SMHI
Oceanographic Unit
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AlgAware
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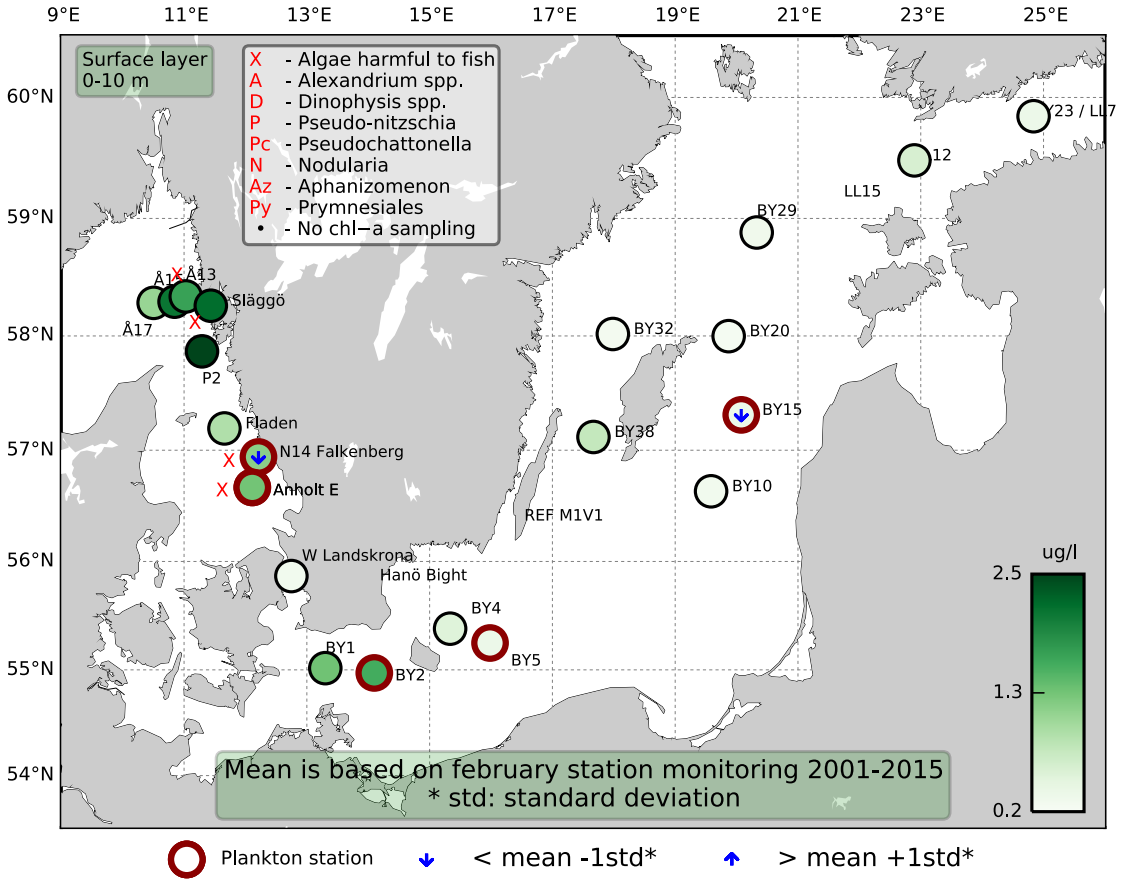
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning

Den för fisk potentiellt dödliga flagellaten *Pseudochattonella* spp.* fanns i relativt höga cellantal vid samtliga växtplanktonstationer i Västerhavet. Fluorescenstoppar vid Anholt E, Å13 och Å15 orsakades till stor del av *Pseudochattonella**. Störst antal uppmättes vid Å15 med knappt 120 000 celler per liter. Ett förstadium till vårens kiselalgsblomning observerades vid N14 i Kattegatt och Å17 i Skagerrak där det fanns förhöjda cellantal av *Skeletonema marinoi*. De integrerade klorofyll *a*-värdena låg under normala vid N14, i övrigt inom det normala för månaden i Kattegatt och Skagerrak.

I Östersjön var det låga cellantal och få arter. Vid BY38 observerades förhöjda mängder av den filamentösa cyanobakterien *Aphanizomenon flos-aquae*. De integrerade klorofyll *a*-värdena var låga, men inom det normala för denna månaden.



Abstract

The phytoplankton genus *Pseudochattonella* spp.*, which is potentially mortal to fish when in high abundancies, was present with quite high cell numbers at all of the phytoplankton monitoring stations in the Kattegat and Skagerrak area. Fluorescence maxima at Anholt E, Å13 and Å15 were mainly caused by *Pseudochattonella* spp.* and the largest number, 120 000 cells per liter, was found at Å15. Signs of the coming diatom spring bloom were observed at N14 in the Kattegat and at Å17 in the Skagerrak by rather high cell numbers of *Skeletonema marinoi*. The integrated chlorophyll *a* concentrations were below normal for this month at N14, and normal in the rest of the Kattegat and Skagerrak area.

Low cell numbers and few species were present in the Baltic Sea phytoplankton samples. Quite high cell numbers of the filamentous cyanobacterium *Aphanizomenon flos-aquae* was found at BY38. The integrated chlorophyll *a* concentrations were low, but mostly what is considered normal for this month.

More detailed information on species composition and abundance. Species marked with * are potentially toxic or harmful.

The Skagerrak

Å17 (open Skagerrak) 13th of February

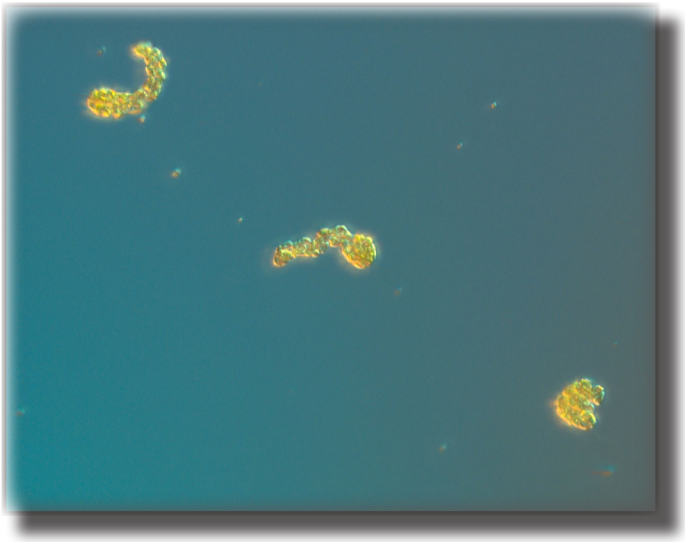
The diatom *Skeletonema marinoi* was abundant, and many other diatoms were present in low cell numbers as a sign of the coming spring bloom.

Släggö (Skagerrak coast) 13th of February

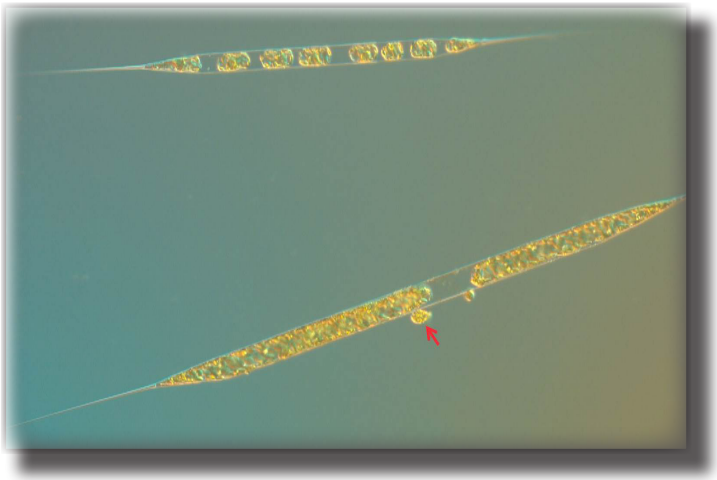
The flagellate genus *Pseudochattonella**, potentially mortal for fish, was found in moderate cell numbers.

Fluorescence maxima at Å13 and Å15 in the surface were mainly caused by *Pseudochattonella* spp.*.

The integrated chlorophyll *a* concentrations were normal for this month in the Skagerrak area.



Three cells of the flagellate *Pseudochattonella* sp.*



Two cells of the diatom *Rhizosolenia setigera*. Arrow: *Pseudochattonella* sp.*

The Kattegat

Anholt E and N14 Falkenberg 13th and 14th of February

The flagellate *Pseudochattonella* spp. was the most abundant species, both in the integrated (0-10m) samples, as well as in the samples from the fluorescence maxima at Anholt E at about 5-6 meters depth. Other algae were found in low cell numbers, the diatom *Skeletonema marinoi* was rather abundant at N14 Falkenberg.

The integrated chlorophyll *a* concentrations were just below normal at N14 and otherwise normal for this month in the Kattegat area.

The Baltic Sea

The phytoplankton diversity was very low at the Baltic stations. Quite high cell numbers of the filamentous cyanobacterium *Aphanizomenon flos-aquae* was found at BY38 however.

The integrated chlorophyll *a* concentrations were low but within what is normal for this month at the Baltic stations.

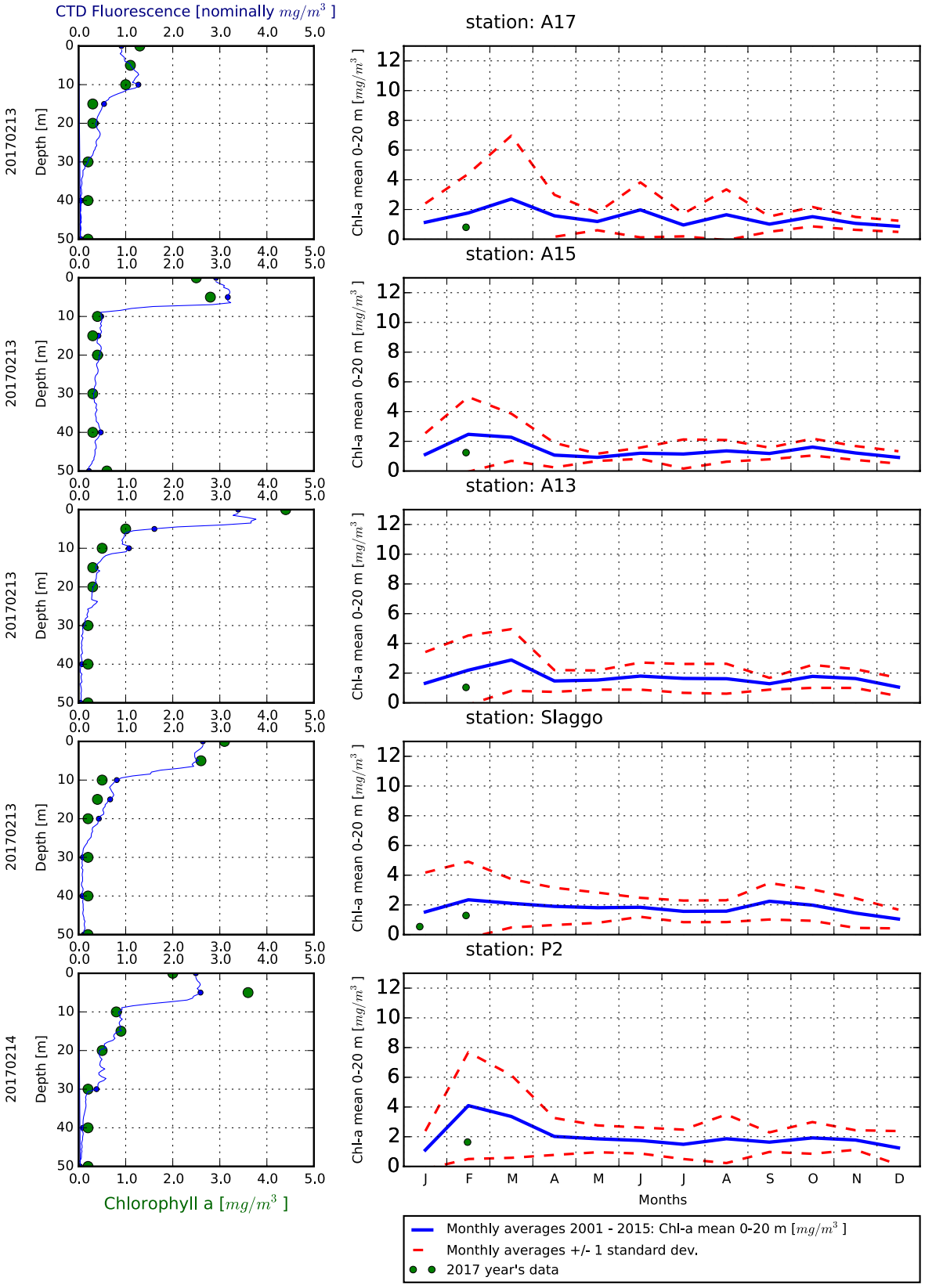
The filamentous cyanobacterium *Aphanizomenon flos-aquae* was rather abundant at BY38.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

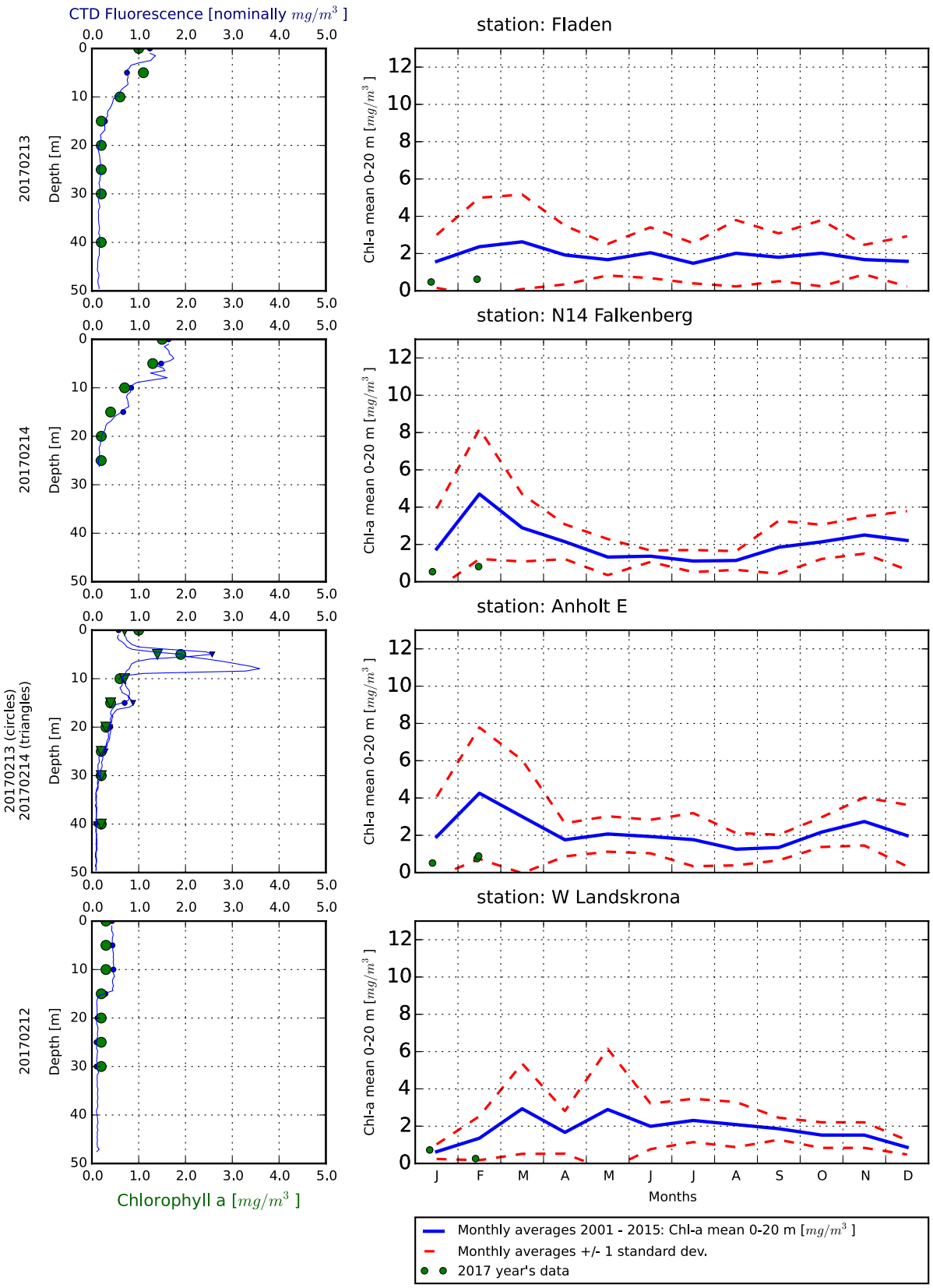
Selection of observed species	N14	Anholt E	Anholt E	Släggö	Å17
Red=potentially toxic species	14/2	13/2	14/2	13/2	13/2
Hose 0-10 m	presence or cells per l	presence or cells per l	presence or cells per l	presence or cells per l	presence or cells per l
Ceratoneis closterium	present	present		present	
Chaetoceros similis	present			present	present
Chaetoceros subtilis	present	present	present		present
Dactyliosolen fragilissimus		present			
Ditylum brightwellii					present
Guinardia delicatula				present	
Leptocylindrus danicus					present
Leptocylindrus minimus				present	
Nitzschia longissima	present	present		present	present
Proboscia alata	present	present		present	present
Pseudo-nitzschia spp					present
Rhizosolenia hebetata f. semispina		present	present	present	present
Rhizosolenia setigera	present	present	present		present
Skeletonema marinoi	common	present	present	present	very common
Thalassionema nitzschioides	present	present	present	present	present
Thalassiosira angulata	present	present	present	present	present
Thalassiosira anguste-lineata			present		present
Thalassiosira nordenskioeldii					present
Thalassiosira rotula					present
Amphidinium sphenoides					present
Ceratium fusus					present
Dinophysis acuminata	present				
Dinophysis norvegica	present	present		present	
Gymnodiniales	present	present			
Heterocapsa spp			present		present
Heterocapsa triquetra		present		present	
Katodinium glaucum					present
Peridiniales		present			
Peridiniella danica	present		present	present	
Protoperidinium bipes	present				
Protoperidinium pellucidum	present			present	
Dictyocha speculum	present	present	present		present
Pseudochattonella spp	32 060	74 200	60 775	37 550	present
Pseudopedinella spp	present	present	present	present	
Cryptomonadales		common	present	present	common
Leucocryptos marina			present		
Pseudanabaena spp					present
Eutreptiella spp	present			present	
Pterosperma spp	present		present		
Ciliophora	present	present	common	present	present
Laboea strobila				present	present
Mesodinium rubrum	present	present		present	present
Strombidium spp	present	present	present	present	

Selection of observed species	BY2	BY5	BCS III-10_NE	BY15	REF M1V1	BY29	BY31	BY38
Red=potentially toxic species	12/2	12/2	11/2	10/2	15/2	10/2	16/2	15/2
Hose 0-10 m	presence	presence	presence	presence	presence	presence	presence	presence
Chaetoceros danicus						present		present
Chaetoceros subtilis	present	present					present	
Skeletonema marinoi	present	present			common	present	present	present
Dinophysis acuminata						present		
Gymnodiniales	present	present	present	present		present		
Heterocapsa spp	present				present			
Peridiniales	present		present					
Peridiniella catenata							present	present
Cryptomonadales	common	common	present	present	present	common	present	
Aphanizomenon flos-aquae							present	common
Snowella spp			present					
Monoraphidium spp				present				
Eutreptiella spp	present							
Pterosperma spp				present				present
Planctonema lauterbornii	present			present	present	present	present	present
Ciliophora	common	present	present	present	present	present	present	present
Mesodinium rubrum	present				present	present		present
Strombidium spp	present					present		

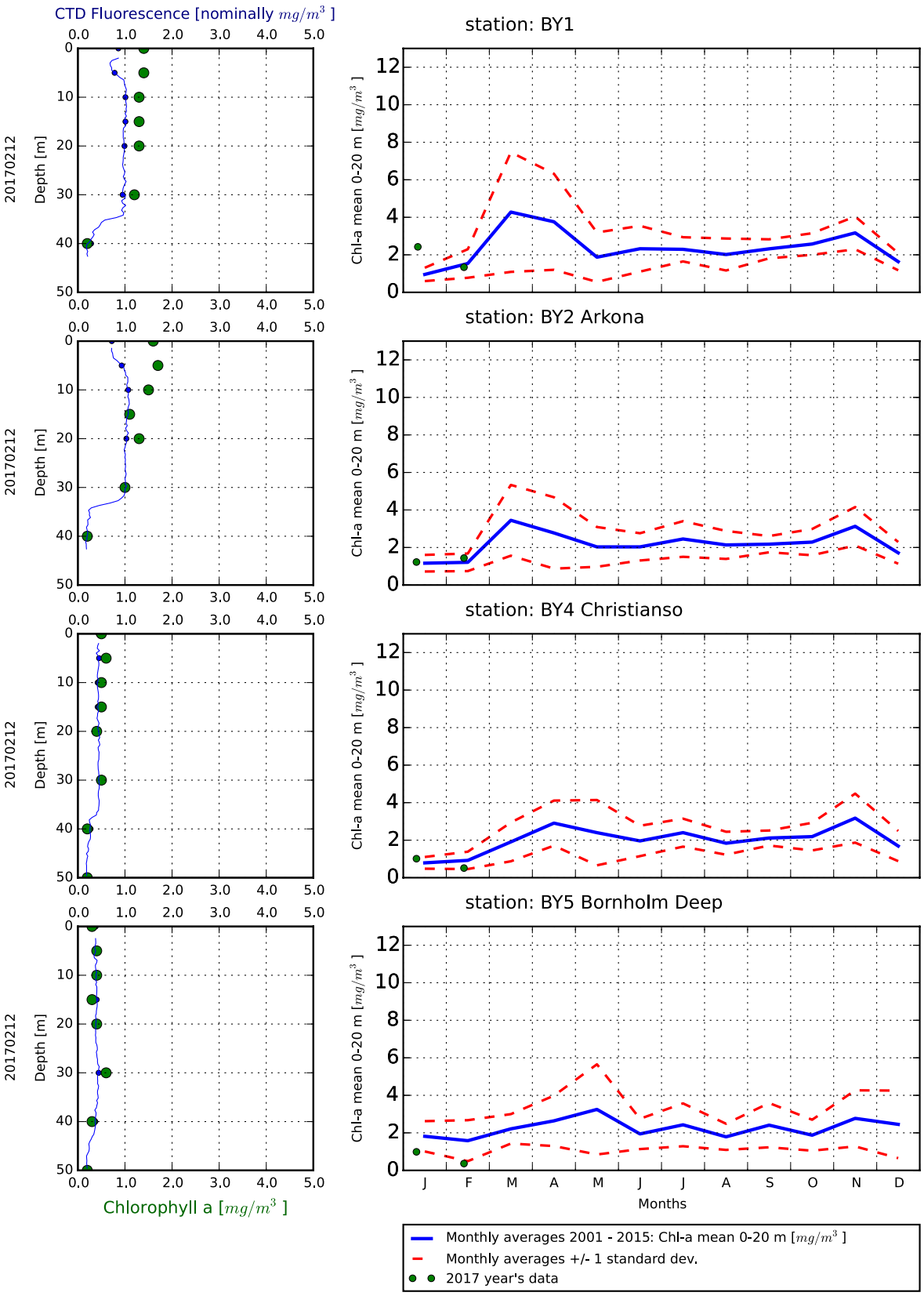
The Skagerrak

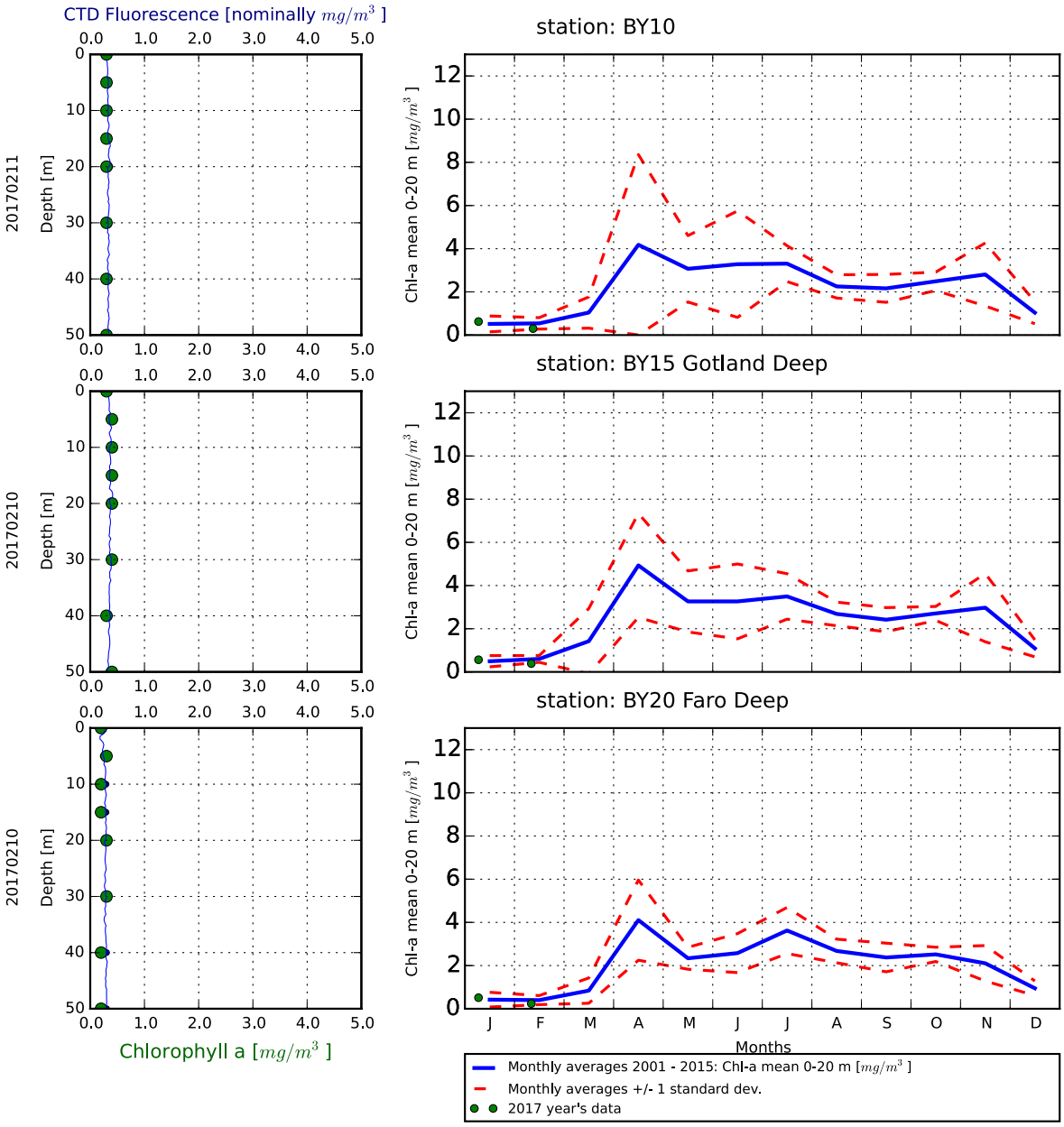


The Kattegat and The Sound

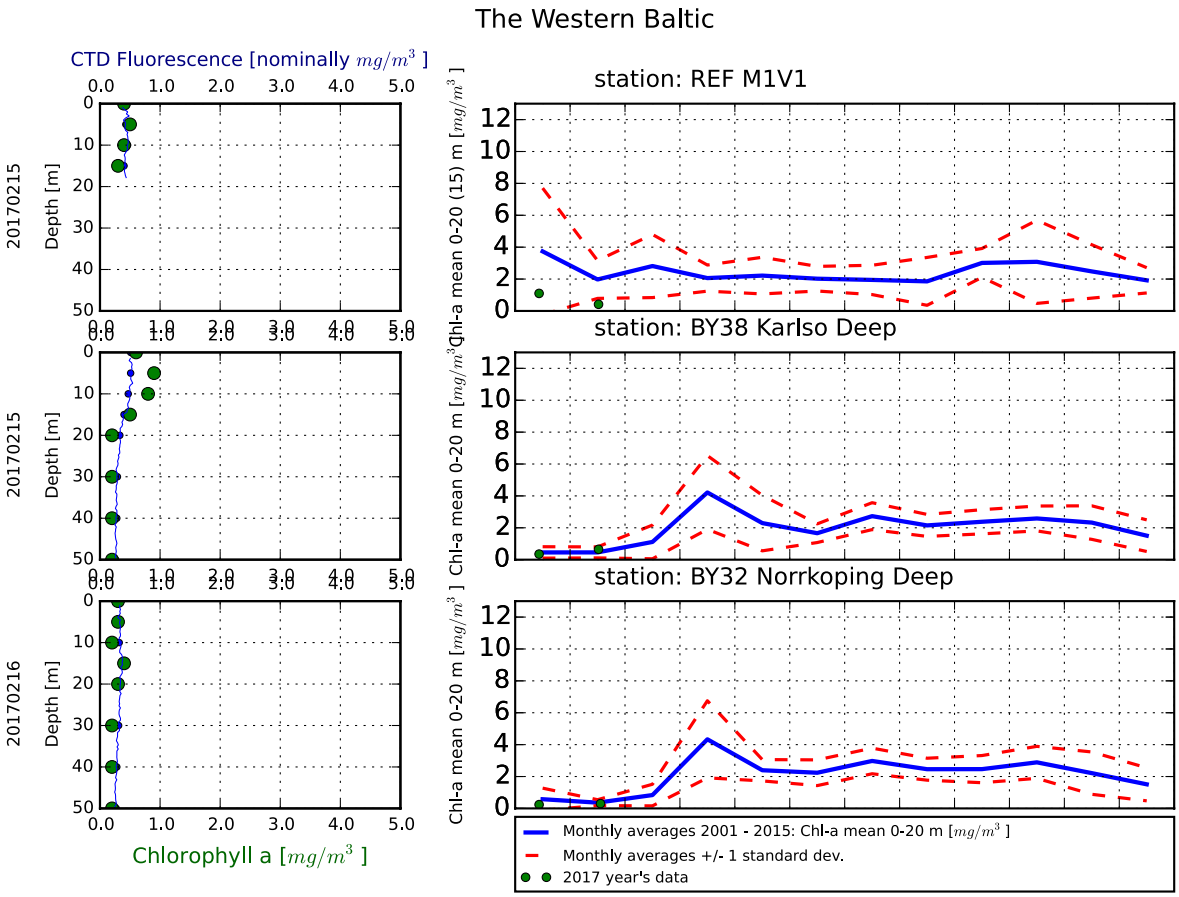


The Southern Baltic





Due to new Polish regulations, BCSIII-10 can not be visited for the time being.



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.

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
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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