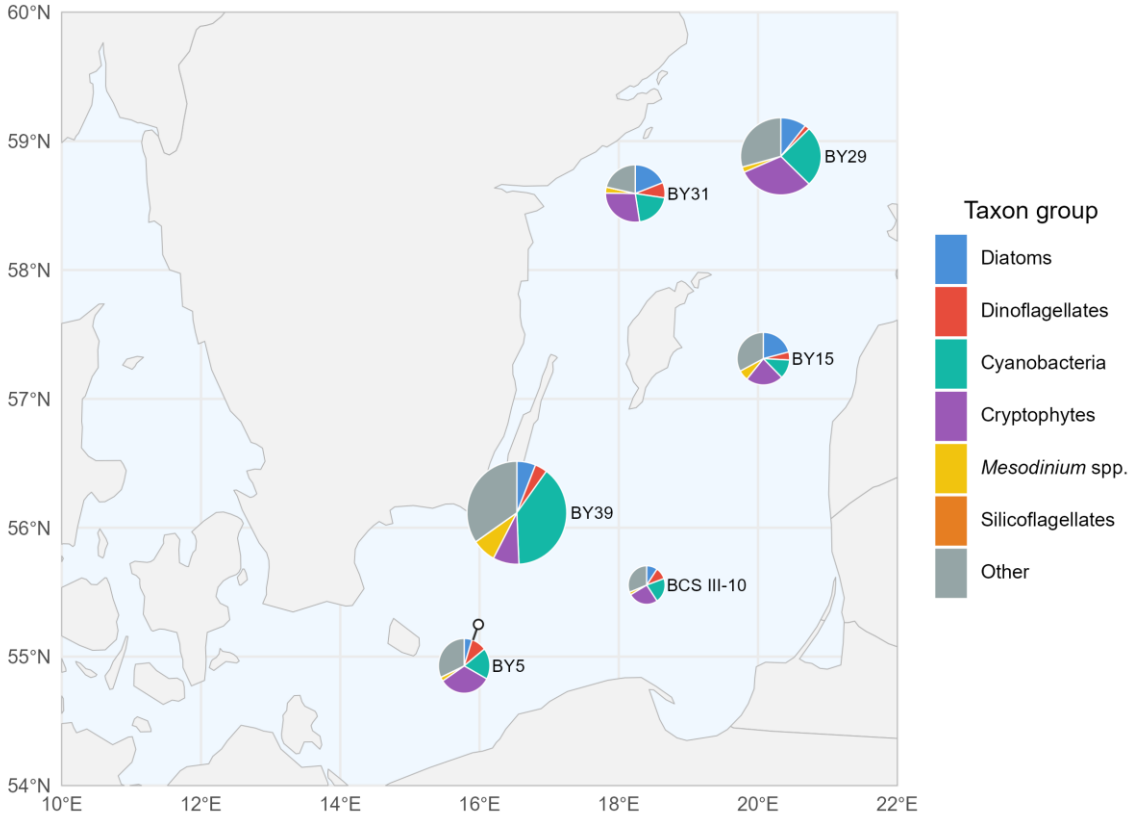
ALGAL SITUATION IN MARINE WATERS SURROUNDING SWEDEN

Report No 10, October 2026

RV Svea cruise, 2026-10-21 to 2026-10-27

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. No IFCB data were collected at Å17, Anholt E, Släggö and BY2; these stations are described from qualitative light microscopy analyses of 0–10 m hose samples (analysed by Anders Torstensson) and are not included in the figures. Taxa marked with * are potentially toxic or harmful.

Sammanfattning

I Skagerrak och Kattegatt var växtplanktondiversiteten måttlig och dominerades av kiselalger i alla prover som analyserades med ljusmikroskopi. Några IFCB-bilder fanns inte tillgängliga från dessa områden. Den stora kiselalgen *Pseudosolenia calcar-avis* var vanlig vid Å17 och Släggö och mycket vanlig vid Anholt E, där den tydligt dominerade samhällsstrukturen. Dinoflagellater, kryptomonader, ciliater och kiselflagellater förekom generellt i låga till måttliga antal. De potentiellt skadliga taxa *Pseudo-nitzschia* spp.* och *Heterosigma akashiwo** observerades vid Å17, och *Pseudo-nitzschia* spp.* förekom också i låga antal vid Anholt E. Klorofyll-a-koncentrationen var lägst vid Å17 och högst vid Anholt E, i linje med den högre kiselalgsförekomsten där, men koncentrationerna var normala för säsongen.

I Östersjön var växtplanktondiversiteten låg till måttlig, med totala cellantal som var relativt lika mellan IFCB-stationerna. Vid BY39 dominerades samhällsstrukturen av trådformiga och kolonibildande cyanobakterier, där kiselalger och olika små flagellater, inklusive kryptomonader och *Mesodinium* spp., bidrog avsevärt till biovolymen; de potentiellt skadliga cyanobakterierna *Aphanizomenon flos-aquae** och *Nodularia spumigena** förekom tillsammans med dinoflagellaterna *Dinophysis acuminata** och *Prorocentrum cordatum**. Vid BY29, BY31 och BY15 dominerade större kiselalger biovolymen, medan kryptomonader och cyanobakterier utgjorde viktiga komponenter bland de mindre cellerna; de potentiellt skadliga taxa *A. flos-aquae** och *Alexandrium* spp.* påträffades i låga till måttliga mängder. Längre österut vid BCS III-10 och BY5 bidrog kiselalger, kryptomonader och cyanobakterier alla, med *P. cordatum** och *A. flos-aquae** närvarande men inte dominerande. I ljusmikroskopiprovet från BY2 var kryptomonader vanliga och flera trådformiga cyanobakterier, inklusive *A. flos-aquae** och *N. spumigena**, observerades tillsammans med kiselalger, dinoflagellater, ciliater och *Mesodinium* spp. i låga till måttliga antal. Klorofyll-a-koncentrationen varierade endast marginellt mellan Östersjöstations och var generellt i överensstämmelse med de måttliga växtplanktonbiovolumer som registrerades av IFCB, och koncentrationerna var normala för säsongen.

Summary

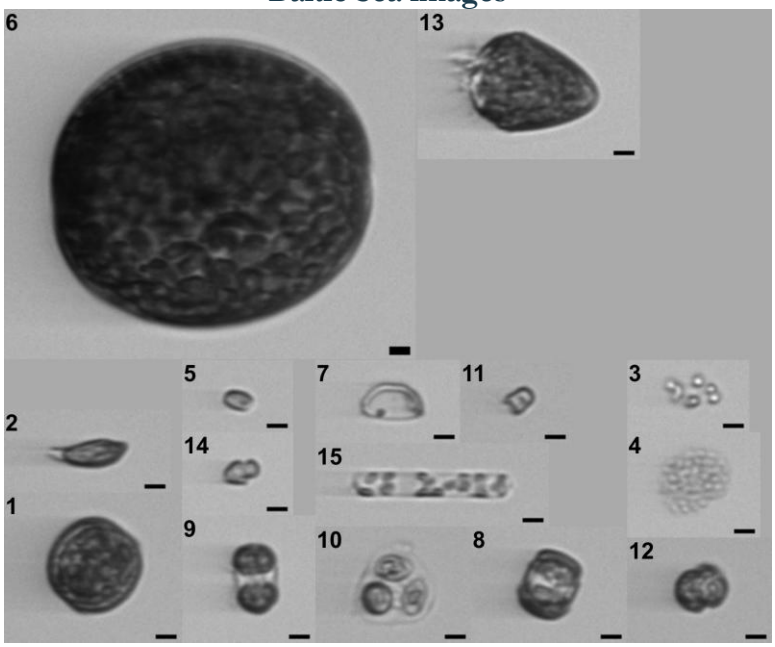
In the Skagerrak and Kattegat, phytoplankton diversity was moderate and dominated by diatoms in all samples analysed by light microscopy. No IFCB images were available from these areas. The large diatom *Pseudosolenia calcar-avis* was common at Å17 and Släggö and very common at Anholt E, where it clearly dominated the community. Dinoflagellates, cryptophytes, ciliates and silicoflagellates were generally present in low to moderate numbers. The potentially harmful taxa *Pseudo-nitzschia* spp.* and *Heterosigma akashiwo** were observed at Å17, and *Pseudo-nitzschia* spp.* was also present at Anholt E, but none appeared to be dominant. Chlorophyll-a concentration was lowest at Å17 and highest at Anholt E, in line with the higher diatom abundance there, and were normal for the season

In the Baltic Sea, phytoplankton diversity was low to moderate, with total cell numbers relatively similar across the IFCB stations. At BY39, the community was dominated by filamentous and colonial cyanobacteria, with diatoms and various small flagellates, including cryptophytes and *Mesodinium* spp., contributing substantially to the biovolume; the potentially harmful cyanobacteria *Aphanizomenon flos-aquae** and *Nodularia spumigena** were present together with the dinoflagellates *Dinophysis acuminata** and *Prorocentrum cordatum**. At BY29, BY31 and BY15, larger diatoms dominated the biovolume, while cryptophytes and cyanobacteria formed important smaller-cell components; the potentially harmful taxa *A. flos-aquae** and *Alexandrium* spp.* were detected in low to moderate amounts. Further east at BCS III-10 and BY5, diatoms, cryptophytes and cyanobacteria all contributed, with *P. cordatum** and *A. flos-aquae** present but not dominant. In the light microscopy sample from BY2, cryptophytes were common and several filamentous cyanobacteria, including *A. flosaquae** and *N. spumigena**, were observed together with diatoms, dinoflagellates, ciliates and *Mesodinium* spp. in low to moderate numbers. Chlorophyll-a concentration varied only slightly between the Baltic stations and was generally consistent with the modest phytoplankton biovolumes recorded by the IFCB, and where normal for the season.

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

Parameter	Value
Total samples collected (cruise)	215
Samples from AlgAware stations	25
Biological images analysed	28,886
Classification model (PyTorch)	SMHI-NIVA-SYKE-SAMS-SZN-PML-ResNet50-V7.0
LLM model (text generation)	gpt-5.1
Light microscopy samples (qualitative)	Å17 (2026-10-26), Anholt E (2026-10-26), Släggö (2026-10-27), BY2 (2026-10-25)

Baltic Sea images



The most common taxa by biovolume concentration in the Baltic Sea images were: 1. Centrales, 2. Cryptophyta, 3. Cyanophyceae, 4. Chroococcales, 5. Unicells, 6. *Coscinodiscus* spp., 7. Unclassified, 8. *Actinocyclus* spp., 9. *Mesodinium rubrum*, 10. *Oocystis* spp., 11. *Pyramimonas* spp., 12. Gymnodiniales, 13. Strombidiidae, 14. *Heterocapsa rotundata*, 15. *Dactyliosolen fragilissimus*. Black bars represent 5 μm.

Spatial biomass distribution

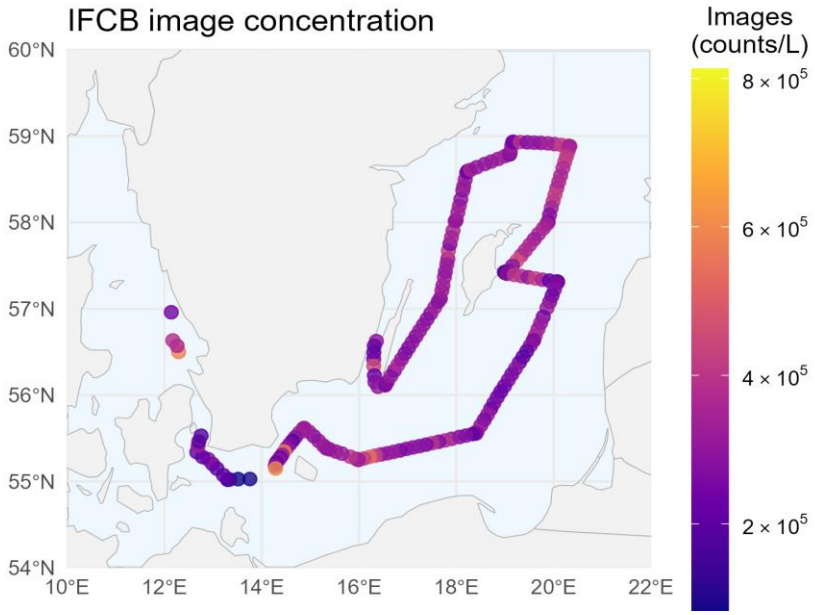


Figure 1. IFCB image concentration along the cruise track. Total images collected: 290,180.

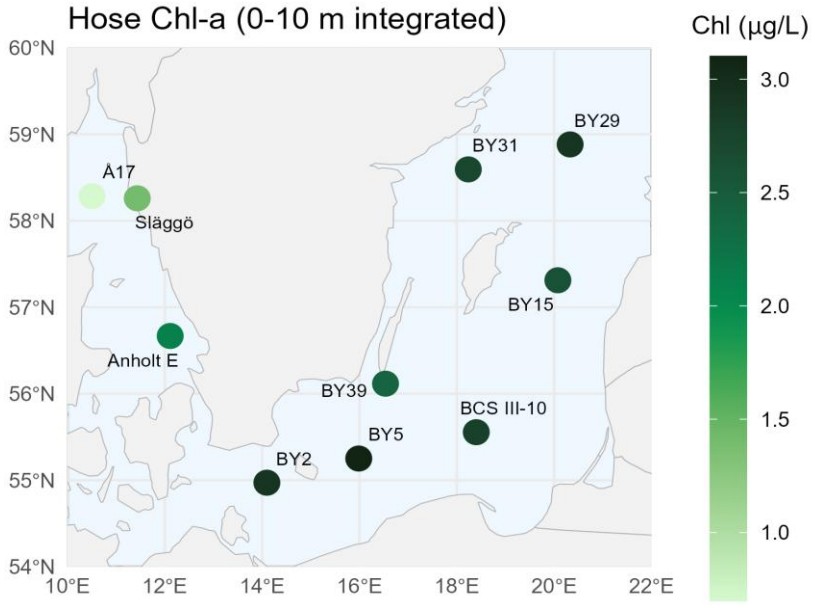


Figure 2. Hose chlorophyll-a (0-10 m integrated) at AlgAware stations during the October 2026 cruise.

Baltic Sea - Biovolume heatmap

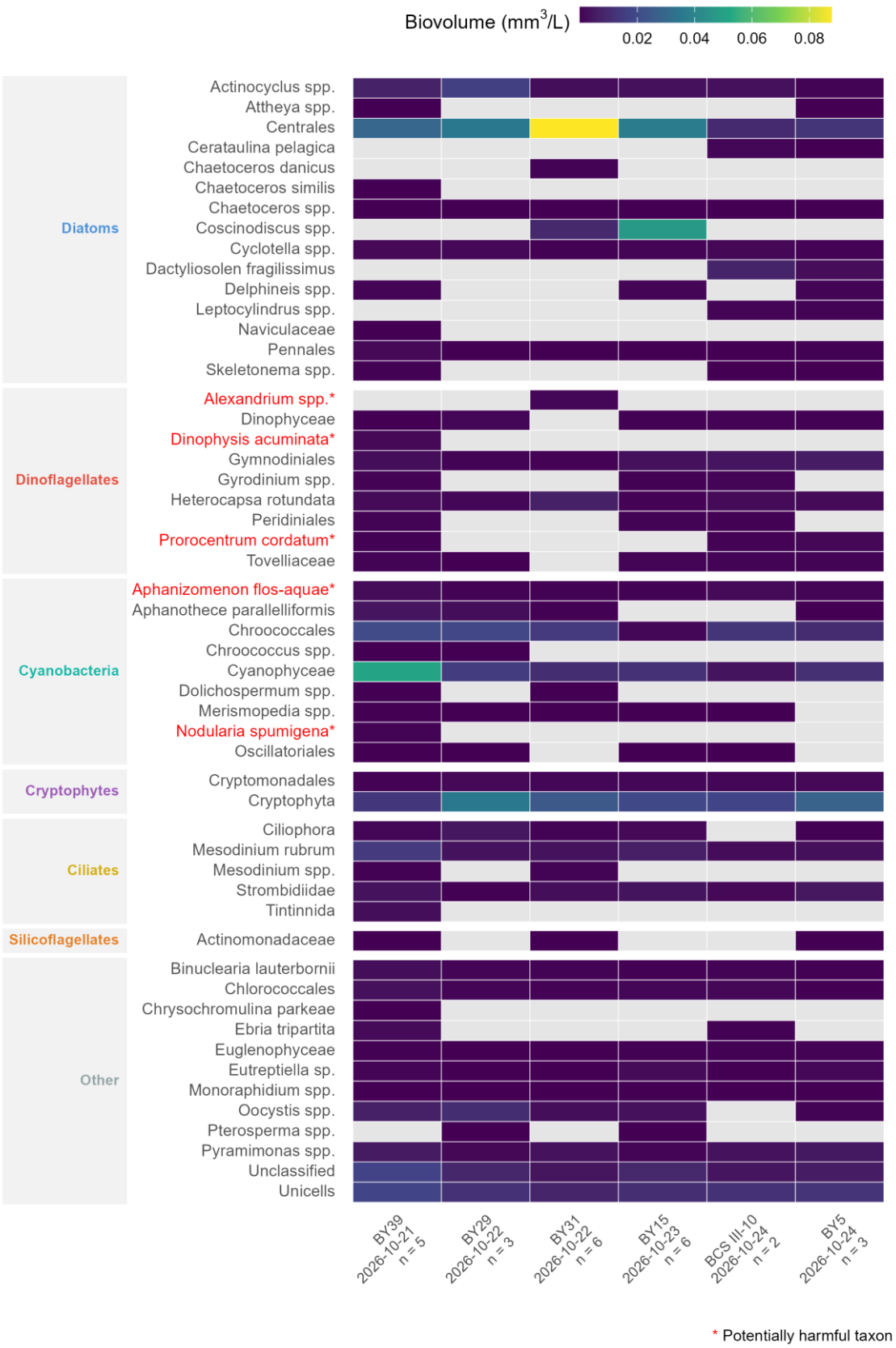


Figure 3. Biovolume heatmap for Baltic Sea stations.

Relative biovolume

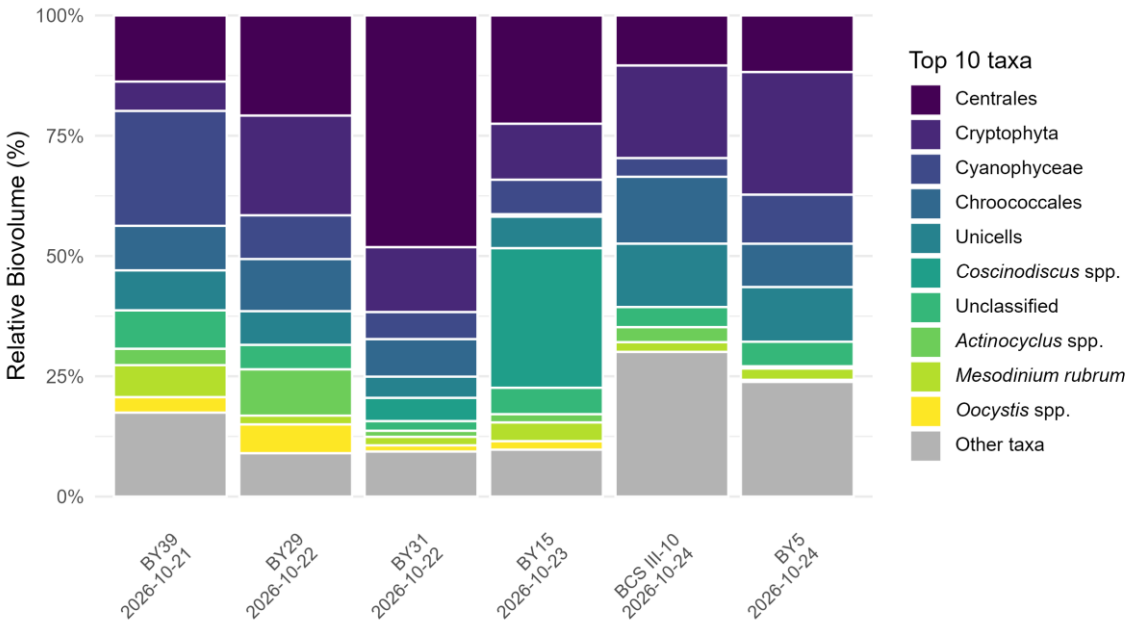


Figure 4. Relative biovolume of top 10 taxa at Baltic Sea stations.

Table 1. Plankton observations by light microscopy in Skagerrak and Kattegat.

Selection of observed species	**Anholt E**	**Å17**	**Släggö**
Red=potentially toxic species	**26/10**	**26/10**	**27/10**
Hose 0-present0 m	**presence**	**presence**	**presence**
Ciliophora	present	present	present
Centrales	present	present	present
Cerataulina pelagica	present	present	
Chaetoceros	present	present	
Chaetoceros contortus	present		
Chaetoceros curvisetus			present
Chaetoceros similis		present	
Chaetoceros subtilis	present		
Coscinodiscus			present
Coscinodiscus radiatus			present
Cylindrotheca closterium		present	
Dactyliosolen fragilissimus	present		present
Eucampia zodiacus		present	
Guinardia delicatula	present		present
Guinardia flaccida	present		
Leptocylindrus danicus	present		present
Leptocylindrus minimus	present		
Nitzschia longissima	present		
Pennales	present	present	present
Proboscia alata	present		present
Pseudo-nitzschia	present	present	
Pseudosolenia calcar-avis	very common	common	common
Rhizosolenia setigera f. pungens			present
Skeletonema marinoi	present		
Thalassionema nitzschioides		present	present
Prymnesiales	present		
Cryptomonadales	present	present	present
Dictyocha fibula			present
Octactis speculum	present		
Gymnodiniales		present	
Gyrodinium spirale			present
Katodinium glaucum	present		present
Peridiniales	present	present	present
Prorocentrum triestinum			present
Torodinium robustum			present
Tripos fusus			present
Tripos muelleri	present		
Laboea strobila	present		
Heterosigma akashiwo		present	
Ebria tripartita	present		

Station reports

West Coast

Å17 - 2026-10-26 (microscopy)
In the light microscopy sample, the phytoplankton diversity was moderate and total cell numbers appeared low. Diatoms were common and clearly dominated the community, with *Pseudosolenia calcar-avis* as the most abundant taxon, while Centrales and *Chaetoceros* were present with several cells. Other diatoms such as *Pseudo-nitzschia**, *Cerataulina pelagica*, *Chaetoceros similis*, *Cylindrotheca closterium*, *Eucampia zodiacus*, Pennales and *Thalassionema nitzschioides* were observed in low numbers. Ciliates (Ciliophora) and cryptophytes (Cryptomonadales) were present with several cells, and dinoflagellates from the orders Gymnodiniales and Peridiniales occurred in low numbers. The potentially harmful raphidophyte *Heterosigma akashiwo** was also observed in low abundance. The chlorophyll-a concentration was lower than normal for the season, in line with the generally modest phytoplankton occurrence.

Anholt E - 2026-10-26 (microscopy)
Phytoplankton diversity was moderate, but most occurred in low to moderate amounts. In the light microscopy sample, diatoms clearly dominated, with *P. calcar-avis* very common and several other diatoms such as *C. pelagica*, *Dactyliosolen fragilissimus*, *Guinardia delicatula*, *G. flaccida*, *Leptocylindrus danicus*, *L. minimus*, *Nitzschia longissima*, *Proboscia alata*, *Chaetoceros* spp., *Skeletonema marinoi* and both centrales and pennales present in lower numbers. The potentially harmful taxon *Pseudo-nitzschia** was also recorded in low to moderate abundance. Cryptomonadales and the silicoflagellate *Octactis speculum* were present in several cells, while dinoflagellates were only observed in low numbers. Ciliates, Prymnesiales and *Ebria tripartita* were also noted in low to moderate amounts. The chlorophyll-a concentration was normal for the season and in line with the generally modest phytoplankton abundances seen in the microscopy sample.

Släggö - 2026-10-27 (microscopy)
In the light microscopy sample, phytoplankton diversity was moderate and most taxa occurred in low to moderate abundances. Diatoms were the most prominent group, with *P. calcar-avis* common, and several other taxa such as *D. fragilissimus*, *G. delicatula*, *P. alata*, Centrales and Pennales present with several cells. Additional diatoms including *Chaetoceros curvisetus*, *Coscinodiscus radiatus*, *L. danicus*, *Rhizosolenia setigera f. pungens* and *T. nitzschioides* were only observed in low numbers. Cryptophytes were represented by Cryptomonadales in several cells, while ciliates were present with Ciliophora in similar low to moderate abundance. Dinoflagellates and silicoflagellates occurred only as single observations of several taxa, and the chlorophyll-a concentration was normal for the season.

Baltic Sea

BY39 - 2026-10-21
Phytoplankton diversity was high and total cell numbers were moderate compared to the other Baltic stations on this cruise, while the total biovolume was the highest observed. Cyanobacteria dominated the community by biovolume, with unidentified Cyanophyceae and Chroococcales as the main components, and *Aphanothece parallelliformis* also contributing. Diatoms were less important but still notable, where Centrales dominated and *Actinocyclus* spp. were the most prominent identified genus, with some additional Pennales. Among the other groups, unicells were very numerous, and the green algae *Oocystis* spp. and *Pyramimonas* spp. were also common. The smaller cells were dominated by cryptophytes and various small flagellates, while *Mesodinium rubrum* and other ciliates were present in moderate numbers and dinoflagellates occurred in lower numbers. The potentially harmful taxa *Aphanizomenon flos-aquae**, *Nodularia spumigena**, *Dinophysis acuminata** and *Prorocentrum cordatum** were all observed, but only in low abundances. The chlorophyll-a concentration was normal for the season and in good agreement with the moderate biovolumes detected by the IFCB at this station.

BY29 - 2026-10-22
Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other Baltic Sea stations on this cruise. Diatoms contributed the largest share of the biovolume, with Centrales dominating and additional contributions from *Actinocyclus* spp. and *Cyclotella* spp. Cyanobacteria were also important in terms of biovolume, mainly represented by Chroococcales and Cyanophyceae, with *A. parallelliformis* among the more common taxa. Cryptophytes formed a similarly large fraction of the community, dominated by Cryptophyta and supported by cells from the order Cryptomonadales. Smaller cells were numerous and included unicells, *Oocystis* spp. and *Pyramimonas* spp., while ciliates, *M. rubrum* and dinoflagellates such as *Heterocapsa rotundata* occurred in lower biovolumes. The potentially harmful filamentous cyanobacterium *A. flos-aquae** was present in low abundance. The chlorophyll-a concentration was in the mid-range of the Baltic stations, normal for the season, and consistent with the moderate phytoplankton biovolume observed by the IFCB.

BY31 - 2026-10-22
Phytoplankton diversity was moderate and total cell numbers were also moderate compared to the other Baltic Sea stations on this cruise. Diatoms dominated the community by biovolume, with Centrales as the main component, while *Coscinodiscus* spp. and *Actinocyclus* spp. contributed in lower amounts. Cryptophytes were also important, with Cryptophyta clearly dominating and Cryptomonadales present in smaller quantities. Among the cyanobacteria, Chroococcales and Cyanophyceae were most common, and *A. parallelliformis* occurred in lower numbers. Dinoflagellates, *Mesodinium* spp., ciliates and silicoflagellates were present in low biovolume, with *H. rotundata* as the most common dinoflagellate and *Alexandrium* spp.* occurring in low abundance. The smaller cells were dominated by Unicells and the flagellate *Pyramimonas* spp., with *Oocystis* spp. also present. The potentially harmful cyanobacterium *A. flos-aquae** was observed in low numbers. The chlorophyll-a concentration was normal for the season and in the mid-range for the Baltic Sea stations, consistent with the relatively high biovolume recorded here.

BY15 - 2026-10-23
Phytoplankton diversity was moderate and total cell numbers were relatively low compared to the other Baltic stations on this cruise, while the total biovolume was in the mid-range. Diatoms dominated the community, with *Coscinodiscus* spp. and other Centrales as the most important components, and *Actinocyclus* spp. contributing in lower amounts. Among the cryptophytes, Cryptophyta clearly dominated, with additional cells from Cryptomonadales. The smaller cells within the other group were mainly represented by unicells, together with *Oocystis* spp. and *Eutreptiella* sp. Cyanobacteria, *Mesodinium* spp., ciliates and dinoflagellates occurred in lower biovolume; the filamentous cyanobacterium *A. flos-aquae** was present but not abundant. The chlorophyll-a concentration was normal for the season and similar to the other Baltic stations, consistent with the moderate biovolume observed by the IFCB.

BCS III-10 - 2026-10-24
Phytoplankton diversity was moderate and total cell numbers were relatively low compared to the other Baltic Sea stations on this cruise. Diatoms contributed the largest biovolume, with Centrales dominating and additional contributions from *D. fragilissimus* and *Actinocyclus* spp. Cryptophytes were also important, mainly represented by Cryptophyta and other cells from the order Cryptomonadales. Cyanobacteria formed a substantial part of the community, with Chroococcales and Cyanophyceae dominating and the filamentous *A. flos-aquae** present in lower numbers. Smaller cells included various unicells and *Pyramimonas* spp., while dinoflagellates, *Mesodinium* spp. and ciliates occurred in minor amounts. The potentially harmful taxa *A. flos-aquae** and *P. cordatum** were both observed, but not in high abundance. The chlorophyll-a concentration was normal for the season.

BY5 - 2026-10-24
Phytoplankton diversity was moderate and total cell numbers were relatively high compared to the other Baltic stations, while the total biovolume was in the lower range. Cryptophytes dominated the community, with Cryptophyta as the main component and additional contribution from Cryptomonadales. Cyanobacteria were also important, with Cyanophyceae and Chroococcales contributing most of the

biovolume, and the filamentous *A. flos-aquae** present in lower amounts. Among the other flagellates, Unicells were common, and the green flagellate *Pyramimonas* spp. together with *Eutreptiella* sp. formed a substantial part of the smaller cell fraction. Diatoms, dinoflagellates, ciliates, *Mesodinium* spp. and Silicoflagellates occurred in lower biovolumes, with no clearly dominant taxon among them. The potentially harmful dinoflagellate *P. cordatum** was observed in low numbers. The chlorophyll-a concentration was normal for the season and in agreement with the relatively modest total biovolume recorded by the IFCB at this station.

BY2 - 2026-10-25 (microscopy)
Phytoplankton diversity was relatively high and total cell numbers appeared moderate in the light microscopy sample. Cryptophytes were the most common group, with Cryptomonadales reaching common abundance. Diatoms were represented mainly by *Chaetoceros* spp. and *C. cf. peruvianus* at several-cells levels, together with *Cyclotella*, while other diatom taxa such as *C. pelagica*, *Chaetoceros danicus*, *Coscinodiscus* and *D. fragilissimus* occurred only in low numbers. The cyanobacterium *A. flos-aquae** was present with several filaments, while *Lemmermanniella*, *N. spumigena** and *Snowella* were only observed in low abundance. Dinoflagellates were represented by Gymnodiniales at several-cells levels and a few cells of *H. rotundata* and *Tripos muelleri*. The mixotrophic ciliate *M. rubrum* and other heterotrophic or flagellated taxa such as Ciliophora, *E. tripartita*, *Pyramimonas*, *Binuclearia lauterbornii*, *Actinocyclus* and *Eutreptiella* were also observed in low to moderate numbers. The chlorophyll-a concentration was normal for the season.

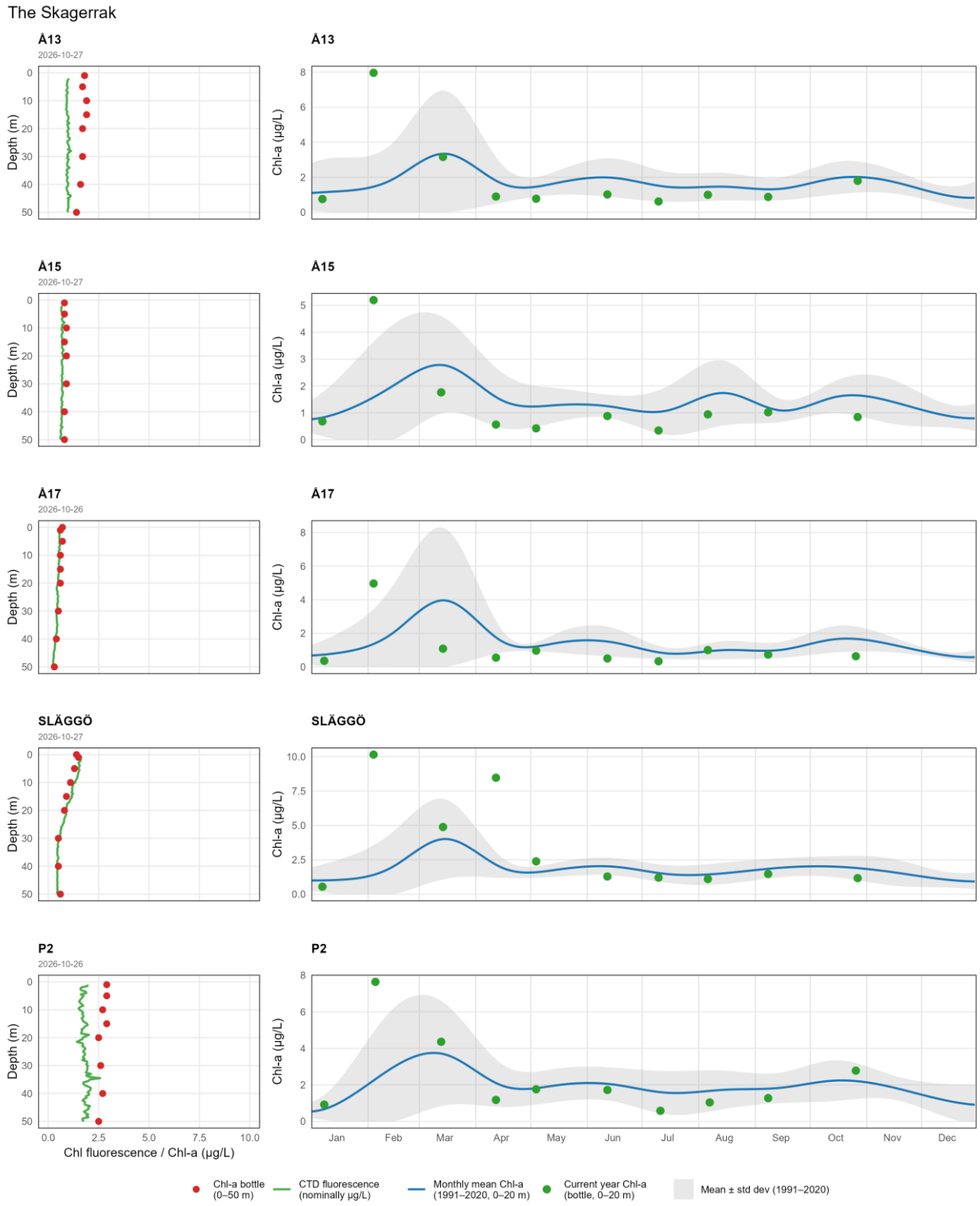


Figure 5. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Skagerrak stations.

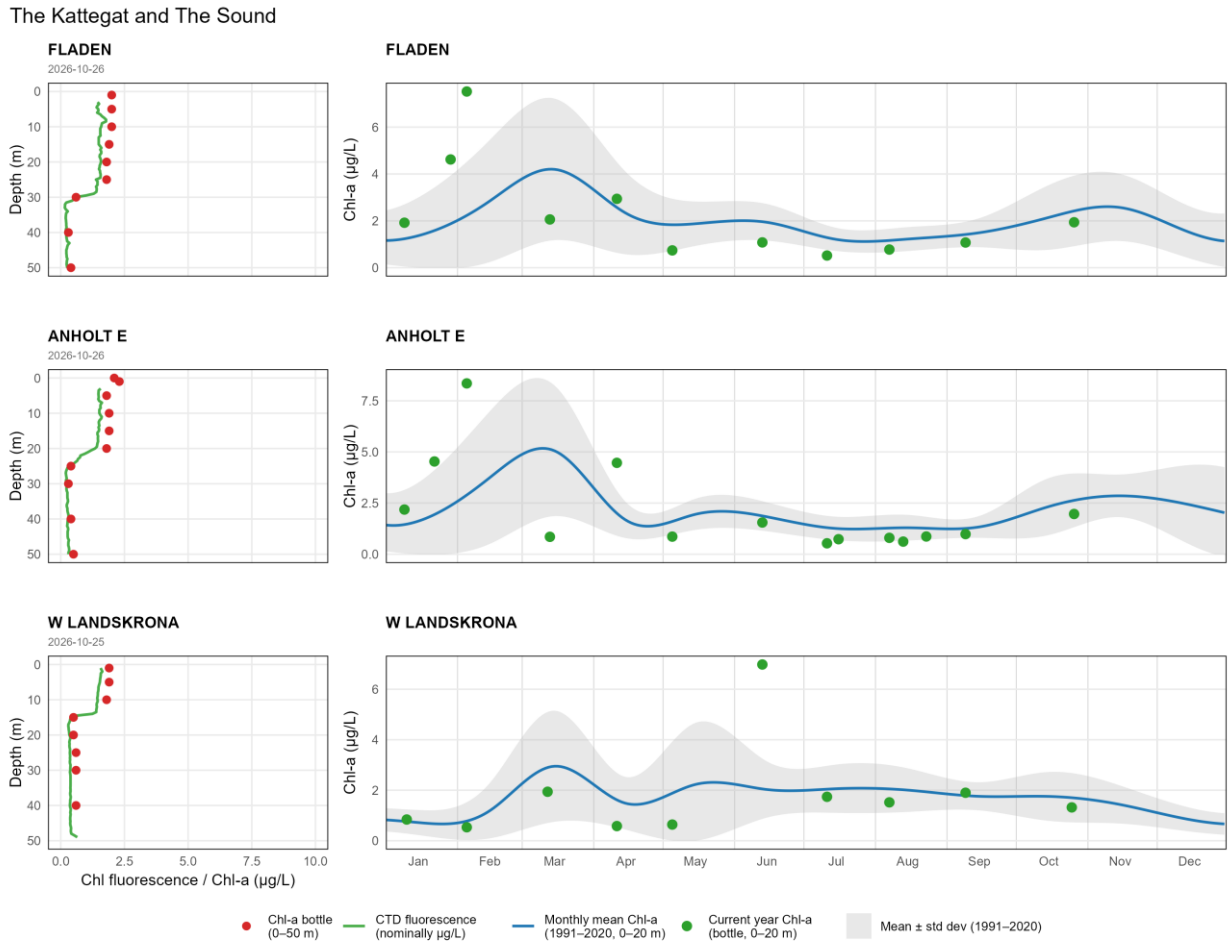


Figure 6. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Kattegat and The Sound stations.

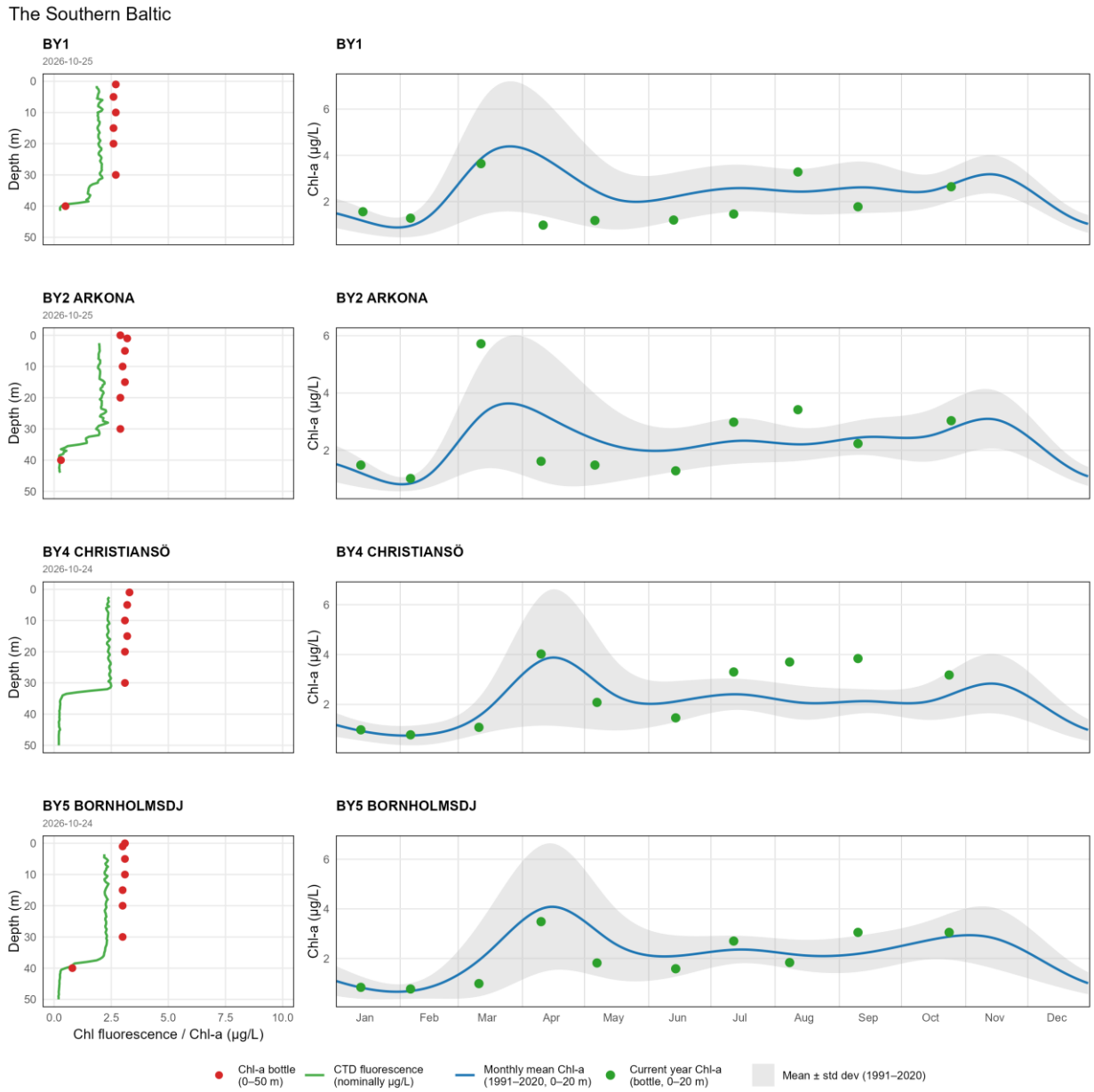


Figure 7. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Southern Baltic stations.

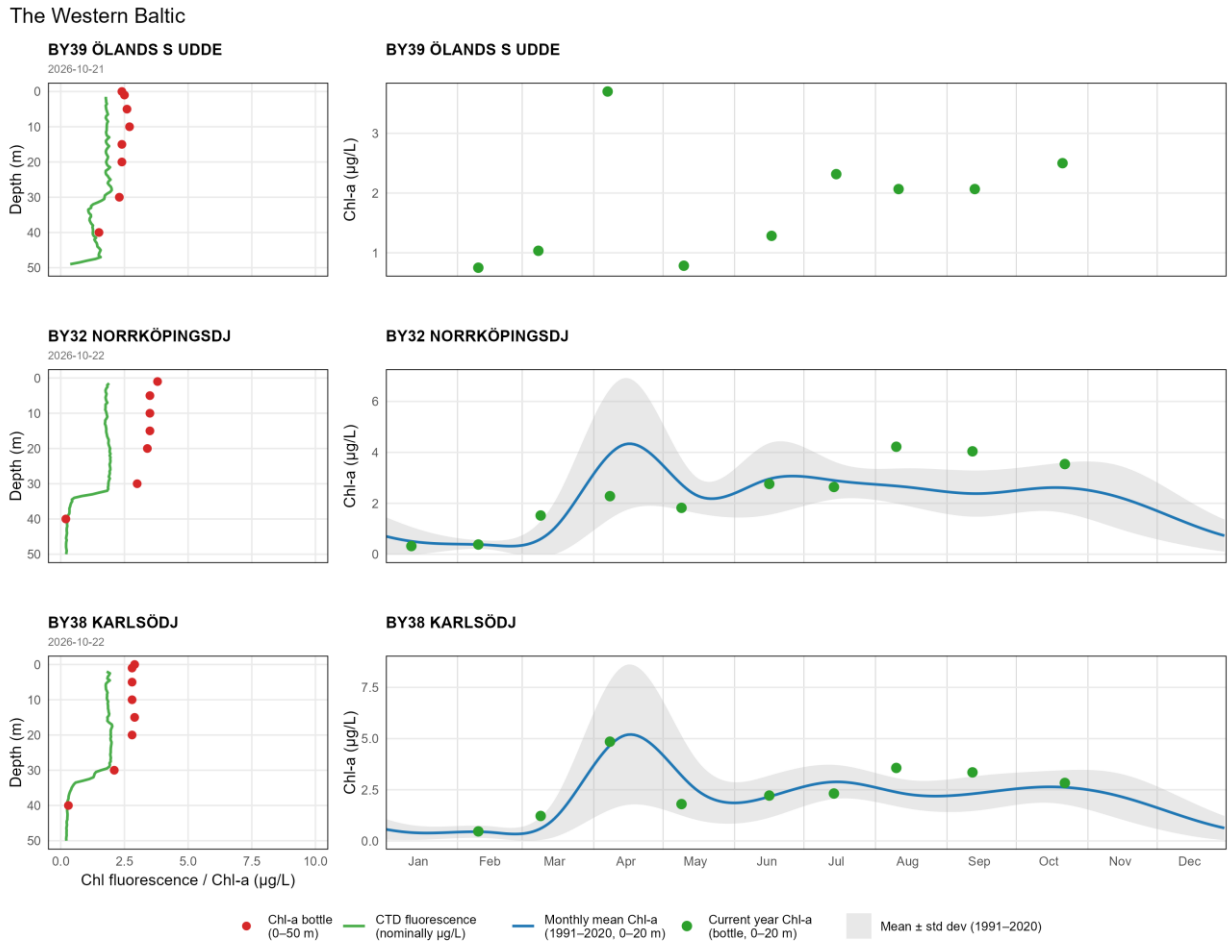


Figure 8. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Western Baltic stations.

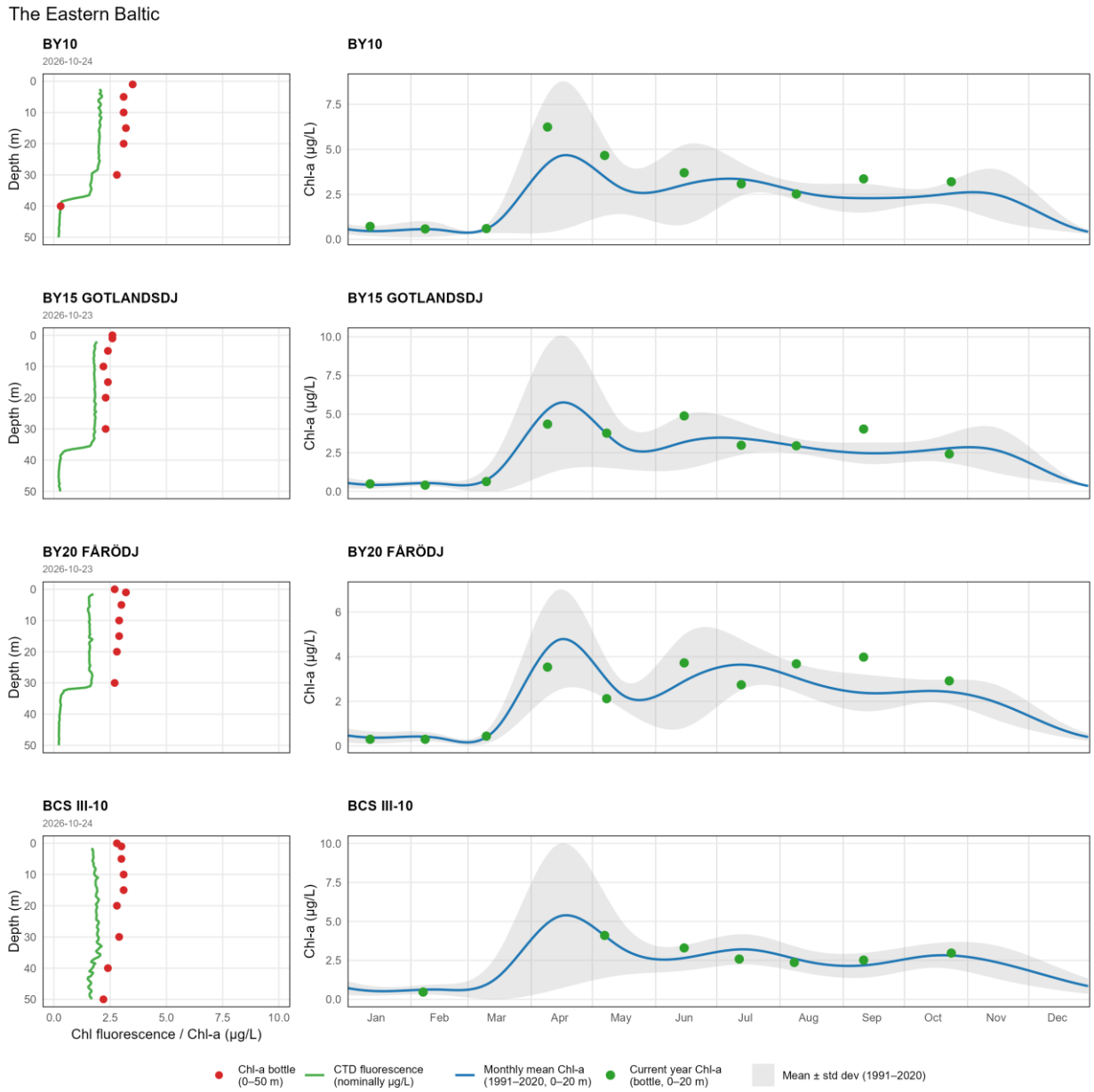


Figure 9. CTD fluorescence profiles and Chl-a time series (with 1991-2020 monthly statistics) for The Eastern Baltic stations.

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