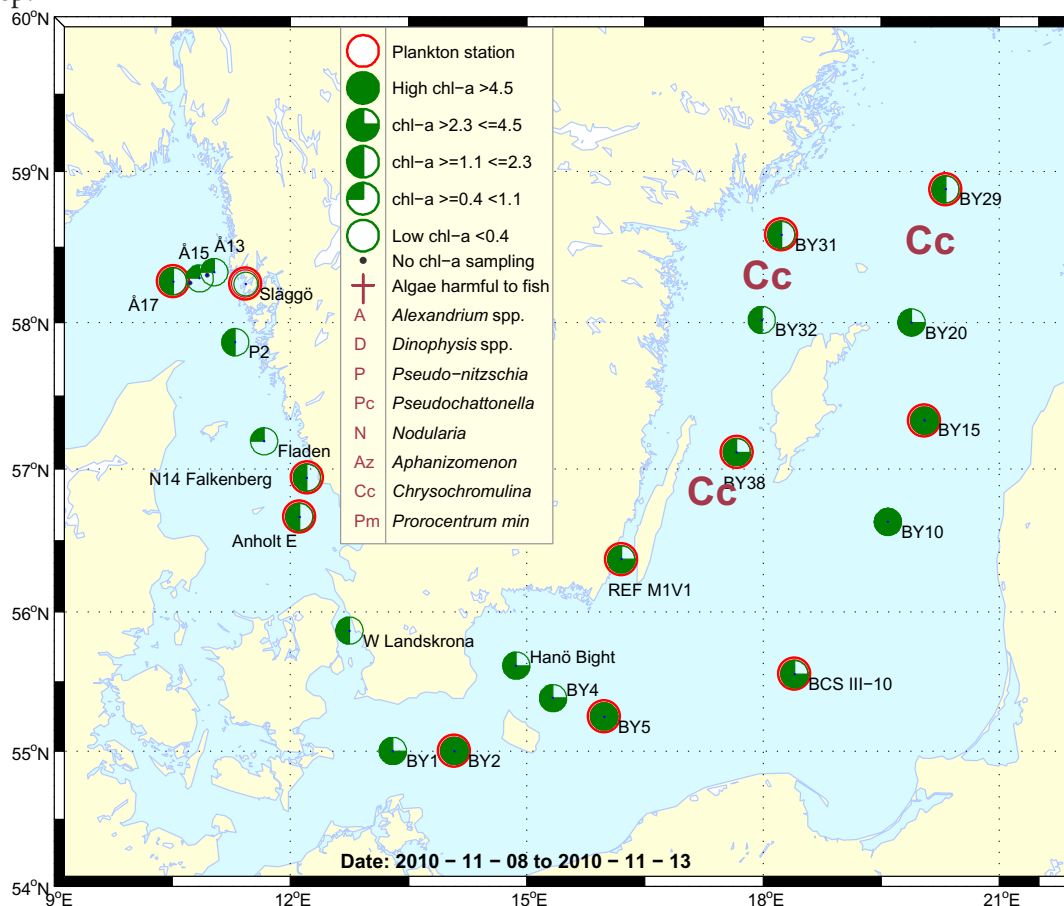


Sammanfattning

Den största skillnaden mellan växtplanktonproverna från Skagerrak och Kattegatt var den stora förekomsten av kiselalgerna *Pseudosolenia calcar-avis* och *Pseudo-nitzschia* spp.* i Kattegatt. Arterna fanns i Skagerrak också, men i små mängder. Dinoflagellaten *Akashiwo sanguinea** var vanlig vid Skagerrakstationen Släggö och flagellaten *Pseudochattonella farcimen** var vanlig vid Kattegattstationen N14. Den integrerade (0-20m) klorofyll *a* halten var under det normala vid Släggö, vid övriga stationer i Skagerrak och Kattegatt låg halterna inom det normala för denna månaden.

I Östersjön återfanns flagellaten *Chrysochromulina polylepis** vid samtliga växtplanktonstationer. Vid tre stationer, BY29, BY31 och BY38, fanns arten i måttliga till stora cellantal. Vid stationerna BY2, BY5, BY10 och BY15 var de integrerade klorofyll *a* halterna över det normala, vilket troligtvis orsakades av den stora centriska kiselalgen *Coscinodiscus* sp.



Abstract

The major differences between the Skagerrak and Kattegat areas during the latest cruise were the high cell numbers of the diatoms *Pseudosolenia calcar-avis* and *Pseudo-nitzschia* spp.* in the Kattegat phytoplankton samples. The species were present in the Skagerrak as well but in low cell numbers. The dinoflagellate *Akashiwo sanguinea** was common at the Skagerrak station Släggö and the flagellate *Pseudochattonella farcimen** was common at the Kattegat station N14. The integrated (0-20m) chlorophyll *a* concentration was below average at Släggö, and within average at all other Skagerrak and Kattegat stations.

The flagellate *Chrysochromulina polylepis** was found at all of the Baltic phytoplankton stations. At three of them, BY29, BY31 and BY38, the species was found with moderate to high cell numbers. The integrated chlorophyll *a* concentrations were above average at the stations BY2, BY5, BY10 and BY15, probably caused by the large centric diatom *Coscinodiscus* sp.

More detailed information on species composition and abundance

The Skagerrak

Å17 8th of November (open Skagerrak)

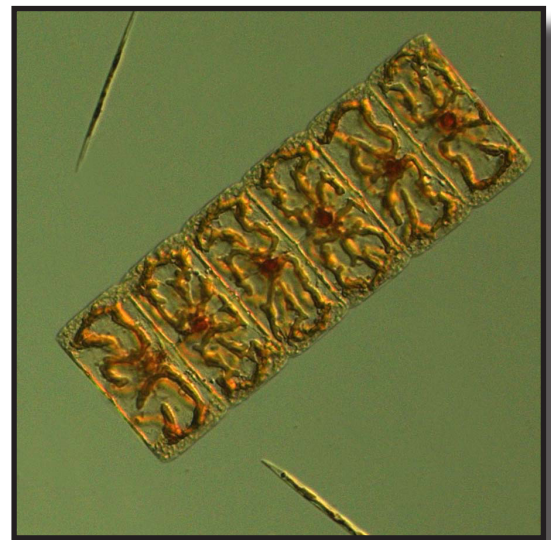
A moderate number of species with relatively low cell numbers were observed. The most common species were small flagellates and the diatom *Pseudo-nitzschia* spp.*. The integrated chlorophyll *a* concentration was within average.

Släggö 8th of November (Skagerrak coast)

The number of species and cell numbers were low. The most common species was the potentially ichthyotoxic (ichthy=fish) dinoflagellate *Akashiwo sanguinea**. The integrated chlorophyll *a* concentration was below average, although the individual surface sample was extraordinarily high for this month.



The dinoflagellate *Akashiwo sanguinea** can form blooms that are potentially harmful to fish.



The beautiful diatom *Meuniera membranacea* is a rare visitor in Swedish waters. It was present at N14.

The Kattegat

N14 Falkenberg and Anholt E 9th of November

The potentially ichthyotoxic (ichthy=fish) flagellate *Pseudochattonella farcimen** was quite common and the diatoms *Pseudosolenia calcar-avis* and *Pseudo-nitzschia* spp.* dominated the phytoplankton sample. The diatom *Meuniera membranacea*, which normally is not part of the indigenous phytoplankton flora was present. The integrated chlorophyll *a* concentrations were within average.

The Baltic Sea

BY2, BY5, BCSIII-10 and BY15 10th-11th of November

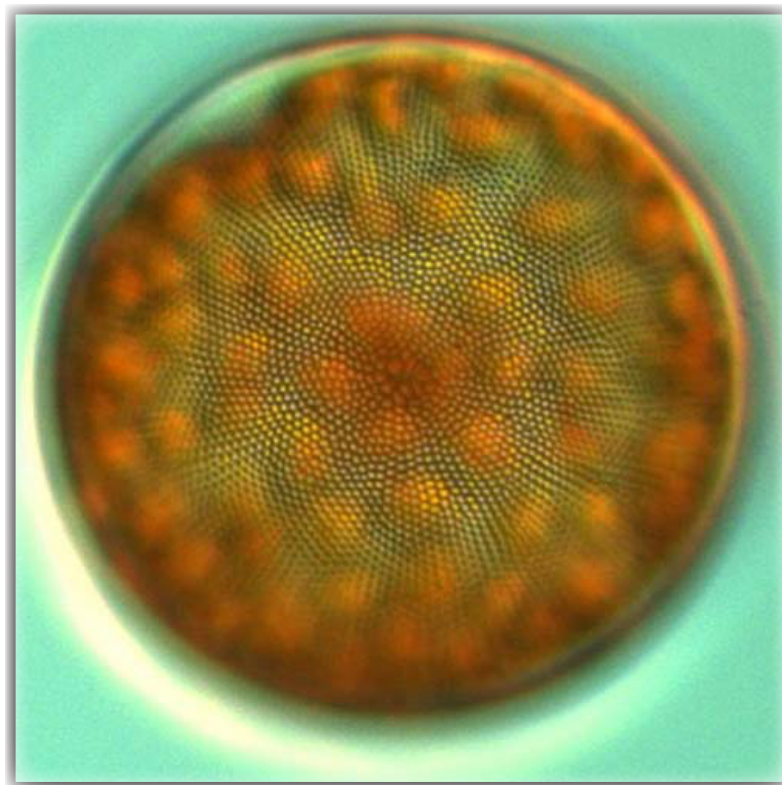
The diatom *Coscinodiscus* sp., the ciliate *Mesodinium rubrum* and small flagellates were common. The flagellate *Chrysochromulina polylepis** was present. The integrated chlorophyll *a* concentration was within average at BCSIII-10 and above average at the other three stations, probably caused by *Coscinodiscus* sp.

BY29, BY31 and BY38 11th-12th of November

The flagellate *Chrysochromulina polylepis** was present with moderate to high cell numbers. Small flagellates and the filamentous cyanobacterium *Aphanizomenon* sp. were common. The integrated chlorophyll *a* concentration was within average at BY38.

Ref M1V1 Kalmar Sound 13th of November

Small flagellates were common and the flagellate *Chrysochromulina polylepis** was present. The integrated chlorophyll *a* concentration was within average.

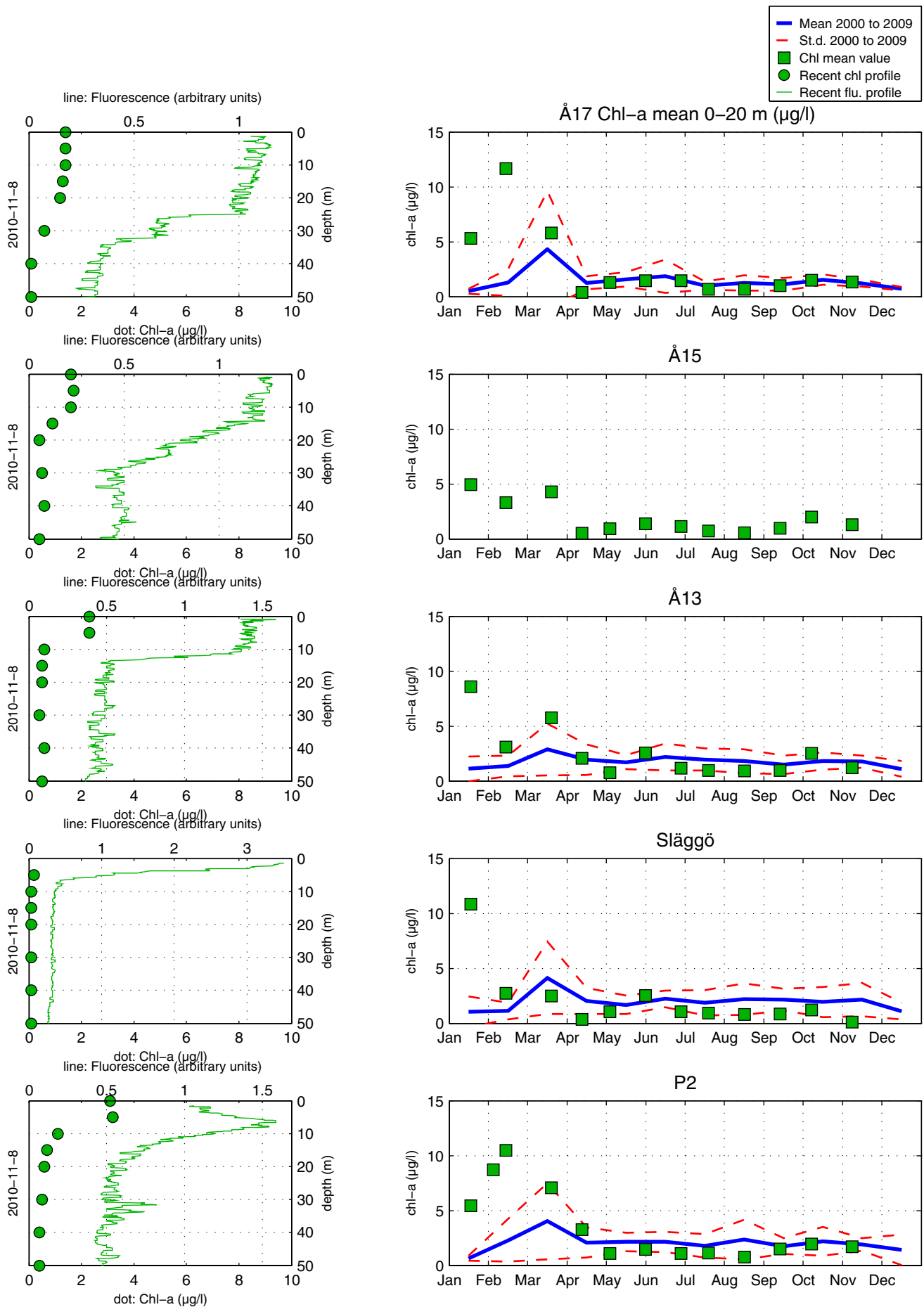


The large diatom *Coscinodiscus* sp. was common at several Baltic phytoplankton stations.

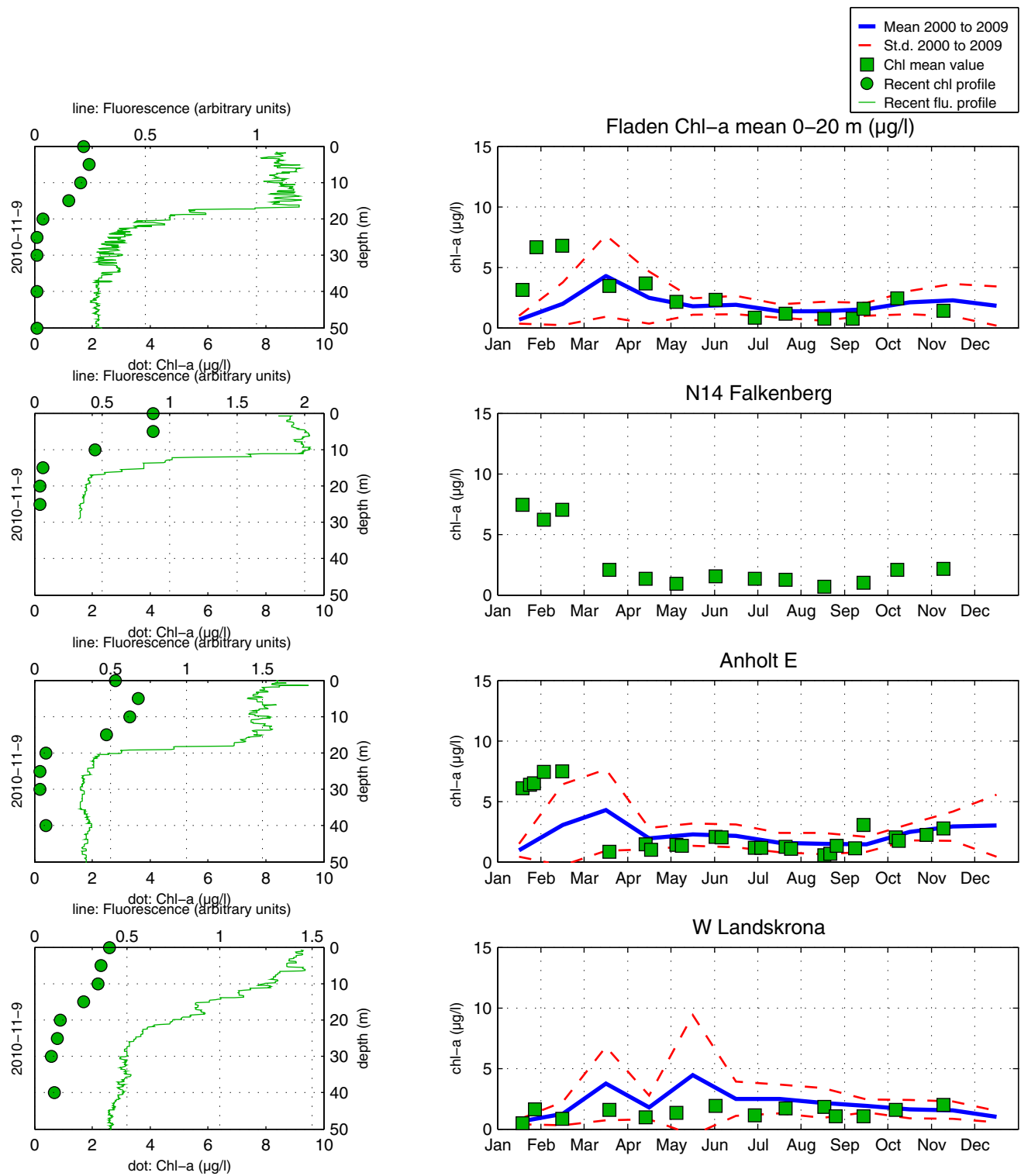
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	8/11	8/11	9/11	9/11
	cells/l	cells/l	cells/l	cells/l
<i>Attheya septentrionalis</i>		present		
<i>Cerataulina pelagica</i>	present			
<i>Cylindrotheca closterium</i>	present			
<i>Dactyliosolen fragilissimus</i>	present			
<i>Detonula confervacea</i>		present		
<i>Guinardia delicatula</i>			present	present
<i>Guinardia flaccida</i>			present	present
<i>Leptocylindrus danicus</i>	present		present	
<i>Leptocylindrus minimus</i>	present	present		
<i>Meuniera membranacea</i>			present	
<i>Nitzschia longissima</i>	present	present		
<i>Pseudo-nitzschia</i> spp.	common	present	very common	very common
<i>Pseudosolenia calcar-avis</i>	present	present	very common	very common
<i>Rhizosolenia pungens</i>	present		present	present
<i>Rhizosolenia setigera</i>			present	
<i>Skeletonema marinoi</i>	present			
<i>Thalassiosira angulata</i>		present		present
<i>Thalassiosira rotula</i>	present		common	common
<i>Akashiwo sanguinea</i>		8 500	present	present
<i>Ceratium furca</i>		present		present
<i>Ceratium fusus</i>		present		present
<i>Ceratium lineatum</i>	present	present	common	common
<i>Ceratium longipes</i>		present	present	present
<i>Dinophysis norvegica</i>			present	present
<i>Dinophysis rotundata</i>				present
<i>Gymnodinium verruculosum</i>	present	present		
<i>Gyrodinium flagellare</i>	present			
<i>Heterocapsa</i> spp.	present			
<i>Katodinium glaucum</i>	present			
<i>Polykrikos schwartzii</i>		present		
<i>Protoperidinium</i> spp.		present	present	present
<i>Chrysochromulina</i> spp.	present		present	present
Cryptomonadales spp.	140 000	present	90 000	95 000
<i>Heterosigma akashiwo</i>			present	present
<i>Pyramimonas</i> spp.	present		present	
<i>Apedinella radians</i>			present	
<i>Pseudopedinella</i> spp.	present		present	present
<i>Dictyocha fibula</i>		present		
<i>Dictyocha speculum</i>	present		present	present
<i>Pseudochattonella farcimen</i>		present	common	present
<i>Calliacantha natans</i>			present	
<i>Leucocryptos marina</i>	present			
<i>Telonema subtile</i>	present		present	present
<i>Laboea strobila</i>	present			
<i>Mesodinium rubrum</i>	present	present	present	

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY29	BY31	BY38	Ref. M1-V1
Red=potentially toxic species	10/11	10/11	11/11	11/11	11/11	12/11	12/11	13/11
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Attheya septentrionalis</i>				present				
<i>Cerataulina pelagica</i>	present							
<i>Chaetoceros convolutus</i>	present							
<i>Chaetoceros danicus</i>	present	present						
<i>Chaetoceros impressus</i>				present				
<i>Coscinodiscus</i> spp.	common	common	common	very common		present	present	
<i>Cyclotella choctawhatcheana</i>		present				present	present	present
<i>Pseudo-nitzschia</i> spp.				present				
<i>Pseudosolenia calcar-avis</i>	present							
<i>Dinophysis acuminata</i>			present		present		present	present
<i>Dinophysis norvegica</i>					present		present	
<i>Dinophysis rotundata</i>				present				
<i>Gymnodinium verruculosum</i>		present						
<i>Gyrodinium flagellare</i>							present	
<i>Heterocapsa</i> spp.			present		present			present
<i>Prorocentrum micans</i>	present	present						present
<i>Prorocentrum minimum</i>	present			present	present	present	present	
<i>Protoperidinium</i> spp.				present		present	present	
<i>Chrysochromulina polylepis</i>	present	present	present	present	23 000	99 000	193 000	present
<i>Chrysochromulina</i> spp.			present		present	present	present	
<i>Cryptomonadales</i> spp.	80 000	common	common	common	common	common	common	78 000
<i>Pyramimonas</i> spp.	common	present	present	present	common	present	common	present
<i>Apedinella radians</i>		present						
<i>Pseudopedinella</i> spp.	present							
<i>Aphanizomenon</i> spp.				present	common	common	common	
<i>Plandonema lauterbornii</i>	present	present	present	present			present	
<i>Calliacantha natans</i>	present		present	present	present	present	present	present
<i>Ebria tripartita</i>	present			present	present			
<i>Leucocryptos marina</i>	present	present			present			
<i>Mesodinium rubrum</i>	common	common	common	present	common	present	present	present

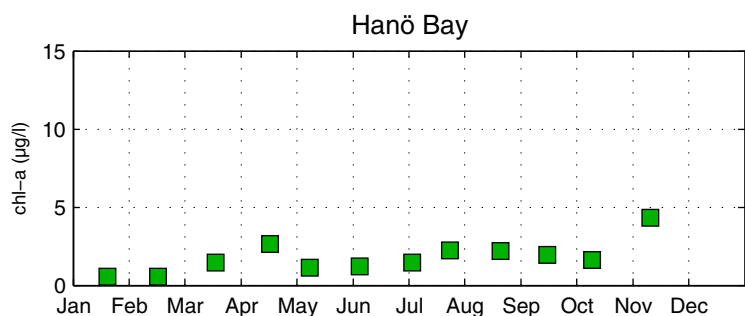
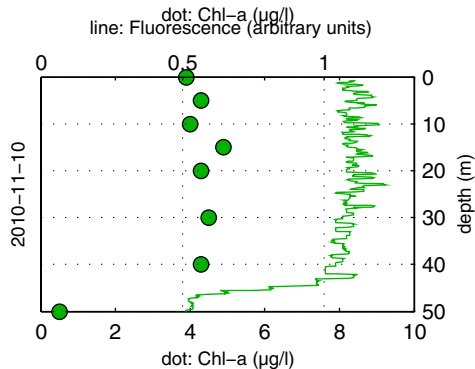
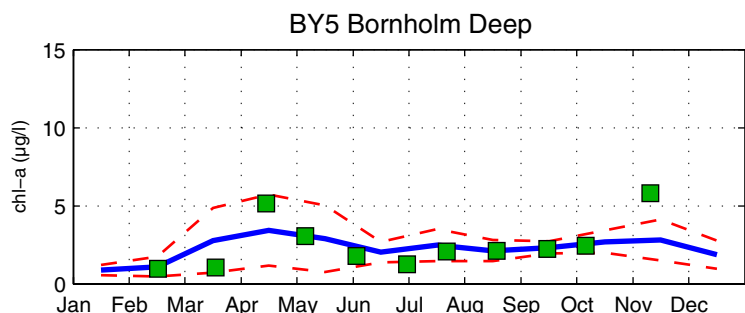
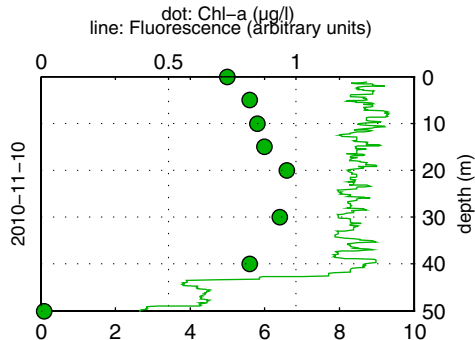
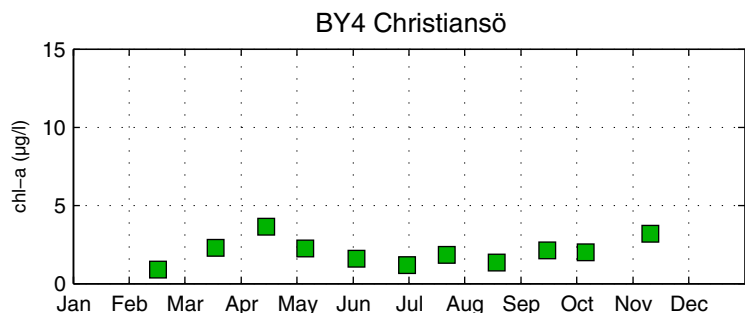
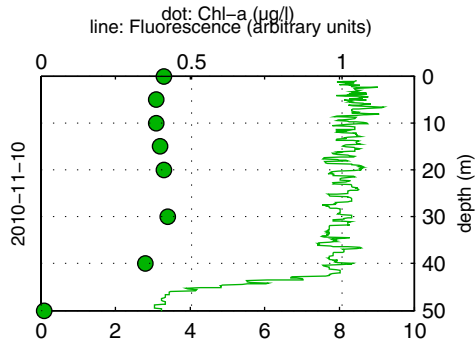
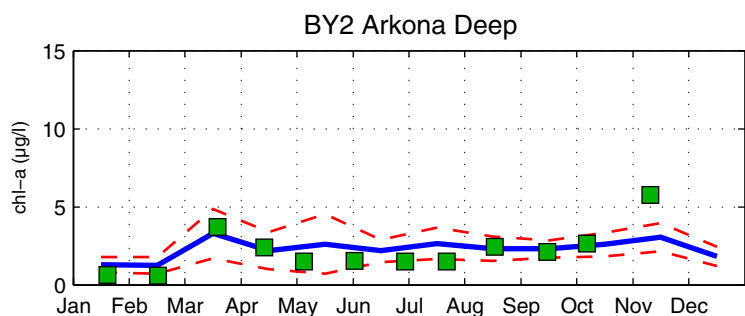
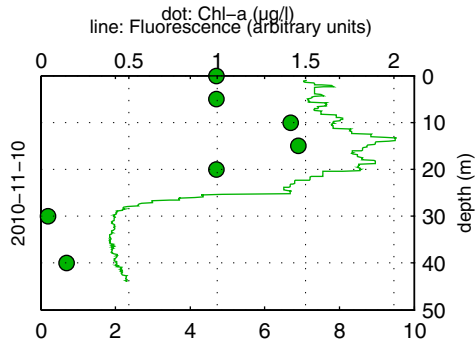
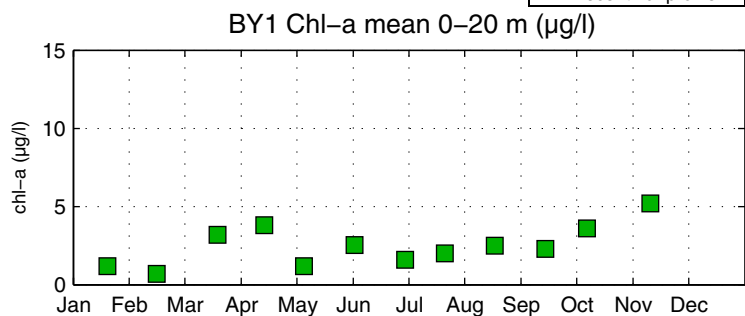
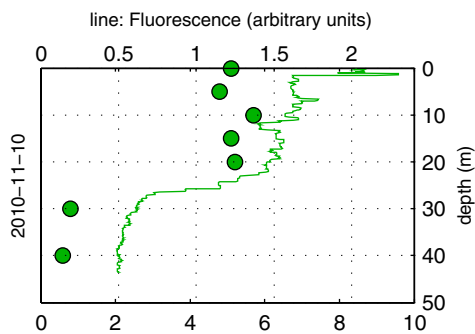
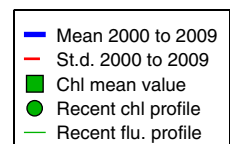
The Skagerrak



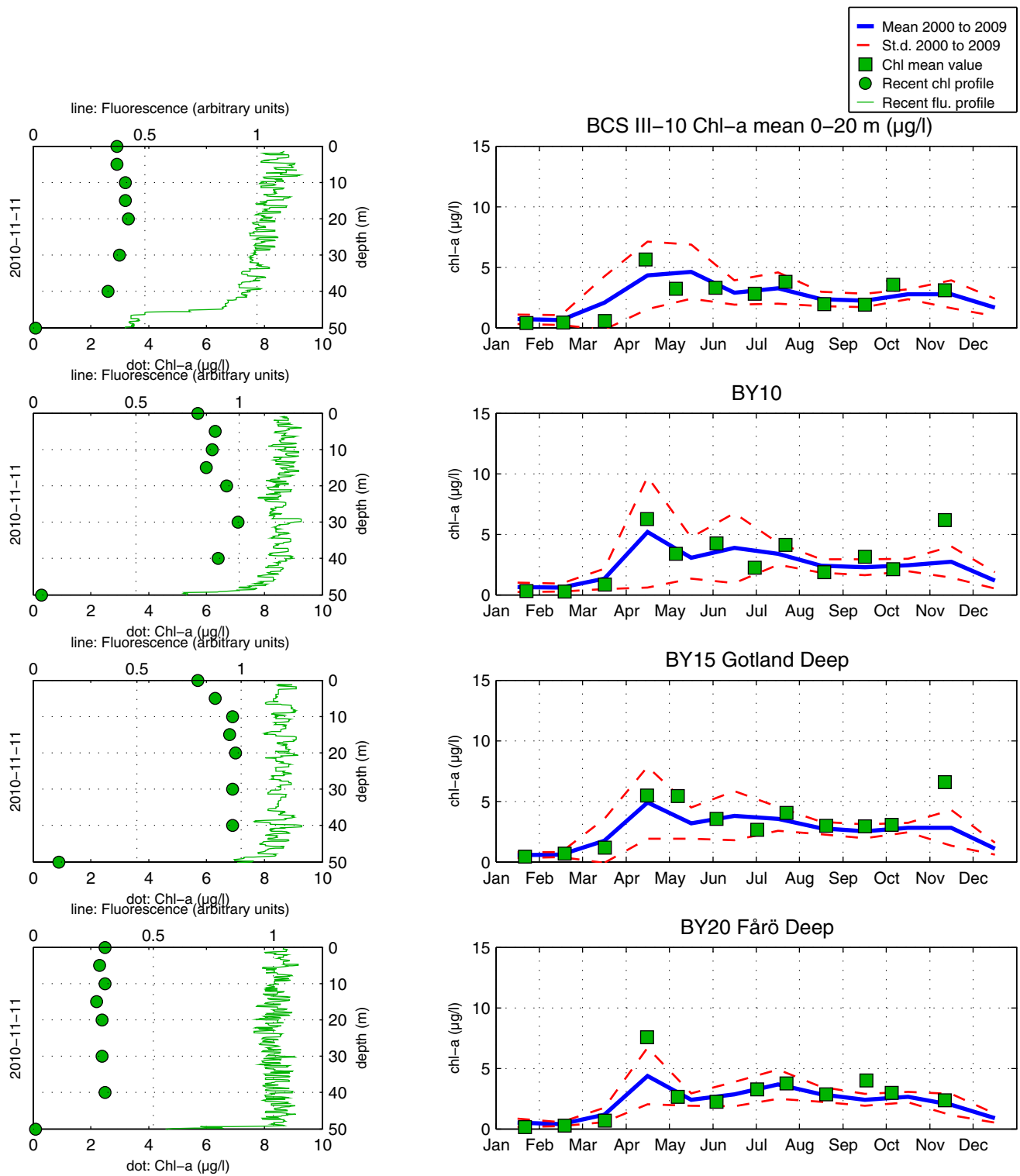
The Kattegat and the Sound



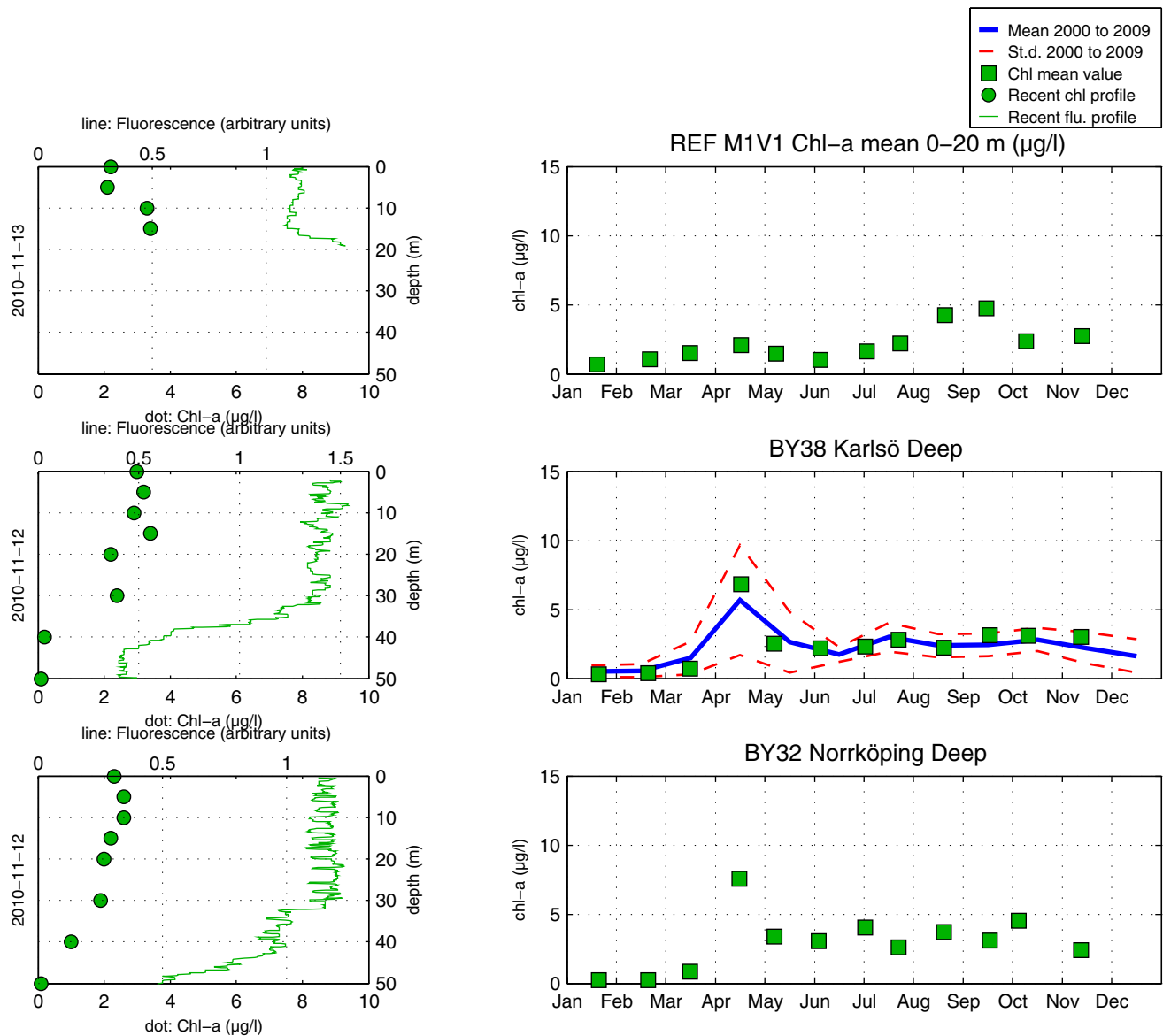
The Southern Baltic



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 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.

