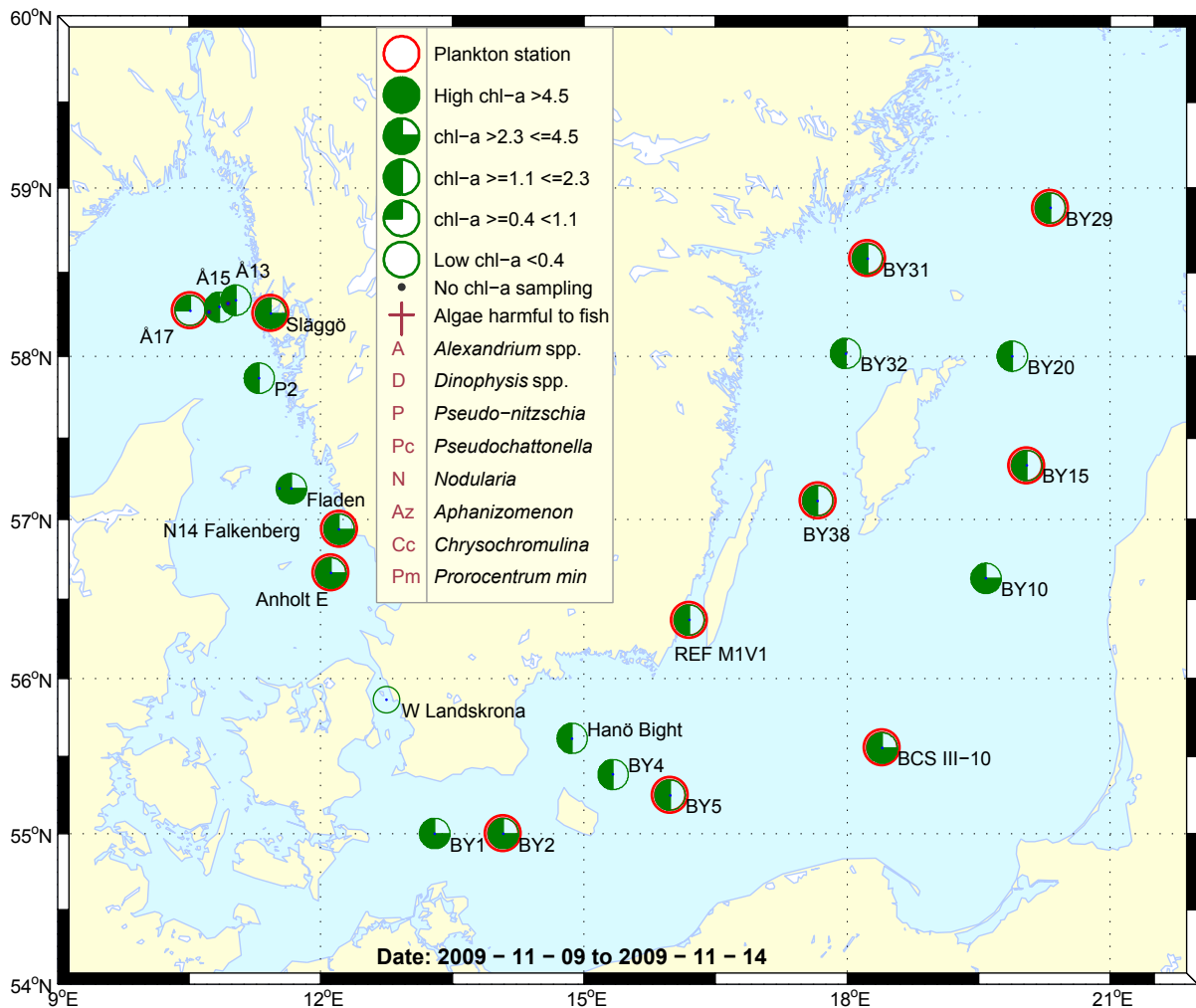


## Sammanfattning

Kiselalgsblomning observerades i Skagerrak och Kattegatt och integrerade (0-20m) klorofyllvärden över medel för denna månad uppmättes vid Släggö, Anholt E och Fladen. Dominerande arter var kiselalgen *Skeletonema costatum* och *Pseudo-nitzschia delicatissima*-gruppen\*.

I Östersjön var antalet arter och cellantal låga vilket är normalt för årstiden. Vid BCS III-10 var det integrerade klorofyllvärdet över medel, vilket troligtvis orsakades av den stora kiselalgen *Coscinodiscus* spp. som fanns i relativt högt antal celler.



## Abstract

An ongoing diatom bloom was observed in the Skagerrak and Kattegat areas and consequently integrated (0-20m) chlorophyll values above average were found at stations Släggö, Anholt E and Fladen. The diatoms *Skeletonema costatum* and *Pseudo-nitzschia delicatissima*-group\* dominated the phytoplankton samples.

In the Baltic Sea the number of species and the cell numbers were low which is normal for the season. At BCS III-10 the integrated chlorophyll value was above average, probably caused by the large diatom *Coscinodiscus* spp. being present with relatively high cell numbers.

More detailed information on species composition and abundance

## The Skagerrak

### Å17 9<sup>th</sup> of November (open Skagerrak)

The phytoplankton diversity was low, the diatoms *Skeletonema costatum*, *Pseudo-nitzschia delicatissima*-group\* and *Cerataulina pelagica* were the most common species.

### Släggö 9<sup>th</sup> of November (Skagerrak coast)

Diatoms dominated the phytoplankton sample. *Pseudo-nitzschia delicatissima*-group\* was found to have the highest cell numbers but many other diatoms were common, like *Skeletonema costatum* and many species of the genus *Chaetoceros* of which *C. concavicornis*\* was the most common species.

The integrated chlorophyll *a* value was above average for this month at Släggö, whereas at the other Skagerrak sampling sites the values were within average.

## he Kattegat

### N14 Falkenberg and Anholt E 10<sup>th</sup> of November

The phytoplankton situation was similar to the one at Släggö, the diatoms *Skeletonema costatum* and *Pseudo-nitzschia delicatissima*-group\* being the dominating species. The total cell counts were much higher at the Kattegat stations though. Other common diatoms were *Cerataulina pelagica* and *Chaetoceros concavicornis*\*. The flagellate *Dictyocha speculum*\* was common.

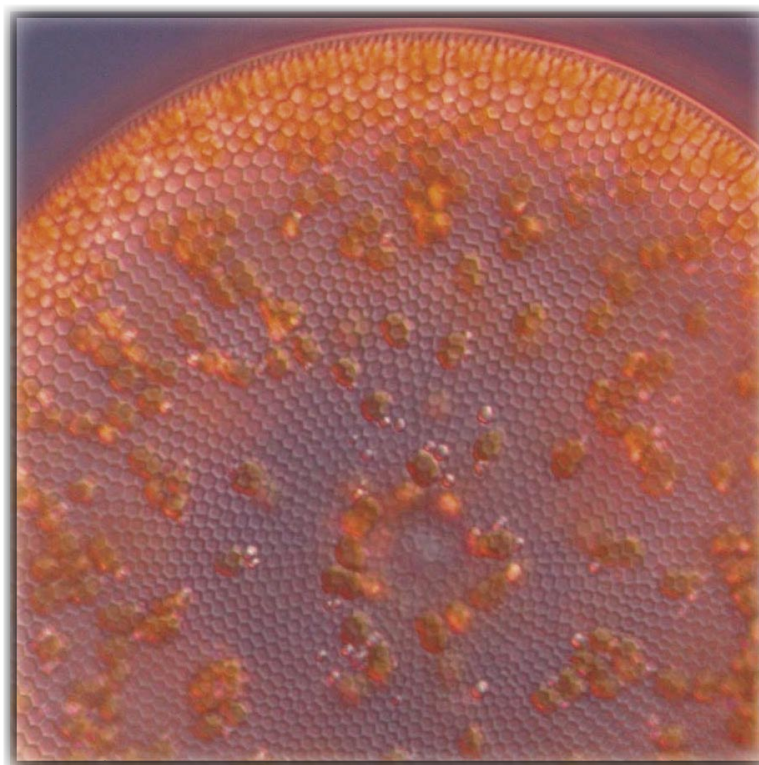


The diatom *Chaetoceros concavicornis*\* was present at the Skagerrak and Kattegat stations. The species is known to be lethal to fish by causing damage to the fish gills.

## The Baltic Sea

The phytoplankton diversity was very low. Traces of the prymnesiophyte *Chrysochromulina polylepis*\* were found at BY2, BY5 and at BY31.

The integrated chlorophyll *a* values were within average at all stations except BCSIII, where the large diatom genus *Coscinodiscus* was common.



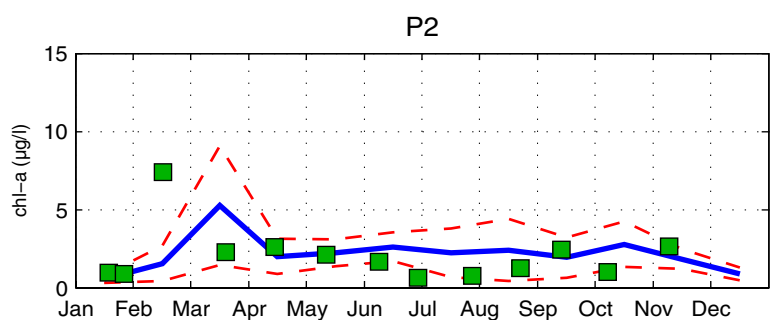
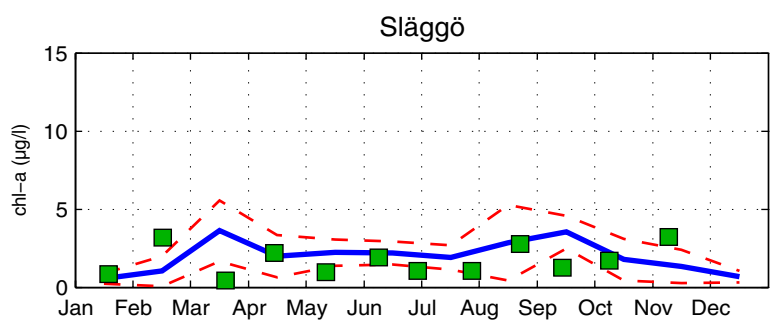
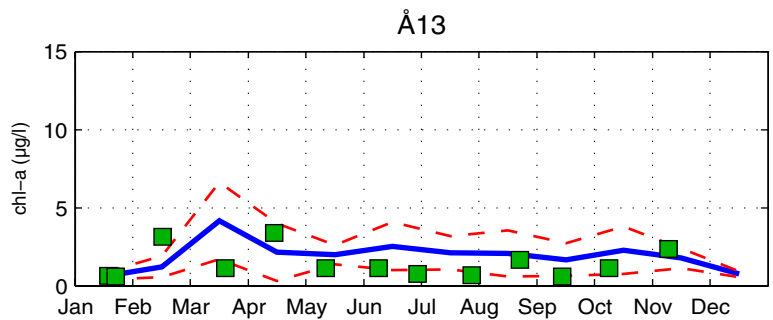
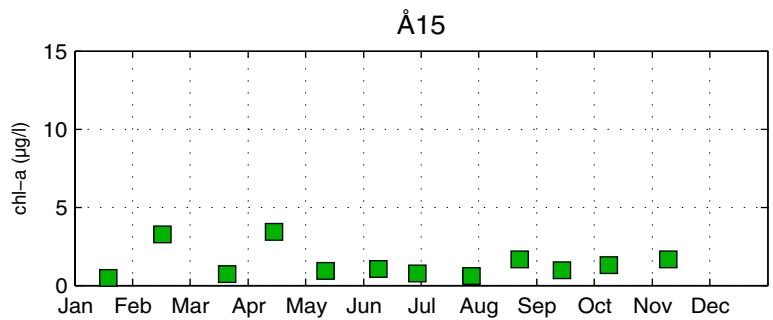
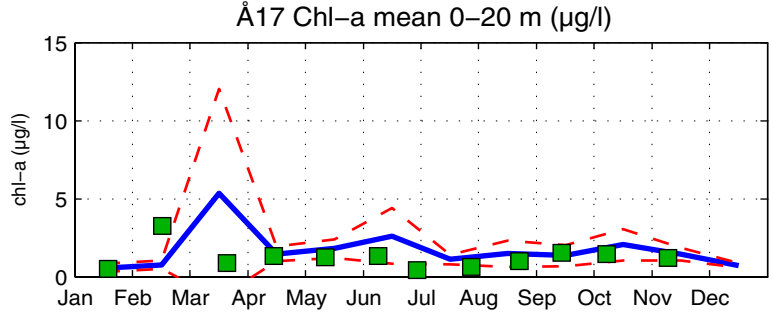
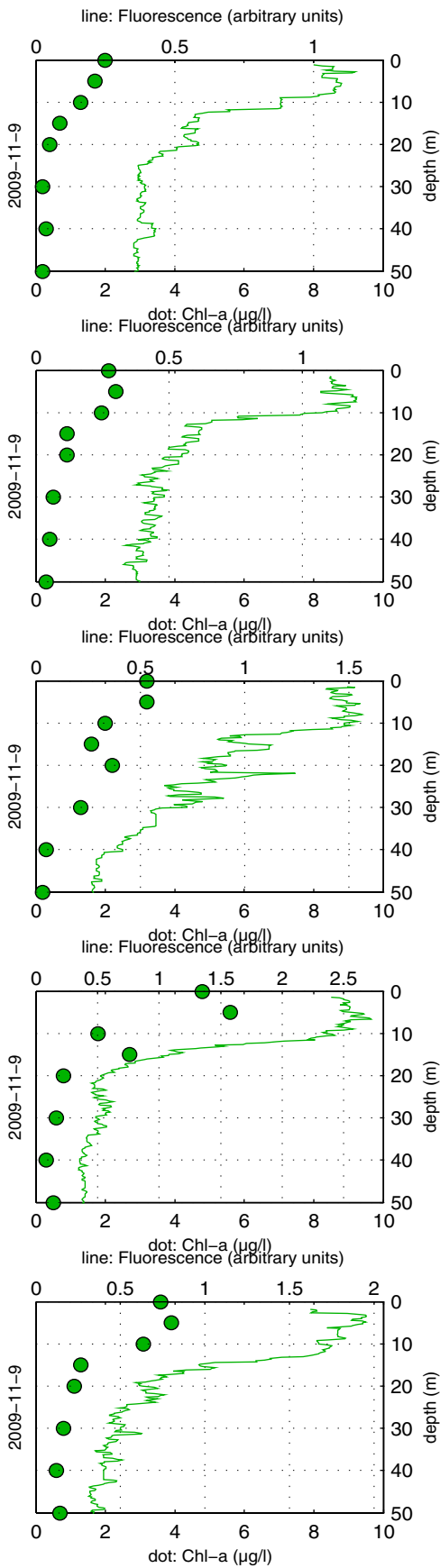
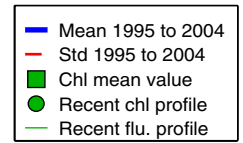
The large centric diatom genus *Coscinodiscus* was common at BCS III-10

Phytoplankton analysis and text by:  
Ann-Turi Skjevik

Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	2009-11-09	2009-11-09	2009-11-10	2009-11-10
	cells/l	cells/l	cells/l	cells/l
<i>Attheya septentrionalis</i>				present
<i>Cerataulina pelagica</i>	common	common	95 000	common
<i>Chaetoceros circinalis</i>		present		
<i>Chaetoceros concavicornis</i>	present	common	common	common
<i>Chaetoceros curvisetus</i>		present	present	present
<i>Chaetoceros danicus</i>	present	common	11 000	present
<i>Chaetoceros debilis</i>		common		
<i>Chaetoceros didymus</i>				present
<i>Chaetoceros impressus</i>	present			
<i>Chaetoceros laciniosus</i>		present	present	common
<i>Chaetoceros socialis</i>		present	present	98 000
<i>Chaetoceros subtilis</i>		present		
<i>Ditylum brightwellii</i>	present			present
<i>Eucampia zodiacus</i>		present		
<i>Guinardia delicatula</i>	present			present
<i>Leptocylindrus danicus</i>	present	present	present	present
<i>Leptocylindrus minimus</i>			present	
cf. <i>Nitzschia longissima</i>		present	present	present
<i>Porosira glacialis</i>			present	
<i>Proboscia alata</i>	present	present	present	present
<i>Pseudo-nitzschia delicatissima</i> -group	common	110 000	300 000	495 000
<i>Pseudo-nitzschia seriata</i> -group	present	common	common	common
<i>Pseudosolenia calcar-avis</i>		present	present	present
<i>Rhizosolenia hebetata</i>	present			
<i>Rhizosolenia setigera</i>	present	common	common	present
<i>Skeletonema costatum</i> complex	very common	very common	566 000	2 220 000
<i>Thalassionema nitzschioides</i>	present		present	present
<i>Thalassiosira angulata</i>	common	present	present	11 000
<i>Thalassiosira anguste-lineata</i>			present	
<i>Thalassiosira nordenskiöldii</i>		present	present	present
<i>Thalassiosira rotula</i>	present	common	present	10 000
<i>Ceratium fusus</i>		present		
<i>Ceratium lineatum</i>		present	present	present
<i>Ceratium longipes</i>	present	present	present	
<i>Ceratium tripos</i>		present	present	present
<i>Dinophysis acuminata</i>	present			present
<i>Gymnodinium verruculosum</i>	present	present	present	present
<i>Gyrodinium flagellare</i>	present			
<i>Gyrodinium spirale</i>			present	present
<i>Heterocapsa rotundata</i>		present		
<i>Heterocapsa triquetra</i>			present	
<i>Noctiluca scintillans</i>		present		
<i>Peridiniella danica</i>		present		present
<i>Protoberidinium bipes</i>		present		
<i>Chrysochromulina</i> spp.	present	present	present	present
<i>Heterosigma akashiwo</i>			present	
Cryptomonadales spp.	common	96 000	common	common
<i>Dictyocha speculum</i>	present	17 000	common	present
<i>Pyramimonas</i> spp.	present	71 000	present	present
<i>Apedinella radians</i>		present	present	
<i>Pseudopedinella</i> spp.		present	present	
<i>Calliakantha longicaudata</i>	present	common	present	
<i>Calliakantha natans</i>	present	present	present	present
<i>Leucocryptos marina</i>	present	present	present	present
<i>Laboea strobila</i>		present		present
<i>Mesodinium rubrum</i>		present		

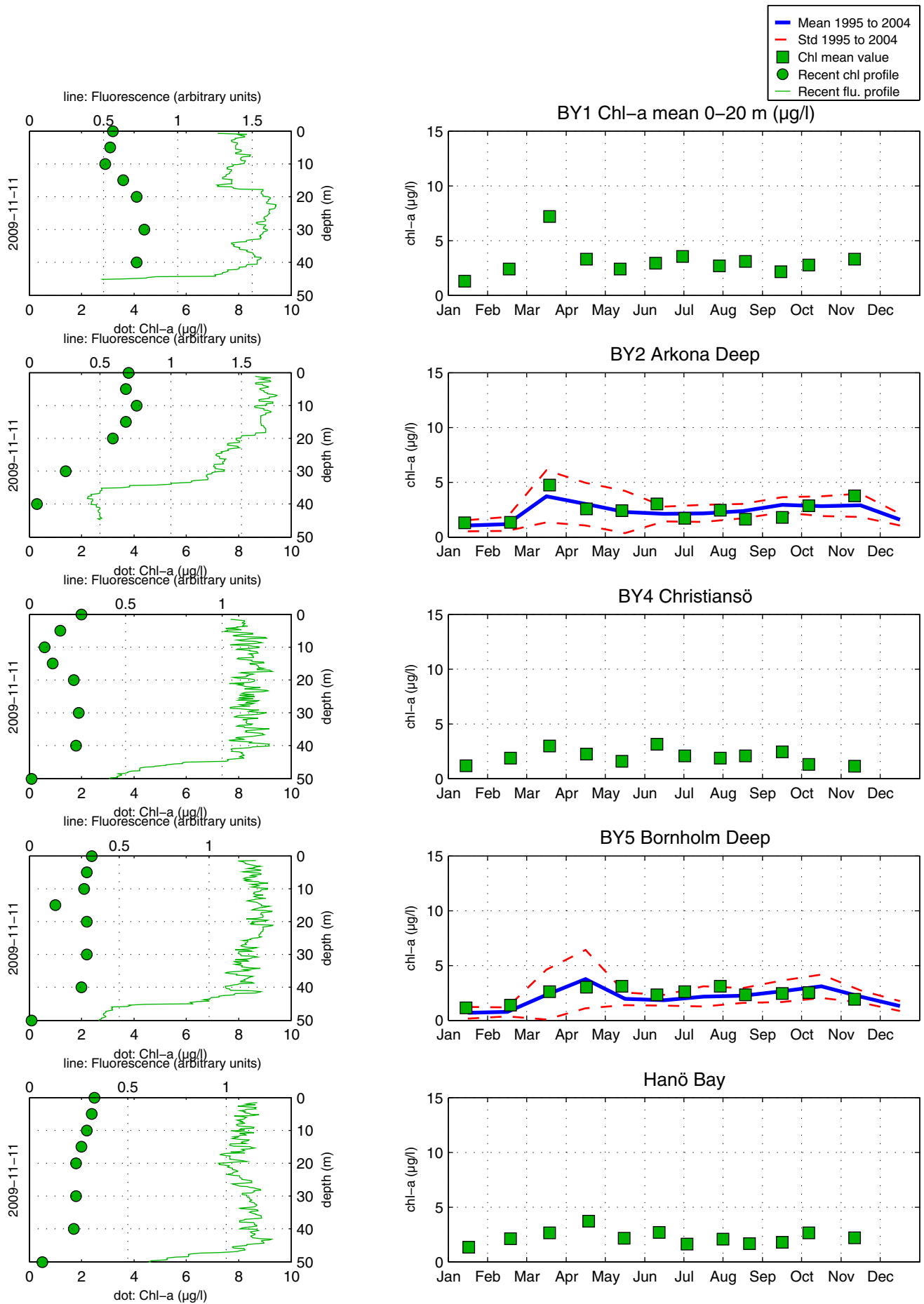
Selection of observed species	BY2 2009-11-11 cells/l	BY5 2009-11-11 cells/l	BCS III-10 2009-11-12 cells/l	BY15 2009-11-12 cells/l	BY 29 2009-11-13 cells/l	BY 31 2009-11-13 cells/l	BY38 2009-11-13 cells/l	Ref. M1-V1 2009-11-14 cells/l
Red=potentially toxic species 1 quantified in m/l								
<i>Chaetoceros danicus</i>			present		present	present		present
<i>Chaetoceros impressus</i>	present	present	present	present	present	present		present
<i>Chaetoceros subtilis</i>	present							
<i>Coscinodiscus granii</i>	present							
<i>Coscinodiscus</i> spp.	present	present	9300	present	present			
<i>Cyclotella choctawhatcheana</i>	present	present		present	present			
<i>Skeletonema costatum</i>	present				present		present	present
<i>Dinophysis norvegica</i>						present		
<i>Gymnodinium verruculosum</i>	present	present		present				
<i>Gyrodinium flagellare</i>						present		
<i>Heterocapsa rotundata</i>	present	present				present		present
<i>Katodinium glaucum</i>						present		
<i>Chrysochromulina polyplepis</i>	present	present				present		
<i>Chrysochromulina</i> spp.			present			present		
<i>Cryptomonadales</i> spp.	127 000	82 000	present	common	common	common	present	common
<i>Planctonema lauterbornii</i>	present				present			
<i>Pyramimonas</i> spp.	common	common	present	present	present	present	present	present
<i>Pseudopedinella</i> spp.						present		
<i>Aphanizomenon</i> spp.	present			present	common	common		common
<i>Nodularia spumigena</i>						present		
<i>Cyanobacteria colonies</i>	present	present	present	present	present	present	present	
<i>Telonema subtile</i>					present	present		
<i>Calliakantha longicaudata</i>			present					present
<i>Calliakantha natans</i>		present	present	present	present	present	present	common
<i>Ebria tripartita</i>		present					present	
<i>Leucocryptos marina</i>					present			present
<i>Mesodinium rubrum</i>	present	present		present	present	present	present	present

# The Skagerrak



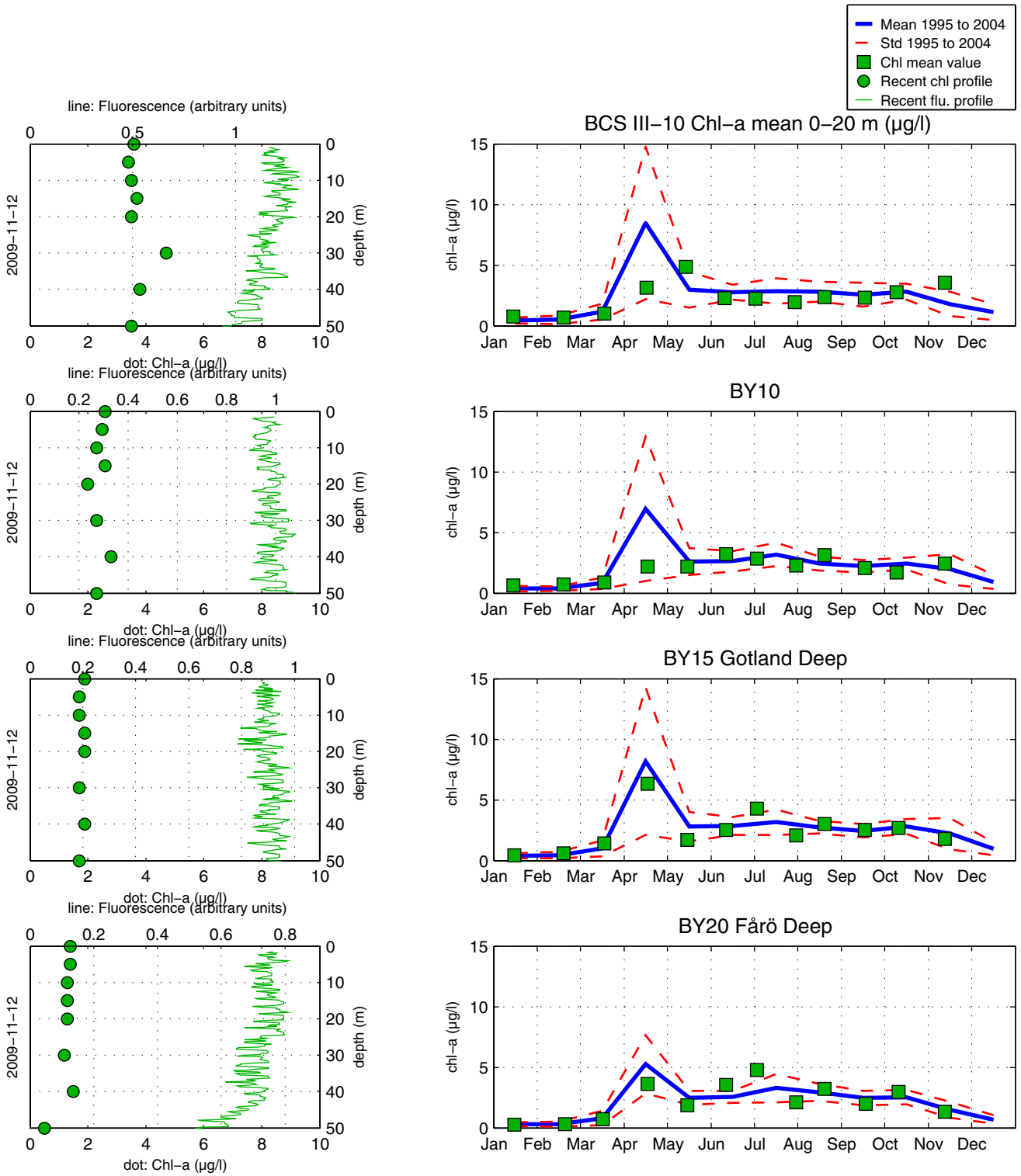


# The Southern Baltic

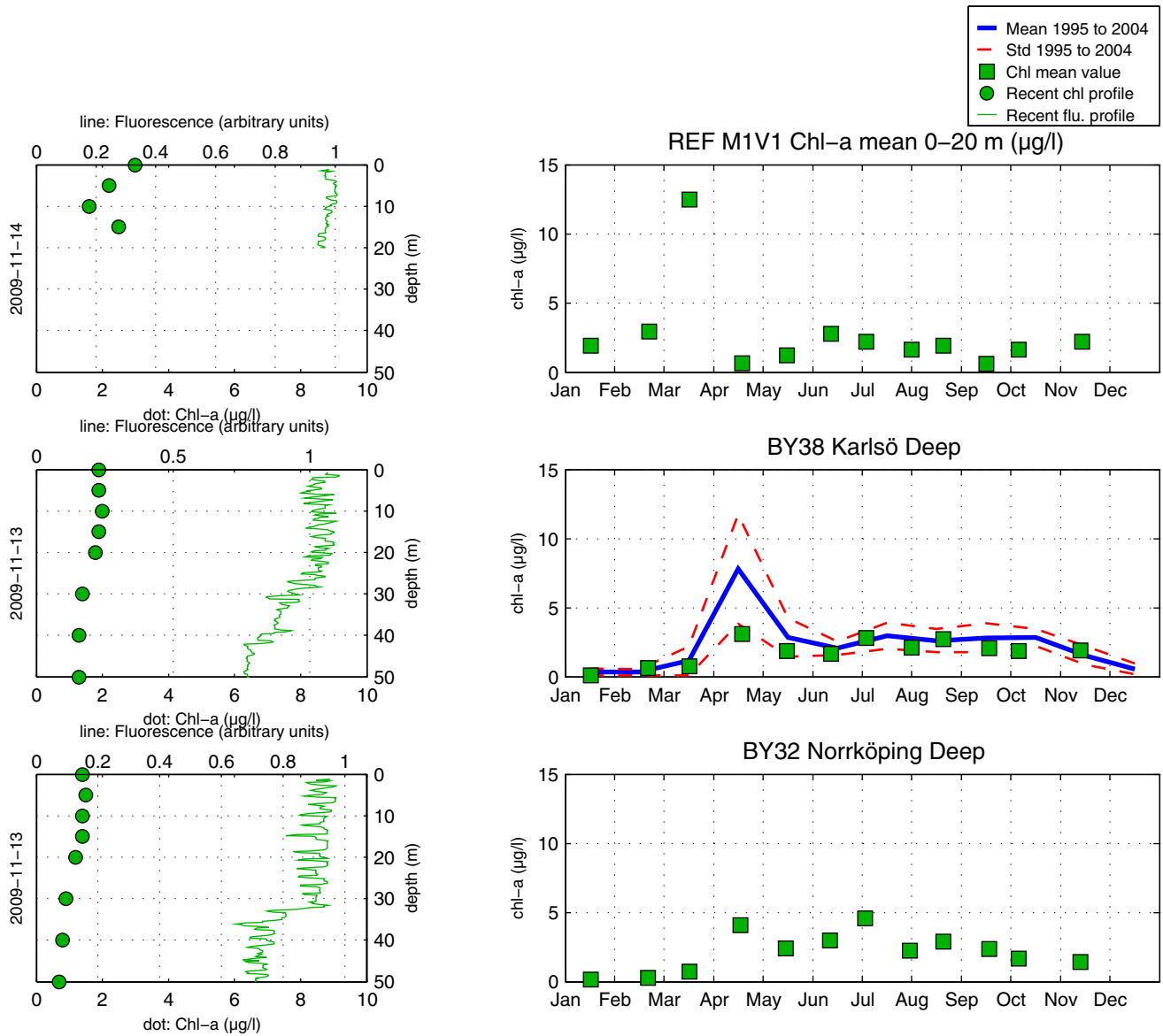




# The Eastern Baltic



# 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.

## 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.

## 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>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.
<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. 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.

