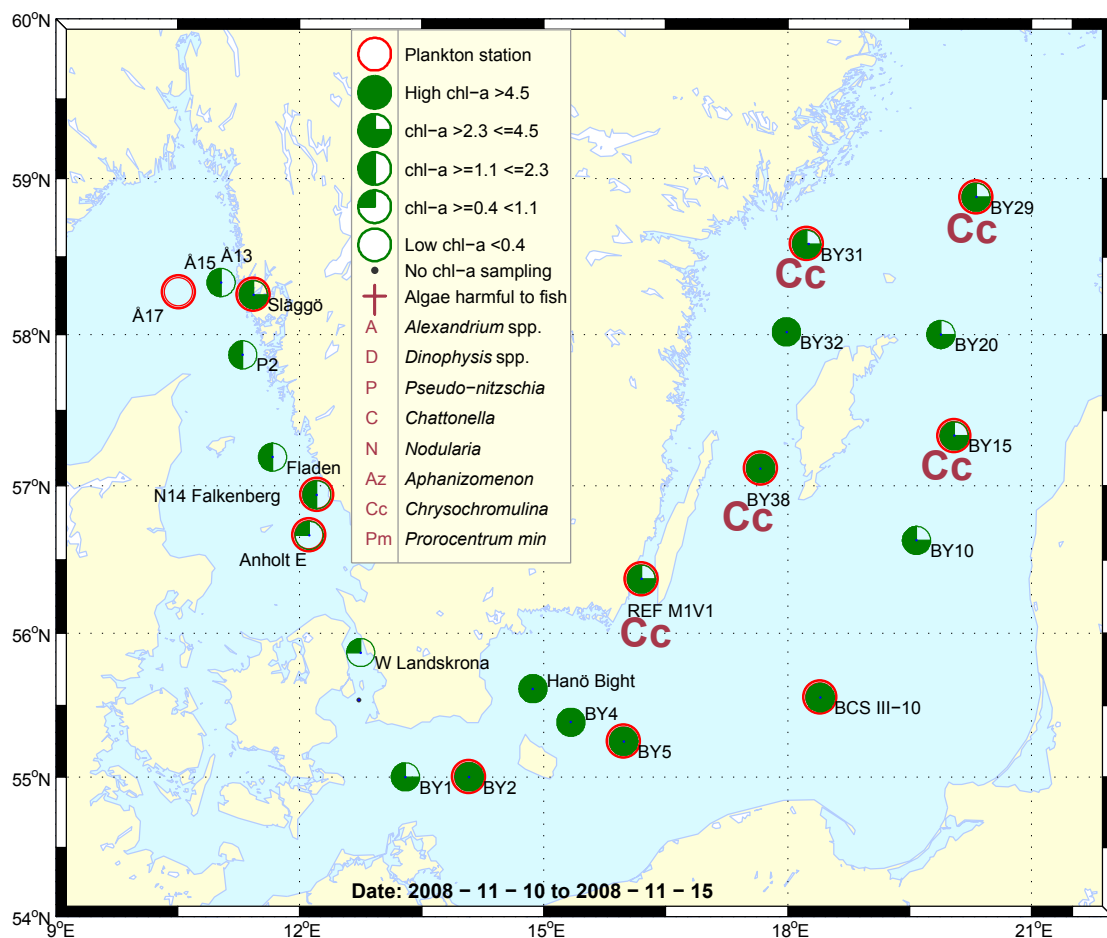


## Sammanfattning

Provtagning i yttre Skagerrak utgick på grund av dåligt väder. Vid kuststationen Släggö hade växtplanktondiversiteten sjunkit jämfört med månaden innan, men kiselalger dominerade fortfarande. De vanligaste kiselalgerna var *Pseudo-nitzschia* spp.\* och *Skeletonema costatum* complex. Situationen var liknande i Kattegatt, men de totala cellantalen var lägre vid station N14. Klorofyll *a* halten var något förhöjt, men inom medel vid Släggö, annars inom medel i Skagerrak och Kattegatt.

I Östersjön dominerade små arter växtplanktonfloran. I södra (BY2 och BY5) och sydöstra Östersjön (BCSIII-10) var cryptomonader, *Pyramimonas* spp. och dinoflagellaten *Heterocapsa rotundata* mest vanliga, och *Chrysochromulina polylepis*\* observerades inte. Vid övriga stationer fanns *Chrysochromulina polylepis*\* i varierande cellantal utöver de arter som nämndes ovan.



## Abstract

Sampling was not done in open Skagerrak due to the weather conditions. At the coast (Släggö), the phytoplankton diversity had gone down in comparison to the last expedition. Diatoms still dominated though, the most abundant being *Pseudo-nitzschia* spp.\* and *Skeletonema costatum* complex. The situation in the Kattegat was similar, but the total numbers of cells were lower at the station N14. At Släggö, the chlorophyll *a* concentration was enhanced, but within average which was the case in the rest of the Skagerrak and Kattegat areas.

Small species dominated the phytoplankton flora in the Baltic Sea. In the Southern (BY2 and BY5) and Southeastern Baltic (BCSIII-10) cryptomonads, *Pyramimonas* spp. and the dinoflagellate *Heterocapsa rotundata* were the most common, and the haptophyte *Chrysochromulina polylepis*\* was absent. At the rest of the stations *C. polylepis*\* was found in varying cell numbers in addition to the species mentioned above.

## 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 algbloomningar finns på [www.smhi.se](http://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](http://www.smhi.se).

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

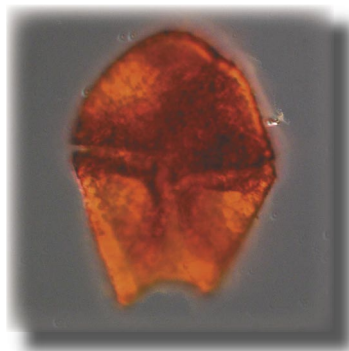
More detailed information on species composition and abundance

## The Skagerrak

### Å17 10<sup>th</sup> of November (open Skagerrak)

No sampling because of the weather conditions.

### Släggö 10<sup>th</sup> of November (Skagerrak coast)



*Akashiwo sanguinea*

Diatoms dominated and *Pseudo-nitzschia* spp. and *Skeletonema costatum* complex had the highest cell numbers. The diatoms *Chaetoceros concavicornis*\* and *Leptocylindrus danicus* were common. Dinoflagellates were scarce, and traces of *Akashiwo sanguinea*\*, *Dinophysis acuminata*\*, *D. norvegica*\* and *Karenia mikimotoi*\* were observed.

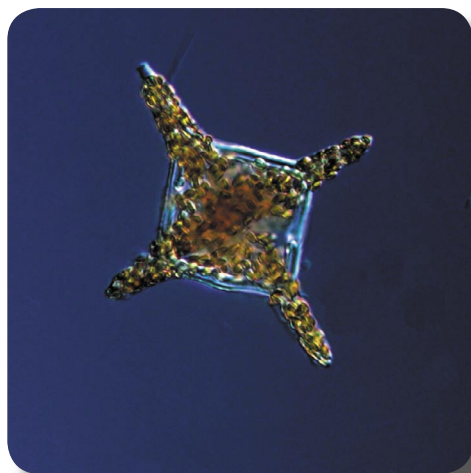
The integrated chlorophyll *a* concentration was enhanced but within average at Släggö.

## The Kattegat

### N14 Falkenberg and Anholt E 11<sup>th</sup> of November

The species composition was more or less the same at the two stations, but the number of cells were a lot higher at Anholt E. Diatoms dominated the samples and *Pseudo-nitzschia* spp.\* and *Leptocylindrus danicus* were the most abundant. The flagellates *Dictyocha fibula* and *D. speculum*\* were common.

The integrated chlorophyll *a* concentrations were within average for this month in the Kattegat area.



*Dictyocha fibula*

Selection of observed species	Släggö	N14	Anholt E
Red=potentially toxic species	2008-11-10	2008-11-11	2008-11-11
	cells/l	cells/l	cells/l
<i>Attheya</i> spp.			present
<i>Cerataulina pelagica</i>		present	
<i>Chaetoceros concavicornis</i>	present	present	present
<i>Chaetoceros danicus</i>	present		
<i>Chaetoceros lacinosus</i>	present		
<i>Chaetoceros similis</i>	present	present	
<i>Chaetoceros socialis</i>			present
<i>Chaetoceros subtilis</i>		present	
<i>Cylindrotheca closterium</i>	present	present	
<i>Ditylum brightwellii</i>	present	present	present
<i>Guinardia delicatula</i>	present		present
<i>Guinardia flaccida</i>			present
<i>Lennoxia faveolata</i>	present		present
<i>Leptocylindrus danicus</i>	common	present	50 000
<i>Leptocylindrus minimus</i>	present	present	
<i>Porosira glacialis</i>		present	
<i>Proboscia alata</i>	present	present	present
<i>Pseudo-nitzschia</i> spp.	160 000	45 000	110 000
<i>Rhizosolenia pungens</i>		present	
<i>Rhizosolenia setigera</i>	present	present	present
<i>Skeletonema costatum</i> complex	127 000	common	common
<i>Thalassionema nitzschioides</i>	present	present	present
<i>Thalassiosira nordenskiöldii</i>	present	present	
<i>Thalassiosira rotula</i>	present	present	present
<i>Akashiwo sanguinea</i>	present	present	
<i>Ceratium lineatum</i>			present
<i>Ceratium longipes</i>	present		present
<i>Ceratium tripos</i>	present	present	present
<i>Dinophysis acuminata</i>	present		present
<i>Dinophysis norvegica</i>	present		present
<i>Gymnodinium verruculosum</i>	present	present	
<i>Gyrodinium flagellare</i>			present
<i>Heterocapsa rotundata</i>	present		present
<i>Karenia mikimotoi</i>	present		
<i>Prorocentrum micans</i>		present	
Cryptomonadales spp.	129 000	64 000	52 000
<i>Pyramimonas</i> spp.	present	present	present
<i>Chrysochromulina</i> spp.	present		present
<i>Heterosigma</i> spp.	present		
<i>Dictyocha fibula</i>	present	present	present
<i>Dictyocha speculum</i>	present	present	present
<i>Pseudopedinella</i> spp.		present	
<i>Leucocryptos marina</i>	present	present	present
<i>Laboea strobila</i>		present	

## The Baltic Sea

### Southern and Southeast Baltic 11<sup>th</sup> and 12<sup>th</sup> of November

Small cryptomonads, the prasinophyte *Pyramimonas* spp. and the dinoflagellate *Heterocapsa rotundata* were the most numerous at all three stations.

### Eastern Gotland Basin BY15 13<sup>th</sup> of November

The prymnesiophyte *Chrysochromulina polylepis*\* was the most numerous species. Small cryptomonads were abundant, and the prasinophyte *Pyramimonas* spp. the dinoflagellate *Heterocapsa rotundata* and the ciliate *Mesodinium rubrum* were common.

### Northern Baltic proper BY29 13<sup>th</sup> of November

The prymnesiophyte *Chrysochromulina polylepis*\* was common, about half the amount of cryptomonads, which were the most numerous. The prasinophyte *Pyramimonas* spp. the dinoflagellate *Heterocapsa rotundata* and the ciliate *Mesodinium rubrum* were common.

### Northern Baltic proper BY31 and Western Gotland Basin BY 38 14<sup>th</sup> of November

The prymnesiophyte *Chrysochromulina polylepis*\* was blooming, just like it was at the time of the last expedition. Smaller cells of the genus *Chrysochromulina* were common, and so were Cryptomonads, the prasinophyte *Pyramimonas* spp. and the cyanobacterium *Aphanizomenon* spp..

### Kalmar Sound Ref. M1-V1 15<sup>th</sup> of November

Small cryptomonads were the most numerous, and the prymnesiophyte *Chrysochromulina polylepis* was very common.

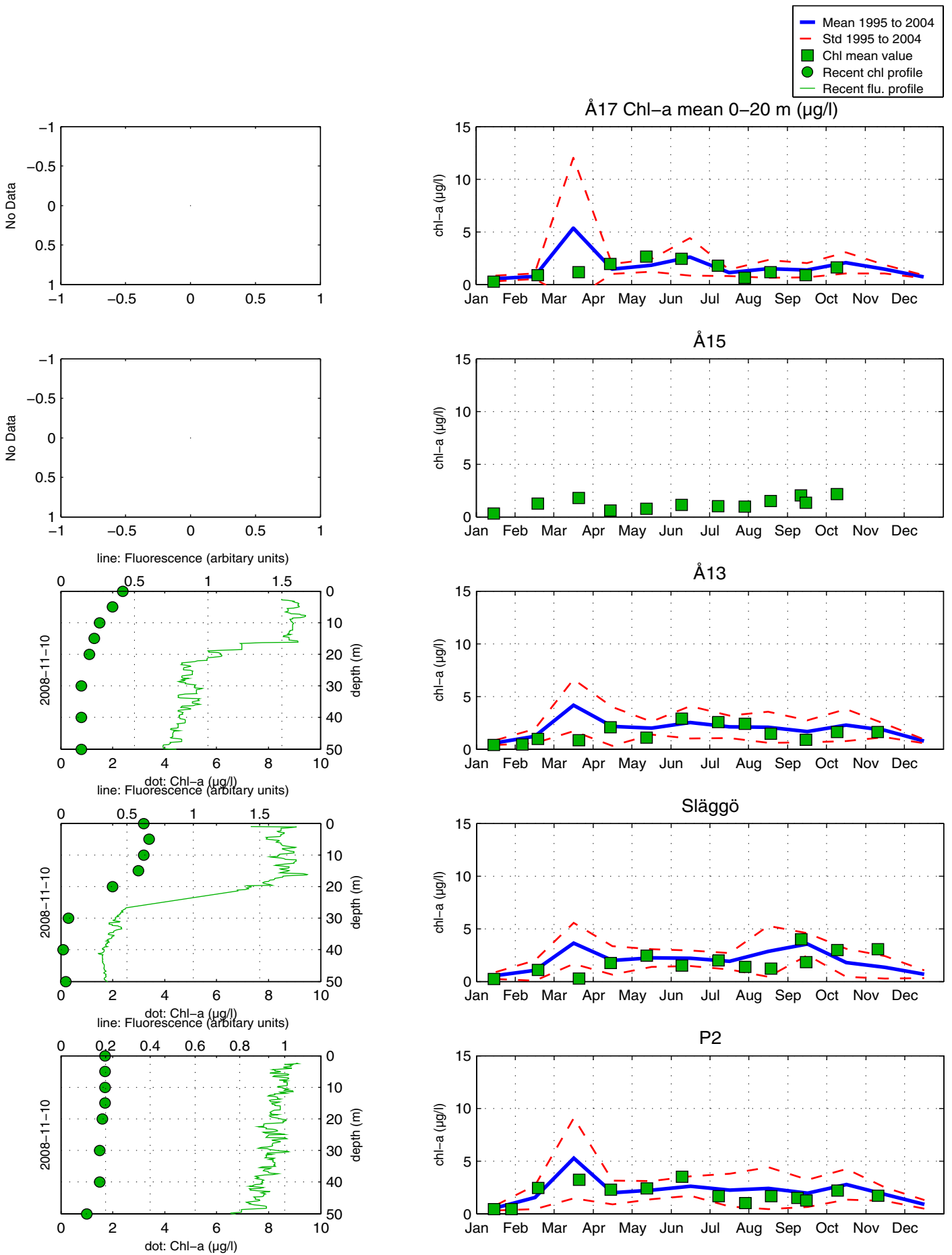
The integrated chlorophyll *a* concentrations were above or high above average at most of the Baltic stations, only at BY10 and BY15 the values were within average.



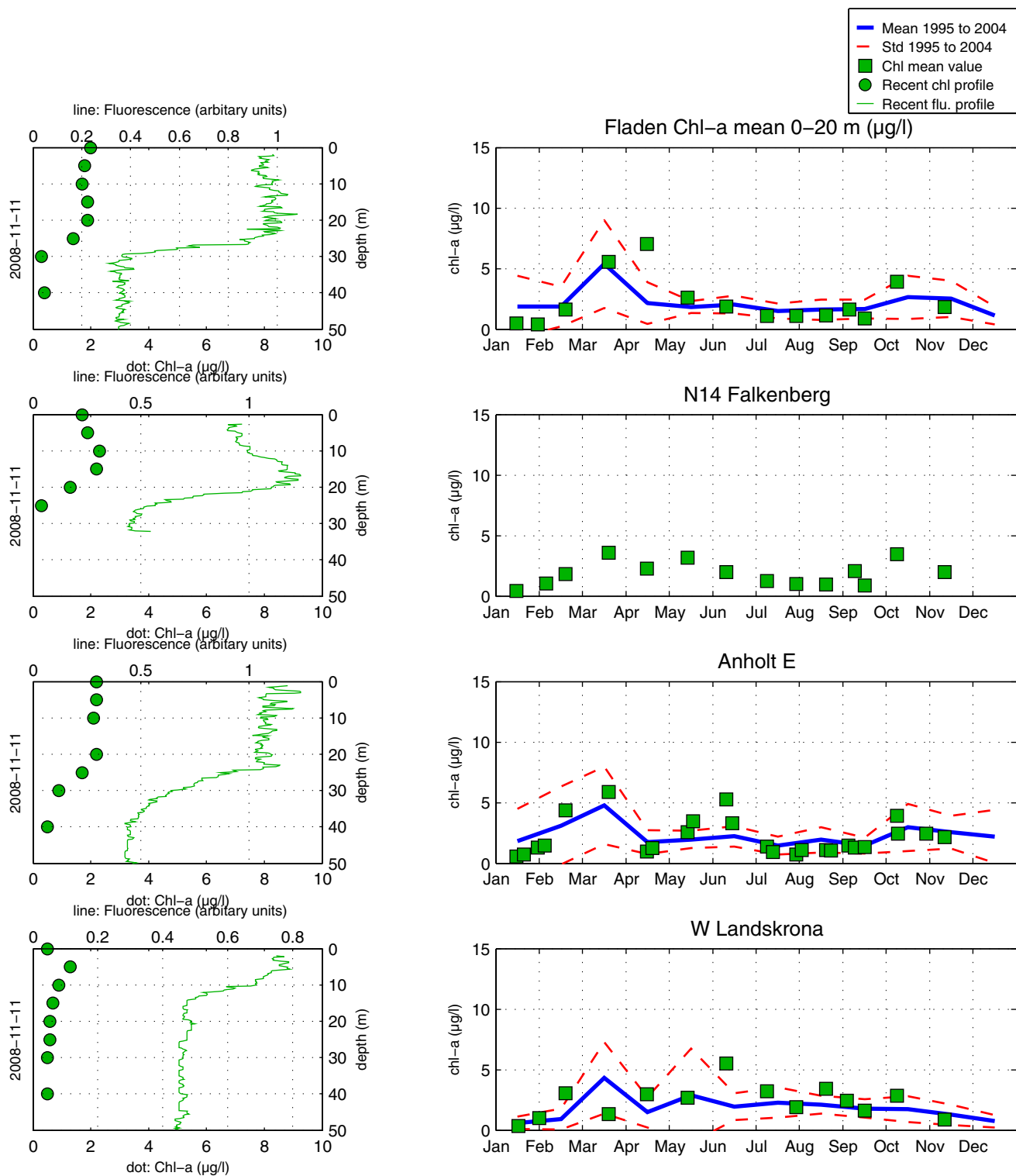
*Chrysochromulina polylepis*

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY29	BY31	BY38	Ref. M1-V1
Red-potentially toxic species	2008-11-11	2008-11-12	2008-11-12	2008-11-13	2008-11-13	2008-11-14	2008-11-14	2008-11-15
' quantified in m/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Chaetoceros danicus</i>	present	present	present	present	present	present	present	present
<i>Chaetoceros impressus</i>	present	present					present	
<i>Coscinodiscus granii</i>	present		present					
<i>Cyclotella choctawhatcheana</i>				present		present	present	
<i>Cladopyxis claytonii</i>		present						present
<i>Dinophysis acuminata</i>					present			present
<i>Dinophysis norvegica</i>				present	present	present		
<i>Dinophysis rotundata</i>						present		
<i>Gymnodinium verruculosum</i>		present						
<i>Heterocapsa rotundata</i>	common	present	present	present	common	common	common	common
<i>Karlodinium micrum</i>	present							
<i>Katodinium glaucum</i>	present			present	present	present	present	
<i>Prorocentrum minimum</i>								present
<i>Chrysochromulina polylepis</i>				264 000	36 000	623 000	817 000	49 000
<i>Chrysochromulina</i> spp.				present	present	common	common	present
Cryptomonadales spp.	167 000	104 000	83 000	119 000	77 000	123 000	124 000	82 000
<i>Eutrepitella</i> spp.	present							
<i>Pyramimonas</i> spp.	common	common	present	common	common	common	common	common
<i>Aphanizomenon</i> spp.				present		present	present	present
<i>Leucocryptos marina</i>				present		present		
<i>Mesodinium rubrum</i>	present	present	present	common	common	common	common	present
<i>Strombidium</i> spp.	present	present						

# The Skagerrak

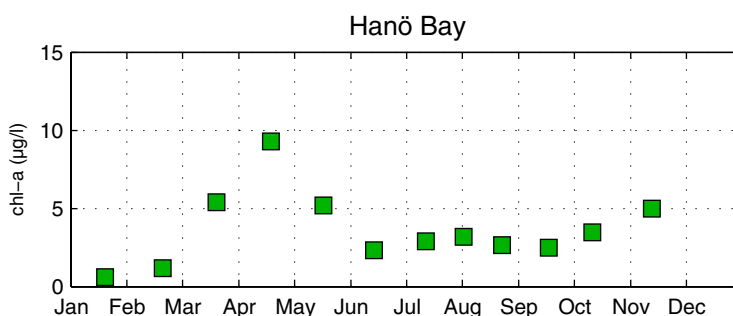
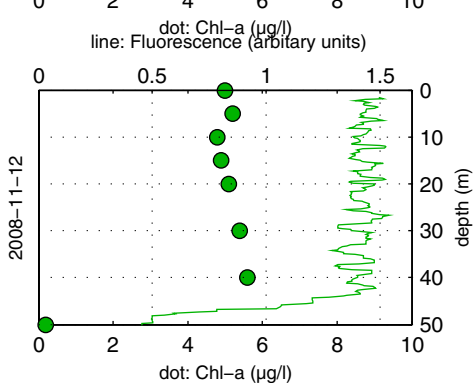
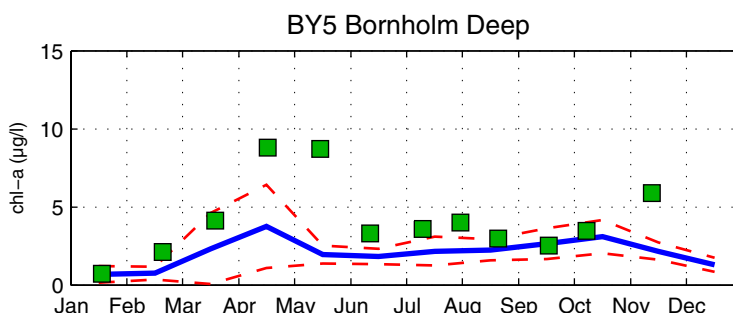
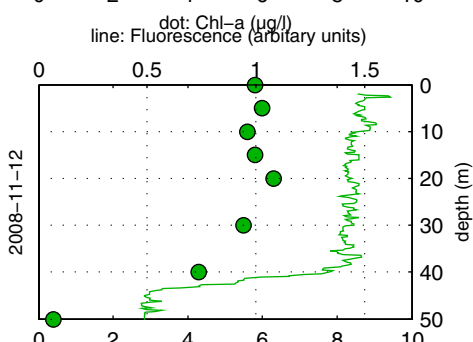
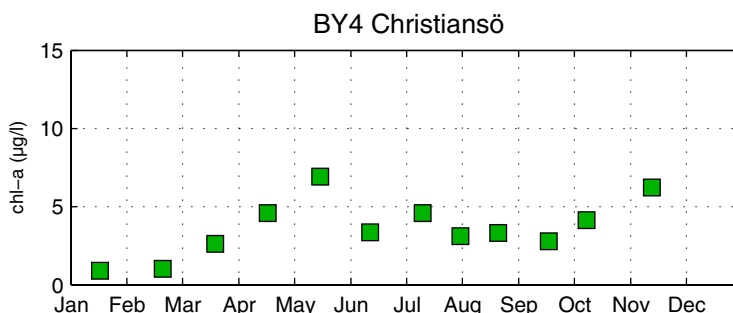
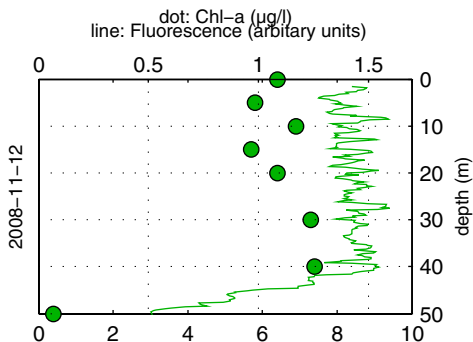
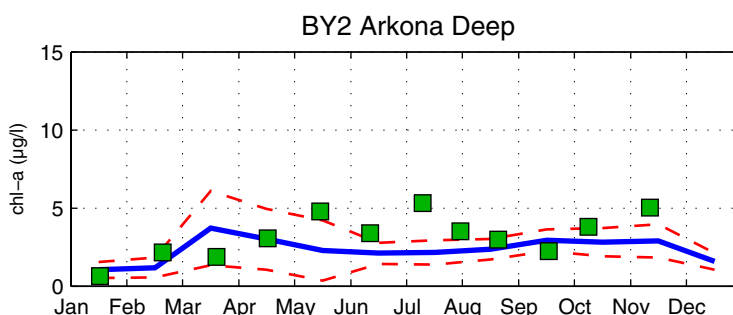
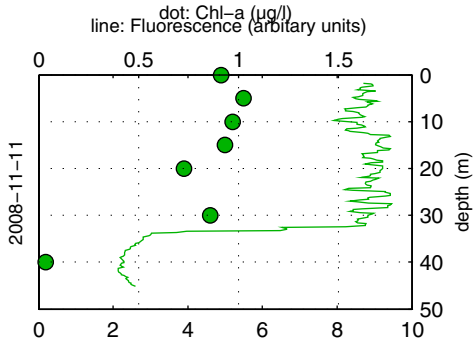
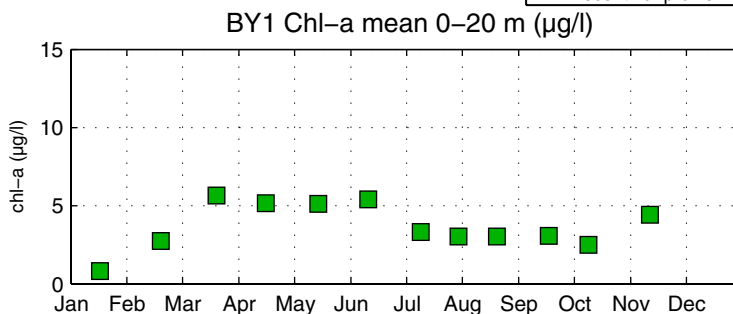
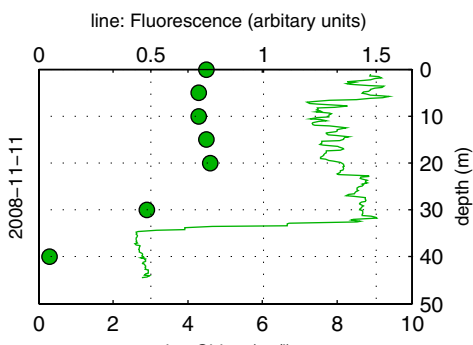
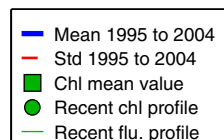


# The Kattegat and the Sound

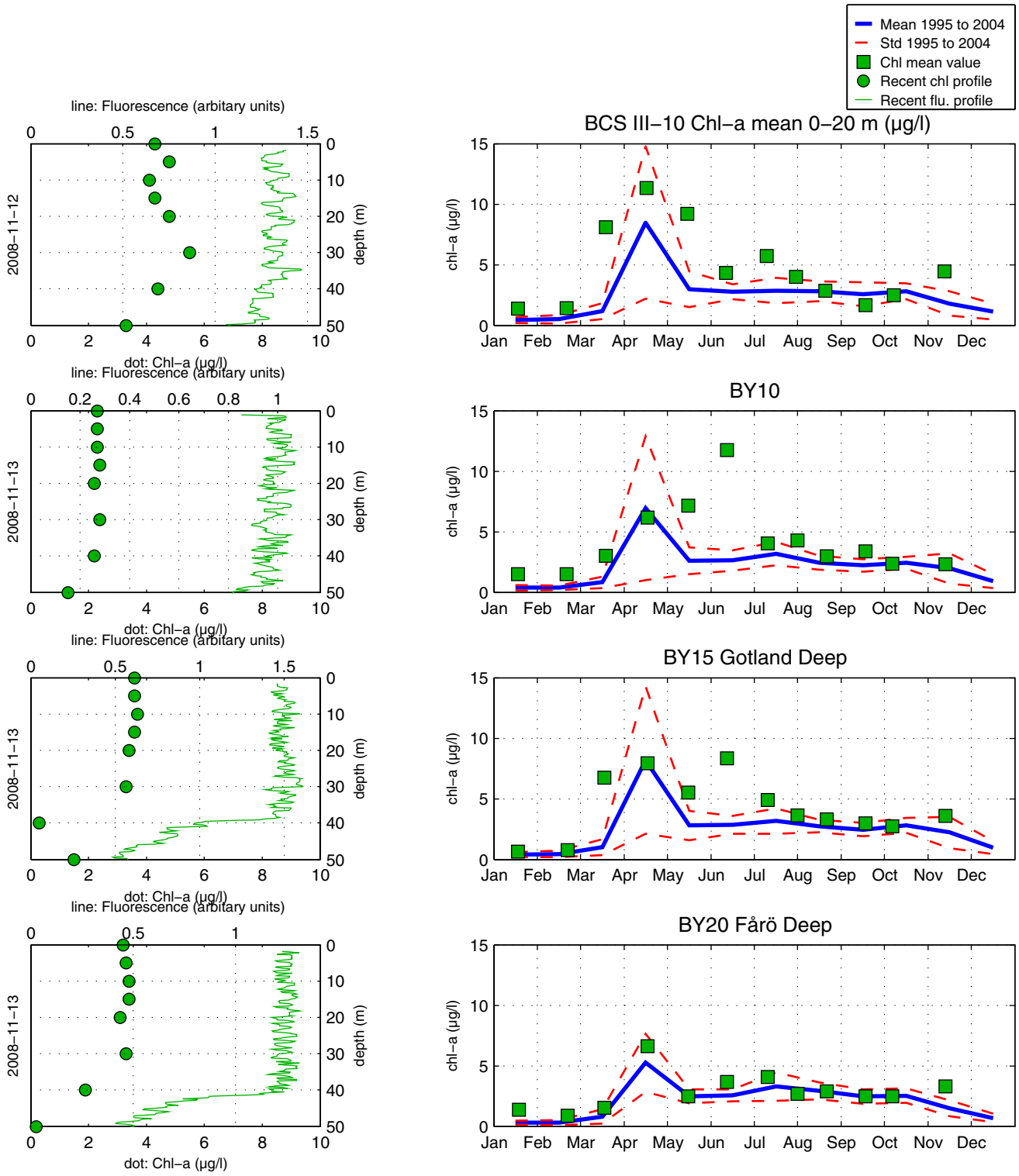




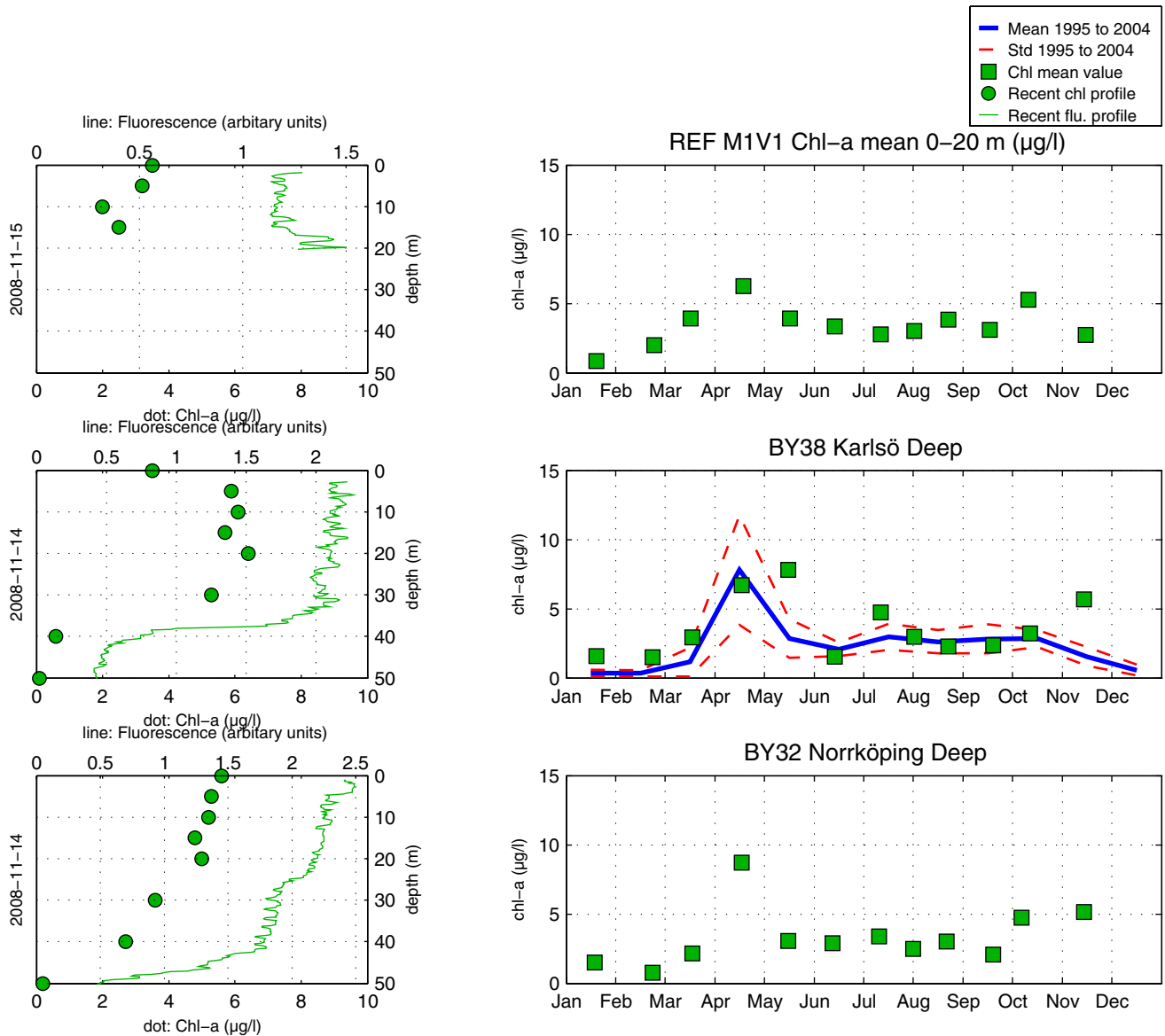
# The Southern Baltic



# 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.

