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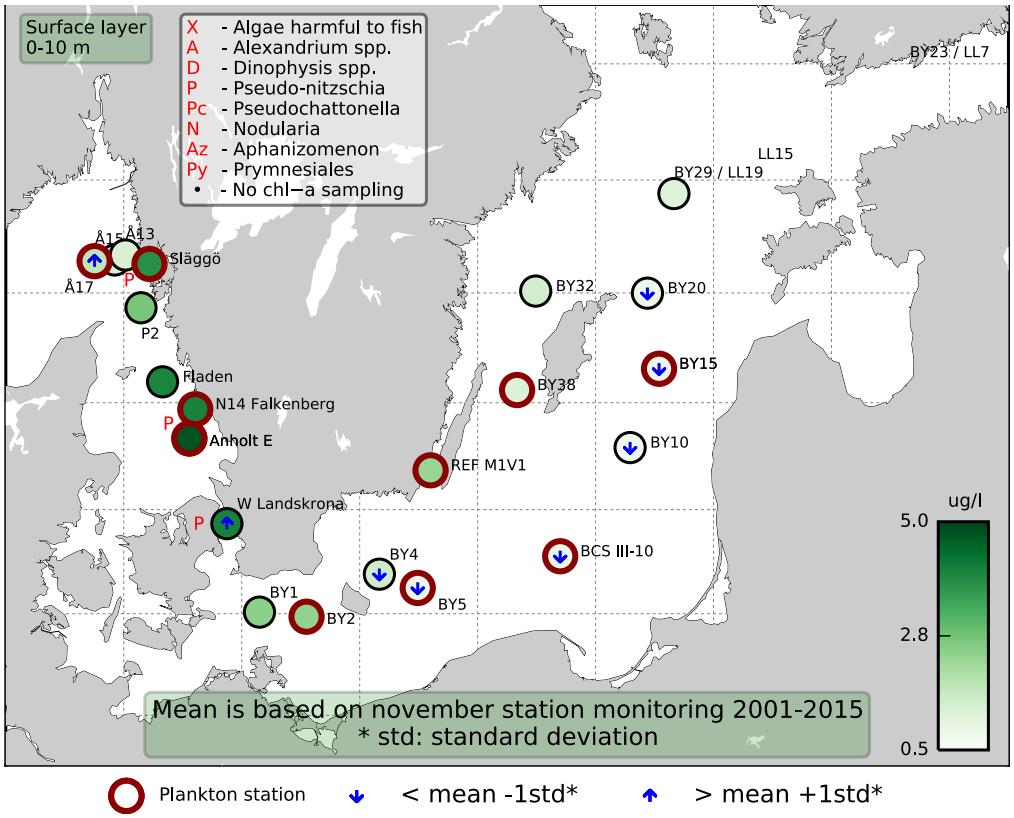
SMHI
Oceanographic Unit
No 11, November 2016

AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning
Det var kiselalgsblomning i Västerhavet, med dominans av *Pseudo-nitzschia* spp.* och *Pseudosolenia calcar-avis*. Klorofyllfluorescenstoppar vid Släggö, Anholt E och W Landskrona orsakades till stor del av samma arter. Det fanns relativt höga cellantal av kalkflagellater, framför allt i Kattegatt.

Det var väldigt låg diversitet i växtplanktonproverna från Östersjöstationerna och klorofyllhalterna var lägre än normalt för denna månad vid många stationer.



Abstract
A diatom bloom was present at the Skagerrak and Kattegat stations with a dominance of *Pseudo-nitzschia* spp.* and *Pseudosolenia calcar-avis*. Chlorophyllfluorescence maxima at Släggö, Anholt E and W Landskrona were mainly caused by the same diatom species. There were quite high cell numbers of coccolithophorids, the most abundant in the Kattegat area.

The phytoplankton diversity was low in the Baltic Sea and consequently the chlorophyll concentrations were low. The concentrations were however below what is normal for this month at many stations.

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

The Skagerrak

Å17 (open Skagerrak) 18th of November

Diatoms dominated the phytoplankton sample and the *Pseudo-nitzschia* spp.* and *Pseudosolenia calcar-avis* were the most numerous species. The flagellate *Pseudochattonella* spp.* was present. The integrated chlorophyll *a* concentrations were above normal for this month.

Släggö (Skagerrak coast) 18th of November

Diatoms dominated the phytoplankton sample, *Pseudo-nitzschia* spp.* being the most abundant among them. The dinoflagellate *Akashiwo sanguinea* was found in quite high cell numbers. The flagellate *Dictyocha speculum* was found in its regular stage with the skeleton intact as well as the naked stage of *Dictyocha*. The integrated chlorophyll *a* concentration from 0 – 20 meters was above normal for this month.

A chlorophyll fluorescence maximum at approximately 9 meters depth was mainly caused by diatoms.

The dinoflagellate *Akashiwo sanguinea* was present at Släggö and at the Kattegat stations.

The Kattegat

Anholt E and N14 Falkenberg 17th and 19th of November

A diatom bloom was present at the Kattegat stations. The most abundant diatom species were *Pseudo-nitzschia* spp.* and *Pseudosolenia calcar-avis*. Cf. *Emiliania huxleyi* was very abundant and the flagellate *Pseudochattonella* spp. was present. Chlorophyll fluorescence maxima at Anholt E and at W Landskrona were mainly caused by diatoms.

The Baltic Sea

The phytoplankton diversity was very low at the Baltic stations. A few species were present in the samples and the chlorophyll concentrations were below normal for this month at many stations.

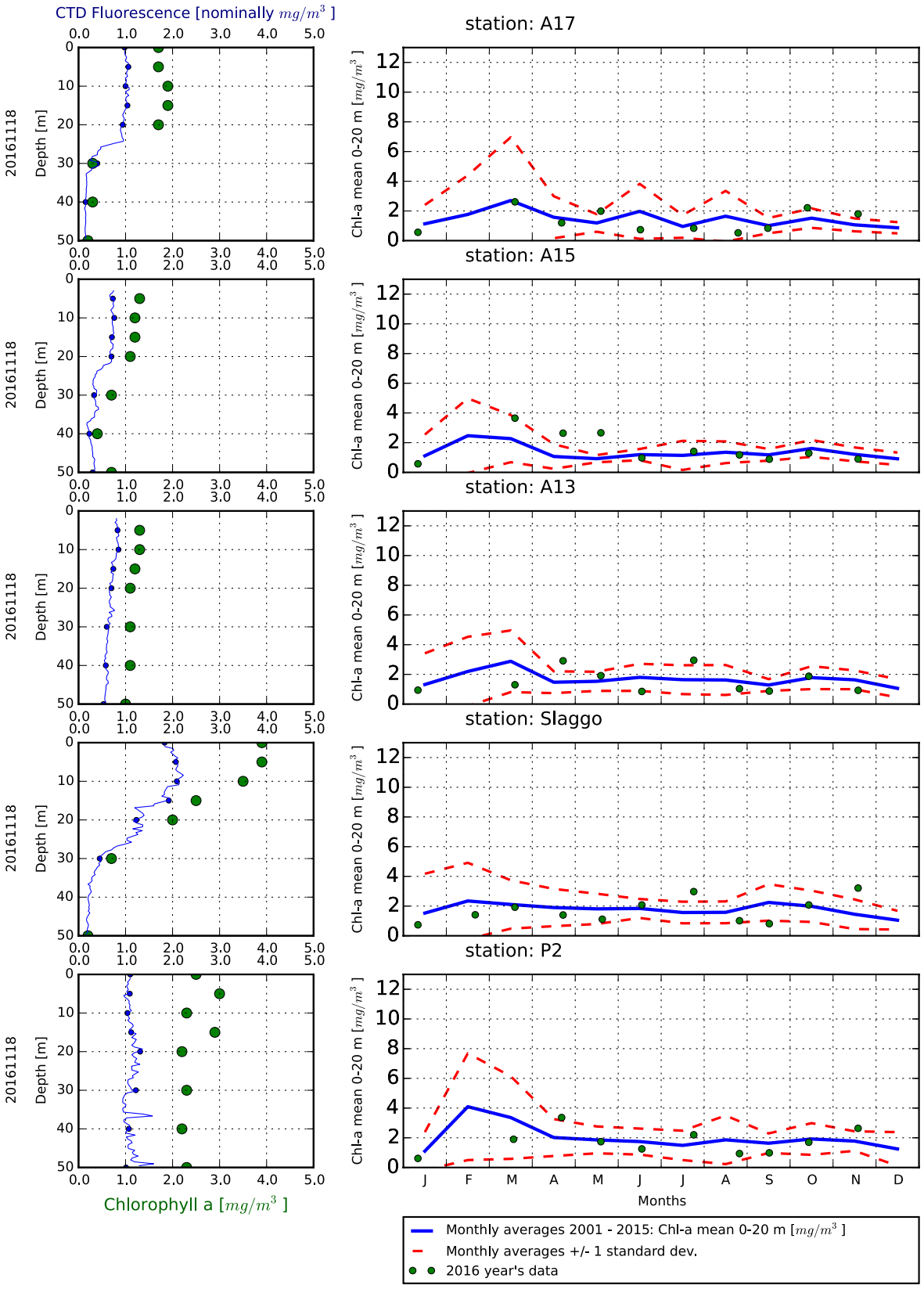
The diatom *Chaetoceros impressus* was found in very low cell numbers at most of the Baltic phytoplankton stations.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

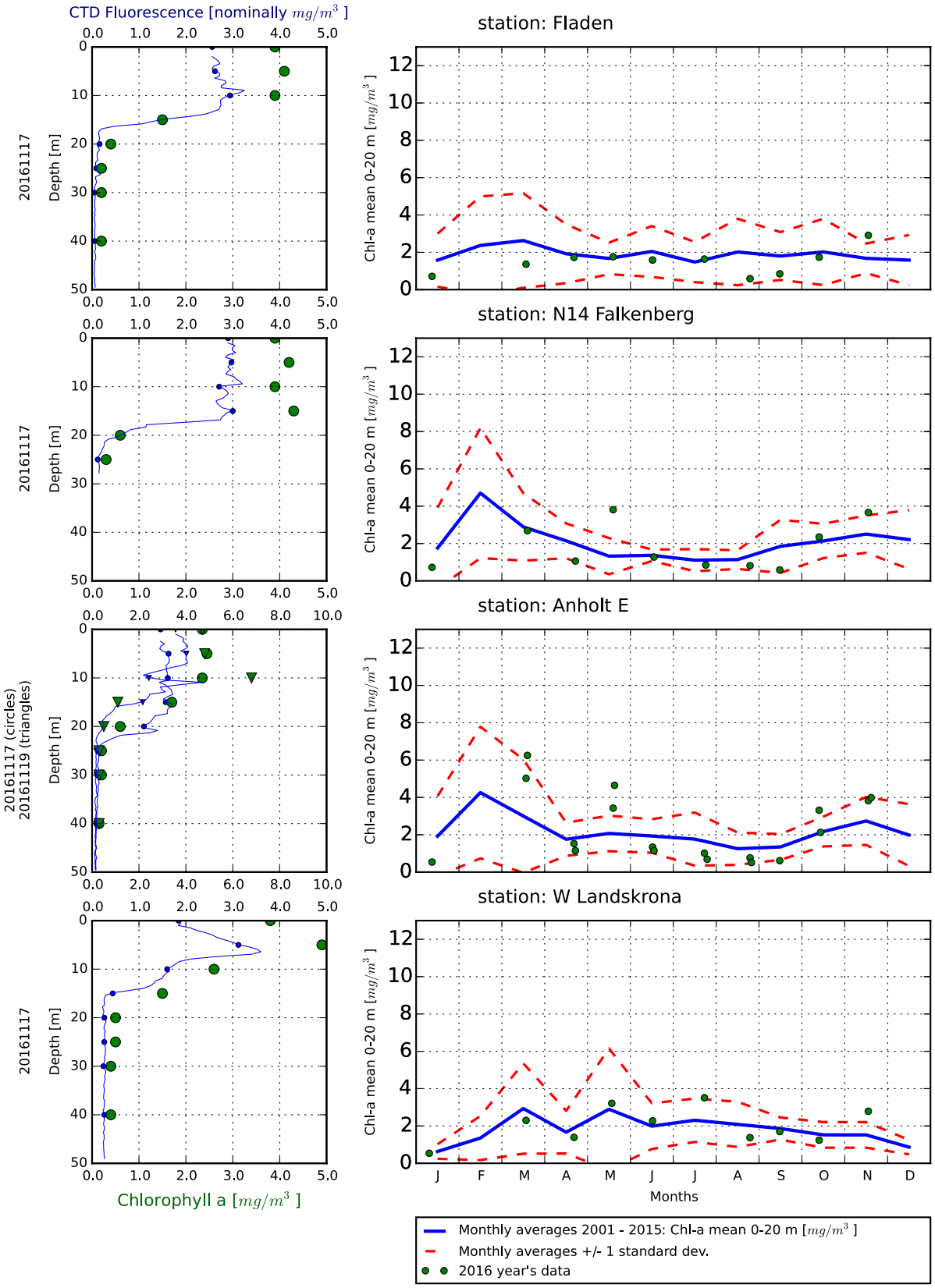
Selection of observed species	Å17	Släggö	N14	Anholt E	Anholt E
Red=potentially toxic or harmful species	18/11	18/11	17/11	17/11	19/11
Hose 0-10 m	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l
Cerataulina pelagica			present		present
Chaetoceros cf. convolutus			present	present	present
Chaetoceros danicus	present		present	common	common
Dactyliosolen fragilissimus	present				
Ditylum brightwellii	present		present		
Eucampia zodiacus		present		present	
Guinardia delicatula	present	present			
Guinardia flaccida				present	present
Guinardia striata	present				
Lauderia annulata	present	present	present		present
Leptocylindrus danicus	present	present	present		present
Nitzschia longissima		present	present	present	present
Proboscia alata	present	present	present		present
Proboscia indica	present				
Pseudo-nitzschia spp	very common	common	very common	very common	very common
Pseudosolenia calcar-avis	common	present	common	common	common
Rhizosolenia imbricata		present			
Rhizosolenia pungens	present		present	present	present
Rhizosolenia setigera	present		present	present	common
Skeletonema marinoi	present	present		present	present
Thalassionema nitzschioides	present	present			
Thalassiosira angulata	present		present		
Thalassiosira anguste-lineata		present			
Thalassiosira nordenskioeldii	present	present	present	present	
Thalassiosira rotula	present		present	present	
Akashiwo sanguinea		common	present	present	
Ceratium lineatum	present	present	present		present
Ceratium tripos		present	present		present
Dinophysis acuminata			present	present	
Gyrodinium flagellare	present		present		
Gyrodinium spirale			present		
Protoperidinium spp		present			
Protoperidinium pallidum	present		present	present	present
Protoperidinium pellucidum				present	
Cryptomonadales	common	present	common	common	common
Leucocryptos marina			present		
Dictyocha speculum	present	common	present	present	present
Naked Dictyocha		present			
Pseudochattonella spp	present	present	present	present	present
Heterosigma akashiwo		present			
Cf. Emiliania huxleyi	98380	67220	245365	410720	243585
Prymnesiales			present	present	
Ciliophora	present	common	common	common	common
Laboea strobila		present		present	present
Strombidium spp		present	present		

Selection of observed species	BY2	BY5	BY15	BCS III-10	BY38	REF M1-V1	BY31	BY29
Red=potentially toxic or harmful species	16/11	19/11	20/11	20/11	15/11	16/11	15/11	15/11
Hose 0-10 m	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l	presence or cells/l
Attheya septentrionalis			present					
Centrales	present	present	present	present		present		
Cerataulina pelagica	present							
Chaetoceros danicus		present	present			present	present	present
Chaetoceros impressus	present	present	present	present	present	present	present	
Chaetoceros throndsenii v. throndsenii		present						
Chaetoceros wighamii						present		
Dactyliosolen fragilissimus						present		
Skeletonema marinoi						common	present	
Ceratium tripos	present							
Dinophysis acuminata			present			present	present	
Gymnodiniales								present
Gymnodinium verruculosum	present	present						
Heterocapsa spp								present
Katodinium glaucum					present			
Peridiniales								present
Cryptomonadales	common	present	present	present	common	present	common	common
Dinobryon balticum					present			
Ebria tripartita					present	present	present	present
Eutreptiella spp	present							
Pterosperma spp			present					
Pyramimonas spp	present							
Planctonema lauterbornii		present	common	present		present	present	present
Monoraphidium spp							present	
Oocystis spp							present	
Aphanizomenon flos-aquae	present		present	present	present		present	common
Aphanocapsa spp					present			
Calliacantha longicaudata	present							
Lemmermanniella spp					present		present	present
Snowella spp								present
Ciliophora	present	common		present	present	present	present	common
Helicostomella subulata								present
Mesodinium rubrum	present	present		present		present	present	present
Strombidium spp	present	present						present

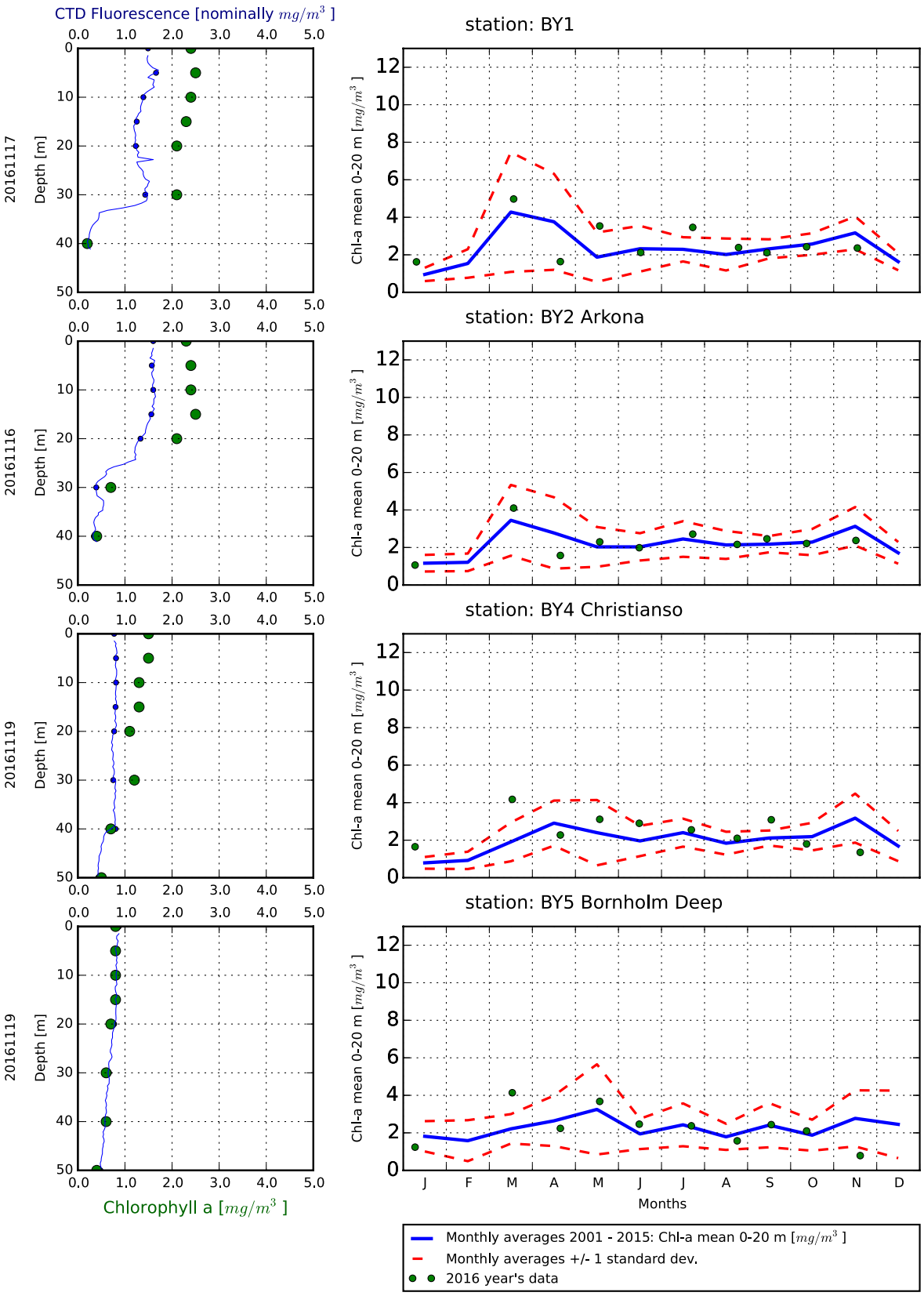
The Skagerrak



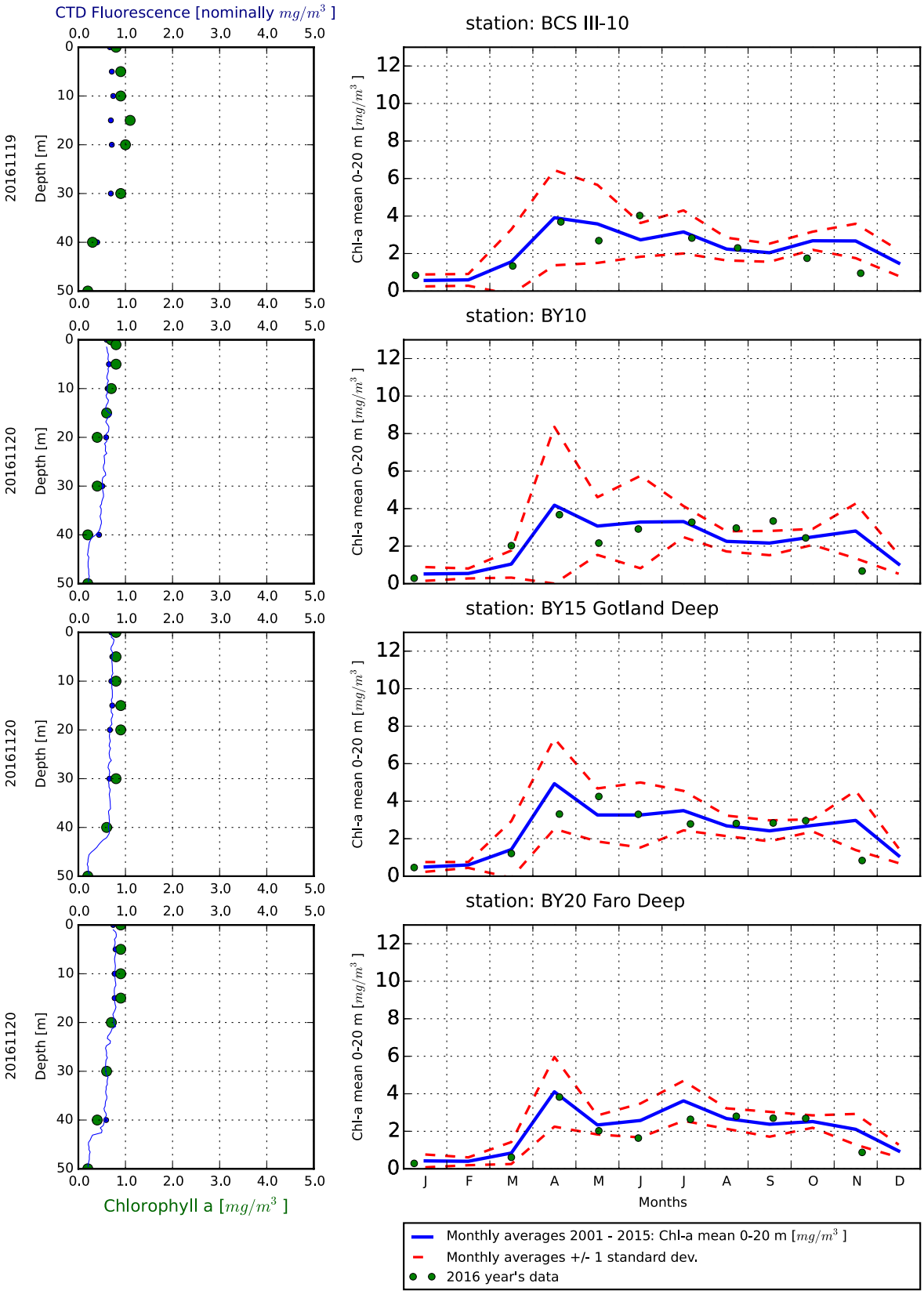
The Kattegat and The Sound



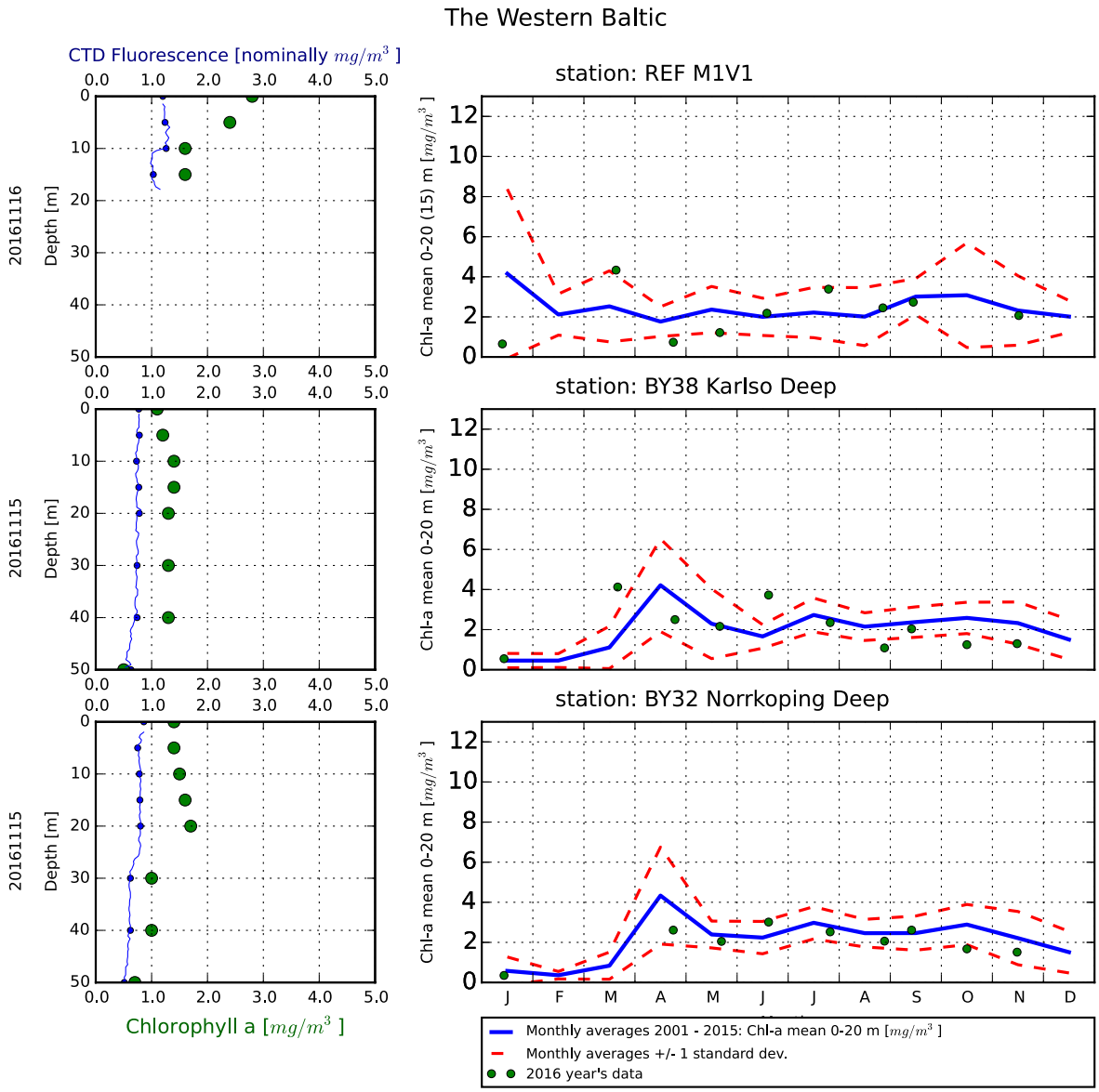
The Southern Baltic



The Eastern Baltic



*Note that BCS III-10 was not visited during the cruise.



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.