SMHI
Oceanographic Unit
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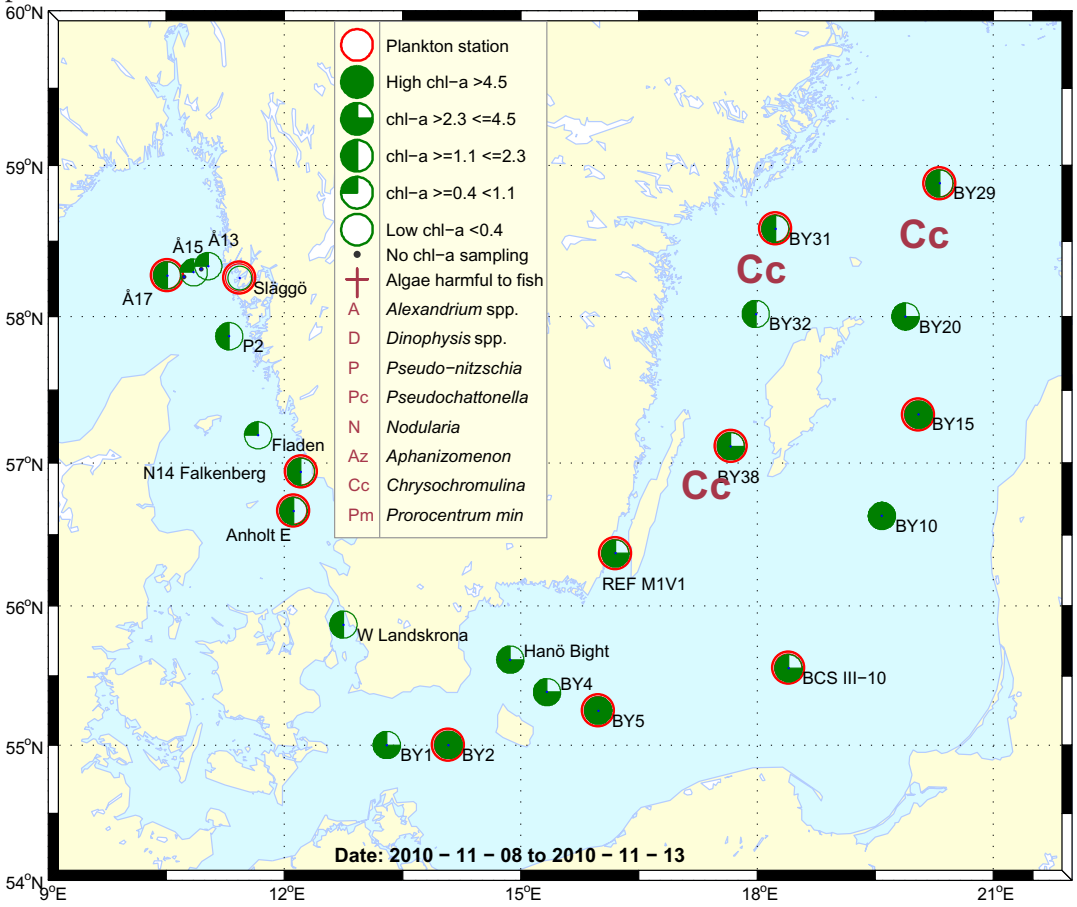
AlgAware
ALGAL SITUATION IN
MARINE WATERS SURROUNDING SWEDEN

Sammanfattning

Den största skillnaden mellan växtplanktonproverna från Skagerrak och Kattegatt var den stora förekomsten av kiselalgerna *Pseudosolenia calcar-avis* och *Pseudo-nitzschia* spp.* i Kattegatt. Arterna fanns i Skagerrak också, men i små mängder. Dinoflagellaten *Akashiwo sanguinea** var vanlig vid Skagerrakstationen Släggö och flagellaten *Pseudochattonella farcimen** var vanlig vid Kattegattstationen N14. Den integrerade (0-20m) klorofyll *a* halten var under det normala vid Släggö, vid övriga stationer i Skagerrak och Kattegat låg halterna inom det normala för denna månaden.

I Östersjön återfanns flagellaten *Chrysochromulina polylepis** vid samtliga växtplanktonstationer. Vid tre stationer, BY29, BY31 och BY38, fanns arten i måttliga till stora cellantal. Vid stationerna BY2, BY5, BY10 och BY15 var de integrerade klorofyll *a* halterna över det normala, vilket troligtvis orsakades av den stora centriska kiselalgen *Coscinodiscus* sp.



Abstract

The major differences between the Skagerrak and Kattegat areas during the latest cruise were the high cell numbers of the diatoms *Pseudosolenia calcar-avis* and *Pseudo-nitzschia* spp.* in the Kattegat phytoplankton samples. The species were present in the Skagerrak as well but in low cell numbers. The dinoflagellate *Akashiwo sanguinea** was common at the Skagerrak station Släggö and the flagellate *Pseudochattonella farcimen** was common at the Kattegat station N14. The integrated (0-20m) chlorophyll *a* concentration was below average at Släggö, and within average at all other Skagerrak and Kattegat stations.

The flagellate *Chrysochromulina polylepis** was found at all of the Baltic phytoplankton stations. At three of them, BY29, BY31 and BY38, the species was found with moderate to high cell numbers. The integrated chlorophyll *a* concentrations were above average at the stations BY2, BY5, BY10 and BY15, probably caused by the large centric diatom *Coscinodiscus* sp.

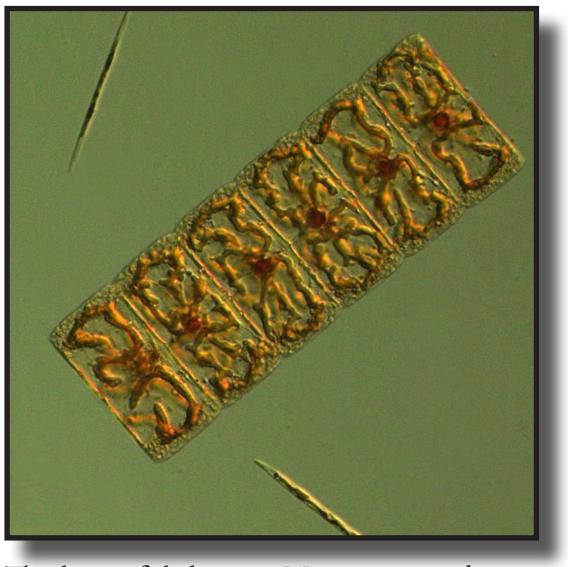
More detailed information on species composition and abundance

The Skagerrak

Å17 8th of November (open Skagerrak)
A moderate number of species with relatively low cell numbers were observed. The most common species were small flagellates and the diatom *Pseudo-nitzschia* spp.*. The integrated chlorophyll *a* concentration was within average.

Släggö 8th of November (Skagerrak coast)
The number of species and cell numbers were low. The most common species was the potentially ichtyotoxic (ichty=fish) dinoflagellate *Akashiwo sanguinea**. The integrated chlorophyll *a* concentration was below average, although the individual surface sample was extraordinarily high for this month.

The dinoflagellate *Akashiwo sanguinea** can form blooms that are potentially harmful to fish.



The beautiful diatom *Meuniera membranacea* is a rare visitor in Swedish waters. It was present at N14.

The Kattegat

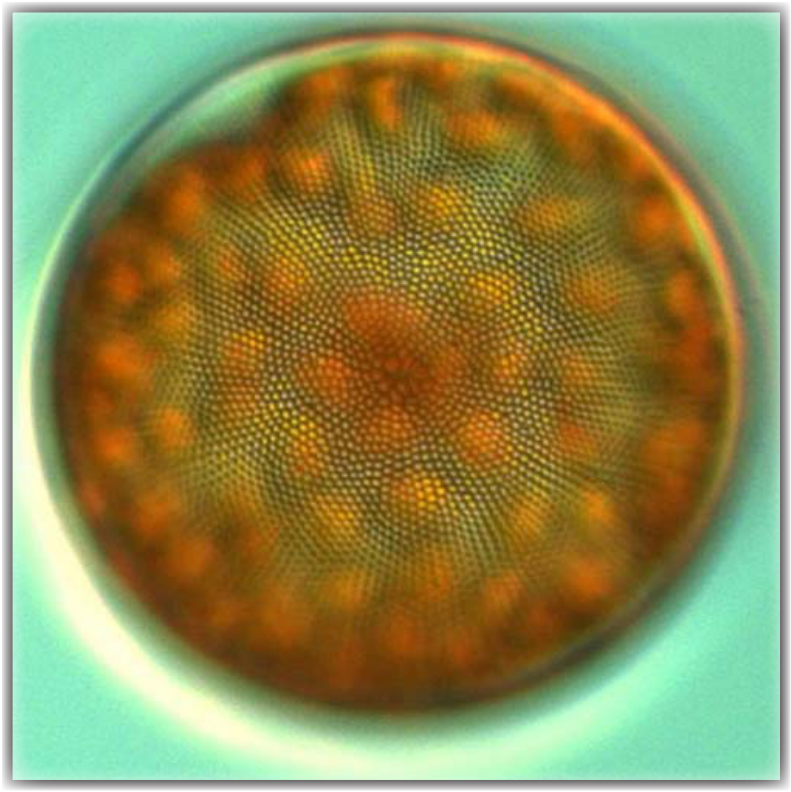
N14 Falkenberg and Anholt E 9th of November
The potentially ichtyotoxic (ichty=fish) flagellate *Pseudochattonella farcimen** was quite common and the diatoms *Pseudosolenia calcar-avis* and *Pseudo-nitzschia* spp.* dominated the phytoplankton sample. The diatom *Meuniera membranacea*, which normally is not part of the indigenous phytoplankton flora was present. The integrated chlorophyll *a* concentrations were within average.

The Baltic Sea

BY2, BY5, BCSIII-10 and BY15 10th-11th of November
The diatom *Coscinodiscus* sp., the ciliate *Mesodinium rubrum* and small flagellates were common. The flagellate *Chrysochromulina polylepis** was present. The integrated chlorophyll *a* concentration was within average at BCSIII-10 and above average at the other three stations, probably caused by *Coscinodiscus* sp.

BY29, BY31 and BY38 11th-12th of November
The flagellate *Chrysochromulina polylepis** was present with moderate to high cell numbers. Small flagellates and the filamentous cyanobacterium *Aphanizomenon* sp. were common. The integrated chlorophyll *a* concentration was within average at BY38.

Ref M1V1 Kalmar Sound 13th of November
Small flagellates were common and the flagellate *Chrysochromulina polylepis** was present. The integrated chlorophyll *a* concentration was within average.



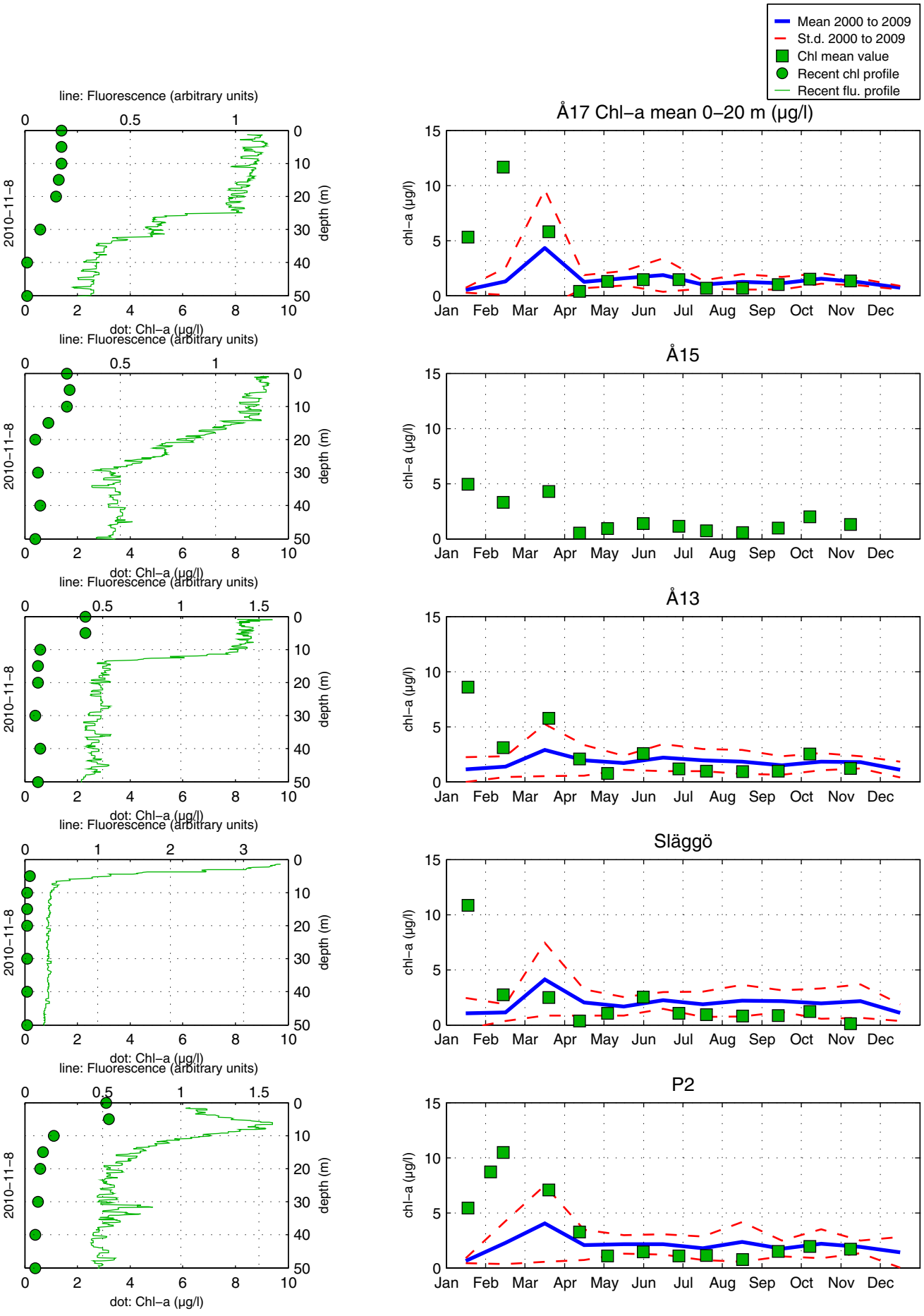
The large diatom *Coscinodiscus* sp. was common at several Baltic phytoplankton stations.

Phytoplankton analysis and text by:
Ann-Turi Skjevik

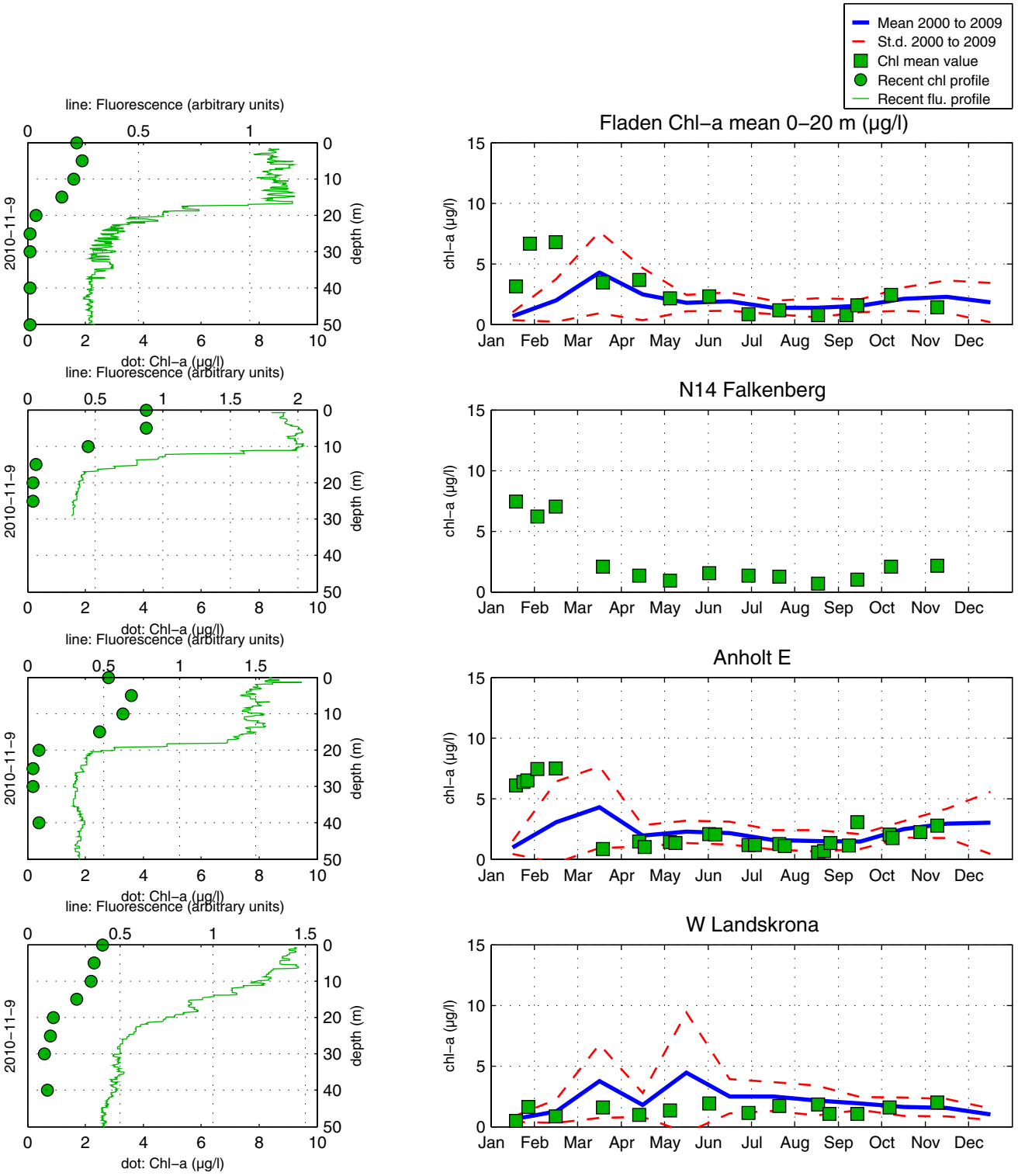
Selection of observed species	Å17	Släggö	N14	Anholt E
Red=potentially toxic species	8/11	8/11	9/11	9/11
	cells/l	cells/l	cells/l	cells/l
Attheya septentrionalis		present		
Cerataulina pelagica	present			
Cylindrotheca closterium	present			
Dactyliosolen fragilissimus	present			
Detonula confervacea		present		
Guinardia delicatula			present	present
Guinardia flaccida			present	present
Leptocylindrus danicus	present		present	
Leptocylindrus minimus	present	present		
Meuniera membranacea			present	
Nitzschia longissima	present	present		
Pseudo-nitzschia spp.	common	present	very common	very common
Pseudosolenia calcar-avis	present	present	very common	very common
Rhizosolenia pungens	present		present	present
Rhizosolenia setigera			present	
Skeletonema marinoi	present			
Thalassiosira angulata		present		present
Thalassiosria rotula	present		common	common
Akashiwo sanguinea		8 500	present	present
Ceratium furca		present		present
Ceratium fusus		present		present
Ceratium lineatum	present	present	common	common
Ceratium longipes		present	present	present
Dinophysis norvegica			present	present
Dinophysis rotundata				present
Gymnodinium verruculosum	present	present		
Gyrodinium flagellare	present			
Heterocapsa spp.	present			
Katodinium glaucum	present			
Polykrikos schwartzii		present		
Protoperidinium spp.		present	present	present
Chrysochromulina spp.	present		present	present
Cryptomonadales spp.	140 000	present	90 000	95 000
Heterosigma akashiwo			present	present
Pyramimonas spp.	present		present	
Apedinella radians			present	
Pseudopedinella spp.	present		present	present
Dictyocha fibula		present		
Dictyocha speculum	present		present	present
Pseudochattonella farcimen		present	common	present
Calliacantha natans			present	
Leucocryptos marina	present			
Telonema subtile	present		present	present
Laboea strobila	present			
Mesodinium rubrum	present	present	present	

Selection of observed species	BY2	BY5	BCS III-10	BY15	BY29	BY31	BY38	Ref. M1-V1
Red=potentially toxic species	10/11	10/11	11/11	11/11	11/11	12/11	12/11	13/11
	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l	cells/l
Attheya septentrionalis				present				
Cerataulina pelagica	present							
Chaetoceros convolutus	present							
Chaetoceros danicus	present	present						
Chaetoceros impressus				present				
Coscinodiscus spp.	common	common	common	very common		present	present	
Cyclotella choctawhatcheana		present				present	present	present
Pseudo-nitzschia spp.				present				
Pseudosolenia calcar-avis	present							
Dinophysis acuminata			present		present		present	present
Dinophysis norvegica					present		present	
Dinophysis rotundata				present				
Gymnodinium verruculosum		present						
Gyrodinium flagellare							present	
Heterocapsa spp.			present		present			present
Prorocentrum micans	present	present						present
Prorocentrum minimum	present			present	present	present	present	
Protoperidinium spp.				present		present	present	
Chrysochromulina polylepis	present	present	present	present	23 000	99 000	193 000	present
Chrysochromulina spp.			present		present	present	present	
Cryptomonadales spp.	80 000	common	common	common	common	common	common	78 000
Pyramimonas spp.	common	present	present	present	common	present	common	present
Apedinella radians		present						
Pseudopedinella spp.	present							
Aphanizomenon spp.				present	common	common	common	
Planctonema lauterbornii	present	present	present	present			present	
Calliacantha natans	present		present	present	present	present	present	present
Ebria tripartita	present			present	present			
Leucocryptos marina	present	present			present			
Mesodinium rubrum	common	common	common	present	common	present	present	present

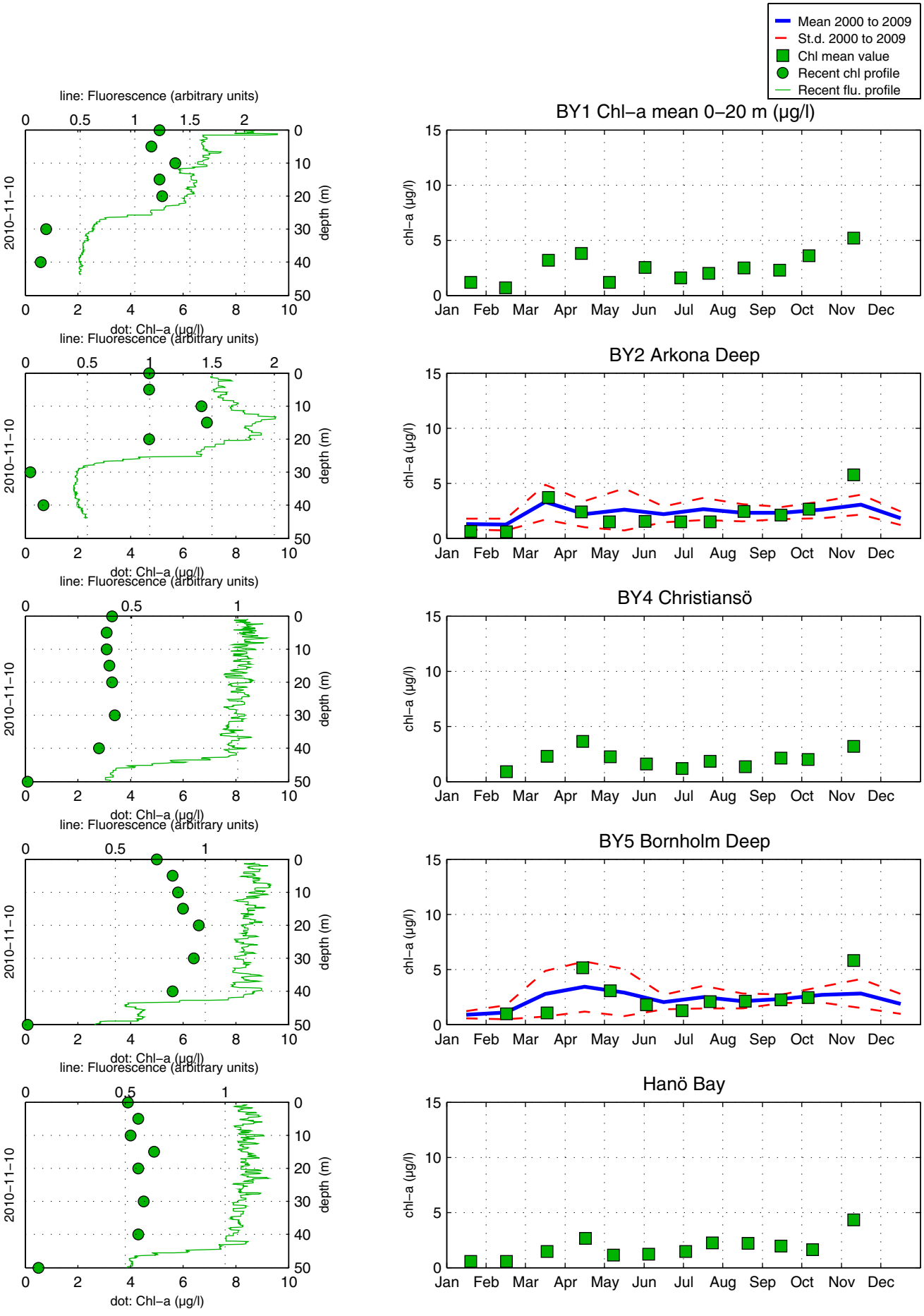
The Skagerrak



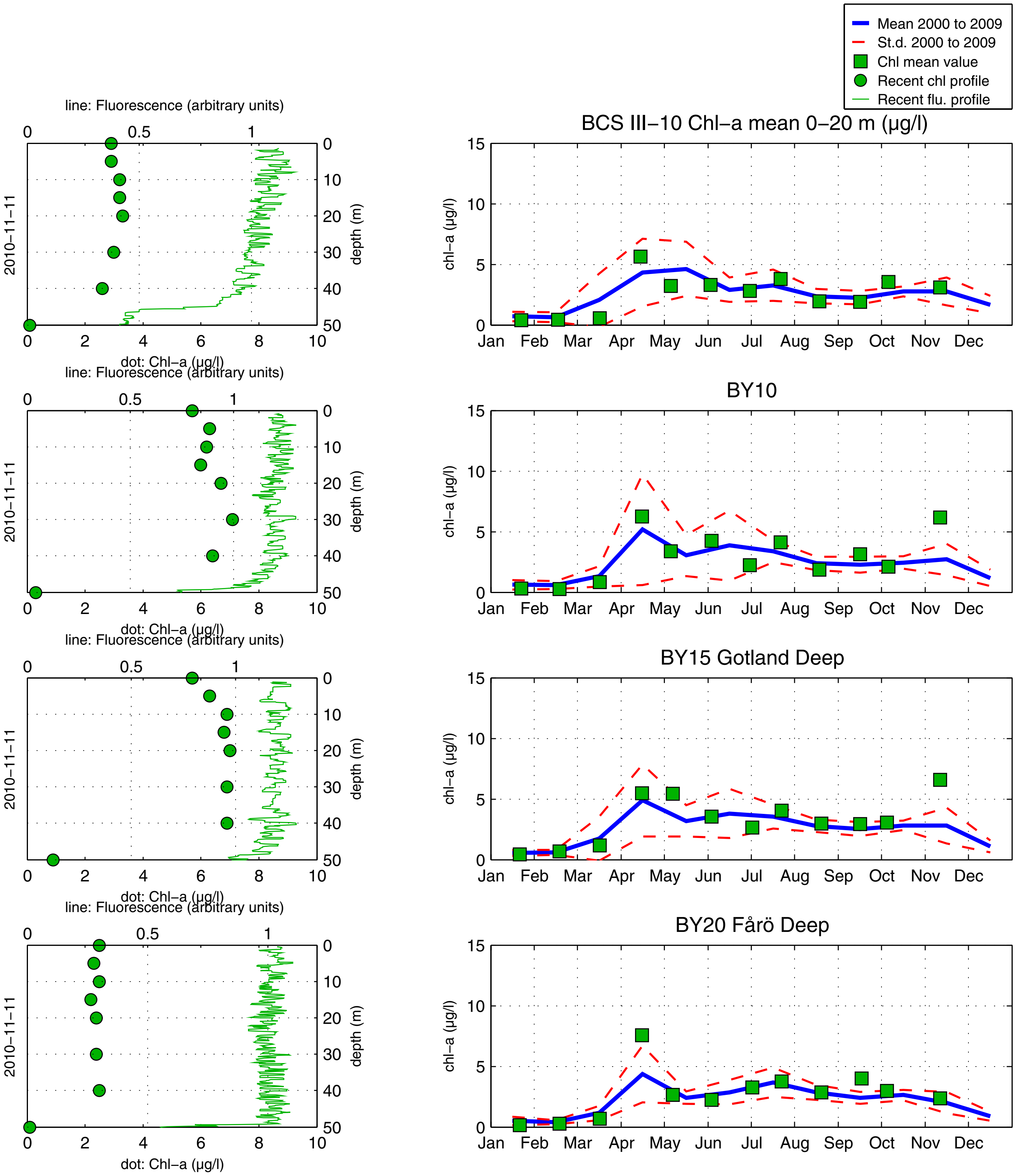
The Kattegat and the Sound

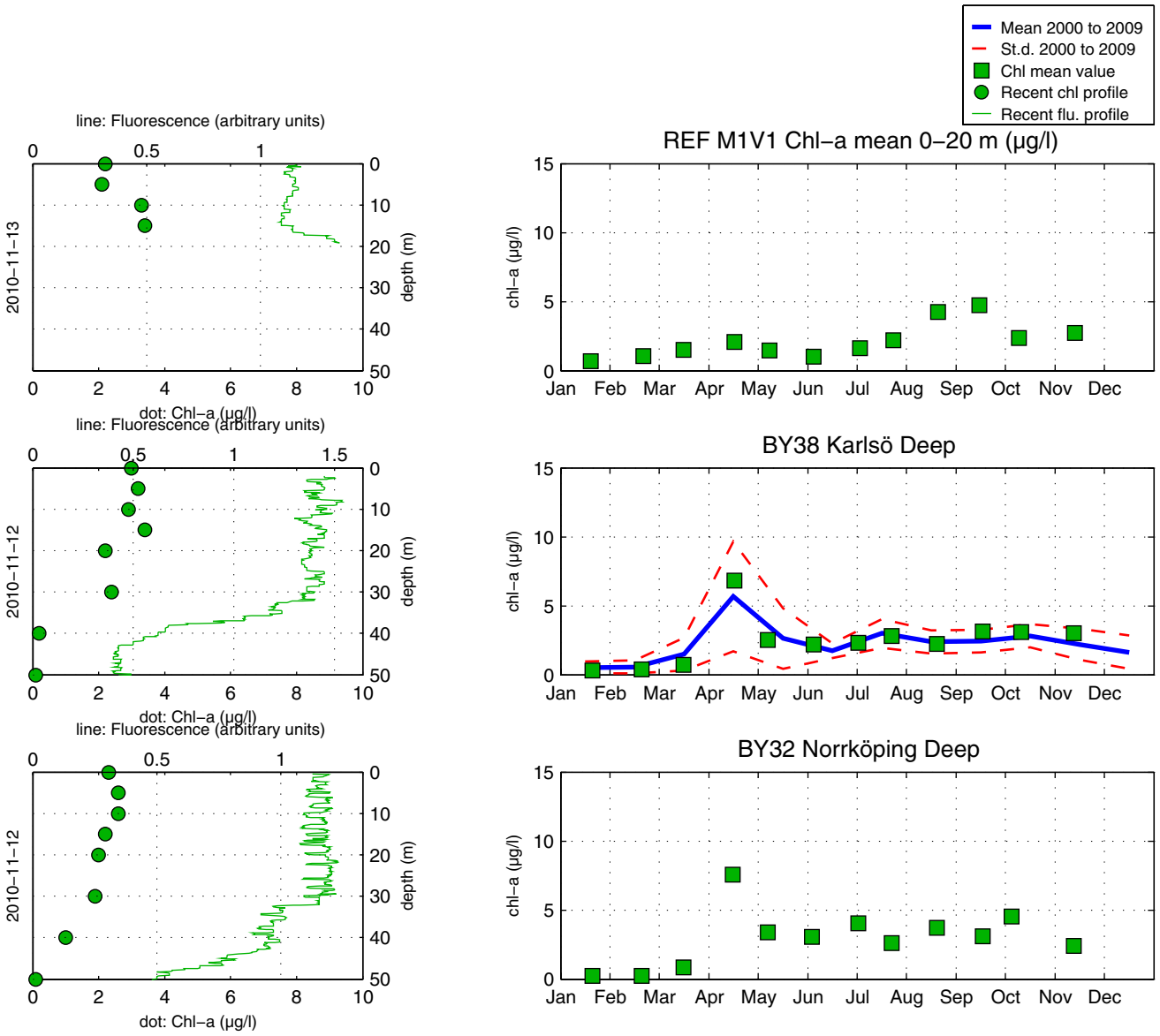


The Southern Baltic



The Eastern 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.