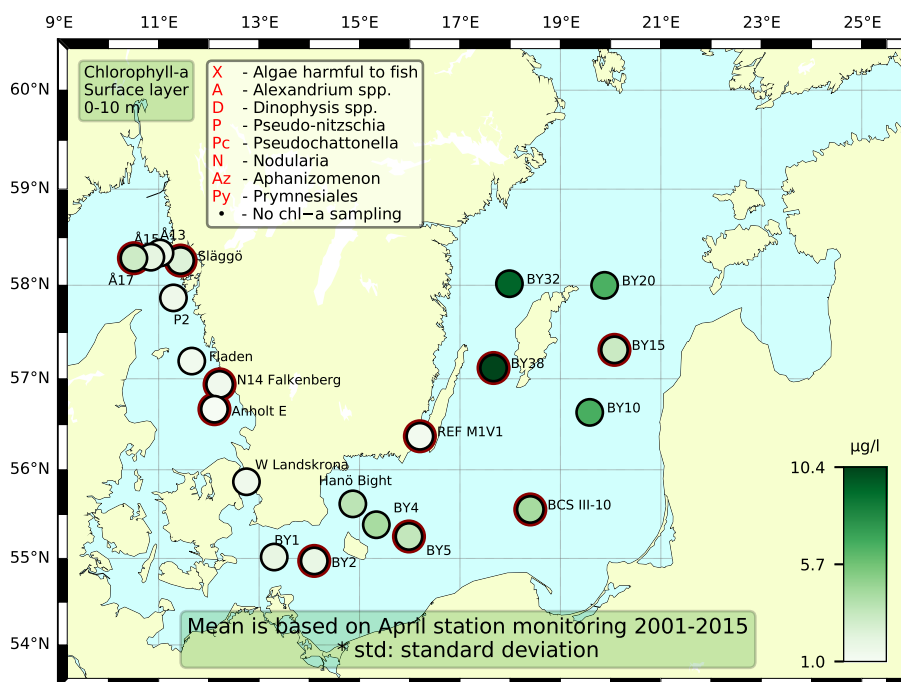


Sammanfattning

Både artdiversitet och totala cellantal var låga vid samtliga stationer i Västerhavet vid denna provtagning. Generellt sett var dinoflagellatsläktet *Tripos* (tidigare *Ceratium*) vanligt vid samtliga stationer. Vid båda stationerna i Kattegatt återfanns den potentiellt giftiga arten *Dinophysis norvegica** i relativt höga antal. De integrerade (0-10 m och 0-20 m) klorofyllhalterna var låga men inom det normala för månaden. Det enda undantaget var Å17 i Skagerraks utsjö där halterna låg strax över det normala för månaden.

Artdiversiteten var generellt sett hög i Östersjön, men de totala cellantalen var rätt låga. Den typiska vårblomningsarten, dinoflagellaten *Peridiniella danica*, fanns i höga cellantal vid flera stationer och ciliaten *Mesodinium rubrum* samt grönalgen *Binuclearia lauterbornii* fanns vid samtliga stationer fast i lägre antal. Flertalet kiselalgsarter återfanns i låga antal, bara *Skeletonema marinoi* och *Thalassiosira* cf. *baltica* fanns i förhöjda cellantal vid BY5 och BY38 respektive. De integrerade (0-20 m) klorofyllhalterna var över medel för denna månad vid BY38 och BY32, vid övriga stationer låg halterna inom en standardavvikelse.



Abstract

Both the species diversity and total cell numbers were low at all stations along the west coast at the time of sampling. The genus *Tripos* (formerly called *Ceratium*) was the most common at all stations. The potentially toxic species *Dinophysis norvegica** was also found in relatively high cell numbers at both stations in the Kattegat. The integrated (0-10 m and 0-20 m) chlorophyll concentrations were low but within normal for the month. The only exception was at Å17 in the Skagerrak open sea, where the concentration was slightly above what is normal.

The species diversity was generally high in the Baltic Sea, but the total cell numbers were low. The typical spring bloom species, the dinoflagellate *Peridiniella catenata* was abundant at several stations, and the ciliate *Mesodinium rubrum* and the green algae *Binuclearia lauterbornii* were present at all stations although in low cell numbers. A few diatoms were present in low cell numbers, only *Skeletonema marinoi* and *Thalassiosira* cf. *baltica* in somewhat high cell counts at BY5 and BY38 respectively. The integrated (0-20 m) chlorophyll concentrations were above normal for this month at BY38 and BY32. At the other stations the concentrations were within one standard deviation.

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

The Skagerrak

Å17 (open Skagerrak) 14th of April

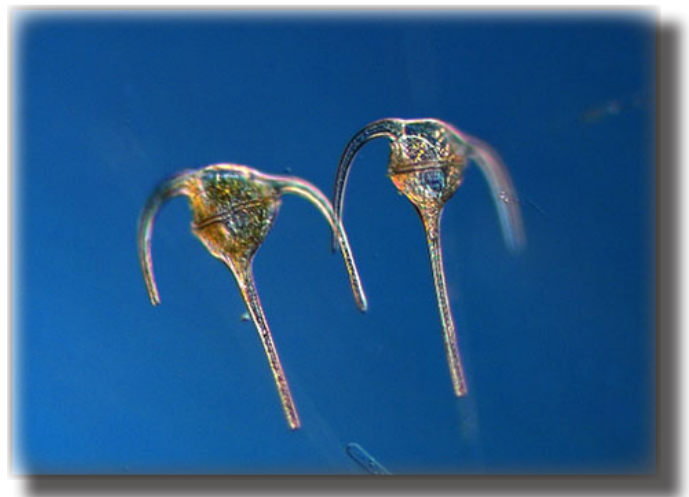
Both the phytoplankton diversity and the total cell concentrations were low. The phytoplankton community was dominated by dinoflagellates. Among the larger cells the dinoflagellate genus *Tripes* was the most common. The smaller cells were dominated by the order Cryptomonadales. The integrated chlorophyll concentrations (0-10m and 0-20m) were a bit above normal for this month.

Släggö (Skagerrak coast) 14th of April

Both the phytoplankton diversity and the total cell concentrations were relatively low. The larger cells of the phytoplankton community was dominated by the dinoflagellate genus *Tripes*. The smaller cells were dominated by the order Cryptomonadales. The integrated chlorophyll concentration (0-10 m and 0-20 m) was low but normal for this month.



The potentially toxic dinoflagellate *Dinophysis norvegica* was common at both stations in the Kattegat.
Photo: M. Johansen.



The dinoflagellate *Tripes muelleri* (formerly called *Ceratium tripos*) was common at all stations along the West coast. Photo: M. Johansen.

The Kattegat

Anholt E 15th and N14 Falkenberg 15th of April

Both the phytoplankton diversity and the total cell concentrations were low at both stations. The phytoplankton communities were dominated by dinoflagellates. Among the larger cells the dinoflagellate genus *Tripes* was the most common one. The potentially toxic dinoflagellate *Dinophysis norvegica** was also found at relatively high numbers at both stations. The smaller cells were dominated by the order Cryptomonadales. A few cells of the coccolithophore *Emiliania huxleyi* were also found. The integrated chlorophyll concentrations (0-10 m and 0-20 m) were low but within normal for this month.

The Baltic

BY2 and BY5 16th of April

A relatively large amount of species were observed and BY2 was the only station where the typical spring species, the dinoflagellate *Peridiniella catenata* was not noted. However, high cell numbers of the dinoflagellate *Heterocapsa triquetra* was found. The diatom *Skeletonema marinoi* was present at both stations and abundant at BY5. Many species of pico cyanobacteria colonies were found in low cell numbers although *Lemmermanniella* spp. was found with somewhat elevated cell numbers at BY2. The chlorophyll concentrations were higher at BY5 than at BY2, but both were within normal for this month.

BCSIII-10 17th of April

The dinoflagellate *P. catenata* was the most numerous species. The species is mostly found forming chains, but there was a large amount of single *P. catenata* cells present. The species diversity was the lowest at this station and the species present were mainly small cells. The chlorophyll concentration was within normal for this month.

BY15 17th of April

The dinoflagellate *P. catenata* was abundant. The species diversity was somewhat high although the total cell counts were low. The chlorophyll concentration was within normal for this month.

BY38 18th of April

The chain forming dinoflagellate *P. catenata* was the most abundant species and the diatom *Thalassiosira* cf. *baltica* was numerous. The species diversity was rather high with several diatoms present. The ciliate *Mesodinium rubrum* was abundant. The chlorophyll concentrations were high and consequently above normal for this month.

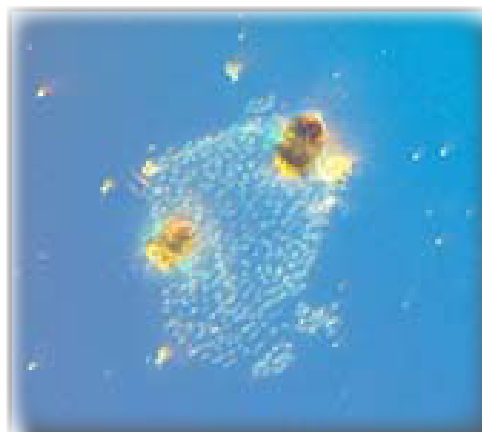
REFM1V1 19th of April

The phytoplankton situation was very similar to the one at BY15 although the species diversity was lower. The chlorophyll concentration was within normal for this month.



The dinoflagellate *Peridiniella catenata* was the most numerous species at all Baltic stations except at BY2 where it was absent.

Photo: A-T Skjevik.



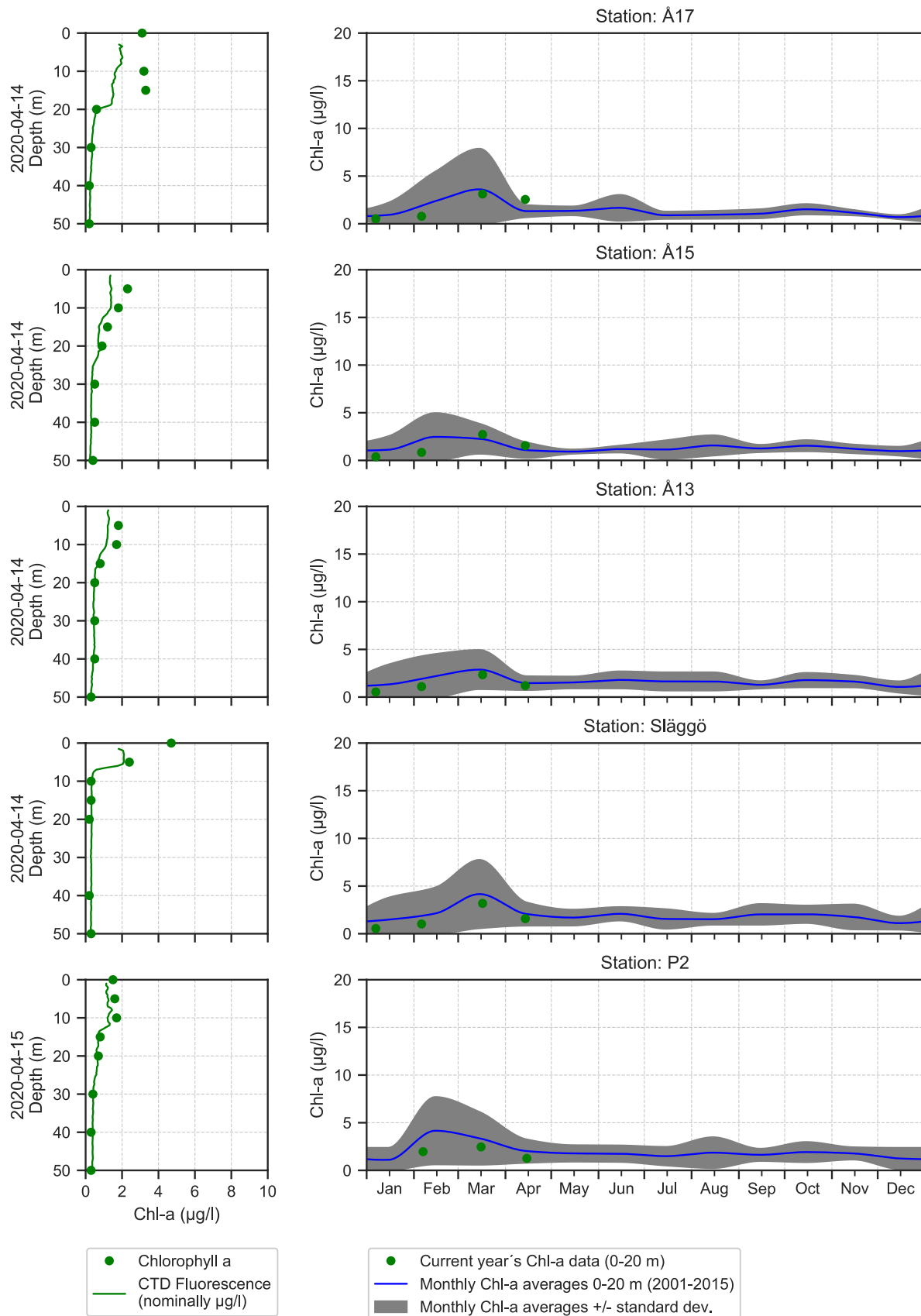
Two cells of the ciliate *Mesodinium rubrum* on a pico cyanobacteria colony. Both the ciliate and colonies were found at all of the Baltic stations.

Photo: A-T Skjevik.

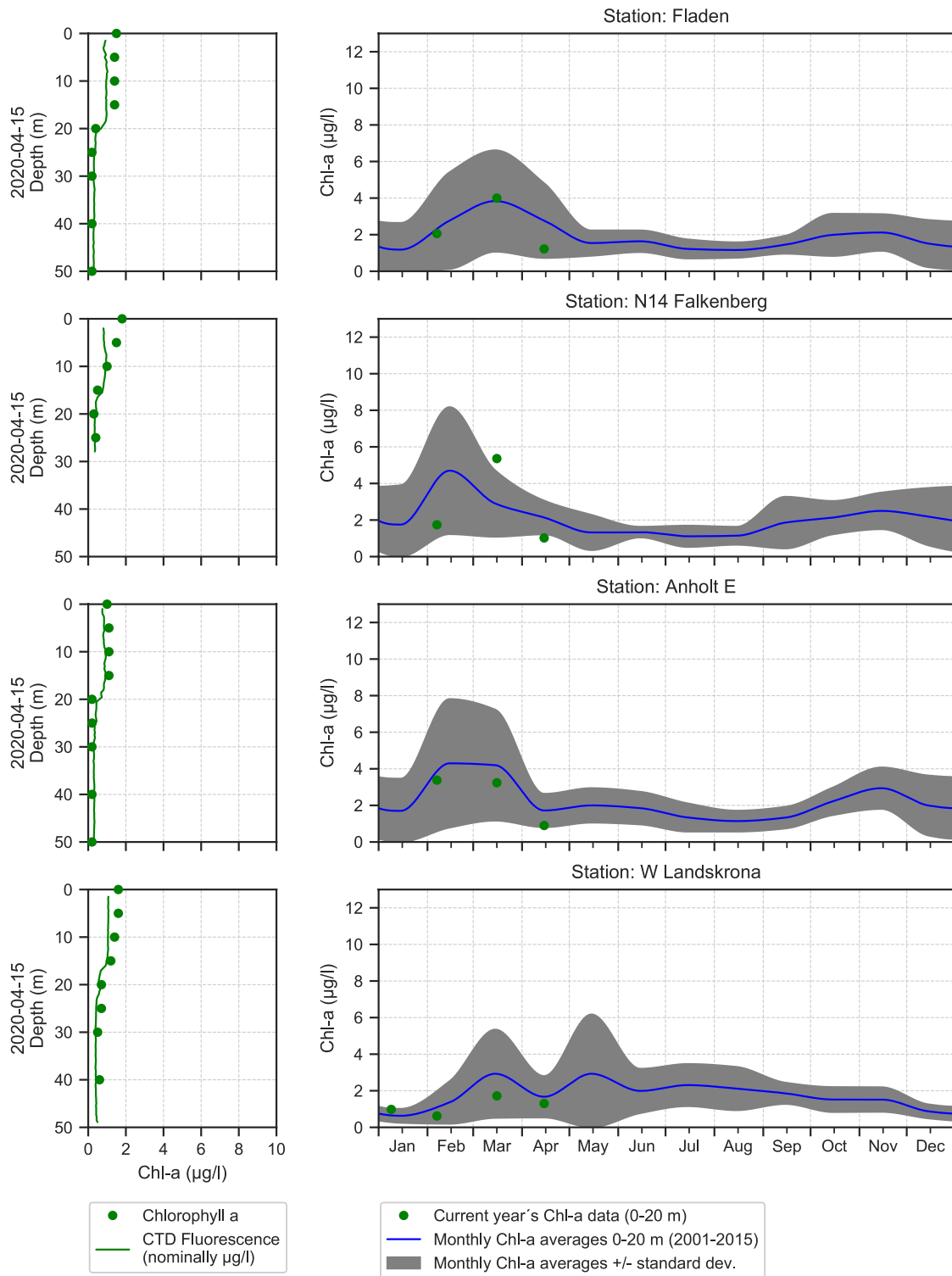
Selection of observed species	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	15/4	15/4	14/4	14/4
Hose 0-10 m	presence	presence	presence	presence
Aulacoseira		present		
Chaetoceros decipiens		present		
Chaetoceros subtilis			present	
Pennales	present		present	
<i>Pseudo-nitzschia</i>			present	
Skeletonema marinoi		present	present	
Ceratium fusus	present	present	present	present
Ceratium lineatum		present	present	
Ceratium longipes	very common	present	present	present
Ceratium tripos	very common	common	common	common
<i>Dinophysis norvegica</i>	common	common		
Gymnodiniales	common			
Heterocapsa rotundata			present	present
Peridinales	present		common	
Emiliania huxleyi	present	present		present
Prymnesiales			present	present
Cryptomonadales	present	common	common	common
Leucocryptos marina	present		present	
Telonema subtile	present			
Apedinella radians		present	present	present
<i>Pseudochattonella</i>			present	
Pseudopedinella pyriformis		present	present	present
Choanoflagellata			present	
Ciliophora	common	common	present	
Mesodinium rubrum	present	present	present	

Selection of observed species	BCSIII-10	BY2	BY5	BY15	BY38	REFM1V1
Red=potentially toxic species	17/4	16/4	16/4	17/4	18/4	19/4
Hose 0-10 m	presence	presence	presence	presence	presence	presence
Centrales		present		present		
Chaetoceros danicus					present	
Chaetoceros similis	present	present	present			present
Chaetoceros subtilis		present				
Dactyliosolen fragilissimus		present	present			
Melosira nummuloides						present
Nitzschia longissima					present	
Skeletonema marinoi		present	common	present	present	present
Thalassiosira cf. baltica			present		common	
Thalassiosira levanderi					present	
Amphidinium sphenoides			present			present
Amylax triacantha			present		present	
Dinophysis acuminata	present	present	present	present	present	present
Dinophysis norvegica		present	present	present		present
Gymnodiniales	present	present	present	present	present	present
Gymnodinium verruculosum					present	
Gyrodinium spirale				present		
Heterocapsa	present	present	present	present	present	present
Heterocapsa rotundata	present		present	present	present	present
Heterocapsa triquetra		common	common			present
Katodinium glaucum		present	present	present		present
Lessardia elongata				present	present	
Peridiniella catenata	very common		present	common	very common	common
Protoperidinium bipes						present
Protoperidinium brevipes			present		present	
Dinobryon	present					
Dinobryon balticum	present		present		present	present
Dinobryon faculiferum		present				
Cryptomonadales	common	present	present	present	common	present
Rhodomonas			present	present		
Prymnesiales		present	present		present	present
Oocystis	present	present	present			
Binuclearia lauterbornii	present	present	present	present	present	present
Pterosperma				present	present	
Pyramimonas	present		present	present	present	present
Katablepharis remigera	present		present	present		
Leucocryptos marina	present	present	present	present		
Dictyocha speculum		present				
Pseudopedinella		present	present			
Pseudopedinella pyriformis		present				
Eutreptiella	present	present	present	present	present	present
Aphanizomenon		present	present	present		present
Aphanocapsa	present	present	present	present		
Aphanothece						present
Aphanothece paralleliformis		present		present	present	
Cyanodictyon			present			
Lemmermanniella	present	common	present	present	present	
Snowella	present	present	present	present	present	
Calliacantha natans	present		present		present	
Choanoflagellata	present	present			present	
Ebria tripartita		present	present		present	
Ciliophora	present	present	common	present	present	present
Mesodinium rubrum	present	present	present	present	common	present

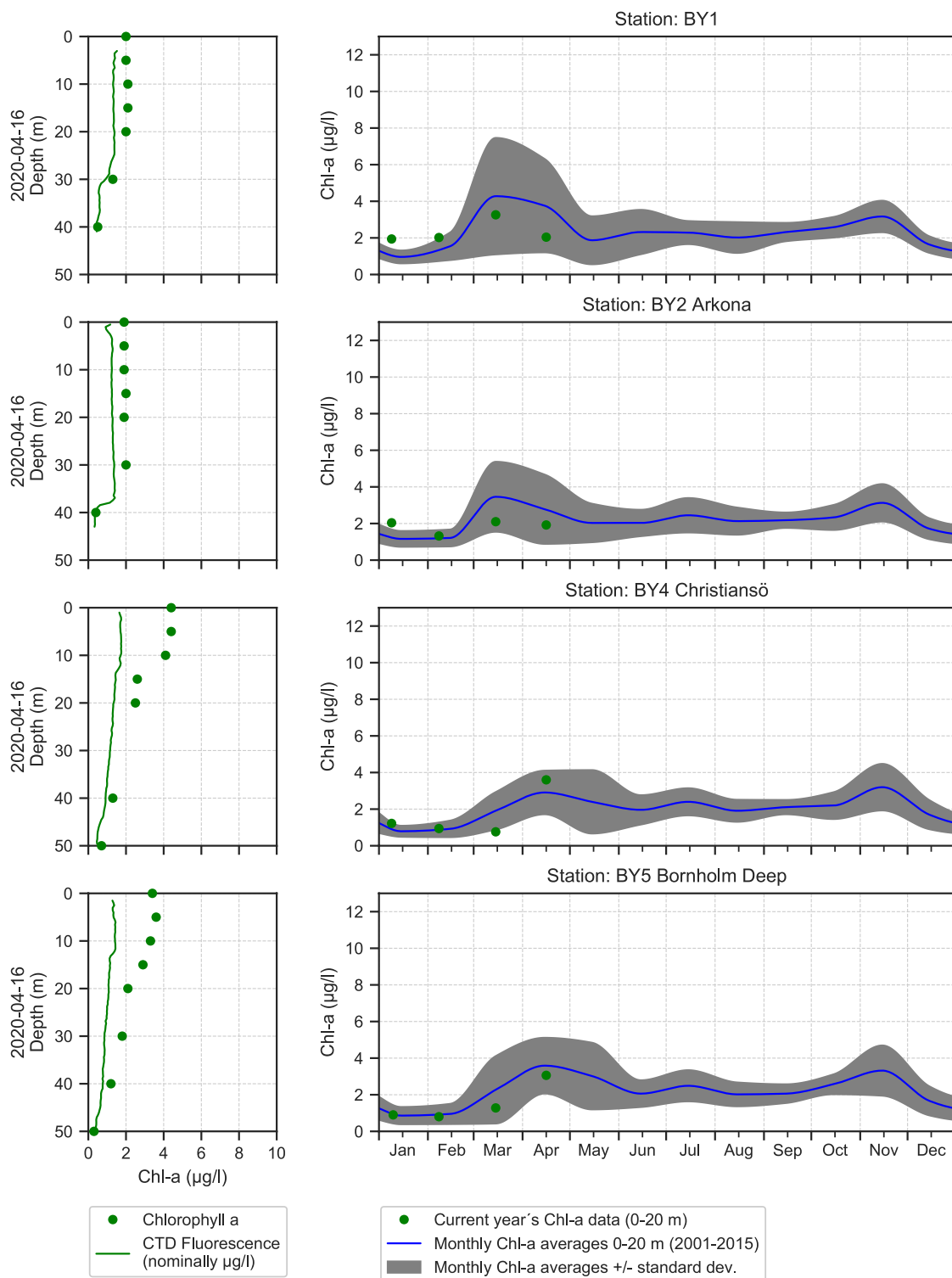
The Skagerrak



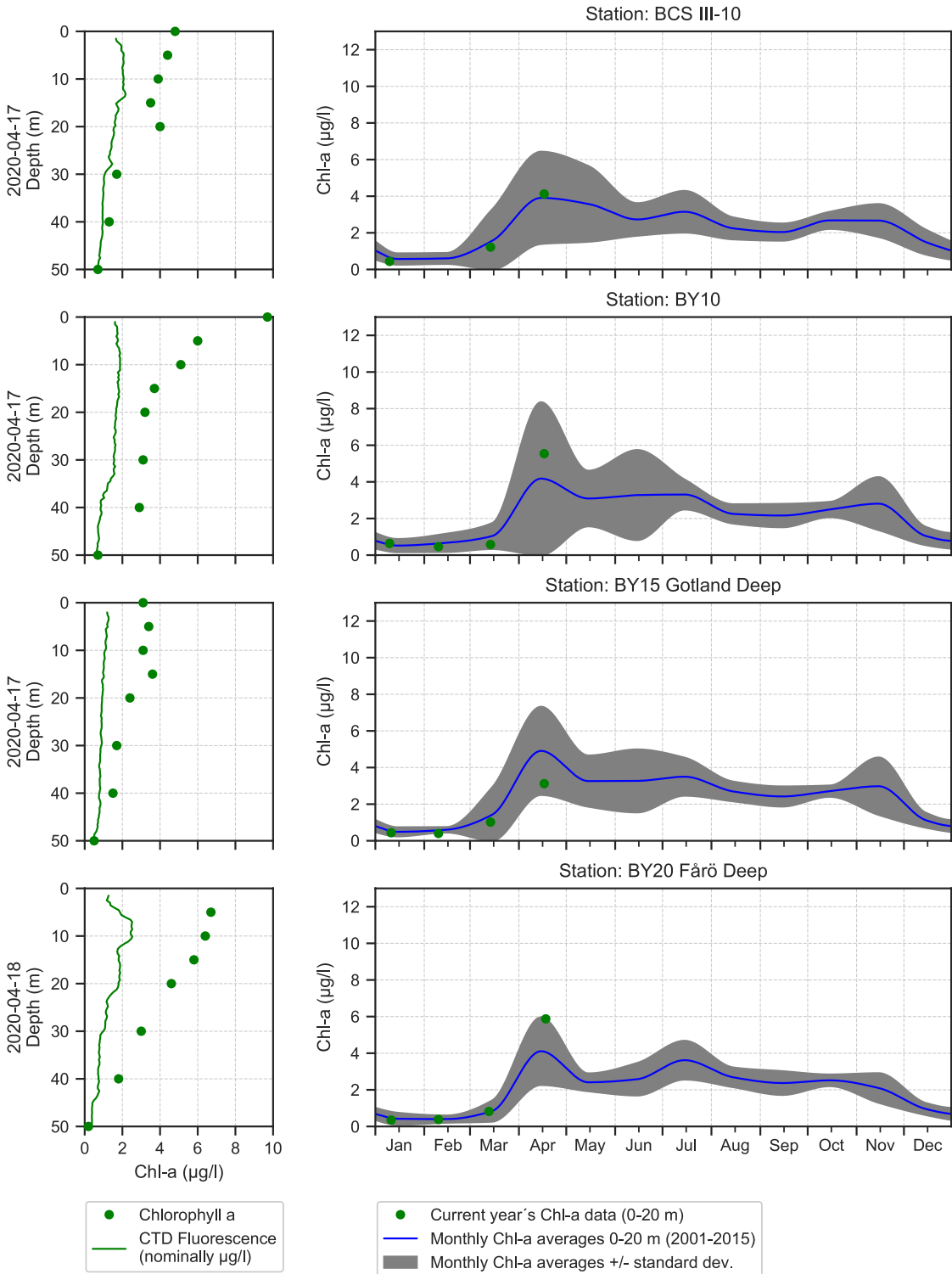
The Kattegat and The Sound



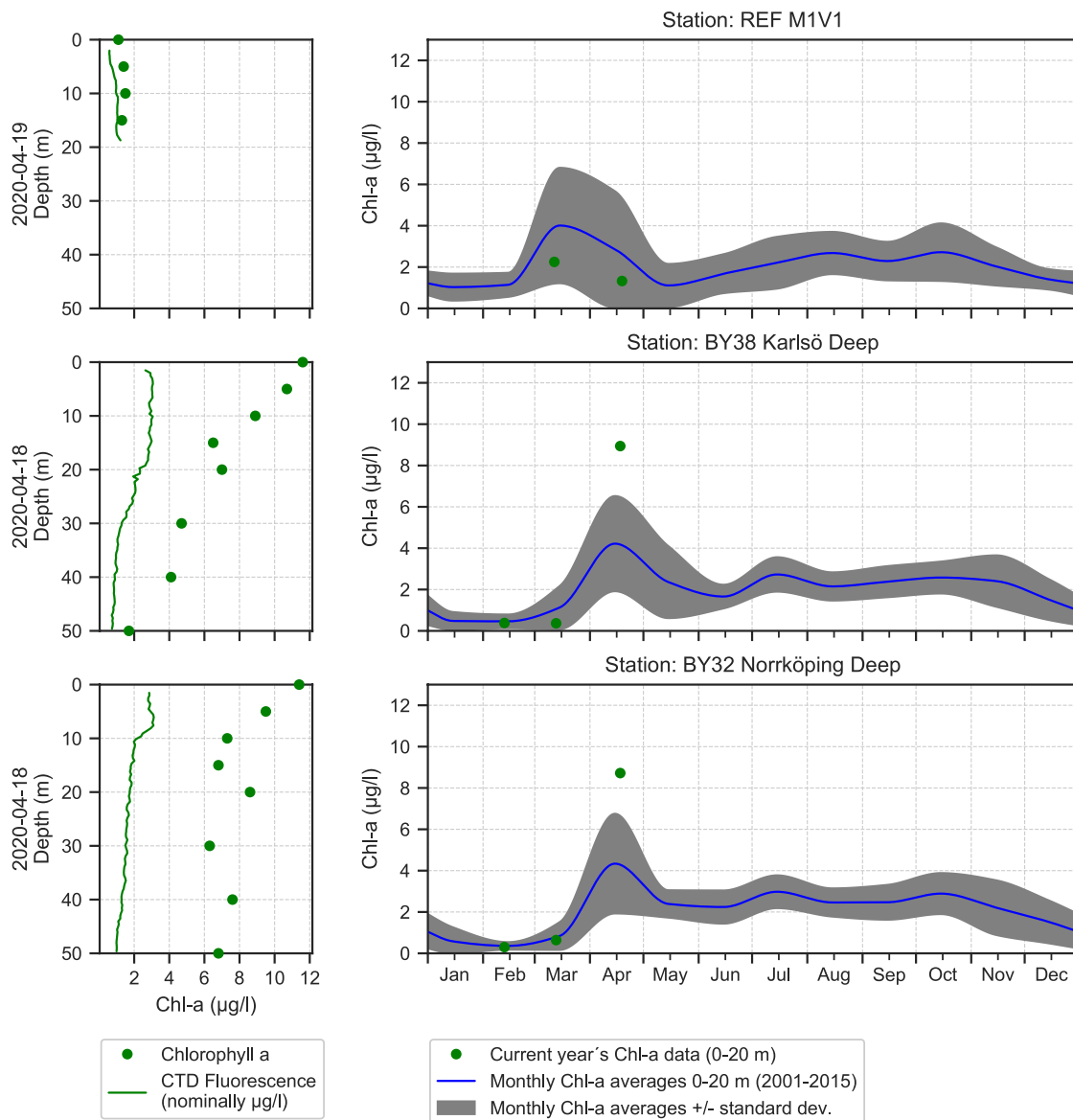
The Southern Baltic



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. Resultat från provtagningarna kan hämtas från SMHI:s databas på sharkweb.smhi.se. Hydrografidata läggs ut varje månad, växtplanktondata läggs ut en gång per år.

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. Results from the expeditions are found in the SMHI database, sharkweb.smhi.se. Data are published monthly, phytoplankton data however, are published once a year.

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, kramp	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.

