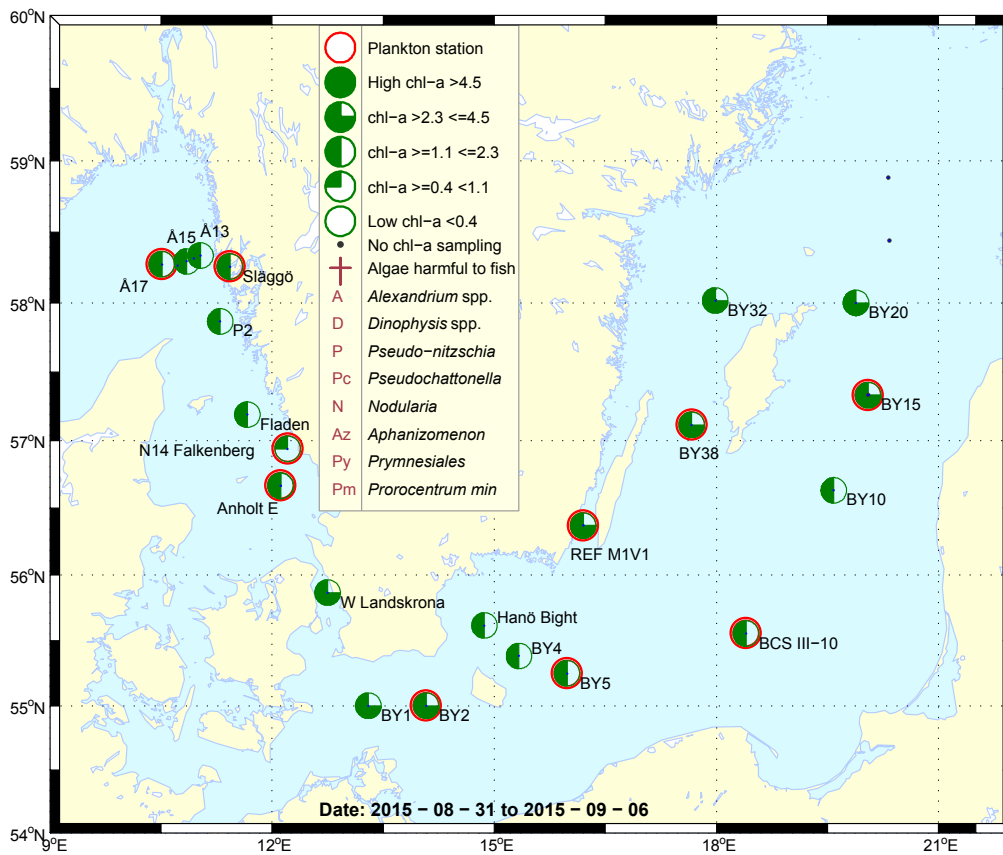


## Sammanfattning

Det var relativt låg diversitet i planktonsamhällena i Skagerrak och Kattegatt. Nordsjökiselalgen *Pseudosolenia calcar-avis* fanns i varierande mängd i samtliga prover. Kalkflagellaten *Emiliana huxleyi* brukar också komma in till Västerhavet västerifrån och återfanns både i Skagerrak och i Kattegatt.

I Östersjön var det tydligt att växtsäsongen för de trådliska cyanobakterierna var över. *Aphanizomenon flos-aquae* fanns i måttlig mängd vid samtliga stationer, i övrigt var det mest små arter. Kolonibildande cyanobakterier var mycket vanliga.



## Abstract

There were several phytoplankton species with high cell numbers in the samples from the Skagerrak and Kattegat area, above all at the coastal stations Slaggö in the Skagerrak and N14 in the Kattegat.

The integrated (0-10 m) chlorophyll *a* concentrations were normal for this month. Chlorophyll *a* maxima were found at around 15 meters depth in the Skagerrak and at 10 meters in the Kattegat.

In the Baltic phytoplankton diversity was very low. Filamentous cyanobacteria were absent and the chlorophyll concentrations were low. The integrated (0-10 m) chlorophyll *a* concentrations were below normal for this month at most of the Baltic stations.

More detailed information on species composition and abundance

## The Skagerrak

### Å17 (open Skagerrak) 4<sup>th</sup> of September

The number of dinoflagellate and diatom species was approximately the same. The flagellate *Emiliana huxleyi* and the dinoflagellate *Ceratium fusus* were common in the sample. A rare and beautiful species, *Pyramimonas longicauda* was present, Fig 1.

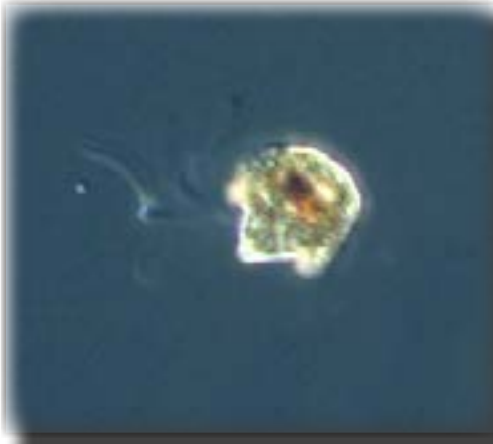


Fig 1: The flagellate *Pyramimonas longicauda*, a rare sight in the samples, was present at Å17.

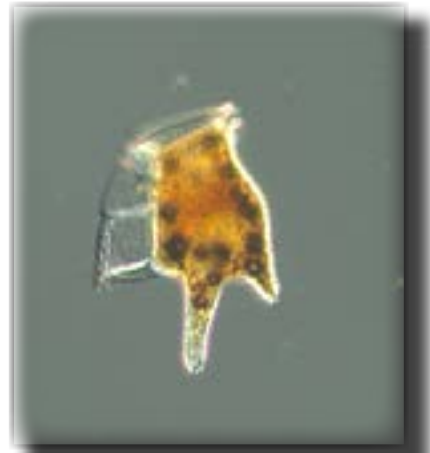


Fig 2: The dinoflagellate *Dinophysis tripos*\* was found at Släggö.

### Släggö (Skagerrak coast) 4<sup>th</sup> of September

The phytoplankton situation was similar to the one at Å17. One exception was that a diatom typical for the North Sea, *Pseudosolenia calcar-avis*, was common. One of the least common *Dinophysis* species for our waters, *D. tripos*\*, Fig 2, was observed.

## The Kattegat

### Anholt E 3<sup>rd</sup> and 5<sup>th</sup> of September and N14 Falkenberg 4<sup>th</sup> of September



Fig 3: The diatoms *Pseudosolenia calcar-avis* and *Guinardia delicatula* captured at Anholt E.

The sample was more species rich than the Kattegat samples, more diatoms and less dinoflagellates.

The integrated (0-10 m) chlorophyll *a* concentrations were normal for this month in the Skagerrak and Kattegat areas.

## The Baltic Sea

The threadlike cyanobacterium *Aphanizomenon flos-aquae* and the diatom *Chaetoceros impressus* were present at all of the Baltic Sea phytoplankton stations. Except for these, mostly small species were found like pico cyanobacteria colonies, small diatoms and dinoflagellates and ciliates. Pico cyanobacteria colonies were the most abundant at REF M1V1 and BY38.

The integrated (0-10 m) chlorophyll *a* concentrations were normal for this month at the Baltic stations.



Fig 4: The diatom *Chaetoceros impressus* was present at all of the Baltic phytoplankton stations.

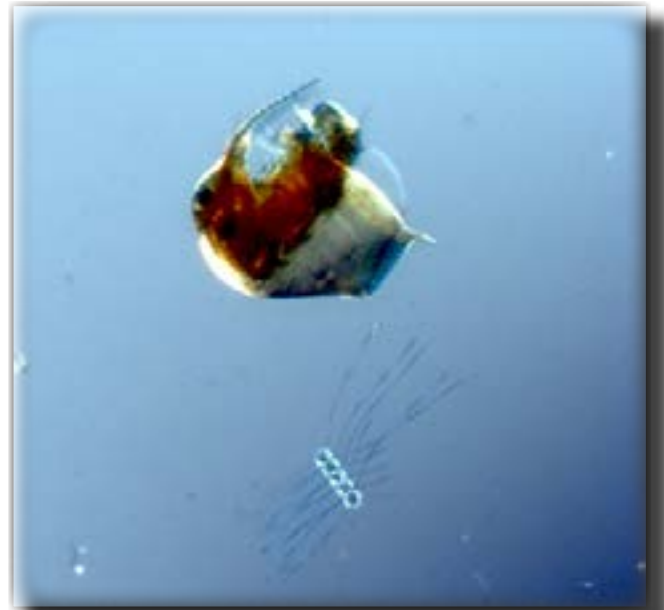


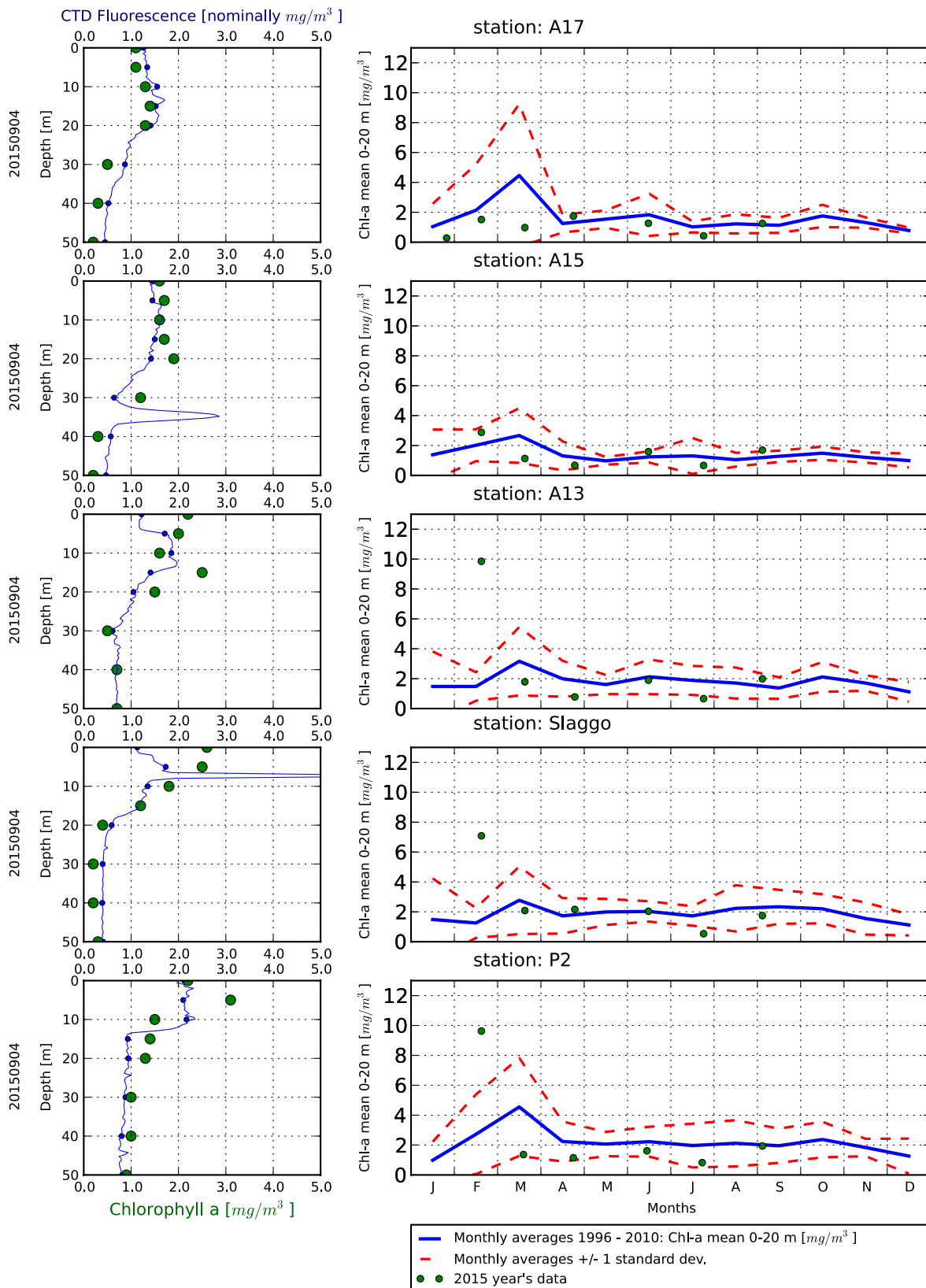
Fig 5: A water flea floating about above the diatom *Chaetoceros impressus*, both captured at BY5.

Phytoplankton analysis and text by:  
Ann-Turi Skjevik.

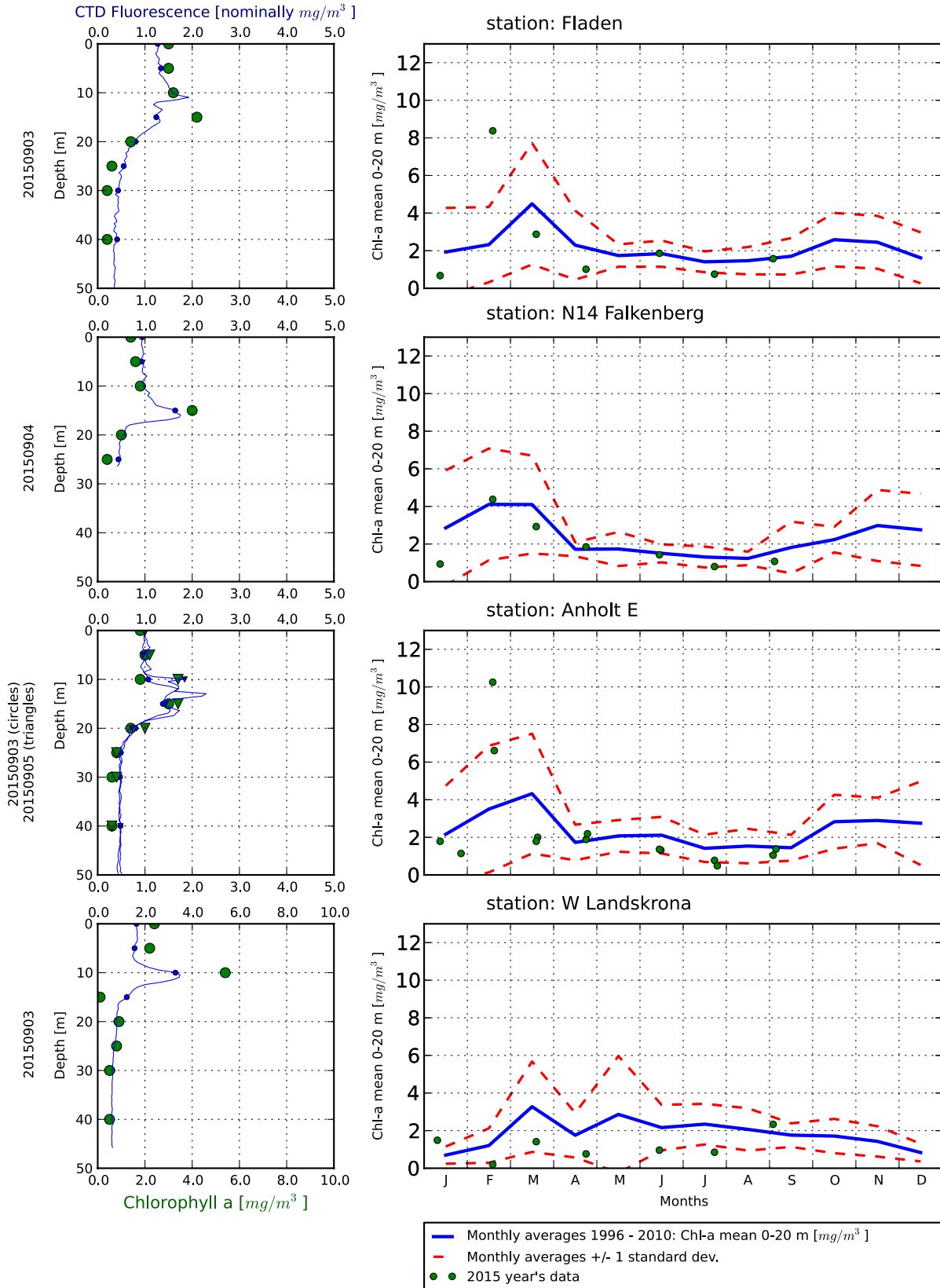
Selection of observed species	Anholt E	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	3/9	5/9	4/9	4/9	4/9
Hose 0-10 m	presence	presence	presence	presence	presence
<i>Cerataulina pelagica</i>	present	present	present	present	
<i>Chaetoceros danicus</i>	present				
<i>Chaetoceros socialis</i>	present	present	present	present	
<i>Chaetoceros throssenii</i>				present	
<i>Cylindrotheca closterium</i>	present	present			
<i>Dactyliosolen fragilissimus</i>	present	present	present	present	present
<i>Guinardia delicatula</i>	present				
<i>Leptocylindrus danicus</i>	present				present
<i>Leptocylindrus minimus</i>	present			present	
<i>Nitzschia longissima</i>	present	common		present	present
<i>Proboscia alata</i>	present	present		present	
<i>Pseudo-nitzschia spp</i>	present	present	present	present	present
<i>Pseudosolenia calcar-avis</i>	common	common	present	common	
<i>Rhizosolenia pungens</i>	present			present	
<i>Skeletonema marinoi</i>		present		present	present
<i>Azadinium spp</i>		present			present
<i>Ceratium furca</i>			present	present	present
<i>Ceratium fusus</i>	present	common	present	present	common
<i>Ceratium macroceros</i>				present	present
<i>Ceratium tripos</i>	common	common	present	present	
<i>Dinophysis acuminata</i>				present	
<i>Dinophysis acuta</i>				present	present
<i>Dinophysis norvegica</i>			present	present	present
<i>Dinophysis tripos</i>				present	
<i>Gymnodinium verruculosum</i>			present		
<i>Gyrodinium flagellare</i>	present				present
<i>Heterocapsa spp</i>	present				present
<i>Heterocapsa rotundata</i>		present		present	present
<i>Karlodinium micrum</i>	present		present		
<i>Polykrikos schwartzii</i>	present	present	present		present
<i>Prorocentrum micans</i>	present	present	present	present	present
<i>Protoperidinium pellucidum</i>	present	present	present		
<i>Dinobryon faculiferum</i>	present			present	
Cryptomonadales	present	present	present	common	present
<i>Emiliana huxleyi</i>	common	common	common	common	common
<i>Prymnesiales</i>	present				present
<i>Dictyocha fibula</i>					present
<i>Dictyocha speculum</i>		present			
<i>Pseudanabaena spp</i>	present		present	present	
<i>Pyramimonas spp</i>					present
<i>Pyramimonas longicauda</i>					present
<i>Oocystis spp</i>		present			
Craspedophyceae	present				
Ciliophora	common	present	present	present	common
<i>Helicostomella subulata</i>					present
<i>Laboea strobila</i>	present	present			
<i>Strombidium spp</i>	present	present			present
<i>Tiarina fusus</i>	present		present		

Selection of observed species	BCS III-10	BY2	BY5	BY15	BY38	REF M1V1
Red=potentially toxic species	2/9	3/9	2/9	1/9	6/9	5/9
Hose 0-10 m	presence	presence	presence	presence	presence	presence
<i>Attheya septentrionalis</i>		present	present			
<i>Chaetoceros danicus</i>	present		present		present	
<i>Chaetoceros impressus</i>	common	present	common	present	common	common
<i>Chaetoceros thronsenii</i>						present
<i>Coscinodiscus</i> spp					present	
<i>Cyclotella choctawatcheeana</i>						present
<i>Cylindrotheca closterium</i>		present		present		
<i>Nitzschia</i> spp						common
<i>Nitzschia longissima</i>		present				present
<i>Pseudo-nitzschia</i> spp				present		
<i>Akashiwo sanguinea</i>				present		
<i>Ceratium tripos</i>		present				
<i>Dinophysis acuminata</i>						present
<i>Dinophysis norvegica</i>		present				present
<i>Dinophysis rotundata</i>				present		
<i>Gymnodinium verruculosum</i>		present	present	present		
<i>Heterocapsa</i> spp	present	present	present			
<i>Heterocapsa rotundata</i>	present	present				
<i>Heterocapsa triquetra</i>		present			present	present
<i>Karlodinium micrum</i>		present		present		present
Cryptomonadales	present	common	common	present	present	common
<i>Prymnesiales</i>					present	common
<i>Dolichospermum</i> spp				present	present	common
<i>Aphanizomenon flos-aquae</i>	common	common	present	common	common	common
<i>Aphanothece</i> spp				common		
<i>Aphanothece paralleliformis</i>	present			common	common	present
<i>Nodularia spumigena</i>		present		present	present	present
<i>Pseudanabaena</i> spp		present			common	
<i>Snowella</i> spp	present	present	present	common	common	present
Cyanobacteria pico colonies	common	common	common	common	very common	very common
<i>Pseudopedinella</i> spp		present				present
<i>Eutreptiella</i> spp		common	common	common	present	present
<i>Pterosperma</i> spp				present	present	
<i>Pyramimonas</i> spp	present	present	present	present	present	present
<i>Oocystis</i> spp	present					
<i>Planctonema lauterbornii</i>				common	common	
<i>Ebria tripartita</i>		present	present	present		present
Craspedophyceae			present			
Ciliophora	common	common	common	common	common	present
<i>Helicostomella subulata</i>	present	present		present	present	present
<i>Mesodinium rubrum</i>				present		

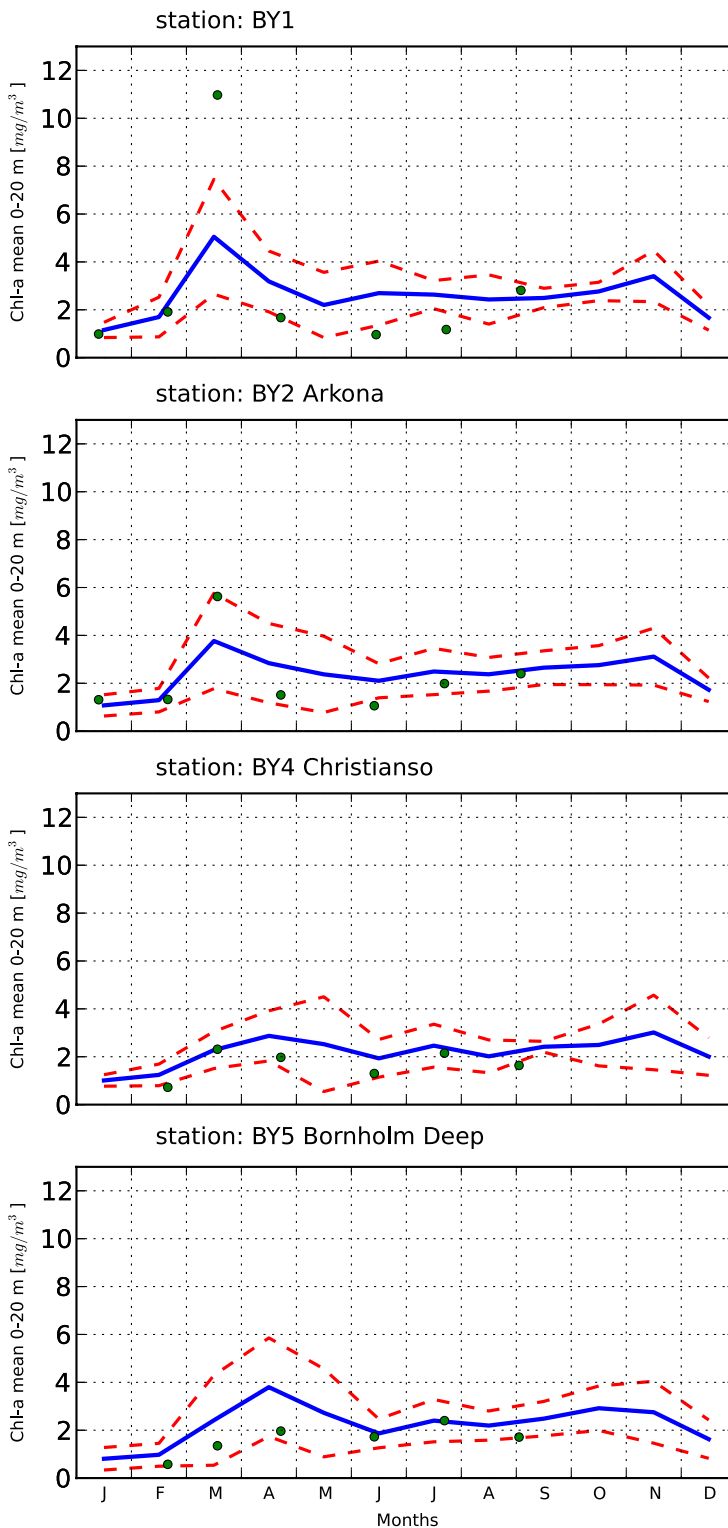
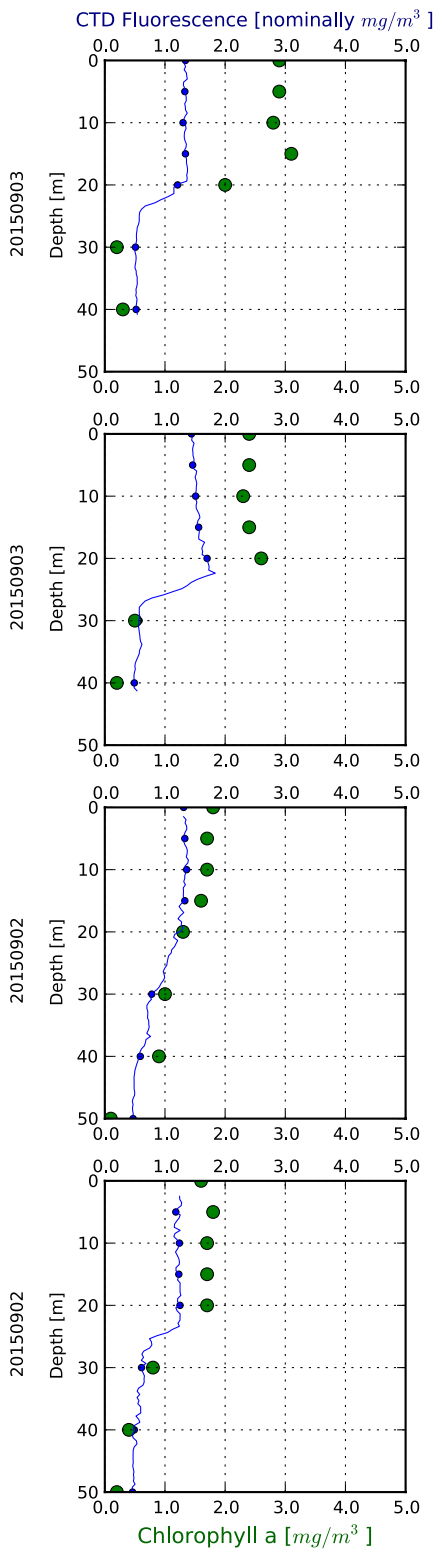
# The Skagerrak



# The Kattegat and The Sound



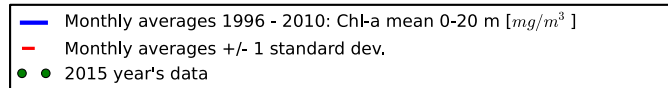
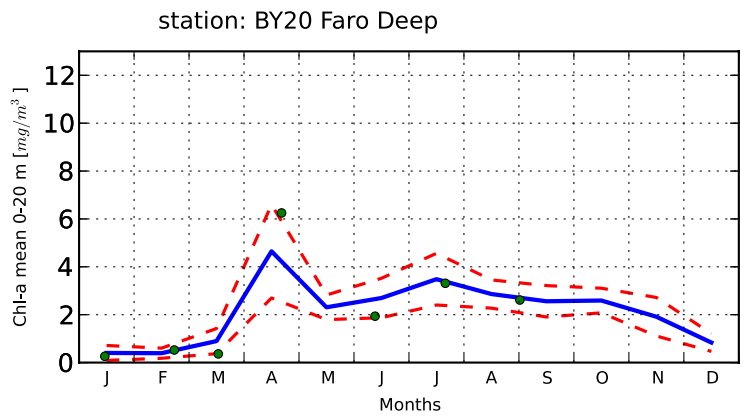
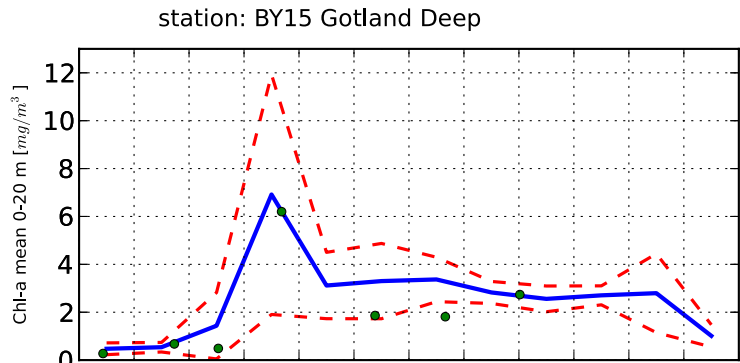
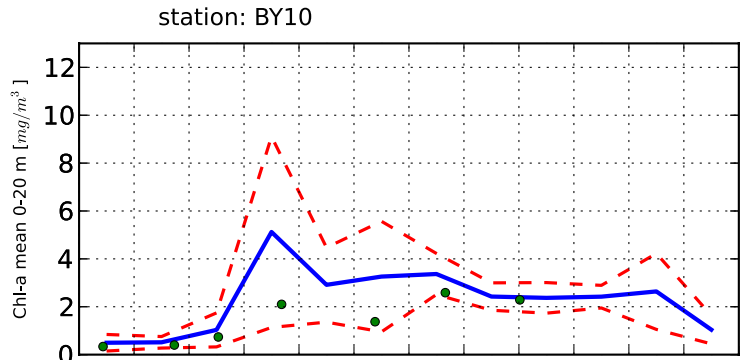
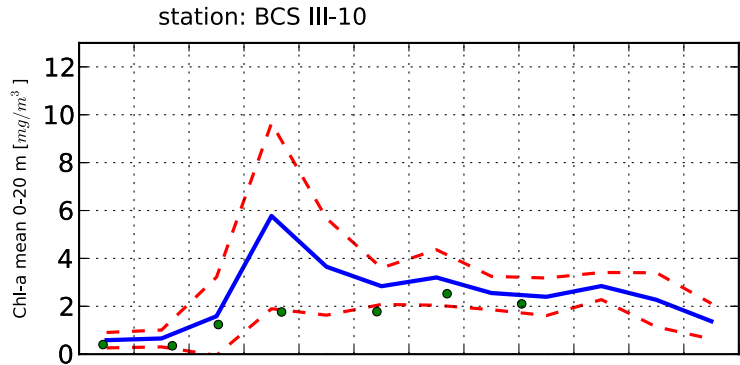
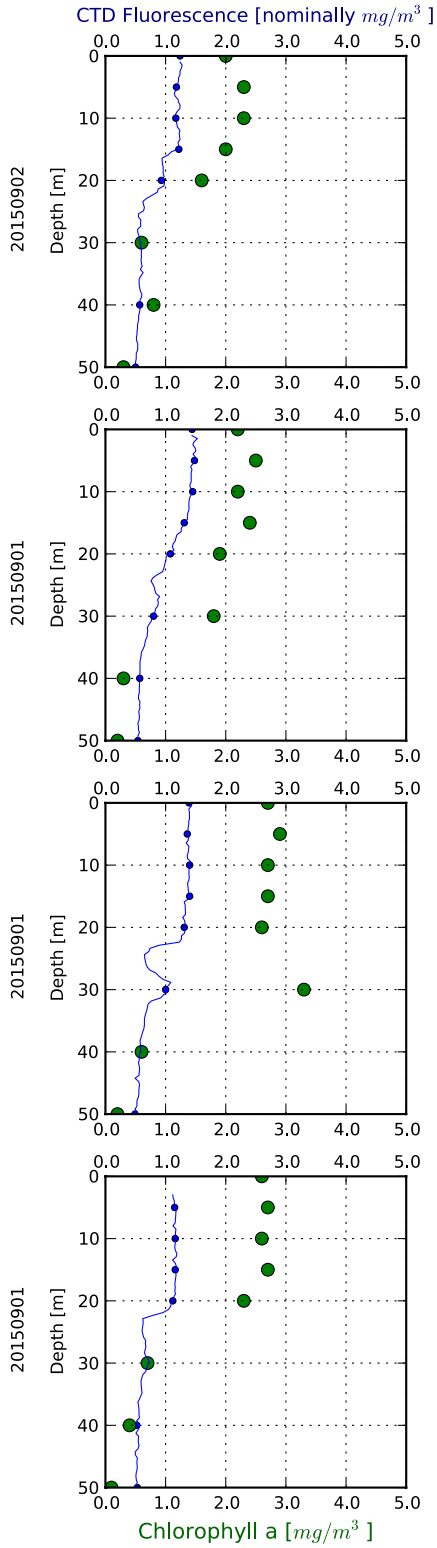
The Southern Baltic



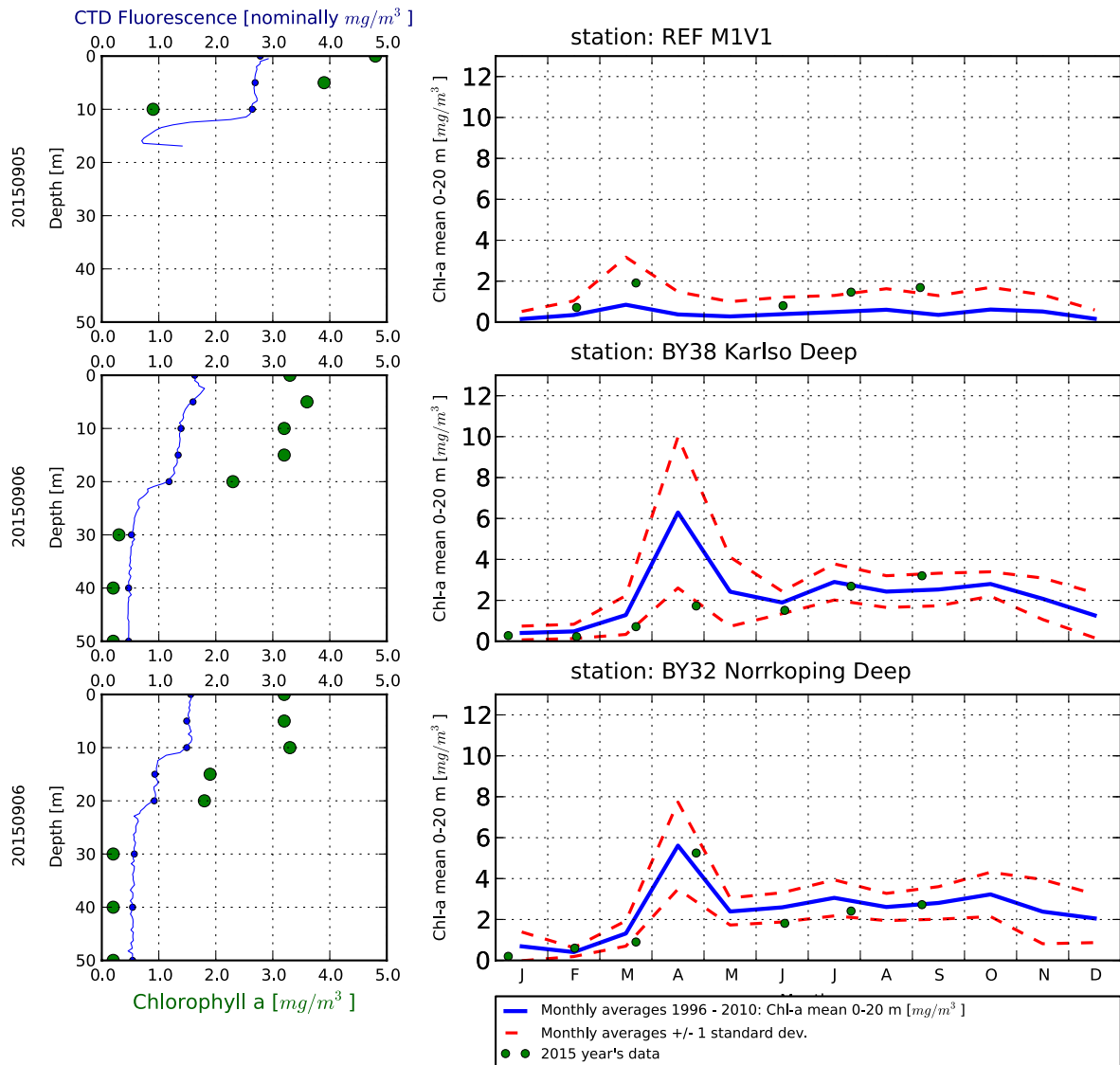
— Monthly averages 1996 - 2010: Chl-a mean 0-20 m [ $mg/m^3$ ]  
- - - Monthly averages +/- 1 standard dev.  
● 2015 year's data



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](http://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](http://www.smhi.se) during the period June-August.

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>Pseudo-nitzschia</i> spp.	Amnesic shellfish poisoning (ASP)	<b>Milda symptom:</b> Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramp <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.
<i>Chaetoceros concavicornis</i> / <i>C. convolutus</i>	Mechanical damage through hooks on setae	<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>Pseudochattonella</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.

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.

