Oceanographic Service **Lars Edler 15 May, 1998**

ALGAL SITUATION IN SWEDISH MARINE WATERS No 8, 11 - 14 May, 1998

* POTENTIALLY HARMFUL SPECIES

DUE TO THE BLOOM OF cf. Chattonella AND OTHER POTENTIALLY HARMFUL FLAGELLATES ADDITIONAL SAMPLING AND ANALYSIS OF PHYTOPLANKTON HAS BEEN MADE THIS WEEK.

The present algal bloom was first observed during a Norwegian cruise, north of Skagen in the end of April. It has then successively spread towards the Swedish west coast and the highest concentrations have been reported from the coast of Bohuslän. The species identification is still not quite clear, but it seems as the blooming species belongs to the algal group Rhaphidiophyceae and the genus Chattonella. Species of this genus have not been observed in the Skagerrak - Kattegat area before. The mechanism of spreading is uncertain, but it is speculated that the algae may have been transported in ballast water.

Species of the genus Chattonella may be toxic to fish. The toxin is a fatty acid which acts on the gill tissue of the fish, resulting in production of mucus, that makes the fish suffocate.

So far there are reports of fishkill in Norwegian fish farms (about 300 tonnes of salmon) and in the open Skagerrak and along the Jutland Skagerrak coast of garfish.

Today the bloom is distributed all over the Skagerrak and parts of the North Sea. The bloom is very patchy. In certain areas the algae are accumulated at the surface, giving the water a brownish colour, in other areas it is present at greater depth. Small amounts of the algae has been observed in the Kattegat.

The sampling was made from m/s Scandica by courtesy of the Swedish National Board of Navigation (Sjöfartsverket).

Station **DANAFJORD, 57.40.67, 11.41.74, entrance of Göteborg, 11 May**

cf. Chattonella verruculosa* observed down to 15 m depth in concentrations between 220 000 and 475 000 cells·dm^{-3}. The so called "Flagellate B" which may belong to the genus Heterosigma* (not confirmed) was present in concentrations of 175 000 - 220 000 cells·dm^{-3} and Chrysochromulina spp.* was found near the surface with 40 000 cells·dm^{-3}. The temperature in the upper 15 m was 9-10 °C, the phosphate concentration about 0.25 µmol · dm^{-3}. and the nitrate concentration about 0.5 - 2.5 µmol · dm^{-3}.

Station **VINGA, 57.38.18, 11.36.38, west of Göteborg, 11 May**

cf. Chattonella verruculosa* observed down to 15 m depth in concentrations between 250 000 and 300 000 cells·dm^{-3}. "Flagellate B" which may belong to the genus Heterosigma* (not confirmed) was present in concentrations of 350 000 cells·dm^{-3} and Chrysochromulina spp.* was found near the surface with about 50 000 cells·dm^{-3}. The temperature in the upper 15 m was 9.5-10 °C, the phosphate concentration about 0.25 µmol · dm^{-3}. and the nitrate concentration about 0.4 - 1.2 µmol · dm^{-3}.

Station **1´ W VINGA, 57.38.60, 11.31.50, west of Göteborg, 11 May**

cf. Chattonella verruculosa* observed down to 15 m depth in concentrations between 200 000 and 300 000 cells·dm^{-3}. "Flagellate B" which may belong to the genus Heterosigma* (not confirmed) was present in concentrations of 250 000 - 485 000 cells·dm^{-3} and Chrysochromulina spp.* was found down to 20 m depth with about 40 000 - 50 000 cells·dm^{-3}. The at the surface was 9.5 °C, the phosphate concentration about 0.25-0.56 µmol · dm^{-3}. and the nitrate concentration about 0.7 - 3.65 µmol · dm^{-3}.

The sampling was made from KBV 102, by courtesy of the Swedish Coast Guard.

Station **ANHOLT E, 56.40.00, 12.07.00, 14 May**

cf. Chattonella verruculosa* was not observed at any depth. Below the pycnocline 10-15 m a diatom bloom was found. Dominating species were Leptocylindrus minimus (5.9 million cells·dm^{-3}), Guinardia flaccida (180 000 cells·dm^{-3}), Pseudo-nitzschia delicatissima (170 000 cells·dm^{-3}) and Chaetoceros curvisetus (100 000 cells·dm^{-3}). The chlorophyll concentration was about 0.5 µgdm^{-3} between 0 and 10 m and increasing from 3.5 to 11.5 µgdm^{-3} from 15 to 50 m depth. The Secchi depth was 11 m.

Station **ANHOLT extra, 56.47.00, 12.17.00, 14 May**

cf. Chattonella verruculosa* was observed at 15 m depth in about 160 000 cells·dm^{-3}. The chlorophyll concentration peaked at 5 m depth with 3.7 µ