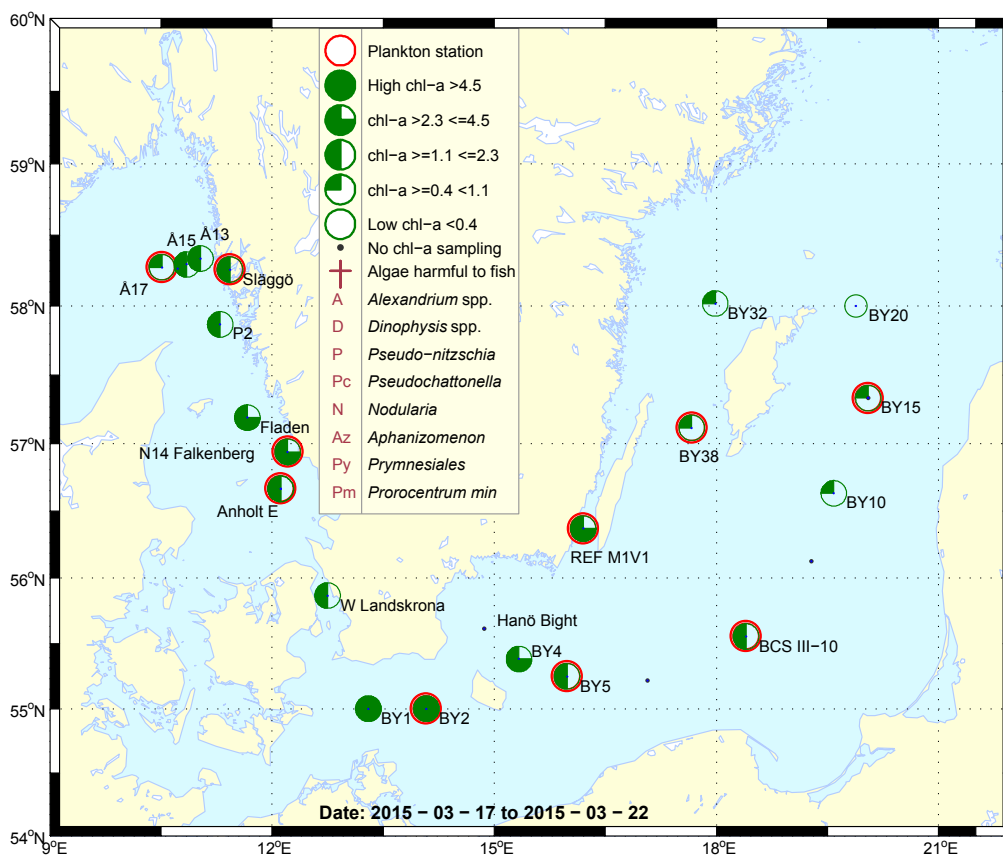


Sammanfattning

På den kustnära stationen i Skagerrak var närsalter och cellkoncentrationer låga. Vårblomningen pågick fortfarande på den yttre stationen Å17. I Östersjön hade vårblomningen startat i Bornholmsbassängen men det var fortsatt låga cellkoncentrationer i resten av Östersjön.

De integrerade (0-10 m) klorofyll *a*-värdena var normala för denna månad med undantag av mycket höga värden vid Fladen och BY1.



Abstract

In the coastal area of the Skagerrak the nutrient- and cell concentrations were low compared to the open Skagerrak where the diatom spring bloom was ongoing. In the Baltic Sea the cell density was generally low but at the Arkona Basin the spring bloom had started.

The integrated (0-10 m) chlorophyll *a* concentrations were normal for this month with the two exceptions at Fladen and BY1.

More detailed information on species composition and abundance

The Skagerrak

Å17 (open Skagerrak) and Släggö (Skagerrak coast) 20th of March

In the coastal area the nutrients had been consumed and the cell concentrations were lower than in the open Skagerrak. The diatom species *Guinardia delicatula*, *Skeletonema marinoi* and *Thalassiosira nordenskiöldii* dominated the phytoplankton community.

The integrated (0-10 m) chlorophyll *a* concentrations were low but normal for this month.

The Kattegat



Fig.1: *Thalassiosira nordenskiöldii* (left), *Chaetoceros ceratosporus* and *Proboscia alata* were among the most common diatom species at Anholt in the Kattegat.

Anholt E 19th and 20th of March and N14 Falkenberg 17th of March

The diatom spring bloom had ended in the Kattegat but there were a lot of diatom species present (Fig. 1) in the phytoplankton community. Dinoflagellate species were common at both stations (Fig. 2) and *Peridiniella danica* was numerous at N14. Diatom species dominated the phytoplankton community at the chlorophyll peak at 10m depth at Fladen.

The integrated (0-10 m) chlorophyll *a* concentrations were normal at the stations N14 and Anholt for this month and high at 10m depth at Fladen (Fig. 3).

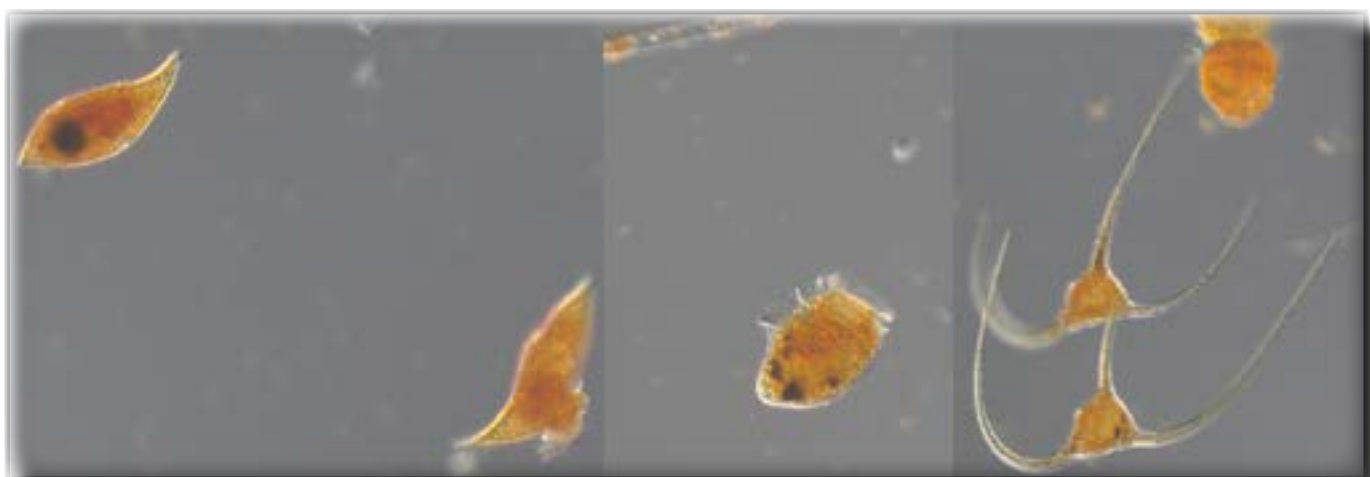


Fig.2 Three dinoflagellate species found at Anholt. From the left *Gyrodinium* spp, *Dinophysis norvegica* and *Ceratium longipes*.



Fig.3 Diatom species dominated the phytoplankton community at 10m depth at Fladen.

The Baltic Sea

BY2 Arkona Basin and BY5 Bornholm Basin 18th of March

The diatom spring bloom had started in the Arkona Basin (BY1 and BY2), *Skeletonema marinoi* dominated the phytoplankton community. In the Bornholm Basin a few colonies of cf. *Aphanothece* spp. (Fig. 4) were present and *S. marinoi* was common but not in concentrations usually found in a spring bloom.

The integrated (0-10 m) chlorophyll *a* concentrations were higher than normal at BY1 and normal at BY5 for this month.



Fig.4 A few cyanobacterial colonies were present at BY5, cf. *Aphanothece* spp.

BY15 17th of March and BCS III-10 18th of March

The cell concentrations and the integrated (0-10 m) chlorophyll *a* concentrations were low which is normal for this month.

BY38 and REF M1V1 Kalmar Sound 22nd of March

The cell concentrations and the species diversity were rather variable in the area. *Skeletonema marinoi* was dominant and the species diversity was high in the Kalmar Sound compared to the situation at BY38. Only a few cells of the ciliat *Mesodinium rubrum* were present in the otherwise empty sample from BY38.

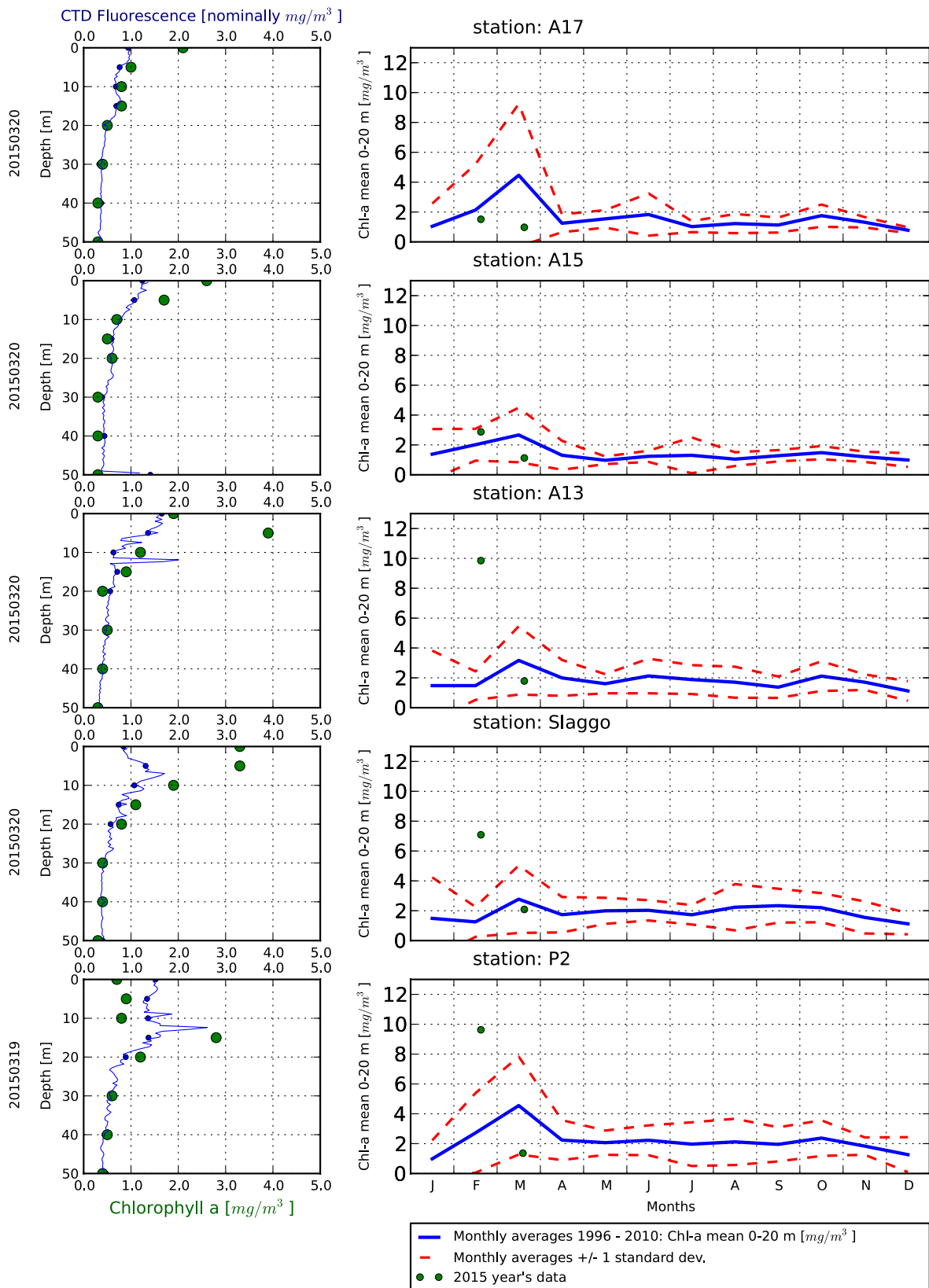
The integrated (0-10 m) chlorophyll *a* concentrations were low which is normal in this part of the Baltic Sea for this month.

Phytoplankton analysis and text by:
Malin Mohlin

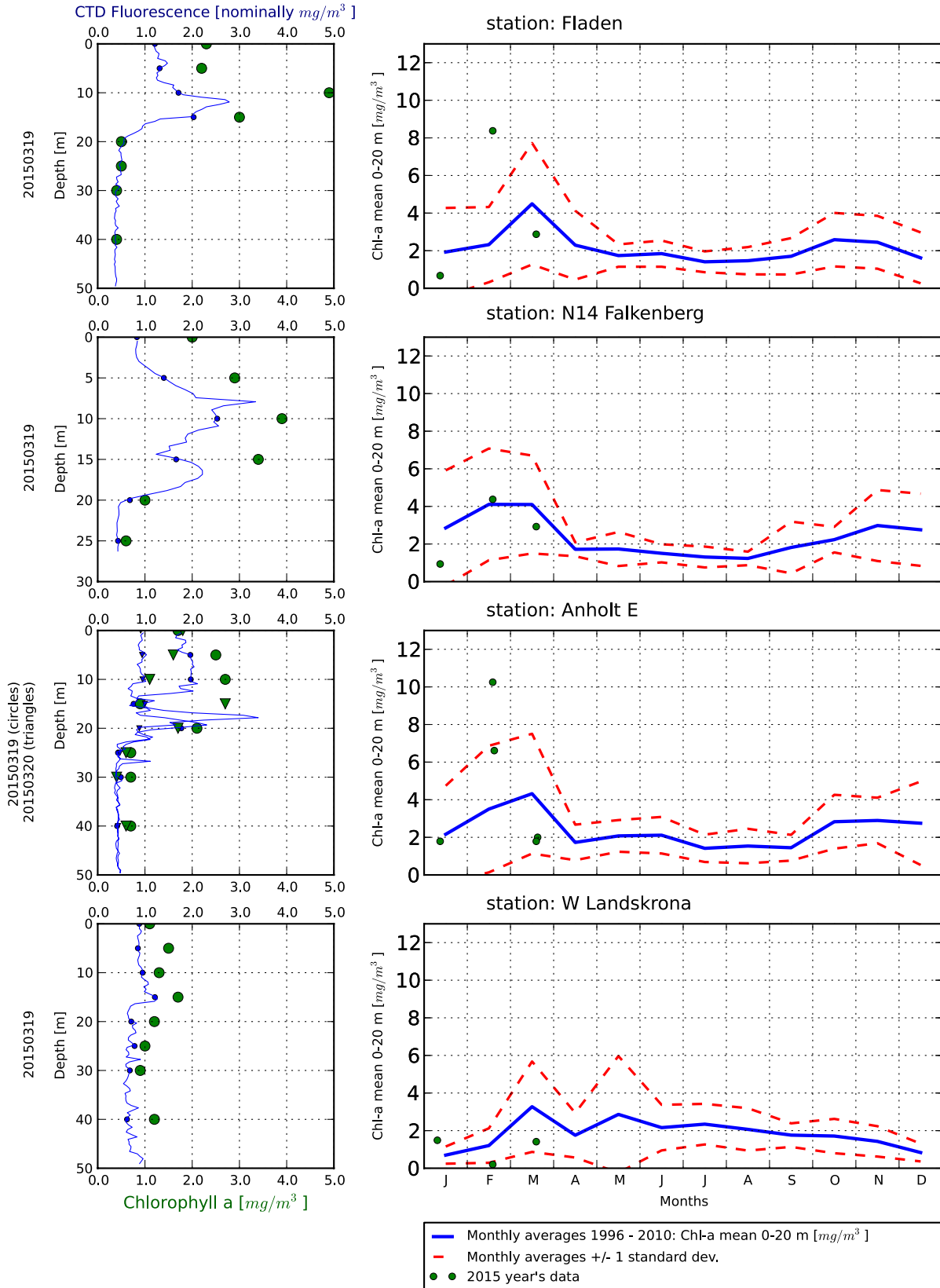
Selection of observed species	Anholt E	Anholt E	N14 Falkenberg	Släggö	Å17
Red=potentially toxic species	19/3	20/3	19/3	20/3	20/3
Hose 0-10 m	presence	presence	presence	presence	presence
Chaetoceros ceratosporus	present				
Chaetoceros spp	common		present		
Coscinodiscophyceae	present				
Coscinodiscus concinnus	present	present			
Coscinodiscus radiatus	present		present	present	
Guinardia delicatula	present	present	present	present	common
Guinardia striata					
Leptocylindrus danicus					present
Navicula transitans var. transitans				present	
Nitzschia longissima					
Proboscia alata	common	present	present	present	present
Pseudo-nitzschia spp	present	present	present		
Rhizosolenia hebetata	present				
Rhizosolenia setigera	present	present	present	present	present
Skeletonema marinoi	very common	common	common	common	
Thalassiosira nordenskiöldii		present	common	common	
Ceratium furca	present				
Ceratium fusus		present			
Ceratium lineatum					present
Ceratium longipes	present	present	present		
Ceratium tripos		present	present	present	
Dinophysis acuminata	present	present	present	present	
Dinophysis norvegica	present	common	present	present	
Gymnodiniales	present		present		
Gyrodinium spp	present	common	present	present	present
Heterocapsa triquetra	present				
Katodinium glaucum					present
Peridinales		present	present		
Peridiniella danica	present	present	common	present	
Protoperidinium pellucidum	present		present		
Protoperidinium spp			present	present	
Cryptomonadales			present	present	common
Dictyocha speculum			present		
Eutreptiella spp	present				
Ciliophora		present		present	present

Selection of observed species	BCS III-10	BY2	BY5	BY15	BY38	REF M1V1
Red=potentially toxic species	18/3	18/3	18/3	17/3	22/3	22/3
Hose 0-10 m	presence	presence	presence	presence	presence	presence
Centrales	present					
Chaetoceros spp		present	present			present
Chaetoceros ceratosporus		common				
Coscinodiscophyceae				present		
Skeletonema marinoi	present	very common	common			very common
Thalassiosira spp		present				present
<i>Dinophysis acuminata</i>	present					
Gymnodinium spp	present					
Gyrodinium spp						present
Katodinium glaucum						present
Peridinales		present				
cf. Aphanothece spp	present					
Woronichinia spp		present				
<i>Prymnesiales</i>		present				
<i>Ebria tripartita</i>	present			present		
<i>Eutreptiella</i> spp			present			
<i>Eutreptiella gymnastica</i>		present				
Oocystis spp		present		present		
Planctonema lauterbornii	present			present		present
<i>Dictyocha speculum</i>						present
Craspedophyceae		present				
Ciliophora	present	present				present
Mesodinium rubrum	common	present	common	present	present	

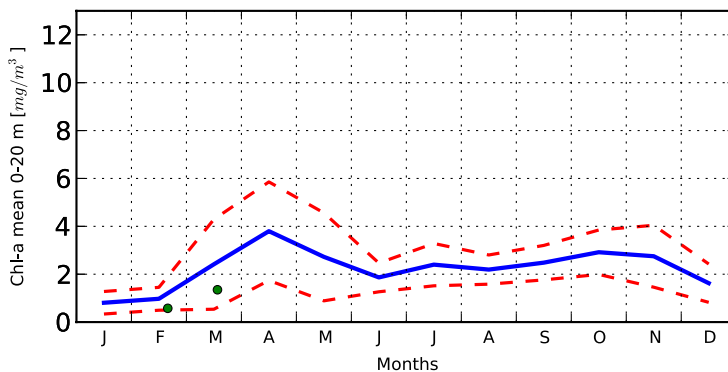
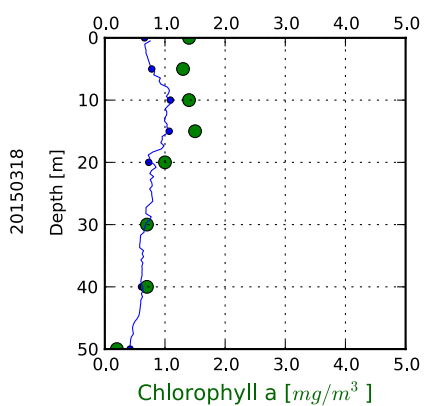
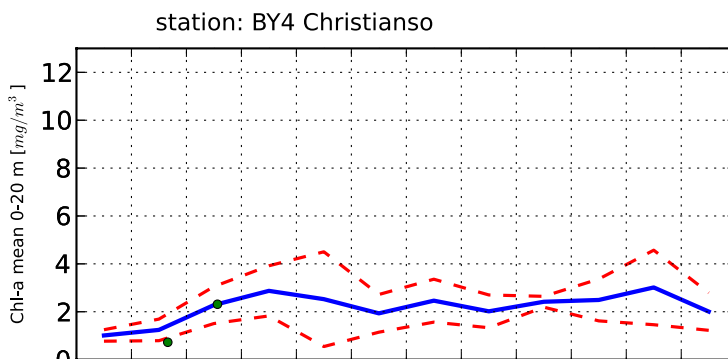
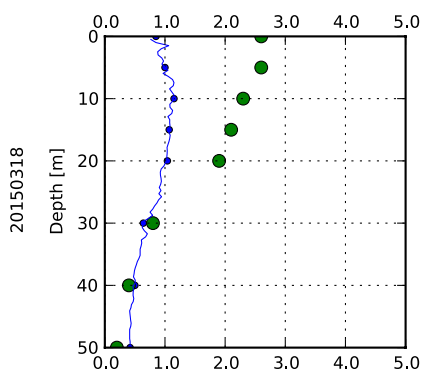
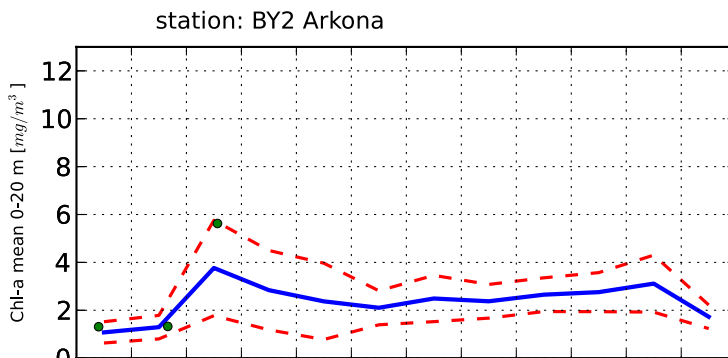
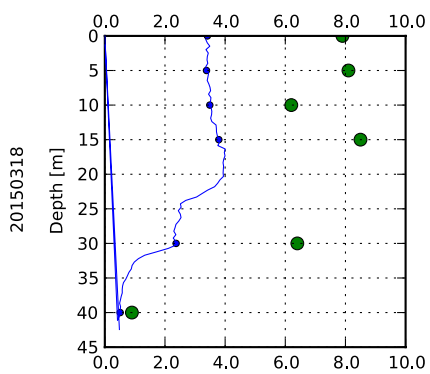
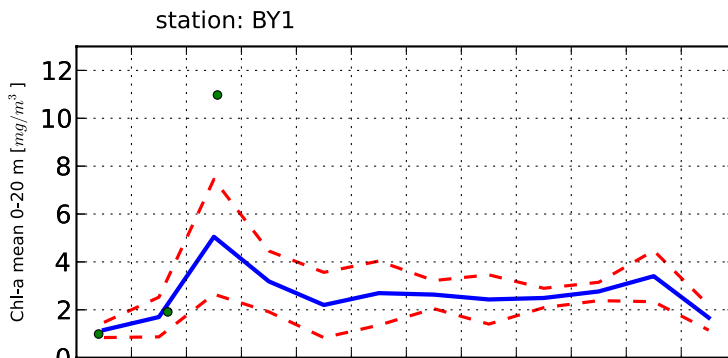
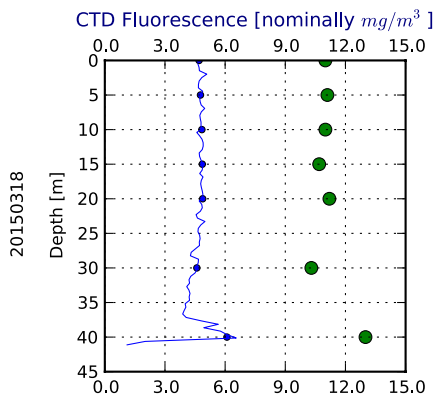
The Skagerrak



The Kattegat and The Sound

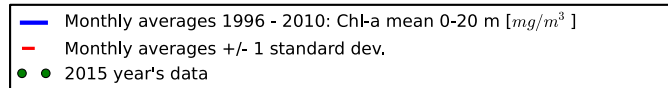
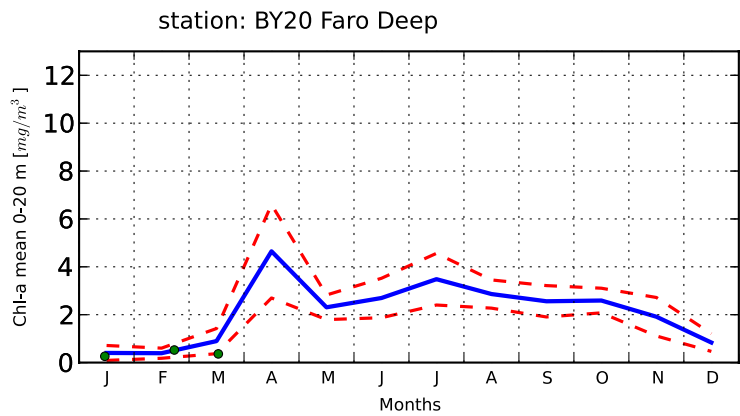
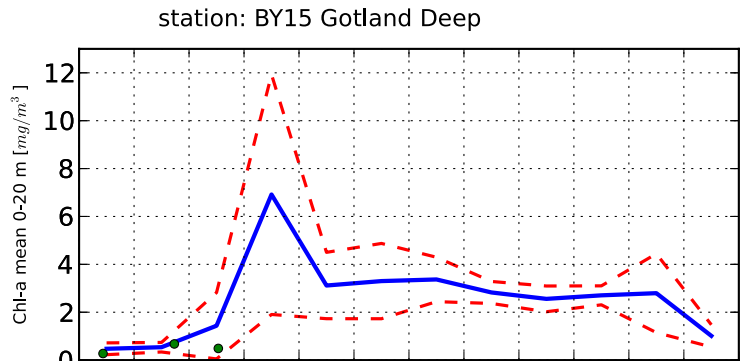
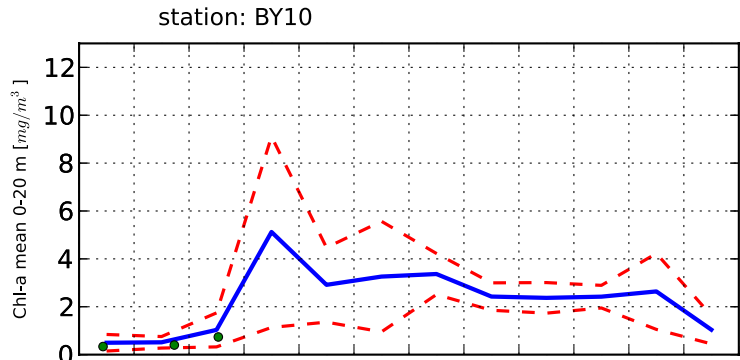
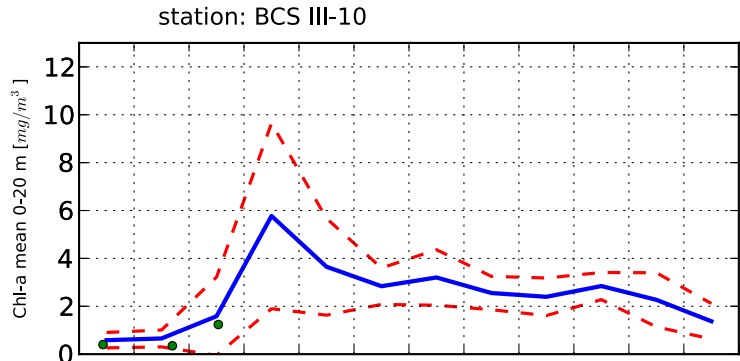
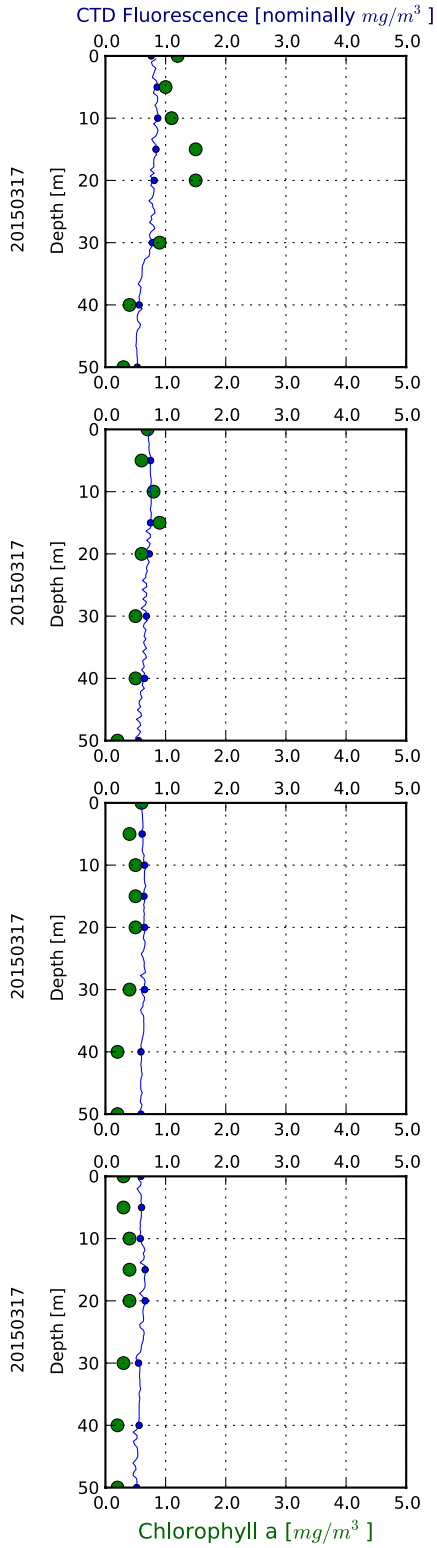


The Southern Baltic

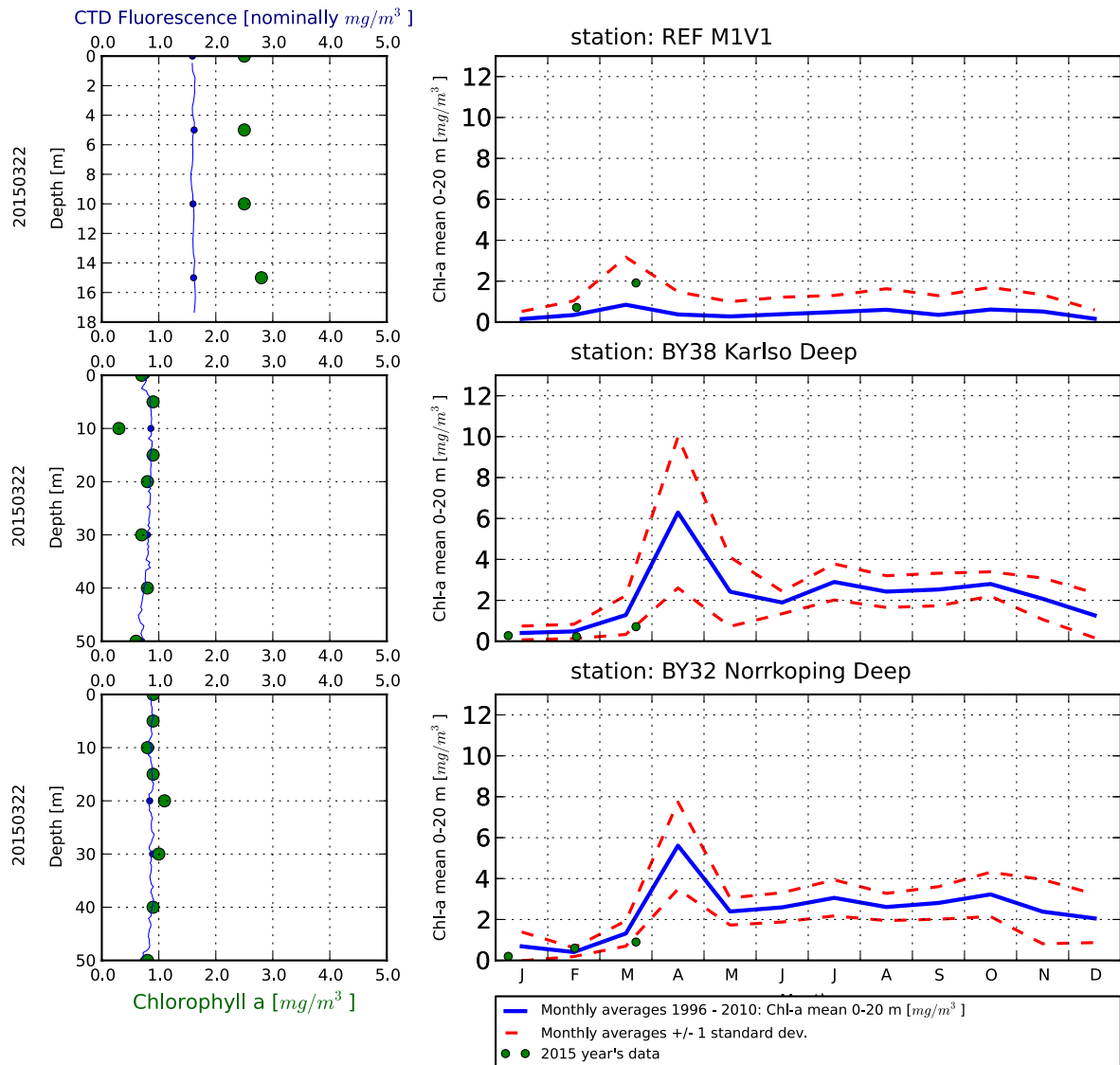


— Monthly averages 1996 - 2010: Chl-a mean 0-20 m [mg/m^3]
- - - Monthly averages +/- 1 standard dev.
● 2015 year's data

The Eastern Baltic



The Western Baltic



Om klorofylldiagrammen

Klorofyll *a* är ett mått på mängden växtplankton. Prover tas från ett antal djup. 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. Data are 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 månatliga expeditioner i Östersjön och Västerhavet. Resultat baserade på semikvantitativ mikroskopanalys av planktonprover samt klorofyllmätningar presenteras kortfattat i denna rapport. Information från SMHIs satellitövervakning av algblomningar finns under perioden juni-augusti på www.smhi.se.

About AlgAware

SMHI carries out monthly cruises 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 SMHIs satellite monitoring of algal blooms is found on www.smhi.se during the period June-August.

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.

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.

