

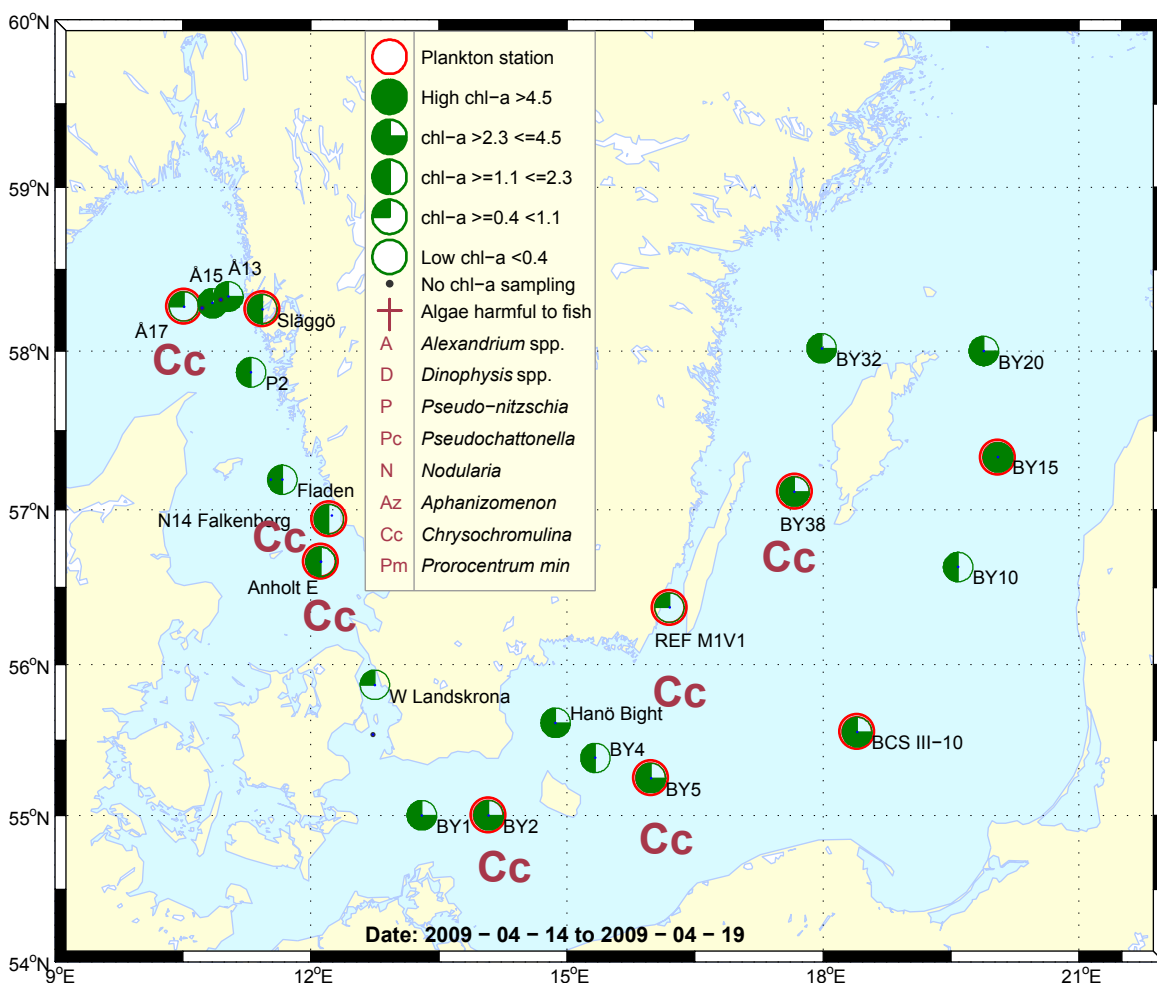
Sammanfattning

Låg diversitet preglade växtplankotnproverna från Skagerrak och det var små arter som cryptomonader och chrysophycéer som fanns med högst cellantal. I Kattegatt fanns prymnesiophyten *Chrysochromulina* spp.* med höga cellantal.

Flera intressanta klorofyll fluorescensmaxima uppmättes i Skagerrak och Kattegatt, men de integrerade (0-20 m) klorofyll *a* värdena låg inom det normala för månaden.

I Östersjön var det kiselalgsblomning vid många stationer och prymnesiophyten *Chrysochromulina polylepis** fanns med höga cellantal i framför allt de södra delarna.

De integrerade klorofyll *a* värdena var inom det normala för månaden vid alla Östersjö-stationer, förutom vid BY38 där värdet var lägre än normalt.



Abstract

The phytoplankton diversity was low in the Skagerrak area and small species like cryptomonads and chrysophytes were the most numerous. In the Kattegat area the prymnesiophyte *Chrysochromulina* spp.* was very abundant.

Several interesting chlorophyll fluorescence maxima were found in the Skagerrak and the Kattegat areas, but the integrated (0-20 m) chlorophyll *a* concentrations were within average for this month.

In the Baltic Sea diatom blooms were observed at many stations and the prymnesiophyte *Chrysochromulina polylepis** was very abundant in the southern parts.

The integrated chlorophyll *a* values were within average for this month at all of the Baltic stations except at BY38 where the value was below average.

The Skagerrak

Å17 14th of April (open Skagerrak)

The phytoplankton diversity was very low and only very small species were numerous.

Släggö 14th of April (Skagerrak coast)



Dinophysis norvegica

The amount of diatoms and dinoflagellates was about equal. The most abundant species was the chrysophyte *Dinobryon balticum*, but several other small species like the dinoflagellate *Heterocapsa rotundata*, the prasinophyte *Pyramimonas* spp. and cryptomonads were numerous. The diatom *Skeletonema costatum* was very common. The dinoflagellates *Dinophysis acuminata** and *D. norvegica** were present.

There were interesting fluorescence peaks in the diagrams from the Skagerrak area, but all of the integrated (0-20 m) chlorophyll *a* values were within average for this month.

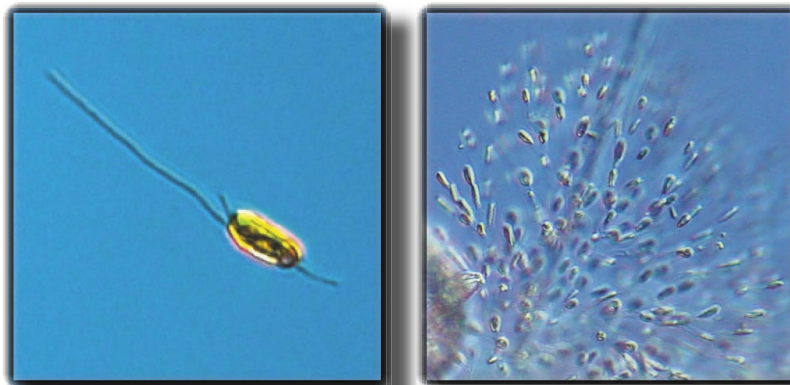
The Kattegat

N14 Falkenberg 15th of April

The phytoplankton diversity was low, and the most abundant species was the prymnesiophyte *Chrysochromulina* spp.* The number of diatoms was very low and the most numerous autotrophic dinoflagellate was *Karlodinium micrum*.*

Anholt E 15th and 19th April

The phytoplankton situation was very similar at the two visits. The prymnesiophyte *Chrysochromulina* spp.* and other small species like the chrysophyte *Dinobryon balticum* were very abundant. The dinoflagellate *Karlodinium micrum** was common. At the first occasion, cells very similar to the *Chrysochromulina polylepis** found in the Baltic were observed.



Dinobryon balticum, solitary cell to the left and in colony to the right.

Selection of observed species	Å17	Släggö	N14	Anholt E	Anholt E
Red=potentially toxic species	2009-04-14	2009-04-14	2009-04-15	2009-04-15	2009-04-19
	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Chaetoceros decipiens</i>		present			
<i>Chaetoceros impressus</i>		present			
<i>Chaetoceros laciniosus</i>		present			
<i>Chaetoceros</i> spp.		present			
<i>Coscinodiscus</i> spp.			present		
<i>Leptocylindrus danicus</i>		present	present		
<i>Proboscia alata</i>		present	present	present	present
<i>Rhizosolenia hebetata</i>		present	present	present	present
<i>Skeletonema costatum</i> complex		138 000			
<i>Thalassionema nitzschioides</i>		present	present	common	
<i>Thalassiosira angulata</i>				present	
<i>Thalassiosira</i> spp.				present	
<i>Ceratium tripos</i>		present	present	present	present
<i>Dinophysis acuminata</i>		present	present	present	present
<i>Dinophysis norvegica</i>	present	common	present	present	present
<i>Gyrodinium spirale</i>				present	
<i>Heterocapsa rotundata</i>	present	50 000	present	present	present
<i>Heterocapsa</i> spp.				present	
<i>Lingulodinium polyedrum</i>		present	present		present
<i>Karlodinium micrum</i>	present	present	common	present	common
<i>Katodinium glaucum</i>		present		present	present
<i>Peridiniella danica</i>		common	72 000	present	83 000
<i>Prorocentrum</i> cf. <i>balticum</i>		common			
<i>Prorocentrum minimum</i>			present		
<i>Protoperidinium depressum</i>		present			
<i>Protoperidinium pallidum</i>			present		
<i>Protoperidinium</i> spp.	present	present		present	
<i>Chrysochromulina</i> cf. <i>polylepis</i>				present	
<i>Chrysochromulina</i> spp.	50 000	common	220 000	147 000	90 000
Cryptomonadales spp.	498 000	175 000	45 000	55 000	120 000
<i>Eutreptiella</i> spp.				present	
<i>Pterosperma</i> spp.		present	130 000	common	present
<i>Pyramimonas</i> spp.	320 000	117 000		present	present
<i>Apedinella radians</i>		present	present		
<i>Dinobryon balticum</i>		830 000	common	73 000	108 000
<i>Dinobryon faculiferum</i>				present	
<i>Pseudopedinella pyriforme</i>		present			
<i>Pseudopedinella</i> spp.	present	present	present		present
<i>Leucocryptos marina</i>	present	81 000	105 000	common	99 000
<i>Laboea strobila</i>	present	present		present	
<i>Mesodinium rubrum</i>		present			
<i>Strombidium</i> spp.	present	present			present

The Baltic Sea

Arkona Basin BY2 and Bornholm Basin BY5 16th of April

The diatom *Skeletonema costatum* was in a state of bloom and dominated the phytoplankton samples. The prymnesiophyte *Chrysochromulina polylepis** also bloomed although less than *S. costatum*. The diatom *Chaetoceros subtilis* and other *Chaetoceros* species were very common. The cyanobacterium *Aphanizomenon* spp. was present and the integrated chlorophyll *a* values were at average for this month.

South East Baltic BCS III-10 16^h of April

The diatoms *Skeletonema costatum* and *Chaetoceros* spp. were blooming. The dinoflagellates *Heterocapsa* spp. and *Peridiniella catenata* and small cryptomonads were common. The integrated chlorophyll *a* was a bit low although within average for this month.

Eastern Gotland Basin BY15 17th of April

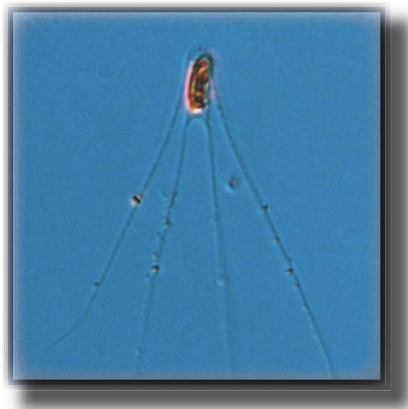
The species composition was more or less the same as at BCS III-10. The fluorescence peak and the measured chlorophyll *a* value at about 10 meters depth could not quite be explained by the phytoplankton sample and high cell numbers of one or more species was probably just missed when using the hose (0-10 m).

Western Gotland Basin BY 38 18th of April

The prymnesiophyte *Chrysochromulina polylepis** was the most numerous species and the dinoflagellate *Heterocapsa rotundata* was very common. The integrated chlorophyll *a* value was below average.

Kalmar Sound Ref. M1-V1 18th of April

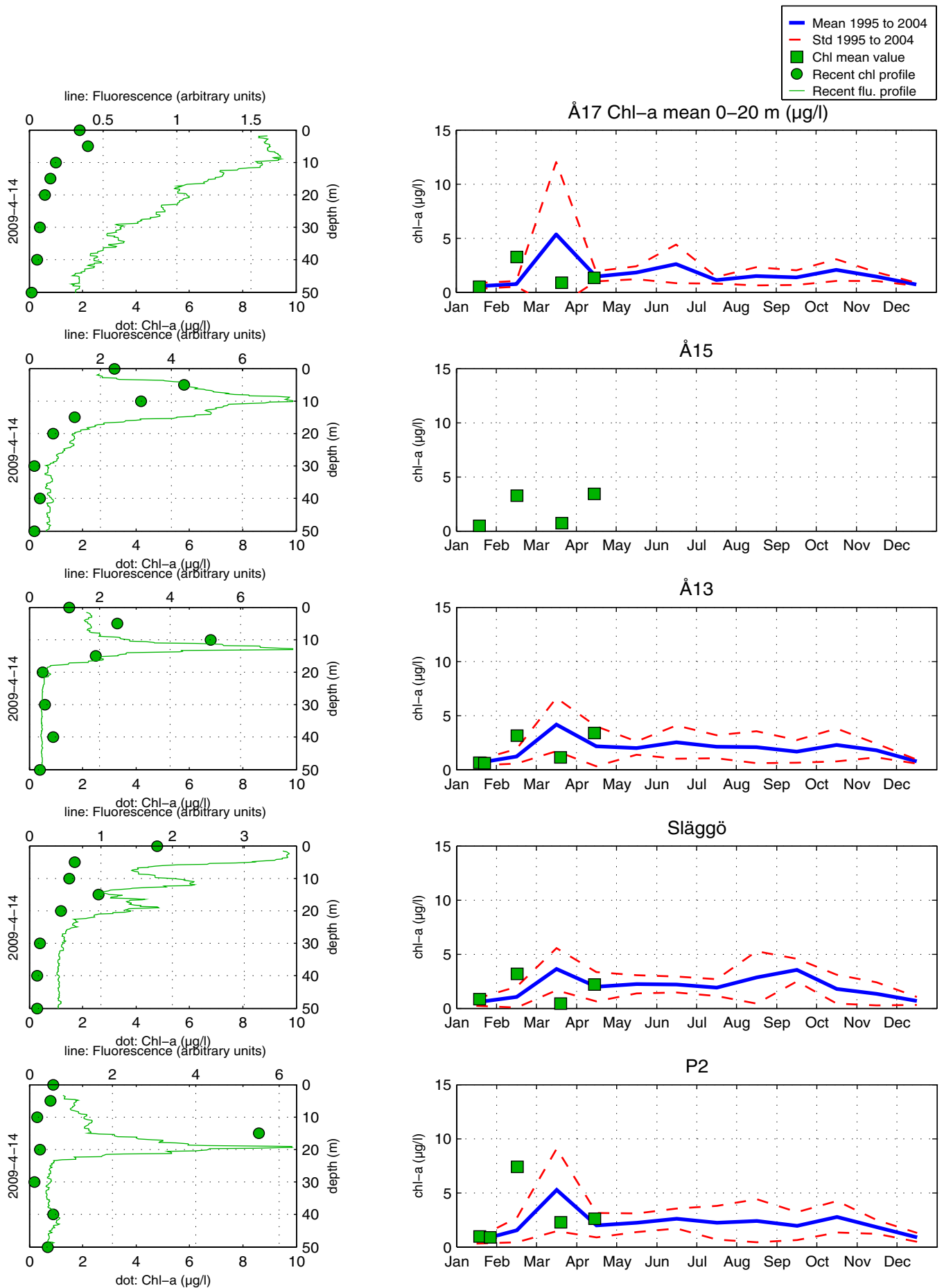
The number of species was very low and the prymnesiophyte *Chrysochromulina polylepis** was the most abundant among the few species observed. The chlorophyll *a* values were low.



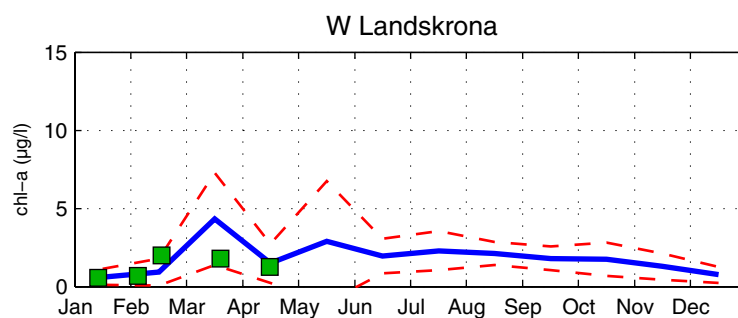
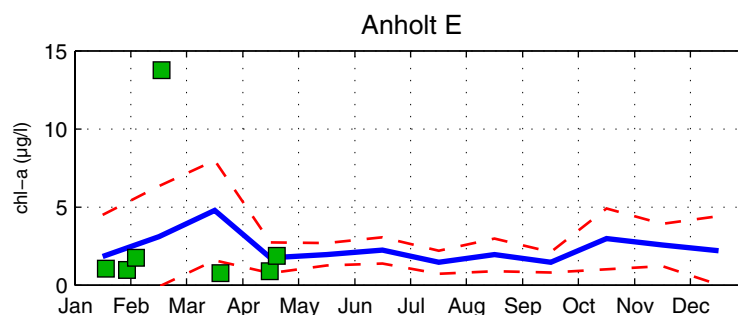
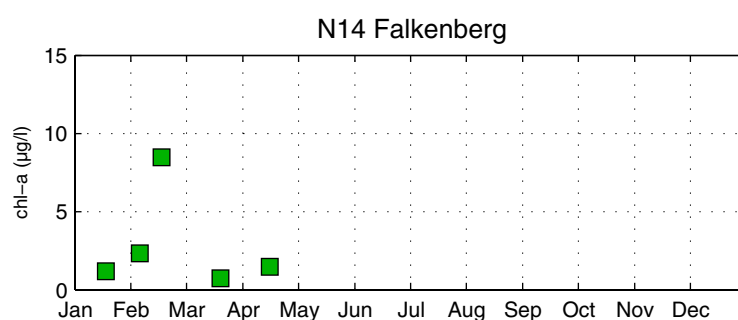
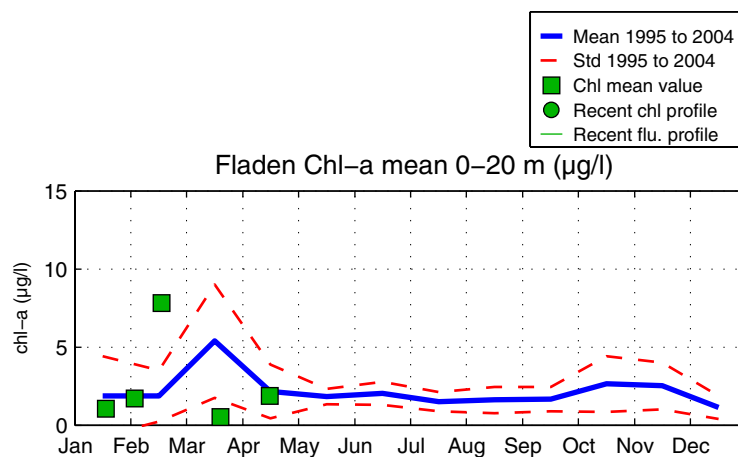
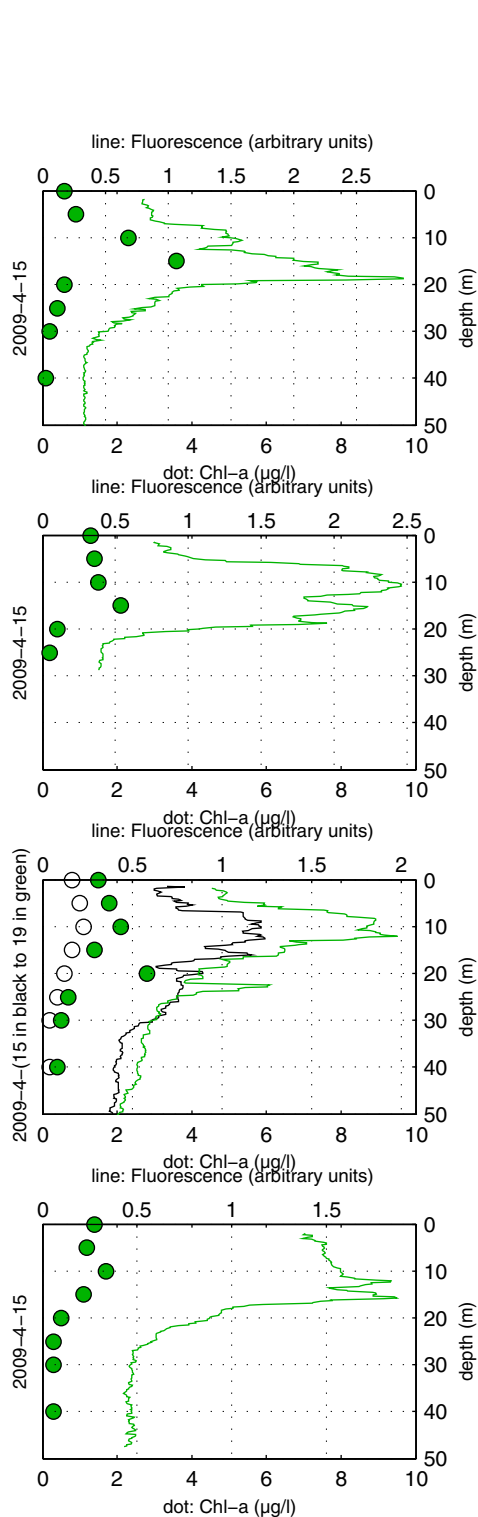
Chaetoceros subtilis

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY38	Ref. M1-V1
Red=potentially toxic species	2009-04-16	2009-04-16	2009-04-16	2009-04-17	2009-04-18	2009-04-18
¹ quantified in m/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Attheya septentrionalis</i>	present	common	present	present		
<i>Chaetoceros danicus</i>				present		
<i>Chaetoceros socialis</i>			147 000			
<i>Chaetoceros subtilis</i>	154 000	56 000	present			
<i>Chaetoceros</i> cf. <i>wighamii</i>				75 000		
<i>Chaetoceros</i> spp.	144 000	305 000	284 000	165 000		
<i>Cyclotella choctawhatcheana</i>	present					
<i>Melosira nummuloides</i>			present	present		
<i>Skeletonema costatum</i> complex	1 867 000	1 119 000	772 000	142 000		common
<i>Thalassiosira</i> spp.		present	present		present	
<i>Amphidinium sphenoides</i>	present					
<i>Amylax triacantha</i>			present	present		
<i>Dinophysis norvegica</i>		present	present		present	present
<i>Dinophysis rotundata</i>				present	present	
<i>Heterocapsa rotundata</i>	common	common	present	common	common	common
<i>Heterocapsa</i> spp.	present	present	common	present		
<i>Katodinium glaucum</i>	present	present	present		present	
<i>Peridiniella catenata</i>			common	113 000	common	present
<i>Peridiniella danica</i>	present					
<i>Protoperidinium bipes</i>					present	present
<i>Protoperidinium</i> spp.	present			present		present
<i>Chrysochromulina polylepis</i>	510 000	440 000	present	common	152 000	91 000
<i>Chrysochromulina</i> spp.	common	common	present	present	common	common
Cryptomonadales spp.	67 000	57 000	common	common	common	common
<i>Dinobryon balticum</i>	present			present		present
<i>Dinobryon faculiferum</i>	present	present				
<i>Pseudopedinella</i> cf. <i>pyriforme</i>	present					
<i>Pyramimonas</i> spp.	common	present	present	present	present	present
<i>Aphanizomenon</i> spp.	present	present		present	present	
<i>Calliacantha natans</i>	present	present	present	present		
<i>Leucocryptos marina</i>		present		present	present	present
<i>Mesodinium rubrum</i>	present		present	present	present	present
<i>Strombidium</i> spp.		present		present	present	

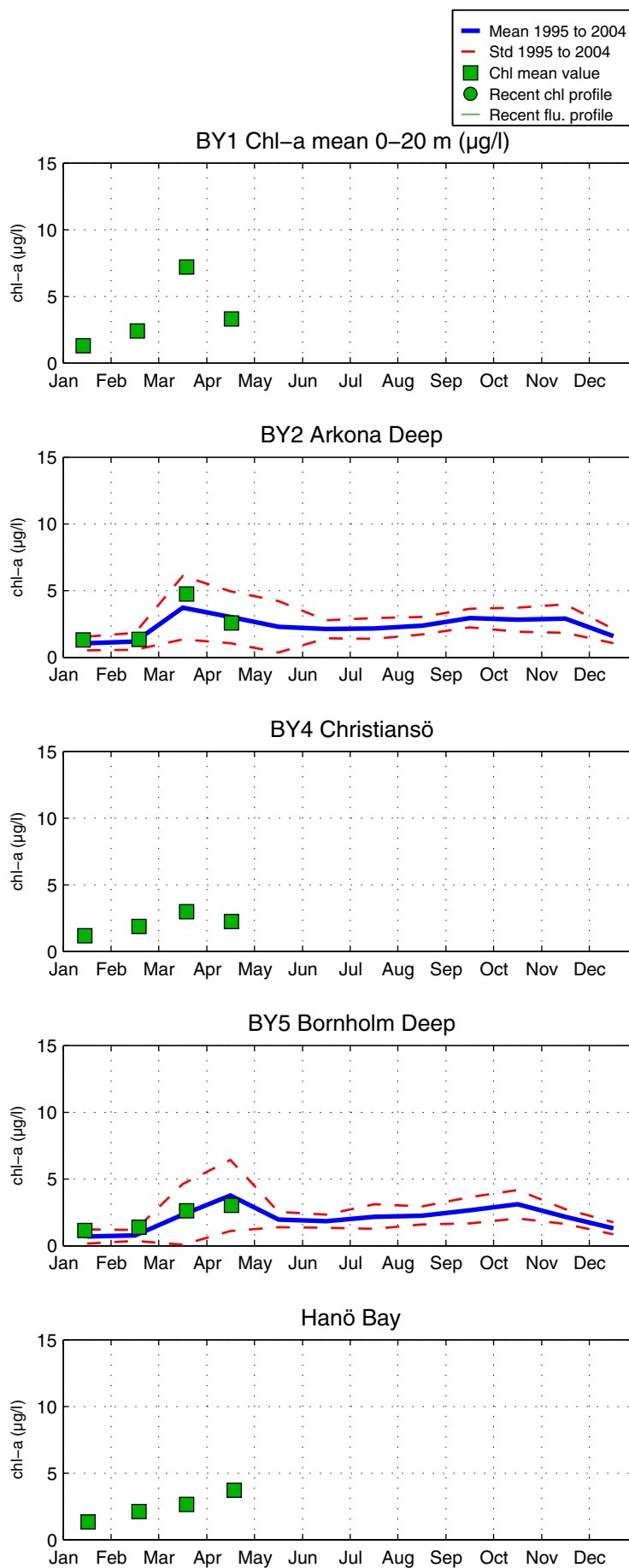
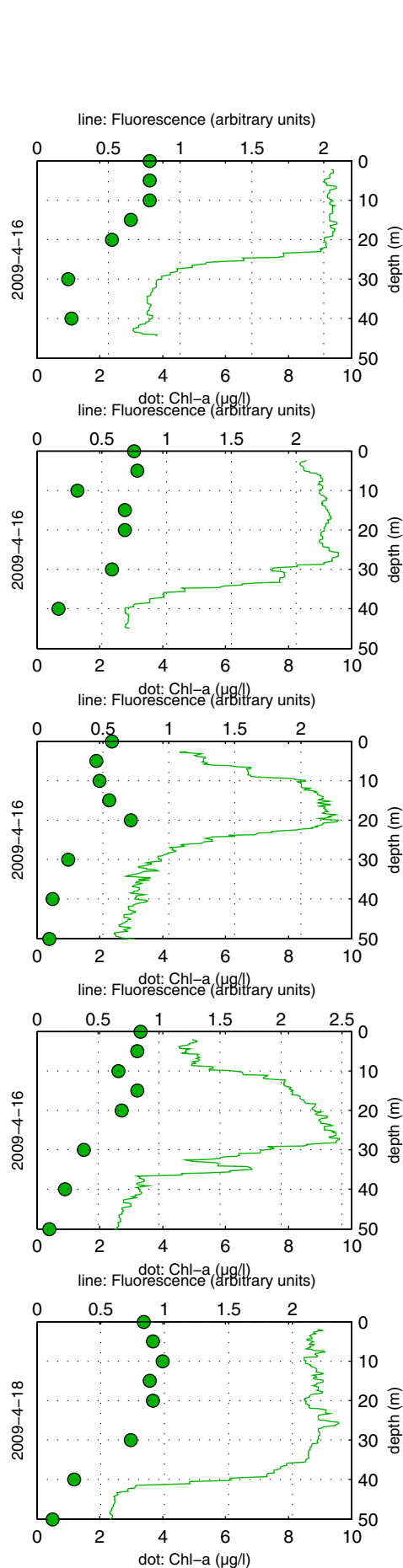
The Skagerrak



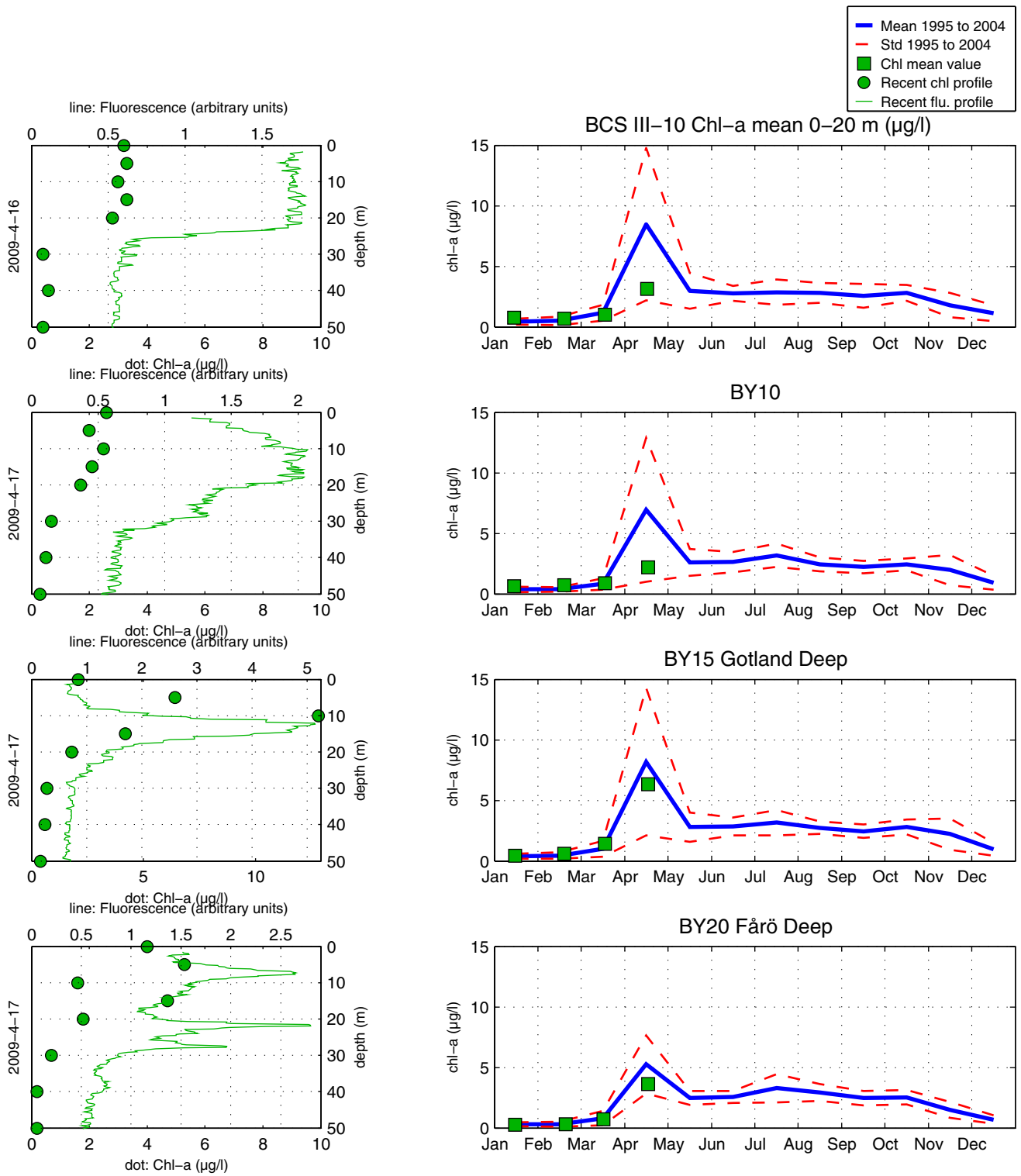
The Kattegat and the Sound



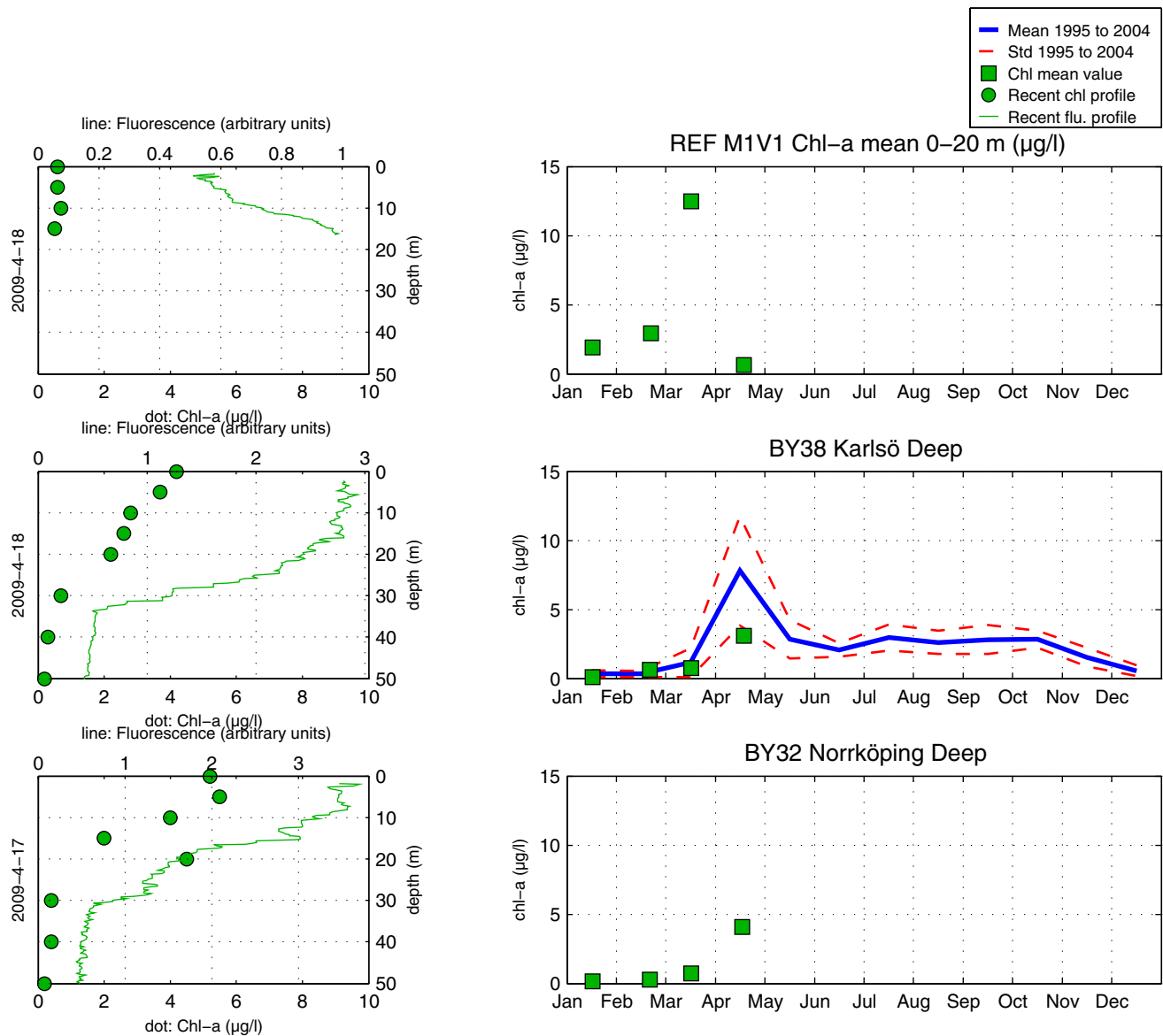
The Southern Baltic



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.

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 mikroskopisk analys 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.

