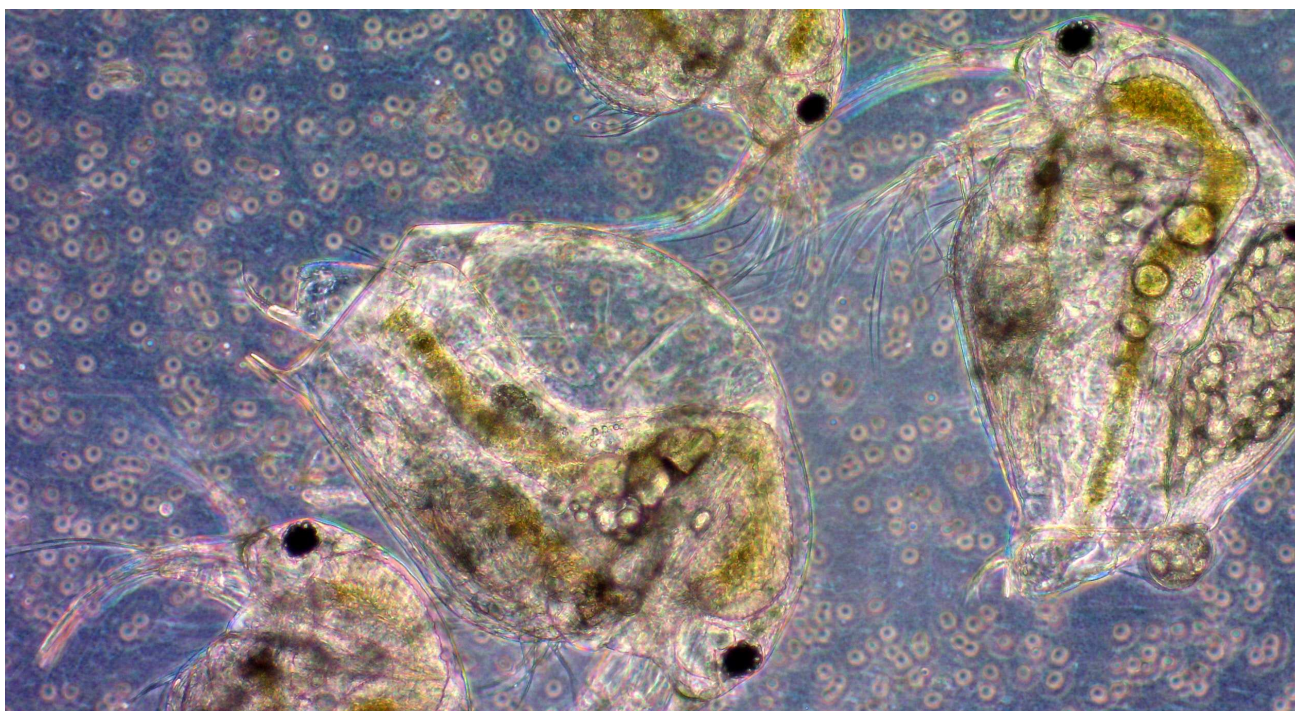


Sammanfattning

I Skagerrak återfanns mestadels låg artdiversitet vid samtliga stationer. I Kattegatt var artdiversiteten något högre. Ett fluorescens maximum återfanns på 15-20m vid de flesta stationer i både Kattegatt och Skagerrak. Vid samtliga maximum dominerade olika arter av dinoflagellatssläktet *Ceratium*.

I egentliga Östersjön nordöstra delar, nära finska viken samt öster om Gotland noterades stora stråk samt fläckar med ytansamlingar av cyanobakterier. Lika delar av de filamentösa cyanobakterierna *Nodularia spumigena* * samt *Aphanizomenon flos-aquae* återfanns här. I den sydliga delen av Östersjön noterades endast tunna strimor av ytansamlingar mellan Bornholm och Hanöbukten.



Hinnkräftan *Bosmina* spp återfanns i relativt höga tätheter i hela södra Östersjön.

Växtplanktonanalyserna har genomförts ombord på R/V Aranda med fokus på cyanobakterierna som dominerar i blomningarna i Östersjön. Analysmetoden som används ombord är inte optimal för många andra plankton men de arter som observerats rapporteras här.

För att se satellitolkningar av ytansamlingar av cyanobakterier:

<http://www.smhi.se/klimatdata/oceanografi/Algsituationen>

Abstract

In the Skagerrak, the phytoplankton community was rather low in diversity. In Kattegat the species diversity was a bit higher. A fluorescence maxima was found at almost all stations and these maxima were dominated by different species of the dinoflagellate genus *Ceratium*

In the Baltic proper, surface aggregations of cyanobacteria were noted in the northeastern part of the Baltic proper. In the southern parts of the Baltic proper small strains of surface aggregations were only observed between Bornholm and Hanö Bight. .

Phytoplankton analyses have been made on board the R/V Aranda with main focus on the cyanobacteria dominating in the Baltic bloom. The method used here is not the best for other plankton groups, nevertheless all organisms observed are reported.

To follow the surface accumulations of cyanobacteria in the Baltic Sea by satellite interpretations:

<http://www.smhi.se/en/Weather/Sweden-weather/the-algae-situation-1.11631>

More detailed information on species composition and abundance from microscopic analyses.

50 ml of water was filtered through 10 µm polycarbonate filters before being analyzed using a light microscope. Potentially toxic species are marked with *. The observed species are listed on page 5-6.

Small species were not analyzed on board. Results of chlorophyll *a*, which will be analyzed later at SMHI, will not be included in this report.

The Skagerrak

Å17 5th of August

The species diversity was rather low in the integrated sample (0-10m). The diatom *Proboscia alata* was found in highest cell number. A slightly elevated fluorescence maximum was found at about 35 meters was found but not sampled.

Å15 and Å13 5th of August

A fluorescence maximum at 15 meters depth was found at both stations. These maximum were dominated by different species of the dinoflagellate genus *Ceratium*. Especially *C. tripos*, *C. fusus* and *C. macrocerous* were common.

Släggö 5th of August

The phytoplankton diversity was quite low. The sample mainly consisted of different species of dinoflagellates where *Prorocentrum micans* was the most abundant of the species found.

The Kattegat

Anholt E 4th and 5th of August

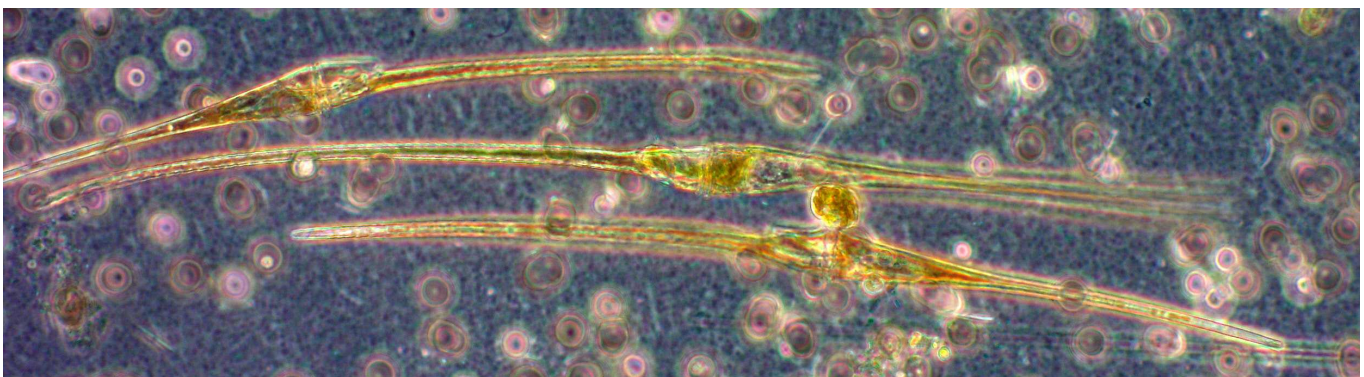
The species diversity was relatively high at the first visit but had been reduced at the last sampling occasion. A surface sample was collected at the last sampling occasion due to visible particles at the surface but nothing conspicuous was found.

N14 Falkenberg 4th of August

The species diversity was relatively high. Most abundant was different diatoms such as *Dactyliosolen fragilissimus*, *Proboscia alata* and also the potentially toxic genus *Pseudo-nitzschia**. A fluorescence maximum was found at 15 meters mainly containing different species of the dinoflagellate genus *Ceratium*.

Fladen 4th of August

A fluorescence maximum was found at 15 meters containing different species of the dinoflagellate genus *Ceratium* most abundant was *C. fusus*.



The Baltic Sea

Short summary of the observed accumulations.

Streaks and patches of surface accumulations were visible in the northeastern part of the Baltic proper and in the southwestern part between Bornholm and Hanö Bight but in more discrete streaks.

BY20 Fårö deep 2nd of August

Small streaks and patches were visible. The surface sample was dominated by the cyanobacterium *Nodularia spumigena** where some filaments looked like they were about to degrade. Aggregations of the cyanobacterium *Aphanizomenon flos-aquae* were also common.

BY15 Eastern Gotland Basin 2nd of August.

The surface sample contained only few filaments. Both *Nodularia spumigena** and *Aphanizomenon flos-aquae* was present and also the cyanobacterium genus *Dolichospermum* but in lower amounts.

The integrated (0-10m) sample contained only few species and in low numbers. The dinoflagellate *Dinophysis norvegica* and different species of the diatom genus *Chaetoceros* was present. A few other diatom and dinoflagellate species were observed as well as the chlorophyte *Planctonema lauterbornii*.

BY4 Bornholm Basin 3rd of August

Small aggregations of *N. spumigena** was found in the surface sample

BY 2 Arkona Basin and BY 5 Bornholm Basin 3rd of August

No visible surface accumulations. Small aggregations were visible and a few filaments of mainly *Nodularia spumigena** was present in the surface sample in these southern stations.

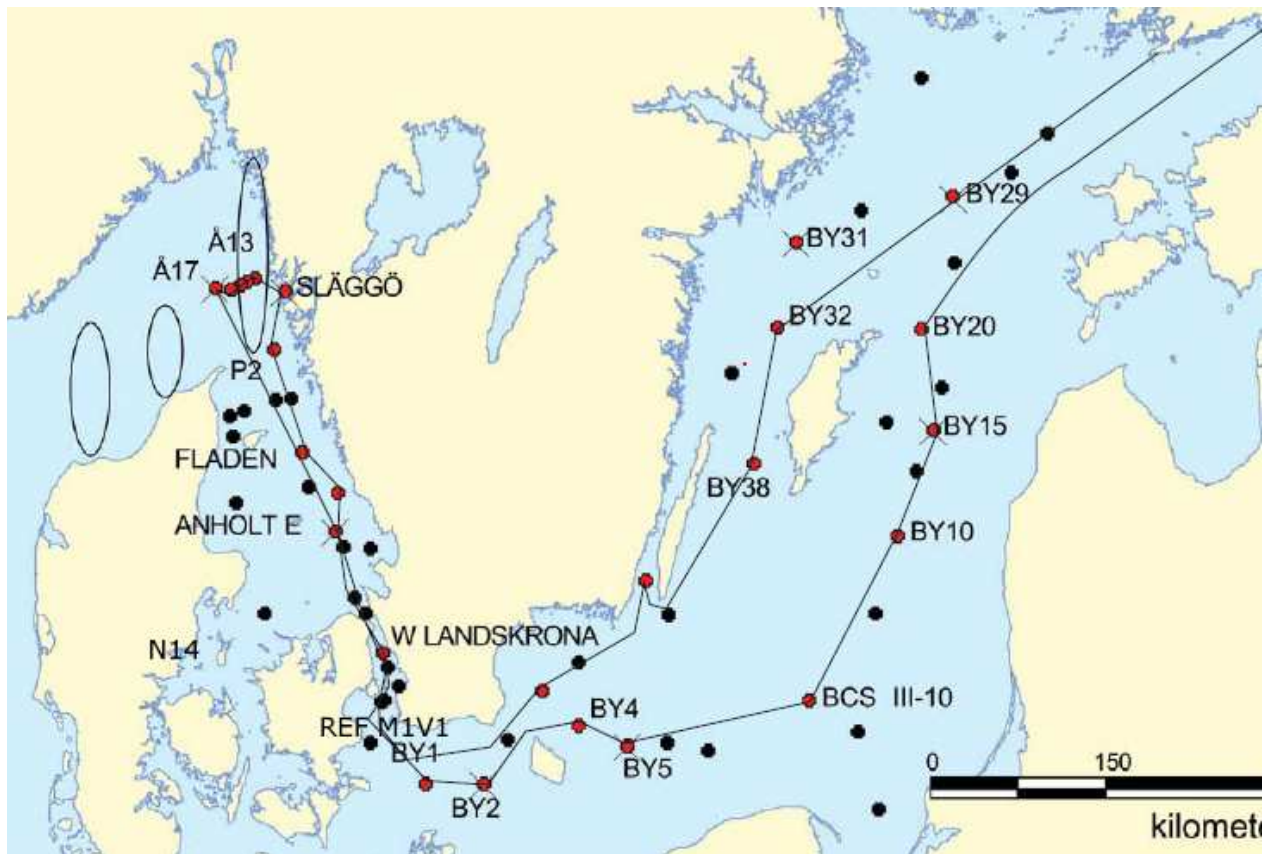
Only a few different species were found in the integrated samples from these stations, such as the diatom genus *Chaetoceros*.

Ref M1V1 6th of August

Some wind stress caused waves and no visible surface aggregations were observed. The three most common filamentous cyanobacteria in the Baltic: *N. spumigena**, *A. flos-aquae* and the genus *Dolichospermum* were all present in low amounts in the concentrated sample.

BY 32 and BY 38 7th of August

No visible surface accumulations and only a few filaments of cyanobacteria were found in the concentrated sample collected with a plankton net.



The expedition started and ended in Helsinki. The stations located in the eastern part of the Baltic proper were sampled on the way out and the westerly stations in the Baltic proper sampled on the way back.

| Selection of observed species | Å17 | Släggö | N14 | Anholt E | Anholt E |
|------------------------------------|------------|------------|------------|------------|------------|
| Red=potentially toxic species | 2014-08-05 | 2014-08-05 | 2014-08-04 | 2014-08-04 | 2014-08-05 |
| Hose 0-10 m | presence | presence | presence | presence | presence |
| <i>Cerataulina pelagica</i> | | | | | present |
| <i>Chaetoceros</i> spp | | | present | | |
| <i>Dactyliosolen fragilissimus</i> | | | common | common | common |
| <i>Leptocylindrus danicus</i> | | | present | | |
| <i>Proboscia alata</i> | common | present | common | common | common |
| <i>Pseudo-nitzschia</i> spp | | | common | common | common |
| <i>Pseudosolenia calcar-avis</i> | present | | present | | present |
| <i>Rhizosolenia</i> spp | | | present | | |
| <i>Ceratium furca</i> | | present | | | |
| <i>Ceratium fusus</i> | present | present | present | present | |
| <i>Ceratium lineatum</i> | | | | present | present |
| <i>Ceratium longipes</i> | | | | present | |
| <i>Ceratium macroceros</i> | present | | present | present | |
| <i>Ceratium tripos</i> | present | | present | common | present |
| <i>Dinophysis acuminata</i> | | present | present | present | |
| <i>Dinophysis norvegica</i> | | | | present | |
| Gymnodiniales | present | | | present | |
| <i>Lingulodinium polyedrum</i> | | present | common | present | |
| <i>Prorocentrum micans</i> | present | common | common | common | present |
| <i>Protoceratium reticulatum</i> | | | | present | |
| <i>Protoperidinium</i> spp | | | present | present | |
| <i>Dictyocha speculum</i> | | | | present | |
| <i>Teleaulax</i> spp | | present | pesent | | |
| <i>Nodularia spumigena</i> | | | | present | present |

| Selection of observed species | BY15 | BCS III-10 | BY5 | BY2 | Ref M1V1 | BY38 |
|---------------------------------|----------|------------|----------|----------|----------|----------|
| Red=potentially toxic species | 02-aug | 03-aug | 03-aug | 03-aug | 06-aug | 07-aug |
| Hose 0-10 m | presence | presence | presence | presence | presence | presence |
| <i>Chaetoceros impressus</i> | present | present | present | present | present | present |
| <i>Chaetoceros danicus</i> | | | | | present | |
| <i>Ceratium tripos</i> | | | present | present | present | |
| <i>Dinophysis norvegica</i> | present | | | | | present |
| <i>Planctonema lauterbornii</i> | present | present | | | | |
| <i>Ebria tripartita</i> | | | | present | | |
| <i>Oocystis</i> spp. | | | | present | present | common |
| pico cyanobacteria colonies | present | common | common | common | present | |
| <i>Dolichospermum</i> spp. | present | present | present | present | present | |
| <i>Aphanizomenon</i> sp. | common | present | present | present | present | present |
| <i>Nodularia spumigena</i> | common | present | present | present | present | present |

| Surface samples, bucket 0 m | The following filamentous cyanobacteria were observed: | | |
|-----------------------------|--|----------------------------|---------------------------|
| Station: | <i>Aphanizomenon</i> spp. | <i>Nodularia spumigena</i> | <i>Dolichospermum</i> spp |
| BY20 | common | common | present |
| BY15 | common | common | present |
| BY10 | present | present | |
| BCS III-10 | present | present | present |
| BY5 | present | present | |
| BY4 | | present | |
| BY2 | present | present | |
| BY1 | present | present | |
| Ref M1V1 | present | present | present |
| BY32 | present | present | present |
| BY38 | present | present | |