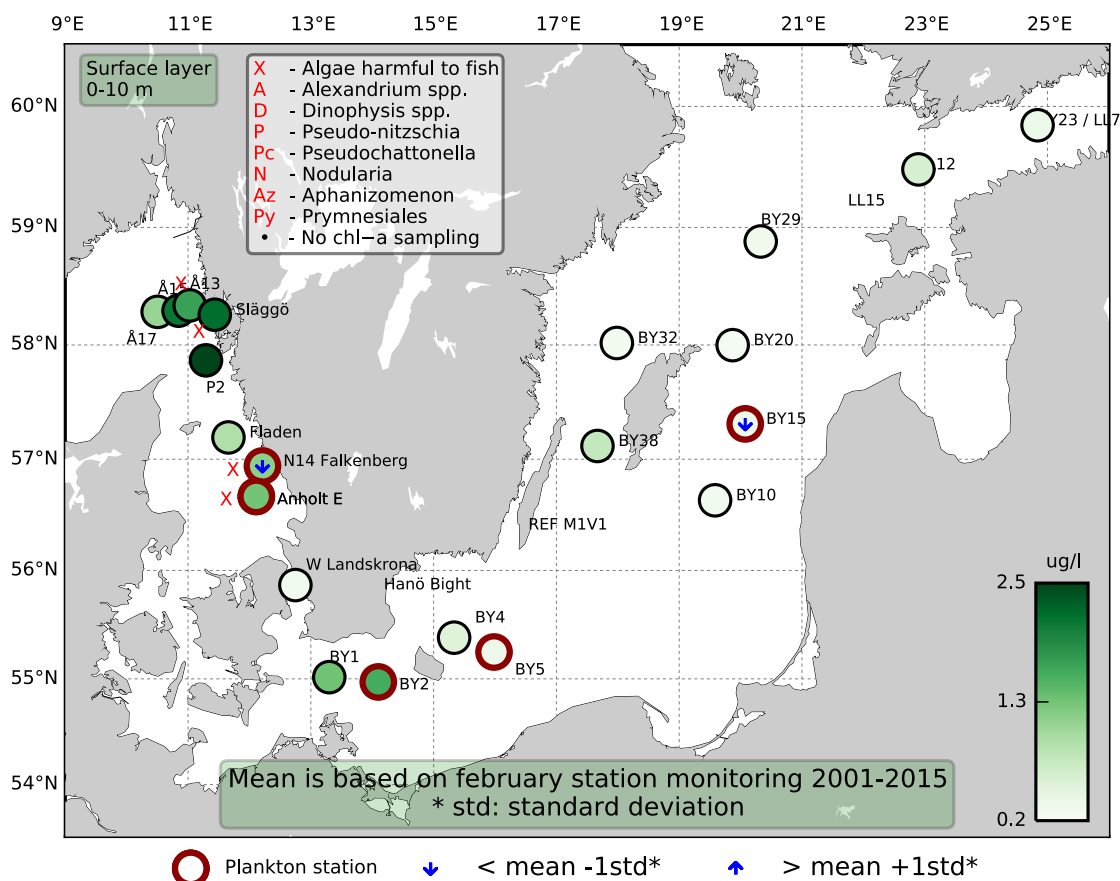


Sammanfattning

Den för fisk skadliga flagellaten *Pseudochattonella* spp.* blommade fortfarande i Västerhavet under marsexpeditionen och orsakade klorofyllfluorescenstoppar vid flera stationer. Årets kiselalgsblomning verkar mindre än vanligt och möjligtvis har *Pseudochattonella* spp.* delvis konkurrerat ut den. Alternativt har kiselalgerna blommat mellan provtagningstillfällena. I vilket fall är närsaltshalterna nära på slutkonsumerade i ytvattnet så det är inte troligt att någon blomning kommer fortgå särskilt länge till.

Det var precis i startskedet för vårblomning i södra Östersjön i mitten av mars. Flertalet kiselalger observerades vid REF M1V1, och av dessa var det höga cellantal av *Skeletonema marinoi* och släktet *Chaetoceros*. Även vid BY2 och BY5 var det förhöjda cellantal av *S. marinoi*.



Abstract

The phytoplankton genus *Pseudochattonella* spp.*, which is potentially harmful to fish when in high abundances, was still blooming in the Kattegat and Skagerrak areas during the March cruise. The genus caused chlorophyll fluorescence maxima at several stations. The diatom spring bloom seems smaller than usual and it is possible that *Pseudochattonella* spp.* partially outcompeted it. Alternatively, the diatoms bloomed in between the cruises. The nutrients are close to consumed anyhow so it is not likely that any bloom will proceed for much longer.

The spring bloom was just starting in the Southern Baltic in mid March. Several diatom species were observed at REF M1V1, of which *Skeletonema marinoi* and the genus *Chaetoceros* were abundant. *S. marinoi* was abundant at BY2 and BY5.

More detailed information on species composition and abundance. Species marked with * are potentially toxic or harmful.

The Skagerrak

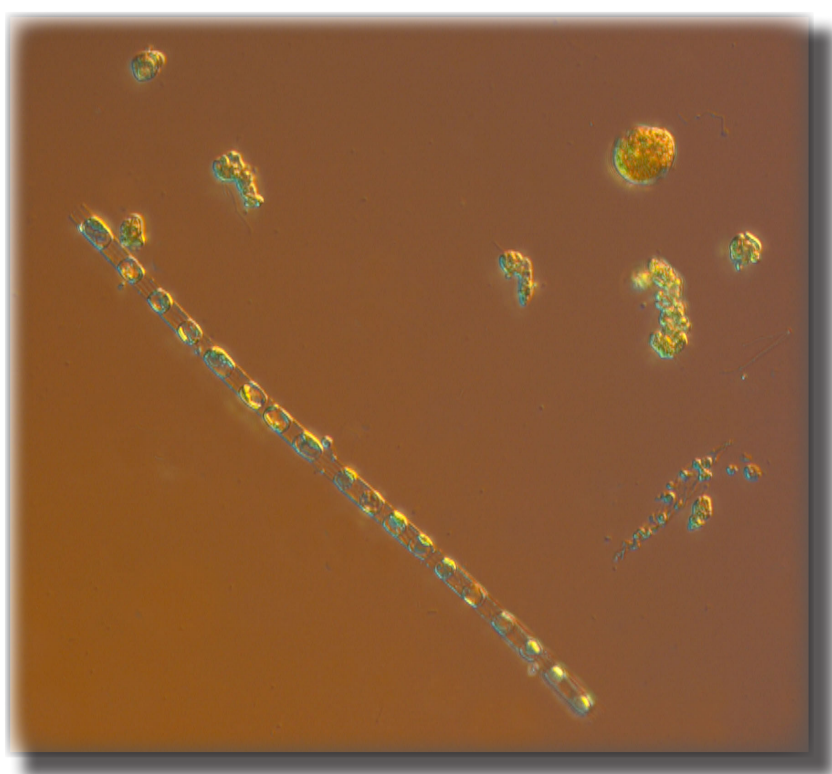
Å17 (open Skagerrak) 12th of March

The diatom *Skeletonema marinoi* and a few other diatoms were abundant. *Pseudochattonella* spp.* was present in low cell numbers.

Släggö (Skagerrak coast) 12th of March

The flagellate genus *Pseudochattonella**, potentially mortal for fish, was found in moderate cell numbers. A few other algae were found in low cell numbers

A chlorophyll fluorescence maximum at Å15 at 6 meters depth was mainly caused by *Pseudochattonella* spp.* (ca 300 000 cells/l).



The diatom *Skeletonema marinoi* (chain) and the flagellate *Pseudochattonella* spp. were abundant in the Skagerrak and Kattegat samples.

The Kattegat

Anholt E and N14 Falkenberg 11th and 13th of March

The flagellate *Pseudochattonella* spp.* was found in high cell numbers, both in the integrated (0-10m) samples, as well as in the samples from the fluorescence maxima at Anholt E at 0 and 15 meters depth respectively. The diatom *Skeletonema marinoi* was rather abundant, as were a few other species, although the typical spring bloom was absent.

At a chlorophyll fluorescence maximum at W Landskrona at 10 meters depth, *Pseudochattonella* spp.* was present with approximately 80 000 cells/l.

The Baltic Sea

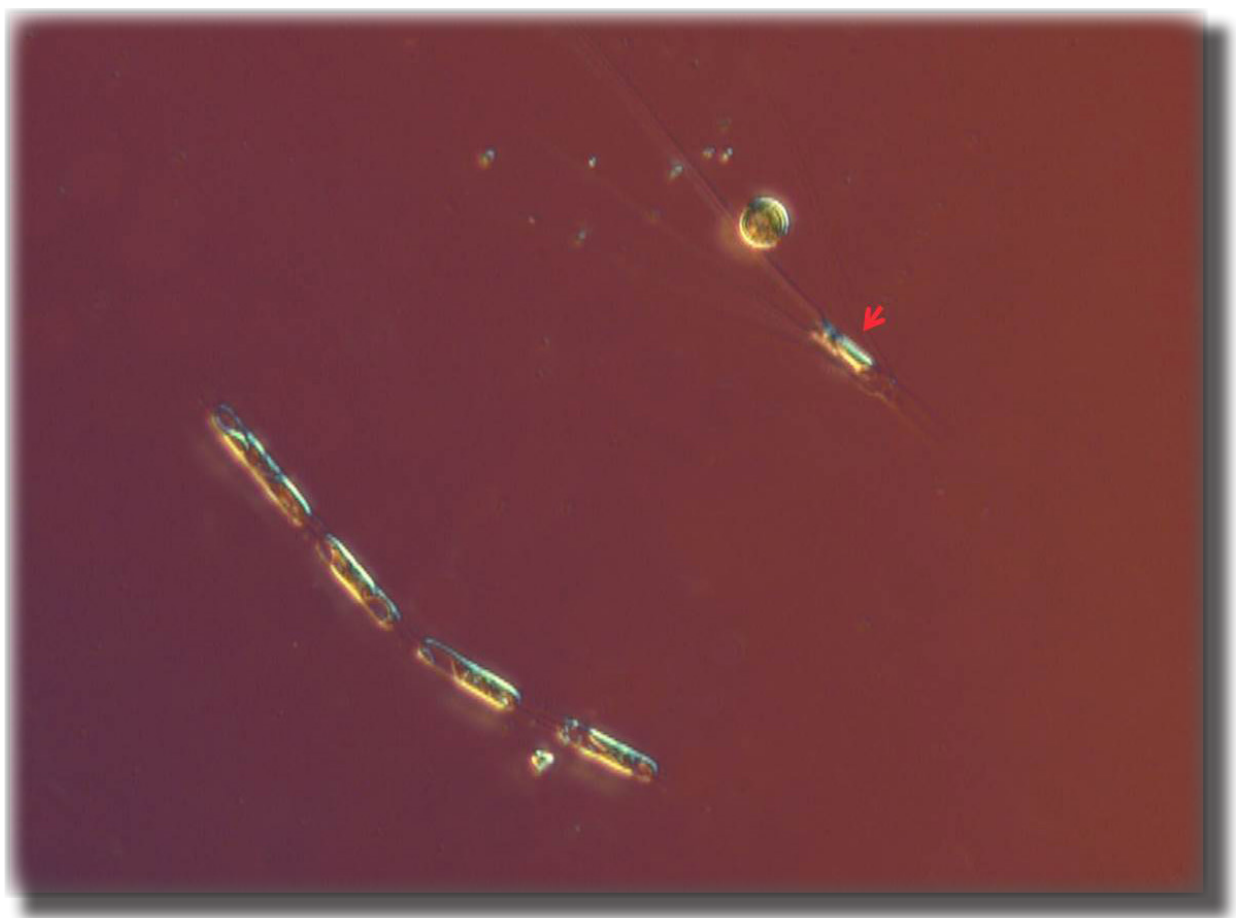
BY2 and BY5 13th and 14th of March

The diatom *Skeletonema marinoi* was found with rather high cell numbers and considering the high nutrient concentrations, this was probably the beginning of the spring bloom.

REF M1V1 Kalmar Sound 11th of March

The diatom *Skeletonema marinoi* was present with high cell numbers. Several other diatoms were present assuming this was the beginning of the spring bloom although a bit further ahead in the process than at BY2 and BY5.

The phytoplankton diversity was very low at the other Baltic stations. Quite high cell numbers of the filamentous cyanobacterium *Aphanizomenon flos-aquae* was found at BY38 just like at the last cruise.



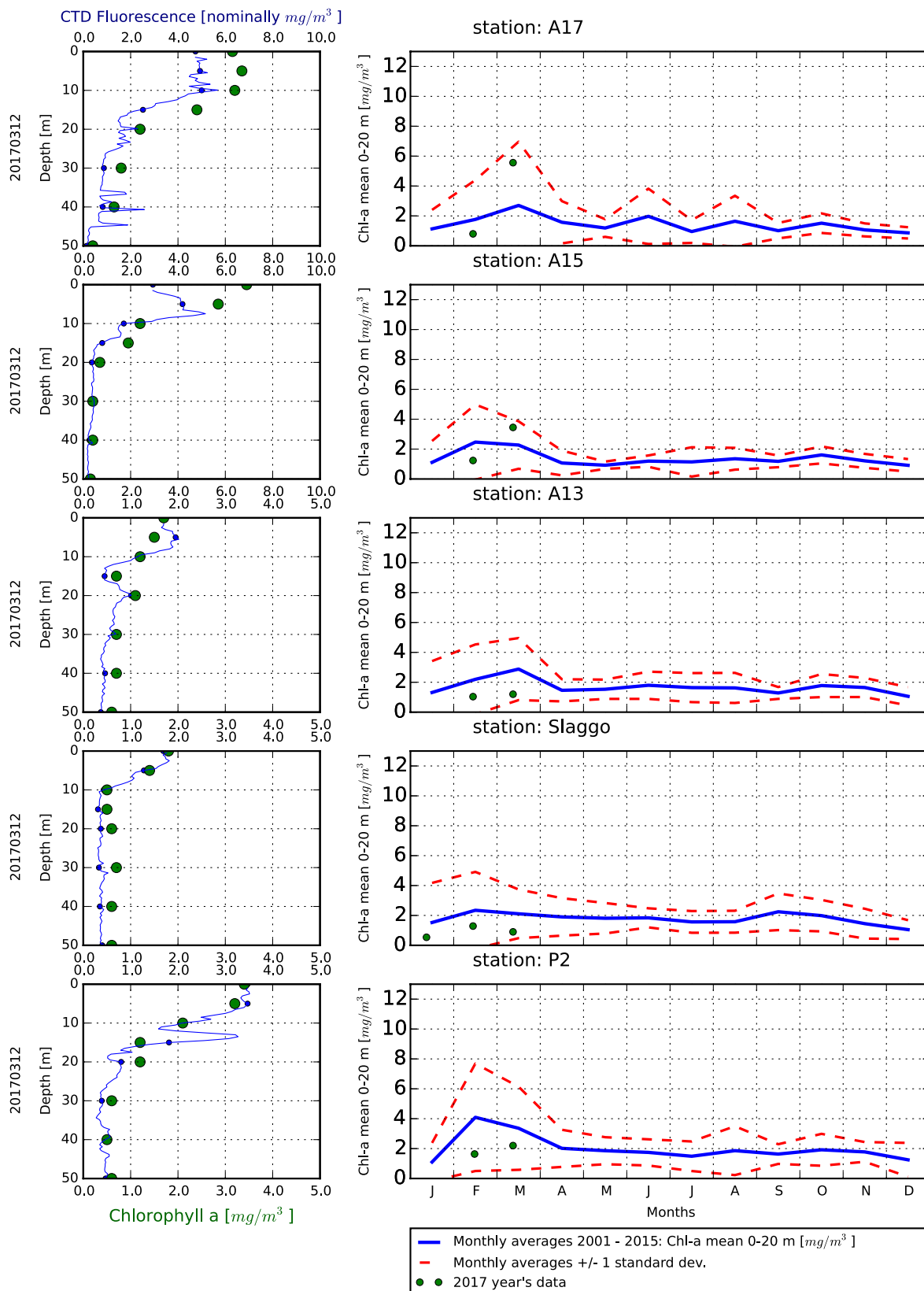
The diatoms *Skeletonema marinoi* (chain) and *Chaetoceros subtilis* (arrow) were present in the Southern Baltic and indicated the start of the spring bloom there.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

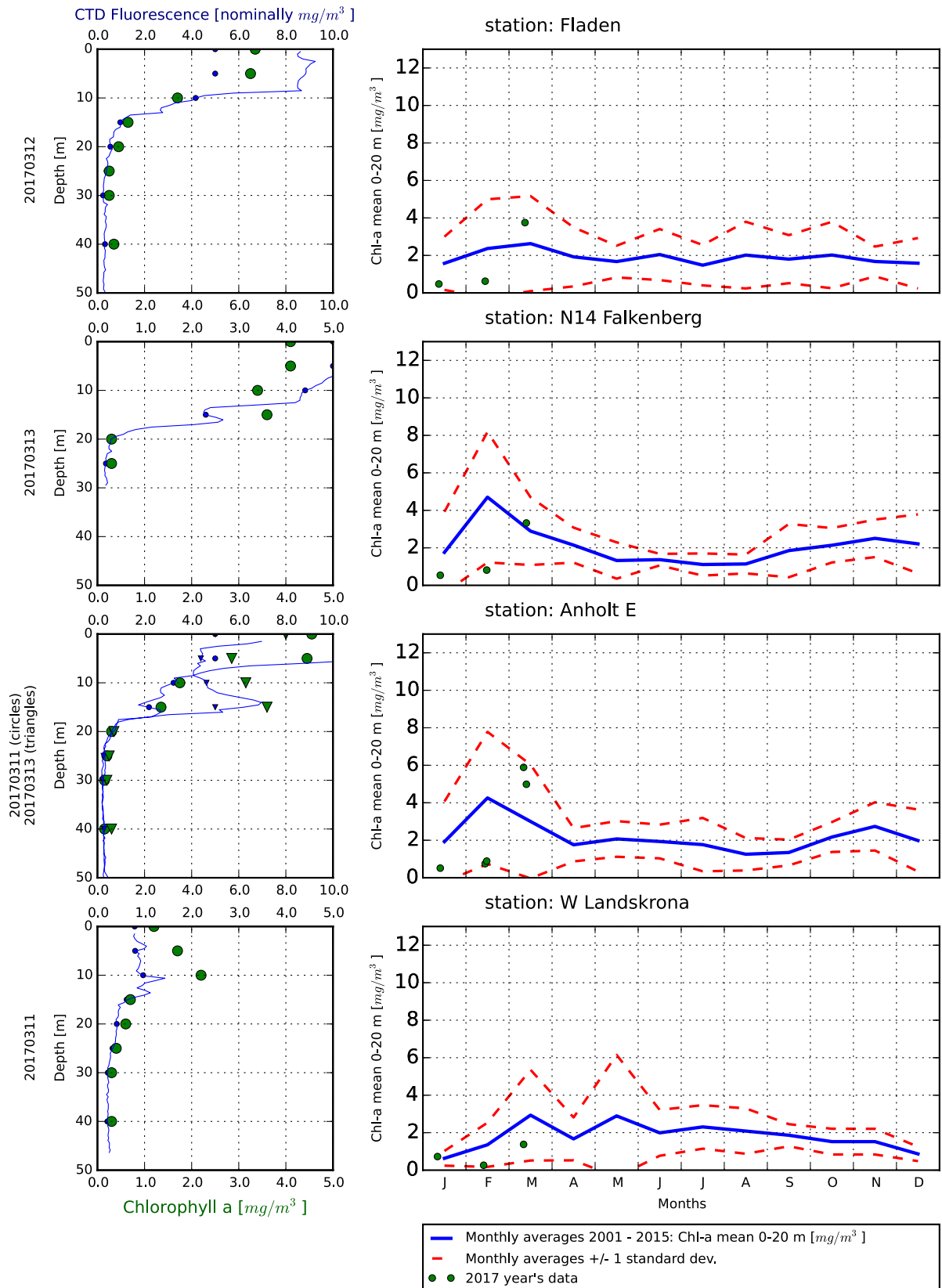
Selection of observed species	N14	Anholt E	Anholt E	Släggö	Å17
Red=potentially toxic species	13/3	11/3	13/3	12/3	12/3
Hose 0-10 m	presence or cells per l	presence or cells per l	presence or cells per l	presence or cells per l	presence or cells per l
Asterionellopsis glacialis					present
Chaetoceros danicus					present
Chaetoceros debilis					present
Chaetoceros similis	present	present	present		
Chaetoceros subtilis					common
Coscinodiscus concinnus			present		
Ceratoneis closterium					present
Dactyliosolen fragilissimus	present	present	present		
Ditylum brightwellii	present			present	present
Guinardia delicatula		present		present	present
Lennoxia faveolata			present		
Leptocylindrus danicus					present
Navicula transitans		present	present		
Nitzschia longissima	present	present	present	present	common
Porosira glacialis	present	present	present		
Proboscia alata		present			present
Pseudo-nitzschia spp		present		present	present
Rhizosolenia hebetata f. semispina	present	present	present	present	common
Rhizosolenia setigera		present	present		
Skeletonema marinoi	common	common	common	present	very common
Thalassionema nitzschioides	present	common	common	present	present
Thalassiosira angulata		present			
Thalassiosira anguste-lineata	present	present			
Thalassiosira nordenskiöldii	present	present		present	common
Thalassiosira gravida					present
Ceratium furca					present
Ceratium fusus		present			
Ceratium longipes		present		present	present
Ceratium tripos	present				
Dinophysis norvegica	present			present	
Heterocapsa triquetra			present		
Karlodinium veneticum	present	present	present	present	
Katodinium glaucum				present	
Peridiniella danica	present	common	common	common	present
Protoperidinium spp	present		present	present	
Protoperidinium bipes				present	
Protoperidinium brevipes	present				
Protoperidinium depressum		present			
Protoperidinium pellucidum		present		present	
Apedinella radians		present			
Dictyocha speculum		present	present	present	present
Pseudochattonella spp	639 860	222 610	1 582 550	25 930	present
Pseudopedinella spp		common			
Pseudopedinella pyriformis		present			
Eutreptiella braarudii		present	present	common	
Cryptomonadales	present	common	common	present	present
Leucocryptos marina		present		present	present
Choanoflagellidea		present			
Ciliophora	common	common	common	common	common
Laboea strobila			present		present
Mesodinium rubrum				present	
Strombidium spp	present	present	present	present	

Selection of observed species	BY2	BY5	BCS III-10_NE	BY15	REF M1V1	BY38
Red=potentially toxic species	13/3	14/3	14/3	15/3	11/3	10/3
Hose 0-10 m	presence	presence	presence	presence	presence	presence
Attheya septentrionalis	present					
Chaetoceros spp					common	
Chaetoceros danicus					present	present
Chaetoceros subtilis	present		present	present		present
Ceratoneis closterium		present				
Melosira arctica					present	
Nitzschia longissima					present	present
Porosira glacialis					present	
Skeletonema marinoi	common	common	present	present	very common	present
Thalassiosira spp					common	
Dinophysis acuminata						present
Gymnodiniales		present		common		
Heterocapsa spp	present	present				
Karlodinium veneficum					present	
Peridiniella catenata		present			present	present
Protoperidinium spp						present
Cryptomonadales	common	present	common	common		present
Eutreptiella spp	common	present				
Planctonema lauterbornii	present	present	present			present
Pterosperma spp	present					
Aphanizomenon flos-aquae	present	present				common
Aphanothece spp	present	present	present	present		present
Lemmermanniella spp			present	common		
Snowella spp	present		present	present		present
Monoraphidium spp						present
Ebria tripartita					present	
Ciliophora	common	common	common	common	common	common
Mesodinium rubrum	present	present	present	present	common	present
Strombidium spp	present					

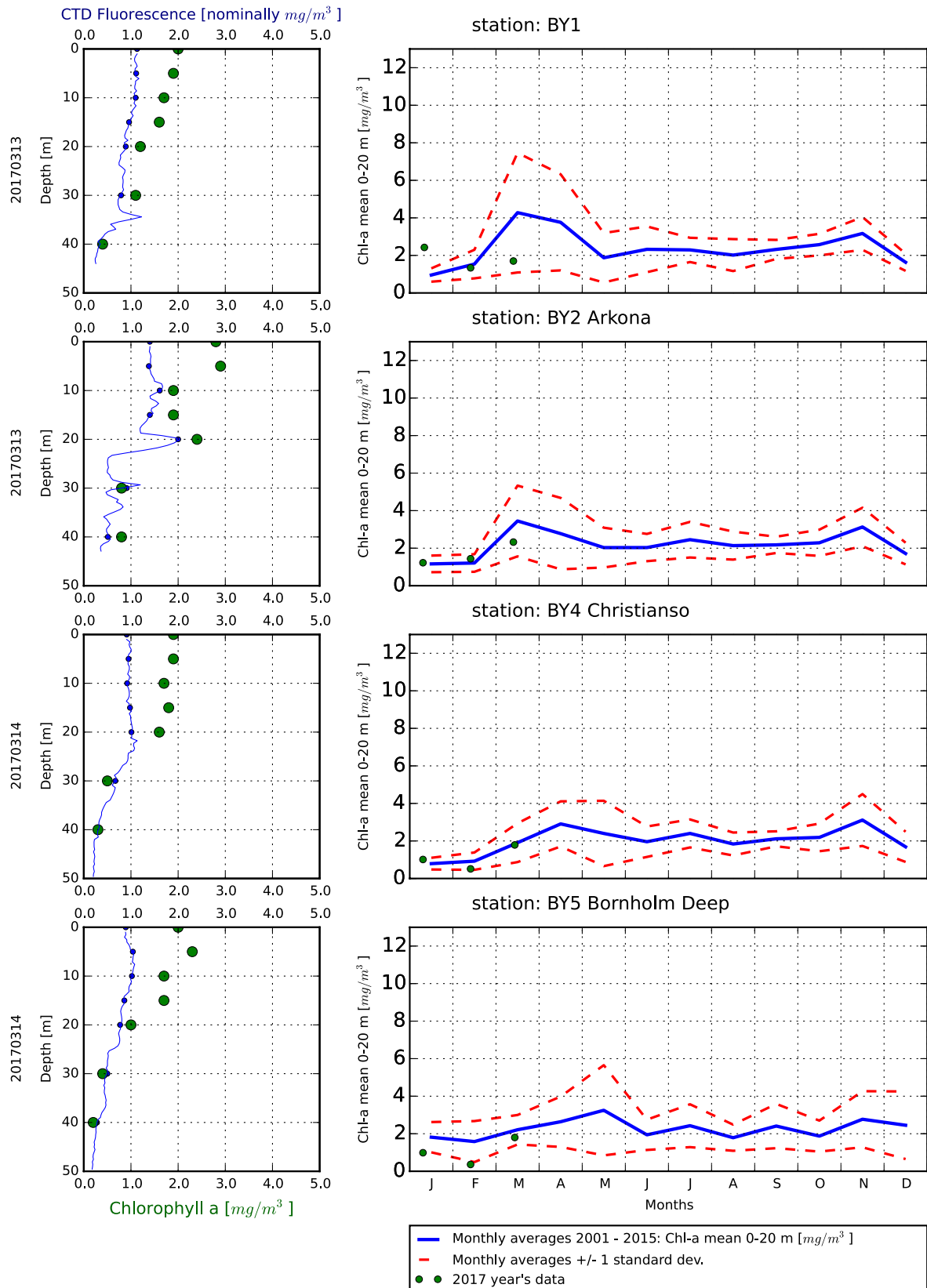
The Skagerrak



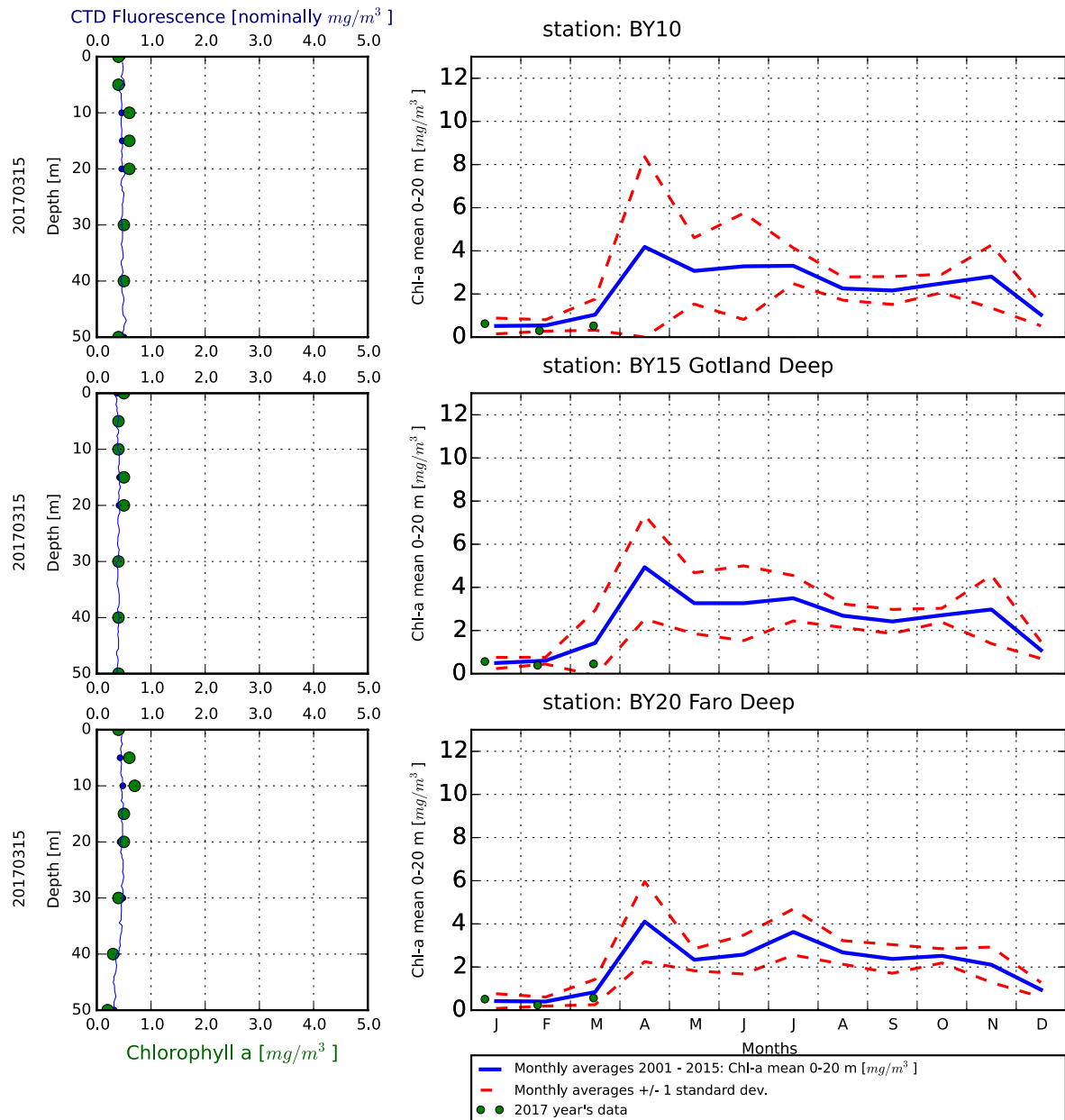
The Kattegat and The Sound



The Southern Baltic

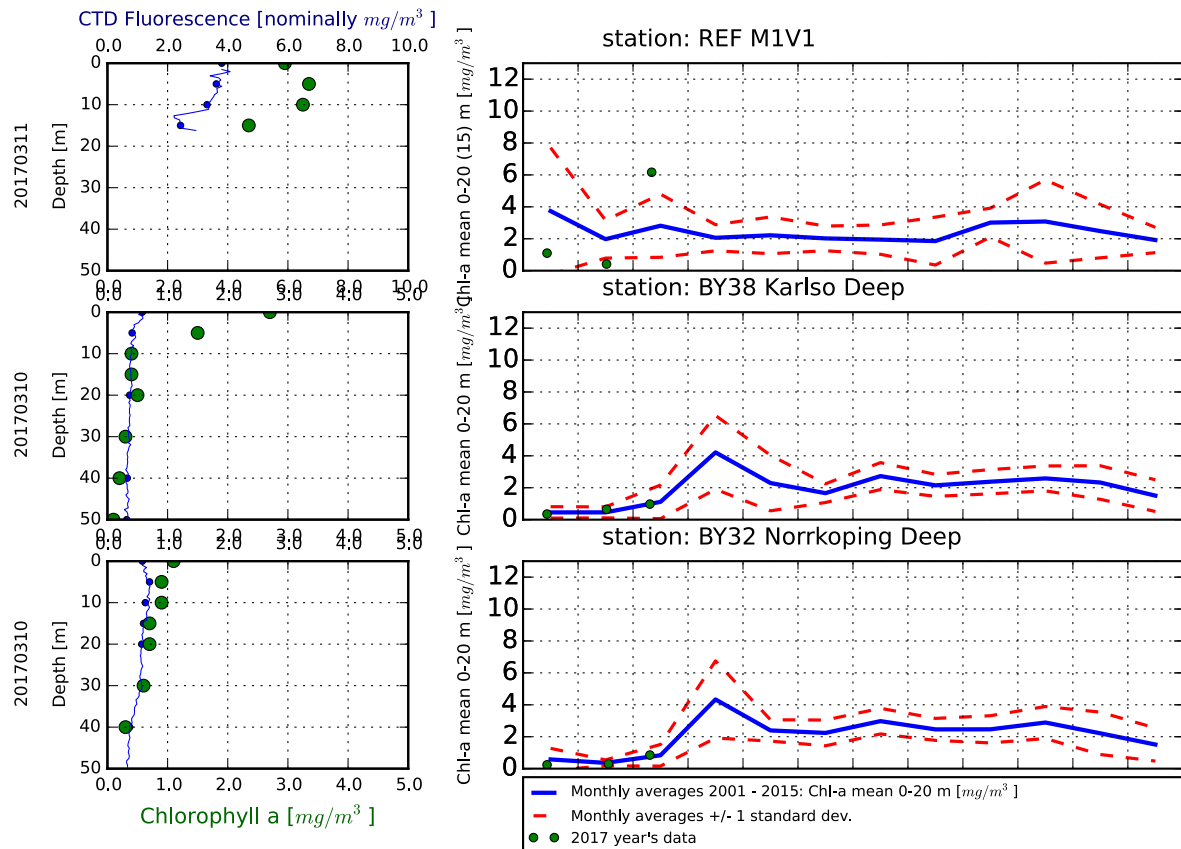


The Eastern Baltic



Due to new Polish regulations, BCSIII-10 can not be visited for the time being.

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 algbloomingar 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 (0-10 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.

