

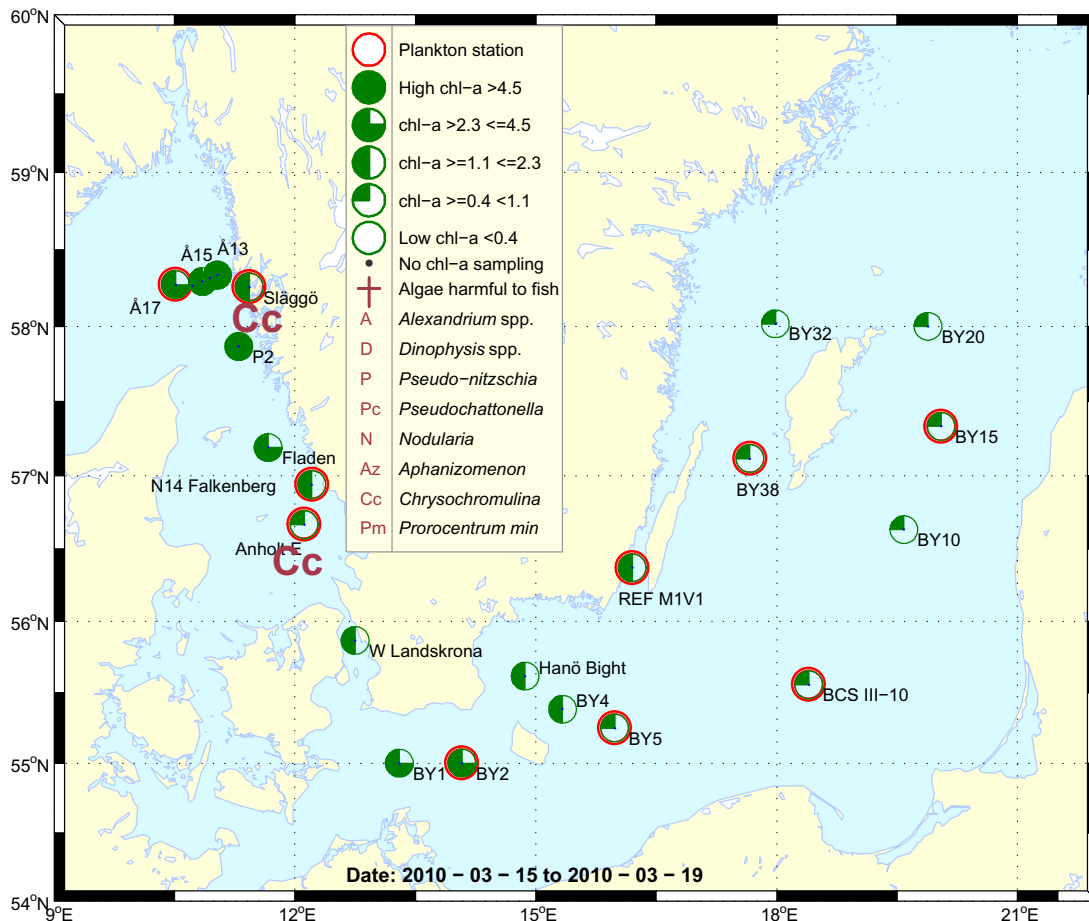
Sammanfattning

Växtp planktonproverna från station Å17 i yttre Skagerrak innehöll störst diversitet i Västerhavet vid provtagningarna i mitten av mars månad. I antal arter var kiselalgerna vanligast, och talrikast var kiselalgen *Leptocylindrus danicus*. Vid den kustnära stationen Släggö och vid Kattegatt-stationerna var artrikedomen lägre. Vid Släggö och Kattegatt-stationen Anholt E observerades en mindre blomning av prymnesiofyten *Chrysochromulina hirta**

De integrerade klorofyll *a* värdena (0-20 meter) låg inom det normala för månaden vid alla Västerhavetsstationer förutom Anholt E där värdet låg under det normala jämfört med medel under en tioårsperiod.

I Östersjön observerades början på vårbloomingen vid BY2 och Ref.M1V1 i och med en blomning av kiselalgen *Skeletonema costatum* och att det fanns ett flertal arter av andra kiselalger.

De integrerade klorofyll *a* värdena (0-20 meter) låg inom det normala för denna månad vid samtliga Östersjö-stationer.



Abstract

The phytoplankton samples from the Skagerrak station Å17 had the highest diversity of the plankton stations in the Western Sea in mid-March. Diatoms were the most frequent and the diatom *Leptocylindrus danicus* the most numerous species. At Släggö and at the Kattegat stations the species diversity was lower. At Släggö and at the Kattegat station Anholt E a minor bloom of the prymnesiophyte *Chrysochromulina hirta** was observed.

Compared to ten years mean, the integrated chlorophyll *a* concentration (0-20 meters) was below average at Anholt E, but within average for this month at all of the other Western Sea stations.

In the Baltic Sea a bloom of the diatom *Skeletonema costatum* was observed at BY2 in the Southern Baltic and at Ref. M1V1 in the Kalmar Sound.

The integrated chlorophyll *a* values were within normal for this month at the Baltic sampling sites.

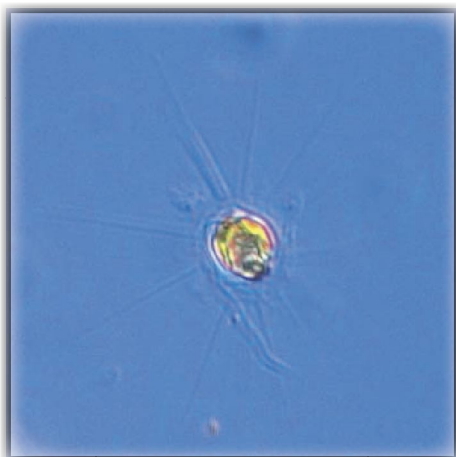
More detailed information on species composition and abundance

The Skagerrak

Å17 19th of March (open Skagerrak)

The chlorophyll *a* concentrations were relatively high third month in a row and the maximum was found at 10 meters depth. Diatoms dominated the phytoplankton sample and *Leptocylindrus danicus* and *Thalassionema nitzschioides* were the most numerous. The prymnesiophyte *Phaeocystis pouchetii* was very common. This algae potentially forms large colonies that whilst blooming may inhibit other organisms.

Släggö 19th of March (Skagerrak coast)



Chrysochromulina hirta

The phytoplankton diversity was rather low, though dominated by diatoms. The diatom *Rhizosolenia hebetata* was common and the prymnesiophyte *Chrysochromulina hirta** was observed forming a small bloom. The golden algae *Dinobryon balticum* was common, this species is mixotrophic, i.e. has two feeding strategies, either it uses the light energy from the sun as autotrophic algae do or feeds on other microscopic organisms like zoo plankton do.

The integrated (0-20 meters) chlorophyll *a* concentrations were within average for this month at all of the Skagerrak sampling sites.

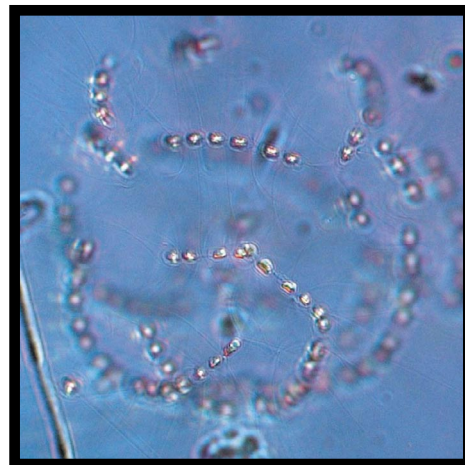
The Kattegat

N14 Falkenberg 18th of March

The phytoplankton diversity was low causing low chlorophyll concentrations. The most common algae were small species like the diatoms *Chaetoceros socialis* and *Thalassionema nitzschioides* and the prymnesiophyte *Chrysochromulina hirta**.

Anholt E 18th March

The lowest total cell counts among the West coast phytoplankton stations were observed here this month. The chlorophyll *a* concentrations and integrated value were consequently low. The most common species was the prymnesiophyte *Chrysochromulina hirta**.



Chaetoceros socialis

The Baltic Sea

BY2 18th of March and Ref. M1V1 15th of March

It was most likely the start of the spring bloom that was observed at the stations By2 in the Southern Baltic and at Ref. M1V1 in the Kalmar Sound. The diatom *Skeletonema costatum* was found with high cell numbers at both stations and several *Chaetoceros* species and other diatoms were present.

At all of the other Baltic stations there were low cell numbers and low species diversity.

The integrated chlorophyll *a* values were within normal for this month at the Baltic sampling sites.



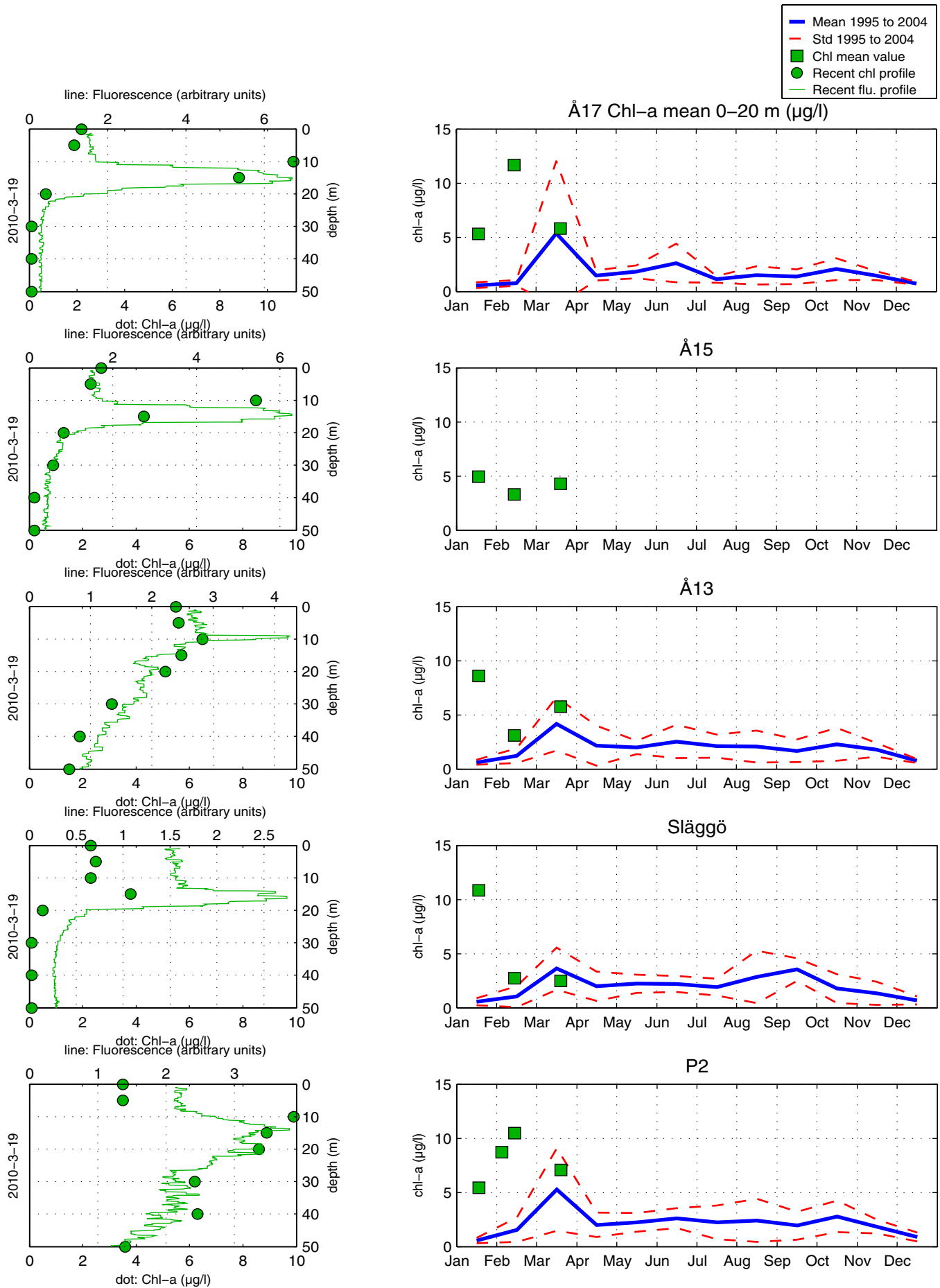
Dinobryon balticum

Phytoplankton analysis and text by:
Ann-Turi Skjevik

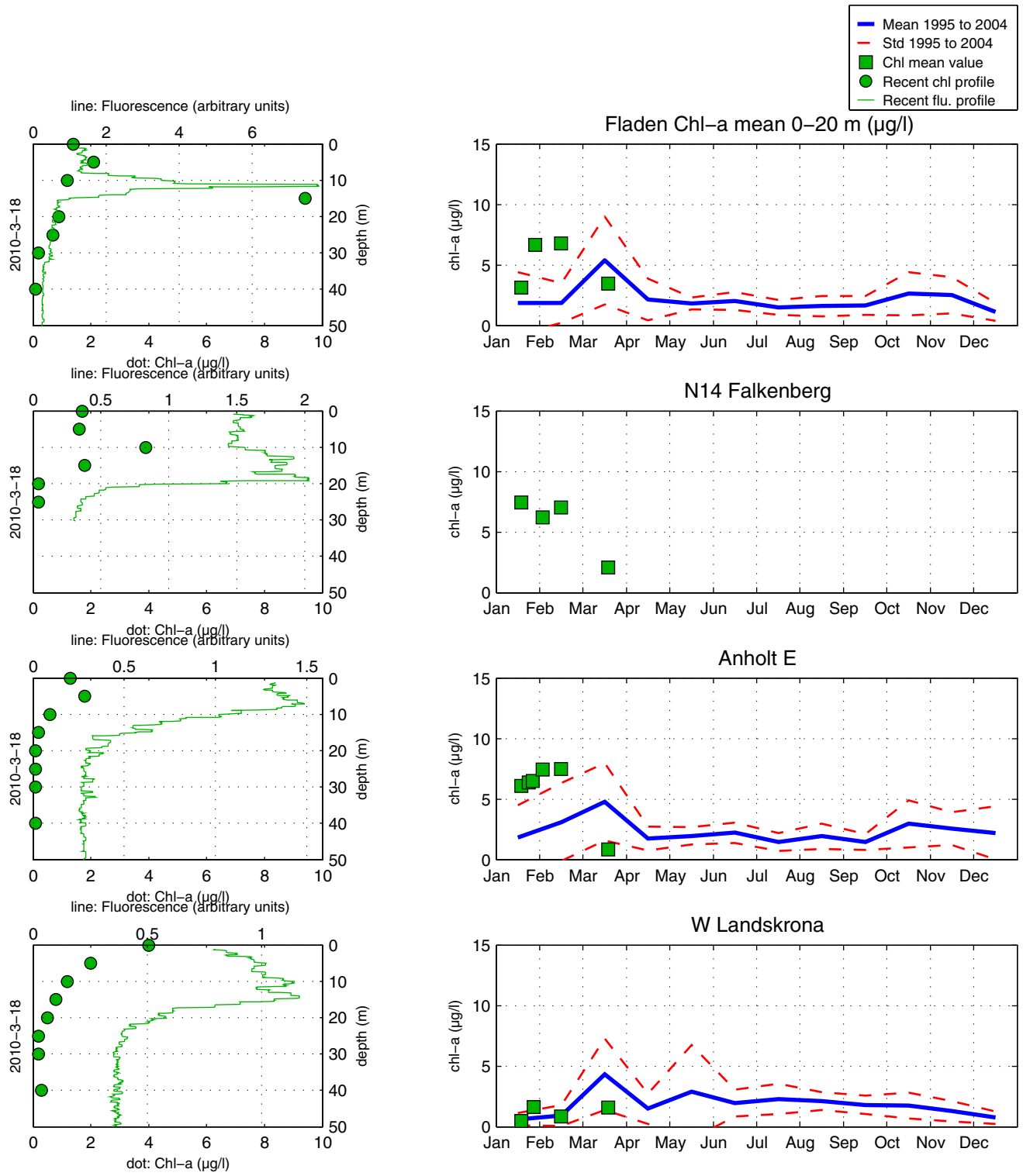
<i>Selection of observed species</i>	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	2010-03-19	2010-03-19	2010-03-18	2010-03-18
	cells/l	cells/l	cells/l	cells/l
<i>Chaetoceros debilis</i>	common	present	present	
<i>Chaetoceros laciniosus</i>	common	common		
<i>Chaetoceros pseudobrevis</i>	present			present
<i>Chaetoceros socialis</i>	common	present	common	present
<i>Chaetoceros wighamii</i>				present
<i>Dactyliosolen fragilissimus</i>	present			
<i>Guinardia delicatula</i>	present			
<i>Guinardia flaccida</i>	present			
<i>Leptocylindrus danicus</i>	335 000	common	common	present
<i>Leptocylindrus minimus</i>	present	present		
<i>Navicula transitans</i>	present		present	
<i>Nitzschia longissima</i>	present	present		
<i>Proboscia alata</i>	present	present	present	present
<i>Pseudo-nitzschia delicatissima-group</i>	common	present	common	common
<i>Pseudosolenia calcar-avis</i>	present			
<i>Rhizosolenia hebetata</i>	present	24 000	common	common
<i>Rhizosolenia setigera</i>	present	present	present	present
<i>Skeletonema costatum complex</i>	present	present	common	present
<i>Thalassionema nitzschioides</i>	103 000	common	common	common
<i>Thalassiosira anguste-lineata</i>			present	
<i>Thalassiosira nordenskiöldii</i>	present			
<i>Ceratium fusus</i>		present		
<i>Ceratium longipes</i>			present	
<i>Dinophysis acuminata</i>			present	
<i>Dinophysis norvegica</i>			present	
<i>Gymnodinium verruculosum</i>		present		
<i>Katodinium glaucum</i>	present	present	present	present
<i>Peridiniella danica</i>	present	present	present	present
<i>Protoperidinium bipes</i>	present			present
<i>Chrysochromulina hirta</i>		70 000	common	85 000
<i>Chrysochromulina spp.</i>	present	present	present	present
<i>Phaeocystis pouchetii</i>	305 000			
Cryptomonadales spp.	common	present	present	present
<i>Cryptomonas spp.</i>	present	present	present	present
<i>Pyramimonas spp.</i>		present		
<i>Heterosigma akashiwo</i>			present	
<i>Dinobryon balticum</i>	present	common	present	present
<i>Dinobryon faculiferum</i>		present		
<i>Pseudopedinella spp.</i>	present	present	present	present
<i>Calliakantha longicaudata</i>	present	present		
<i>Calliakantha natans</i>		present	present	present
<i>Ebria tripartita</i>			present	
<i>Leucocryptos marina</i>	present		present	present
<i>Telonema subtile</i>	present	present		present
<i>Mesodinium rubrum</i>	present	present		present

<i>Selection of observed species</i>	BCS III-10	Ref. M1-V1	BY2	BY5	BY15	BY38
Red=potentially toxic species	2010-03-16	2010-03-15	2010-03-18	2010-03-17	2010-03-16	2010-03-15
¹ quantified in m/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Attheya septentrionalis</i>			present			present
<i>Chaetoceros decipiens</i>			present			
<i>Chaetoceros lacinosus</i>		present				
<i>Chaetoceros lorenzianus</i>		common			present	present
<i>Chaetoceros similis</i>			present			
<i>Chaetoceros simplex</i>			present	present		
<i>Chaetoceros subtilis</i>	present		present	present	present	present
<i>Chaetoceros tenuissimus</i>			present			
<i>Chaetoceros wighamii</i>		common	present			
<i>Coscinodiscus</i> spp.	present	present				
<i>Cyclotella choctawhatcheana</i>		present	present			
<i>Navicula transitans</i>			present			
<i>Skeletonema costatum</i> complex	present	750 000	232 000	present		present
<i>Thalassiosira</i> cf. <i>baltica</i>			very common			
<i>Thalassiosira rotula</i>		present				
<i>Heterocapsa rotundata</i>			present			
<i>Heterocapsa</i> spp.			present	present	present	present
<i>Katodinium glaucum</i>	present					
<i>Peridiniella catenata</i>			present		present	
<i>Peridiniella danica</i>					present	present
<i>Chrysochromulina</i> spp.	present			present	present	present
Cryptomonadales spp.	62 000	present	common	common	75 000	common
<i>Pyramimonas virginica</i>		present				present
<i>Pyramimonas</i> spp.			present			present
<i>Pseudopedinella</i> spp.		present	present			
<i>Aphanizomenon</i> spp.			present	present	present	present
<i>Planctonema lauterbornii</i>					present	
<i>Calliacantha natans</i>				present	present	present
Craspedophyceae spp.		very common				
<i>Ebria tripartita</i>			present			
<i>Leucocryptos marina</i>	present			present	present	present
<i>Telonema subtile</i>		present	present			
<i>Mesodinium rubrum</i>	common	present	common	common	present	present

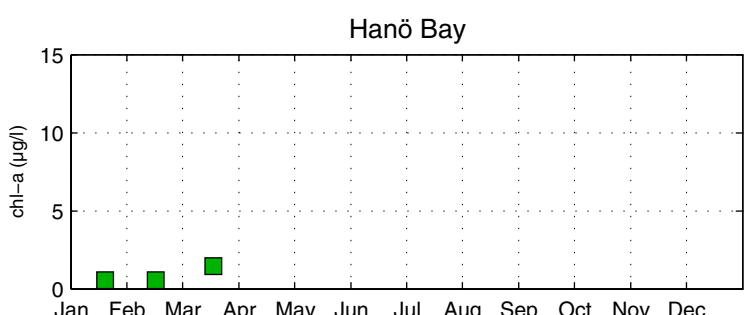
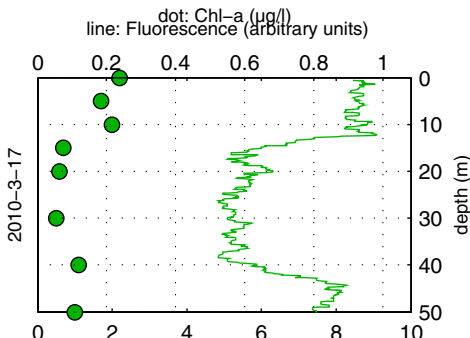
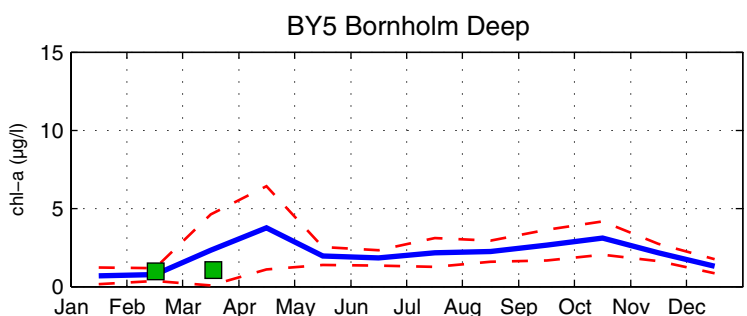
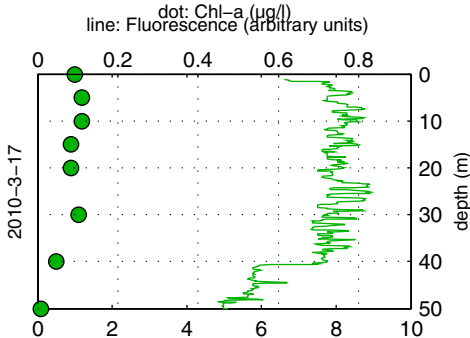
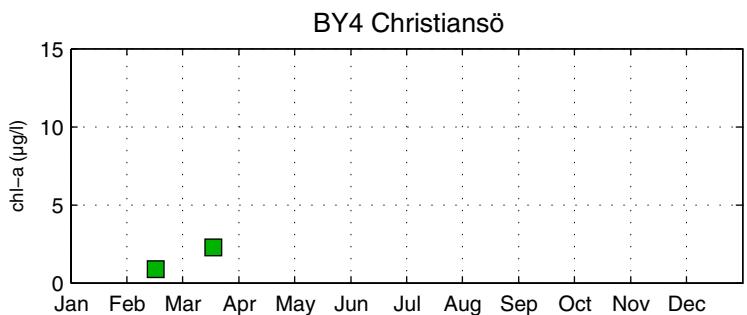
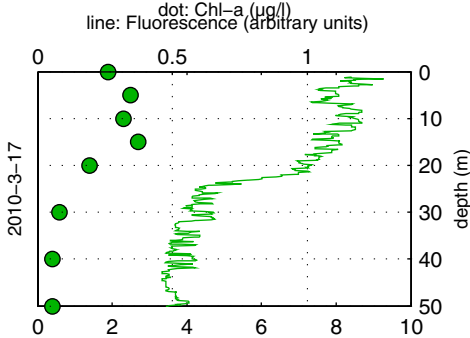
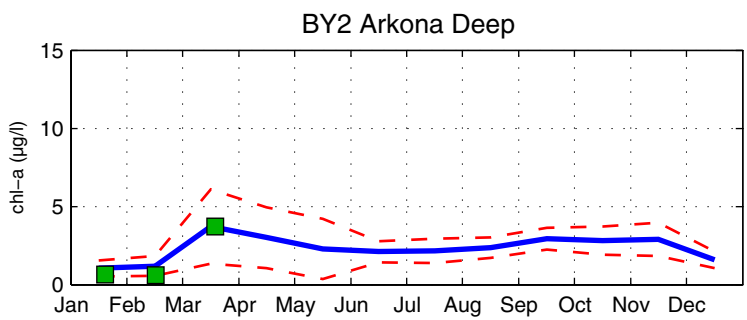
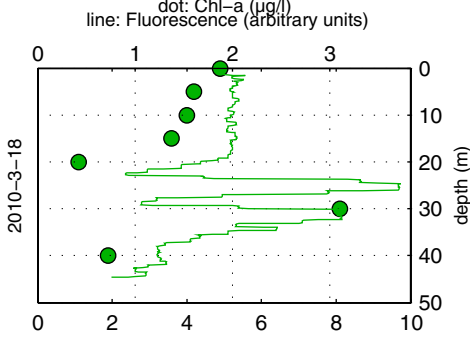
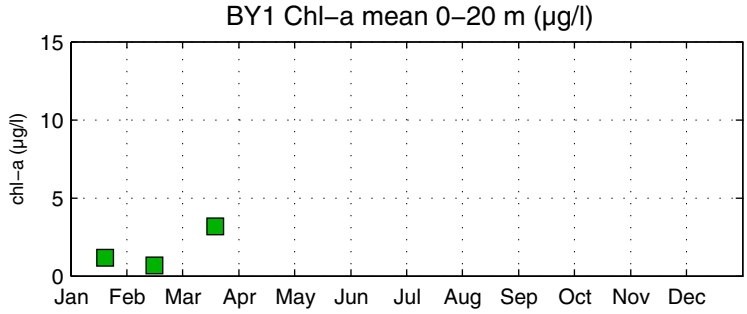
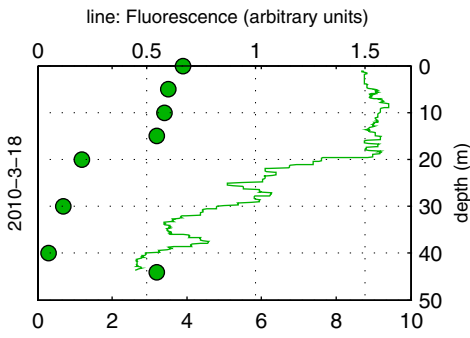
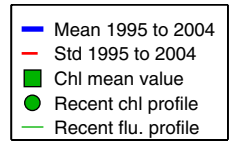
The Skagerrak



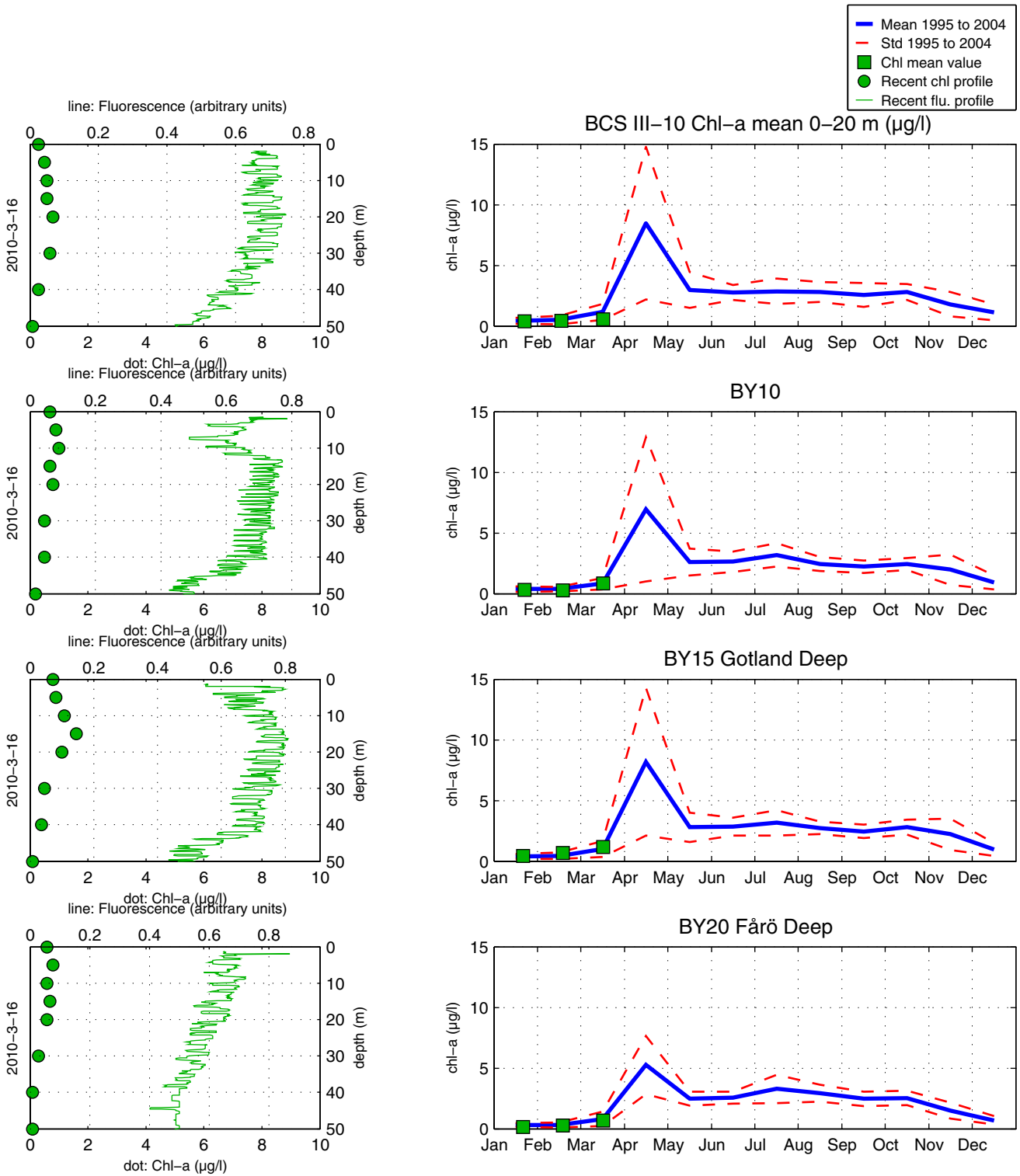
The Kattegat and the Sound



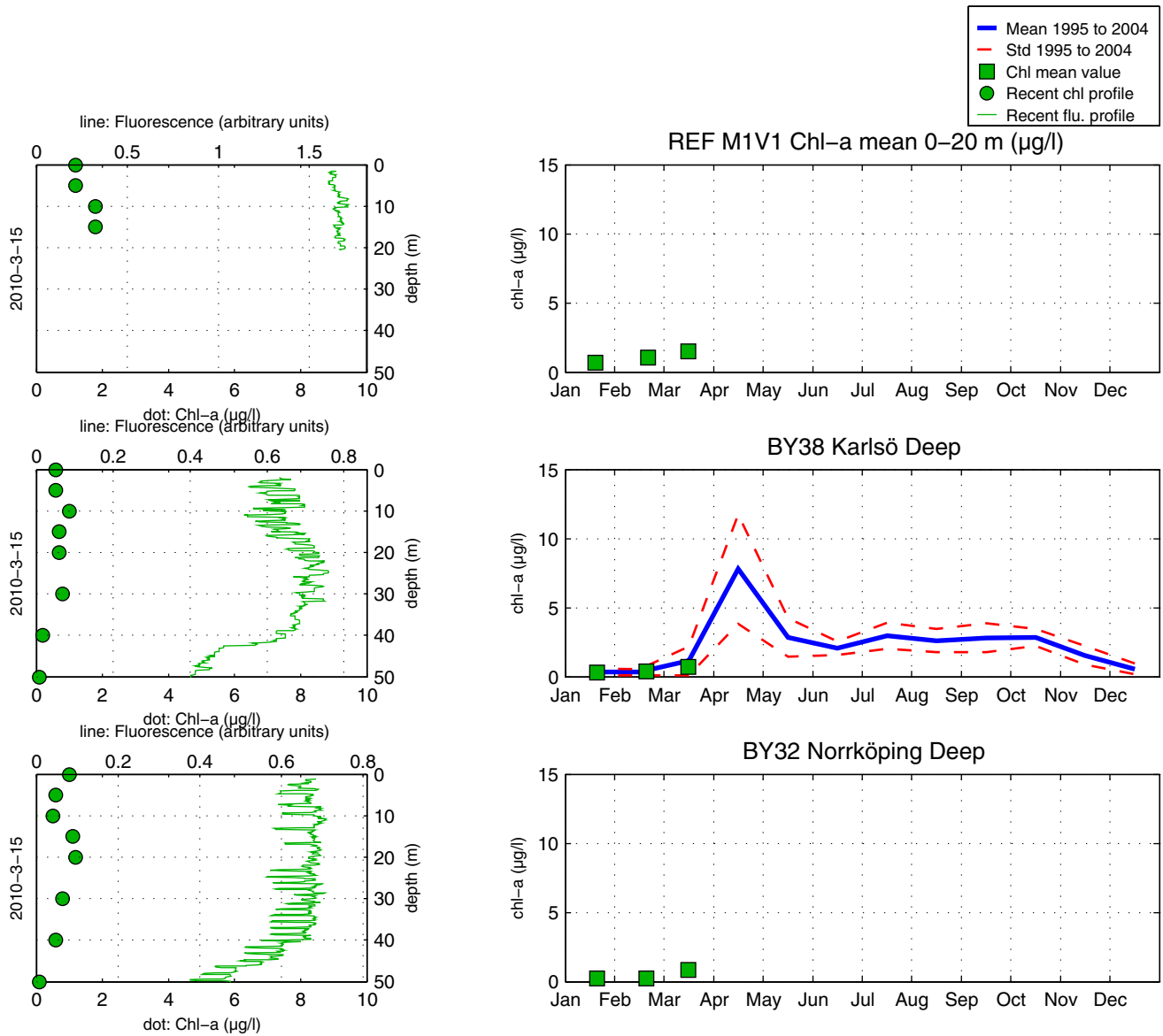
The Southern Baltic



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.

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.

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.

Art / Species	Gift / Toxin	Eventuella symptom	Clinical symptoms
<i>Alexandrium</i> spp.	Paralytic shellfish poisoning (PSP)	Milda symptom: 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 Extrema symptom: 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.	Mild case: 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. Extreme case 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)	Milda symptom: Efter cirka 30 minuter till några timmar: yrsel, illamående, kräkningar, diarré, magont Extrema symptom: Upprepad exponering kan orsaka cancer	Mild case: Within 30 min-a few hours: dizziness, nausea, vomiting, diarrhoea, abdominal pain. Extreme case: Repeated exposure may cause cancer.
<i>Pseudochattonella</i> spp.	Fish toxin	Låg celltäthet: Ingen påverkan. Hög celltäthet: Fiskens gälar skadas, fisken dör.	Low cell numbers: No effect on fish. High cell numbers: Fish death due to gill damage.
<i>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	Milda symptom: Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramper Extrema symptom: Yrsel, hallucinationer, förvirring, förlust av korttidsminnet, kramper	Mild case: Within 3-5 hours: dizziness, nausea, vomiting, diarrhoea, abdominal cramps. Extreme case: 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.

