SMHI
Oceanographic Unit
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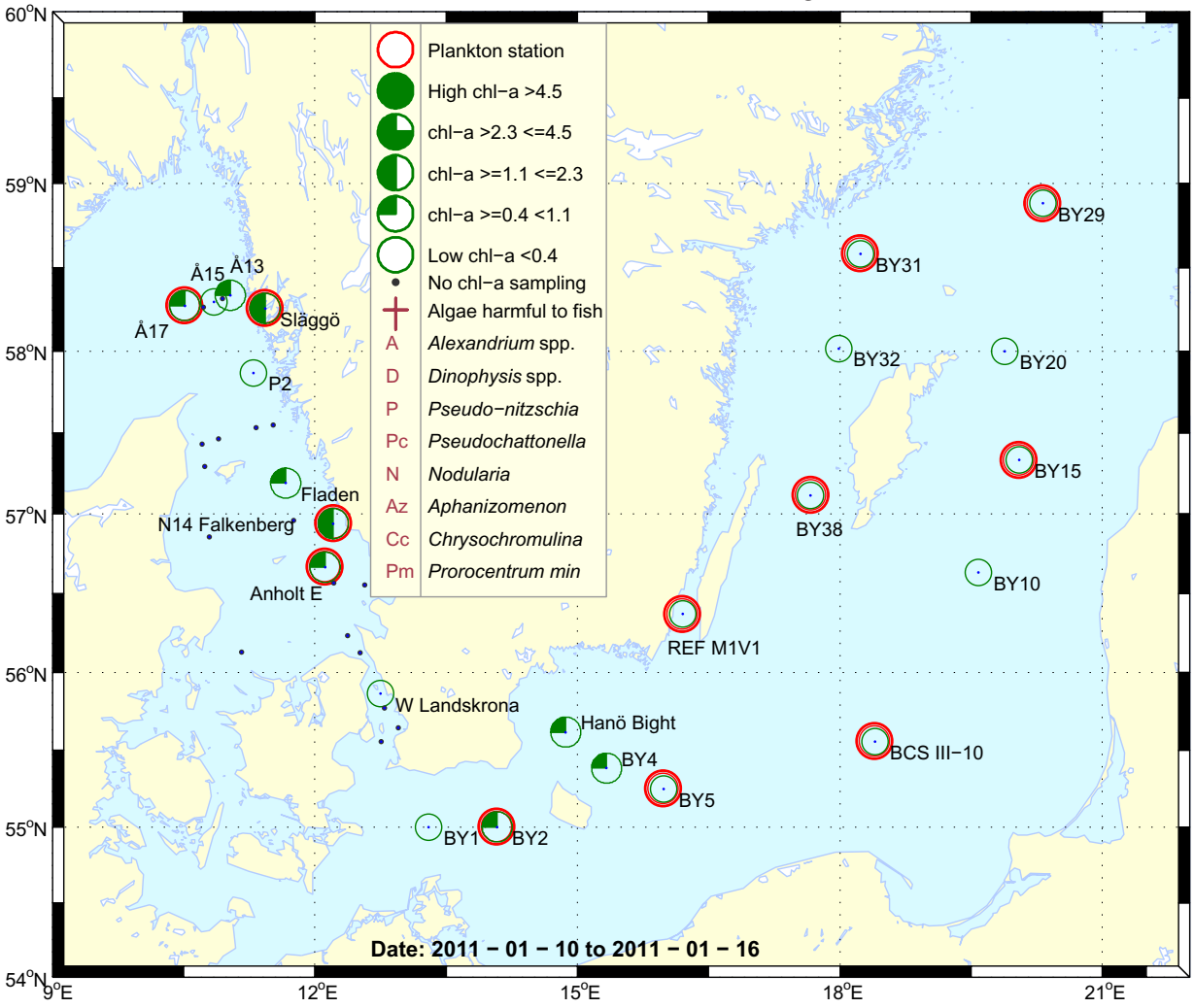
AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning

Planktonsamhället i västerhavet innehöll fram för allt kiselalger där *Skeletonema marinoi* dominerade klart vid samtliga planktonstationer i både Skagerrak och Kattegatt. Även olika cryptomonader som *Teleaulax* förekom i relativt höga tätheter över hela västerhavet. De uppmätta chl *a* värdena var låga och visade ingen tendens till någon begynnande vårblomning. Endast vid Släggö och Anholt E påvisades lite högra chl a värden men halterna låg fortfarande inom det normalt låga för årstiden.

I östersjön återfanns artfattiga samhällen vid de flesta stationer. Vanligast förekommande var små flagellater och fram för allt cryptomonader. Vid de sydvästra stationerna uppmättes chl *a* värden över 1 µm per liter men annars återfanns chl *a* värden i resterande delar under 1 vilket är normalt för säsongen.



Abstract

The plankton community was dominated by diatoms in both Skagerrak and Kattegat and *Skeletonema marinoi* dominated at all stations. Different cryptomonads such as *Teleaulax* were also common. The chl *a* measurements were overall low and no tendency of a forthcoming spring bloom could be seen. A bit higher chl *a* content was however recorded at Släggö and Anholt E but still within normally low for the season.

All stations in the Baltic Sea contained few species with only few cells of each species recorded. The chl *a* levels were mostly below 1 µg/l which is within normal for the season. Small flagellates and mostly cryptomonads dominated the scarce samples.

More detailed information on species composition and abundance

The Skagerrak

Å17 10th of January (open Skagerrak)
The algal community was quite scarce and was clearly dominated by the diatom *Skeletonema marinoi* which is a common species during the spring bloom.

Släggö 10th of January (Skagerrak coast)
A quite diverse community was found but only few cells of each species were present. *Skeletonema marinoi* dominated but small cryptomonads were also present in relatively high cell numbers.

The diatom *Porosira glacialis*

The Kattegat

N14 Falkenberg and Anholt E 11th of January
The phytoplankton situation was relatively the same at both stations with a quite diverse community. *Skeletonema marinoi* dominated but several cryptomonads such as the genus *Teleaulax* was also found in quite high amounts. Several cells of the potentially toxic Raphidophyceae *Heterosigma akashiwo* were also recorded at both stations.

The Baltic Sea

BY2 (Arkona Deep) amd BY5 (Bornholm Deep) 12th of January
Only few species was found in a scarce sample. Small flagellates dominated clearly and mostly cryptomonads such as *Teleaulax* was recorded. Chl *a* concentrations was low which is normal for the season.

BCSIII-10 (South East Baltic) 13th of January
A few diatom cells such as the genus *Actinocyclus* was recorded in a scarce sample otherwise dominated by the cryptomonad *Teleaulax*. Chl *a* was well below 1 µg/l.

BY15 (Gotland Deep) BY29 13th of January
A few cells of *Chaetoceros danicus* was recorded but cryptomonads such as the genus *Teleaulax* was mainly found. Chl *a* concentrations were well below 1 µg/l.

The ciliate *Mesodinium rubrum*

BY29 14th of January
The toxic dinoflagellate *Dinophysis norvegica* was recorded together with several cells of *Teleaulax* and the choanoflagellid genus *Calliacantha*. Chl *a* concentrations was well below 1 µg/l.

BY31 14th of January
A few cells of *Skeletonema marinoi* was recorded but cryptomonads such as the genus *Teleaulax* was otherwise mostly recorded. Chl *a* concentrations was well below 1 µg/l.

BY38 (Western Gotland Basin) 14th of January
Cryptomonads dominated again at this site with *Plagioselmis prolonga* as dominating species together with *Teleaulax*. A few cells of the diatom genus *Actinocyclus* were also recorded. Chl *a* concentrations was well below 1 µg/l.

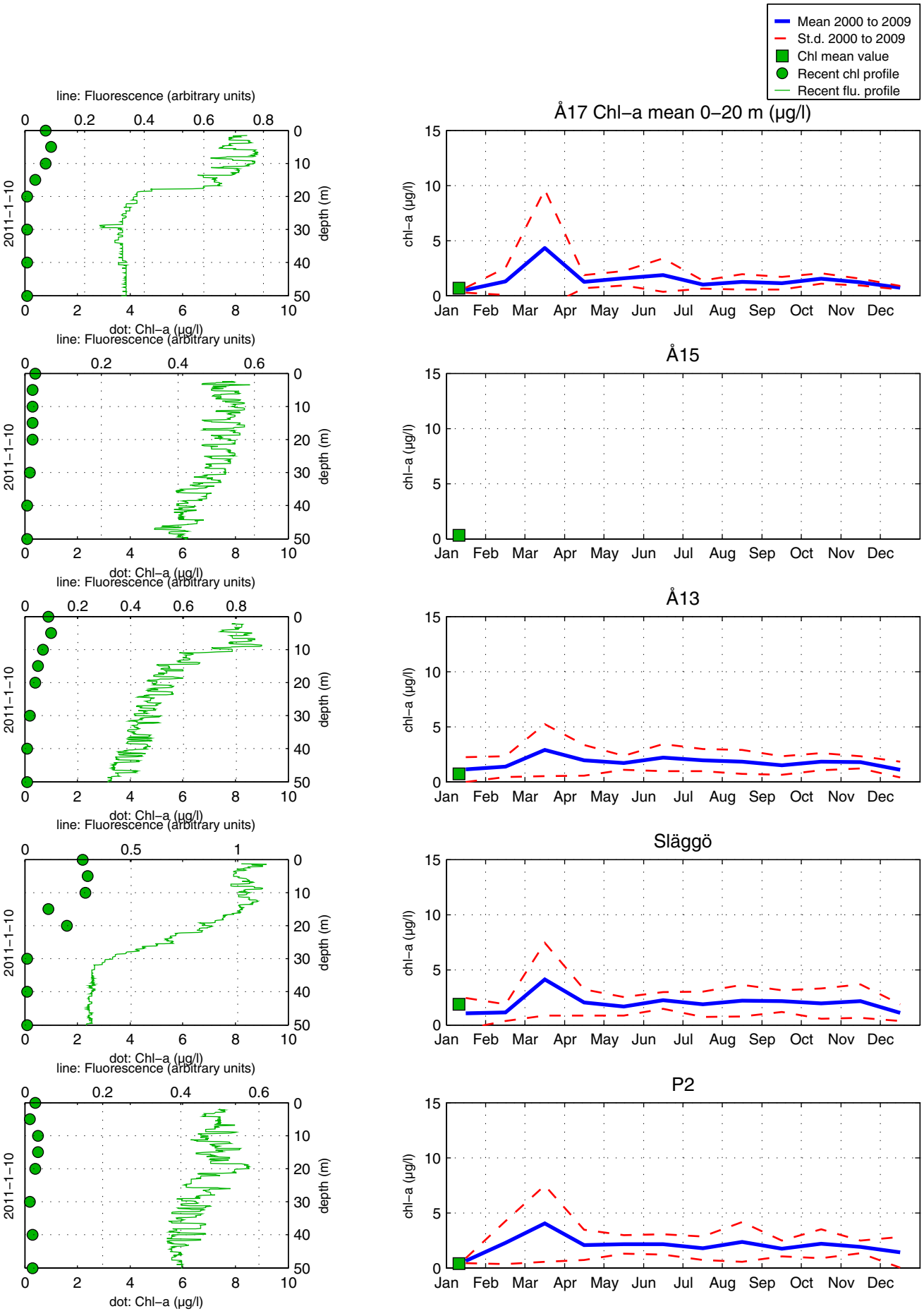
Ref M1V1 Kalmar Sound 15th of January
Some cells of different diatoms such as *Skeletonema marinoi* and *Chaetoceros similis* was noted. The cryptomonads was otherwise most common with for example *Plagioselmis prolonga* and the genus *Teleaulax*. Chl *a* concentrations was well below 1 µg/l.

Phytoplankton analysis and text by:
Marie Johansen

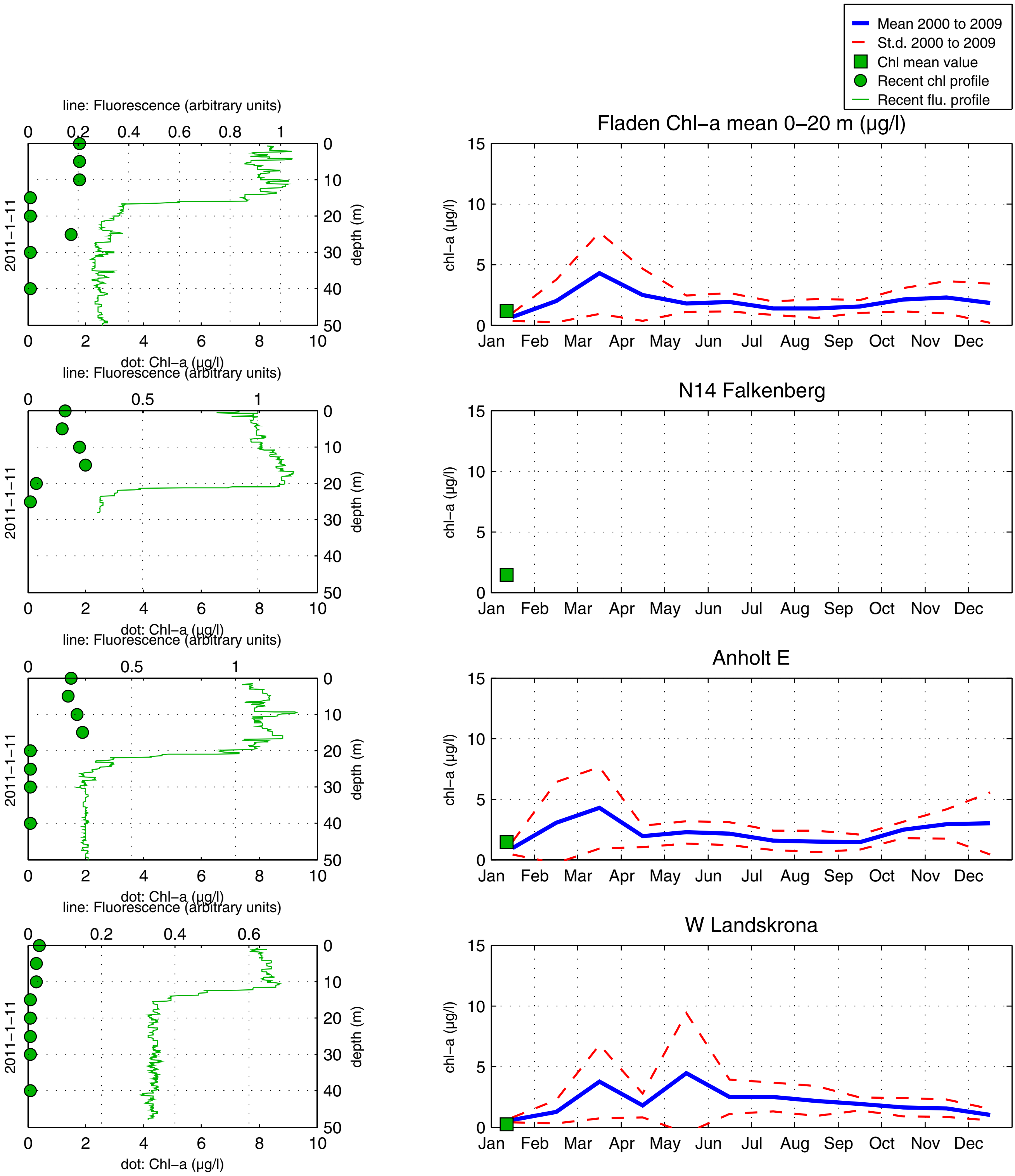
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	10/1	10/1	11/1	11/1
	cells/l	cells/l	cells/l	cells/l
Chaetoceros spp.			present	present
Guinardia delicatula		present	present	present
Guinardia flaccida	present	present	present	present
Leptocylindrus danicus	present	present		
Leptocylindrus minimus			present	
Navicula spp.		present	present	
Nitzschia longissima	present			
Porosira glacialis	present	present	present	present
Proboscia alata	present	present		
Pseudo-nitzschia spp.	present		present	
Pseudosolenia calcar-avis		present		
Rhizosolenia hebetata		present		
Rhizosolenia setigera		present	present	present
Skeletonema marinoi	very common	very common	very common	very common
Thalassiosira angulata		present		
Thalassiosria rotula		present		
Ceratium furca	present			
Ceratium longipes		present		
Ceratium tripos	present	present		
Dinophysis norvegica		present		present
Dinophysis rotundata		present		
Gyrodinium spirale		present		
Gymnodiniales spp.	common	present	common	common
Heterocapsa rotundata				present
Heterocapsa triquetra		present	present	
Katodinium glaucum	present	present		
Peridiniella danica	present	present		present
Protoperidinium bipes	present			
Protoperidinium brevipes			present	
Protoperidinium pallidum		present		present
Protoperidinium pellucidum		present		
Cyanobacteria filament spp.		present	present	present
Chrysochromulina spp.	present	present	present	present
Cryptomonadales spp.	present	common	common	common
Plagioselmis prolonga	present	present	common	present
Rhodomonas spp.			present	
Teleaulax acuta			present	
Teleaulax amphioxeia		present	present	present
Teleaulax spp.	present	present	common	common
Heterosigma akashiwo		present	common	common
Apedinella radians			present	present
Pseudopedinella spp.			present	
Dictyocha speculum	present	present	present	present
Pleurochrysis spp.			present	present
Calliacantha natans	present		present	present
Cryothecomonas scybalophora	present	present		present
Leucocryptos marina	present	present	present	present
Telonema subtile				
Eutreptiella braarudii		present	present	
Oltmannsiellopsis spp.				present
Pseudoscourfieldia marina			present	present
Pyramimonas spp.	present	present	present	present
Laboea strobila				present
Mesodinium rubrum			present	

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY29	BY31	BY38	Ref. M1-V1
Red=potentially toxic species	12/1	12/1	13/1	13/1	14/1	14/1	14/1	15/1
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
Actinocyclus octonarius			present		present		present	present
Attheya longicornis								present
Chaetoceros convolutus								
Chaetoceros danicus				present				
Chaetoceros similis								present
Chaetoceros spp.		present				present		
Skeletonema marinoi						present		present
Dinophysis norvegica					present			
Dinophysis rotundata								present
Gymnodiniales spp		present	present		present	present	present	
Heterocapsa rotundata	present	present					present	present
Heterocapsa triquetra						present		
Katodinium glaucum			present					
Scrippsiella spp.						present		
Chrysochromulina spp.	present	present	present	present	present	present	present	present
Cryptomonadales spp.	present	present	present	present	present	present	common	common
Hemiselmis virescens	present	present						
Plagioselmis prolonga	present	present	present	present	present	present	common	common
Pyramimonas spp.	present						present	present
Teleaulax amphioxeia		present			present	common	common	
Teleaulax spp.	present	common	common	common	common	common	common	common
Aphanizomenon flos-aqua	present					present	common	
Cyanobacteria spp_colony		present	present	present	present			
Calliacantha longicaudata		present	present					
Calliacantha natans					common	present	present	
Leucocryptos marina	present	present	present	present	present	present	present	
Telonema subtile			common		present		present	
Planctonema lauterbornii				present				
Mesodinium rubrum	present		present	present	present	present	present	present

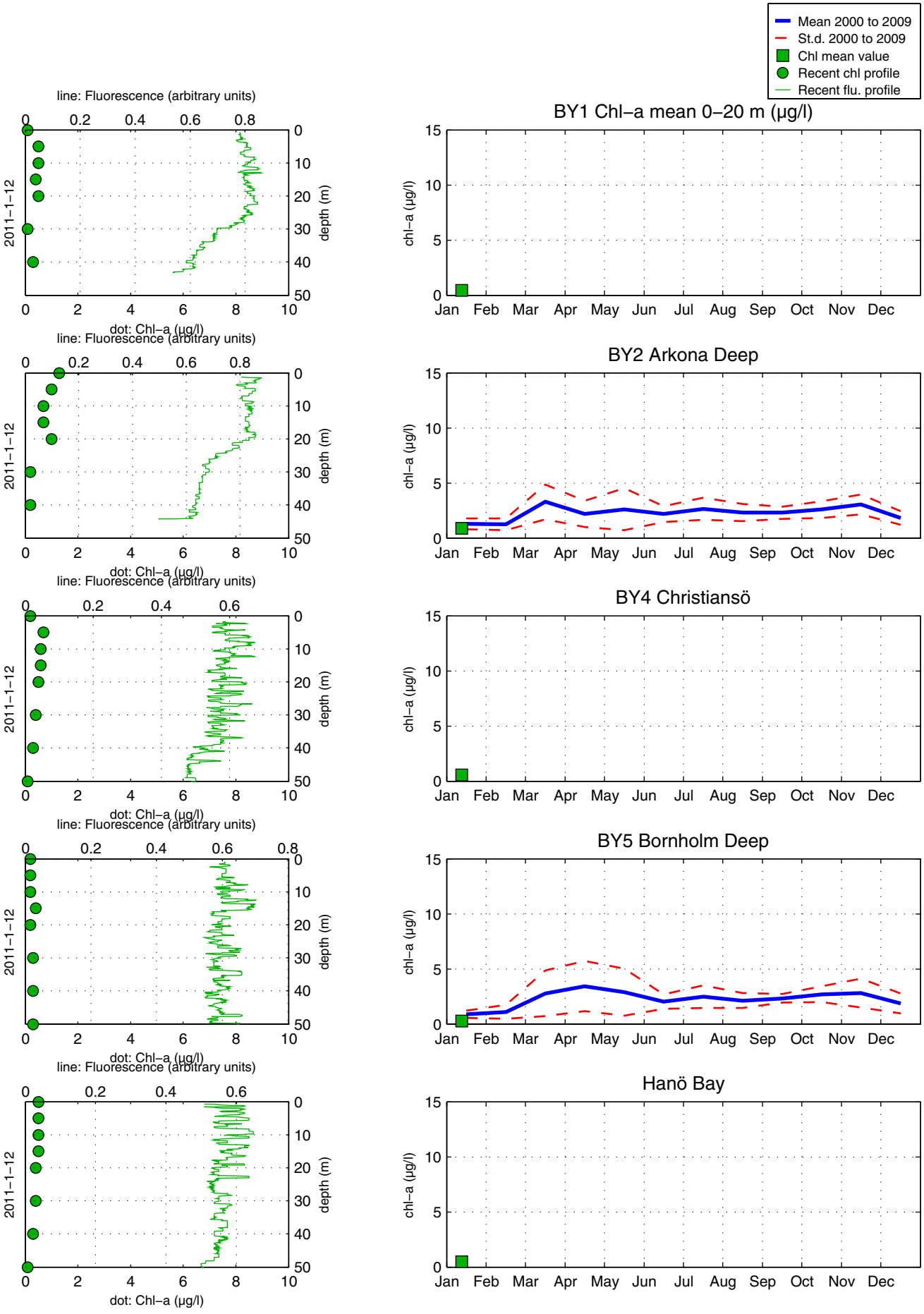
The Skagerrak



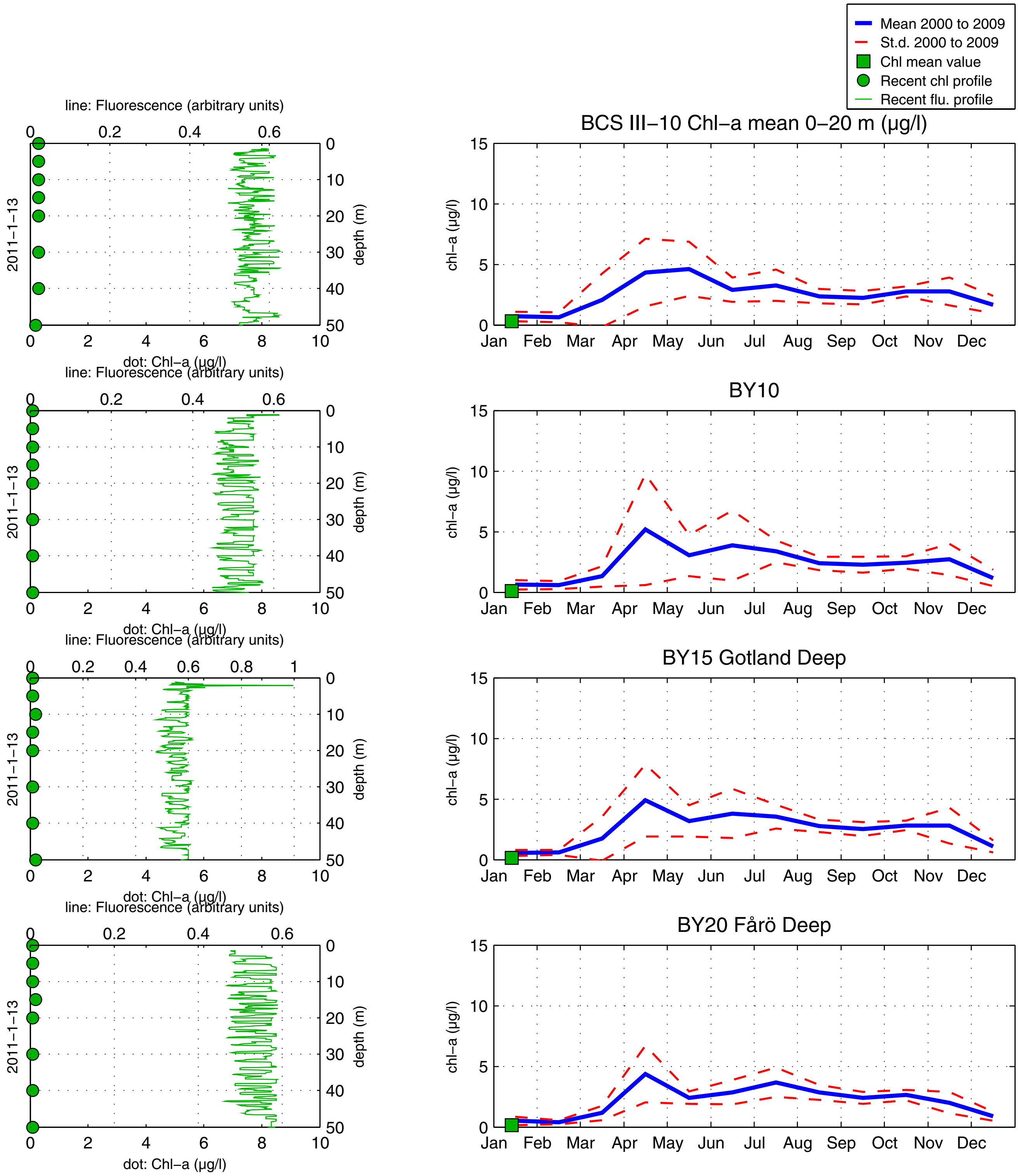
The Kattegat and the Sound

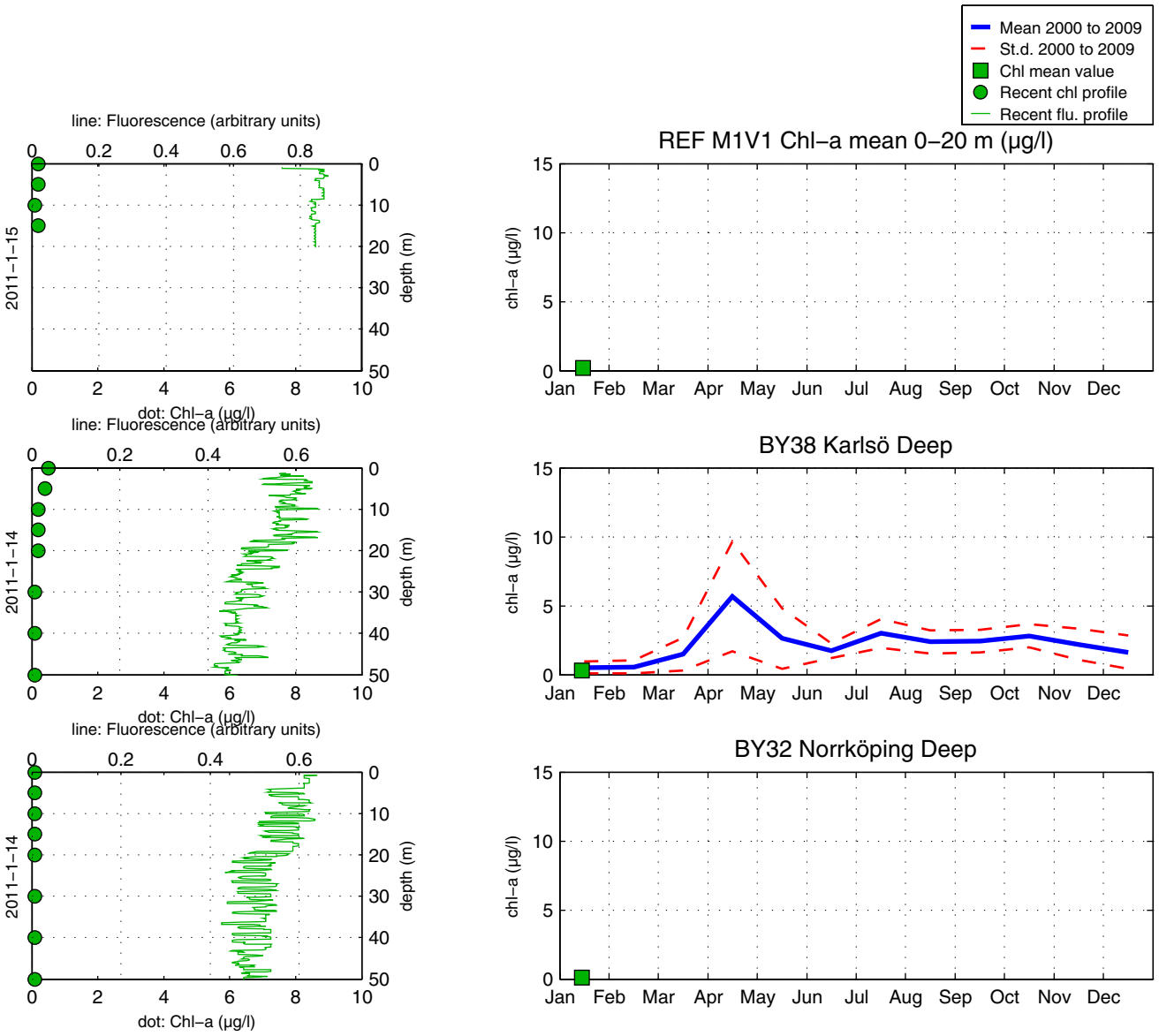


The Southern Baltic



The Eastern Baltic





Om klorofylldiagrammen

Klorofyll *a* är ett mått på mängden växtplankton. Prover tas från ett antal djup från U/F Argos. 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 from the R/V Argos. Data is 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 layes of phytoplankton occuring below the surface.

Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på semikvantitativ mikroskopanalys av planktonprover samt klorofyllmätningar presenteras kortfattat i denna rapport. Information från SMHI:s satellitövervakning av algblomningar finns på www.smhi.se.

About AlgAware

SMHI carries out monthly cruises with R/V Argos 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 SMHI:s satellite monitoring of algal blooms is found on www.smhi.se.

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, hallucinationationer, 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 (0-20 m) vid de olika stationerna. Förekomst av skadliga alger vid stationer där arter analyseras markeras med symbol. Då cirkeln är tom innebär detta att stationen inte provtagits.

The map on the front page shows weighted mean of chlorophyll *a*, µg/l (0-20 m) at sampling stations. Presence of harmful algae at stations where species analysis is performed is shown with a symbol An empty cirkel indicates that there has been no sampling at that station.