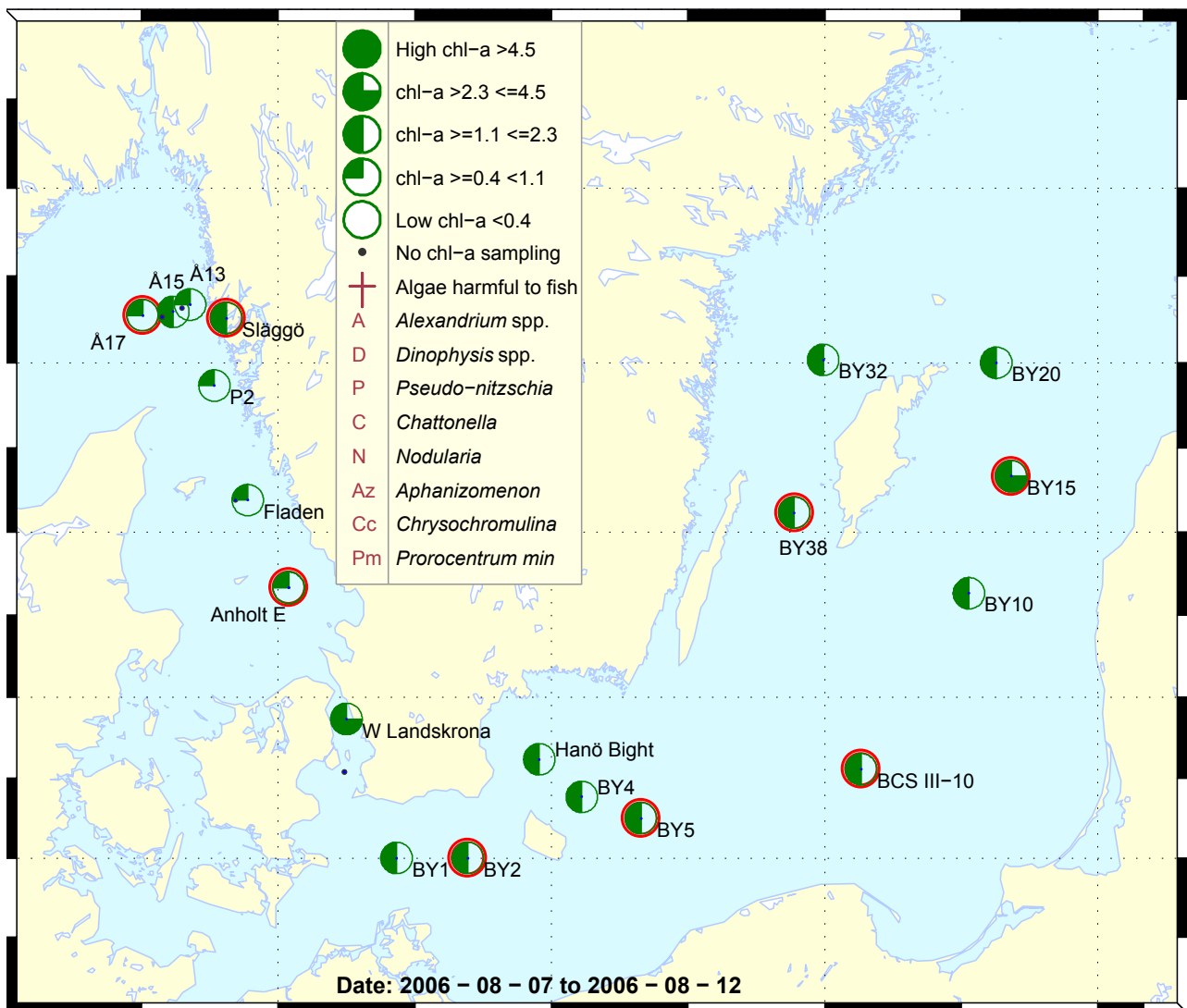


Sammanfattning

Klorofyllvärden under medel och låga cellantal av mikroalger präglade planktonsituationen i Skagerrak och Kattegatt.

I södra Kattegatt och Öresund observerades omfattande ytansamlingar av cyanobakterier som identifierades till den giftiga cyanobakterien *Nodularia spumigena**

I Östersjön var det inga synliga ansamlingar förutom vid Fårödjupet nordost om Gotland. I alla analyserade prover från Östersjön var algfloran mycket fattig och cellantalen var låga. *Nodularia spumigena** fanns enbart vid BY15 och då bara med ett fåtal filament (trådar).



Abstract

The chlorophyll values were below average and plankton samples from the Skagerrak and the Kattegat areas contained few species in low cell numbers.

In the southern Kattegat and the Sound, large surface accumulations of cyanobacteria were observed and identified as *N. spumigena**. In the Baltic Sea, visible accumulations were reported only from Fårö deep, northeast of Gotland. All Baltic Sea plankton stations had a very poor plankton flora and the cell numbers were low. A few filaments (threads) of *N. spumigena** was observed at BY15.

Om AlgAware

SMHI genomför ca en gång per månad expeditioner med U/F Argos i Östersjön och Västerhavet. Resultat baserade på mikroskopyanalys 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
<i>Alexandrium</i> 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; headache, dizziness, nausea, vomiting, diarrhoea. Extreme case Muscular paralysis; pronounced respiratory difficulty; choking sensation; death through respiratory paralysis may occur within 2-24 hours after ingestion.
<i>Dinophysis</i> spp.	Diarrhetic 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.
<i>Chattonella</i> 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.
<i>Pseudo-nitzschia</i> 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.

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 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.

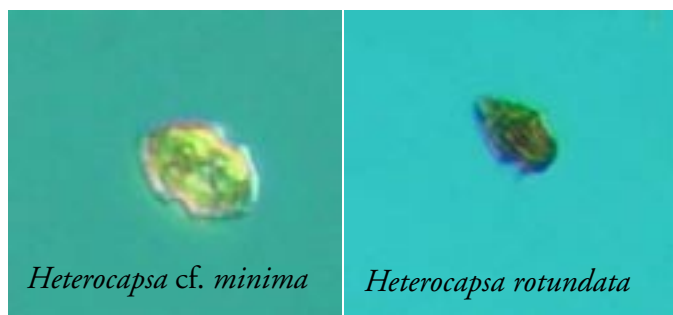
The map on the front page shows weighted mean of chlorophyll *a*, µg/l (0-20 m) at sampling stations. Presence of

More detailed information on species composition and abundance. * = potentially toxic.

The Skagerrak

Å17 7th of August

Very few species of micro algae, mostly dinoflagellates, at low abundances were observed. One diatom species, *Proboscia alata*, was quantified to 230 cells per liter.



Släggö 7th of August

Some more species at higher cell numbers were found at Släggö compared to Å17. The small dinoflagellates *Heterocapsa cf. minima* and *H. rotundata*, were the most abundant species with cell amounts of 35000 and 45000 per liter respectively. A few threads of the filamentous cyanobacteria *Nodularia spumigena** was observed.

The Chlorophyll *a* concentrations were below average in the whole Skagerrak area.

The Kattegat

Anholt E 8th and 12th of August

Similar species compositions and equally low chlorophyll concentrations were found at the two sampling occasions. The plankton flora was very poor and consisted of a few dinoflagellate species.

Selection of observed species Red = potentially toxic species	Å17 06-08-07 cells/L	Släggö 06-08-07 cells/L	Anholt E 06-08-08 cells/L	Anholt E 06-08-12 cells/L
<i>Cerataulina pelagica</i>		4800		
<i>Leptocylindrus danicus</i>		7000		
<i>Proboscia alata</i>	present	present		
<i>Pseudo-nitzschia</i> spp		present		
<i>Ceratium fusus</i>	present			
<i>Heterocapsa cf. minima</i>	5300	35000	9000	
<i>Heterocapsa rotundata</i>	3500	45000		3500
<i>Prorocentrum micans</i>		1700	present	present
<i>Phalacroma rotundatum</i>			present	
<i>Protoceratium reticularum</i>			present	present
<i>Karenia mikimotoi</i>			present	
<i>Nodularia spumigena</i>		present		
<i>Emiliania huxleyi</i>	8900	31000		16000

The Baltic Sea

Arkona Basin BY2 8th of August



An extremely poor plankton flora consisting of small flagellated species as *Pyramimonas* sp., the dinoflagellate *Heterocapsa* cf. *minima* and the chain building diatom *Chaetoceros impressus*. In the net sample (0-20 m) a few filaments of the cyanobacteria *Aphanizomenon* sp. was found. The chlorophyll *a* concentration was below average.

Bornholm Basin BY5 9th of August

The plankton flora was as poor as at BY2, but no dinoflagellate species were found. Three species of diatoms at low numbers were observed, of which *C. impressus* was one. No cyanobacteria were found, neither in the net sample (0-20 m). The chlorophyll *a* concentration was below average.

The South East Baltic BCS III-10 9th of August

A few more species were present as compared to BY2 and BY5. The dinoflagellate *Akashiwo sanguinea* was found at an amount of 7500 cells/l, and the diatom *C. impressus* with 1400 cells/l. The small flagellate *Pyramimonas* sp. was the most abundant algae with 150 000 cells/l. *Aphanizomenon* sp was quite common in the net sample (0-20m). The chlorophyll *a* concentration was below average.

Eastern Gotland Basin BY15 9th of August

This is the only station at which *N. spumigena** was found at low abundance, and only a few filaments were observed. *Aphanizomenon* sp. was quite common in the samples, and *Anabanea* sp.* was present at low abundances. *C. impressus* was present in low numbers, as were the dinoflagellates *Dinophysis acuminata** and *Phalacroma rotundatum**. The chlorophyll *a* concentration was above average.



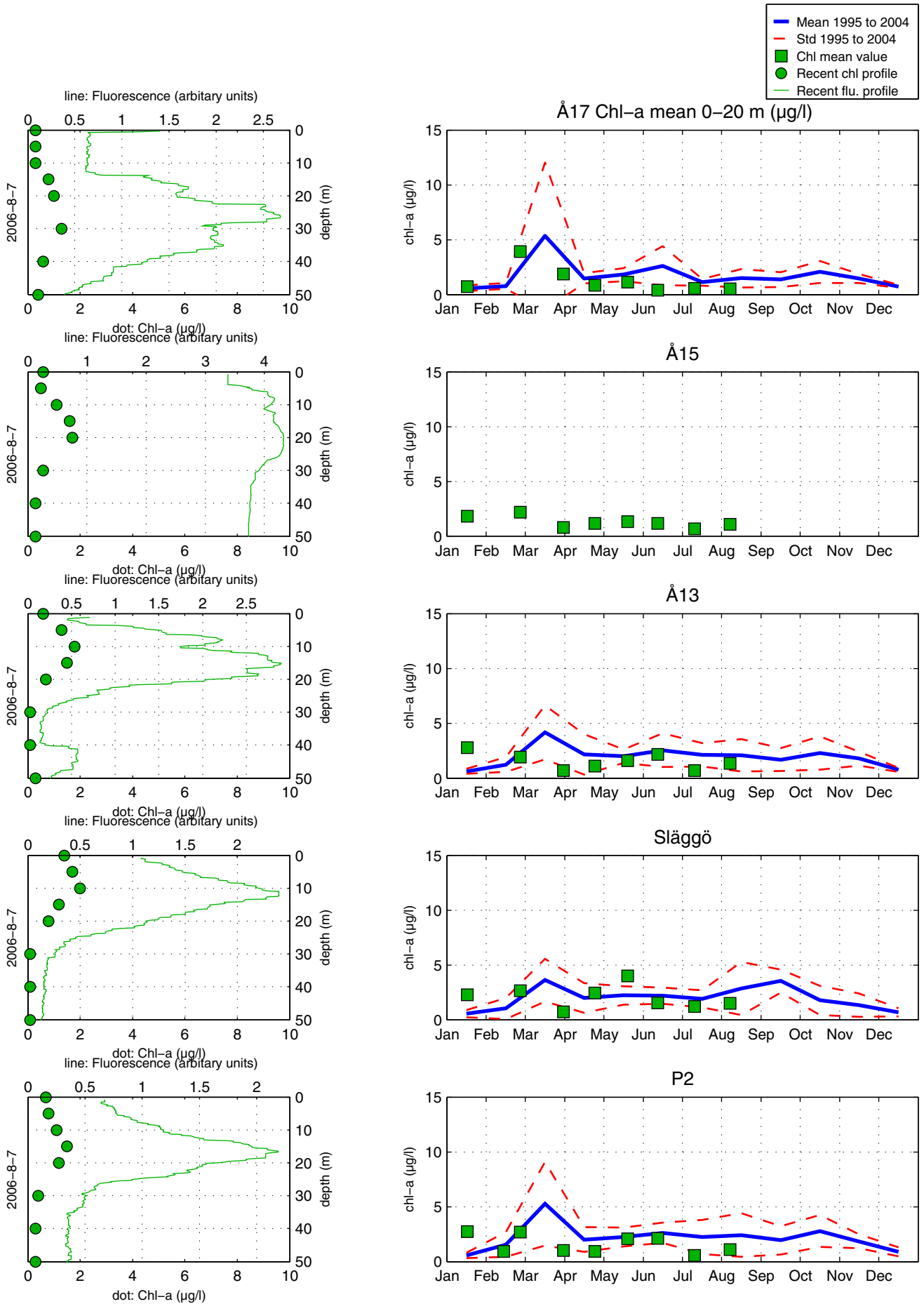
Western Gotland Basin BY38 10th of August

A similar situation was found as at BY2 and BY5, with very few species at low cell numbers. *C. impressus* was found again, as were a few chains of the diatom *Skeletonema costatum*. Some filaments of *Aphanizomenon* sp. were observed in the net sample (0-20m), and the chlorophyll *a* concentration was below average.

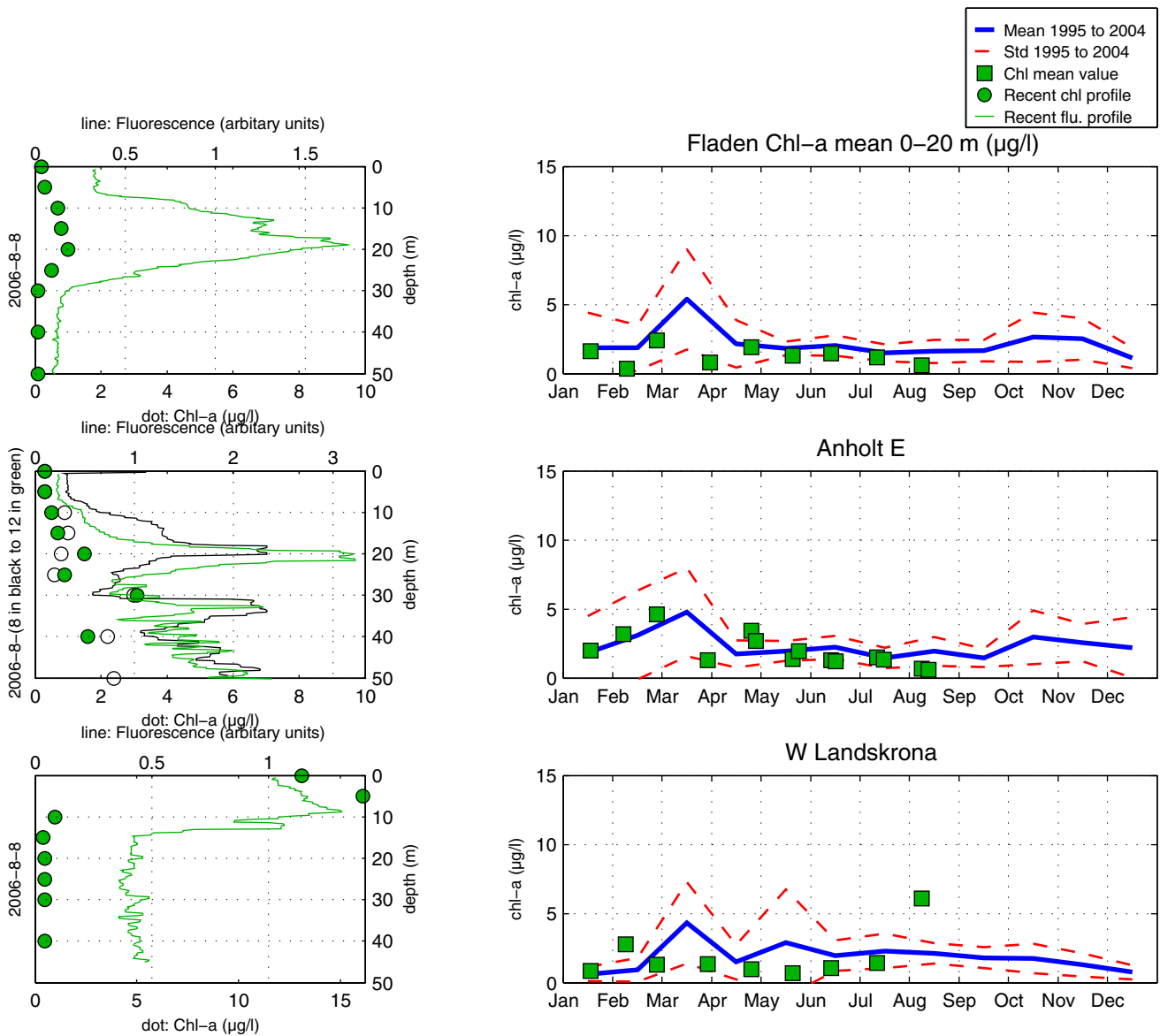
Ann-Turi Skjevik

Selection of observed species Red = potentially toxic species	BY2 06-08-08 cells/L	BY5 06-08-09 cells/L	BCS III 10 06-08-09 cells/L	BY15 06-08-10 cells/L	BY38 06-08-10 cells/L
<i>Chaetoceros impressus</i>	1400	present	1300	present	1808
<i>Skeletonema costatum</i>		present			present
<i>Akashiwo sanguinea</i>			7500		
<i>Amylax triacantha</i>			present		
<i>Heterocapsa cf. minima</i>	1800				
<i>Heterocapsa rotundata</i>			present		
<i>Dinophysis acuminata</i>				100	
<i>Phalacroma rotundatum</i>				150	
<i>Pyramimonas</i> spp	35000	35000	153000	23000	83000
Cryptophyceae spp	87000	88000	440000	18000	35000
<i>Anabaena</i> sp				present	
<i>Aphanizomenon</i> spp				present	
<i>Nodularia spumigena</i>				present	

The Skagerrak



The Kattegat and the Sound



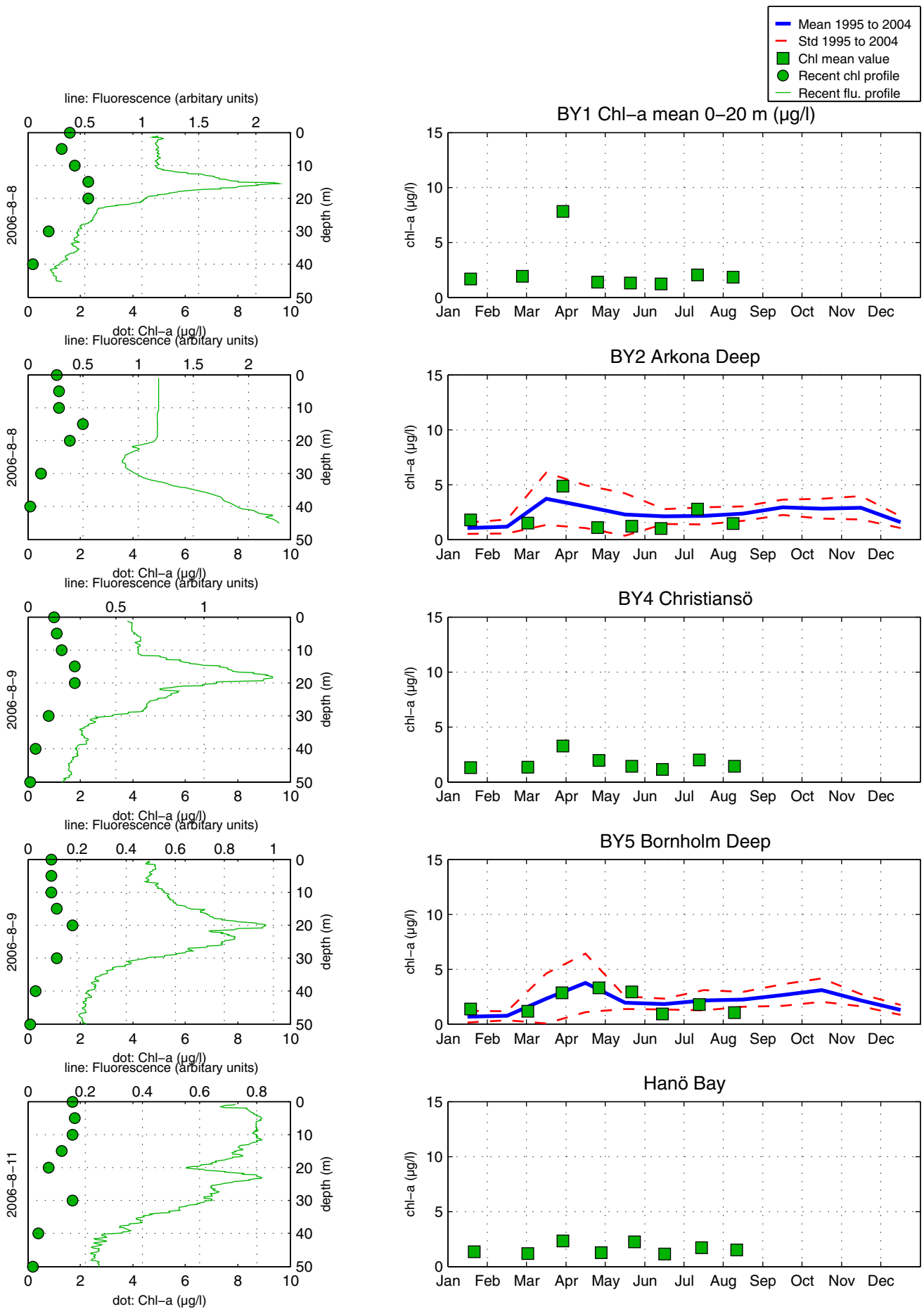
Om klorofylldiagrammen

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.

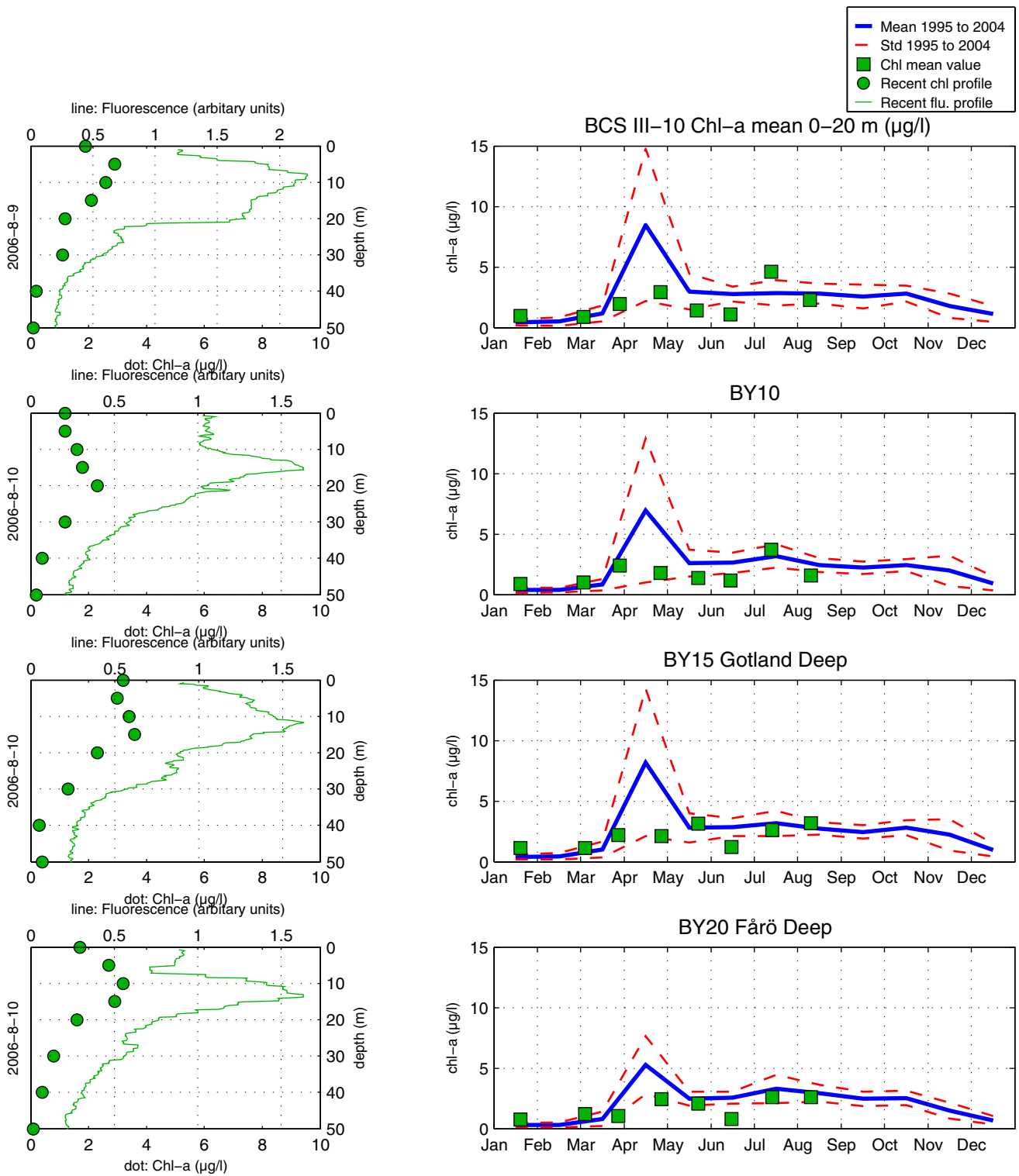
About the chlorophyll graphs

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 layers of phytoplankton occurring below the surface.

The Southern Baltic



The Eastern Baltic



The Western Baltic

