

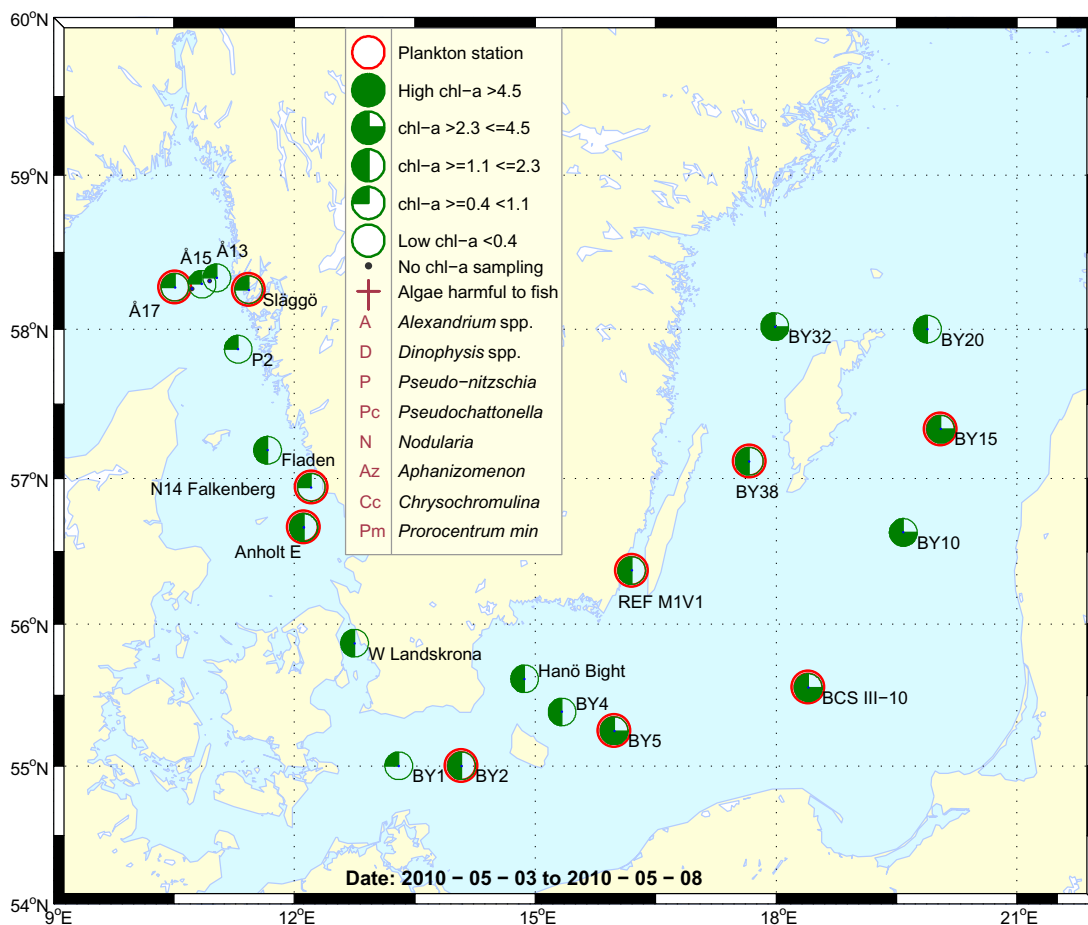
Sammanfattning

Vid provtagningsstillfället i början av maj uppmättes de integrerade klorofyll *a* värdena (0-20m) till, för säsongen, normalt låga värden på samtliga stationer i Västerhavet.

Planktonsamhället var relativt artrikt i Skagerrak, men med ofta låga cellantal. Endast ett fåtal kiselalgsarter återfanns och små flagellater dominerade. I Kattegatt observerades färre arter än i Skagerrak. Små flagellater var talrikast vid Anholt E medan provet från N14 dominerades av kiselalgen *Skeletonema costatum*.

Maj månads klorofyll *a* värden från Östersjön var normala för säsongen och påvisade att den vårbloomning som återfanns i april var på stark tillbakagång.

Få arter av kiselalger återfanns i låga tätheter över hela Östersjön. Dinoflagellaten *Peridiniella catenata* fanns fortfarande i anseliga mängder, men arter av guldalgsläktet *Dinobryon* dominerade.



Abstract

The integrated (0-20 meters) chlorophyll *a* concentrations were low at all of the Skagerrak sampling sites, which is normal for the season.

The species composition was quite diverse at the Skagerrak stations but with low abundance of each species. Only a few species of diatoms were found and the phytoplankton community was dominated by small flagellates. Fewer number of species were found in the Kattegat area compared to the Skagerrak. Small flagellates dominated at Anholt E and the diatom *Skeletonema costatum* dominated at N14.

The integrated (0-20 meters) chlorophyll *a* concentrations from the Baltic Sea were normal for the season and declared that the spring bloom had almost diminished.

Only a few species of diatoms in low abundance were found at all of the Baltic phytoplankton stations. The dinoflagellate *Peridiniella catenata* was quite common but the golden algae *Dinobryon* was the most abundant genus.

More detailed information on species composition and abundance

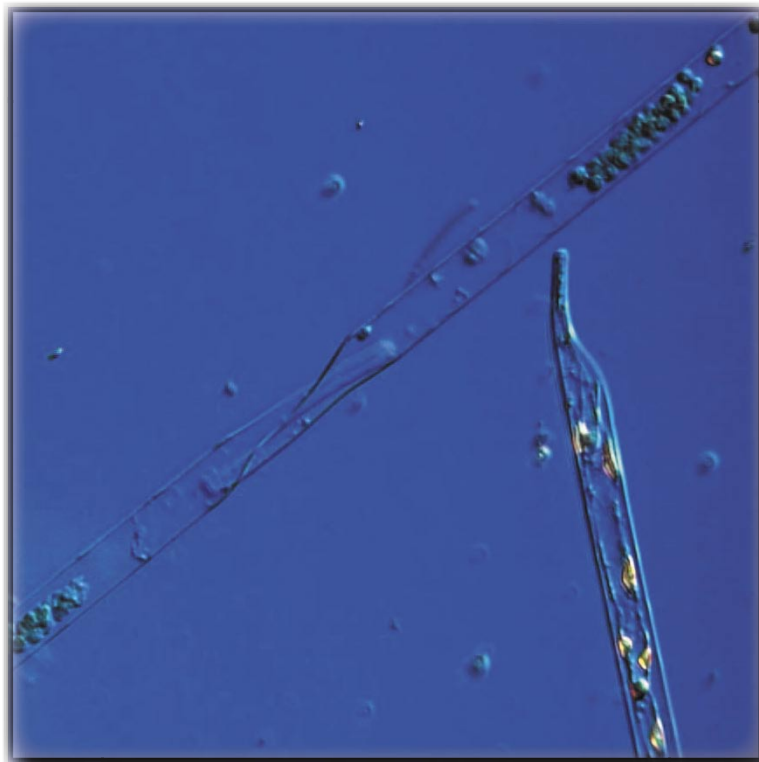
The Skagerrak

Å17 3rd of May (open Skagerrak)

The phytoplankton species diversity was relatively high but the abundance of each species was low. Small flagellates dominated the sample. Only a few diatoms were found and *Proboscia alata* was the most pronounced. Chlorophyll *a* concentrations were low but within normal for the season.

Släggö 12th of April (Skagerrak coast)

The phytoplankton species diversity was relatively high but most species were found in low cell numbers. The golden algae genus *Dinobryon* dominated the sample, but other small flagellates were also abundant. Chlorophyll *a* concentrations were low which is normal for the season.



The diatom *Proboscia alata*. Photo: A-T Skjevik.

The Kattegat

N14 Falkenberg 13th of April

The number of species was lower than what was found in the Skagerrak samples and the golden algae *Dinobryon balticum* was the most common species. Small flagellates, for example cryptomonads were abundant.

Anholt E 13th and 17th of April

The species composition was more or less the same as at station N14, with quite few species and low abundance of each species. Small flagellates dominated the sample.

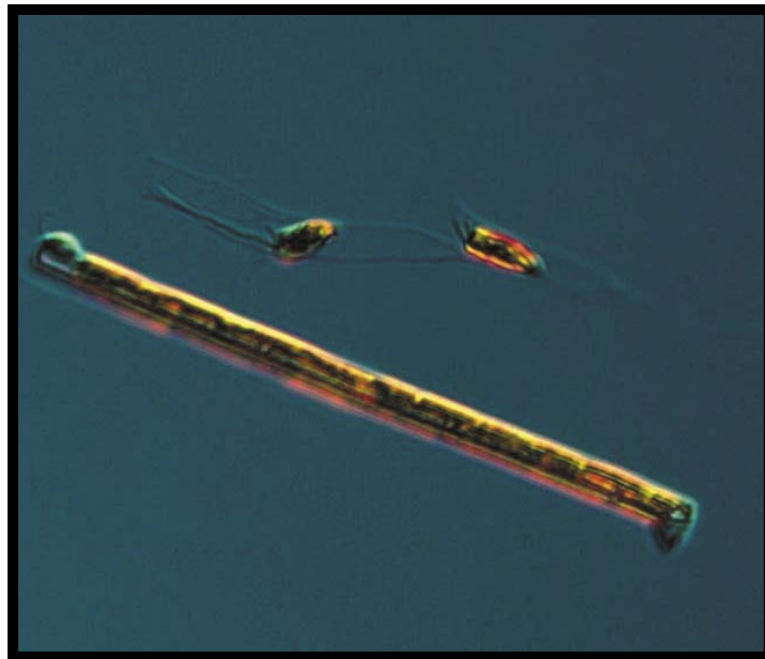
Some interesting chlorophyll fluorescence peaks between 15 to 20 meters depths were observed in the Kattegat and Skagerrak areas, but all integrated concentrations (0-20 m) were within average for this month.

The Baltic Sea

The spring bloom was diminishing at all of the Baltic phytoplankton stations. For station names, locations and sampling dates see map or species list. Because of the over all similarity a general description is made.

All of the integrated (0-20 m) chlorophyll *a* concentrations from the Baltic stations showed a decline compared to the previous sampling period in April. All concentrations were within average for this month.

Diatoms were only found occasionally except at the station BY38 where remnants of *Skeletonema costatum* from the spring bloom were found. *Peridiniella catenata* was the most common dinoflagellate. The golden algae *Dinobryon balticum* dominated in all of the phytoplankton samples except in the one from BY38.. The sample from BY38 did also contain high cell numbers of *D. balticum*, but the quantity of the small flagellate *Pyramimonas* spp. was even higher.



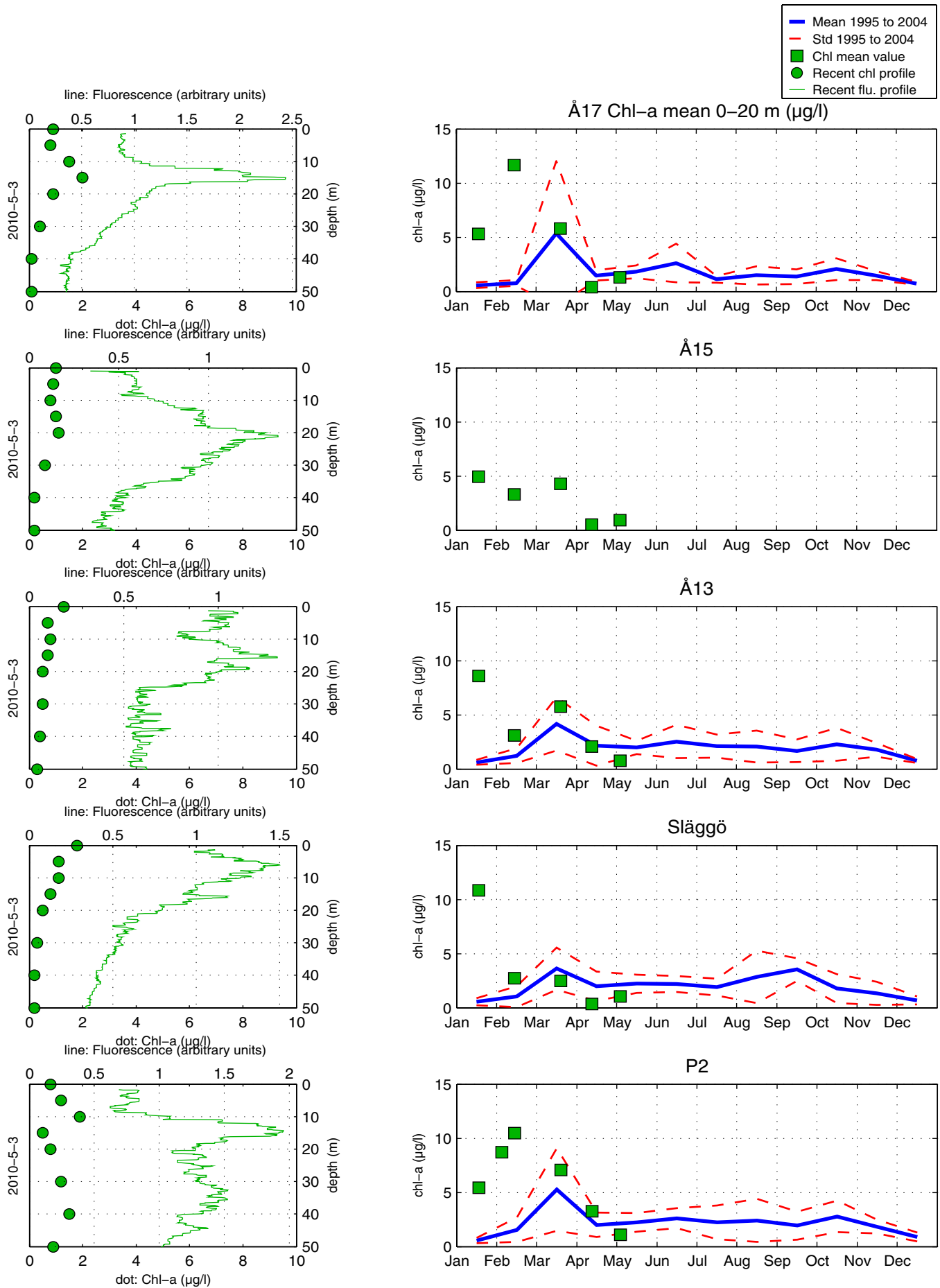
The golden algae *Dinobryon balticum* (top) was abundant in the Baltic samples, the algae below is the diatom *Thalassionema nitzschoides*. Photo: A-T Skjevik.

Phytoplankton analysis and text by:
Ann-Turi Skjevik and Marie Johansen

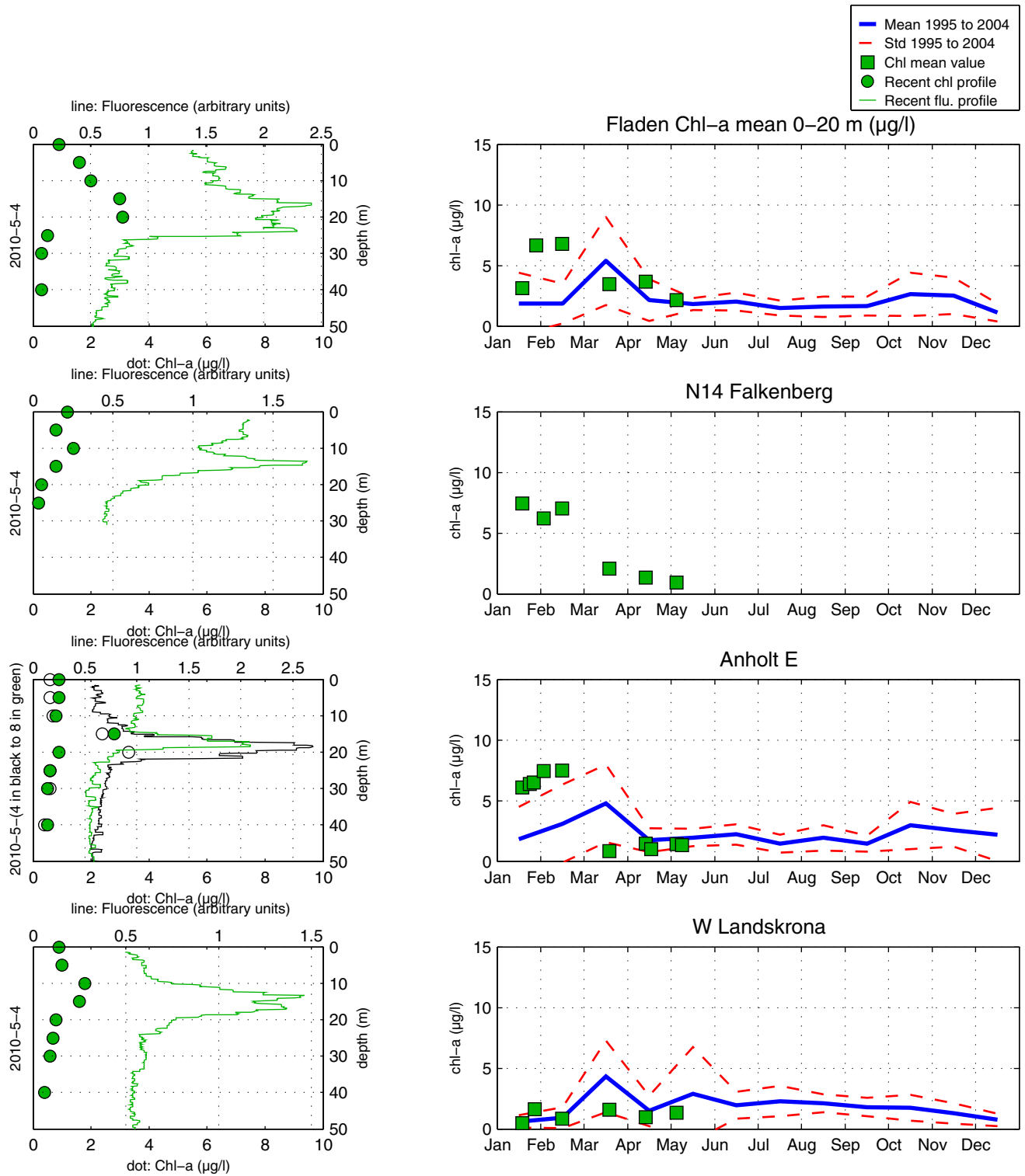
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	2010-05-03	2010-05-03	2010-05-04	2010-05-04
	cells/l	cells/l	cells/l	cells/l
<i>Cylindrotheca closterium</i>			present	
<i>Dactyliosolen fragilissimus</i>			present	
<i>Guinardia delicatula</i>		present		
<i>Leptocylindrus danicus</i>	present		present	common
<i>Leptocylindrus minimus</i>	present			
<i>Nitzschia longissima</i>	present			present
<i>Proboscia alata</i>	common	present	present	present
<i>Pseudo-nitzschia delicatissima</i> -group			present	
<i>Pseudo-nitzschia seriata</i> -group		present		present
<i>Rhizosolenia hebetata</i>	present		present	present
<i>Rhizosolenia setigera</i>			present	
<i>Skeletonema costatum</i> complex		present	dominating	
<i>Thalassionema nitzschioides</i>	present	common	common	present
<i>Amphidinium crassum</i>			present	
<i>Amphidinium sphenoides</i>			present	
<i>Amylax triacantha</i>		present		
<i>Ceratium fusus</i>	present	present		present
<i>Ceratium longipes</i>		present		
<i>Ceratium tripos</i>	present	present		present
<i>Alexandrium</i> spp.	present			
<i>Dinophysis acuminata</i>	present	present		present
<i>Dinophysis norvegica</i>	present	present		present
<i>Dinophysis rotundata</i>	present	present		
<i>Gymnodinium simplex</i>	present			present
<i>Gyrodinium spirale</i>	present	present		
<i>Heterocapsa rotundata</i>			common	
<i>Heterocapsa</i> spp.			present	
<i>Heterosigma akashiwo</i>			present	
<i>Katodinium glaucum</i>	present	present	present	present
<i>Peridiniella danica</i>			present	
<i>Protoceratium reticulatum</i>			present	present
<i>Protoperidinium bipes</i>	present			
<i>Protoperidinium depressum</i>	present	present		present
<i>Protoperidinium divergens</i>				present
<i>Protoperidinium pellucidum</i>	present	present		
<i>Chrysochromulina</i> spp.	present	present		
Cryptomonadales spp.	common	common	common	common
<i>Teleaulax</i> spp	common	common	common	common
Chlorodendrales spp.			present	
<i>Pyramimonas</i> spp.	present	present	present	present
<i>Dinobryon balticum</i>	present	dominating	common	
<i>Pseudopedinella</i> spp.			present	
Craspedophyceae spp	present			
<i>Calliakantha natans</i>		present	present	
<i>Leucocryptos marina</i>	present		common	present
<i>Telonema subtile</i>			present	
<i>Emiliana huxleyi</i>	present			present
Ciliophora spp.	present	present	present	present

<i>Selection of observed species</i>	BY2	BY5	BCS III-10	BY15	BY38	Ref. M1-V1
Red=potentially toxic species	2010-05-04	2010-05-05	2010-05-05	2010-05-06	2010-05-06	2010-05-07
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
<i>Chaetoceros subtilis</i>				present		
<i>Chaetoceros</i> spp.	present	present				present
<i>Chaetoceros similis</i>					present	present
<i>Skeletonema costatum</i> complex					common	
<i>Thalassiosira</i> spp.	present					
<i>Amphidinium crassum</i>	present	present			present	
<i>Amphidinium sphenoides</i>					present	
<i>Amphidinium</i> spp.			present			present
<i>Cladopyxis claytonii</i>		present				
<i>Dinophysis acuminata</i>	present	present				
<i>Gymnodinium simplex</i>		present				
<i>Gymnodinium</i> spp.	present		present			present
<i>Gyrodinium spirale</i>	present					present
<i>Heterocapsa rotundata</i>	common		common	present	present	common
<i>Heterocapsa</i> spp.			present	common	present	present
<i>Karlodinium micrum</i>					present	
<i>Katodinium glaucum</i>		present	present	present	present	present
<i>Peridiniella catenata</i>		common	common	common	common	
<i>Peridiniella danica</i>	present	present	present	present	present	present
<i>Protoperidinium bipes</i>	present		present		present	
<i>Protoperidinium brevipes</i>			present			
<i>Protoperidinium</i> spp.	present	present	present		present	
<i>Scrpsiella</i> complex	present		present			
<i>Chrysochromulina polylepis</i>					present	
<i>Chrysochromulina</i> spp.	present	present	present	present	present	present
Cryptomonadales spp.	common	present	common	present		common
<i>Plagioselmis prolonga</i>		present	present	present	common	common
<i>Teleaulax</i> spp.	common		present	common	present	present
<i>Pyramimonas</i> spp.	common		common	common	dominating	present
<i>Dinobryon balticum</i>	dominating	dominating	dominating	dominating	common	dominating
<i>Dinobryon faculiferum</i>	present				present	
<i>Dinobryon</i> spp.			common			present
<i>Pterosperma</i> spp.			present			present
<i>Pseudopedinella pyriforme</i>				present		
<i>Pseudopedinella</i> spp.		present				
<i>Aphanizomenon</i> spp.		present	present		present	
<i>Planctonema lauterbornii</i>				present	present	
<i>Calliakantha longicaudata</i>	present	present		present		
<i>Calliakantha natans</i>	present	present	present	present	common	present
<i>Katablepharis remigera</i>			present	present	present	
Ciliophora spp.	present	present	common			present
<i>Mesodinium rubrum</i>	present	present	present	present	present	present
<i>Strombidium</i> spp.				present	present	

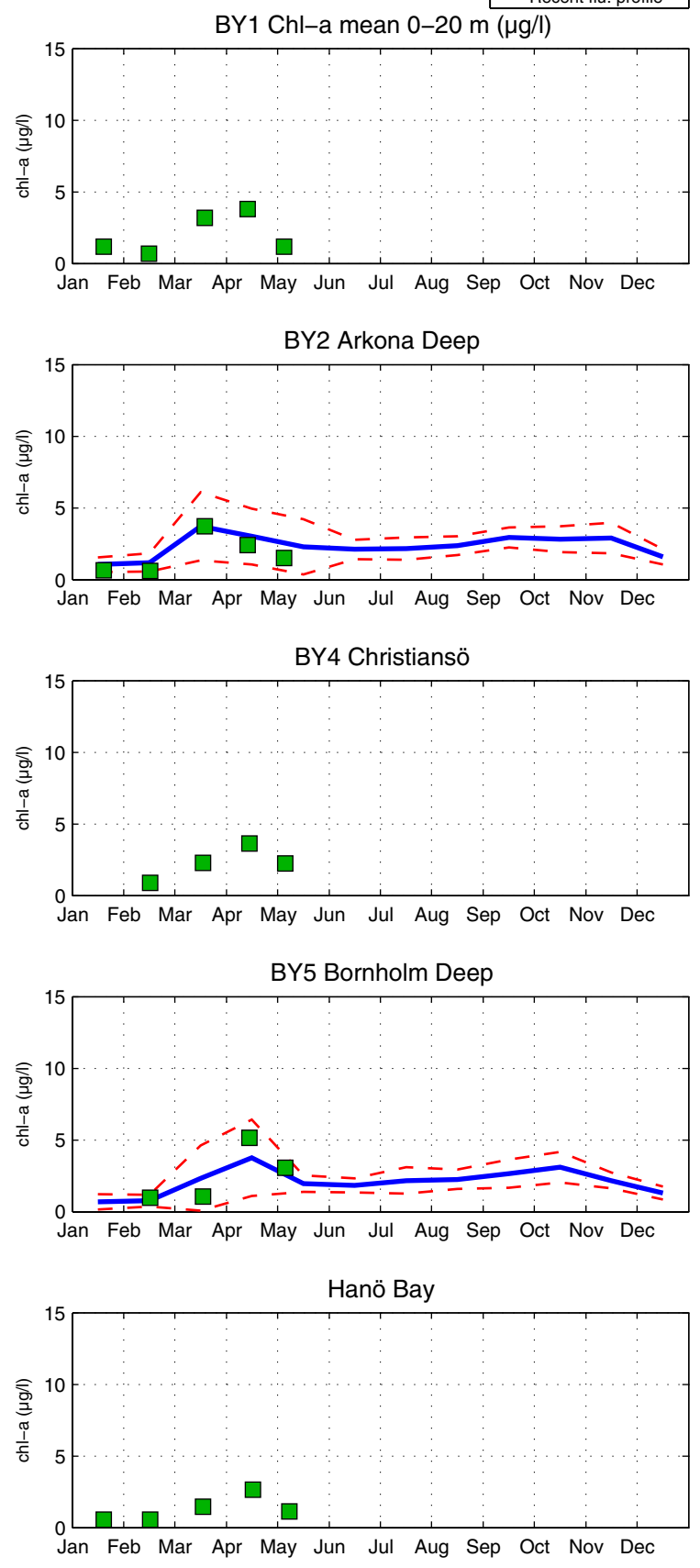
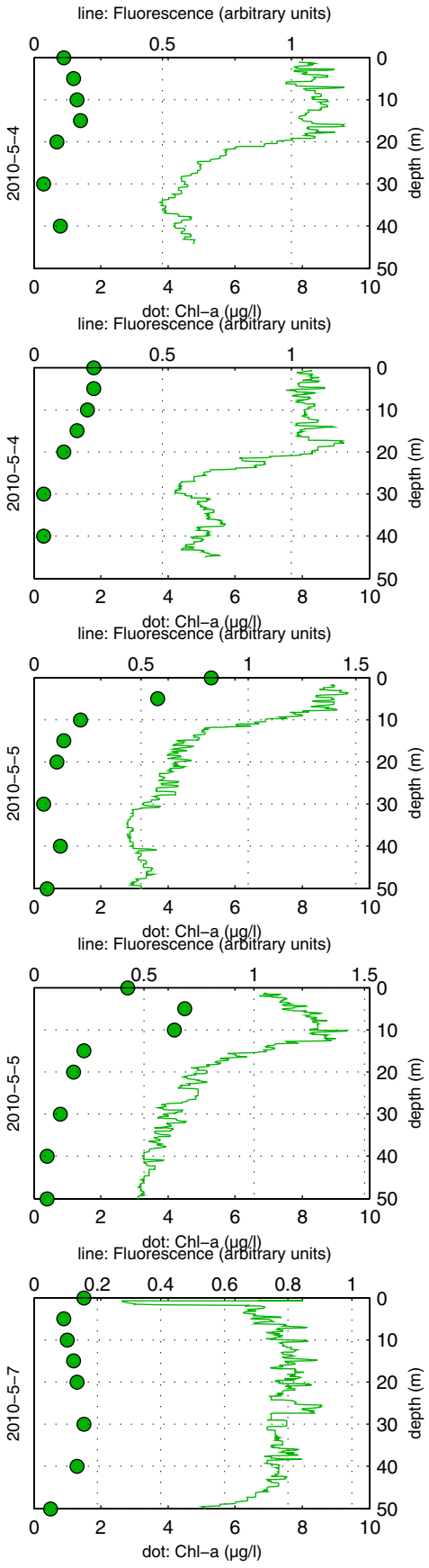
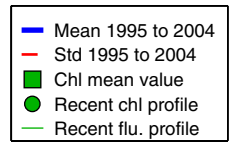
The Skagerrak



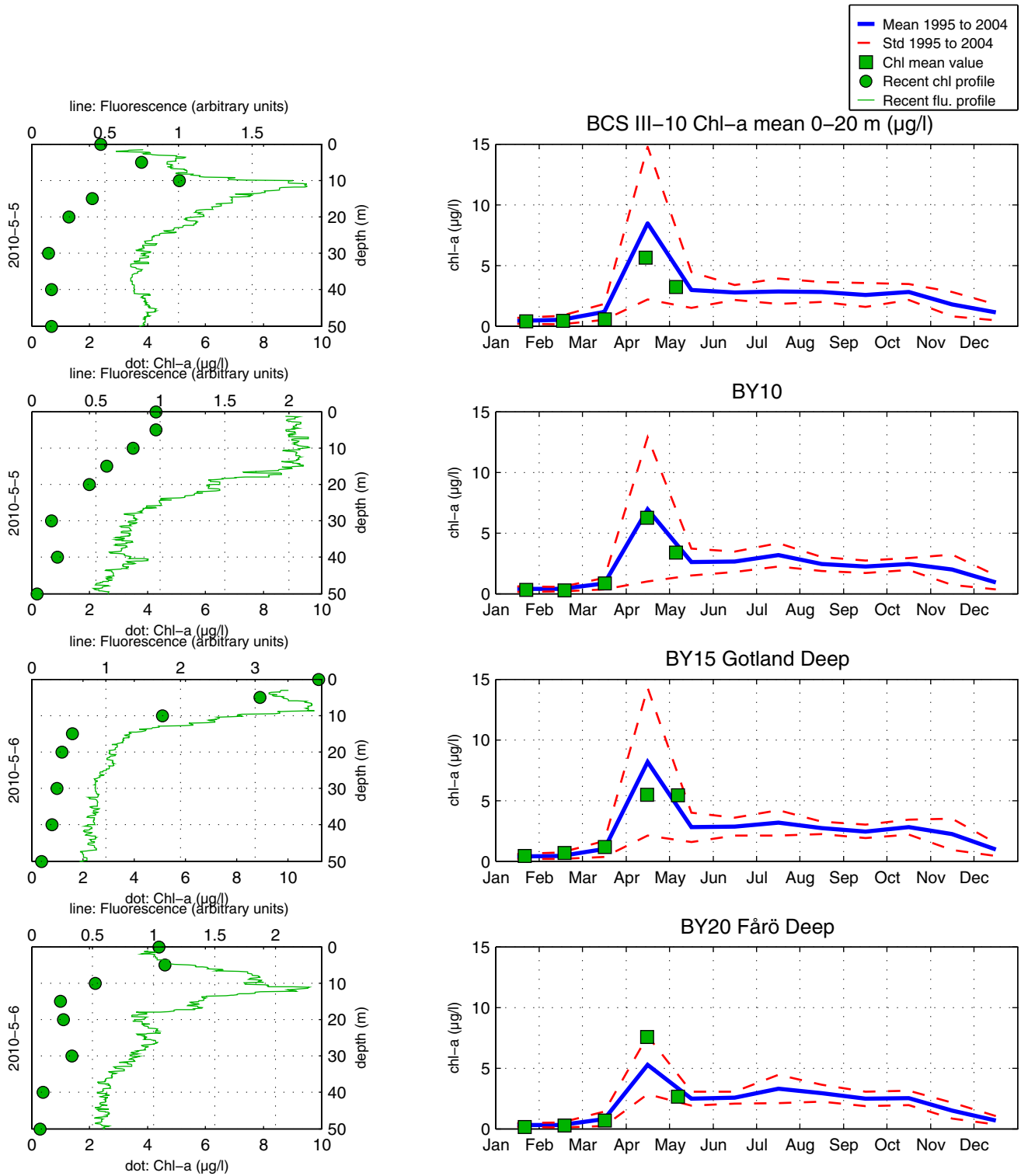
The Kattegat and the Sound



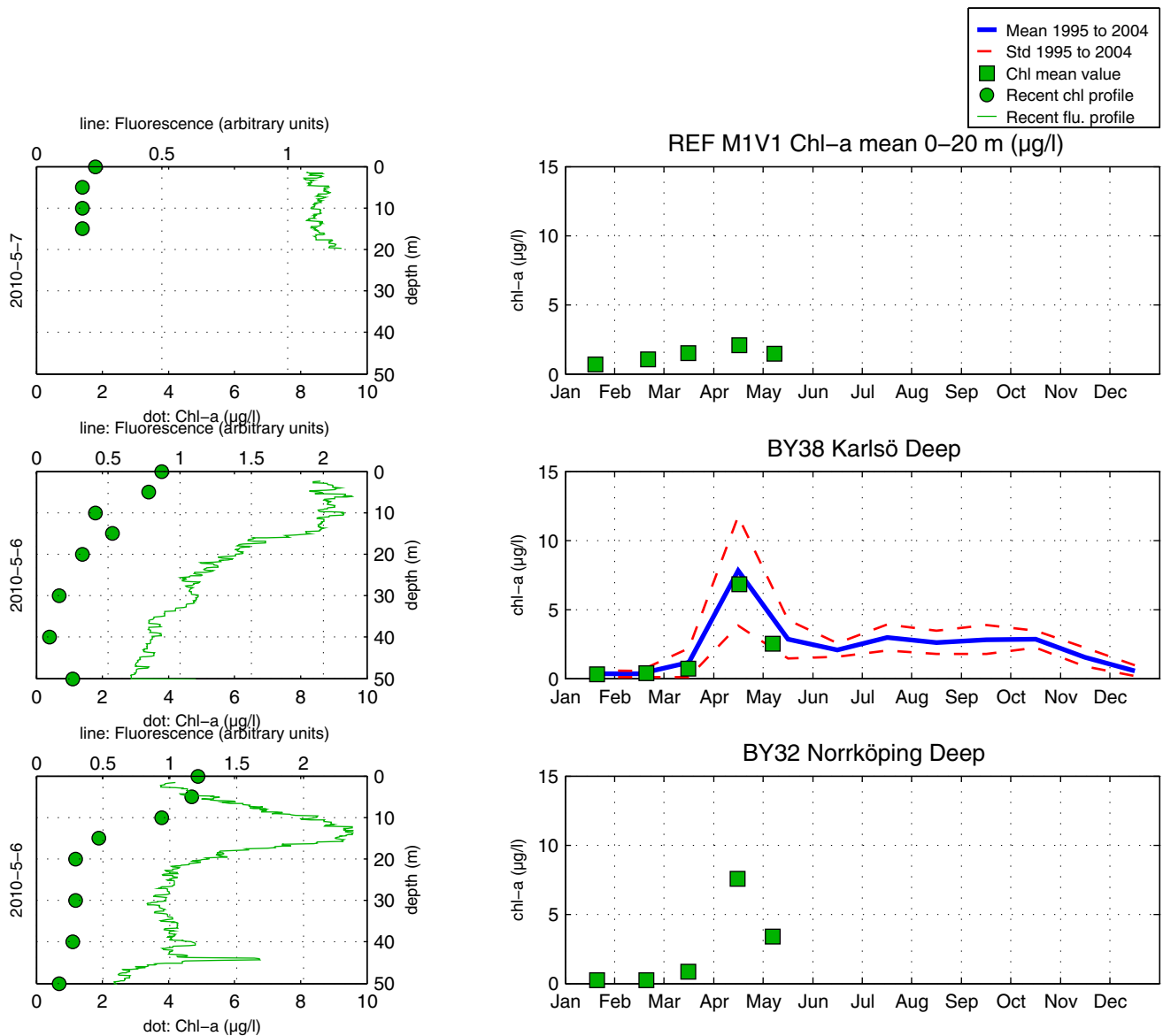
The Southern Baltic



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.

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.

