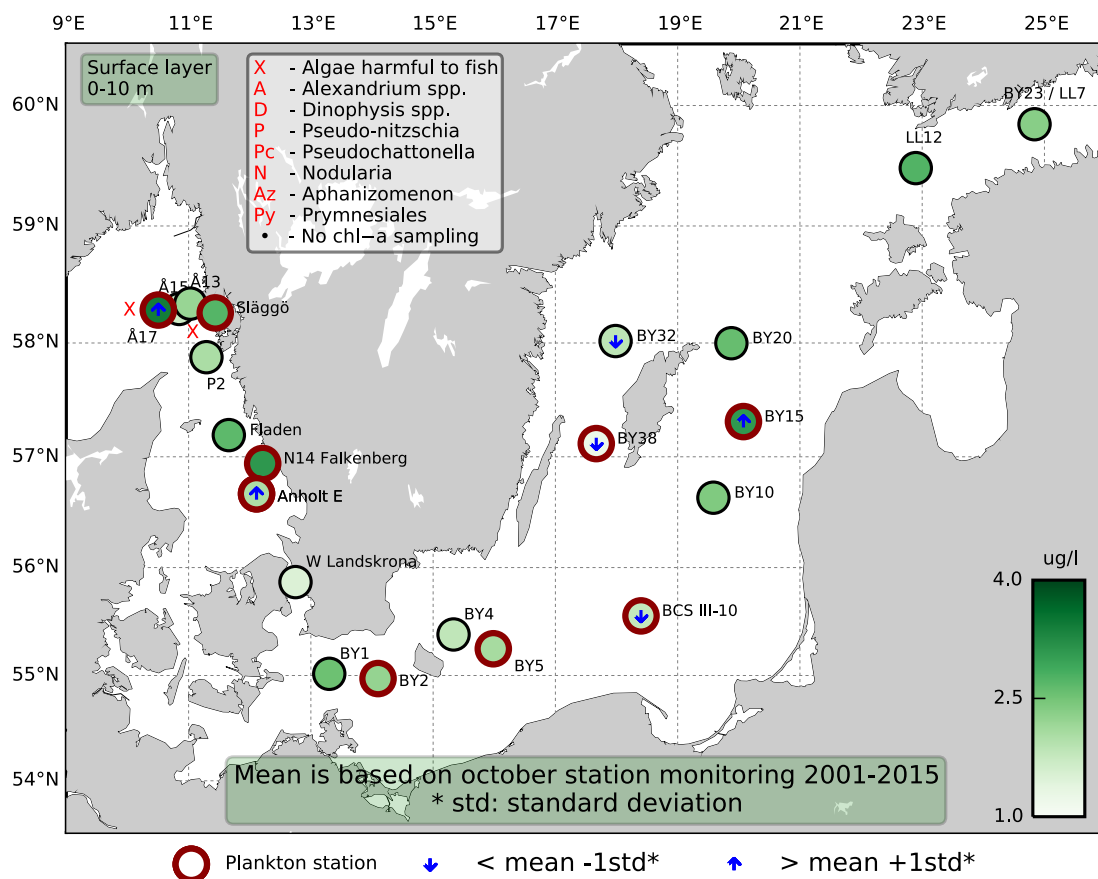


Sammanfattning

Vid provtagningsstationerna i Västerhavet observerades en liten höstblomning med hög diversitet i växtplanktonproverna. I Skagerrak fanns förhöjda cellantal av *Dictyocha speculum* i ett så kallat naket stadium, utan kiselskelett, då arten är potentiellt skadlig. Arten observerades i samma stadium i Kattegatt, men i låga cellantal. Vid Å17 i Skagerrak och Anholt E i Kattegatt var de integrerade klorofyllhalterna från 0-10 m högre än normalt för månaden. I övrigt var halterna inom det normala för oktober.

I Östersjön var cyanobakteriesäsongen slutligen över. Proverna var mycket artfattiga och cellantalen var mycket låga vilket också speglades i klorofyllhalterna vid flertalet stationer. Bara vid BY15 var klorofyllhalterna relativt höga, delvis orsakat av dinoflagellaten *Prorocentrum cordatum*.



Abstract

A minor autumn bloom was observed at the Skagerrak and Kattegat stations with high phytoplankton diversity. The flagellate *Dictyocha speculum** was found in a so called naked stage, without the silica structure, when the species is potentially harmful. The species was numerous in the Skagerrak and less so in the Kattegat. At Å17 in the Skagerrak and Anholt E in the Kattegat, the integrated chlorophyll concentrations from 0-10 m were above normal for this month.

The cyanobacteria season was finally over in the Baltic Sea. The phytoplankton diversity was low and consequently the chlorophyll concentrations were also low at several stations. At BY15 however, the chlorophyll concentrations were quite high, partly caused by the dinoflagellate *Prorocentrum cordatum*.

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

The Skagerrak

Å17 (open Skagerrak) 13th of October

The phytoplankton diversity was quite high and dominated by diatoms. The flagellate *Dictyocha speculum** in its naked stage, was found in high cell numbers. The flagellate is potentially harmful in this stage.

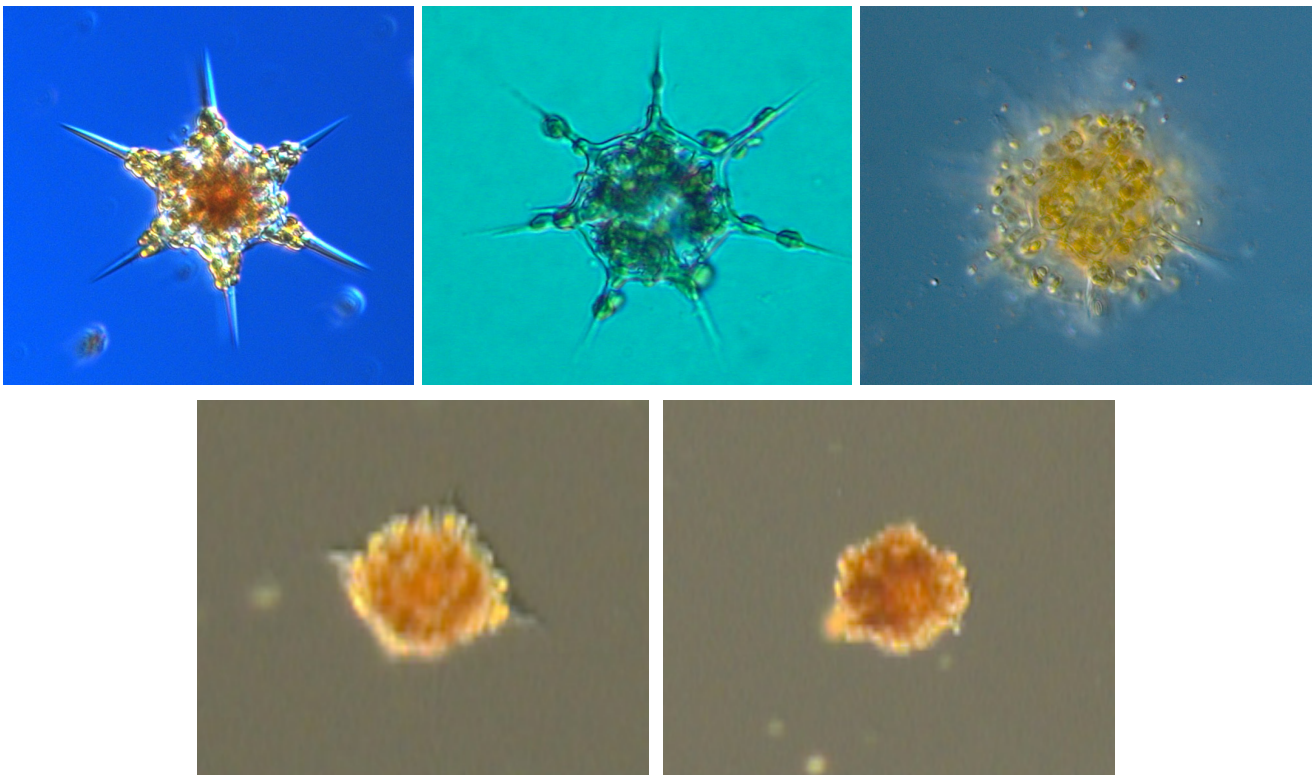
Släggö (Skagerrak coast) 14th of October

The phytoplankton situation was similar to the one at Å17, even though diatoms were even more abundant. The genus *Pseudo-nitzschia* spp.* was the most numerous amongst the diatoms. The flagellate *Dictyocha speculum** in its naked stage, was found in high cell numbers, as was the coccolithophorid *Emiliana huxleyi*.

The Kattegat

Anholt E and N14 Falkenberg 13th and 14th of October

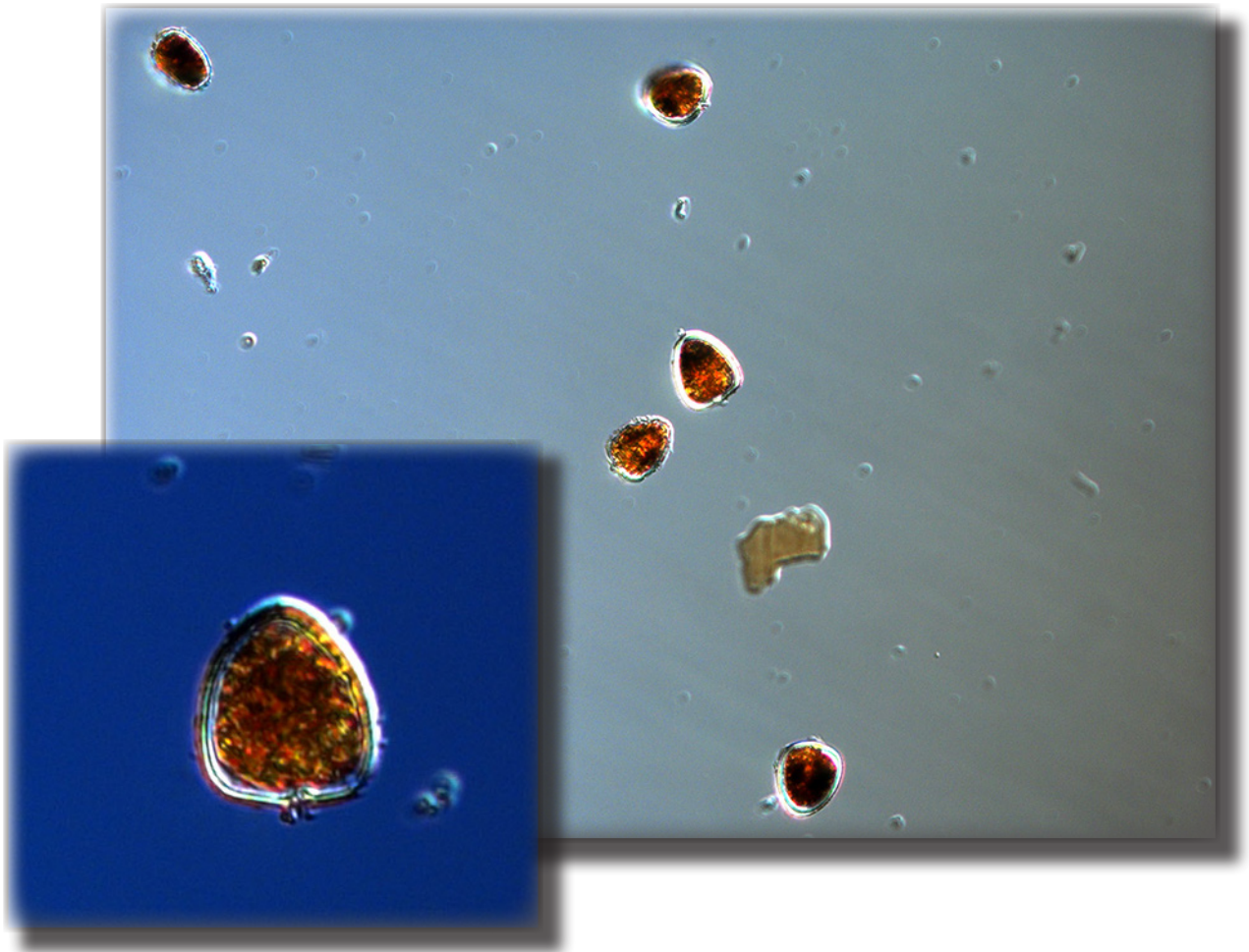
An autumn bloom was ongoing at the Kattegat stations as well, dominated by diatoms. The most abundant species were *Pseudosolenia calcar-avis* and *Pseudo-nitzschia* spp.*. *Emiliana huxleyi* was observed with the highest cell numbers at Anholt on the second visit. The naked stage of *Dictyocha speculum** was present in low cell numbers.



The flagellate *Dictyocha speculum* in various stages. The flagellate is potentially harmful in its naked stage, which is the structureless form.

The Baltic Sea

The phytoplankton diversity was very low at the Baltic stations. Mostly small species were present, and at BY15 high cell numbers of the dinoflagellate *Prorocentrum cordatum* was found.



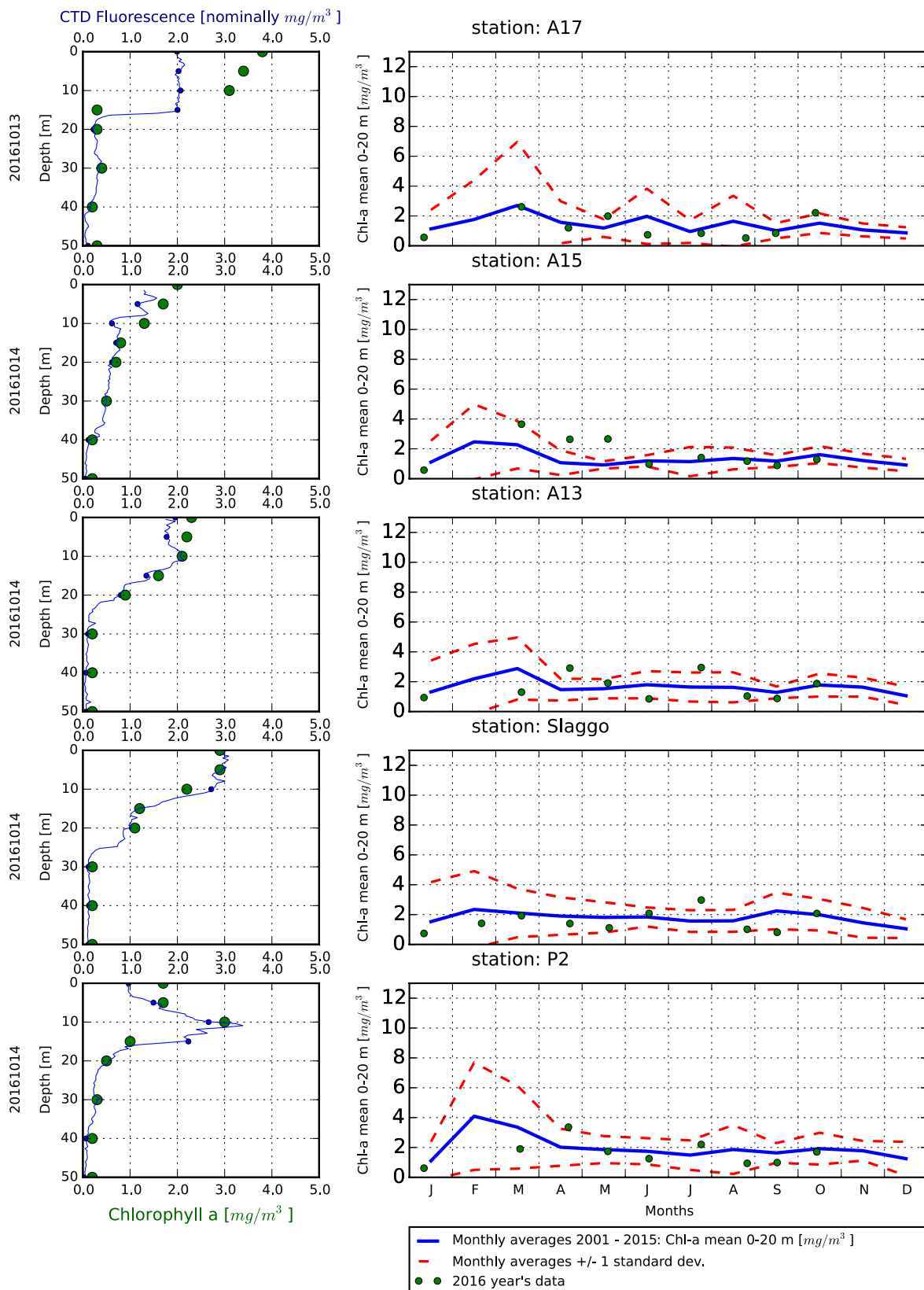
The dinoflagellate *Prorocentrum cordatum* was found in high cell numbers at BY15 in the eastern Baltic.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

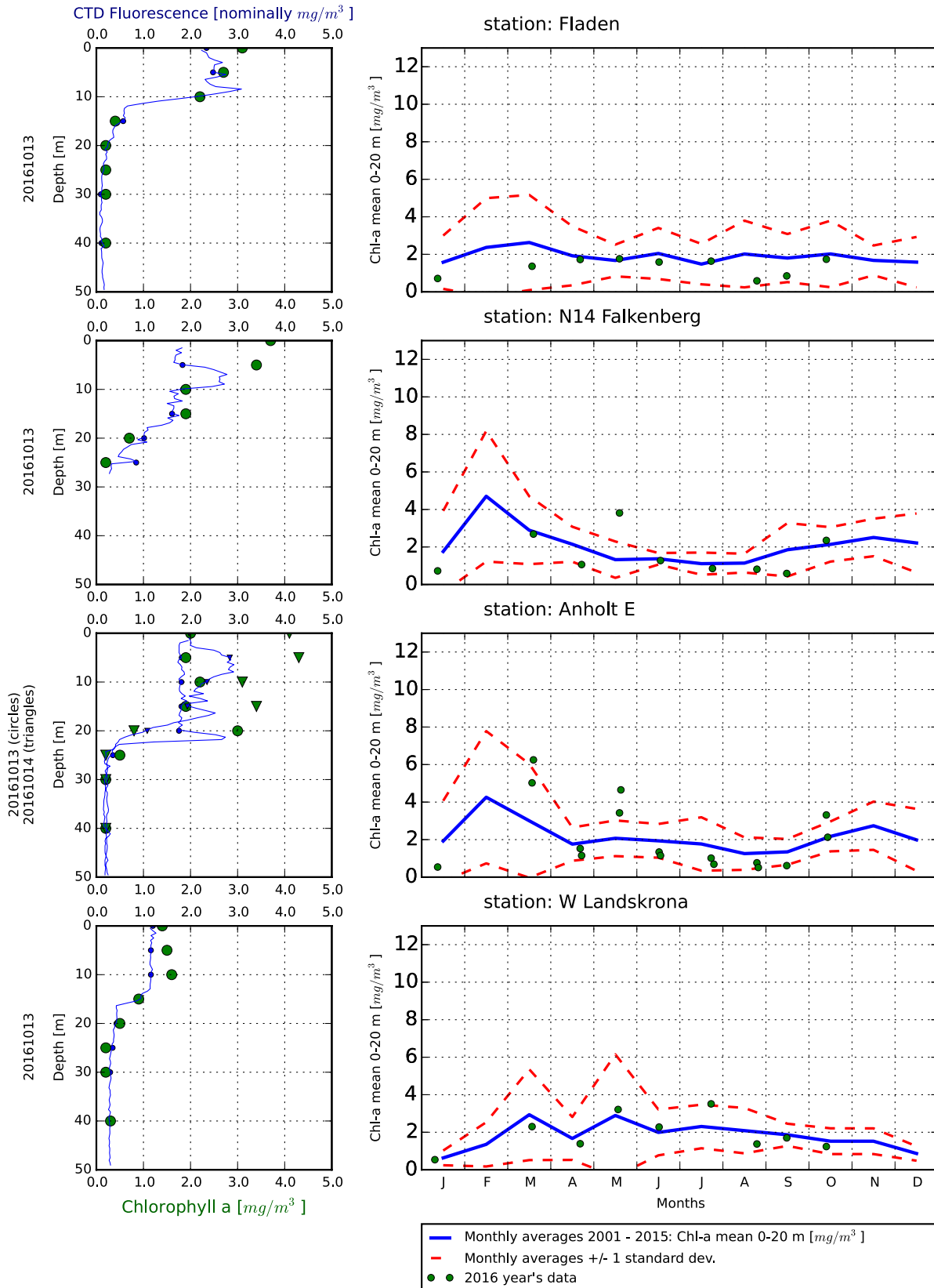
Selection of observed species	Å17	Släggö	N14	Anholt E	Anholt E
Red=potentially toxic or harmful species	13/10	14/10	13/10	13/10	14/10
	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l
Hose 0-10 m					
Asterionellopsis glacialis	present	present		present	present
Cerataulina pelagica	present	present	common	present	common
<i>Chaetoceros convolutus</i>				present	present
Chaetoceros curvisetus	present		present		present
Chaetoceros danicus		present	common	common	present
Chaetoceros decipiens		present	present		
Chaetoceros laciniatus					present
Chaetoceros socialis	present		present	present	present
Cylindrotheca closterium	common	present	present	present	present
Dactylosolen fragilissimus	present	present	present	present	present
Ditylum brightwellii	present	present	present	common	present
Guinardia delicatula		present	common	present	present
Guinardia flaccida					present
Gyrosigma spp				present	
Lennoxia faveolata	present	present			
Leptocylindrus danicus	present	present		present	present
Leptocylindrus minimus	common			present	present
Nitzschia longissima	common	common	common	common	common
Proboscia alata		present	present	present	present
Proboscia indica	present	present			
<i>Pseudo-nitzschia spp</i>	common	very common	common	common	common
Pseudosolenia calcar-avis	common	common	very common	very common	very common
Rhizosolenia pungens		common	present	present	present
Skeletonema marinoi	present	present	present	present	present
Thalassionema nitzschioides			present	present	
Thalassiosira rotula	present			present	
<i>Akashiwo sanguinea</i>		present			
<i>Azadinium spp</i>	present				
Ceratium furca		present	present	present	
Ceratium fusus	present	present	present	present	present
Ceratium lineatum			common	common	common
Ceratium longipes		present	present		
Ceratium macroceros	present				
Ceratium tripos		present	present	present	present
<i>Dinophysis acuminata</i>		present	present		present
<i>Dinophysis acuta</i>				present	
Gymnodiniales	common			common	
Gymnodinium verruculosum		present	present		
Gyrodinium flagellare	present	common			
Gyrodinium spirale		present			
Heterocapsa spp		present			present
Katodinium glaucum	present				
Peridinales				common	
<i>Phalacroma rotundatum</i>		present			
Pronoctiluca pelagica		present			
Prorocentrum micans	present			present	
Prorocentrum cordatum				present	present
Prorocentrum triestinum	common				
<i>Protoceratium reticulatum</i>			present		
Protoperidinium spp		present	present		present
Protoperidinium bipes					present
Protoperidinium pallidum			present	present	present
Scrippsiella complex	present	present		present	
Torodinium robustum	present	present			
Dinobryon divergens		present			
Cryptomonadales	common	present	present	present	present
Leucocryptos marina	present	present			
Dictyocha speculum	present	present	present	present	present
<i>Dictyocha speculum_Naked stage</i>	very common	common	present	present	present
Pseudopedinella pyriformis		present			
Pseudopedinella tricostata	present			present	present
Emiliania huxleyi		123 830		48 328	238 252
<i>Prymnesiales</i>	present	present			present
Cymbomonas tetramitiformis				present	present
Pterosperma spp	present				
Pyramimonas spp				present	
Eutreptiella spp			present	present	
Aphanizomenon flosaquae			present		
Calliacantha natans				present	
Katablepharis remigera				present	
Ciliophora	common	common		present	
Laboea strobila	present	common	common		present
Mesodinium rubrum		4		present	
Strombidium spp	present				

Selection of observed species	BY2	BY5	BY15	BCS III-10	BY38
Red=potentially toxic or harmful species	12/10	12/10	11/10	12/10	16/10
Hose 0-10 m	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l
Chaetoceros danicus					present
Chaetoceros wighamii		present	present		present
Pseudo-nitzschia spp		present		present	
Heterocapsa spp			present		
Prorocentrum cordatum	present		very common		present
Cryptomonadales	common	common	common	common	present
Aphanizomenon flosaquae	present	present	present		present
Dolichospermum spp	present				
Nodularia spumigena			present		
Planctonema lauterbornii			present	present	
Eutreptiella spp			present	present	
Ebria tripartita		present			
Pterosperma spp			present	present	present
Pyramimonas spp	present		present		
Ciliophora	present	common	common	present	common
Mesodinium rubrum	present		present		

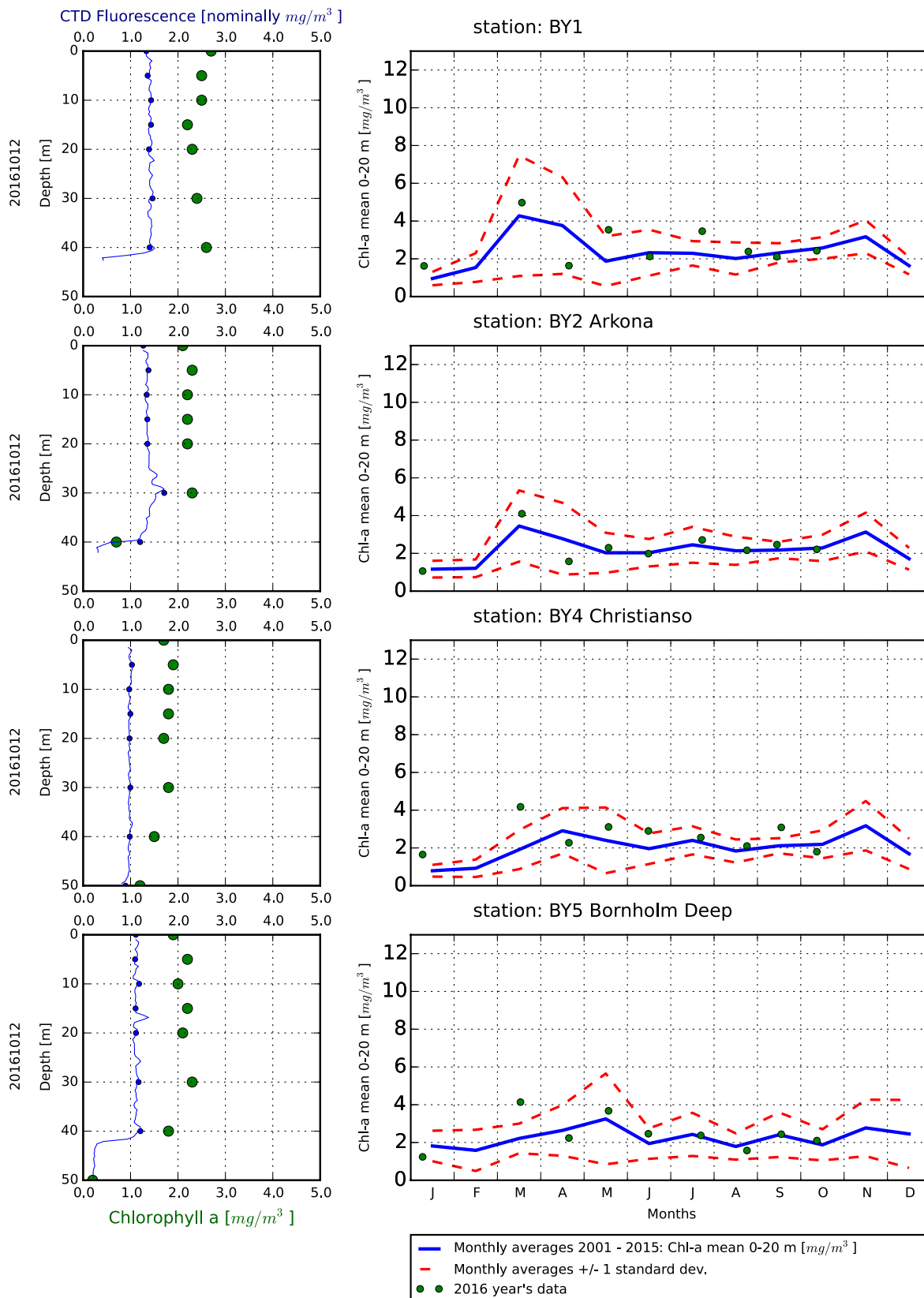
The Skagerrak



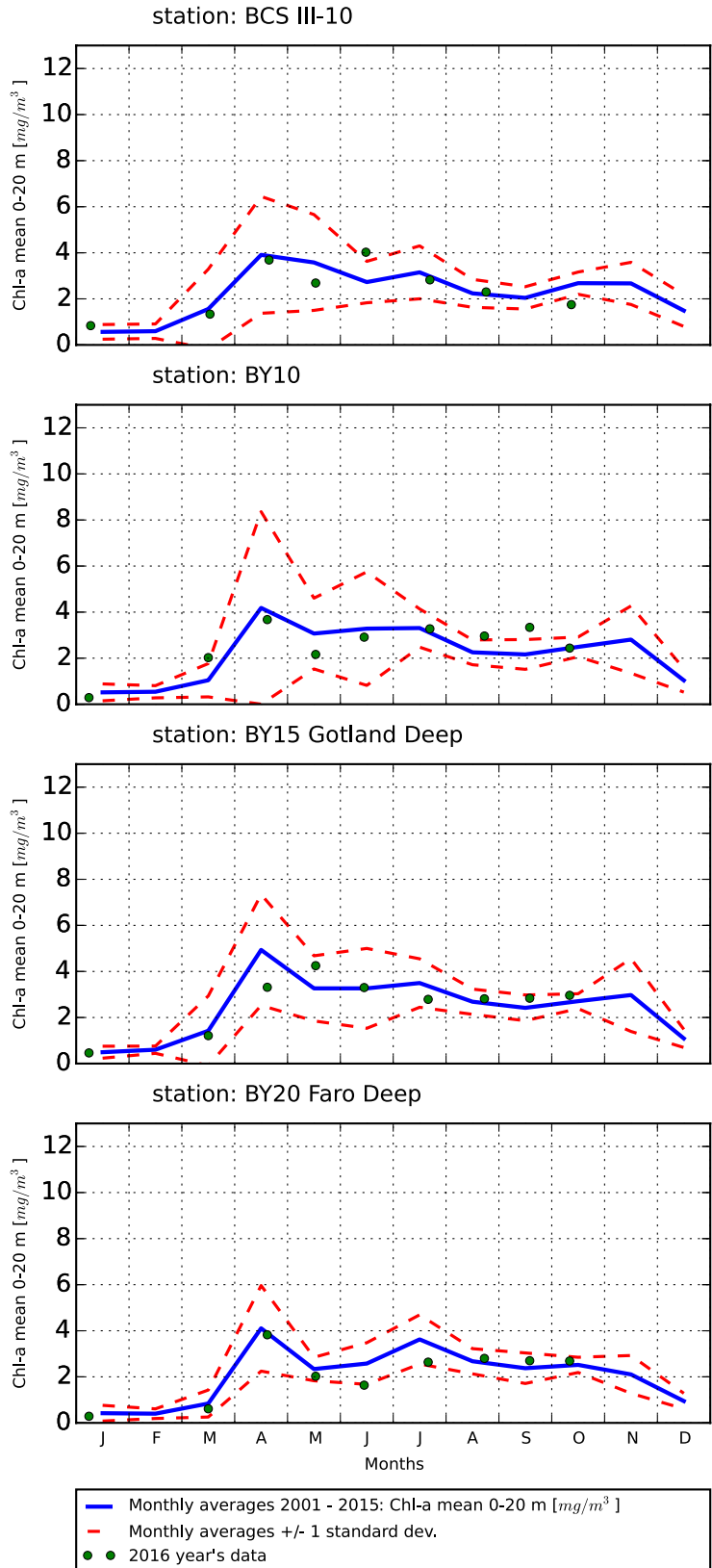
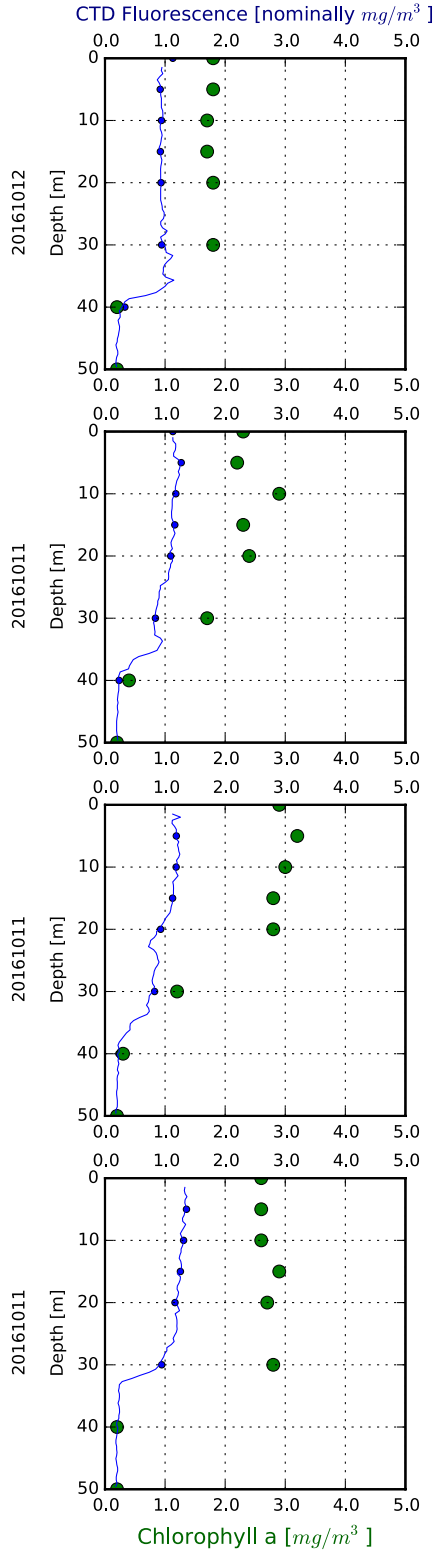
The Kattegat and The Sound



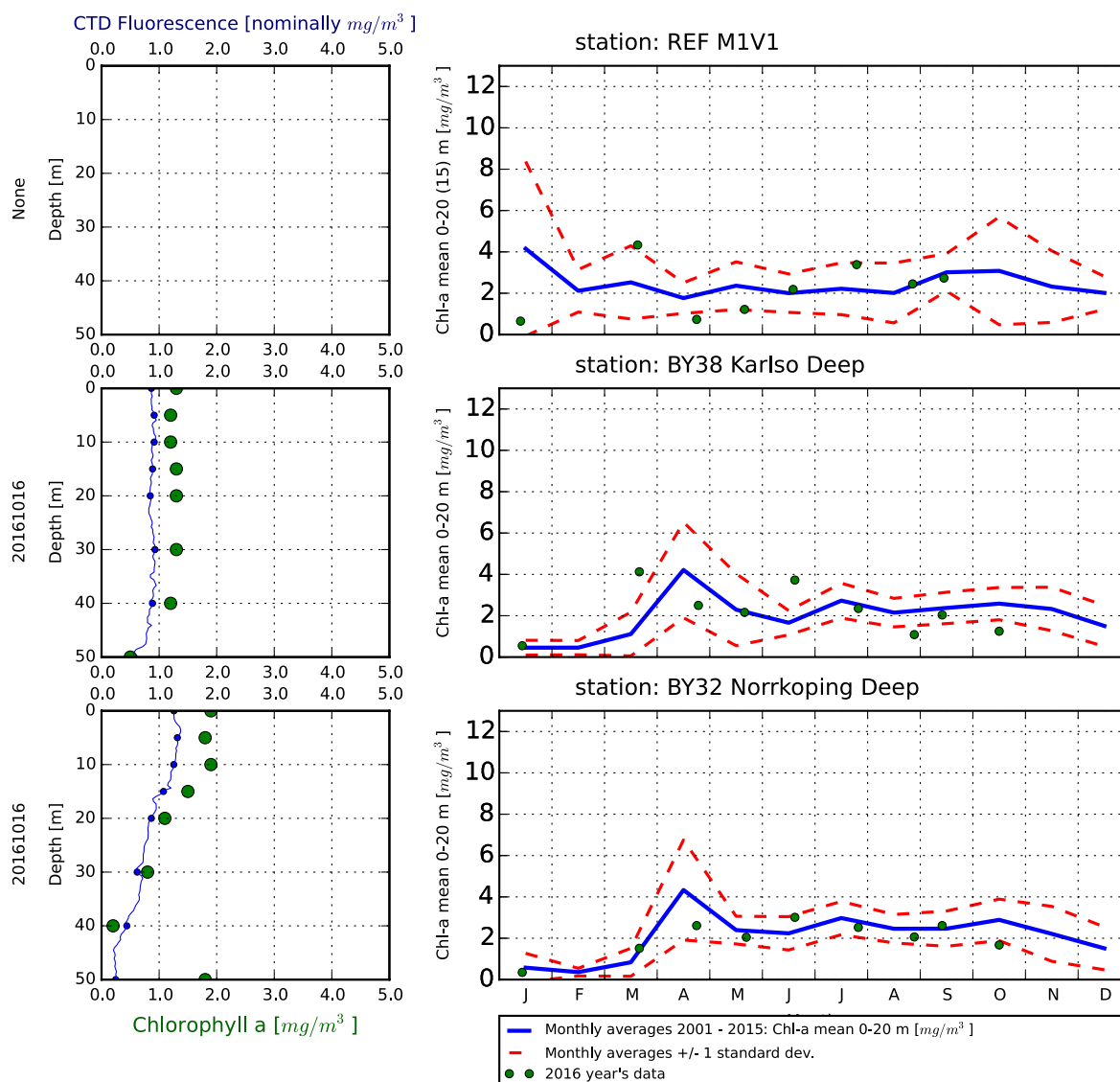
The Southern Baltic



The Eastern Baltic



The Western Baltic



*Note that REF M1V1 was not visited during this cruise.

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 (0-10 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.

