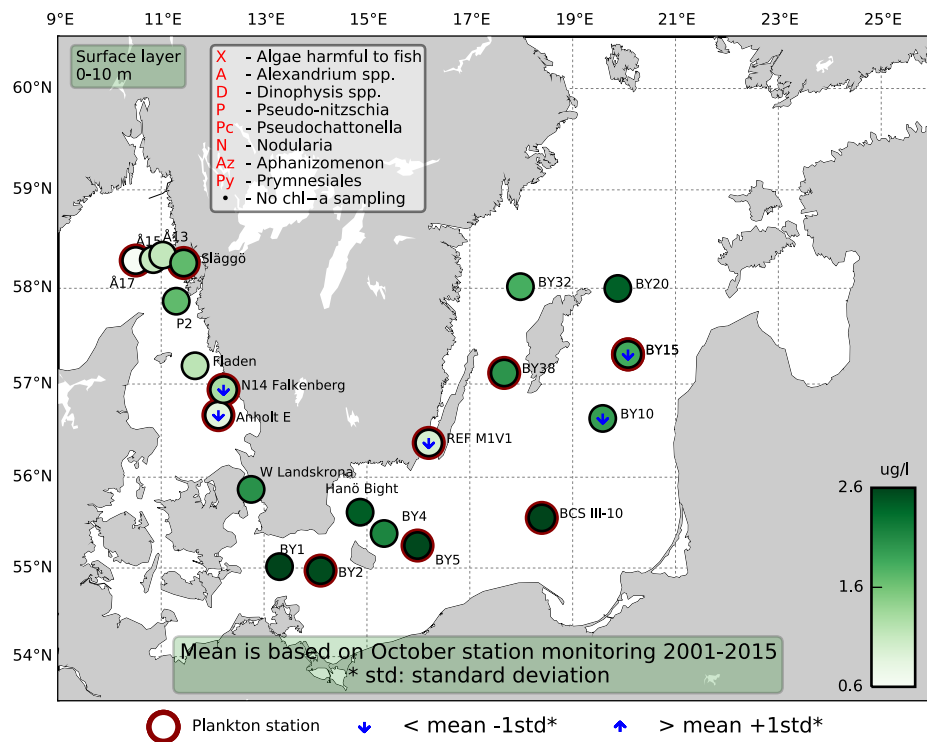


## Sammanfattning

Artdiversiteten var relativt stor i Kattegatt och vid Släggö vid Skagerraks kust. De totala cellantalen var låga, och de talrikaste arterna var dinoflagellaten *Prorocentrum compressum* och kiselalgen *Pseudosolenia calcar-avis*. Kalkflagellaten *Emiliana huxleyi* noterades i Kattegatt och fanns i något högre cellantal i Skagerraksproverna. Den potentiellt giftiga dinoflagellaten *Azadinium* spp förekom i Skagerrak där livsmedelsverkets toxinprover av musslor visat på azaspirsyra denna vecka.

I Östersjön var växtplanktondiversiteten generellt låg, med mest små arter i låga mängder.

De integrerade klorofyllvärdena från 0-20 meter (diagram) låg inom det normala för denna månaden för samtliga stationer. Från 0-10 meter (karta) var de integrerade värdena under en standardavvikelse vid N14 och Anholt E i Kattegatt samt i östra Gotlandsbassängen och i Kalmar Sund.



## Abstract

The species diversity was fairly high in the Kattegat and at Släggö at the Skagerrak coast. The total cell numbers were low and the most numerous species were the dinoflagellate *Prorocentrum compressum* and the diatom *Pseudosolenia calcar-avis*. The coccolithophorid *Emiliana huxleyi* was present in the Kattegat and was found in somewhat higher cell numbers in the Skagerrak samples. The potentially toxic dinoflagellate *Azadinium* spp was found in the Skagerrak where the National food agency's toxin samples also had azaspiracids in them this week.

In the Baltic Sea the phytoplankton diversity was generally low with mostly small species in low cell numbers.

The integrated chlorophyll concentrations from 0-20 meters (diagrams) were normal for this month at all stations. From 0-10 meters (map) however the integrated concentrations were below one standard deviation at N14 and Anholt E in the Kattegat as well as in the Eastern Gotland Basin and in the Kalmar Sound.

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

## The Skagerrak

### Å17 (open Skagerrak) 18<sup>th</sup> of October

The phytoplankton diversity was low and the most common species were *Emiliana huxleyi* and small cryptomonads.

### Släggö (Skagerrak coast) 18<sup>th</sup> of October

The species diversity was fairly high with some more dinoflagellate than diatom species. The cell counts were low though and the dinoflagellate *Prorocentrum compressum* and *E. huxleyi* were the most abundant species.

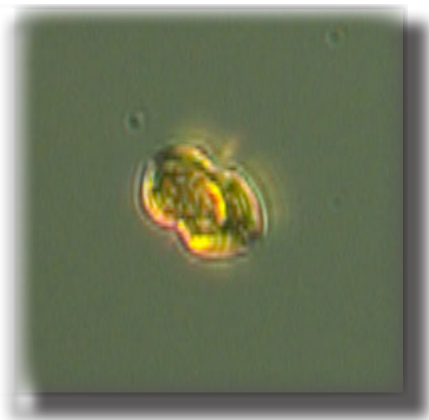


Photo 1: The dinoflagellate *Azadinium* sp.\* was present at N14 in the Kattegat and at both of the Skagerrak phytoplankton stations.



Photo 2: The flagellate *Pyramimonas propulsa* was present at Å17. It is identified by having 8 flagelles.

## The Kattegat

### Anholt E 17<sup>th</sup> of October

The fairly high species diversity was dominated by dinoflagellates, the most abundant species being *P. compressum* and naked dinoflagellates as well as the diatom *Pseudosolenia calcar-avis*.

### N14 Falkenberg 18<sup>th</sup> of October

The total number of species was more or less the same as at Anholt and Släggö, but there were more diatoms than dinoflagellates. The most numerous species was *P. compressum*, and the diatoms *Cerataulina pelagica*, *Pseudo-nitzschia*\*, *Pseudosolenia calcar-avis* and *Skeletonema marinoi* were rather abundant.

## The Baltic Sea

### BY2 and BY5 17<sup>th</sup> and 16<sup>th</sup> of October

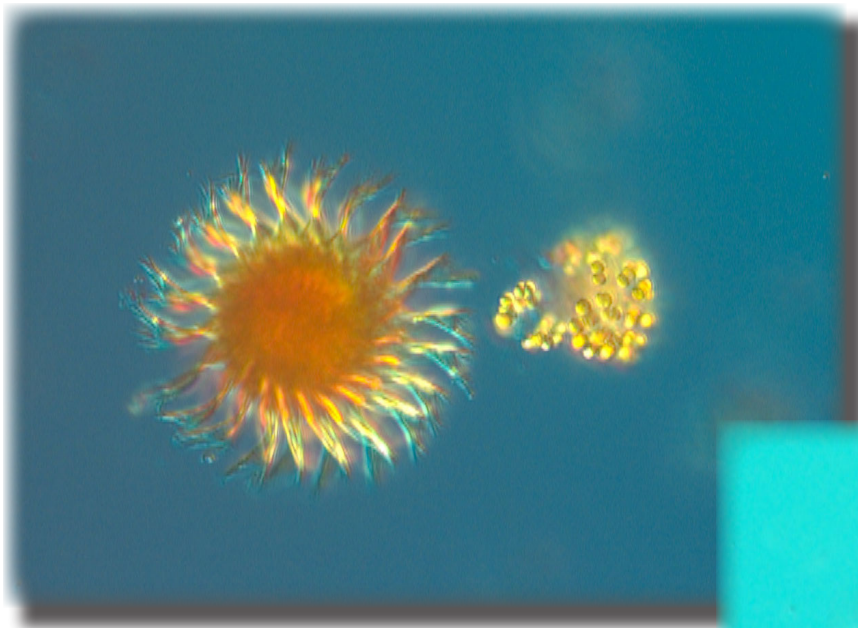
The diatom *Cerataulina pelagica* was abundant in the southern Baltic and a few more diatom species were present. The phytoplankton diversity was generally low and mostly small species were present.

### REF M1V1 Kalmar Sound 19<sup>th</sup> of October

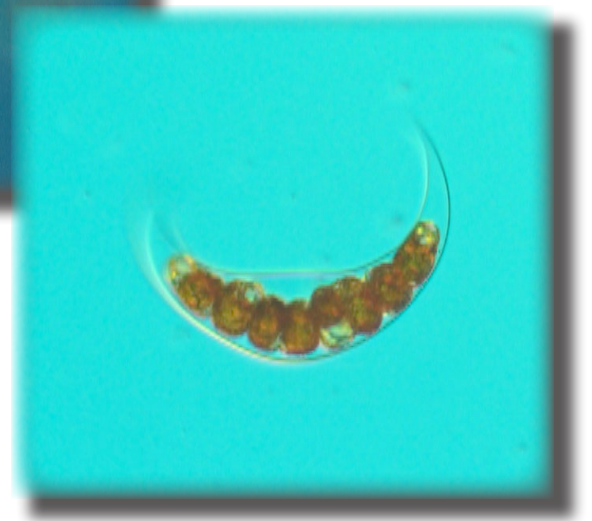
The phytoplankton diversity was low, only the diatom *Skeletonema marinoi* was abundant. The species that were present were generally small species.

### BY15 and BY20 15<sup>th</sup> of October, BCSIII-10 16<sup>th</sup> of October, BY38 19<sup>th</sup> of October

The phytoplankton diversity was low with a few generally small species in low cell numbers. The number of species was somewhat higher at BY20 where the small flagellates *Pyramimonas* spp and Prymnesiales\* were abundant.



*Photo 3:* Various ciliates and pico cyanobacteria colonies were quite abundant at the Baltic phytoplankton stations.

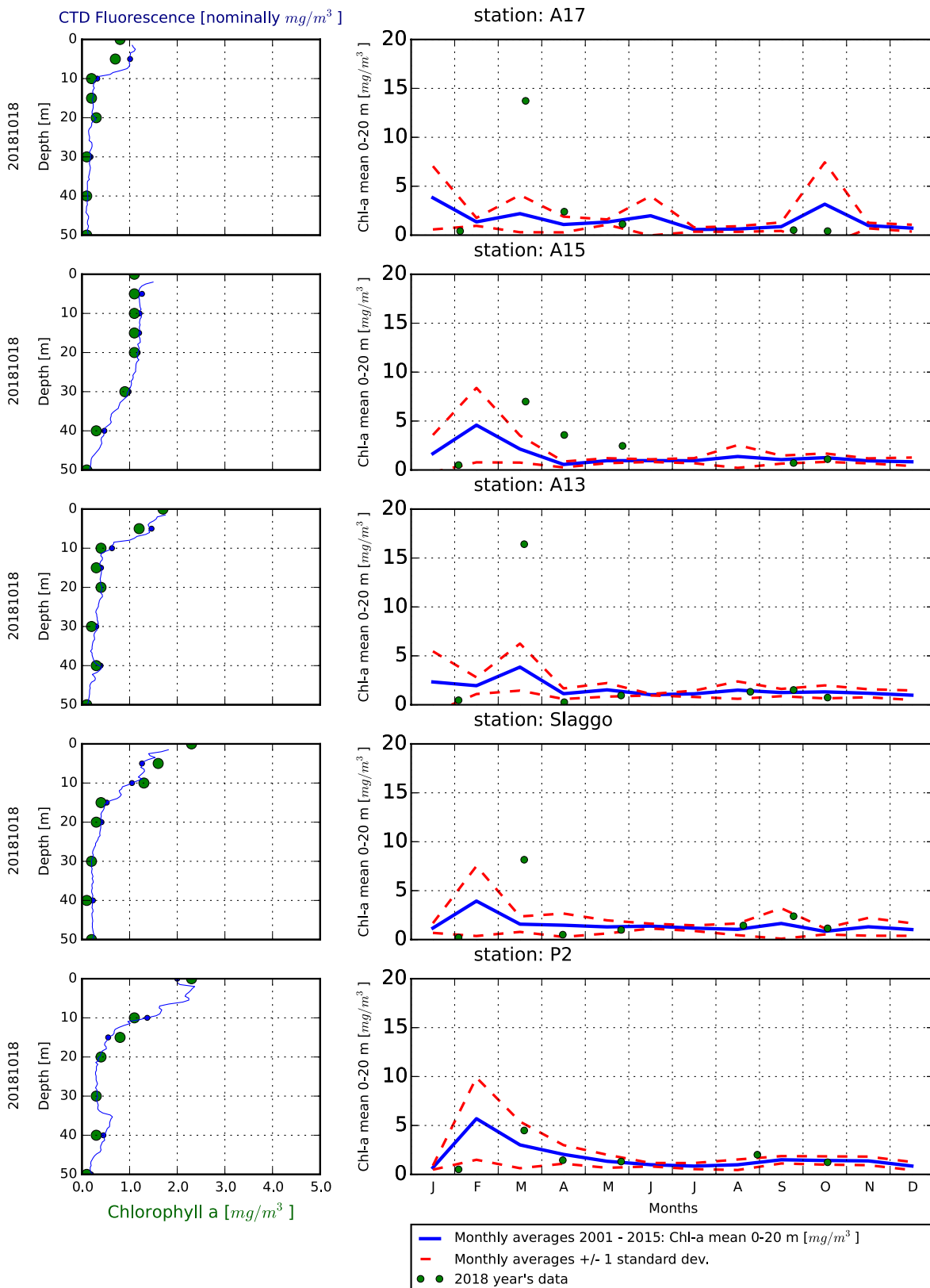


*Photo 4:* The dinoflagellate *Dissodinium pseudolunula* was present at BCSIII-10. In the conspicuous cyst stage in the photo the species is easily recognized. Other stages are not as known.

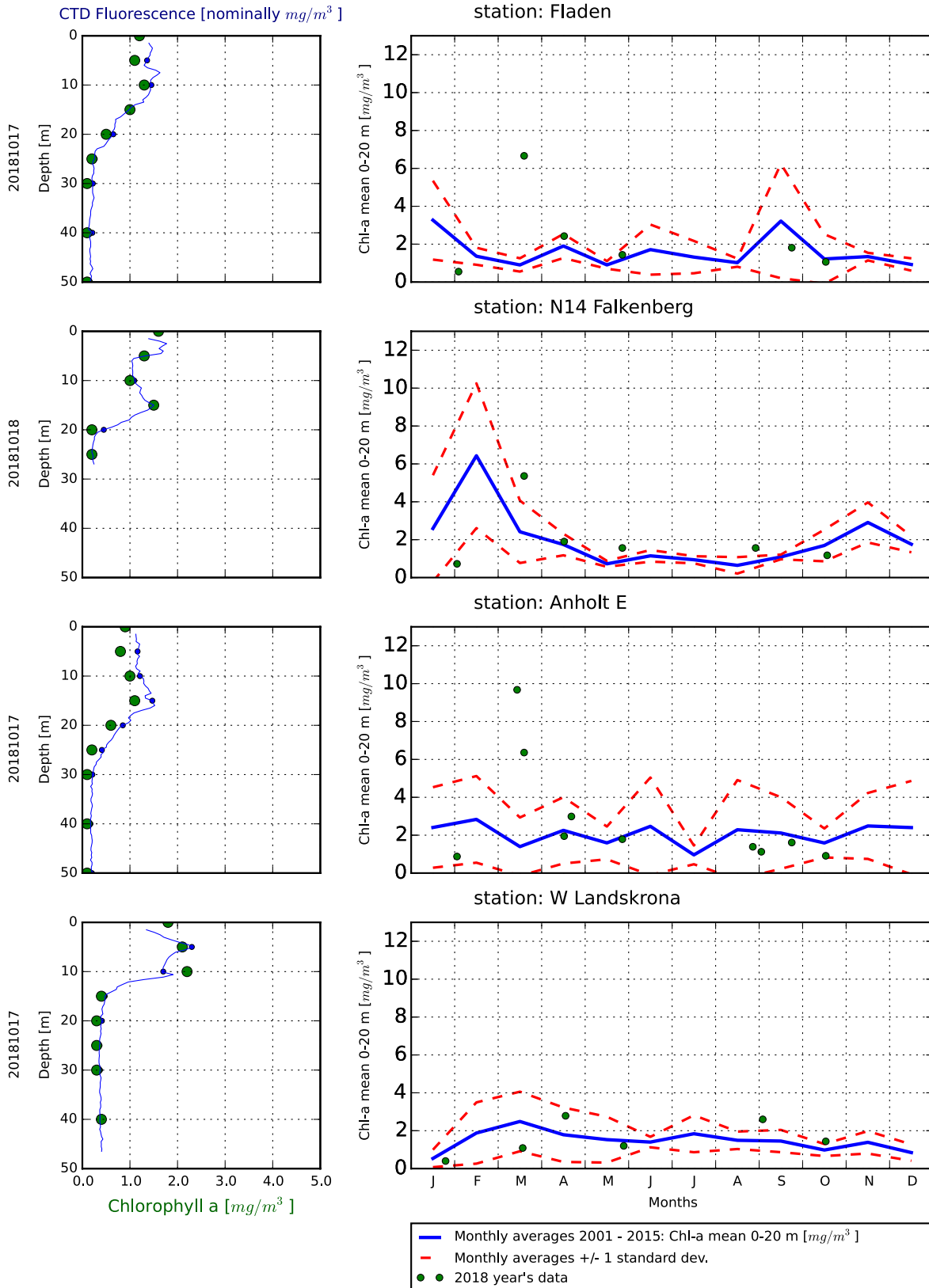
Selection of observed species	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	17/10	18/10	18/10	18/10
Hose 0-10 m	presence	presence	presence	presence
<i>Cerataulina pelagica</i>		common	present	
<i>Chaetoceros</i> spp				present
<i>Chaetoceros affinis</i>		present		
<i>Chaetoceros castracanei</i>	present			
<i>Chaetoceros socialis</i>		present		
<i>Chaetoceros subtilis</i>	present			
<i>Coscinodiscus granii</i>	present			
<i>Cylindrotheca closterium</i>	present	present	present	present
<i>Dactyliosolen fragilissimus</i>	present	present		
<i>Ditylum brightwellii</i>		present		
<i>Guinardia delicatula</i>		present		
<i>Guinardia flaccida</i>	present	present	present	
<i>Gyrosigma</i> spp				present
<i>Lauderia annulata</i>			present	
<i>Leptocylindrus danicus</i>	present	present	present	
<i>Leptocylindrus minimus</i>	present	present		
<i>Nitzschia longissima</i>	present	present		
<i>Paralia sulcata</i>				present
<i>Proboscia alata</i>			present	
<i>Pseudo-nitzschia</i> spp		common	present	present
<i>Pseudosolenia calcar-avis</i>	common	common	present	
<i>Rhizosolenia pungens</i>	present	present		
<i>Skeletonema marinoi</i>		common	present	
<i>Thalassiosira</i> spp				present
<i>Thalassiosira rotula</i>			present	
<i>Akashiwo sanguinea</i>			present	
<i>Amphidinium crassum</i>		present		
<i>Azadinium</i> spp		present	present	present
<i>Ceratium fusus</i>			present	
<i>Ceratium lineatum</i>		present	present	present
<i>Ceratium macroceros</i>			present	
<i>Ceratium tripos</i>	present	present	present	present
<i>Dinophysis acuminata</i>	present			
<i>Dinophysis norvegica</i>			present	
Gymnodiniales	common			present
<i>Gyrodinium flagellare</i>			present	present
<i>Gyrodinium spirale</i>			present	
<i>Heterocapsa</i> spp		present		present
<i>Katodinium glaucum</i>	present			
<i>Lessardia elongata</i>	present	present		
<i>Oxytoxum criophilum</i>	present		present	
<i>Oxytoxum gracile</i>	present			present
Peridinales	present			present
<i>Phalacroma rotundatum</i>	present			
<i>Pronoctiluca pelagica</i>	present			
<i>Prorocentrum compressum</i>	very common	very common	common	present
<i>Prorocentrum cordatum</i>	present	present		
<i>Prorocentrum micans</i>	present	present	present	
<i>Prorocentrum triestinum</i>	present		present	
<i>Protoperidinium divergens</i>	present	present	present	
<i>Protoperidinium oblongum</i>	present			
<i>Dictyocha fibula</i>			present	
<i>Dictyocha speculum</i>			present	
<i>Pterosperma</i> spp			present	present
<i>Emiliana huxleyi</i>	present	present	common	common
Prymnesiales	present	present		present
Cryptomonadales	present	present	common	common
<i>Leucocryptos marina</i>				present
<i>Pseudanabaena</i> spp	present		present	
<i>Pyramimonas propulsa</i>				present
<i>Mesodinium rubrum</i>	present	present	present	
<i>Strombidium</i> spp				present
Ciliophora		common	common	present

Selection of observed species	BCSIII-10	BY15	BY20	BY2	BY5	BY38	REFM1V1
Red=potentially toxic species	16/10	15/10	15/10	17/10	16/10	19/10	19/10
Hose 0-10 m	presence	presence	presence	presence	presence	presence	presence
Centrales	present						present
Cerataulina pelagica				common	common		
Chaetoceros castracanei	present	present	present	present	present		
Chaetoceros danicus	present	present	present	present	present	present	present
Chaetoceros lorenzianus					present		
Chaetoceros thronsenii							present
Coscinodiscus spp			common			present	
Coscinodiscus centralis	present	present					
Coscinodiscus granii			present				
Coscinodiscus radiatus	present						
Cyclotella choctawhatcheeana			present	present	present		
Dactyliosolen fragilissimus				present	present		
Pseudosolenia calcar-avis				present			
Skeletonema marinoi							common
Amphidinium crassum							present
Ceratium tripos				present	present		
<i>Dinophysis acuminata</i>	present	present		present	present	present	
<i>Dinophysis norvegica</i>		present					
Dissodinium pseudolunula	present						
Gymnodiniales						present	present
Gymnodinium verruculosum	present				present		
Gyrodinium spirale							present
Heterocapsa spp	present	common	present		common		present
Heterocapsa rotundata	present	present			present	present	present
Heterocapsa triquetra					present		
Katodinium glaucum		present	present			present	present
Peridiniales							present
Prorocentrum compressum							present
<i>Prorocentrum cordatum</i>				present	common		
Prorocentrum micans				present			
Ebria tripartita	present		present	present	present	present	
Eutreptiella spp		present					
Aphanizomenon spp				present	present		present
Aphanothece spp			present				
Aphanothece paralleliformis		present	present				
Cyanodictyon spp							present
Lemmermanniella spp			present				
Microcystis spp			present				
Pseudanabaena spp		present	present				present
Snowella spp		present	present			present	present
Woronichinia spp			present				
Pseudopedinella spp		present		present			
Pseudopedinella pyriformis				present		present	present
Planctonema lauterbornii			present				present
Pterosperma spp	present		present	present			
Pyramimonas spp	present	present	common	present	present	common	present
<i>Prymnesiales spp</i>			common		present	present	present
Telonema subtile							present
Oocystis spp		present	present			present	
Monoraphidium spp			present				
Choanoflagellata						present	present
Dinobryon faculiferum							present
Cryptomonadales	common	common	very common	present	common	common	present
Leucocryptos marina			present				
Mesodinium rubrum	present	present	present	present	present	present	present
Coxiella helix		present	present	present		present	
Helicostomella subulata	present					present	
Strombidium spp	present	present	present		present	present	
Ciliophora	common	common	common	common	common	common	present

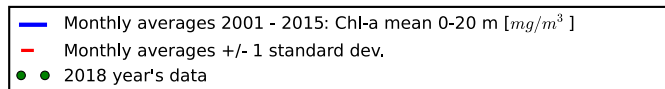
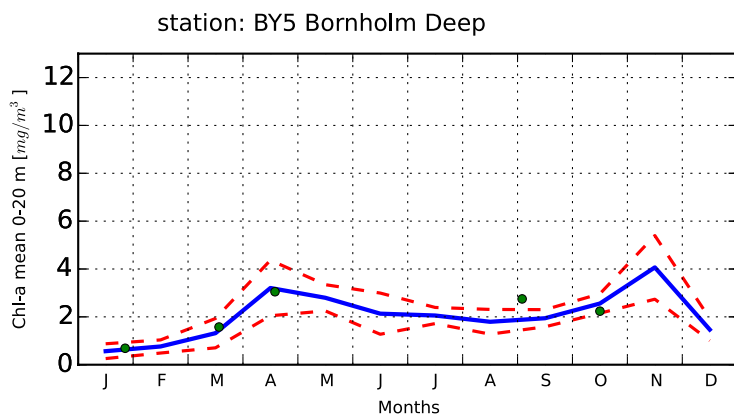
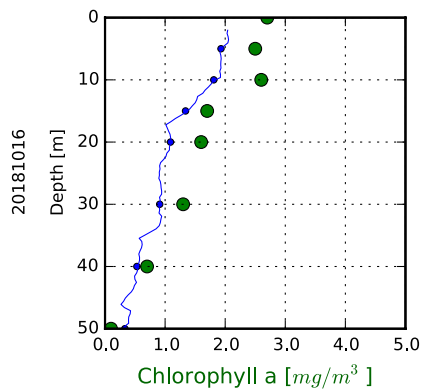
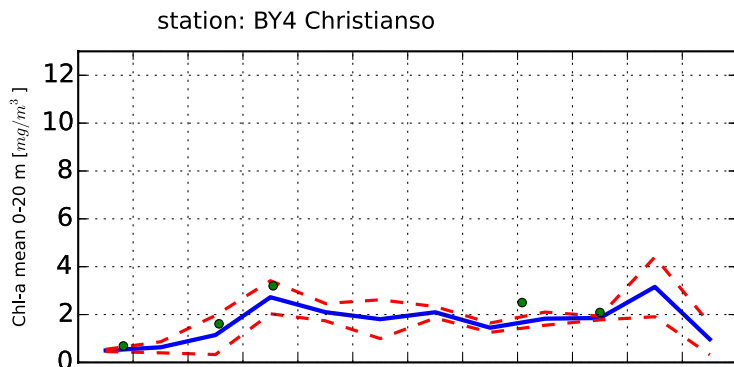
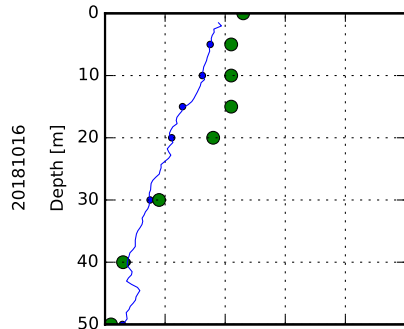
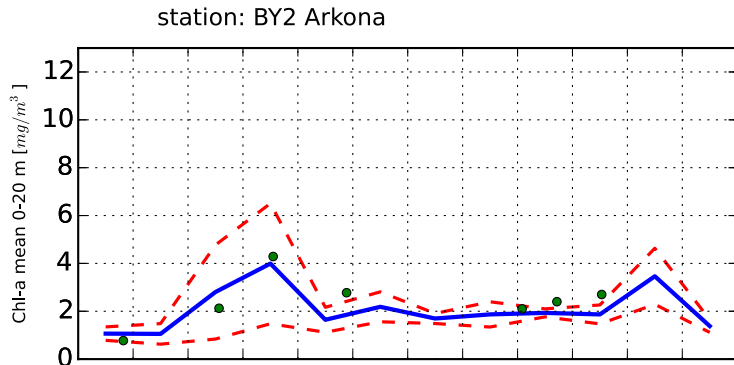
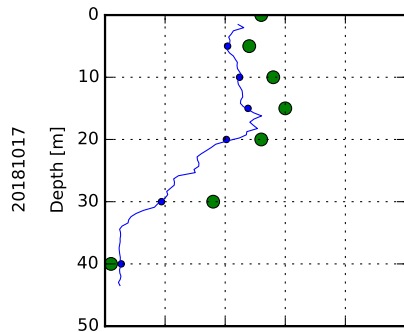
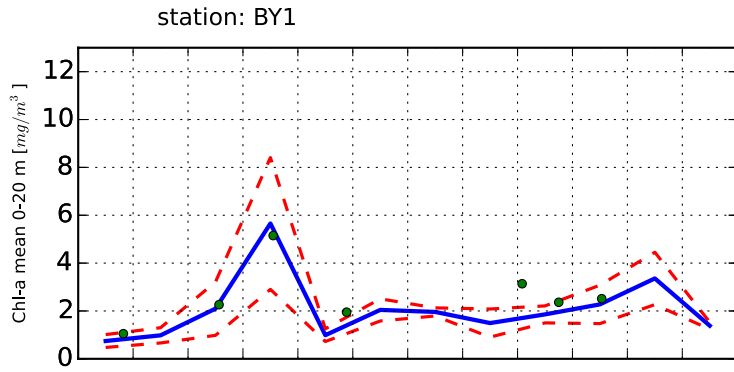
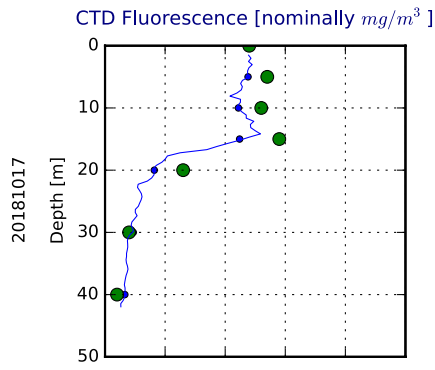
# The Skagerrak



# The Kattegat and The Sound

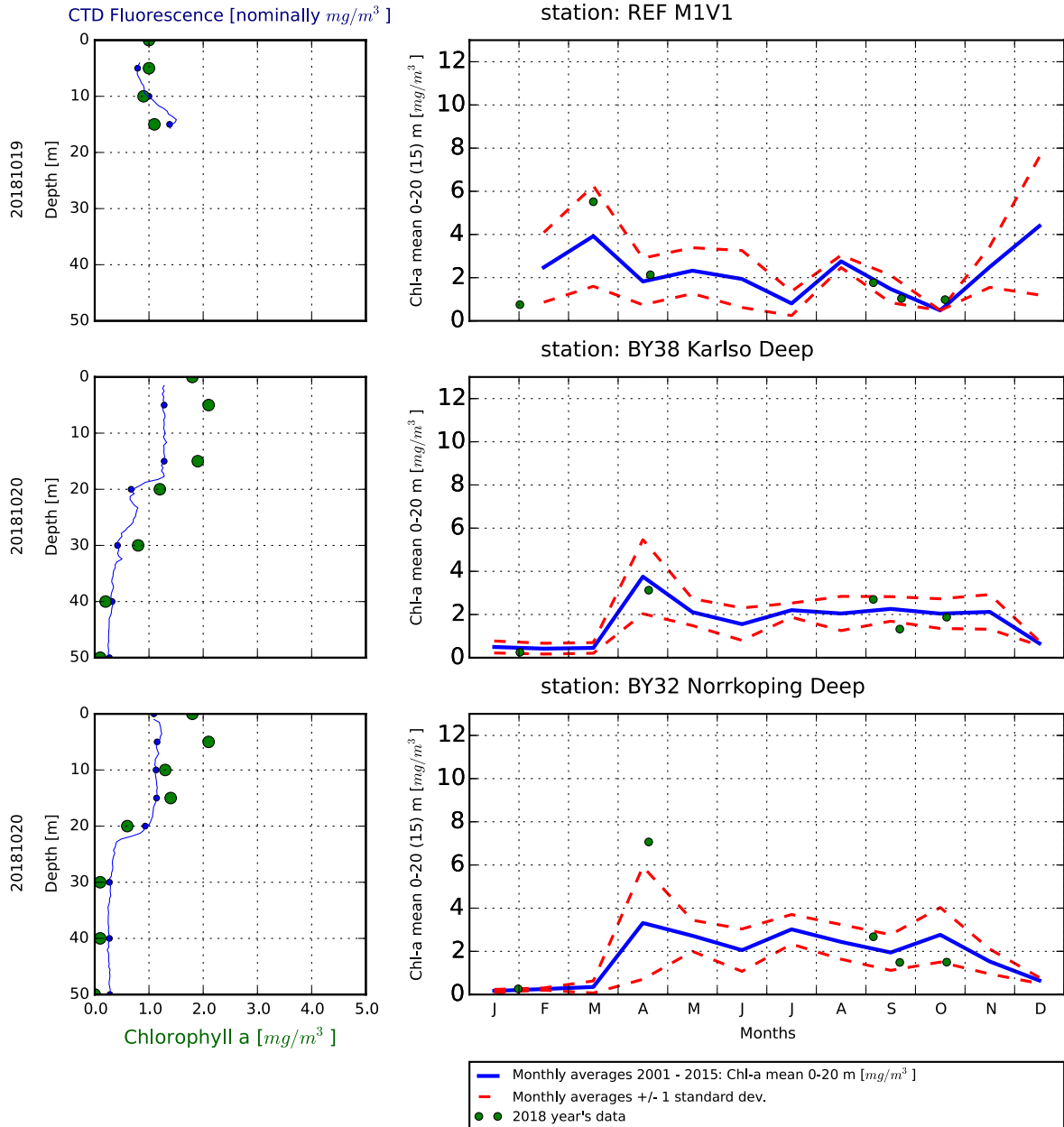


# The Southern Baltic





## 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 algbloomningar 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.



