

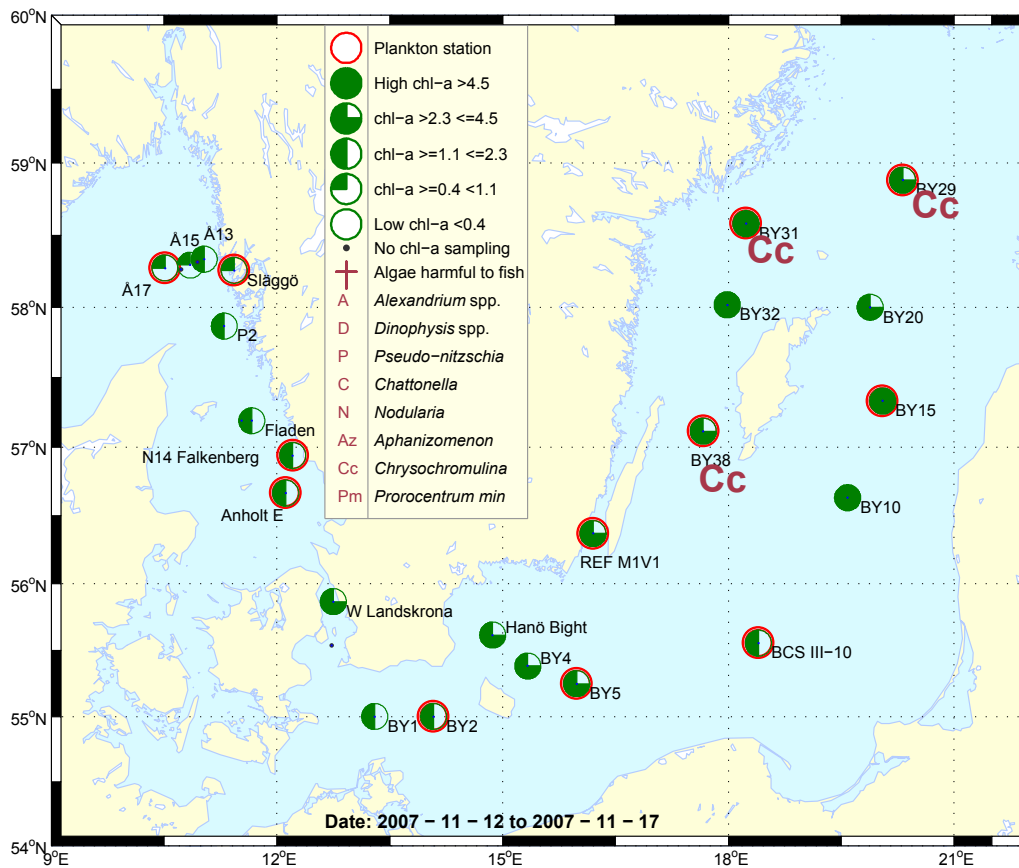
Sammanfattning

Planktonproverna var mycket tunna i Skagerrak. Den enda arten som var någorlunda vanlig var kiselalgen *Leptocylindrus danicus*, vid Släggö. I Kattegatt var diversiteten högre än i Skagerrak, men cellantalen var ändå låga. Kiselalgerna *Skeletonema costatum* complex och *Leptocylindrus danicus* var vanligast.

Klorofyll *a* halterna var normala i Skagerrak och Kattegatt.

En blomning av det potentiellt giftiga släktet *Chrysochromulina* observerades vid ett antal stationer i Östersjön. I övrigt var små flagellater mest talrika. Cyanobakterier återfanns vid de flesta stationer, och *Aphanizomenon* sp. var väldigt vanlig vid BY2 och BY31.

Klorofyll *a* halterna var normala i södra Östersjön. Vid By10, BY15, BY20 och BY38 var halterna över det normala. Det var förhöjda klorofyll *a* värden vid BY29 och BY31.



Abstract

The plankton samples were scarce in the Skagerrak areas, the only common species being the diatom *Leptocylindrus danicus* at Släggö. The diversity was somewhat higher in the Kattegat as compared to the Skagerrak areas, but the cell numbers were still low in a general perspective. The diatoms *Skeletonema costatum* complex and *Leptocylindrus danicus* were most abundant.

The chlorophyll *a* concentrations were at average in the Skagerrak and the Kattegat areas.

A bloom of the potentially toxic genus *Chrysochromulina* was observed at a few stations in the Baltic. Generally, small flagellates were the most abundant. Cyanobacteria were observed at most stations and *Aphanizomenon* sp. was very common at BY2 and BY31.

The chlorophyll *a* concentrations were at average in the southern Baltic. At BY10, BY15, BY20 and BY38 the concentrations were above average. The chlorophyll *a* values were enhanced at BY29 and BY31.

Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på mikroskopanalys av planktonprover samt klorofyllmätningar presenteras kortfattat i denna rapport. Information från SMHI:s satellitövervakning av algblomningar 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 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>Chattonella</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.

More detailed information on species composition and abundance

The Skagerrak

Å17 12th of November 2007 (open Skagerrak)

The plankton sample was scarce. A small amount of species were found, of which none were common.

Släggö 12th of November 2007 (Skagerrak coast)

Low diversity distinguished the plankton sample. The only species to be considered common was the diatom *Leptocylindrus danicus*.

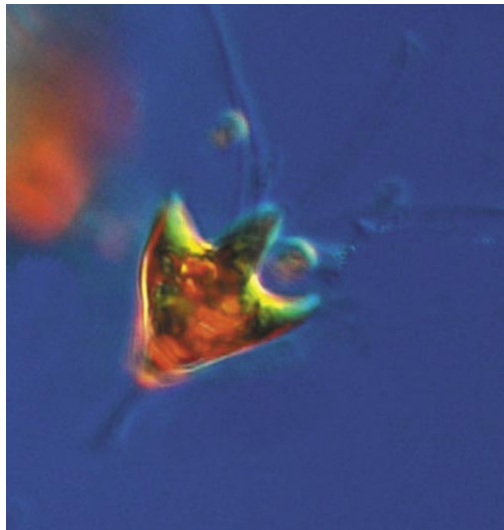
The chlorophyll *a* concentration was at average for the season in the Skagerrak areas.

The Kattegat

N14 Falkenberg and Anholt E 13th of November 2007

The plankton diversity was higher than in the Skagerrak, but the cell numbers were still low. The most common species were the diatoms *Skeletonema costatum* complex, *Leptocylindrus danicus* and the potentially toxic *Pseudo-nitzschia* spp. The conspicuous prasinophycé *Pyramimonas longicauda* was present at Anholt E.

The chlorophyll *a* concentrations were at average in the Kattegat area.

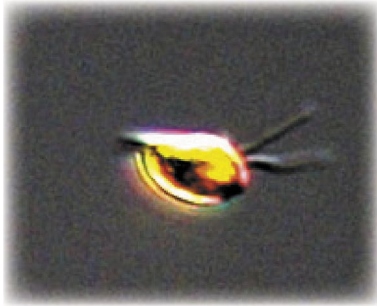


Pyramimonas longicauda

Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	2007-11-12	2007-11-12	2007-11-13	2007-11-13
	cells/l	cells/l	cells/l	cells/l
<i>Cerataulina pelagica</i>	present		present	present
<i>Chaetoceros concavicornis</i>		present	present	present
<i>Chaetoceros danicus</i>			present	present
<i>Chaetoceros similis</i>			present	present
<i>Cylindrotheca closterium</i>		present	present	present
<i>Dactyliosolen fragilissimus</i>			present	
<i>Ditylum brightwellii</i>			present	present
<i>Guinardia delicatula</i>	present		present	present
<i>Guinardia flaccida</i>		present	present	present
<i>Leptocylindrus danicus</i>		19 000	80 000	65 000
<i>Leptocylindrus minimus</i>			present	14 000
<i>Proboscia alata</i>			present	
<i>Pseudo-nitzschia delicatissima</i> -group		present	65 000	35 000
<i>Pseudo-nitzschia seriata</i> -group			25 000	42 000
<i>Rhizosolenia pungens</i>			5 000	11 000
<i>Rhizosolenia setigera</i>			6 000	6 000
<i>Skeletonema costatum</i>		present	150 000	57 000
<i>Thalassiosira angulata</i>			present	present
<i>Thalassiosira nordenskiöldii</i>			present	
<i>Thalassiosira rotula</i>			present	present
<i>Ceratium fusus</i>			present	
<i>Dinophysis acuminata</i>			present	
<i>Gymnodinium verruculosum</i>	present		present	present
<i>Gyrodinium flagellare</i>	10 000		present	
<i>Heterocapsa</i> cf. <i>minima</i>				present
<i>Heterocapsa rotundata</i>		present		present
<i>Katodinium glaucum</i>	present	present		
<i>Lessardia elongata</i>	present			
<i>Prorocentrum micans</i>		present	present	present
Cryptomonadales spp.	140 000	45 000	15 000	100 000
<i>Chrysochromulina</i> spp.	present			present
<i>Dictyocha fibula</i>	present		present	present
<i>Dictyocha speculum</i>	present		present	present
<i>Apedinella radians</i>				present
<i>Pyramimonas longicauda</i>				present
<i>Pyramimonas</i> spp.	present			present
<i>Leucocryptos marina</i>	present			present
<i>Laboea strobila</i>	present			
<i>Mesodinium rubrum</i>	present			
<i>Strombidium</i> spp.	present	present		

The Baltic Sea

Arkona Basin BY2 and Bornholm Basin BY5 14th of November. The South East Baltic BCS III-10 and the Eastern Gotland Basin BY15 15th of November



Small flagellates as the cryptophycé *Plagioselmis prolonga* was the most abundant in the plankton samples. The cyanobacterium *Aphanizomenon* sp. was common at BY2, whereas the mixotrophic ciliate *Mesodinium rubrum* was common at all four stations. Choanoflagellates were common at BY2 and BY15.

The chlorophyll *a* concentrations were at average at three of the four stations. At BY15 the concentration was above average, maybe due to the fact that large centric diatoms were quite common.

Plagioselmis prolonga

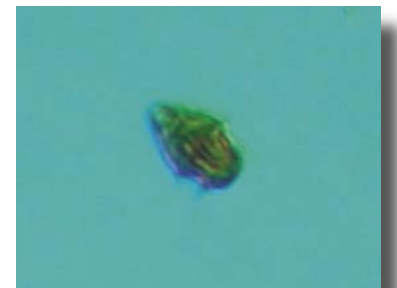
Kalmar Sound Ref. M1-V1 17th of November

The same *Chrysochromulina* species that was found in a state of minor bloom at BY29 and BY31 during the previous expedition was common. The diatom *Skeletonema costatum* complex as well as the prasinophycé genus *Pyramimonas* spp. were common.

Northern Baltic proper BY29 and BY31. Karlsö Deep BY38 16th of November

The bloom of the potentially toxic *Chrysochromulina* sp. was still obvious and had increased at BY29. The cyanobacteria *Aphanizomenon* sp. and *Nodularia spumigena* were present and small flagellated species were numerous. The small dinoflagellate *Heterocapsa rotundata* was common. At BY31 the potentially toxic dinoflagellate *Dinophysis acuminata* was found. The diatom *Skeletonema costatum* complex was abundant at BY31, and *Chaetoceros impressus*, a diatom as well, was common.

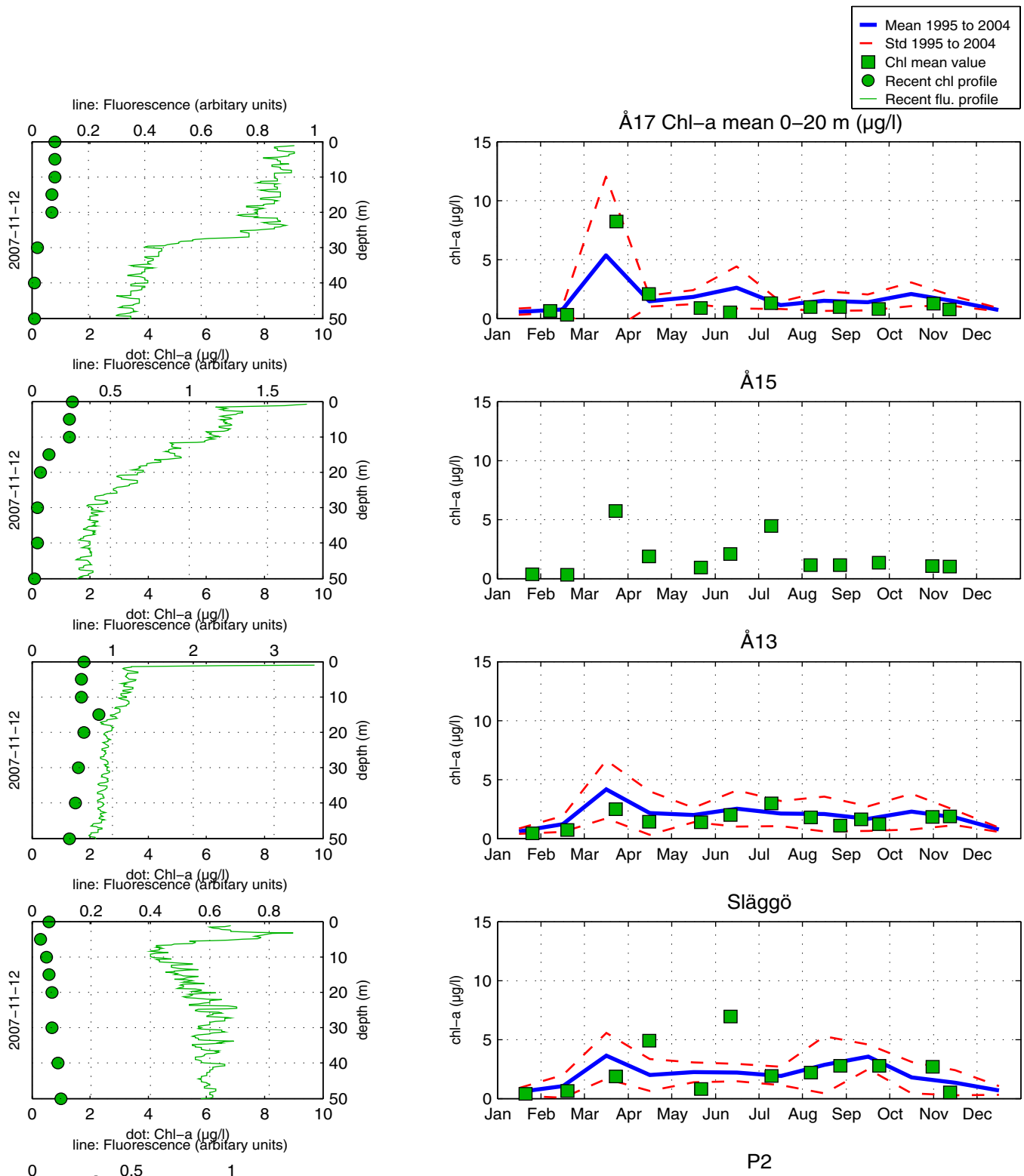
The chlorophyll *a* concentration was above average at BY38.



Heterocapsa rotundata

Selection of observed species	BY2 2007-11-14 cells/l	BY5 2007-11-14 cells/l	BCS III 10 2007-11-15 cells/l	BY15 2007-11-15 cells/l	BY29 2007-11-16 cells/l	BY31 2007-11-16 cells/l	BY38 2007-11-16 cells/l	Ref. M1-V1 2007-11-17 cells/l
Red=potentially toxic species								
¹ quantified in m/l								
<i>Chaetoceros danicus</i>		present	present	present	present	present	present	
<i>Chaetoceros impressus</i>	present		present			13 000		
<i>Cyclotella choctawhatcheana</i>	present			present	present	present		present
<i>Cyindrotheca closterium</i>						present		present
<i>Skeletonema costatum</i> complex								12 000
<i>Dinophysis acuminata</i>						present		present
<i>Dinophysis norvegica</i>						present		present
<i>Heterocapsa rotundata</i>	present		present	present	present	20 000	15 000	20 000
<i>Katodinium glaucum</i>				present			present	
<i>Prorocentrum minimum</i>	present							
<i>Eutreptiella</i> spp.					present			
<i>Chrysochromulina</i> spp.			present	present	450 000	250 000	310 000	21 000
<i>Cryptomonadales</i> spp.	90 000	75 000	56 000	35 000	33 000	48 000	40 000	58 000
<i>Plagioselmis prolonga</i>	70 000	58 000	36 000	58 000	42 000	96 000	67 000	155 000
<i>Apedinella radians</i>						present		
<i>Pyramimonas</i> spp.	40 000	present	present	present	12 000	85 000	10 000	82 000
<i>Choanoflagellidea</i> spp.	15 000	present	present	16 000	present	14 000	present	present
<i>Aphanizomenon</i> sp. ¹	common				present	common	present	present
<i>Nodularia spumigena</i>						present	present	
<i>Mesodinium rubrum</i>	11 000	5 000	8 000	11 000	present	present	present	present
<i>Strombidium</i> spp.	present	present	present	present	present	present	present	present

The Skagerrak



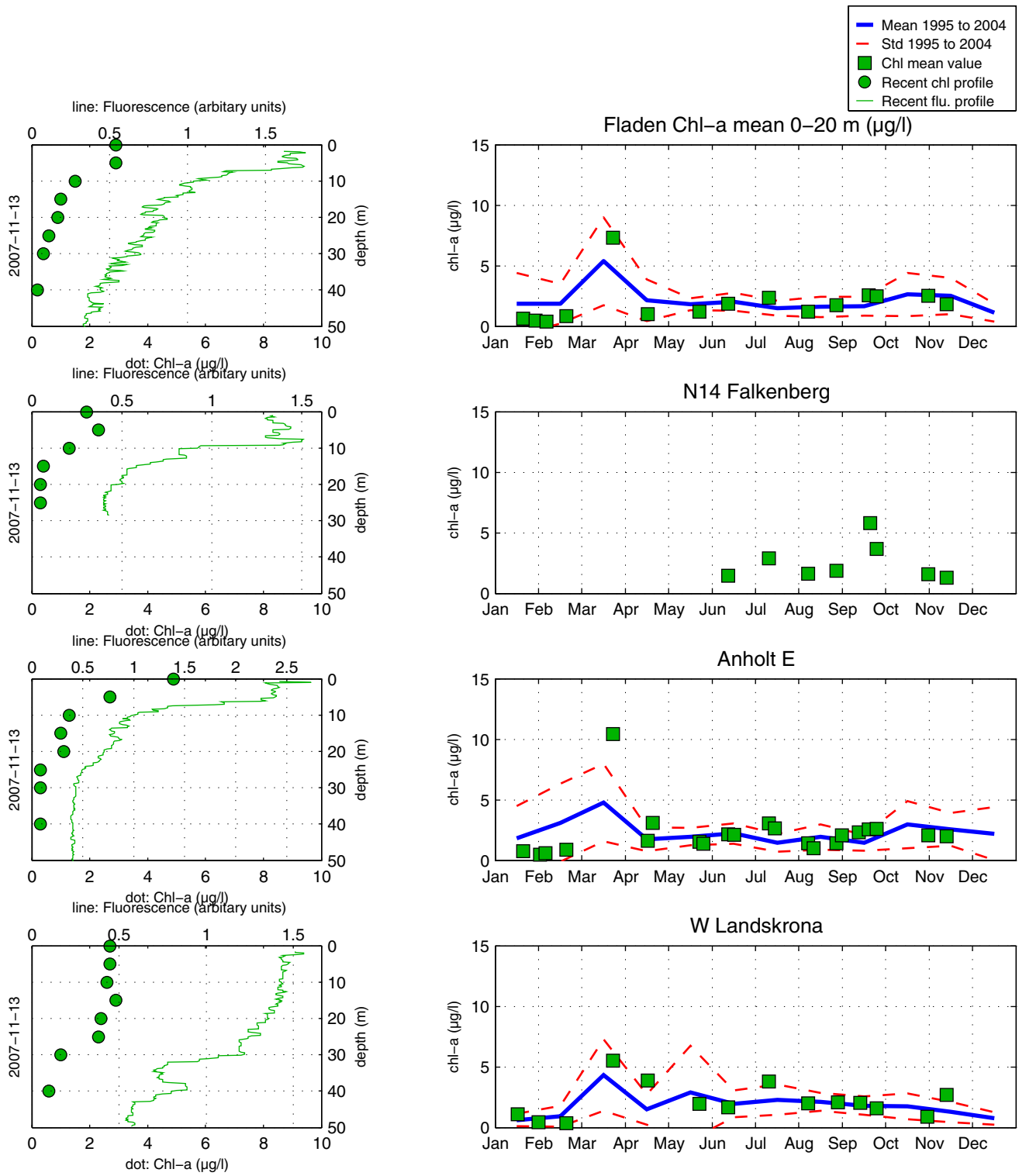
Om klorofylldiagrammen

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 alger av växtplankton observeras.

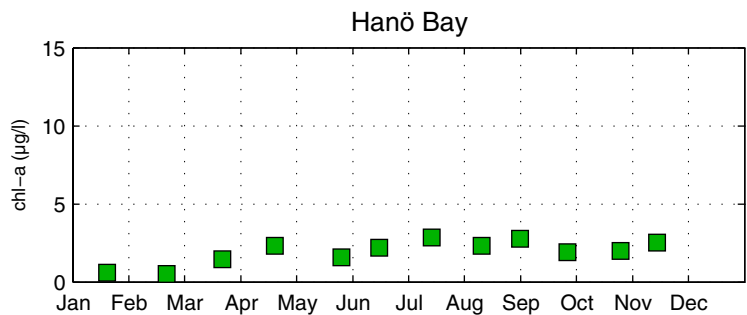
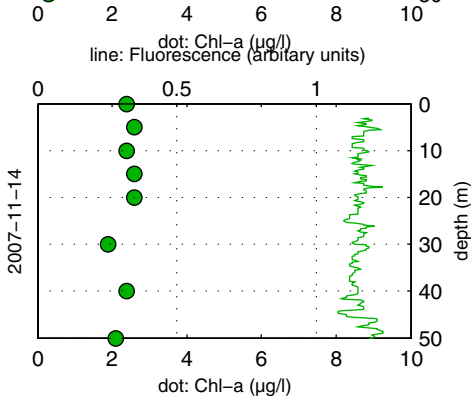
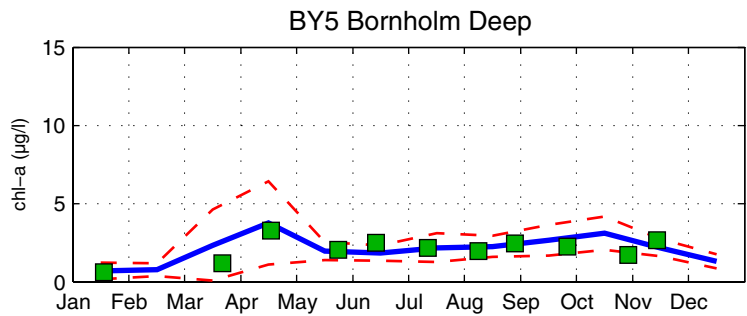
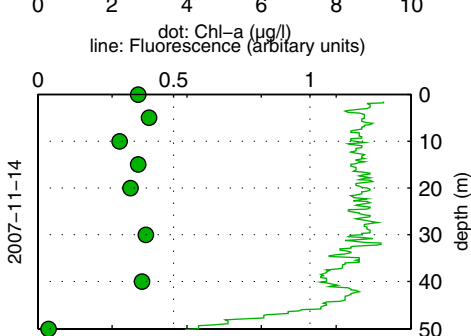
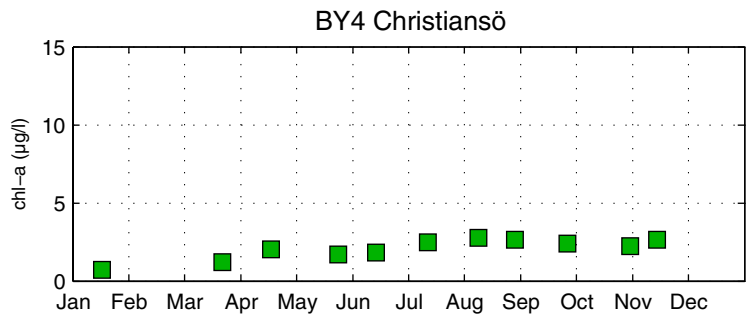
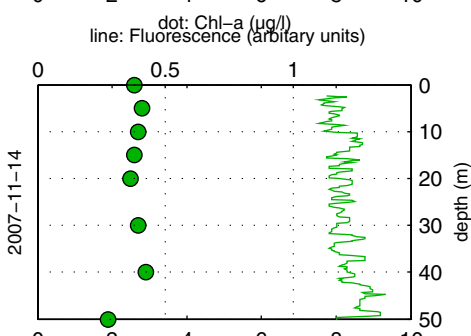
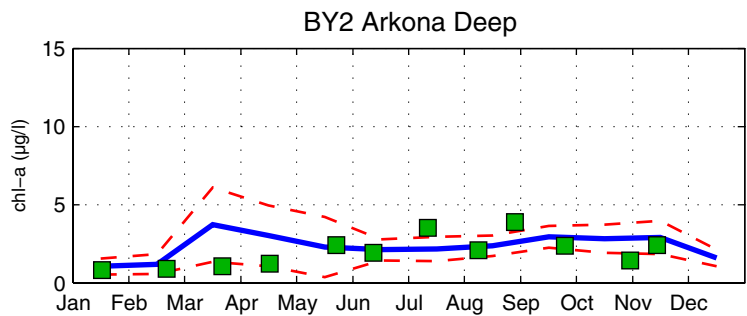
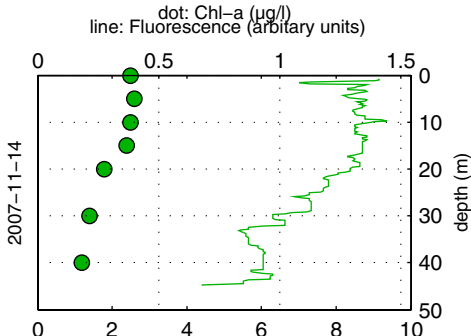
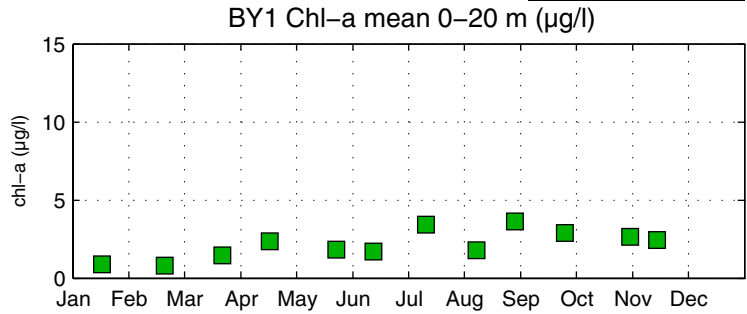
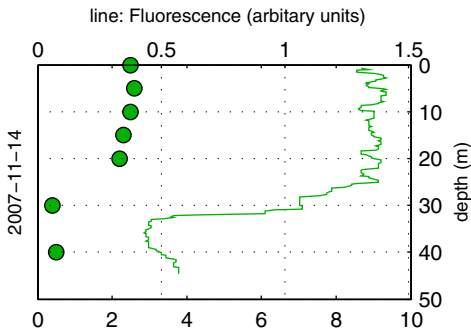
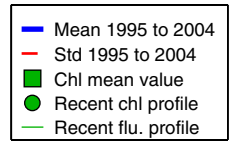
About the chlorophyll graphs

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.

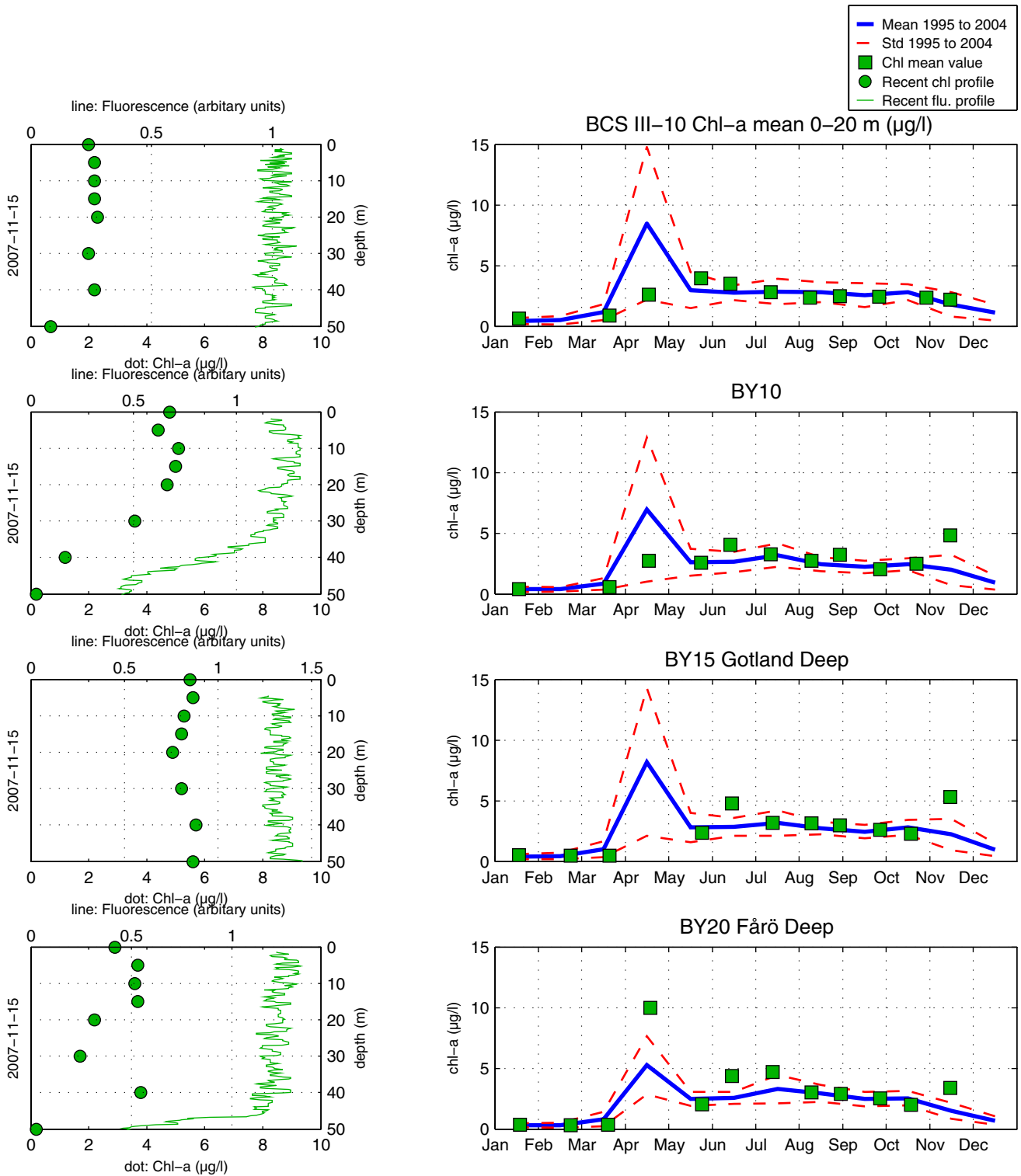
The Kattegat and the Sound



The Southern Baltic



The Eastern Baltic



The Western Baltic

