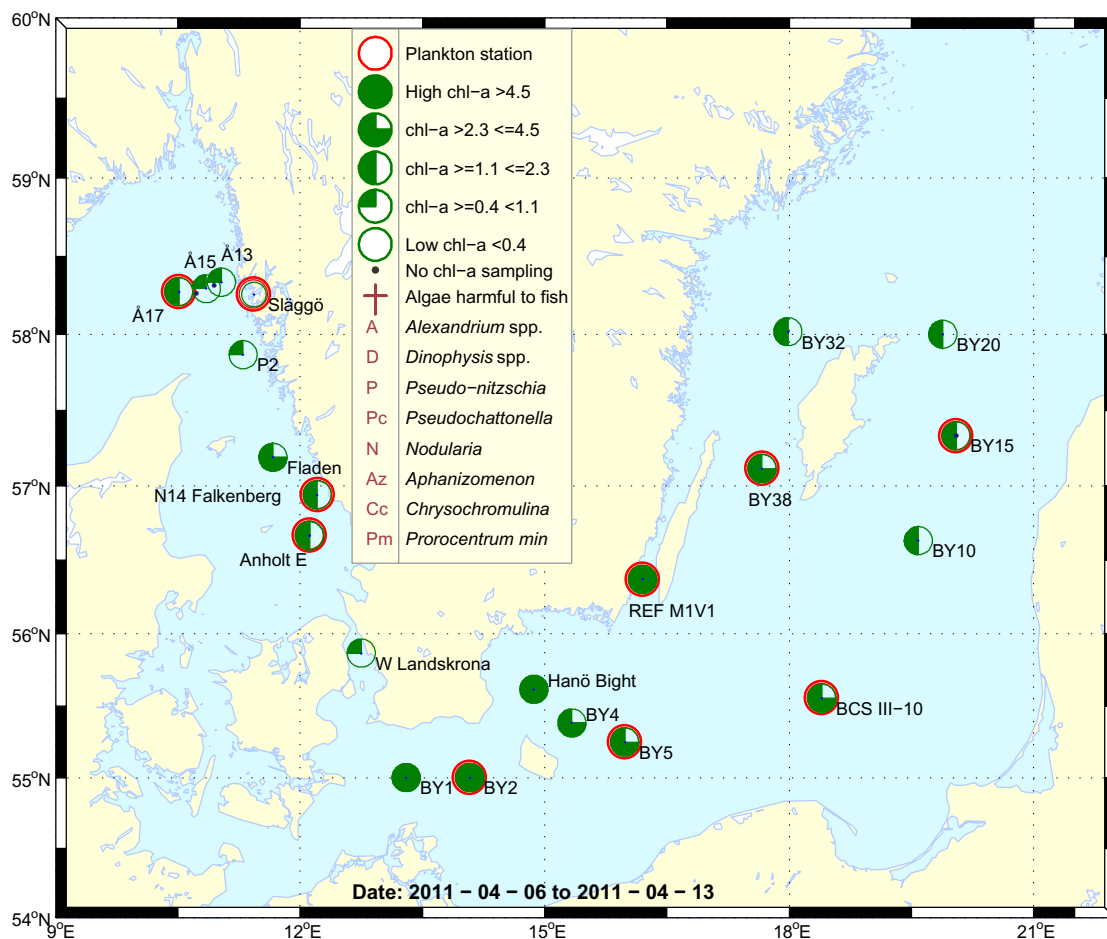


## Sammanfattning

I Skagerrak dominerade släktet *Dinobryon* fram för allt vid utsjöstationen Å17. De integrerade klorofyll *a* koncentrationerna visade tydligt att vårbloomingen var ett avslutat kapitel detta år.

Även i Kattegatt återfanns relativt låga klorofyll *a* koncentrationer. Få arter återfanns och fram för allt dominerade den heterotrofa dinoflagellaten *Peridiniella danica*. Endast ett fåtal celler av den tidigare så vanligt förekommande skadliga alg släktet *Pseudochattonella* återfanns nu.

I Östersjöns var vårblooming ett faktum i de södra samt västra delarna med för säsongen höga integrerade klorofyll *a* värden. Samtidigt återfanns även en klar dominans av kiselalger som vanligtvis förekommer under våren. Vid de norra samt östra delarna av Östersjön noterades däremot ingen tendens till blomning.



## Abstract

The genus *Dinobryon* dominated in the Skagerrak area, the dominance was especially pronounced at the outer station Å17. Low chlorophyll *a* values clearly indicated that the spring bloom had now ended.

Low chlorophyll *a* concentrations were also recorded in the Kattegat area. Few species were recorded and especially the heterotrophic dinoflagellate *Peridiniella danica* was common. Only a few cells of the ichthyotoxic (ichtyo = fish) genus *Pseudochattonella* were recorded on this cruise.

A spring bloom situation was evident in the southern and western part of the Baltic Sea. A dominance of spring bloom related diatoms were evident. The northern and eastern parts of the Baltic did not present any indications of a spring bloom.

More detailed information on species composition and abundance

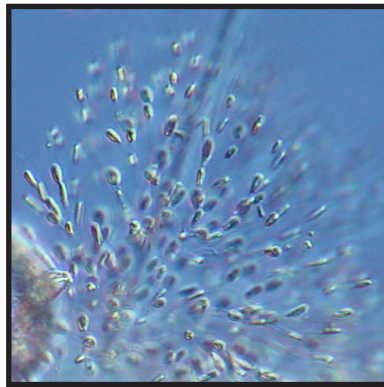
## The Skagerrak

### Å17 13<sup>th</sup> of April (open Skagerrak)

The phytoplankton flora was clearly dominated by the genus *Dinobryon* but small flagellates were also present in relatively high cell numbers. The integrated chlorophyll *a* values were within normal for the season and well below spring bloom values.

### Släggö 13<sup>th</sup> of April (Skagerrak coast)

Only a few cells of each species were recorded in a community with low species diversity. The genus *Dinobryon* was still dominating but to a lesser extent. The integrated chlorophyll *a* content was quite low but still within normal for the month



*Dinobryon balticum*

## The Kattegat

### Anholt E 7<sup>th</sup> and 13<sup>th</sup> of April

The phytoplankton community structure was quite the same on both occasions. The heterotrophic dinoflagellate *Peridiniella danica* dominated on both occasions. Remains of the ichthyotoxic genus *Pseudochattonella* (dictyochophyceae) were also recorded. The integrated chlorophyll *a* concentration was higher on the first sampling occasion than on the last but both concentrations were within normal for the month.

### N14 Falkenberg 8<sup>th</sup> of April

The species diversity was poor at this station with quite low total cell counts. A lot of heterotrophic cells were recorded among others the dinoflagellate *Peridiniella danica*. The genus *Dinobryon* (Chrysophyceae) and the ichthyotoxic genus *Pseudochattonella* dominated slightly. The integrated chlorophyll *a* values were relatively low.

## The Baltic Sea

### BY2 8<sup>th</sup> of April

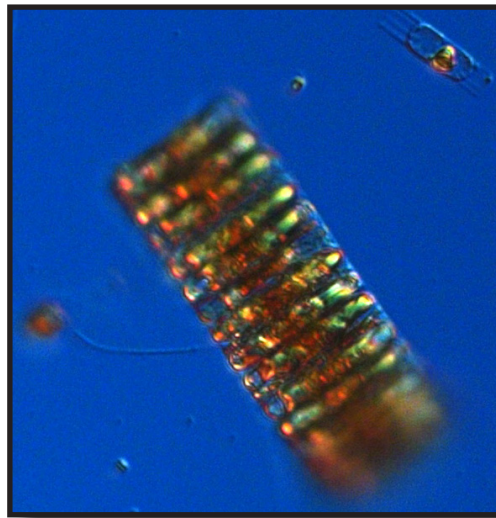
A bloom was evident and several typical spring bloom diatoms were recorded such as *Skeletonema marinoi*, *Chaetoceros wighamii* and the genus *Achnantes*. The integrated chlorophyll *a* concentration was also well above what is normally recorded during this month.

### Ref M1V1 Kalmar Sound 9<sup>th</sup> of April

A bloom was evident at this station. The diatom *Skeletonema marinoi* was still dominating. *Chaetoceros holsaticus*, *C. wighamii* and also the genus *Achnanthes* were found in high cell numbers. The integrated chlorophyll *a* concentrations were high.

### BY5 12<sup>th</sup> of April

Only a few cells were recorded and low species diversity was found. Small flagellates dominated at this station. The diatom *Skeletonema marinoi* was present in relatively high cell numbers together with the genus *Achnanthes*. The chlorophyll *a* concentration was low and within normal for the season.



*Achnantes taeniata*

### BCSIII-10 11<sup>th</sup> of April

The phytoplankton community was dominated by diatoms but no bloom was evident. Several species of the genus *Chaetoceros* were found, among others *C. wighamii* but *Skeletonema marinoi* was still found in highest numbers. The integrated chlorophyll *a* values were within normal for this month.

### BY38 9<sup>th</sup> of April

Diatoms dominated clearly at this station but without bloom forming abundances. The species *C. wighamii* dominated closely followed by *Skeletonema marinoi*. The integrated Chlorophyll *a* concentration was within normal for the season.

### BY15 10<sup>th</sup> of April

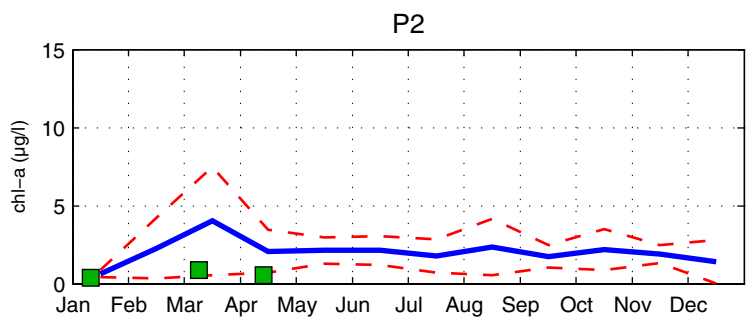
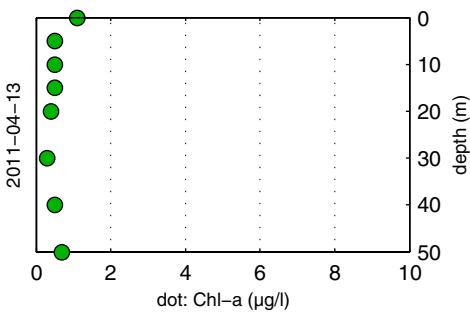
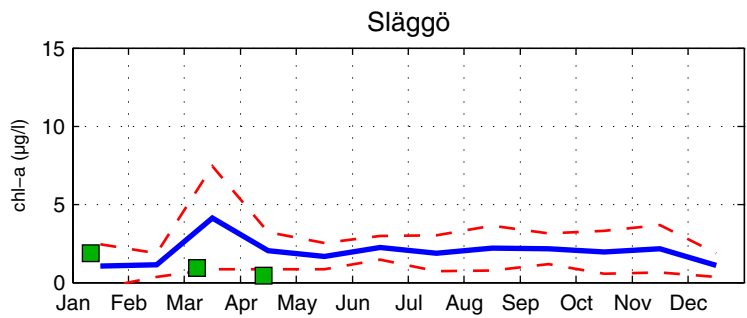
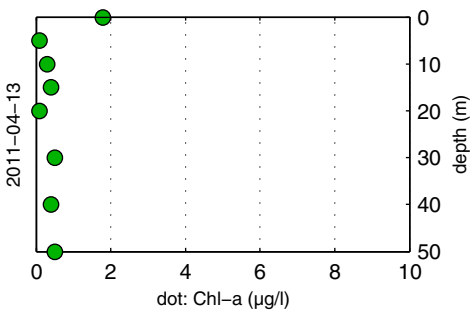
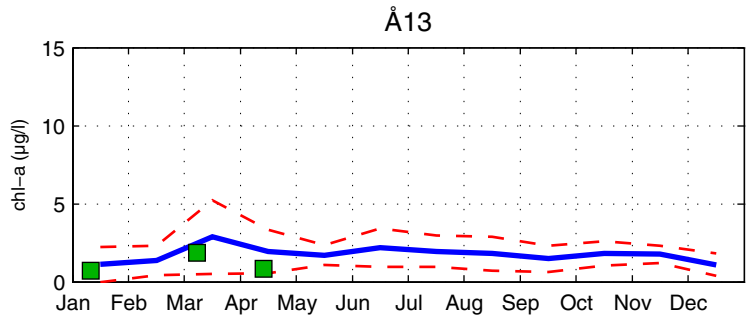
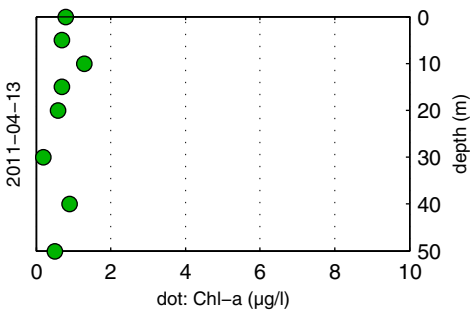
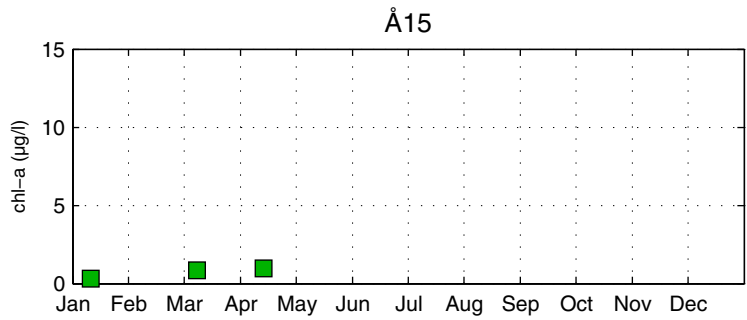
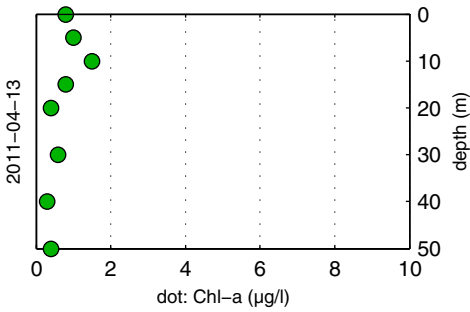
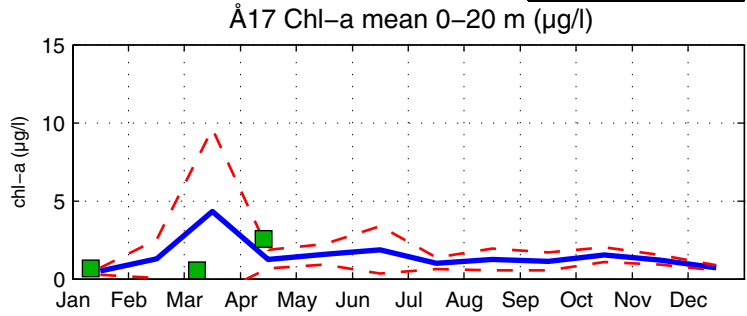
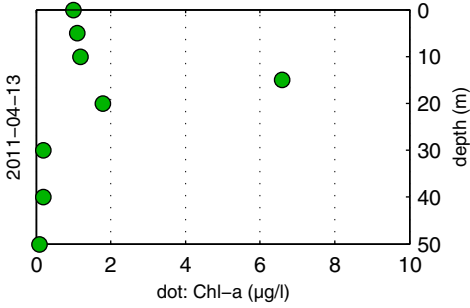
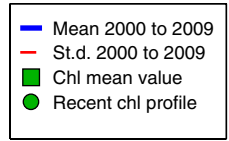
Only a few species were found and low numbers of each species were recorded. The diatom genus *Achnanthes* dominated but a few cells of *C. wighamii* was also found. The integrated chlorophyll *a* value was low but within normal.

Phytoplankton analysis and text by:  
Marie Johansen

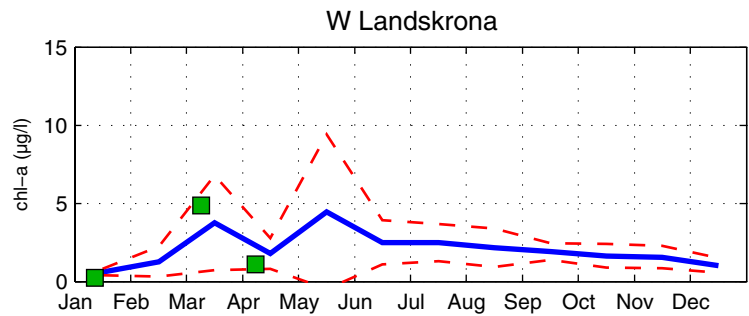
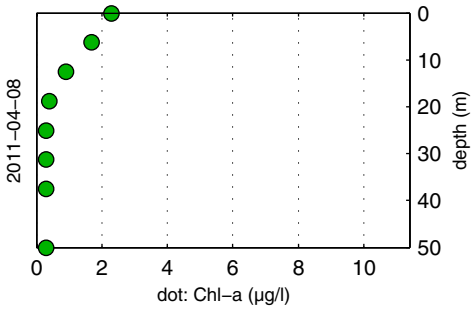
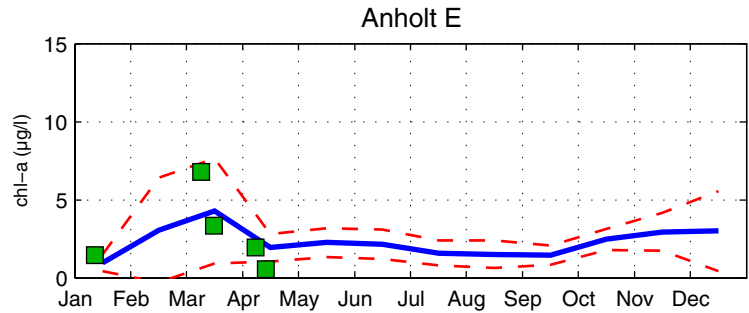
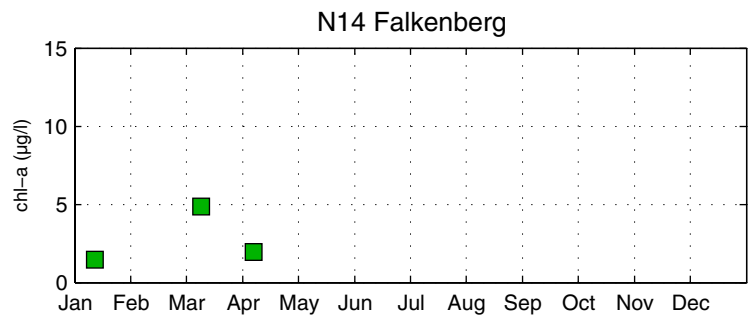
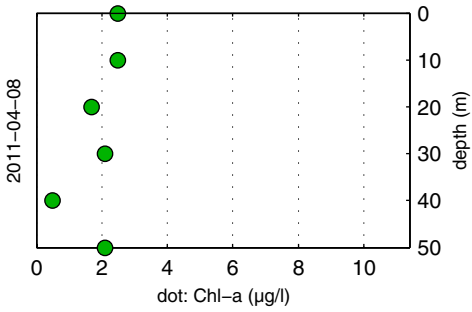
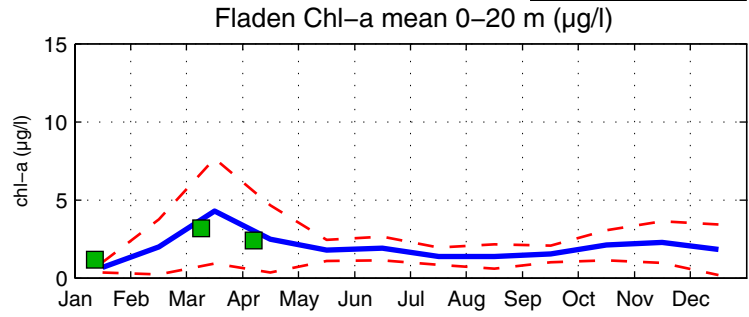
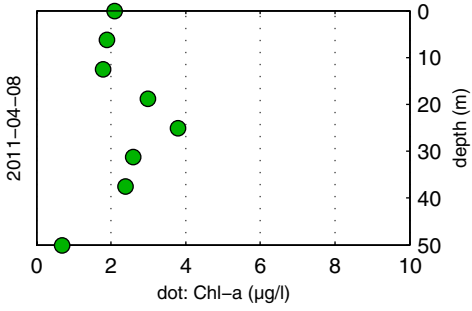
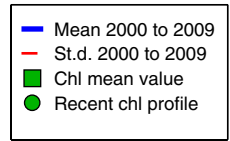
Selection of observed species	Å17	Släggö	Anholt E	Anholt E
Red=potentially toxic species	13/4	13/4	13/4	7/4
	cells/l	cells/l	cells/l	cells/l
<i>Chaetoceros laciniosus</i>	present		present	
<i>Chaetoceros socialis</i>	present	present	present	
<i>Chaetoceros</i> spp	present		present	
<i>Coscinodiscus</i> cf. <i>concinus</i>			present	
<i>Leptocylindrus danicus</i>	present		present	present
<i>Leptocylindrus minimus</i>			present	
<i>Proboscia alata</i>	present	present		
<i>Rhizosolenia hebetata</i>	present			
<i>Rhizosolenia setigera</i>	present	present	present	present
<i>Skeletonema marinoi</i>			present	
<i>Thalassiosira</i> spp	present			
<i>Dinophysis norvegica</i>	present	present	present	present
<i>Ceratium horridum</i>	present			
<i>Gymnodiniales</i> spp		present	present	common
<i>Gyrodinium spirale</i>	present	present	present	present
<i>Heterocapsa rotundata</i>				
<i>Katodinium glaucum</i>	present	present	present	present
<i>Peridinales</i> spp				common
<i>Peridiniella danica</i>	present	present	common	common
<i>Protoperidinium depressum</i>		present		
<i>Protoperidinium</i> spp		present		
<i>Protoperidinium pellucidum</i>	present			
<i>Chrysochromulina</i> spp.	present	present	present	present
<i>Cryptomonadales</i> spp	present	present		present
<i>Plagioselmis prolunga</i>	present	present		present
<i>Teleaulax</i> spp.	present	present	present	present
<i>Pseudochattonella</i> spp.		present	present	present
<i>Dinobryon balticum</i>	common	present	present	
<i>Apedinella radians</i>			present	
<i>Eutreptiella</i> spp.				present
cf. <i>Oltmannsiellopsis</i> spp			common	
<i>Pyramimonas</i> spp.		present		
<i>Emiliana huxleyi</i>	present			
<i>Craspedophyceae</i> spp	present	present		
<i>Katablepharis remigera</i>				present
<i>Pterosperma</i> spp				present
<i>Ciliophora</i> spp.		present	present	present
<i>Laboea strobila</i>		present	present	present
<i>Mesodinium rubrum</i>	present	present	present	
<i>Tintinnopsis</i> spp	present		present	present

Selection of observed species	BY2	Ref. M1-V1	BY38	BY15	BCS III-10	BY5
Red=potentially toxic species	8/4	9/4	9/4	12/4	13/4	14/4
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Achnantes</i> spp	very common	common	present	present		present
<i>Chaetoceros ceratosporus</i>		present			present	present
<i>Chaetoceros holsaticus</i>	common	common	present		present	
<i>Chaetoceros wighamii</i>	very common	common	common	present	common	present
<i>Chaetoceros</i> spp.	present		present		present	present
<i>Fragilariopsis</i>		present				
<i>Melosira arctica</i>			present			
<i>Navicula</i> spp	present					
<i>Porosira glacialis</i>		present			present	
<i>Skeletonema marinoi</i>	very common	very common	common		common	present
<i>Thalassiosira cf. baltica</i>		present	present		present	
<i>Thalassiosira levanderi</i>	common				present	
<i>Thalassiosira</i> spp.	present	present	present		present	present
Gymnodiniales spp	present		present	present	present	
<i>Heterocapsa rotundata</i>	present		present	present	present	present
<i>Peridiniella catenata</i>			present		present	
<i>Peridiniella danica</i>	present					
<i>Protoperdinium</i> spp		present				
Cryptomonadales spp.	present	present			present	common
<i>Plagioselmis prolunga</i>	common	present		present	common	present
<i>Teleaulax</i> spp				present	present	
<i>Chrysochromulina</i> spp			present		present	present
<i>Pyramimonas</i> spp.	present	common	present		present	
<i>Anabaena</i> spp					present	
<i>Aphanizomenon flos-aquae</i>	present		present		present	
<i>Eutreptiella</i> spp.	present					
<i>Katablepharis remigera</i>		present				
<i>Telonema subtile</i>	present	present			present	
<i>Ciliophora</i> spp	present		present	present	present	present
<i>Mesodinium rubrum</i>	present	present	present	present	present	present

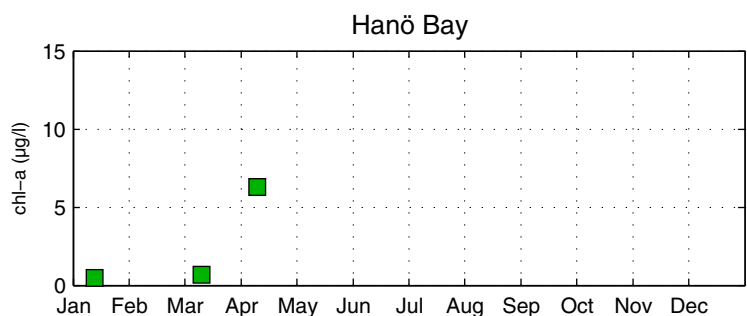
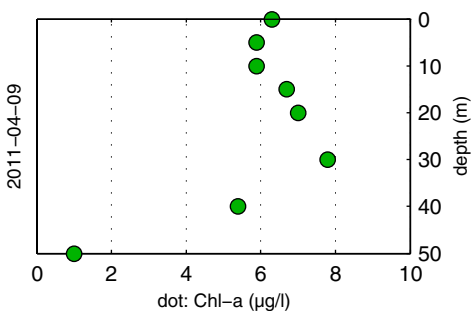
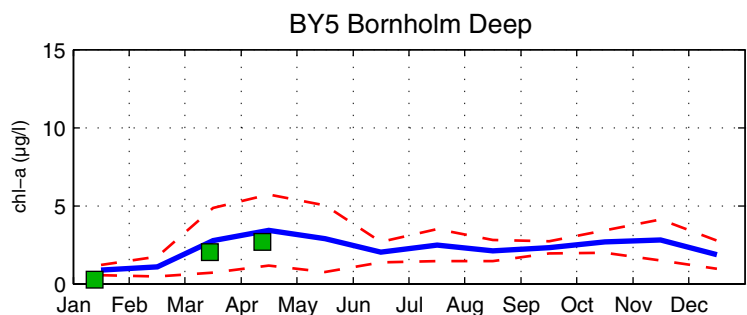
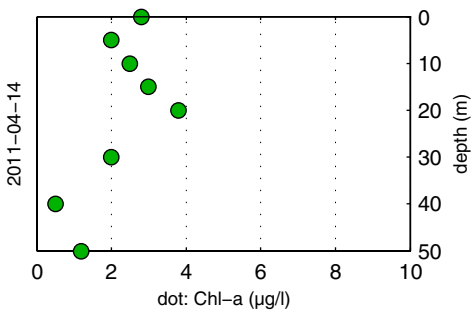
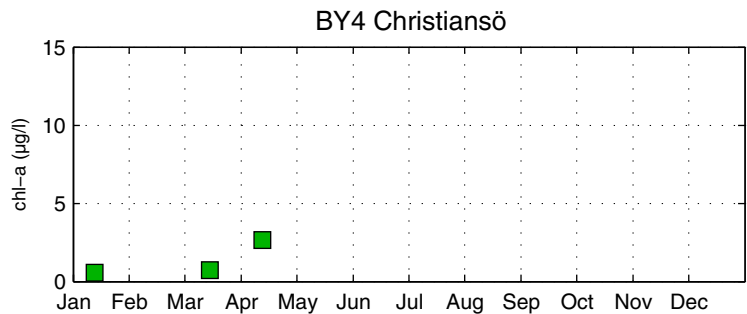
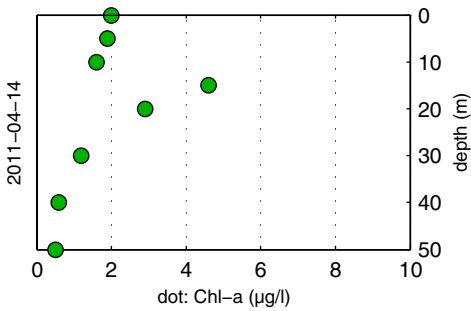
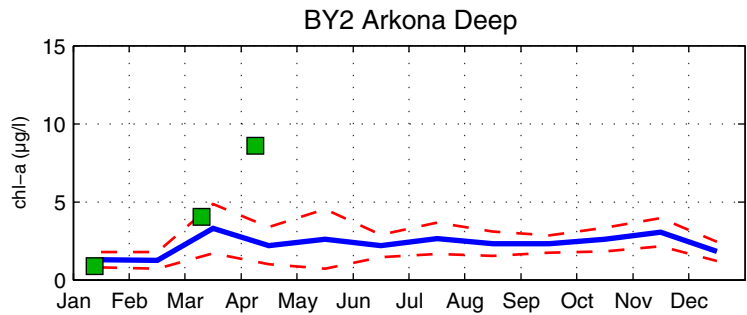
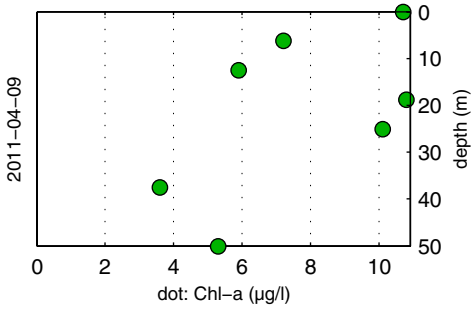
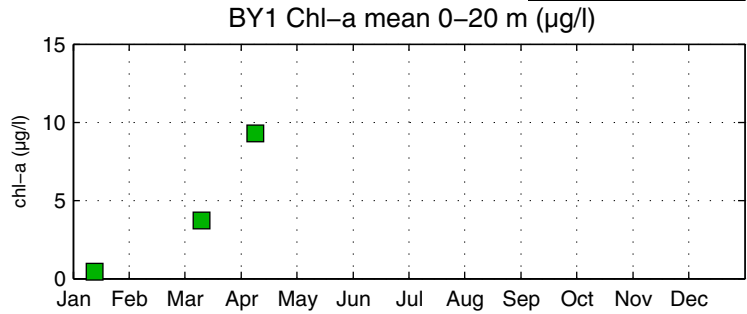
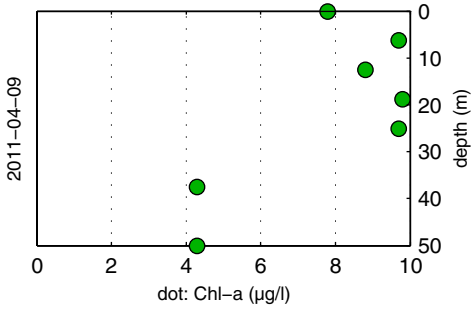
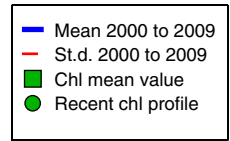
# The Skagerrak



# The Kattegat and the Sound

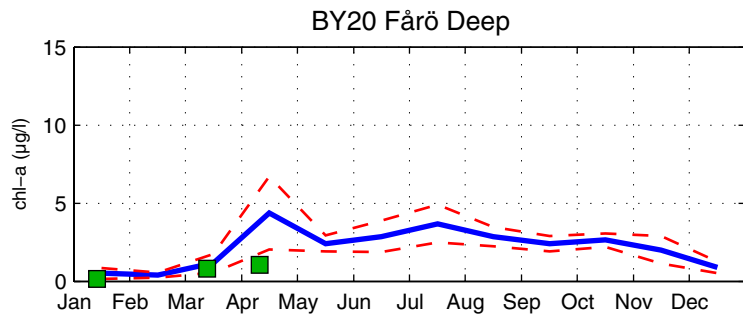
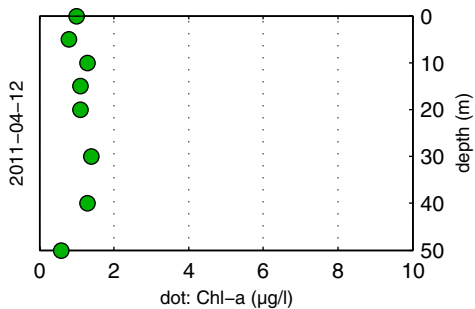
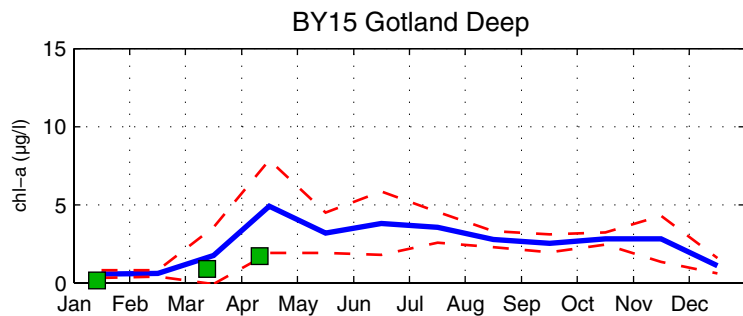
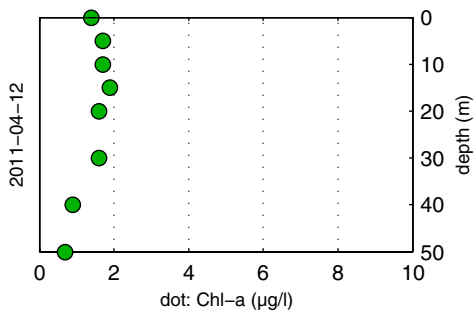
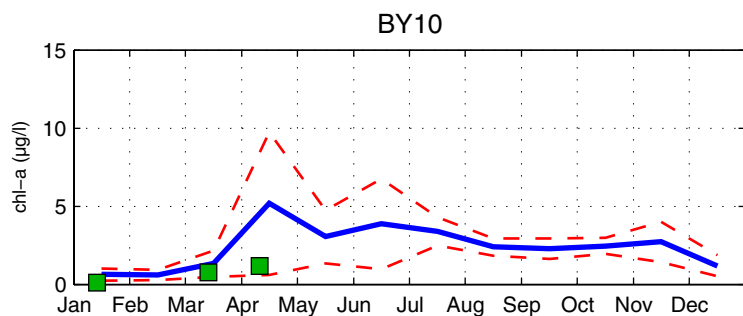
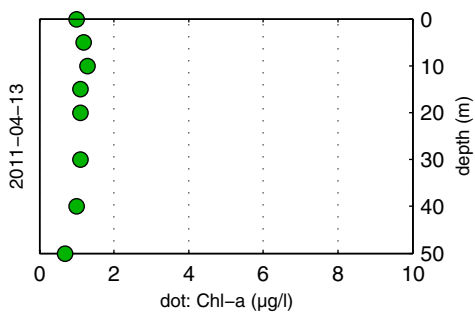
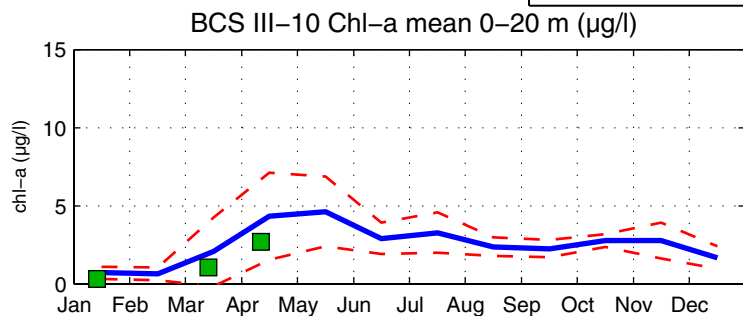
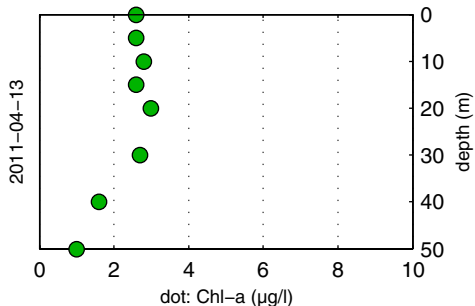
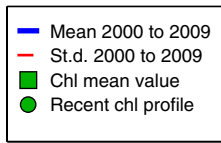


# The Southern Baltic

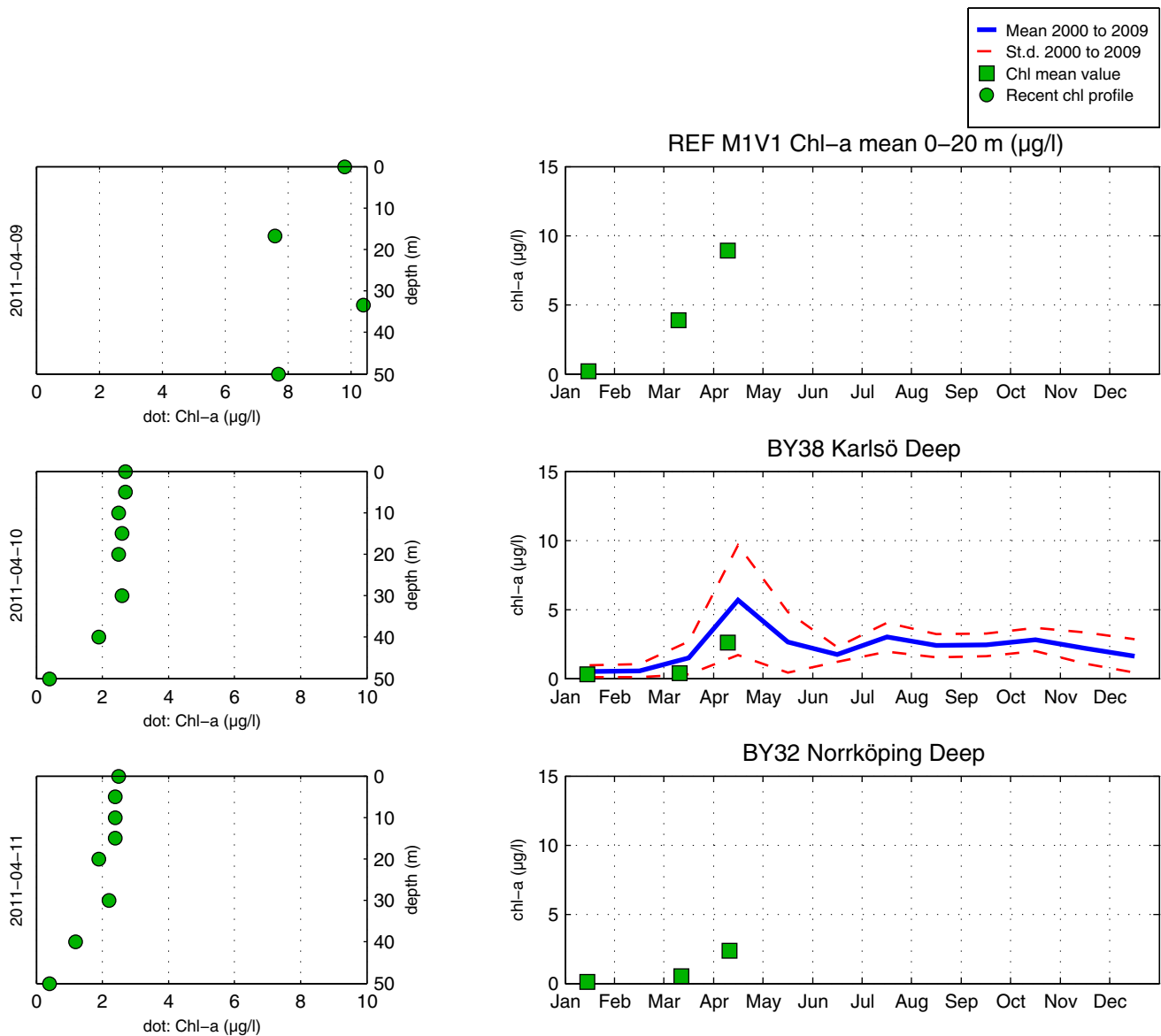




# The Eastern Baltic



# The Western Baltic



## 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 lager av växtplankton observeras. Tekniska problem ombord satte stopp för månadens fluorescens-mätningar.

## 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. Chlorophyll fluorescence was not measured this month due to technical problems on board.

## Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på semikvantitativ mikroskopanalys av planktonprover samt klorofyllmätningar presenteras kortfattat i denna rapport. Information från SMHI:s satellitövervakning av algbloomingar 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 semi quantitative 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>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	<b>Milda symptom:</b> Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramp <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.
<i>Chaetoceros concavicornis</i> / <i>C. convolutus</i>	Mechanical damage through hooks on setae	<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>Pseudochattonella</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.

Översikt över några 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.

