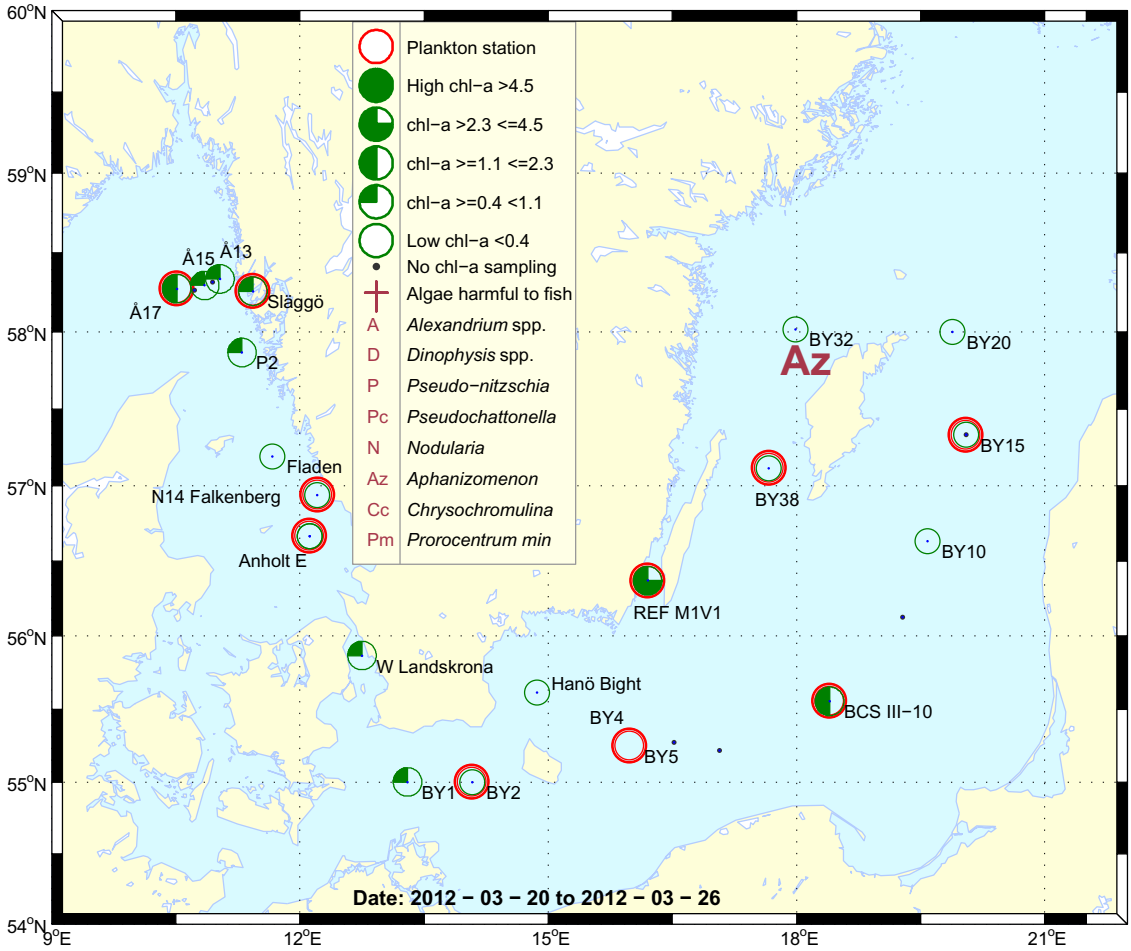
SMHI
Oceanographic Unit
No 3, 20 – 26 March 2012

# AlgAware
## ALGAL SITUATION IN MARINE WATERS SURROUNDING SWEDEN

**Sammanfattning**
Vårblomningen hade klingat av i Västerhavet vid samtliga växtplanktonstationer. Det var överlag låga cellkoncentrationer med en dominans av cryptomonader och ciliater. De integrerade klorofyll *a*-värdena (0-20m) var lägre än normalt i Kattegatt och Skagerrak.

I Östersjön vid Ref.M1V1 i Kalmarsund, fortskred kiselalgsblomning även denna provtagningsperiod och dominerades fortfarande av *Skeletonema marinoi*. På övriga stationer var celltätheterna låga och dominerades av cryptomonader. Utanför ordinarie provtagningsstationer för denna period togs ett håvprov från BY 32 (ej med i lista), som visade sig vara dominerat av *Aphanizomenon* sp. Klorofyllvärdena var lägre än normalt i Östersjön.




**Abstract**
The diatom spring bloom had ceased in The Kattegatt and Skagerrak areas. The total cell concentrations were very low and dominated by cryptomonads and ciliates. The integrated (0-20 meters) chlorophyll *a* concentrations were lower than normal in the Kattegatt and Skagerrak areas.

The total cell concentrations were very low at almost all stations in The Baltic Sea and the phytoplankton community was dominated by cryptomonads. The diatom spring bloom at Kalmar Sound, Ref.M1V1 was dominated by *Skeletonema marinoi*. The net sample taken from BY 32 was dominated by the cyanobacterium *Aphanizomenon* sp.. The integrated (0-20 meters) chlorophyll *a* concentrations were lower than normal in the Baltic Sea.

More detailed information on species composition and abundance

## The Skagerrak

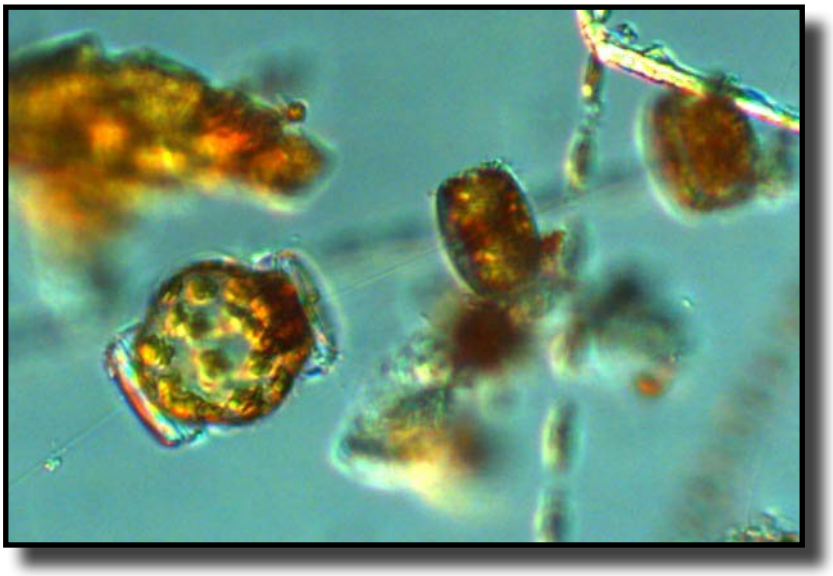
**Släggö (Skagerrak coast) and Å17 (open Skagerrak) 20th and 21st of March**
TThere was a typical post bloom situation at both stations, only a few cells of each species in a community with very low species diversity. There were a few cells of the potentially toxic dinoflagellate species *Dinophysis norveciga* and *Karenia mikimotoi*.

The integrated (0-20 meters) chlorophyll *a* concentrations in the Skagerrak area were lower than normal at Släggö and within normal values at Å17.

## The Kattegat

**N14 Falkenberg and Anholt E 21st of March and Anholt E 26th of March**
The diversity and cell concentrations in the Kattegat phytoplankton samples were very much the same as the Skagerrak samples. There were a few colonies of *Phaeocystis pouchetii* and as in the Skagerrak only a few cells from the genus *Dinophysis.*

The integrated (0-20 meters) chlorophyll *a* concentrations from the Kattegat area were lower than normal.



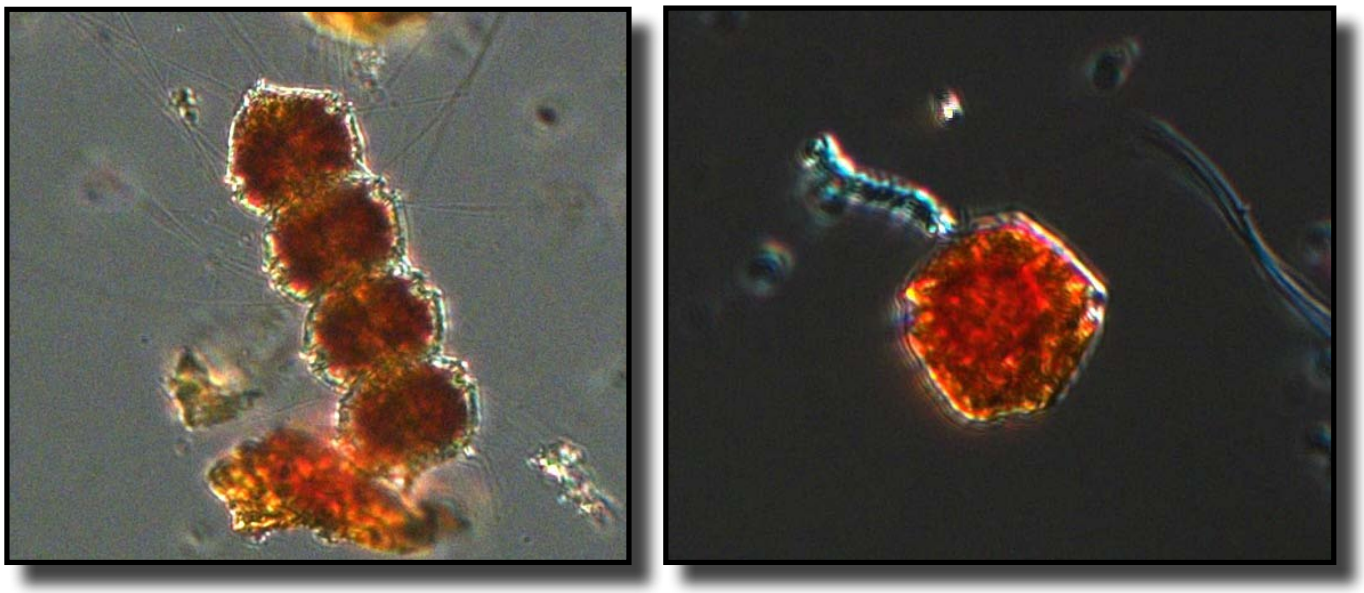
The diatom *Thalassiosira* sp. was observed in the sample from Ref. M1V1. The cell to the far left contains a resting cyst.

## The Baltic Sea

**Ref M1V1 Kalmar Sound 22nd of March**
The diatom spring bloom that was revealed 1st of March had not declined at the time of the expedition. The chlorophyll *a* concentrations were high compared to other stations in The Baltic Sea but the diatom *Skeletonema marinoi* was blooming and species from the genus *Thalassiosira* were abundant.

**BY2, BY15, BY38 and BCS III-10, 22nd to 24th of March**
The phytoplankton diversity was low at those stations. Cryptomonades dominated at all stations. Dinoflagellates were quite abundant at BY 38 and cells from the toxic genus cf. *Alexandrium* were present at this station and also at BCS III-10. Cyanobacteria colonies were most abundant at BY 15. Because of an accumulation in the surface water at BY 32 phytoplankton was sampled and this sample was completely dominated by the filamentous cyanobacteria *Aphanizomenon* sp.

The integrated (0-20 meters) chlorophyll *a* concentrations were lower than normal.



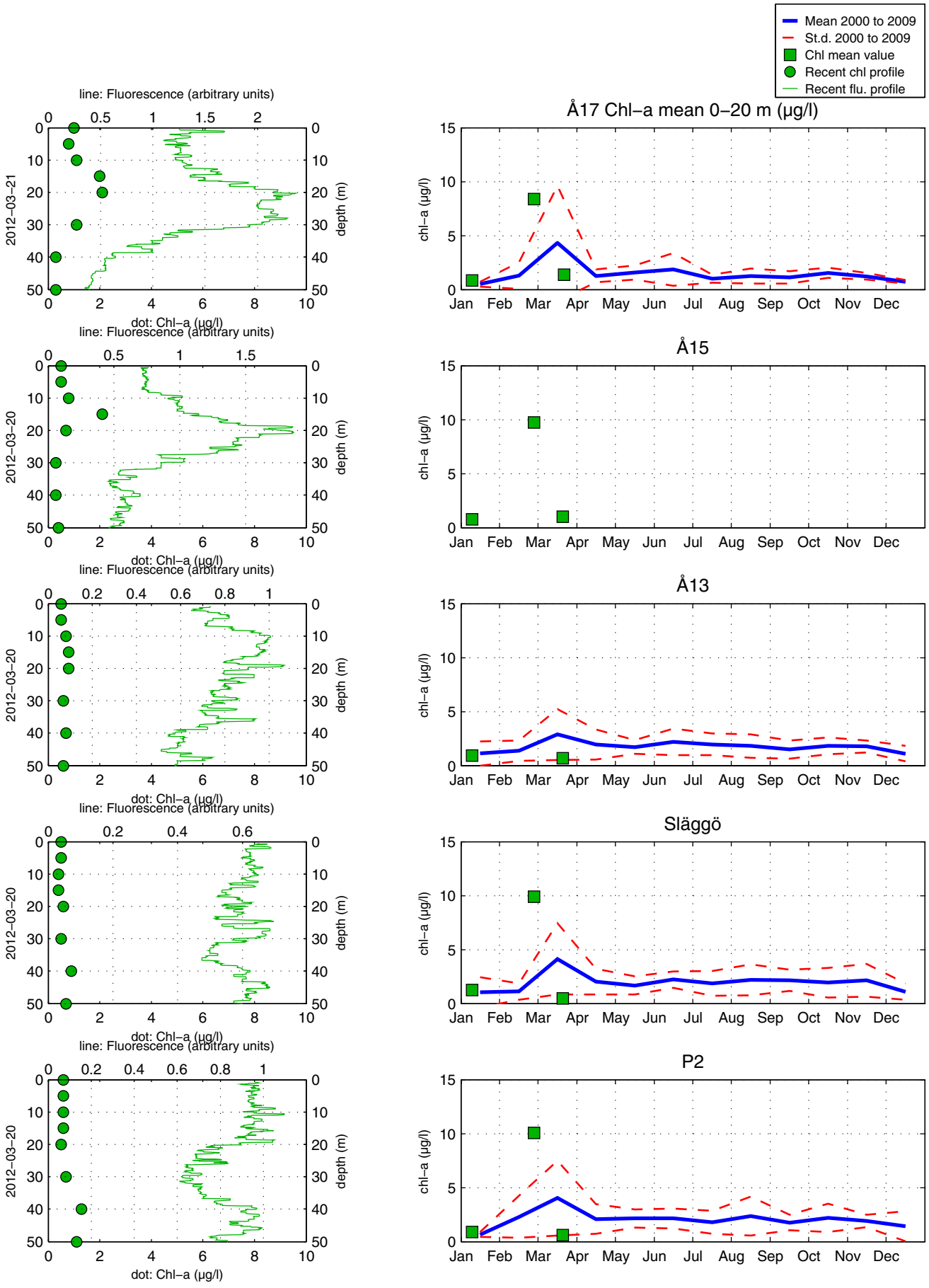
The dinoflagellate *Peridiniellla catenata* (left). The dinoflagellate to the rigth was abundant at BY38. If you recognize it, please don't hesitate to give us a clue...

Phytoplankton analysis and text by:
Malin Mohlin

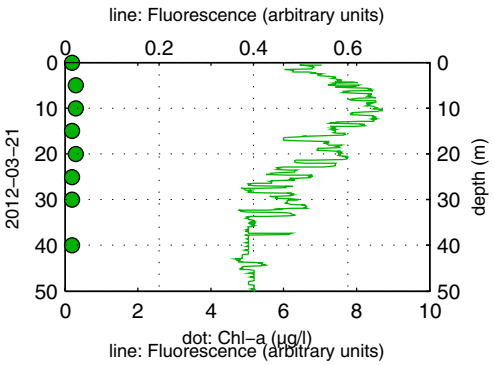
| Selection of observed species | Å17 | Släggö | N14 | Anholt E | Anholt E |
|---|---|---|---|---|---|
| Red=potentially toxic species | 21/3 | 21/3 | 21/3 | 21/3 | 26/3 |
| | cells/l | cells/l | cells/l | cells/l | cells/l |
| Centrales | present | | | present | |
| *Chaetoceros* spp. | | | | | present |
| *Detonula confervacea* | | | | | present |
| Pennales | | | | present | |
| *Rhizosolenia setigera* | | | present | | |
| *Skeletonema marinoi* | | | common | | |
| *Thalassionema nitzschioides* | | | present | present | |
| *Thalassiosira nordenskioeldii* | | | | | present |
| *Ceratium longipes* | present | | present | | |
| *Ceratium tripos* | present | | present | | present |
| *Dinophysis acuminata* | | | | present | |
| *Dinophysis norvegica* | present | present | | present | |
| Gymnodiniales | present | present | present | present | present |
| *Gyrodinium* cf. *spirale* | | present | present | present | present |
| *Heterocapsa* spp. | present | present | present | present | present |
| cf *Karenia mikimotoi* | | present | | | |
| *Katodinium glaucum* | present | present | present | present | present |
| cf *Oblea rotundata* | | | | | present |
| Peridiniales | present | | present | | present |
| *Protoperdinium* spp. | present | | | present | present |
| *Heterosigma akashiwo* | | | present | present | |
| *Apedinella spinifera* | | | | | present |
| Cryptomonadales spp. | common | common | common | common | common |
| *Phaeocystis pouchetii* | present | | | | present |
| *Eutreptiella braarudii* | | | present | | |
| *Eutreptiella gymnastica* | | | present | | |
| Choanoflagellidea | | | present | | present |
| *Calliacantha longicaudata* | | | | | present |
| *Pyramimonas* spp. | present | present | present | present | present |
| *Balanion* spp. | | present | | | |
| Ciliophora | present | present | | present | present |
| *Lohmaniella oviformis* | present | present | | present | |
| *Mesodinium rubrum* | | present | present | present | present |
| *Stenosemella* spp. | | present | | | |

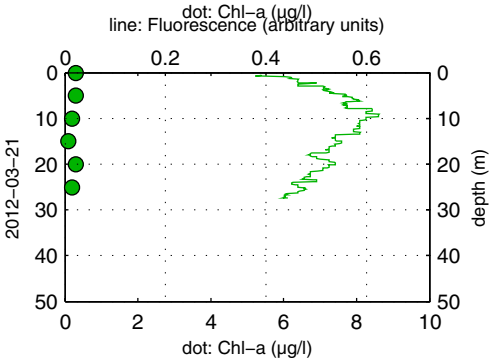
| Selection of observed species | BY2 | BCS III-10 | BY15 | BY 38 | Ref. M1-V1 |
|---|---|---|---|---|---|
| Red=potentially toxic species | 22/3 | 24/3 | 24/3 | 23/3 | 22/3 |
| | cells/l | cells/l | cells/l | cells/l | cells/l |
| *Attheya* spp. | | | | present | |
| *Achnanthes taeniata* | | | | | present |
| Centrales spp. | | present | | | |
| *Chaetoceros* spp. | present | present | present | present | present |
| *Coscinodiscus* spp. | | | present | | |
| *Skeletonema marinoi* | present | common | | present | very common |
| *Thalassiosira* cf. *minima* | present | | | | present |
| *Thalassiosira nordenskioeldii* | | present | | | |
| *Thalassiosira* spp. | | present | | | present |
| Cf. *Alexandrium* spp. | | present | | present | |
| Dinophyceae spp. | | | | present | |
| *Dinophysis acuminata* | | | present | | |
| Gymnodiniales spp. | present | present | present | present | present |
| *Heterocapsa rotundata* | present | | | | |
| *Heterocapsa* spp. | present | present | present | present | present |
| *Katodinium glaucum* | | | present | present | |
| Peridiniales spp. | | present | present | present | present |
| *Peridiniella catenata* | | | | present | present |
| *Protoperidinium* spp. | | | | | present |
| Cryptomonadales spp. | common | common | common | common | common |
| Cf. *Prymnesium polylepis* | | | | | present |
| Prymnesiales spp. | | | | | present |
| *Aphanothece* spp. | | present | present | | |
| Cf. *Cyanodictyon* spp. | | | present | | |
| *Woronichinia* spp. | | present | present | present | |
| Cf. *Botrycoccus* spp. | | | present | | |
| *Oocystis* cf. *pelagica* | | | | present | |
| *Pyramimonas* spp. | present | | present | present | present |
| *Quadricoccus* spp. | | | present | | |
| *Eutreptiella* cf. *gymnastica* | present | present | present | present | present |
| Choanoflagellidea spp. | | present | | present | present |
| *Ebria tripartita* | | | | present | |
| Ciliophora spp. | present | present | present | present | present |
| *Lohmanniella oviformis* | present | | | | |
| *Mesodinium rubrum* | present | present | | present | present |

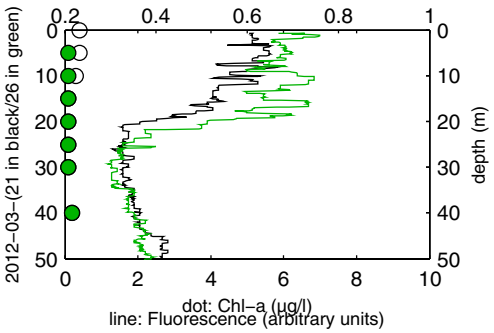
# The Skagerrak

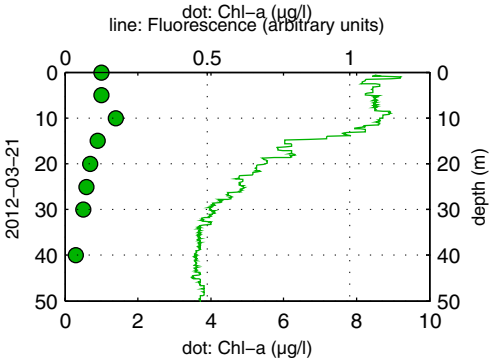


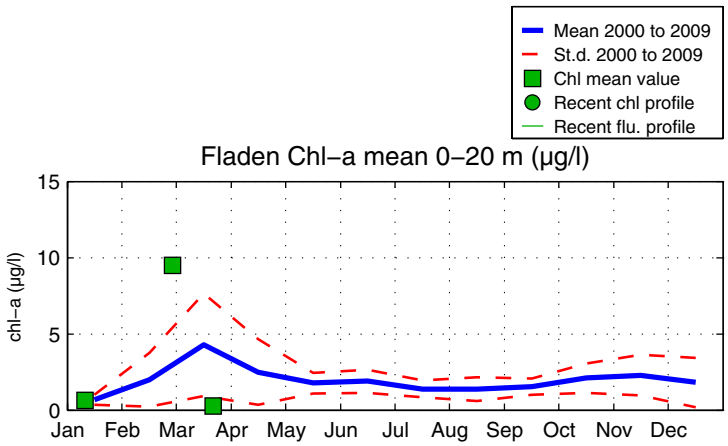
# The Kattegat and the Sound

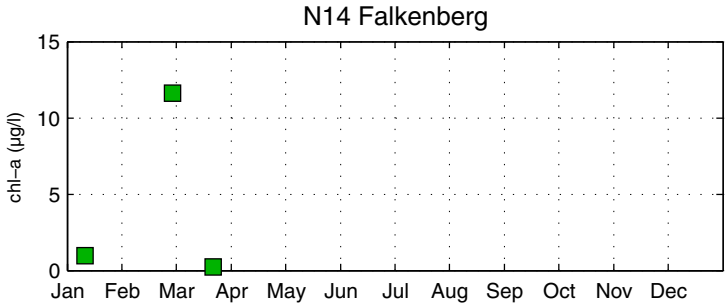


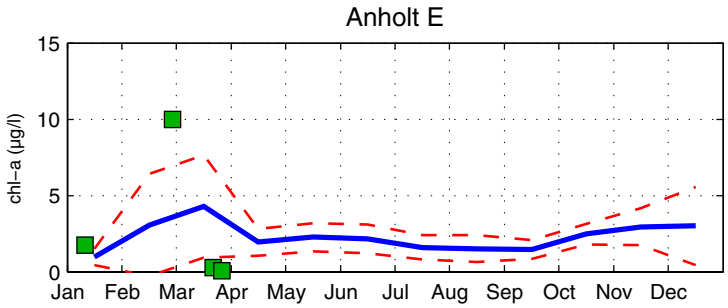



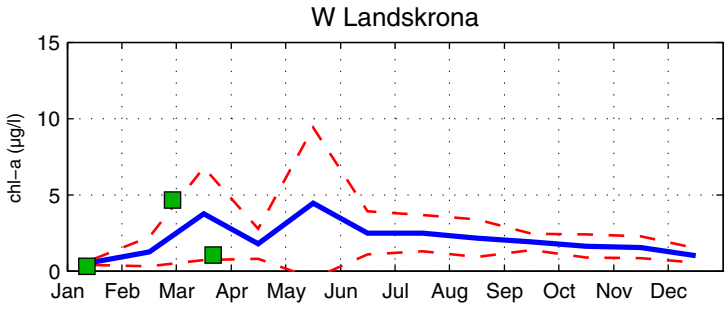



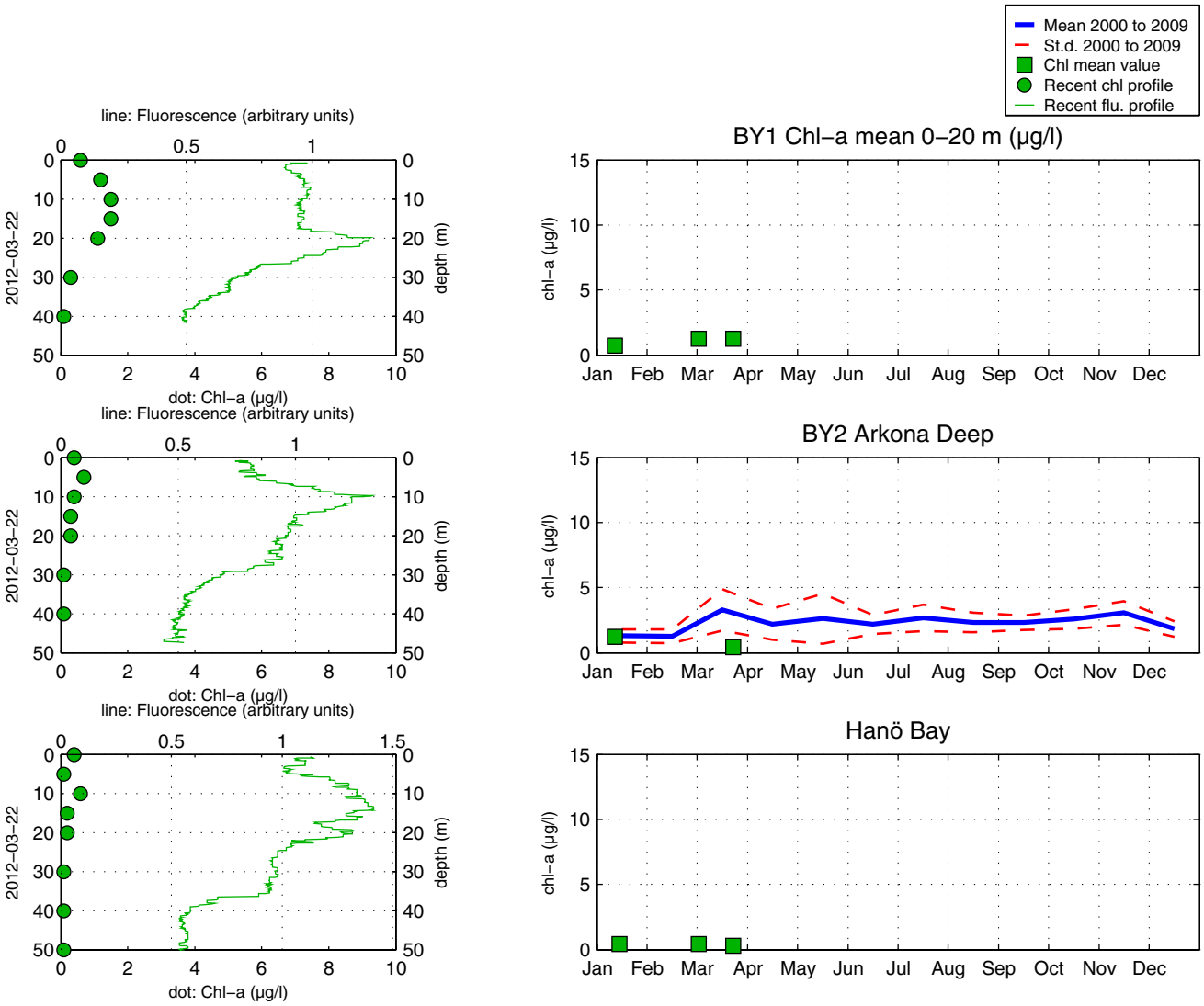



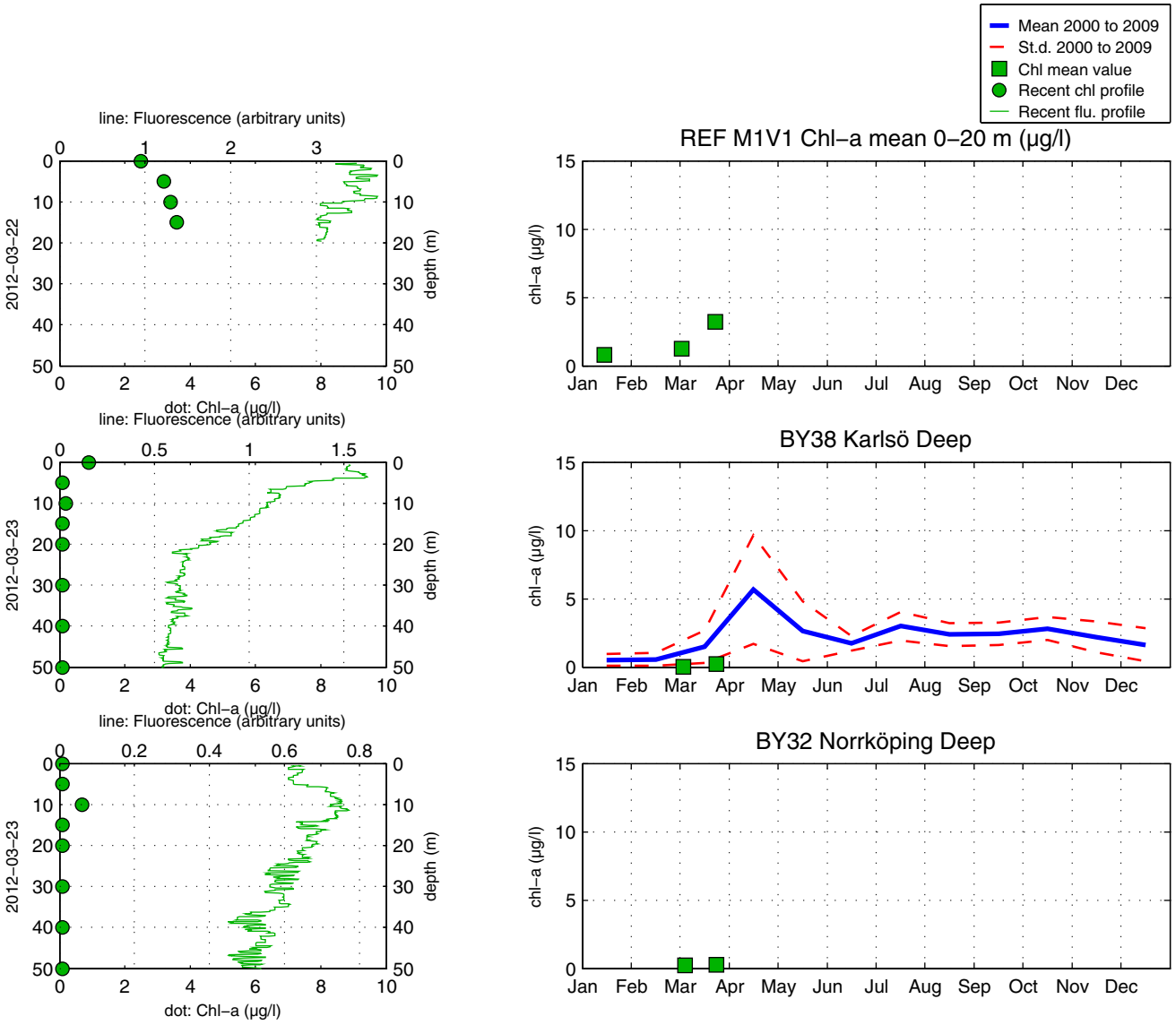



# The Southern Baltic






**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 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 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

The 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 SMHI:s satellite monitoring of algal blooms is found on www.smhi.se.

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| Art / Species | Gift / Toxin | Eventuella symptom | Clinical symptoms |
|---|---|---|---|
| *Alexandrium* spp. | Paralytic shellfish poisoning (PSP) | **Milda symptom:**<br>Inom 30 min.:<br>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<br>**Extrema symptom:**<br>Muskelförlamning; andningssvårigheter; känsla av att kvävas;<br>Man kan vara död inom 2-24 timmar efter att ha fått i sig giftet, på grund av att andningsmuskulaturen förlamas. | **Mild case:**<br>Within 30 min:<br>tingling sensation or numbness around lips, gradually spreading to face and neck; prickly sensation in fingertips and toes; headake, dizziness, nausea, vomiting, diarrhoea.<br>**Extreme case**<br>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:**<br>Efter cirka 30 minuter till några timmar:<br>yrsel, illamående, kräkningar, diarré, magont<br>**Extrema symptom:**<br>Upprepad exponering kan orsaka cancer | **Mild case:**<br>Within 30 min-a few hours:<br>dizziness, nausea, vomiting, diarrhoea, abdominal pain.<br>**Extreme case:**<br>Repeated exposure may cause cancer. |
| *Pseudo- niztschia* spp. | Amnesic shellfish poisoning (ASP) | **Milda symptom:**<br>Efter 3-5 timmar:<br>yrsel, illamående, kräkningar, diarré, magkramper<br>**Extrema symptom:**<br>Yrsel, hallucinationationer, förvirring, förlust av korttidsminnet, kramper | **Mild case:**<br>Within 3-5 hours: dizziness, nausea, vomiting, diarrhoea, abdominal cramps.<br>**Extreme case:**<br>dizziness, hallucinations, confusion, loss of memory, cramps. |
| *Chaetoceros concavicornis/ C.convolutus* | Mechanical damage through hooks on setae | **Låg celltäthet:**<br>Ingen påverkan.<br>**Hög celltäthet:**<br>Fiskens gälar skadas, fisken dör. | **Low cell numbers:**<br>No effect on fish.<br>**High cell numbers:**<br>Fish death due to gill damage. |
| *Pseudochattonella* spp. | Fish toxin | **Låg celltäthet:**<br>Ingen påverkan.<br>**Hög celltäthet:**<br>Fiskens gälar skadas, fisken dör. | **Low cell numbers:**<br>No effect on fish.<br>**High cell numbers:**<br>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.

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.