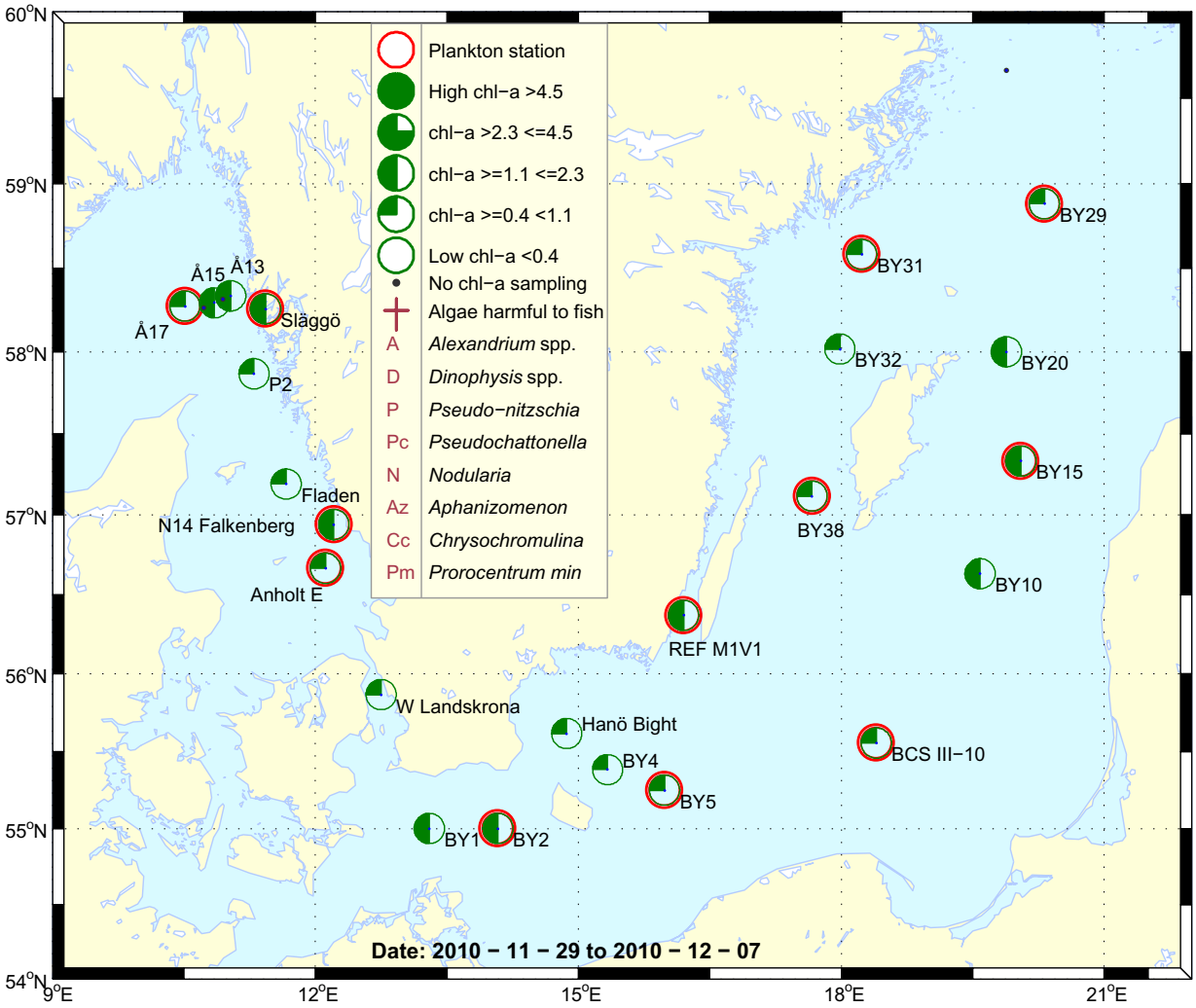
SMHI
Oceanographic Unit
No 13, 29 Nov – 7 Dec 2010

AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning

Generellt sätt återfanns få celler vid samtliga stationer vilket är normalt för säsongen. I Skagerrak återfanns trots allt relativt många arter men endast ett fåtal individer av varje sort. Kiselalgssläktet *Pseudo-nitzschia** återfanns i höga tätheter vid Skagerraks yttre station (Å17) samt vid båda stationerna i Kattegatt. Små flagellater och då fram för allt cryptomonader återfanns i relativt höga antal vid samtliga västkuststationer.

Även i Östersjön återfanns relativt få celler vid samtliga stationer. Framför allt återfanns även här små flagellater tillhörande klassen cryptomonadales . Vid Karlsödjupet (BY38) samt vid Borholmsdjupet (BY5) återfanns även ett antal individer av släktet *Chrysochromulina** (prymnesiophyceae).



Abstract

Relatively few cells were found at all stations which is normal for the season. A quite diverse community but with few cells of each species was however found in the Skagerrak area. The diatom genus *Pseudo-nitzschia** was found in high abundance at the outer station in Skagerrak (Å17) and at both Kattegat stations. Relatively high abundance of small flagellates above all cryptomonads were found at all stations along the west coast.

Only few cells were also recorded at all stations in the Baltic Sea. Small flagellates mainly belonging to the cryptomonads were also recorded. Several individuals of the genus *Chrysochromulina** (prymnesiophyceae) were observed at the Western Gotland Basin (BY38) and at the Bornholm deep (BY5).

More detailed information on species composition and abundance

The Skagerrak

Å17 7th of December (open Skagerrak)
The algal community was dominated by small flagellates and the diatom genus *Pseudo-nitzschia** when looking at cellnumbers. Especially *Plagioselmis prolonga* (cryptomonad) was abundant among the flagellates.

Släggö 7th of December (Skagerrak coast)
Small flagellates, especially cryptomonads, dominated at this site and *Plagioselmis prolonga* and the genus *Teleaulax* were found in high cellnumbers.

The chain forming diatom *Pseudo-nitzschia** (left) and cryptomonads were common in the Skagerrak and Kattegat areas.

The Kattegat

N14 Falkenberg and Anholt E 7th of December
The diatom genus *Pseudo-nitzschia** dominated clearly but small flagellates were also quite abundant and both the genus *Teleaulax* and *Plagioselmis prolonga* occurred in relatively high cell numbers.

The Baltic Sea

BY2 (Arkona Deep) 6th of December
Small flagellates especially cryptomonads such as *Plagioselmis prolonga* and the genus *Teleaulax* dominated at this station. Only few cells of other phytoplankton were found.

BY5 (Bornholm Deep) 6th of December
Small flagellates such as *Plagioselmis prolonga* and the genus *Teleaulax* dominated together with the flagellate genus *Chrysochromulina**. at this station. A couple of cells of *Chrysochromulina polylepis** were also found. Quite high abundance of the heterotrofic choanoflagellate *Calliacantha natans* was also found.

BCSIII-10 (South East Baltic) 5th of December
Only few cells were found. Colony forming cyanobacteria were most abundant together with different species of the genus *Teleaulax*. A couple of cells of the genus *Chrysochromulina** were recorded.

The cryptomonad *Plagioselmis prolonga*

BY15 (Gotland Deep) 4th of December
The flagellate genus *Chrysochromulina** dominated together with the genus *Teleaulax*.

BY31 30th of November
The flagellate *Plagioselmis prolonga* and the flagellate genus *Teleaulax* dominated.

BY38 (Western Gotland Basin) 29th of November
The filamentous cyanobacteria *Aphanizomenon flos-aqua* dominated together with the genus *Teleaulax*. The heterotroph *Calliacantha natans* was also found in high numbers.

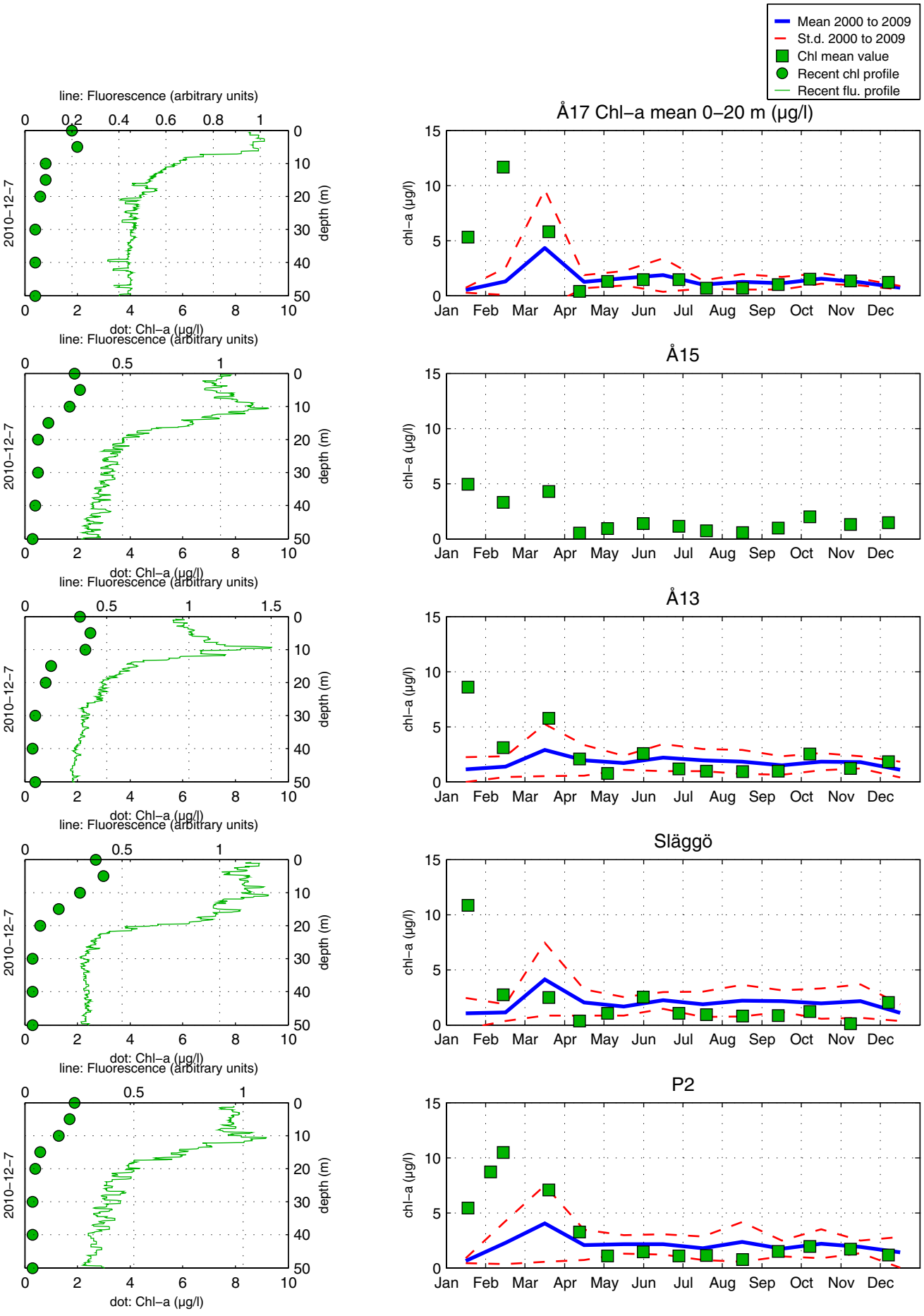
Ref M1V1 Kalmar Sound 29th of November
The flagellate genus *Teleaulax* and *Plagioselmis prolonga* dominated.

Phytoplankton analysis and text by:
Marie Johansen

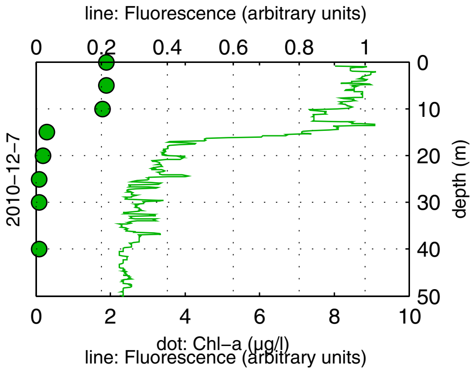
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	7/12	7/12	7/12	7/12
	cells/l	cells/l	cells/l	cells/l
Cerataulina pelagica		present		
Chaetoceros tenuissimus	present	present		present
Chaetoceros spp.			present	present
Dactyliosolen fragilissimus		present		
Guinardia delicatula	present	present		
Guinardia flaccida	present	present	present	present
Leptocylindrus danicus		present		
Pseudo-nitzschia spp.	common	present	dominating	common
Pseudosolenia calcar-avis	present	present	present	present
Rhizosolenia hebetata f. semispina	present			
Rhizosolenia setigera	present	present	present	present
Skeletonema marinoi	present	present	present	present
Thalassionema nitzschioides	present			
Thalassiosira angulata	present		present	present
Thalassiosria rotula	present	present	present	present
Thalassiosria spp.			present	present
Akashiwo sanguinea	present	present		
Ceratium furca	present			
Ceratium fusus	present			present
Ceratium lineatum	present	present		present
Ceratium longipes		present		present
Ceratium tripos	present	present	present	present
Dinophysis norvegica		present	present	
Dinophysis acuta	present			
Dinophysis rotundata		present		present
Gyrodinium spirale	present	present		
Katodinium glaucum	present	present		
Protoperidinium spp.	present	present		present
Scripsiella complex spp.	present		present	
Apedinella radians		present		present
Pseudopedinella spp.		present		
Dinobryon faculiferum				present
Pleurochrysis spp.	present	present		present
Chrysochromulina spp.	present	present		present
Pyramimonas spp.			present	present
Cryptomonadales spp.	present	present	present	common
Plagioselmis prolonga	common	common	common	common
Teleaulax acuta	present			present
Teleaulax amphioxeia	present	present	present	present
Teleaulax spp	present	common	commom	common
Dictyocha speculum	present	present		present
Pseudochattonella farcimen			present	
Cyanobacteria spp-filament		present		present
Calliacantha longicaudata	present		present	
Calliacantha natans	present		present	
Leucocryptos marina	present		present	present

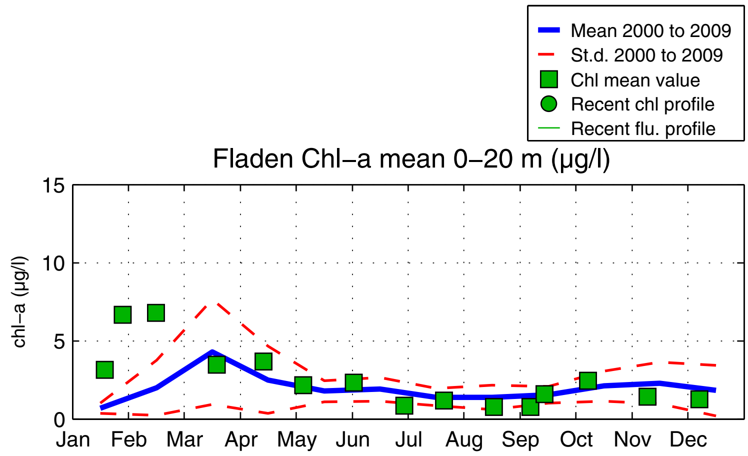
Selection of observed species	BY2	BY5	BCS III-10	BY15	BY31	BY38	Ref. M1-V1
Red=potentially toxic species	6/12	6/12	5/12	4/12	30/11	29/11	29/11
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
Actinocyclus octonarius				present	present		
Chaetoceros danicus	present			present			
Coscinodiscus spp.		present		present	present		
Navicula spp.							present
Skeletonema marinoi							present
Thalassiosira spp.	present		present	present	present		present
Dinophysis acuminata						present	present
Dinophysis norvegica		present	present		present	present	
Dinophysis rotundata		present					
Heterocapsa rotrundata							present
Pseudopedinella spp.					present		
Chrysochromulina polylepis		present	present			present	
Chrysochromulina spp.	present	present	present	present		present	present
Cymbomonas spp.					present		
Oocystis solitaria cf				present			
Planctonema lauterbornii	present						
Cryptomonadales spp.	common	present	present	present	present	present	present
Plagioselmis prolonga	common	common	present	present	common	present	common
Telonmema spp.				present	present		
Teleaulax amphioxeia					present		present
Teleaulax spp	common	common	present	common	common	common	
Pyramimonas spp.	present				present	present	present
Eutreptiella spp.	present		present		present	present	
Cyanobacteria spp. *colony*			present	present		present	
Cyanobacteria spp. filament		present					
Aphanizomenon spp.	present	present				common	
Nodularia spumigena		present				present	
Calliacantha longicaudata					present		present
Calliacantha natans	present	present		present	present	present	present
Katablepharis remigera					present	present	
Leucocryptos marina	present				present		present
Mesodinium rubrum	present	present	present	present	present	present	present
Ebria tripartita		present	present	present	present	present	present

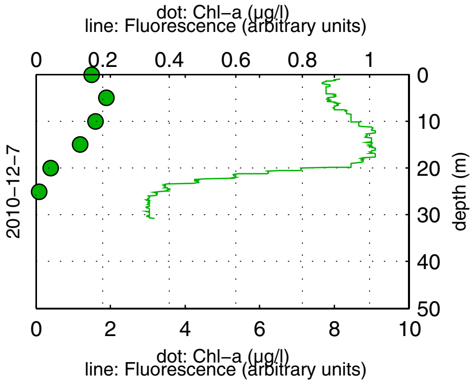
The Skagerrak

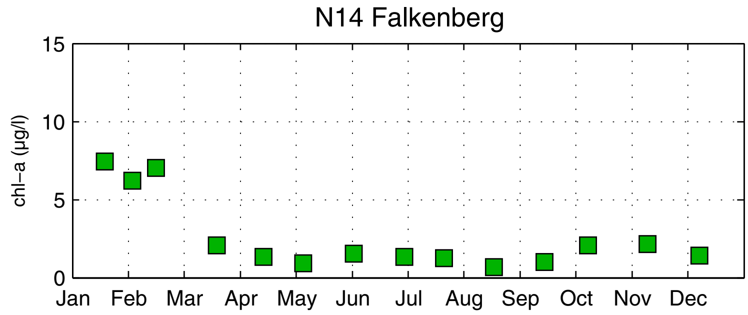


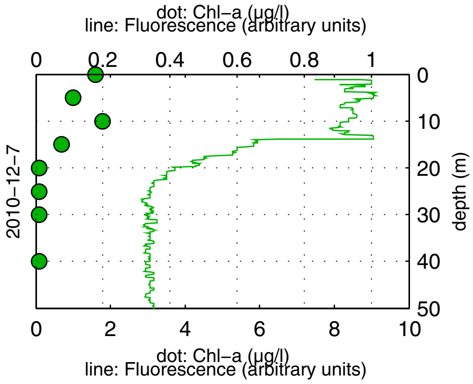
The Kattegat and the Sound

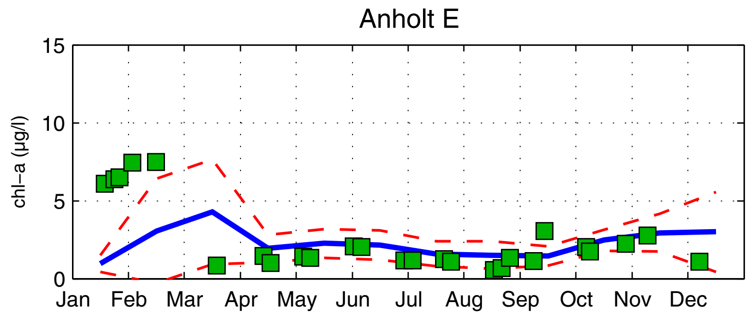


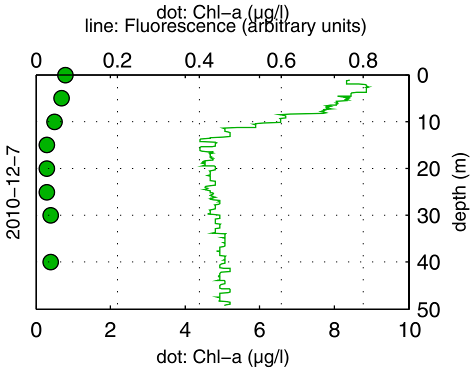


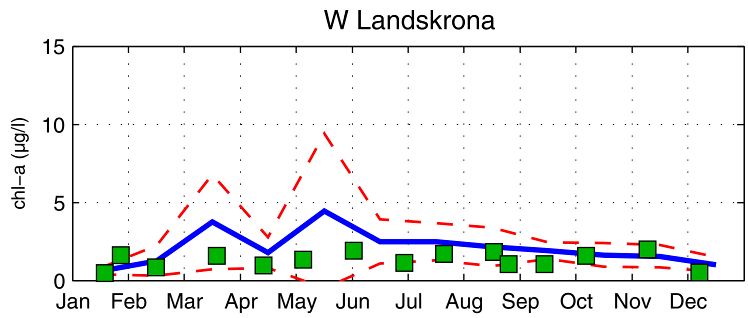




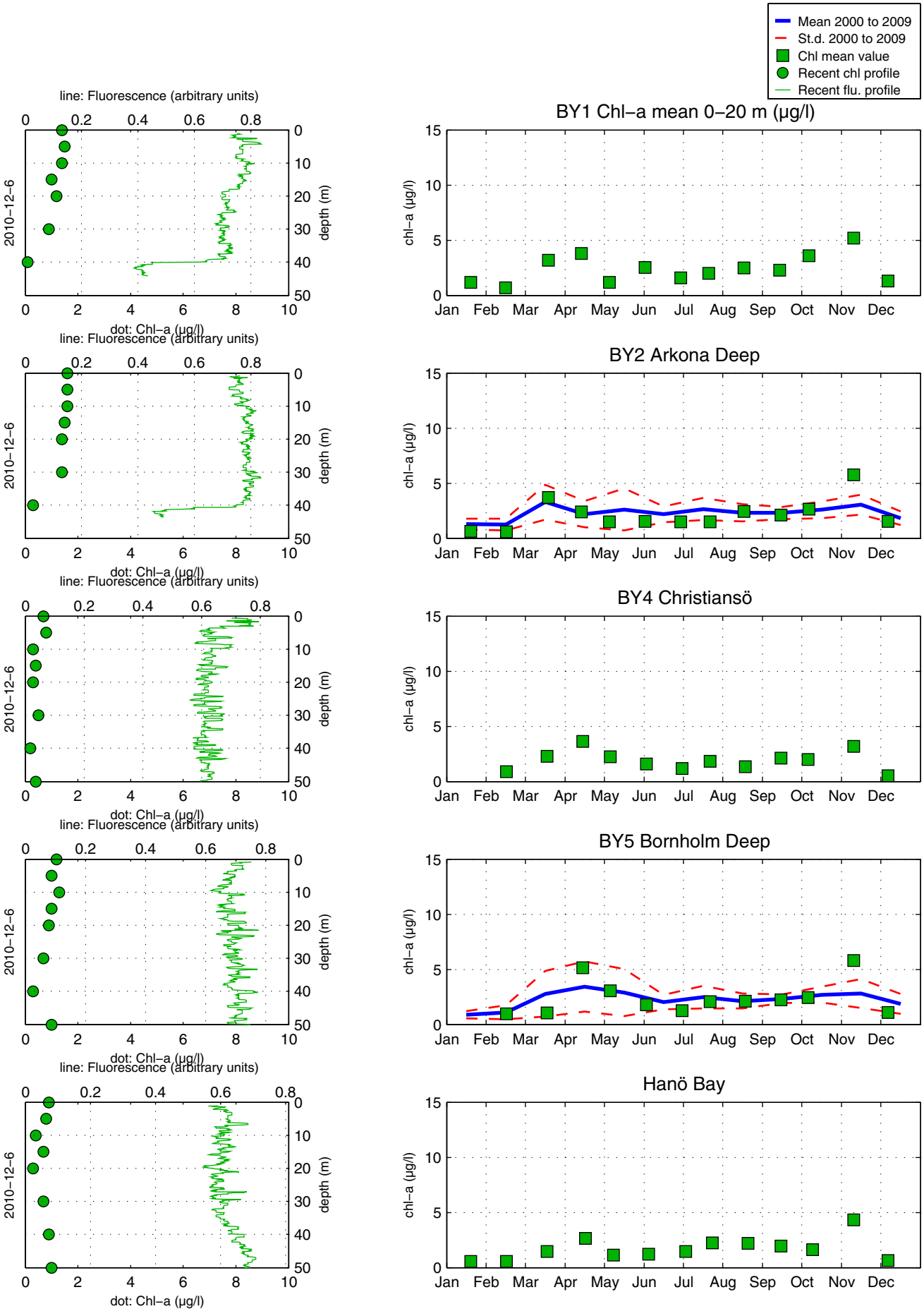




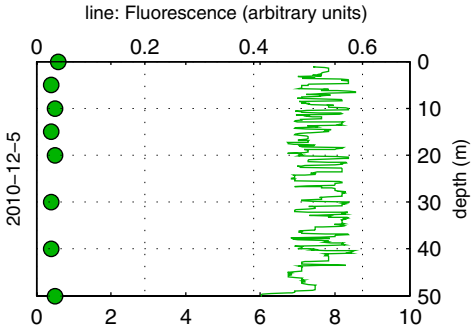


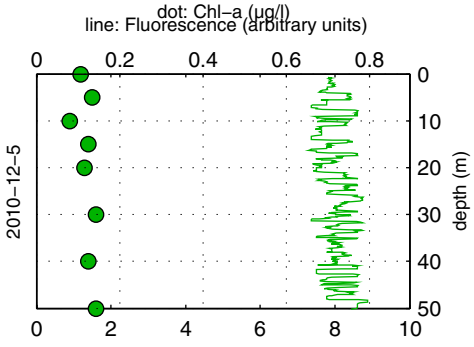


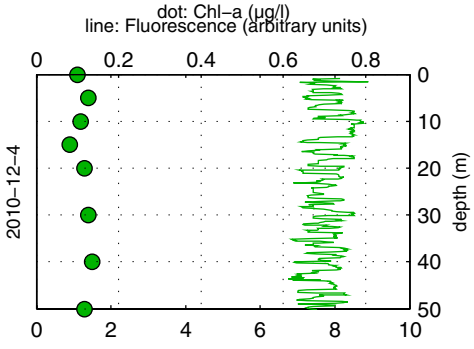
The Southern Baltic

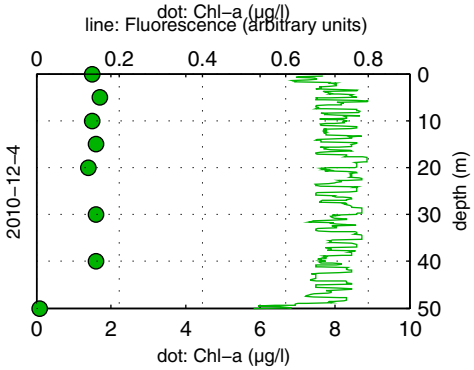


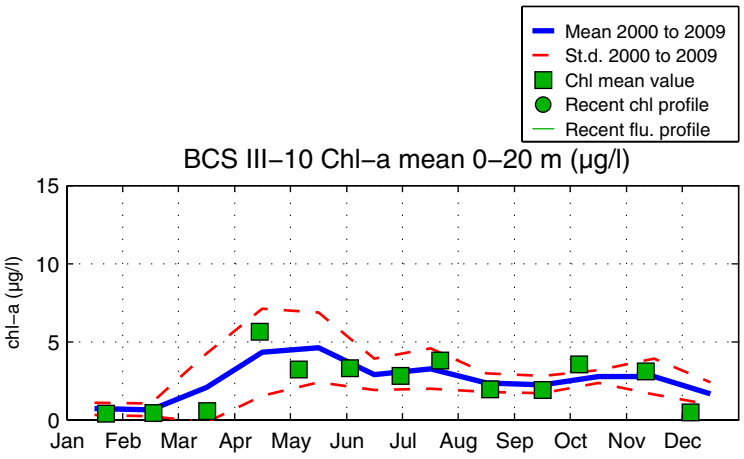
The Eastern Baltic

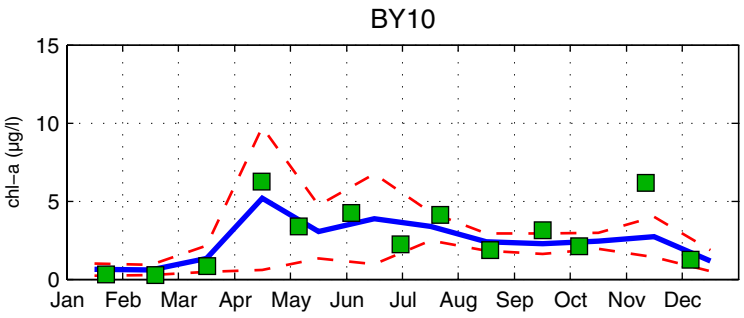


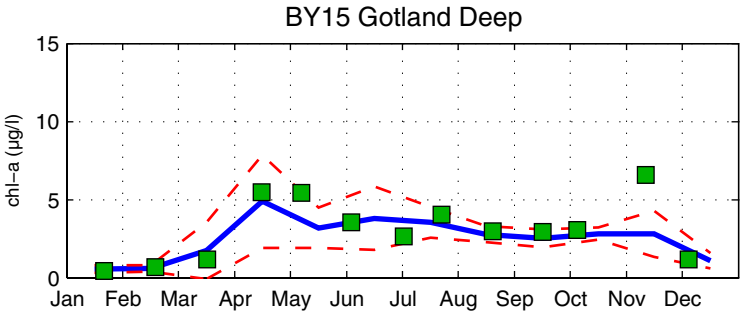


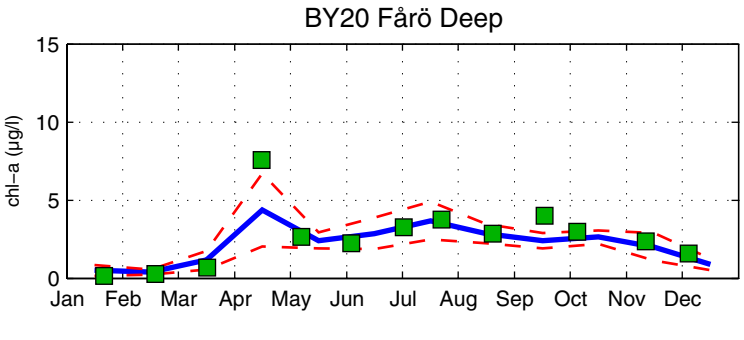




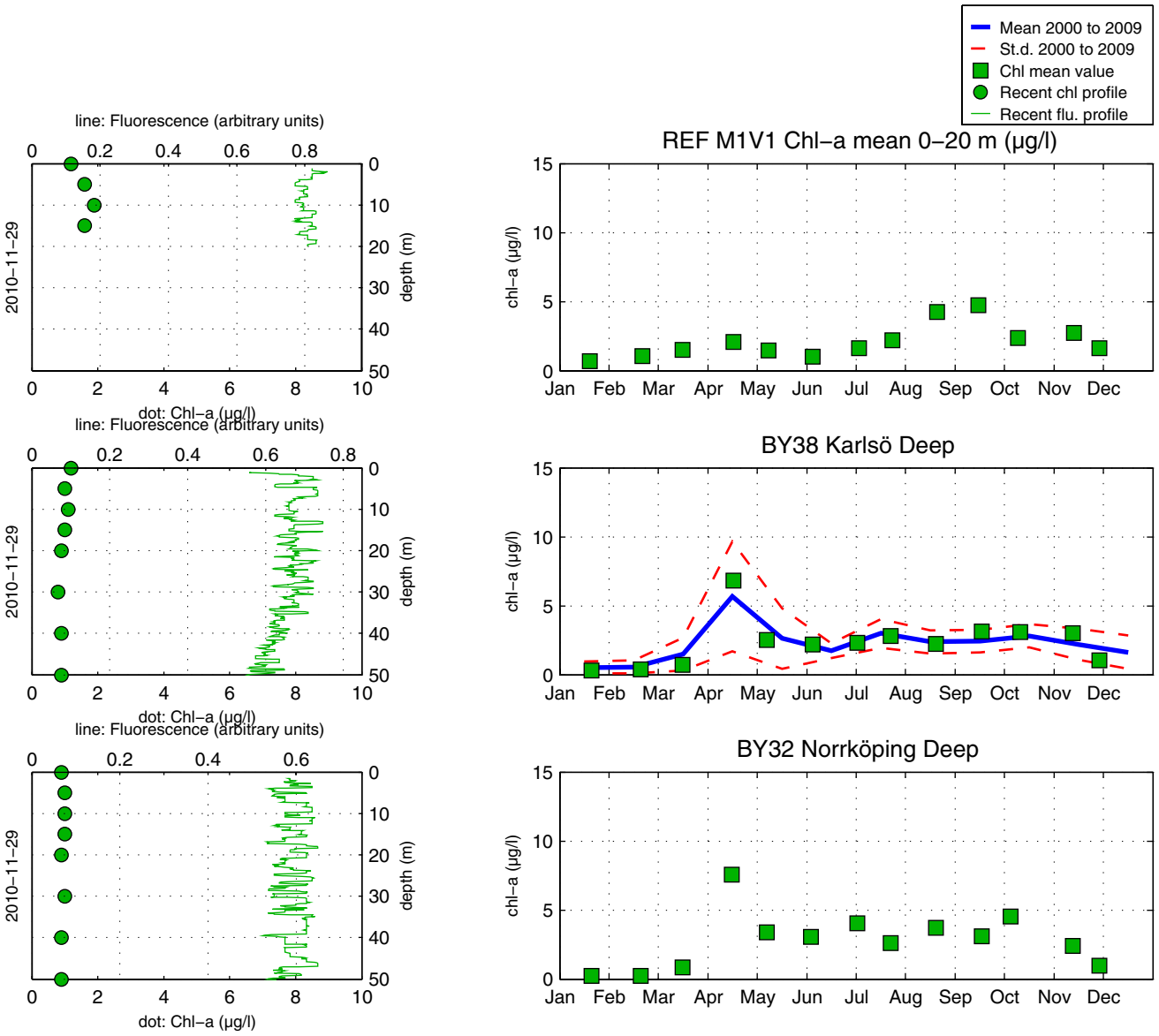








The Western Baltic



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.