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SMHI
Oceanographic Unit
No 8, September 2017

AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

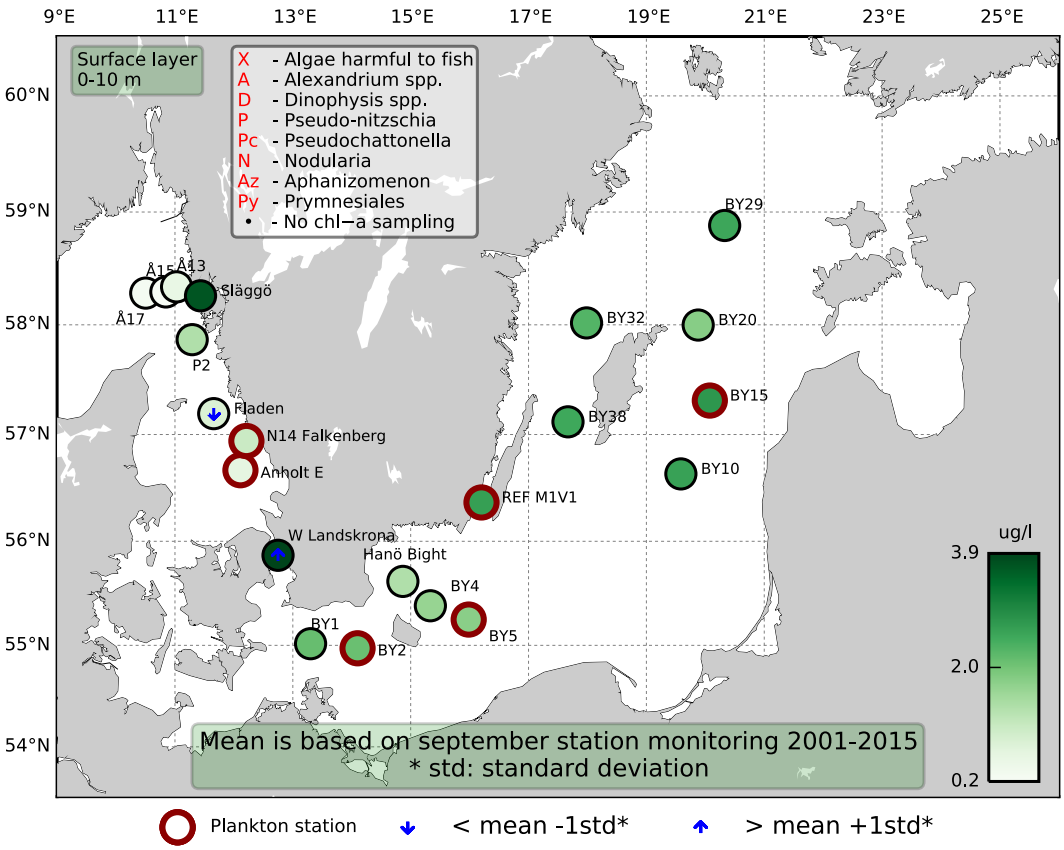
Sammanfattning

Växtplanktonproverna från Västkusten preglades av ganska stor artdiversitet och flest antal arter observerades vid Släggö i Skagerrak med dominans av kiselalger. Vid Släggö fanns också höga cellantal av nakenstadiet av flagellatsläktet *Dictyocha*, som annars har ett kors- eller stjärnformat kiselskelett. I det nakna stadiet kan släktet *Dictyocha* vara skadligt för fisk.

Klorofyllkoncentrationerna var över det normala för denna månaden både när de integrerades över 0-10 (karta) och 0-20 meter (grafer) vid W Landskrona i Öresund.

I Östersjön var diversiteten av växtplankton låg med få arter i låga antal. BY15 och BY29 utmärkte sig genom att ha mycket höga antal av kolonier av pico cyanobakterier av olika arter. Den trådlika cyanobakterien *Aphanizomenon flosaquae* fanns vid de flesta stationer i låga antal.

De integrerade klorofyllvärdena var normala för denna månaden vid Östersjöstationerna.



Abstract

The phytoplankton samples from the Skagerrak and Kattegat areas had rather high species diversity and the largest number of species, dominated by diatoms, were observed at Släggö in the Skagerrak. At Släggö there was also high numbers of the naked stage of the flagellate genus *Dictyocha*, which usually has a cross- or star shaped silica skeleton. In its naked stage *Dictyocha* spp may be harmful to fish.

The chlorophyll concentrations were above normal for this month both when integrated from 0-10m (map) as well as 0-20m (graphs) at W Landskrona in the Sound.

In the Baltic Sea, the phytoplankton diversity was low, hence few species in low numbers. The stations BY15 and BY29 had very high numbers of colonies of pico cyanobacteria from different species. The threadlike cyanobacterium *Aphanizomenon flosaquae* was present at most stations in low numbers.

The integrated chlorophyll concentrations were normal for this month at the Baltic stations.

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

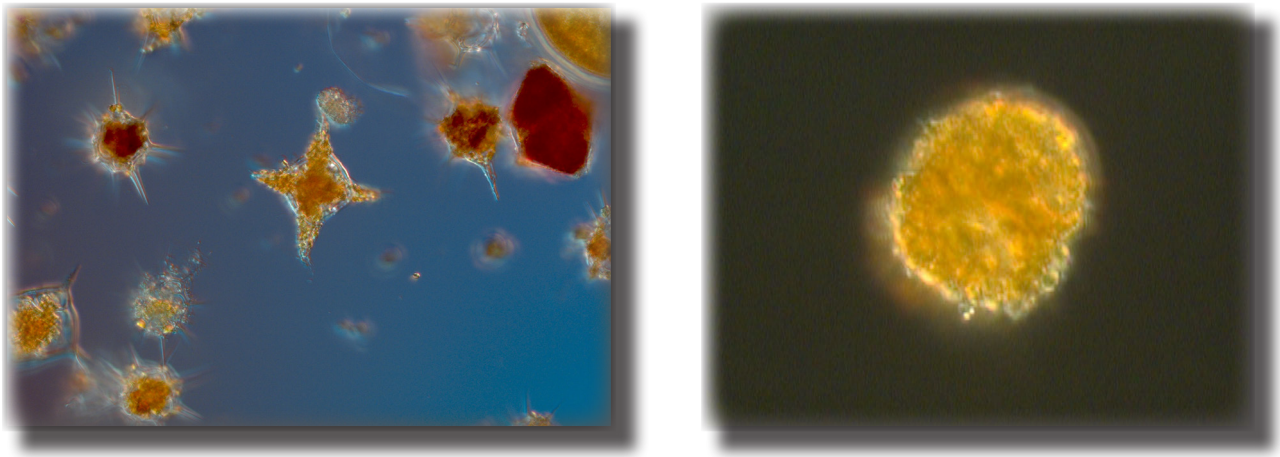
The Skagerrak

Å17 (open Skagerrak) 18th of September
The phytoplankton diversity was very low.

Släggö (Skagerrak coast) 18th of September
The species diversity was high with a bias of diatoms. *Chaetoceros socialis*, *Leptocylindrus minimus* and *Skeletonema marinoi* were the most common diatoms, and amongst the dinoflagellates, *Ceratium* species were the most abundant. The naked stage of the flagellate genus *Dictyocha* was abundant, in this stage the genus may be harmful for fish.

The Kattegat

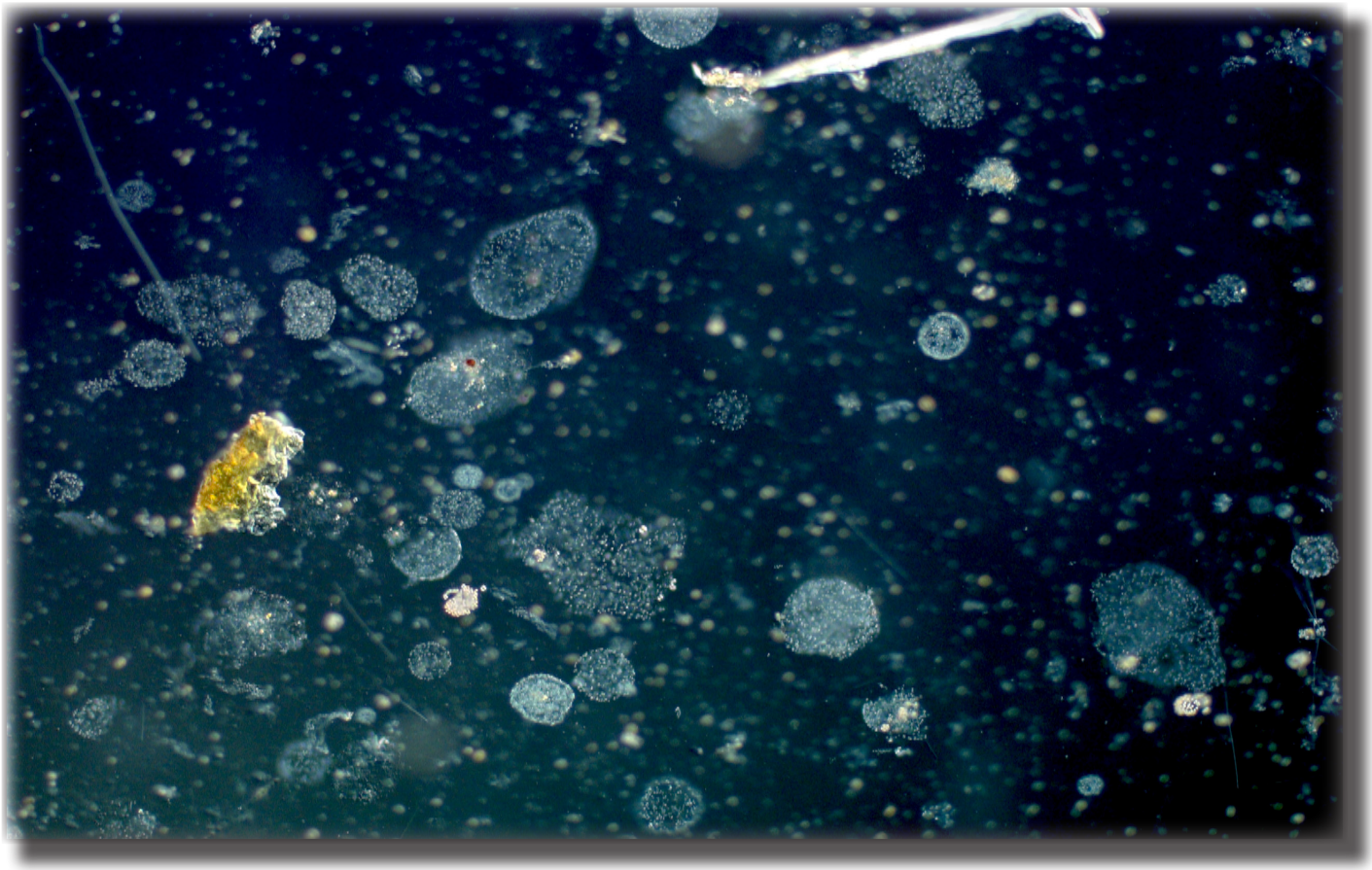
Anholt E and N14 Falkenberg 17th of September
The phytoplankton species diversity was a bit higher at N14 than at Anholt E, but the cell numbers were low at both stations.



Dictyocha fibula and *D. speculum* with their silica skeletons (left), the picture to the right shows *Dictyocha* in its naked stage. Cells in the naked stage were found at Släggö and at Å17 in the Skagerrak.

The Baltic Sea

The phytoplankton situation was modest in the Baltic Sea and besides the species lists there is nothing more to report this month.



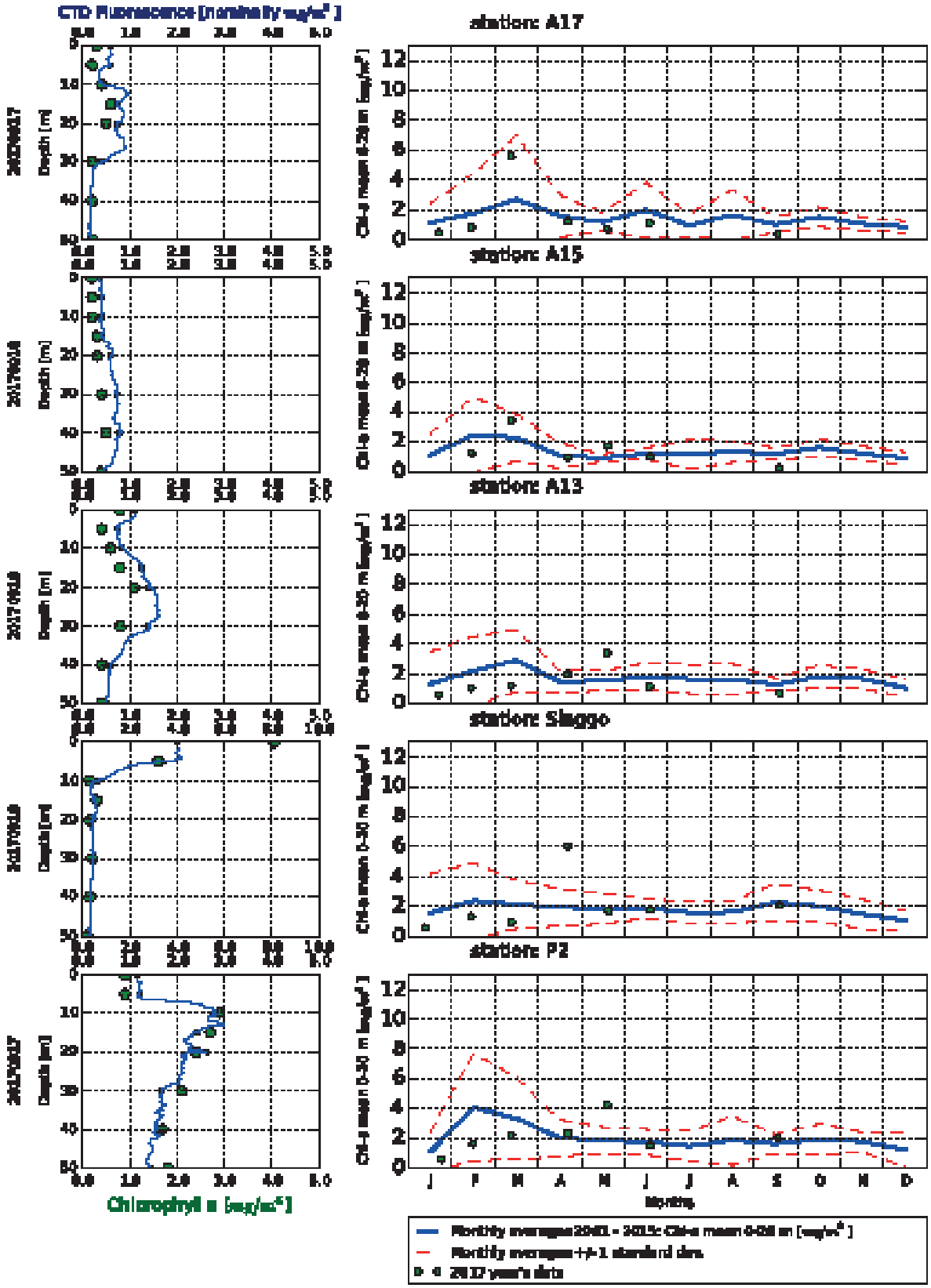
Colonies of pico cyanobacteria were abundant at BY15 and BY25.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

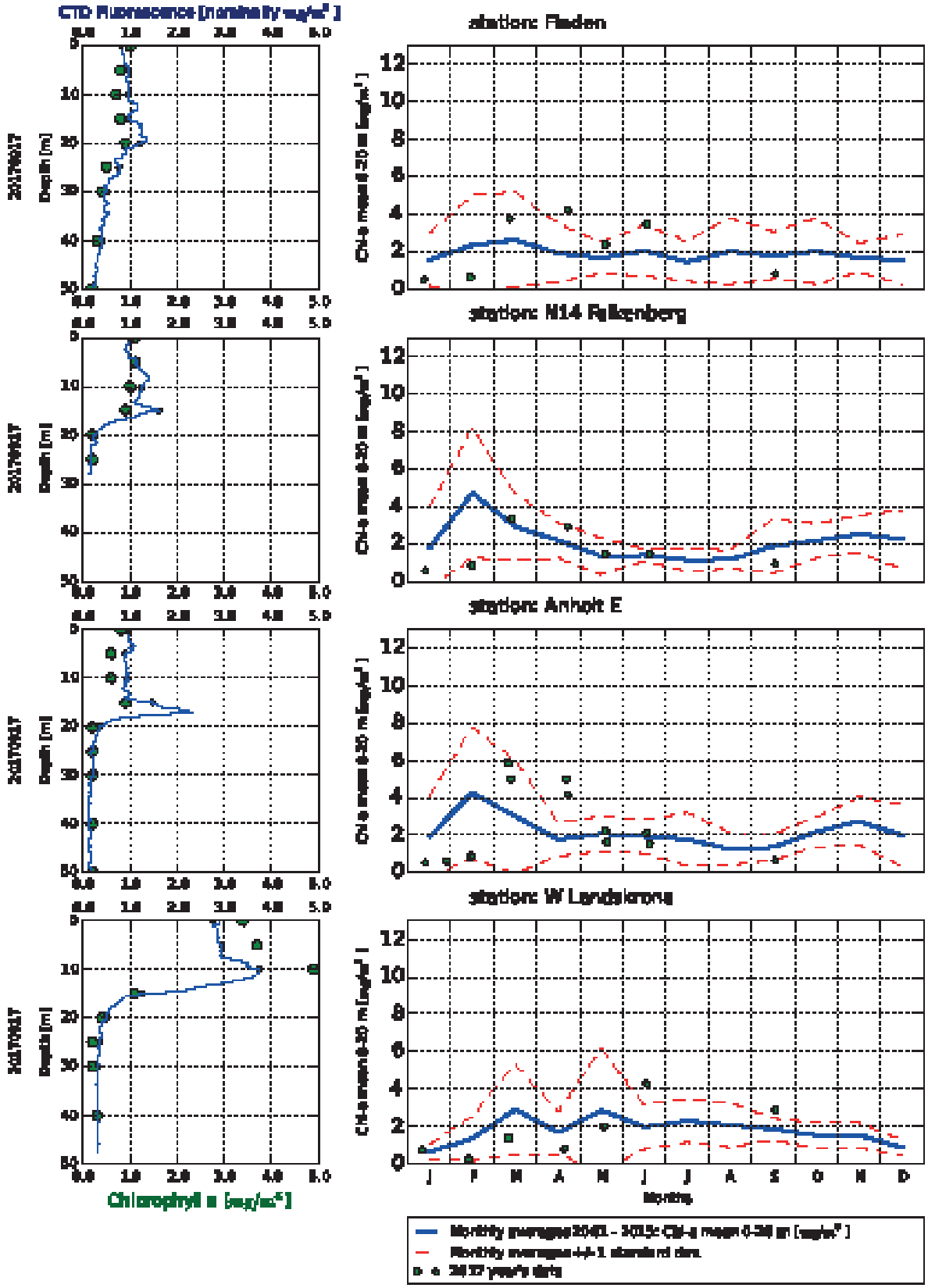
Selection of observed species	Anholt E	N14	Släggö	Å17
Red=potentially toxic species	17/9	17/9	18/9	17/9
Hose 0-10 m	presence	presence	presence	presence
Asterionellopsis glacialis			present	
Cerataulina pelagica	present		present	
Chaetoceros affinis		present	present	
Chaetoceros anastomosans	present			
Chaetoceros contortus			present	
Chaetoceros curvisetus	present	present	present	
Chaetoceros decipiens			present	
Chaetoceros didymus	present			
Chaetoceros laciniosus		present		
Chaetoceros lorenzianus			present	
Chaetoceros similis			present	
Chaetoceros socialis	common	common	common	
Chaetoceros subtilis	present			
Chaetoceros tenuissimus				present
Dactyliosolen fragilissimus			present	present
Ditylum brightwellii	present	present	present	
Eucampia zodiacus			present	
Guinardia delicatula		present	present	
Leptocylindrus danicus		present	present	
Leptocylindrus minimus	present	present	common	
Nitzschia longissima		present	present	present
Pseudo-nitzschia spp		present	present	
Pseudosolenia calcar-avis			present	
Rhizosolenia setigera			present	
Skeletonema marinoi	present	present	common	
Thalassionema nitzschioides			present	
Thalassiosira rotula			present	
Alexandrium pseudogonyaulax		present		
Ceratium furca	common	common	common	present
Ceratium fusus	present	common	present	present
Ceratium lineatum	present	present	present	
Ceratium longipes	present			
Ceratium macroceros		present	present	
Ceratium tripos	common	common	common	
Dinophysis acuminata		present	present	
Dinophysis norvegica		present		
Dinophysis tripos		present	present	
Gyrodinium flagellare			present	
Heterocapsa spp				present
Karenia mikimotoi				present
Katodinium glaucum	present			
Lingulodinium polyedrum		present	present	
Noctiluca scintillans			present	
Polykrikos schwartzii		present	present	
Prorocentrum micans	present	present	present	present
Prorocentrum triestinum		present		
Protoperidinium divergens	present		present	
Protoperidinium pallidum	present	present		
Torodinium robustum				present
Choanoflagellatea	present			
Dinobryon balticum			present	
Cryptomonadales		present	common	common
Dictyocha fibula				present
Dictyocha speculum	present	present	present	present
Dictyocha spp_naked stage			common	present
Pseudopedinella spp		present	present	
Emiliania huxleyi	present	present	present	present
Prymnesiales	present			
Ebria tripartita				present
Telonema spp	present			
Solenicola setigera				present
Mesodinium rubrum		present		
Eutintinnus spp		present		
Laboea strobila		present	present	
Strombidium spp			present	present
Ciliophora	common	common	present	present

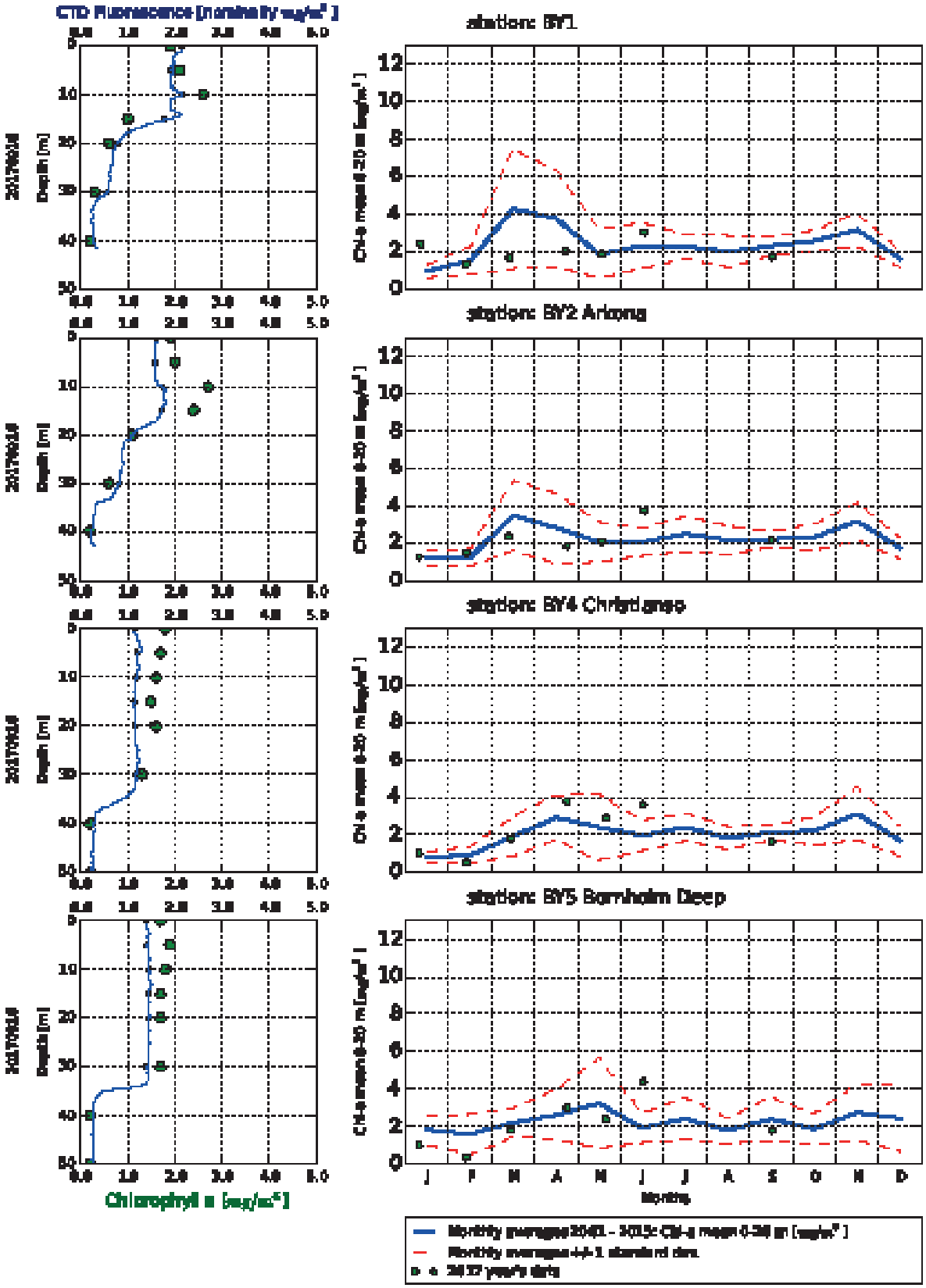
Selection of observed species	BY2	BY5	4CTRY BP	BY15	REF M1V1	BY29	BY38
Red=potentially toxic species	16/9	16/9	13/9	14/9	15/9	13/9	15/9
Hose 0-10 m	presence	presence	presence	presence	presence	presence	presence
Chaetoceros castracanei		present	present	present		present	present
Chaetoceros danicus	present		present	present	present	present	present
Coscinodiscales		present					
Nitzschia longissima					present		
Pseudo-nitzschia spp					present		
Skeletonema marinoi					common		
Alexandrium ostenfeldii					present		
Dinophysis acuminata					present		
Dinophysis norvegica			present				
Gymnodinium verruculosum	present	present					
Heterocapsa spp	present	present					present
Heterocapsa rotundata	present						
Heterocapsa triquetra					present	present	
Katodinium glaucum		present					
Prorocentrum micans					present		
Cryptomonadales	common	common	common	present	common	common	present
Leucocryptos marina		present					
Aphanizomenon flosaquae		present		common	present	present	present
Aphanocapsa spp				very common	present	very common	
Aphanothece spp				common		common	
Aphanothece paralleliformis			present	common	present	common	
Dolichospermum spp					present		
Lemmermanniella spp			present				
Snowella spp	present		present	common	present	common	present
Pseudopedinella spp		present				present	
Pseudopedinella pyriformis							present
Eutreptiella spp	present			present	present		present
Pterosperma spp	present	present	present		present	present	present
Pyramimonas spp	common	present	present				present
Planctonema lauterbornii	present			common	present	common	present
Ebria tripartita	present			present	present		
Mesodinium rubrum	common	present		present	present	present	
Helicostomella subulata					present		
Tintinnopsis spp					present		
Ciliophora	common	common	present	present	common		common

The Skagerrak

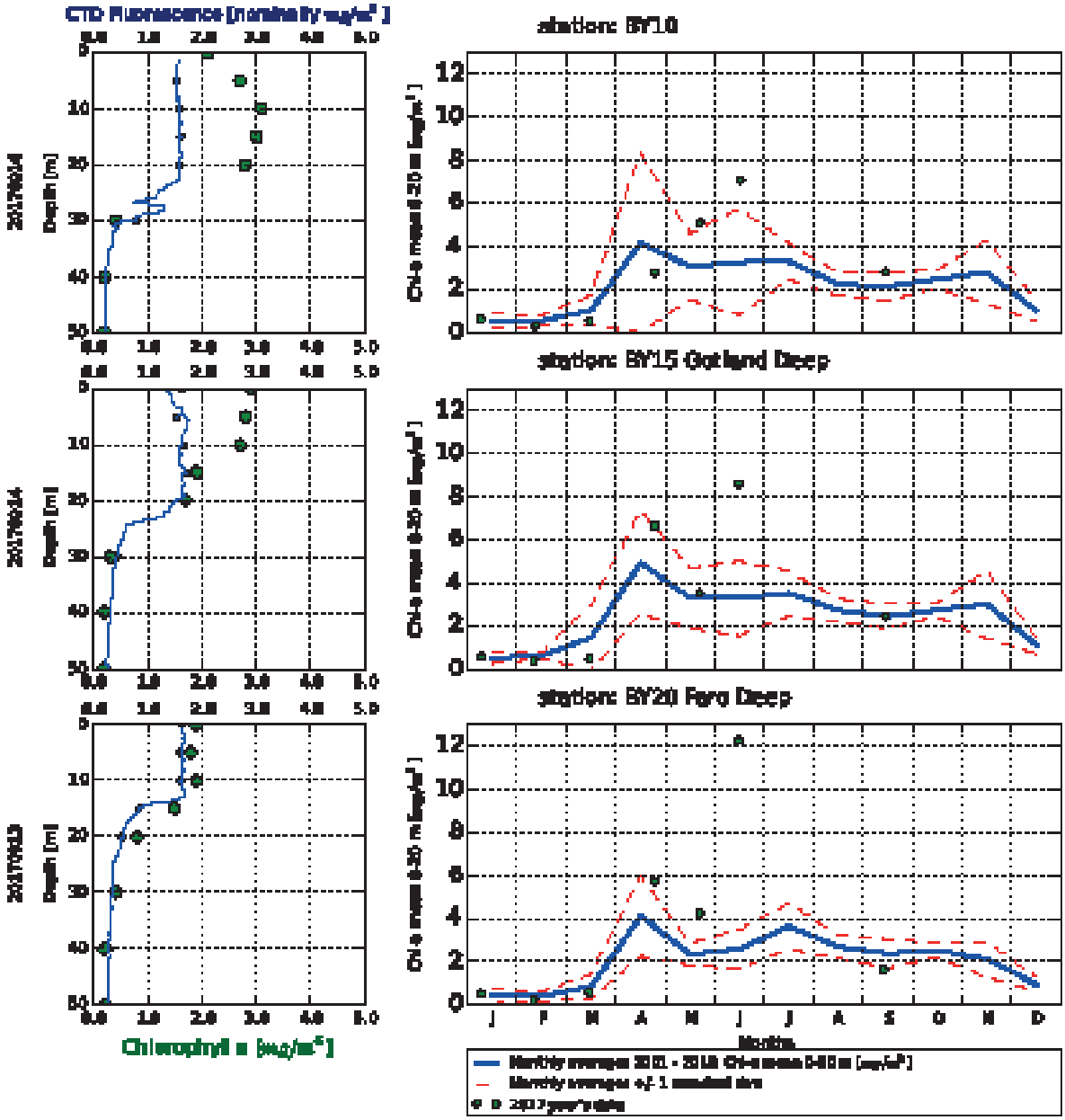


The Kattegat and The Sound

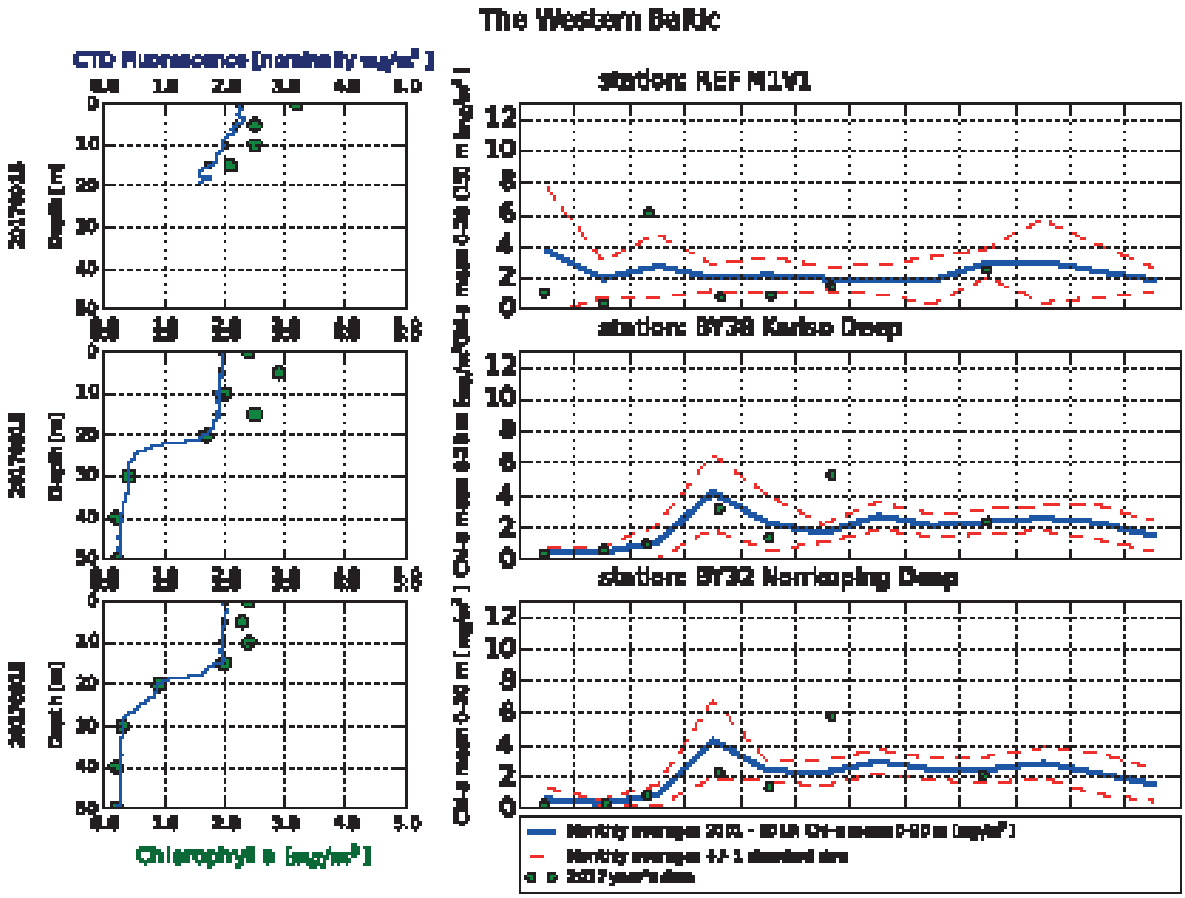



CTD Fluorescence [normalized mg/m³]
Depth [m]
Chlorophyll a [mg/m³]
station: BY1
station: BY2 Arkona
station: BY4 Christiansø
station: BY5 Bornholm Deep
Chl-a mean 0-20 m [mg/m³]
J F M A M J J A S O N D
Months

The Eastern 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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Havs
och Vatten
myndigheten