SMHI
Oceanographic Services
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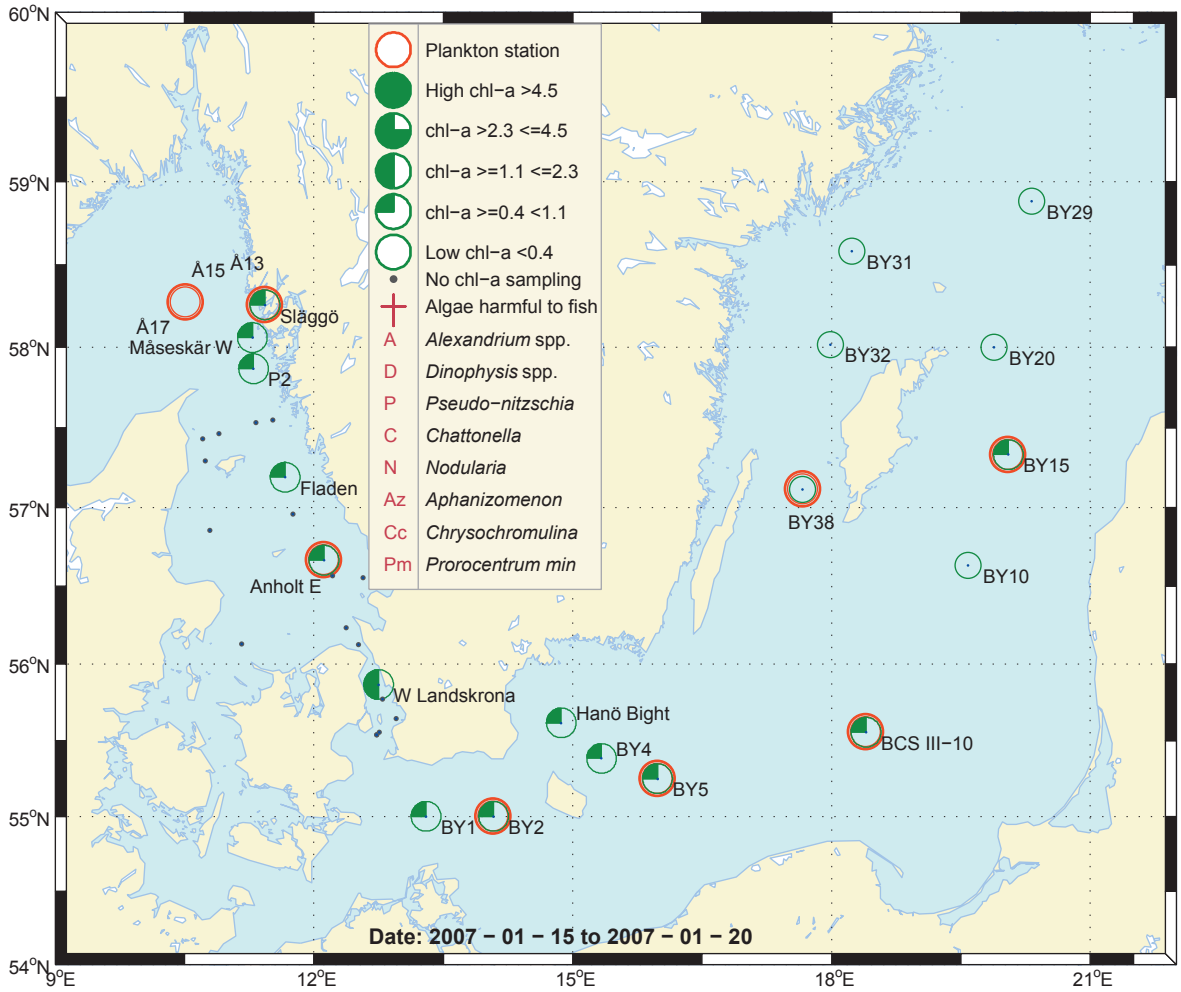
AlgAware
ALGAL SITUATION IN MARINE WATERS SURROUNDING SWEDEN

Sammanfattning
Provtagning vid några stationer i Skagerrak omöjliggjordes på grund av storm. Skagerraks växtplanktonbiomassa mätt som klorofyll *a* var mycket låg vid alla stationer vilket är normalt för årstiden. Antalet växtplankton i proverna från Skagerrak och Kattegatt var mycket lågt vilket också är normalt för årstiden. Högst antal observerades vid Anholt E i Kattegat där 14 kiselagsarter och fyra dinoflagellatarter observerades. det totala cellantalet var där ca 82 000 celler per liter. Även i Östersjön var mängden klorofyll låg cellantalen låga, station BY2 hade 53 500 celler per liter. Även om antalen var något högre än i december så tycks vi få vänta på vårblomningen.



Abstract
Sampling at some stations in the Skagerrak was not performed due to a storm. Phytoplankton biomass measured as chlorophyll *a* was very low at all stations which is normal for the season. The remarkable feature in all stations sampled during January, both of the Skagerrak-Kateggat and the Baltic Sea is the low phytoplankton representation. The overall number of species was rather low. It was only in Anholt E station that diatoms were represented by 14 species and Dinoflagellates by four species. These numbers were greatly reduced in all of the other localities. Anholt E also exhibited the highest cell densities where phytoplankton reached 82 000 cells/l, followed by BY2 in the Baltic Sea with 53 500 cell/l. Although these numbers might seem larger than those recorded in December, yet it can not indicate a remarkable shift in phytoplankton distribution. In general, the phytoplankton species composition did not show any change, and winter bloom does not seem to have started yet.

Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på 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 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 ro 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.
Chattonella 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.
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.

Översikt av potentiellt skadliga alger och det aktuella giftets effekt. Overview of potentially harmful algae and effects of toxins. Manual on harmful marine microalgae (2003 - UNESCO Publsihing.

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.

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

More detailed information on species composition and abundance

The Skagerrak

Måseskär W 20th of January

Although the sample was collected from three different depths (0, 5 and 10m), yet the phytoplankton was very poorly represented. Eleven species were only observed, non of which appeared in considerable numbers. The total cell density reached 44 672 cell/l, more than 60% of which were very small unidentified flagellates (2-3 um cell size).

Släggö 20th of January

This station was the most phytoplankton rich locality among all other stations in the Skagerrak-Kattegat region. This feature does not seem to hold in January. In this month, however, phytoplankton appeared remarkably rare with no dominance of any species. Diatoms were only represented by four species, non of which exceeded 500 cell/l. Dinoflagellates showed no exception, with only six species encountered. In comparison to December where diatoms and dinoflagellates were represented by 18 and 20 species respectively, this month shows a sharp depletion in both species numbers and cell density (44610 cell/l). The small unidentified flagellates constituted 80% of the whole cell production.

The Kattegat

Anholt E 20th of January

Among all other stations, both of Skagerrak-Kattegat and Baltic Sea, Anholt E was relatively the richest in phytoplankton species numbers and cell density. Diatoms were represented by by 14 species, non of which appeared in large numbers. Dinoflagellates were very scarce with only 4 species occurred in very small cell densities. Total cell counts reached 82 586 cell/l, the bulk of which is due to the very small unidentified unicells that counted for 70% of the total. The species that might be referred to as more frequent were *Leptocylindrus minimus*, *Skeletonema costatum* and *Pseudo-nitzschia delicatissima* group.

Selection of observed species Red=potentially toxic species	**Måseskär 2007-01-20 cells/L**	**Släggö 2007-01-20 cells/L**	**Anholt E 2007-01-20 cells/L**
Chaetoceros danicus	present		present
Chaetoceros similis			present
Cylindrotheca closterium		present	present
Ditylium brightwellii	present		
Guinardia flaccida	present		
Leptocylindrus danicus	present		present
Leptocylindrus minimus			present
Proboscia alata	present		present
Pseudo-nitzschia delicatissima-group	present	present	present
Pseudo-nitzschia seriata-group			present
Rhizosolenia setigera			present
Skeletonema costatum			present
Thalassiosira anguste-lineata			present
Ceratium lineatum			present
Ceratium tripos		present	present
Dinophysis acuta		present	
Gyrodinium spirale		present	
Oxytoxum gracile	present		
Peridiniella danica		present	present
Dictyocha speculum			present
Teleaulax amphioxus	present	present	present
Chrysochromulina sp.			
Cryptomonadales spp.			7076
Pyramimonas sp.		present	
Flagellates_spp	25018	33782	
Unicell_spp			56608

The Baltic Sea

Arkona Basin BY2 16th of January

Phytoplankton did not show noticeable change from the previous expeditions whether in occurrence or cell densities. Diatoms and dinoflagellates were very poorly represented. As with other stations, small flagellates and unicells constituted the major contributors to cell densities which reached 53 500 cell/l. *Teleaulax amphioxeia* (Cryptomonad) was the only taxon that occurred in relatively large numbers, being 10668 cell/l.

Bornholm Basin BY5 17th of January

Phytoplankters were very rare in this station. Diatoms were represented by two species, namely *Rhizosolenia pungens* and *Coscinodiscus* sp., both in very small numbers. Dinoflagellates were only represented by few small Gymniodiniales. The whole phytoplankton cell density was low, being 15 478 cell/l.

The South East Baltic BCS III-10 17th of January

As with the previous expedition, both species number and cell density were low. Two species of diatoms were encountered; *Coscinodiscus asteromphalus* and *Chaetoceros danicus*. Dinoflagellates were also scarce producing only 5676 cell/l. Total cell count reached 34056 cell/l.

Eastern Gotland Basin BY15 10th of October

Perhaps the only exception of this station in contrast to others in the Baltic Sea is the occurrence of *Dinophysis acuminata* which was absent from all other localities. Both diatoms and dinoflagellates were very poorly represented, they constituted less than 10% of the total cell densities. Many cyanobacterial filaments of unidentified species were seen in small numbers.

BY29 19th of January

Both *Teleaulax amphioxeia* and the small flagellates were the major contributors to the phytoplankton cell densities which were rather low (22864 cell/l). Other phytoplankton species were remarkably rare.

Western Gotland Basin B38 19th of January

Only two diatom species were recorded in very small numbers. The same can also be said on Dinoflagellates. Other microalgal groups such as Cryptophytes and Prymnesiophytes were rather common particularly *Teleaulax amphioxeia*. In general the total cell density seemed similar to that of the other Baltic Sea stations where cells did not exceed 26602 per litre.

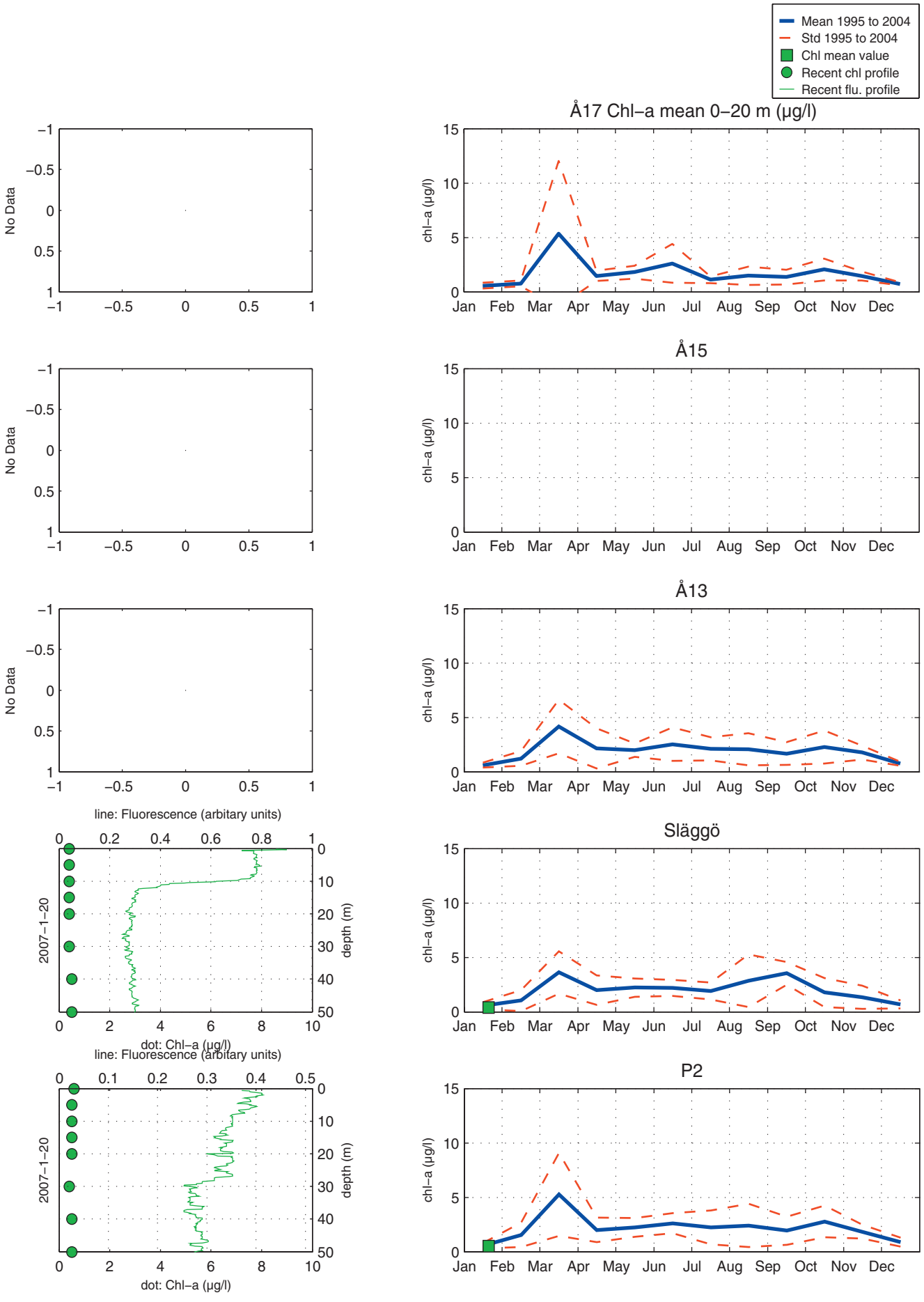
Phytoplankton analysis and text by:

Adil Yousif

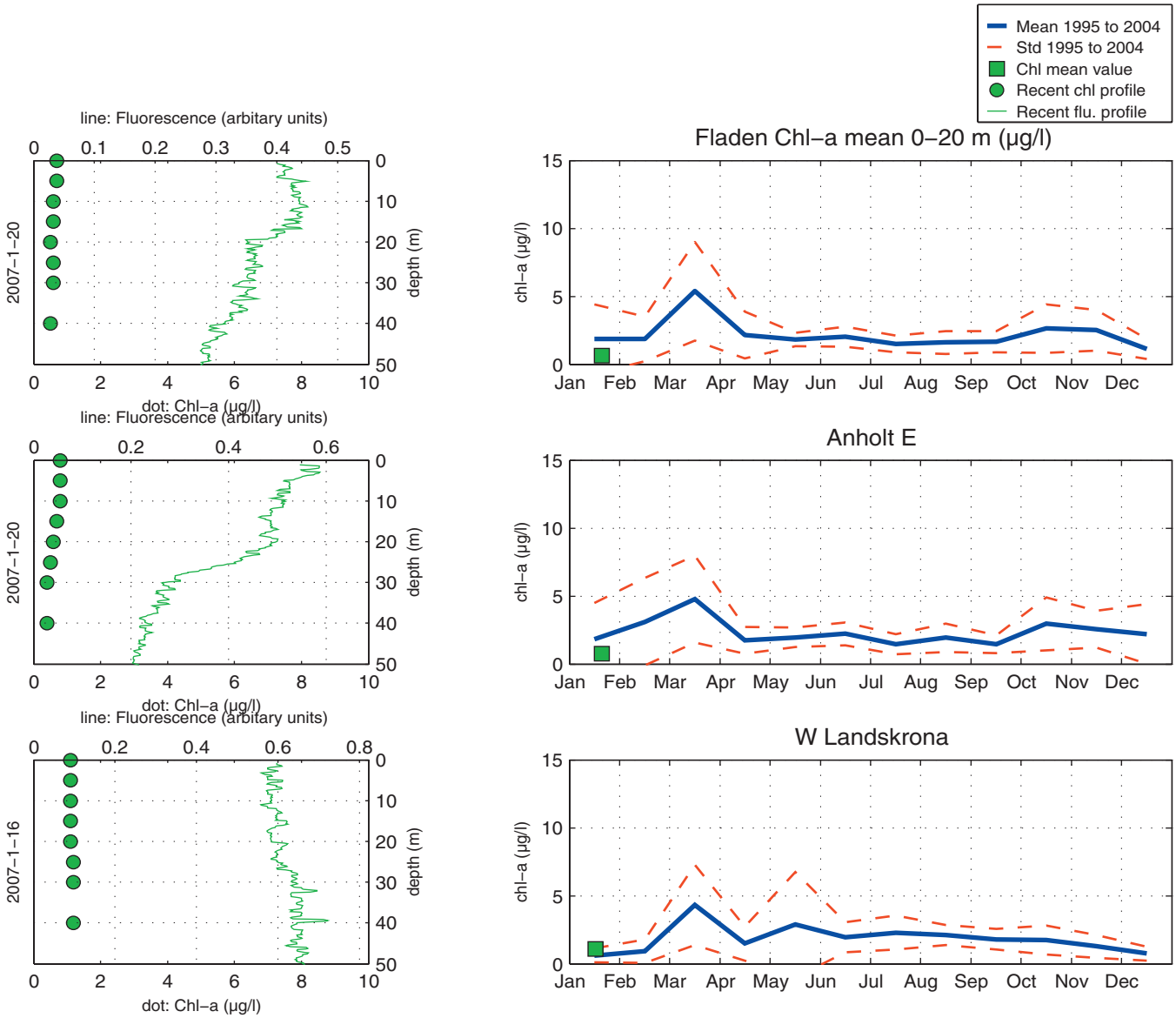
Swedish summary/Svensk sammanfattning by Bengt Karlson

Selection of observed species Red=potentially toxic species [1] quantified in m/L	**BY2** **2007-01-16** **cells/L**	**BY5** **2007-01-17** **cells/L**	**BCS III 10** **2007-01-17** **cells/L**	**BY15** **2007-01-17** **cells/L**	**BY29** **2007-01-18** **cells/L**	**BY38** **2007-01-19** **cells/L**
Chaetoceros danicus	present		present			
Chaetoceros impressus	present					
Coscinodiscus spp.		present				
Pseudo-nitzschia delicatissima-group						
Proboscia alata					present	
Trhizosolenia pungens		present				
Skeletonema costatum					present	present
Dinophysis acuminata				present		
Gyrodinium spirale	present		present		present	present
Peridiniella danica						present
Protoperidinium pellucidum			present	present		
Chrysochromulina spp	present					
Cryptomonadales spp	present			8 630		present
Teleulax amphioxeia	10 668		present	present	present	present
Pyramimonas spp		present				
Cyanophyceae spp_filaments/	present			present	present	present
colony						

The Skagerrak



The Kattegat and the Sound



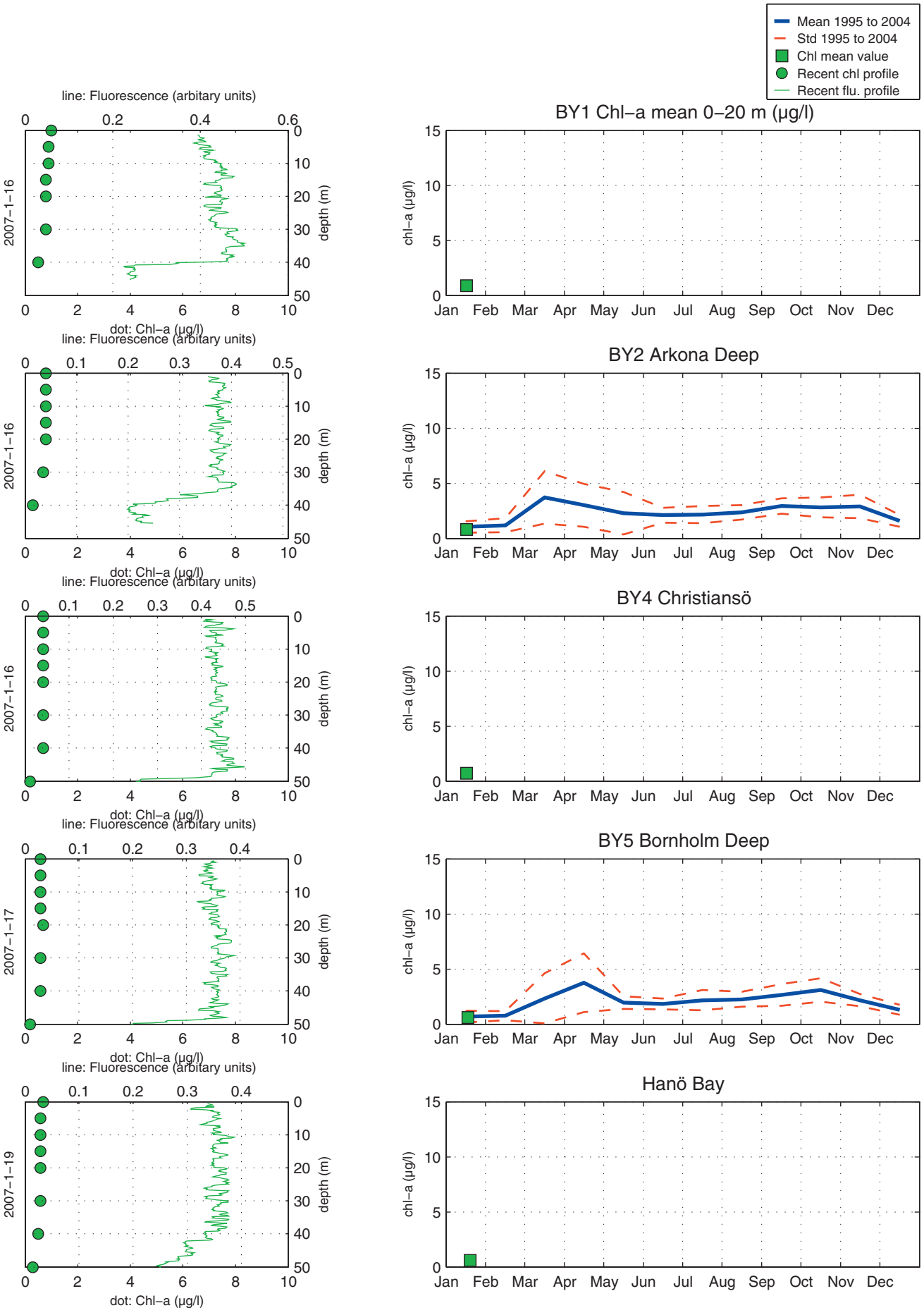
Om klorofylldiagrammen

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 alger av växtplankton observeras.

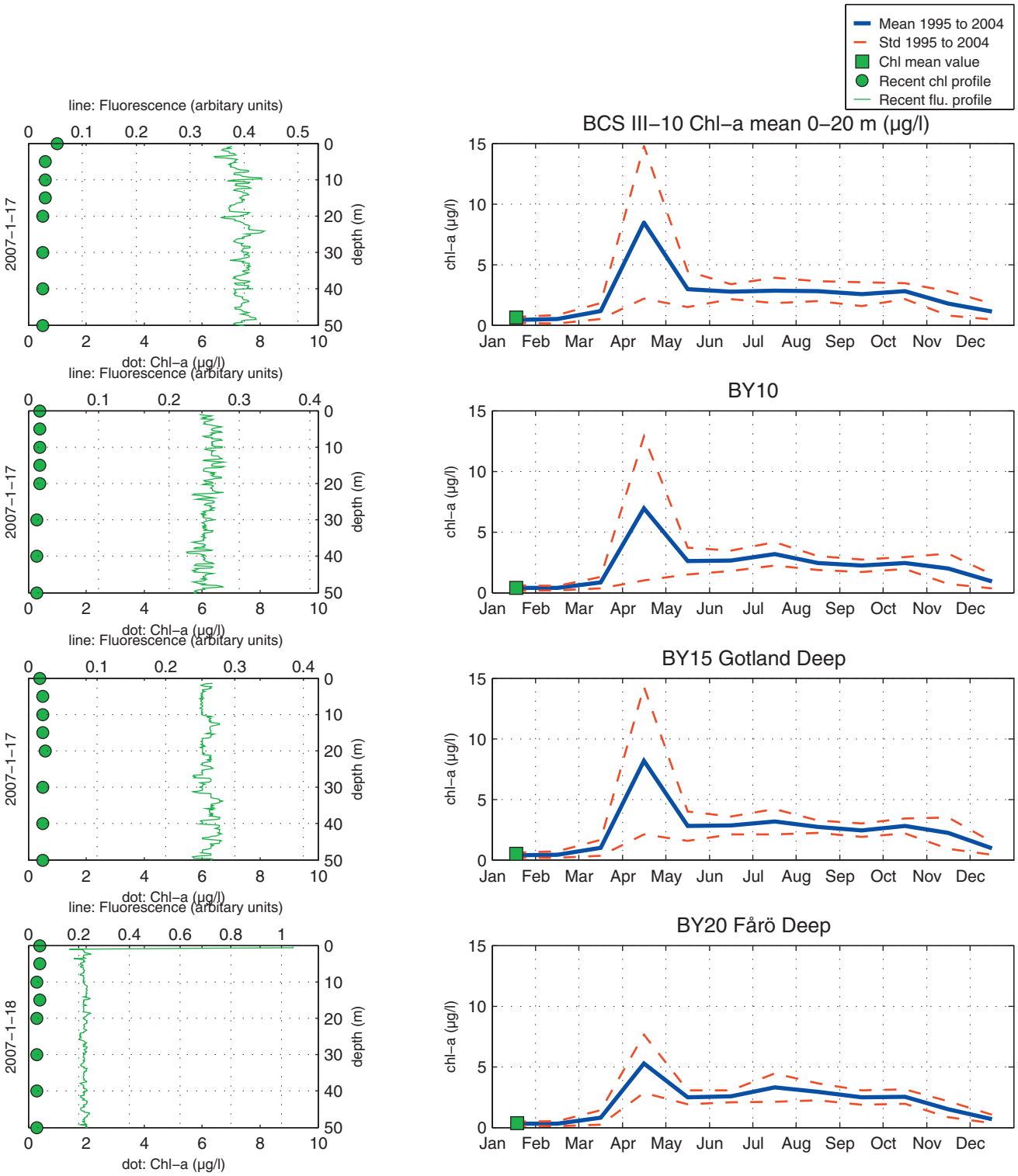
About the chlorophyll graphs

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.

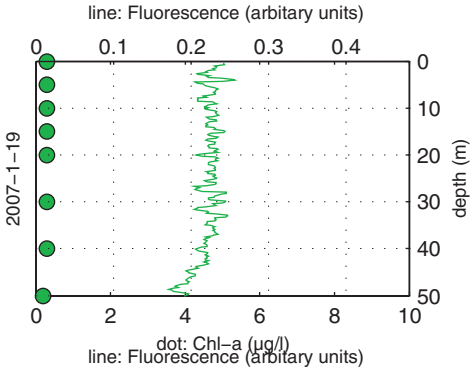
The Southern Baltic

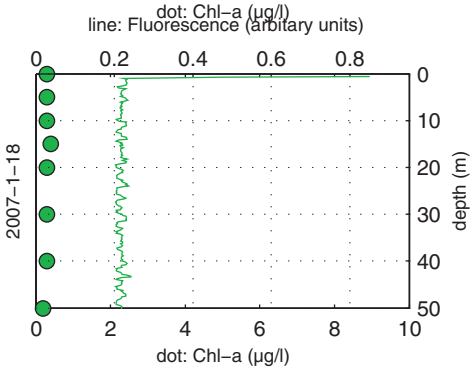


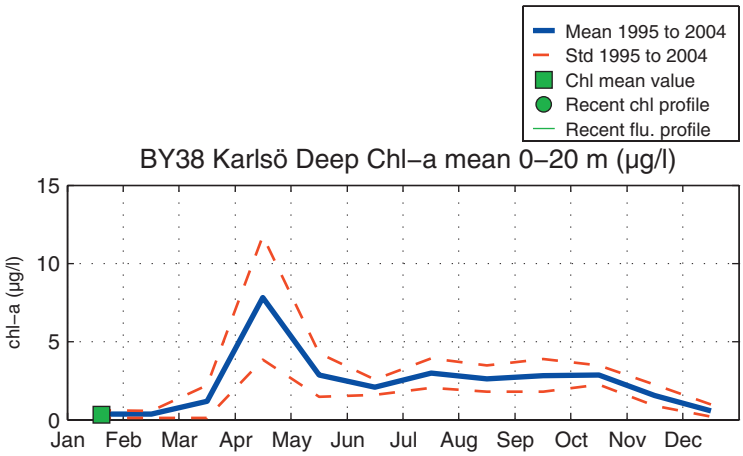
The Eastern Baltic

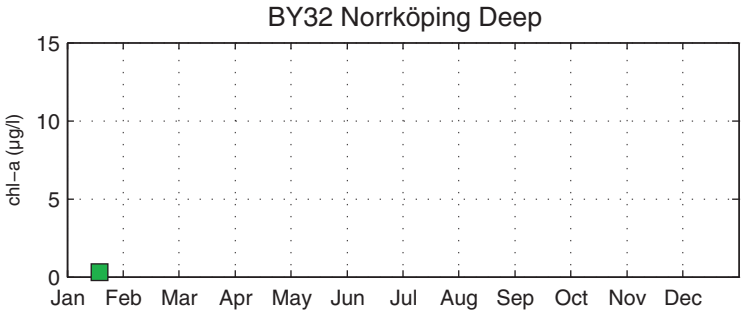


The Western Baltic









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