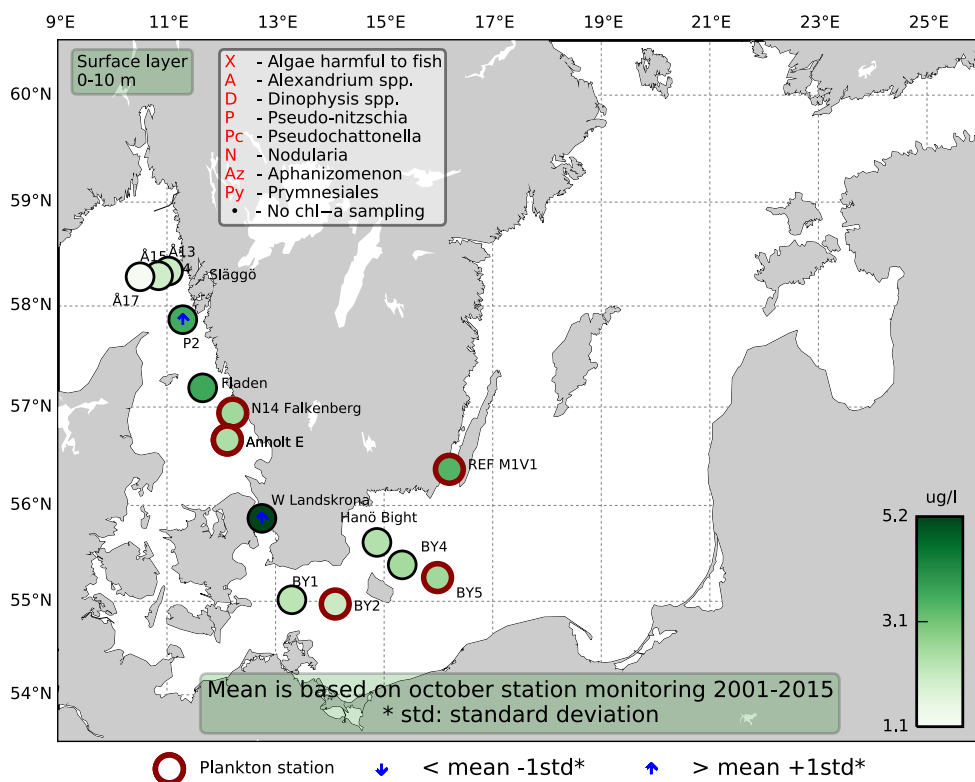


## Sammanfattning

På grund av hårt väder och tekniska problem ombord på ersättningsfartyget M/V Aura, fick ett antal stationer strykas under oktoberexpeditionen. Därför saknas också samma stationers klorofylldiagram.

Artdiversiteten var hög, framför allt i växtplanktonproverna från Kattegatt. Det var rikligt med kiselalgsarter och relativt höga antal av det potentiellt skadliga släktet *Pseudo-nitzschia*\*. Det nakna stadiet av *Dictyocha* spp som kan vara skadligt för fisk, observerades i Kattegatt och vid Släggö i Skagerrak i låga antal. Klorofyllvärdena var höga i Öresund och vid P2 i Skagerrak, i övrigt var de normala för denna månaden.

Östersjöproverna präglades av små arter i låga antal. Flera olika släkten av kolonier av små cyanobakterier var närvarande.



## Abstract

Due to rough weather conditions and technical problems onboard the M/V Aura, which replaces the R/V Aranda, several stations could not be visited during the October cruise. This is also why as many chlorophyll diagrams are missing.

The species diversity was high in the Kattegat phytoplankton samples. Diatom species were numerous and the cell numbers of the potentially harmful genus *Pseudo-nitzschia*\* were high. The naked stage of the flagellate *Dictyocha* spp, which may be harmful to fish, was observed in the Kattegat samples and at Släggö in the Skagerrak in low cell numbers. The chlorophyll concentrations were high in the Sound and at P2 in the Skagerrak, at all other stations the concentrations were normal for this month.

The Baltic Sea samples typically had small species in low abundancies. Several different genera of small cyanobacteria were present.

Below follows a more detailed information on species composition and abundance. Species marked with \* are potentially toxic or harmful.

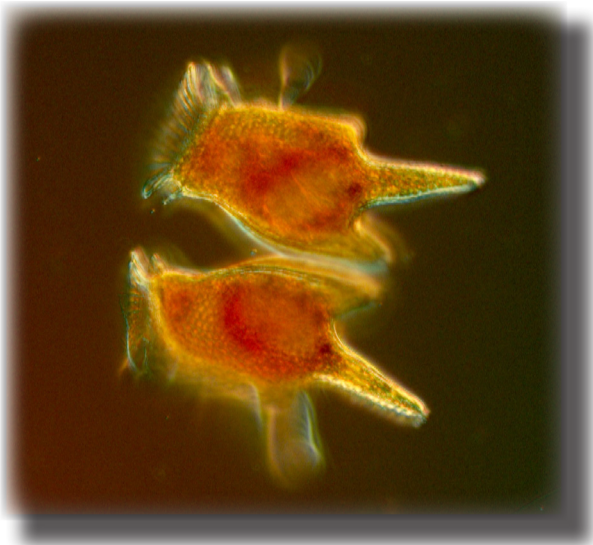
## The Skagerrak

### Å17 (open Skagerrak) 11<sup>th</sup> of October

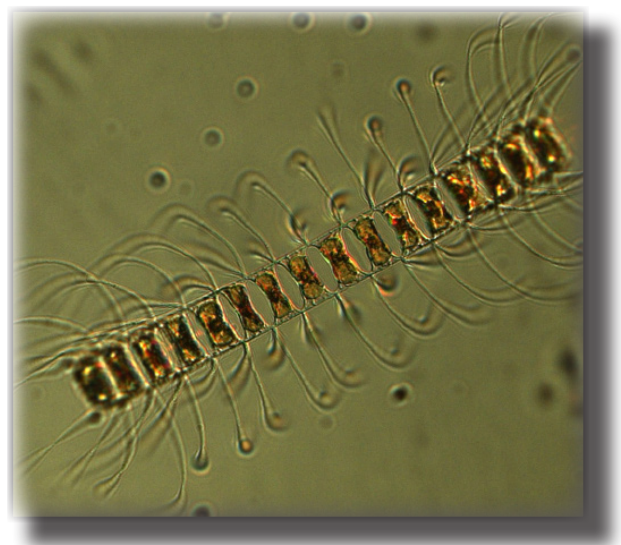
A few species were present in low cell numbers. The potentially toxic and, in Swedish waters, quite rare dinoflagellate *Dinophysis tripos* was quite numerous though.

### Släggö (Skagerrak coast) 11<sup>th</sup> of October

Compared to the previous expedition, the species diversity was low. *Leptocylindrus minimus* and *Skeletonema marinoi* were still the most common diatoms though. The flagellate genus *Dictyocha* was present in its naked stage.



The dinoflagellate *Dinophysis tripos* is usually rare but it has been a frequent guest at the west coast stations the previous couple of months.

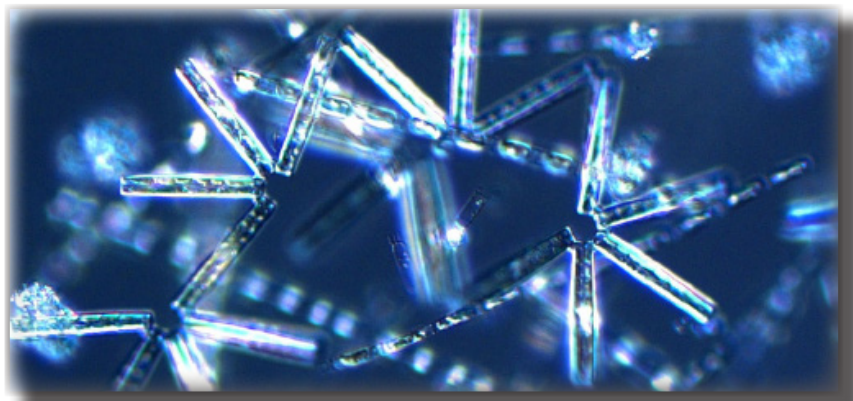


The diatom *Chaetoceros curvisetus* was found in quite high cell numbers at Anholt E.

## The Kattegat

### Anholt E and N14 Falkenberg 12<sup>th</sup> and 15<sup>th</sup> of October

The phytoplankton species diversity was high at both stations. Diatoms dominated the samples and high cell numbers were found of e.g. *Chaetoceros curvisetus*, *Thalassionema nitzschioides* and *Pseudo-nitzschia* spp.\*. The flagellate genus *Dictyocha* was present in its naked stage.

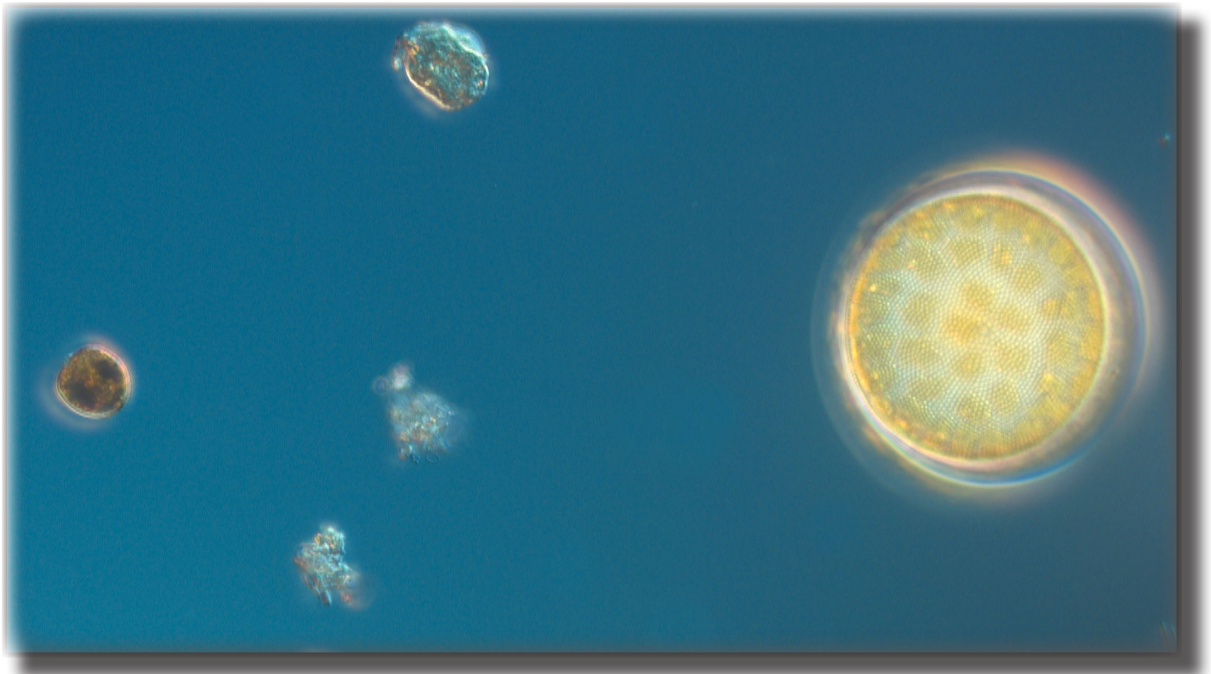


The diatom *Thalassionema nitzschioides* was present at all of the Kattegat and Skagerrak phytoplankton stations.

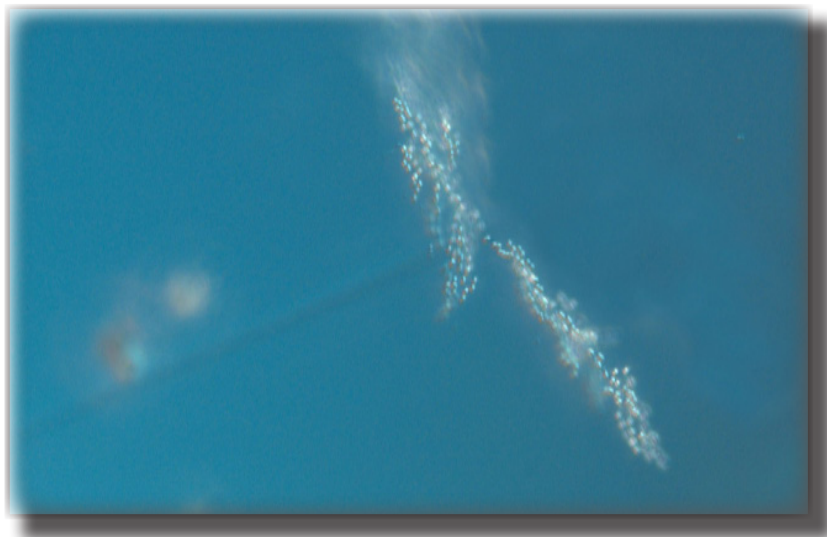
## The Baltic Sea

### BY2, BY5 and REF M1V1 14<sup>th</sup> of October

Small species in low numbers were found in the phytoplankton samples. At the coastal station REF M1V1 species were a bit more abundant though and quite high cell numbers of the diatom *Skeletonema marinoi* were found. Several genera of small cyanobacteria that form specific colonies were present.



The dinoflagellate *Prorocentrum balticum* (left) and the diatom *Coccosira centralis* were present at REF M1V1.



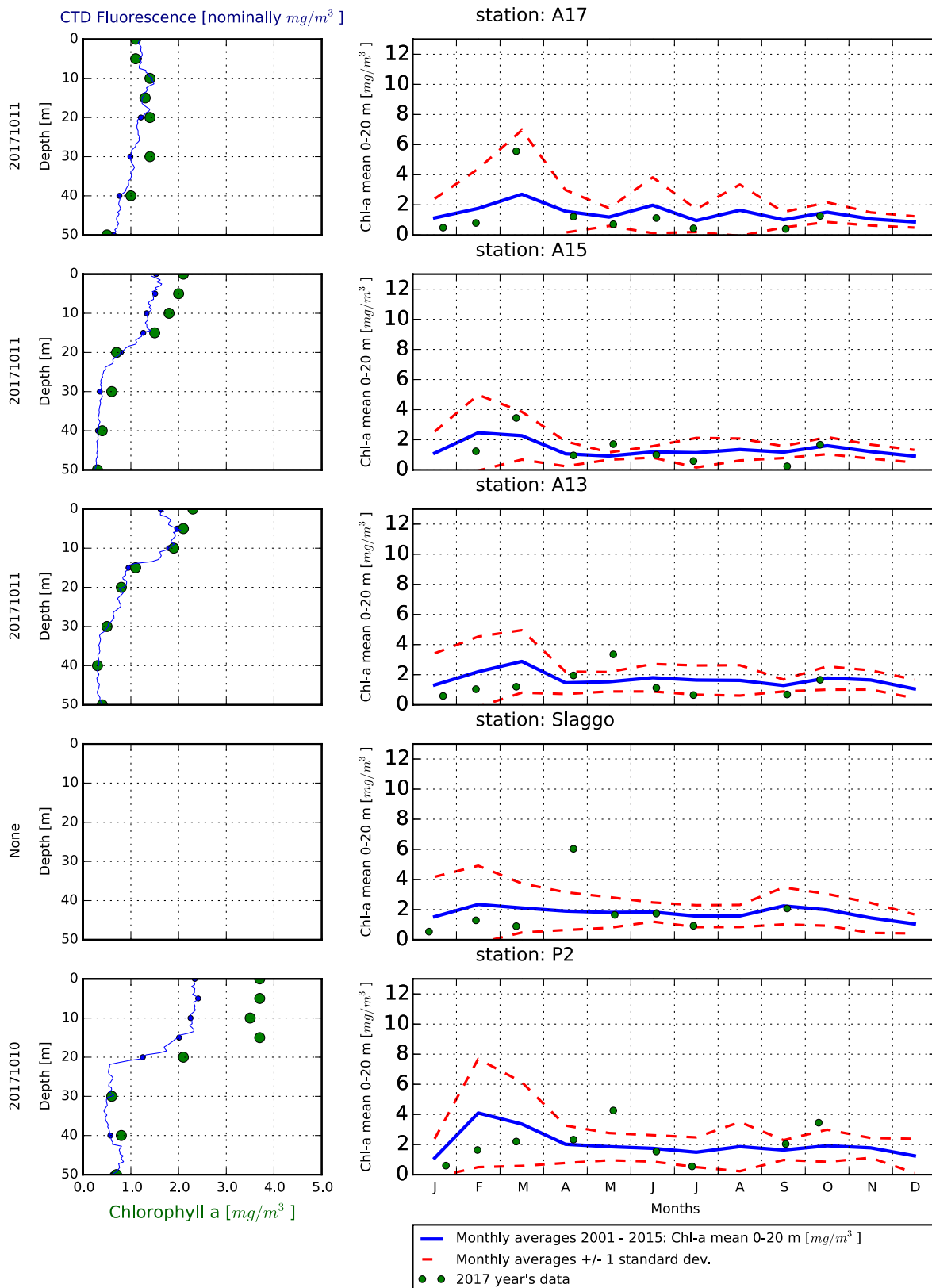
*Aphanothece paralleliformis* is one of several colony forming cyanobacteria observed in the Baltic phytoplankton samples this month.

Phytoplankton analysis and text by:  
Ann-Turi Skjevik

Selection of observed species	Anholt E	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	12/10	15/10	12/10	11/10	11/10
Hose 0-10 m	presence	presence	presence	presence	presence
Asterionellopsis glacialis			present		present
Attheya septentrionalis	present	present			
Cerataulina pelagica	common	common	common	present	present
Chaetoceros affinis	present	present	present		
Chaetoceros contortus			present		
<b>Chaetoceros cf. convolutus</b>	<b>present</b>	<b>present</b>			
Chaetoceros curvisetus	very common	common	present		
Chaetoceros danicus	present	present	present		
Chaetoceros decipiens		present			
Chaetoceros didymus	present	present			
Chaetoceros laciniosus	present				
Chaetoceros similis				present	
Chaetoceros socialis	present	present	present	present	
Chaetoceros tenuissimus				present	
Chaetoceros wighamii		present			
Coscinodiscus centralis		present			
Dactyliosolen blavyanus			present		
Dactyliosolen fragilissimus	present	present	present	present	
Ditylum brightwellii	common	present	common	present	present
Eucampia zodiacus			present		
Guinardia delicatula	present	present	present	present	
Leptocylindrus danicus	present	present	present	present	present
Leptocylindrus minimus			common	common	
Navicula transitans				present	
Nitzschia longissima	present	present	present	present	present
Proboscia alata	present	present	present		
Proboscia indica				present	
<b>Pseudo-nitzschia spp</b>	<b>common</b>	<b>common</b>	<b>common</b>	<b>present</b>	<b>present</b>
<b>Pseudo-nitzschia seriata</b>					<b>present</b>
Pseudosolenia calcar-avis	present	common	common		
Rhizosolenia pungens	present	common	present		present
Rhizosolenia setigera	present				
Skeletonema marinoi	common	common	common	common	
Thalassionema nitzschioides	present	common	common	present	present
Thalassiosira rotula	present	present	present		
Ceratium furca	present	present	present	present	
Ceratium fusus	common	present	common	present	present
Ceratium lineatum	present			present	present
Ceratium longipes		present			
Ceratium macroceros			present		present
Ceratium tripos	present	present	present	present	present
<b>Dinophysis acuminata</b>	<b>present</b>	<b>present</b>	<b>present</b>	<b>present</b>	
<b>Dinophysis acuta</b>		<b>present</b>			<b>present</b>
<b>Dinophysis norvegica</b>	<b>present</b>		<b>present</b>		<b>present</b>
<b>Dinophysis tripos</b>					<b>common</b>
Gyrodinium flagellare				present	
Heterocapsa spp	present				
Heterocapsa triquetra		present			
<b>Karlodinium veneficum</b>				<b>present</b>	
Lessardia elongata	present			present	
Polykrikos schwartzii	present	present			
Prorocentrum micans	present			present	
Protoperidinium spp					present
Protoperidinium bipes		present	present		
Protoperidinium divergens					present
Protoperidinium oblongum			present		
Protoperidinium pallidum	present		present		
Protoperidinium pellucidum		present			present
Scrippsiella group				present	
Emiliania huxleyi	common	present	present	present	present
Eutimninus elongatus					present
Calliacantha longicaudata	present				
Cryptomonadales	common	present	common	common	common
Leucocryptos marina	present	present			
Pseudanabaena spp	present	present	present	present	
<b>Dictyocha sp naked</b>		<b>present</b>	<b>present</b>	<b>present</b>	
Dictyocha fibula		present			
Dictyocha speculum	present	present	present	present	present
Pseudopedinella spp	present	present			
Favella spp				present	
Helicostomella subulata					present
Laboea strobila					present
Strombidium spp		present		present	present
Tiarina fusus		present		present	
Ciliophora	present	present	present		

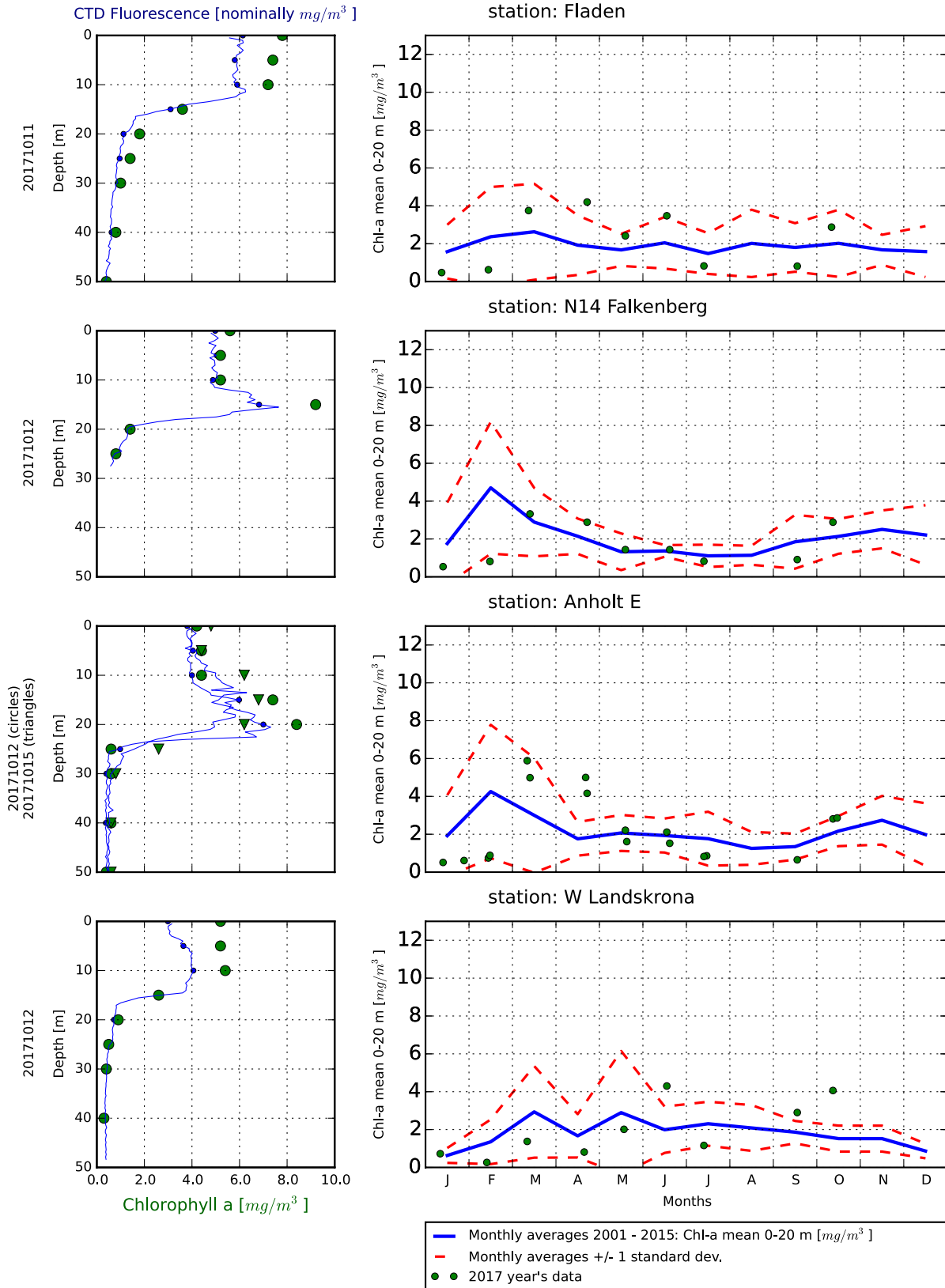
Selection of observed species	BY2	BY5	REF M1V1
Red=potentially toxic species	14/10	14/10	14/10
Hose 0-10 m	presence	presence	presence
Chaetoceros castracanei	present	present	
Chaetoceros danicus	present	present	present
Coscinodiscus centralis			present
Nitzschia longissima			present
Skeletonema marinoi			common
<b>Dinophysis acuminata</b>	<b>present</b>		<b>present</b>
Gymnodinium verruculosum	present	present	
Heterocapsa spp	present	present	present
Heterocapsa rotundata	present	present	
Prorocentrum balticum			present
Prorocentrum micans			present
Pterosperma spp		present	present
Pyramimonas spp		present	
<b>Prymnesiales</b>			<b>present</b>
Planctonema lauterbornii		present	present
Cryptomonadales	common	present	common
Eutreptiella spp	present	present	present
Aphanizomenon flosaquae		present	
Aphanothece spp		present	
Aphanothece paralleliformis			present
Cyanodictyon spp		present	present
Dolichospermum lemmermannii			present
Lemmermanniella spp		present	
Pseudanabaena spp			present
Snowella spp		present	present
Pseudopedinella pyriformis		present	present
Ebria tripartita	present	present	
Mesodinium rubrum	present	common	present
Stenosemella spp	present		
Strombidium spp	present		present
Tintinnidae			common
Ciliophora	present	present	present

# The Skagerrak

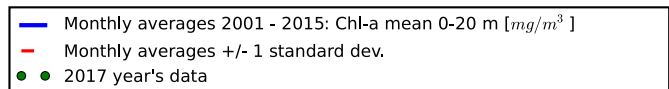
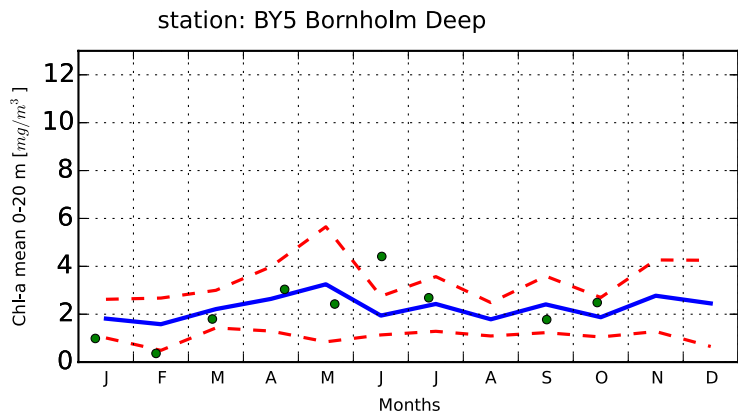
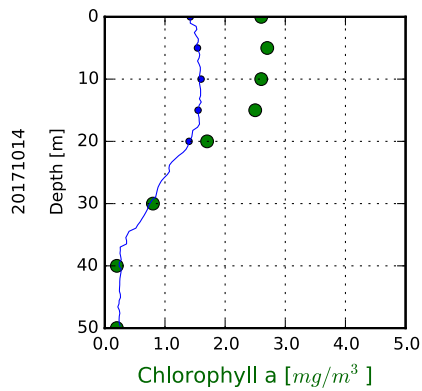
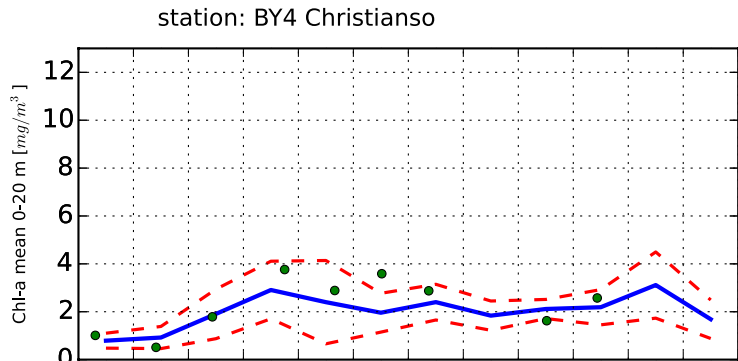
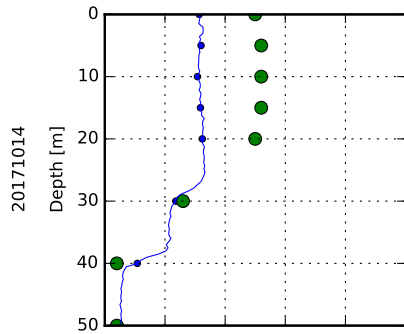
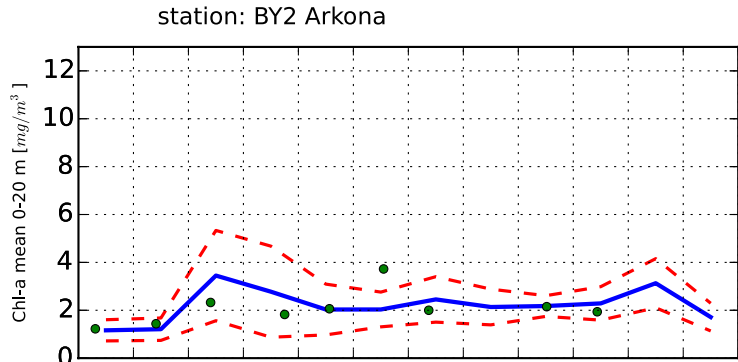
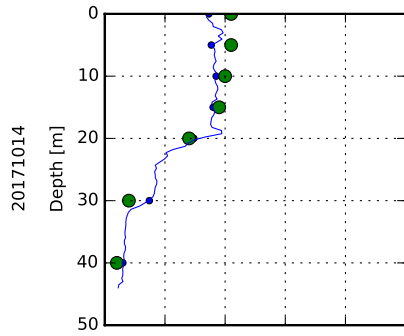
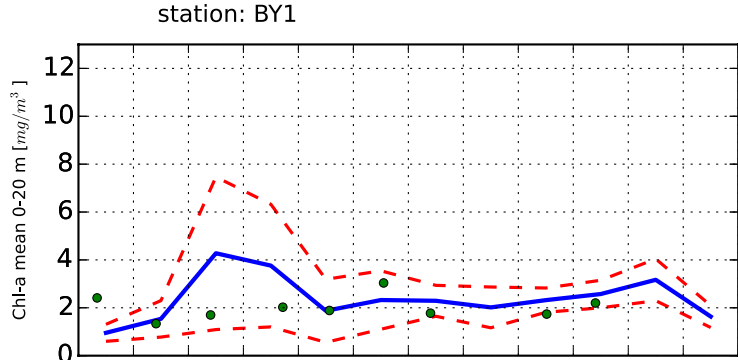
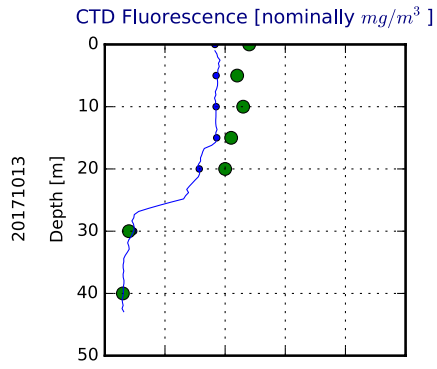


Due to technical problems, the chlorophyll from Slaggö could not be entered in the database and will be updated later.

# The Kattegat and The Sound

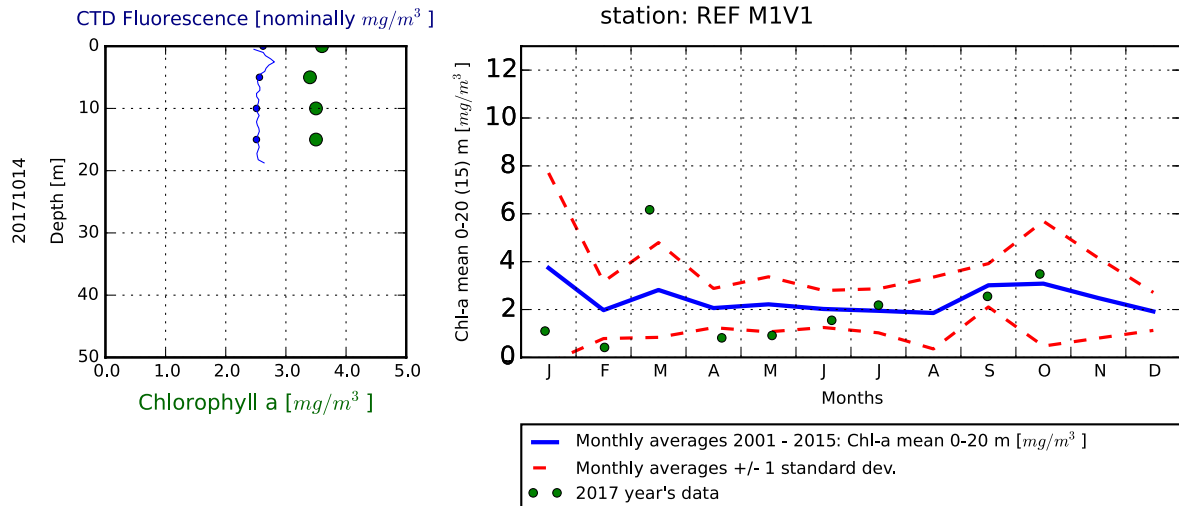


# The Southern Baltic





## 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 (0-10 m) vid de olika stationerna. Pil upp eller ned indikerar om resultatet är över eller under en standardavvikelse från medel. Medel är beräknat utifrån aktuell månad under perioden 2001-2015. 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 (0-10 m) at sampling stations. The arrow up or down indicate whether the result is above or below one standard deviation from mean. The mean value is calculated using results from the actual month during the period 2001-2015. Presence of harmful algae at stations where species analysis is performed is shown with a symbol.



