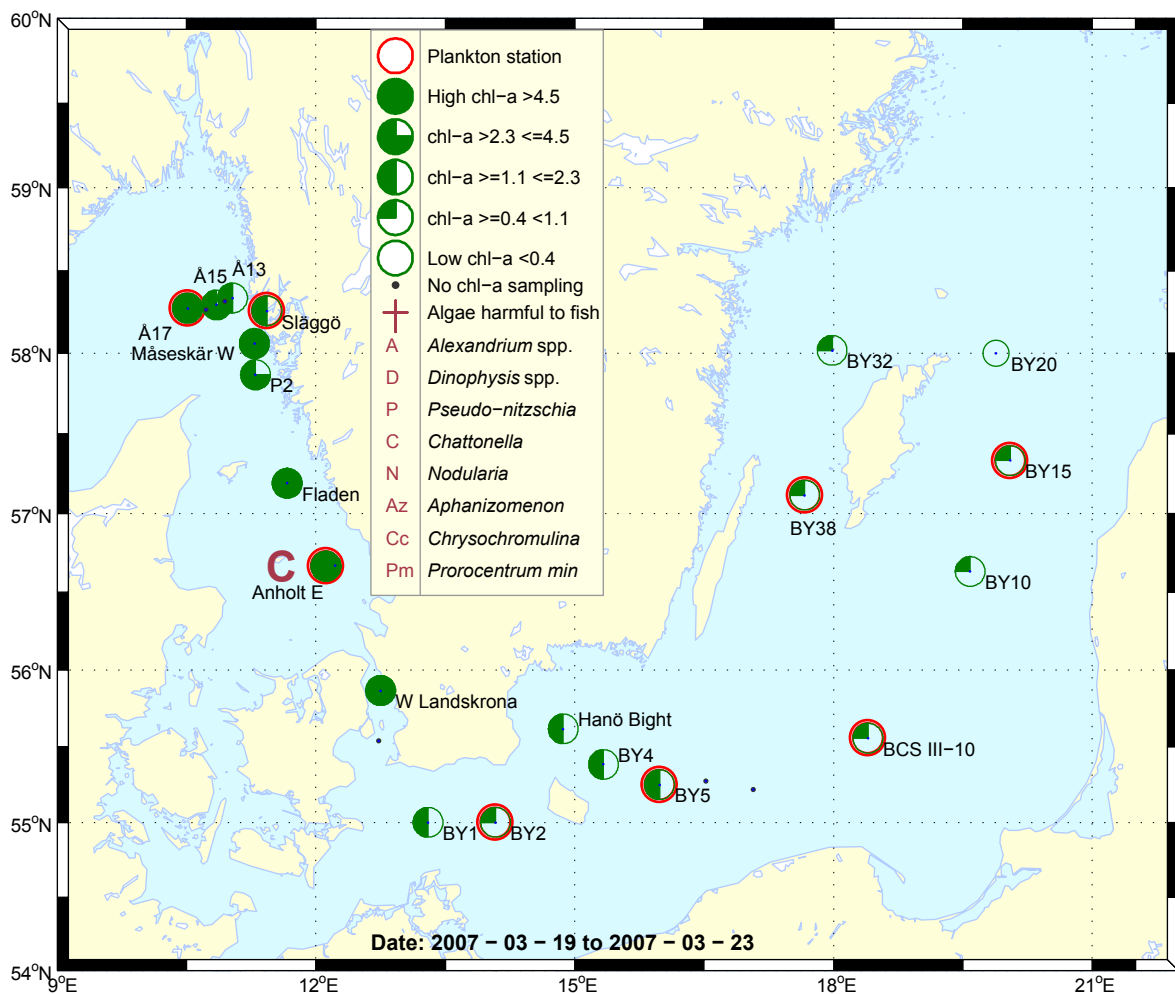


Sammanfattning

I Västerhavet pågick vårbloomingen av kiselalger för fullt vid provtagningarna i mars. De högsta cellantalen noterades vid Anholt E i Kattegat där drygt tre miljoner celler per liter noterades. Vid alla stationer i Västerhavet dominerade kiselalger proverna. Den vanligaste arten var *Skeletonema costatum*. Dinoflagellater var fåtaliga vilket även gäller ciliater. Det är värt att uppmärksamma att *Chattonella* cf. *verruculosa* förekom med drygt en halv miljon celler per liter vid Anholt E. Denna flagellat kan orsaka fiskdöd genom att fiskars gälar skadas. Arten förekom inte i proverna från Släggö och Å17 i Skagerrak. I Östersjön var växtplanktonbiomassan låg. Vårbloomingen har inte startat där ännu vilket är fullt normalt.



Abstract

The March samples showed a remarkable phytoplankton bloom both in the Kattegat and the Skagerrak. Anholt E station in the Kattegat, however was the most productive among all where cell count reached 3.162.516 cell/litre. Phytoplankton population in all stations was dominated exclusively by diatoms, mostly by *Skeletonema costatum*. Dinoflagellates were surprisingly rare both in species number and in cell density. Similarly, ciliates were very rare and constituted merely a small fraction of the plankton. One of the noticeable features in this spring bloom is the occurrence of *Chattonella* cf. *verruculosa* in Anholt E and reached a peak of 459 940 cell/l. In comparison to 2006, this *Chattonella* bloom seems the highest although it is below the critical harmful level. This species did not appear in samples from Släggö or station Å17. In the Baltic phytoplankton biomass was low. The spring bloom has not started there yet which is normal.

Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på mikroskopanalys av planktonprover samt klorofyllmätningar presenteras kortfattat i denna rapport. Information från SMHI:s satellitövervakning av algblomningar finns på www.smhi.se.

About AlgAware

SMHI carries out monthly cruises with R/V Argos in the Baltic and the Kattegat/Skagerrak. Results from microscopic analysis of phytoplankton samples as well as chlorophyll measurements are presented in brief in this report. Information from SMHI:s satellite monitoring of algal blooms is found on www.smhi.se.

Art / Species	Gift / Toxin	Eventuella symptom	Clinical symptoms
<i>Alexandrium</i> spp.	Paralytic shellfish poisoning (PSP)	Milda symptom: Inom 30 min.: Stickningar eller en känsla av bedövning runt läpparna, som sprids gradvis till ansiktet och nacken; stickningar i fingertoppar och tår; Huvudvärk; yrsel, illamående, kräkningar, diarré Extrema symptom: Muskelförlamning; andningssvårigheter; känsla av att kvävas; Man kan vara död inom 2-24 timmar efter att ha fått i sig giftet, på grund av att andningsmuskulaturen förlamas.	Mild case: Within 30 min: tingling sensation or numbness around lips, gradually spreading to face and neck; prickly sensation in fingertips and toes; headache, dizziness, nausea, vomiting, diarrhoea. Extreme case Muscular paralysis; pronounced respiratory difficulty; choking sensation; death through respiratory paralysis may occur within 2-24 hours after ingestion.
<i>Dinophysis</i> spp.	Diarrhetic shellfish poisoning (DSP)	Milda symptom: Efter cirka 30 minuter till några timmar: yrsel, illamående, kräkningar, diarré, magont Extrema symptom: Upprepad exponering kan orsaka cancer	Mild case: Within 30 min-a few hours: dizziness, nausea, vomiting, diarrhoea, abdominal pain. Extreme case: Repeated exposure may cause cancer.
<i>Chattonella</i> spp.	Fish toxin	Låg celltäthet: Ingen påverkan. Hög celltäthet: Fiskens gälar skadas, fisken dör.	Low cell numbers: No effect on fish. High cell numbers: Fish death due to gill damage.
<i>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	Milda symptom: Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramper Extrema symptom: Yrsel, hallucinationer, förvirring, förlust av korttidsminnet, kramper	Mild case: Within 3-5 hours: dizziness, nausea, vomiting, diarrhoea, abdominal cramps. Extreme case: dizziness, hallucinations, confusion, loss of memory, cramps.

Översikt av potentiellt skadliga alger och det aktuella giftets effekt. Overview of potentially harmful algae and effects of toxins. Manual on harmful marine microalgae (2003 - UNESCO Publishing).

Kartan på framsidan visar viktat medelvärde för klorofyll *a*, µg/l (0-20 m) vid de olika stationerna. Förekomst av skadliga alger vid stationer där arter analyseras markeras med symbol.

The map on the front page shows weighted mean of chlorophyll *a*, µg/l (0-20 m) at sampling stations. Presence of harmful algae at stations where species analysis is performed is shown with a symbol

More detailed information on species composition and abundance

The Kattegat

Anholt E 22nd March 2007

A spring bloom of phytoplankton is observed. The phytoplankton population is largely dominated by diatoms where they constituted more than 70% of the total cell count that reached 3162516 cells/litre. The most dominant species was *Skeletonema costatum* with 2055578 cell/litre. Dinoflagellates were rather rare, constituted only 0.09% of the total phytoplankton cell density. The most prominent feature of this spring bloom is the occurrence of *Chattonella* cf. *verruculosa* whose cell numbers jumped to 0.5 million cell/litre. The small cryptophytes were rather common. Unexpectedly, the ciliates which normally are common components of the plankton, appeared quite rarely and constituted merely a small fraction of the whole population.

The Skagerrak

Släggö 22nd March

In comparison to Anholt E in the Kattegat, this station exhibited a poor phytoplankton bloom. The total cell count did not exceed 422676 cells/litre in comparison to over 3 million cell/litre in Anholt E. Diatoms however were the dominant group, constituting 52% of the total population, followed by the cryptophytes (30%). The most dominant species was *Skeletonema costatum*. The dinoflagellates were remarkably rare, producing only 2886 cell/litre. *Chattonella* cf. *verruculosa* did not appear in this station.

Å17 23rd March 2007

Phytoplankton bloom in this station appears almost similar to Anholt E where total cell density reached 2480857 cells/litre. Diatoms were the dominant components. *Skeletonema costatum* (1701836 cells/l) and *Thalassiosira nordenskioeldii* (353266 cells/litre) were the most dominant taxa. Similar to the other two stations, dinoflagellates were remarkably rare. *Chattonella* cf. *verruculosa* was also absent in Å17.

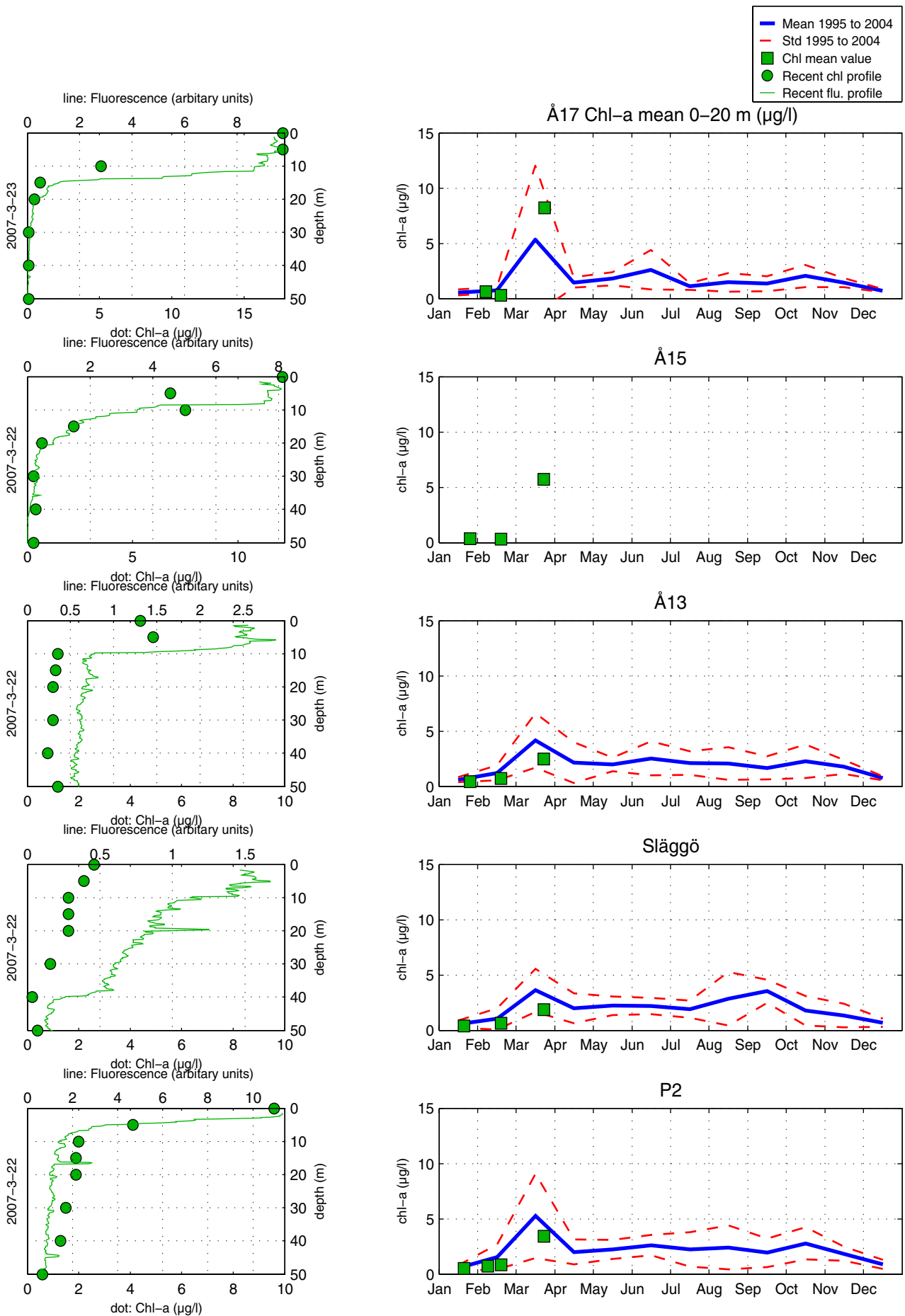
The Baltic Sea

Phytoplankton analysis has not been performed for the Baltic samples. Only chlorophyll data is available at present.

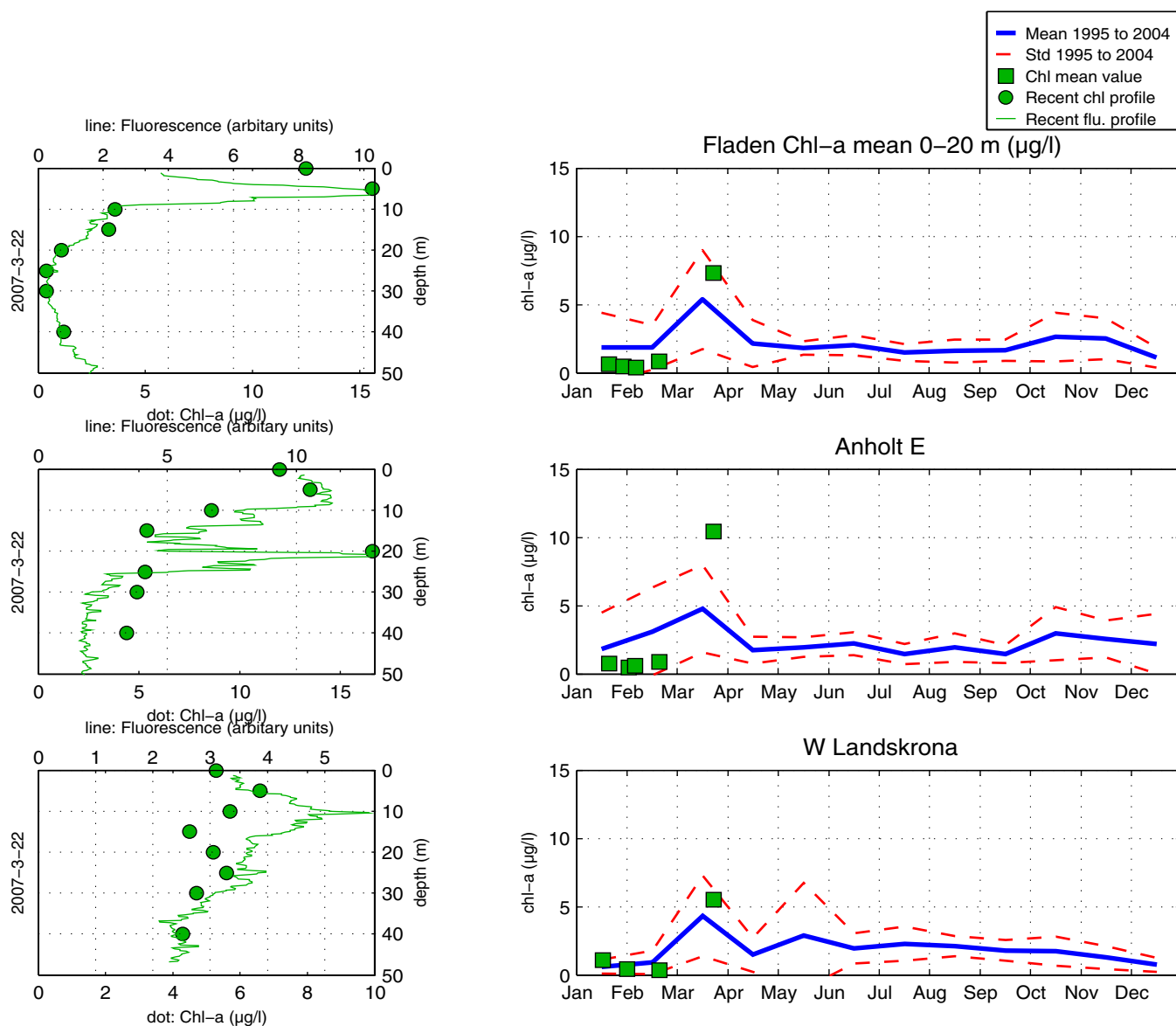
Phytoplankton analysis and text by Adil Yousif.

Swedish summary/Svensk sammanfattning by Bengt Karlson

The Skagerrak



The Kattegat and the Sound



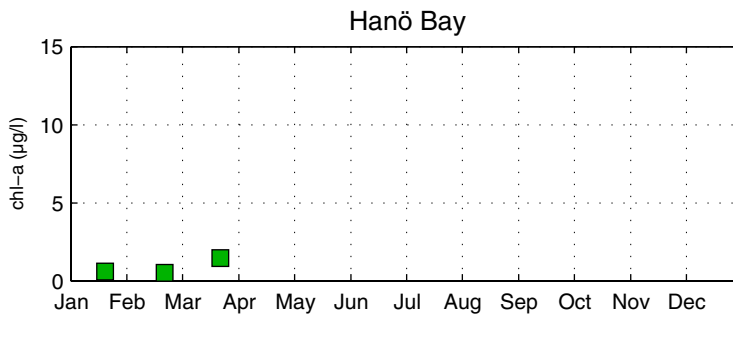
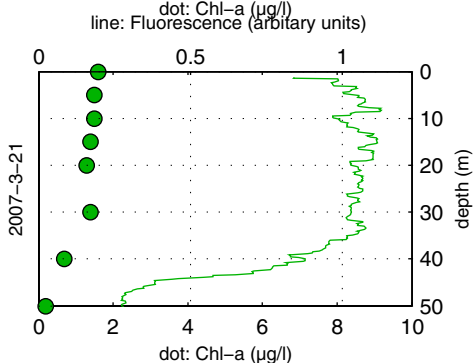
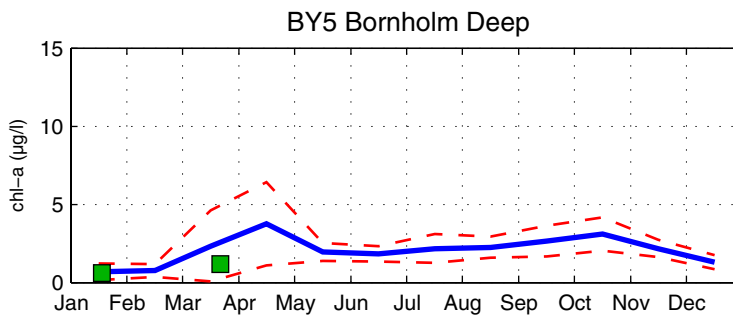
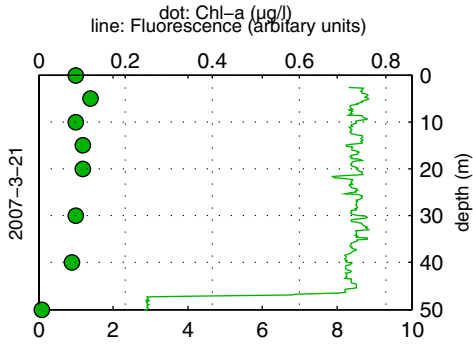
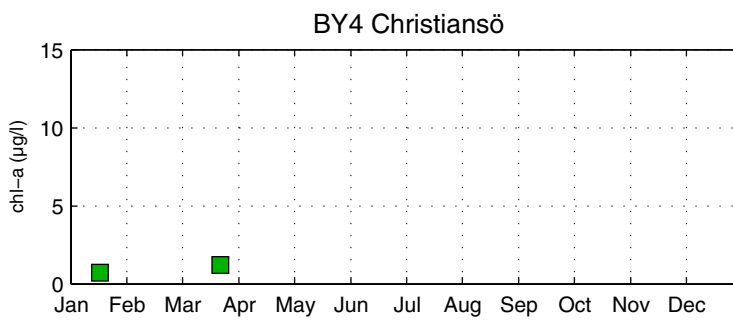
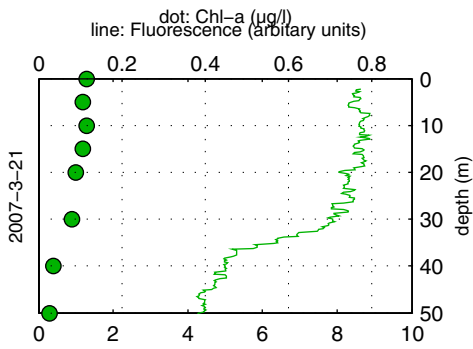
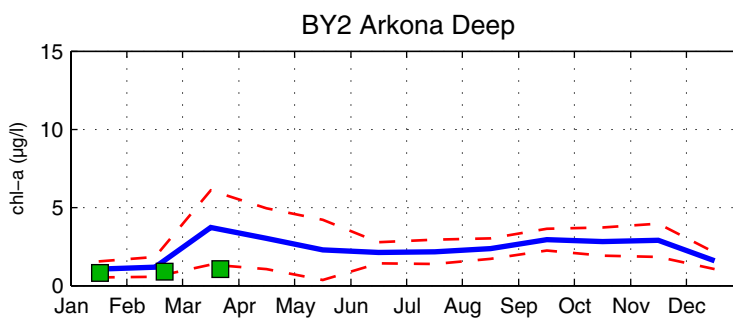
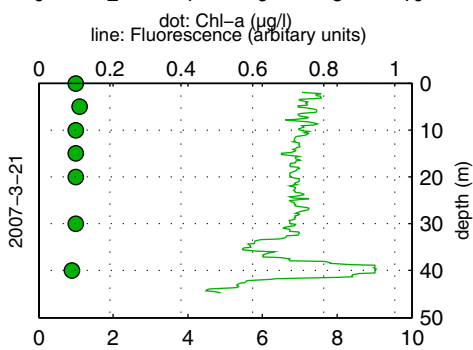
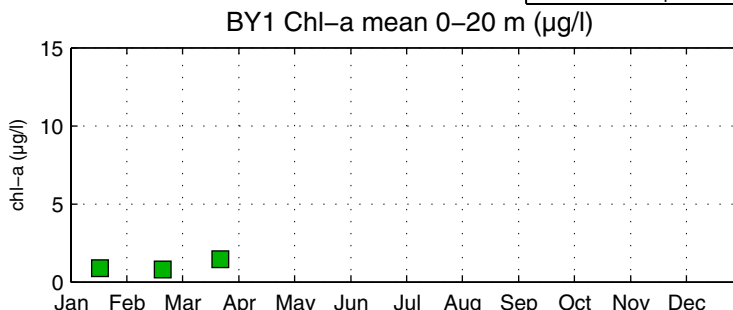
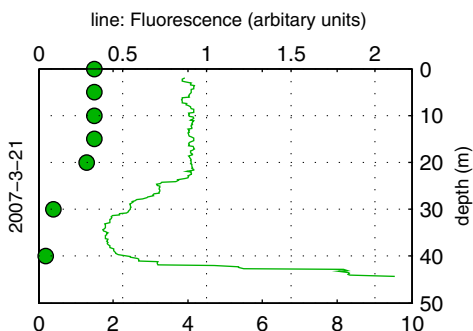
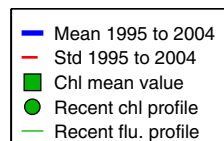
Om klorofylldiagrammen

Klorofyll *a* är ett mått på mängden växtplankton. Prover tas från ett antal djup från U/F Argos. Data presenteras både från de fasta djupen och som medelvärden 0-20 m. Utöver resultaten från laboratorieanalyserna av vattenprover mäts klorofyll *a* som fluorescens från ett automatiskt instrument som sänks ned från fartyget. På så sätt kan djupt liggande, ibland, tunna alger av växtplankton observeras.

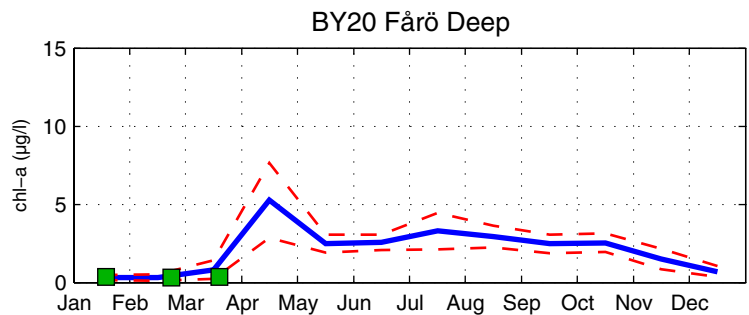
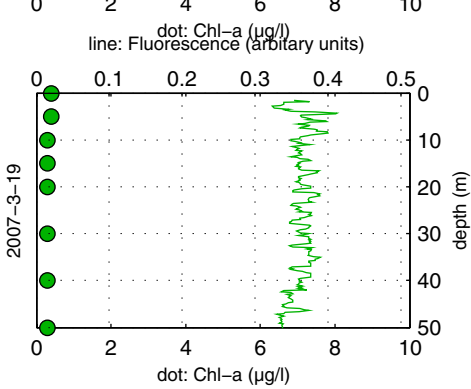
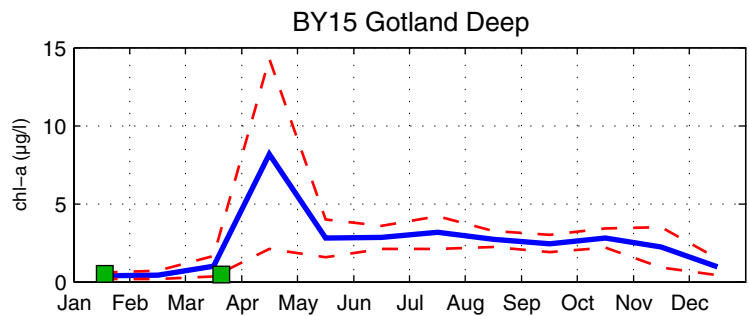
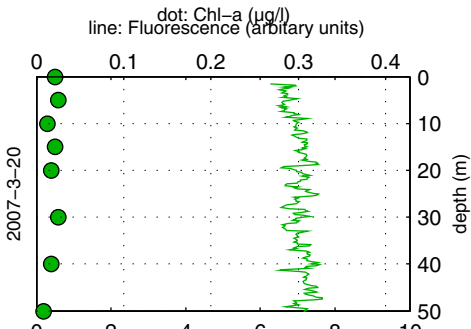
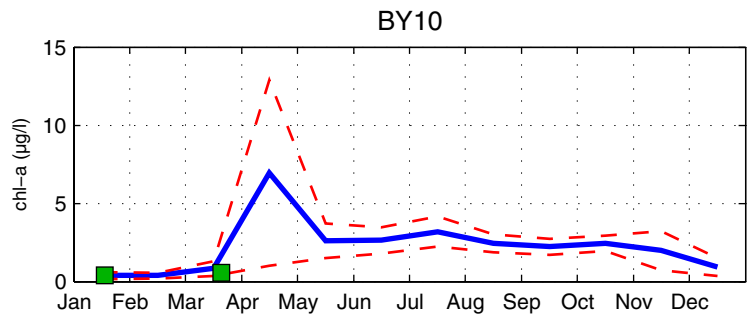
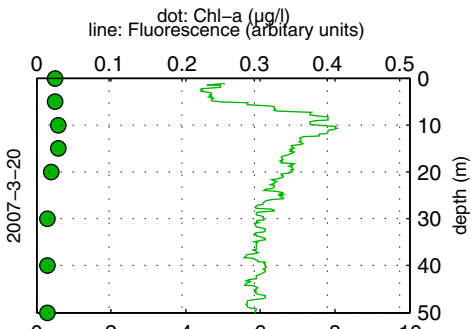
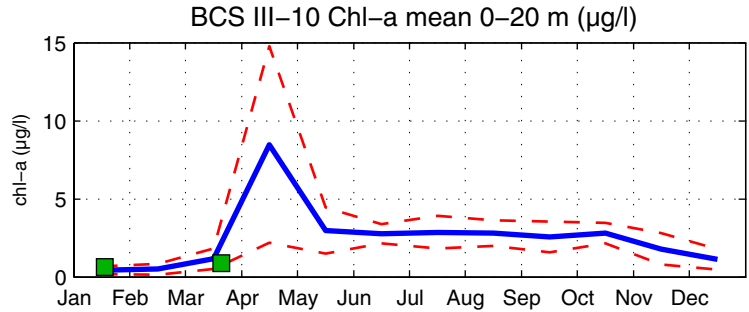
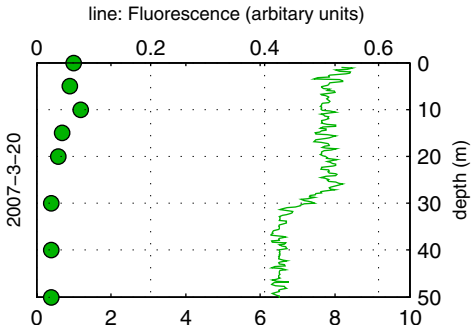
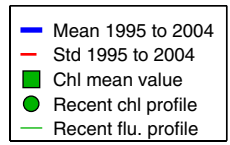
About the chlorophyll graphs

Chlorophyll *a* is sampled from several depths from the R/V Argos. Data is presented both from the discrete depths and as an average 0-20 m. In addition to the laboratory analysis from the water samples chlorophyll fluorescence is measured in continuous depth profiles from the ship. This is a way to observe thin layers of phytoplankton occurring below the surface.

The Southern Baltic



The Eastern Baltic



The Western Baltic

