

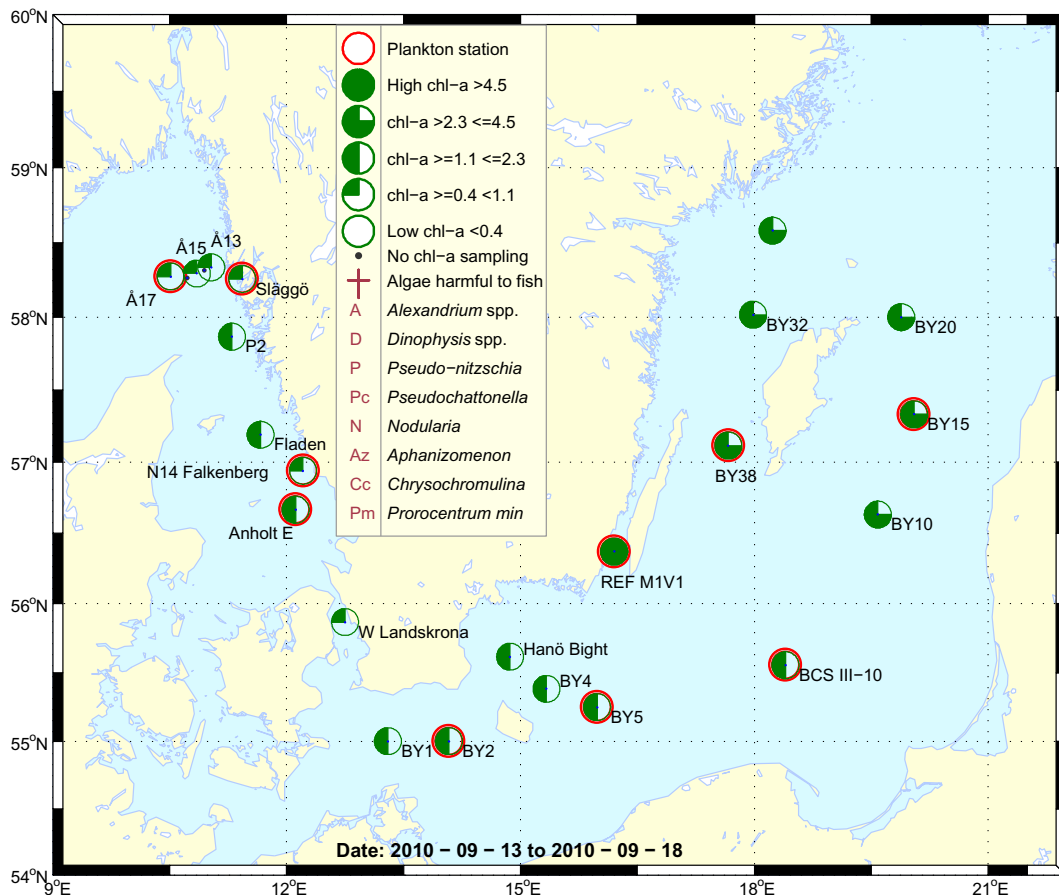
## Sammanfattning

Vid provtagningstillfället i början av september uppmättes de integrerade klorofyll *a* värdena (0-20m) i Västerhavet till, för säsongen, normala värden på de flesta stationer. Enda undantagen var Släggö där värdena låg under det normala och Anholt E där värdena var något över det normala.

Planktonsamhället var relativt artfattigt i Skagerrak med små flagellater fram för allt tillhörande gruppen cryptomonader samt relativt höga tätheter av kiselalgssläktet *Pseudo-nitzschia*.

I Kattegatt observerades ungefär liknande antal arter som återfanns i Skagerrak. Små flagellater så som cryptomonader var även här vanliga och kiselalgssläktet *Pseudo-nitzschia* var relativt vanligt. Vid Anholt E förekom höga celltätheter av kiselalgen *Rhizosolenia pungens*.

September månads klorofyll *a* värden från Östersjön var överlag normala för årstiden. Något förhöjda värden noterades endast vid ett par stationer i de östra delarna av Östersjön. Förekomsten av cyanobakterier hade reducerats kraftigt sedan förra expeditionen. Små flagellater tillhörande olika grupper dominerade på de flesta stationer.



## Abstract

The integrated (0-20 meters) chlorophyll *a* concentrations were normal for the season at most of the Skagerrak and Kattegat sampling sites. The only exception was Släggö with lower concentrations than normal and Anholt E with higher concentrations than normal.

The plankton community was relatively low in species diversity in the Skagerrak. Small flagellates such as cryptomonads were most abundant together with the diatom genus *Pseudo-nitzschia*.

About the same species diversity was found in the Kattegat as in the Skagerrak. The same groups dominated as at the Skagerrak stations. At Anholt E the diatom species *Rhizosolenia pungens* was recorded in high cell numbers.

The integrated (0-20 meters) chlorophyll *a* concentrations from the Baltic Sea were normal for the season at most stations.

The occurrence of cyanobacteria had diminished greatly at most stations since the last expedition. Small flagellates belonging to different groups were observed in high cell numbers at all stations.

More detailed information on species composition and abundance

## The Skagerrak

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

The phytoplankton species diversity was not so high and diatoms were most abundant. Relatively thick cells of the diatom genus *Pseudo-nitzschia* dominated in the sample.

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

The species diversity was a little bit higher at this station compared to Å17. Diatoms were still most common but with no clear dominance although *Asterionellopsis glacialis* and the genus *Pseudo-nitzschia* were found in relatively high cell numbers. A lot of small flagellates such as different cryptomonads were also observed.

## The Kattegat

### N14 Falkenberg 14<sup>th</sup> of September

Small flagellates were most numerous in this sample that otherwise was quite poor in species diversity. Diatoms were still more abundant than dinoflagellates. *Cylindrotheca closterium* was most abundant among the diatoms.

### Anholt E 14<sup>th</sup> of September

A quite high species diversity was found at this station. Diatoms dominated and the genus *Pseudo-nitzschia* together with *Rhizosolenia pungens* were the most abundant.



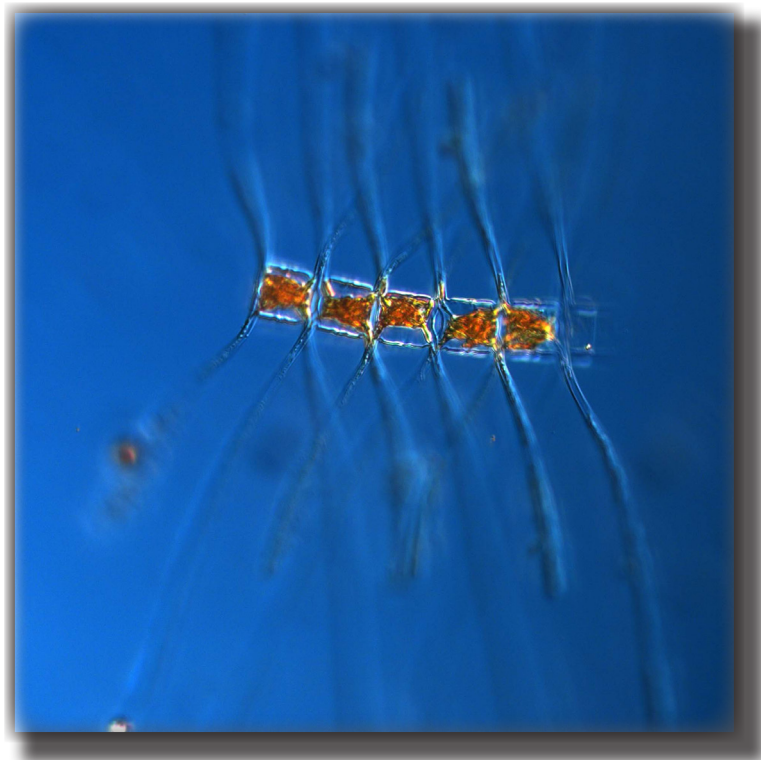
The diatom *Rhizosolenia pungens* can be identified by the shape of its spear. Photo: A-T Skjevik.

## The Baltic Sea

The integrated (0-20 meters) chlorophyll *a* concentrations from the Baltic Sea were normal for the season at most stations. The only exception was a couple of stations in the eastern part where concentrations were slightly above normal.

The occurrence of cyanobacteria had diminished greatly at most stations since the last expedition. Quite high abundances of single filaments of the cyanobacterium genus *Aphanizomenon* were however observed at BY 38.

Small flagellates belonging to different groups were otherwise observed in high cell numbers at all stations. A quite different community was however observed at the Gotland deep ( BY15) where quite high abundance of the diatom *Prorocentrum minimum* was recorded together with a substantial amount of *Chaetoceros impressus*.

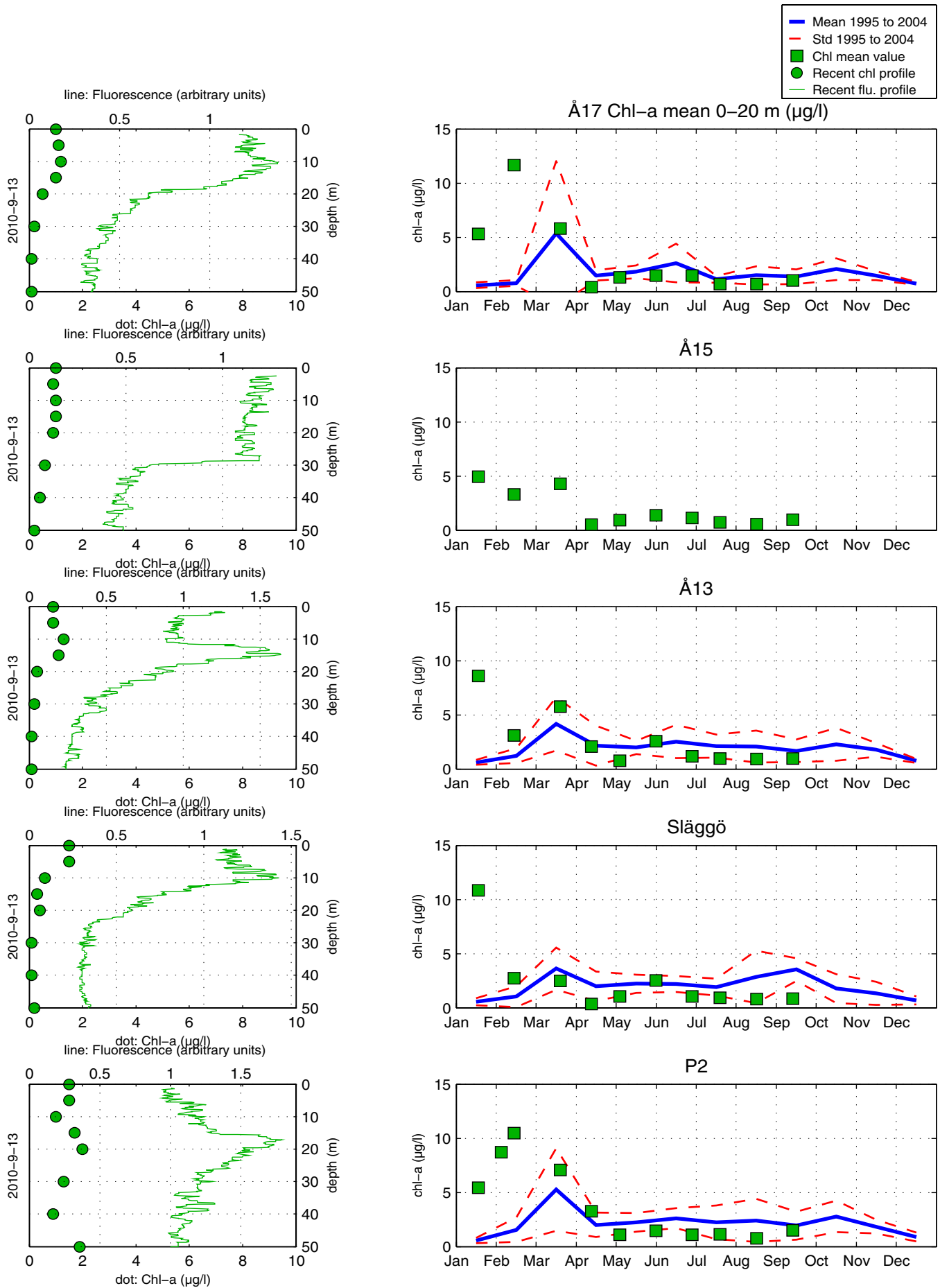


The diatom *Chaetoceros impressus* was abundant at BY15.  
Photo: A-T Skjevik

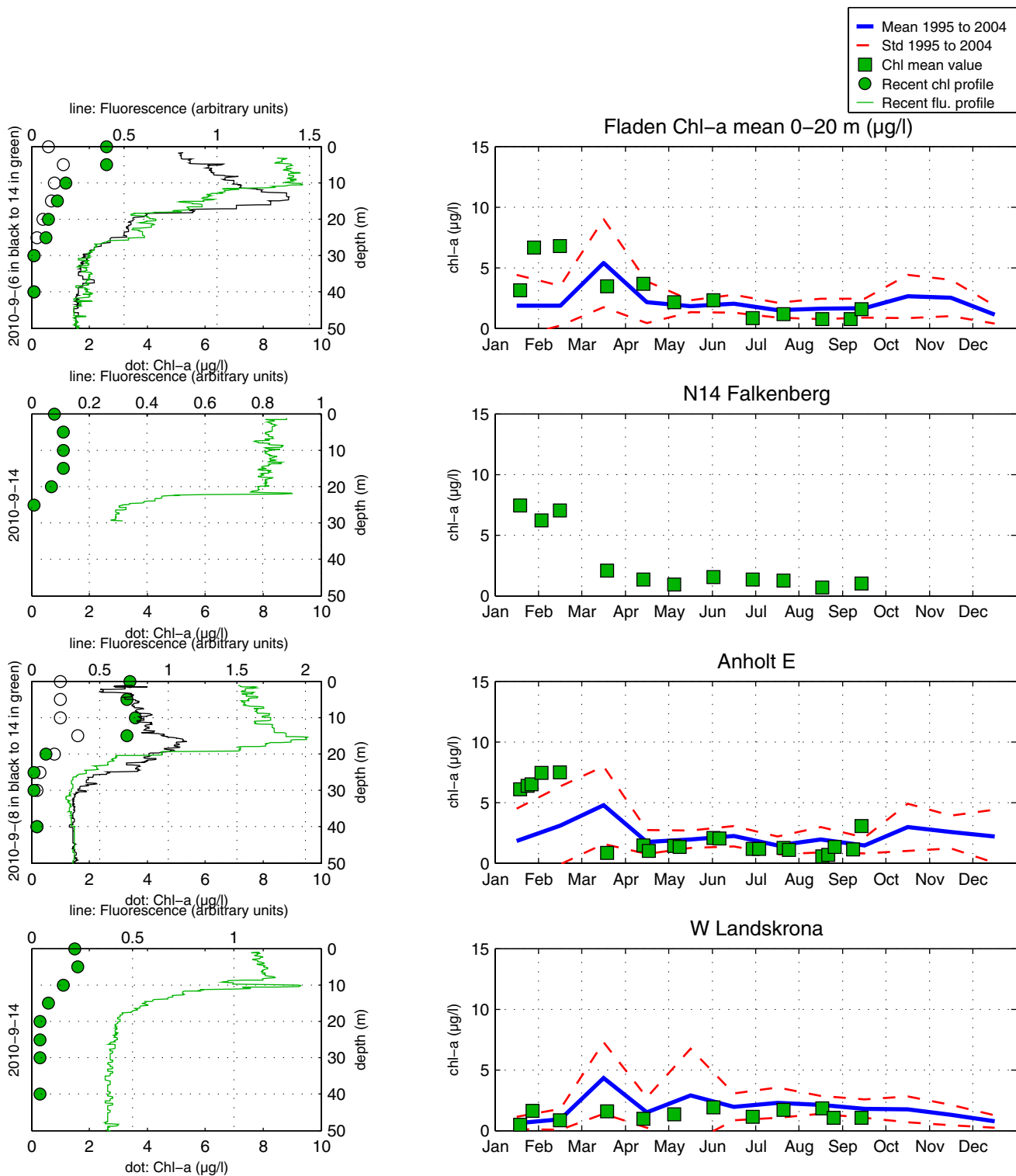
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	13/9	13/9	14/9	14/9
Hose 0-10 m	cells/l	cells/l	cells/l	cells/l
<i>Asterionellopsis glacialis</i>		common		
<i>Ceratulina pelagica</i>	observed	observed		observed
<i>Chaetoceros contortus</i>				observed
<i>Chaetoceros curvisetus</i>				common
<i>Chaetoceros didymus</i>	observed			
<i>Chaetoceros socialis</i>	observed	observed		observed
<i>Chaetoceros</i> spp.	observed	observed		observed
<i>Cylindrotheca closterium</i>		common	common	
<i>Dactyliosolen fragilissimus</i>	observed	observed	observed	common
<i>Diylum brightwellii</i>				observed
<i>Guinardia delicatula</i>		observed	observed	
<i>Guinardia flaccida</i>				observed
<i>Leptocylindrus danicus</i>	observed	common	observed	
<i>Leptocylindrus minimus</i>		observed		observed
<i>Proboscia alata</i>				observed
<i>Pseudo-nitzschia</i> spp.	dominating	common	common	common
<i>Pseudosolenia calcar-avis</i>			observed	observed
<i>Rhizosolenia pungens</i>	observed			common
<i>Skeletonema marinoi</i>		observed		common
<i>Nitzschia longissima</i>	observed		observed	
<i>Ceratium fusus</i>	observed	observed		observed
<i>Ceratium lineatum</i>	observed			observed
<i>Ceratium longipes</i>	observed	observed		observed
<i>Ceratium tripos</i>	observed	observed		observed
<i>Dinophysis acuminata</i>		observed		
<i>Dinophysis norvegica</i>		observed	observed	
<i>Dinophysis rotundata</i>		observed	observed	
Gymnodiniales spp.	common	observed	observed	observed
<i>Lingulodinium polyedrum</i>	observed			observed
<i>Prorocentrum micans</i>	observed	observed	observed	observed
<i>Protoperdinium conicum</i>		observed	observed	observed
<i>Protoperdinium depressum</i>		observed		
<i>Protoperdinium divergens</i>	observed	observed	observed	
<i>Protoperdinium oblongum</i>				observed
<i>Protoperdinium</i> spp.		observed	observed	
<i>Pterosperma</i> spp.				observed
<i>Anabaena</i> spp.				observed
<i>Ciliophora</i> spp.	observed	common	common	
<i>Mesodinium rubrum</i>			observed	
<i>Nodularia spumigena</i>	observed			observed
Cryptomonadales	common	common	common	common
<i>Plagioselmis prolunga</i>		common	common	common
<i>Teleaulax ampioxeia</i>		common		
<i>Pyramimonas</i> spp.	observed			
<i>Pseudopedinella</i> spp.	observed	observed		

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY38	Ref. M1-V1
Red=potentially toxic species	15/9	15/9	16/9	16/9	17/9	15/9
Hose 0-10 m	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Ceratulina pelagica</i>	observed					
<i>Chaetoceros danicus</i>	observed	observed		observed		
<i>Chaetoceros impressus</i>	observed	observed	observed	common	common	
<i>Dactyliosolen fragilissimus</i>	observed					
<i>Leptocylindrus minimus</i>		observed				
<i>Thalassiosira</i> spp.	observed		observed			observed
<i>Dinophysis acuminata</i>						observed
<i>Dinophysis norvegica</i>	observed		observed	observed	observed	
<i>Dinophysis rotundata</i>						observed
<i>Gymnodinium</i> spp.	observed	observed	observed	observed	observed	observed
<i>Katodinium glaucum</i>	observed				observed	
<i>Prorocentrum minimum</i>				common	observed	observed
<i>Scrippsiella</i> -complex spp.						observed
<i>Anabaena</i> spp.					observed	observed
<i>Aphanizomenon</i> spp.					common	common
<i>Nodularia spumigena</i>					observed	observed
<i>Dictyocha speculum</i>		observed				
Cryptomonadales	common	common	common	common	common	common
<i>Plagioselmis prolunga</i>	common	observed			observed	observed
<i>Pyramimonas</i> spp.	observed	observed	observed	common		observed
<i>Teleaulax acuta</i>	observed		observed			
<i>Teleaulax amplexa</i>	common		observed		observed	
<i>Chrysochromulina</i> spp.	observed	observed	observed	observed	observed	observed
<i>pleurochrysis</i> spp.						observed
<i>Apedinella radians</i>						observed
<i>Dinobryon</i> spp.	observed					
<i>Ciliophora</i> spp.	observed	observed	observed	observed		common
<i>Helicostomella</i> spp.	observed	observed	observed		observed	observed
<i>Mesodinium rubrum</i>				observed	observed	observed

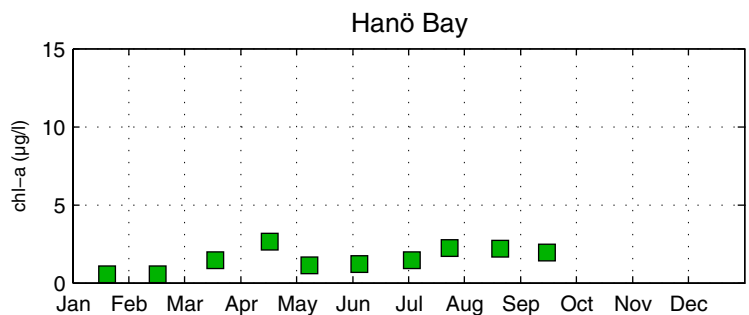
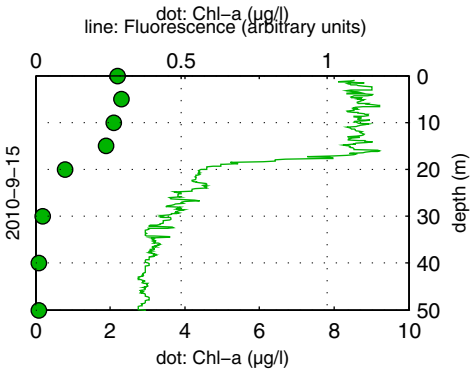
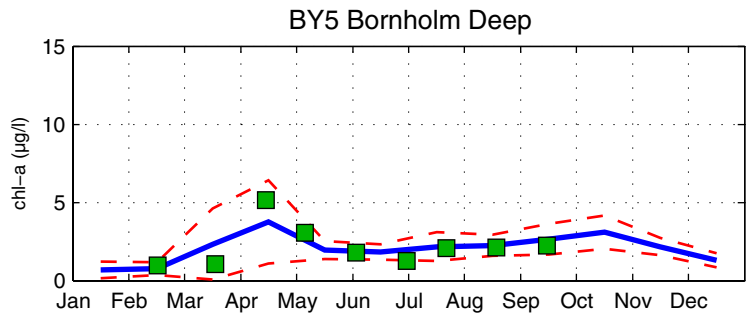
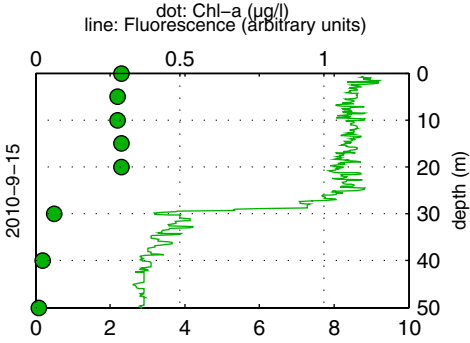
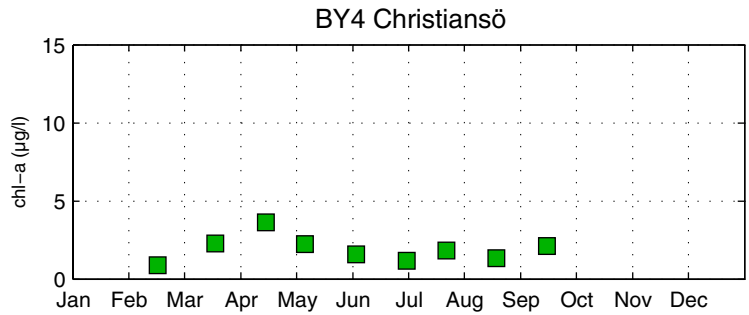
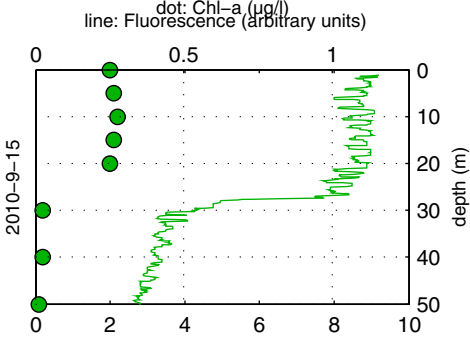
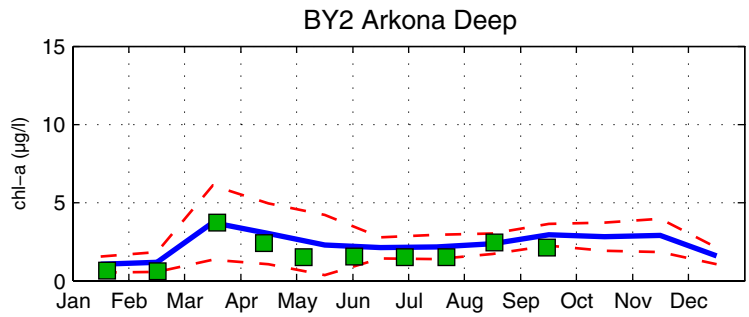
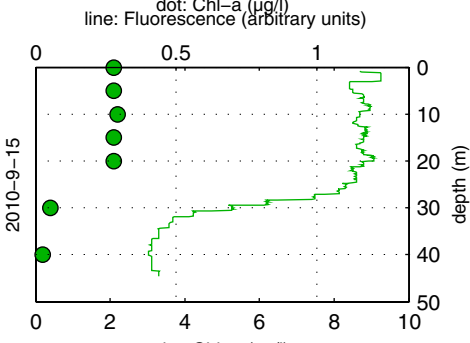
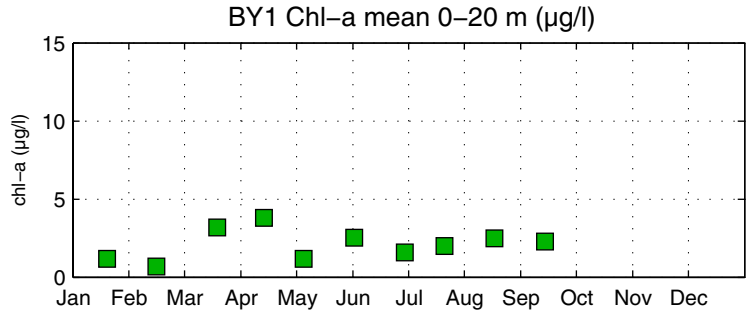
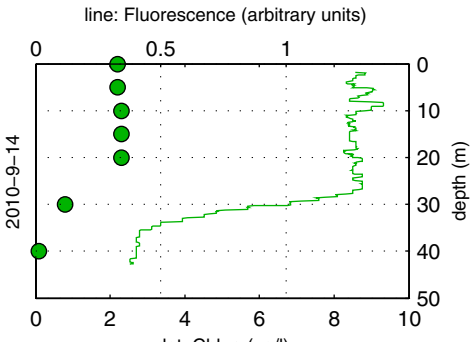
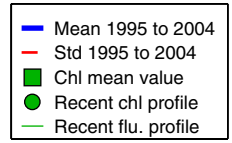
# The Skagerrak



# The Kattegat and the Sound

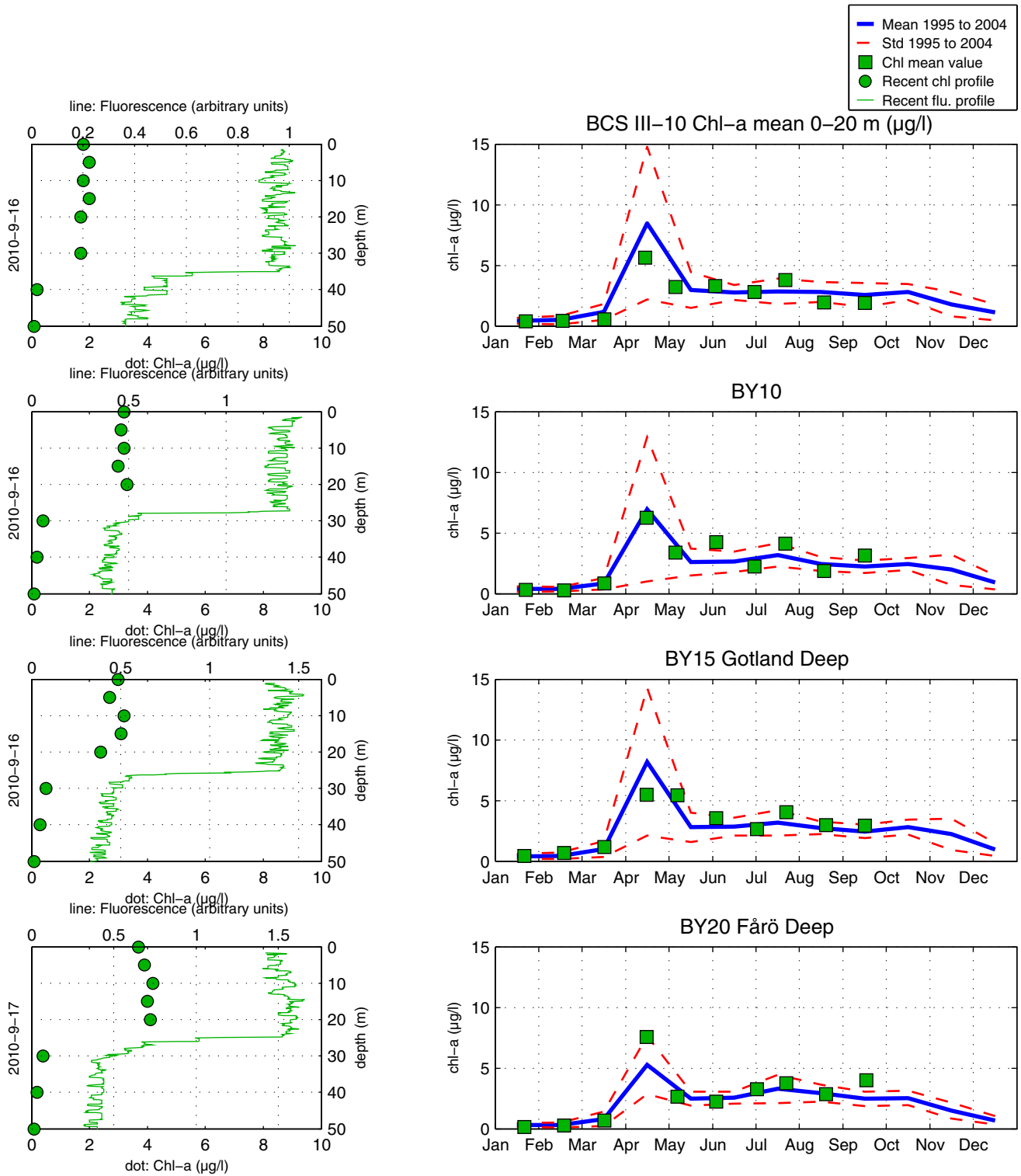


# The Southern Baltic

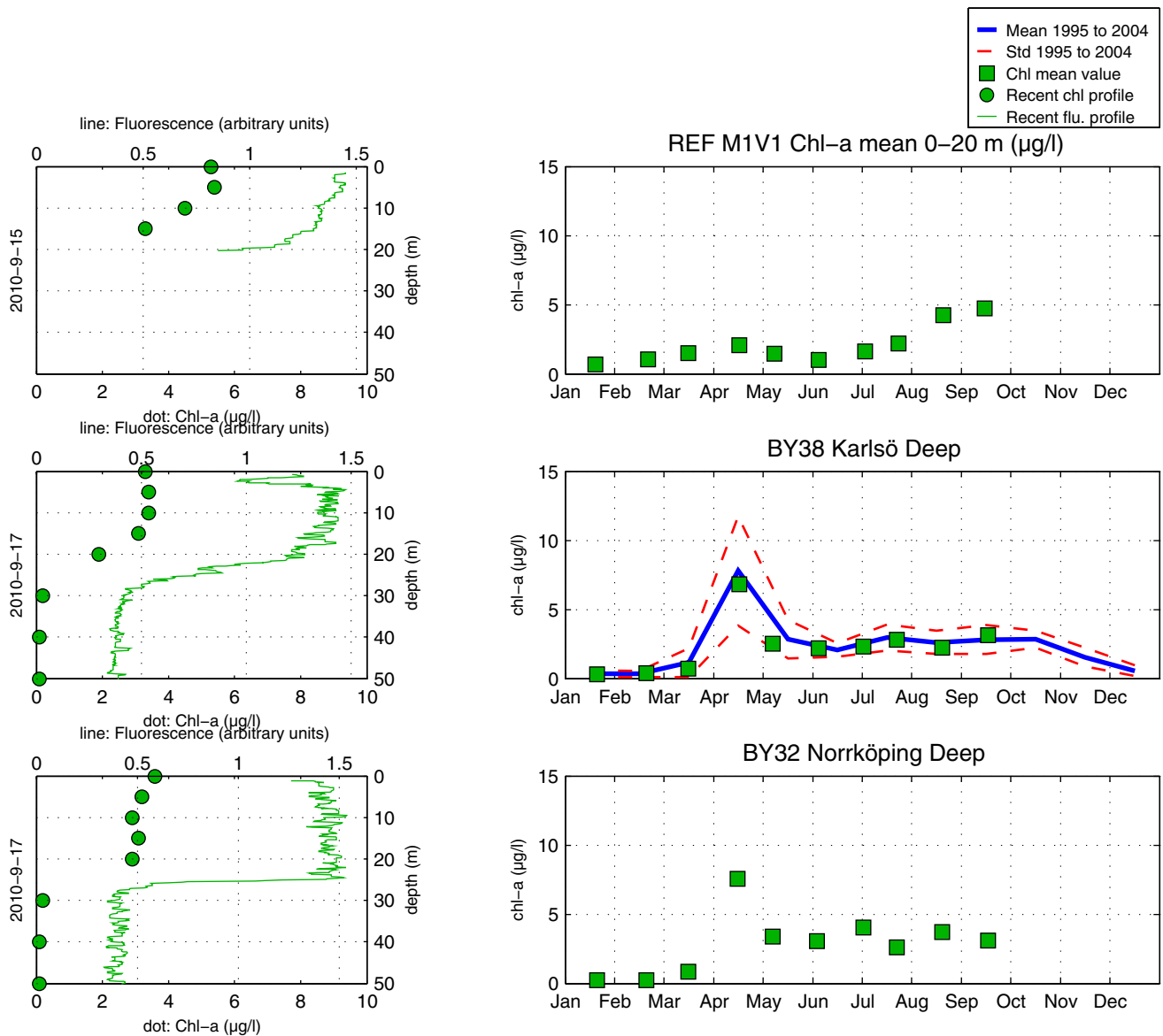




# The Eastern Baltic



# 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.

## 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.

