

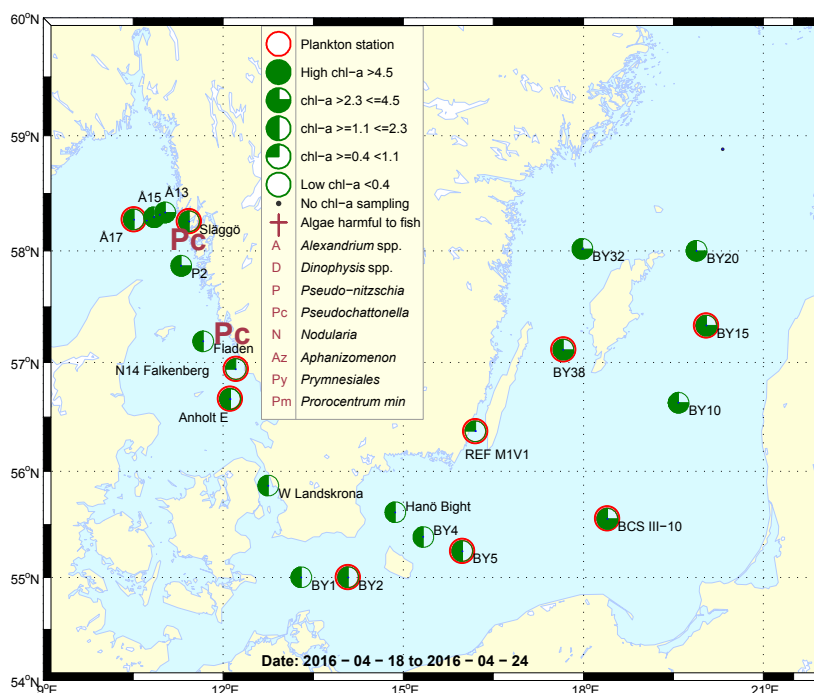
Sammanfattning

Växtplanktonförekomsten var relativt låg i Kattegatt och Skagerrak. I Kattegatt var dock kiselalger vanliga med ett flertal arter i varierande cellantal, men i Skagerrak var diversiteten mycket låg.

Klorofyllfluorescensmaxima vid Fladen i Kattegatt och Släggö i Skagerrak orsakades delvis av det för fisk skadliga släktet *Pseudochattonella**. De integrerade (0-20m) klorofyllvärdena var normala för denna månad i området.

I Östersjön var situationen typisk för hur det brukar vara efter vårbloomingen. Olika arter av kiselalger, dinoflagellater, ciliater och cyanobakteriekolonier med mera observerades, men cellantalen var generellt sett relativt låga.

I planktonprover från klorofyllfluorescensmaxima i Östersjön var dinoflagellaten *Peridiniella catenata* genomgående vanlig. Integrerade (0-20m) klorofyllvärden var något låga för månaden i västra Östersjön, i övrigt normala.



Abstract

The phytoplankton activity was rather low in the Kattegat and Skagerrak areas. Diatoms were common in the Kattegat though, with several species observed at variable abundances. The diversity was very low in the Skagerrak area.

Chlorophyll fluorescence peaks at Fladen in the Kattegat and at Släggö in the Skagerrak were partly caused by the fish killing genus *Pseudochattonella**. The integrated (0-20m) chlorophyll concentrations were normal for this month.

A typical post spring bloom situation was found in the Baltic, with some diatom and dinoflagellate species, ciliates, cyanobacteria colonies etc. Cell numbers were generally low.

The dinoflagellate *Peridiniella catenata* was found with high cell numbers in phytoplankton samples from chlorophyll fluorescence peaks in the Baltic. The integrated (0-20m) chlorophyll concentrations were somewhat low in the Western Baltic, otherwise normal for this month.

More detailed information on species composition and abundance

The Skagerrak

Å17 (open Skagerrak) 21st of April

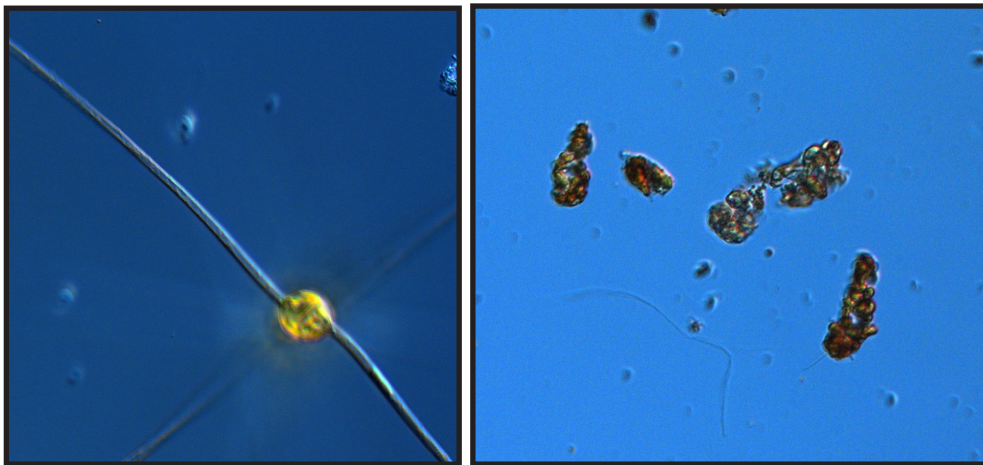
The phytoplankton diversity was low. The flagellate *Emiliana huxleyi* and the potentially harmful flagellate *Pseudochattonella* spp.* were present.

Å13 22nd of April

A chlorophyll fluorescence peak at 13 meters depth was caused by diatoms and small species like *Emiliana huxleyi*, cryptomonads and Prymnesiales*.

Släggö (Skagerrak coast) 22nd of April

The phytoplankton activity was low with few species and low cell numbers. A fluorescence maximum at 5 meters depth was partly caused by *Pseudochattonella* sp.*, a flagellate that is lethal for fish.



The diatom *Chaetoceros danicus* (left) was common in the Kattegat - Skagerrak and in the Baltic areas. The potentially fish killing flagellate *Pseudochattonella* (right) was quite numerous at Fladen and at Släggö.

The Kattegat

Anholt E 21st and 22nd of April

Diatoms were the most abundant organisms, and *Chaetoceros danicus* was one of the most numerous species at both visits.

N14 Falkenberg 22nd of April

The phytoplankton situation was very similar to the situation at Anholt E.

Fladen 21st of April

A chlorophyll fluorescence peak at 15 meters depth was partly caused by *Pseudochattonella* sp.*, a flagellate that is lethal for fish. Several diatom species were common.

The Baltic Sea

BY2 Arkona Basin and BY5 Bornholm Basin 20th of April

Many different species of colony forming pico cyanobacteria were present. Ciliates, naked dinoflagellates and cryptomonads were common. A fluorescence maximum at 15 meters depth at BY5 was caused by several organisms, mostly dinoflagellates and small flagellated species.

BY15 19th of April and BCS III-10 20th of April

The phytoplankton situation was very much the same as at BY2 and BY5. A fluorescence maximum at 20 meters depth was partly caused by the dinoflagellates *Peridiniella catenata*, *Dinophysis norvegica* and the diatom *Chaetoceros danicus*.

REF M1V1 Kalmar Sound 23rd of April

The phytoplankton diversity was low, naked dinoflagellates, cryptomonads and ciliates were common.

BY38 Karlsö Deep 24th of April

The species composition was rather the same as at the other Baltic stations. The dinoflagellate *Peridiniella catenata* and ciliates were common. Many species of colony forming pico cyanobacteria were present. The potentially harmful flagellate *Chrysochromulina* cf. *polylepis* was present.

BY32 Norrköping Deep 24th of April

A chlorophyll fluorescence peak at 10 meters depth was partly caused by the dinoflagellate *Peridiniella catenata*. The filamentous cyanobacterium *Aphanizomenon flosaquae* was present as well as small flagellated species, ciliates y forming pico cyanobacteria. The potentially harmful flagellate *Chrysochromulina* cf. *polylepis* was present.

LL7 Gulf of Finland 18th of April

A chlorophyll fluorescence peak at 20 meters depth was partly caused by the dinoflagellate *Peridiniella ctaenata* and the diatoms *Skeletonema marinoi* and *Thalassiosira* spp.

LL15 Northern Baltic Proper 18th of April

The phytoplankton sample from a chlorophyll fluorescence peak at 1 meters depth contained several species of the diatom genera *Chaetoceros* and *Thalassiosira*, the dinoflagellate *P.catenata* and ciliates. Colony forming pico cyanobacteria were numerous.



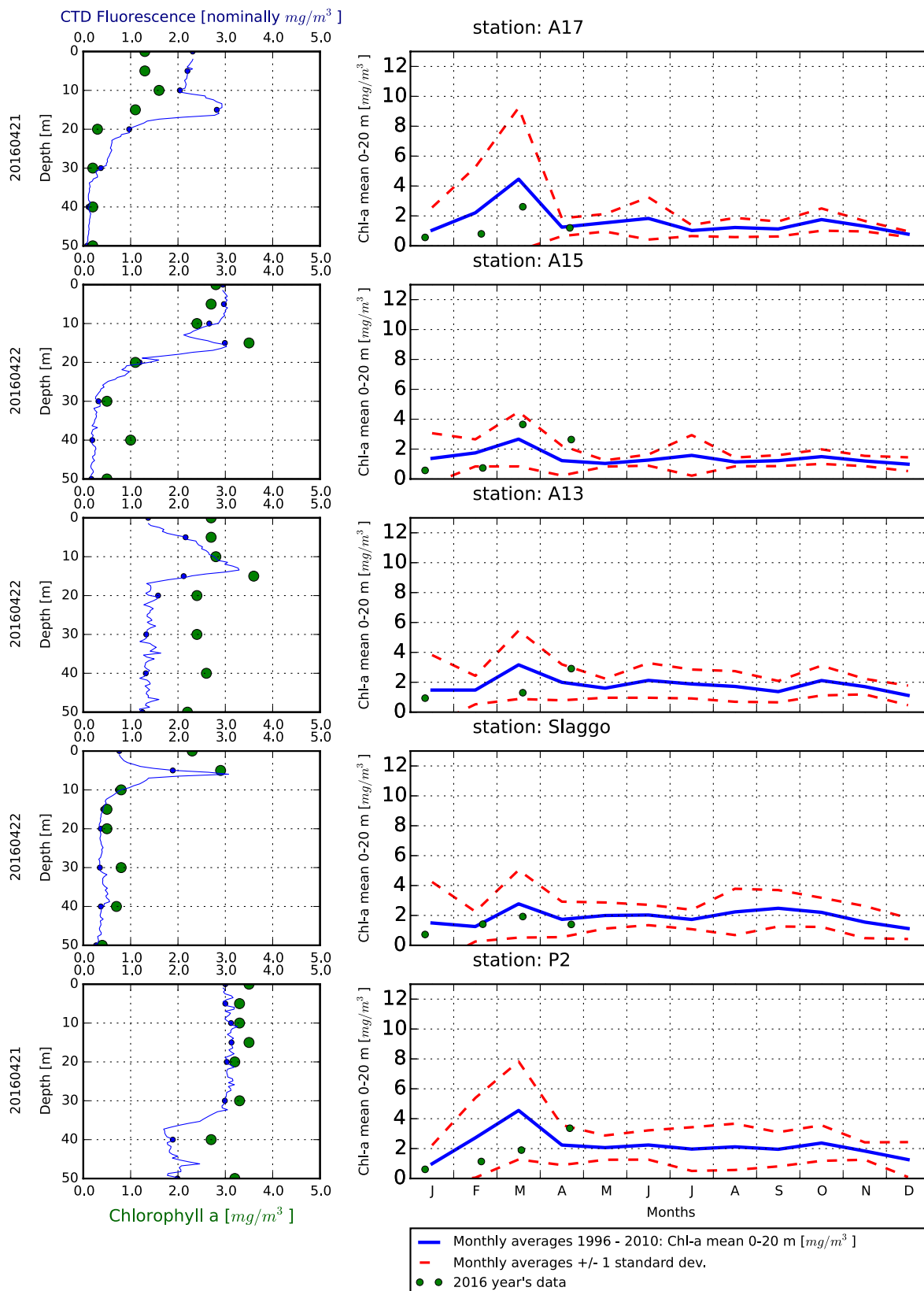
The ciliate *Mesodinium rubrum* (left), the dinoflagellate *Peridiniella catenata* (middle) and the flagellate *Chrysochromulina* cf. *polylepis* was present in Baltic samples.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

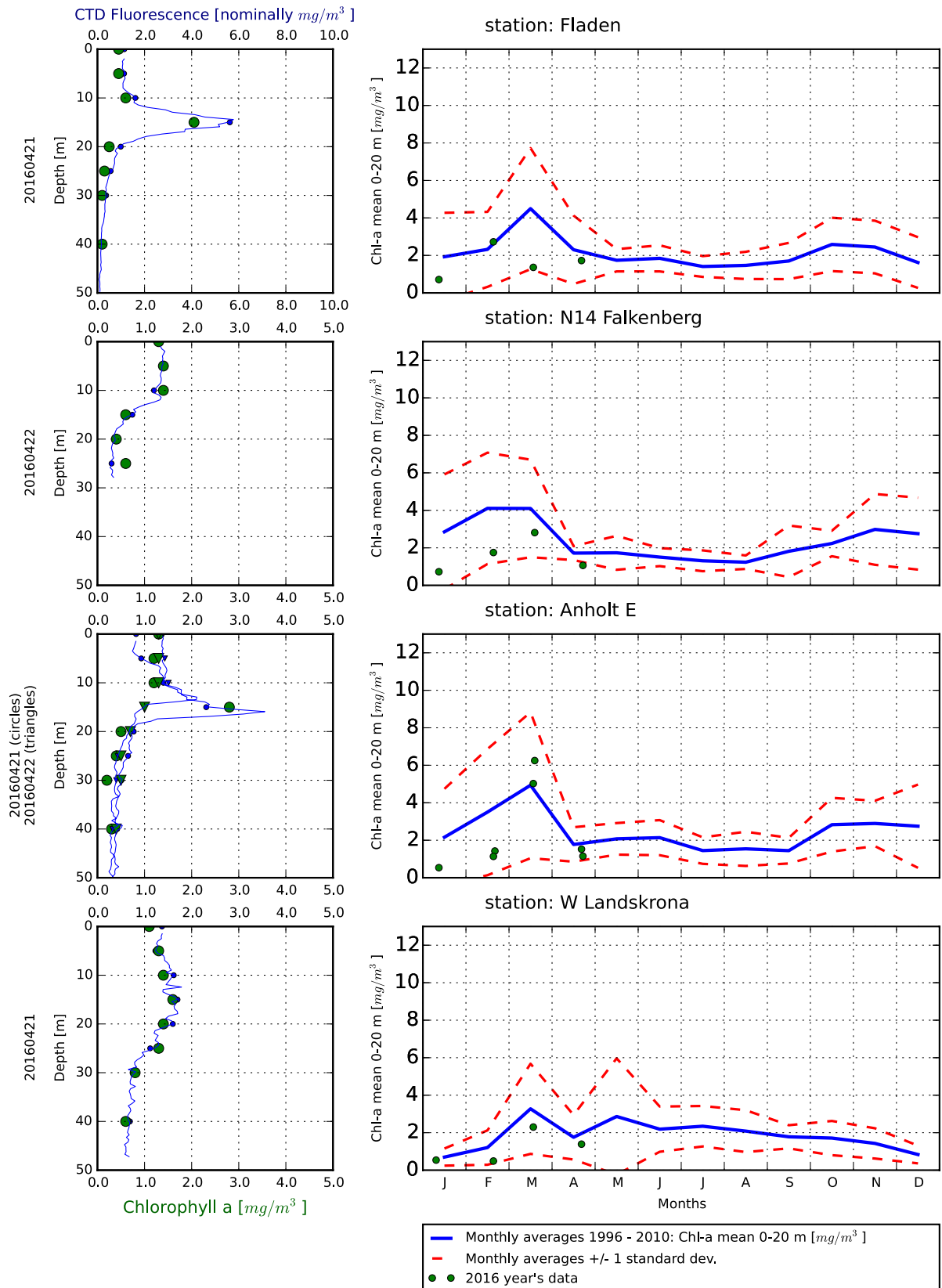
Selection of observed species	Å17	Släggö	N14	Anholt E	Anholt E
Red=potentially toxic species	21/4	22/4	22/4	21/4	22/4
Hose 0-10 m	presence	presence	presence	presence	presence
Attheya septentrionalis				present	present
Cerataulina pelagica					present
Chaetoceros danicus	present		very common	very common	common
Chaetoceros decipiens			present		
Chaetoceros impressus			present	present	present
Coscinodiscus spp			present		present
Cylindrotheca closterium		present	present	present	
Dactyliosolen fragilissimus	present		present		present
Ditylum brightwellii	present				
Guinardia delicatula	present	present	common	common	common
Leptocylindrus minimus					present
Nitzschia longissima		present	present	present	present
Phaeodactylum tricornutum	present		present	present	
Proboscia alata	present	present	common	common	common
Pseudo-nitzschia spp			present	present	present
Rhizosolenia setigera				present	present
Skeletonema marinoi		present	common	present	common
Thalassionema nitzschioides		present			
Ceratium tripos	present			present	present
Dinophysis acuminata			present		
Dinophysis norvegica					present
Gymnodiniales			common		
Heterocapsa spp		present			
Heterocapsa rotundata		present	present		present
Karlodinium veneficum		present			present
Peridiniella danica	present		present		
Proterythropsis vigilans				present	
Protoceratium reticulatum					present
Protoperidinium spp					present
Protoperidinium pellucidum					present
Dinobryon balticum	present			present	present
Dinobryon faculiferum			present	present	present
Apedinella radians	present				
Pseudochattonella spp	present	present			
Pseudopedinella spp				present	
Pseudopedinella pyriformis		present			
Cryptomonadales	common	common	common	common	common
Leucocryptos marina	present	present	present	present	present
Emiliania huxleyi	33780	present			
Prymnesiales	present				
Heterosigma akashiwo		present			
Cymbomonas tetramitiformis		present	present	present	present
Pyramimonas spp	present	present	present		present
Pyramimonas virginica		present			
Eutreptiella spp			present	present	
Calliacantha longicaudata			present		
Calliacantha natans				present	
Choanoflagellidea	present				
Ebria tripartita				present	present
Telonema spp		present	present	present	
Laboea strobila	present		present		present
Mesodinium rubrum				present	
Strombidium		present		present	
Ciliophora	common	common	common	present	present

Selection of observed species	BY2	BY5	BCS III-10	BY15	REF M1V1	BY38
Red=potentially toxic species	20/4	20/4	20/4	19/4	23/4	24/4
Hose 0-10 m	presence	presence	presence	presence	presence	presence
Attheya septentrionalis		present				
Chaetoceros danicus			present	present		
Chaetoceros impressus			present			
Chaetoceros similis	present	present		present		
Chaetoceros subtilis	present	present				
Skeletonema marinoi	present			present	present	
Amphidinium sphenoides					present	
Amylax triacantha			present	present		
Dinophysis acuminata		present	present	present		
Dinophysis norvegica	present	present	present	present		present
Gymnodiniales	common	common	common	common	common	common
Gyrodinium flagellare				present		
Heterocapsa spp	present	present	present	present	present	present
Heterocapsa rotundata	present	present	present	present	present	present
Katodinium glaucum	present		present			
Peridinales			present			
Peridiniella catenata	present	common	common	common		common
Peridiniella danica					present	
Protoperidinium spp		present				
Chrysochromulina cf. polylepis		present				present
Prymnesiales		present			present	present
Dinobryon balticum	present	common			present	present
Dinobryon faculiferum					present	
Cryptomonadales		common	common	present	common	present
Aphanizomenon flos-aquae	present	present	present	present		present
Aphanocapsa spp			present			
Aphanothece spp	present	present				present
Aphanothece paralleliformis	present		common	present		present
Cyanodictyon spp	present	present		present	present	
Lemmermanniella spp	present	present	present	present		present
Snowella spp		present	present		present	present
Woronichinia spp	present	present		present		present
Cf. Woronichinia naegeliana			present			
Pseudopedinella spp		present			present	present
Eutreptiella spp	present	present				present
Pyramimonas spp	present	present			present	present
Planctonema lauterbornii	present		present			
Choanoflagellidea	present					
Ebria tripartita			present			
Katablepharis remigera		present				present
Mesodinium rubrum	present	present	present	present		present
Tintinnopsis spp					present	present
Ciliophora	common	common	common	common	common	common

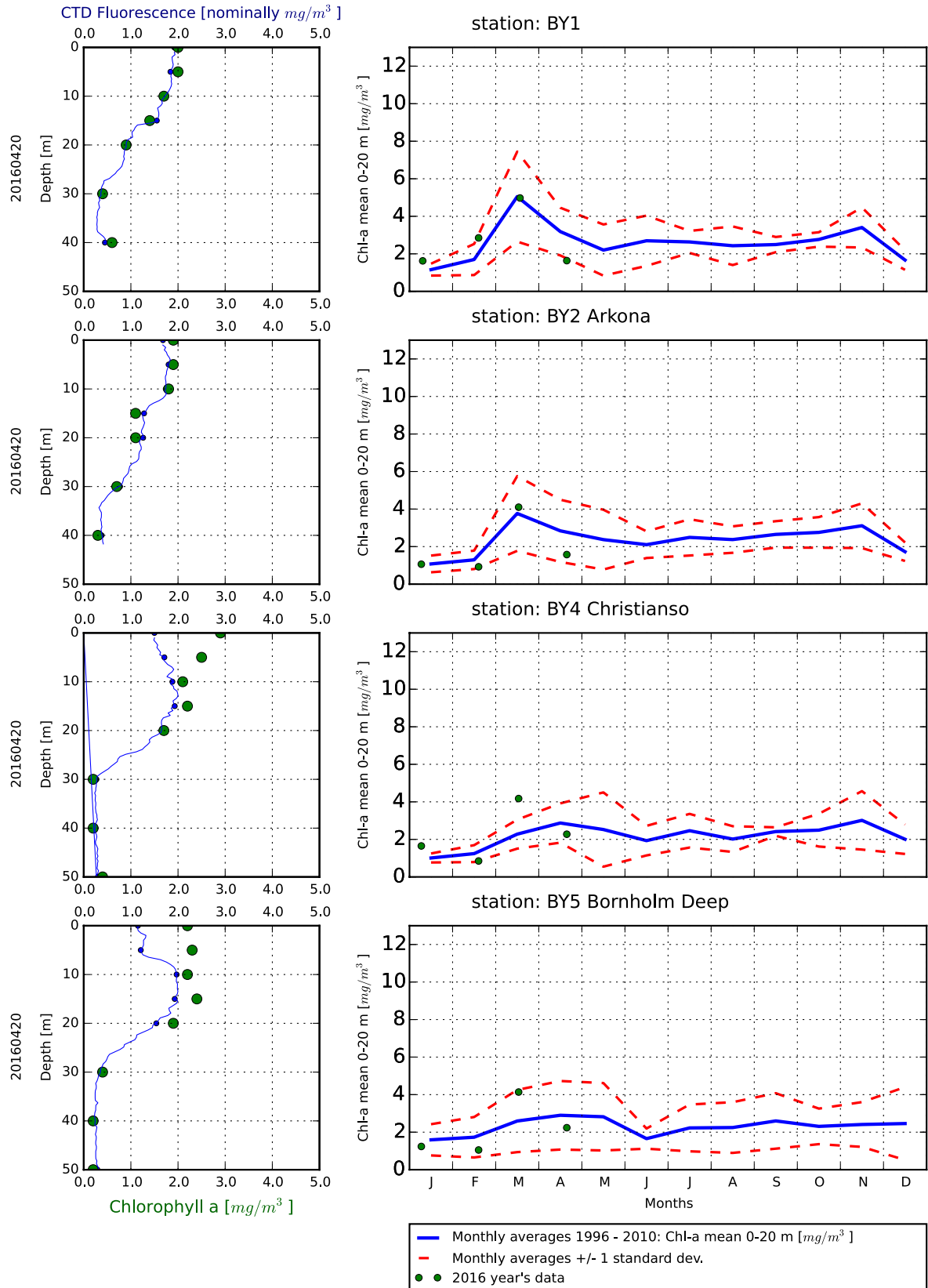
The Skagerrak



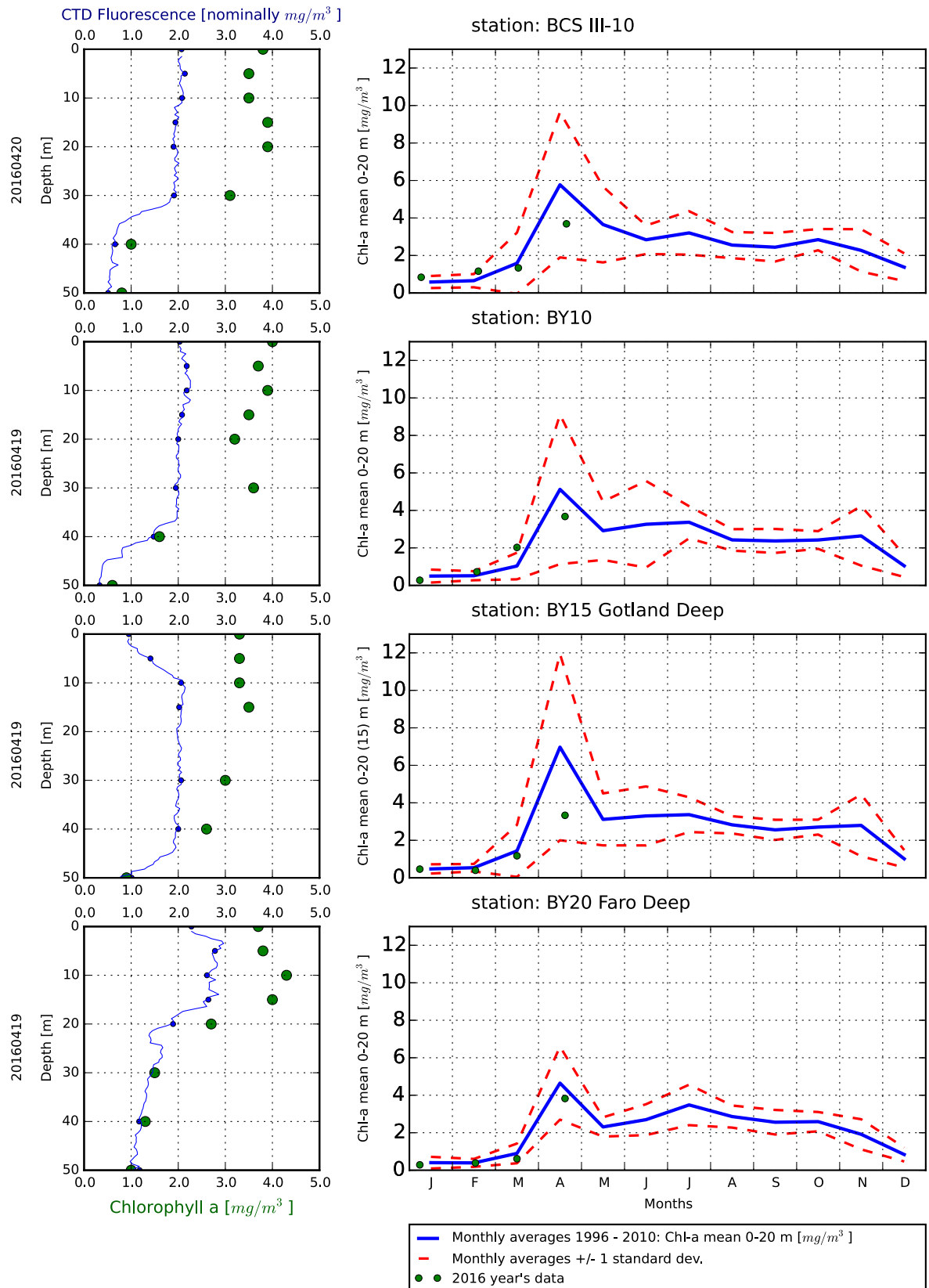
The Kattegat and The Sound



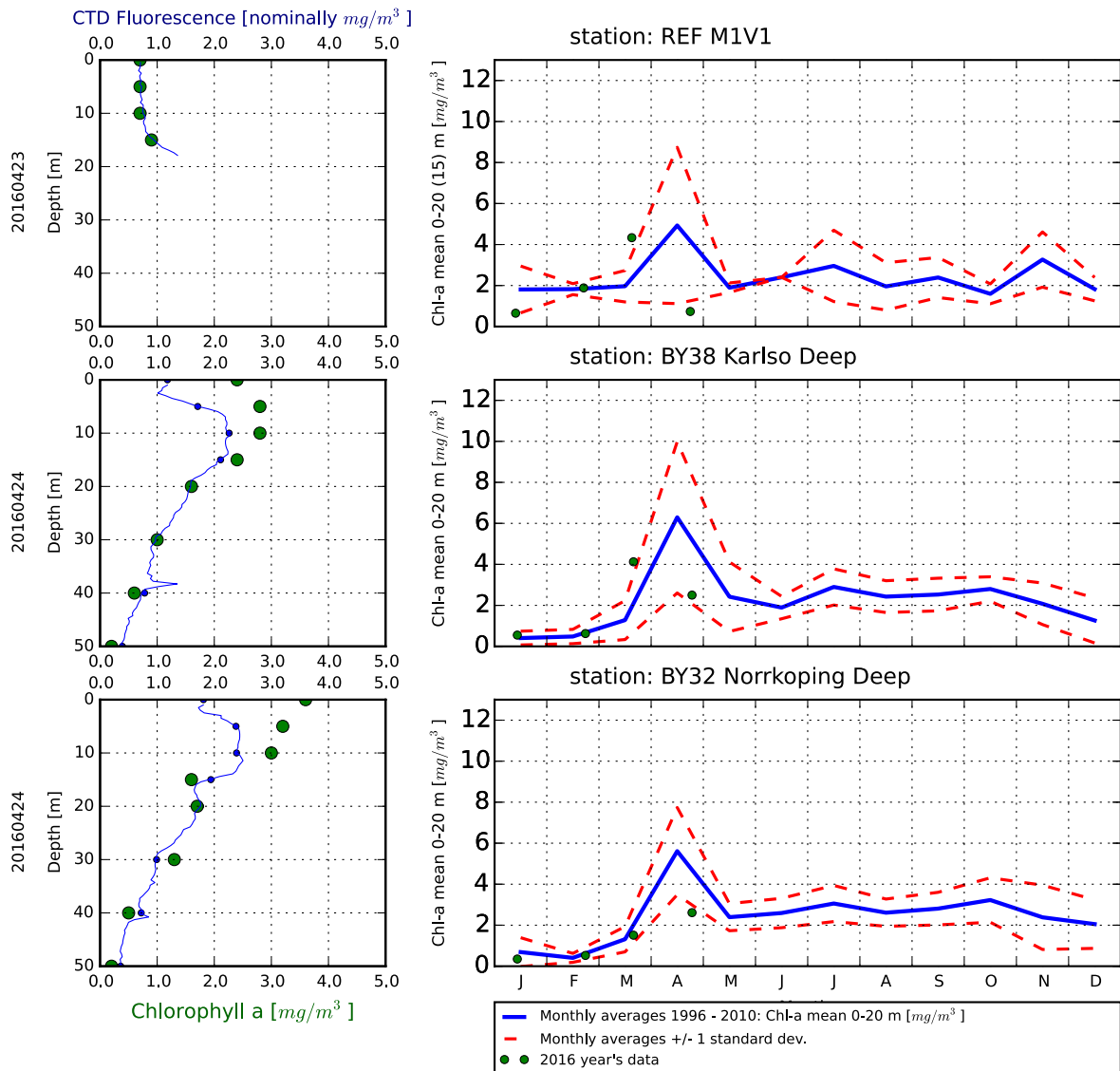
The Southern Baltic



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 algbloomningar 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.

