

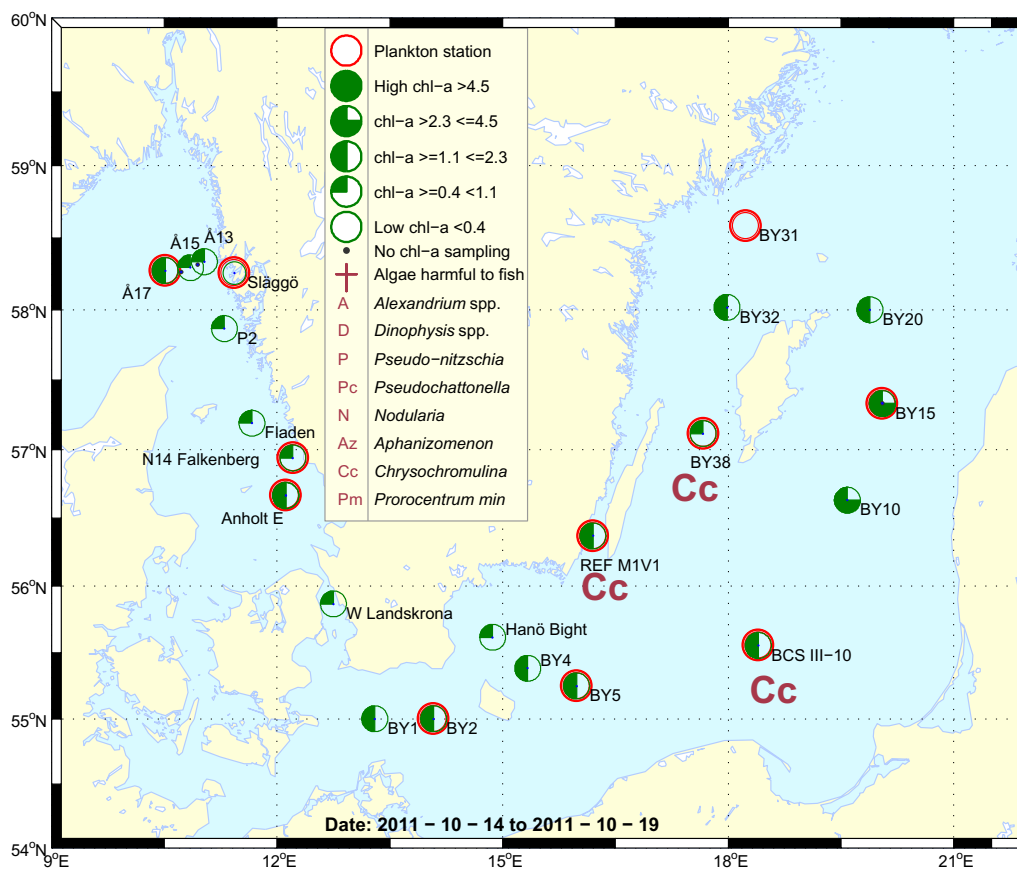
Sammanfattning

De integrerade klorofyll *a* värdena (0-20m) i Skagerrak och Kattegatt var på de flesta stationer normala för säsongen.

Fytoplanktonsamhället i Skagerrak och Kattegatt karaktäriserades i oktober av en sparsam artdiversitet och dominerades framförallt av cryptomonader, små nakna dinoflagellater samt arter från släktet *Pyramimonas*.

I Östersjön var de integrerade klorofyll *a* värdena (0-20m) under det normala för säsongen på många stationer.

Cryptomonader och *Pyramimonas* spp. dominerade även i Östersjön och på sina ställen hittades även *Heterocapsa* spp. i sådan omfattning att den är värd att nämnas. *Chrysochromulina* var fortfarande vanlig söder om Gotland och den vackra kragflagellaten *Calliakantha natans* var väldigt vanlig i Kalmarsund.



Abstract

The integrated (0-20 meters) chlorophyll *a* concentrations were normal for the season at most of the Skagerrak and Kattegatt sampling sites.

The phytoplankton species diversity and cell density were very low as last month. Naked dinoflagellates (10-20 μ m) and cryptomonads were still most abundant together with species from the genus *Pyramimonas*.

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

Cryptomonads, *Pyramimonas* spp. dominated at all stations in the Baltic. The abundance of the genus *Chrysochromulina* was common south of Gotland. *Calliakantha natans* was very common in the Kalmar Sound.

More detailed information on species composition and abundance

The Skagerrak

Å17 14th of October (open Skagerrak)

The phytoplankton species diversity and cell density were very low, as last month. Naked dinoflagellates (10-20 µm) and cryptomonads were most abundant. The potentially toxic dinoflagellate, *Azadinium* spp. was found at this station but only with a few cells.

Släggö 14th of October (Skagerrak coast)

The species diversity and cell density were low compared to last month. Naked dinoflagellates (10-20 µm), cryptomonads and species from the genus *Pyramimonas* were dominating the otherwise scarce phytoplankton community at this station.

The integrated (0-20 meters) chlorophyll *a* concentrations from Skagerrak were normal for the season at Å17 but lower than normal at Släggö.



The dinoflagellate *Ceratium tripos* (left) and *C. lineatum*.

The Kattegat

N14 Falkenberg 15th of October

The density and species diversity were low. The sample was dominated by cryptomonads and naked dinoflagellates. The species *Ceratium lineatum* dominated among the large dinoflagellates. A few cells of the potentially toxic dinoflagellates *Dinophysis norvegica* and *Prorocentrum minimum* were present in the sample. Diatoms were mostly represented by some cells from the potentially toxic genus *Pseudo-nitzschia*.

Anholt E 15th and 19th of October

This station had a similar species composition as N14, but with a rather high cell density. *Ceratium lineatum* dominated among the large dinoflagellates and there were a few cells of the potentially toxic *Dinophysis norvegica* and *Dinophysis acuta*. Diatoms were more or less absent.

There was no particular difference in either species composition or cell density, between the two sampling dates.

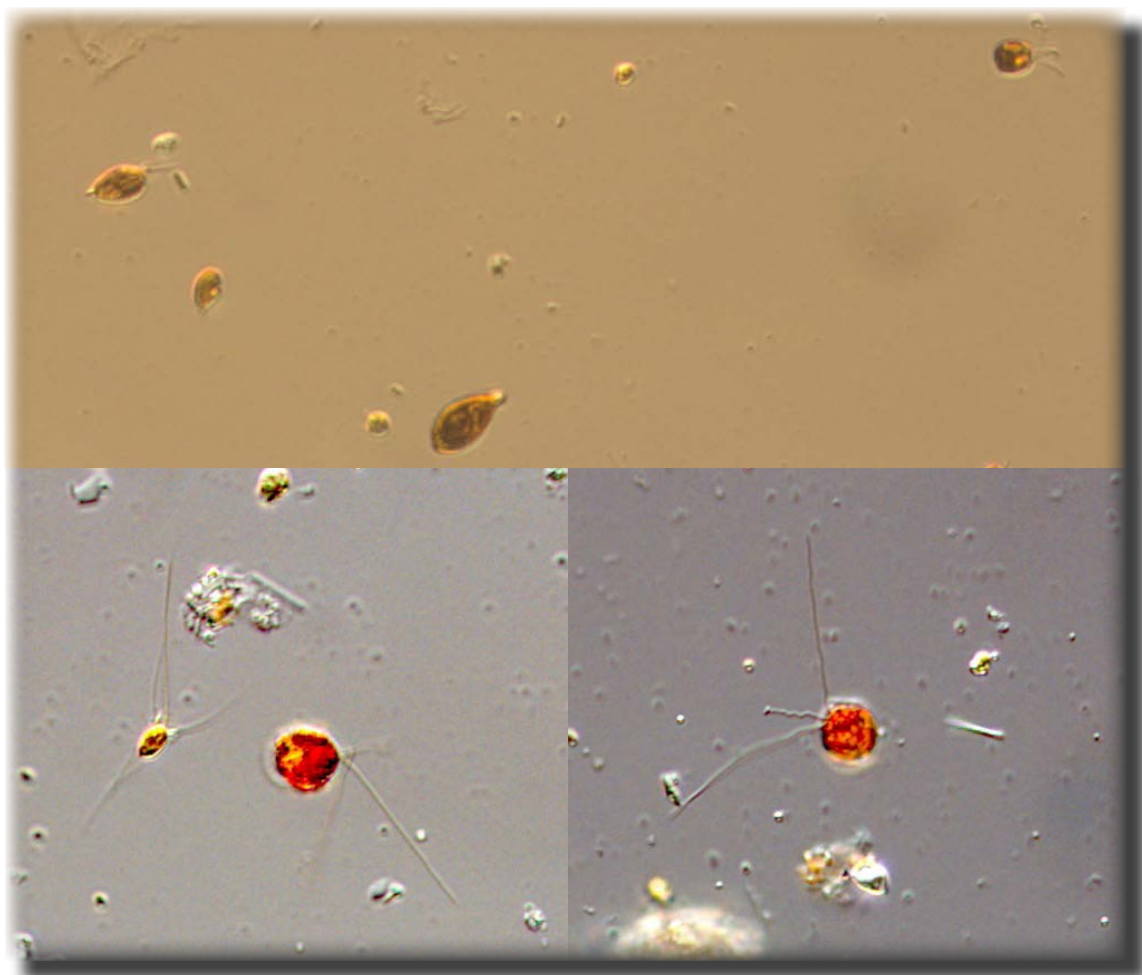
The integrated (0-20 meters) chlorophyll *a* concentrations from the Kattegat were at the first visit lower than normal and at the second visit higher than normal. The chlorophyll *a* values do not correspond to the measured cell density values from these occasions.

The Baltic Sea 16th to 18th of October

The phytoplankton community in the Baltic Sea was dominated by cryptomonads, *Pyramimonas* spp. and at some stations the genus *Heterocapsa*. The highest total cell density was found at BY 2 and the lowest at BY 5 and BY 38. Small naked dinoflagellats were present at all stations and diatoms were represented by a few cells of centric diatoms.

The abundance of the genus *Chrysochromulina* was common at some stations south of Gotland. Choanoflagellates were represented by the genus *Calliakantha* at almost all stations and the species *Calliakantha natans* was very common in the Kalmar Sound (Ref. M1-V1).

The integrated (0-20 meters) chlorophyll *a* concentrations from the Southern Baltic were lower than normal for this season. In the Eastern and Western Baltic the chlorophyll *a* concentrations were lower than normal and at the Gotland Deep the concentration was close to normal for the season.

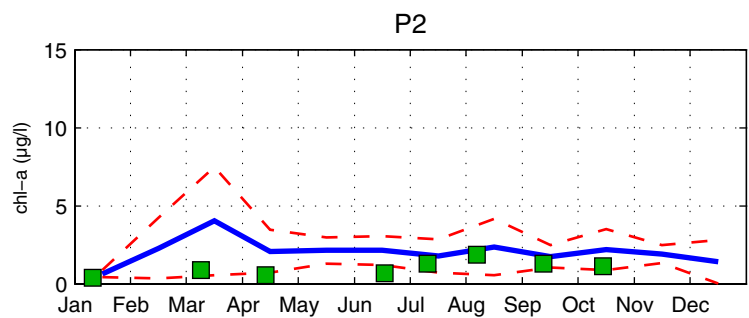
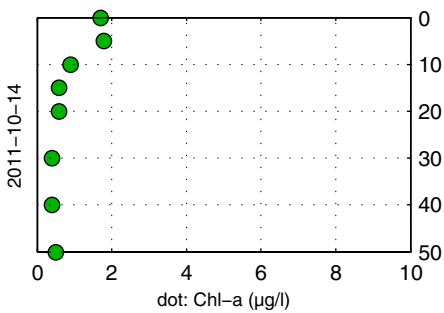
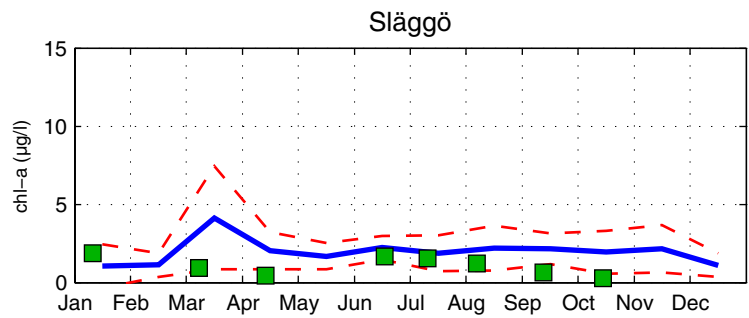
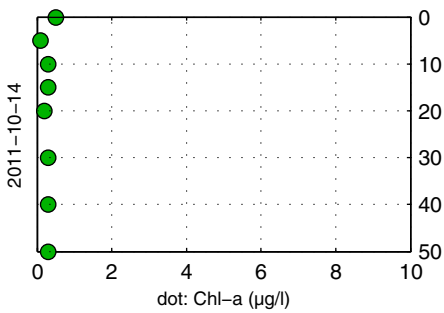
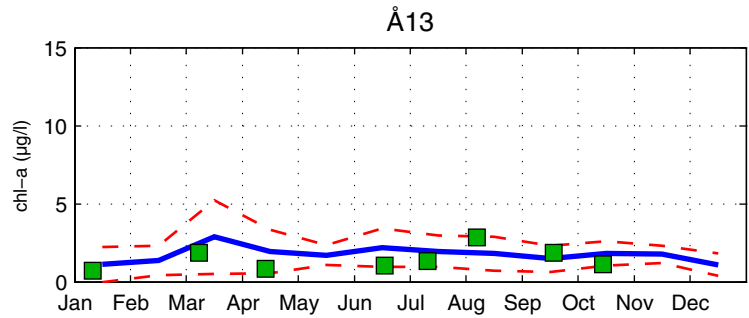
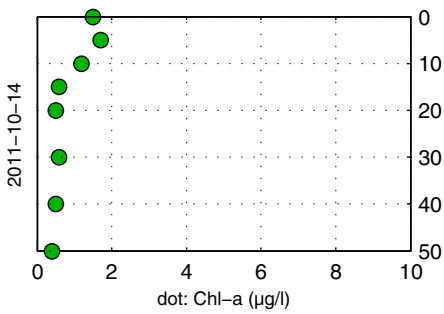
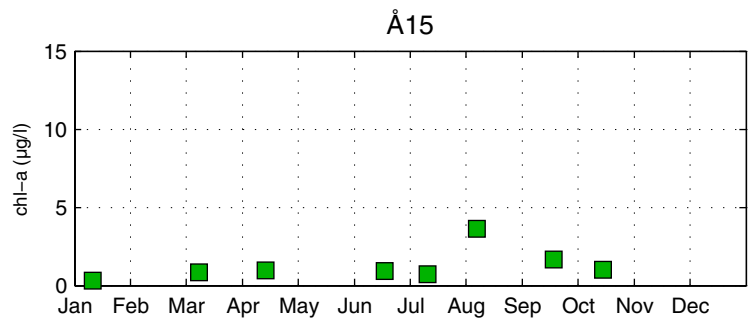
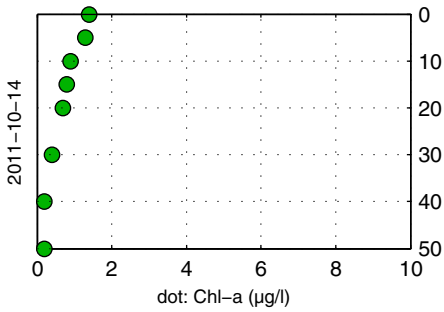
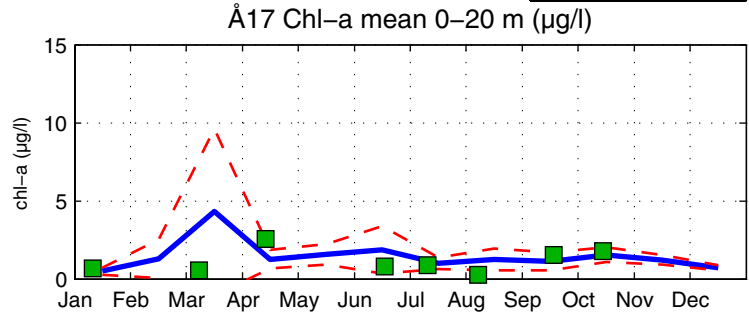
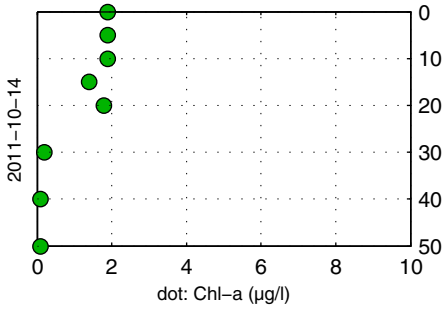
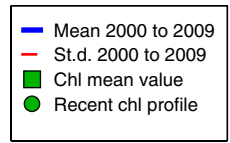


The most common species in the Baltic were small species like cryptomonads and *Pyramimonas* spp. (upper picture) and *Calliakantha natans* and *Chrysochromulina* spp. (lower pictures).

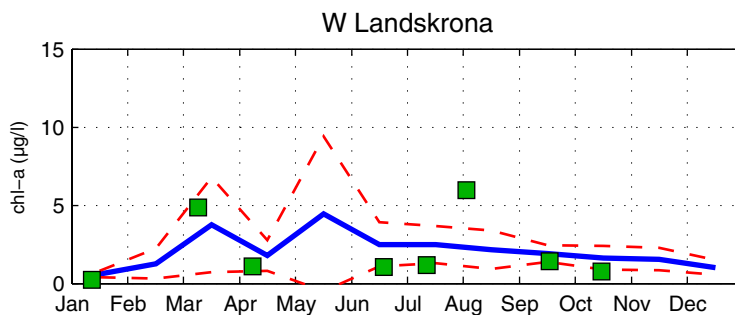
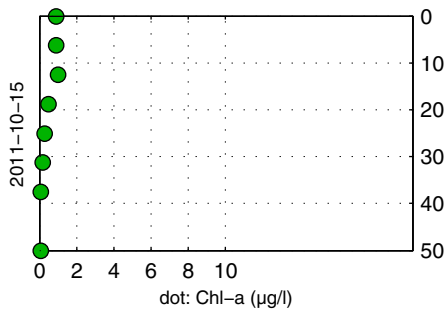
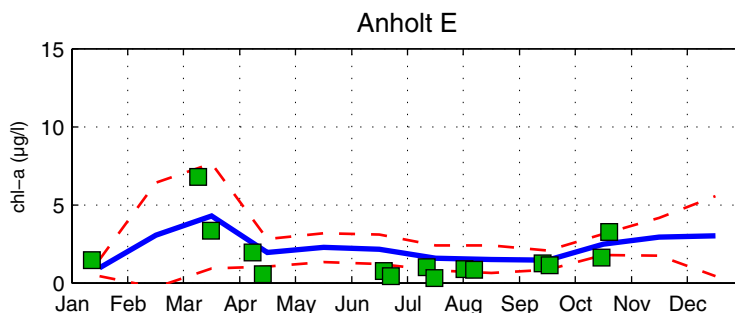
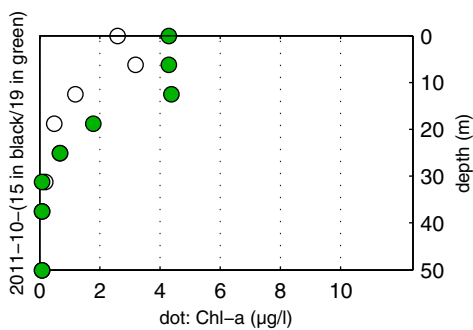
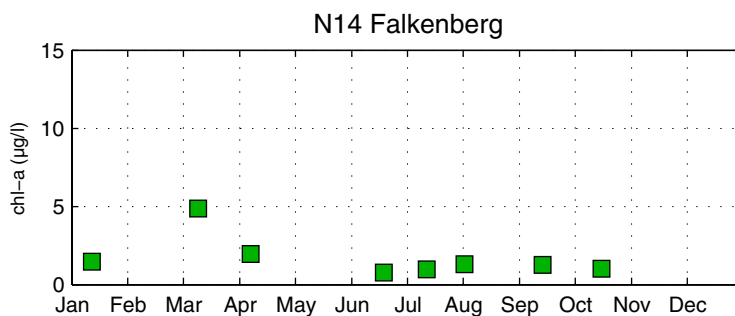
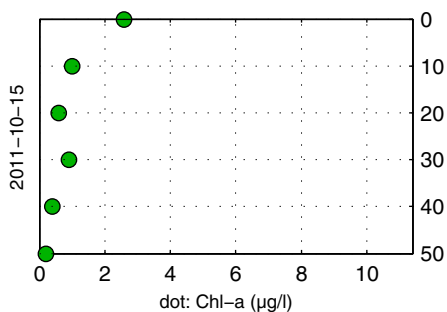
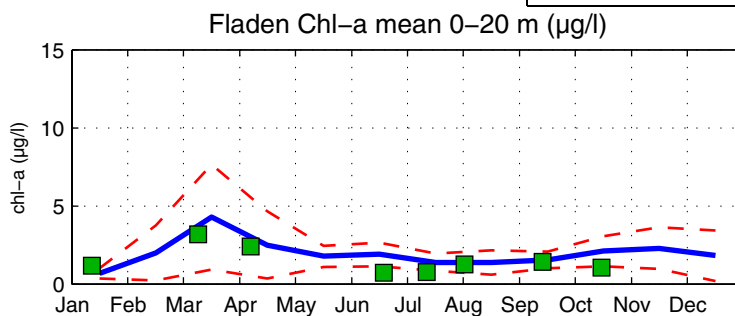
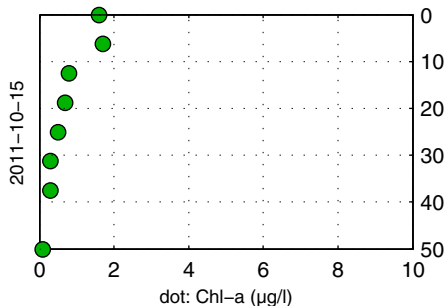
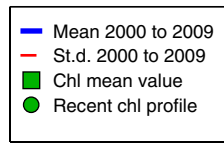
Selection of observed species	Å17	Släggö	N14	Anholt E	Anholt E
Red=potentially toxic species	14/10	14/10	15/10	15/10	19/10
	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Aulacoseira</i> spp.	present				
Centrales	present				
<i>Ceratulina pelagica</i>	present		present		
<i>Guinardia delicatula</i>			present		
<i>Leptocylindrus minimus</i>	present				
<i>Nitzschia longissima</i>					
Pennales	present				
<i>Pseudo-nitzschia</i> spp.	present		present		
<i>Skeletonema marinoi</i>	present				
<i>Azadinium</i> spp. cf	present				
<i>Ceratium furca</i>		present	present	present	present
<i>Ceratium fusus</i>		present	present	present	present
<i>Ceratium lineatum</i>	present		present	very common	very common
<i>Ceratium longipes</i>	present		present	present	present
<i>Ceratium tripos</i>		present	present	present	present
<i>Dinophysis acuta</i>	present			present	present
<i>Dinophysis norvegica</i>			present	present	present
Gymnodiniales	common	common	common	present	present
<i>Gyrodinium flagellare</i>	present				present
<i>Heterocapsa</i> spp.	present				
<i>Katodinium glaucum</i>		present	present	present	present
<i>Protoperidinium</i> spp.			present	present	present
Peridinales	present	present	present	present	
<i>Prorocentrum micans</i>	present	present	present	present	present
<i>Prorocentrum minimum</i>			present		present
<i>Prorocentrum redfieldii</i>	present				
<i>Apedinella radians</i>		present			
<i>Dichtyocha fibula</i>			present	present	present
<i>Dichtyocha speculum</i>			present	present	present
Cryptomonadales spp.	common	common	common	common	common
<i>Plagioselmis prolunga</i>	common	present	present	present	common
<i>Teleaulax</i> spp.	common	common	present	present	present
<i>Pyramimonas</i> spp.	common	common			
<i>Ebria tripartita</i>			present		present
<i>Leucocryptos marina</i>		present			
Ciliophora	present	present	present	present	present

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY38	Ref. M1-V1
Red=potentially toxic species	16/10	16/10	17/10	17/10	18/10	18/10
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
Centrales	present	present		present		
<i>Chaetoceros impressus</i>	present					
<i>Chaetoceros</i> spp.				present		present
<i>Skeletonema marinoi</i>					present	
<i>Cladopyxis claytonii</i>				present	present	present
<i>Dinophysis acuta</i>		present				present
Gymnodiniales	common	common	present	common	present	common
<i>Heterocapsa</i> spp.	very common	common	common	common	common	present
Peridinales				present	present	present
<i>Prorocentrum minimum</i>	present					
Cryptomonadales spp.	very common	very common	very common	very common	common	very common
<i>Plagioselmis prolunga</i>			common			
<i>Teleaulax</i> spp.			common		common	common
<i>Apedinella radians</i>		present				
<i>Chrysochromulina</i> spp cf		present	common		common	very common
Cyanobacteria colony forming					present	
<i>Aphanizomenon flos-aquae</i>	present		present		common	
<i>Woronichinia</i> spp.			present		present	
<i>Oocystis</i> spp.						
<i>Pterosperma</i> spp.			present			
<i>Eutreptiella</i> spp. cf.	present	common	common	common	present	present
<i>Pyramimonas</i> spp.	very common	very common	common	very common	very common	very common
<i>Calliakantha longicaudata</i>						present
<i>Calliakantha natans</i>		present	common	present	common	very common
<i>Ebria tripartita</i>						
<i>Leucocryptus marina</i>			present		present	present
Ciliophora	present	present	present	present	present	present
<i>Mesodinium rubrum</i>	present	present	common	present	common	common

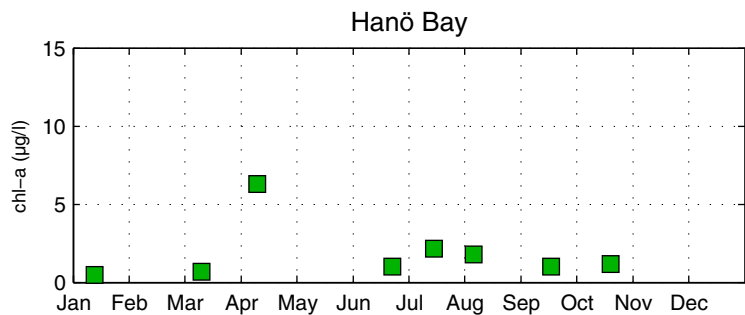
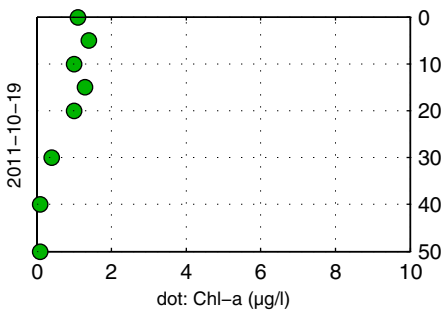
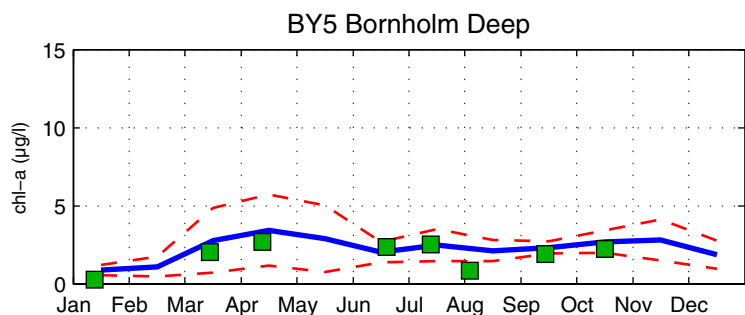
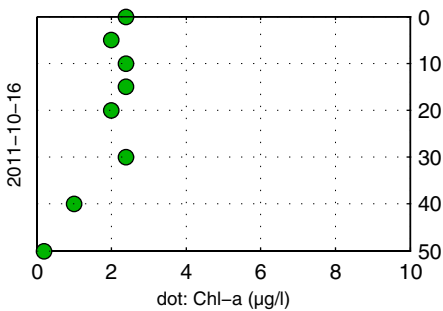
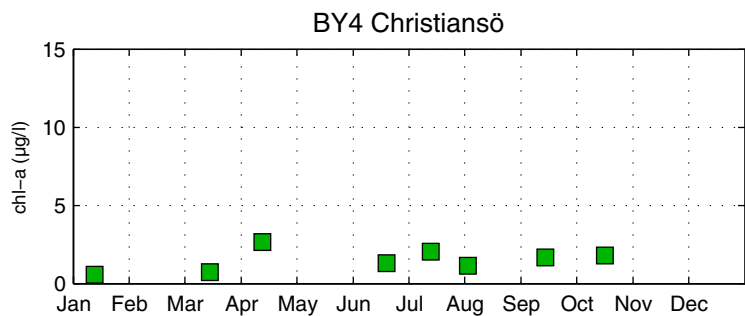
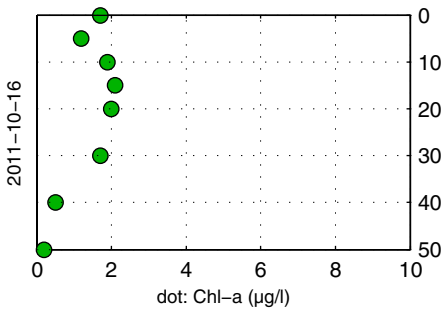
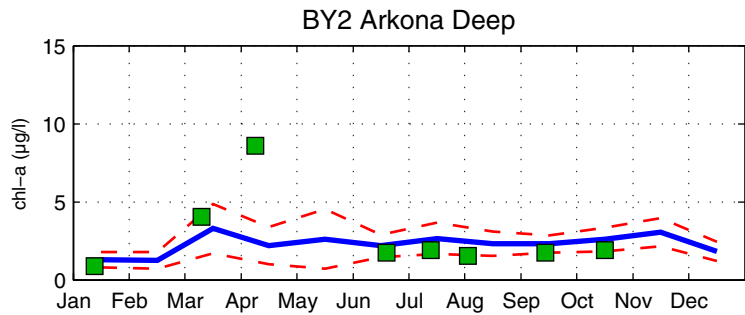
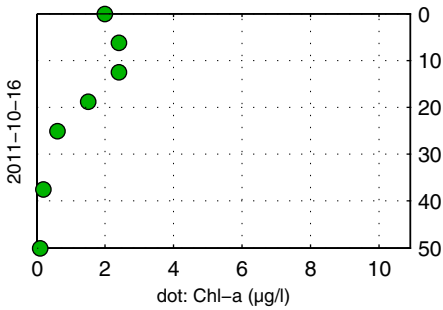
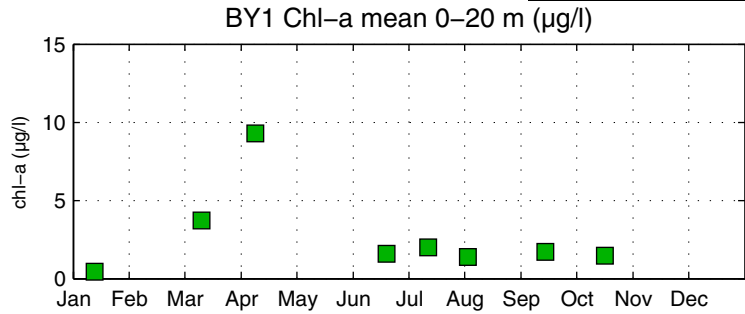
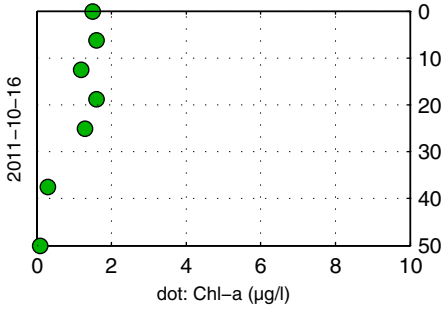
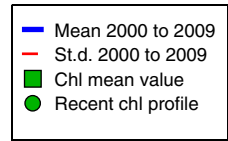
The Skagerrak



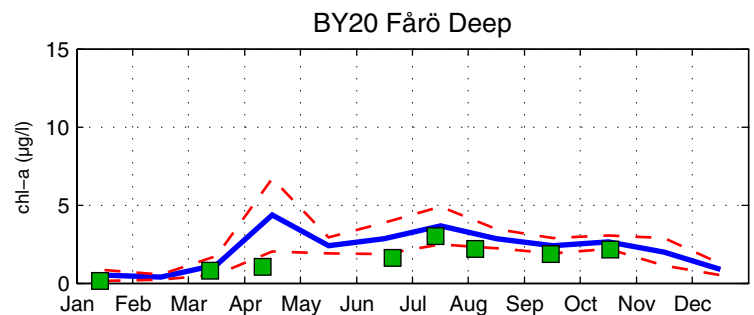
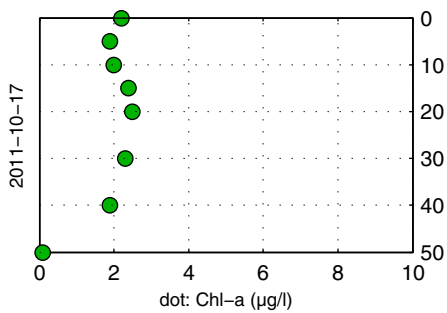
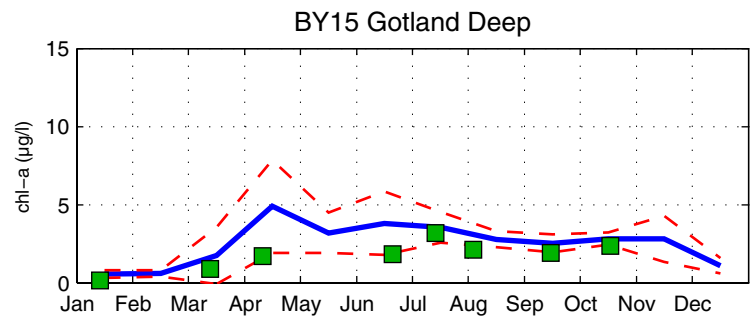
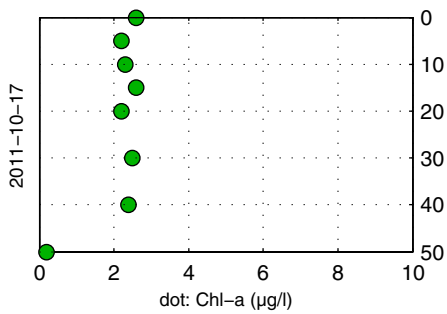
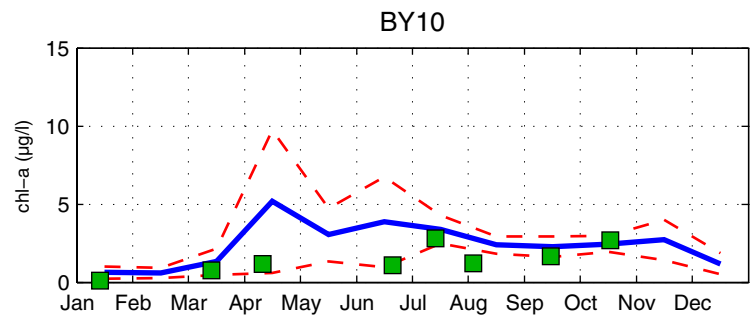
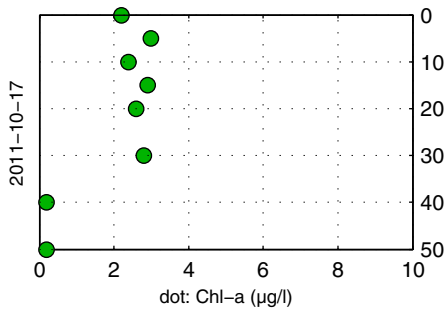
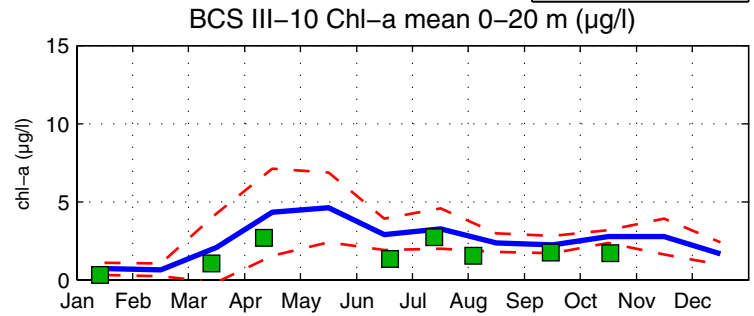
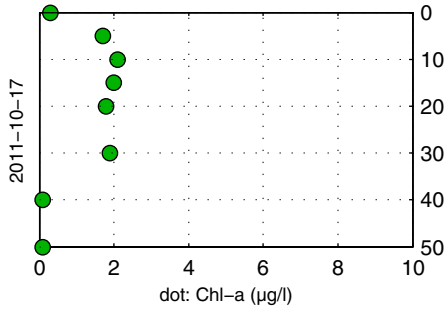
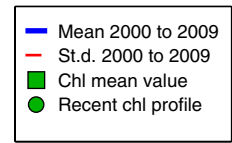
The Kattegat and the Sound



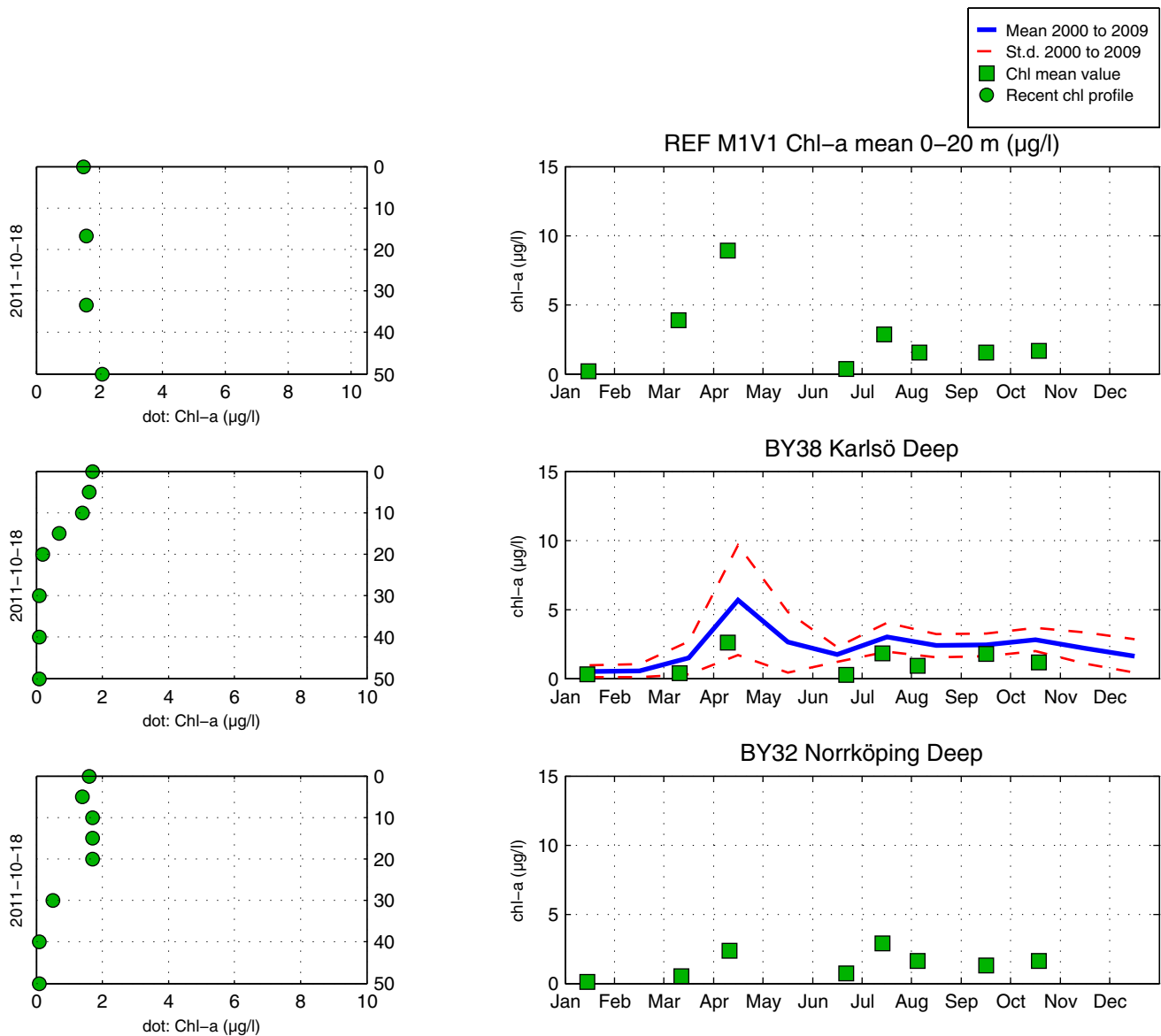
The Southern Baltic



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. Tekniska problem ombord satte stopp för månadens fluorescens-mätningar.

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. Chlorophyll fluorescence was not measured this month due to technical problems on board.

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>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	Milda symptom: Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramp 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.
<i>Chaetoceros concavicornis</i> / <i>C. convolutus</i>	Mechanical damage through hooks on setae	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>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.

Översikt över några 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.

