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The Southern Baltic Phytoplankton in 1956

by

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This paper was elaborated on the basis of material collected during 6 research cruises in:- January, March, May, June, August, September and November. Every cruise included the regions of the Arkona Deep, Bornholm Deep, Slupsk Furrow and Gdańsk Deep.

Samples of phytoplankton were taken by means of a Copenhagen net No.25 from two layers, namely the superficiel layer from 0-15 m and from the bottom to the surface. 6o samples from among the plankton algae which appeared there were classified, and the form of only 5 species was determined; of these 9 were determined to be Schiziphyceae, 11 - Chlorophyceae, 7 - Peridineae, 35 - Bacillariaphyceae, 2 - Silicoflagellatae, and 1 - Chrysophyceae.

Horizontal Distribution

In all areas investigated the dominating group in the superficiel layer of the southern Baltic are the Schizophyceae (with the exception of winter months). The species:- Aphanizomenon flos-aquae (L) Ralphs, Microcystis aeruginosa Kutzing are most numerous. The less numerous species are:- Nodularia spumigena Mertens, Aphanocapsa pulchra (Kutz), Anabaena spiroides Kleb., Microcystis flos-aquae (Wittr.) Kirchn.

The peak development of the Schizophyceae occurs in August and September, when the blooming is noted.

The great variety noted in the number of some species depends upon the region. It may be generally stated that the quality composition in the Arkona Deep and the Bornholm Deep are similar, and species typical for the open seas (the North Sea) are present. The flora composition of the Slupsk Furrow is similar to the composition of the Gdańsk Deep. This is true not only for the Schizophyceae but for other species represented. The second group of phytoplankton represented in quite large numbers in the superficial layer are the Bacillariophyceae:- Thallasiosira, Sceletonema, Achnantches, Actinocyclus, Chaetoceros, Representatives of:- Thizosolenia, Melosira, Diatoma, Fragilaria, Cyclotella, Navicula, and Diploneis are less numerous.

The peak development of the Bacillariaophyceae occurs in the regions of the Arkona and Bornholm Deep, i.e. in the regions being influenced by the North Sea waters in January, March, May and June. In the Slupsk Furrow and Gdańsk Deep the peak is reached in June, September, and even November.

The third group of phytoplankton which appear in the superficial layer are Dinoflagellatae. They are:- Peridinium, Ceratim, Dinophysis, Dinobrion.

The number of species found is different in the investigated vegetation season in the particular regions. The peak development in the Arkona Deep was noted in May and August; in the Bornholm Deep and the Slupsk Furrow it was in June, in the Gdańsk Deep in October.

The Vertical Distribution

The Schizophyceae appear in all the layers from the bottom to the surface in all regions investigated. They appear most numerously in the superficial layer from 0-15 m, are quite numerous down to 7o m, less numerous in the layer below 7o m, and only in the Gulf of Gdańsk region are they often found at a depth of 9o m.

The Bacillariophyceae appear most numerously in the layer from 0-3o m in the investigated regions. It appears in quite large numbers down to 7o m in the Slupsk Furrow and Gdańsk Deep, and below that depth only sporadically.

The Dinoflagellatae appear quite commonly at the particular depth in the regions investigated. In the period of blooming they drop down to a depth of 5o m; in the remaining periods they remain in the superficial layer.

One more group of phytoplankton, which should be mentioned, is the plankton Chlorophyceae. It is a plant type appearing sporadically in the superficial layer of the regions investigated. The species found were:- Scenedesmus, Pediastrum, Ankistrodesmus, Oocystis, Trochiscia. They were of no distinct importance in the investigated vegetation season.

A List of Species in Particular Regions

Species	Arkona Deep	Bornholm Deep	Slupsk Furrow	Gdańsk Deep
Schizophyceae				
1. Aphanizomenon flos-aquae L. Ralfs	+	+	+	+
2. Anabaena affinis Lemmermann		+	+	
3. Anabaena flos-aquae (Lyngbye)			+	
4. Anabaena spiroides Klebahn	+		+	+
5. Microcystis aeruginosa Kützing	+	+		+
6. Microcystis flos-aquae (Wittr.)	+	+		
7. Nodularia spumigena Mertens	+	+	+	+
8. Oscillatoria tenuis Agardh		+	+	
9. Aphanocapsa pulchra (Kütz.) aben.				+
1o. Chroococcus Nageli			+	+
Chrysophyceae				
11. Dinobryon Balticum (Schütt) Lemm.	+	+	+	+
Chlorophyceae				
12. Ankistrodesmus falcatus (Corda)Ralfs.	+	+	+	+
13. Dictyosphaerium Ehrenb. Naeg.	+	+	+	+
14. Trochiscia multispinosa (Moeb) Lemm.	+		+	+
15. Trochiscia Clevei Lemm.	+		+	+
16. Hexasterias problematica Cleve	+	+	+	+
17. Pediastrum Boryanum (Turpin)		+	+	
18. Scenedesmus quadricauda (Turp.) Breb.			+	
19. Trochiscia brachiolata (Moeb.)Lemm.	+	+	+	+
2o. Oocystis submarina Lagerh.				+
21. Oocystis lacustris Chodat	+			+
22. Oocystis solitaria Wittr.				+
23. Oocystis sp.				+
Silicoflagellatae				
24. Ebria tripartita (Schum.)Lemm.	+	+	+	-

(continued on page 3)....

Species	Arkona Deep	Bornholm Deep	Slupsk Furrow	Gdańsk Deep
Peridiniaceae				
25. Ceratium tripos (O.F.M.) Nitzsch	+	+	+	
26. Dinophysis acuminata Clap. Lachm.	+	+	+	+
27. Peridinium catenatum Levand.		+	+	
28. Peridinium pellucidum (Bergh)Schütt.	+	+	+	+
29. Dinophysis ovum Schütt	+		+	
3o. Dinophysis norvegica Clap. Lachm.		+	+	+
31. Dinophysis rotundata Clap. Lachm.		+		
Bacillariophyceae				
32. Achnanthes taeniata Grun.	+	+	+	+
33. Actinocyclus Ehrenbergii Ralfs.	+	+	+	+
34. Chaetoceros danicum Cleve		+	+	+
35. Chaetoceros Eibenii (Grun) Mounier	+	+	+	+
36. Chaetoceros holsaticum Schütt	+	+	+	+
37. Chaetoceros pseudocrinitum Ostenf.	+	+	+	+
38. Chaetoceros Wighami Cleve	+	+	+	+
39. Chaetoceros laciniosum Schütt		+	+	+
4o. Chaetoceros socialis Lauder			+	+
41. Chaetoceros gracilis Schütt				+
42. Chaetoceros simile Cleve	+			
43. Chaetoceros breve Schütt	+			
44. Cyclotella Meneghiniana Kütz	+			
45. Cyclotella socialis Schütt	+			
46. Fragilaria crotonensis (Edw.)				+
47. Melosira Jurgensii Ag.		+		
48. Melosira Borreri Grev.				+
49. Melosira acrtica	+			+
5o. Melosira Meneghiniana		+		+
51. Coscinosira polychorda Cran.	+		+	+
52. Sceletonema costatum (Grev.)	+	+	+	+
53. Synedra ulna (Nitzsch)			+	+
54. Thalassiosira baltica (Grun)	+	+	+	+
55. Thalassiosira Nordenskjoldii Cleve	+			
56. Thalassiothrix nitzschioides (Grun)	+			
57. Diploneis interrupta (Kütz.)	+			
58. Rhizosolenia heberata (Bail)	+			
59. Rhizosolenia sp.	+			
6o. Chaetoceros borealis Bail.		+		
61. Chaetoceros debile Cleve				+
62. Coscinodiscus Granii				+
63. Fragilaria sp.				+

Characteristic Phytoplankton Species in Particular Seasons

Seasons	Dominating Species
winter species:	Sceletonema costatum, Thalassiosira baltica, Chaetoceros danicum, Chaetoceros Wighami, Chaetoceros Eibenii, Achnanthes taeniata, Actinocyclus Ehrenbergii, Aphanizomenon flos-aquae.
spring species:	Aphanizomenon flos-aquae, Dinobrion balticum, Achnantches taeniata, Sceletonema costatum, Thalassiosira baltica, Chaetoceros Eibenii, Chaetoceros Wighami, Chaetoceros holsaticus, Peridinium catenatum.
summer/autumn species:	Aphanizomenon flos-aquae, Peridinium pellucidum, Actinocyclus Ehrenbergii, Chaetoceros Eibenii.
autumn species:	Aphanizomenon flos-aquae, Microcystis aeruginosa, Chaetoceros Eibenii.

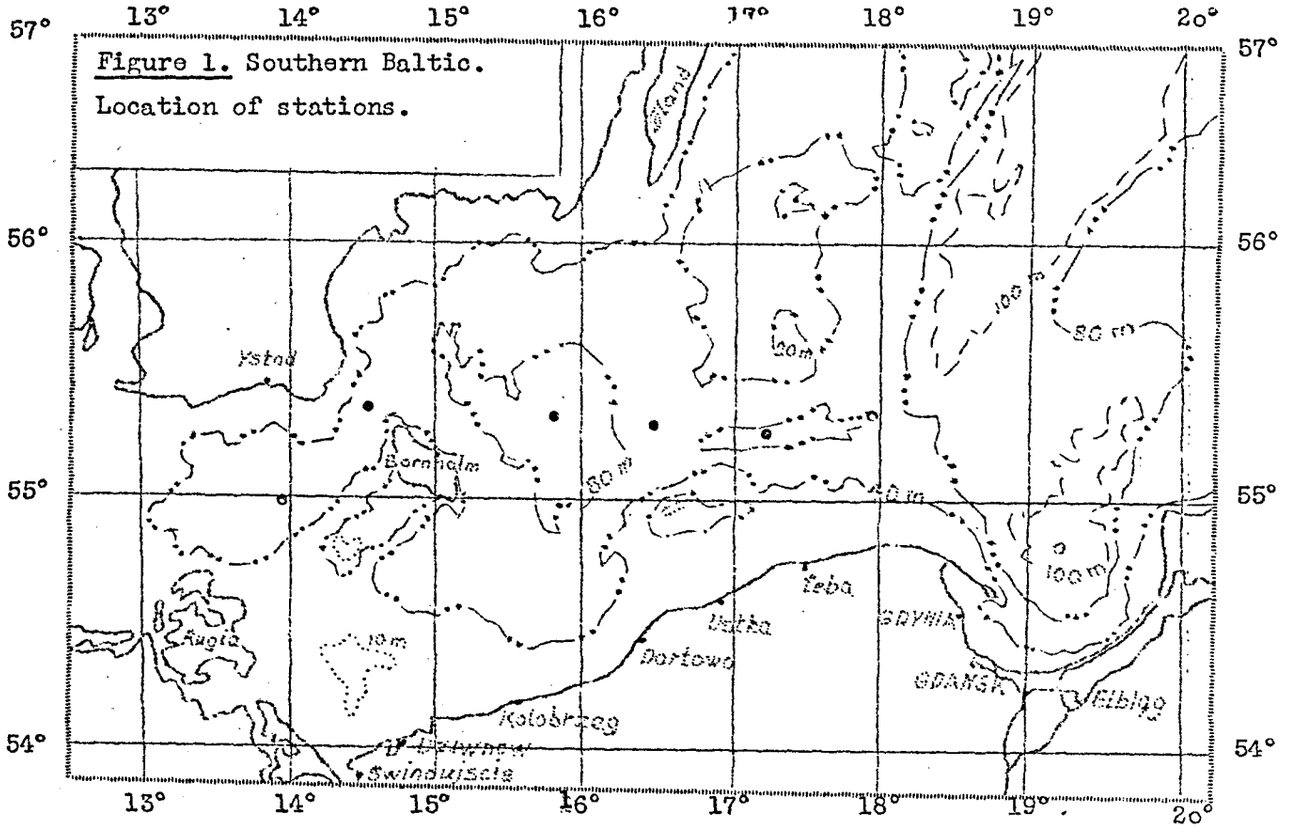

Figure 1. Southern Baltic. Location of stations.