

## EXPEDITIONSRAPPORT FRÅN U/F ARGOS

### CRUISE REPORT FROM R/V ARGOS

**Expeditionens varaktighet:** 971202-971217  
**Survey period:**

**Undersökningsområde:** The Skagerrak, the Kattegat,  
**Survey area:** the Sound, the Baltic Proper,  
the Bay of Gdansk and the Gulf of  
Bothnia

**Uppdragsgivare:** SMHI  
**Principal:**

#### SUMMARY

*The expedition was performed within SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, the Baltic Proper and the Gulf of Bothnia. The weather was dominated by weak to moderate winds that occasionally were strong. In the Baltic Sea and the Gulf of Bothnia normal concentrations of nutrients were found. In the Kattegat and the Skagerrak lower concentrations of nutrients than normal were observed. In the south-western part of Skagerrak was an indication of ongoing production. In the Gotland Basin hydrogen sulphide was found below 170 m, and at the Fårö Deep hydrogen sulphide was found below 175 m. Low oxygen concentrations were found in the deep water of the Bornholm Basin and the eastern Arkona. The oxygen concentrations of the bottom water in the south-eastern Kattegat was normal (about 80% oxygen saturation).*

## **PRELIMINÄRA RESULTAT**

Expeditionen ingick i SMHIs ordinarie övervakningsprogram med kartering av närsaltskoncentrationer i Bottniska viken. Dessutom togs extra prover i Gdanskbukten, framför allt pH och alkalinitet, och i sydöstra Kattegatt för syrgaskartering. Expeditionen utgick från Karlskrona den 2/12 och avslutades i Göteborg den 17/12. Vädret under expeditionen dominerades av svaga till måttliga vindar som tidvis var friska.

### **Skagerrak**

Ytvattentemperaturerna varierade mellan 4.3°C i sydöstra Skagerrak och 7°C i centrala och sydvästra Skagerrak. Vid station P2 var salthalten 22.0 psu vilket tyder på en influens av Baltiskt vatten. Närsaltshalterna var låga för årstiden utom i centrala delen. Vid station HS5 var syremättnaden 109% i ytan vilket tyder på att där pågick en produktion.

### **Kattegatt och Öresund**

Ytvattentemperaturerna var 3.5°C till 5.3°C, kallast i nordvästra Kattegatt och varmest i södra Öresund. Salthalten i ytvattnet vid Anholt E och Fladen var lägre än normalt och i Öresund observerades en stark utgående ström från Östersjön, vilket tyder på ett utflöde av Östersjövatten till Kattegatt. Ytvattnets närsaltskoncentrationer var något lägre än normalt, förutom för silikat som var högre. Syrgasförhållandena i sydöstra Kattegatts djupvatten var goda, syrgasmättnad omkring 80% uppmättes under haloklinen. Lägsta syrgaskoncentrationen uppmättes vid W Landskrona på 20-25 m (55% syrgasmättnad).

### **Östersjön med Gdanskbukten**

Ytvattentemperaturerna varierade från 4.5°C i nordväst till 7.6°C i södra delen. Samtliga närsalter uppvisade för årstiden normala koncentrationer i ytvattnet, förutom i Gdanskbukten där höga koncentrationer av nitrat uppmättes (18 µmol/l) Svavelväte uppmättes i djupvattnet på Gotlandsdjupet från 170 m, samt på Fårödjupet från 175 m. Inget svavelväte uppmättes i Bornholmsbassängen, och inte heller i Gdanskbuktes djupvatten.

### **Bottniska viken**

Ytvattentemperaturerna varierade från 4.4°C i söder till 1.2°C i norr, men i Norra kvarken var temperaturen något lägre. Fosfathalterna var låga, 0.05 µmol/l i norr till 0.2 µmol/l i söder. Nitrathalterna varierade från 2.3 µmol/l i söder till 7.0 µmol/l i norr. Silikatalterna hade en stor variation med 9 µmol/l i söder upp till 33 µmol/l i norr.

## **DELTAGARE**

| Namn                         | Från                     |
|------------------------------|--------------------------|
| Jan Szaron, expeditonsledare | SMHI Oceanografiska lab. |
| Nils Kajrup                  | - " -                    |
| Marie Larsson                | - " -                    |
| Eva Nyberg                   | - " -                    |
| Mats Ohlson (v50-51)         | - " -                    |
| Jorge Valderrama (v49)       | - " -                    |
| Natalja Drgos (v50)          | IMGW Gdynia              |

## **BILAGOR**

- Färdkarta
- Tabell över stationer, antal parametrar och provtagningsdjup
- Karta över syrehalter i bottenvattnet
- Profilplottar för basstationer
- Månadsmedelvärdesplottar för vissa basstationer

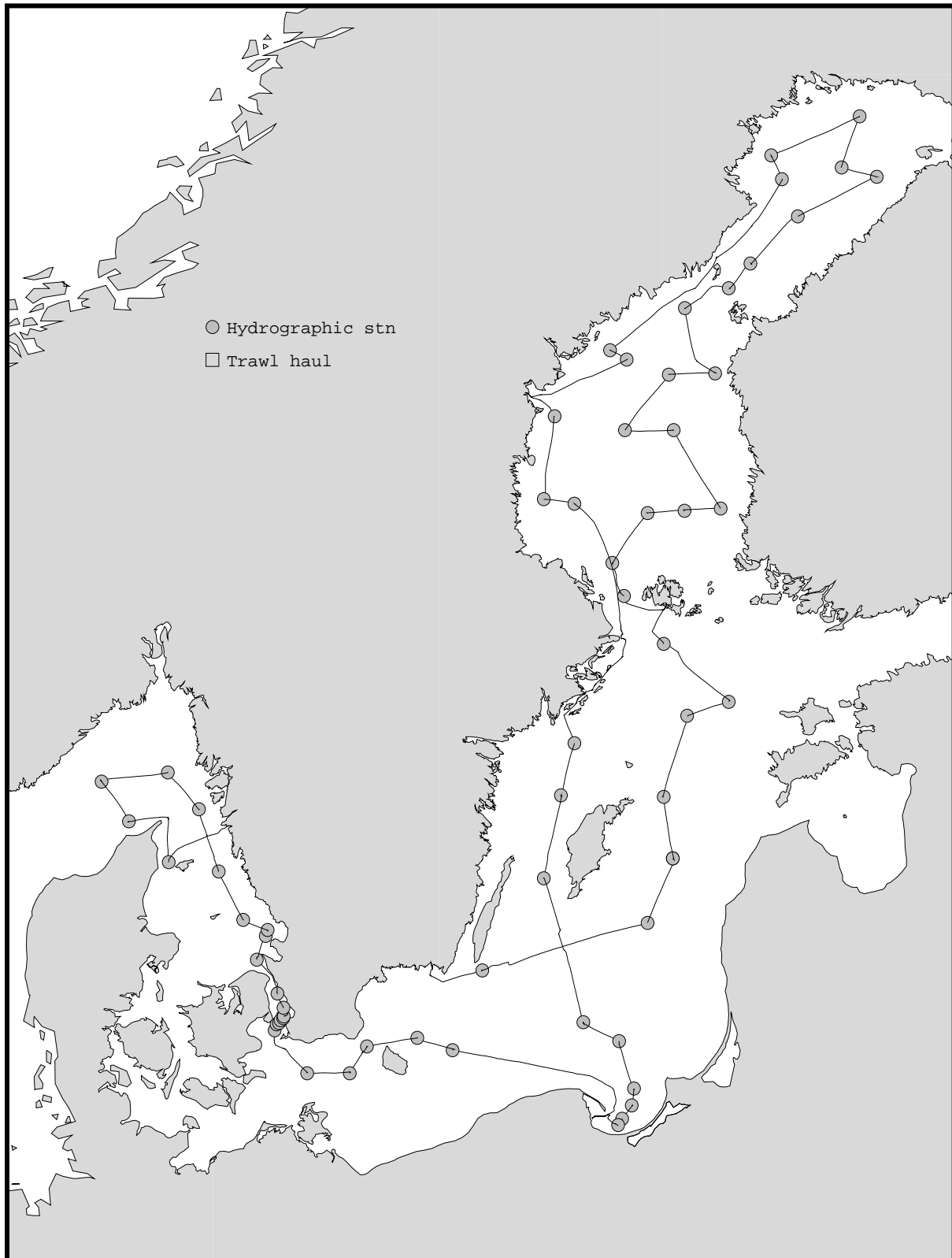






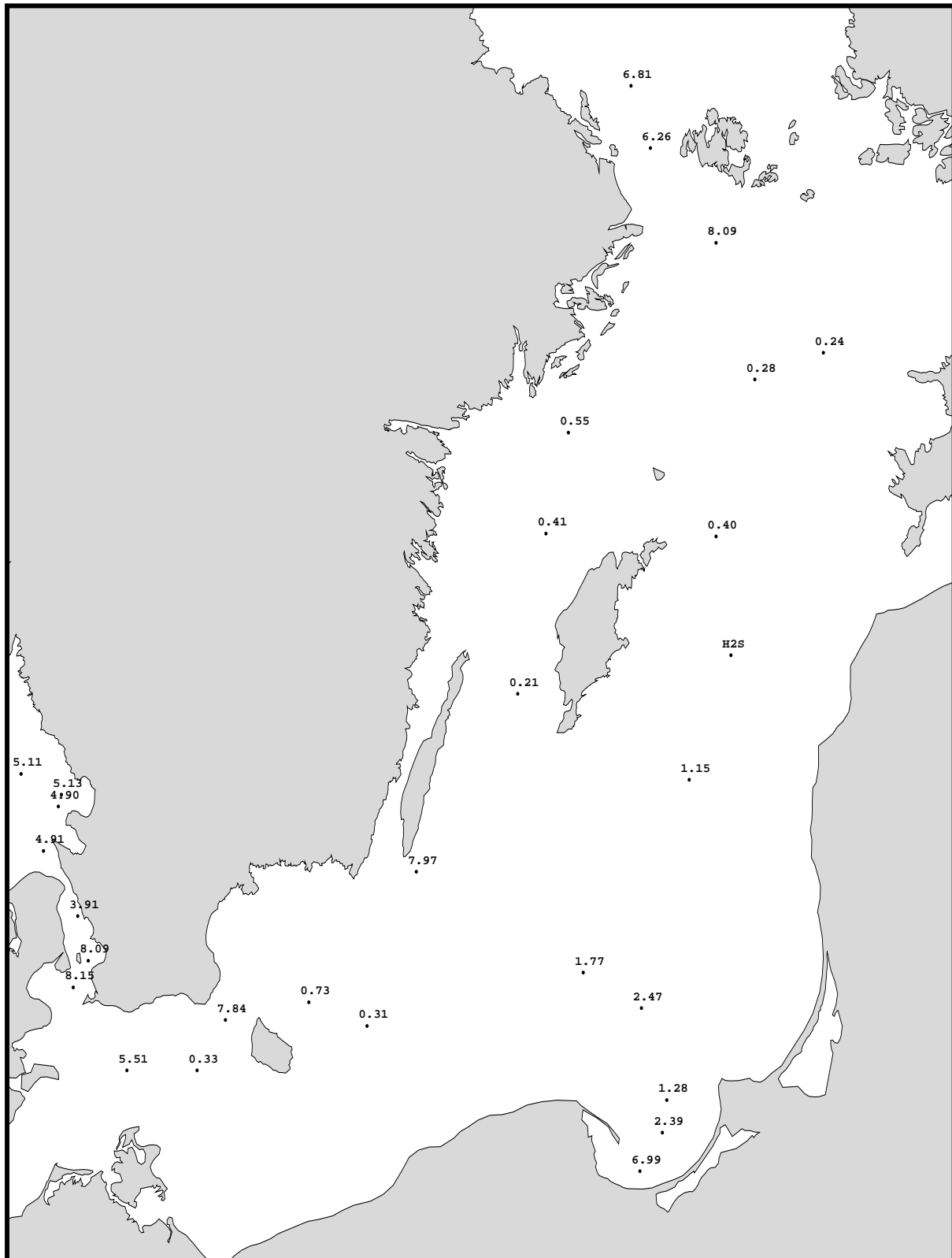
# TRACK CHART

Country: Sweden  
Ship : Argos  
Date : 971202-971217  
Series : 0778-0840



# Bottom water oxygen concentration (ml/l)

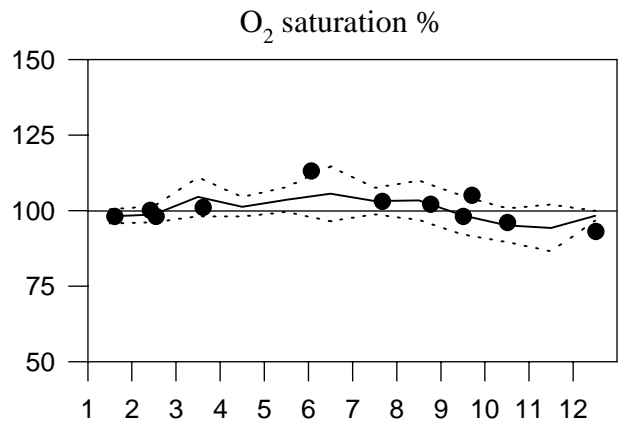
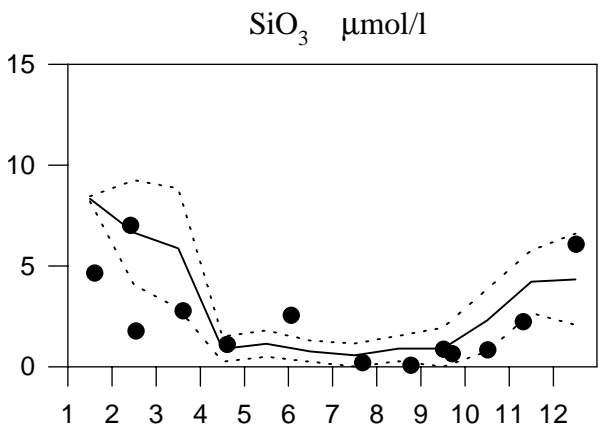
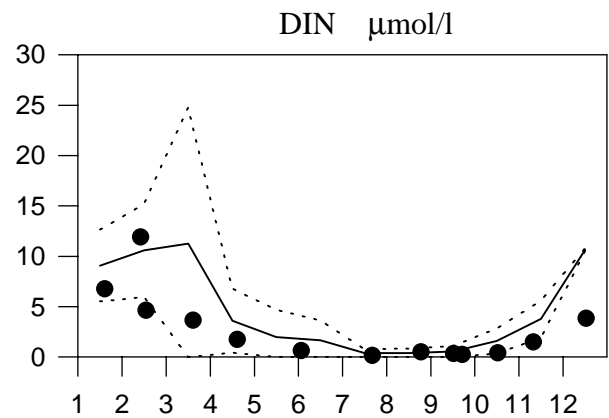
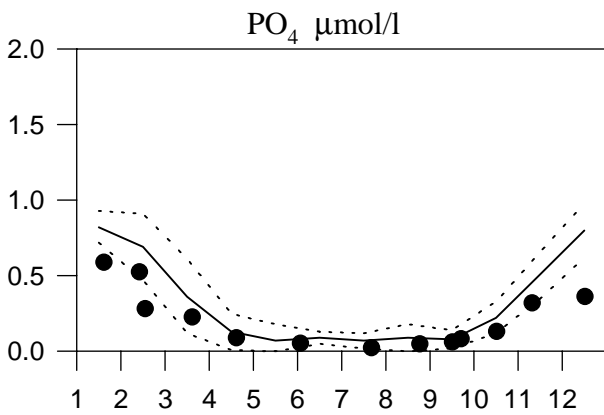
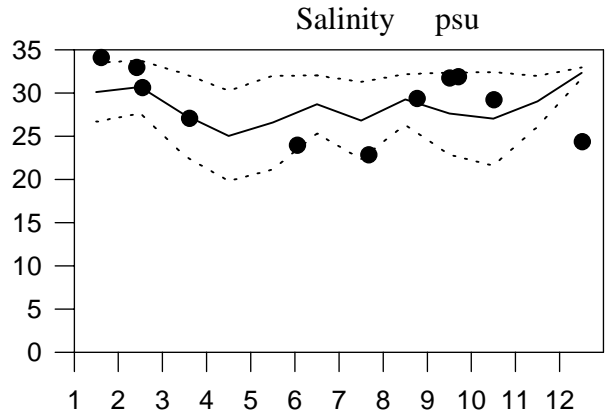
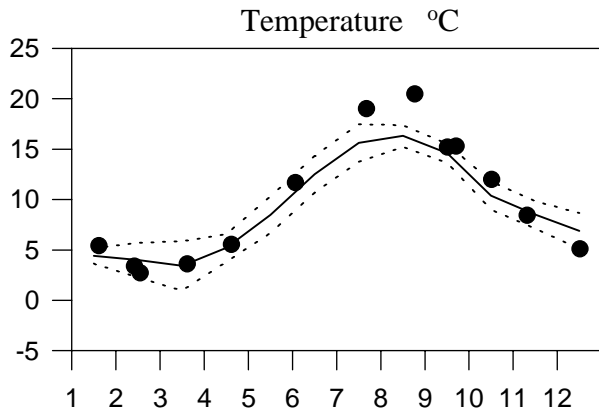
Country: Sweden  
Ship: Argos  
Date: 971202-971217  
Series: 0778-0840



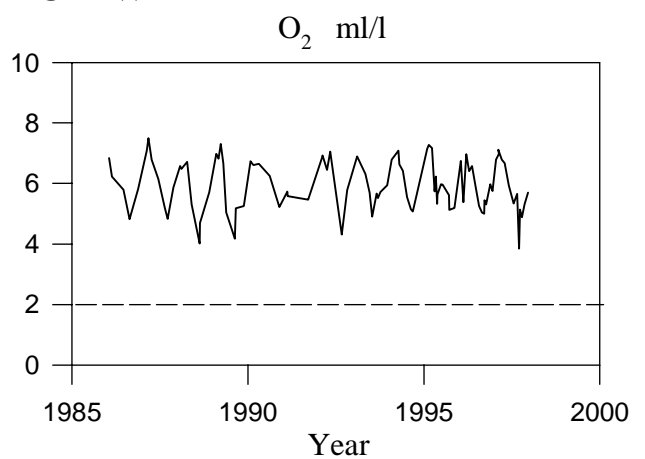
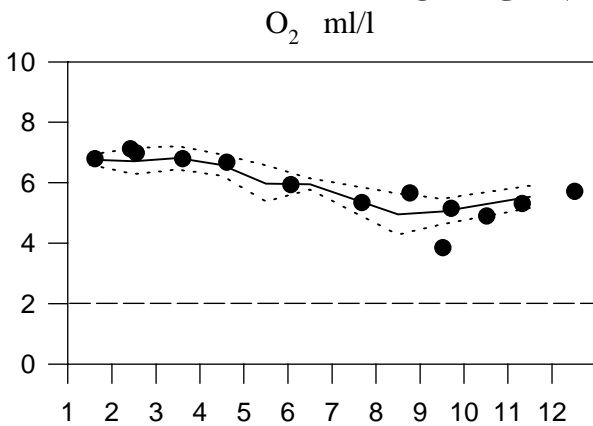
# STATION P2 SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



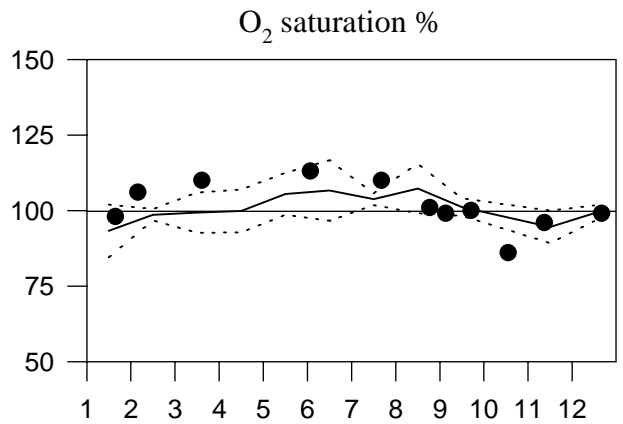
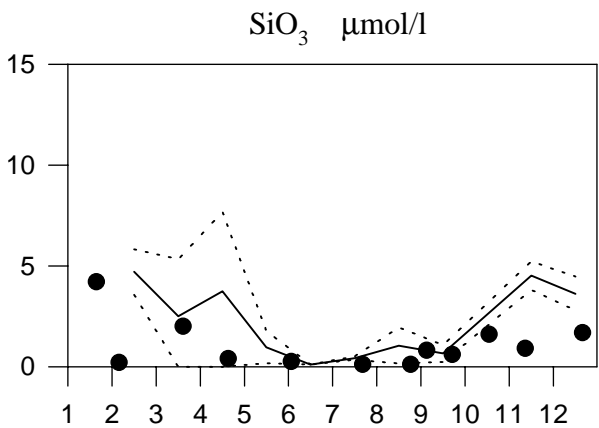
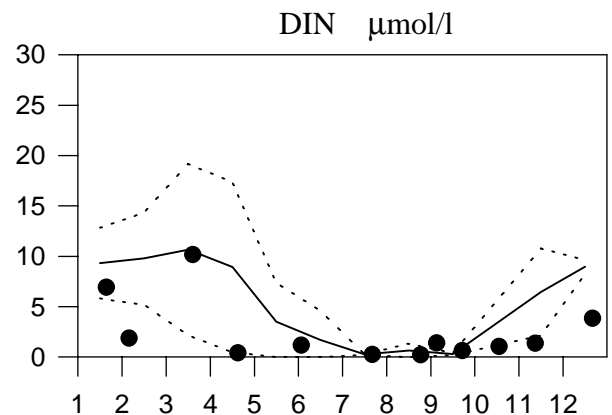
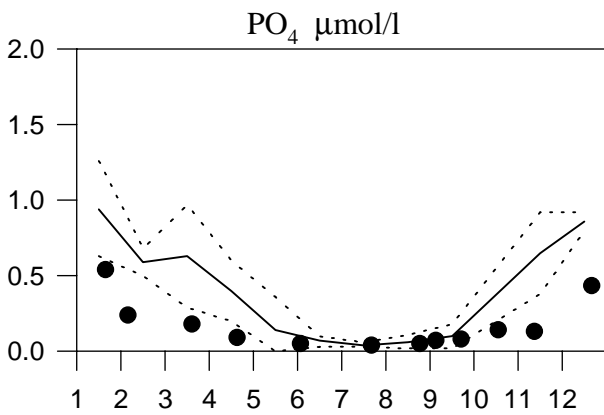
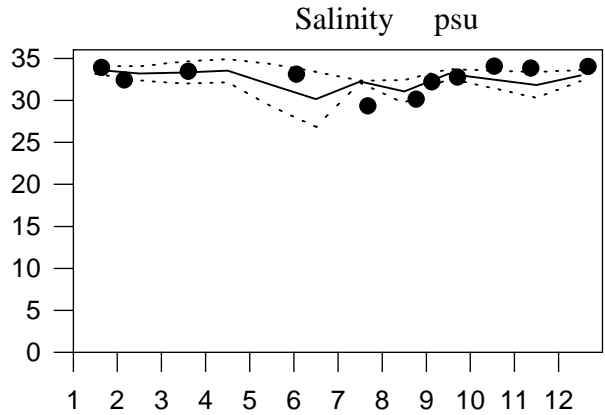
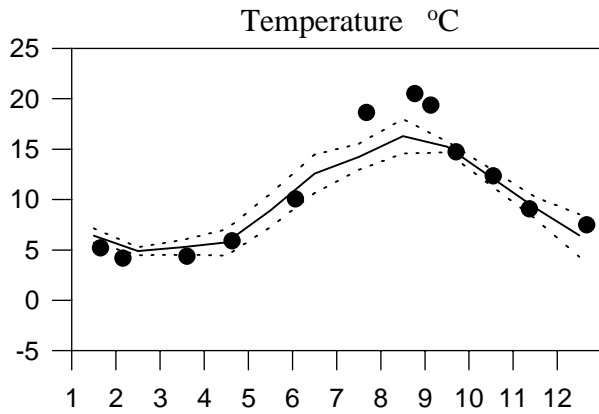
## OXYGEN IN BOTTOM WATER



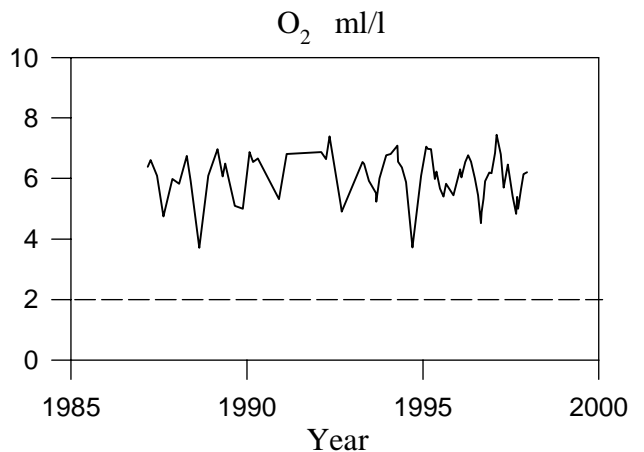
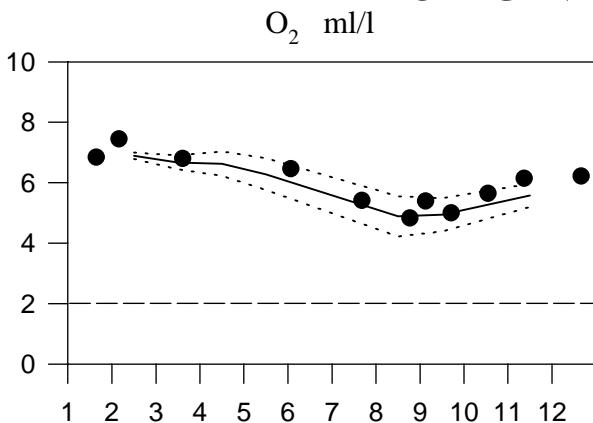
# STATION HS5 SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



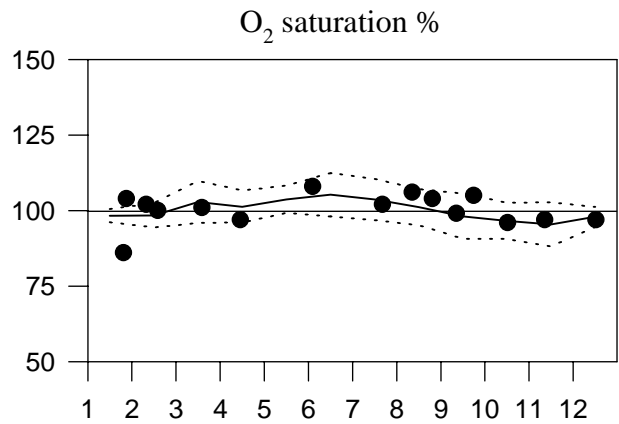
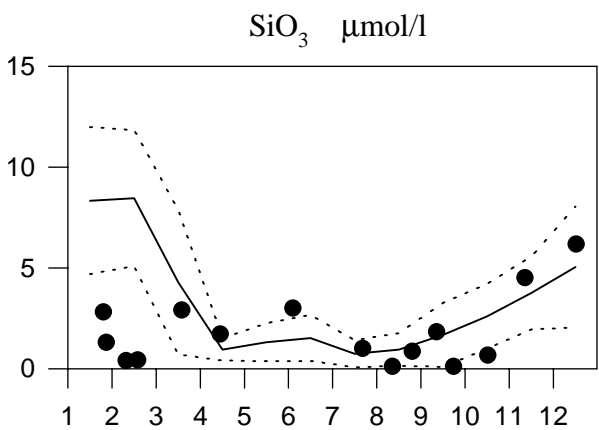
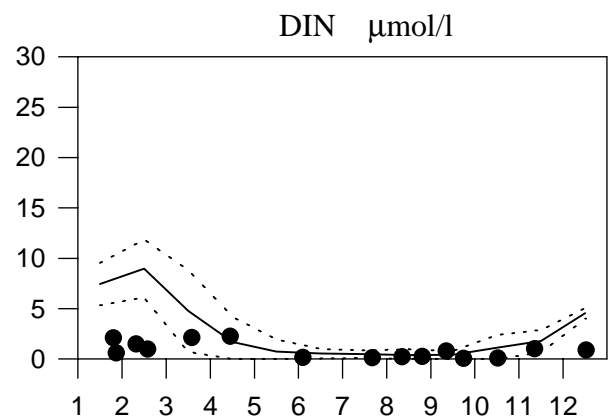
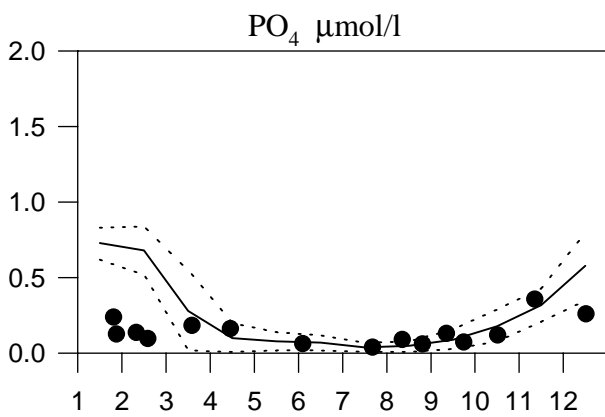
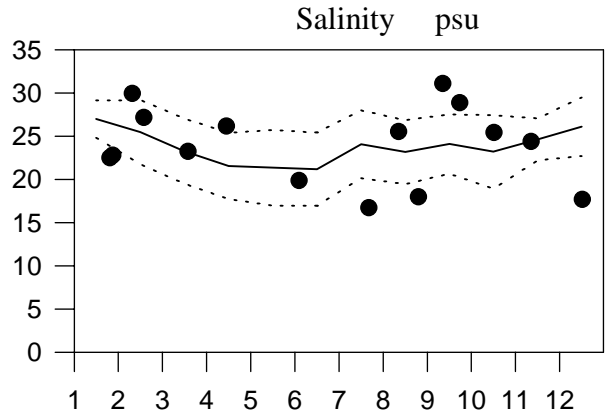
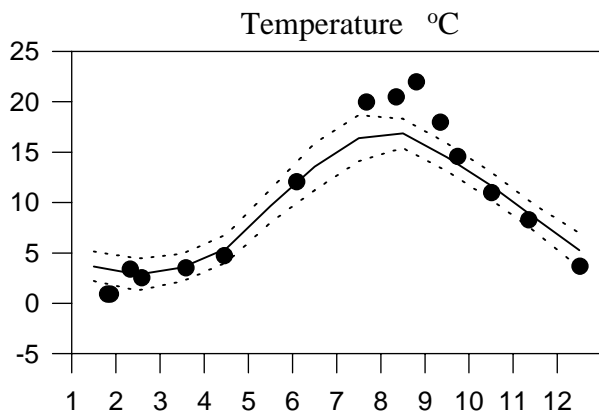
## OXYGEN IN BOTTOM WATER



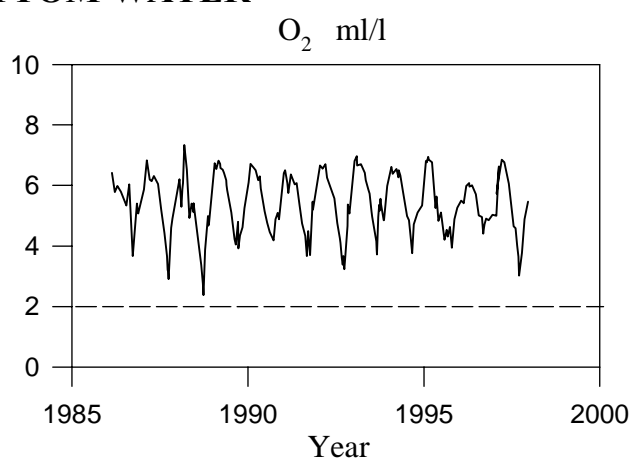
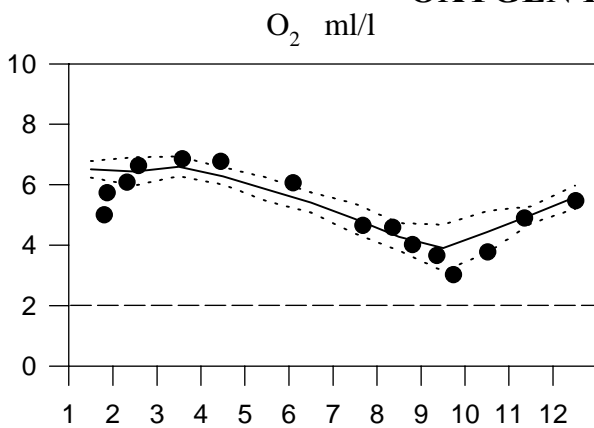
# STATION FLADEN SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



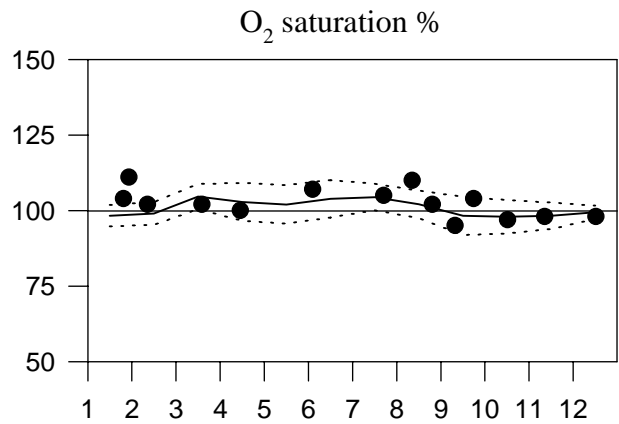
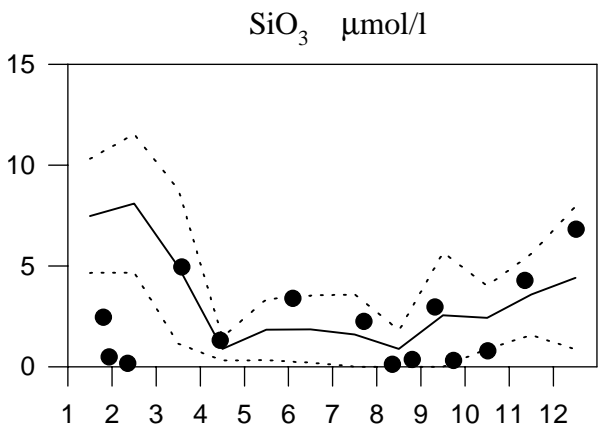
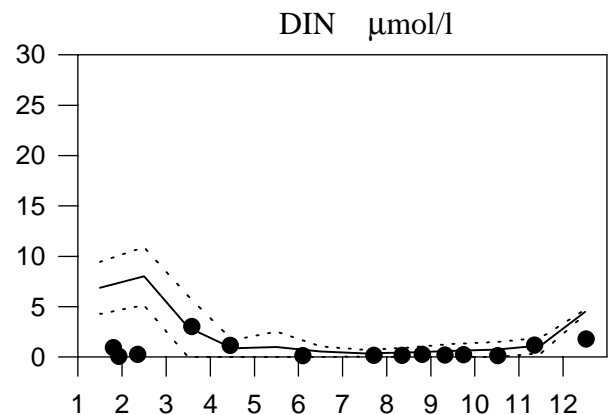
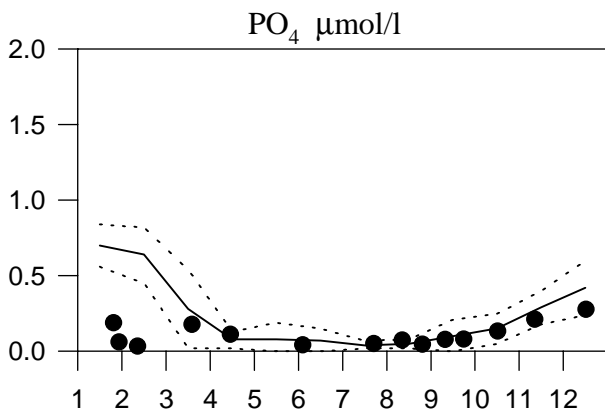
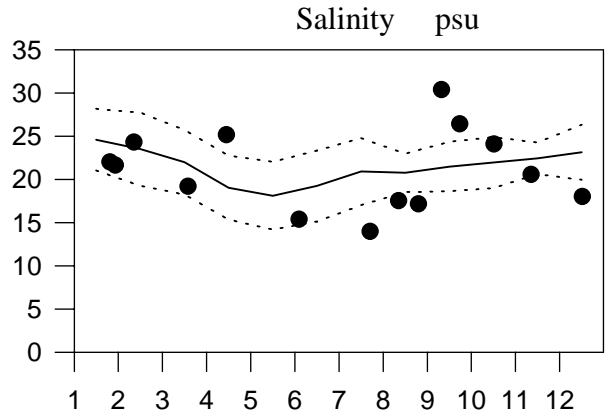
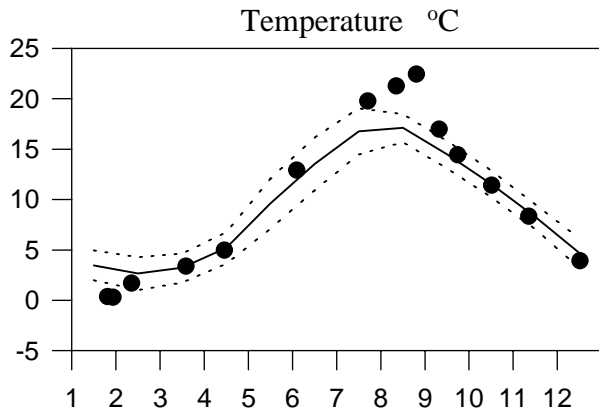
## OXYGEN IN BOTTOM WATER



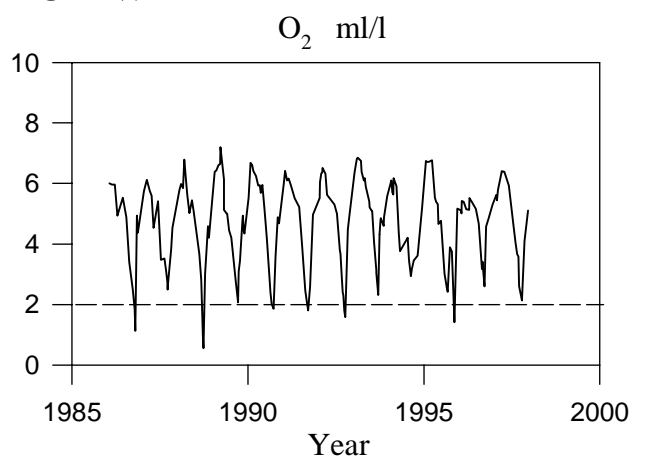
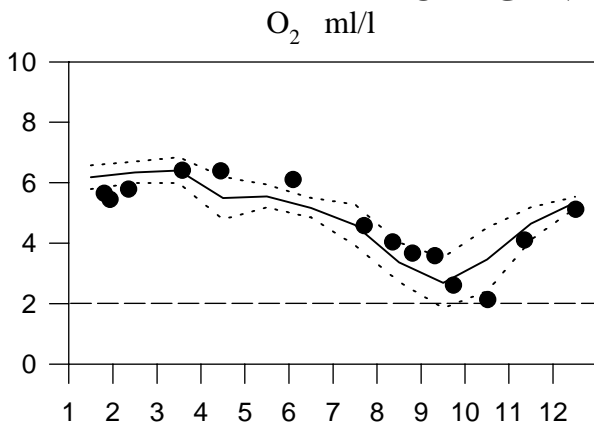
# STATION ANHOLT E SURFACE WATER (above halocline)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



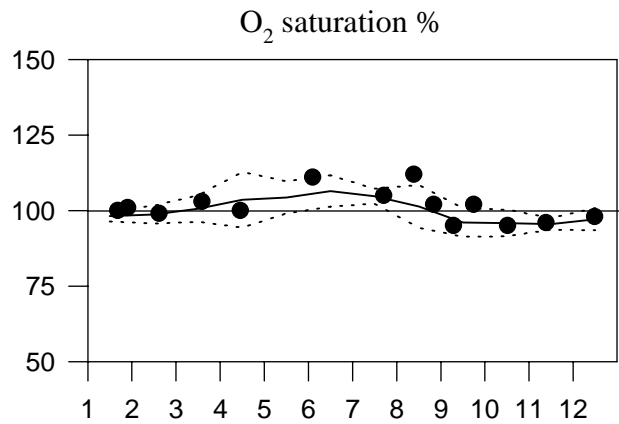
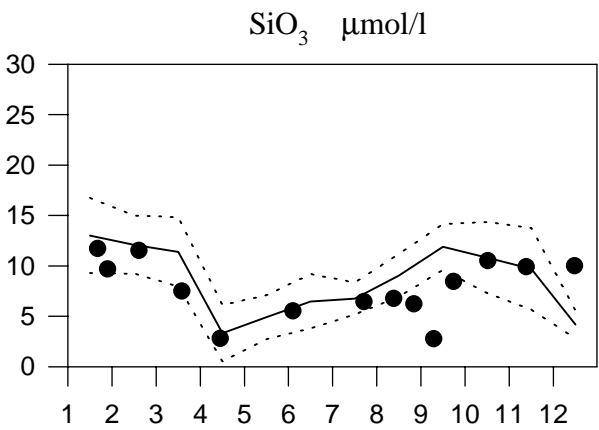
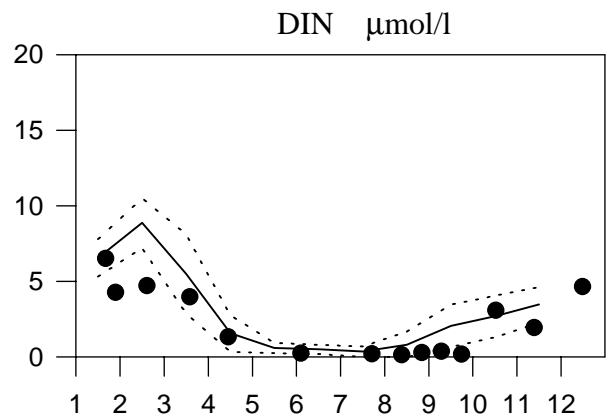
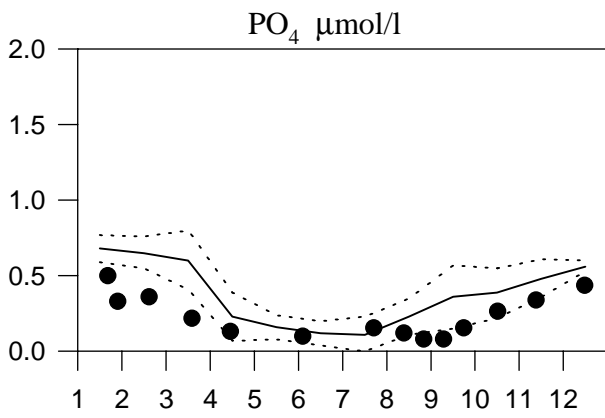
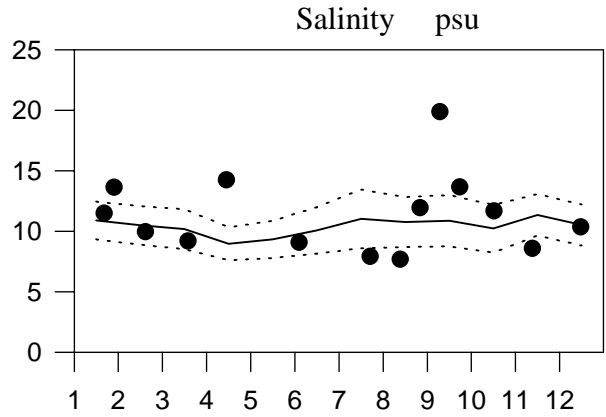
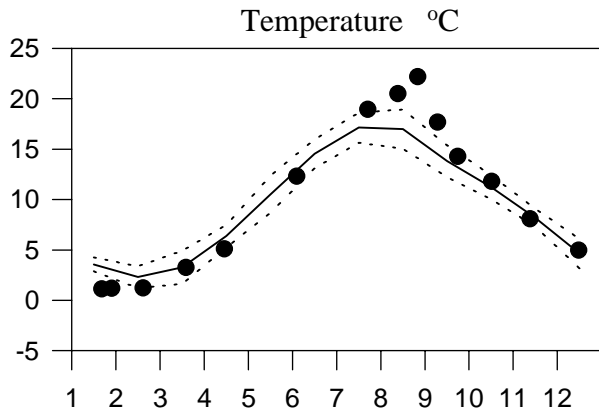
## OXYGEN IN BOTTOM WATER



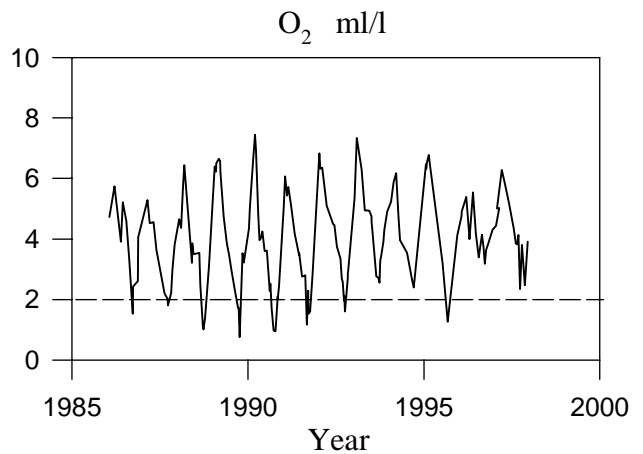
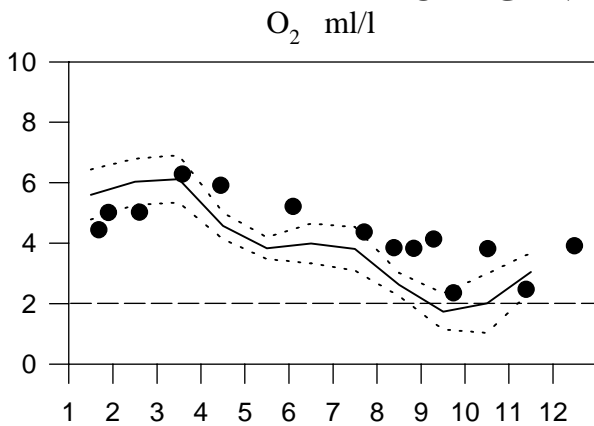
# STATION W LANDSKRONA SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



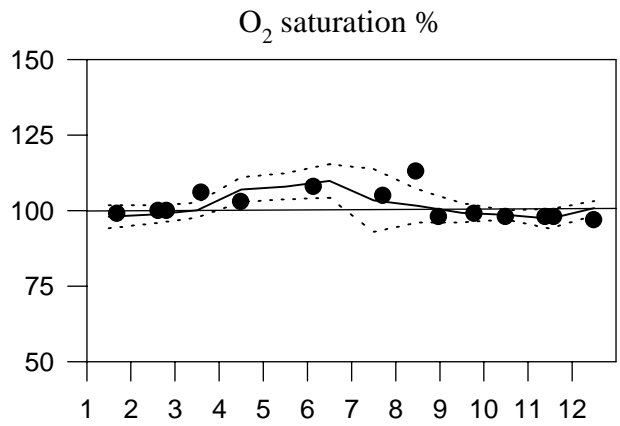
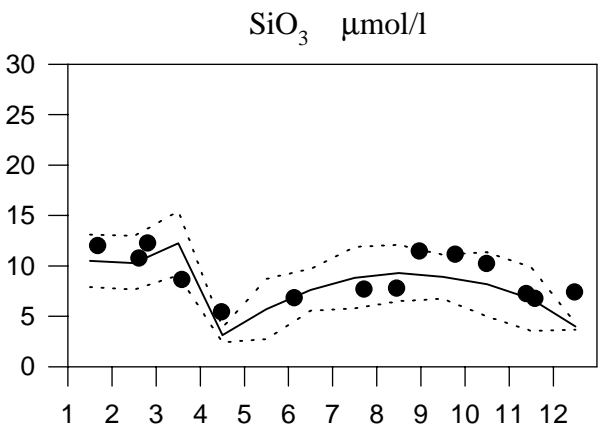
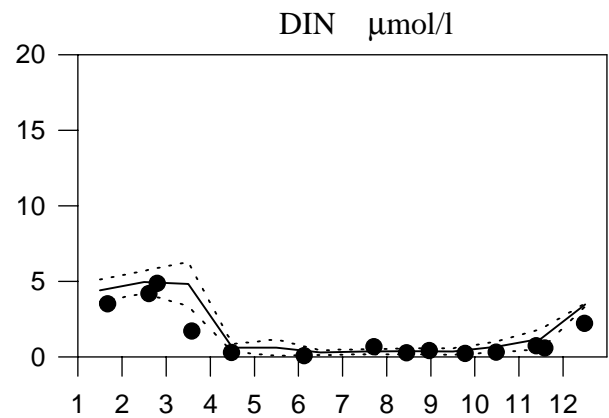
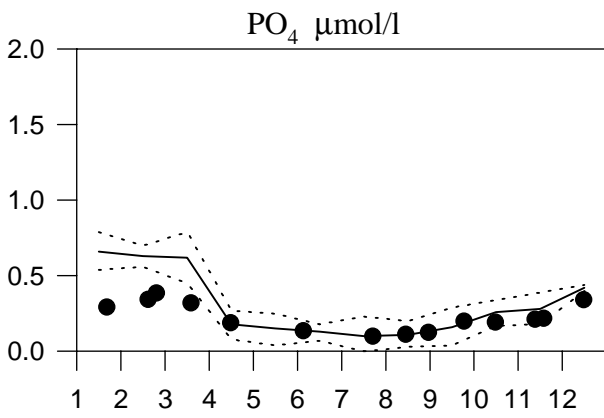
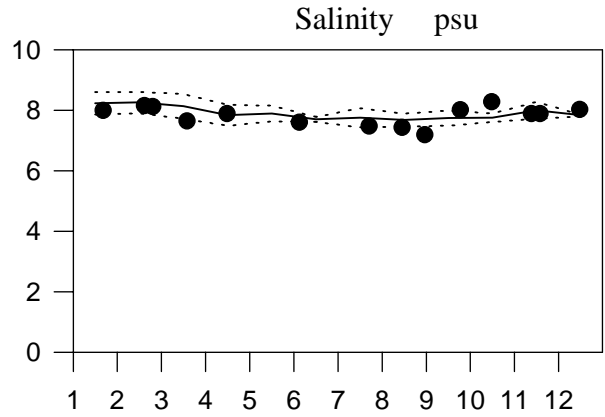
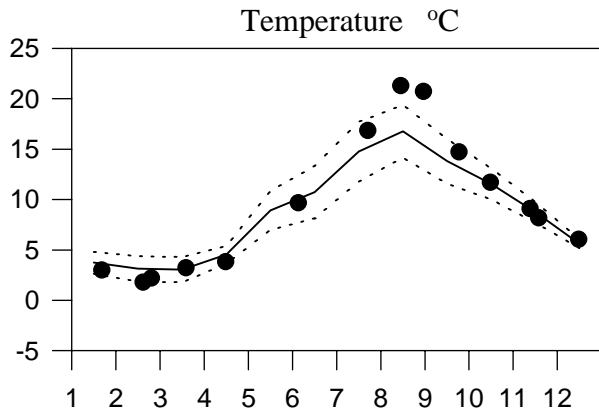
## OXYGEN IN BOTTOM WATER



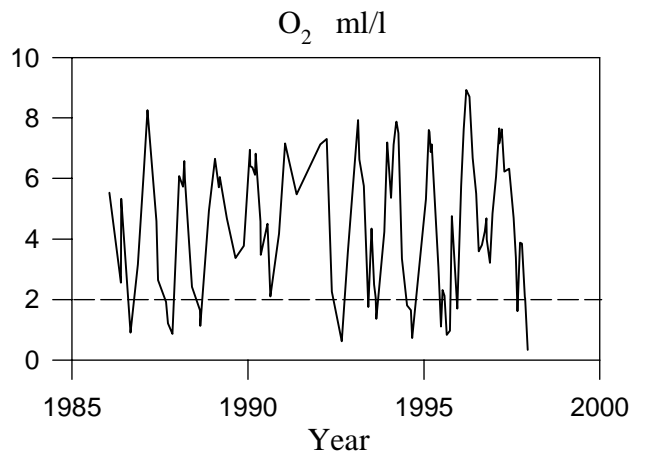
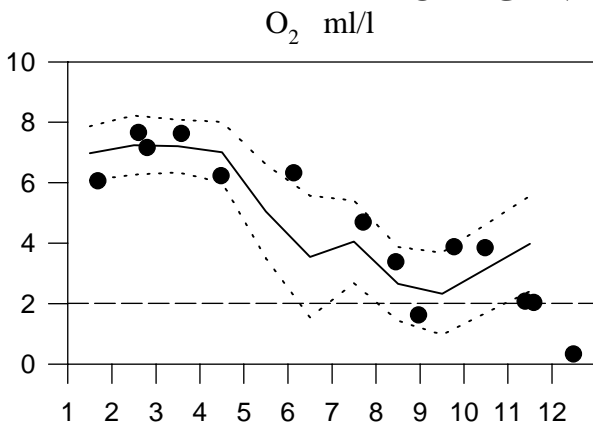
# STATION BY2 SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



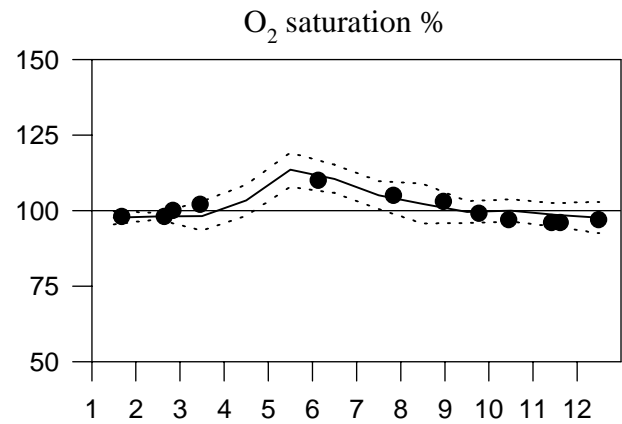
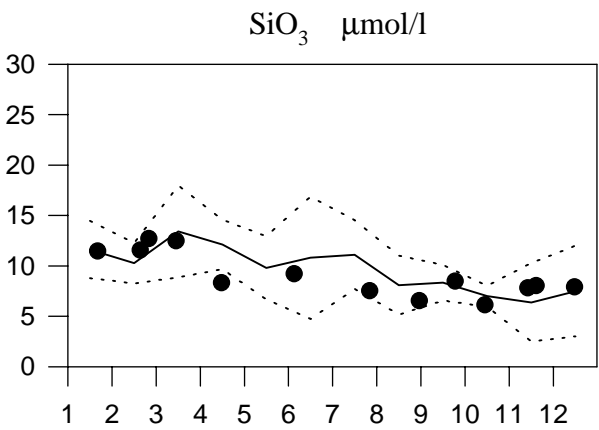
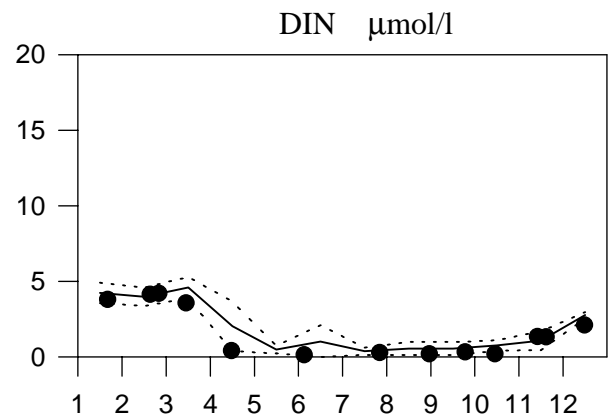
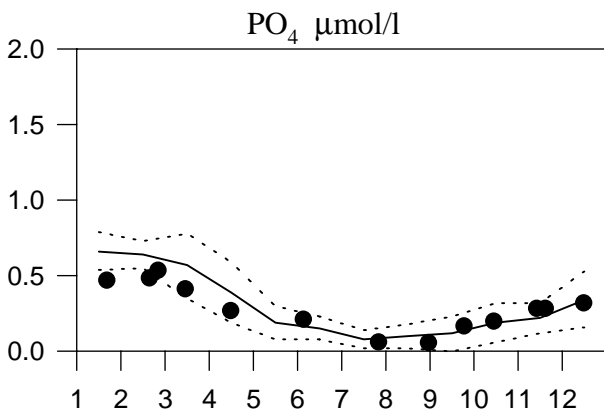
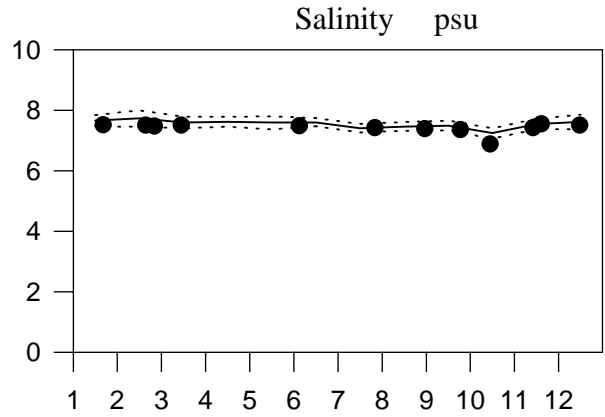
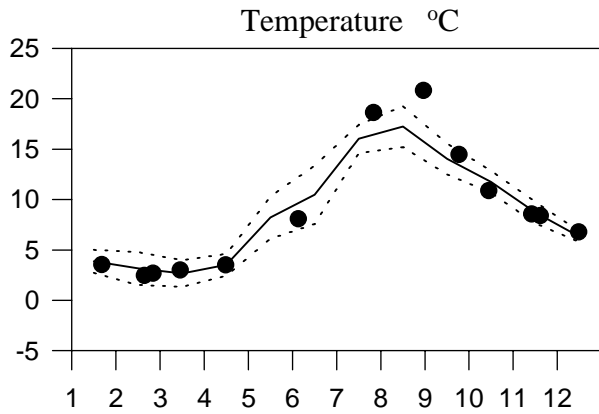
## OXYGEN IN BOTTOM WATER



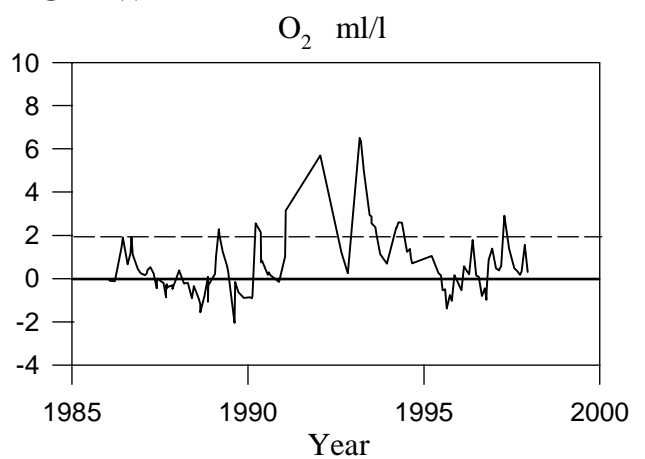
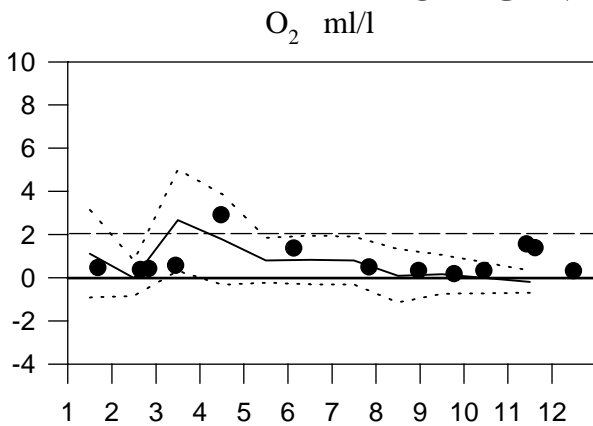
# STATION BY5 SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997



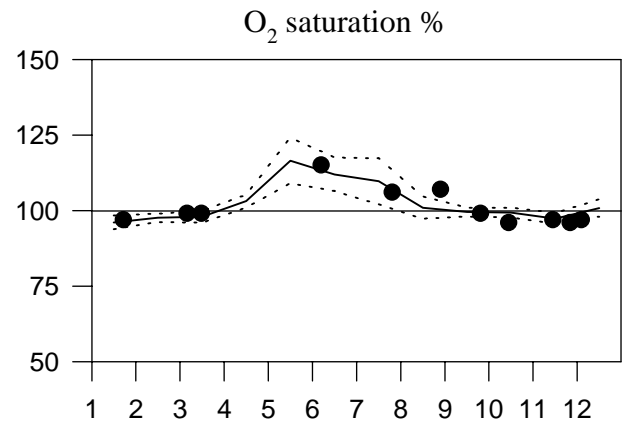
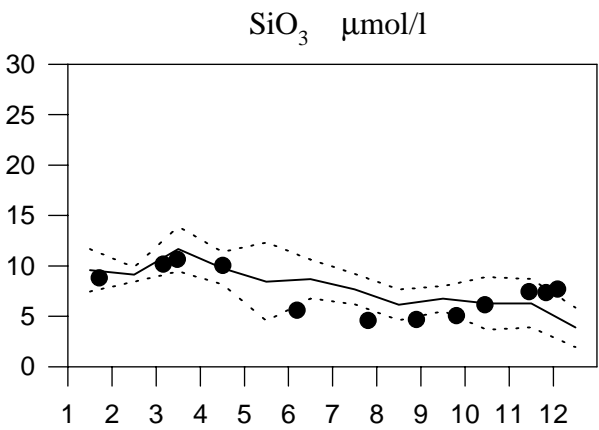
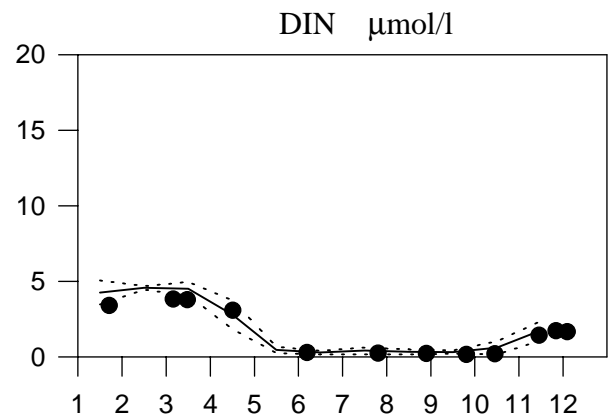
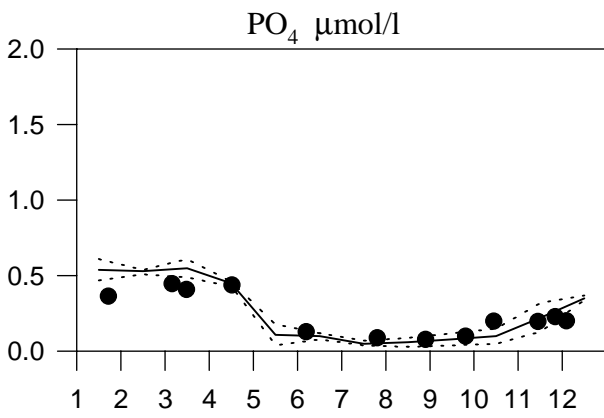
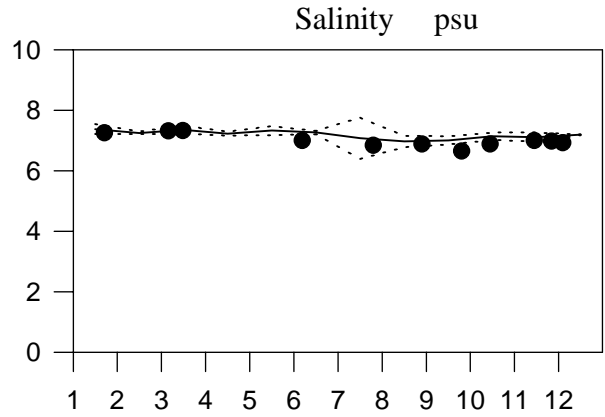
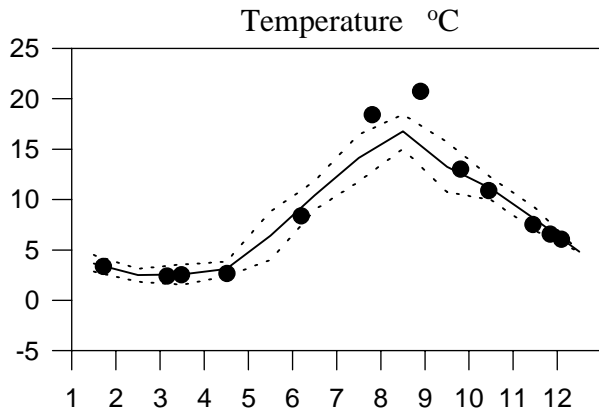
## OXYGEN IN BOTTOM WATER



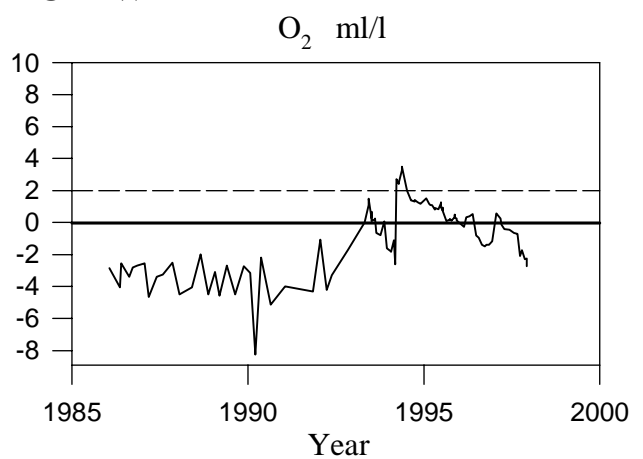
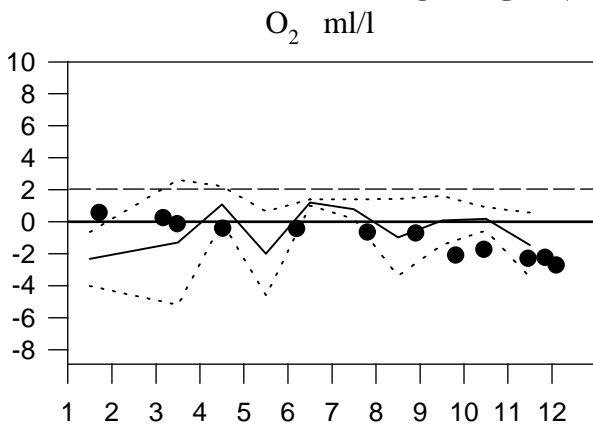
# STATION BY15 SURFACE WATER (0-15 m)

## Annual Cycles

— Mean 1986-1995    - - - St.Dev.    ● 1997

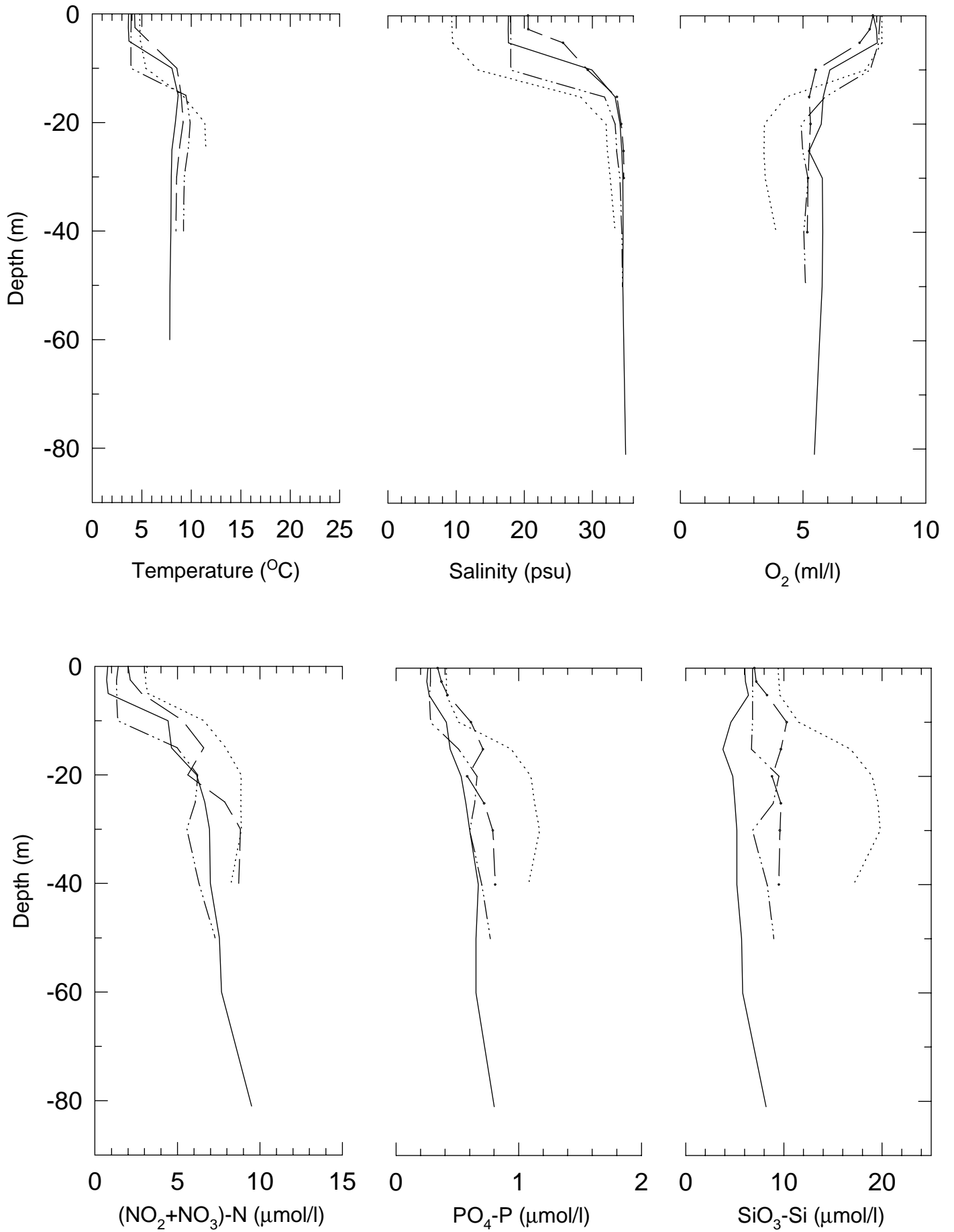


## OXYGEN IN BOTTOM WATER



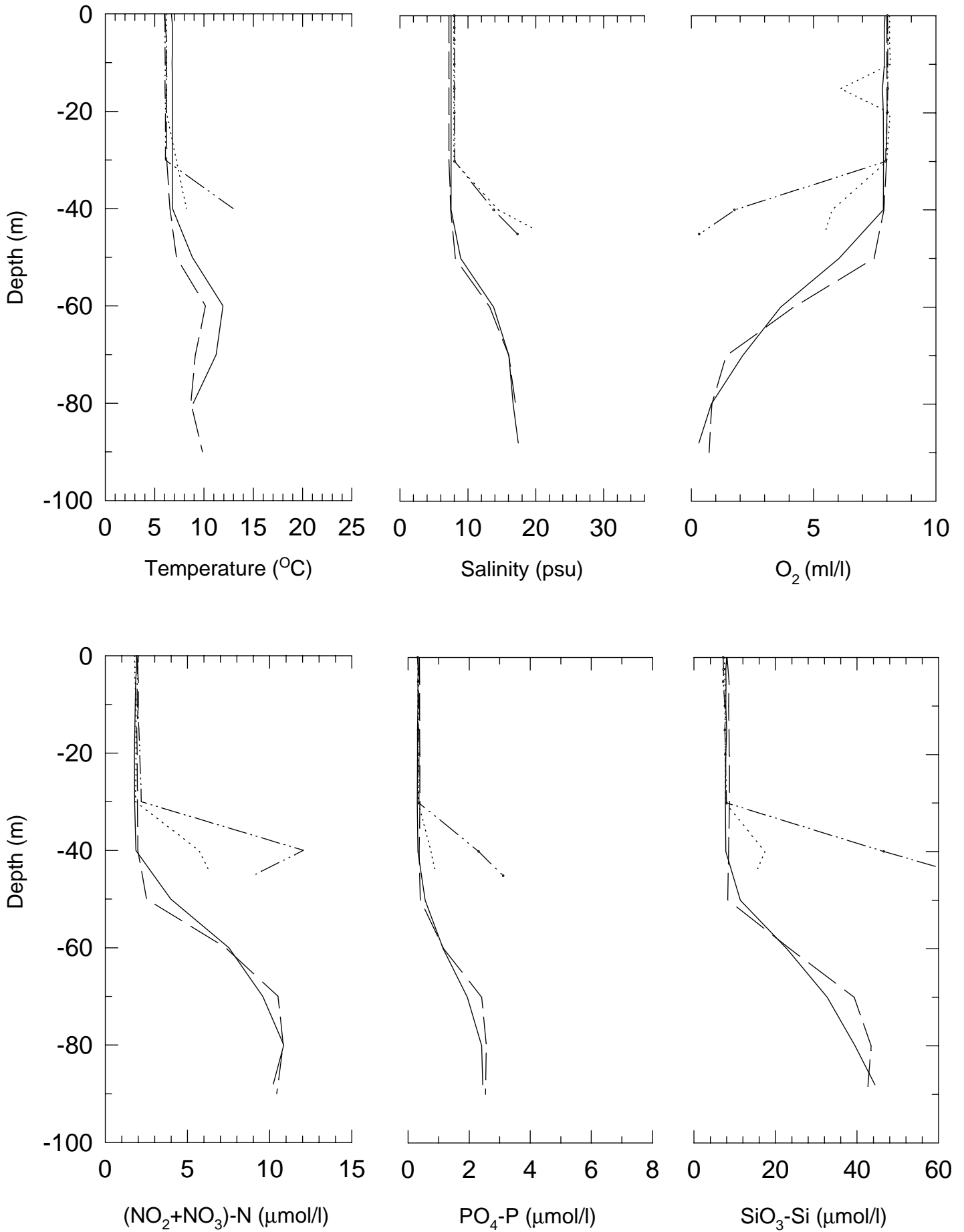
# KATTEGAT and THE SOUND week 49-51 -97

———— Fladen    - - - - Läsö    - · - · - Anholt E    ······ Landskrona



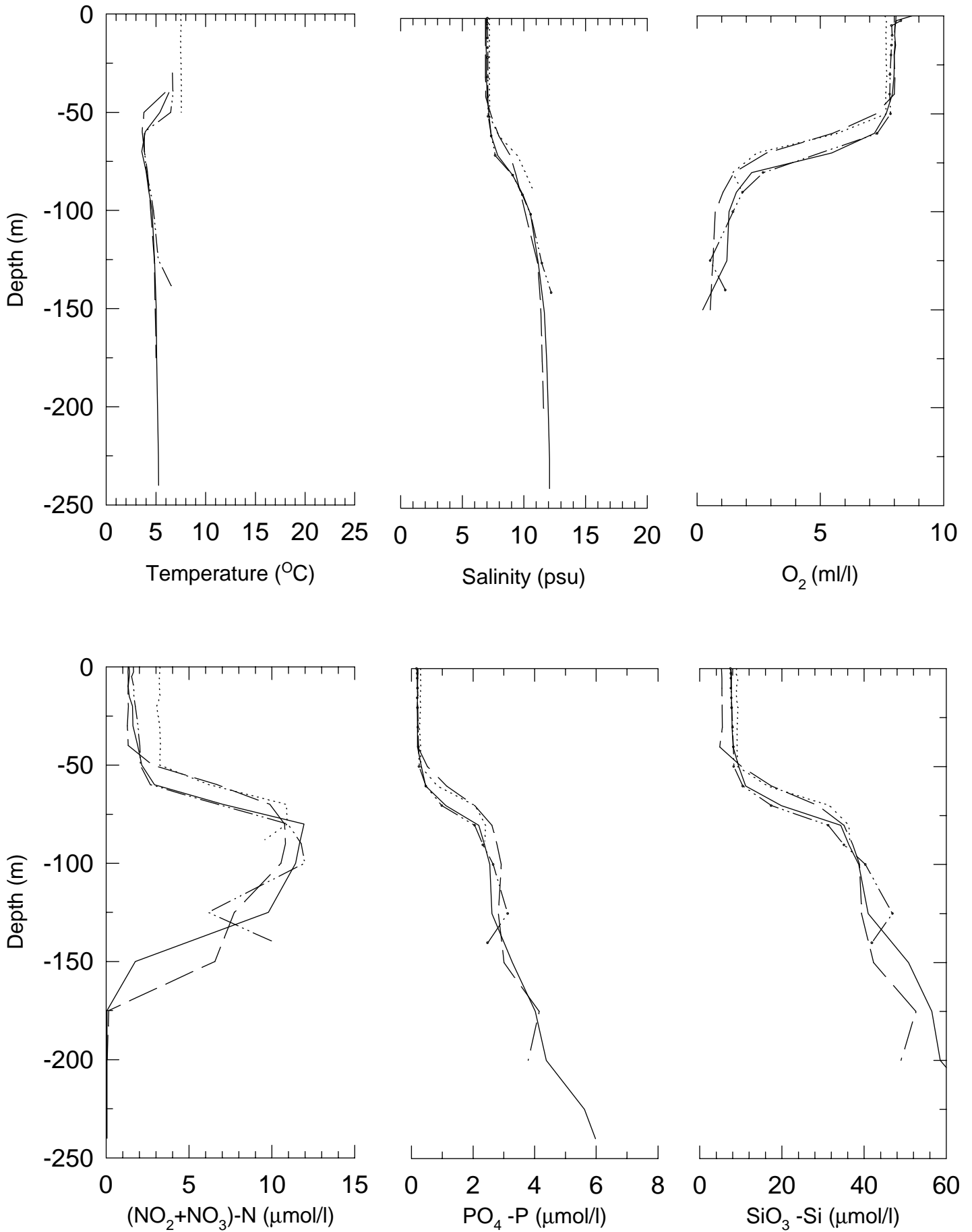
# SOUTH BALTIC week 49-51 -97

— BY5    - - - BY4    ····· BY2    ····· BY1



# EAST BALTIC week 49-51 -97

— — — BY20    ————— BY15    - - - - - BY10    ..... BCS III-10



# GULF OF BOTHNIA 971206-971210

