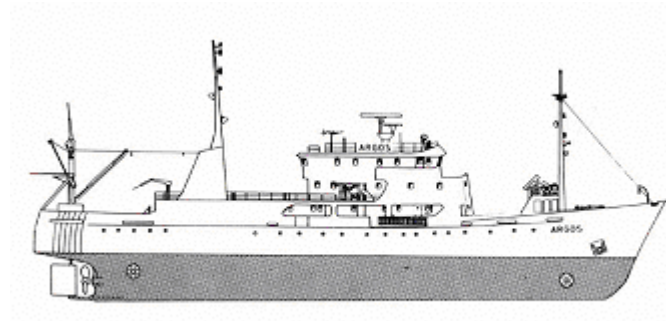


# EXPEDITIONSRAPPORT FRÅN U/F ARGOS



**Expeditionens varaktighet:** 2008-08-25 - 2008-09-12  
**Survey period:**

**Undersökningsområde:** Skagerrak, Kattegatt and the Sound  
**Survey area:**

**Uppdragsgivare:** National Board of Fisheries  
**Principal:** SMHI

## SUMMARY

The expedition was included within the National Board of Fisheries International Bottom Trawl Survey and covered the Skagerrak and the Kattegat.

In the Skagerrak, 9 stations with complete hydrography were taken. In the Kattegat mapping of oxygen conditions in bottom water was performed, 13 stations with complete hydrography and 14 with oxygen and salinity near bottom were sampled.

The lowest oxygen concentration measured in the bottom water of the Skagerrak was 3.67 ml/l at the station Släggö in the mouth of the Gullmarn fjord. Low oxygen values were measured in the Laholm Bay and in Skälderviken in the south-eastern part of Kattegat, 1.58 and 1.78 ml/l respectively.

The lowest oxygen value detected, 1.37 ml/l were found in the Sound (Lundåkrabukten).

*Data presented in this report have been subject to preliminary quality control procedures only.*

*The next ordinary SMHI expedition is scheduled for September 18 to 23, 2008.*

## **PRELIMINÄRA RESULTAT**

Expeditionen, som ingick i Fiskeriverkets beståndsuppskattning av bottenlevande fisk i Skagerrak och Kattegatt med Öresund, startade i Göteborg den 25:e augusti och avslutades i samma hamn den 12:e september.

Vädret var under expeditionen var växlande. Perioder med svaga vindar avlöstes av vindar med upp till kulingstyrka speciellt under andra veckan. Vindriktningen varierade i huvudsak mellan nordost och sydväst.

I Skagerrak togs 9 stationer med fullständig hydrografi. I Kattegatt med Öresund utfördes kartering av syre i bottenvattnet och där togs 13 stationer med komplett hydrografi och 14 med enbart oxygen och salt nära botten.

### **Skagerrak**

Ytvattentemperaturerna varierade från strax över 16°C utefter Bohuskusten till 18.5°C i de centrala delarna. Ytsalthalten låg kring 33.5 psu i de västra och centrala delarna av området och gick som lägst ned till ca. 23 psu närmast den svenska kusten.

Närsalthalterna i ytvattnet uppvisade, i huvudsak, normala värden för årstiden. Fosfat-koncentrationerna låg mellan 0.04 µmol/l och 0.10 µmol/l, förutom i Jyllandsströmmen där halterna var förhöjda, strax under 0.30 µmol/l. Koncentrationen av nitrat låg under detektionsgränsen (<0.10 µmol/l) i hela området. Silikat varierade mellan 0.3 och 1.9 µmol/l.

Den lägsta syrehalten i bottenvattnet, 3.67 ml/l, uppmättes vid botten på station Släggö i Gullmarfjordens mynning.

### **Kattegatt**

Ytvattentemperaturen varierade mellan 16.8 °C och 17.9°C. Ytsalthalten avtog från 31 psu i norr till 13.8 psu sydost, i Öresund låg salthalten på 9.5 psu. En skarp haloklin återfanns på djup mellan 10 och 20 meter.

Fosfathalten i ytan varierade mellan 0.05 µmol/l i de norra delarna till 0.15 µmol/l i de södra, vilket är normalt för årstiden. I Öresund uppmättes 0.31 µmol/l vilket är högre än normalt. Nitrat-koncentrationen i ytan låg under detektionsgränsen (<0.10 µmol/l) i hela området. Ytsilikathalten var 12.6 µmol/l i Öresund, vilket är högre än normalt. I övriga delar av området varierade den mellan 0.04 µmol/l och 2.7 µmol/l, vilket å andra sidan är något under det normala för årstiden.

Syrehalterna i öppna Kattegatts bottenvatten var normala, vid Anholt E registrerades 3.03 ml/l vid första provtagningen medan 3.14 ml/l registrerades under expeditionens sista vecka. De lägsta syrehalterna registrerades på stationen Lundåkrabukten i Öresund 1.37 ml/l. Vid ytterligare några stationer i sydöstra Kattegatt registrerades syrehalter i bottenvattnet under 2.00 ml/l (Laholmsbukten samt Skälderviken, 1.58 respektive 1.78 ml/l) Vid övriga provtagna stationer uppmättes syrevärden över 2.4 ml/l i bottenvattnet.

## DELTAGARE

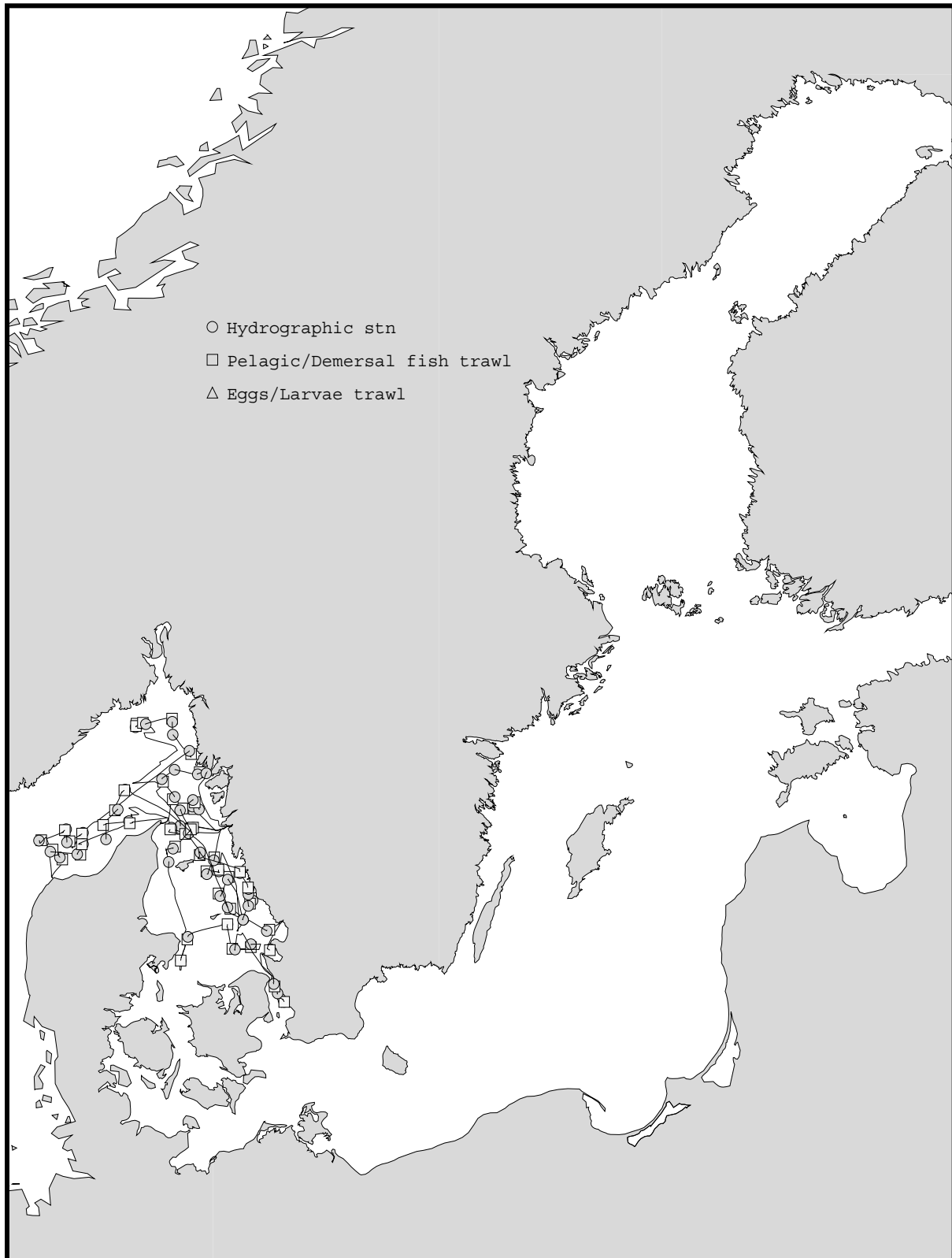
Namn		Från
Sara Johansson	v 35	SMHI Oceanografiska lab
Jan Szaron	v 35	- ” -
Johan Håkansson	v 36	- ” -
Sari Sipilä	v 36	- ” -
Lars Andersson	v 37	- ” -
Bengt Yhlen	v 37	- ” -

## BILAGOR

- Färdkarta
- Tabell över besökta stationer, meteorologiska förhållanden och provtagna parametrar under expeditionen
- Karta över syrehalter i bottenvattnet
- Profilplottar för vissa basstationer
- Månadsmedelvärdesplottar för vissa basstationer

# TRACK CHART

Country: Sweden  
Ship : Argos  
Date : 20080825-20080911  
Series : 0442-0502







# Bottom water oxygen concentration (ml/l)

Country: Sweden

Ship : Argos

Date : 20080825-20080911

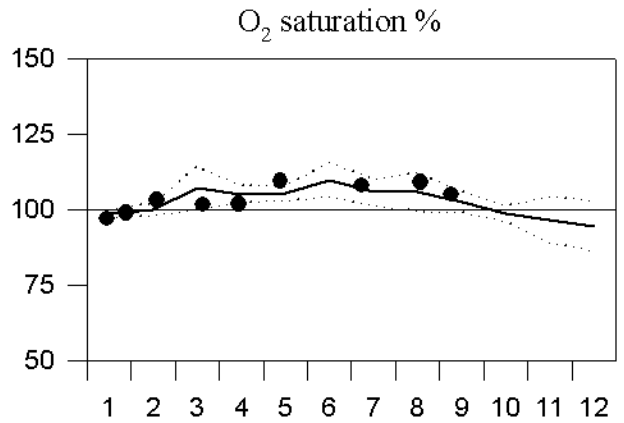
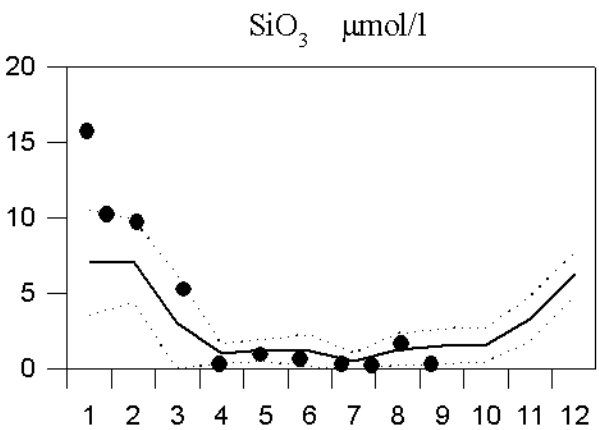
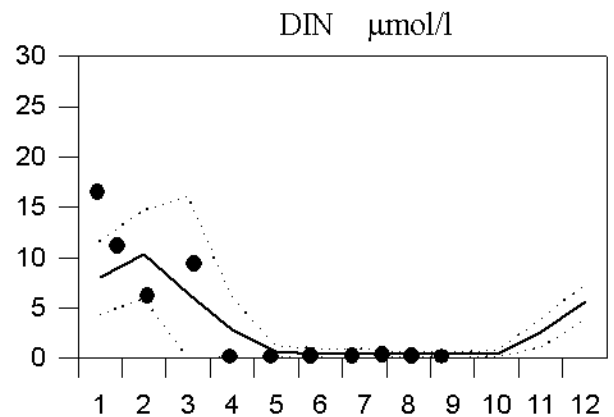
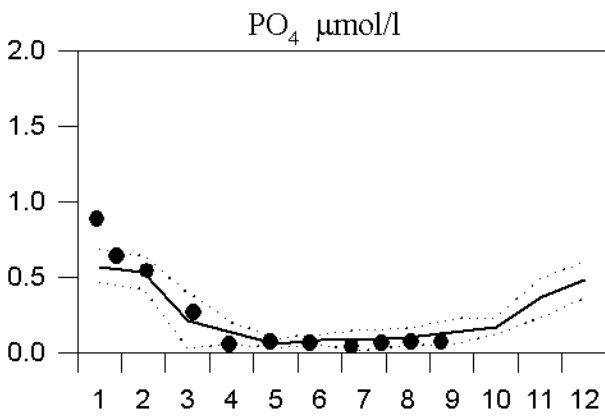
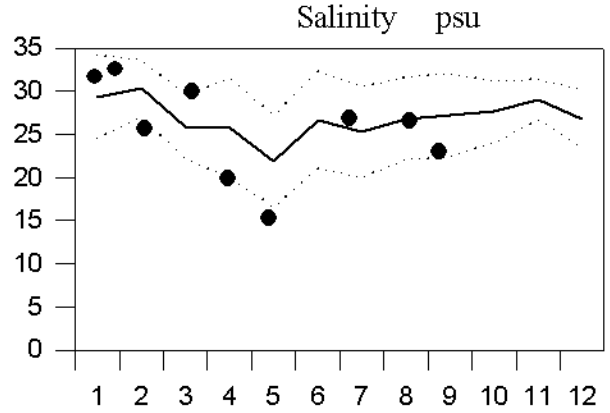
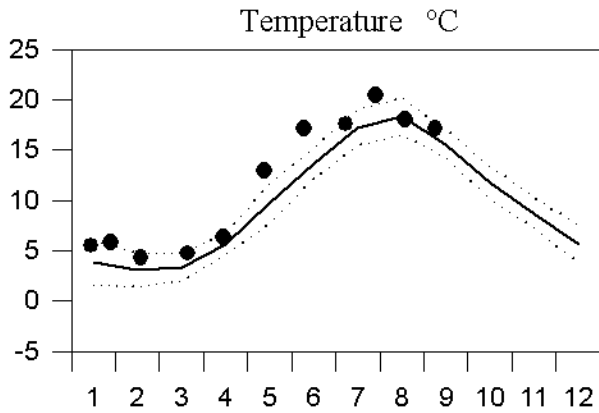
Series : 0442-0502



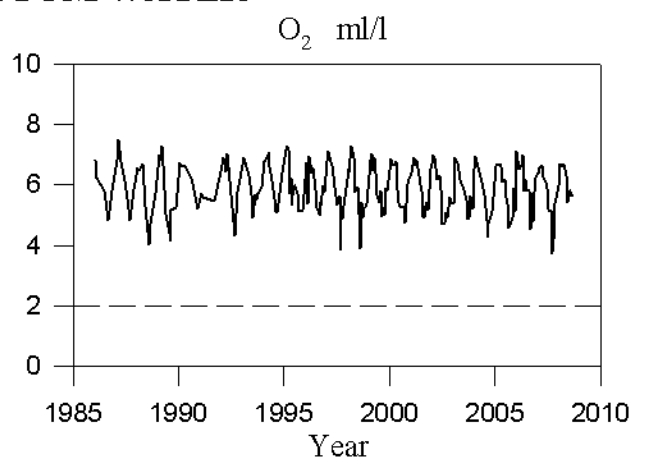
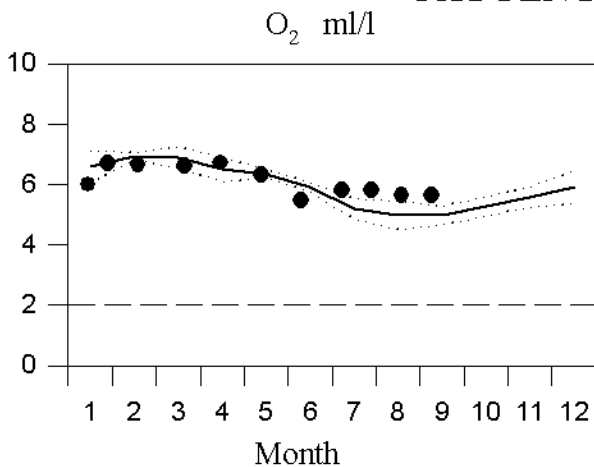
# STATION P2 SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ..... St.Dev.      ● 2008



## OXYGEN IN BOTTOM WATER

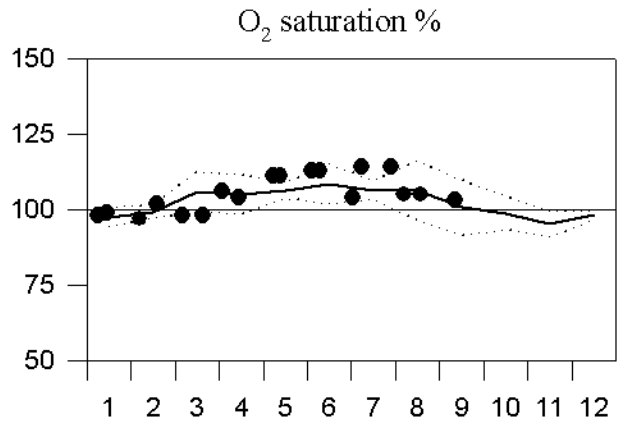
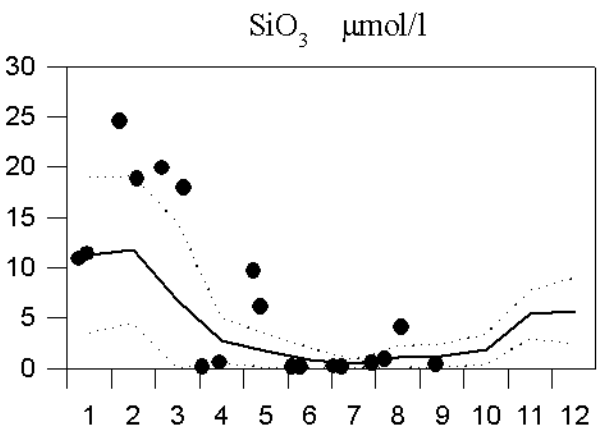
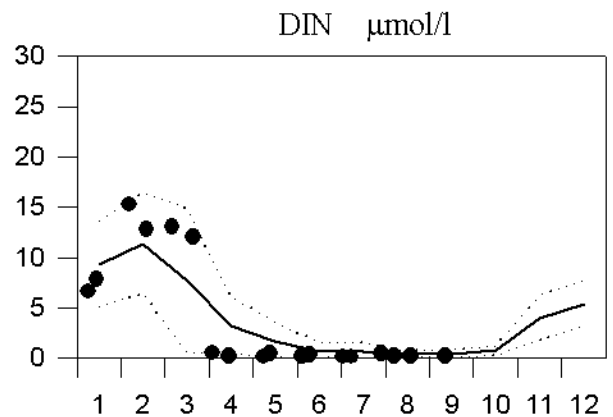
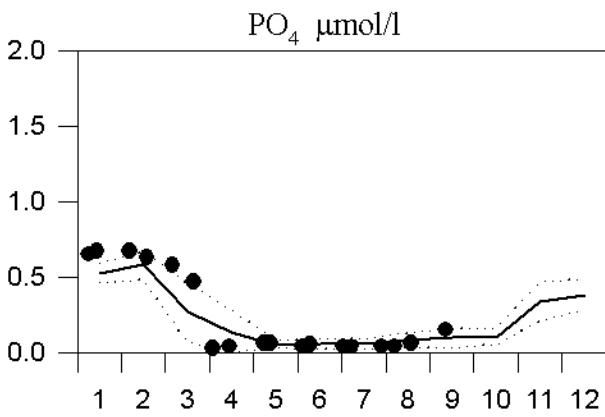
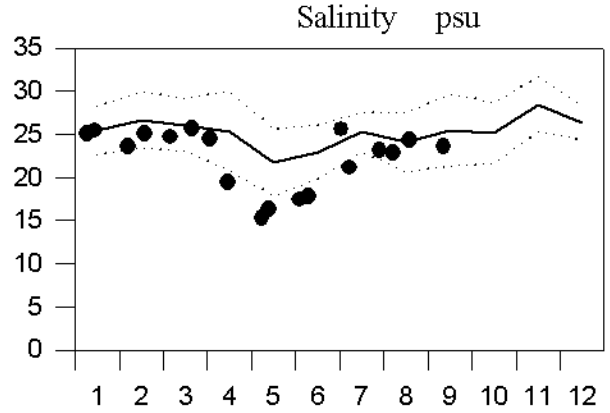
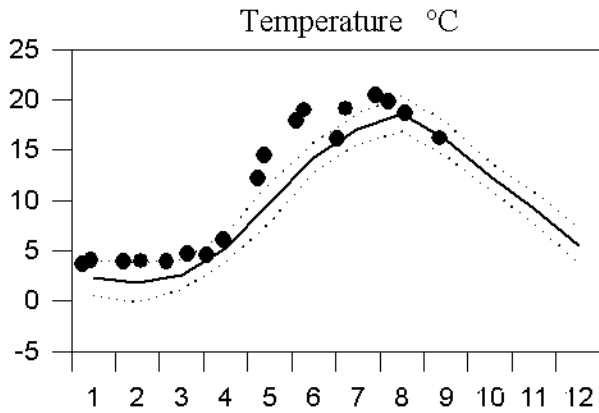




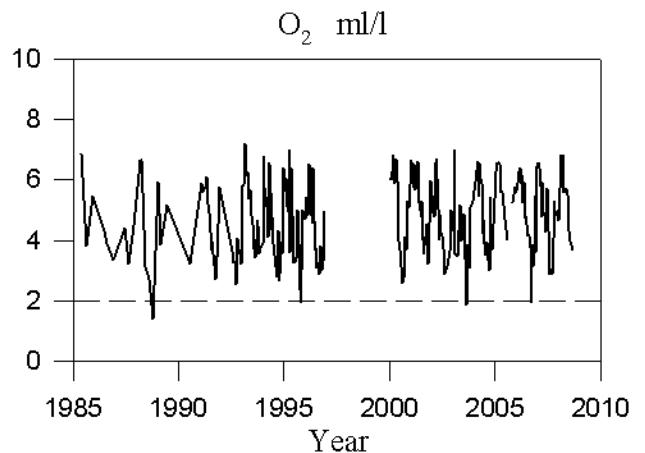
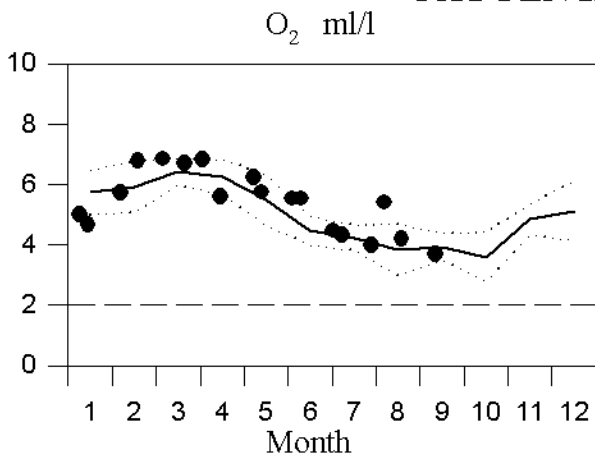
# STATION SLÄGGÖ SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ..... St.Dev.      ● 2008



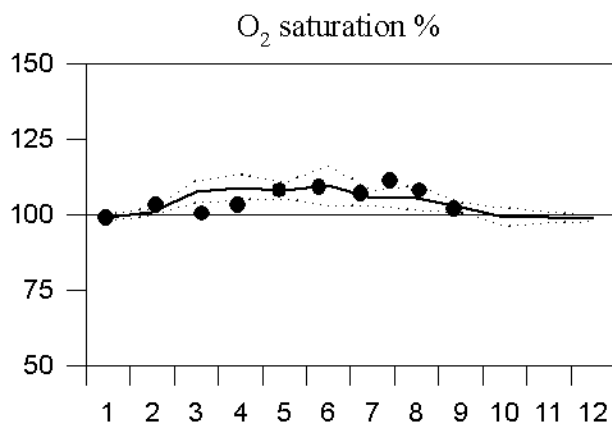
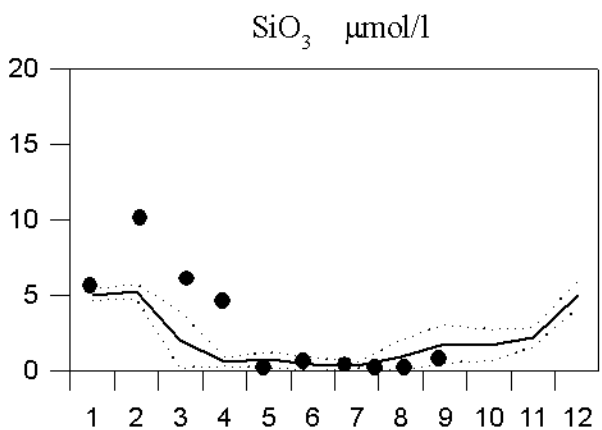
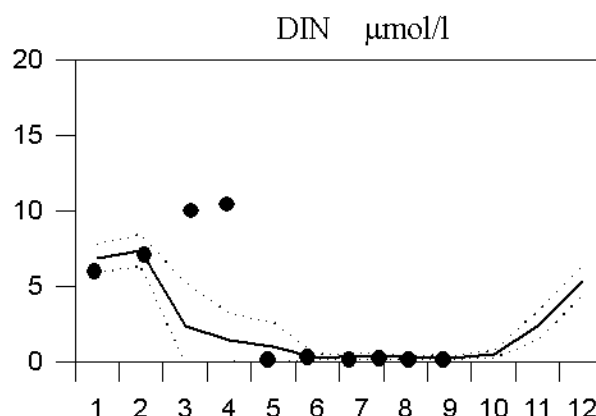
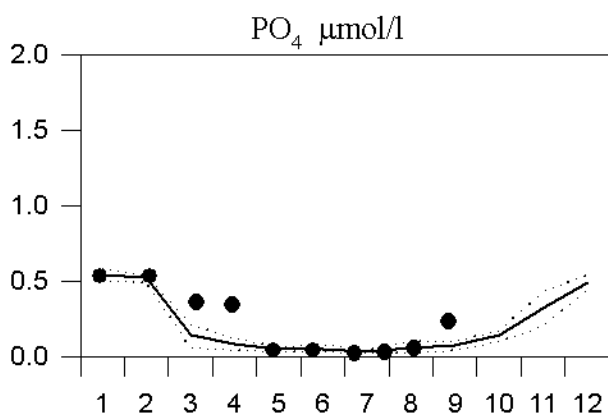
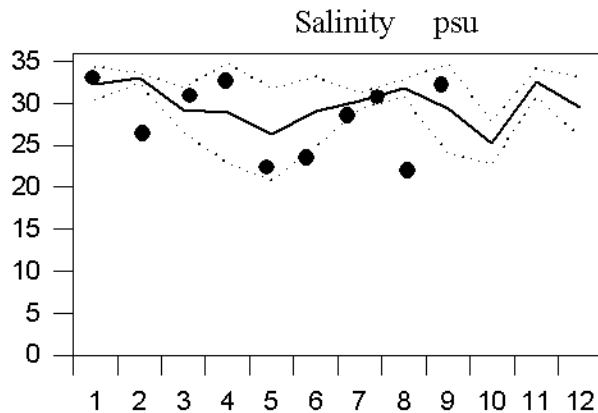
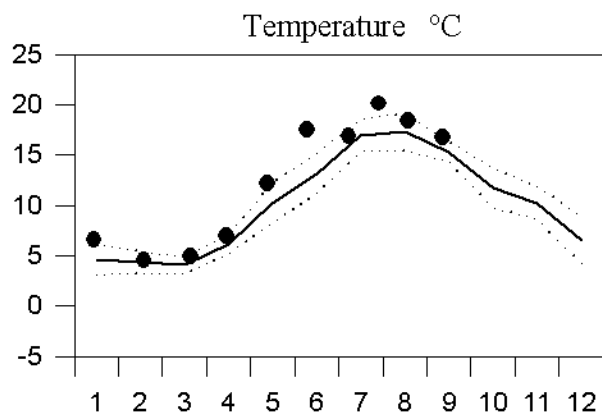
## OXYGEN IN BOTTOM WATER



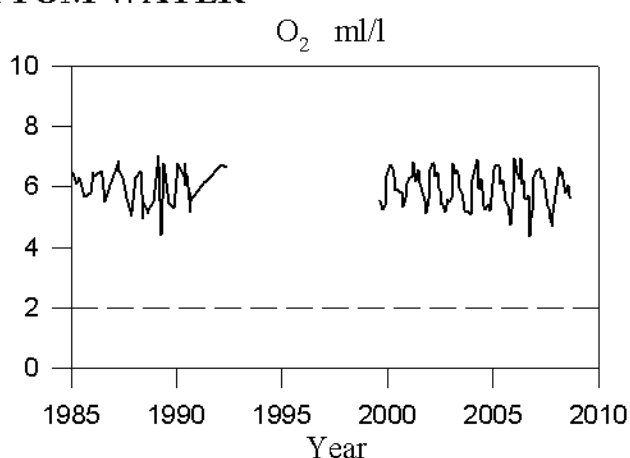
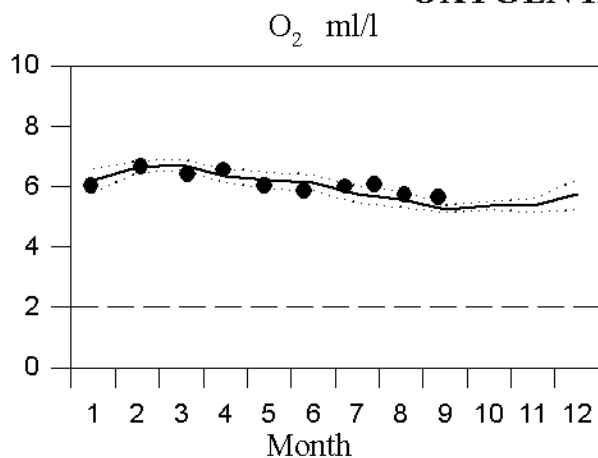
# STATION Å15 SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ..... St.Dev.      ● 2008



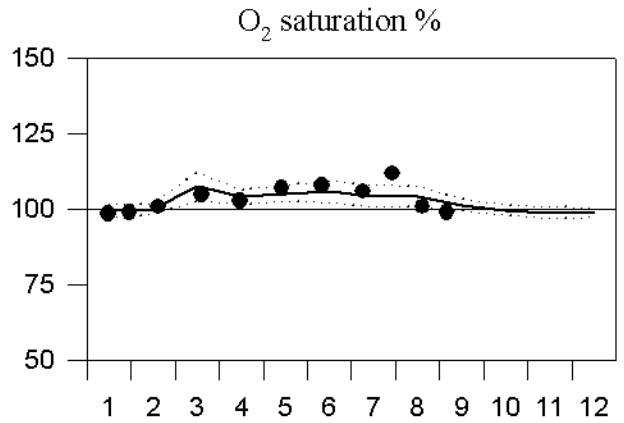
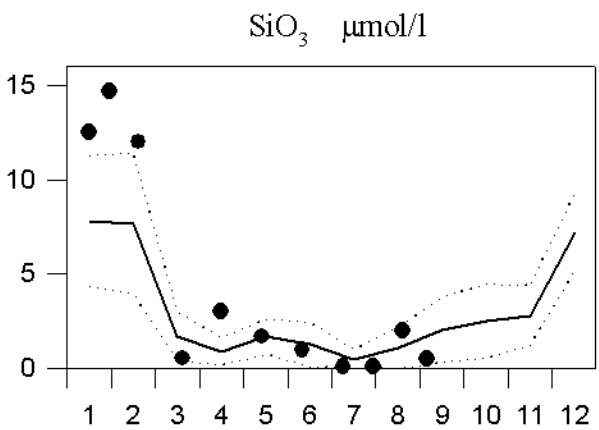
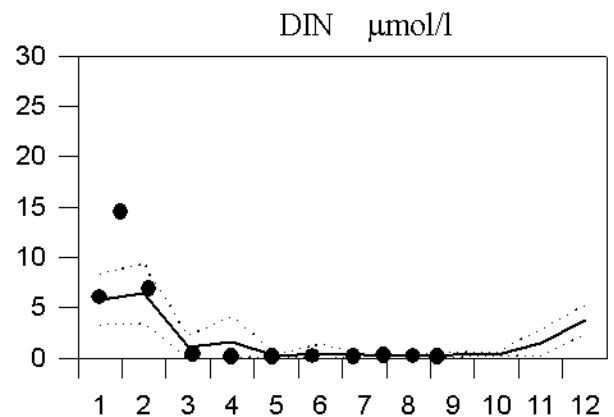
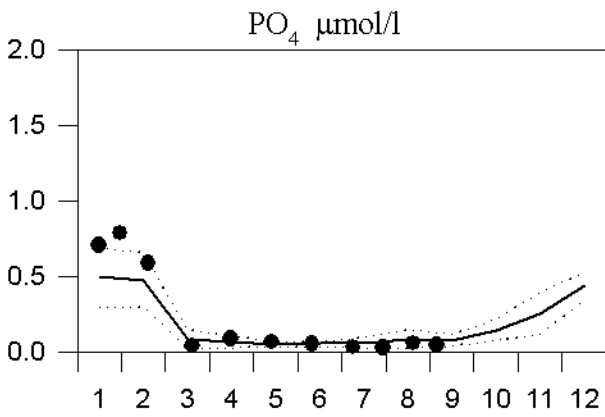
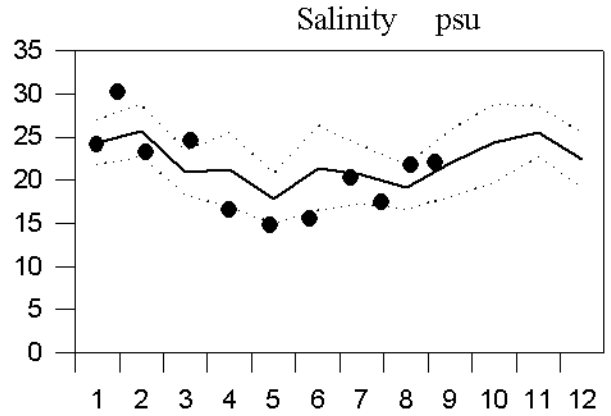
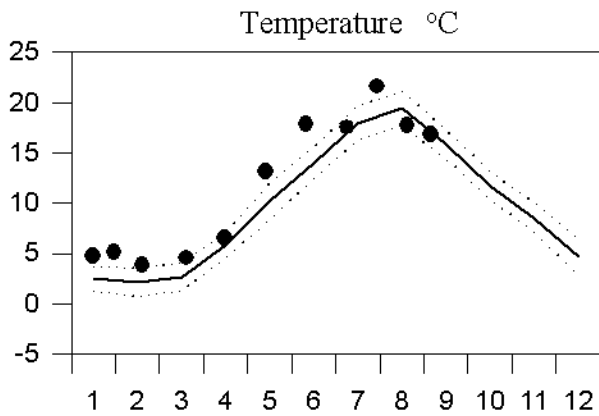
## OXYGEN IN BOTTOM WATER



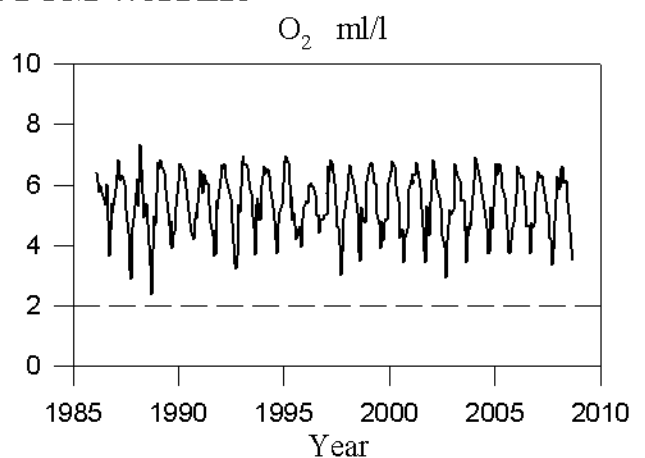
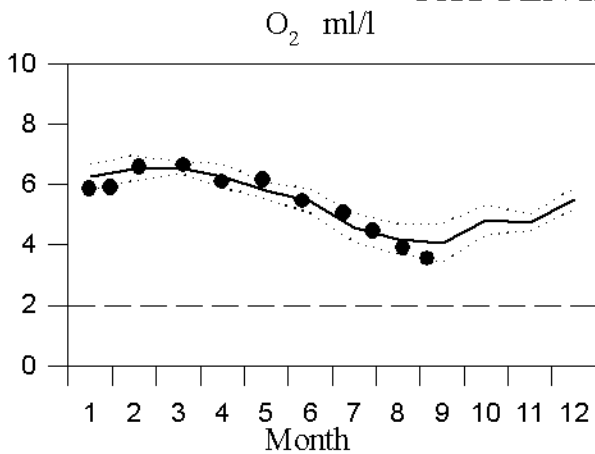
# STATION FLADEN SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ····· St.Dev.      ● 2008



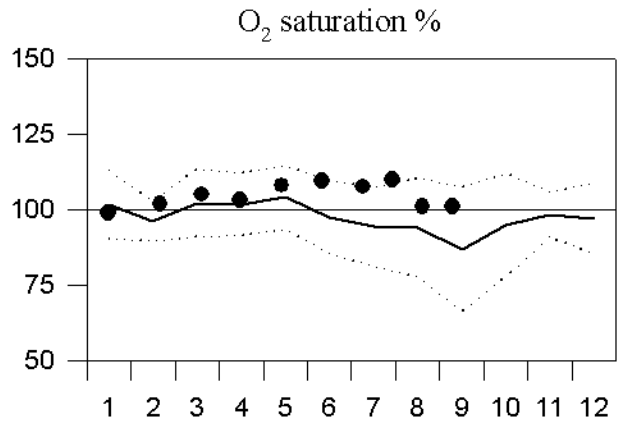
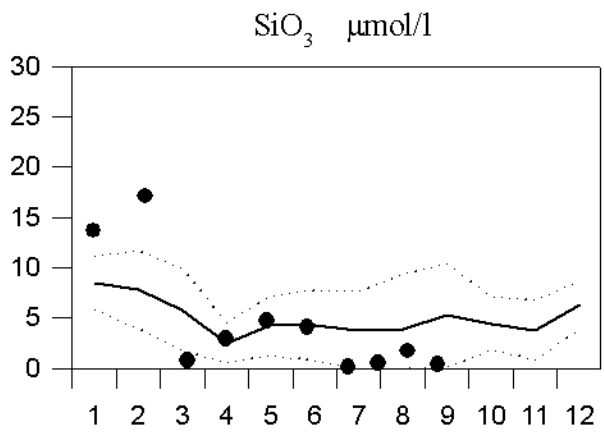
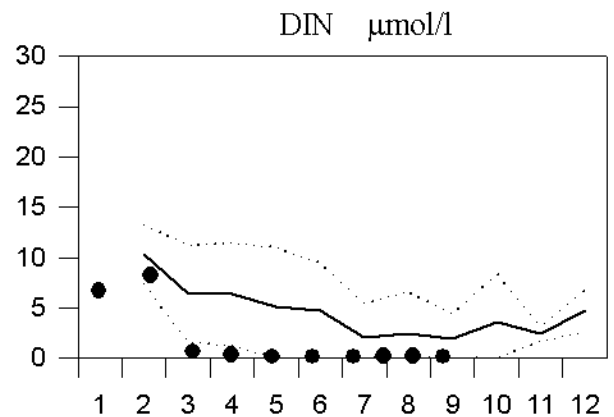
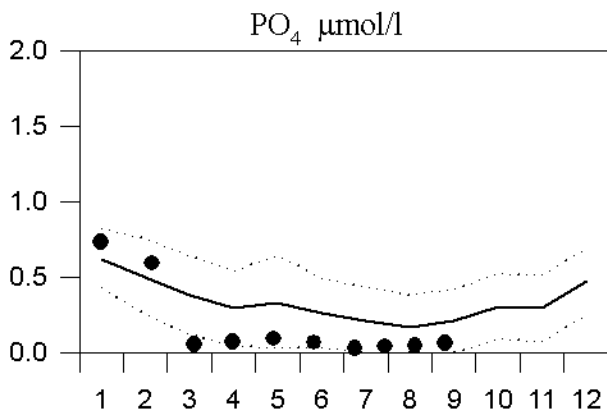
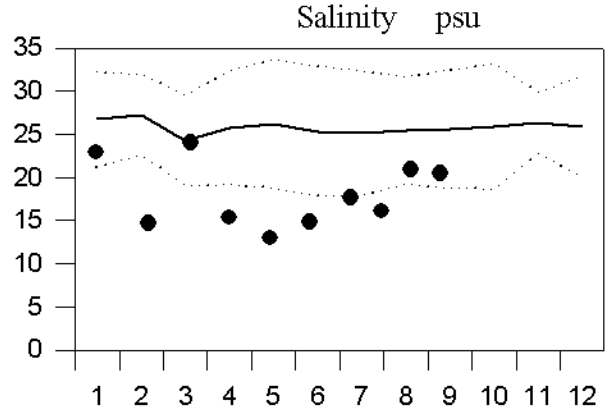
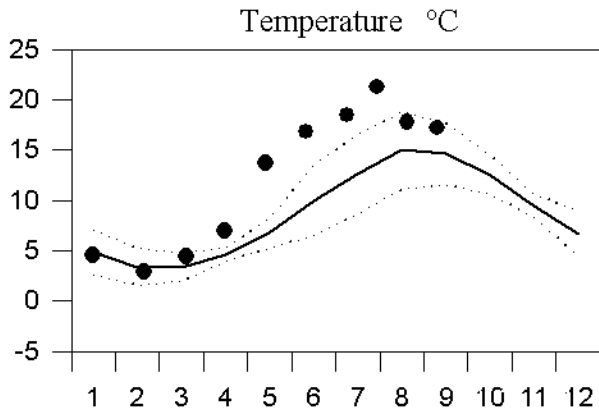
## OXYGEN IN BOTTOM WATER



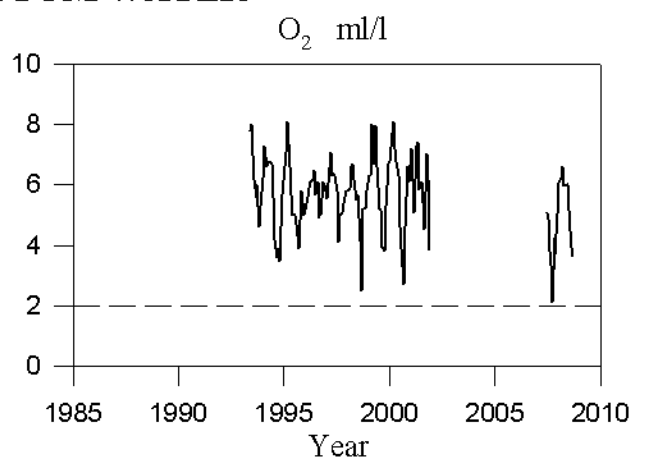
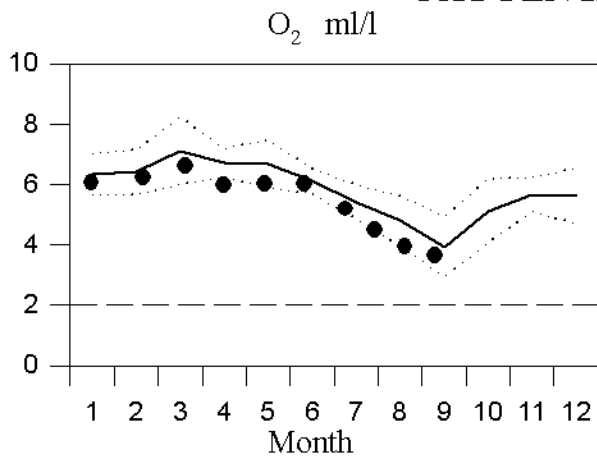
# STATION N14 Falkenberg SURFACE WATER

— Mean 1995-2001    ..... St.Dev.    **Annual Cycles**    ● 2008

Mean and st.dev. based on data from other source than SMHI.



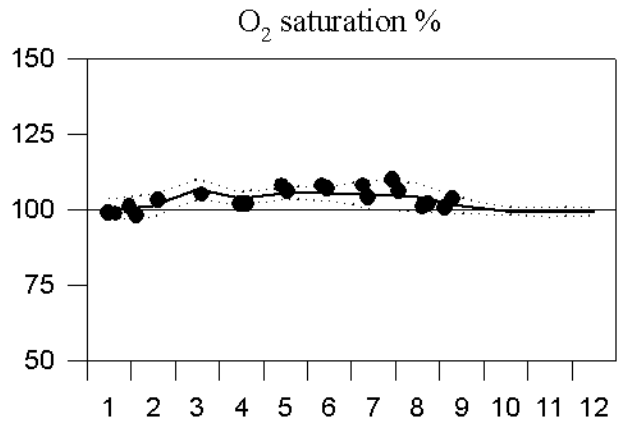
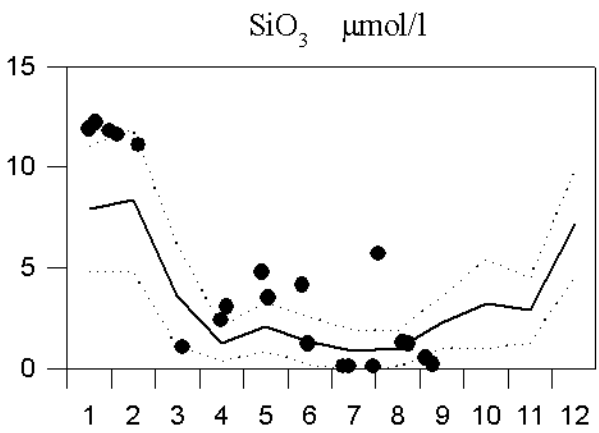
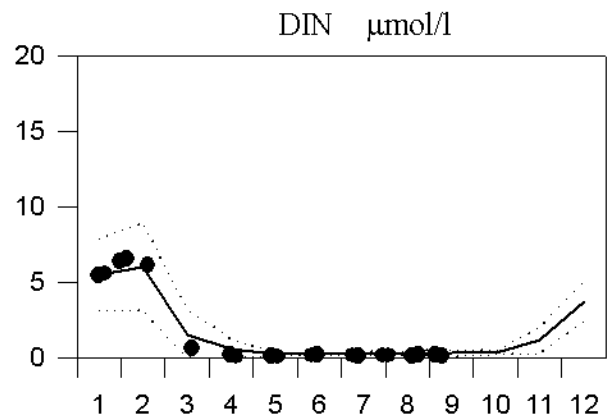
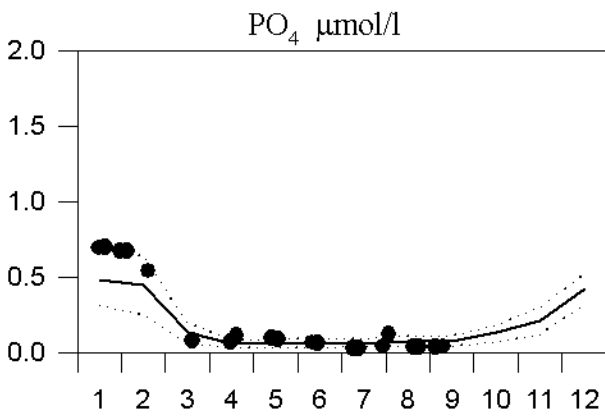
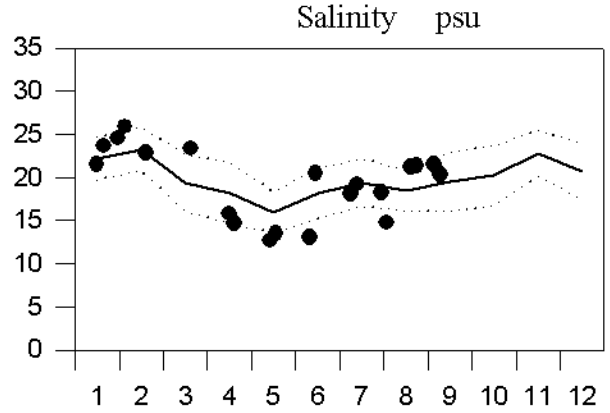
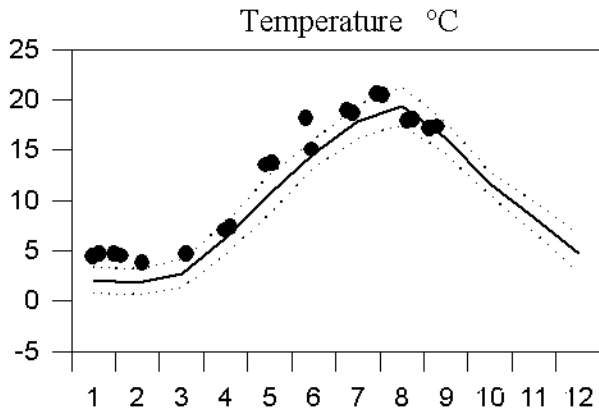
## OXYGEN IN BOTTOM WATER



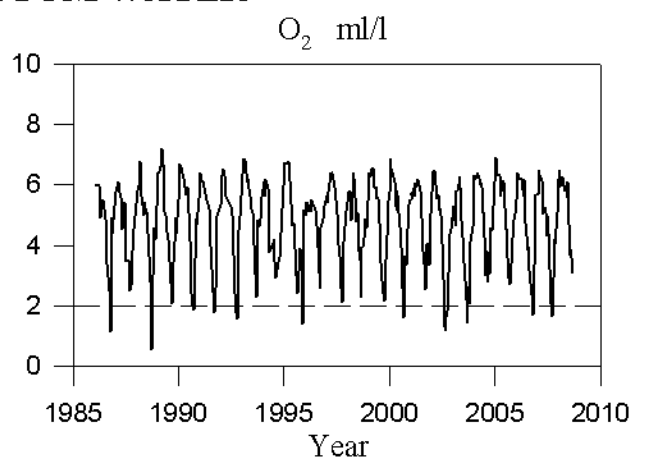
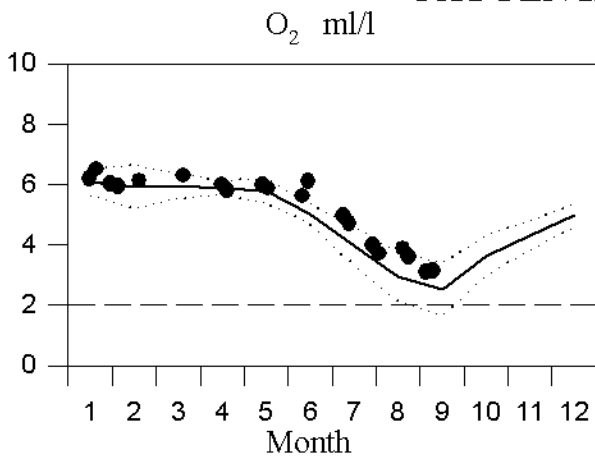
# STATION ANHOLT E SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ..... St.Dev.      ● 2008



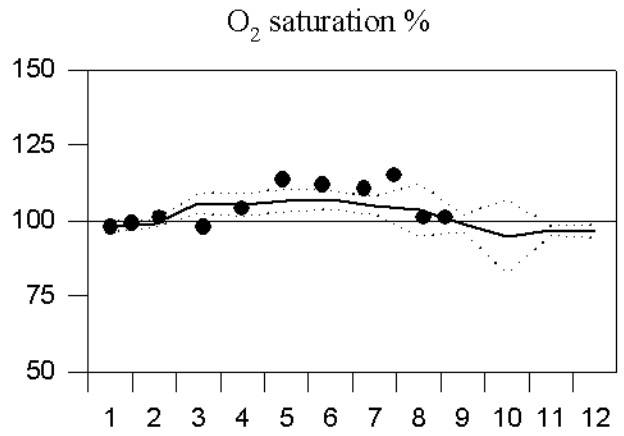
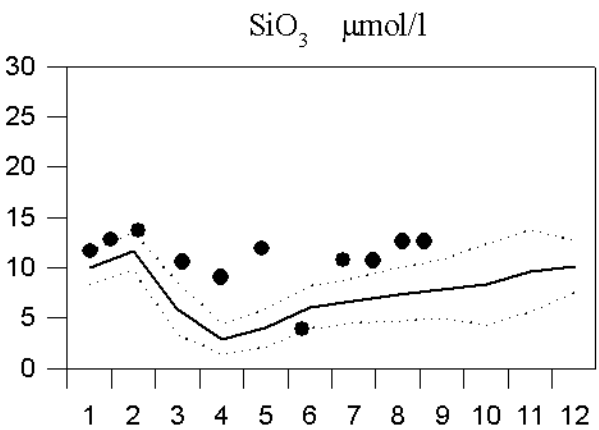
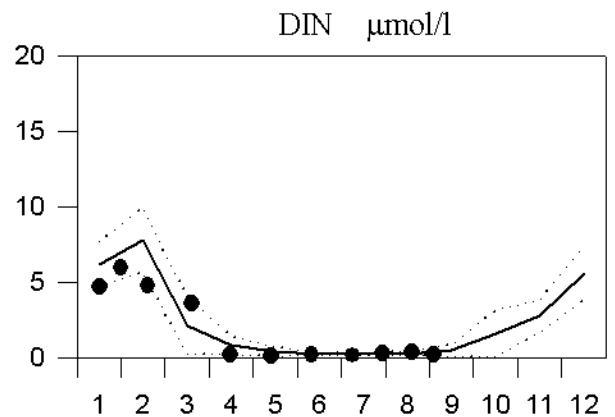
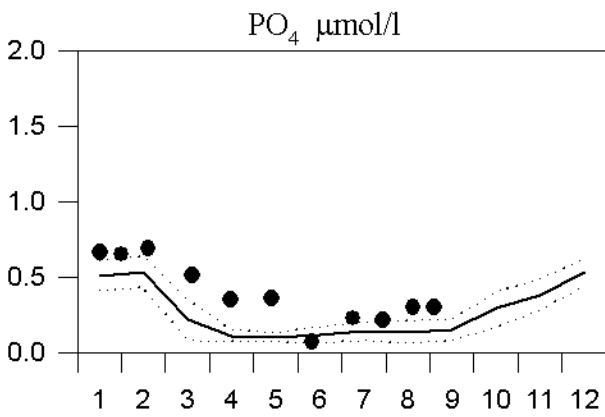
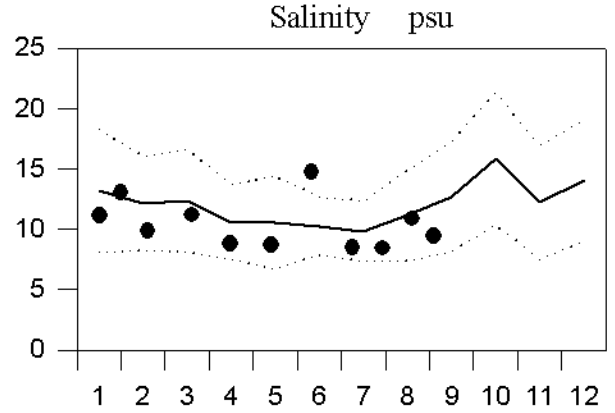
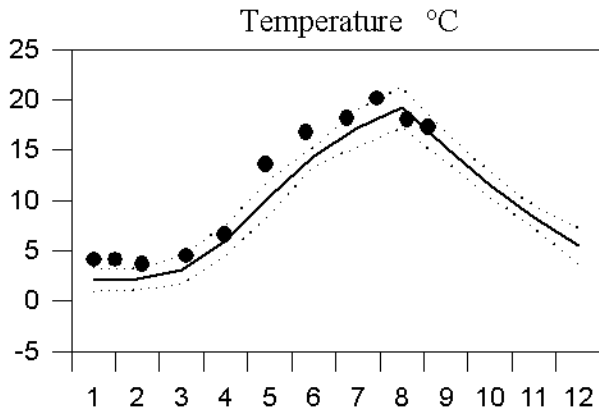
## OXYGEN IN BOTTOM WATER



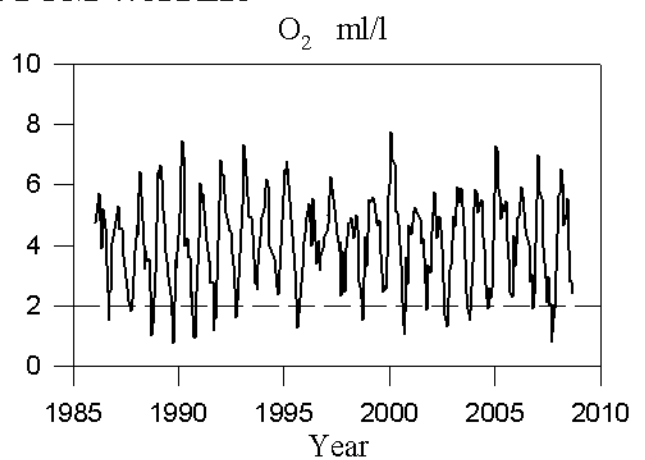
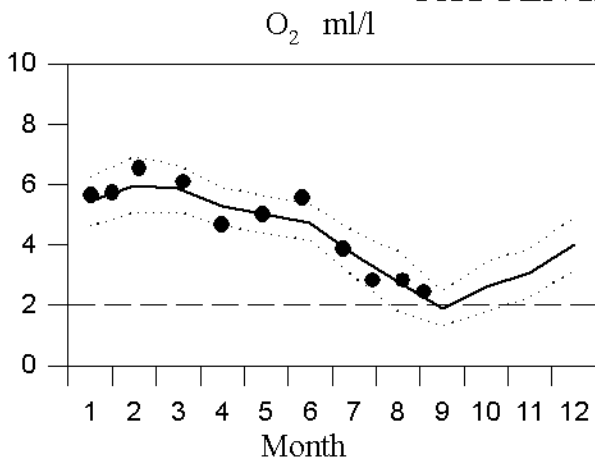
# STATION W LANDSKRONA SURFACE WATER

## Annual Cycles

— Mean 1995-2004      ..... St.Dev.      ● 2008

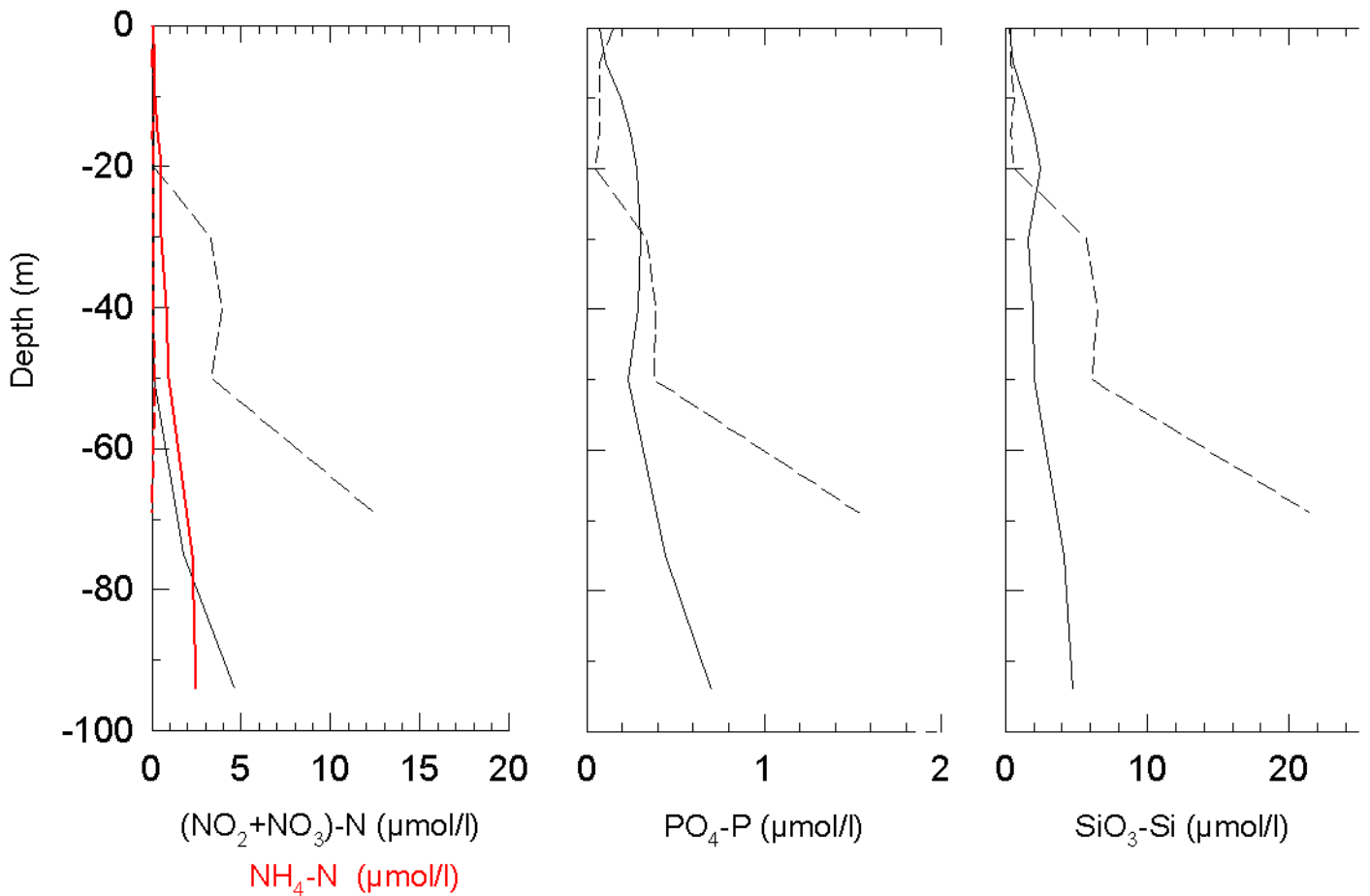
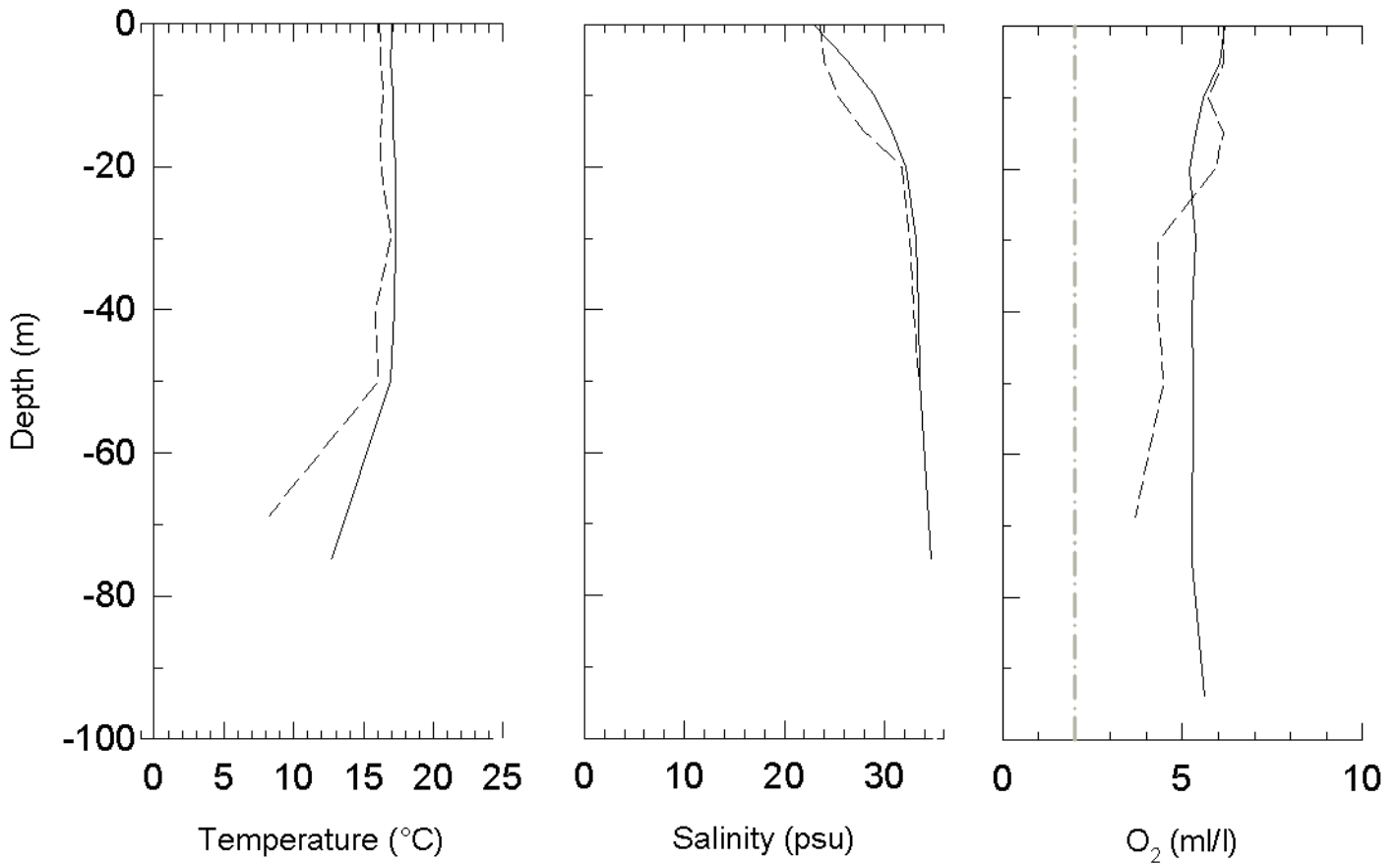


## OXYGEN IN BOTTOM WATER



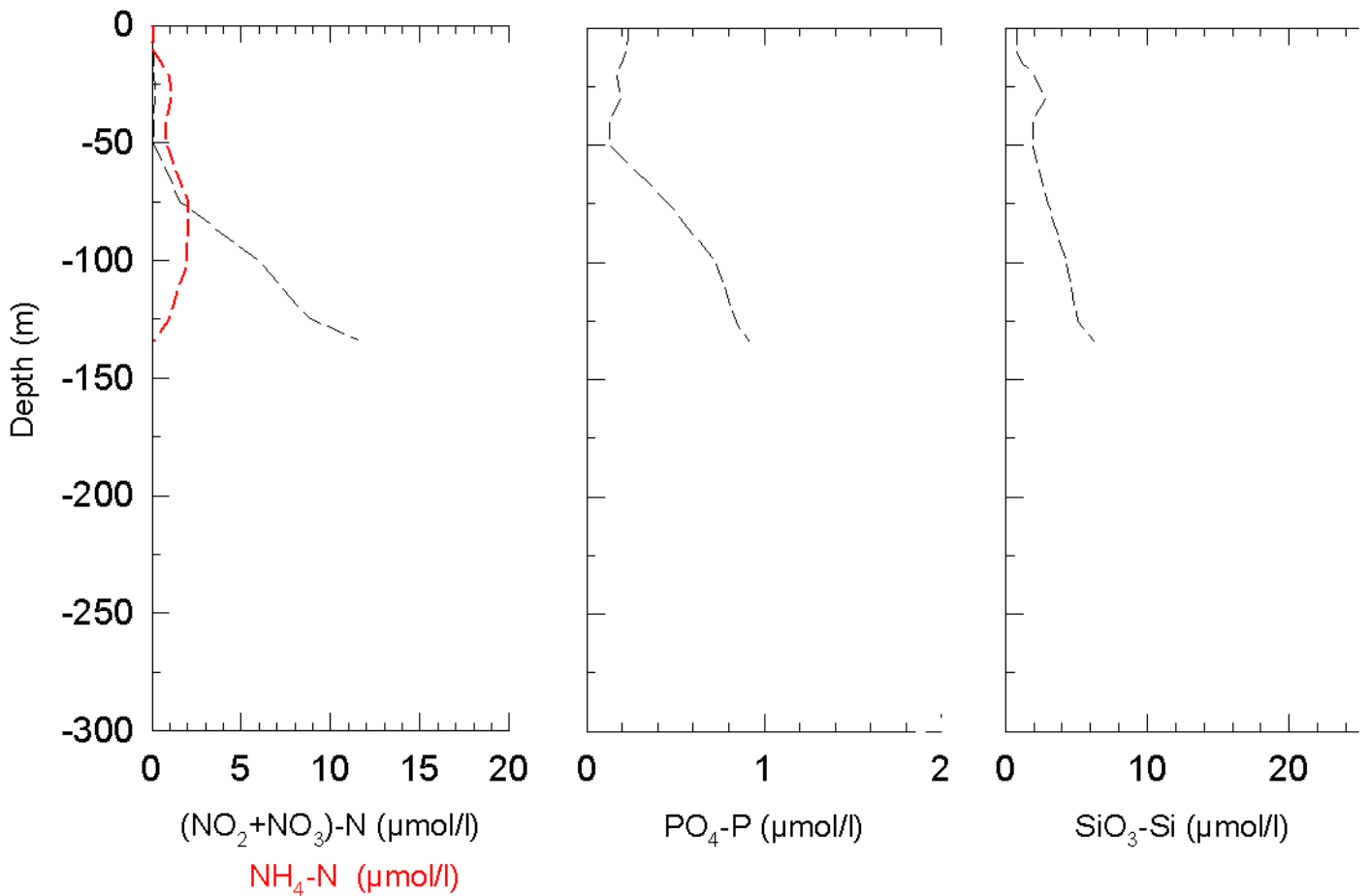
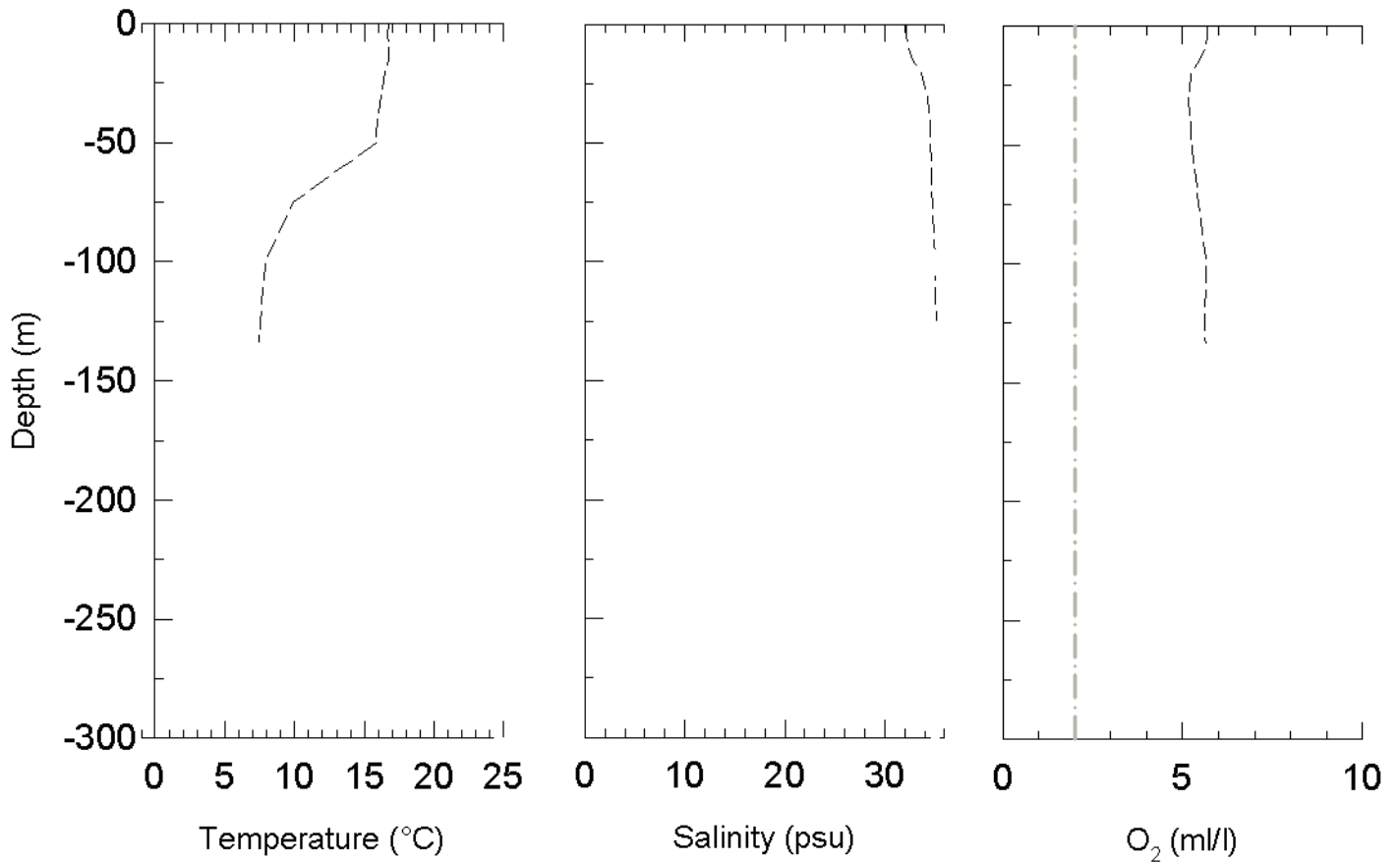
# SKAGERRAK Coast 20080908-20080911

———— P2      - - - - Släggö



# SKAGERRAK Å-Section 20080911

—— Å13    - - - - - Å15    ..... Å17





# KATTEGAT and THE SOUND 20080903-20080909

