

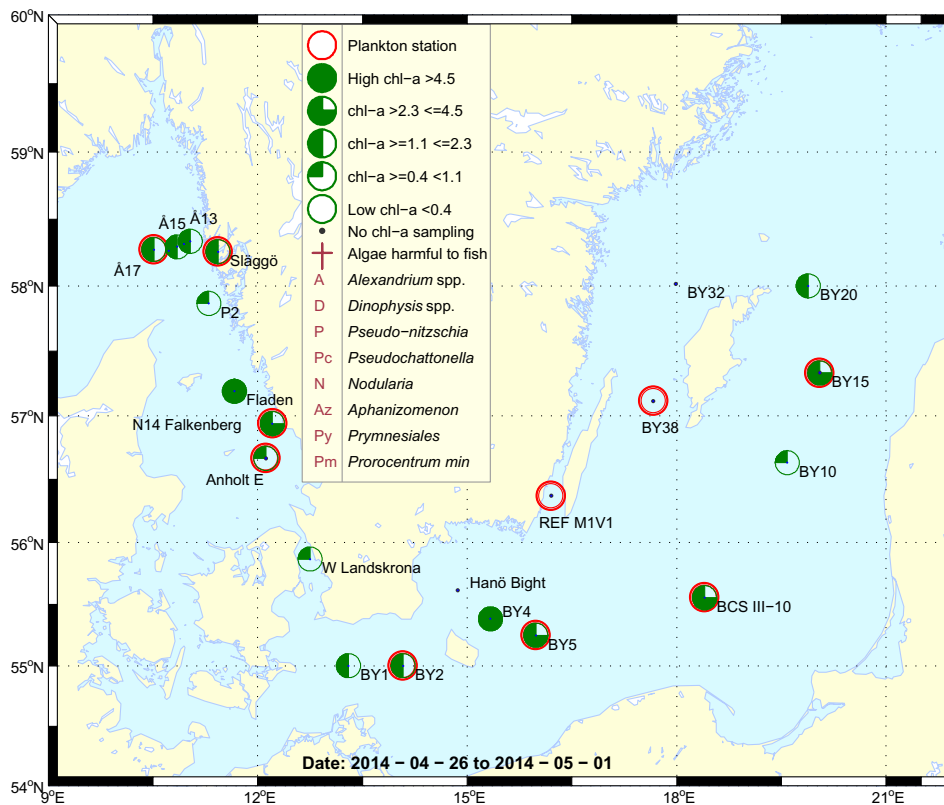
Sammanfattning

Kattegatt och centrala Skagerrak dominerades helt av en flagellat som för närvarande är oidentifierad. Den har även noterats i det danska övervakningsprogrammet under senkvåren i år. I Skagerrak var dinoflagellaten *Peridiniella danica* och stora celler från kiselalgen *Cerataulina pelagica* vanliga.

Den oidentifierade flagellaten fanns även i Arkona och Bornholmsbassängen. För övrigt var det oidentifierade coccoider, ciliater och dinoflagellater tillhörande släktena *Scrippsiella/Biecheleria/Gymnodinium* som dominerade stationerna i Östersjön.

Klorofyll *a* koncentrationerna i Skagerrak låg nära medelvärdet på de flesta stationerna men vid N14 och Fladen i Kattegatt var halterna högt över det normala. I Östersjön var halterna överlag mycket låga och på vissa stationer under det normala med undantag av BY5 där klorofyll *a* halterna var höga.

Ett stort antal klorofyllprover från flera stationer har kasserats på grund av lång transport i för hög temperatur.



Abstract

The Kattegat and the southern part of the Skagerrak were dominated by an unidentified flagellate. It has also been recorded in the Danish monitoring programme. In the Skagerrak, the dinoflagellate *Peridiniella danica* and large cells from the diatom *Cerataulina pelagica* were common.

The unidentified flagellate was present in the Arkona and the Bornholm basins. The Baltic Sea samples were in addition to the flagellate dominated by small coccooids, ciliates and dinoflagellates from the genera *Scrippsiella/Biecheleria/Gymnodinium*.

The chlorophyll *a* concentrations were normal in the Skagerrak but very high at N14 and Fladen in the Kattegat. In the Baltic, the chlorophyll *a* concentrations were very low, with the exception of BY5 with very high concentrations.

Chlorophyll *a* samples from several stations have been discarded due to too long transport duration without the right temperature conditions.

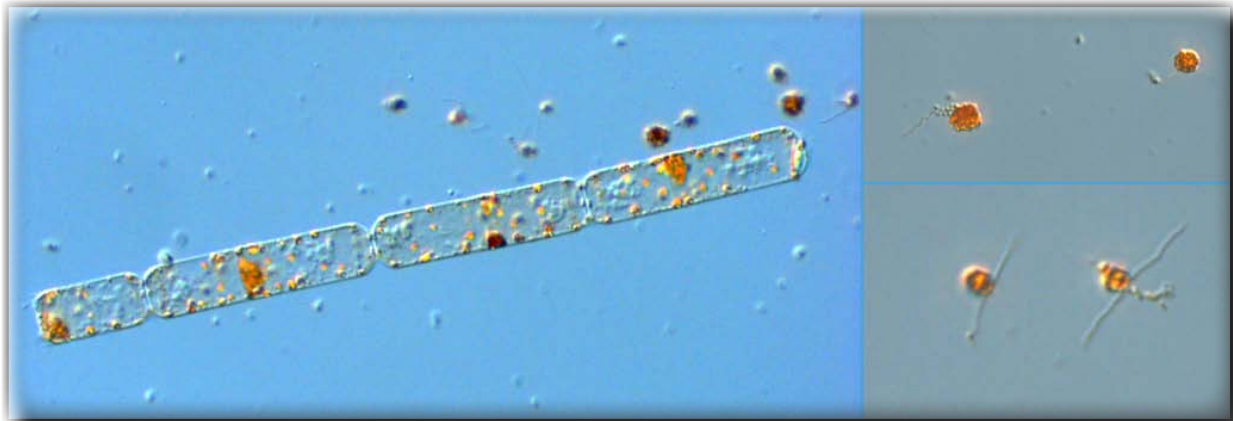
More detailed information on species composition and abundance

The Skagerrak

Å17 29th of April

Apart from the common unidentified flagellate, the sample from Å17 was almost empty, but there were a few large cells of the diatom *Cerataulina pelagica*. Species from the class Prymnesiales were common.

A sample was taken at a fluorescence maximum at 10 meters depth. The unidentified flagellate was very common.



Dominating species at Å17. The unidentified flagellate in the upper right corner was dominating the phytoplankton community in the Skagerrak and the Kattegat.

Släggö 29th of April

The phytoplankton community at Släggö was diverse and very dense. *Peridiniella danica* and the unidentified flagellate were dominating the community and the diatom *Skeletonema marinoi* was numerous.

A sample was taken at a fluorescence maximum at 10 meters depth and was dominated by the diatom *Skeletonema marinoi* and the golden algae *Dinobryon balticum*. The potentially toxic dinoflagellate *Dinophysis norvegica** was common.

The Kattegat

Anholt E 28th, 29th of April and N14 Falkenberg 28th of April

The unidentified flagellate was dominating at all stations in the Kattegat. The diversity and cell numbers were low during the first visit at Anholt. This was totally changed when visiting 24 hours later. *Cerataulina pelagica*, *Ceratium tripos*, species from the class Prymnesiales and ciliates were very common. Station N14 was totally dominated by the flagellate.

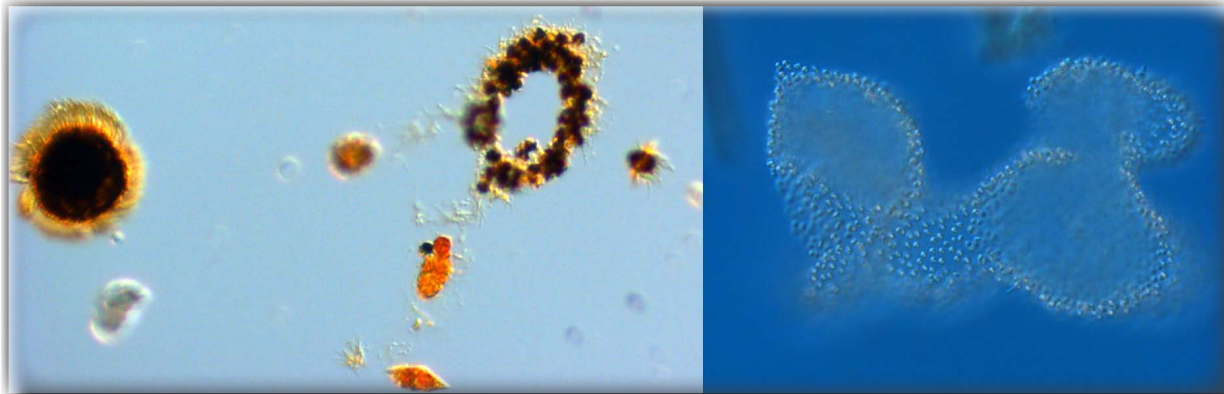
Fluorescence maxima were found between 12-15 meters depth at Anholt E and N14 Falkenberg. The unidentified flagellate dominated the samples at both stations.

The Baltic Sea

BY2 Arkona 27th of April and BY5 Bornholms basin 27th of April

These two stations were dominated by a 1 µm small unicell and the unidentified flagellate was present at both stations. The diversity and cell density were larger in the Bornholms basin than in the Arkona basin. There were a lot of ciliates in the Bornholms basin.

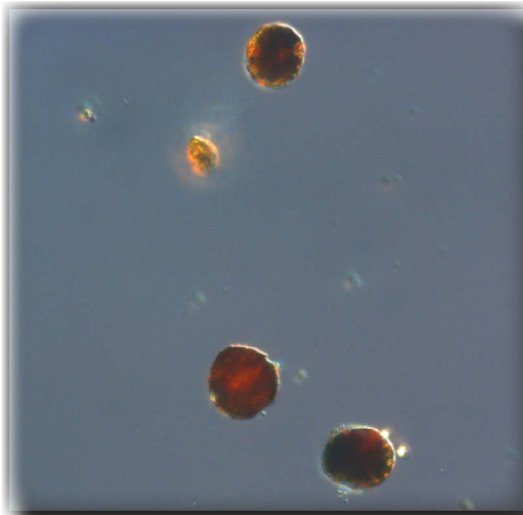
A phytoplankton sample from a fluorescence maximum at 20 meters depth was dominated by the unidentified flagellate.



Plankton community with a cyanobacterial colony at Bornholms basin.

BCS III-10 27th of April

The diversity was high but the cell density was low at this station. The phytoplankton community was dominated by ciliates, *Mesodinium rubrum*, *Peridiniella catenata* and the filamentous cyanobacteria *Aphanizomenon flos-aqua*.



BY15 26th of April

Scrippsiella/Biecheleria/Gymnodinium dominated at this station, they are difficult to identify to species level hence they are put together in this report. As in BCS III-10, the diversity was high and ciliates were common but the cell density was high at BY15.

BY38 26th of April

No samples taken at this station because of the wind situation.

Ref M1V1 Kalmar Sound 30th of April

The diversity was high in the Kalmar Sound and the species composition was dominated by *Heterocapsa*, gymnodiniales, cryptomonads and ciliates.

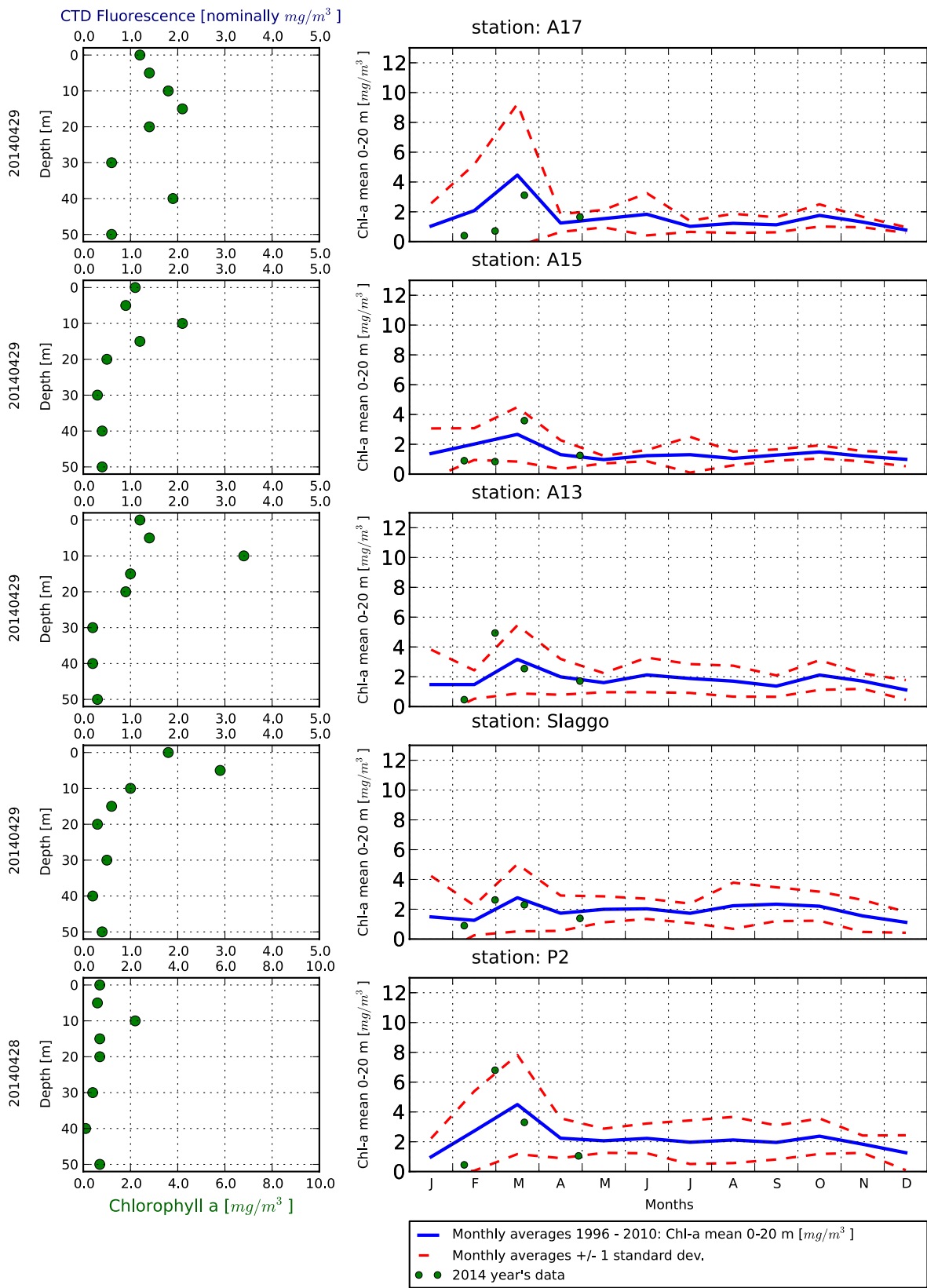
Scrippsiella/Biecheleria/Gymnodinium complex at BY15.

Phytoplankton analysis and text by:
Malin Mohlin

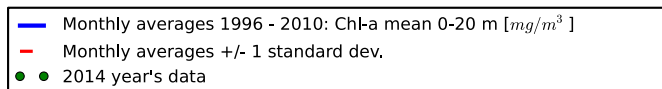
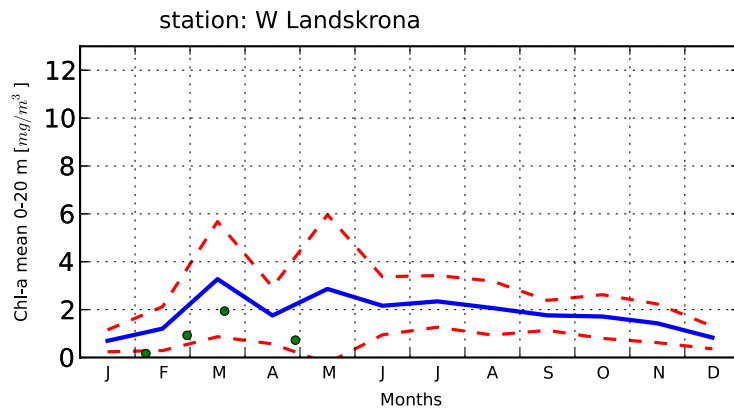
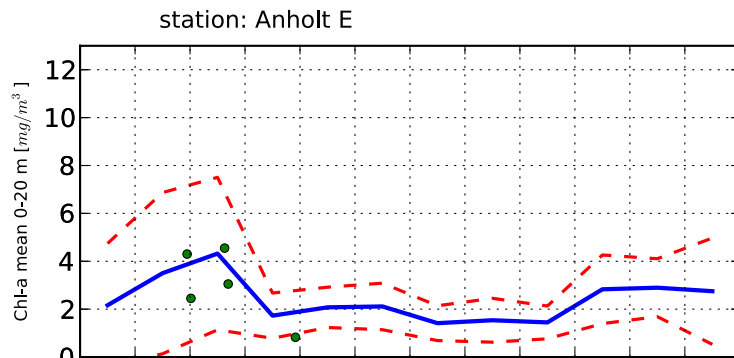
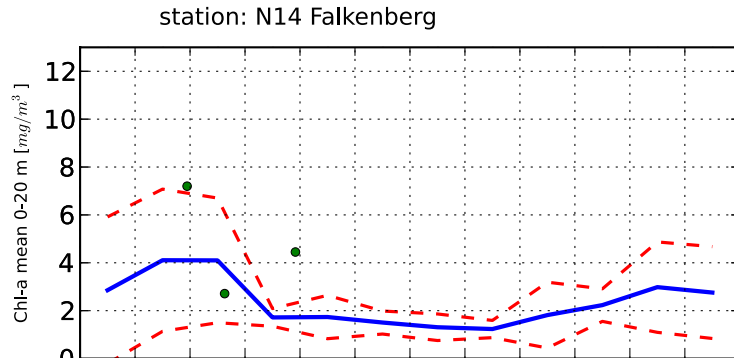
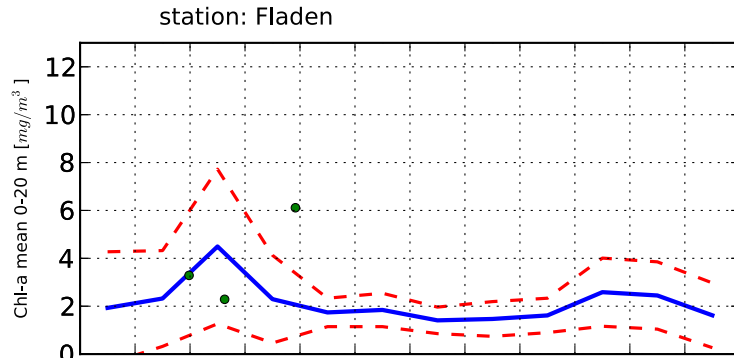
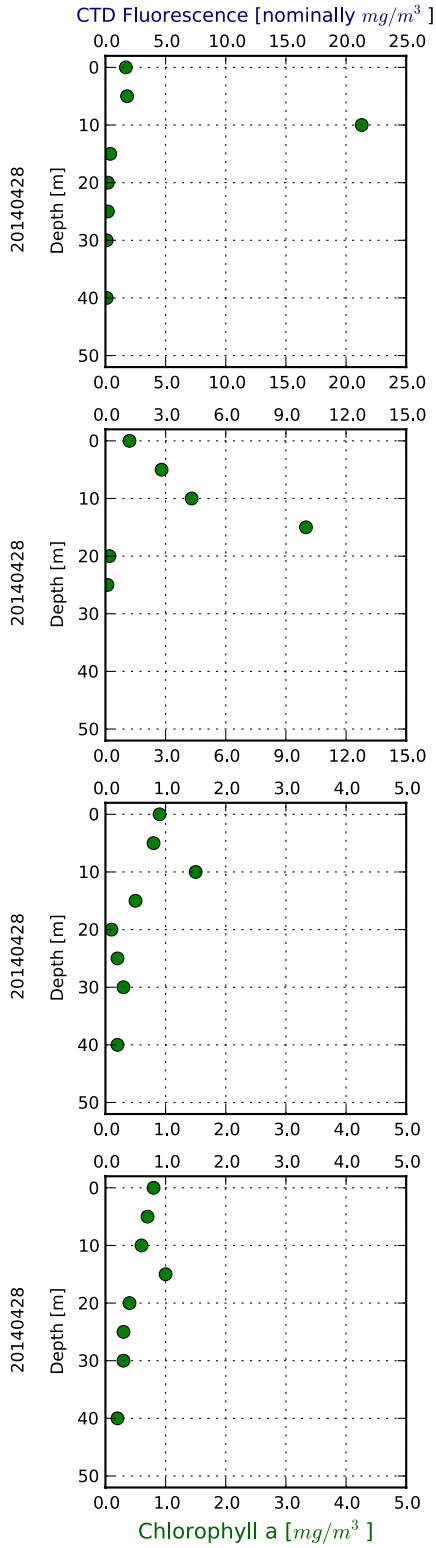
Selection of observed species	Anholt E	Anholt E	N14 Falkenberg	Släggö	Å17
Red=potentially toxic species	2014-04-28	2014-04-29	2014-04-28	2014-04-29	2014-04-29
Hose 0-10 m	presence	presence	presence	presence	presence
Cerataulina pelagica		very common	present	present	present
Chaetoceros spp				present	
Chaetoceros debilis		present			
Cylindrotheca closterium		present			present
Guinardia delicatula		present	present		
Skeletonema marinoi		common		common	
Alexandrium spp				present	
Ceratium furca				present	
Ceratium fusus		present			
Ceratium lineatum				present	
Ceratium longipes				present	
Ceratium tripos	present	very common	present	present	present
Dinophysis acuminata				present	
Dinophysis norvegica	present			present	
Gymnodiniales		present	present	present	present
Gyrodinium spp				present	
Heterocapsa spp		present			
Katodinium glaucum			present	present	
Peridinales				present	present
Peridiniella danica	present	common	present	very common	present
Protoceratium reticulatum			present	present	
Protoperidinium bipes				present	
Protoperidinium depressum				present	
Oltmannsiellopsis spp		common			
Pachysphaera spp	present			present	
Pyramimonas spp	present	present		present	present
Pyramimonas longicauda				present	
Dinobryon spp		common		present	present
Dinobryon faculiferum		present			
Calliacantha longicaudata		present			
Craspedophyceae	present			present	present
Cryptomonadales	present	very common	present	present	present
Leucocryptos marina	present	present		present	
Teleaulax spp	present		present	present	present
Apedinella radians				present	
Dictyocha speculum			present		
Prymnesiales	present	common	common		common
Flagellates	very common	very common	very common	common	common
Cryothecomonas spp				present	
Cryothecomonas scybalophora		present			
Ciliophora	present	very common	present	present	
Laboea strobila				present	
Strombidium spp		present			

Selection of observed species	BCS III-10	BY2 Arkona	BY5 Bornholmsdjupet	BY15 Gotlandsdjupet	Ref M1-V1
Red=potentially toxic species	2014-04-27	2014-04-27	2014-04-27	2014-04-26	2014-04-30
	presence	presence	presence	presence	presence
Bacillariophyceae	present				
Chaetoceros spp				present	
Chaetoceros wighamii				present	
Coscinodiscophyceae	present				
Licmophora spp					present
Melosira spp			present	present	
Skeletonema marinoi	present	present		present	common
Amphidinium sphenoides				present	
Amylax triacantha	present		present	present	
<i>Dinophysis acuminata</i>	present		present		
Gymnodinales					very common
Gyrodinium spp			present		
Gyrodinium spirale					common
Heterocapsa spp					very common
<i>Karlodinium veneficum</i>			present		
Katodinium glaucum	present		present		common
Scrippsiella/Biecheleria/Gymnodinium				very common	
Peridinales	present	present			common
Peridiniella catenata	common		present	present	
Protoperidinium bipes				present	present
Aphanizomenon flos-aquae	common		present		
cf. Aphanocapsa spp			present		
Aphanothece spp				present	
Cyanodictyon cf. spp				present	
Woronichinia spp				present	
Woronichinia compacta	present				
Oocystis spp	present				
Planctonema lauterbornii			present	present	
Pyramimonas spp	present	present	present		present
Eutreptiella spp	present				common
Eutreptiella gymnastica				present	
Pseudopedinella spp				present	present
Pseudopedinella pyriforme					common
Cryptomonadales	present		present	present	very common
Teleaulax spp		present	present	present	
Calliacantha longicaudata					present
Calliacantha natans					common
Craspedophyceae				present	
Dinobryon spp			present		
Dinobryon balticum					common
Ciliophora	common	present	common	common	very common
Mesodinium rubrum	common	present	present	present	common
Strombidium spp					present
Flagellates		present	present		
Unicell		very common	very common		

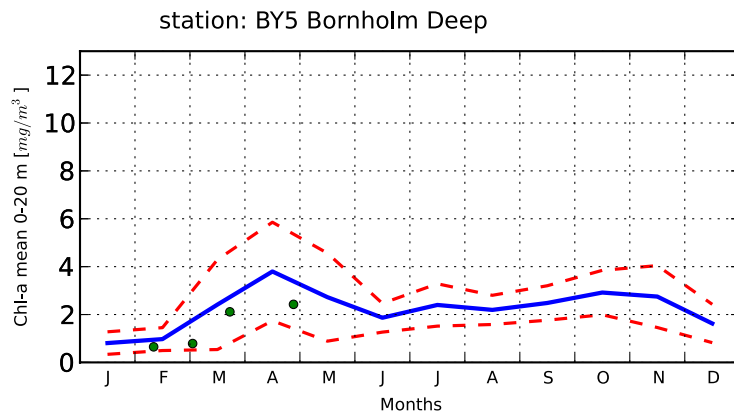
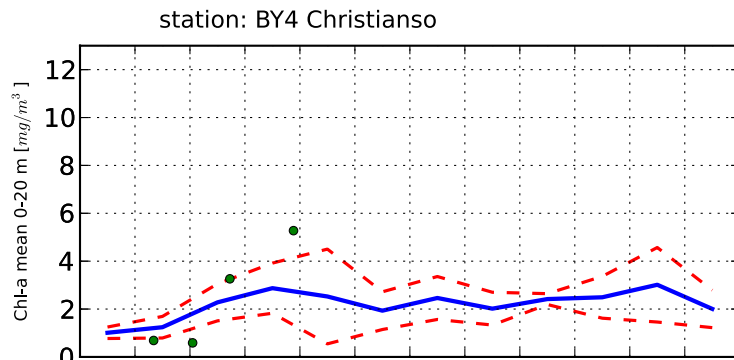
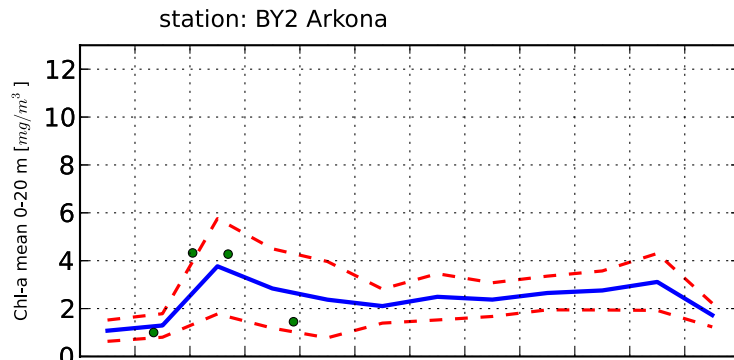
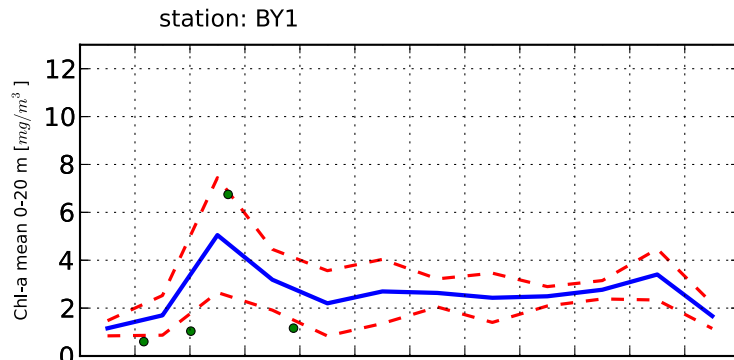
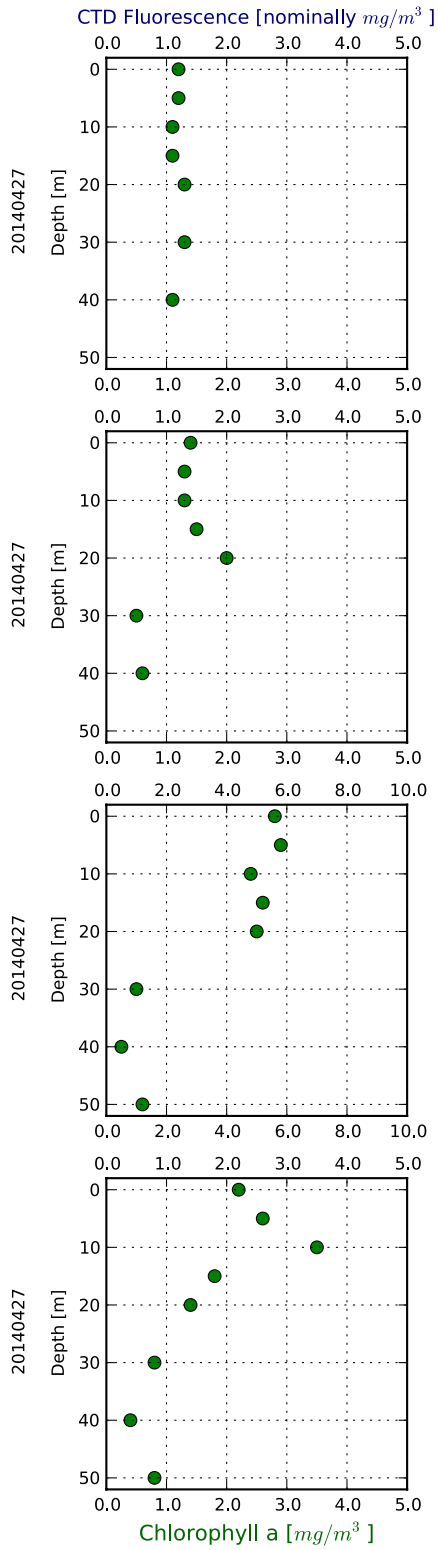
The Skagerrak



The Kattegat and The Sound

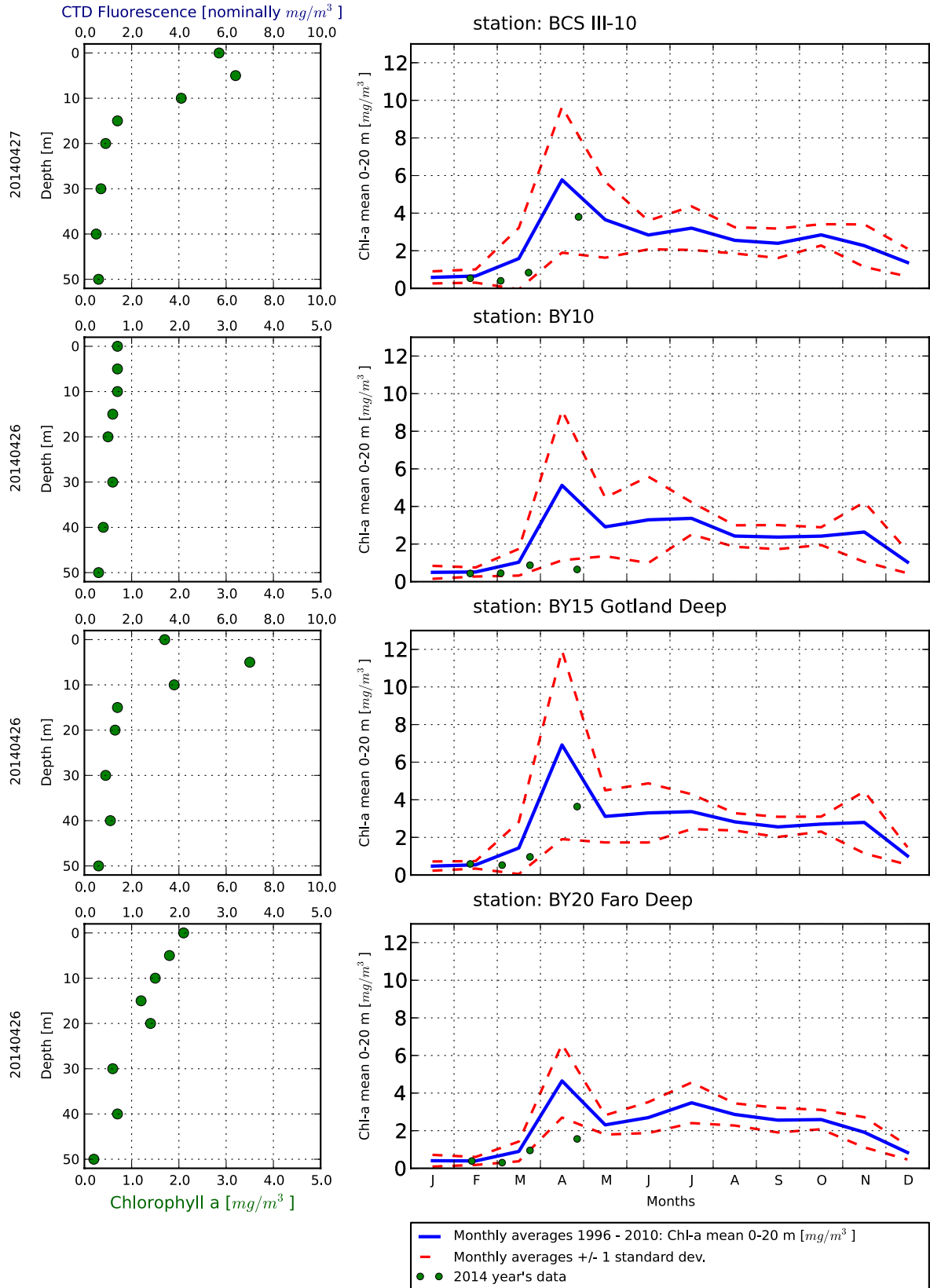


The Southern Baltic

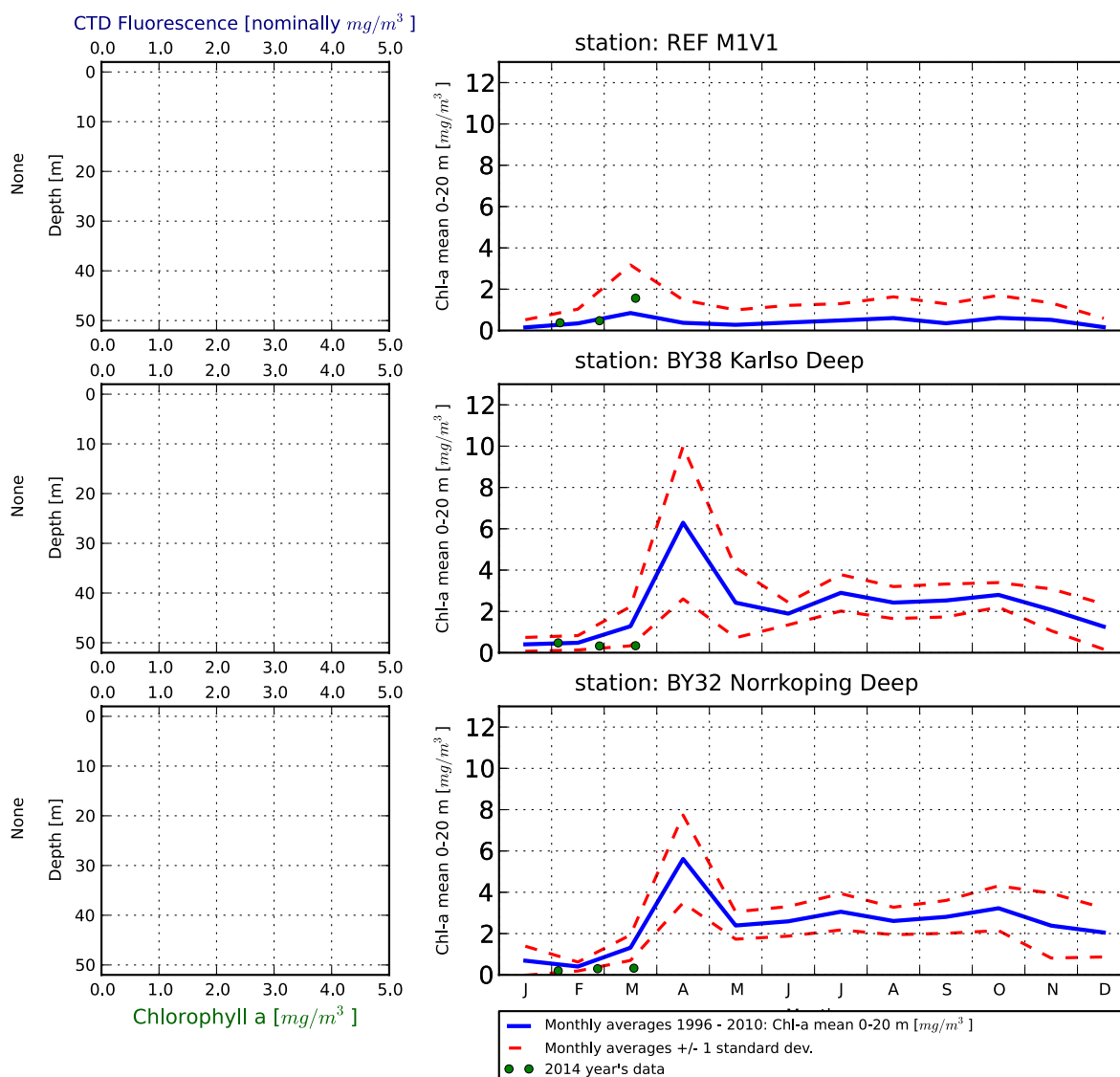


— Monthly averages 1996 - 2010: Chl-a mean 0-20 m [mg/m^3]
- - - Monthly averages +/- 1 standard dev.
● 2014 year's data

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.

