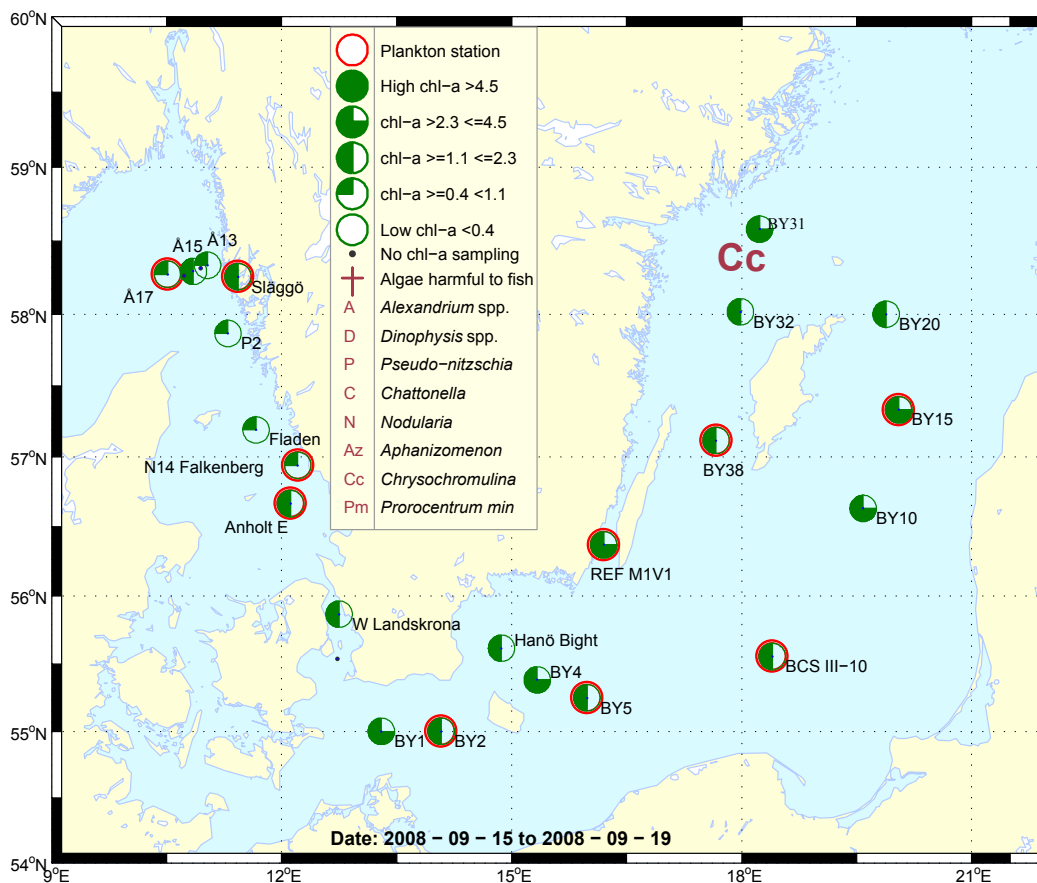


Sammanfattning

Växtplanktonproverna var artrika både i yttre och inre Skagerrak och i Kattegatt, med dominans av kiselalger, och då framför allt släktet *Pseudo-nitzschia* spp.*. Kiselalgen *Chaetoceros concavicornis**, som var en ny observerad art vid svenska västkusten hösten 2007, var nu tillbaka i måttliga mängder vid alla fyra planktonstationer längs västkusten. Arten har kraftiga spröt med hullingar som skadar fisks gälar.

Stor aktivitet hos växtplankton observerades genom tydliga toppar i fluorescens-diagrammen (sidorna 7 och 8). De integrerade (0-20 m) klorofyll *a*-värdena låg inom det normala för denna månad i Skagerrak och Kattegatt.

I Östersjön var cyanobakterier vanliga vid alla stationer förutom vid BY2. Dinoflagellaten *Prorocentrum minimum** var väldigt vanlig i Kalmar sund, och vid BY31 var den stora varianten av *Chrysochromulina polylepis** tillbaka i höga cellantal. *C. polylepis** återfanns i stora cellantal vid samtliga stationer höst och vinter 2007-2008.



Abstract

The phytoplankton diversity was high in the Skagerrak and Kattegat areas. Diatoms dominated the samples, with the genera *Pseudo-nitzschia* spp.* being the most abundant. The diatom *Chaetoceros concavicornis** was found at all four plankton stations along the west coast. This species was observed at the Swedish west coast last autumn, and has not been reported earlier. *C. concavicornis** has been known to cause damage to fish gills.

The activity in the phytoplankton community was observed through the fluorescence peaks (pages 7-8). The integrated (0-10 m) chlorophyll *a* concentrations were at average for this month in the Skagerrak and Kattegat.

Cyanobacteria were common at all stations in the Baltic Sea except at BY2. The dinoflagellate *Prorocentrum minimum** was abundant in the sound of Kalmar, and the large variant of the prymnesiophyte *Chrysochromulina polylepis** was abundant at BY31. *C. polylepis** was found at all stations in high numbers in the autumn and winter of 2007-2008.

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>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.

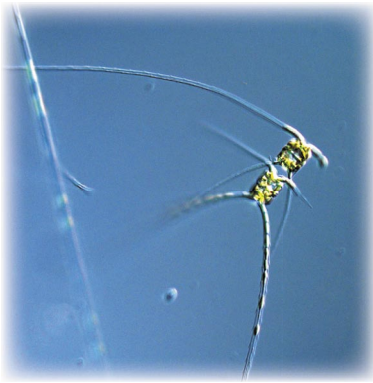
Översikt av potentiellt skadliga alger och det aktuella giftets effekt. Overview of potentially harmful algae and effects of toxins. Manual on harmful marine microalgae (2003 - UNESCO Publishing).

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



Chaetoceros concavicornis

Å17 15th of September (open Skagerrak)

The phytoplankton diversity was high. Diatoms dominated the sample, the genus *Pseudo-nitzschia** being the most abundant. Several other diatoms were common, among them, *Chaetoceros concavicornis**, known to be harmful to fish by causing gill damage. The dinoflagellate *Ceratium fusus* and the dictyochophyte *Dictyocha fibula* were common.

Släggö 15th of September (Skagerrak coast)

The phytoplankton situation was similar to the one at Å17. The diatom *Skeletonema costatum* and the dinoflagellate *Prorocentrum redfeldii* were abundant.

The chlorophyll *a* concentrations were at average Skagerrak area.

The Kattegat

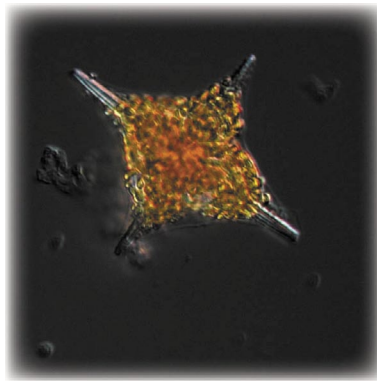
N14 Falkenberg 16th of September

Diatoms dominated the sample and *Pseudo-nitzschia* spp.* was the most abundant. Several species of the dinoflagellate genus *Ceratium* were found with high cell numbers. The phytoplankton diversity was very high.

Anholt E 16th of September

The phytoplankton situation was more or less the same as at N14.

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



Dictyocha fibula

Selection of observed species	Å17 2008-09-15 cells/l	Släggö 2008-09-15 cells/l	N14 2008-09-16 cells/l	Anholt E 2008-09-16 cells/l
<i>Asterionellopsis glacialis</i>	present	present		
<i>Attheya</i> spp.	present			
<i>Aulacoseira</i> spp.		present		
<i>Cerataulina pelagica</i>	present	present	present	common
<i>Chaetoceros concavicornis</i>	common	present	present	common
<i>Chaetoceros contortus</i>		present		present
<i>Chaetoceros curvisetus</i>	common	common	present	present
<i>Chaetoceros danicus</i>	present		present	present
<i>Chaetoceros debilis</i>		present		
<i>Chaetoceros decipiens</i>	present	present		present
<i>Chaetoceros didymus</i>	present	present		present
<i>Chaetoceros lacinosus</i>	present	common	present	present
<i>Chaetoceros similis</i>		present		present
<i>Cylindrotheca closterium</i>	common	common	common	present
<i>Dactyliosolen fragilissimus</i>	present	present	present	common
<i>Ditylum brightwellii</i>	common	present	common	common
<i>Guinardia delicatula</i>	present	present	present	common
<i>Guinardia flaccida</i>	present	present	common	common
<i>Leptocylindrus danicus</i>	common	present	common	common
<i>Leptocylindrus minimus</i>	present	present	present	present
<i>Navicula</i> spp.	present			
<i>Odontella regia</i>	present			
<i>Proboscia alata</i>	present	present	present	present
<i>Pseudo-nitzschia</i> spp.	dominating	common	very common	dominating
<i>Rhizosolenia imbricata</i>	present			
<i>Rhizosolenia pungens</i>		present	present	present
<i>Rhizosolenia setigera</i>	present	present	present	present
<i>Skeletonema costatum</i> complex	present	very common	common	present
<i>Thalassionema nitzschioides</i>	common	present	common	common
<i>Thalassiosira nordenskiöldii</i>			present	
<i>Thalassiosira rotula</i>	present	present	present	present
<i>Akashiwo sanguinea</i>	present			
<i>Alexandrium</i> cf. <i>pseudogonyaulax</i>			present	
<i>Ceratium furca</i>	present	common	very common	common
<i>Ceratium fuscum</i>	common	common	common	common
<i>Ceratium lineatum</i>	present	present	common	common
<i>Ceratium longipes</i>	present			
<i>Ceratium macroceros</i>			present	present
<i>Ceratium tripos</i>	present	present	common	common
<i>Dinophysis acuminata</i>	present	present	present	present
<i>Dinophysis norvegica</i>	present		present	present
<i>Dinophysis rotundata</i>	present		present	present
<i>Heterocapsa</i> cf. <i>minima</i>			present	present
<i>Heterocapsa triquetra</i>	present		present	present
<i>Karenia mikimotoi</i>				present
<i>Katodinium glaucum</i>				present
<i>Lessardia elongata</i>		present		present
<i>Lingulodinium polyedrum</i>		present		
<i>Noctiluca scintillans</i>	present	present	present	present
<i>Oxytoxum gracile</i>				present
<i>Peridiniella danica</i>		present		
<i>Polykrikos schwartzii</i>			present	present
<i>Pronoctiluca pelagica</i>		present		
<i>Prorocentrum micans</i>	present	common	present	present
<i>Prorocentrum minimum</i>				present
<i>Prorocentrum redfeldii</i>	present	very common		present
<i>Protoceratium reticulatum</i>			present	
<i>Protoperidinium bipes</i>			present	present
<i>Protoperidinium brevipes</i>	present			
<i>Protoperidinium oblongum</i>	present	present	present	common
<i>Scrippsiella</i> -complex	present	present	common	present
Cryptomonadales spp.	present	present	present	present
<i>Chrysochromulina</i> spp.				present
<i>Dictyocha fibula</i>	common	present	present	present
<i>Dictyocha speculum</i>	present		present	present
<i>Dinobryon balticum</i>				present
<i>Leucocryptos marina</i>	present			
<i>Laboea strobila</i>		present	present	present
<i>Strombidium</i> spp.	present		present	

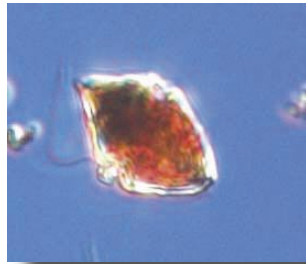
The Baltic Sea

Arkona Basin BY2 17th of September

Small cryptomonads and the prasinophyte *Pyramimonas* spp. were the most numerous. The diatom *Chaetoceros impressus* and the dinoflagellates *Dinophysis norvegica**, *Heterocapsa rotundata* and *Prorocentrum minimum** were present.

Bornholm Basin BY5, 17th of September

The diatom *Chaetoceros impressus* was abundant, as well as the dinoflagellates *Heterocapsa triquetra* and *Prorocentrum minimum** and the cyanobacterium *Aphanizomenon* spp. Cryptomonads and the prasinophyte *Pyramimonas* spp. were common.



Heterocapsa triquetra

South East Baltic BCS III-10 18th of September

The same dinoflagellates were present as at BY2 and cryptomonads were abundant.

Eastern Gotland Basin BY15 18th and Western Gotland Basin BY 38 19th of September

Cryptomonads, the prasinophyte *Pyramimonas* spp. and the cyanobacterium *Aphanizomenon* spp. were common. The diatom *Chaetoceros impressus* was abundant.

Northern Baltic proper BY31 19th of September

A large variant of the prymnesiophyte *Chrysochromulina polylepis** was very abundant throughout the Baltic Sea during the autumn and spring of 2007-2008. The species seems to be back, so far only at BY31, but it was numerous. Cryptomonads, the prasinophyte *Pyramimonas* spp. and the cyanobacterium *Aphanizomenon* spp. were common.

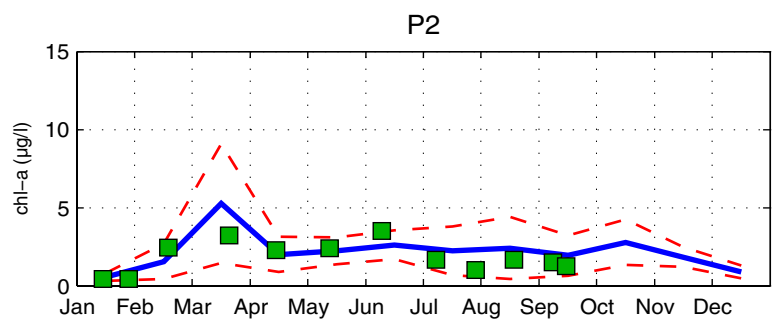
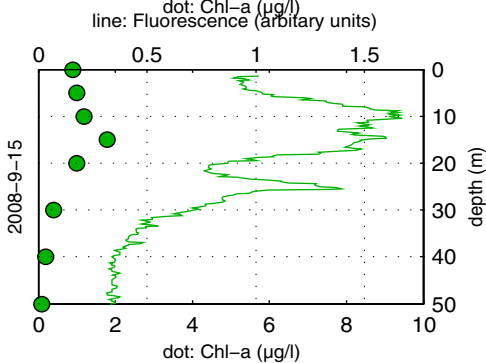
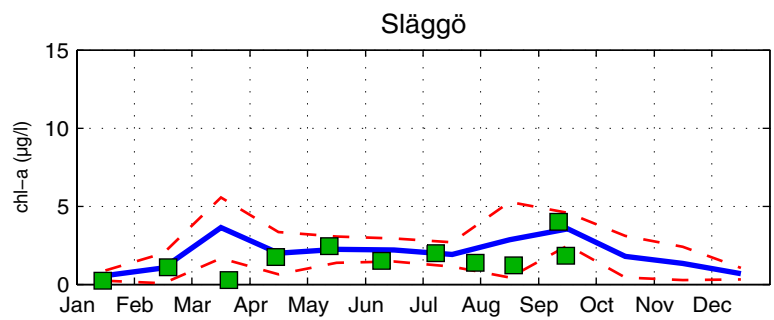
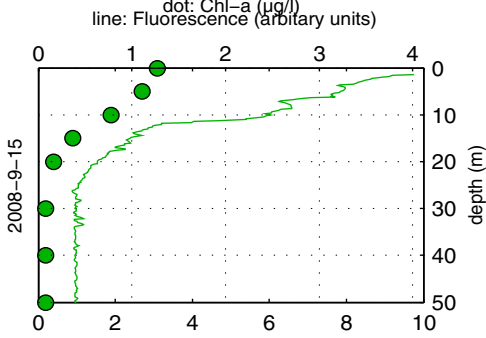
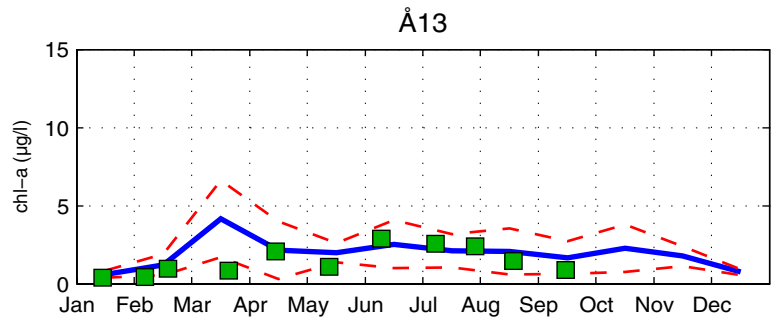
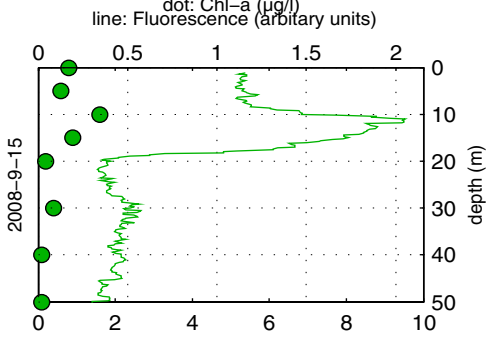
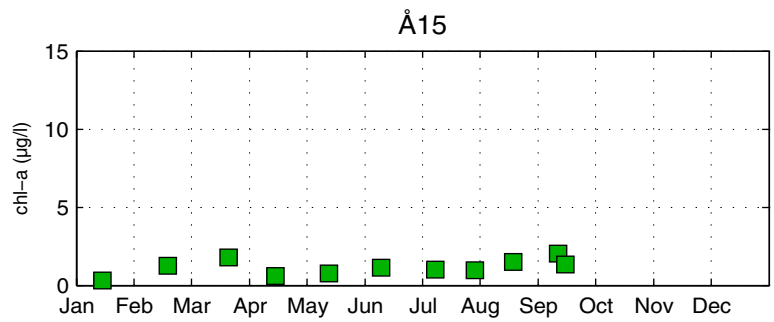
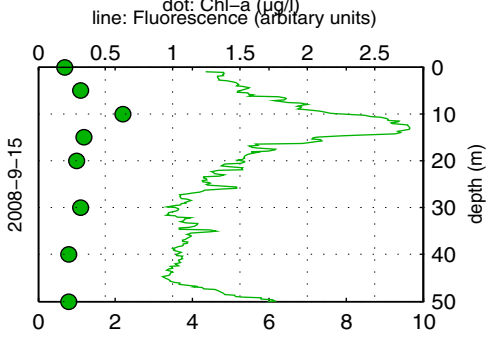
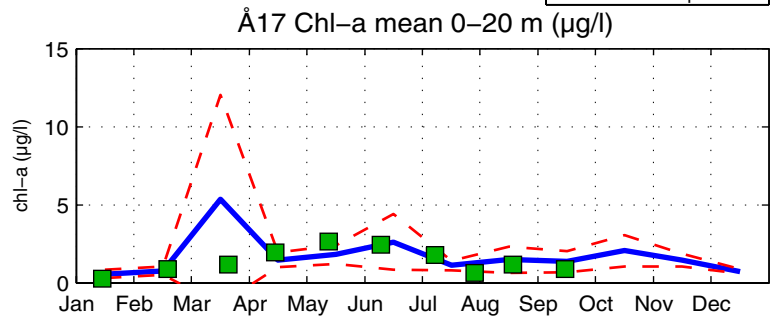
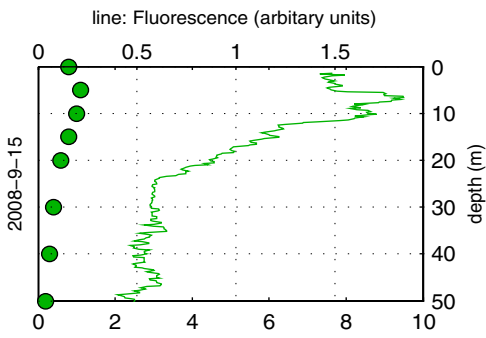
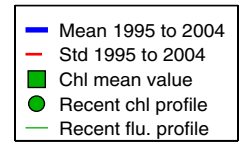
Kalmar Sound Ref. M1-V1 17th of August

The cyanobacteria *Aphanizomenon* spp. and *Nodularia spumigena** were common. The dinoflagellate *Prorocentrum minimum** was abundant.

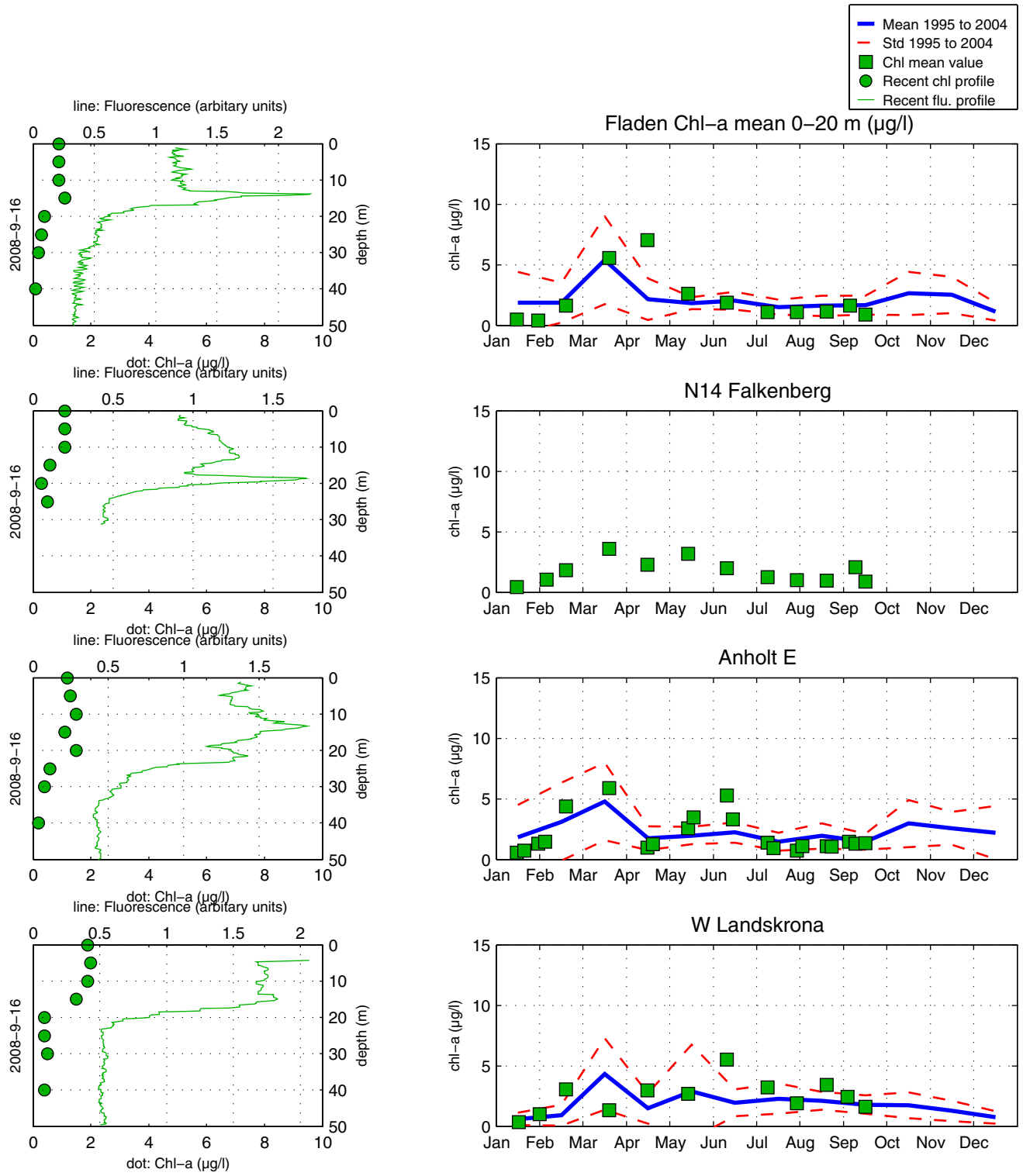
The chlorophyll *a* concentrations were at average for this month at all of the Baltic stations.

Selection of observed species	BY2 2008-09-17	BY5 2008-09-17	BCS III-10 2008-09-18	BY15 2008-09-18	BY38 2008-09-19	BY31 2008-09-19	Ref. M1-V1 2008-09-17
Red=potentially toxic species ‡ quantified in m/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Attheya</i> spp.					present		
<i>Chaetoceros danicus</i>		present		present	present		present
<i>Chaetoceros impressus</i>	present	common	present	common	common	present	present
<i>Cyclotella choctawhatcheana</i>				present			
<i>Skeletonema costatum</i> complex						present	present
<i>Thalassiosira</i> spp.		present					
<i>Ceratium longipes</i>	present	present					
<i>Ceratium tripos</i>	present						
<i>Cladopyxis claytonii</i>		present	present		present		
<i>Dinophysis acuminata</i>			present	present	present	present	present
<i>Dinophysis norvegica</i>	present					present	
<i>Dinophysis rotundata</i>					present	present	present
<i>Gymnodinium verruculosum</i>		present	present				
<i>Heterocapsa rotundata</i>	present	present	present	common			present
<i>Heterocapsa</i> spp.	present	present	present				
<i>Heterocapsa triquetra</i>		common	present		present		present
<i>Karlodinium micrum</i>	present			present			
<i>Prorocentrum minimum</i>	present	common	present	present	present		very common
<i>Chrysochromulina polylepis</i>						very common	
<i>Chrysochromulina</i> spp.	present	common			present		
Cryptomonadales spp.	common	common	common	common	common	common	common
<i>Pyramimonas</i> spp.	common	common	present	common	present	common	present
<i>Anabaena</i> spp.							present
<i>Aphanizomenon</i> spp.		common		common	common	common	common
<i>Nodularia spumigena</i>			present			present	common
<i>Ebria tripartita</i>		present	present	present		present	present
<i>Mesodinium rubrum</i>			present	present	present	present	present
<i>Strombidium</i> spp.	present	present	present	present	present	present	present

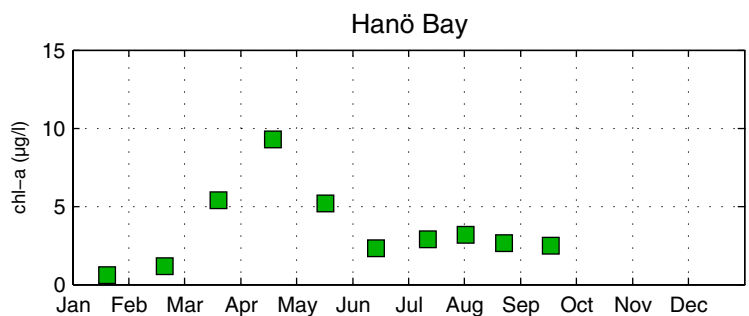
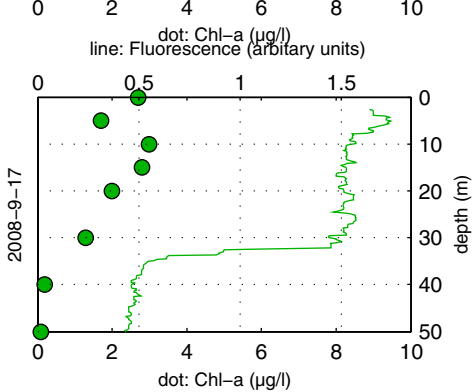
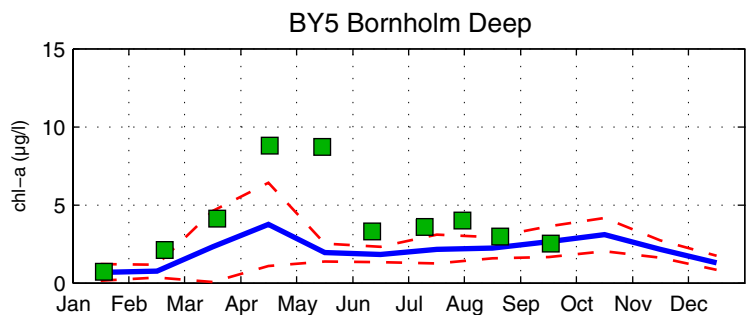
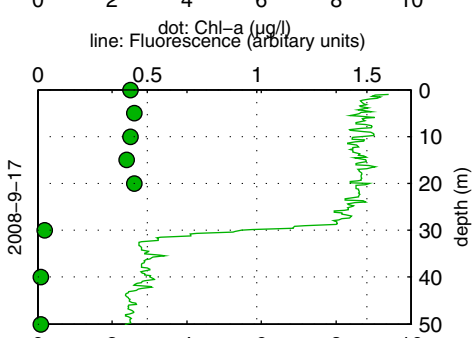
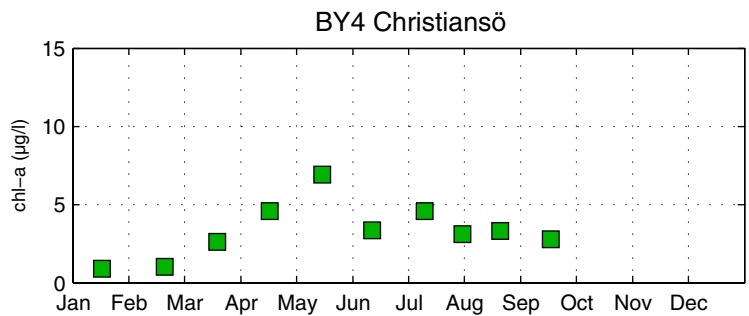
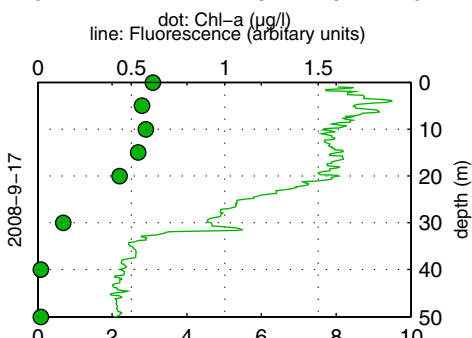
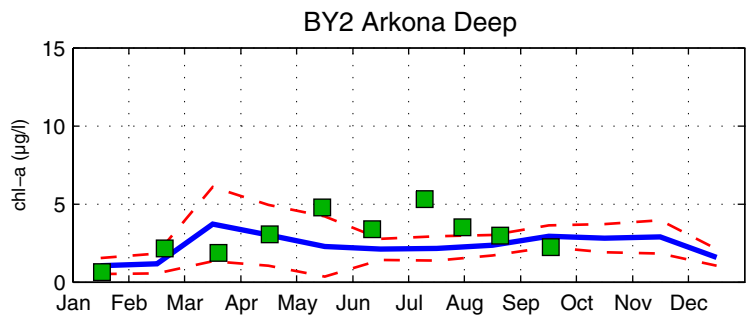
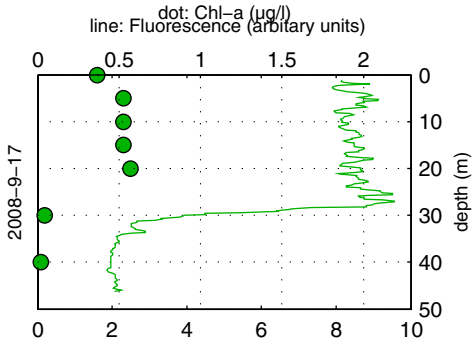
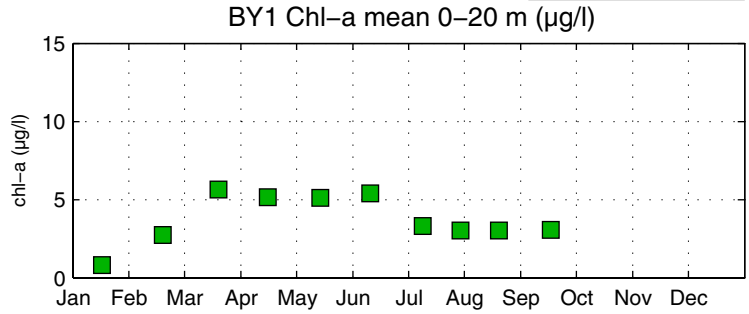
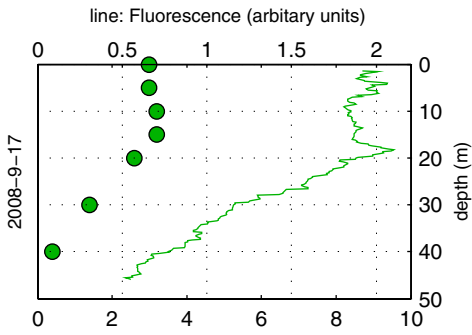
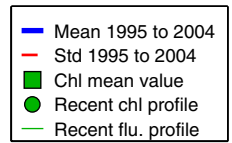
The Skagerrak



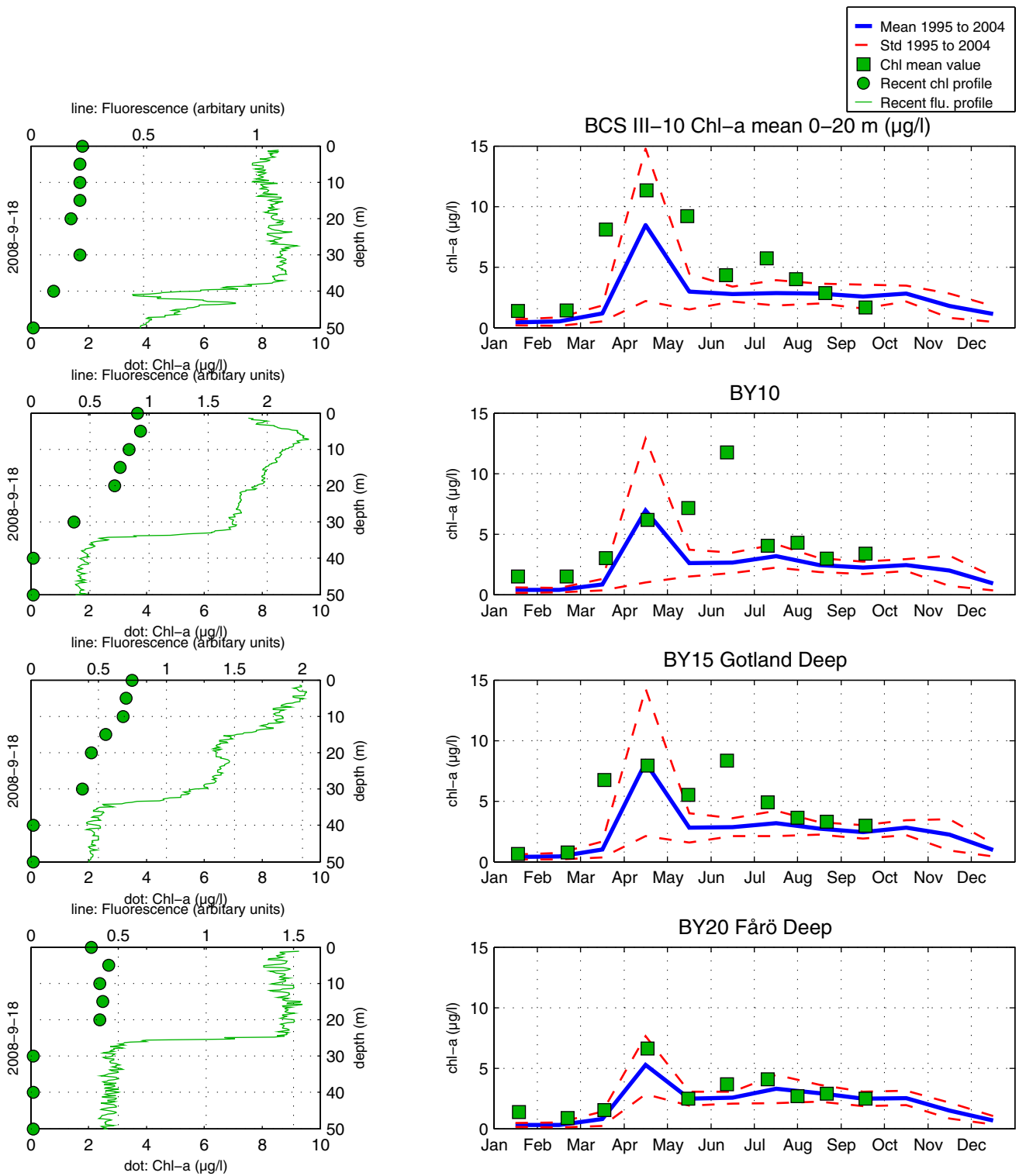
The Kattegat and the Sound



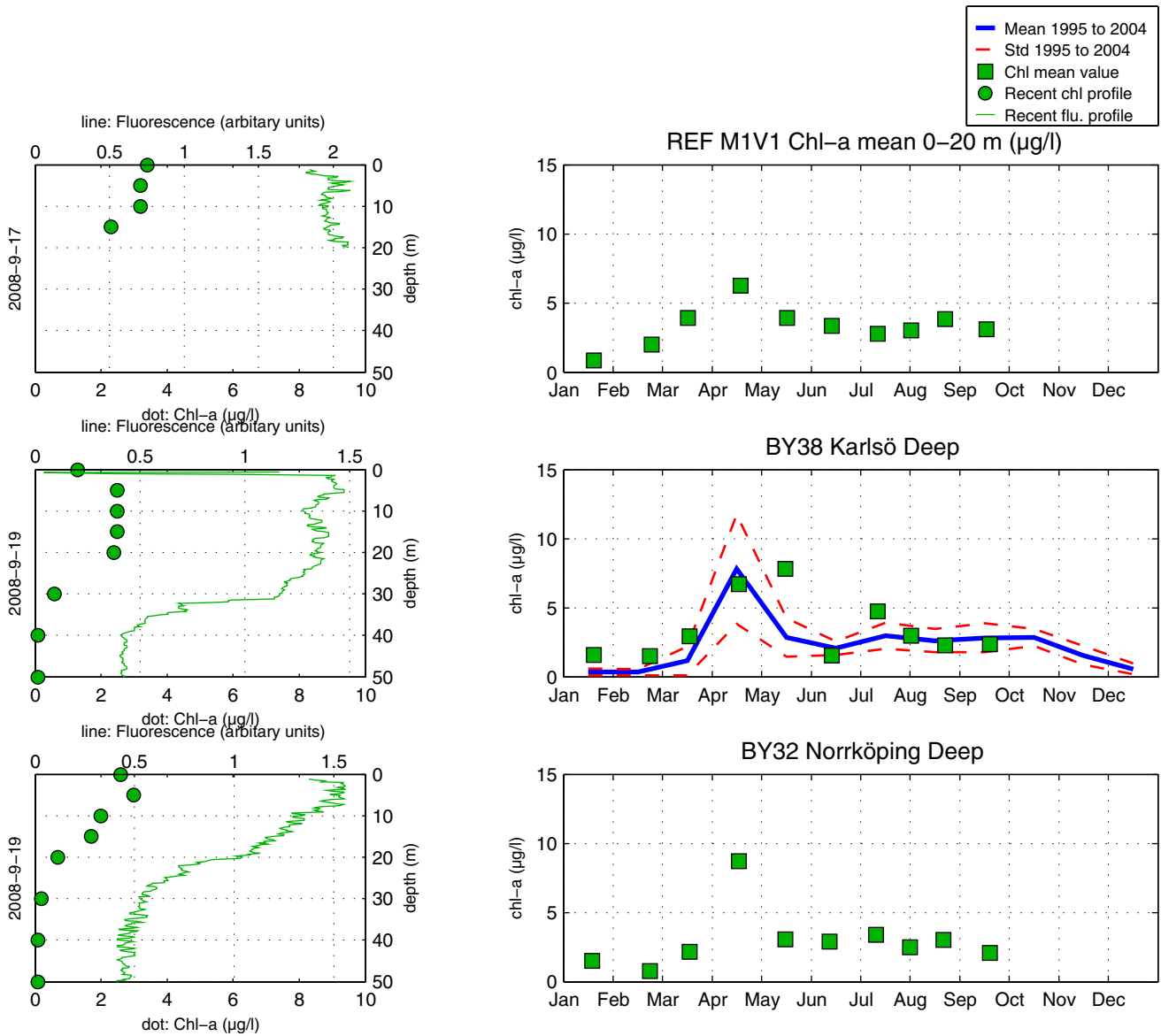
The Southern Baltic



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.

