SMHI
Oceanographic Unit
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AlgAware
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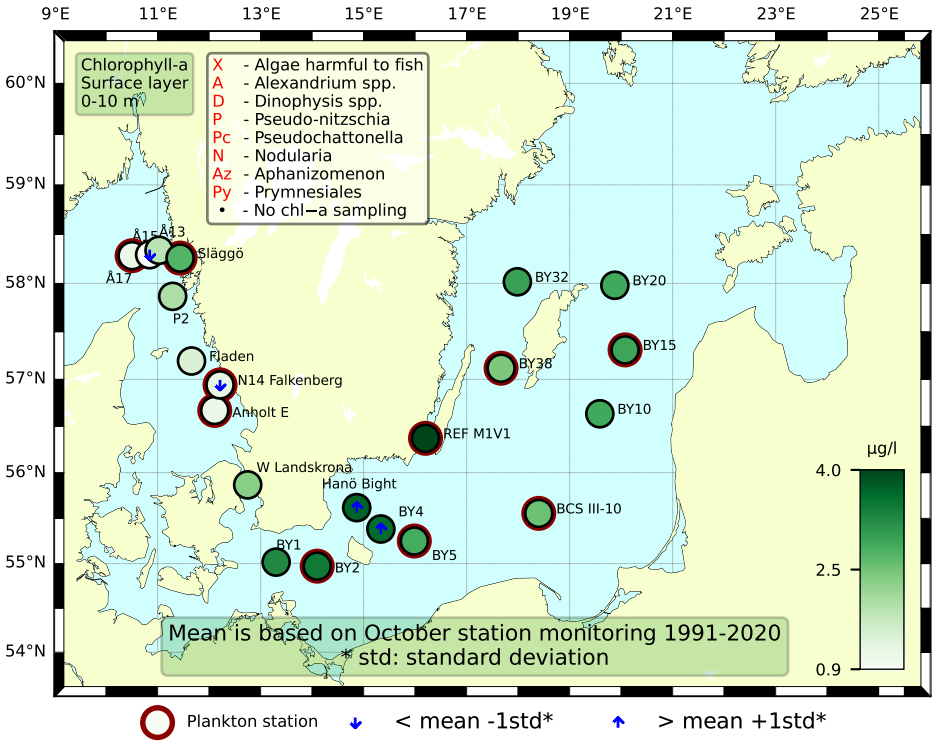
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning
Växtplanktondiversiteten var mycket låg, antalet arter var något förhöjt vid Släggö jämfört med övriga Västerhavsstationer, men de totala cellantalen var låga i hela området. Vid Släggö fanns moderata antal av kiselflagellaten *Octactis speculum* och dess nakna form, Dictyochales* som är potentiellt giftig. Ett annat potentiellt giftigt släkte, P*seudochattonella**, observerades också vid Släggö i mycket låga cellantal.

Även i Östersjön var både cellantal och antalet arter låga. Små mängder av den filamentösa cyanobakterien *Aphanizomenon flosaquae* fanns i sydvästra Östersjön vid BY2 och BY5. I övrigt var det mest små cryptomonader och ciliater samt generellt små arter som observerades.

De integrerade klorofyllhalterna från 0-20 m (diagrammen) var inom det normala för månaden. De från 0-10 m (kartan) var stort sett inom det normala, förutom vid BY4 och Hanöbukten i södra Östersjön där de var över det normala.

På grund av den mycket låga aktiviteten bland växtplankton denna månad så presenteras ingen mer utförlig text av de enskilda stationerna, bara artlistor och klorofylldiagram.



Abstract
The phytoplankton diversity was very low. The number of species at Släggö was somewhat enhanced compared to the other Skagerrak and Kattegat stations, but the total cell numbers were low in the entire area. At Släggö, moderate cell numbers of the silicate flagellate *Octactis speculum* and its naked form, Dictyochales* were found. Dictyochales* are potentially toxic. Another toxic genus, *Pseudochattonella**, was also observed at Släggö in very low cell numbers.

The number of species and total cell numbers were low in the Baltic area as well. Low amounts of the filamentous cyanobacterium *Aphanizomenon flosaquae* were found in the southeastern parts at BY2 and BY5. Mainly small species were observed.

The integrated chlorophyll concentrations from 0-20 m (diagrams) were normal for this month. Those integrated from 0-10 m (map) were mostly normal, only BY4 and Hanö Bight were above normal for this month.

Due to the very low phytoplankton activity this month, no further text is presented from the individual stations in this report, only species lists and chlorophyll diagrams.

Dictyocha fibula, Octactis speculus and Dictyochales

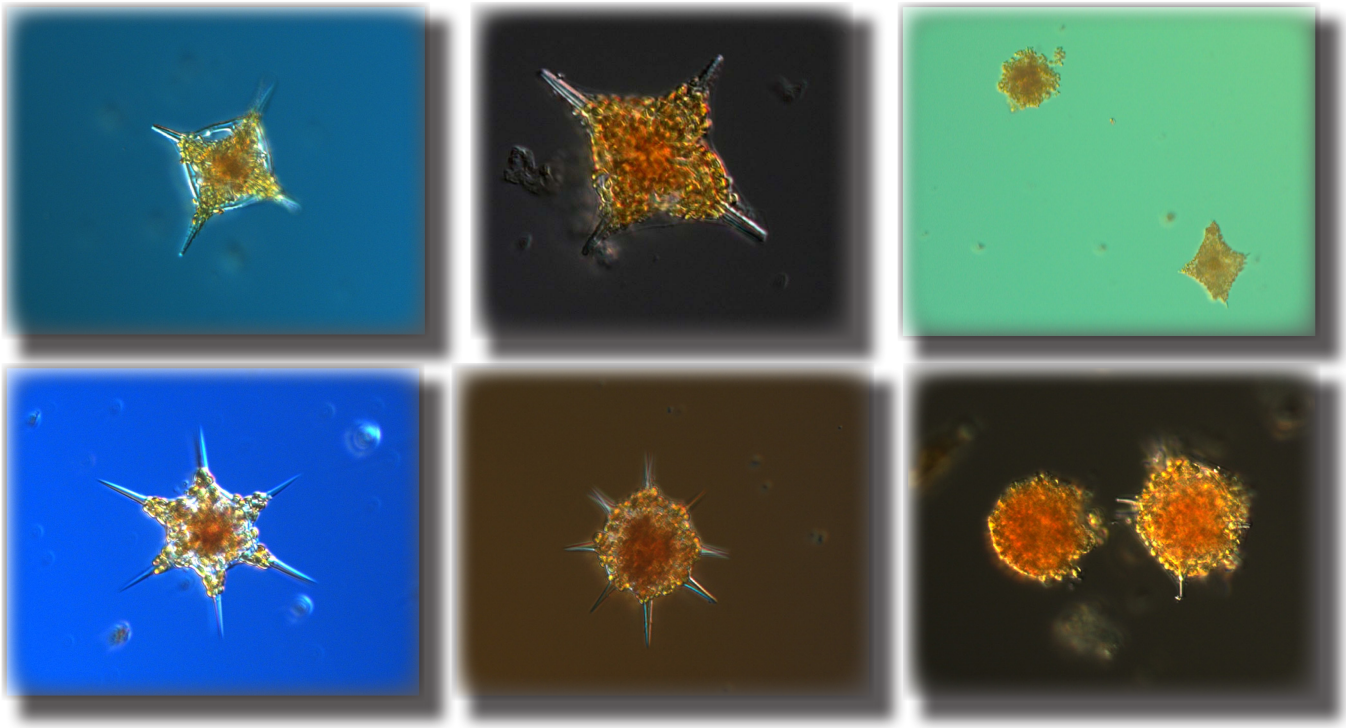
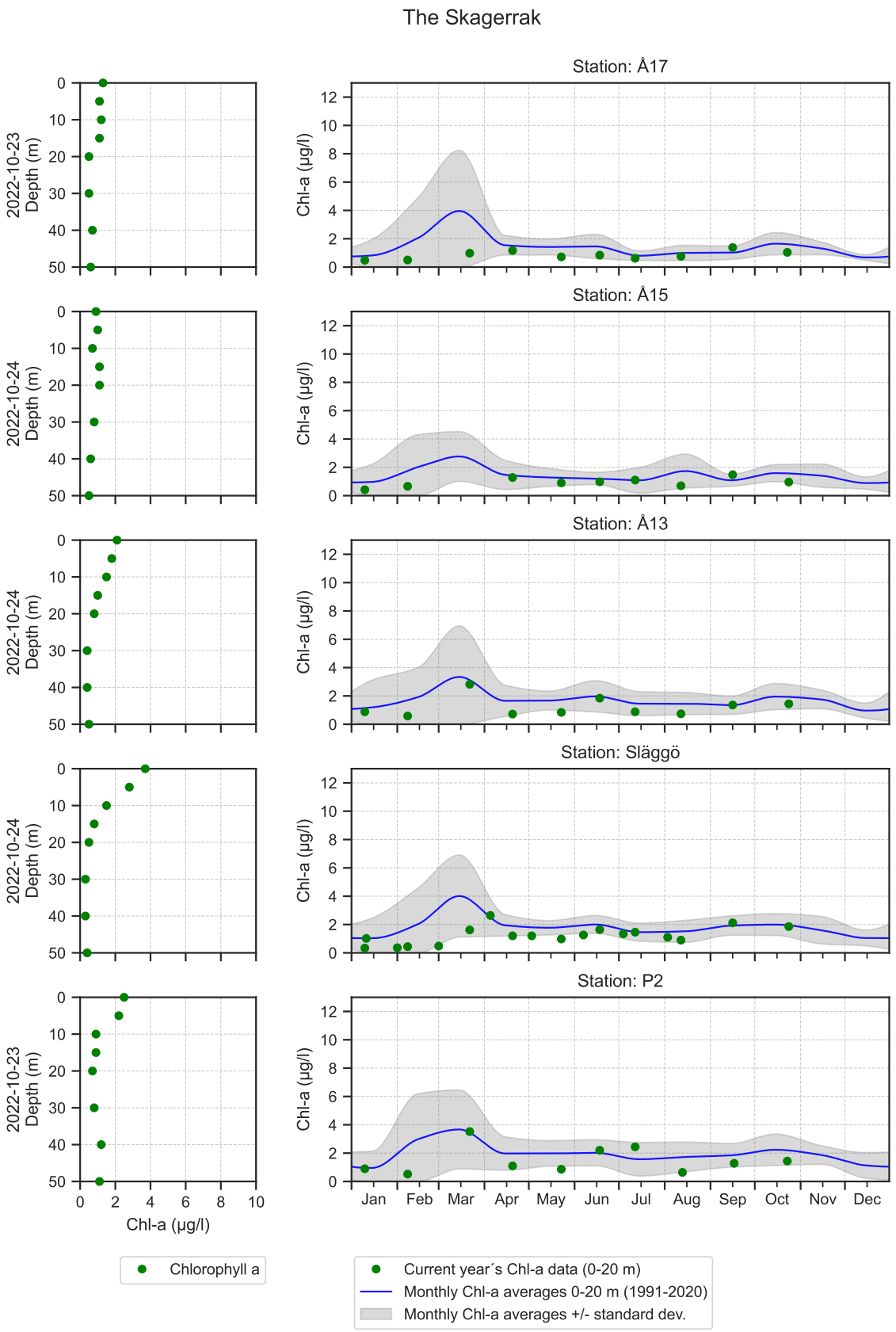


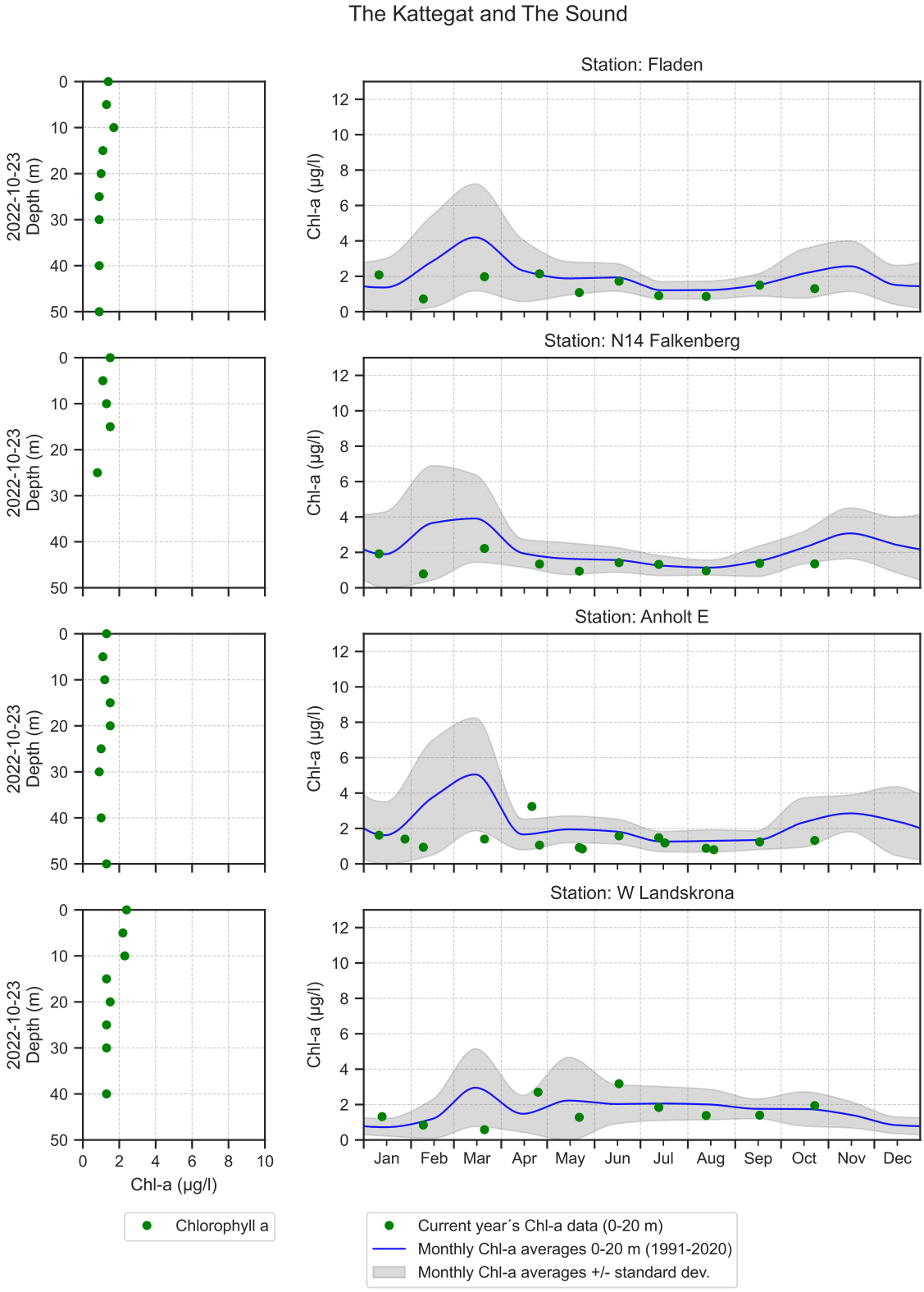
Photo 1: The silicate flagellates *Dictyocha fibula* (upper images) and *Octactis speculum* (lower images) both have a naked stage in which they are potentially toxic. It is impossible to differentiate the species in the light microscope when in the naked stage, which is why they in this stage are called by their common higher taxonomic level, Dictyochales. Photos: A-T Skjevik.

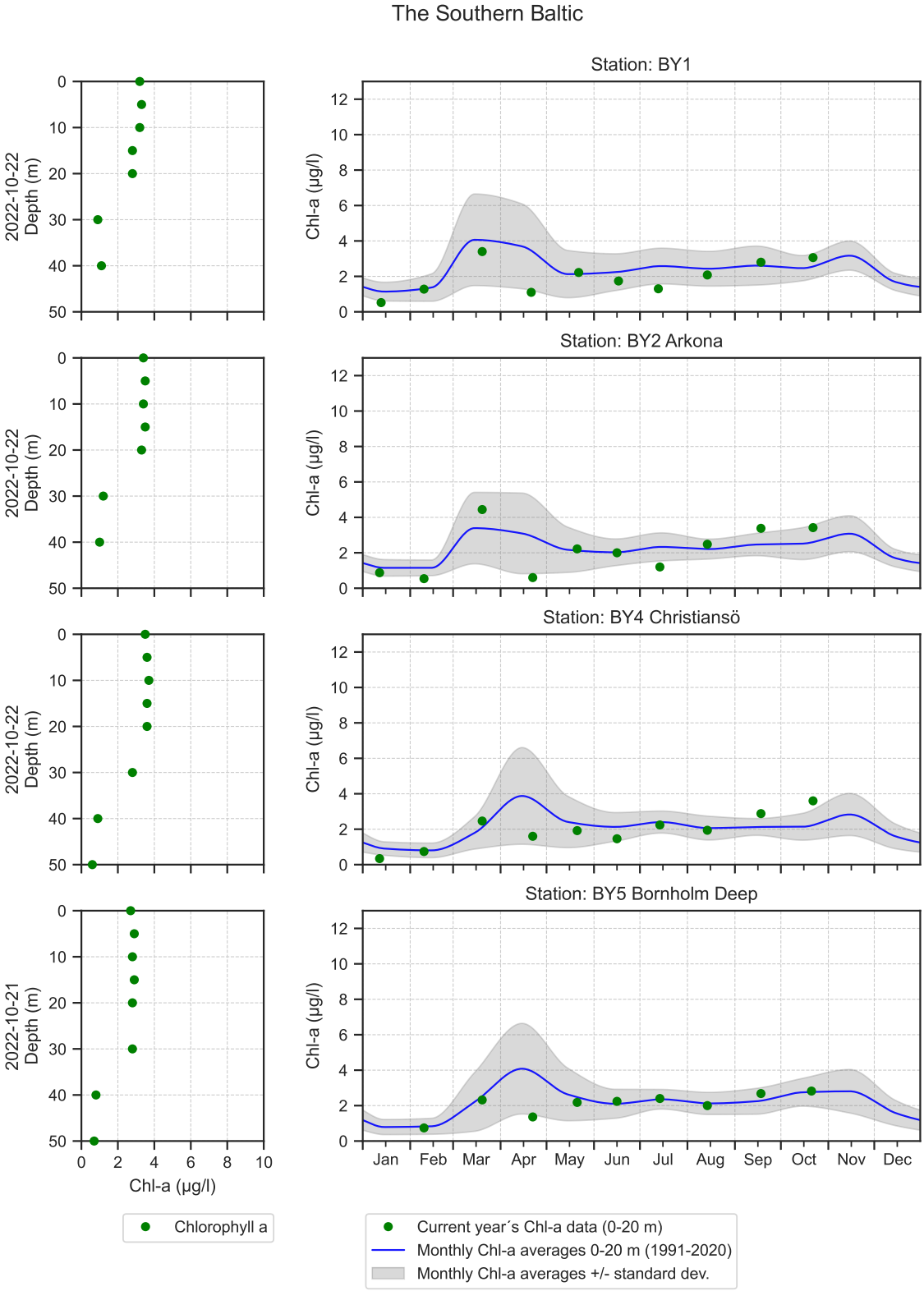
Phytoplankton analysis and text:
Ann-Turi Skjevik.

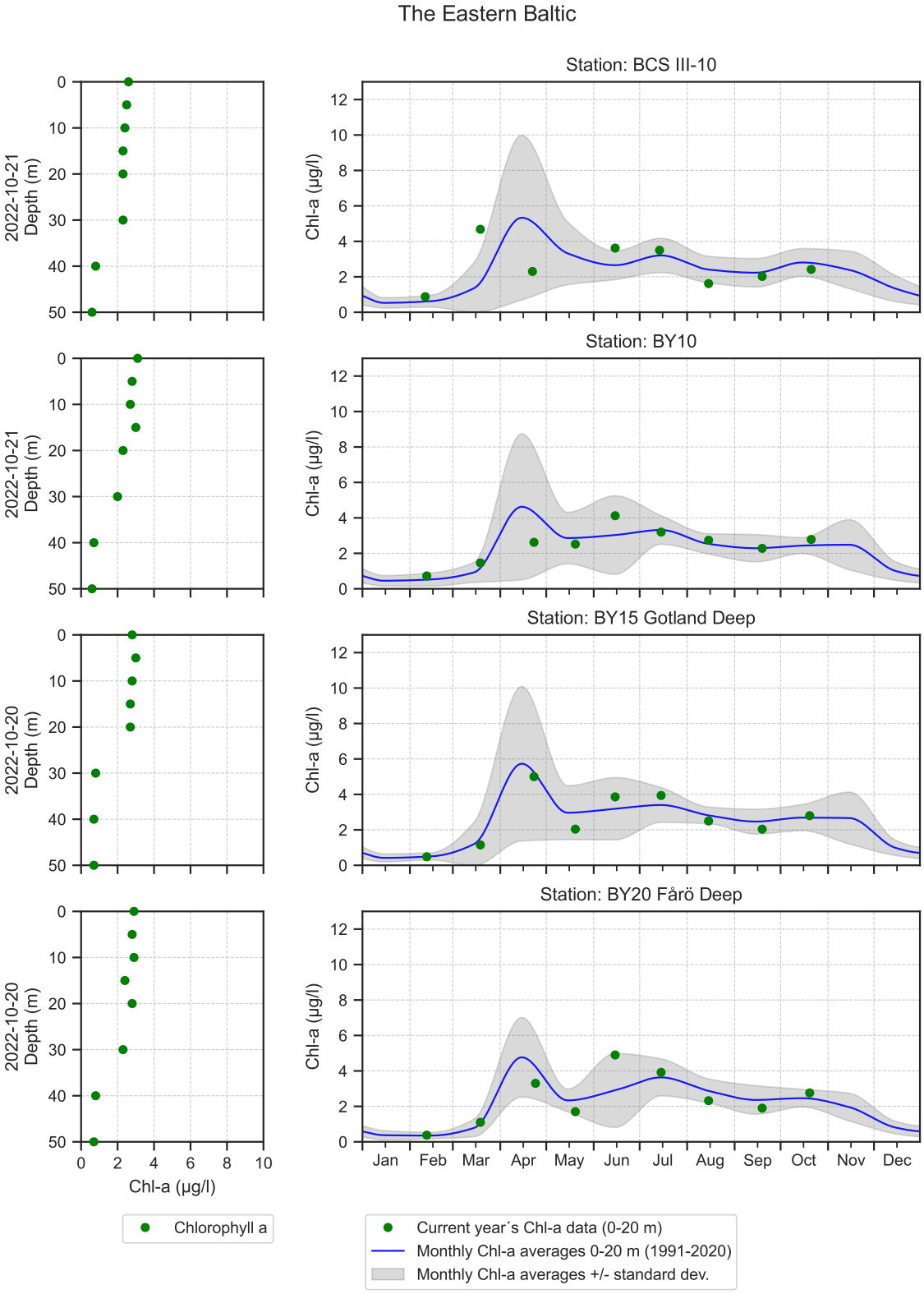
Selection of observed species	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	23/10	23/10	24/10	23/10
Hose 0-10 m	presence	presence	presence	presence
Centrales			present	
Cerataulina pelagica	present	present	present	present
Chaetoceros danicus			present	present
Chaetoceros subtilis			present	
Dactyliosolen fragilissimus	present	present	present	
Guinardia flaccida	present	present	present	
Leptocylindrus danicus		present	present	present
Leptocylindrus minimus			present	present
Nitzschia longissima			present	
Pseudo-nitzschia	present	present	present	present
Pseudosolenia calcar-avis	common	common	present	
Rhizosolenia setigera f. pungens		present	present	
Skeletonema marinoi			present	
Thalassionema nitzschioides			present	
Thalassiosira angulata			present	
Dinophysis acuminata			present	
Dinophysis acuta	present		present	present
Dinophysis norvegica			present	
Gymnodinium verruculosum	present			present
Gyrodinium flagellare		present	present	present
Katodinium glaucum			present	
Phalacroma rotundatum	present			
Polykrikos schwartzii	present	present		
Prorocentrum micans			present	
Protoperidinium			present	
Protoperidinium steinii				present
Scrippsiella		present		
Torodinium robustum			present	
Tripos furca			common	present
Tripos fusus	present	present	present	
Tripos lineatus		present	present	
Tripos longipes			present	
Tripos macroceros				present
Tripos muelleri	present	present	present	present
Acanthoica quattrospina			present	
Emiliania huxleyi	common	common	present	common
Dictyocha fibula			present	
Dictyochales	present	common	common	
Octactis speculum	present	present	common	present
Pseudochattonella			present	
Pseudopedinella		present	present	present
Pseudopedinella pyriformis			present	
Cryptomonadales	present	common	common	present
Leucocryptos marina			present	
Calliacantha natans		present		
Choanoflagellatea		present		present
Ciliophora		present	present	present
Laboea strobila	present	present	present	
Mesodinium rubrum			present	
Strombidium			present	

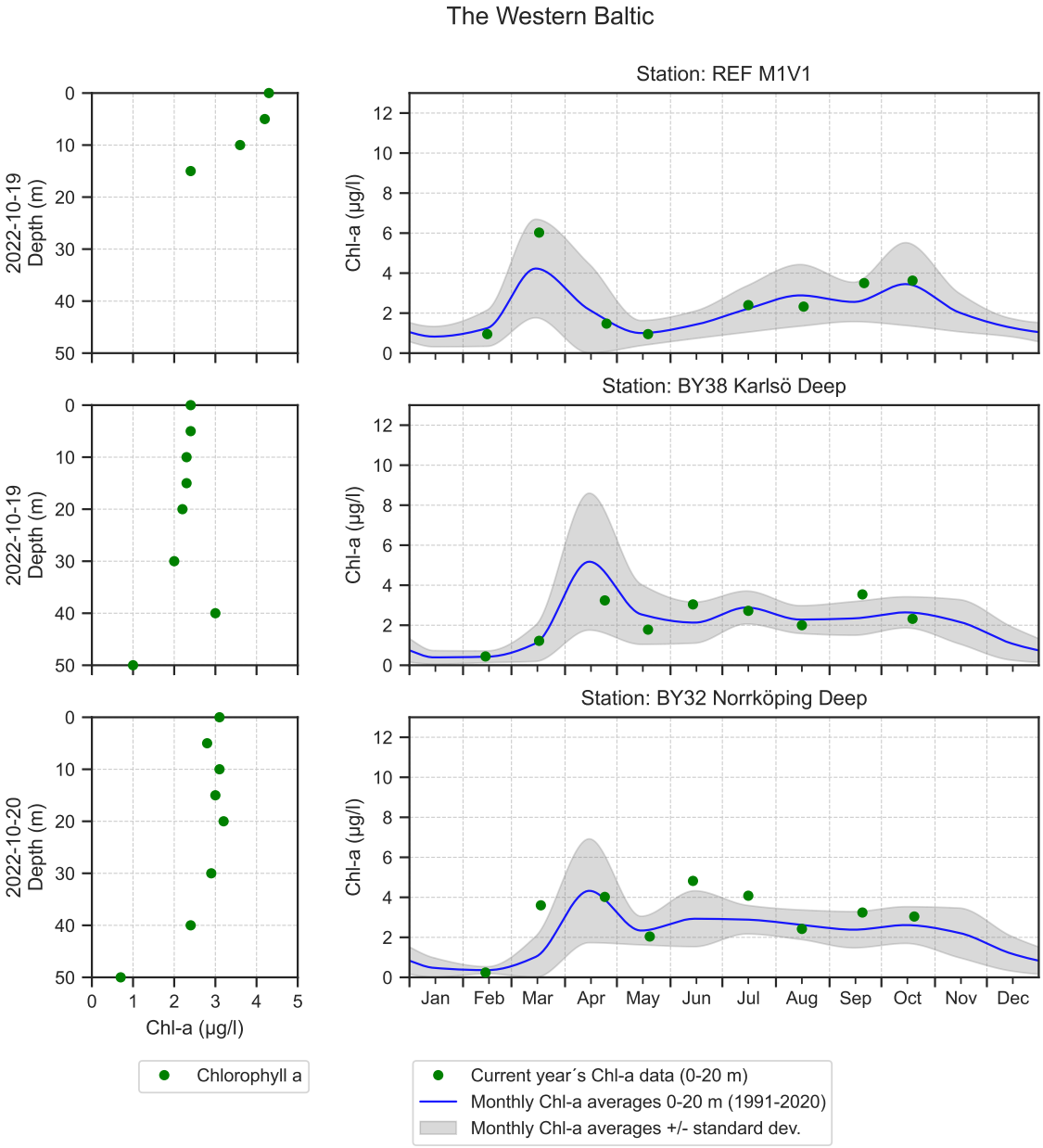
Selection of observed species	BCSIII10	BY15	BY2	BY38	BY5	REFM1V1
Red=potentially toxic species	21/10	20/10	22/10	19/10	21/10	19/10
Hose 0-10 m	presence	presence	presence	presence	presence	presence
Centrales		present	present	common	present	present
Chaetoceros castracanei	present	present	present			
Chaetoceros convolutus			present			
Chaetoceros danicus	present	present	present		present	common
Chaetoceros decipiens						present
Cyclotella		present				present
Dactyliosolen fragilissimus	present		common		present	
Leptocylindrus minimus	present					
Skeletonema marinoi			present		present	present
Dinophysis acuminata						present
Dinophysis norvegica		present				
Gymnodinium verruculosum	present	present	common	present	present	
Heterocapsa	present	present	present		present	present
Heterocapsa rotundata	present		present	present	present	present
Eutreptiella			present	present	present	present
Pseudopedinella		present	present			present
Pseudopedinella pyriformis			present			
Binuclearia lauterbornii		present	present		present	
Aphanizomenon			common		present	
Aphanothece paralleliformis				present		
Cyanodictyon		present				
Pseudanabaena			present		present	present
Snowella		present				
Monoraphidium		present		present		
Cryptomonadales	common	common	common	common	common	common
Leucocryptos marina				present	present	present
Oocystis		present		present		
Pyramimonas	present		present		present	
Prymnesiales		present	present			
Calliacantha natans		present	present		present	
Choanoflagellatea				present		present
Ebria tripartita	present	present			present	present
Ciliophora	common	present	common	common	present	present
Helicostomella subulata		present		present	present	
Mesodinium rubrum	present	present	present	present	present	present
Strombidium			present	present		


The Skagerrak
Station: Å17
Station: Å15
Station: Å13
Station: Släggö
Station: P2
2022-10-23
2022-10-24
Depth (m)
Chl-a (µg/l)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Chlorophyll a
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 Kattegat and The Sound
Station: Fladen
Station: N14 Falkenberg
Station: Anholt E
Station: W Landskrona
2022-10-23
Depth (m)
Chl-a (µg/l)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Chlorophyll a
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 Southern Baltic
Station: BY1
Station: BY2 Arkona
Station: BY4 Christiansö
Station: BY5 Bornholm Deep
2022-10-22
2022-10-21
Depth (m)
Chl-a (µg/l)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Chlorophyll a
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
Station: BCS III-10
Station: BY10
Station: BY15 Gotland Deep
Station: BY20 Fårö Deep
2022-10-21
2022-10-20
Depth (m)
Chl-a (µg/l)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Chlorophyll a
Current year´s Chl-a data (0-20 m)
Monthly Chl-a averages 0-20 m (1991-2020)
Monthly Chl-a averages +/- standard dev.



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 occuring 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. 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
Alexandrium 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; headake, dizziness, nausea, vomiting, diarrhoea. **Extreme case** Muscular paralysis; pronounced respiratory difficulty; choking sensation; death trough respiratory paralysis may occur within 2-24 hours after ingestion.
Dinophysis spp.	Diarrehetic 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.
Pseudo- niztschia spp.	Amnesic shellfish poisoning (ASP)	**Milda symptom:** Efter 3-5 timmar: yrsel, illamående, kräkningar, diarré, magkramper **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.
Chaetoceros concavicornis/ C.convolutus	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.
Pseudochattonella 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.

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