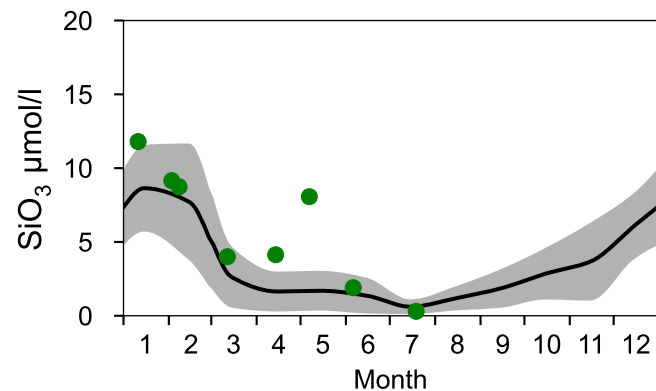
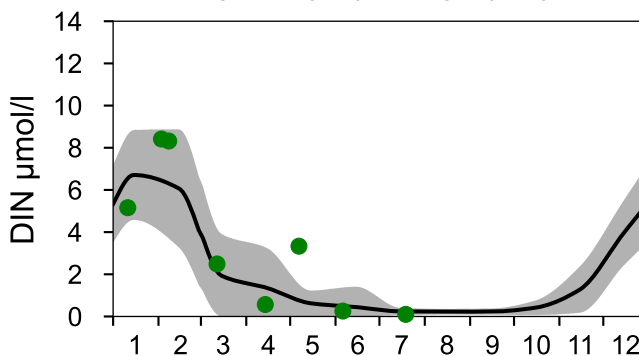
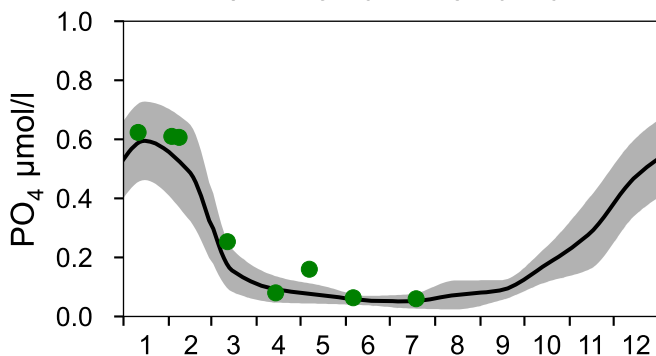
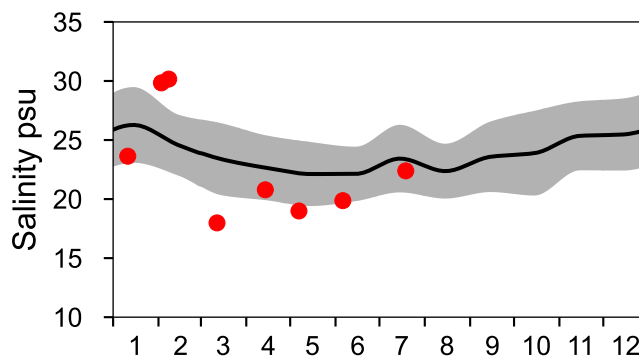
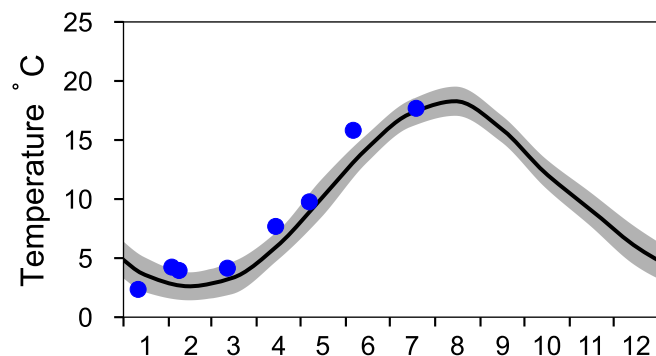
STATION FLADEN SURFACE WATER (0-10 m)

Annual Cycles

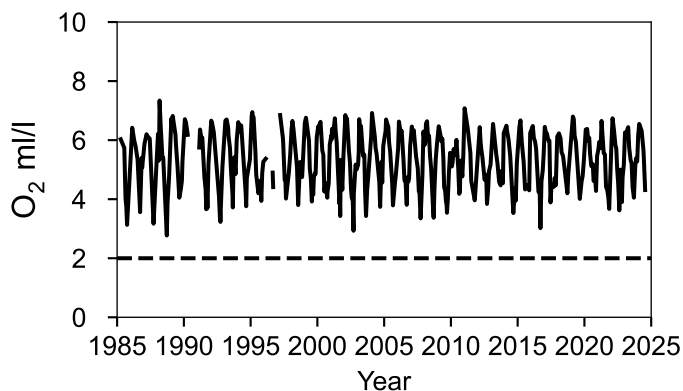
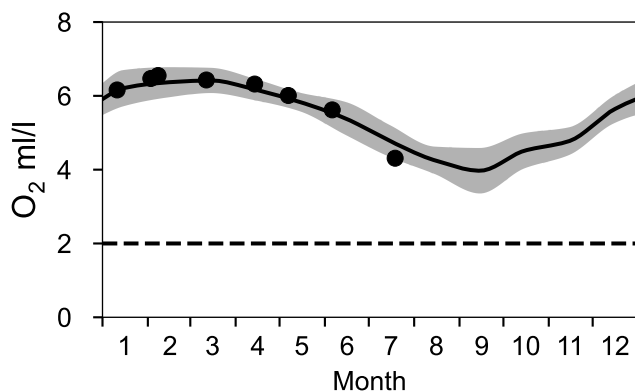
— Mean 1991-2020

■ St.Dev.

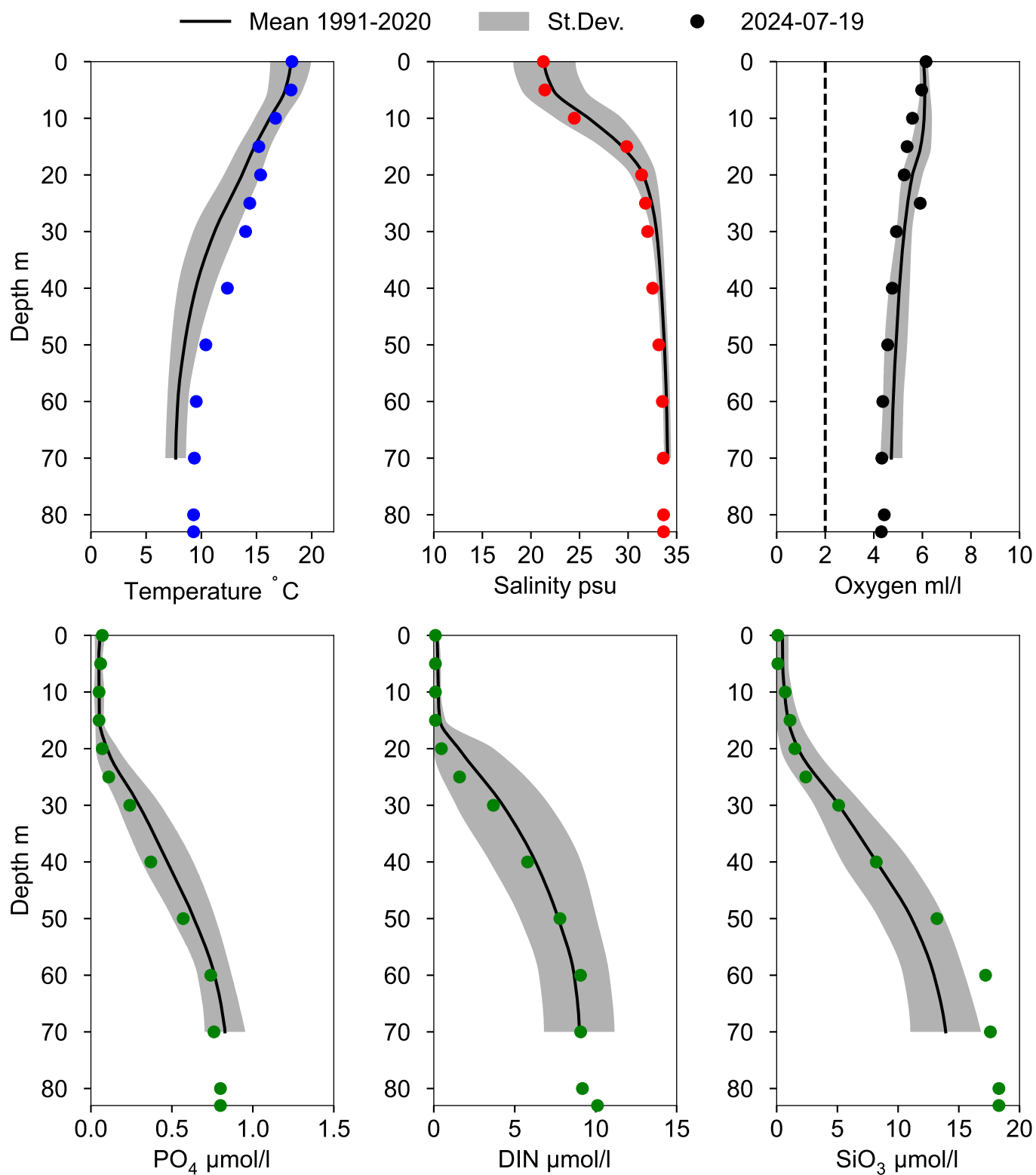
● 2024



OXYGEN IN BOTTOM WATER (depth >= 74 m)



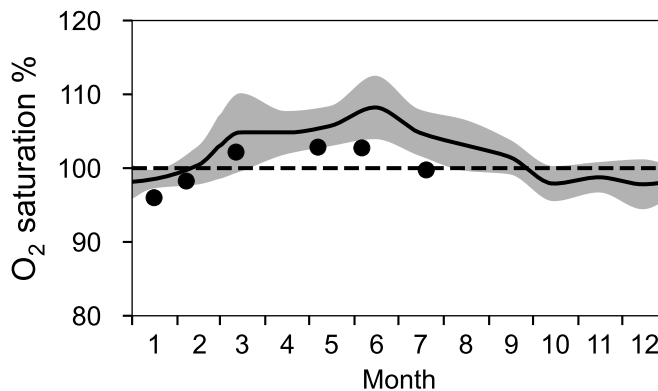
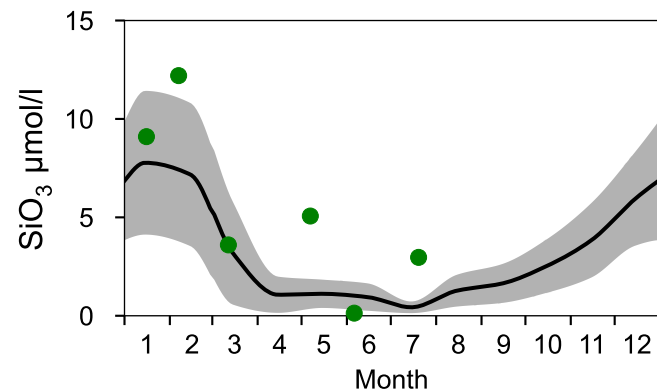
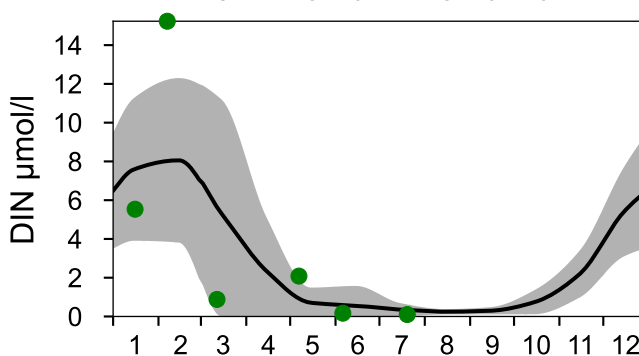
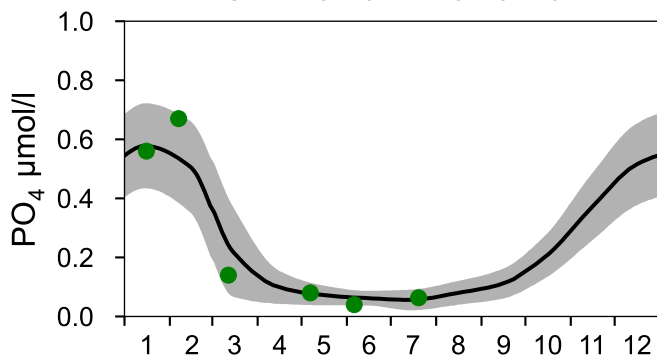
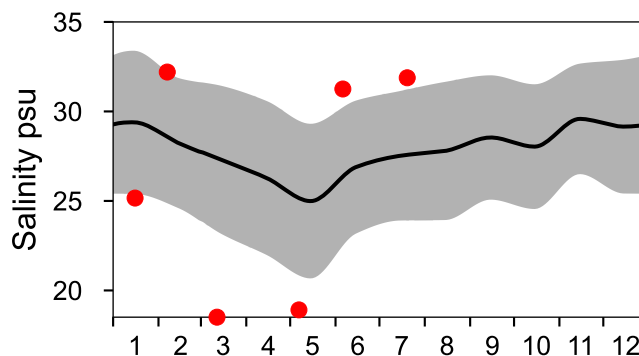
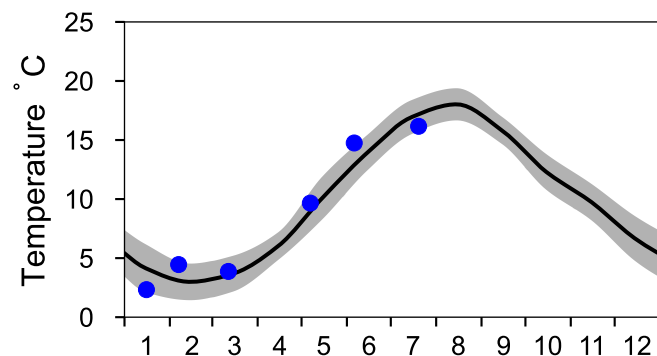
Vertical profiles FLADEN July



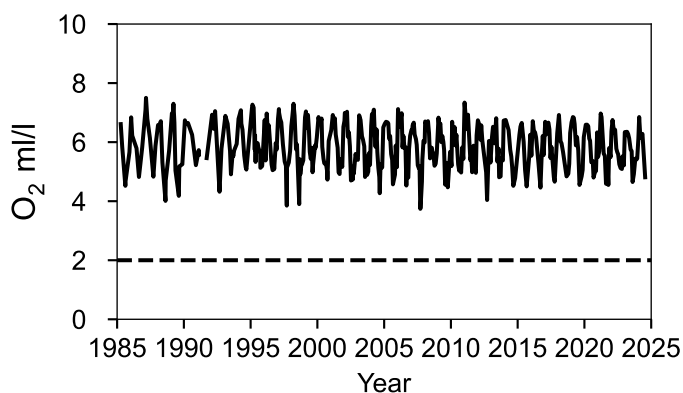
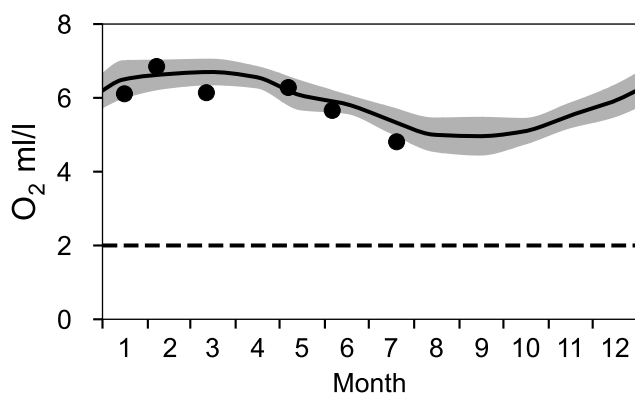
STATION P2 SURFACE WATER (0-10 m)

Annual Cycles

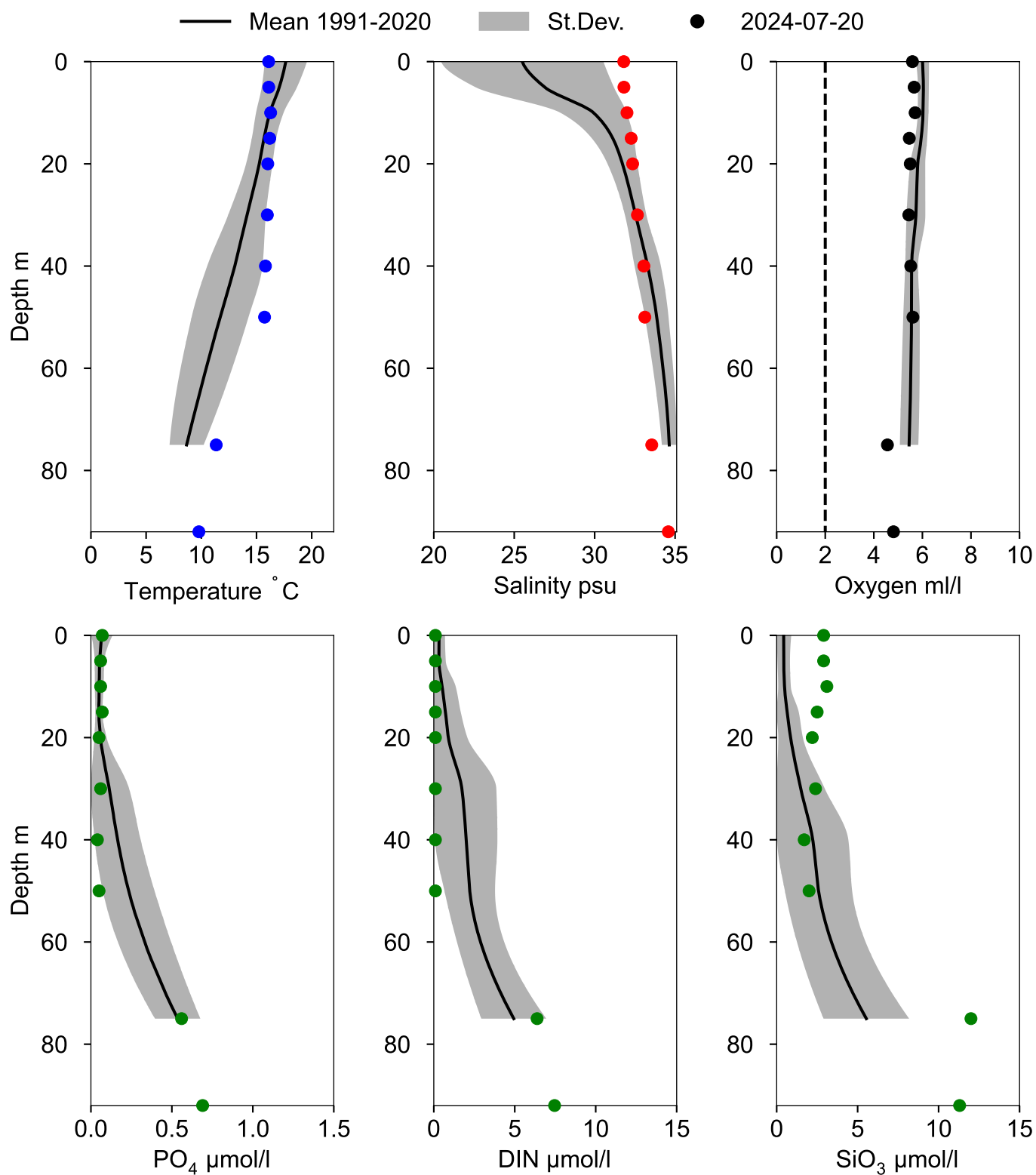
— Mean 1991-2020 St.Dev. ● 2024



OXYGEN IN BOTTOM WATER (depth >= 75 m)



Vertical profiles P2 July



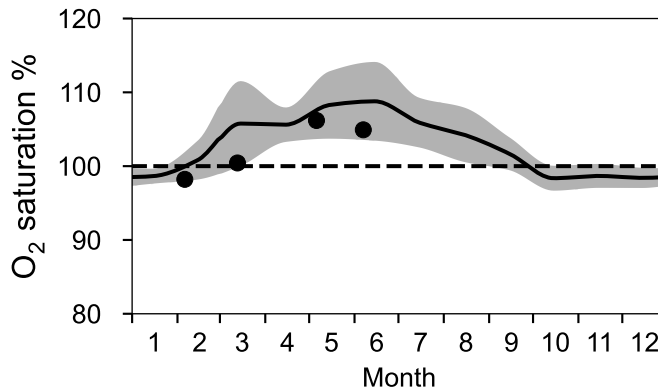
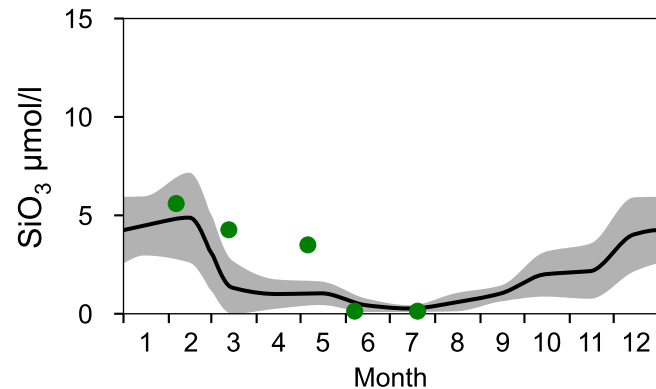
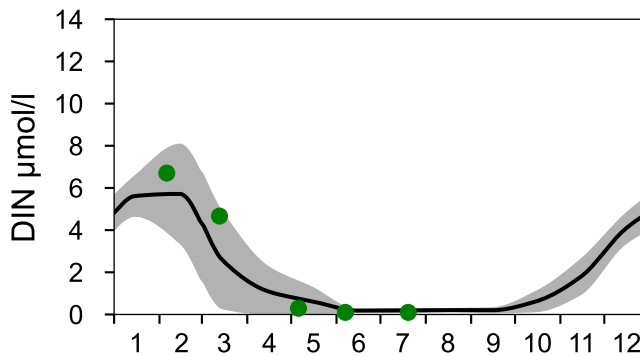
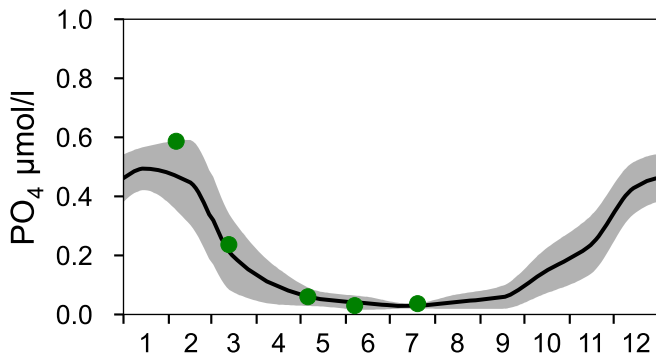
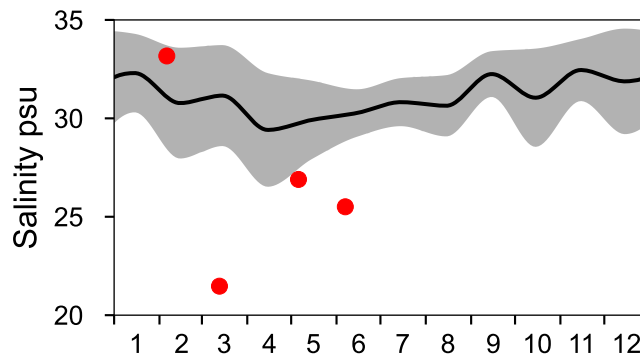
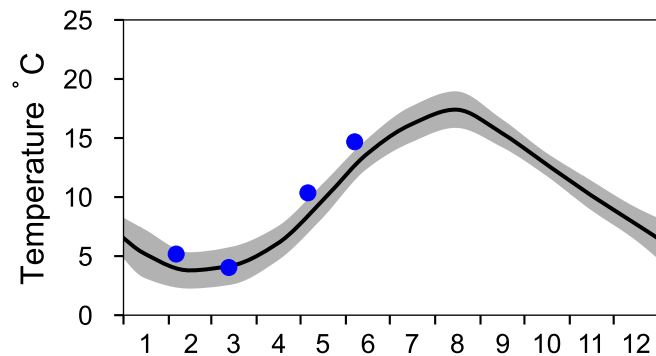
STATION Å17 SURFACE WATER (0-10 m)

Annual Cycles

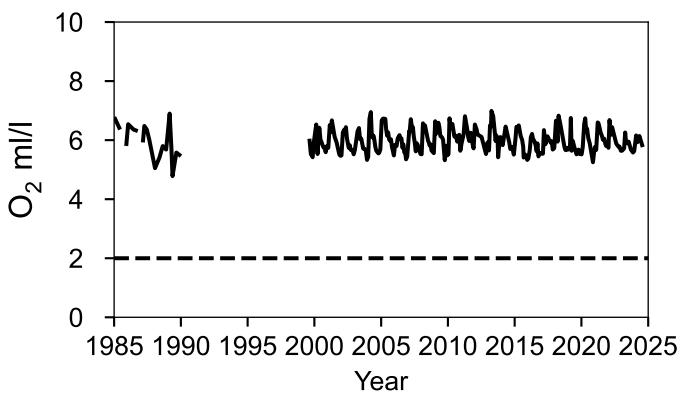
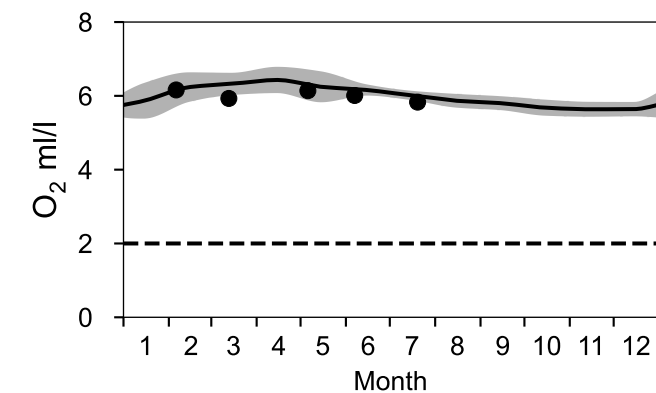
— Mean 1991-2020

■ St.Dev.

● 2024

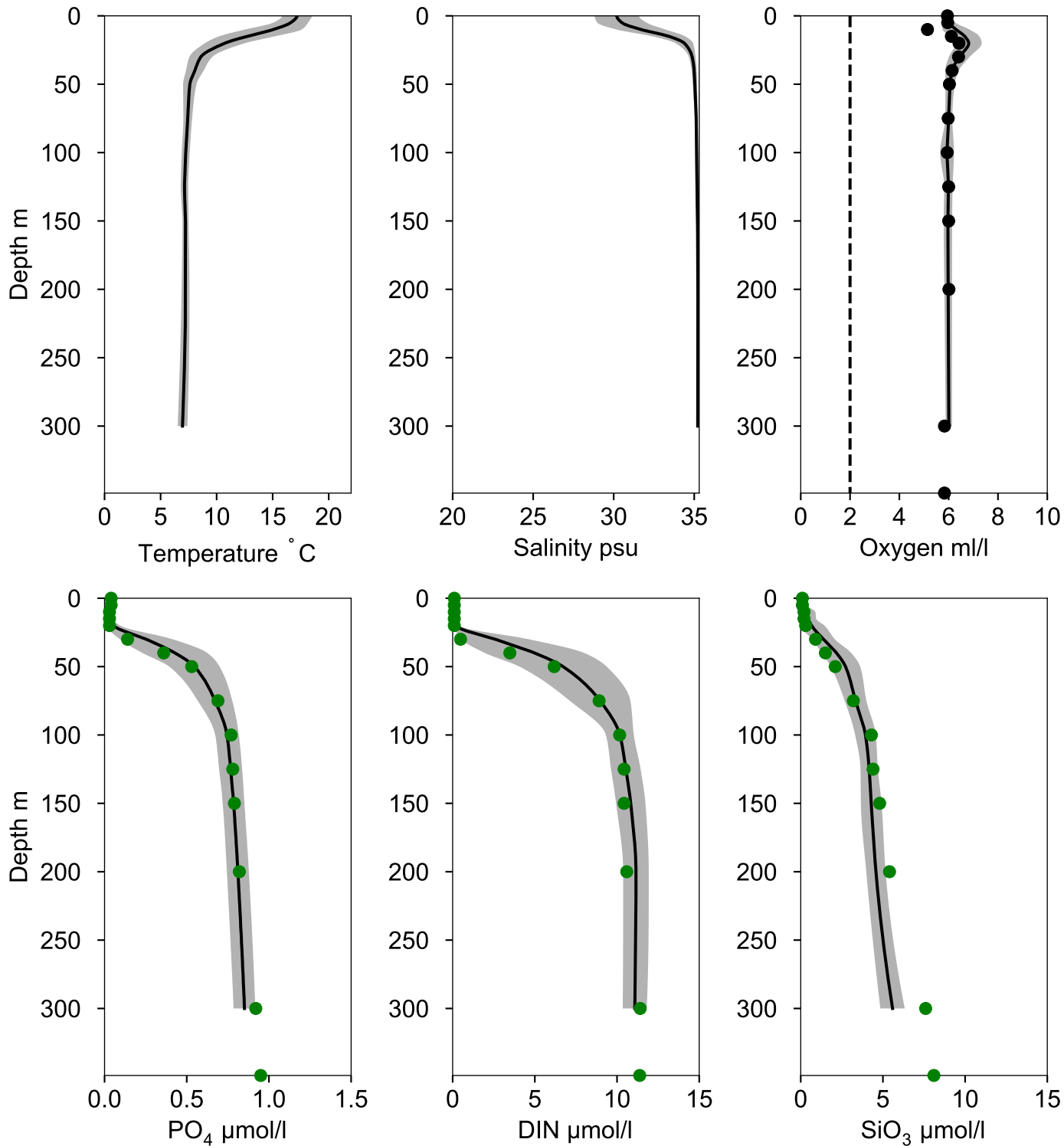


OXYGEN IN BOTTOM WATER (depth >= 300 m)



Vertical profiles Å17 July

— Mean 1991-2020 St.Dev. ● 2024-07-20



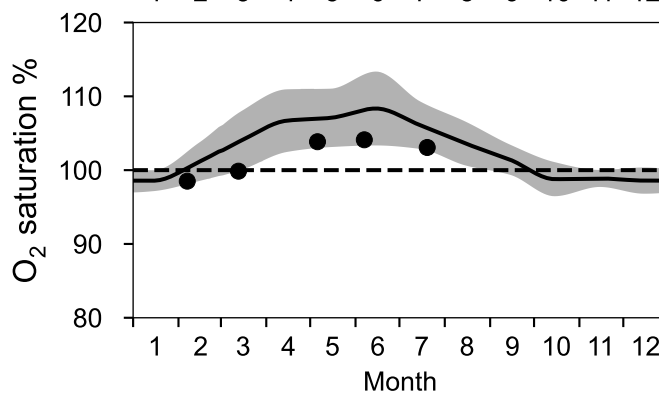
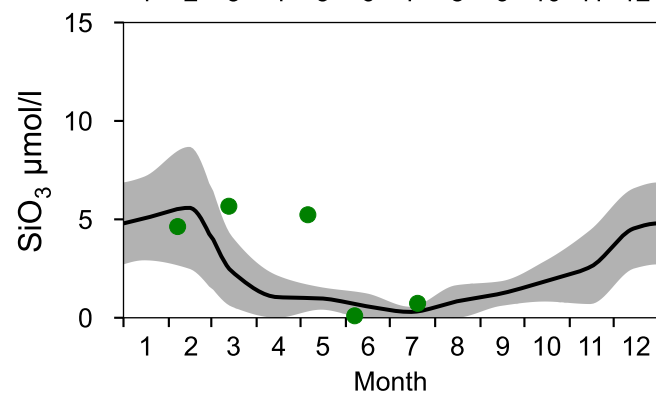
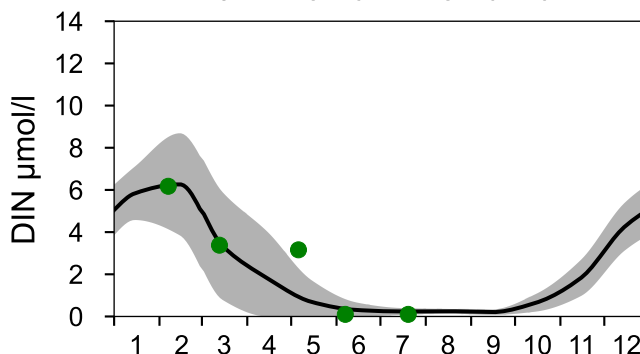
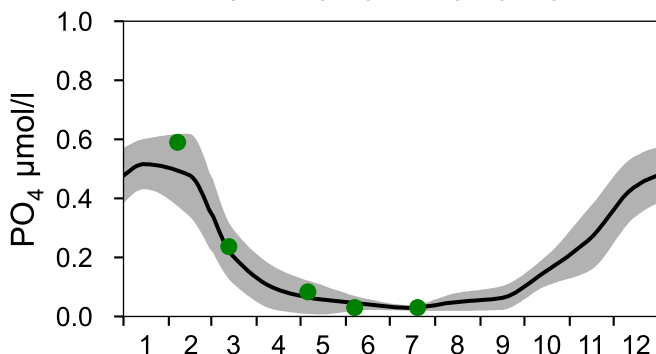
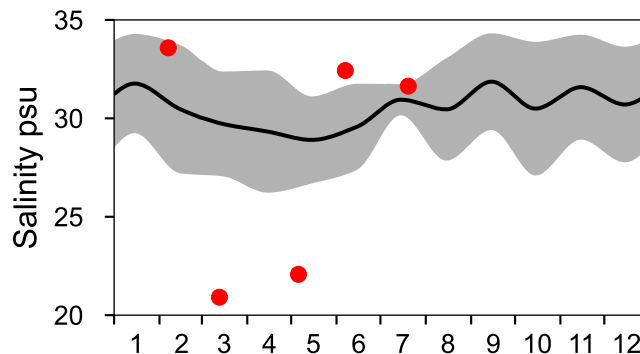
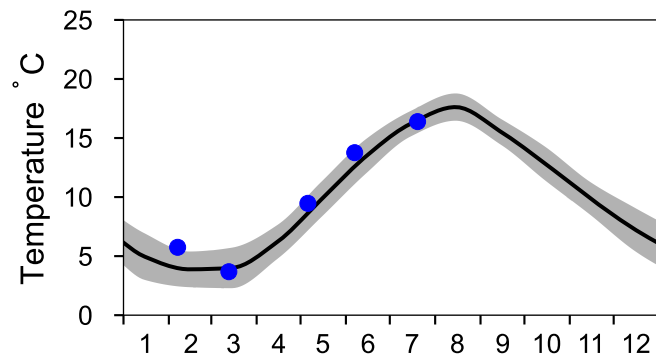
STATION Å15 SURFACE WATER (0-10 m)

Annual Cycles

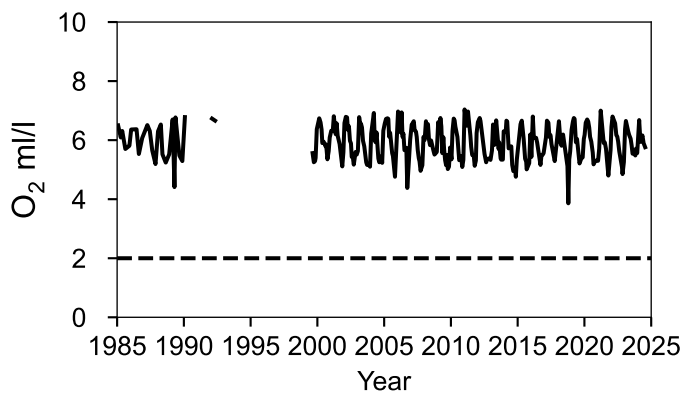
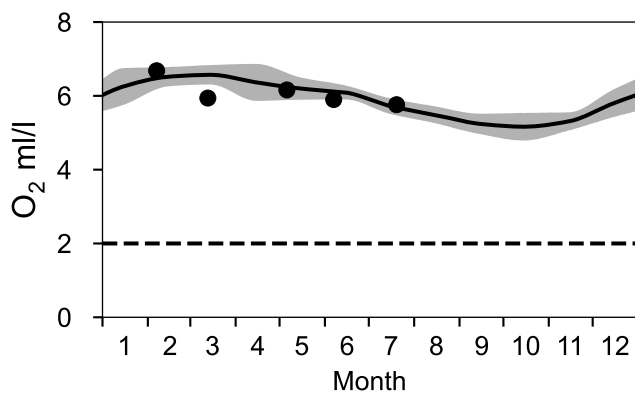
— Mean 1991-2020

■ St.Dev.

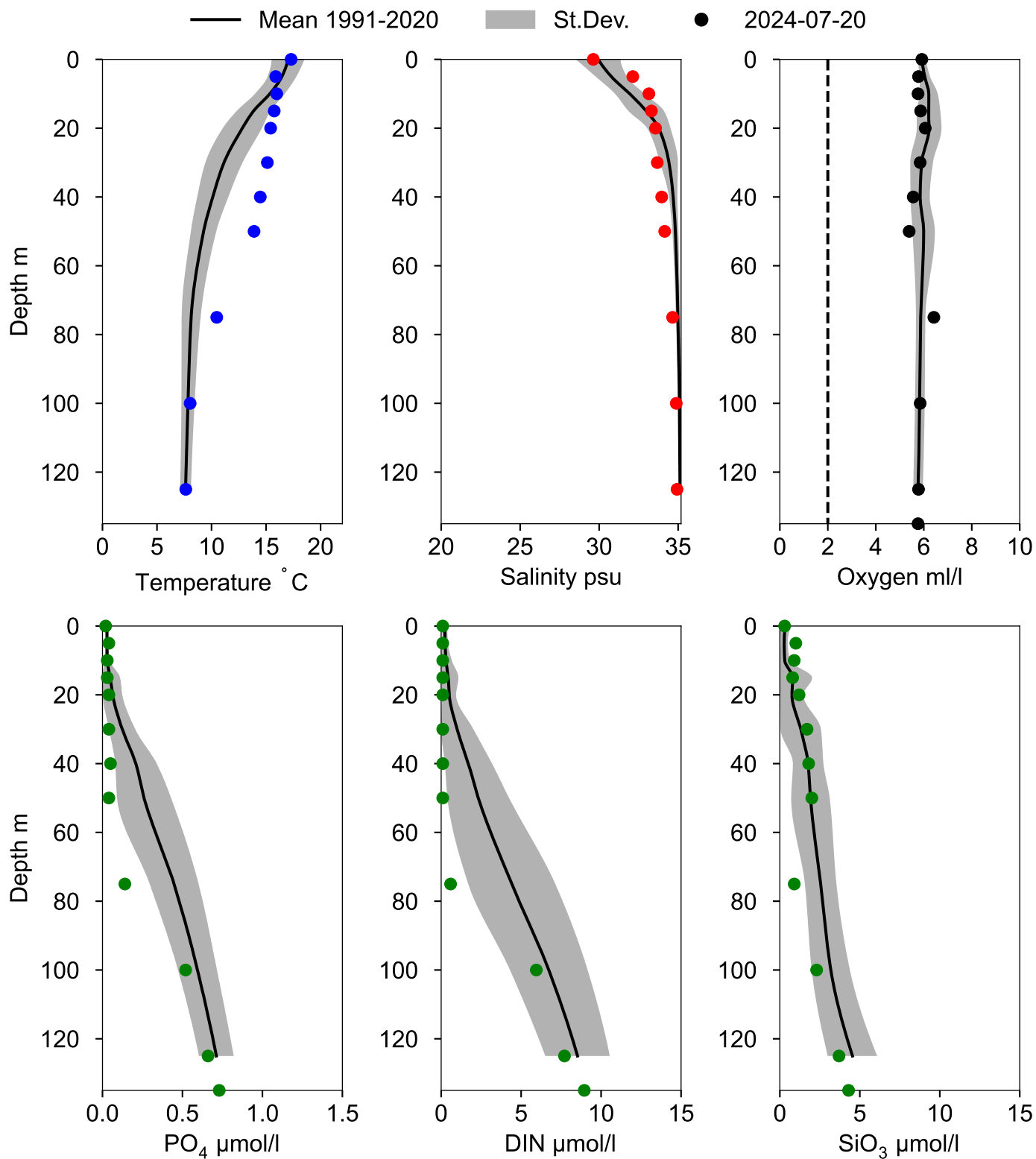
● 2024



OXYGEN IN BOTTOM WATER (depth >= 125 m)



Vertical profiles A15 July



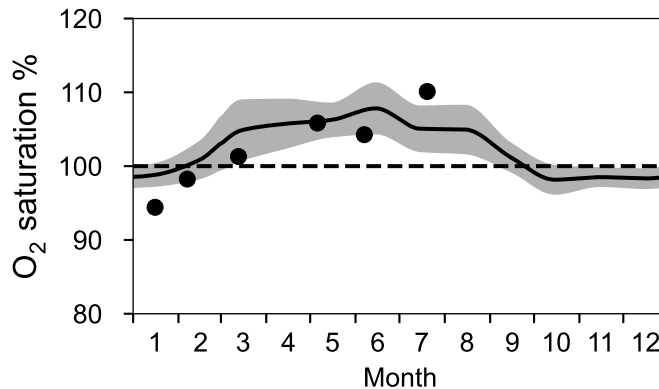
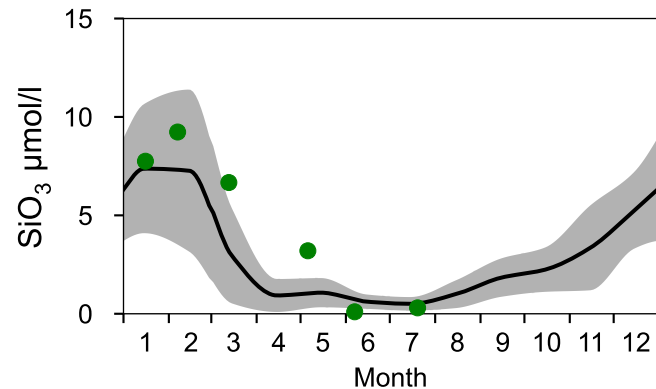
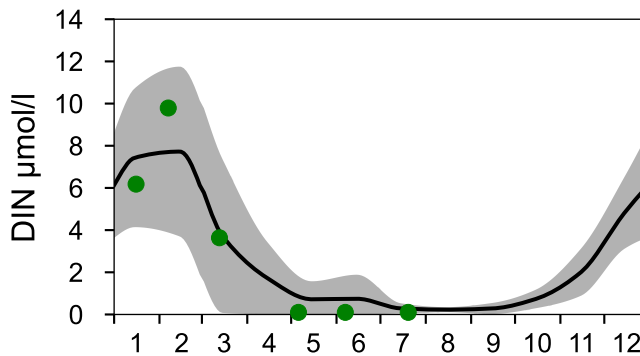
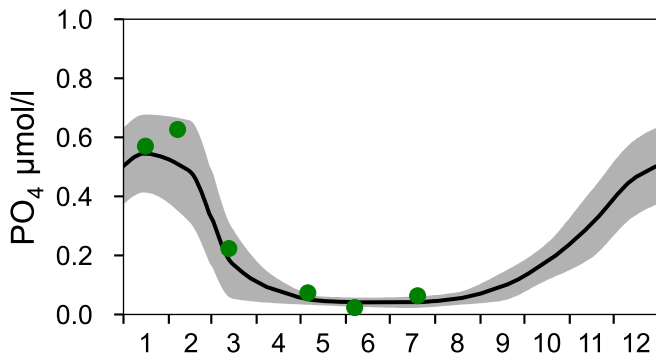
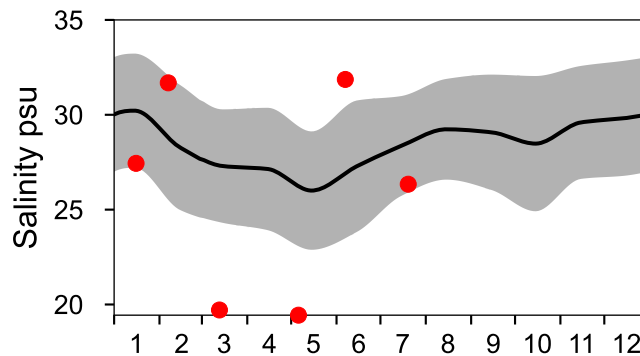
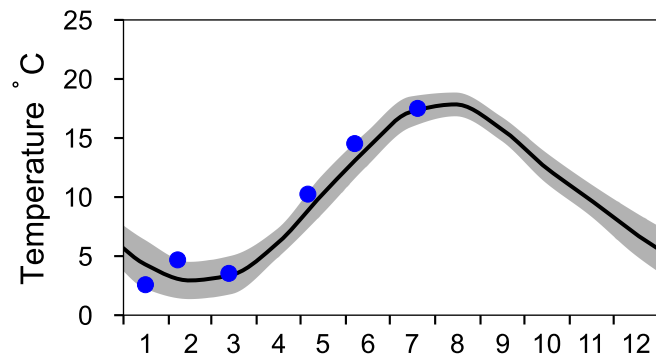
STATION Å13 SURFACE WATER (0-10 m)

Annual Cycles

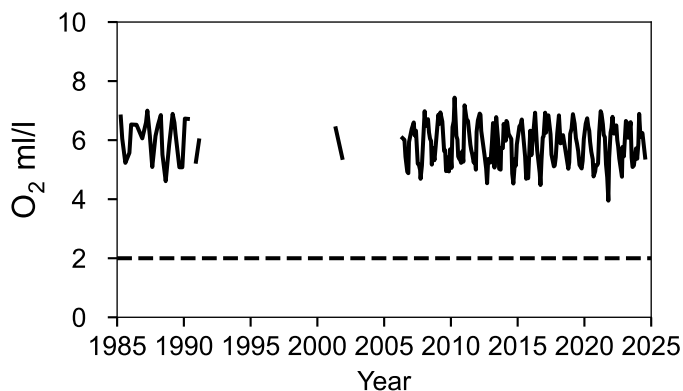
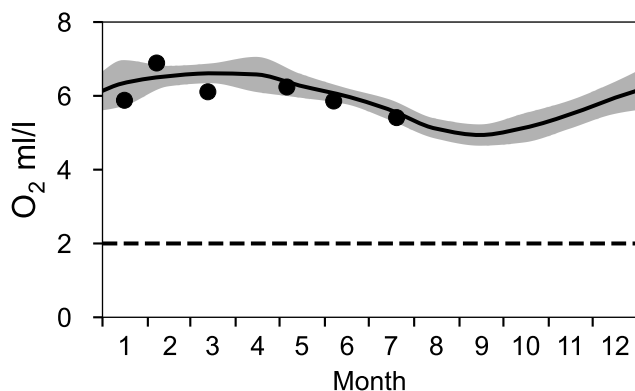
— Mean 1991-2020

■ St.Dev.

● 2024



OXYGEN IN BOTTOM WATER (depth >= 82 m)

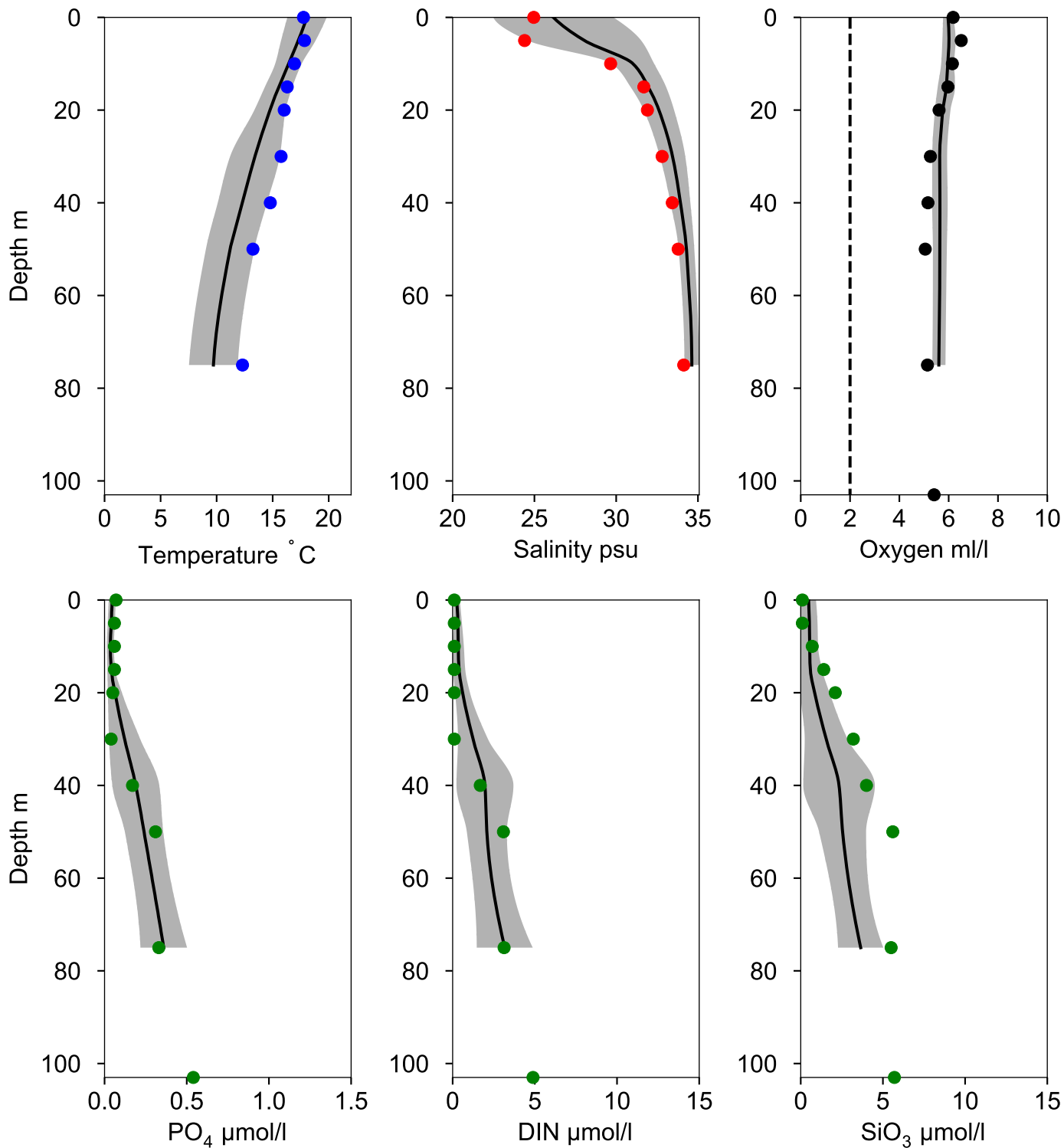


Vertical profiles Å13 July

— Mean 1991-2020

■ St.Dev.

● 2024-07-20



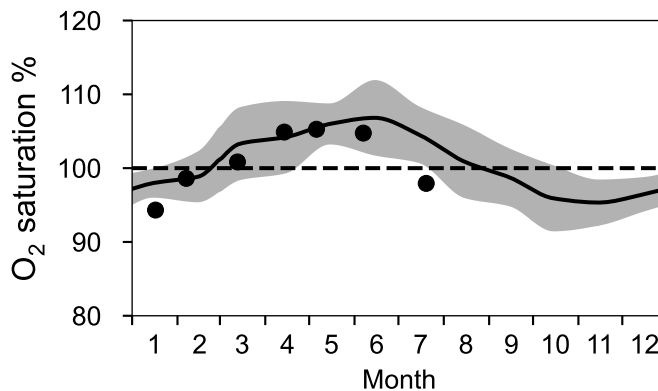
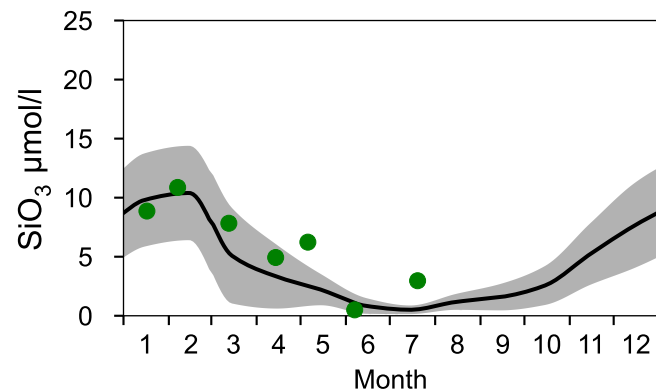
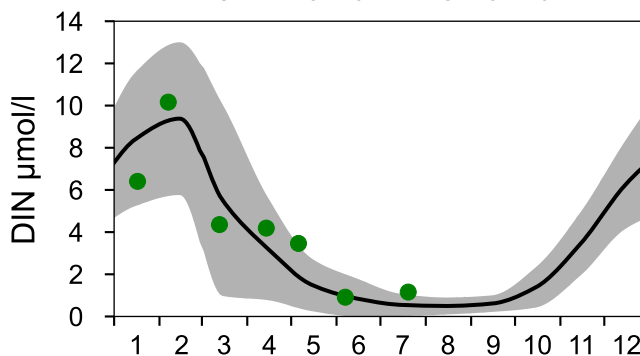
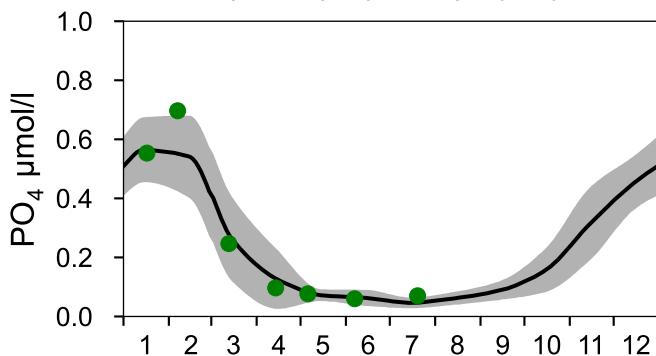
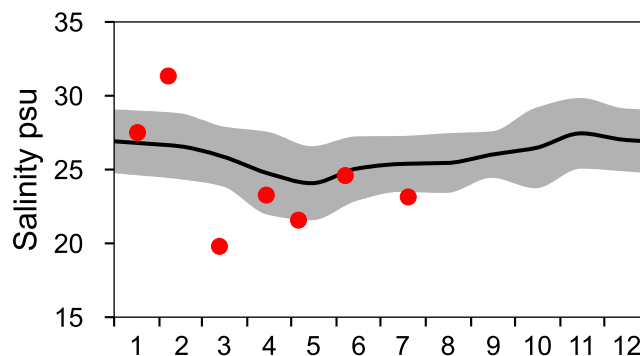
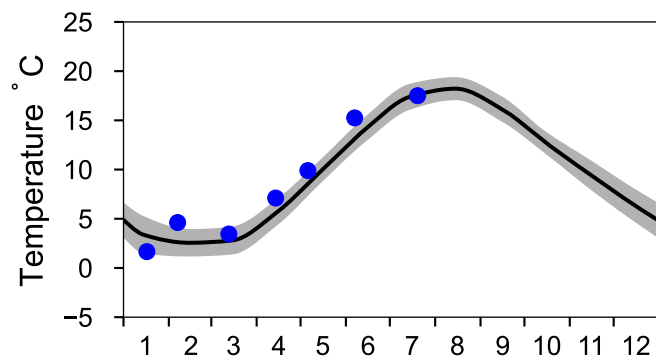
STATION SLÄGGÖ SURFACE WATER (0-10 m)

Annual Cycles

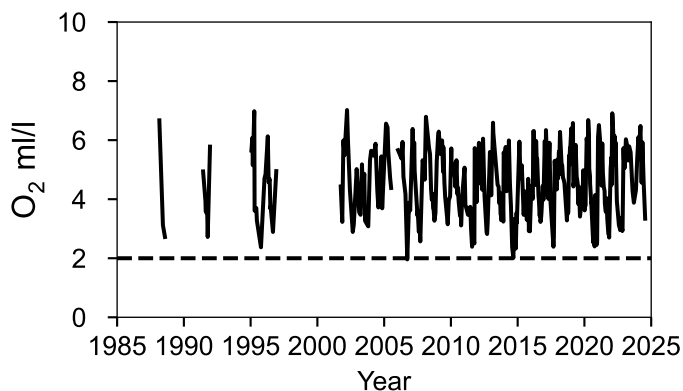
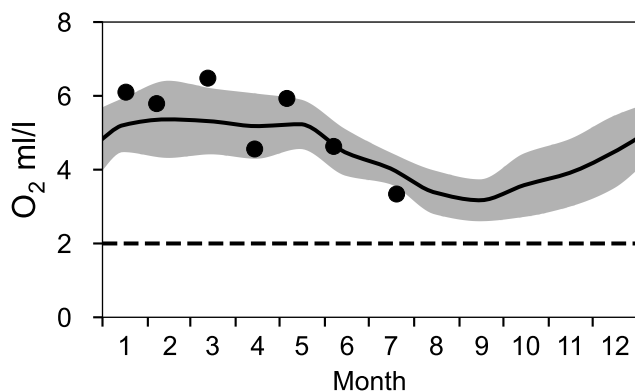
— Mean 1991-2020

■ St.Dev.

● 2024



OXYGEN IN BOTTOM WATER (depth >= 64 m)



Vertical profiles SLÄGGÖ July

