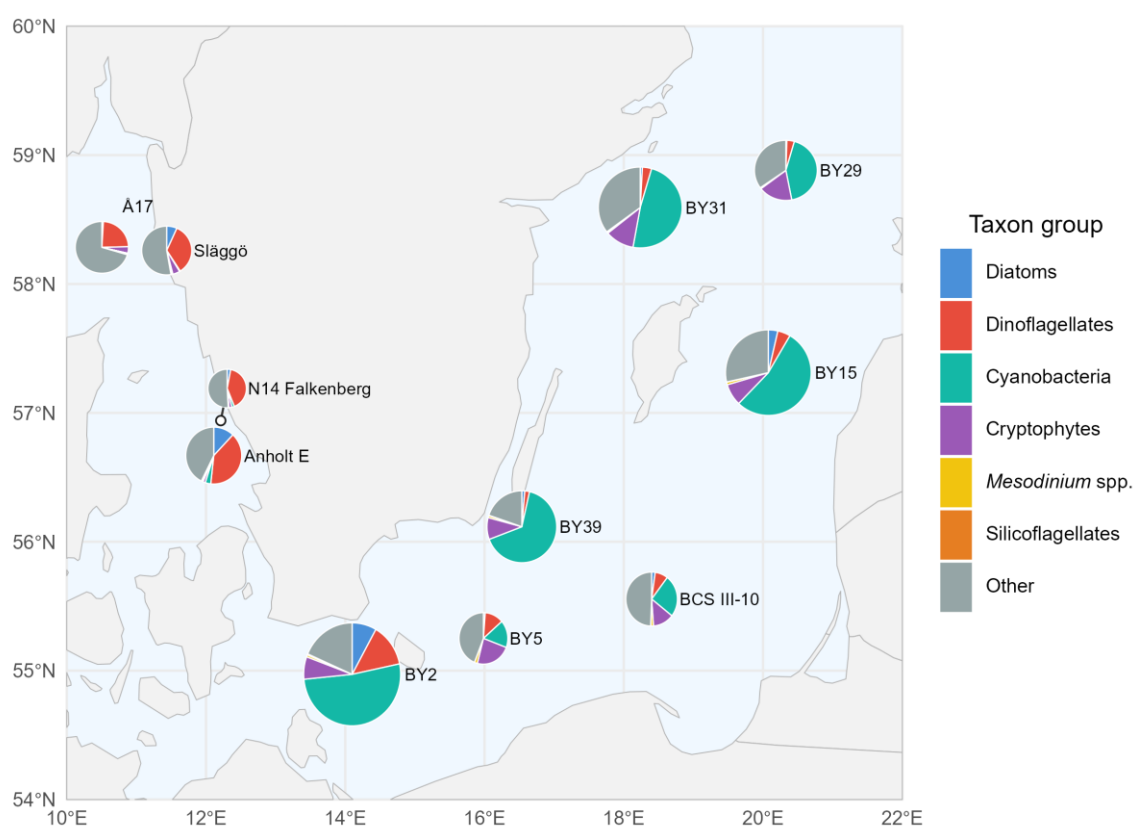


ALGAL SITUATION IN MARINE WATERS SURROUNDING SWEDEN

Report No 8, August 2026
RV Svea cruise, 2026-08-06 to 2026-08-13
Dnr: 2026/18/3.1.3



Phytoplankton group composition at AlgAware stations based on carbon concentration. Pie slices show relative group composition; pie size shows relative total carbon concentration among stations.

IFCB report overview

This report is based on images collected by an Imaging FlowCytobot (IFCB) onboard R/V Svea. Samples are collected continuously approximately every 25 minutes from surface water at the ship's water intake for the FerryBox system. The water passes through a 150 µm mesh filter before reaching the IFCB, which generally excludes larger organisms. The instrument triggers image capture on chlorophyll fluorescence, which means that heterotrophic organisms and other non-chlorophyll-containing cells may be underrepresented. In this report we summarize the findings from selected monitoring stations. Phytoplankton identification is based on automated image classification by an AI model, validated by Anders Torstensson, SMHI. Report text was drafted with the assistance of a large language model. Taxa marked with * are potentially toxic or harmful.

Sammanfattning

Längs Skagerraks och Kattegats kust var växtplanktondiversiteten generellt måttlig till hög medan den totala biovolymen förblev relativt låg. Samhällena bestod huvudsakligen av dinoflagellater och olika små flagellater, medan kiselalger bidrog i mindre utsträckning. Potentiellt skadliga taxa förekom vid flera stationer, inklusive *Pseudochattonella* spp.*, *Dinophysis acuminata**, *Alexandrium pseudogonyaulax**, *Gonyaulax* spp.*, *Pseudo-nitzschia* spp.* och låga halter av trådformiga cyanobakterier såsom *Nodularia spumigena** och *Aphanizomenon flos-aquae**. Klorofyll-a-koncentration var lägst vid Kattegatstationerna och något högre i Skagerrak, i stort sett i överensstämmelse med den relativt blygsamma biovolym som uppmättes med IFCB.

I Östersjön observerades en uttalad cyanobakterieblomning. Trådformiga cyanobakterier dominerade samhällena vid de flesta stationer, där *N. spumigena** och *A. flos-aquae** tillsammans med *Dolichospermum* spp. bildade täta ytansamlingar vid BY15, BY29, BY31, BY39 och BY2. Vid BY2 bidrog även kiselalger och dinoflagellater avsevärt till den totala biovolymen. Potentiellt skadliga taxa var allmänt förekommande, inklusive *N. spumigena**, *A. flos-aquae**, *Prorocentrum cordatum**, *D. acuminata**, *Dinophysis norvegica**, *Alexandrium* spp.* och *Pseudo-nitzschia* spp.*. Klorofyll-a-koncentration var tydligt förhöjd vid de centrala Östersjöstationerna och högst vid BY2 och BY31, i god överensstämmelse med den höga cyanobakteriebiovolym som registrerades med IFCB och bekräftar att en cyanobakterieblomning pågick i Östersjön under expeditionen.

Summary

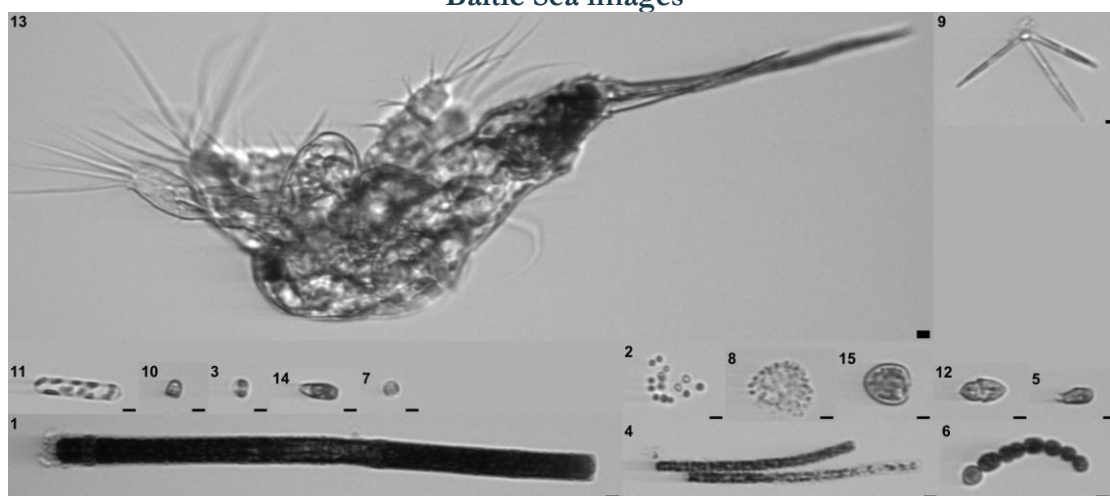
Along the Skagerrak and Kattegat coast, phytoplankton diversity was generally moderate to high while total biovolume remained relatively low. Communities were mainly composed of dinoflagellates and various small flagellates, with diatoms contributing less. Potentially harmful taxa were present at several stations, including *Pseudochattonella* spp.*, *Dinophysis acuminata**, *Alexandrium pseudogonyaulax**, *Gonyaulax* spp.*, *Pseudo-nitzschia* spp.* and low levels of filamentous cyanobacteria such as *Nodularia spumigena** and *Aphanizomenon flos-aquae**. Chlorophyll-a concentration was lowest at the Kattegat stations and somewhat higher in the Skagerrak, broadly consistent with the relatively modest biovolume measured by the IFCB.

In the Baltic Sea, a pronounced cyanobacterial bloom was observed. Filamentous cyanobacteria dominated the communities at most stations, with *N. spumigena** and *A. flos-aquae** together with *Dolichospermum* spp. forming dense surface accumulations at BY15, BY29, BY31, BY39 and BY2. At BY2, diatoms and dinoflagellates also contributed substantially to the total biovolume. Potentially harmful taxa were widespread, including *N. spumigena**, *A. flos-aquae**, *Prorocentrum cordatum**, *D. acuminata**, *Dinophysis norvegica**, *Alexandrium* spp.* and *Pseudo-nitzschia* spp.*. Chlorophyll-a concentration was clearly elevated at the central Baltic stations, and highest at BY2 and BY31, in good agreement with the high cyanobacterial biovolume recorded by the IFCB and confirming that a cyanobacterial bloom was ongoing in the Baltic Sea during the cruise.

Table 1. Summary of data used to generate the report for the August 2026 cruise.

Parameter	Value
Total samples collected (cruise)	373
Samples from AlgAware stations	50
Biological images analysed	96,096
Classification model (PyTorch)	SMHI-NIVA-SYKE-SAMS-SZN-ResNet50-V6
LLM model (text generation)	gpt-5.1

Baltic Sea images



The most common taxa by biovolume concentration in the Baltic Sea images were: 1. *Nodularia spumigena*, 2. Cyanophyceae, 3. Unclassified, 4. *Aphanizomenon flos-aquae*, 5. Cryptophyta, 6. *Dolichospermum* spp., 7. Unicells, 8. Chroococcales, 9. *Nitzschia paleacea*, 10. *Pyramimonas* spp., 11. *Dactyliosolen fragilissimus*, 12. Gymnodiniales, 13. Crustacea, 14. *Eutreptiella* sp., 15. *Prorocentrum cordatum*. Black bars represent 5 μm .

Spatial biomass distribution

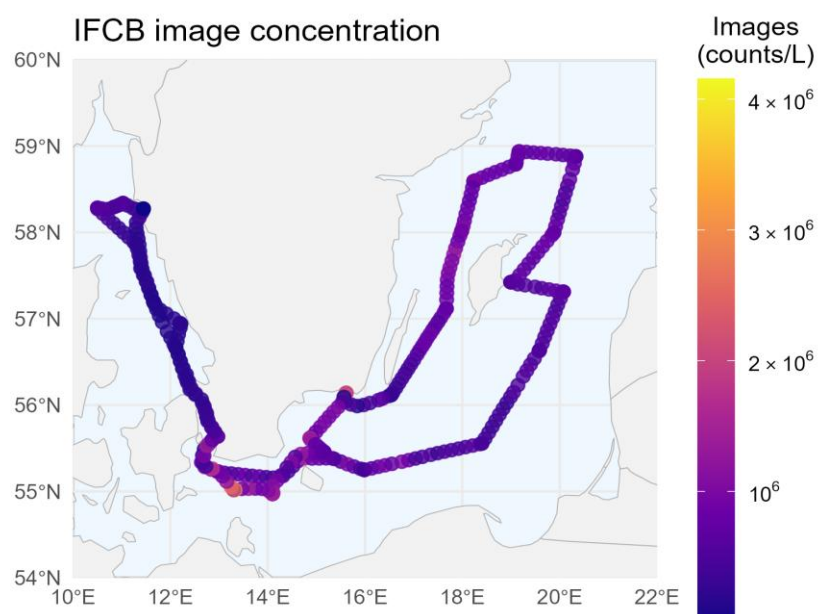


Figure 1. IFCB image concentration along the cruise track. Total images collected: 890,151.

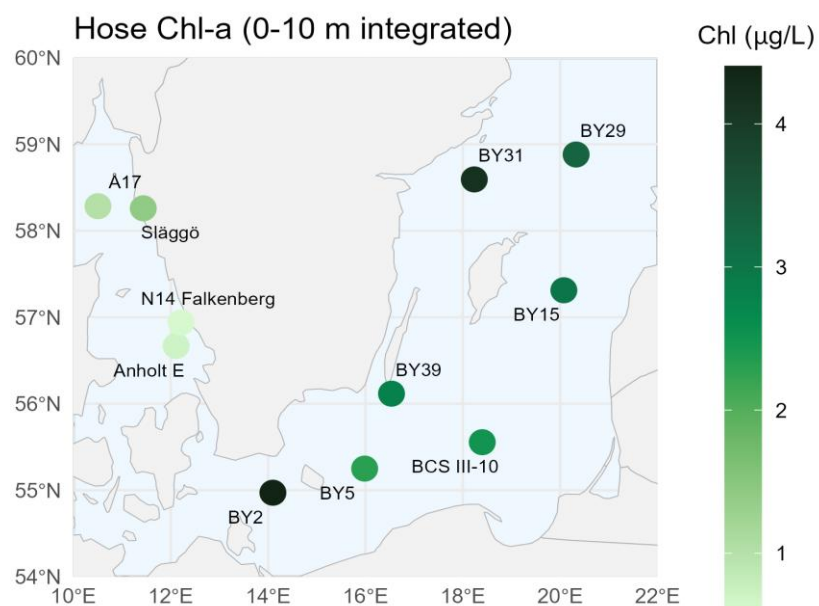
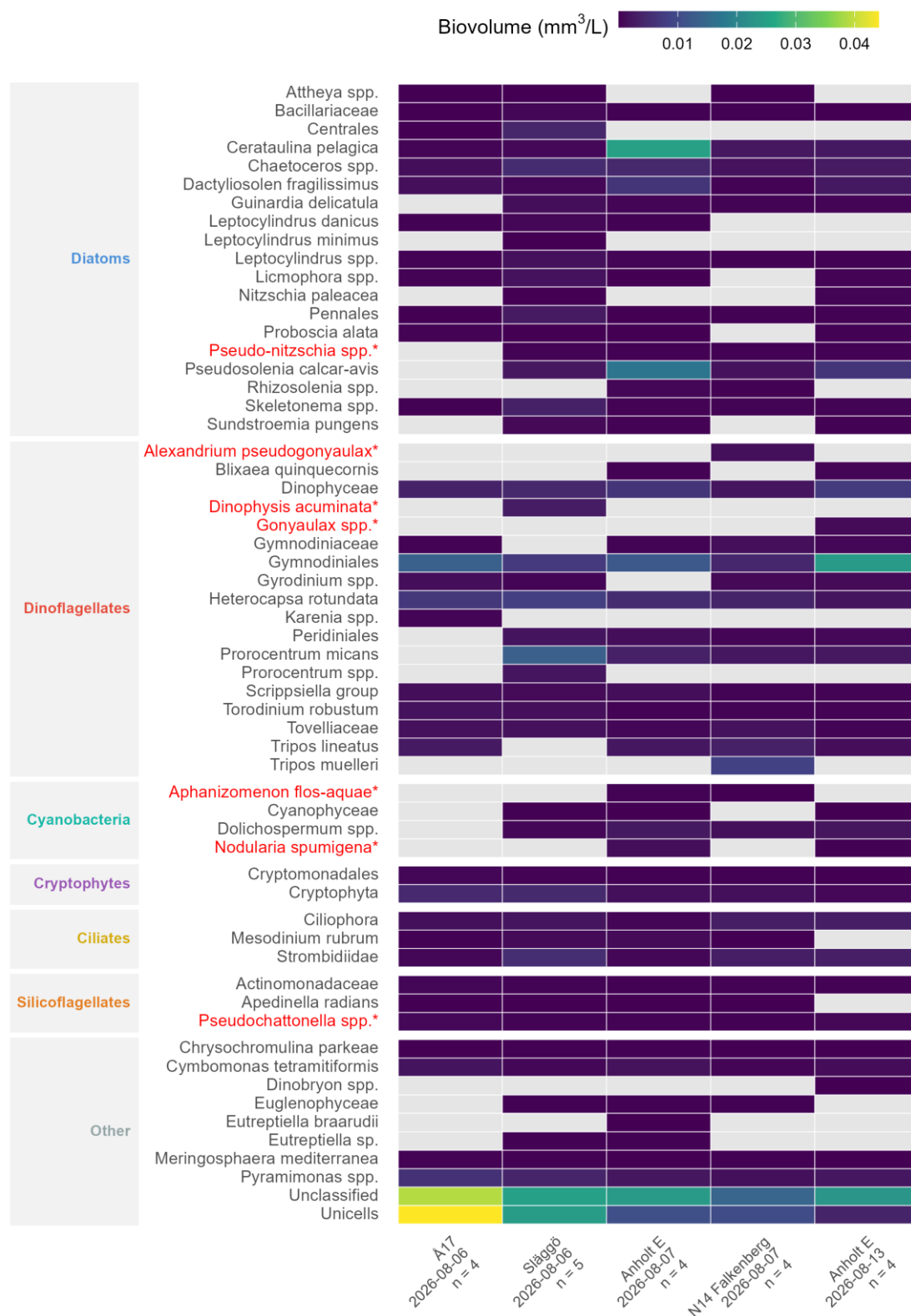


Figure 2. Hose chlorophyll-a (0-10 m integrated) at AlgAware stations during the August 2026 cruise.

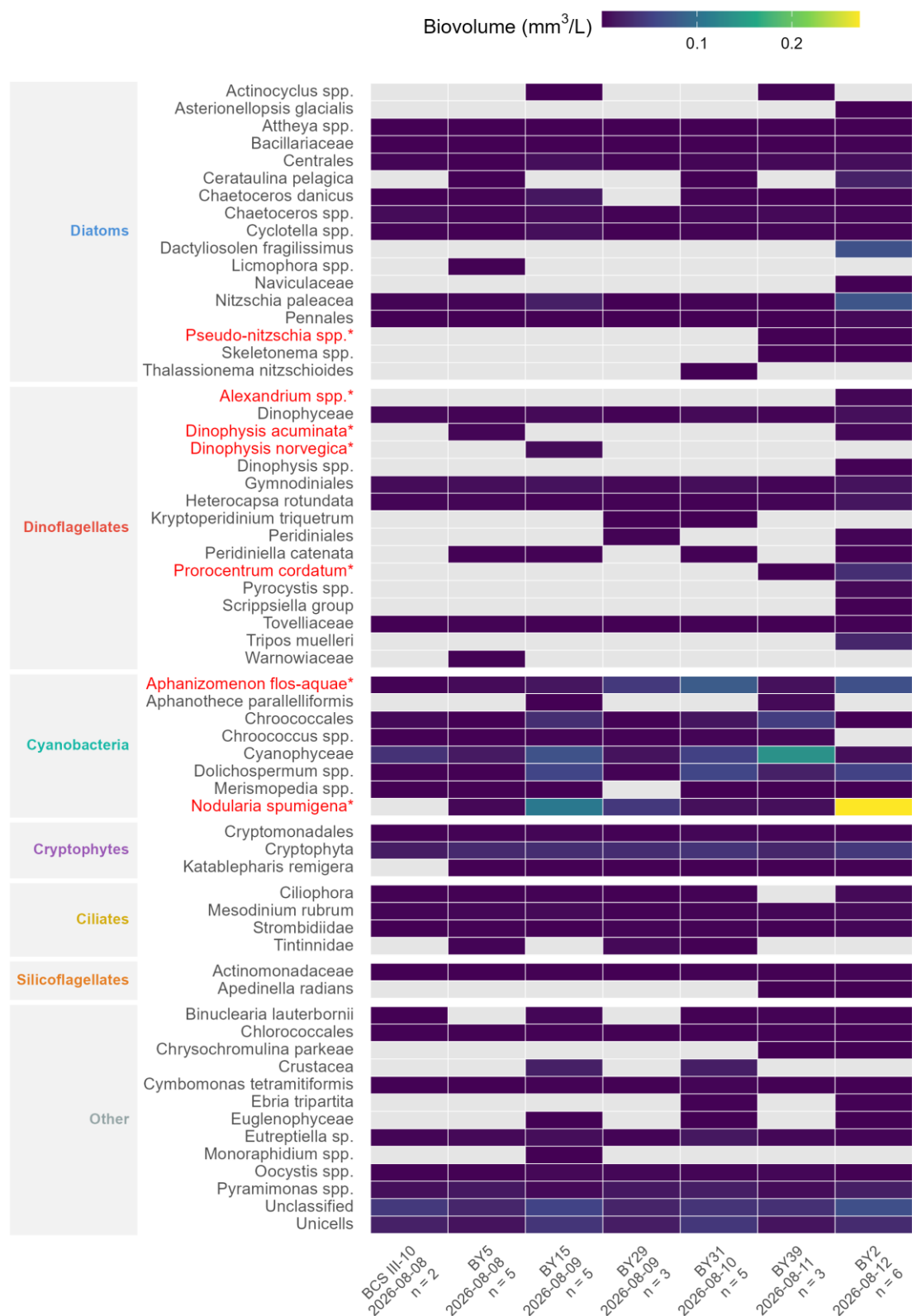
West Coast - Biovolume heatmap



* Potentially harmful taxon

Figure 3. Biovolume heatmap for West Coast stations.

Baltic Sea - Biovolume heatmap



* Potentially harmful taxon

Figure 4. Biovolume heatmap for Baltic Sea stations.

Relative biovolume

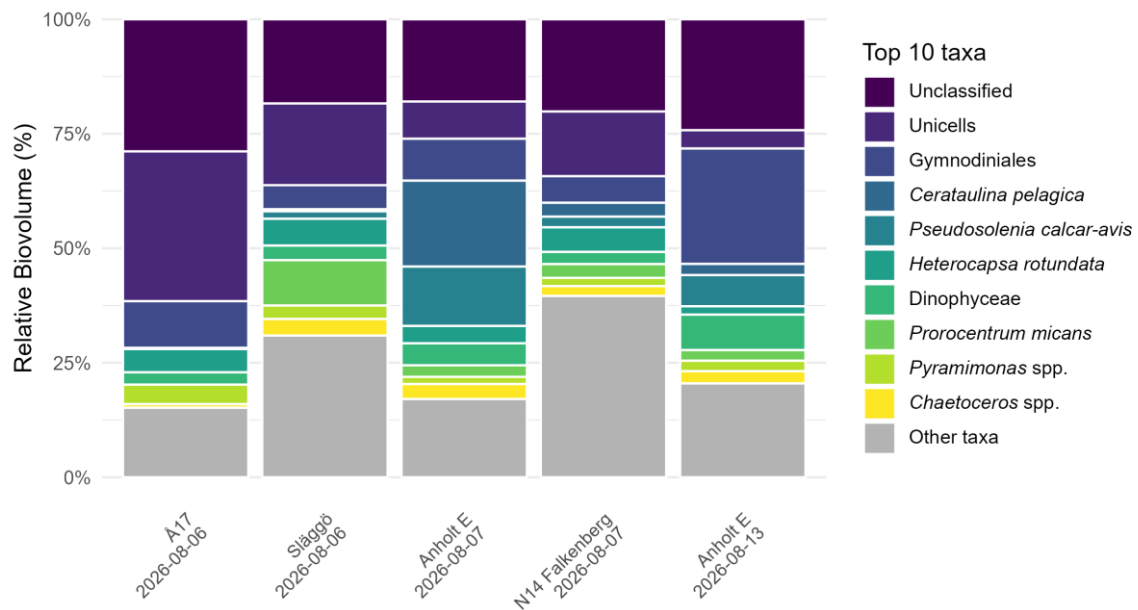
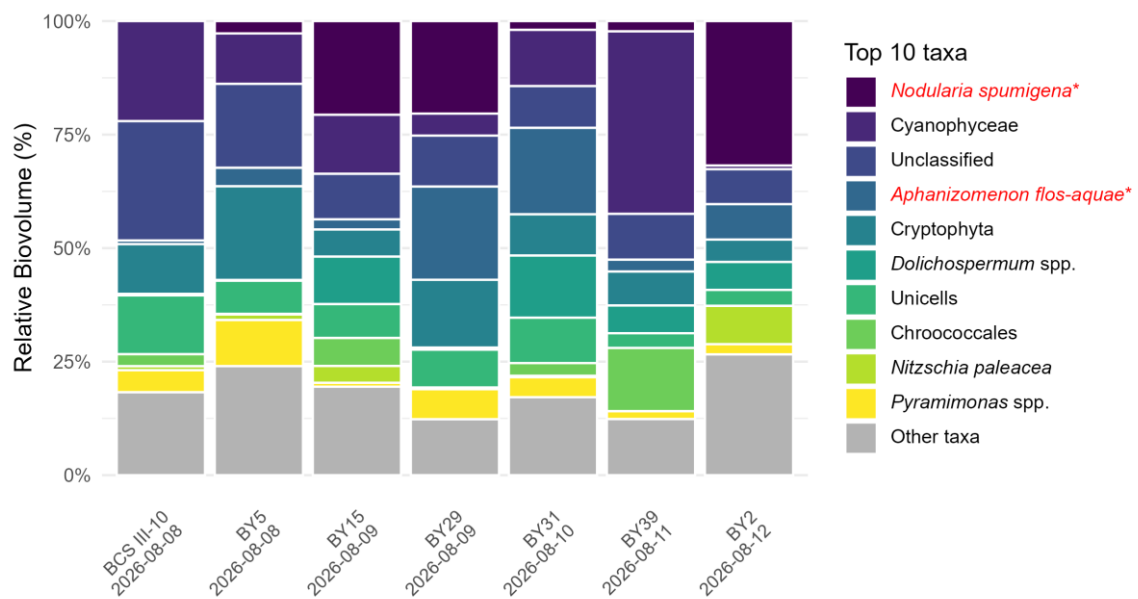


Figure 5. Relative biovolume of top 10 taxa at West Coast stations.



* Potentially harmful taxon

Figure 6. Relative biovolume of top 10 taxa at Baltic Sea stations.

Station reports

West Coast

Å17 - 2026-08-06

Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other West Coast stations, while total biovolume was in the mid-range for the cruise. The community was dominated by small cells in the other group, with unicells contributing most of the biovolume, followed by the green flagellate *Pyramimonas* spp. and *Cymbomonas tetramitiformis*. Among the dinoflagellates, cells from the order Gymnodiniales were most important, together with *Heterocapsa rotundata* and other Dinophyceae. Cryptophytes were represented mainly by Cryptophyta and additional cells from the order Cryptomonadales. Diatoms, ciliates, silicoflagellates and *Mesodinium* spp. occurred only in low amounts. The potentially harmful silicoflagellate *Pseudochattonella* spp.* was present in low abundance. The chlorophyll-a concentration was similar to that at several other stations and consistent with the moderate biovolume observed by the IFCB.

Släggö - 2026-08-06

Phytoplankton diversity was high and total cell numbers were moderate compared to the other stations on this cruise, while the total biovolume was in the mid-range for the West Coast. Dinoflagellates dominated the community, with *Prorocentrum micans* and *H. rotundata* as the most important taxa, together with various Gymnodiniales. Among the other groups, numerous small unicells were recorded, and the green flagellates *Pyramimonas* spp. and *C. tetramitiformis* contributed notably to the biovolume. Diatoms were also common, mainly represented by *Chaetoceros* spp., *Skeletonema* spp. and other centric forms. Ciliates, cryptophytes, *Mesodinium* spp., cyanobacteria and silicoflagellates occurred in lower amounts. The potentially harmful dinoflagellate *Dinophysis acuminata** was present in low numbers, and low occurrences of *Pseudochattonella* spp.* and *Pseudo-nitzschia* spp.* were also observed. The chlorophyll-a concentration was moderate and in good agreement with the intermediate biovolume measured by the IFCB at this station.

Anholt E - 2026-08-07

Phytoplankton diversity was relatively high while total cell numbers were moderate compared to the other stations on this cruise. Diatoms dominated the community by biovolume, with *Cerataulina pelagica* as the most abundant species, followed by *Pseudosolenia calcar-avis* and *Dactylosolen fragilissimus*. Dinoflagellates contributed substantially, mainly represented by cells from Gymnodiniales and Dinophyceae, with *H. rotundata* also relatively common. Among the other groups, unicells were important together with the flagellates *Pyramimonas* spp. and *C. tetramitiformis*. Cyanobacteria were present in low amounts, including *Dolichospermum* spp., *Nodularia spumigena** and *Aphanizomenon flos-aquae**. The potentially harmful silicoflagellate *Pseudochattonella* spp.* and the diatom group *Pseudo-nitzschia* spp.* were also detected in low numbers. Cryptophytes, *Mesodinium* spp., ciliates and silicoflagellates occurred in small quantities. The chlorophyll-a concentration was moderate and in good agreement with the biovolume observed by the IFCB at this station.

N14 Falkenberg - 2026-08-07

Phytoplankton diversity was moderate and total cell numbers were relatively low compared to several other stations on this cruise. Dinoflagellates dominated the community, with *Tripes muelleri* contributing most of the biovolume, followed by cells from the order Gymnodiniales and *H. rotundata*. Among the diatoms, *C. pelagica* was most common, with *P. calcar-avis* and *Chaetoceros* spp. also present. The remaining larger cells were mainly represented by unicells, together with the flagellates *Pyramimonas* spp. and *C. tetramitiformis*. Cyanobacteria, cryptophytes, ciliates, silicoflagellates and *Mesodinium* spp. occurred only in low amounts. Several potentially harmful taxa were observed in low to moderate abundances, including *Alexandrium pseudogonyaulax**, *Pseudo-nitzschia* spp.*, *Pseudochattonella* spp.* and *A. flos-aquae**. The chlorophyll-a concentration was among the lower values recorded during the cruise, in agreement with the relatively low total biovolume measured by the IFCB.

Anholt E - 2026-08-13

Phytoplankton diversity was relatively high, while total cell numbers and biovolume were moderate compared to the other stations on this cruise. Dinoflagellates dominated the community, with cells from the order Gymnodiniales and unidentified Dinophyceae as the most important components, and *P. micans* also present. Among the diatoms, *P. calcar-avis* was most abundant, followed by *Chaetoceros* spp. and *D. fragilissimus*. The remaining larger cells were mainly represented by unicells together with the green flagellates *Pyramimonas* spp. and *C. tetramitiformis*. Ciliates, cyanobacteria and silicoflagellates occurred in lower biovolumes, including the potentially harmful taxa *Gonyaulax* spp.*, *Pseudochattonella* spp.*, *N. spumigena** and *Pseudo-nitzschia* spp.*. The chlorophyll-a concentration was moderate and in good agreement with the intermediate biovolume observed by the IFCB at this station.

Baltic Sea

BCS III-10 - 2026-08-08

Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other stations, while the total biovolume was in the mid-range for the cruise. Cyanobacteria dominated the community by biovolume, with unidentified Cyanophyceae and Chroococcales as the main components, and the filamentous cyanobacterium *A. flos-aquae** contributing in lower amounts. Among the other groups, small unicells were very numerous, and the green flagellate *Pyramimonas* spp. and the euglenophyte *Eutreptiella* sp. were also common. Cryptophytes were represented mainly by Cryptophyta and additional cells from the order Cryptomonadales. Dinoflagellates, diatoms, *Mesodinium* spp., ciliates and Silicoflagellates occurred in lower biovolumes. The potentially harmful taxon *A. flos-aquae** was present but only in modest abundance. The chlorophyll-a concentration was moderate and in good agreement with the intermediate biovolume observed by the IFCB.

BY5 - 2026-08-08

Phytoplankton diversity was moderate and total cell numbers were relatively low compared to the other Baltic Sea stations on this cruise. Cryptophytes and other small flagellates dominated the community, with cryptophytes slightly more important in terms of biovolume. Among the cryptophytes, unidentified Cryptophyta and cells assigned to Cryptomonadales were most common, with some *Katablepharis remigera* also present. Within the group classified as other, *Pyramimonas* spp. and various unicells dominated, together with smaller numbers of *Eutreptiella* sp. Cyanobacteria contributed a substantial share of the biovolume, with filamentous Cyanophyceae and the potentially harmful taxa *A. flos-aquae** and *N. spumigena** present. The potentially harmful dinoflagellate *D. acuminata** occurred in low numbers. Diatoms, dinoflagellates, ciliates, *Mesodinium* spp. and Silicoflagellates were only of minor importance. The chlorophyll-a concentration was moderate and in line with the relatively low total biovolume observed by the IFCB at this station compared to the other Baltic Sea stations.

BY15 - 2026-08-09

Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other Baltic Sea stations, with a correspondingly elevated total biovolume. Cyanobacteria clearly dominated the community, with *N. spumigena** as the most important taxon by biovolume, followed by *Dolichospermum* spp. and other filamentous Cyanophyceae. Among the other groups, small unicells contributed most to the biovolume, together with some *Eutreptiella* sp. and a few crustacean particles. Diatoms were less important but still present, mainly represented by *Nitzschia paleacea*, *Chaetoceros danicus* and *Cyclotella* spp. The smaller cells were dominated by Cryptophyta and other cryptophytes, with additional contributions from Gymnodiniales and *Mesodinium* spp. The potentially harmful cyanobacteria *N. spumigena** and *Dolichospermum* spp. were both common, while *A. flos-aquae** and the dinoflagellate *Dinophysis norvegica** occurred in lower numbers. The chlorophyll-a concentration was moderate and in good agreement with the relatively high biovolume observed by the IFCB at this station.

BY29 - 2026-08-09

Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other Baltic Sea stations, while the total biovolume was in the mid-range. Cyanobacteria dominated the community, with the filamentous species *A. flos-aquae** and *N. spumigena** contributing most of the cyanobacterial biovolume, together with smaller cells classified as Cyanophyceae. Among the other groups, unicells and *Pyramimonas* spp. were most important, with additional contributions from *Oocystis* spp. Cryptophytes were also abundant, dominated by Cryptophyta, with further presence of Cryptomonadales and *K. remigera*. Dinoflagellates, ciliates, diatoms, *Mesodinium* spp. and Silicoflagellates occurred only in low biovolumes. The potentially harmful taxa *A. flos-aquae** and *N. spumigena** were both common. The chlorophyll-a concentration was moderate and in good agreement with the intermediate biovolume observed by the IFCB at this station.

BY31 - 2026-08-10

Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other Baltic Sea stations. The community was clearly dominated by cyanobacteria, with *A. flos-aquae** as the most important taxon, followed by *Dolichospermum* spp. and other Cyanophyceae. Among the other groups, unicells contributed substantially to the biovolume together with the green flagellate *Pyramimonas* spp., while some crustacean particles were also recorded. Cryptophytes were common, mainly represented by Cryptophyta and Cryptomonadales, with *K. remigera* present in lower amounts. Diatoms, dinoflagellates, ciliates, *Mesodinium* spp. and Silicoflagellates occurred only in small quantities. The potentially harmful cyanobacterium *A. flos-aquae** was thus a dominant component of the community. The chlorophyll-a concentration was relatively high and in good agreement with the elevated biovolume observed by the IFCB at this station.

BY39 - 2026-08-11

Phytoplankton diversity was moderate and total cell numbers were relatively low compared to the other Baltic Sea stations, while the total biovolume was in the mid-range. Cyanobacteria clearly dominated the community, with Cyanophyceae and Chroococcales as the main components, and *Dolichospermum* spp. also contributing substantially. The potentially harmful filamentous cyanobacteria *A. flos-aquae** and *N. spumigena** were present in lower but notable amounts. Cryptophytes formed the second most important group, represented mainly by Cryptophyta and Cryptomonadales, with *K. remigera* also occurring. Among the other flagellates, Unicells were common together with *Pyramimonas* spp. and *Eutreptiella* sp. Diatoms, dinoflagellates, *Mesodinium* spp., ciliates and silicoflagellates occurred only in small amounts, including scattered cells of the potentially harmful taxa *Prorocentrum cordatum** and *Pseudo-nitzschia* spp.*. The chlorophyll-a concentration was moderate and in line with the intermediate biovolume observed by the IFCB at this station.

BY2 - 2026-08-12

Phytoplankton diversity and total cell numbers were both high at this station, with the highest biovolume of all stations on the cruise. Cyanobacteria dominated the community, with *N. spumigena** and *A. flos-aquae** as the most important taxa, followed by *Dolichospermum* spp.. Among the diatoms, *N. paleacea* was most abundant, with *D. fragilissimus* and *C. pelagica* also common. Dinoflagellates were represented mainly by *P. cordatum**, *T. muelleri* and *H. rotundata*. Smaller cells were numerous and consisted largely of cryptophytes, *Pyramimonas* spp. and other unicells, with additional contributions from ciliates, *Mesodinium* spp. and silicoflagellates. Besides the dominant cyanobacteria, the potentially harmful taxa *P. cordatum**, *D. acuminata**, *Alexandrium* spp.* and *Pseudo-nitzschia* spp.* were present in low to moderate numbers. The chlorophyll-a concentration was relatively high compared to other stations and to previous years. The chlorophyll-a concentration was consistent with the elevated biovolume detected by the IFCB.

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The Kattegat and The Sound

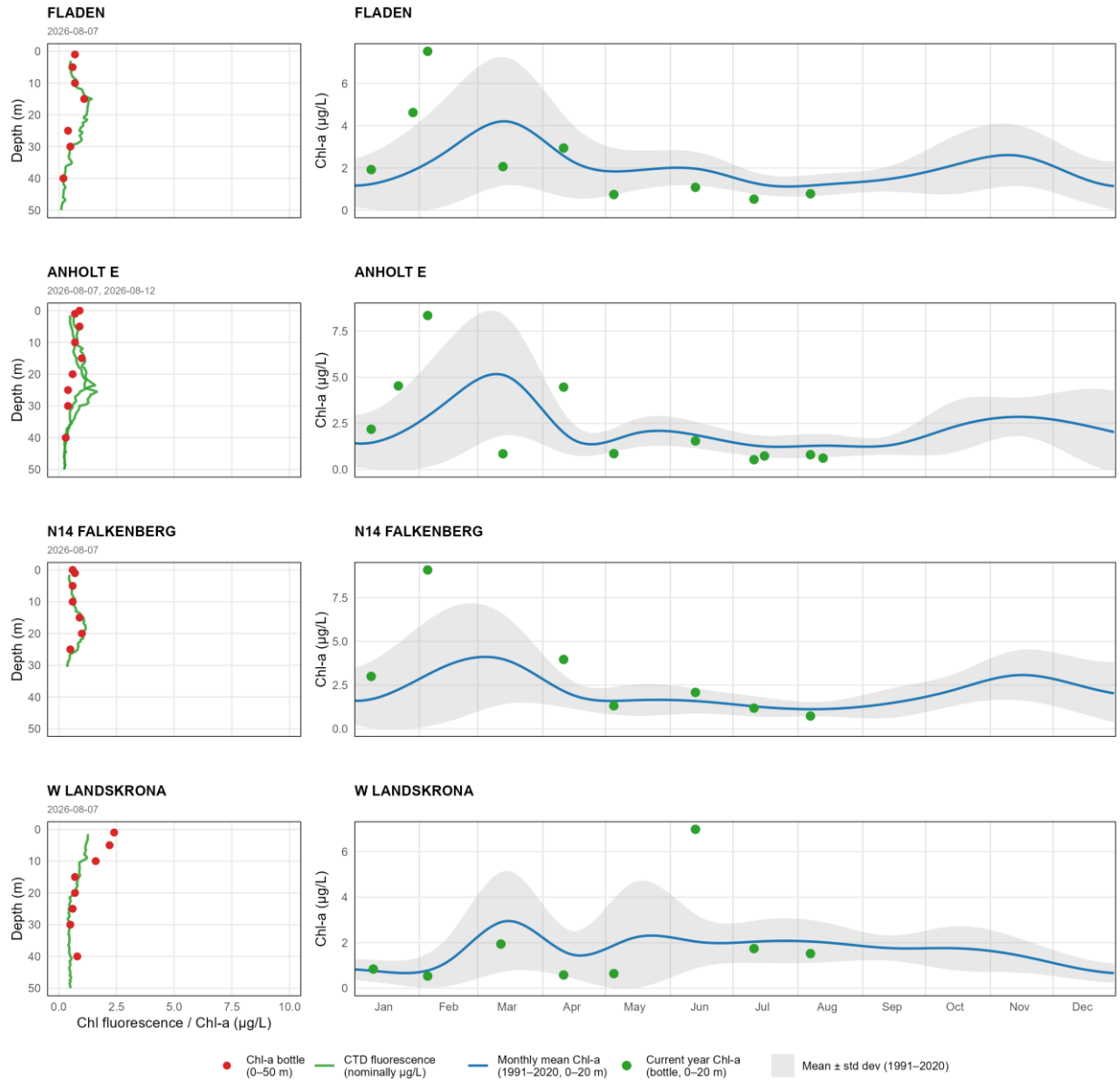


Figure 8. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Kattegat and The Sound stations.

The Southern Baltic

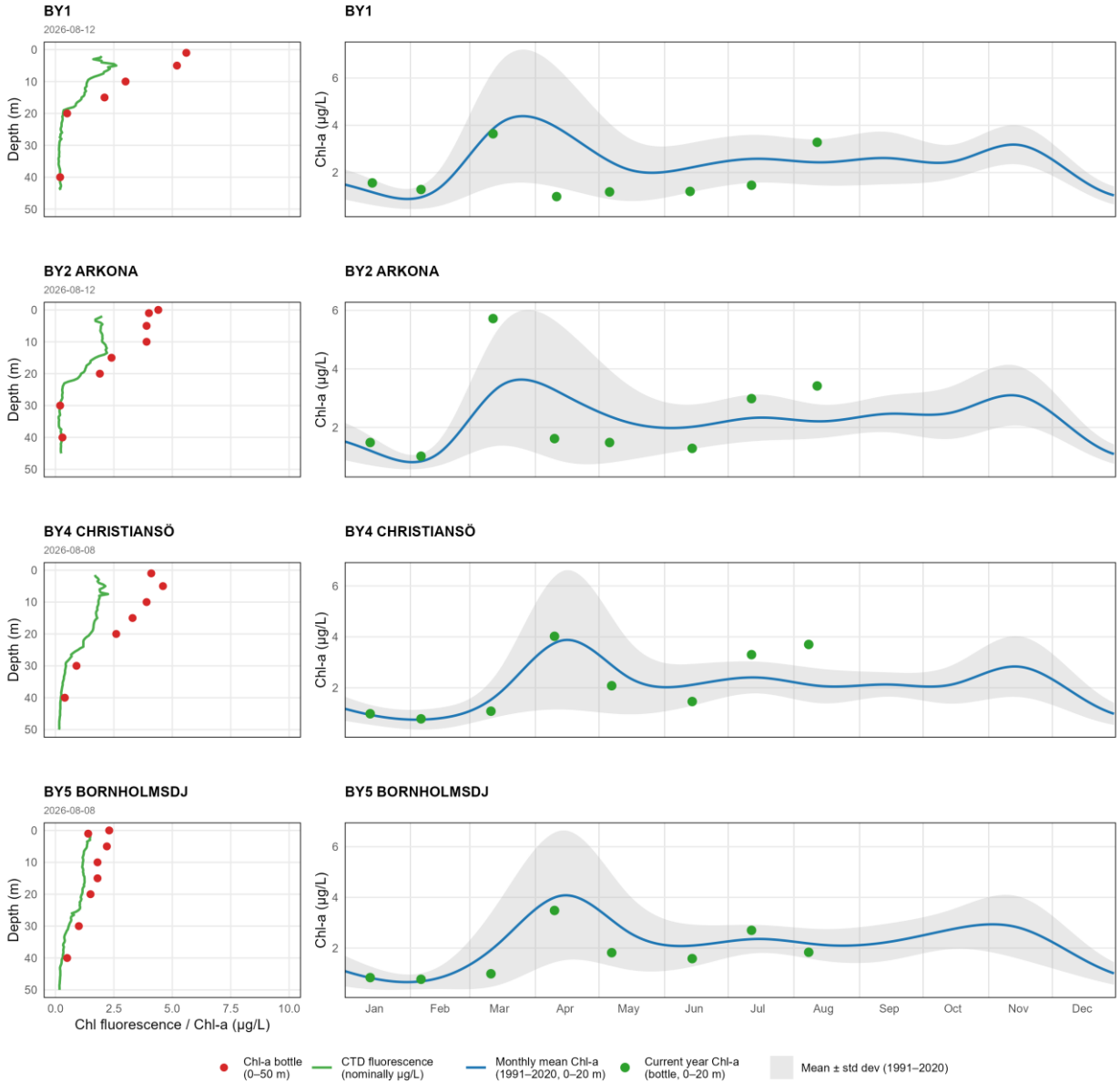


Figure 9. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Southern Baltic stations.

The Western Baltic

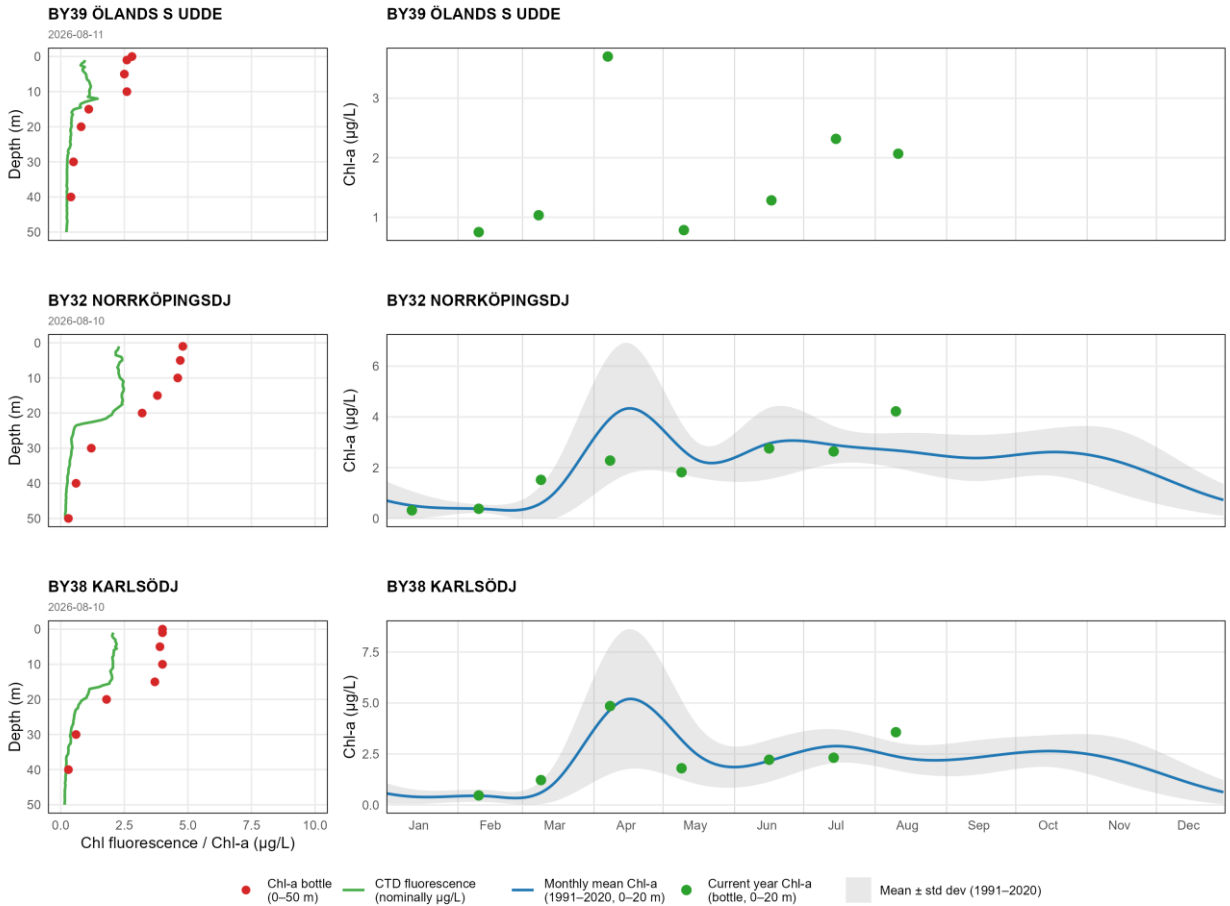


Figure 10. CTD fluorescence profiles and Chl-a time series (with 1991–2020 monthly statistics) for The Western Baltic stations.

The Eastern Baltic

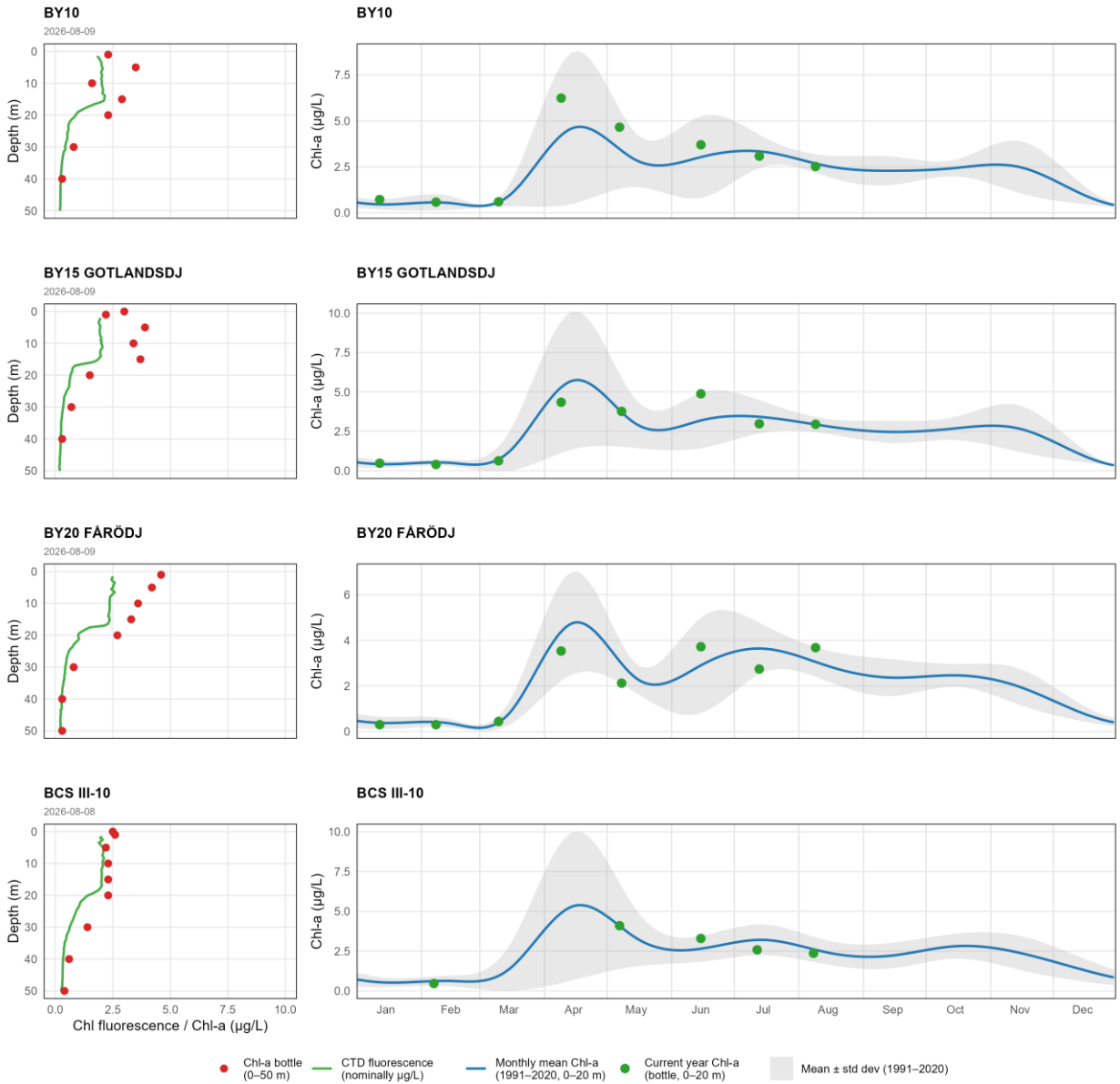


Figure 11. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Eastern Baltic stations.



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