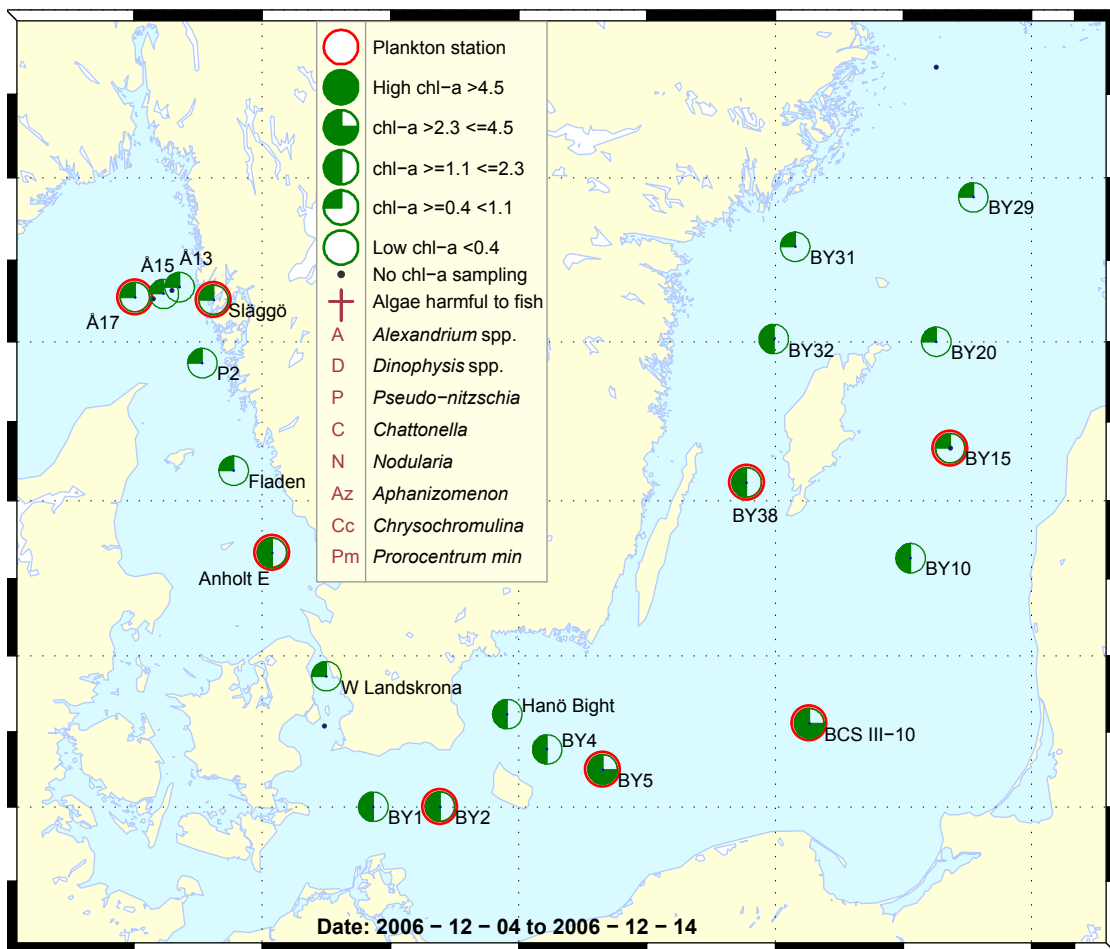


## Sammanfattning

En fattig planktonflora med låga cellantal var gemensam nämnare både i Västerhavet och i Östersjön. Situationen var något annorlunda i Kattegatt, där ett antal arter av kiselalger fanns i något förhöjda antal.

I stort sätt var halterna av klorofyll a låga, men vid några stationer i Östersjön var halterna förhöjda. Detta orsakades troligtvis av förekomsten av kiselalgläktet *Coscinodiscus*' stora celler.



## Abstract

It seems as though there will be no autumn or winter bloom this year. The overall picture is a few species of algae in low cell numbers, as well as low chlorophyll a concentrations. In the Kattegat the situation was somewhat different, with some diatoms in quite high cell numbers.

At some Baltic stations the chlorophyll a concentrations were high for the season although the most abundant species were small ones. This was probably caused by the presence of the large diatom genus *Coscinodiscus*.

## Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på mikroskopyanalys 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> 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 <b>Extrema symptom:</b> 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.	<b>Mild case:</b> 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. <b>Extreme case</b> 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> Efter cirka 30 minuter till några timmar: yrsel, illamående, kräkningar, diarré, magont <b>Extrema symptom:</b> Upprepad exponering kan orsaka cancer	<b>Mild case:</b> Within 30 min-a few hours: dizziness, nausea, vomiting, diarrhoea, abdominal pain. <b>Extreme case:</b> Repeated exposure may cause cancer.
<i>Chattonella</i> spp.	Fish toxin	<b>Låg celltäthet:</b> Ingen påverkan. <b>Hög celltäthet:</b> Fiskens gälar skadas, fisken dör.	<b>Low cell numbers:</b> No effect on fish. <b>High cell numbers:</b> Fish death due to gill damage.
<i>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	<b>Milda symptom:</b> Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramper <b>Extrema symptom:</b> Yrsel, hallucinationer, förvirring, förlust av korttidsminnet, kramper	<b>Mild case:</b> Within 3-5 hours: dizziness, nausea, vomiting, diarrhoea, abdominal cramps. <b>Extreme case:</b> 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).

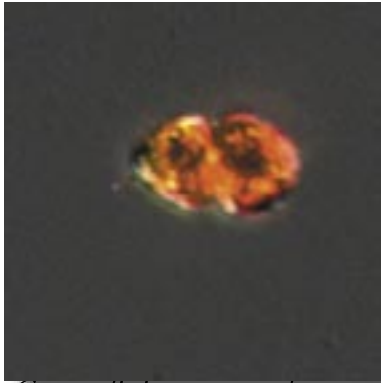
Kartan på framsidan visar viktat medelvärde för klorofyll *a*, µg/l (0-20 m) vid de olika stationerna. Förekomst av skadliga alger vid stationer där arter analyseras markeras med symbol.

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. \* = potentially toxic.

## The Skagerrak

### Å17 14th of December



*Gymnodinium verruculosum*

A few species in low cell numbers were observed, the most abundant single species being *Gymnodinium verruculosum* with 12 000 cells/L.

### Släggö 14th of December

A few more species were observed as compared to Å17. Amongst others, the small solitary diatom *Chaetoceros ceratosporus* was present in low amounts.

The chlorophyll a concentrations were below average in the whole Skagerrak area.

## The Kattegat

### Anholt E 13th of December

The plankton flora was richer than both the Skagerrak and the Baltic areas, and was dominated by diatoms. The most abundant diatoms were *Leptocylindrus danicus*, *Skeletonema costatum* and *Pseudo-nitzschia delicatissima*-group\*.

At Fladen, the chlorophyll a content was below average, whereas the contents were at average in the rest of the area.



*Skeletonema costatum*

<b>Selection of observed species</b>	<b>Å17</b>	<b>Släggö</b>	<b>Anholt E</b>
Red=potentially toxic species	<b>2006-12-14</b>	<b>2006-12-14</b>	<b>2006-12-13</b>
	<b>cells/L</b>	<b>cells/L</b>	<b>cells/L</b>
<i>Cerataulina pelagica</i>			present
<i>Chaetoceros ceratosporus</i>		present	
<i>Chaetoceros curvisetus</i>			present
<i>Chaetoceros danicus</i>			present
<i>Cylindrotheca closterium</i>	present		present
<i>Dactyliosolen fragilissimus</i>			present
<i>Ditylum brightwellii</i>			present
<i>Guinardia delicatula</i>			present
<i>Guinardia flaccida</i>		present	present
<i>Leptocylindrus danicus</i>			47 000
<i>Leptocylindrus minimus</i>			24 000
<i>Phaeodactylum tricornutum</i>			present
<i>Proboscia alata</i>			present
<i>Pseudo-nitzschia delicatissima</i> -group	present	present	45 000
<i>Pseudo-nitzschia seriata</i> -group			present
<i>Skeletonema costatum</i>		present	44 000
<i>Thalassiosira anguste-lineata</i>			present
<i>Thalassiosira</i> cf. <i>angulata</i>	present		15 600
<i>Thalassiosira nordenskiöldii</i>			present
<i>Thalassiosira rotula</i>			present
<i>Ceratium lineatum</i>	present		present
<i>Gymnodinium verruculosum</i>	12000	3600	7000
<i>Heterocapsa</i> cf. <i>minima</i>	present		
<i>Karenia mikimotoi</i>	present	present	
<i>Dictyocha speculum</i>	present	present	present
Cryptomonadales spp.	3500	14000	25000
<i>Plagioselmis prolunga</i>	8600	8900	3600
<i>Pyramimonas</i> spp.	present		
<i>Strombidium</i> spp.	present	present	present

## The Baltic Sea

### Arkona Basin BY2 12<sup>th</sup> of December



*Pyramimonas* sp.

The small flagellated genus *Pyramimonas* spp. was the most abundant, followed by the even smaller flagellate *Plagioselmis prolonga*. The chlorophyll *a* concentration was at average.

### Bornholm Basin BY5 12<sup>th</sup> of December

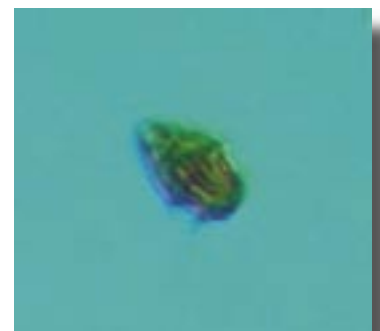
*P. prolonga* was the most abundant. *Pyramimonas* spp. was present in low numbers, as were some different species of solitary choanoflagellates, such as *Calliakantha longicaudata*. The chlorophyll *a* concentration was far above average, 3.9 µg/L in the surface layer, much of it probably being caused by the large cells of *Coscinodiscus* spp.

### The Eastern Baltic 11<sup>th</sup> and 12<sup>th</sup> of December

As at BY5, small flagellated species were the most common. A few diatoms and dinoflagellates were observed in very low numbers. The chlorophyll *a* concentration was at or just above average.

### Western Baltic 4<sup>th</sup> of December

Small flagellated species were the most abundant, as in the rest of the Baltic areas. The small thecate dinoflagellate *Heterocapsa rotundata* was the most abundant of the dinoflagellates. Cell numbers were low, although the chlorophyll *a* concentrations were above average.

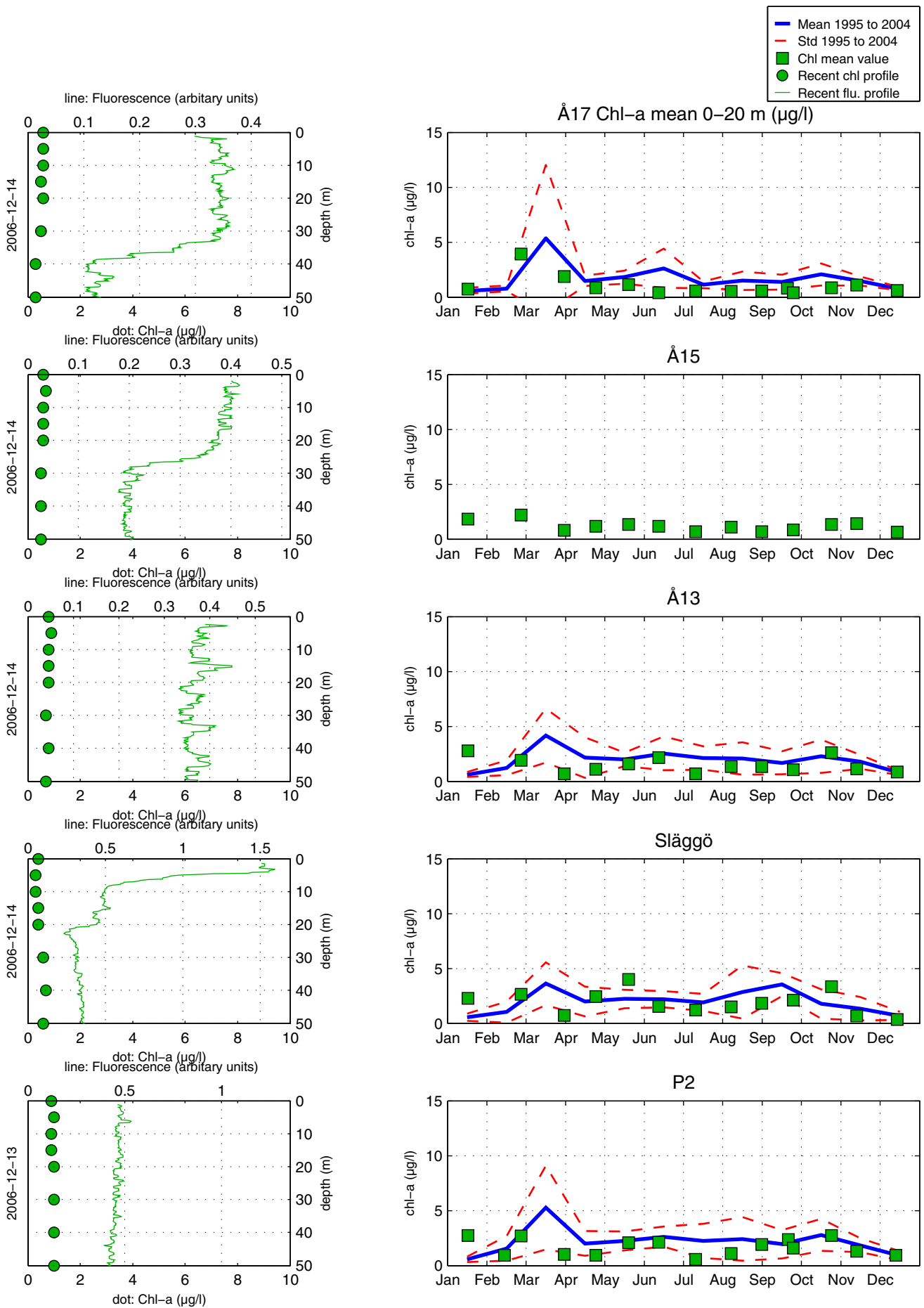


*Heterocapsa rotundata*

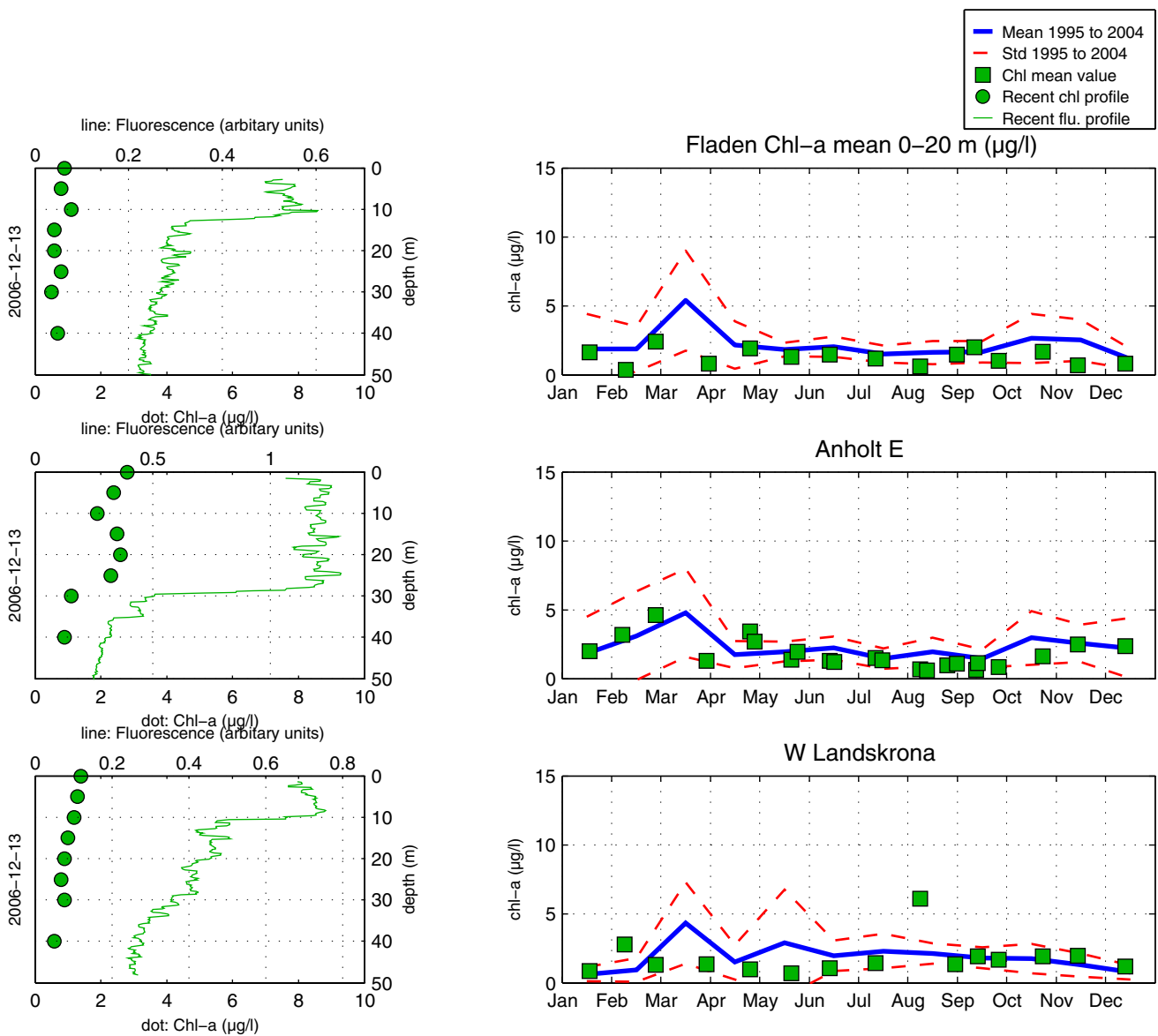
Ann-Turi Skjevik

Selection of observed species	BY2	BY5	BCS III 10	BY15	BY29	BY31	BY38
Red=potentially toxic species 1 quantified in m/L	06-12-12	06-12-12	06-12-12	06-12-11	06-12-12	06-12-04	06-12-04
	cells/L	cells/L	cells/L	cells/L	cells/L	cells/L	cells/L
<i>Cerataulina pelagica</i>	present						
<i>Chaetoceros danicus</i>	present		present			present	
<i>Chaetoceros impressus</i>		present					
<i>Chaetoceros socialis</i>					present		
<i>Coscinodiscus</i> spp.		5 000	2 000				3 600
<i>Cylindrotheca closterium</i>	present						
<i>Pseudo-nitzschia delicatissima</i> - group				present		present	
<i>Skeletonema costatum</i>	present				present	present	
<i>Heterocapsa rotundata</i>				3 500		10 600	
<i>Katodinium glaucum</i>	present		present			present	present
<i>Prorocentrum minimum</i>							present
<i>Chrysochromulina</i> spp				present		present	
Cryptomonadales spp	37 000	50 000	18 000	28 300	14 000	30 000	48 500
<i>Plagioselmis prolunga</i>	30 000	30 000	25 000	26 500	present	23 000	7 000
<i>Teleulax amphioxeia</i>	present			present	present		present
<i>Pyramimonas</i> spp	32 000	5 300	8 900	10 600	present	present	
<i>Aphanizomenon</i> sp. <sup>1</sup>					0.2		
<i>Mesodinium rubrum</i>	present	present	present	present	present	present	present
<i>Strombidium</i> spp	present	present	present	present	present	present	present
Choanoflagellates spp		present	present	present	present	present	present

# The Skagerrak



# The Kattegat and the Sound



## Om klorofylldiagrammen

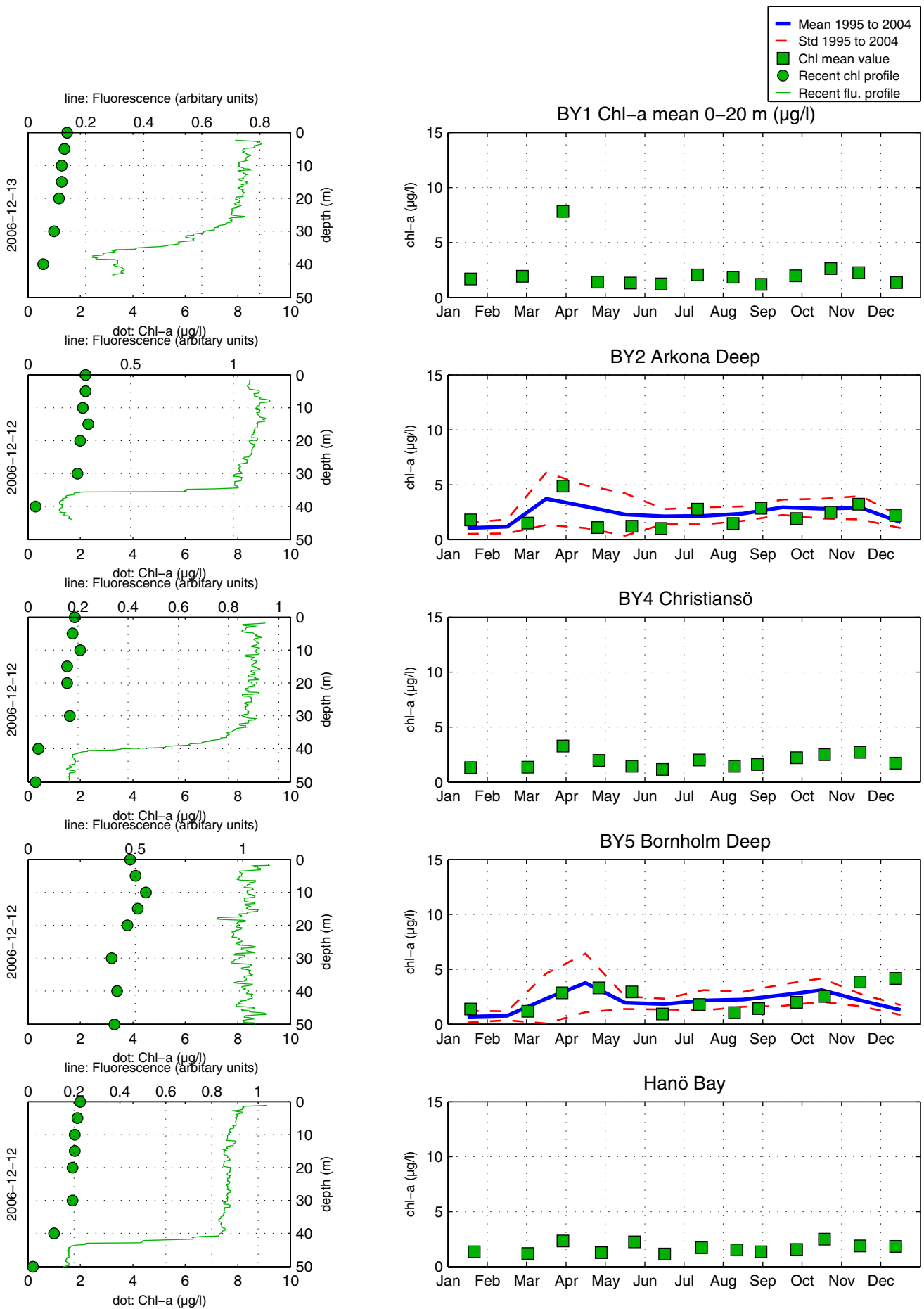
Klorofyll *a* är ett mått på mängden växtplankton. Prover tas från ett antal djup från U/F Argos. Data presenteras både från de fasta djupen och som medelvärden 0-20 m. Utöver resultaten från laboratorieanalyserna av vattenprover mäts klorofyll *a* som fluorescens från ett automatiskt instrument som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

## About the chlorophyll graphs

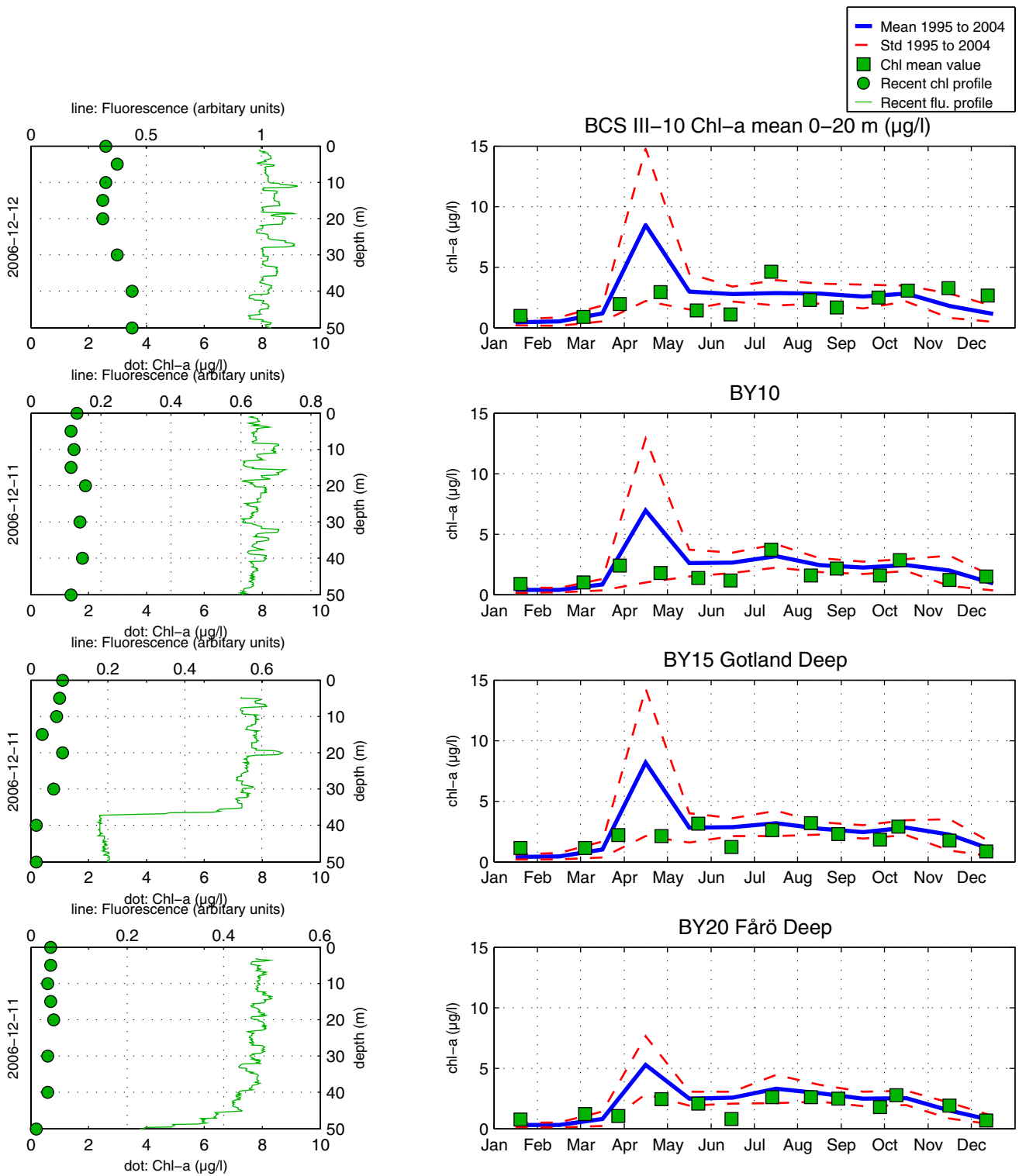
Chlorophyll *a* is sampled from several depths from the R/V Argos. Data is presented both from the discrete depths and as an average 0-20 m. In addition to the laboratory analysis from the water samples chlorophyll fluorescence is measured in continuous depth profiles from the ship. This is a way to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



# The Southern Baltic



# The Eastern Baltic



# The Western Baltic

