

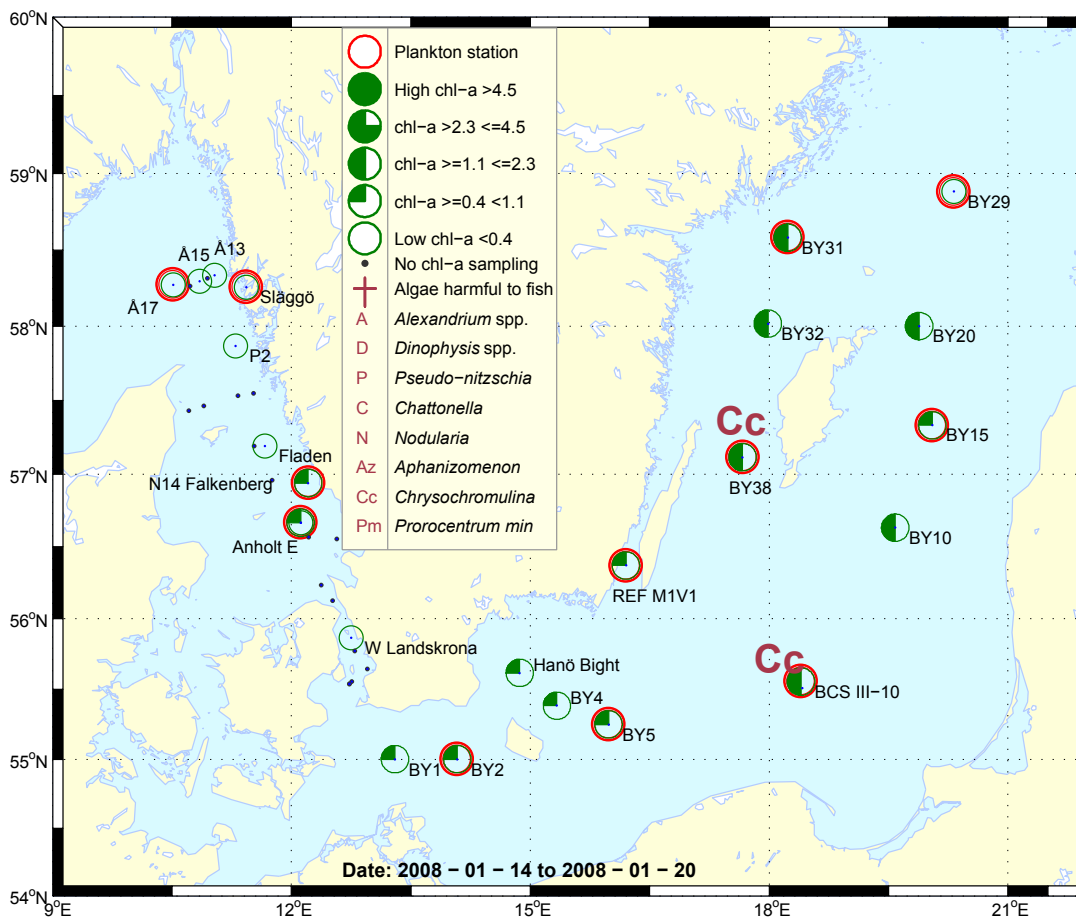
## Sammanfattning

Planktonsituationen präglades av låg diversitet i Skagerrak och Kattegatt. Generellt var det högst cellantal av små arter med flageller. Av kiselalgerna var *Skeletonema costatum* vanligast.

Klorofyll *a* halterna var normala för årstiden i Skagerrak och Kattegatt.

I planktonproverna från alla Östersjö-stationerna återfanns *Chrysochromulina*-arten som var talrik i framför allt norra egentliga Östersjön under hösten. Denna månad blommade arten vid BCS III-10 och BY38.

Klorofyll *a* halterna var över det normala vid BCS III-10, BY10, BY20 och BY38. I övrigt låg värdena på medel för januari månad.



## Abstract

The phytoplankton diversity was low in the Skagerrak and Kattegat areas. Small flagellates were the most abundant, and the most common diatom was *Skeletonema costatum*.

The chlorophyll *a* concentrations were at average in the Skagerrak and the Kattegat areas.

The *Chrysochromulina* species that was very abundant in the northern proper Baltic during autumn, was found in all samples analysed from the Baltic this month.

The chlorophyll *a* concentrations were above average at BCS III-10, BY10, BY20 och BY38. At all other stations, the measured values were at average for January.

## 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](http://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](http://www.smhi.se).

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

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. An empty circle indicates that there has been no sampling at that station.

More detailed information on species composition and abundance

## The Skagerrak

### Å17 14<sup>th</sup> of January 2008 (open Skagerrak)

The phytoplankton diversity was very low, i.e. both species and cell numbers were low.

### Släggö 14<sup>th</sup> of January 2008 (Skagerrak coast)

The diversity was somewhat higher as compared to Å17. Except for small cryptomonads the diatom *Skeletonema costatum* was the most abundant, although quite low in cell numbers.

## The Kattegat

### N14 Falkenberg 15<sup>th</sup> of January 2008

The diatom *Skeletonema costatum* was the most abundant, followed by cryptomonads and the small choanoflagellate *Calliakantha natans*.

### Anholt E 15<sup>th</sup> and 20<sup>th</sup> of January 2008

At both occasions, the diatoms *Skeletonema costatum* and *Pseudo-nitzschia delicatissima*-group were the most abundant. At the second visit, the observed number of species was twice the amount as at the first visit.



*Calliakantha natans*

| <b>Selection of observed species</b><br>Red=potentially toxic species | <b>Å17</b><br><b>2008-01-14</b><br><b>cells/l</b> | <b>Släggö</b><br><b>2008-01-14</b><br><b>cells/l</b> | <b>N14</b><br><b>2008-01-15</b><br><b>cells/l</b> | <b>Anholt E</b><br><b>2008-01-15</b><br><b>cells/l</b> | <b>Anholt E</b><br><b>2008-01-20</b><br><b>cells/l</b> |
|---|---|--|---|--|--|
| <i>Cerataulina pelagica</i>   |   |  |   |  | present  |
| <i>Chaetoceros similis</i>  |   |  | present   |  | present  |
| <i>Chaetoceros tenuissimus</i>  |   | present  |   |  | present  |
| <i>Cylindrotheca closterium</i>                                       | present   |  | present   | present  | present  |
| <i>Leptocylindrus danicus</i>   |   |  |   |  | present  |
| <i>Paralia sulcata</i>  | present   |  |   |  |  |
| <i>Proboscia alata</i>  |   |  | present   | present  | present  |
| <i>Pseudo-nitzschia delicatissima</i> -group                          | present   | present  |   | common   | common   |
| <i>Pseudo-nitzschia seriata</i> -group                                |   | present  | present   | present  | present  |
| <i>Rhizosolenia hebetata</i>  |   |  |   | present  | present  |
| <i>Rhizosolenia setigera</i>  |   |  |   | present  | present  |
| <i>Skeletonema costatum</i> complex                                   |   | common   | common  | common   | common   |
| <i>Thalassionema nitzschioides</i>                                    |   |  |   |  | present  |
| <i>Thalassiosira nordenskiöldii</i>                                   |   |  |   | present  | present  |
| <i>Thalassiosira rotula</i>   |   | present  | present   | present  | present  |
| <i>Akashiwo sanguinea</i>   |   | present  |   |  |  |
| <i>Ceratium furca</i>   | present   | present  |   |  |  |
| <i>Ceratium fusus</i>   | present   |  |   |  | present  |
| <i>Ceratium lineatum</i>  | present   | present  |   |  |  |
| <i>Ceratium longipes</i>  | present   |  |   |  |  |
| <i>Ceratium tripos</i>  | present   | present  | present   | present  | present  |
| <i>Dinophysis acuminata</i>   |   |  |   |  | present  |
| <i>Dinophysis norvegica</i>   |   |  |   | present  |  |
| <i>Gymnodinium verruculosum</i>                                       | present   | present  |   |  | present  |
| <i>Gyrodinium flagellare</i>  | present   |  |   |  |  |
| <i>Heterocapsa rotundata</i>  |   | present  | present   |  |  |
| <i>Prorocentrum micans</i>  |   |  | present   |  | present  |
| Cryptomonadales spp.  | common  | common   | common  | common   |  |
| <i>Chrysochromulina</i> spp.  | present   |  |   | present  |  |
| <i>Heterosigma akashiwo</i>   |   |  | present   |  | present  |
| <i>Dictyocha fibula</i>   | present   |  |   |  |  |
| <i>Dictyocha speculum</i>   | present   | present  | present   | present  | present  |
| <i>Eutreptiella</i> spp.  |   |  |   |  | present  |
| <i>Pyramimonas</i> spp.   | present   | present  |   | present  | present  |
| <i>Leucocryptos marina</i>  | present   | present  |   |  | present  |
| <i>Calliakantha</i> spp.  |   |  | common  | present  | common   |
| <i>Mesodinium rubrum</i>  | present   | present  |   | present  |  |
| <i>Strombidium</i> spp.   |   | present  |   |  |  |

## The Baltic Sea

### Arkona Basin BY2 16<sup>th</sup> of January

Small flagellated species dominated the phytoplankton sample. The *Chrysochromulina* species found blooming during the autumn at above all BY29 and BY31, was found common. The species is potentially toxic to fish.

### The South East Baltic BCS III-10 17<sup>th</sup> of January

*Chrysochromulina* sp., the same species as found at BY2, was observed blooming. A few filaments of the cyanobacterium *Aphanizomenon* sp. were present.

### Northern Baltic proper BY29 18<sup>th</sup> of January

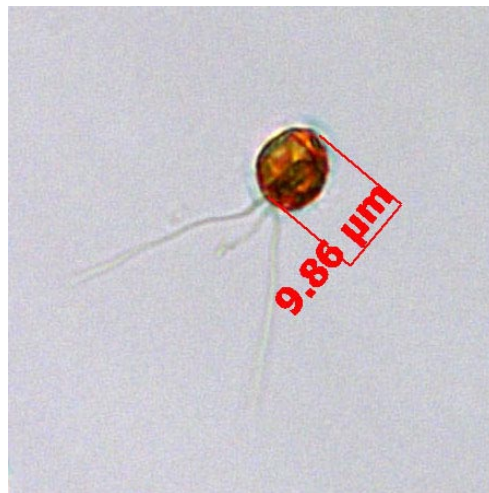
Small flagellates dominated the sample. *Chrysochromulina* sp. was observed.

### Karlsö Deep BY38 19<sup>th</sup> of January

*Chrysochromulina* sp. was found blooming at this station. Cell numbers of other species were low.

### Kalmar Sound Ref. M1-V1 19<sup>th</sup> of January

The sample was dominated by small flagellates. *Chrysochromulina* sp. was common.

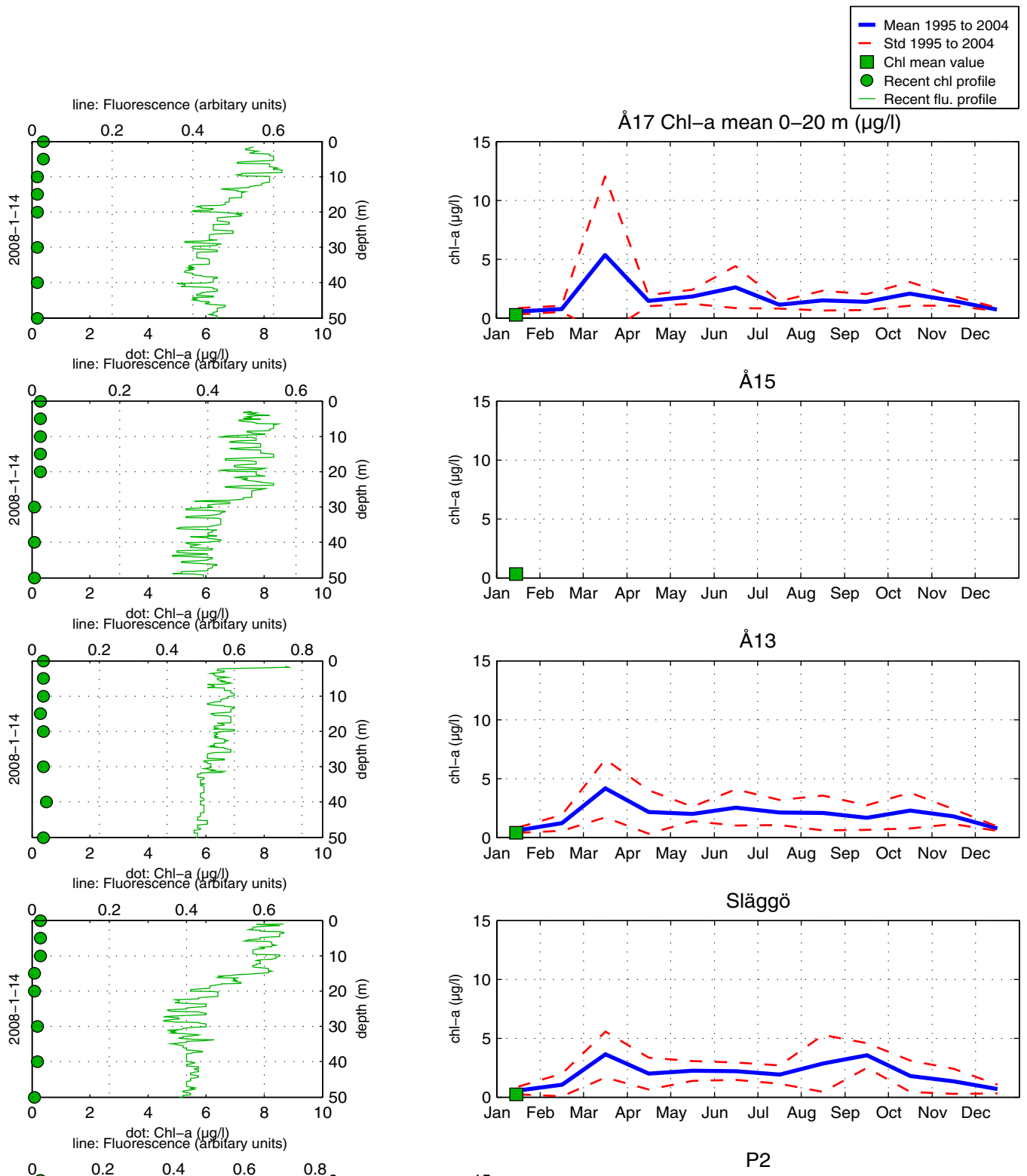


*Chrysochromulina* sp.

| <b>Selection of observed species</b>                 | <b>BY2</b>        | <b>BCS III 10</b> | <b>BY29</b>       | <b>BY38</b>       | <b>Ref. M1-V1</b> |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| Red=potentially toxic species<br>¹ quantified in m/l | <b>2008-01-16</b> | <b>2008-01-17</b> | <b>2008-01-18</b> | <b>2008-01-19</b> | <b>2008-01-19</b> |
|  | <b>cells/l</b>    | <b>cells/l</b>    | <b>cells/l</b>    | <b>cells/l</b>    | <b>cells/l</b>    |
| <i>Chaetoceros danicus</i>                           |                   | present           |                   |                   |                   |
| <i>Chaetoceros impressus</i>                         | present           |                   |                   |                   |                   |
| <i>Cyclotella choctawhatcheana</i>                   |                   |                   |                   | present           |                   |
| <i>Cylindrotheca closterium</i>                      |                   |                   |                   |                   | present           |
| <i>Skeletonema costatum</i> complex                  |                   |                   |                   |                   | common            |
| <i>Cladopyxis claytonii</i>                          |                   |                   |                   | present           |                   |
| <i>Heterocapsa rotundata</i>                         |                   |                   |                   | present           |                   |
| <i>Chrysochromulina</i> sp.                          | common            | very common       | present           | very common       | common            |
| <i>Heterosigma akashiwo</i>                          | present           |                   |                   |                   |                   |
| Cryptomonadales spp.                                 | common            | common            | present           | present           | common            |
| <i>Pyramimonas</i> spp.                              | common            |                   |                   |                   | present           |
| <i>Calliacantha</i> spp.                             |                   | present           |                   | present           | present           |
| <i>Choanoflagellidea</i> spp.                        |                   | present           | present           | present           |                   |
| <i>Aphanizomenon</i> sp.                             |                   | present           |                   |                   |                   |
| <i>Leucocryptos marina</i>                           | present           | present           | present           | present           |                   |
| <i>Mesodinium rubrum</i>                             | present           | present           | present           | present           |                   |
| <i>Strombidium</i> spp.                              |                   |                   | present           |                   | present           |

Phytoplankton analysis and text by Ann-Turi Skjevik

# The Skagerrak



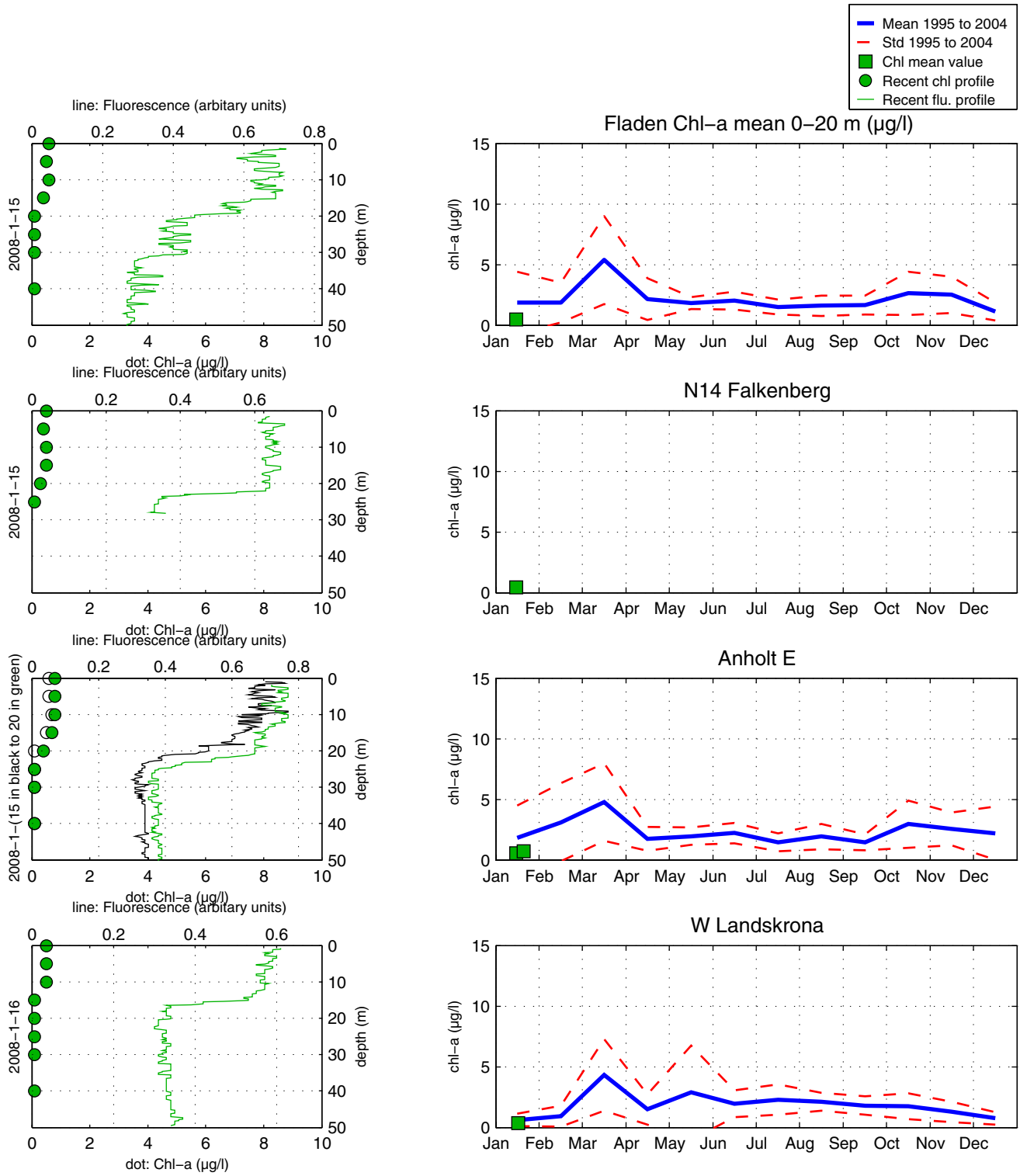
## Om klorofylldiagrammen

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

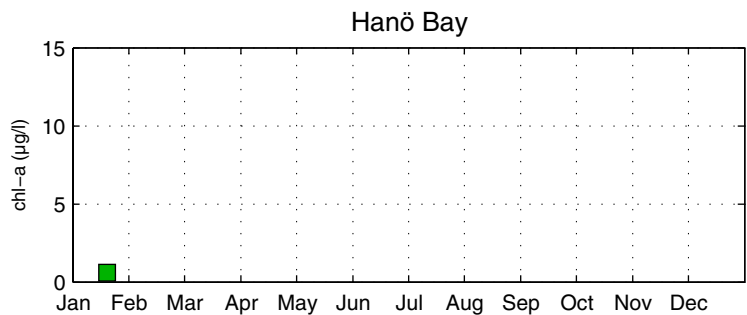
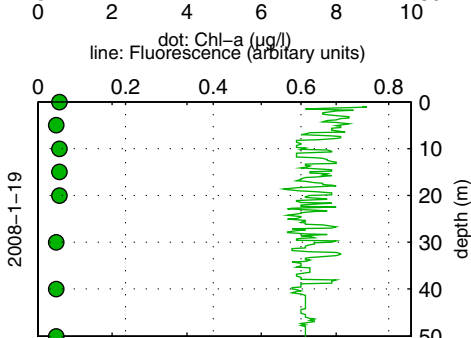
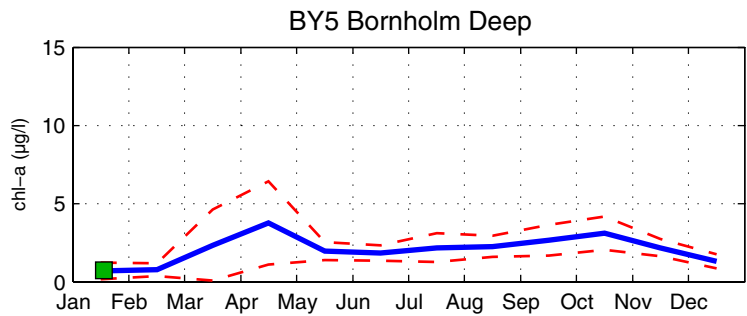
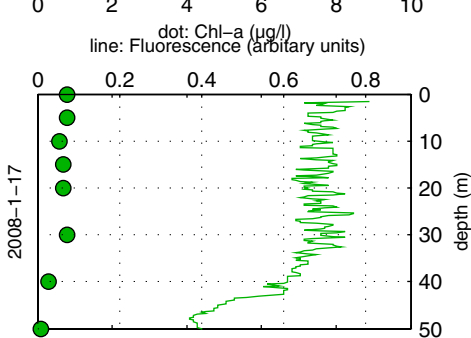
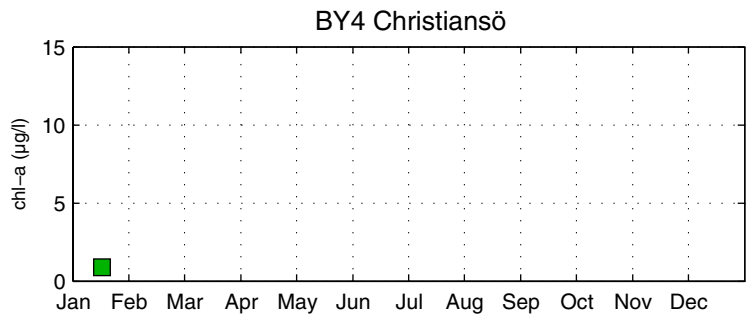
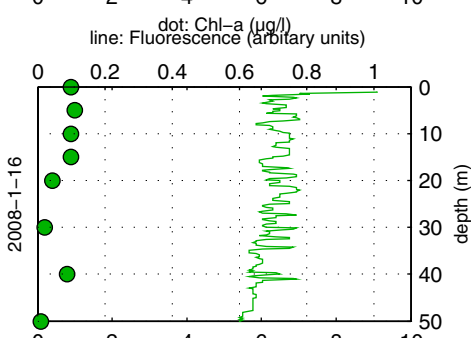
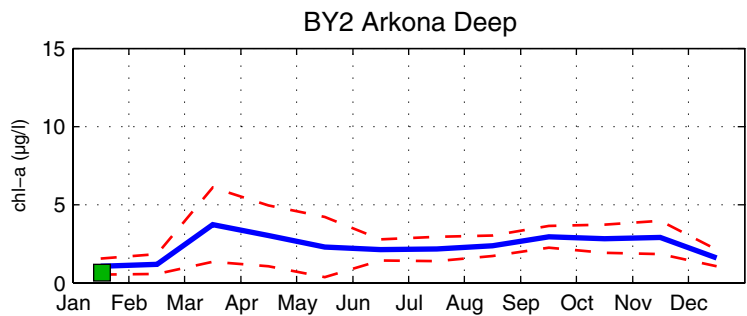
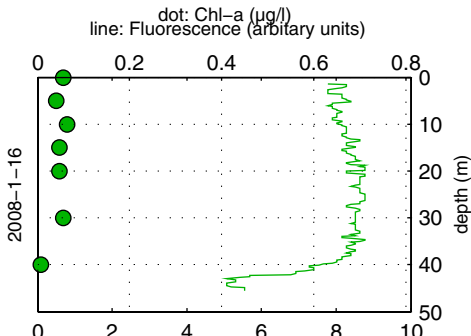
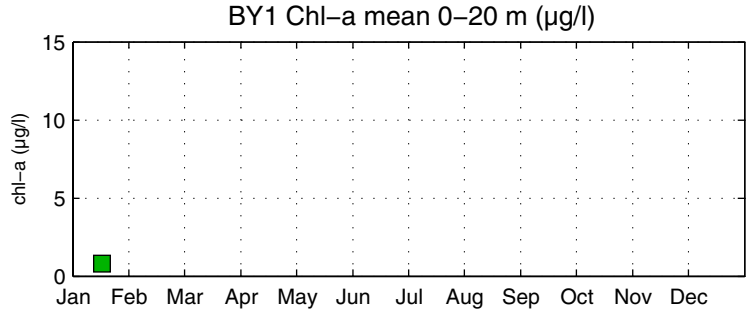
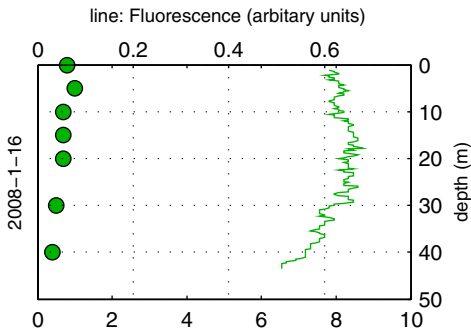
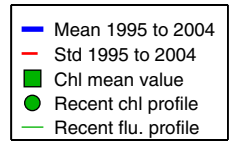
Chlorophyll *a* is sampled from several depths from the R/V Argos. Data is presented both from the discrete depths and as an average 0-20 m. In addition to the laboratory analysis from the water samples chlorophyll fluorescence is measured in continuous depth profiles from the ship. This is a way to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

# The Kattegat and the Sound

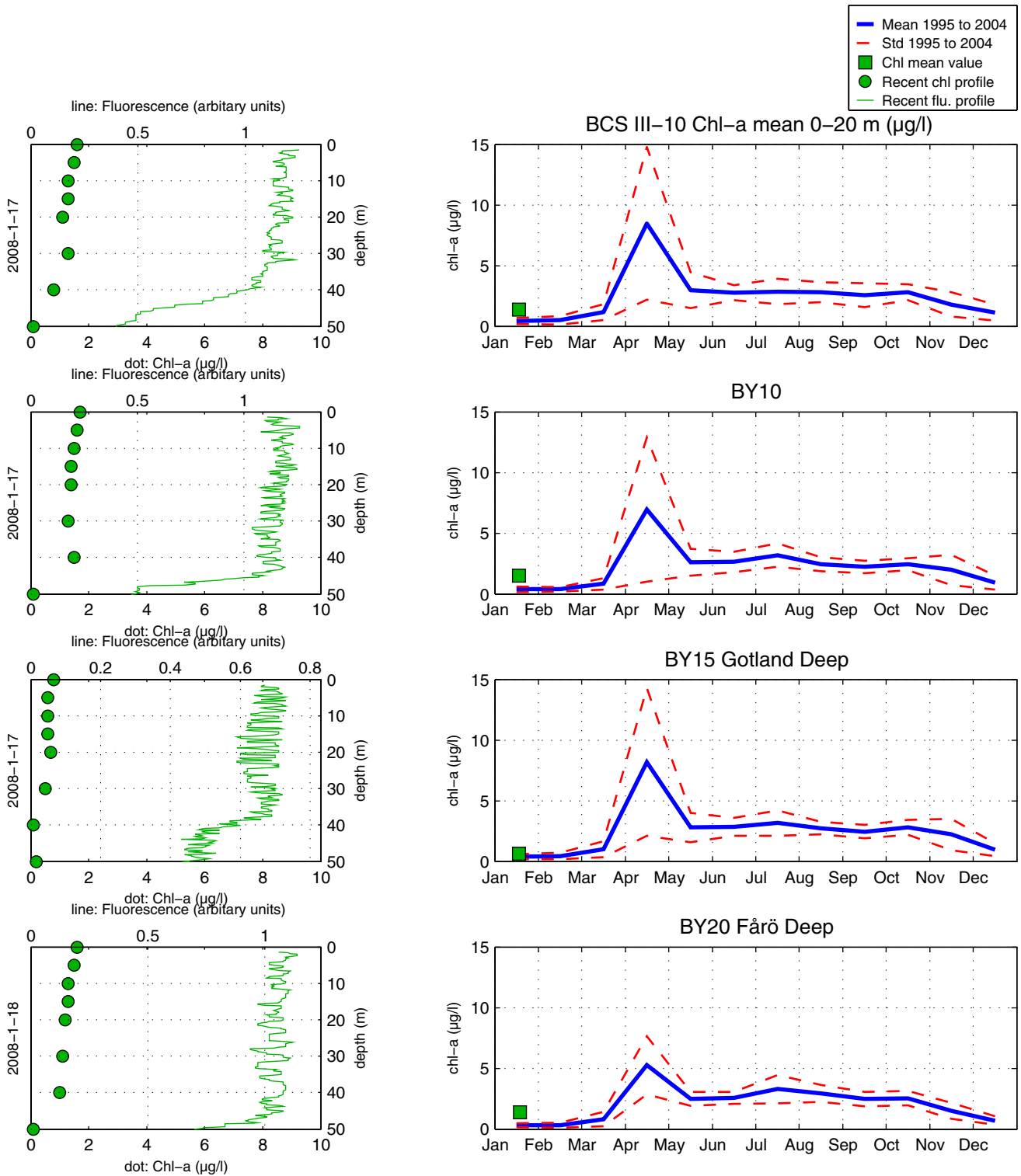




# The Southern Baltic



# The Eastern Baltic



# The Western Baltic

