SMHI
Oceanographic Unit
No 5, 3 – 8 May 2010

AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

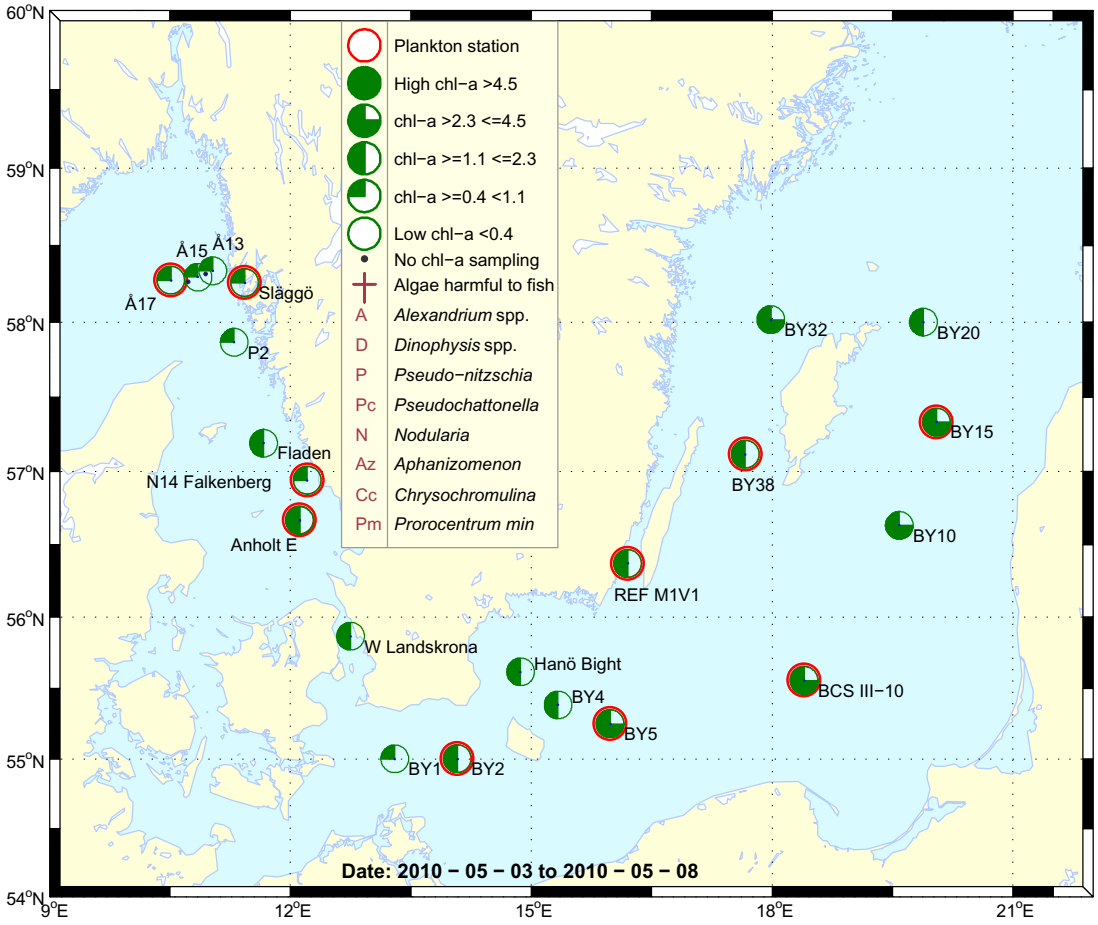
Sammanfattning

Vid provtagningstillfället i början av maj uppmättes de integrerade klorofyll *a* värdena (0-20m) till, för säsongen, normalt låga värden på samtliga stationer i Västerhavet.

Planktonsamhället var relativt artrikt i Skagerrak, men med ofta låga cellantal. Endast ett fåtal kiselalgsarter återfanns och små flagellater dominerade. I Kattegatt observerades färre arter än i Skagerrak. Små flagellater var talrikast vid Anholt E medan provet från N14 dominerades av kiselalgen *Skeletonema costatum*.

Maj månads klorofyll *a* värden från Östersjön var normala för säsongen och påvisade att den vårblomning som återfanns i april var på stark tillbakagång.

Få arter av kiselalger återfanns i låga tätheter över hela Östersjön. Dinoflagellaten *Peridiniella catenata* fanns fortfarande i ansenliga mängder, men arter av guldalgsläktet *Dinobryon* dominerade.



Abstract

The integrated (0-20 meters) chlorophyll *a* concentrations were low at all of the Skagerrak sampling sites, which is normal for the season.

The species composition was quite divers at the Skagerrak stations but with low abundance of each species. Only a few species of diatoms were found and the phytoplankton community was dominated by small flagellates. Fewer number of species were found in the Kattegat area compared to the Skagerrak. Small flagellates dominated at Anholt E and the diatom *Skeletonema costatum* dominated at N14.

The integrated (0-20 meters) chlorophyll *a* concentrations from the Baltic Sea were normal for the season and declared that the spring bloom had almost diminished.

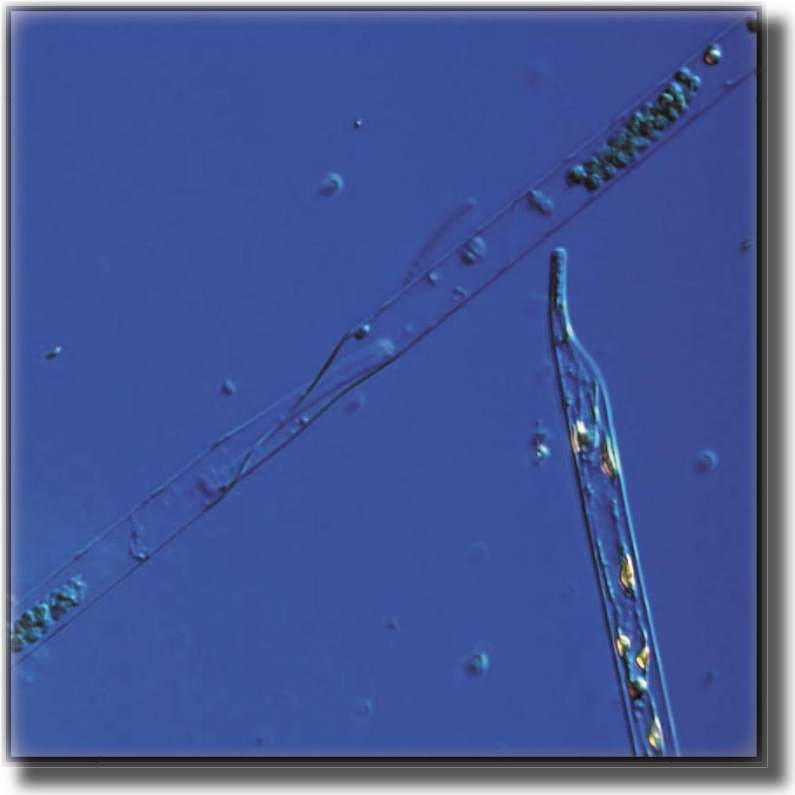
Only a few species of diatoms in low abundance were found at all of the Baltic phytoplankton stations. The dinoflagellate *Peridiniella catenata* was quite common but the golden algae *Dinobryon* was the most abundant genus.

More detailed information on species composition and abundance

The Skagerrak

Å17 3rd of May (open Skagerrak)
The phytoplankton species diversity was relatively high but the abundance of each species was low. Small flagellates dominated the sample. Only a few diatoms were found and *Proboscia alata* was the most pronounced. Chlorophyll *a* concentrations were low but within normal for the season.

Släggö 12th of April (Skagerrak coast)
The phytoplankton species diversity was relatively high but most species were found in low cell numbers. The golden algae genus *Dinobryon* dominated the sample, but other small flagellates were also abundant. Chlorophyll *a* concentrations were low which is normal for the season.



The diatom *Proboscia alata.* Photo: A-T Skjevik.

The Kattegat

N14 Falkenberg 13th of April
The number of species was lower than what was found in the Skagerrak samples and the golden algae *Dinobryon balticum* was the most common species. Small flagellates, for example cryptomonads were abundant.

Anholt E 13th and 17th of April
The species composition was more or less the same as at station N14, with quite few species and low abundance of each species. Small flagellates dominated the sample.

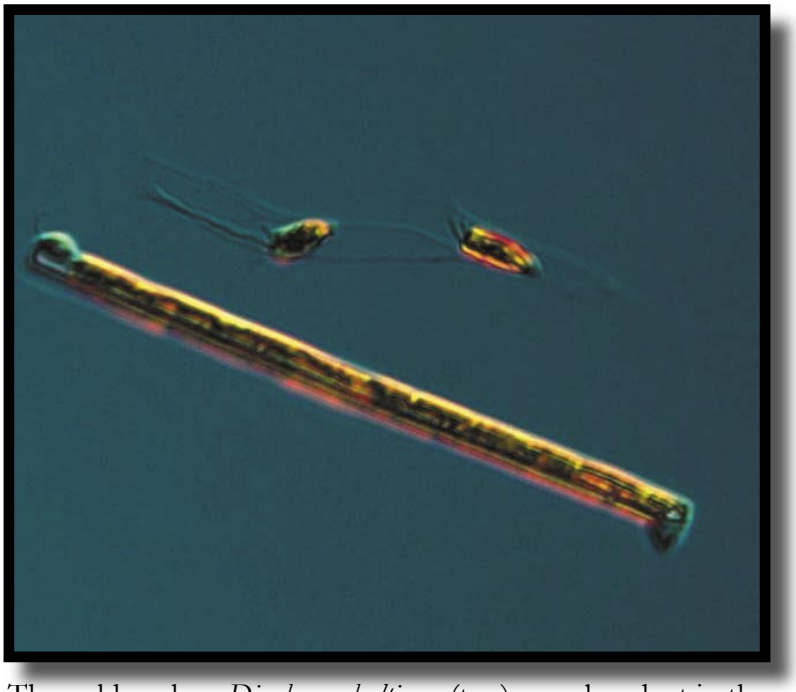
Some interesting chlorophyll fluorescence peaks between 15 to 20 meters depths were observed in the Kattegat and Skagerrak areas, but all integrated concentrations (0-20 m) were within average for this month.

The Baltic Sea

The spring bloom was diminishing at all of the Baltic phytoplankton stations. For station names, locations and sampling dates see map or species list. Because of the over all similarity a general description is made.

All of the integrated (0-20 m) chlorophyll *a* concentrations from the Baltic stations showed a decline compared to the previous sampling period in April. All concentrations were within average for this month.

Diatoms were only found occasionally except at the station BY38 where remnants of *Skeletonema costatum* from the spring bloom were found. *Peridiniella catenata* was the most common dinoflagellate. The golden algae *Dinobryon balticum* dominated in all of the phytoplankton samples except in the one from BY38.. The sample from BY38 did also contain high cell numbers of *D. balticum,* but the quantity of the small flagellate *Pyramimonas* spp. was even higher.



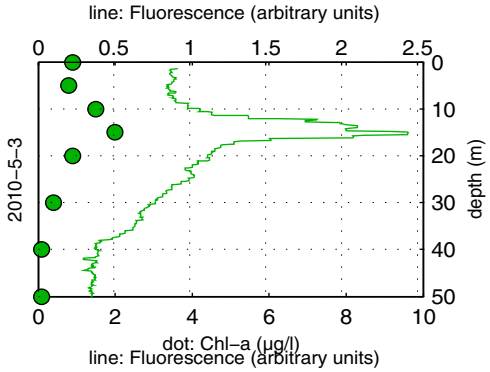
The golden algae *Dinobryon balticum* (top) was abundant in the Baltic samples, the algae below is the diatom *Thalassionema nitzschioides*. Photo: A-T Skjevik.

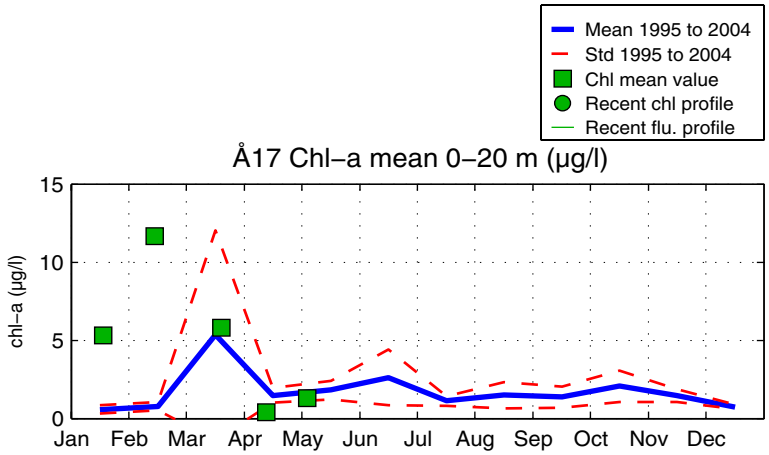
Phytoplankton analysis and text by:
Ann-Turi Skjevik and Marie Johansen

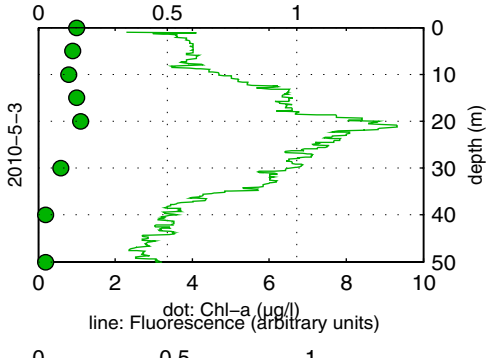
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	2010-05-03	2010-05-03	2010-05-04	2010-05-04
	cells/l	cells/l	cells/l	cells/l
Cylindrotheca closterium			present	
Dactyliosolen fragilissimus			present	
Guinardia delicatula		present		
Leptocylindrus danicus	present		present	common
Leptocylindrus minimus	present			
Nitzschia longissima	present			present
Proboscia alata	common	present	present	present
Pseudo-nitzschia delicatissima-group			present	
Pseudo-nitzschia seriata-group		present		present
Rhizosolenia hebetata	present		present	present
Rhizosolenia setigera			present	
Skeletonema costatum complex		present	dominating	
Thalassionema nitzschioides	present	common	common	present
Amphidinium crassum			present	
Amphidinium sphenoides			present	
Amylax triacantha		present		
Ceratium fusus	present	present		present
Ceratium longipes		present		
Ceratium tripos	present	present		present
Alexandrium spp.	present			
Dinophysis acuminata	present	present		present
Dinophysis norvegica	present	present		present
Dinophysis rotundata	present	present		
Gymnodinium simplex	present			present
Gyrodinium spirale	present	present		
Heterocapsa rotundata			common	
Heterocapsa spp.			present	
Heterosigma akashiwo			present	
Katodinium glaucum	present	present	present	present
Peridiniella danica			present	
Protoceratium reticulatum			present	present
Protoperidinium bipes	present			
Protoperidinium depressum	present	present		present
Protoperidinium divergens				present
Protoperidinium pellucidum	present	present		
Chrysochromulina spp.	present	present		
Cryptomonadales spp.	common	common	common	common
Teleaulax spp	common	common	common	common
Chlorodendrales spp.			present	
Pyramimonas spp.	present	present	present	present
Dinobryon balticum	present	dominating	common	
Pseudopedinella spp.			present	
Craspedophyceae spp	present			
Calliacantha natans		present	present	
Leucocryptos marina	present		common	present
Telonema subtile			present	
Emiliana huxleyi	present			present
Ciliophora spp.	present	present	present	present

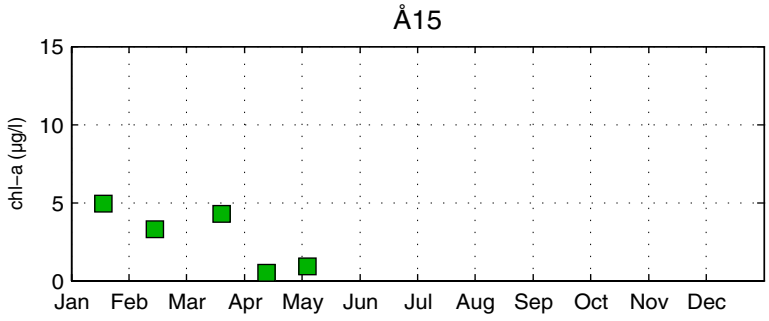
Selection of observed species	BY2	BY5	BCS III-10	BY15	BY38	Ref. M1-V1
Red=potentially toxic species	2010-05-04	2010-05-05	2010-05-05	2010-05-06	2010-05-06	2010-05-07
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
Chaetoceros subtilis				present		
Chaetoceros spp.	present	present				present
Chaetoceros similis					present	present
Skeletonema costatum complex					common	
Thalassiosira spp.	present					
Amphidinium crassum	present	present			present	
Amphidinium sphenoides					present	
Amphidinium spp.			present			present
Cladopyxis claytonii		present				
Dinophysis acuminata	present	present				
Gymnodinium simplex		present				
Gymnodinium spp.	present		present			present
Gyrodinium spirale	present					present
Heterocapsa rotundata	common		common	present	present	common
Heterocapsa spp.			present	common	present	present
Karlodinium micrum					present	
Katodinium glaucum		present	present	present	present	present
Peridiniella catenata		common	common	common	common	
Peridiniella danica	present	present	present	present	present	present
Protoperidinium bipes	present		present		present	
Protoperidinium brevipes			present			
Protoperidinium spp.	present	present	present		present	
Scripsiella complex	present		present			
Chrysochromulina polylepis					present	
Chrysochromulina spp.	present	present	present	present	present	present
Cryptomonadales spp.	common	present	common	present		common
Plagioselmis prolonga		present	present	present	common	common
Teleaulax spp.	common		present	common	present	present
Pyramimonas spp.	common		common	common	dominating	present
Dinobryon balticum	dominating	dominating	dominating	dominating	common	dominating
Dinobryon faculiferum	present				present	
Dinobryon spp.			common			present
Pterosperma spp.			present			present
Pseudopedinella pyriforme				present		
Pseudopedinella spp.		present				
Aphanizomenon spp.		present	present		present	
Planctonema lauterbornii				present	present	
Calliacantha longicaudata	present	present		present		
Calliacantha natans	present	present	present	present	common	present
Katablepharis remigera			present	present	present	
Ciliophora spp.	present	present	common			present
Mesodinium rubrum	present	present	present	present	present	present
Strombidium spp.				present	present	

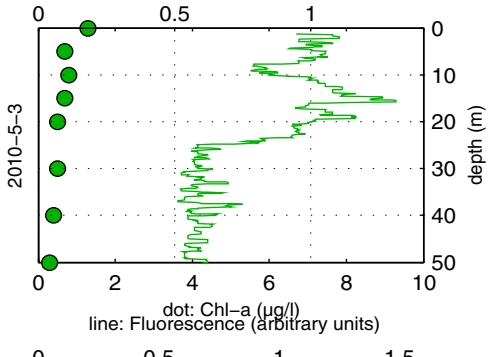
The Skagerrak

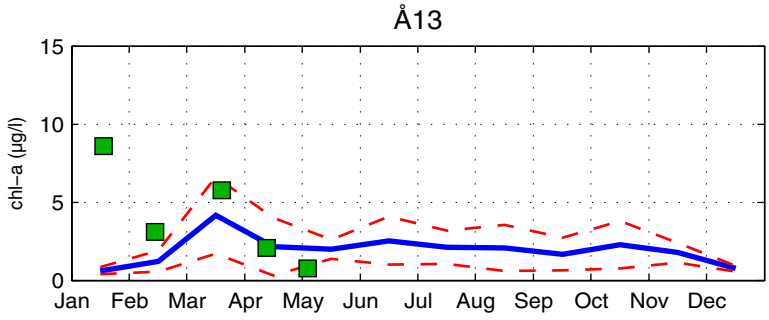


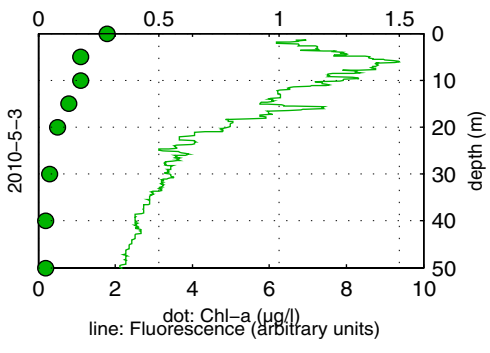


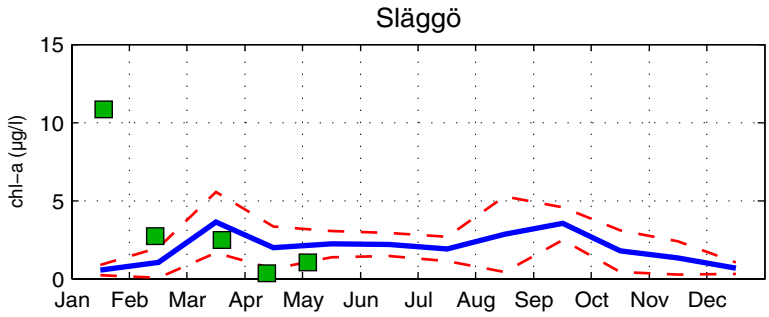


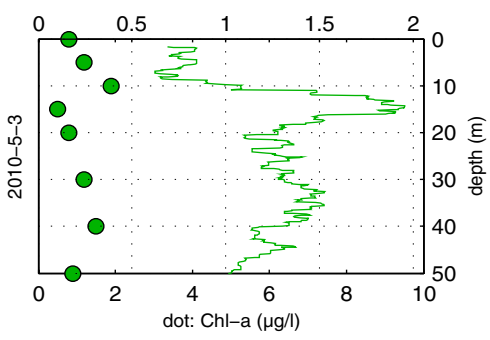


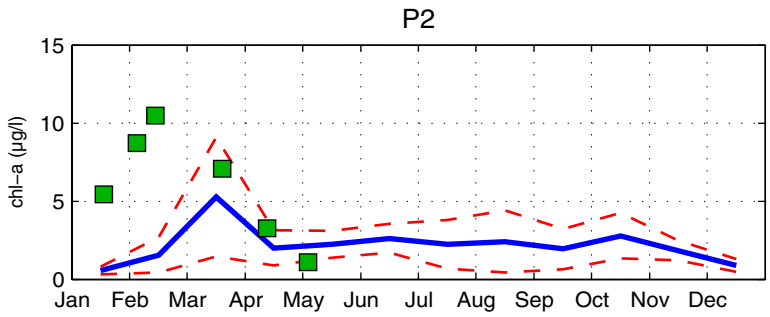




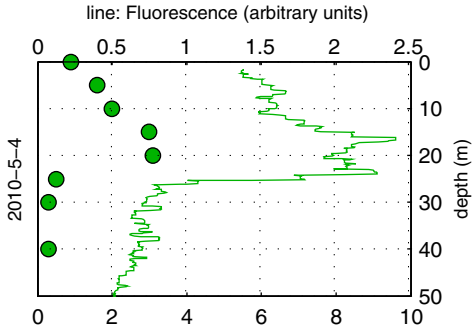


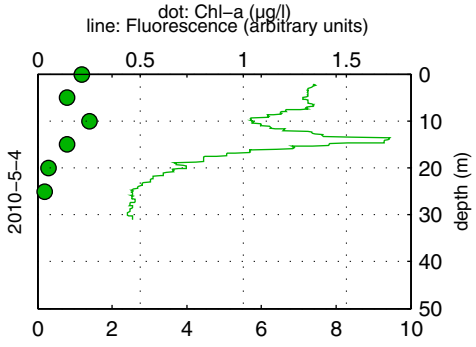


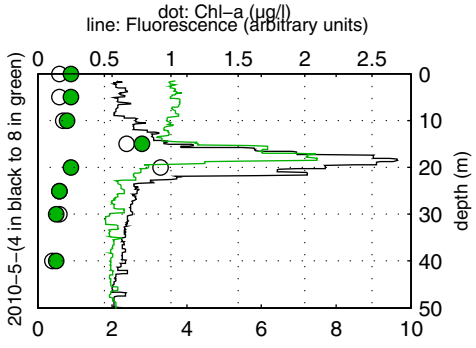


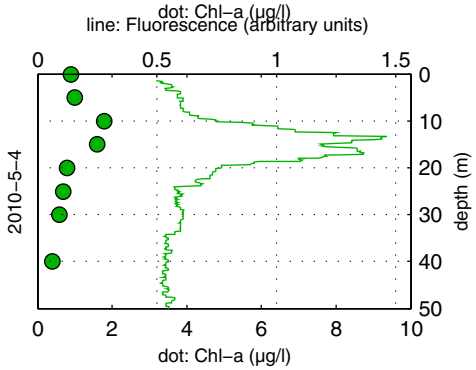


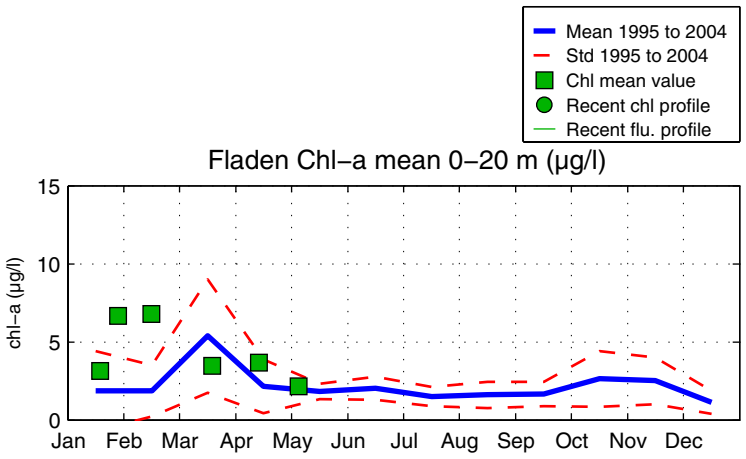
The Kattegat and the Sound

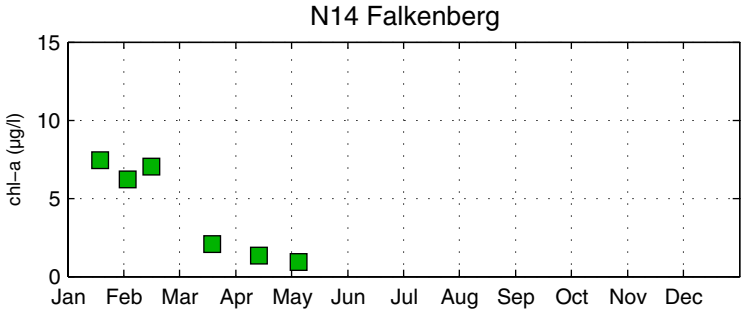


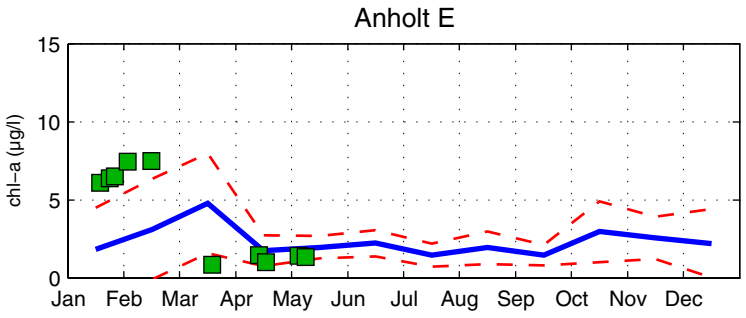


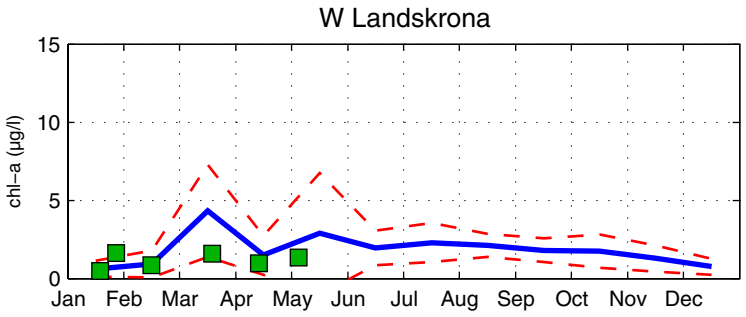




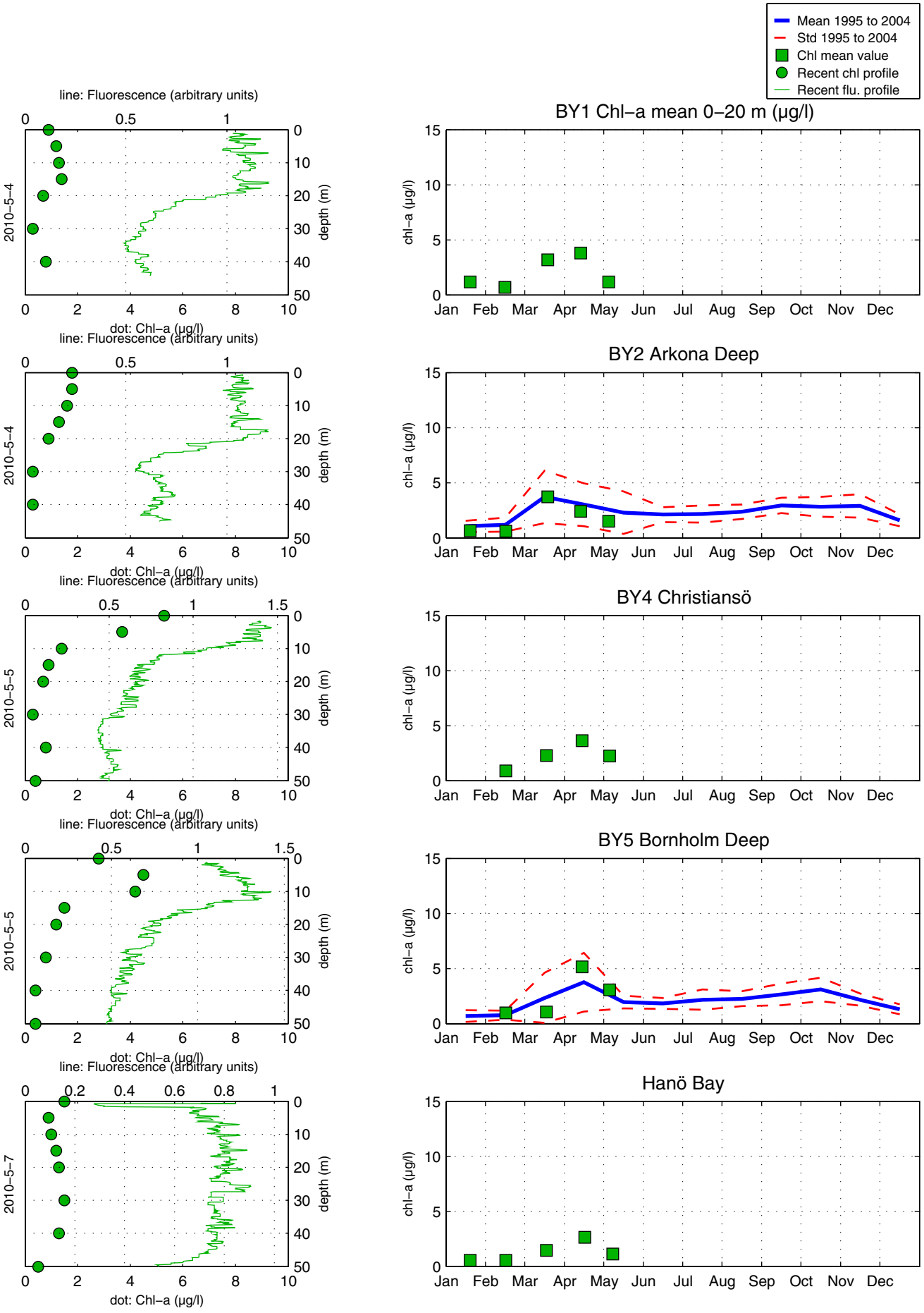




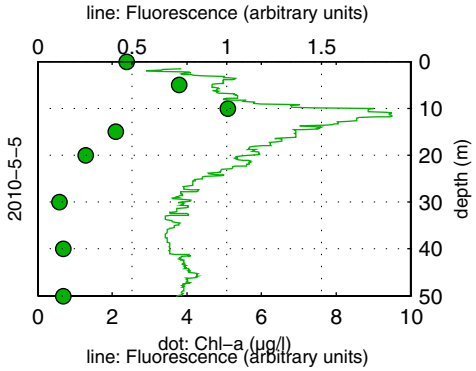


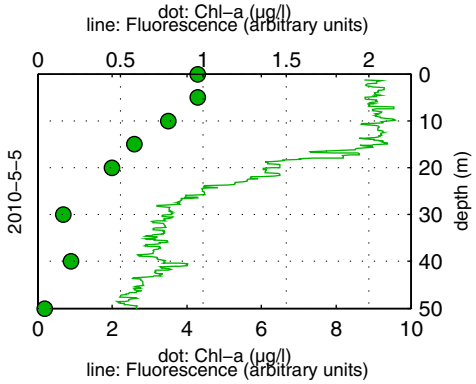


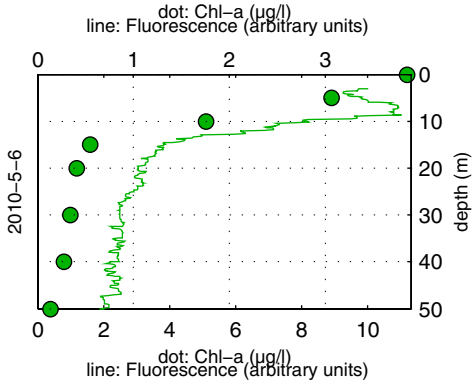
The Southern Baltic

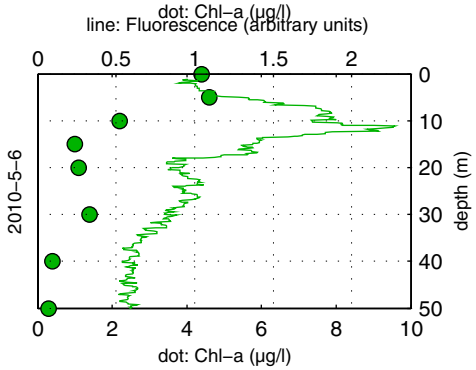


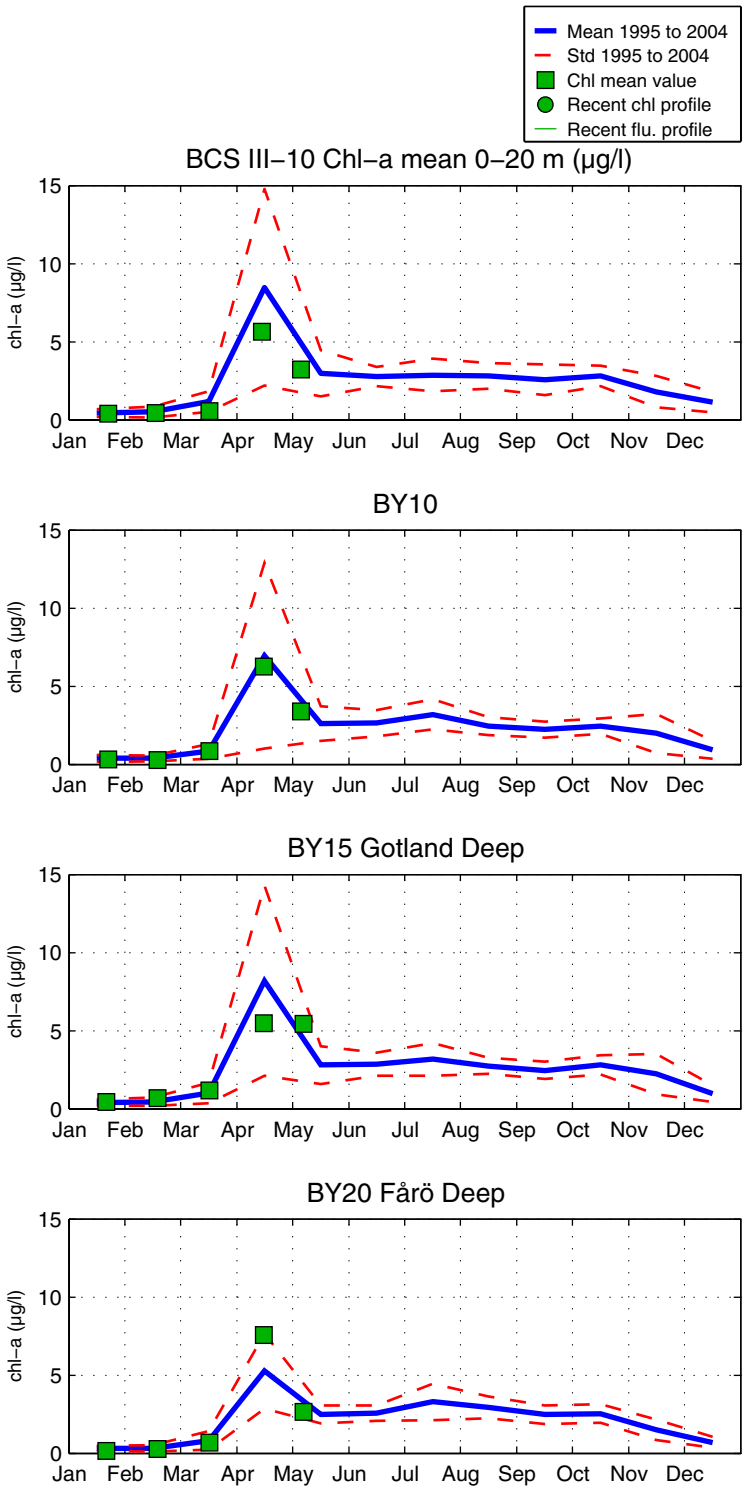
The Eastern Baltic



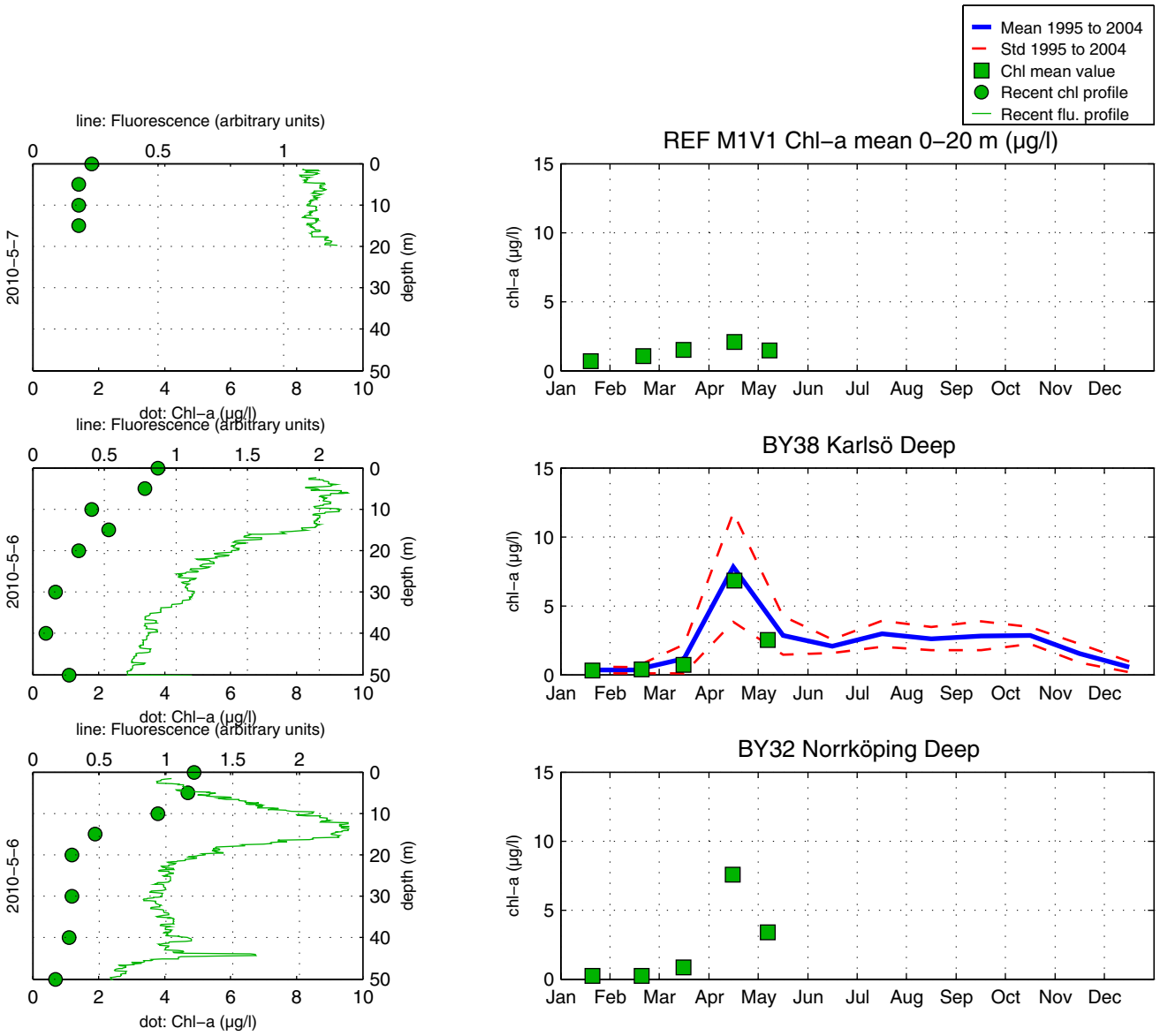








The Western Baltic



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 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.
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.
Pseudo- nitzschia 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 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.