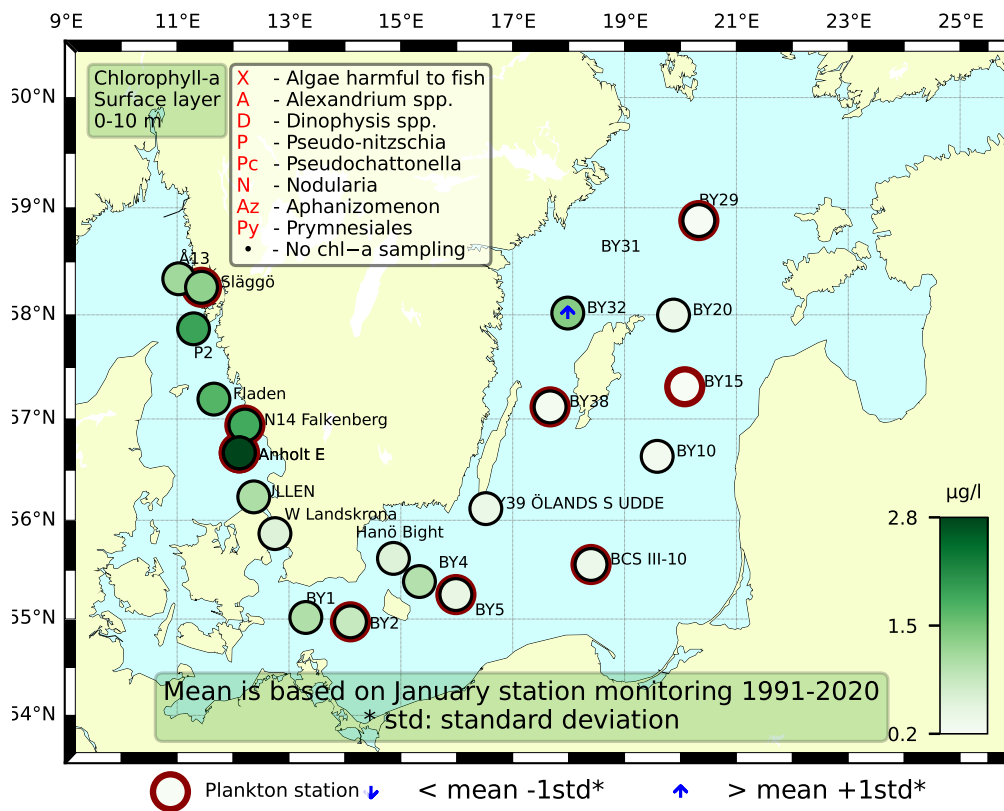


## Sammanfattning

I Kattegatt kunde man skönja en antydning till vårblooming men troligtvis bara i sin startgrop. Kiselalgen dominerade och bestod mestadels av de arter som brukar vara vanliga i vårbloomingen. I Skagerrak var det däremot ett både artfattigt samhälle med få celler. Trots det låga cellantalet så återfanns den vanliga vårbloomingens art *Skeletonema marinoi* men i låga tätheter. De integrerade klorofyllhalterna (0–10 m och 0–20 m) var inom det normala för månaden vid alla stationer.

Diversiteten och cellantalen av växtplankton var mycket låga i Östersjön, med mest små celler såsom Cryptomonadales och mindre Gymnodiniales. Den centriska kiselalgen *Actinocyclus octonarius* återfanns vid några stationer. Vid stationerna BY29 och BY38 förekom något filament av cyanobakterien *Aphanizomenon flosaquae*. De integrerade klorofyllhalterna (0–10 m och 0–20 m) var mestadels låga men inom det normala för månaden vid alla stationer, förutom vid BY2 och BY31 där de var lägre än normalt. Vid BY29 var det integrerade provet (0–10 m) lite över det normala.



## Abstract

In Kattegat the spring bloom seemed to be just around the corner. Diatoms dominated and were composed by species commonly found in the spring bloom. The stations in the Skagerrak, on the other hand, had very few cells but still the bloom species, *Skeletonema marinoi* was present. The integrated chlorophyll concentrations (0–10 m and 0–20 m) were within normal for this month at all stations.

Diversity and cell abundance of phytoplankton were very low in the Baltic Sea, with mostly smaller cells such as Cryptomonadales and smaller Gymnodiniales. The centric diatom *Actinocyclus octonarius* was present at some stations. At BY29 and BY38 some filaments of *Aphanizomenon flosaquae* were present. The integrated chlorophyll concentrations (0–10 m and 0–20 m) were low but within the normal range for this month at most stations, except at BY2 and BY31 where they were lower than normal. At BY29 the integrated sample (0–10 m) was slightly above normal.

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

## The Skagerrak

### Å17 (open Skagerrak) 6<sup>th</sup> of February

The species diversity and the total cell numbers were low. Some cells of the diatom *S. marinoi* and the genus *Pseudo-nitzschia*\* were recorded in higher cell numbers. Among the smaller cells, different cells of Cryptomonadales and some cells of *Emiliana huxleyi* were found. The integrated chlorophyll concentrations (0–10 m and 0–20 m) were within normal for this month.

### Släggö (Skagerrak coast) 7<sup>th</sup> of February

The species diversity and the total cell numbers were very low. Some cells of the diatom *S. marinoi* and the genus *Pseudo-nitzschia*\* were recorded. The integrated chlorophyll concentrations (0–10 m and 0–20 m) were within normal for this month.

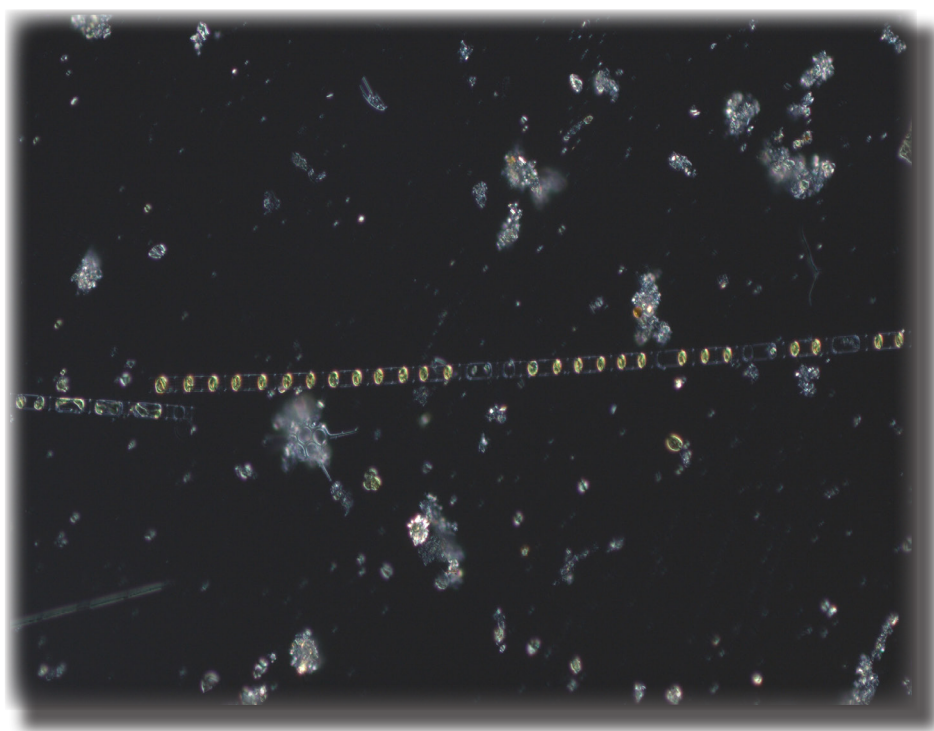


Fig 1. The diatom *Skeletonema marinoi* was found in moderate amounts in the Skagerrak and in high cell numbers in the Kattegat. Photo: M. Johansen.

## The Kattegat

### Anholt E 8<sup>th</sup> and N14 Falkenberg 11<sup>th</sup> of February

The species diversity was high and the total cell numbers were moderate. The diatoms dominated in the sample and *S. marinoi*, *Thalassionema nitzschioides* and some *Pseudo-nitzschia*\* were abundant. Among the smaller cells Cryptomonadales and *Oocystis* spp were most abundant. The integrated chlorophyll concentrations (0–10 m and 0–20 m) were within normal for this month.

## The Baltic

### BY2 Arkona 11<sup>th</sup> of February

The phytoplankton diversity and abundances were very low with mainly small cells such as Cryptomonadales and Gymnodiniales. There were a few diatom cells of *S. marinoi* as well. The integrated (0–10 m) chlorophyll concentrations were below the normal range for this month whereas the integrated sample (0–20 m) was within normal.

### BY5 Bornholm deep 10<sup>th</sup> of February

The phytoplankton diversity and abundances were both very low with mainly small cells such as Cryptomonadales, Gymnodiniales and the genus *Oocystis*. There were a few diatom cells of *A. octonarius*. The integrated (0–20 m and 0–10 m) chlorophyll concentrations were within the normal range for this month.

### BCSIII-10 11<sup>th</sup> of February

The phytoplankton diversity and abundances were very low with mainly small cells such as Cryptomonadales and Gymnodiniales. The integrated (0–20 m and 0–10 m) chlorophyll concentrations were within the normal range for this month.

### BY15 Gotland deep 11<sup>th</sup> of February

The phytoplankton diversity and abundances were very low with mainly small cells such as Cryptomonadales and Gymnodiniales. Some cells of genus *Pseudo-nitzschia* spp. \* were also found. The integrated (0–20 m and 0–10 m) chlorophyll concentrations were within the normal range for this month.

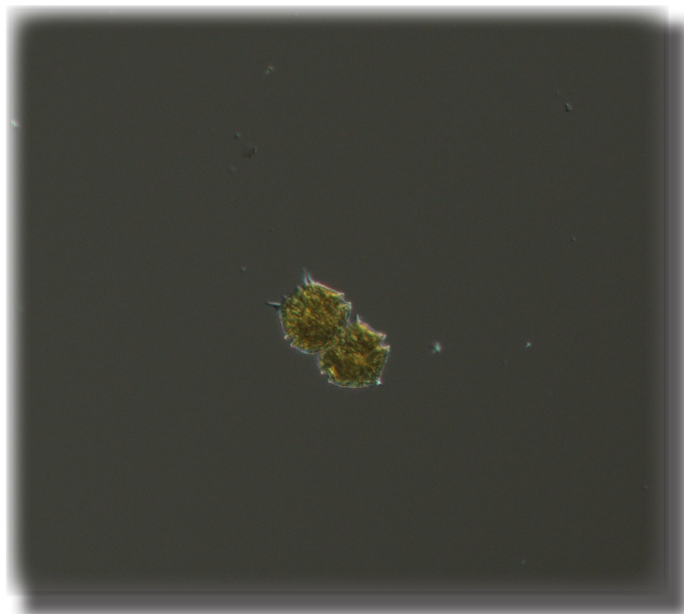


Fig 2. The chain forming *Peridiniella catenata*, a common dinoflagellate in the spring bloom in the Baltic Sea, was found in low concentrations at BY39 located just south of Öland in the Baltic Sea. Photo: M. Johansen.

### BY29 12<sup>th</sup> of February

The phytoplankton diversity and abundances were low. Some larger centric diatoms were recorded but besides that mainly small cells such as Cryptomonadales and Gymnodiniales were found. The integrated (0–10 m) chlorophyll concentrations were a bit above the normal range for this month.

**BY31 Landsort deep 13<sup>th</sup> of February**

The phytoplankton diversity and abundances were very low. There were a few cells of the diatom genus *Chaetoceros* spp. The integrated (0–10 m) chlorophyll concentrations were a bit below the normal range for this month.

**BY38 13<sup>th</sup> of February**

The phytoplankton diversity and abundances were very low with mainly small cells such as Cryptomonadales and Gymnodiniales. There were a few diatom cells of *S. marinoi* and the potentially toxic dinoflagellate *Dinophysis acuminata*\*. Several genera of cyanobacteria were also present. The integrated (0–20 m and 0–10 m) chlorophyll concentrations were within the normal range for this month.

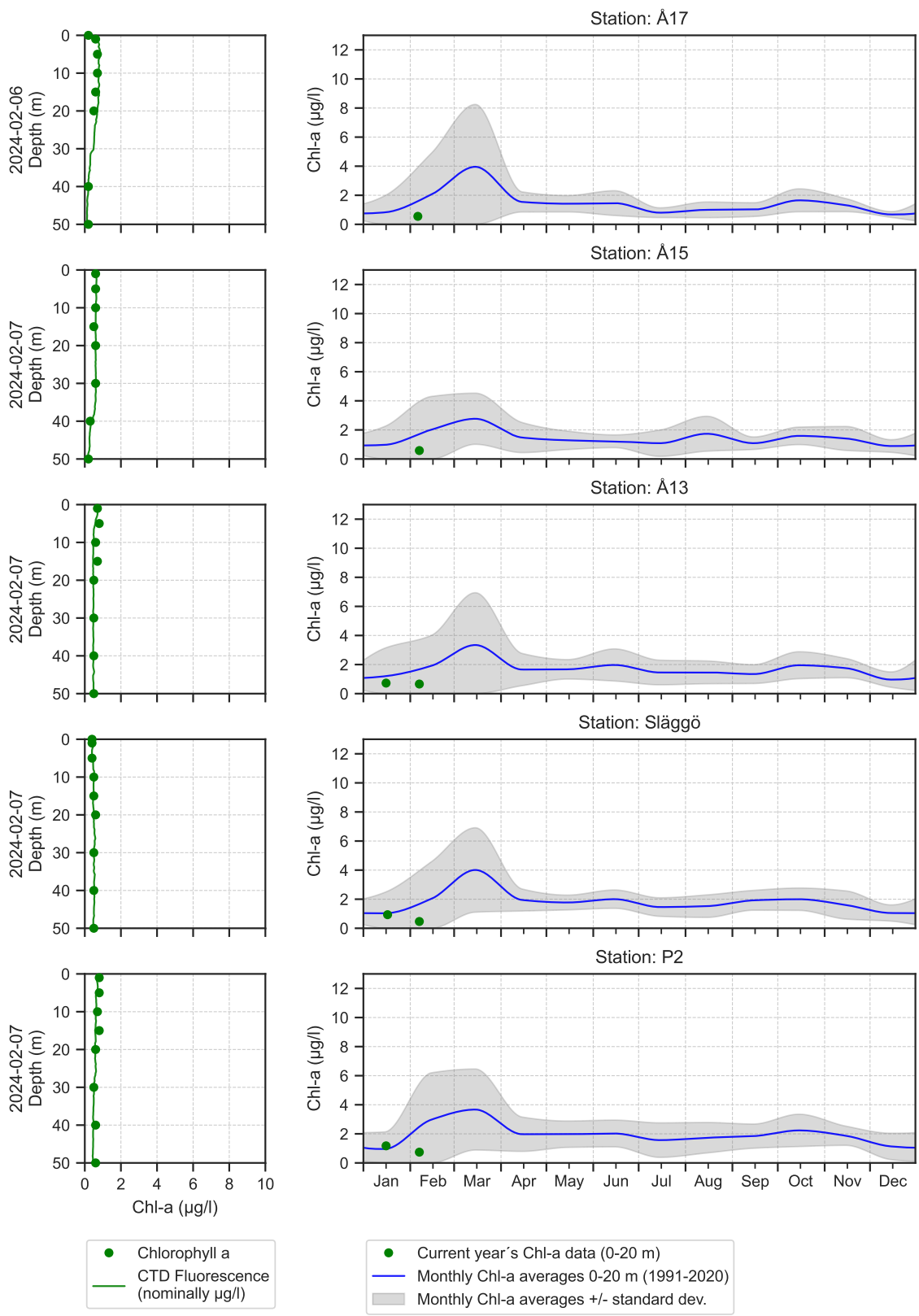
**BY39 13<sup>th</sup> of February**

The phytoplankton diversity and abundances were very low. There were a few dinoflagellate cells of *Peridiniella catenata* and some *S. marinoi*. The integrated (0–10 m) chlorophyll concentrations were within the normal range for this month.

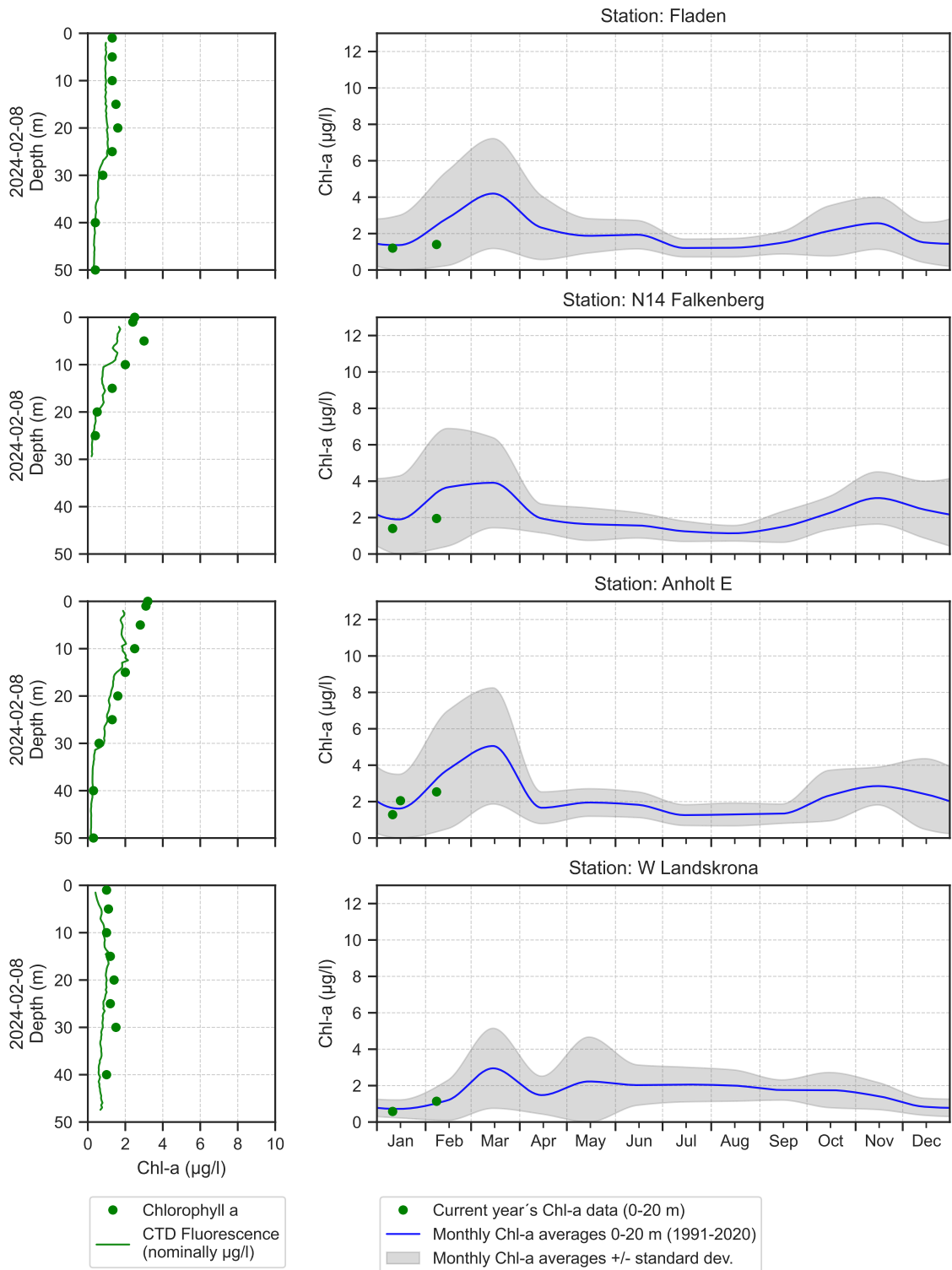
Selection of observed species	Anholt E	N14 Falkenberg	Släggö	Å17
Red=potentially toxic species	8/2	8/2	7/2	6/2
Hose 0-present0 m	presence	presence	presence	presence
Chaetoceros		present		
Chaetoceros danicus	present			
Chaetoceros debilis	present			
Coscinodiscus centralis		present		
Coscinodiscus concinnus	present			
Cylindrotheca closterium				present
Detonula pumila		present		
Ditylum brightwellii				present
Guinardia delicatula	present	present		
Guinardia flaccida	present			
Leptocylindrus danicus	present	present		
Navicula				present
Nitzschia longissima		present	present	present
Porosira glacialis		present		
Proboscia alata	common	present		
Pseudo-nitzschia	common	common	common	common
Rhizosolenia setigera	present			
Skeletonema marinoi	very common	very common	common	very common
Thalassionema nitzschioides	common	common		
Thalassiosira	present	present	present	
Thalassiosira gravida	present			
Thalassiosira nordenskiöldii	present	present		
Amphidinium sphenoides	present	present		
Dinophysis acuminata		present		
Gymnodiniales	present	present	present	present
Gyrodinium spirale	present	present	present	
Peridinales	present	present		
Protoperidinium bipes				present
Tripes lineatus	present			
Tripes longipes		present		present
Tripes muelleri	present	present		
Emiliana huxleyi				present
Heterosigma akashiwo		present		
Pterosperma	present			
Cryptomonadales	very common	very common	present	very common
Apedinella radians		present		
Octactis speculum	common	common		present
Paulinella ovalis			present	
Ciliophora	present	present	present	present

Selection of observed species	BY2	BY5	BCSIII-10	BY15	BY29	BY31	BY38	BY39
Red=potentially toxic species	9/2	10/2	11/2	11/2	12/2	13/2	13/2	13/2
Hose 0-10 m	presence	presence	presence	presence	presence	presence	presence	presence
Actinocyclus		present	present	present	present			common
Centrales					present		present	
Chaetoceros						present		
Cyclotella			present					
Cyclotella choctawhatcheeana	present							
<i>Pseudo-nitzschia</i>				present				
Skeletonema marinoi	common		present	present		present	present	common
<i>Dinophysis acuminata</i>							present	present
Gymnodiniales	common	present	present	present	present	present	present	present
Heterocapsa rotundata					present			
Peridinales					present			
Peridiniella catenata								common
Monoraphidium			present					
Oocystis	present	present	present		present		present	present
Cryptomonadales	common	common	common	common	common	common	common	present
Eutreptiella gymnastica	present		present					
Aphanizomenon						present		
Aphanizomenon flosaquae					present			
Aphanocapsa					present			
Snowella				present				
Choanoflagellata						present		
Ciliophora	present	common	present	present	present	present	common	present
Mesodinium rubrum	present	present			present		common	present

# The Skagerrak

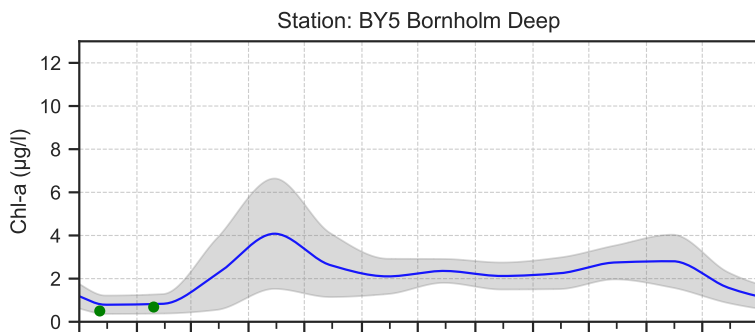
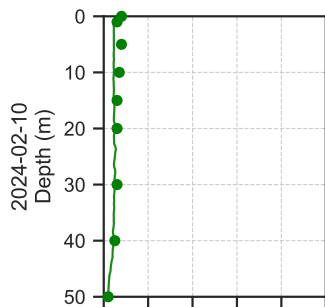
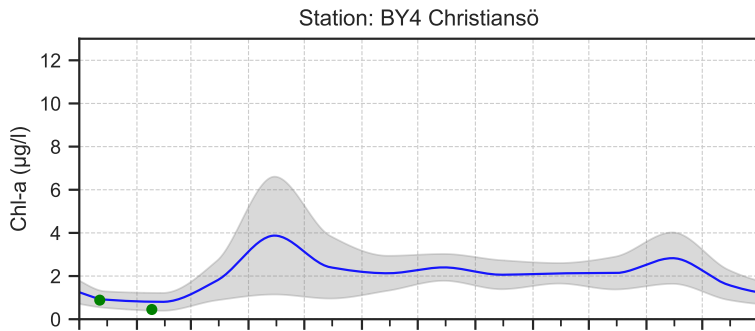
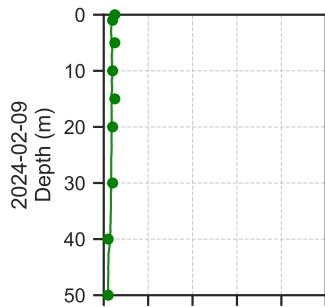
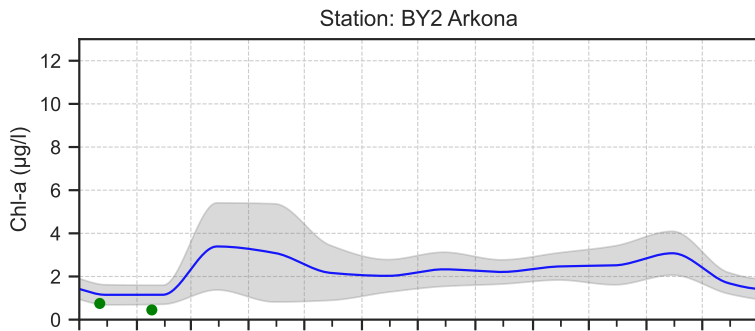
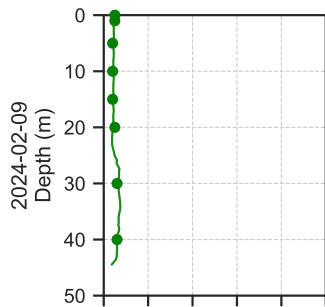
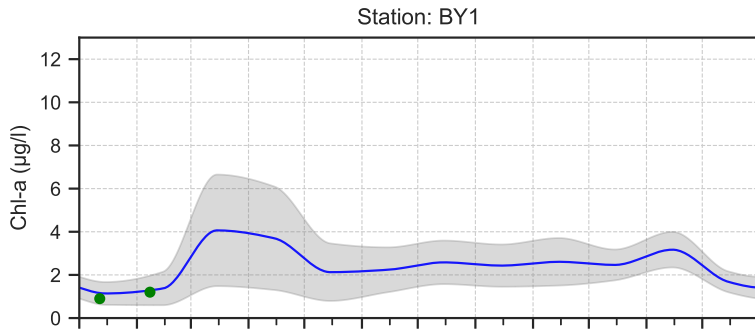
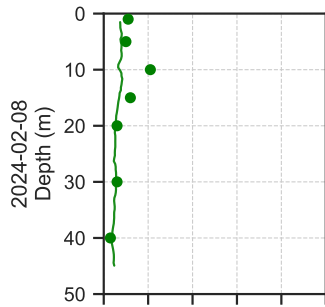


# The Kattegat and The Sound





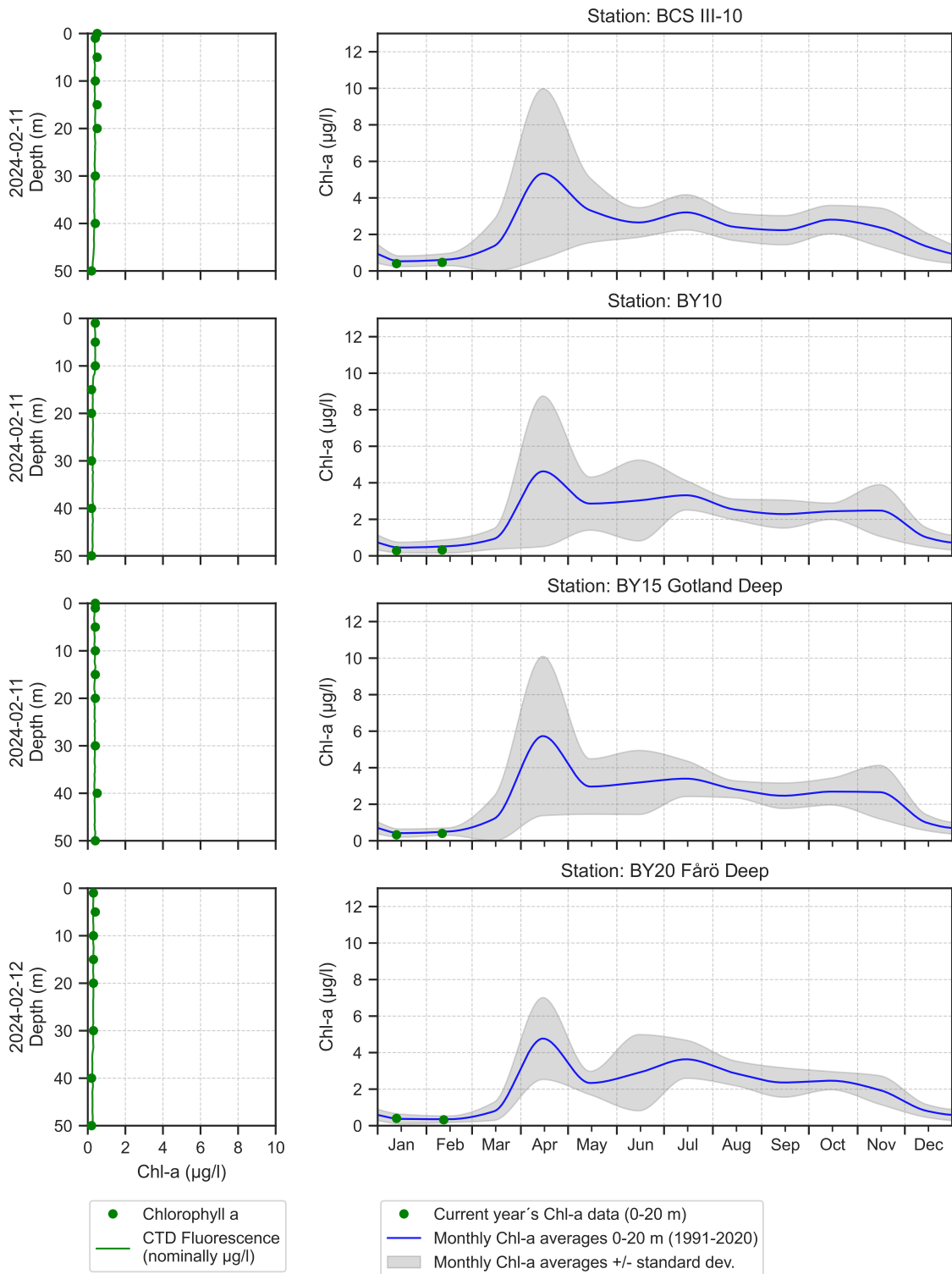
# The Southern Baltic



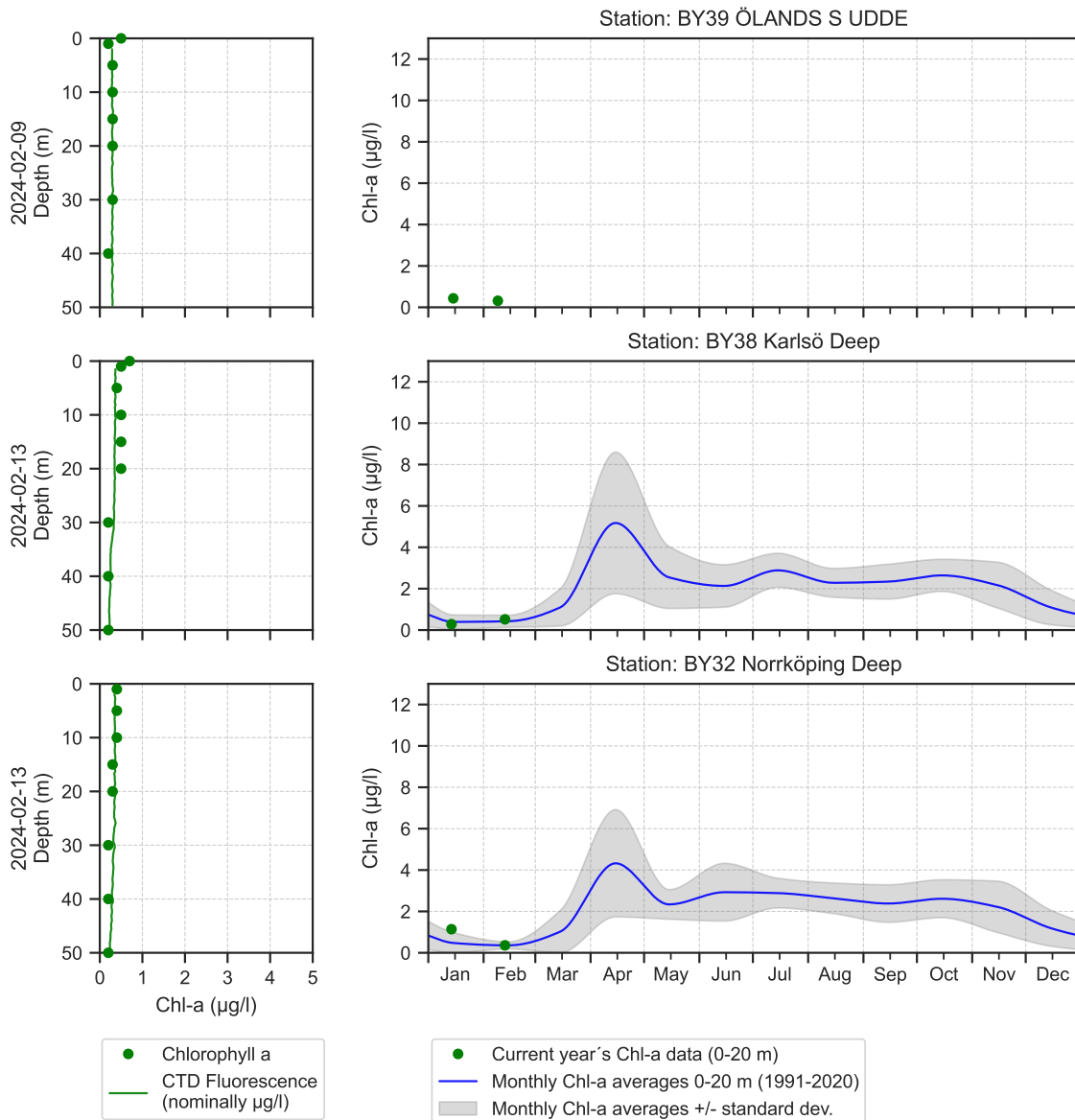
● Chlorophyll a  
— CTD Fluorescence (nominally µg/l)

● Current year's Chl-a data (0-20 m)  
— Monthly Chl-a averages 0-20 m (1991-2020)  
■ Monthly Chl-a averages +/- standard dev.

# 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 mikroskopisk analys 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). Resultat från provtagningarna kan hämtas från SMHI:s databas på [sharkweb.smhi.se](http://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](http://www.smhi.se) during the period June-August. Results from the expeditions are found in the SMHI database, [sharkweb.smhi.se](http://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)	<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.

Oversikt 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.



