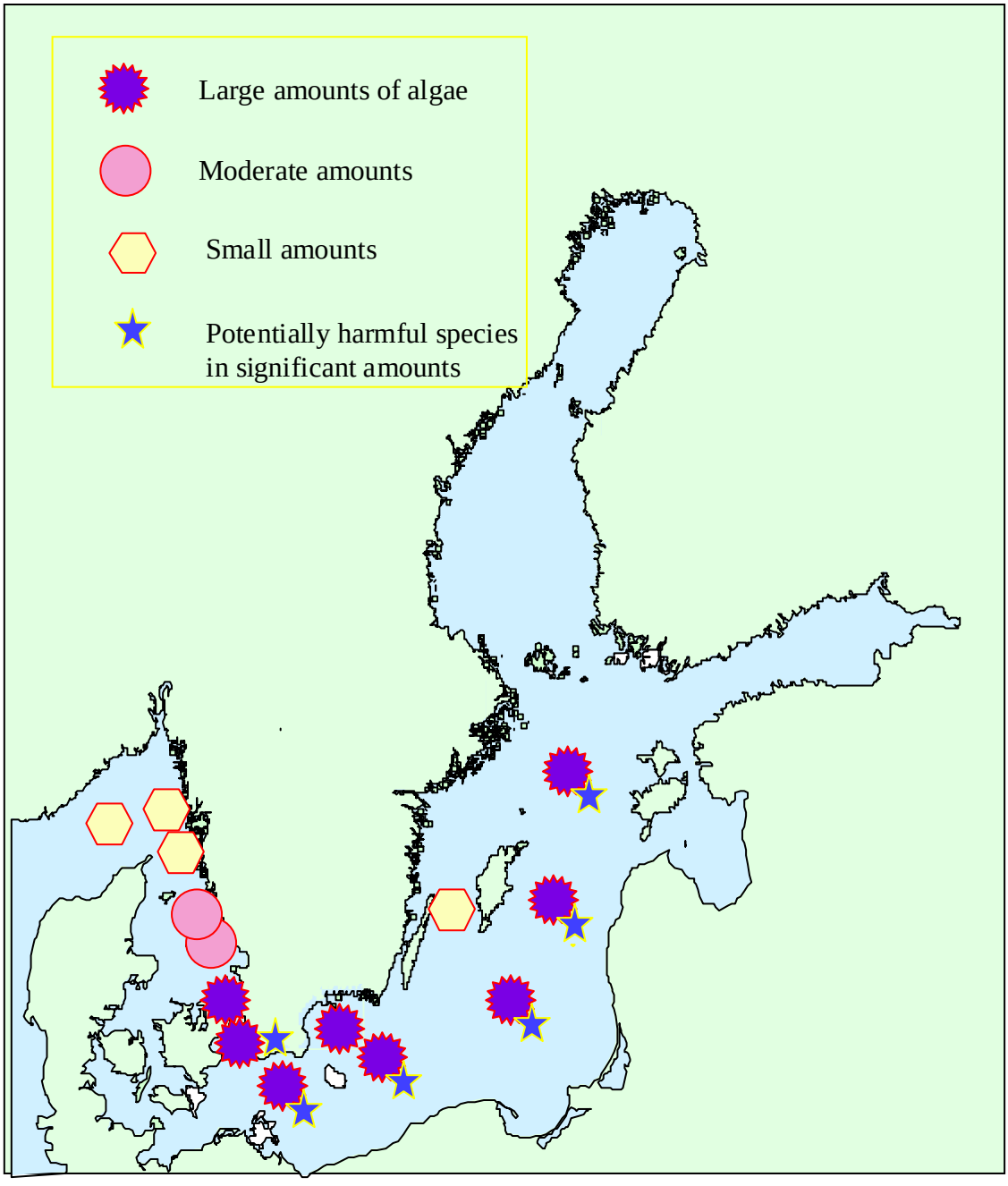
SMHI

Oceanographic Services Lars Edler

ALGAL SITUATION IN SWEDISH MARINE WATERS
No 8, 1999, 2-7 August

OVERVIEW

Sampling in the Skagerrak, the Kattegat and the Baltic Sea



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DETAILS * POTENTIALLY HARMFUL SPECIES

Sampling in the Skagerrak, the Kattegat and the Baltic Sea

SKAGERRAK

Station P2, 2 AUGUST

Chlorophyll concentrations in the upper 10 m 1,6 $\mu g\,l^{-1}$.

Diatoms dominated with *Skeletonema costatum*, *Proboscia alata* and *Leptocylindrus danicus* being the most abundant. Among dinoflagellates *Ceratium furca* and *Ceratium tripos* were the most frequent.

Station M6, 2 AUGUST

Chlorophyll concentrations in the upper 10 m 0.4 $\mu g\,l^{-1}$. A peak of 4 $\mu g\,l^{-1}$ at 20 m depth.

Small amounts of phytoplankton. The diatoms *Proboscia alata* and *Dactyliosolen fragilissimus* dominated. The dinoflagellates *Ceratium furca*, *Ceratium tripos* and *Dinophysis norvegica** were observed in low abundance (less than 1 000 cells/l). *Chrysochromulina* spp. present with less than 20 000 cells/l.

KATTEGAT

Station Anholt E, 3 AUGUST

Chlorophyll concentrations in the upper 20 m 1.5 $\mu g.l^{-1}$.

High cell densities of small monads and flagellates; Chrysochromulina spp.* ~100 000 cells/l, Heterocapsa rotundatum ~68 000 cells/l, cells < 3 µm 2.88 million/l. The diatoms *Proboscia alata* and *Dactyliosolen fragilissimus* present with < 10 000 cells/l. The dinoflagellates *Ceratium furca*, *Ceratium fusus, Ceratium tripos*, *Dinophysis acuminata** and *Dinophysis norvegica** were observed in low abundance (< 1 000 cells/l).

ÖRESUND 3 AUGUST

Chlorophyll concentrations in the surface layer 1.0-2.6 $\mu g.l^{-1}$.

In the northern part diatoms dominated; *Skeletonema costatum* ~ 850 000 Cells/l, *Dactyliosolen fragilissimus* ~60 000 cells/l. The most frequent dinoflagellates were *Prorocentrum minimum** ~55 000 cells/l, *Gymnodinium* cf. *vestificii* ~17 000 cells/l and *Heterocapsa rotundatum* ~ 34 000 cells/l. *Chrysochromulina* spp.* were found in densities of ~50 000 cells/l and the blue-green algae *Aphanizomenon* sp. 1.7 meter/l (total length of trichoms).

In the central part there were less diatoms, but more of *Prorocentrum minimum** (~800 000 cells/l) and *Chrysochromulina* spp* (~85 000 cells/l)

In the southern part blue-green algae dominated completely and colored the surface slightly. *Aphanizomenon* sp. was present with ~50 meter/l and *Nodularia spumigena** with ~5 meter/l.

*Prorocentrum minimum** ~400 000 cells/l and *Chrysochromulina* spp.* 17 000 cells/l were also found.

BALTIC SEA

Arkona basin. Station BY2, 4 AUGUST

Chlorophyll concentrations down to 20 m 1.1 – 3.9 µg.l^{-1}.

The blue-green algae *Aphanizomenon* sp. and *Nodularia spumigena** present with 4 and 1 meter/l respectively. The diatoms *Chaetoceros impressus* and *Dactyliosolen fragilissimus* common with 25 000 – 50 000 cells/l. *Prorocentrum minimum** ~ 86 000 cells/l and small amount of *Chrysochromulina* spp.* were also found.

Bornholm basin. Station BY5, 4 AUGUST

Chlorophyll concentrations between the surface and 20 m 1.3 – 3.1 µg·l^{-1}.

The blue-green algae *Aphanizomenon* sp. was common with about 7 m·l^{-1}. Single trichoms of *Nodularia spumigena** present. The diatoms *Chaetoceros impressus* and *Nitzschia palea* were common with ~60 000 and ~150 000 cells/l respectively. Small flagellates of *Pyramimonas* sp., *Plagioselmis* sp. and *Teleaulax* spp. were present with about 1 million cells/l together.

Hanö Bight,. Station BY5, 7 AUGUST

Chlorophyll concentrations between the surface and 20 m 1.5 – 4.9 µg·l^{-1}.

Similar to the BY5, but higher density of *Aphanizomenon* sp. (~17 meter/l). The dinoflagellate *Prorocentrum minimum** was observed with ~ 17 000 cells/l.

Southeast Baltic, Station BCS III 10, 4 AUGUST

Chlorophyll concentrations between the surface and 20 m 2.7 – 4.4 µg·l^{-1}.

Blue-green algae important here. Large areas with surface accumulations of algae. In the sample 0-10 meters depth *Aphanizomenon* sp. was present with 0.3 meter/l· *Nodularia spumigena** ~ 4 meter/l, cf. "*Pseudoanabaena*" ~ 17 meter/l and cf. *Cyanodichtyon* ~ 82 000 colonies/l. *Chrysochromulina** spp. was present with ~ 357 000 cells/l.

Eastern Gotland basin, Station BY10, 4 AUGUST

Chlorophyll concentrations between the surface and 20 m 2.1 – 4.5 µg·l^{-1}.

The blue-green algae cf. " *Pseudoanabaena* " which has not previously been observed in very high concentrations was extremely abundant here. A total cell length of about 100 meter/l was found. The other blue-greens *Aphanizomenon* sp. and *Nodularia spumigena** were found in length of 5 and 1 meter/l respectively. The blue-green cf. *Cyanodichtyon* was seen with ~ 200 000 colonies/l and *Chrysochromulina* spp. also with ~ 200 000 cells/l.

Eastern Gotland basin, Station BY15, 5 AUGUST

Chlorophyll concentrations between the surface and 20 m 3.0 – 5.0 µg·l^{-1}.

The blue-green algae cf. " *Pseudoanabaena* " was present with a total cell length of about 50 meter/l. *Aphanizomenon* sp. and *Nodularia spumigena** were found in length of 8 and 3 meter/l respectively. Cf. *Cyanodichtyon* was present with ~ 1 million colonies/l and *Chrysochromulina* spp.* with ~ 170 000 cells/l.

Northern Baltic, Station BY20, 5 AUGUST

Chlorophyll concentrations between the surface and 20 m 1.9 – 7.4 $\mu g \cdot l^{-1}$.

The blue-green algae cf. " *Pseudoanabaena* " was present with a total cell length of about 150 meter/ l. *Aphanizomenon* sp. and *Nodularia spumigena** were found in length of 10 and 1 meter/l respectively. The blue-green cf. *Cyanodichtyon* was seen with ~ 3 million colonies/l and *Chrysochromulina* spp.* with ~ 400 000 cells/l.

Northern Baltic, Station BY29, 5 AUGUST

Chlorophyll concentrations between the surface and 20 m 1.4 – 7.3 $\mu g \cdot l^{-1}$.

*Anabaena** spp. (0.1 meter/l), *Aphanizomenon* sp. (16 meter/l) and cf. "*Pseudoanabaena*" (50 meter/ l) formed a large blue-green bloom. The blue-green cf. *Cyanodichtyon* was seen with ~ 200 000 colonies/l and *Chrysochromulina* spp*. with ~ 1.4 million cells/l. Single trichoms of *Nodularia spumigena** were observed.

Western Baltic, Station BY38, 6 AUGUST

Chlorophyll concentrations between the surface and 20 m 1.8 – 3.7 $\mu g \cdot l^{-1}$.

*Anabaena** spp. (< 0.1 meter/l), *Aphanizomenon* sp. (5 meter/l) and cf. "*Pseudoanabaena*" (40 meter/l) dominated the flora. The blue-green cf. *Cyanodichtyon* was seen with ~ 850 000 colonies/l and *Chrysochromulina* spp*. with ~ 275 000 cells/l.

The large amounts of *Dinophysis* spp.* found at 15 m depth at several stations in the eastern Gotland basin a month ago had now disappeared.

This report is based on a rough quantification of integrated samples between 0 and 10 m and scanning of samples from 15 m depth. Chlorophyll values are results from measurements of filtered samples.

FORECAST

In the Skagerrak and Kattegat blooms of diatoms may develop. Dinoflagellates are likely to increase. In the Baltic, the considerable blue-green blooms seem to have culminated and will successively disappear. Especially in the southern Baltic other algae, (diatoms and flagellates) are increasing. This is probably an effect of the break down of the blue-green algae and the subsequent liberation of nutrients. However, local blooms may develop.