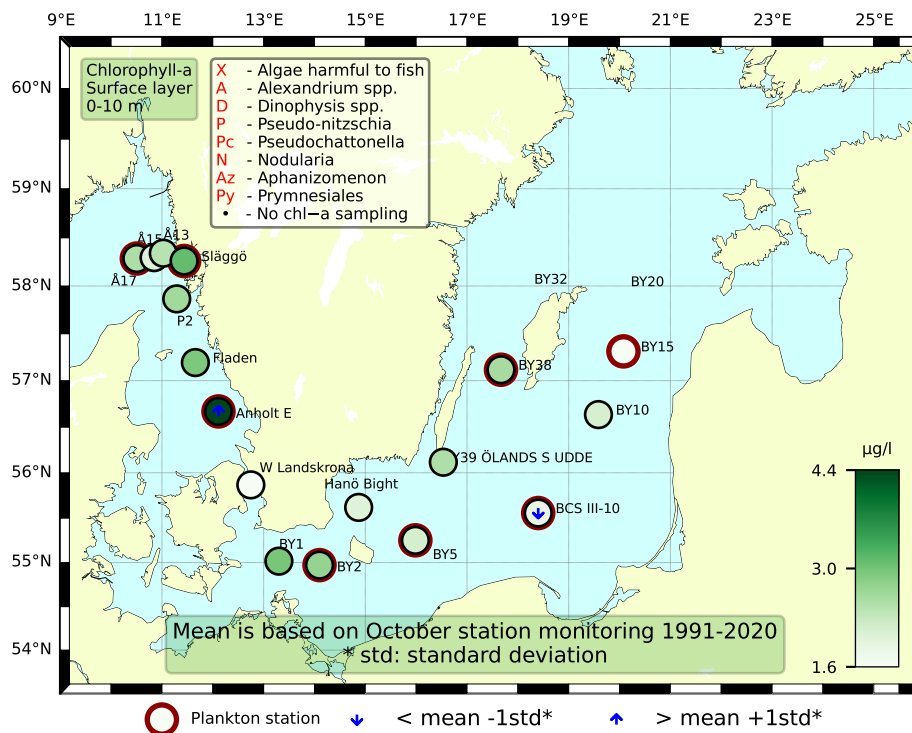


Sammanfattning

Endast två stationer var möjliga att provta i västerhavet denna resa på grund av hård vind och sjögång. Vid både Släggö i Skagerrak och vid Anholt E i Kattegatt var artdiversiteten hög med en dominans av kiselalger vid båda stationerna. Bland kiselalgerna var det potentiellt giftiga släktet *Pseudo-nitzschia** vanligt. Kalkalgen *Emiliania huxleyi* var vanlig i Kattegatt. De integrerade klorofyllhalterna var inom det normala förutom vid Anholt E där klorofyllvärdena integrerade över 0–10 meter var över det normala för månaden.

Diversiteten och cellantalen av växtplankton var låga vid de flesta stationer i Egentliga Östersjön. Av de tre sommarblommande filamentösa cyanobakterierna återfanns endast några fåtal filament av *Aphanizomenon flosaquae* vid de sydvästliga stationerna. Här återfanns även flertalet arter som normalt förekommer i Västerhavet. Vid övriga stationer i Östersjön observerades framför allt en dominans av små celler. De integrerade klorofyllhalterna (0–10 och 0–20 m) var generellt normala för månaden vid de flesta stationerna i Egentliga Östersjön. Ett undantag var vid BCS III-10 där de båda integrerade halterna (0–10 och 0–20 m) var under det normala för månaden.



Abstract

Only two stations could be sampled along the Swedish west coast due to the hard wind and high waves. Both stations, Släggö in Skagerrak and Anholt in Kattegatt, had quite high biodiversity with a dominance of diatoms. Among the diatoms the potentially toxic genus *Pseudo-nitzschia** was common. The coccolithophore *Emiliania huxleyi* was common in the Kattegatt. The integrated chlorophyll concentrations were within normal with only one exception, at Anholt E, where the integrated chlorophyll concentrations for 0-10 m were above normal for this month.

The diversity and cell numbers of phytoplankton were low at most stations in the Baltic Proper. Of the three summer bloom forming filamentous cyanobacteria, only a few filaments of *Aphanizomenon flosaquae* was found at the south easterly stations. At the same stations several species normally found along the west coast was also found. At the other Baltic stations, a dominance of small species was noted. The integrated chlorophyll concentrations (0–10 and 0–20 m) were generally within the normal range for this month at most stations in the Baltic Proper. The only exception being BCS III-10 where they both were below normal.

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

The Skagerrak

Släggö (Skagerrak coast) 25th of October

The phytoplankton diversity was high. Diatoms dominated among the larger cells and *Dactyliosolen fragilissimus*, *Leptocylindrus danicus* and the genus *Pseudo-nitzschia** were common. Among the smaller cells some different cryptomonads and the flagellate *Emiliana huxleyi* were noted. The integrated (0–10 m) chlorophyll concentration was above normal for this month, while the 0–20 m integrated concentration was within normal.

The Kattegat

Anholt E 24th of October

The phytoplankton diversity was high and this was the most species rich station sampled during the cruise. The larger cells were dominated by diatoms such as *Leptocylindrus danicus*, the genus *Pseudo-nitzschia** and different species belonging to the genus *Chaetoceros*. The smaller cells were dominated by different cryptomonads and the flagellate *Emiliana huxleyi*. The integrated chlorophyll concentration from 0–10 m was above normal whereas the 0–20 m integrated sample was within normal for this month.

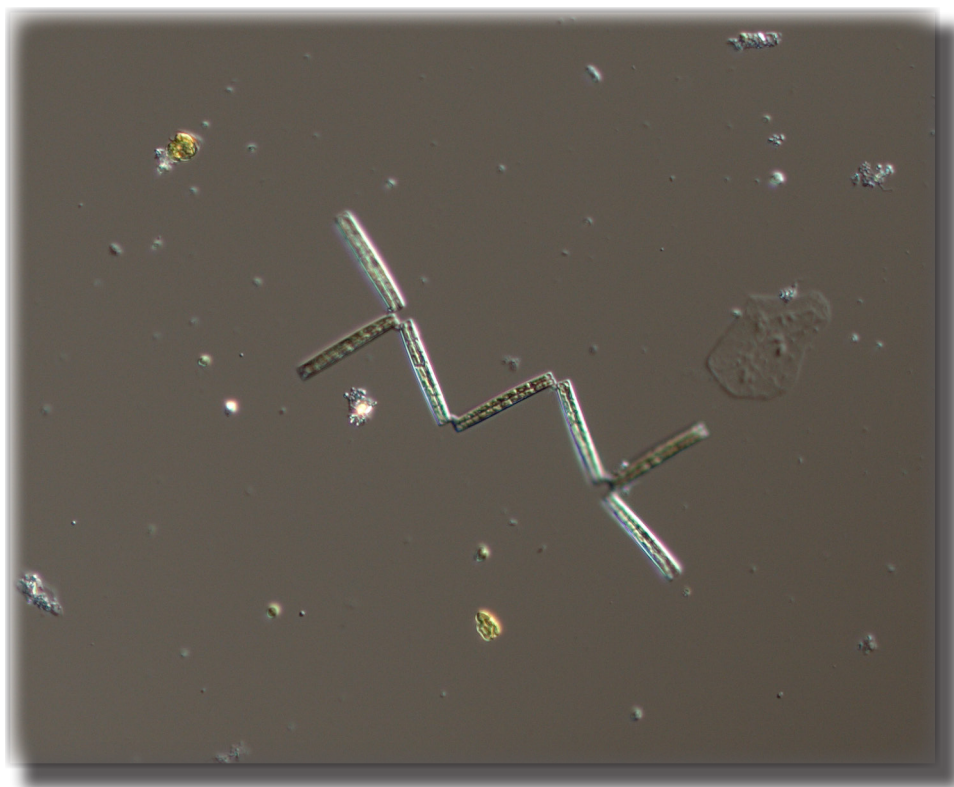


Fig 1. The diatom *Thalassionema nitzschioides* was recorded at both stations sampled along the Swedish west coast this month. Photo: M. Johansen.

The Baltic

BY2 Arkona 23rd of October

The phytoplankton diversity and abundances were low. Only a few different species were noted. Some of the species recorded such as *Cerataulina pelagica* and *Dactyliosolen fragilissimus* are more commonly found along the Swedish west coast. A few filaments of *Aphanizomenon flosaquae* were found. The smaller cells were dominated by cryptomonadales. The integrated (0–20 and 0–10 m) chlorophyll concentrations were within the normal range for this month.

BY5 Bornholm deep 23rd of October

The phytoplankton diversity and abundances were low. Only a few different species were noted. Some of the species found in higher abundance are more common along the Swedish west coast such as *Dactyliosolen fragilissimus*. The smaller cells were dominated by cryptomonadales. Quite a few filaments of *Aphanizomenon flosaquae* were present. The integrated (0–20 and 0–10 m) chlorophyll concentrations were within the normal range for this month.

BCSIII-10 22nd of October

The phytoplankton diversity and abundances were low. Diatoms dominated with for example *Cerataulina pelagica*, *Dactyliosolen fragilissimus*, *Actinocyclus octonarius*, *Chaetoceros castracanei* and *C. danicus* in elevated cell numbers. The smaller cells were few and mainly represented by different cryptomonadales. The integrated (0–20 and 0–10 m) chlorophyll concentrations were below the normal range for this month.

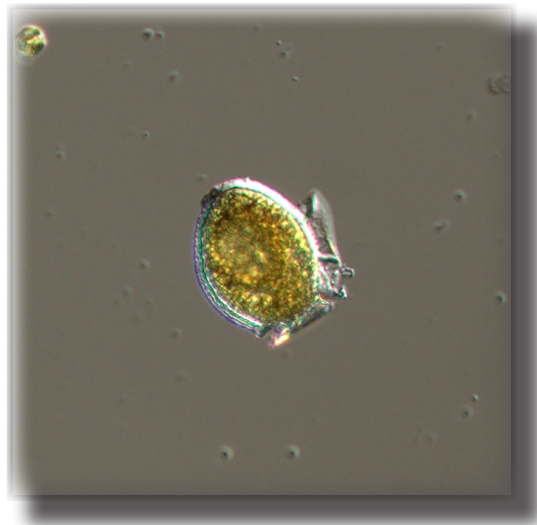


Fig 2. The potentially toxic genus *Dinophysis*, represented in this photo by *D. auminata*, was found in low cell numbers in the Baltic Sea this month. Photo: M. Johansen.

BY39 19th of October

The phytoplankton diversity and abundances were moderate. The diatoms were mainly represented by *Chaetoceros castracanei* and *Actinocyclus octonarius*. Some colony forming cyanobacteria, *Aphanocapsa* and *Snowella* were present in the sample. Small cells dominated the sample and cryptomonads were the most common ones.

BY15 Gotland deep 22nd of October

The phytoplankton diversity and abundances were both very low. Small cells dominated but even they were in low total cell numbers. Among the larger cells different ciliates were the most common. One thread of the filamentous cyanobacterium *Nodularia spumigena** was noted. The integrated (0–10 m) chlorophyll concentration were within the normal range for this month whereas the deeper integrated concentration (0–20 m) were slightly below normal for this month.

BY38 20th of October

The phytoplankton diversity and abundances were low. The diatoms dominated but with low cell numbers of *Actinocyclus octonarius* and the genus *Chaetoceros*. Ciliates of different sizes were also common. The smaller cells were mainly represented by cryptomonadales. The integrated (0–20 m and 0–10 m) chlorophyll concentrations were within the normal range for this month.

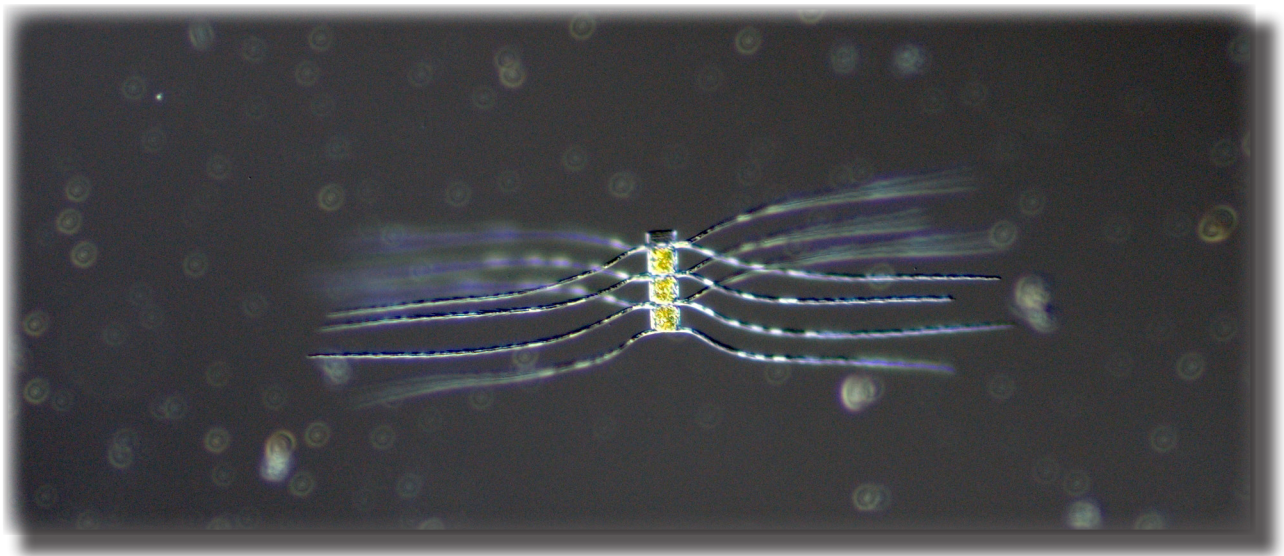
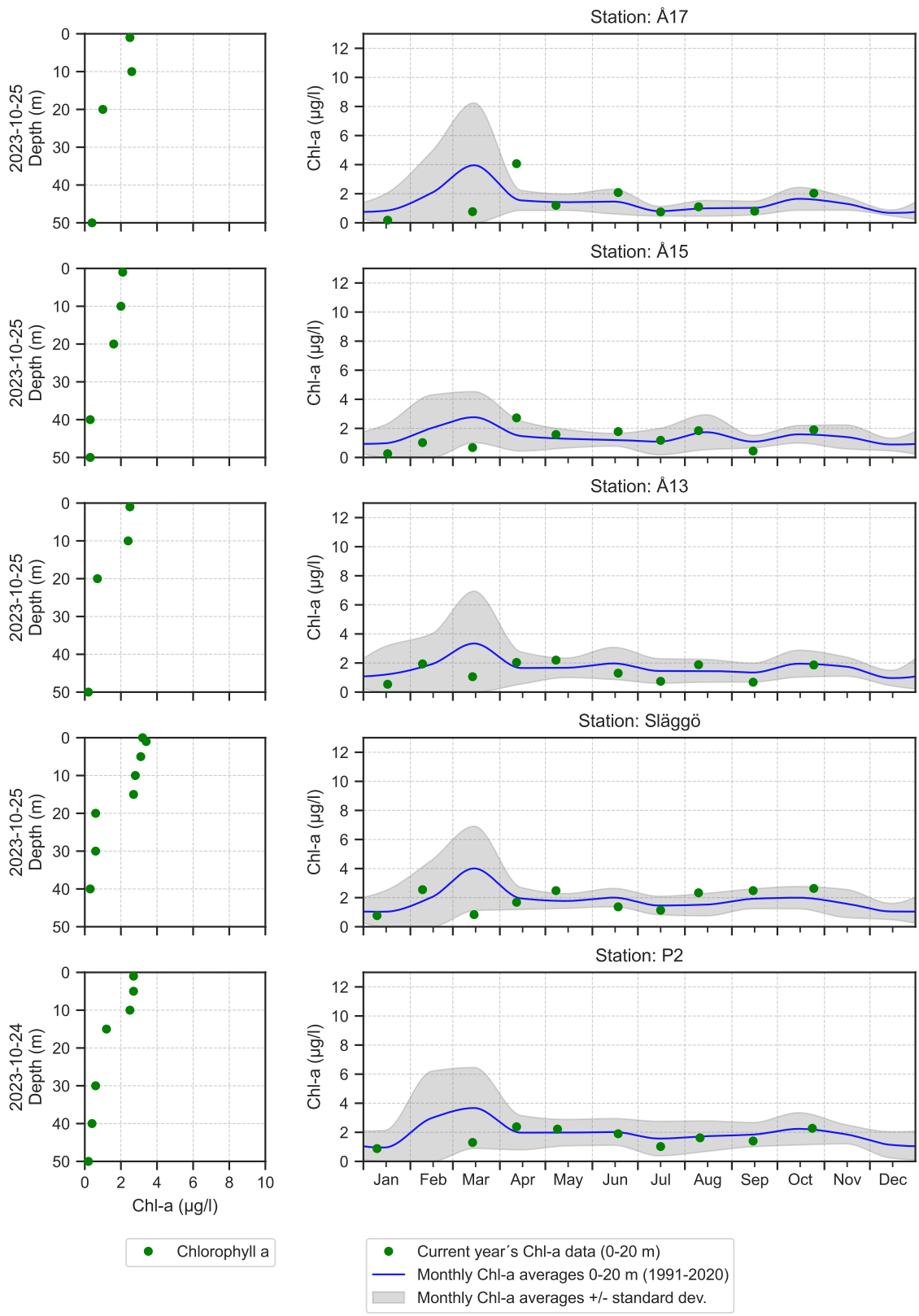


Fig 3. The diatom *Chaetoceros castracanei* was found at several stations in the central Baltic sea.
Photo: M. Johansen.

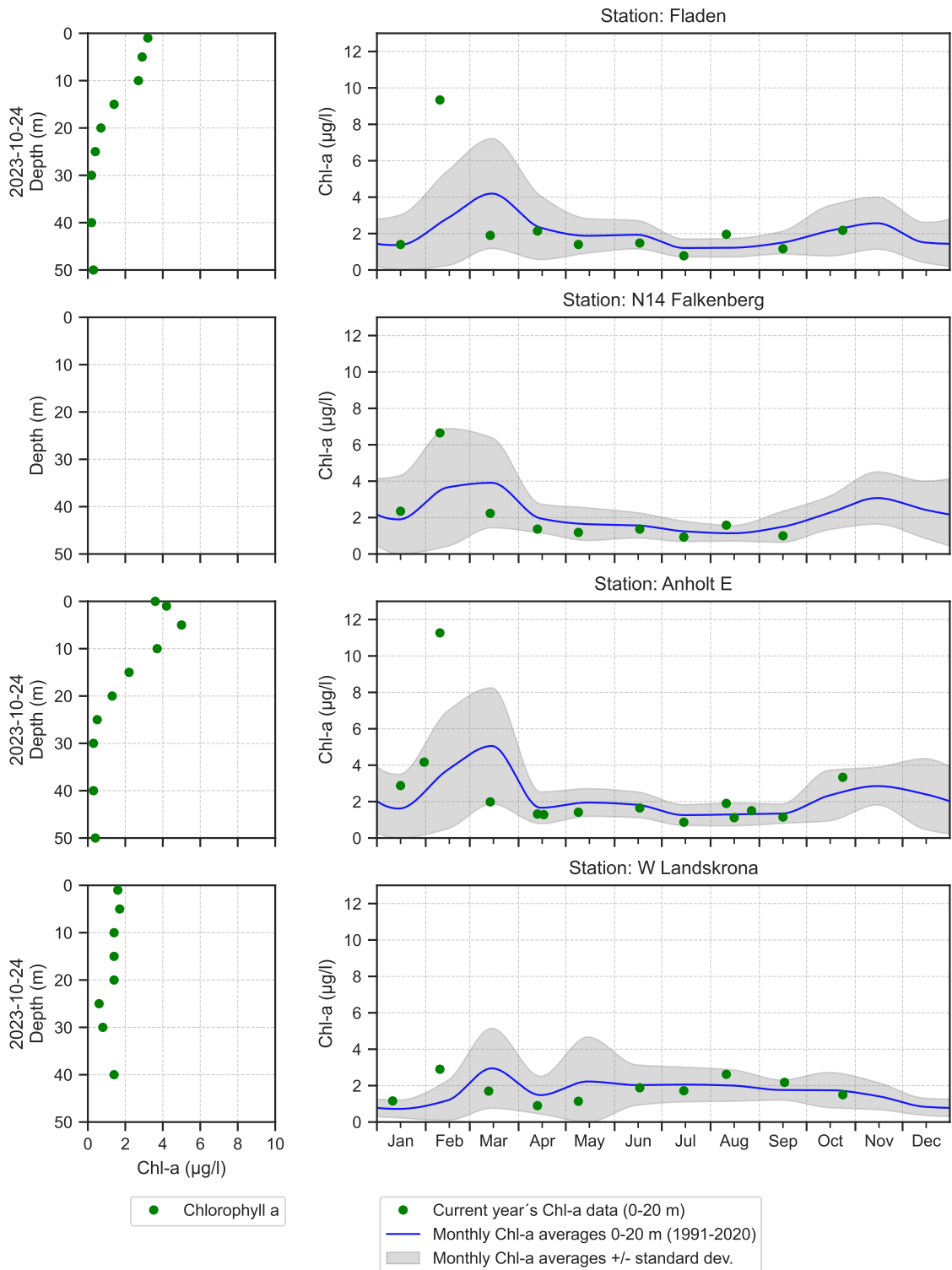
Selection of observed species	Anholt E	Släggö
Red=potentially toxic species	24/10	25/10
Hose 0-10 m	presence	presence
Cerataulina pelagica	present	
Chaetoceros	present	
Chaetoceros affinis		present
Chaetoceros circinalis	present	
Chaetoceros cf. convolutus	common	common
Chaetoceros danicus		present
Chaetoceros debilis		present
Chaetoceros lorenzianus		present
Dactyliosolen blavyanus	present	
Dactyliosolen fragilissimus	present	common
Ditylum brightwellii	present	present
Guinardia delicatula	present	present
Leptocylindrus danicus	common	common
Leptocylindrus minimus	present	
Pseudo-nitzschia	common	common
Pseudosolenia calcar-avis	present	present
Rhizosolenia setigera f. pungens	present	present
Skeletonema marinoi	present	present
Thalassionema nitzschioides	present	present
Thalassiosira	present	present
Thalassiosira angulata		present
Thalassiosira gravida	present	present
Akashiwo sanguinea		present
Dinophysis norvegica	present	
Gonyaulax cf. verior	present	
Gymnodiniales	common	common
Gymnodinium verruculosum		present
Peridinales	present	
Prorocentrum cordatum		present
Prorocentrum micans	present	
Protoperidinium	present	
Protoperidinium conicoides	present	
Tripes furca		present
Tripes lineatus	present	present
Tripes longipes		present
Tripes muelleri	present	
Emiliana huxleyi	common	present
Cryptomonadales	common	present
Dictyocha fibula		present
Dictyochaetes		present
Octactis speculum	common	common
Pseudanabaena	present	
Ciliophora	common	
Laboea strobila	present	

Selection of observed species	BY2	BY5	BCSIII-10	BY39	BY15	BY38
Red=potentially toxic species	23/10	23/10	22/10	19/10	22/10	20/10
Hose 0-10 m	presence	presence	presence	presence	presence	presence
<i>Actinocyclus octonarius</i>			present	present	present	present
<i>Cerataulina pelagica</i>	very common	common	common			
<i>Chaetoceros</i>	present		present			
<i>Chaetoceros castracanei</i>			present	present		present
<i>Chaetoceros cf. convolutus</i>	present					
<i>Chaetoceros danicus</i>		present	present			present
<i>Chaetoceros cf. holsaticus</i>			present			
<i>Chaetoceros subtilis</i>			present			
<i>Cyclotella choctawhatcheeana</i>				present		
<i>Dactyliosolen fragilissimus</i>	common	very common	present			
<i>Pseudosolenia calcar-avis</i>	present					
<i>Dinophysis acuminata</i>		present				
<i>Dinophysis norvegica</i>			present			
Gymnodiniales	present	present	common	present		common
<i>Heterocapsa rotundata</i>	present			present		
Peridinales		present		present		
<i>Phalacroma rotundatum</i>			present			
<i>Tripes muelleri</i>	present					
<i>Telonema subtile</i>			present			
Oocystis				present	present	present
<i>Pyramimonas</i>	present					
Cryptomonadales	common	present	present	common	common	common
<i>Eutreptiella gymnastica</i>		present			present	present
<i>Aphanizomenon flosaquae</i>	present	common				
<i>Aphanocapsa</i>				present		
<i>Lemmermanniella</i>				present	present	
<i>Nodularia spumigena</i>					present	
<i>Pseudanabaena</i>				present		present
<i>Snowella</i>				present		
Choanoflagellata			present			
<i>Ebria tripartita</i>	present			present		
Ciliophora	common	common	present	common	common	common
<i>Mesodinium rubrum</i>		present		present		

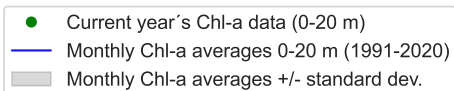
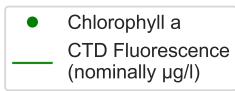
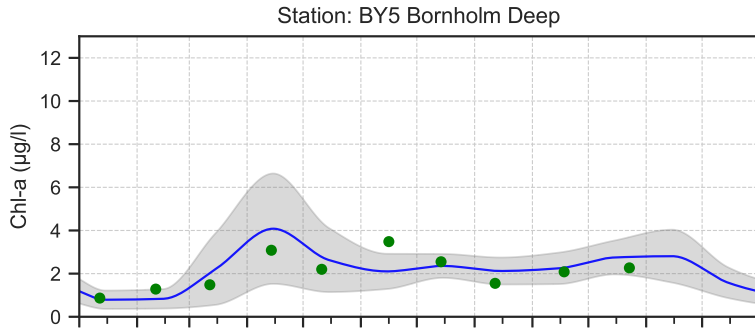
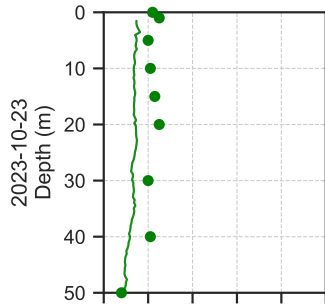
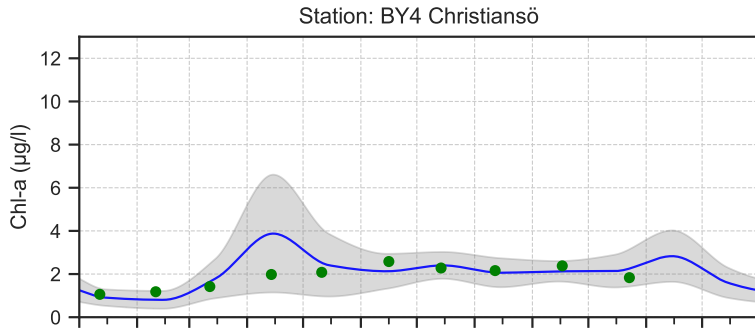
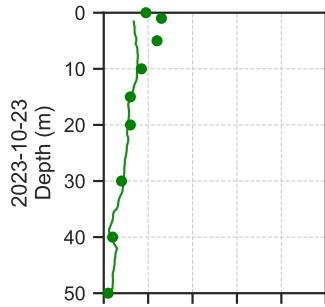
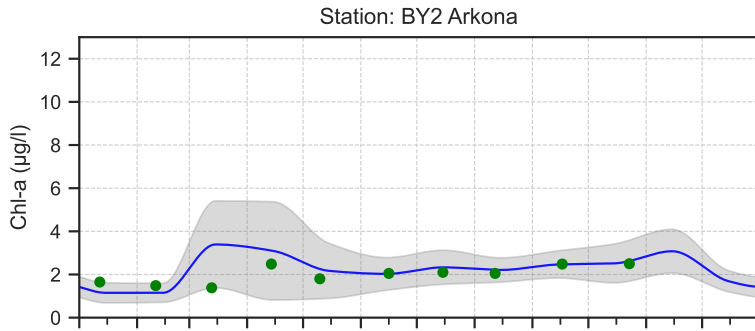
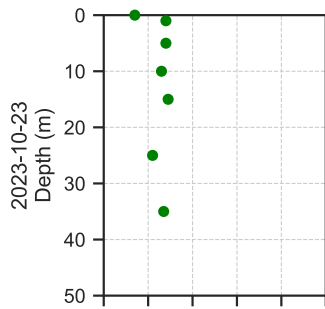
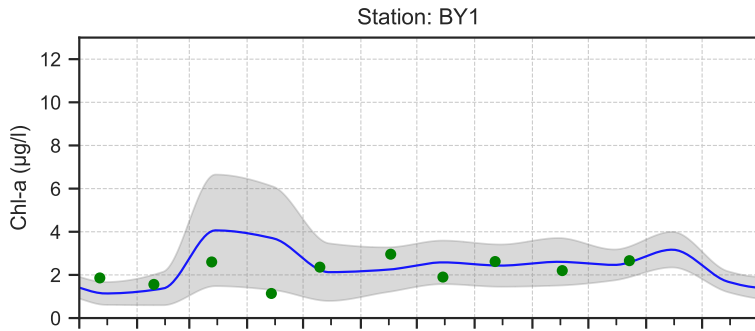
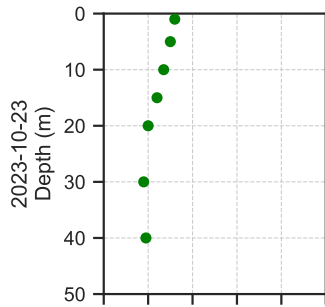
The Skagerrak



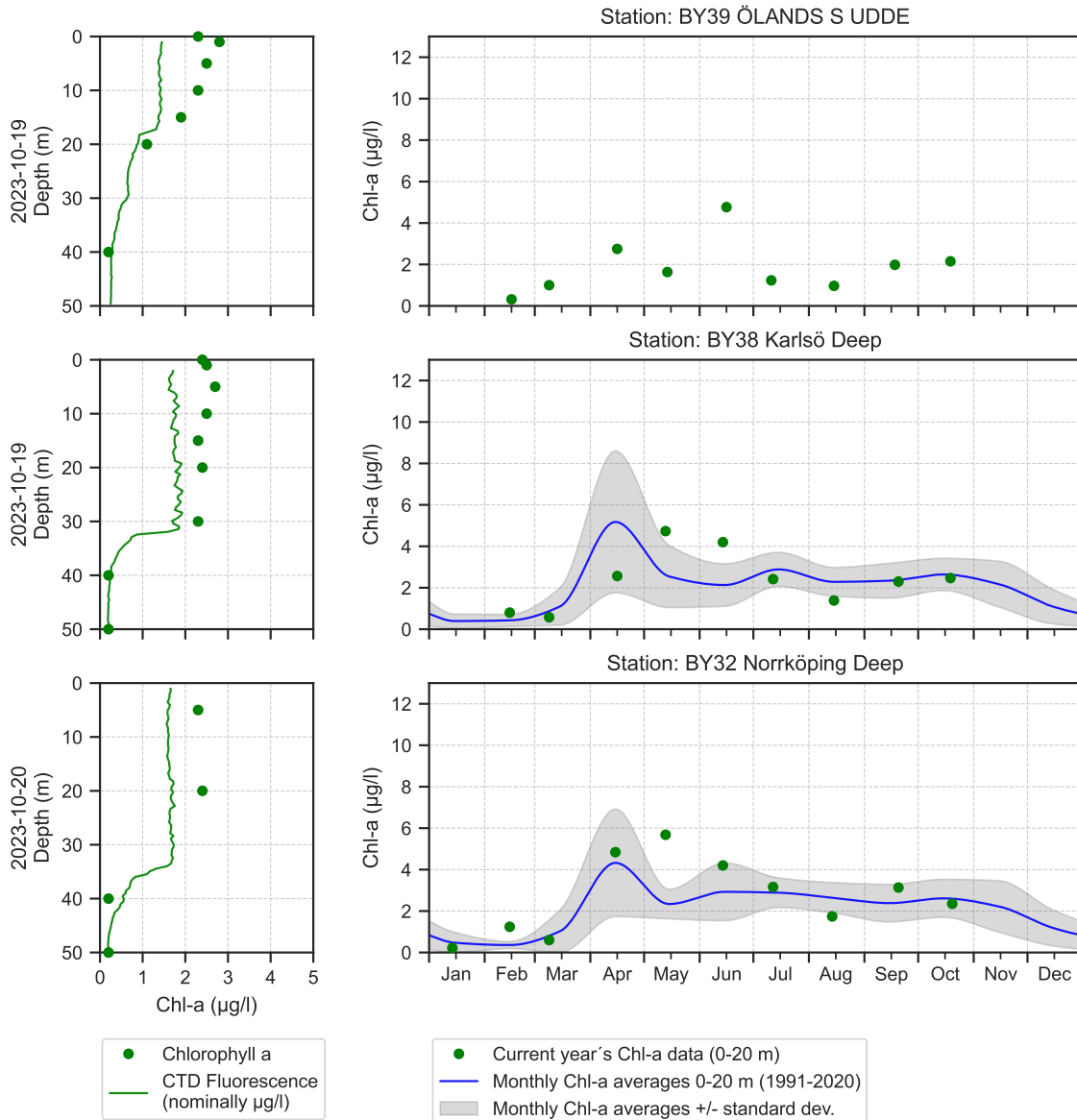
The Kattegat and The Sound



The Southern 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 medelvärdet 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. 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, 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.

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.

