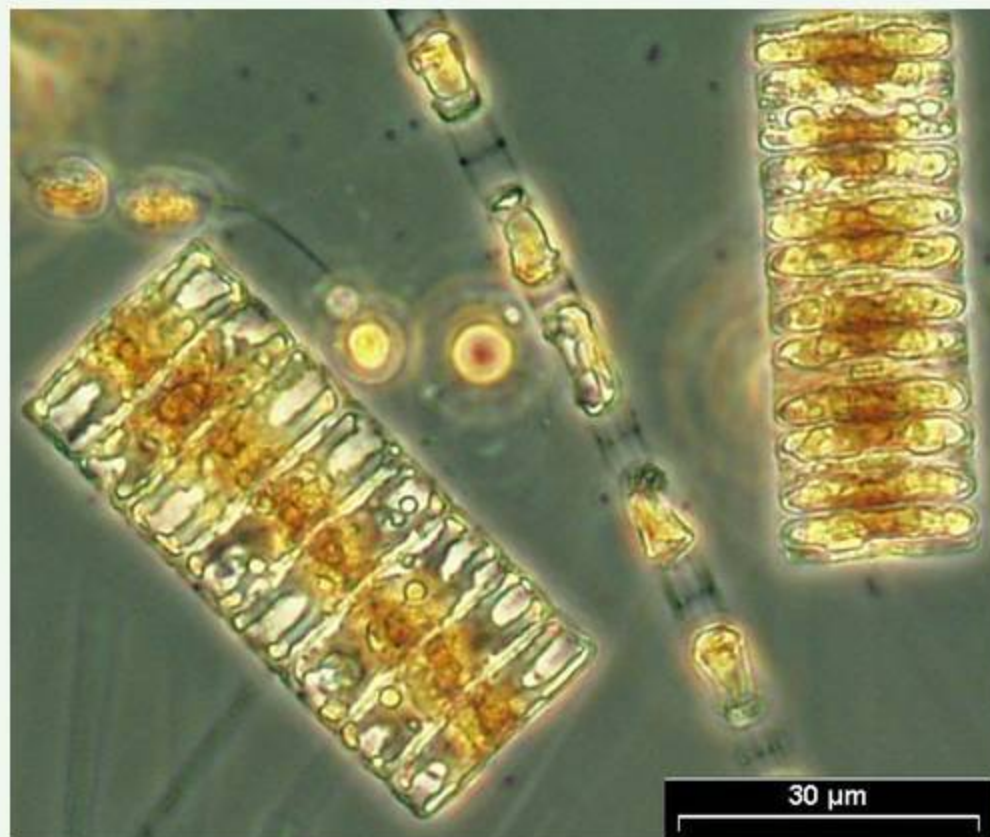
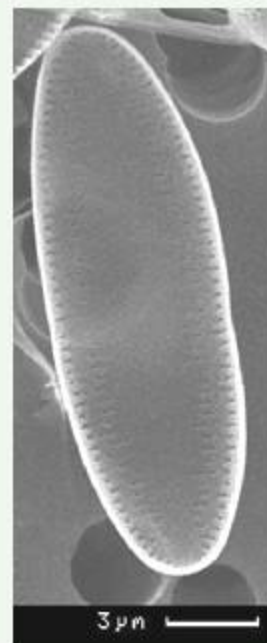


# phytoplankton – bacillariophyceae

## Achnantes taeniata

abundance: spring  
life-form: in chains  
apical axis: 10 - 40  $\mu\text{m}$   
transapical axis: 4 - 6  $\mu\text{m}$



LM (Pomeranian Bight)

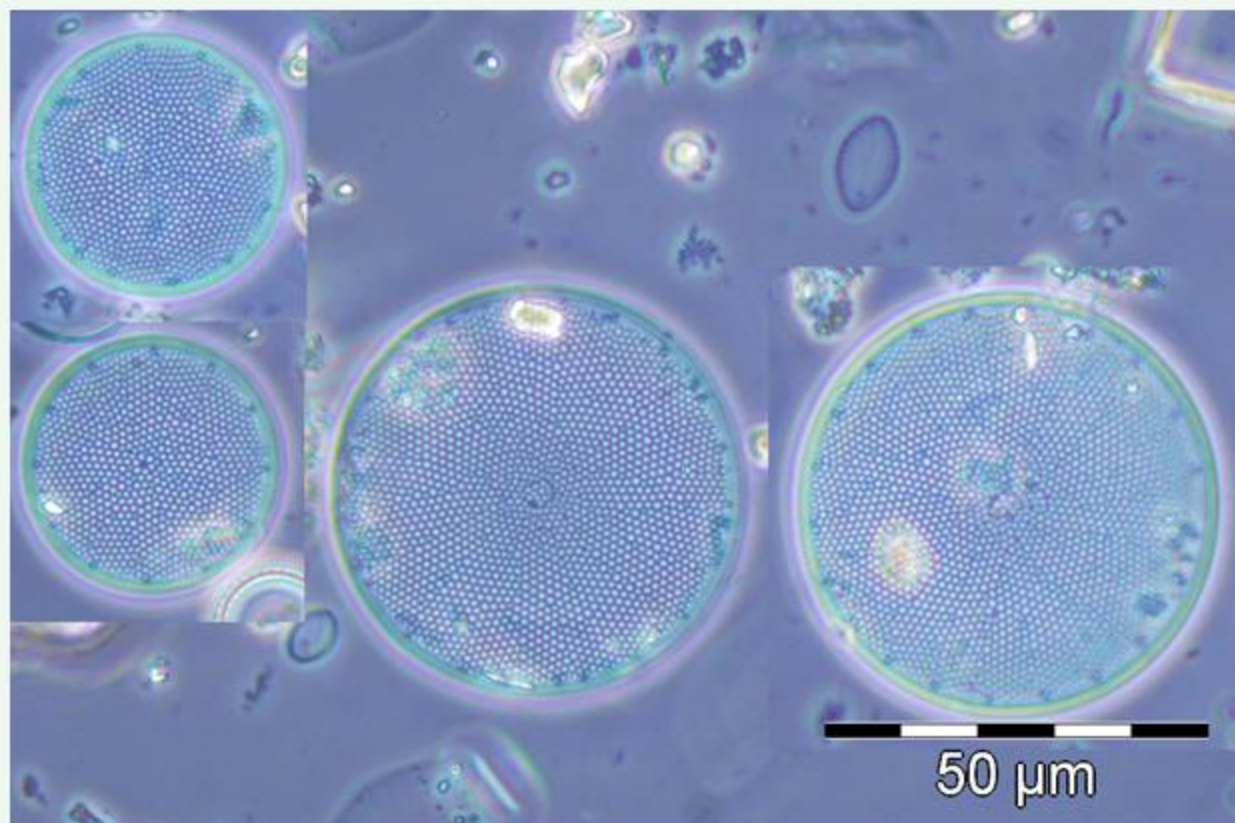
phytoplankton - bacillariophyceae

## *Actinocyclus curvatulus*

abundance: autumn

life-form: solitary

diameter: 13-160µm



LM (North Sea, NGW8) cleaned material

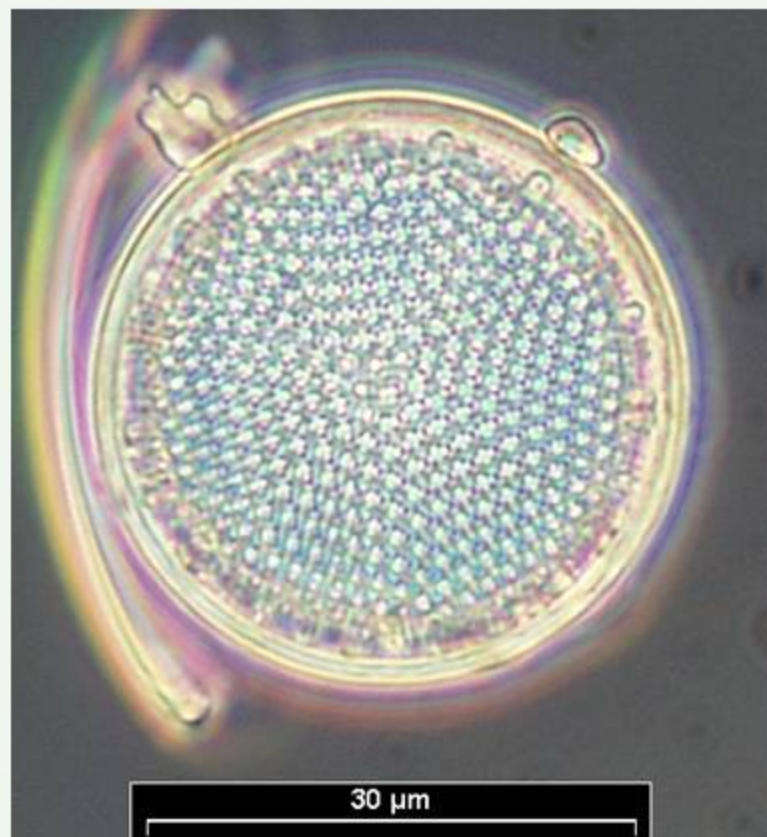
phytoplankton - bacillariophyceae

## *Actinocyclus normanii* fo. *subsalsa*

abundance: permanent abundant

life-form: solitary

size: 30 - 50  $\mu\text{m}$



LM (Gotland Sea, sediment trap)

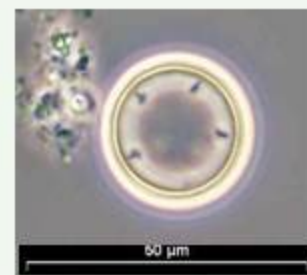
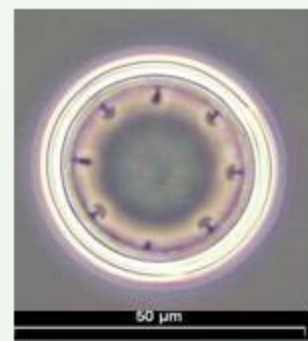
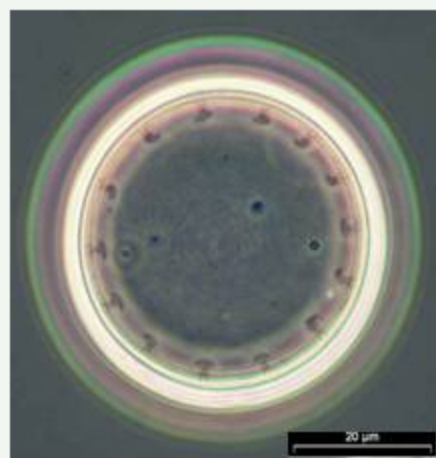
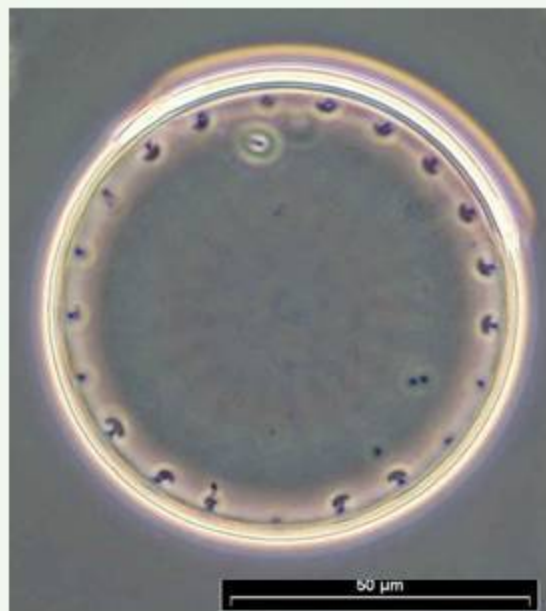
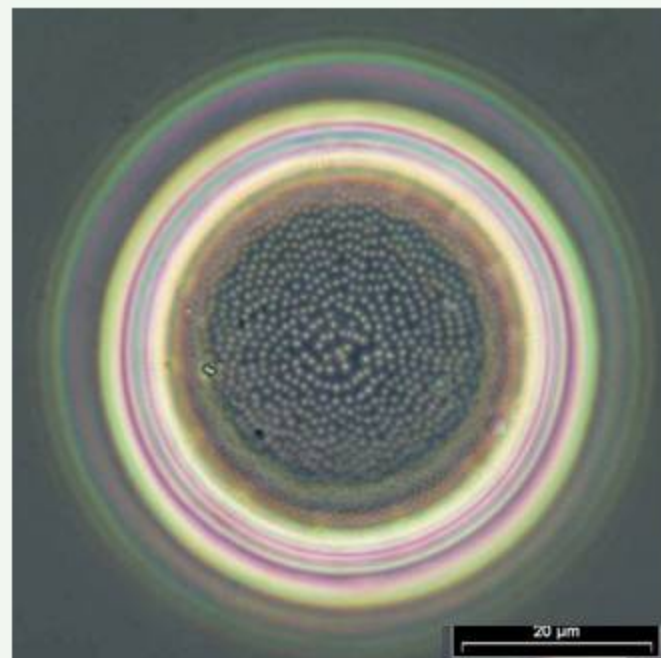
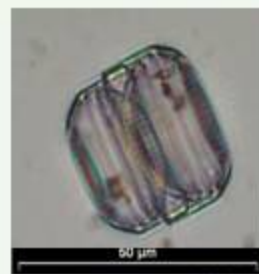
# phytoplankton - bacillariophyceae

## Actinocyclus octonarius

abundance: permanent abundant

life-form: solitary

size: 20 - 70µm



LM (Gotland Sea, sediment trap)

phytoplankton - bacillariophyceae

## Actinoptychus senarius

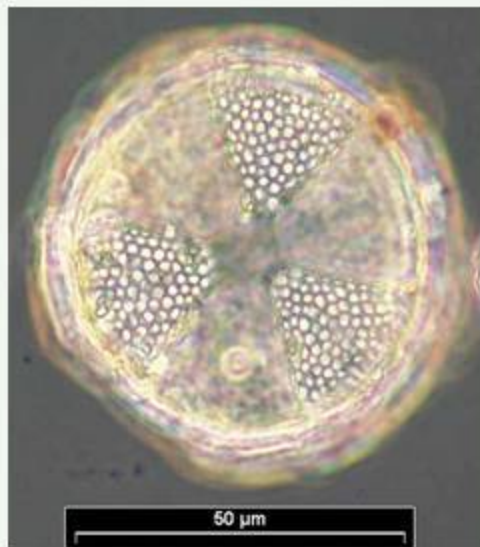
abundance: permanent abundant

life-form: solitary

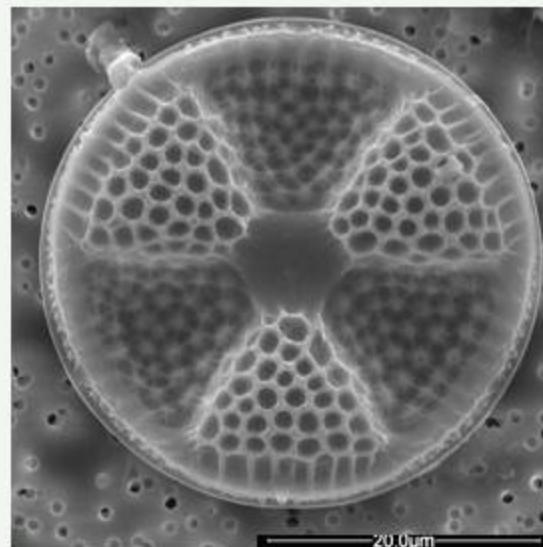
diameter: 20 - 150µm



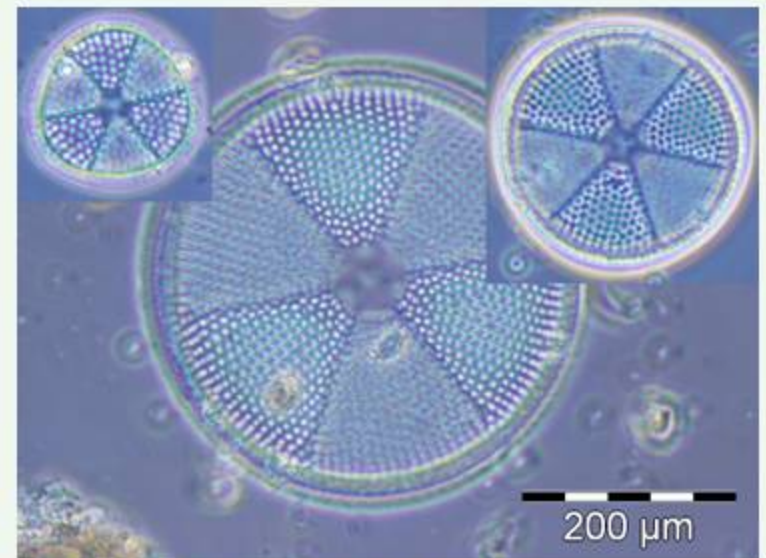
LM (North Sea, UFSDB)



LM (coastal station Heiligendamm)



REM (North Sea, URST3)



LM (North Sea, HELGO) cleaned material

phytoplankton - bacillariophyceae

## Actinopterychus splendens

abundance: occasional abundant

life-form: solitary

diameter: 75-200 $\mu$ m



LM (North Sea, AMRU<sub>2</sub>) cleaned material

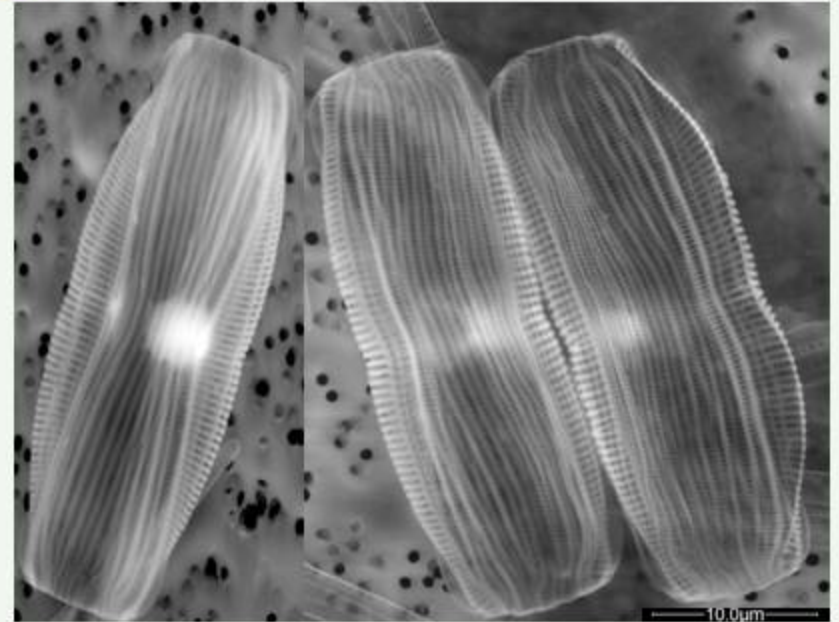
# phytoplankton – bacillariophyceae

## Amphora hybrida

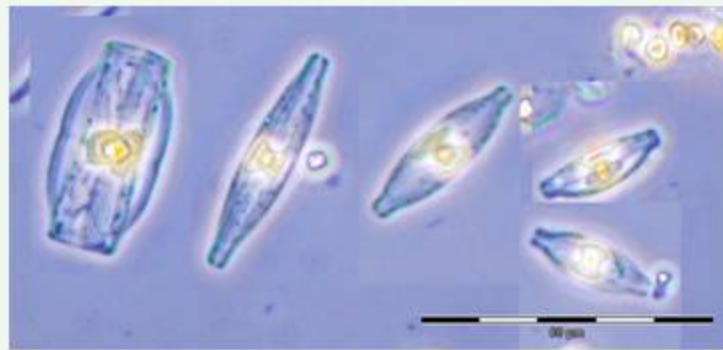
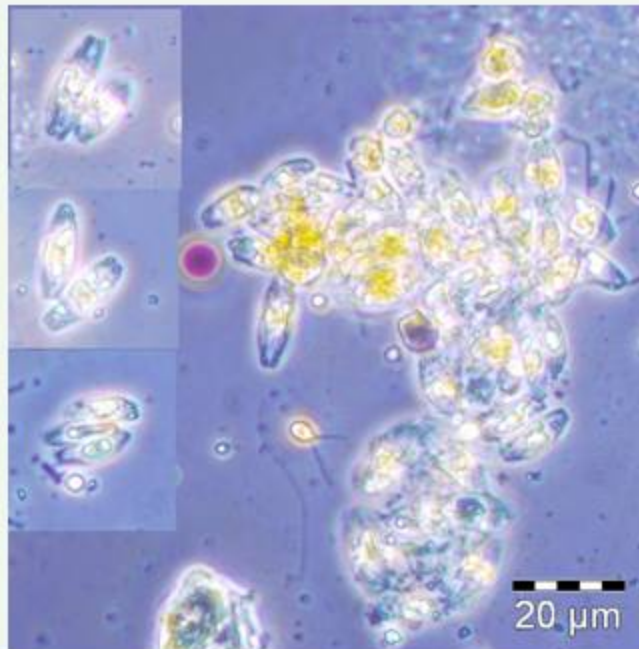
abundance: spring, summer

life-form: solitary

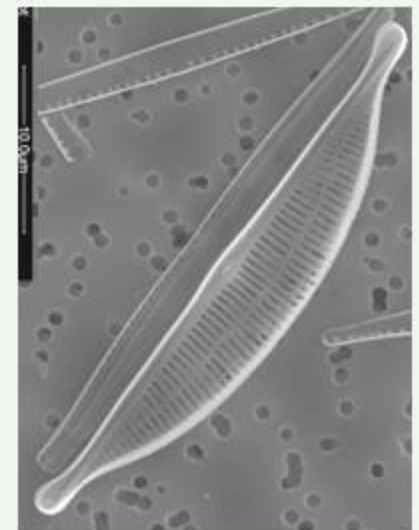
apical axis: 12-38µm



ESEM (Gotland Sea)



LM (Gotland Sea)



REM (Gotland Sea)

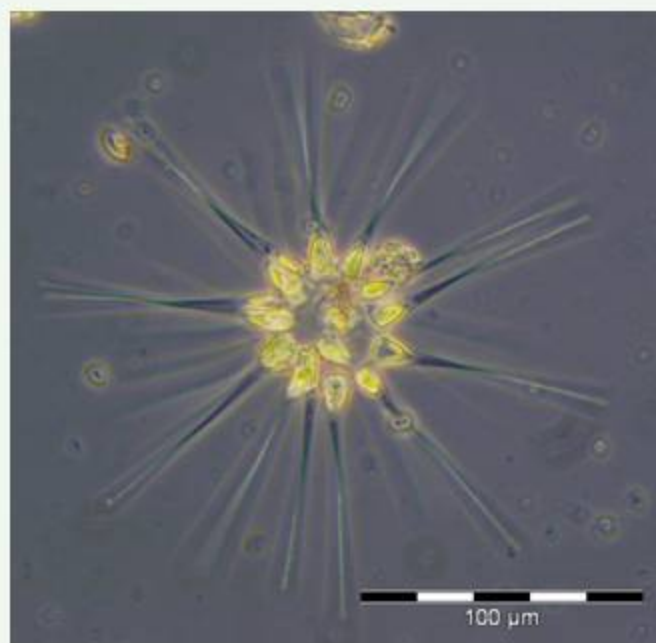
# phytoplankton - bacillariophyceae

## *Asterionellopsis glacialis*

abundance: all year

life-form: spiral or star-like colonies

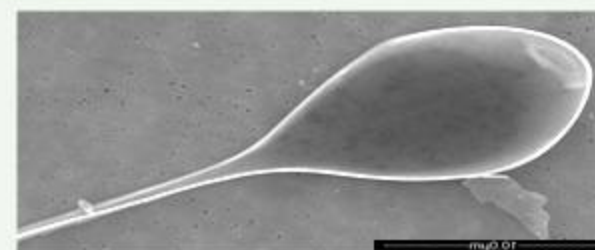
length: 30-150µm



LM (North Sea, ES1)



LM cleaned material  
(North Sea, ES1)



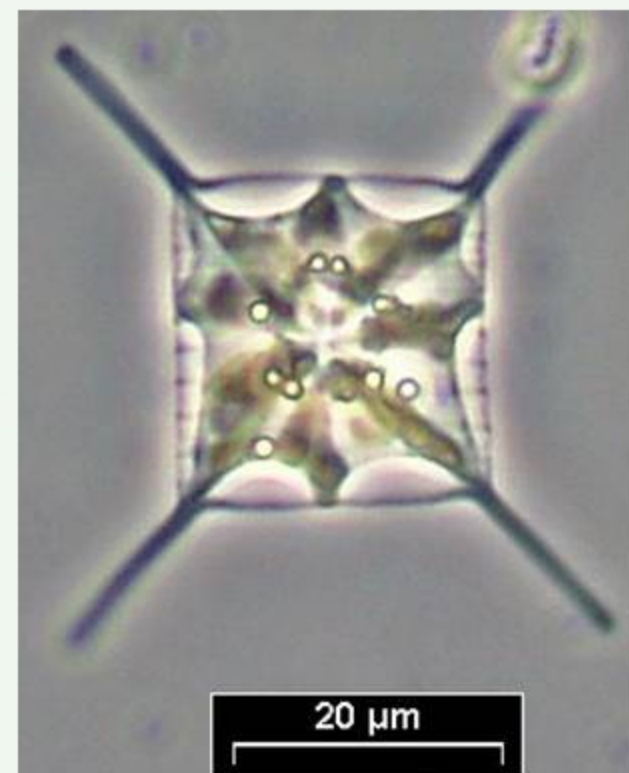
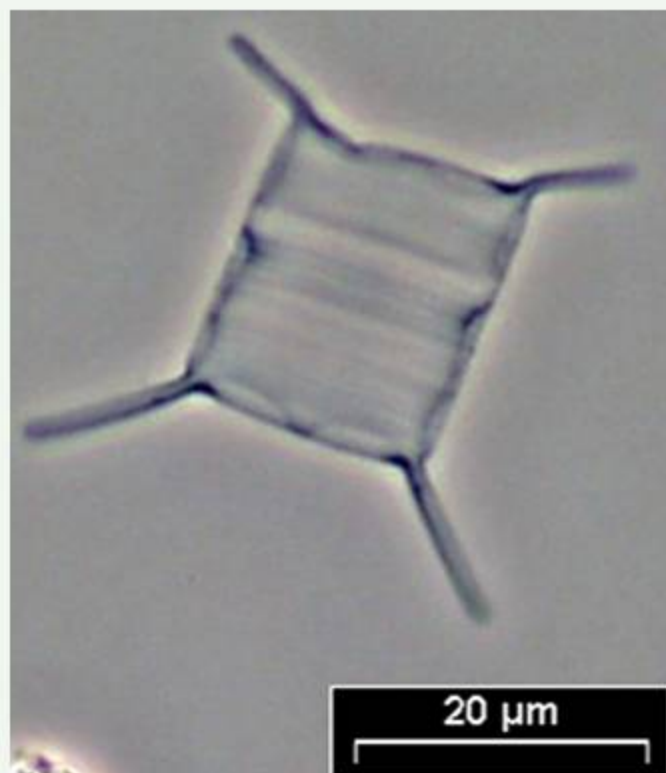
REM (North Sea, ES1)



# phytoplankton - bacillariophyceae

## *Attheya decora*

life-form: solitary  
apical axis: 20 -40µm

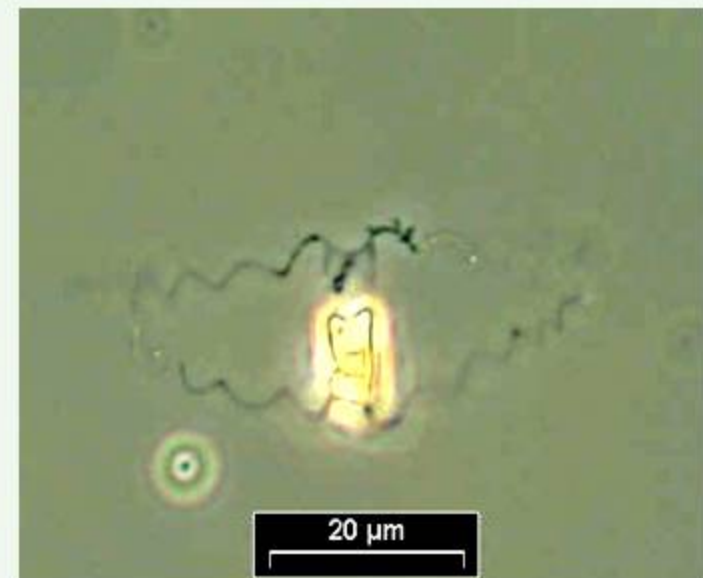
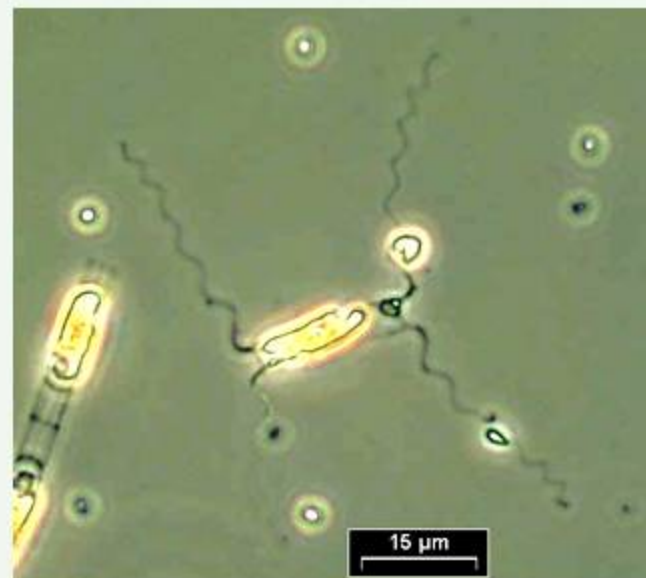
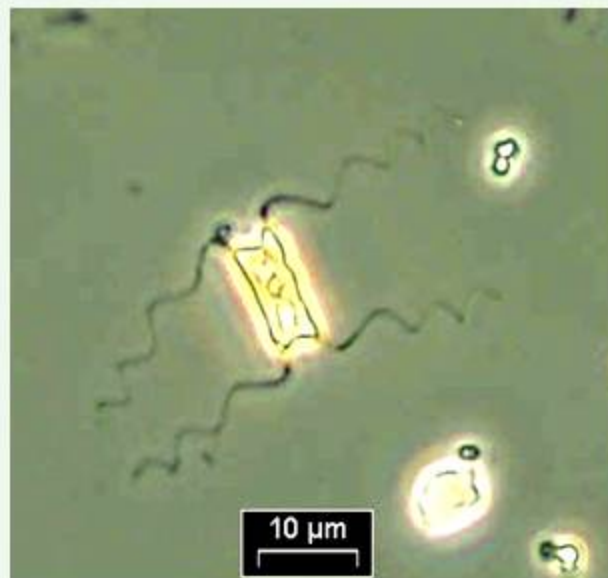


LM (coastal station Heiligendamm)

# phytoplankton – bacillariophyceae

## *Attheya septentrionalis*

life-form: solitary  
apical axis: 4 – 6  $\mu\text{m}$



LM ( Arkona Sea )

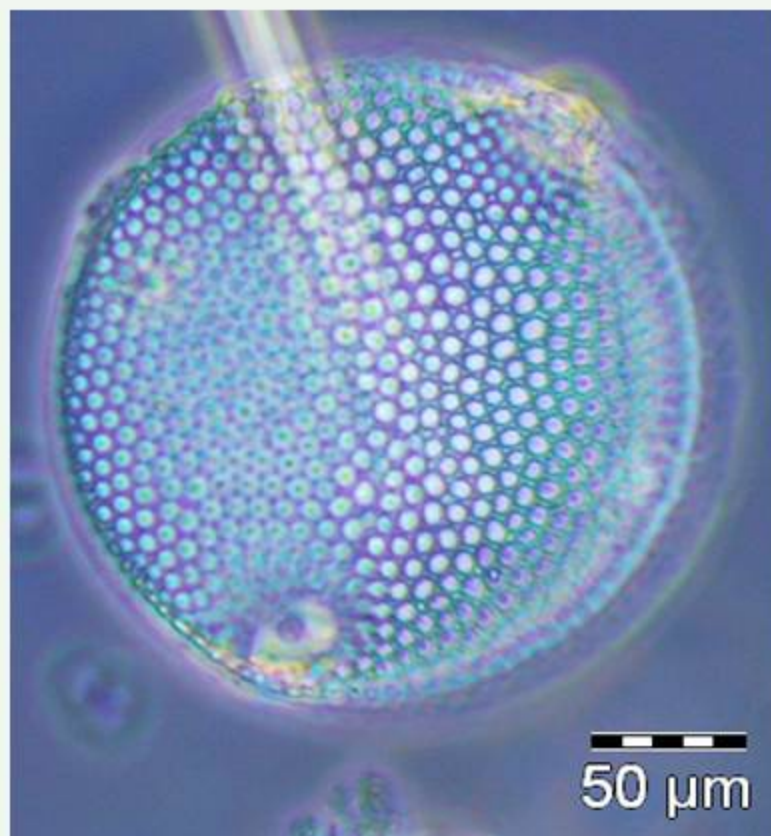
phytoplankton - bacillariophyceae

## Aulacodiscus argus

abundance: occasional abundant

life-form: solitary

diameter: 80 - 260  $\mu\text{m}$



LM (North Sea, HELGO) cleaned material

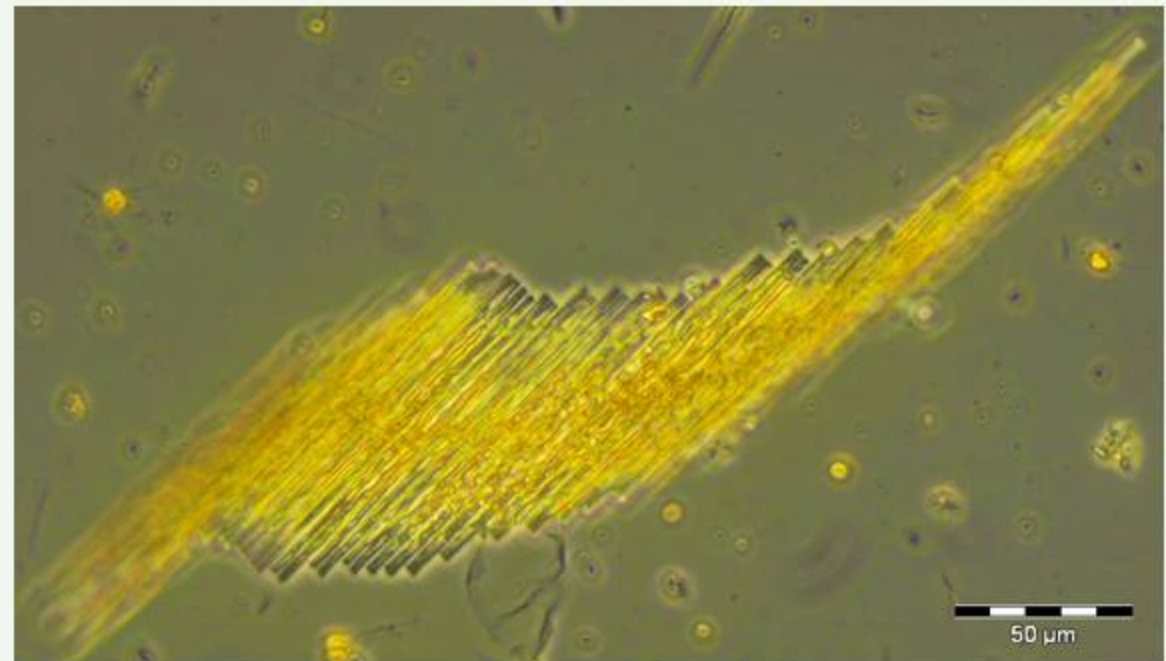
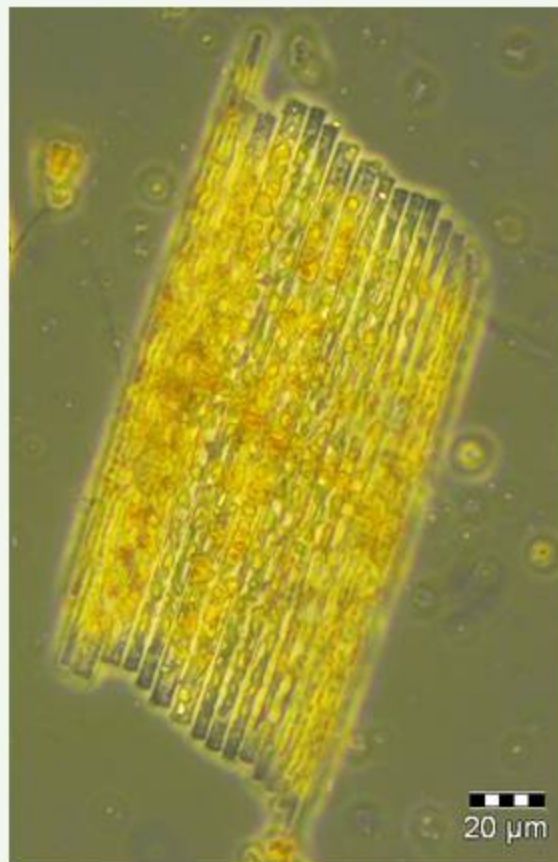
# phytoplankton - bacillariophyceae

## Bacillaria paxillifer

abundance: throughout the year

life-form: in motile colonies

apical axis: 70-250µm



LM (North Sea, NGW8)

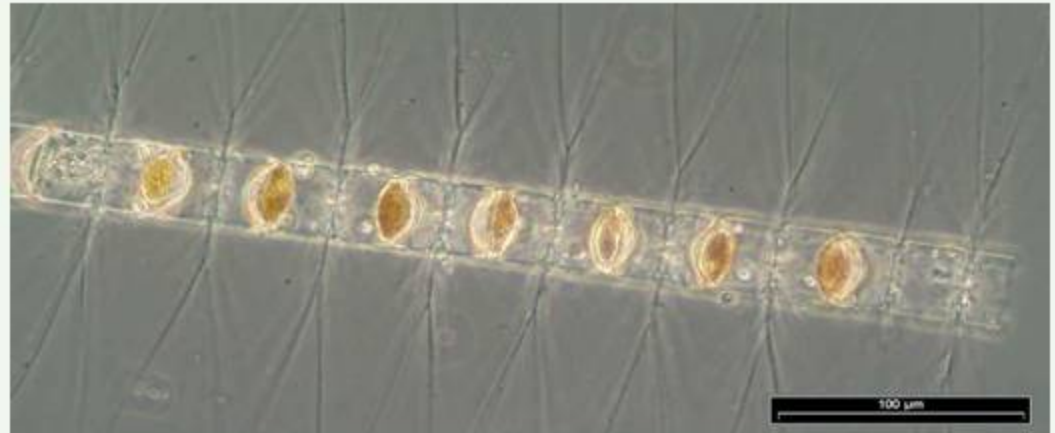
# phytoplankton – bacillariophyceae

## Bacteriastrum hyalinum

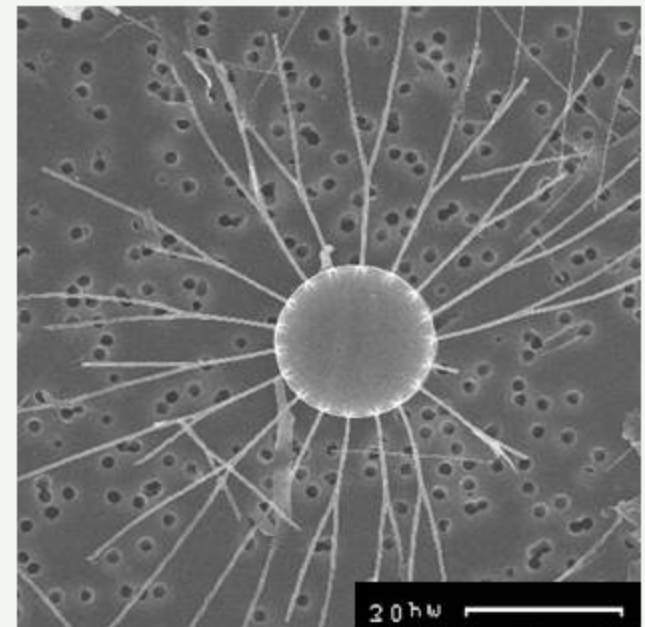
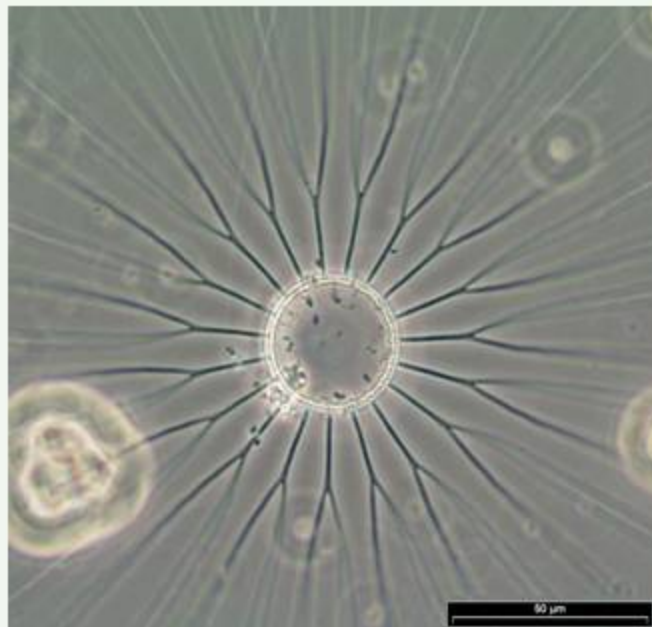
abundance: summer, late summer

life-form: mostly in chains

diameter: 13 - 56  $\mu\text{m}$



LM (North Sea , German Bight) resting spores



LM (North Sea, German Bight)

REM (North Sea, German Bight)

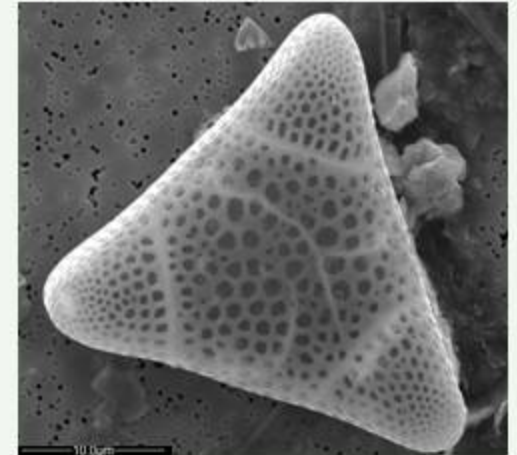
# phytoplankton – bacillariophyceae

## *Biddulphia alternans*

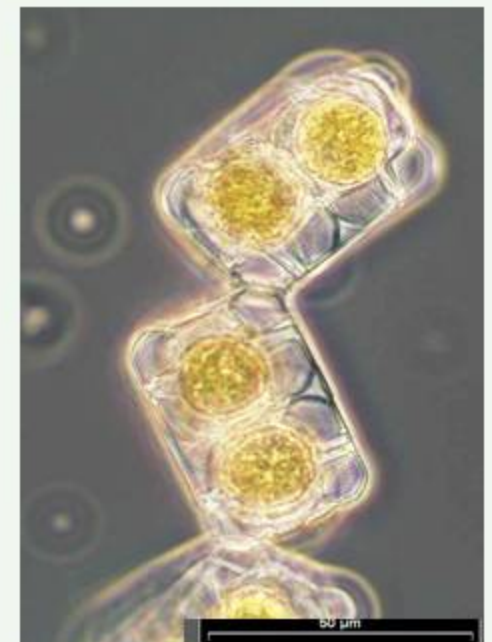
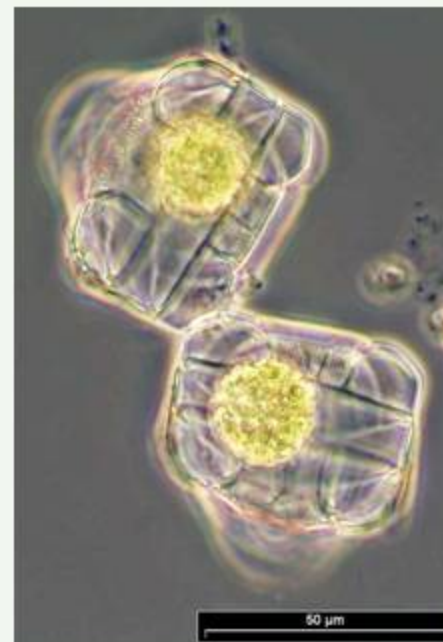
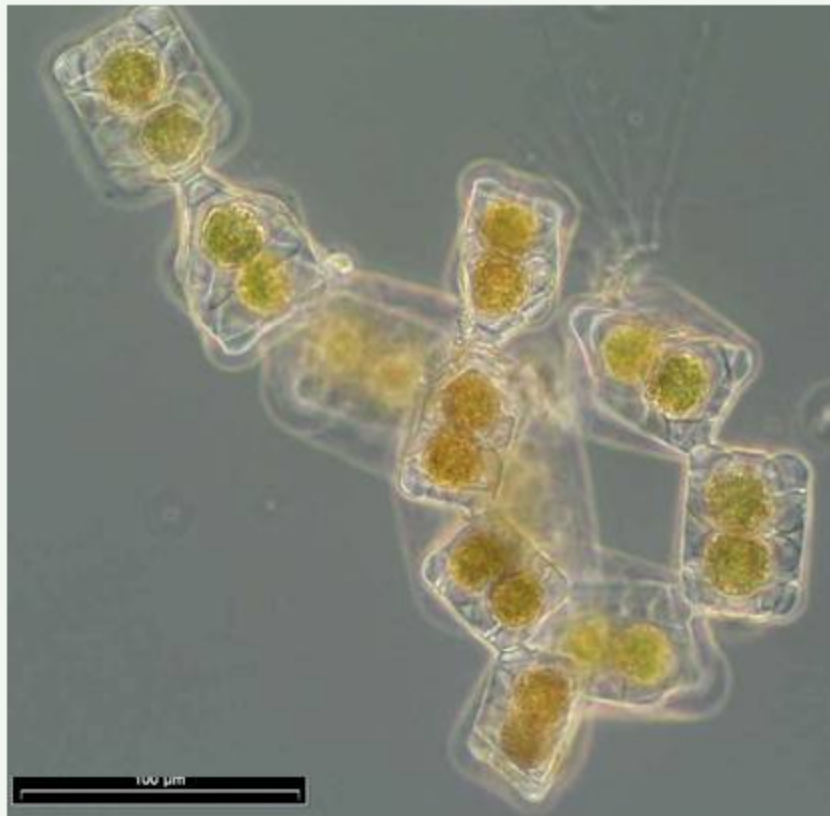
abundance: permanent abundant

life-form: in chains

diameter: 25 -60  $\mu\text{m}$



REM (North Sea, HELGO)

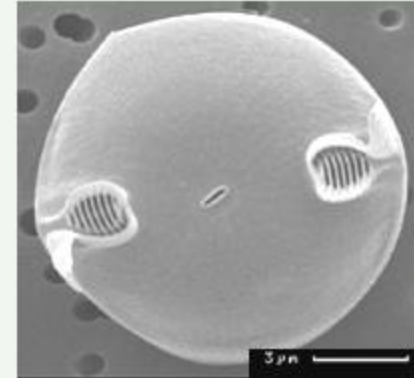


LM (North Sea, German Bight)

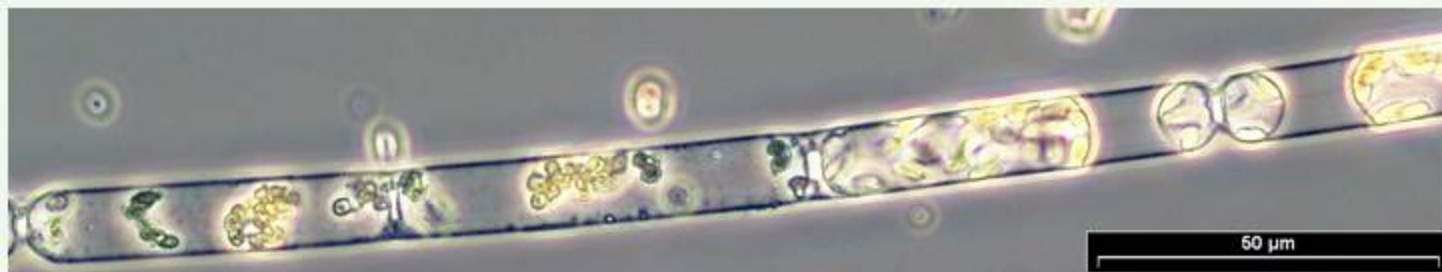
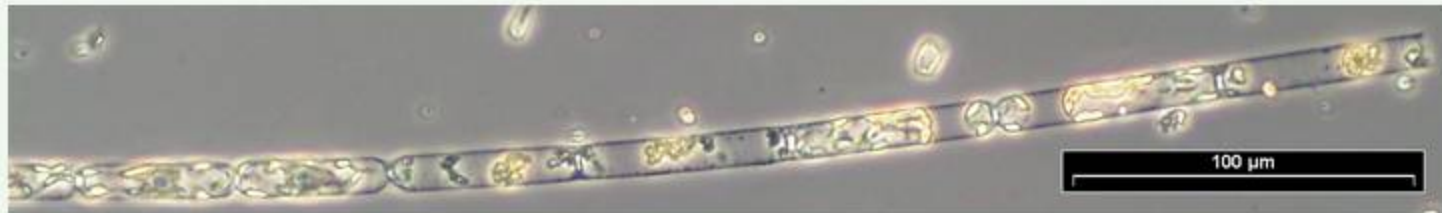
# phytoplankton – bacillariophyceae

## *Cerataulina pelagica*

life-form: solitary or in short chains  
diameter: 7 - 56  $\mu\text{m}$   
pervalvar axis: 55 -120  $\mu\text{m}$



REM circular valve



preserved with  
Lugol`s solution

LM ( coastal station Heiligendamm )

# phytoplankton – bacillariophyceae

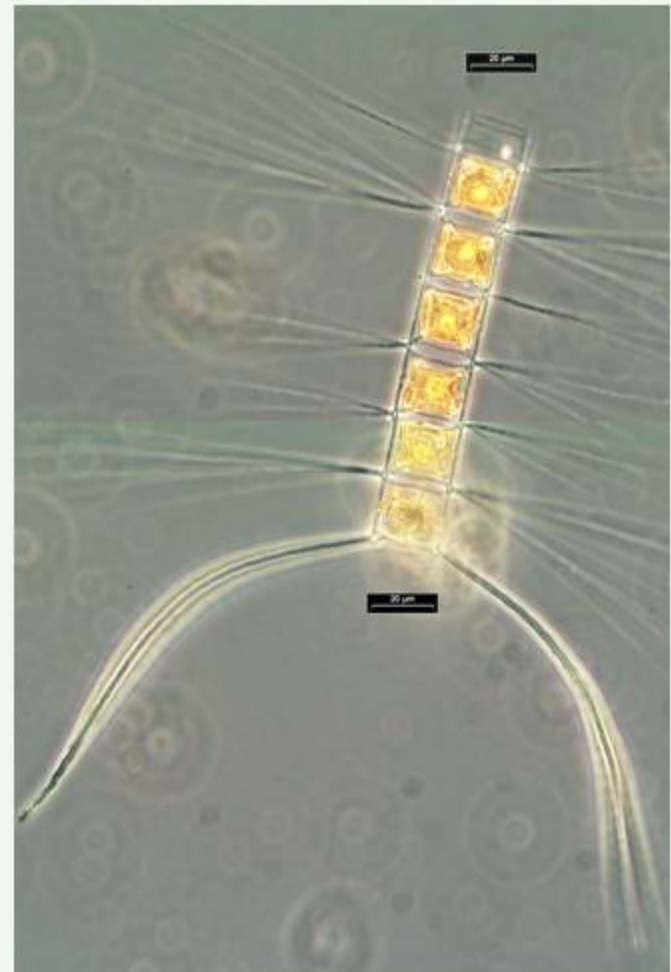
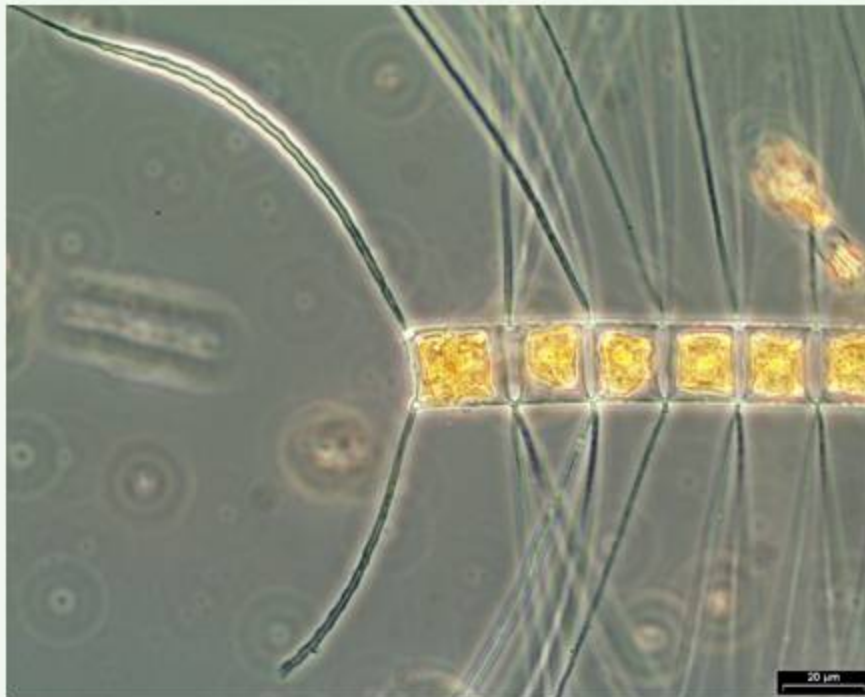
## Chaetoceros affines

abundance: mainly from late summer to late autumn,

in small numbers in winter

life-form: in chains

apical-axis: 9 - 30  $\mu\text{m}$



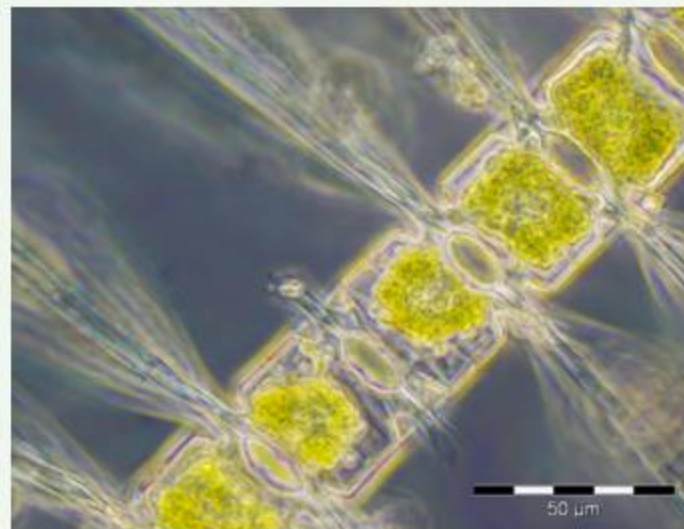
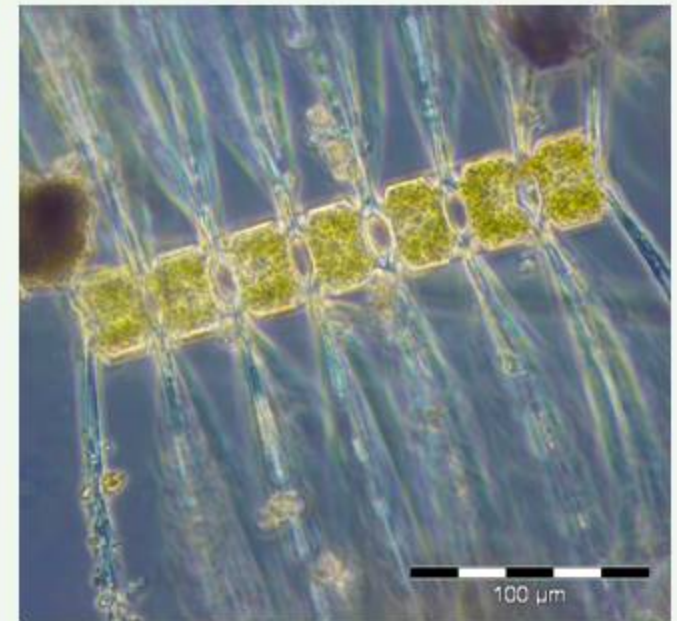
LM (coastal station Heiligendamm)



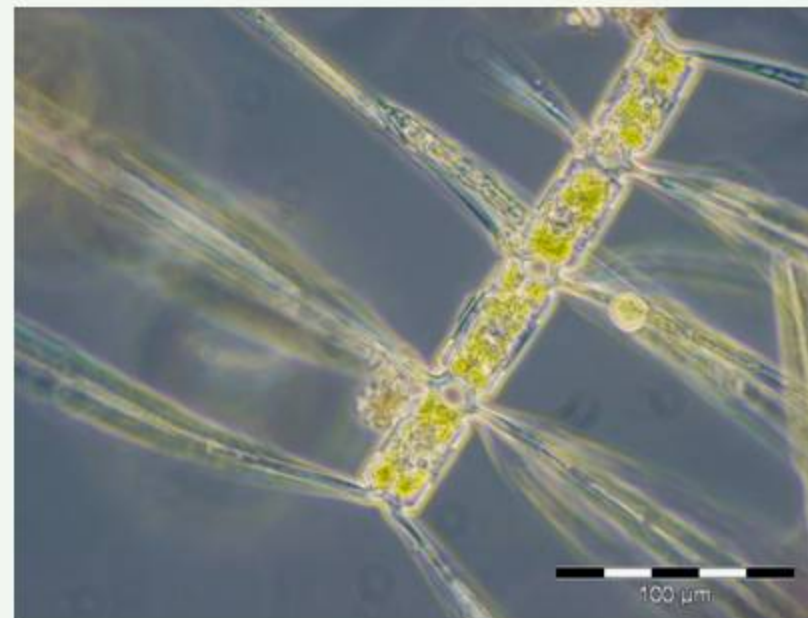
# phytoplankton - bacillariophyceae

## Chaetoceros borealis

abundance: spring  
life-form: in chains  
apical-axis: 12-46µm



LM (North Sea, DTEND)



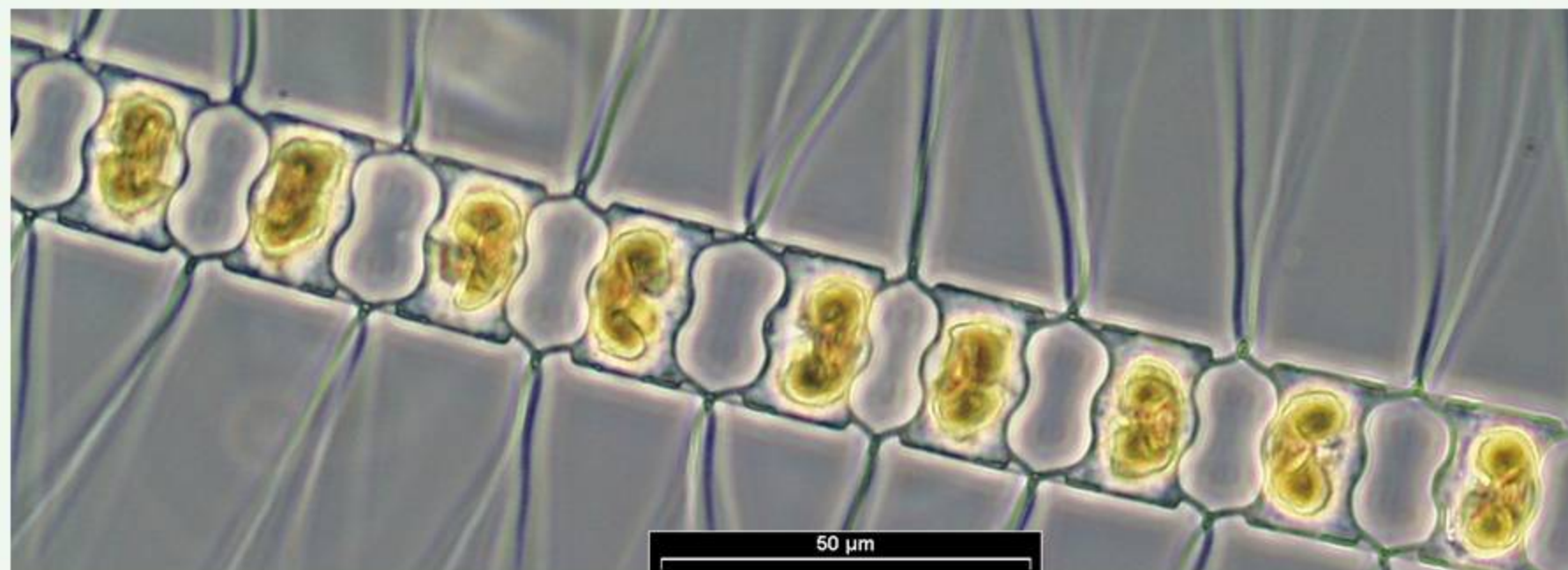
# phytoplankton - bacillariophyceae

## Chaetoceros brevis

abundance: spring, autumn, winter

life-form: in straight chains

diameter: 7 - 40  $\mu\text{m}$



LM (coastal station Heiligendamm)

phytoplankton – bacillariophyceae

## Chaetoceros ceratosporus

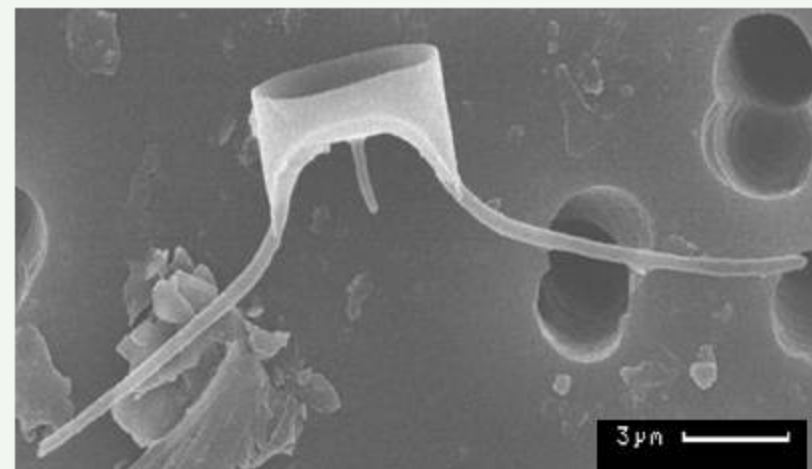
abundance: spring, autumn

life-form: solitary or in short, straight chains

diameter: 5 - 20  $\mu\text{m}$



LM (Gotland Sea, sediment trap)



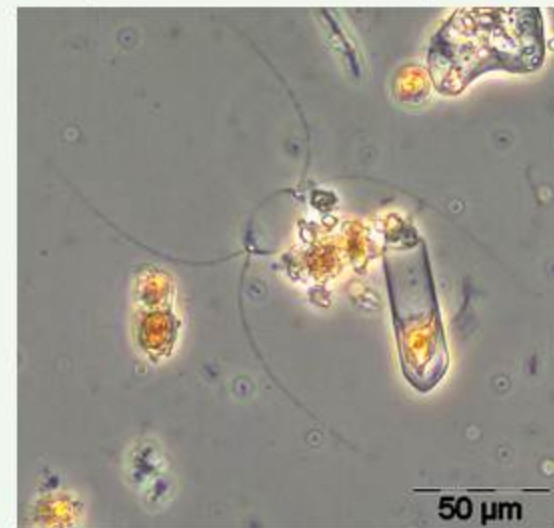
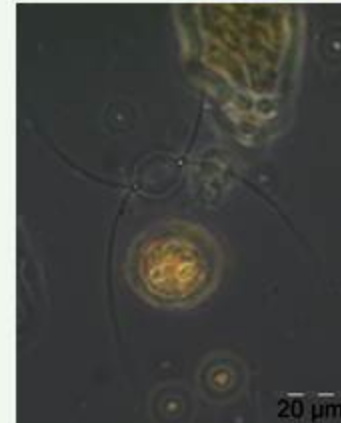
REM (Gotland Sea, sediment trap)

# phytoplankton - bacillariophyceae

## *Chaetoceros circinalis*

life-form: in short chains

apical axis: 7-35  $\mu\text{m}$

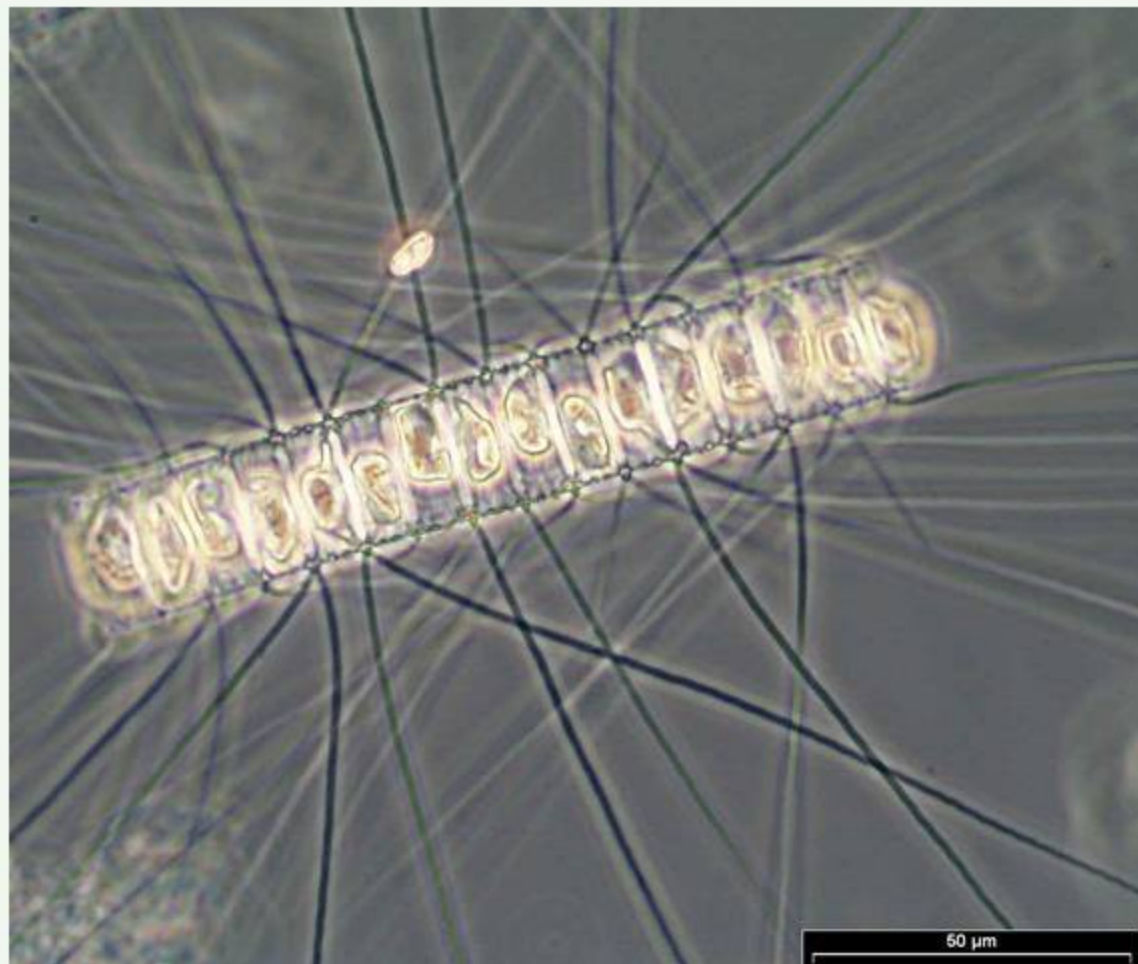


LM (Mecklenburg Bight)

# phytoplankton - bacillariophyceae

## Chaetoceros constrictus

abundance: permanent abundant,  
maximum in late spring  
life-form: in chains  
diameter: 7 - 30  $\mu\text{m}$

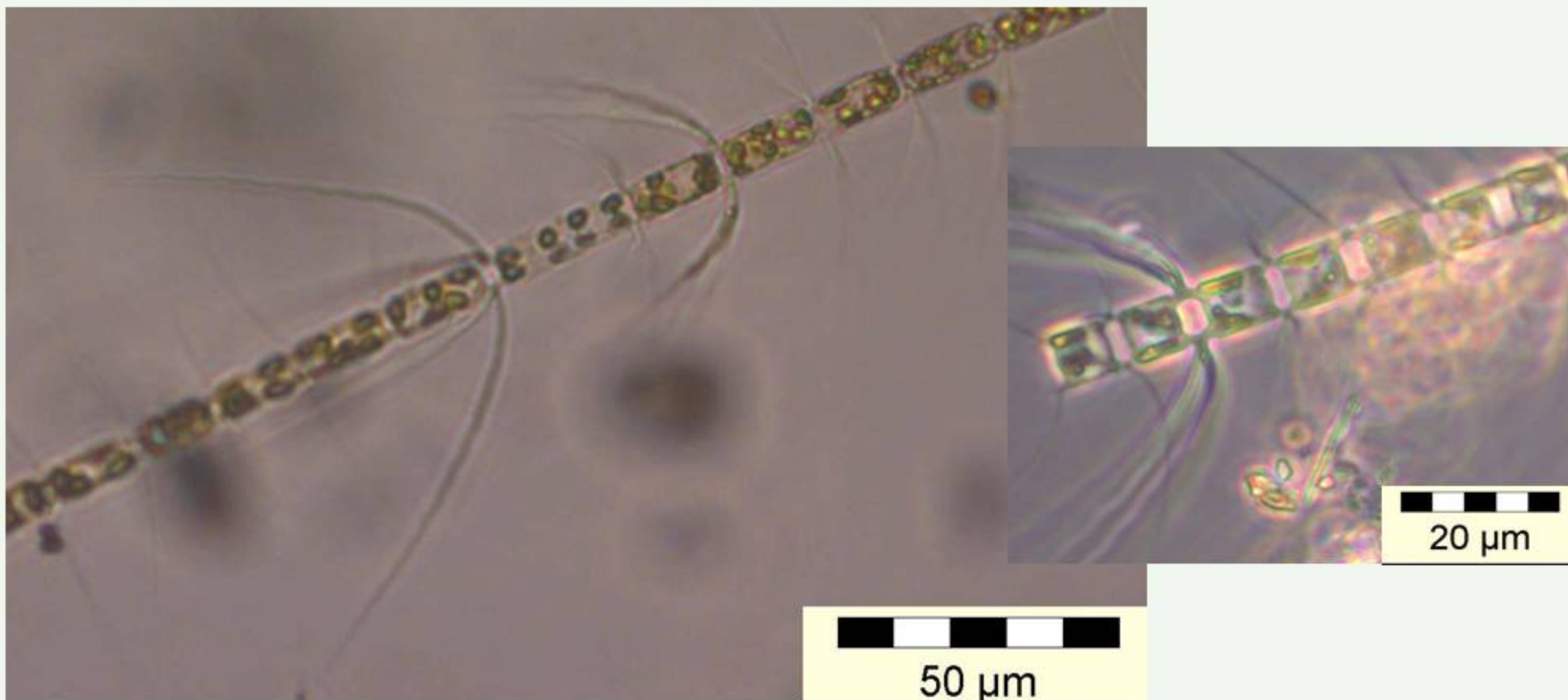


LM ( Gotland Sea, sediment trap)

phytoplankton - bacillariophyceae

## Chaetoceros contortus

abundance: from early summer until late winter  
life-form: in chains

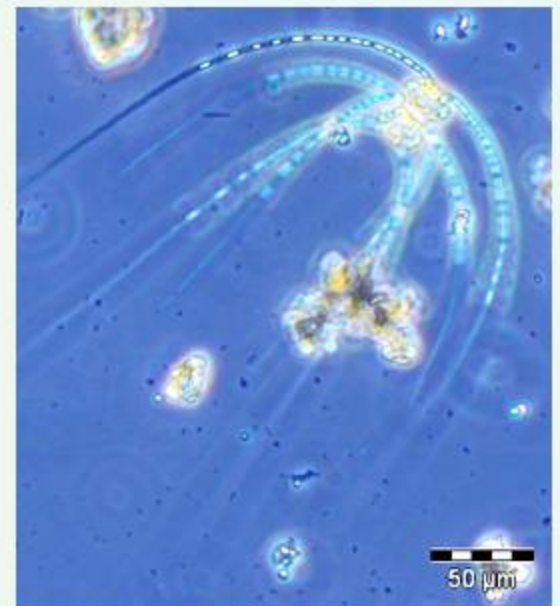
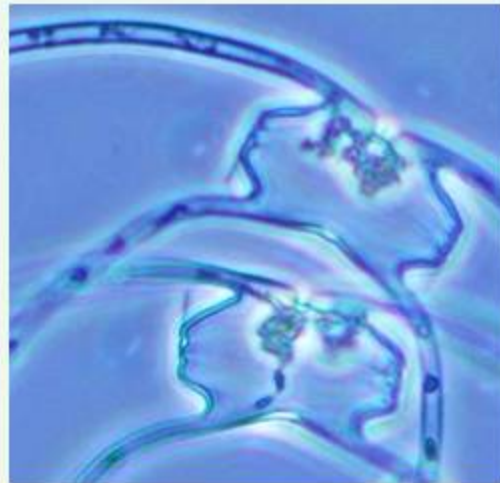
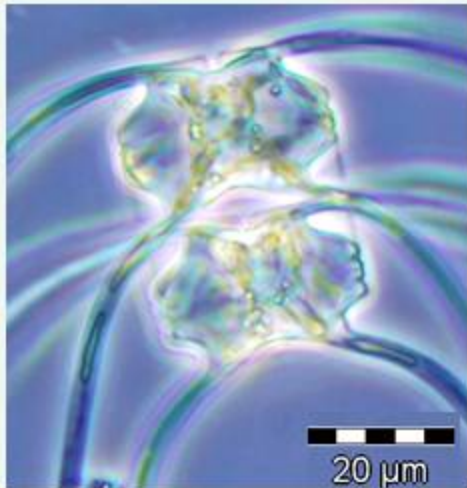
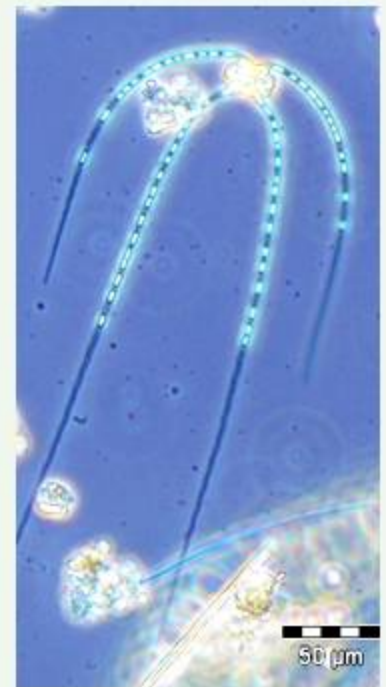
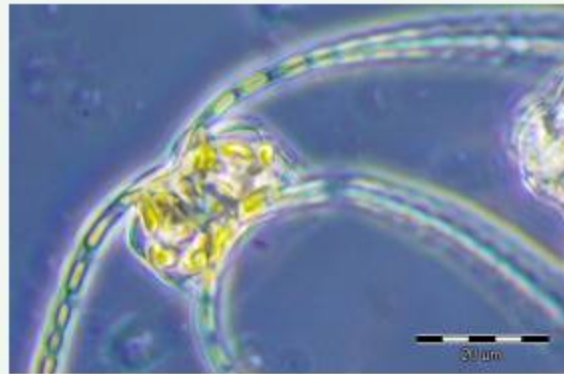


LM ( Mecklenburg Bight )

phytoplankton – bacillariophyceae

## Chaetoceros convolutus

abundance: summer  
life-form: in chains  
apical axis: 10-27 $\mu$ m

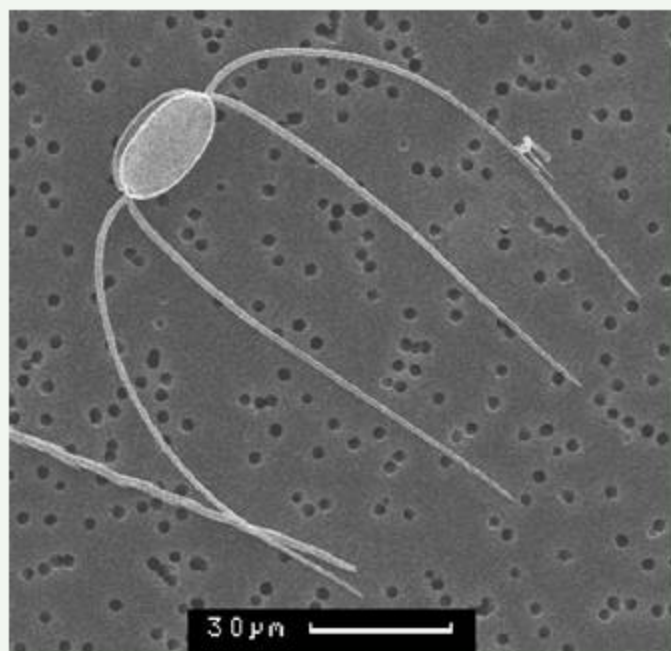


LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Chaetoceros curvisetus

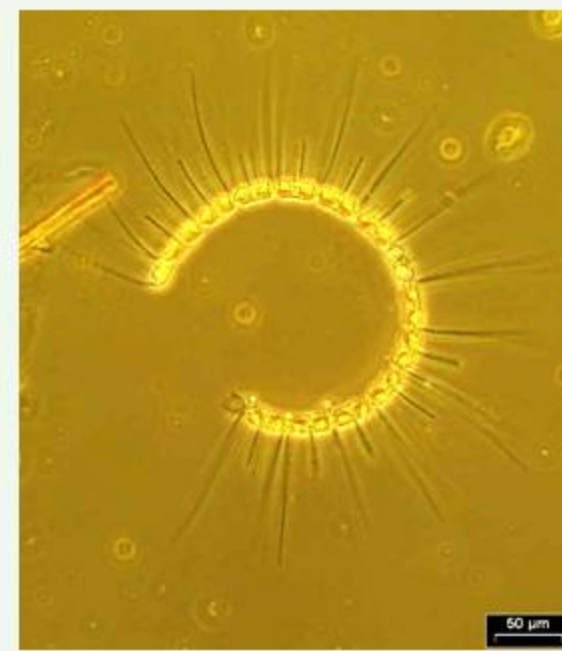
abundance: throughout the year, highest abundance in autumn  
life-form: in spirally twisted chains  
apical axis: 10 – 29  $\mu\text{m}$



REM (coastal station Heiligendamm)



LM (coastal station Heiligendamm)





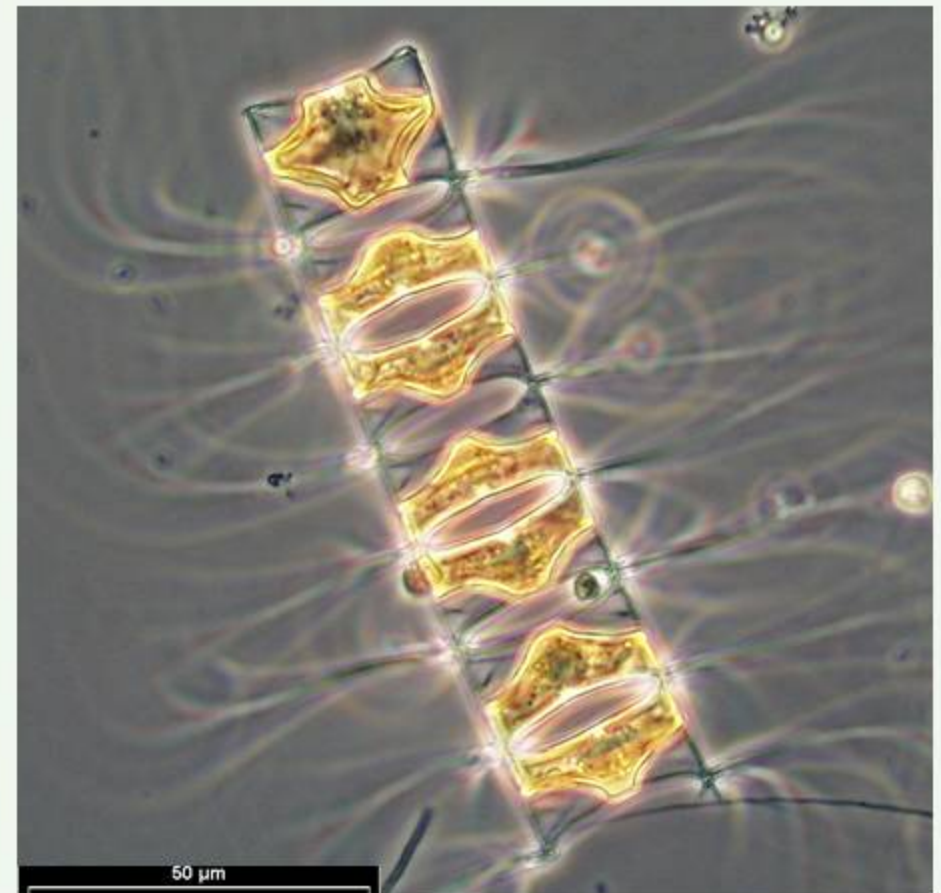
phytoplankton - bacillariophyceae

## Chaetoceros debilis

abundance: autumn, winter, spring

life-form: in spirally twisted chains

diameter: 10 - 30  $\mu\text{m}$

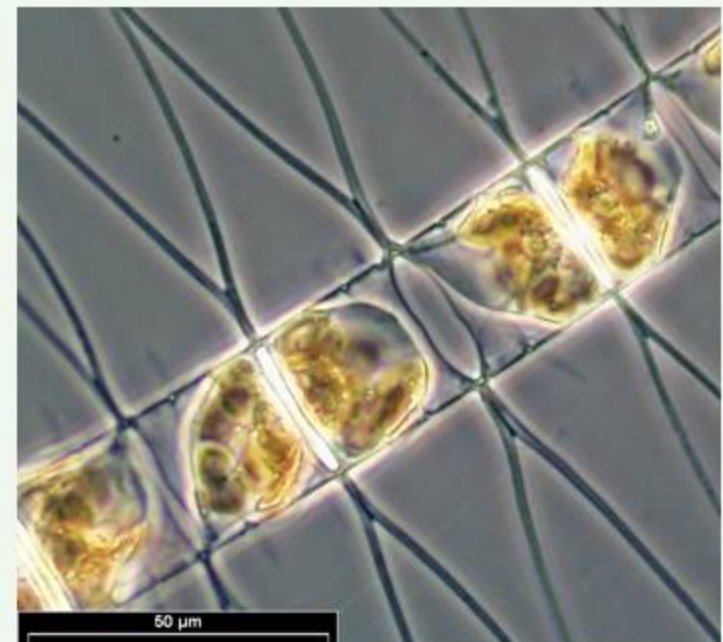


LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Chaetoceros decipiens

abundance: spring, autumn  
life-form: in straight chains  
diameter: 20 - 40  $\mu\text{m}$



LM (coastal station Heiligendamm)

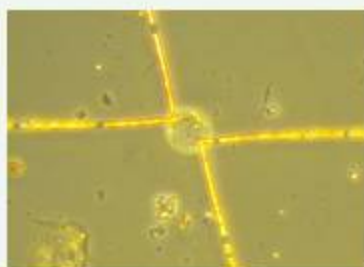
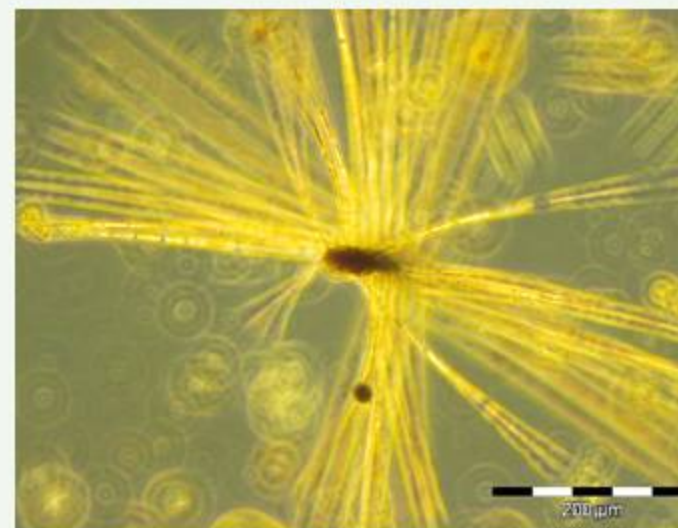
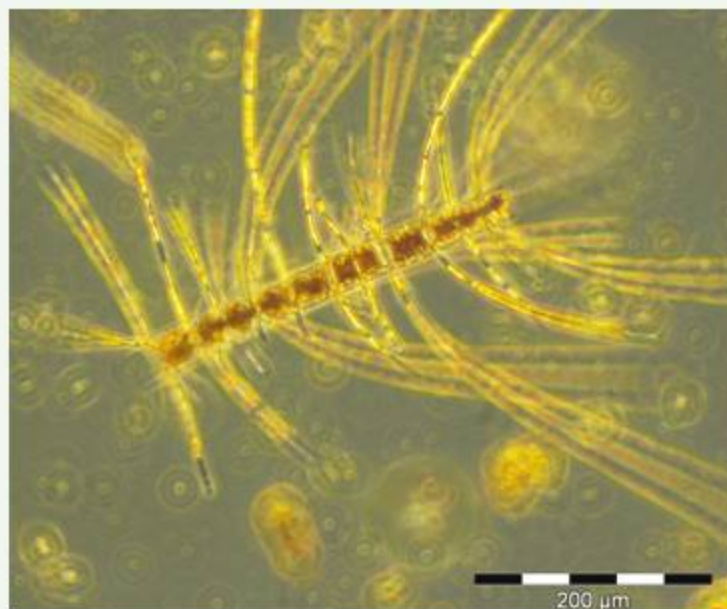
# phytoplankton - bacillariophyceae

## Chaetoceros densus

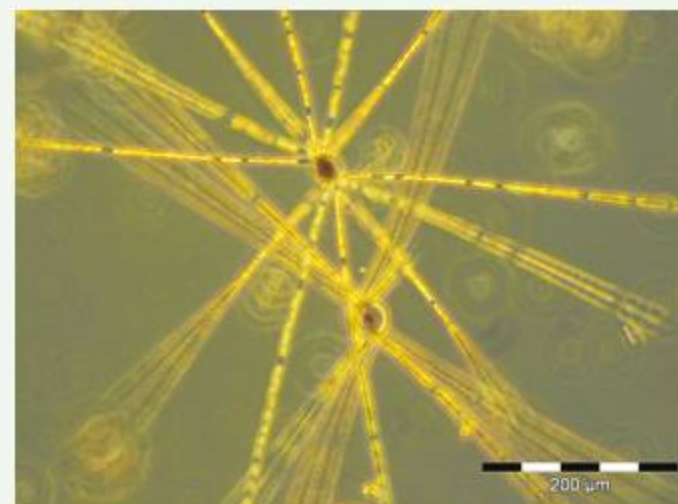
abundance: summer, autumn

life-form: in chains

apical-axis: 10-55µm



LM (North Sea, AMRU2)



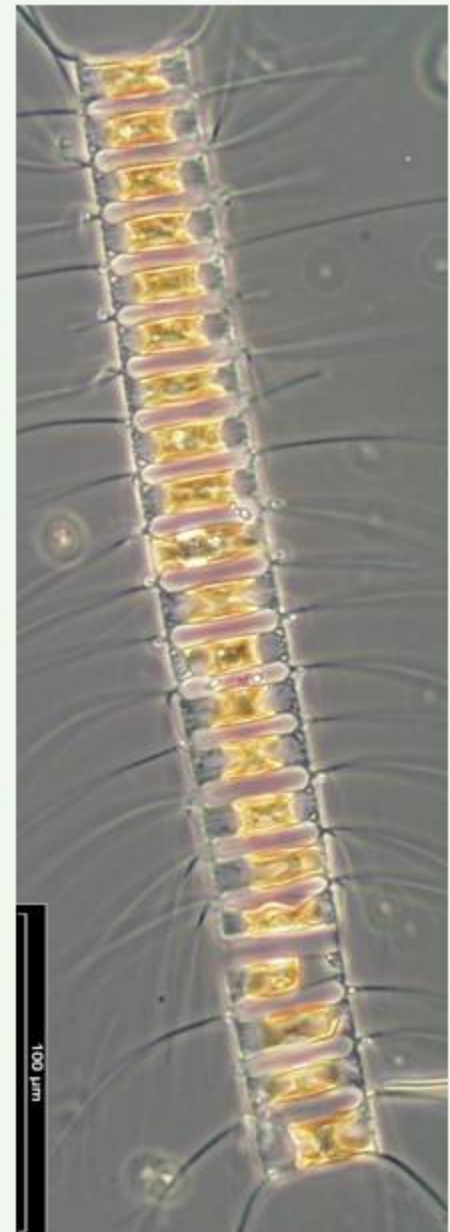
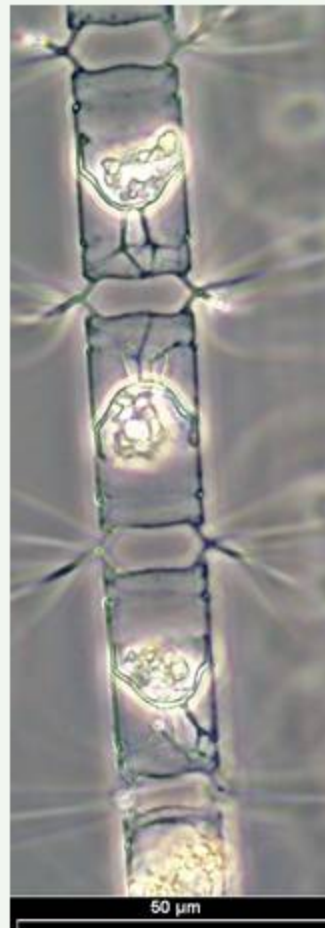
# phytoplankton - bacillariophyceae

## Chaetoceros diadema

abundance: late winter, spring

life-form: in chains

diameter: 8 - 40  $\mu\text{m}$



LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Chaetoceros didymus

abundance: all year  
life-form: in chains  
apical axis: 10-40µm



LM (North Sea, UFSDB)

# phytoplankton - bacillariophyceae

## Chaetoceros impressus

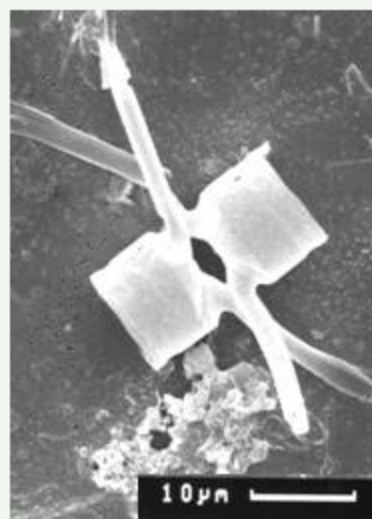
abundance: autumn  
life-form: in chains  
diameter: 17 - 28  $\mu\text{m}$



LM (coastal station Heiligendamm)



LM (coastal station Heiligendamm)



REM



LM ( Gotland Sea, sediment trap)

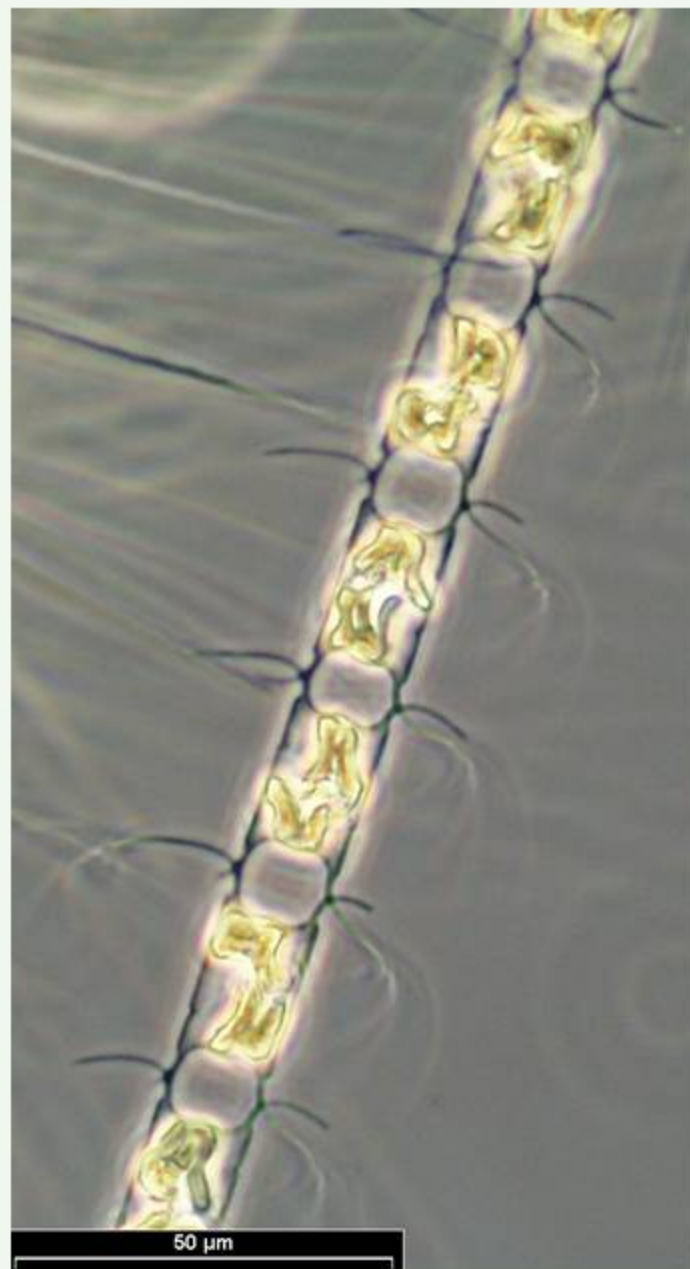
phytoplankton - bacillariophyceae

## Chaetoceros lacinosus

abundance: late summer to spring

life-form: in chains

diameter: 10 - 40  $\mu\text{m}$

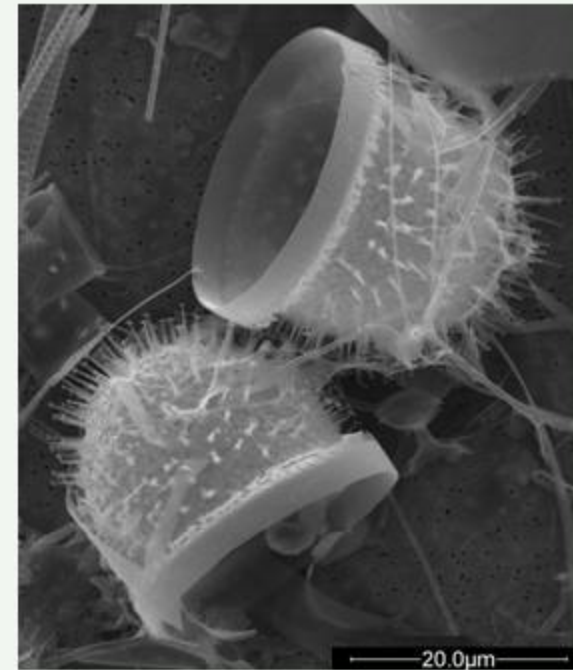
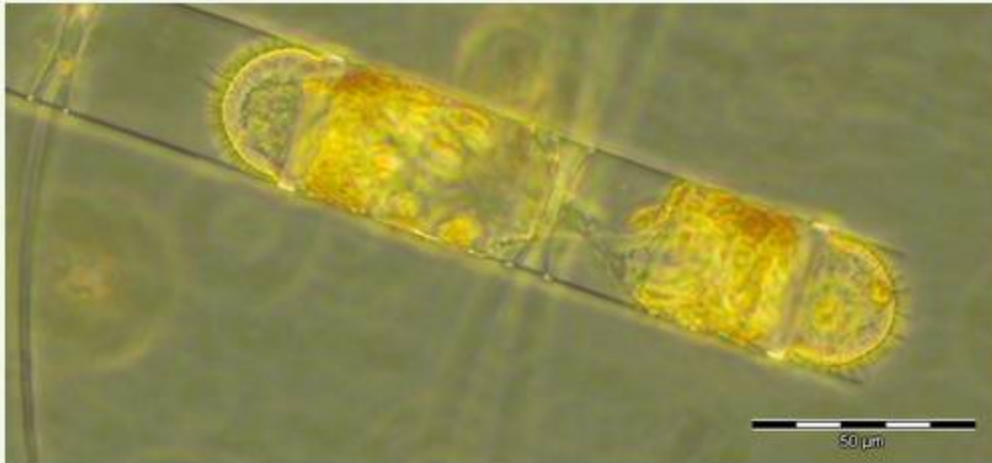


LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Chaetoceros lauderi

abundance: summer  
life-form: in chains  
apical axis: 22-50µm



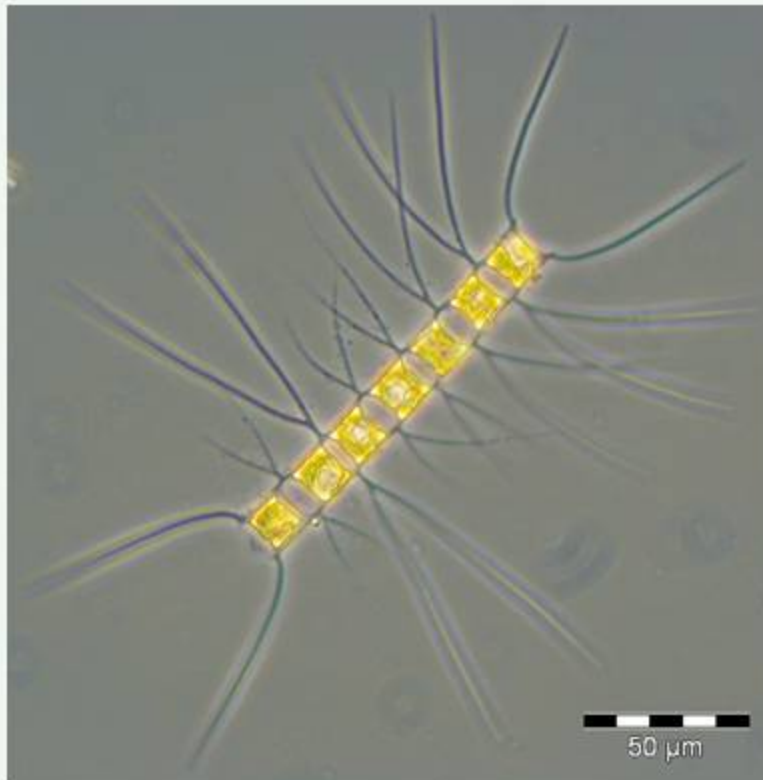
LM, REM (North Sea, NGW8)  
resting spores



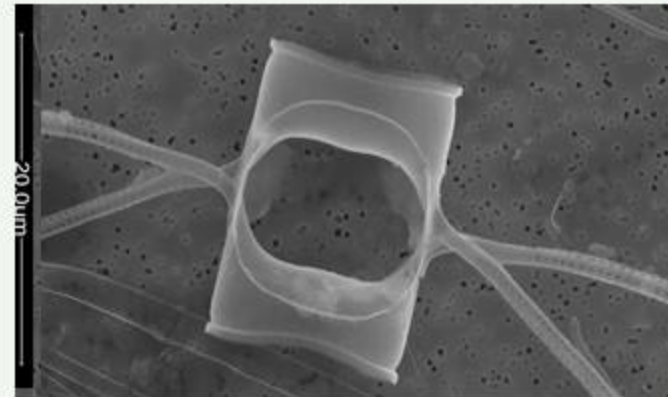
# phytoplankton - bacillariophyceae

## Chaetoceros lorenzianus

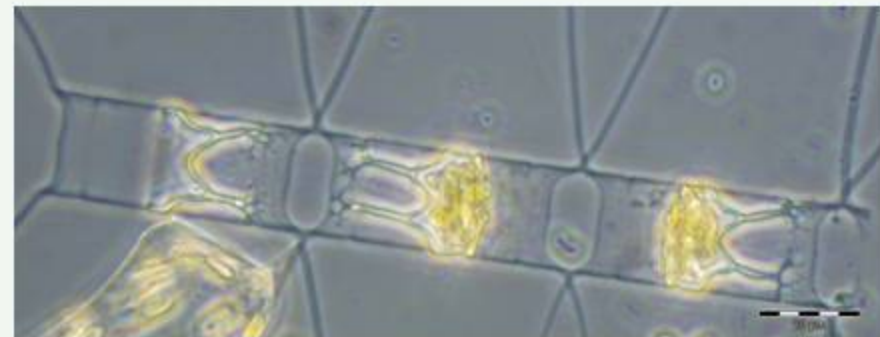
abundance: autumn  
life-form: in chains  
apical axis: 7 - 80µm



LM (North Sea, URST3)



REM (North Sea, ES1)



LM (North Sea, SWBBA)  
resting spores

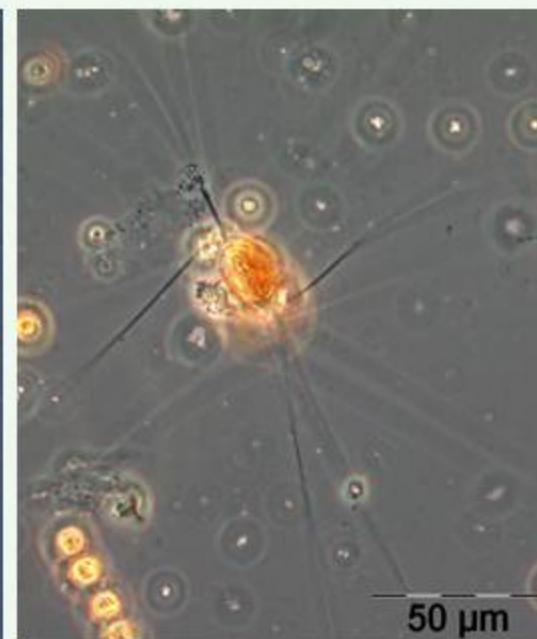
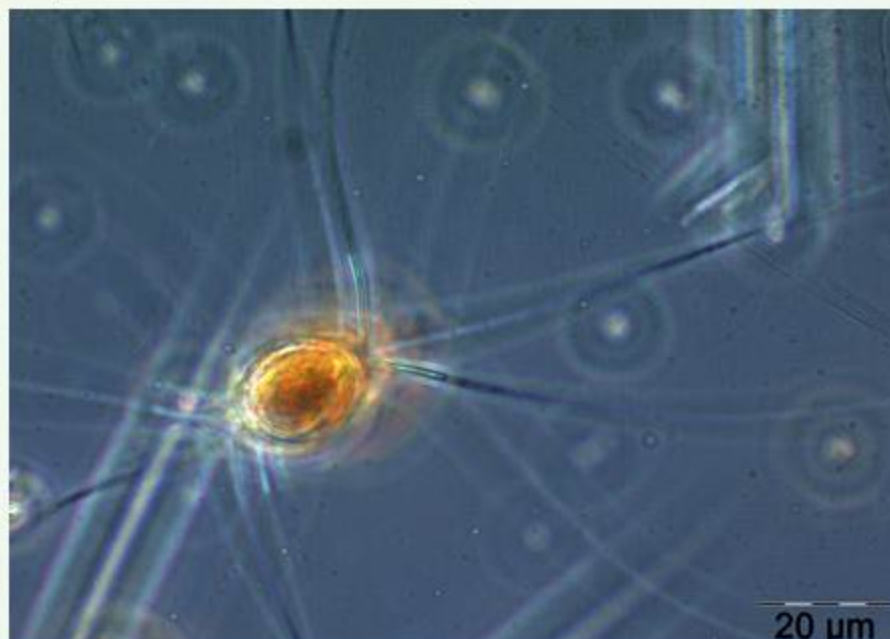
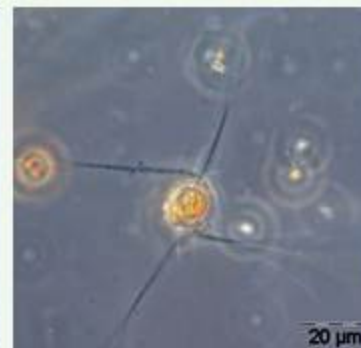
# phytoplankton - bacillariophyceae

## Chaetoceros pseudobrevis

abundance: spring, autumn

life-form: in chains

apical axis: 6-20µm



LM (Kiel Bight)

LM (Mecklenburg Bight)

LM (Arkona Basin)

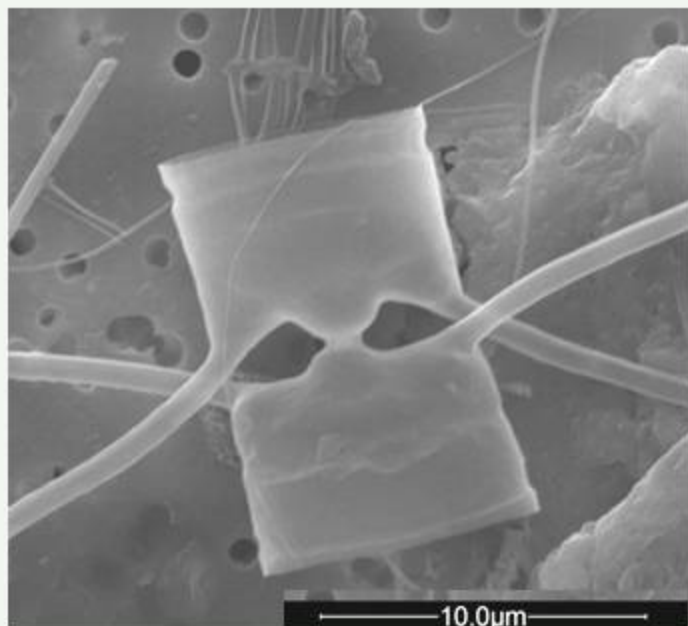
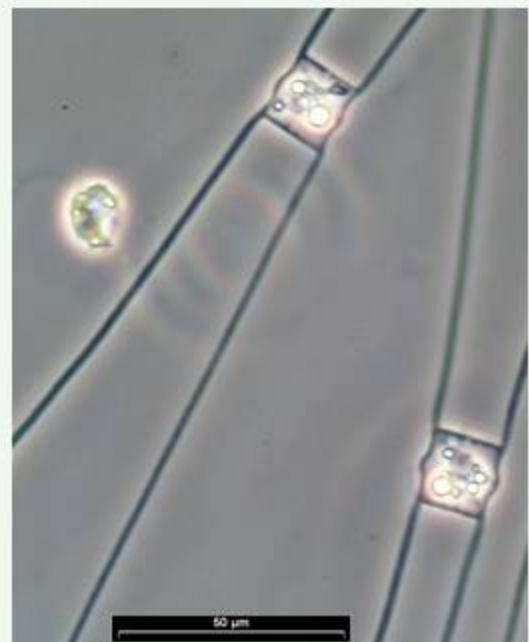
phytoplankton – bacillariophyceae

## Chaetoceros similis

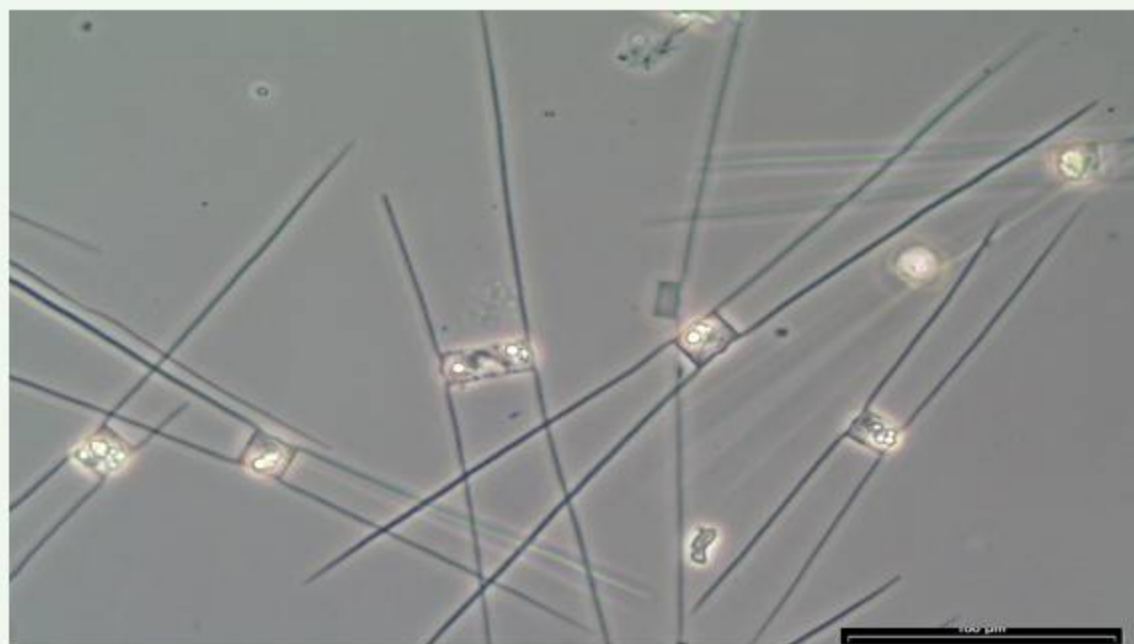
abundance: summer

life-form: solitary or in short chains

apical-axis: 10 - 20µm



REM (Gotland Sea)

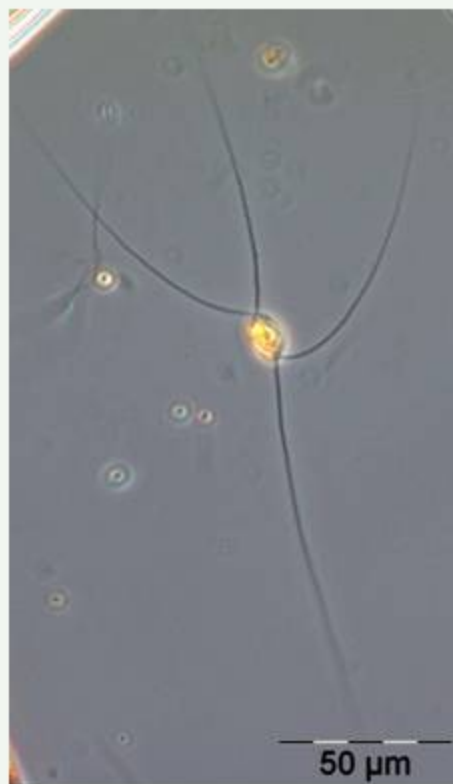


LM (Gotland Sea)

# phytoplankton – bacillariophyceae

## Chaetoceros socialis

abundance: summer, autumn  
life-form: in chains which form  
spherical colonies  
apical-axis: 5 - 16  $\mu\text{m}$



LM (Mecklenburg Bight)

# phytoplankton - bacillariophyceae

## Chaetoceros subtilis

abundance: spring  
life-form: solitary or in short chains  
apical axis: 2 - 21 $\mu$ m



resting spores



LM (coastal station Heiligendamm)

phytoplankton – bacillariophyceae

## Chaetoceros thronsdensei

life-form: solitary  
apical axis: 1,5 - 5  $\mu\text{m}$   
perivalvar axis: 8 - 15  $\mu\text{m}$



LM (Mecklenburg Bight)

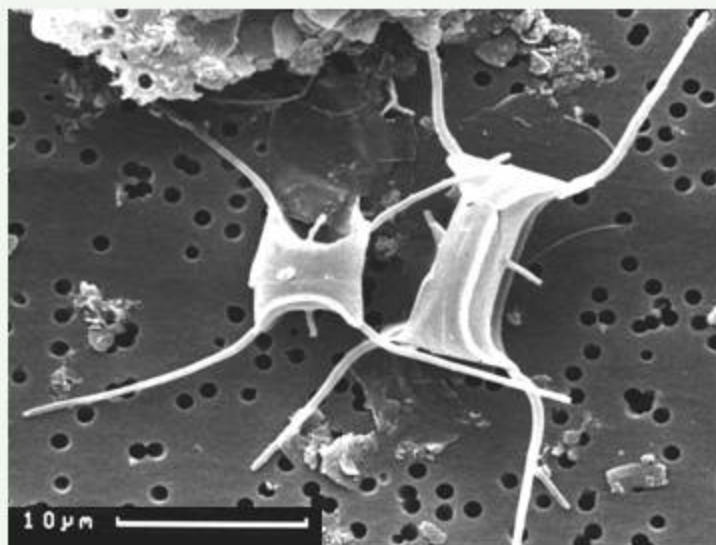
# phytoplankton - bacillariophyceae

## Chaetoceros wighamii

abundance: permanent abundant,  
maximum in spring  
life-form: in short chains  
size: 5 -25 $\mu\text{m}$  (apical axis)  
5 -10 $\mu\text{m}$  (perivalvar axis)



LM (coastal station Heiligendamm)



REM (Gotland Sea, sediment trap)



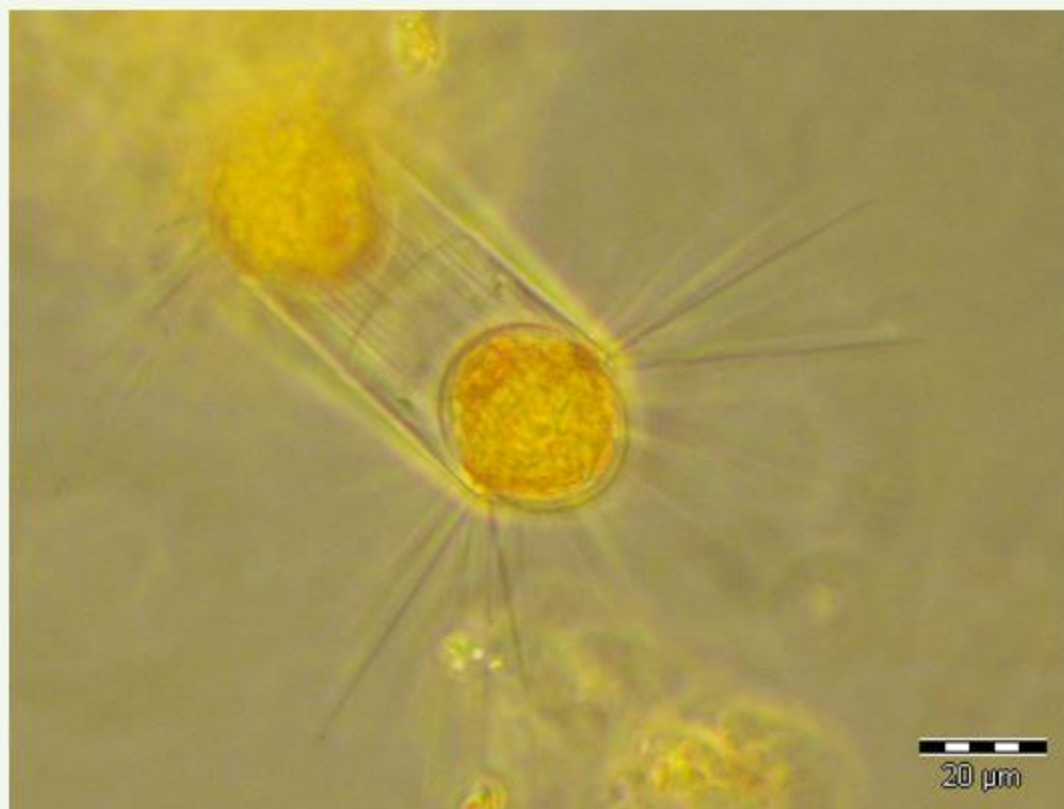
LM (Gotland, sediment trap)



# phytoplankton - bacillariophyceae

## Corethron histrix

abundance: all year  
life-form: single cells  
apical axis: 12-38 $\mu$ m



LM (North Sea, DTEND)



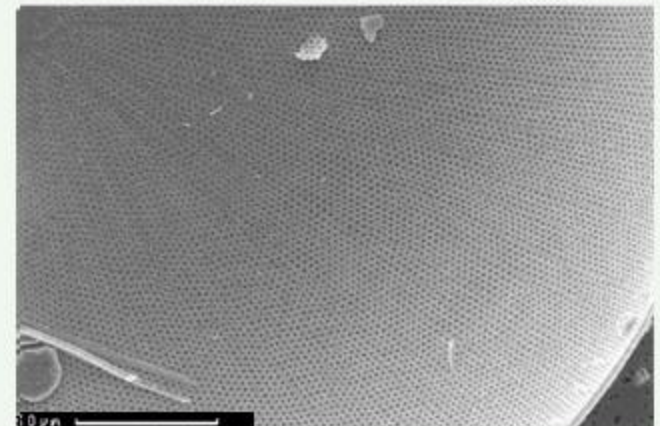
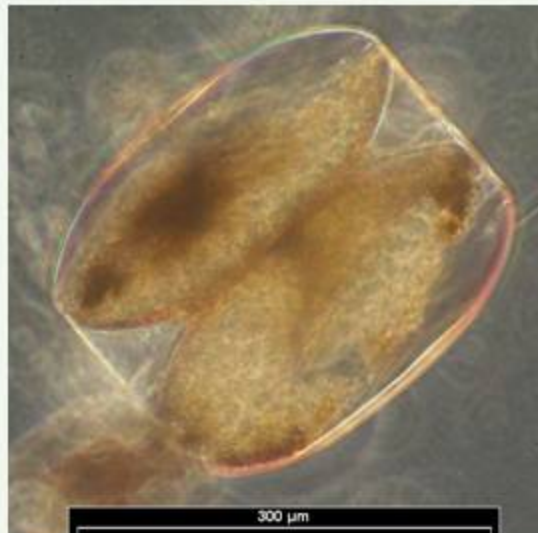
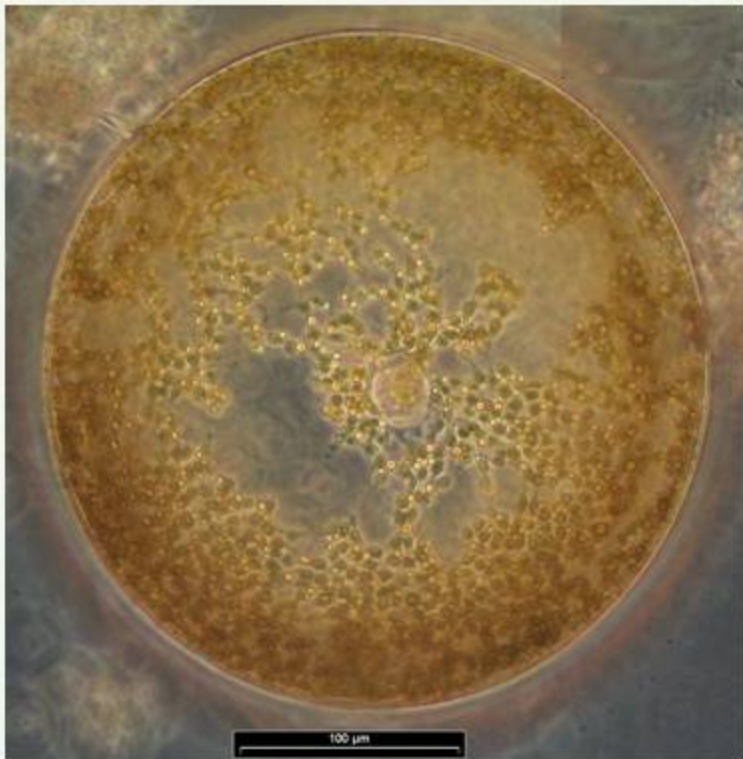
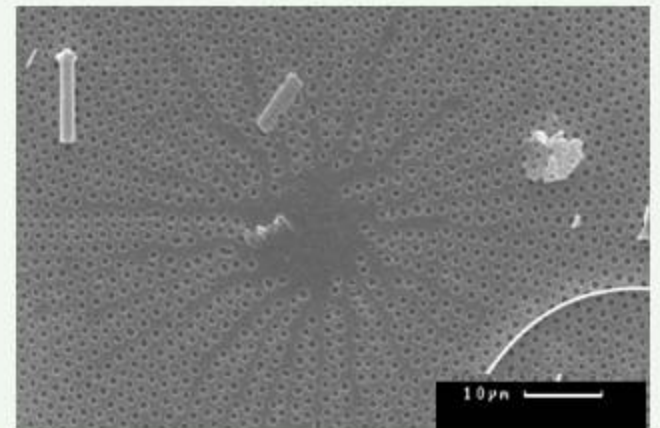
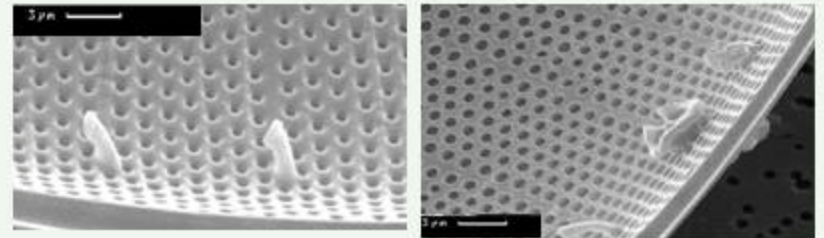
# phytoplankton - bacillariophyceae

## Coscinodiscus concinnus

abundance: spring

life-form: solitary

diameter: 110 – 460µm



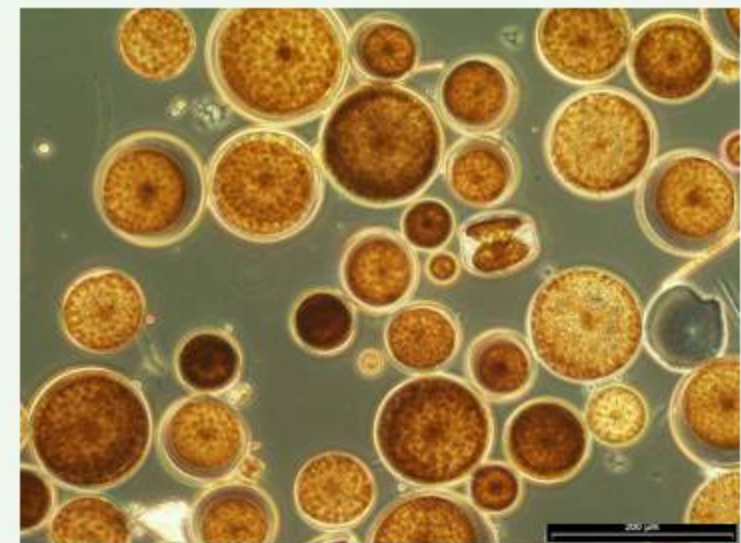
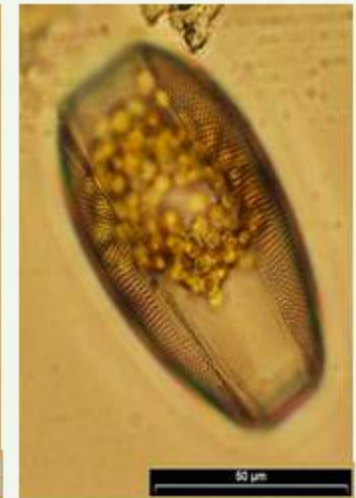
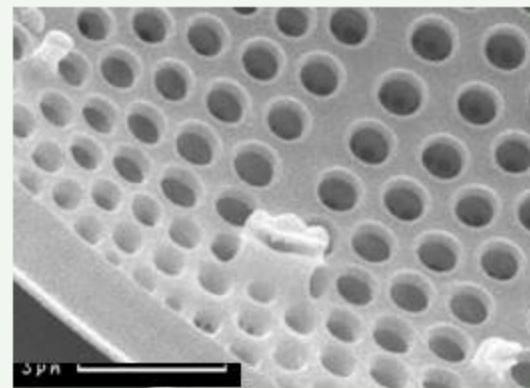
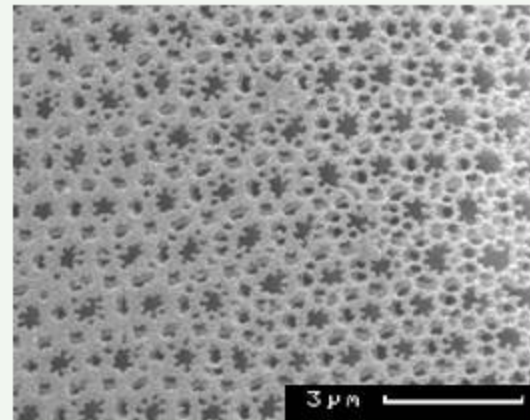
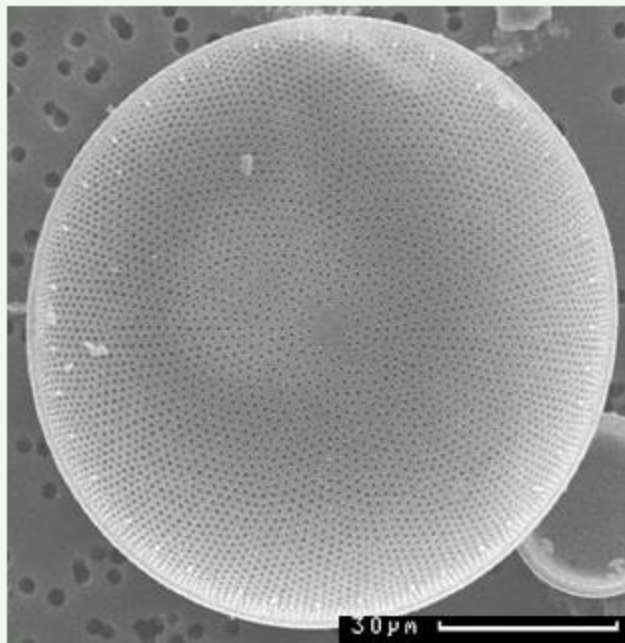
LM (coastal station Heiligendamm)

REM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Coscinodiscus granii

abundance: autumn  
life-form: solitary  
diameter: 70 - 150  $\mu\text{m}$



REM (Gotland Sea, sediment trap)

LM (coastal station Heiligendamm)

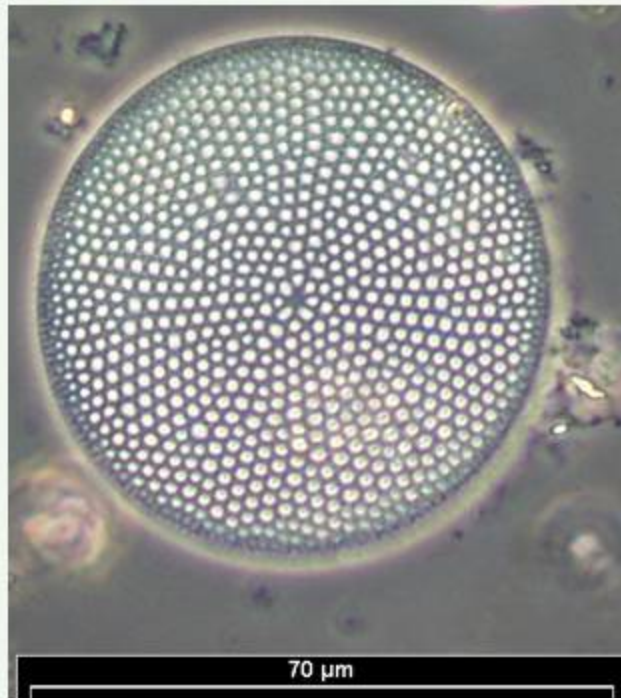
# phytoplankton – bacillariophyceae

## *Coscinodiscus radiatus*

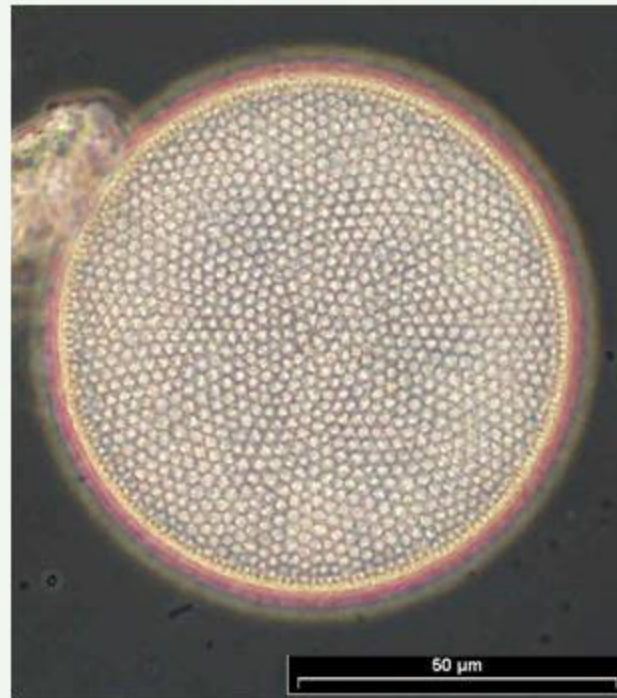
abundance: spring, summer

life-form: solitary

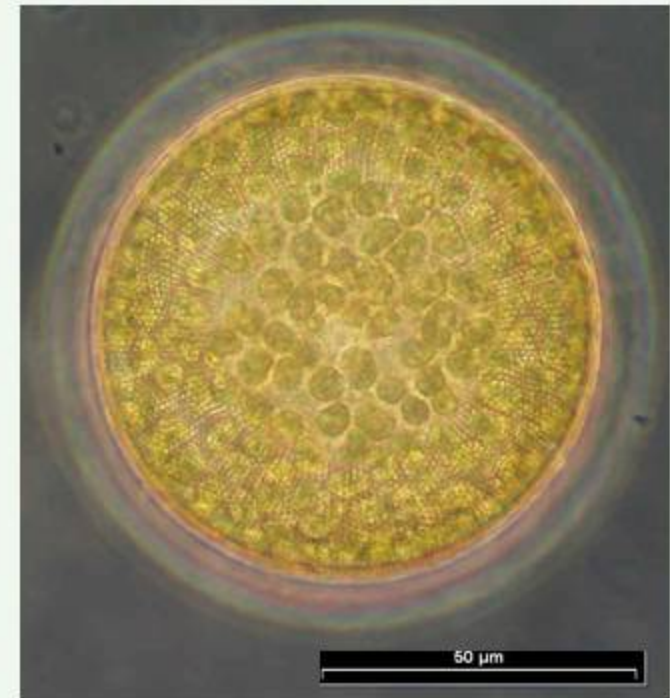
diameter: 30 -180  $\mu\text{m}$



LM (coastal station Heiligendamm)



LM (North Sea, Skagerak)



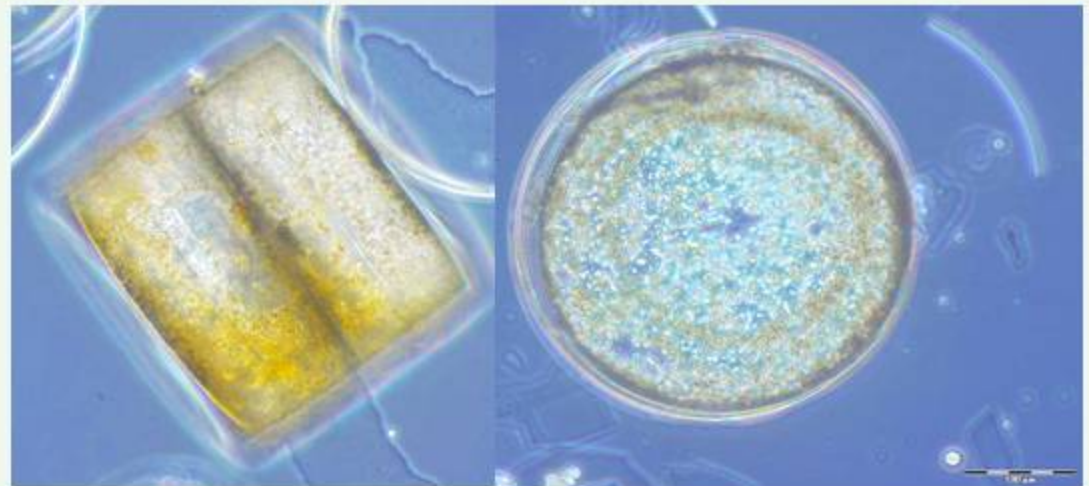
# phytoplankton - bacillariophyceae

## Coscinodiscus wailesii

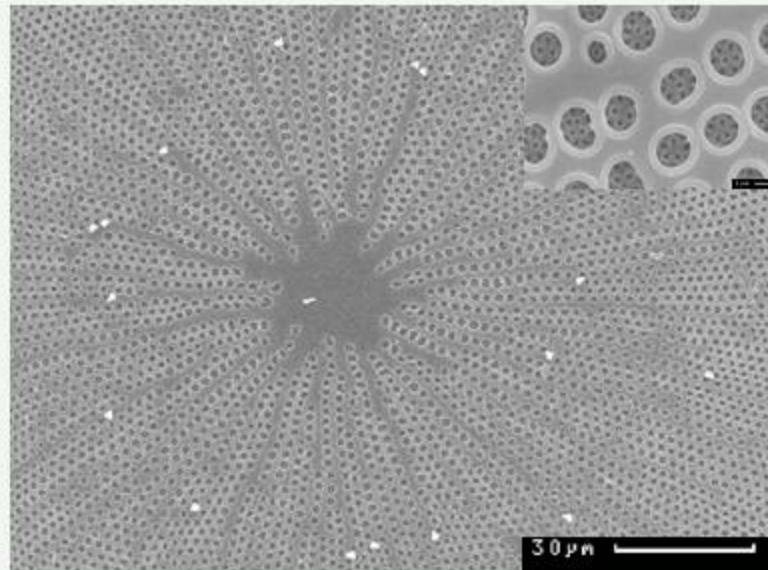
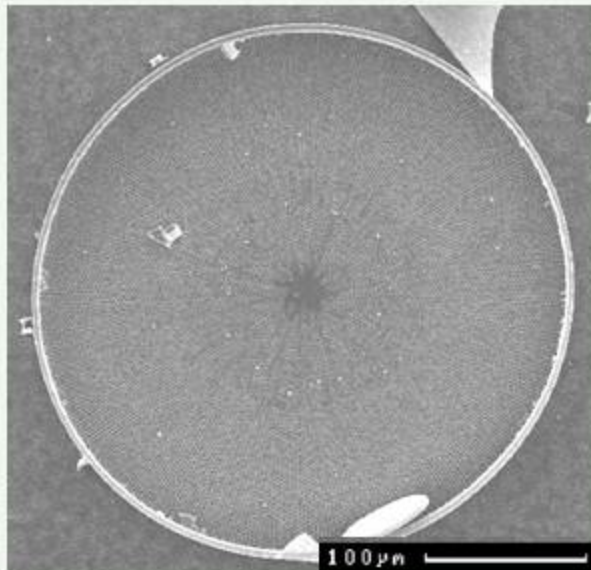
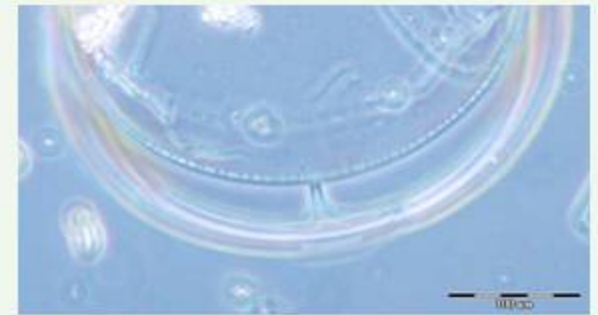
abundance: autumn

life-form: solitary

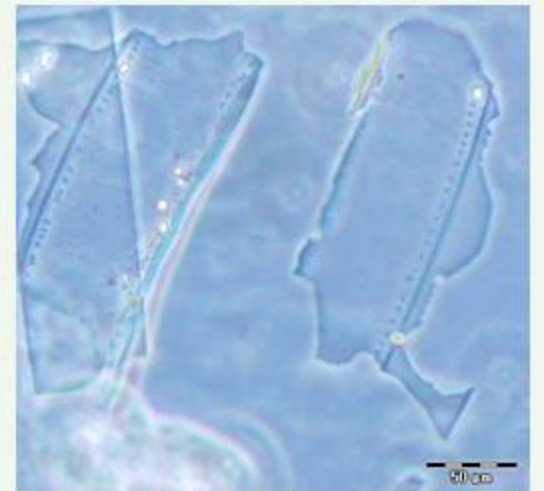
diameter: 280 – 500  $\mu\text{m}$



LM (Namibia)



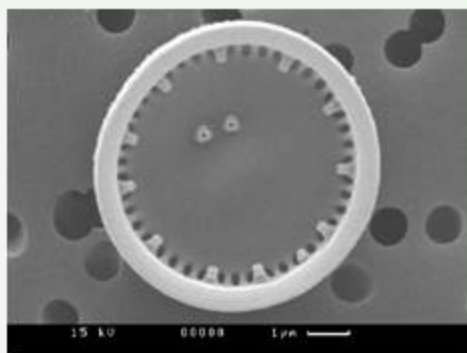
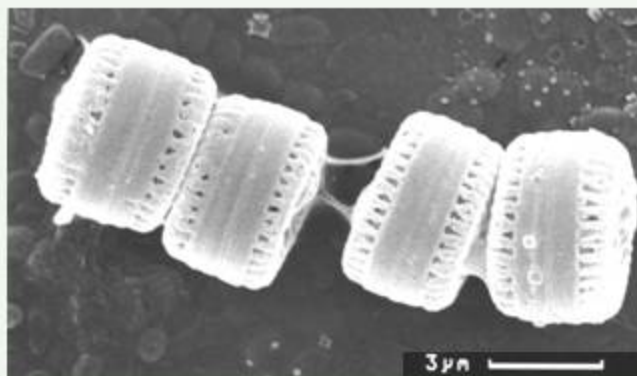
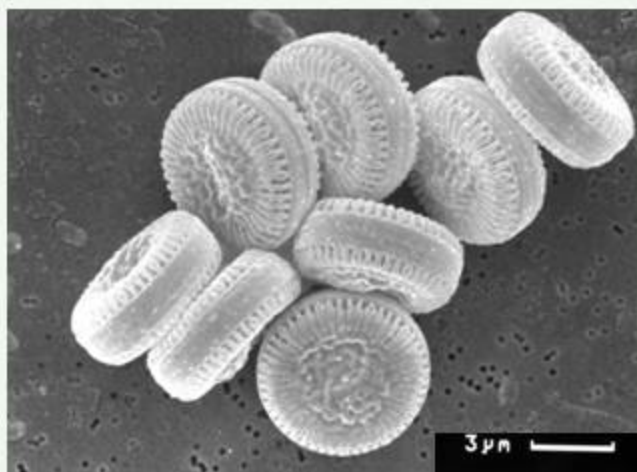
REM (coastal station Heiligendamm)



# phytoplankton - bacillariophyceae

## Cyclotella choctawhatcheana

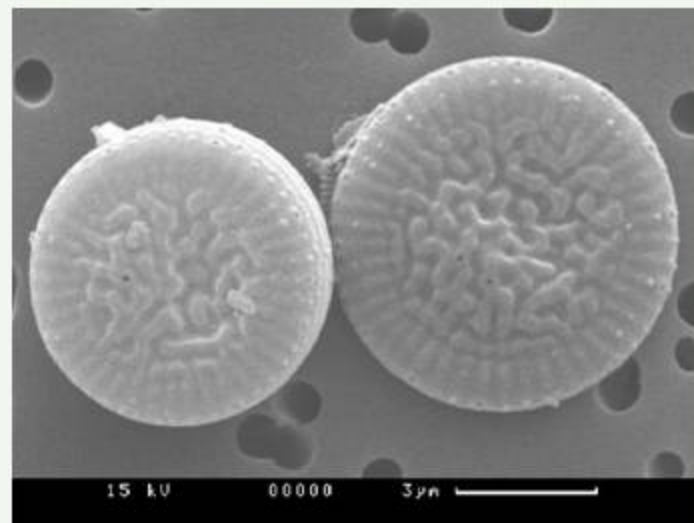
abundance: late summer, autumn  
life-form: solitary or in short chains  
size: 6 - 9  $\mu\text{m}$



REM (Gotland Sea)



LM ( Gotland Sea, sediment trap)



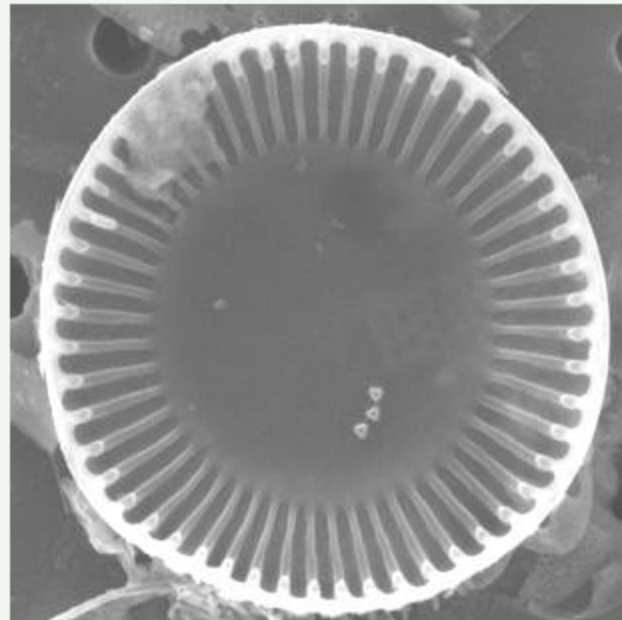
phytoplankton - bacillariophyceae

## Cyclotella distinguenda

abundance: autumn, winter

life-form: solitary

diameter: 6 – 35  $\mu\text{m}$



REM (Mecklenburg Bight)

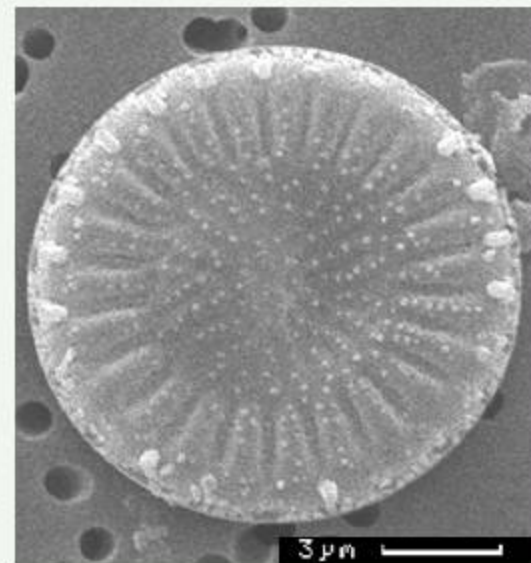
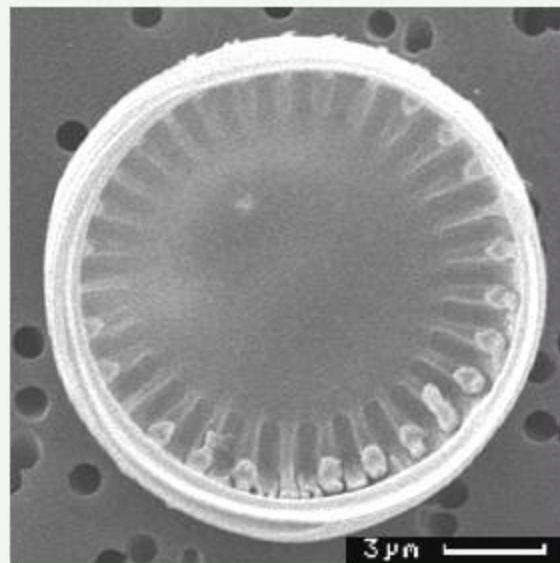
phytoplankton - bacillariophyceae

## *Cyclotella meneghiniana*

abundance: autumn, winter

life-form: solitary

diameter: 12 – 34 $\mu$ m



REM (Mecklenburg Bight)

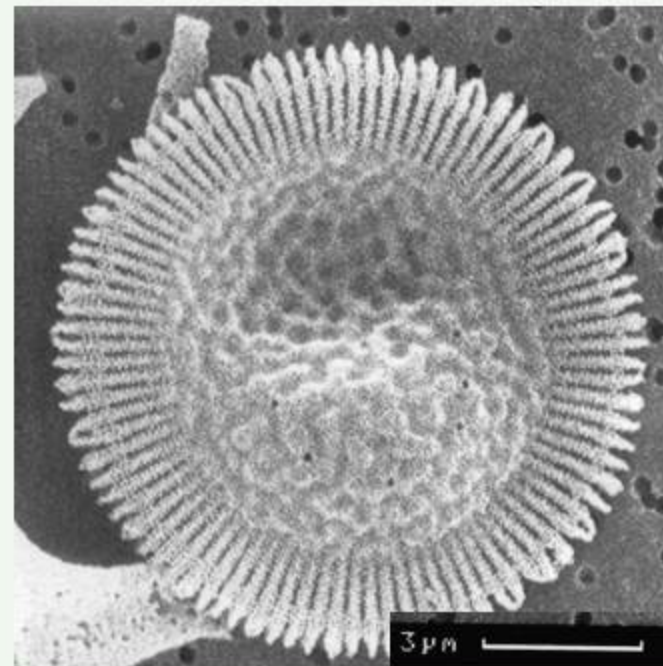
# phytoplankton - bacillariophyceae

## *Cyclotella striata*

abundance: autumn, winter

life-form: solitary

diameter: 25 – 48 $\mu$ m



REM (Mecklenburg Bight)



# phytoplankton - bacillariophyceae

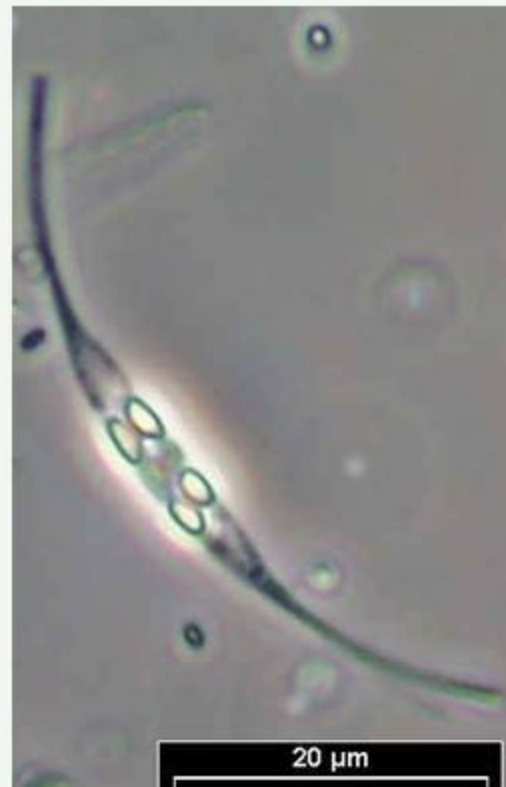
## *Cylindrotheca closterium*

abundance: permanent abundant

life-form: solitary

length: 30 - 105  $\mu\text{m}$

width: 1,5 - 5  $\mu\text{m}$



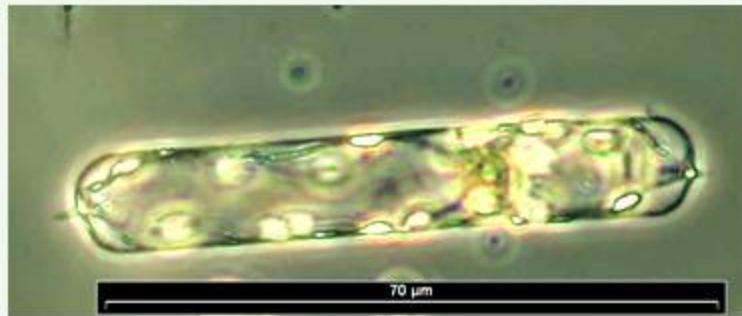
LM (coastal station Heiligendamm)

LM (Gotland Sea, sediment trap)

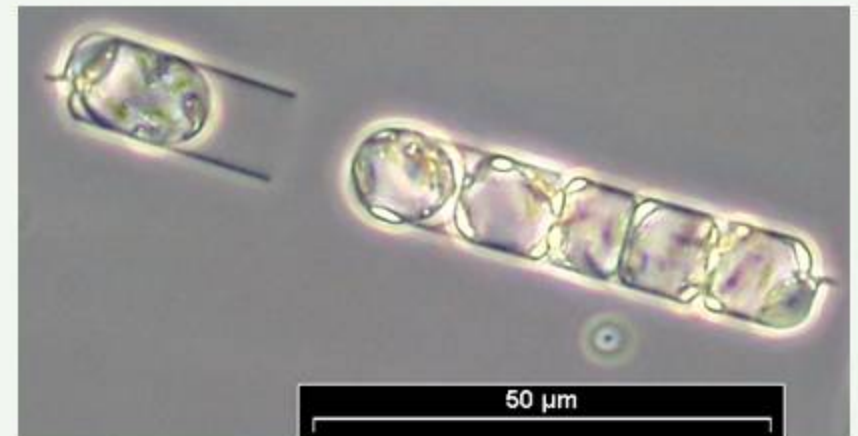
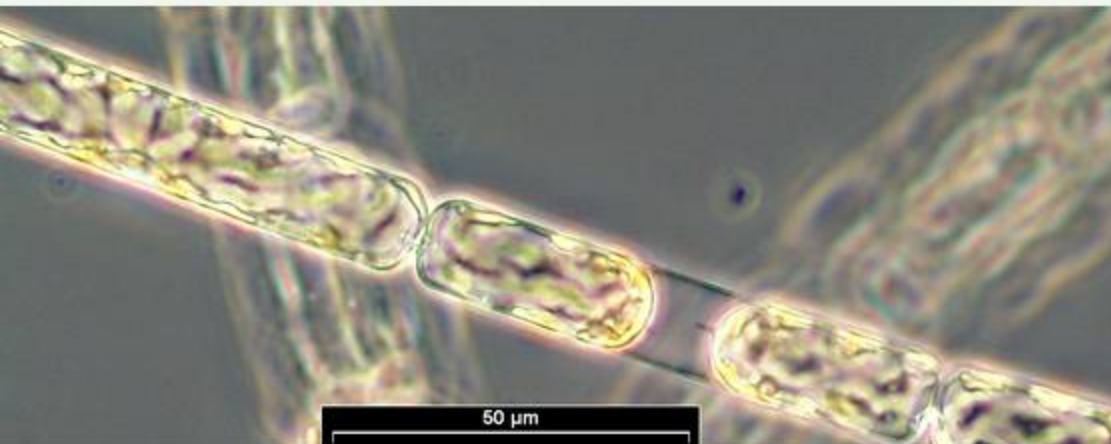
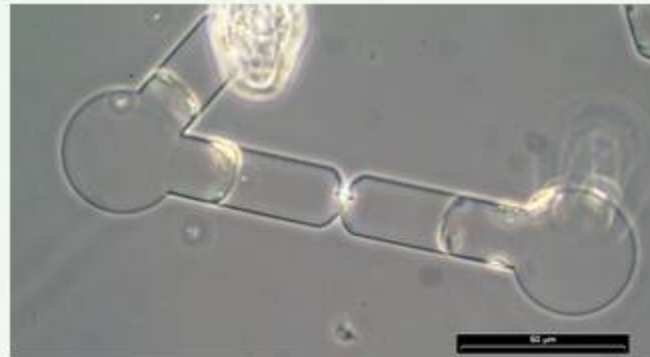
# phytoplankton – bacillariophyceae

## Dactyliosolen fragilissimus

life-form: in loose chains  
diameter: 8 – 70  $\mu\text{m}$   
perivalvar axis: 42 – 300  $\mu\text{m}$



preserved with Lugol's solution



LM (coastal station Heiligendamm)

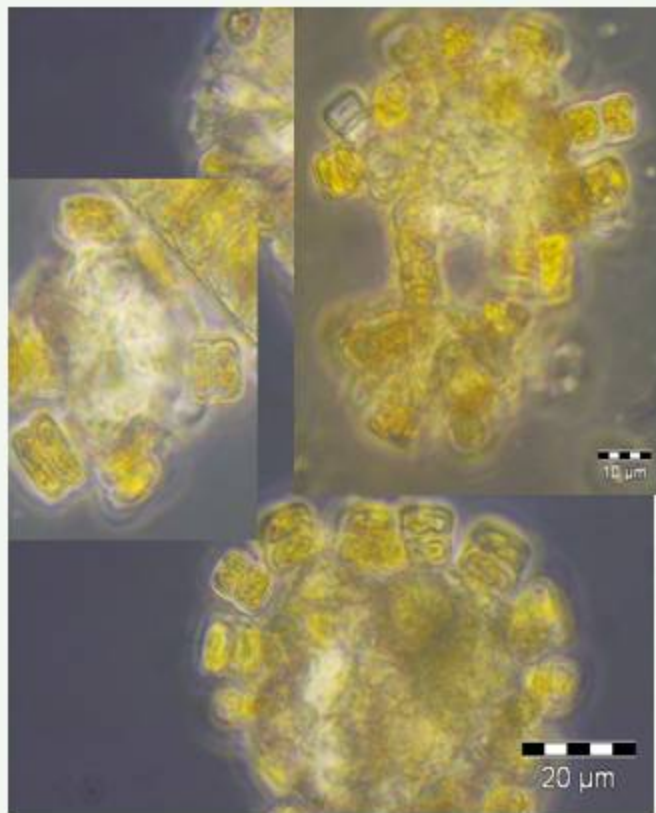
# phytoplankton - bacillariophyceae

## *Delphineis surirella*

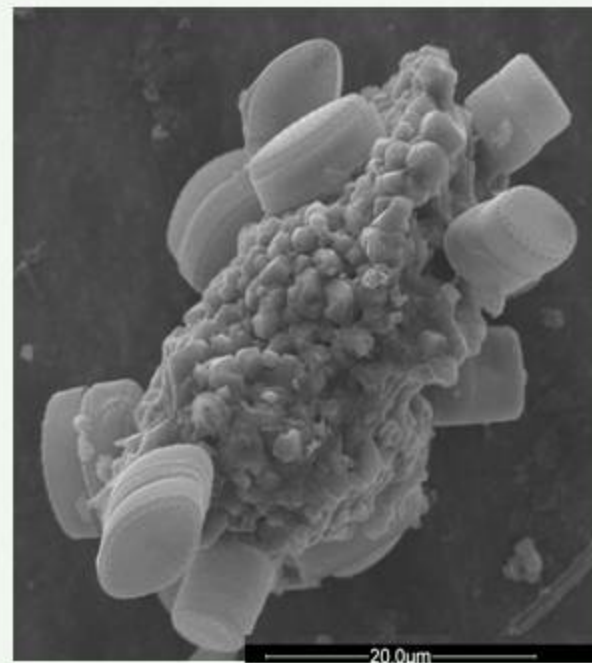
abundance: all year

life-form: in colonies or solitary, often attached to sand grains

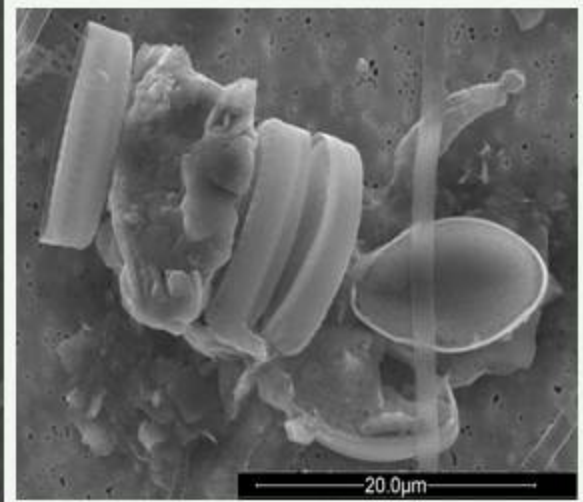
apical axis: 10-50µm



LM (North Sea, DTEND)



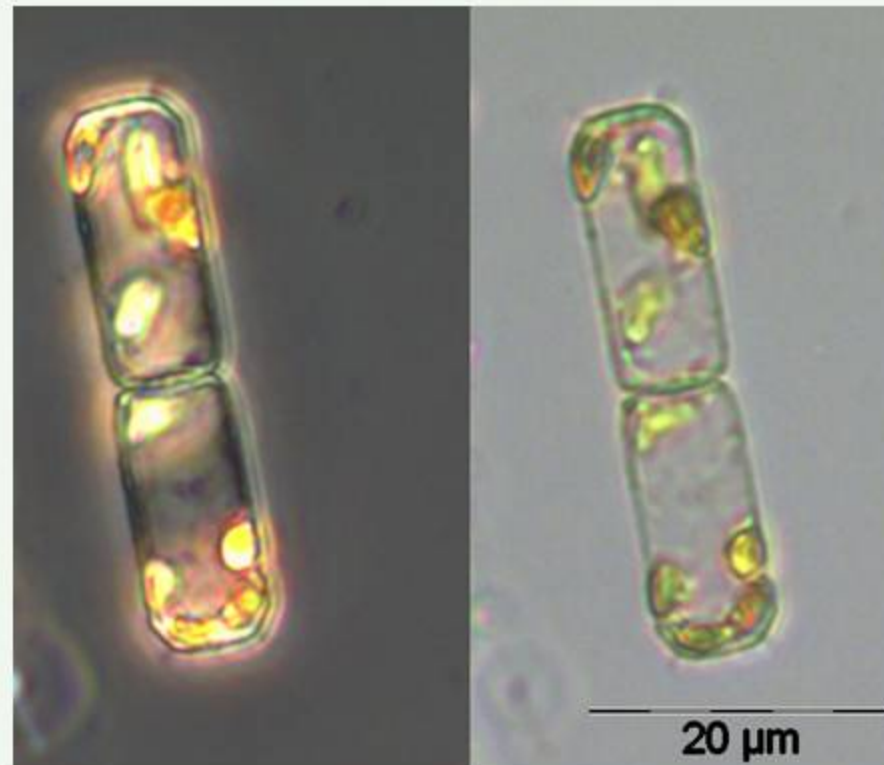
REM (North Sea, SYLT<sub>1</sub>, NSB<sub>3</sub>)



# phytoplankton - bacillariophyceae

## Detonula confervacea

life-form: in chains  
cell diameter: 6–20  $\mu\text{m}$   
perivalvar axis: 15–30  $\mu\text{m}$

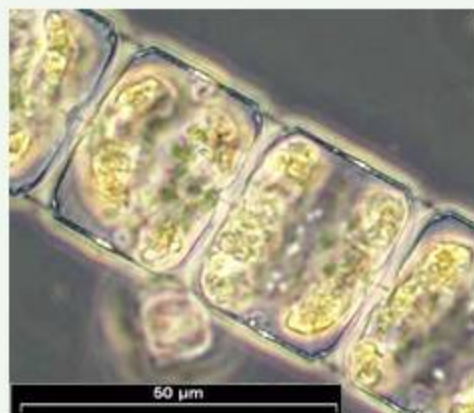


LM (Mecklenburg Bight)

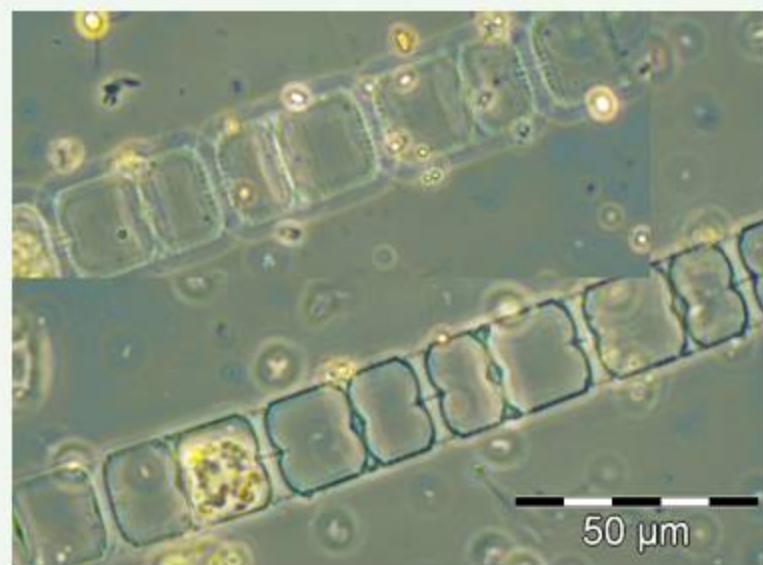
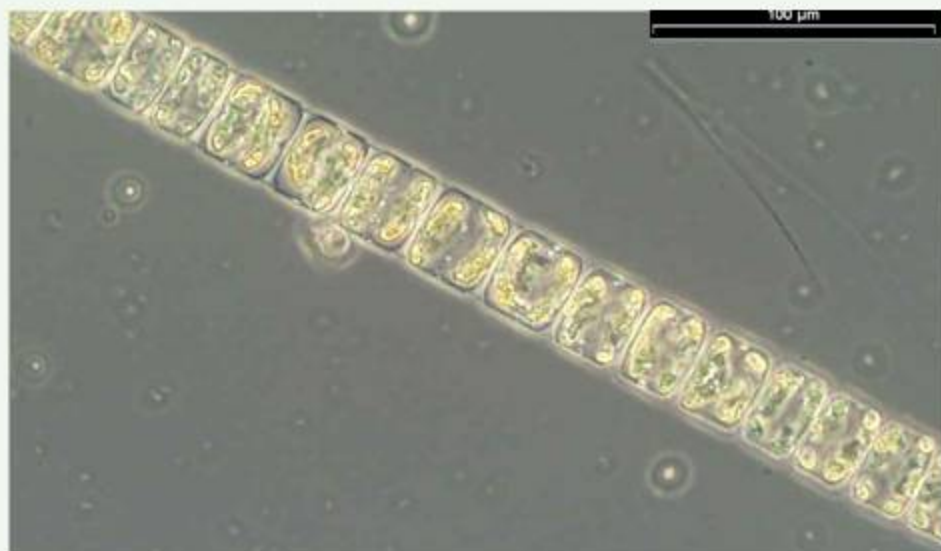
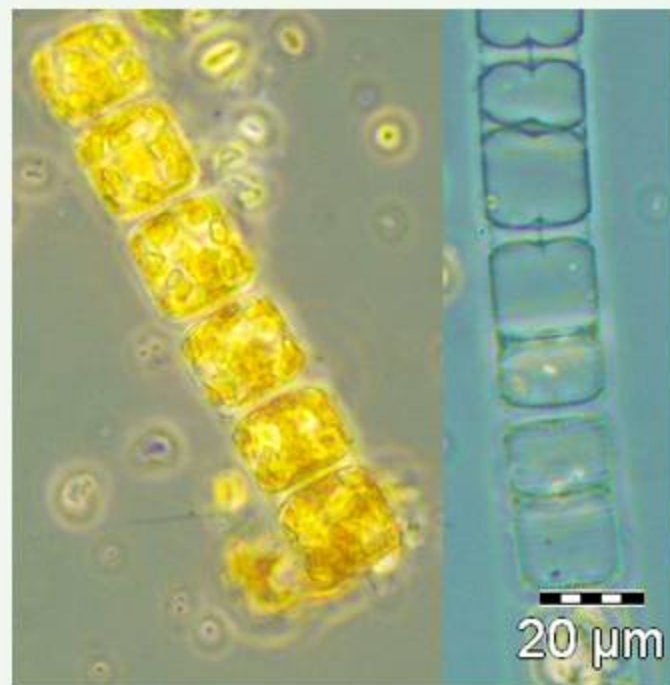
# phytoplankton - bacillariophyceae

## *Detonula pumila*

abundance: summer, autumn  
life-form: in chains  
diameter: 17 - 46  $\mu\text{m}$



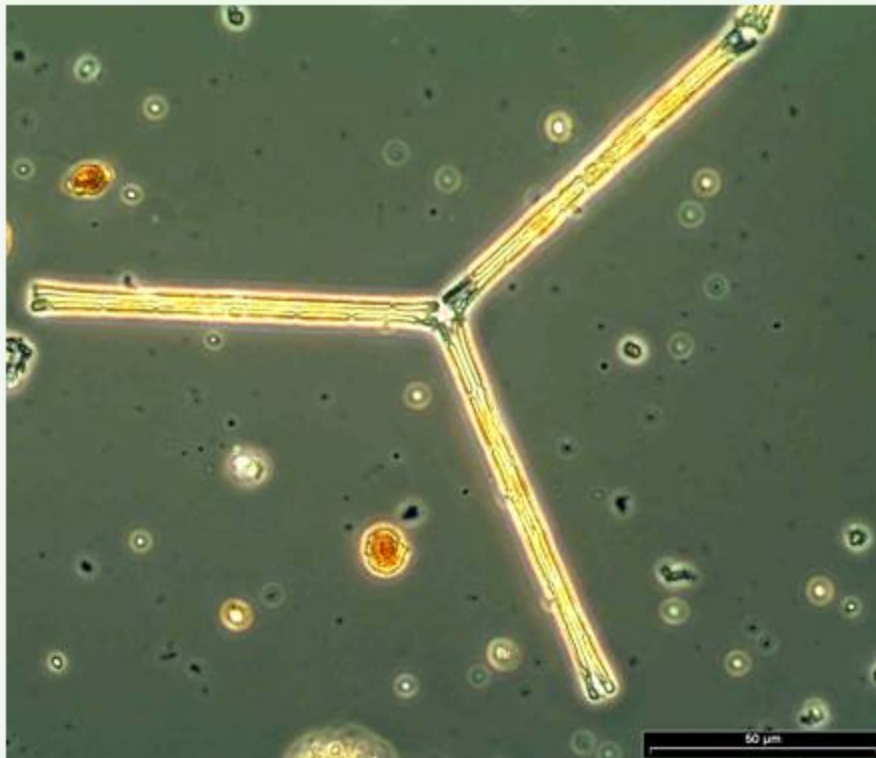
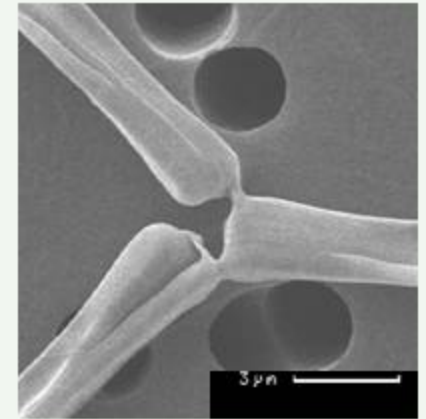
LM (North Sea, HELGO)



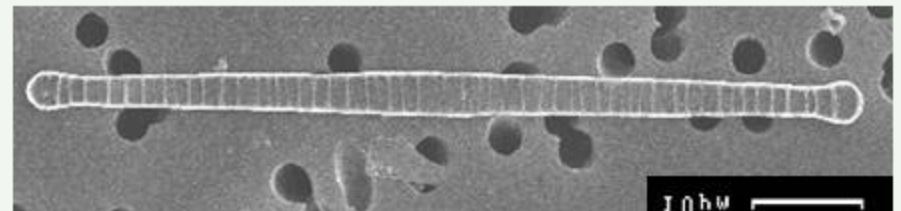
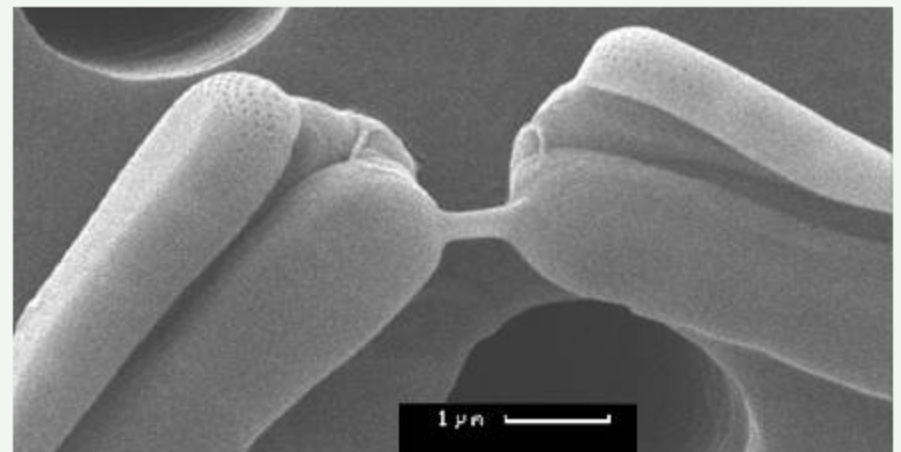
# phytoplankton – bacillariophyceae

## *Diatoma tenue* C.Agardh

abundance: spring  
life-form: solitary or in chains  
cell-length: 40 - 120  $\mu\text{m}$   
cell-width: 2 - 4  $\mu\text{m}$



LM ( coastal station Heiligendamm )



REM ( coastal station Heiligendamm )

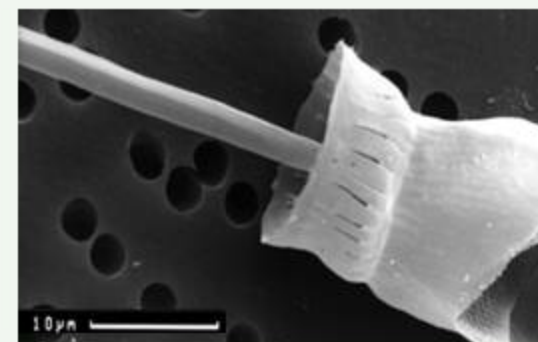
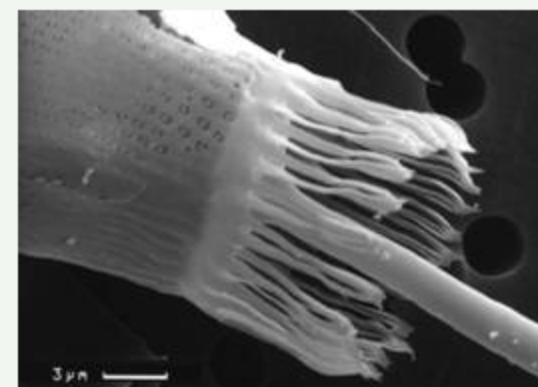
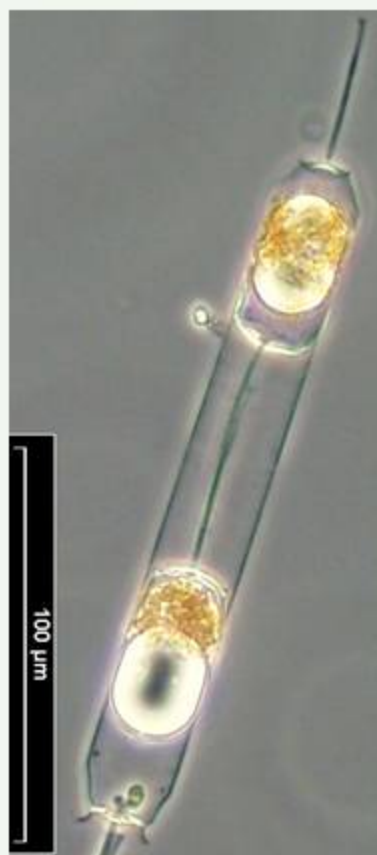
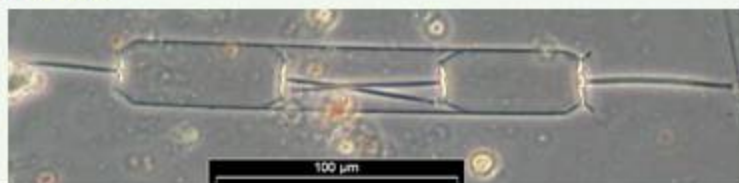
# phytoplankton - bacillariophyceae

## *Ditylum brightwellii*

abundance: permanent abundant

life-form: cells solitary

diameter: 25 - 100µm



LM (coastal station Heiligendamm)

REM (coastal station Heiligendamm)

# phytoplankton – bacillariophyceae

## *Eucampia zoodiacus*

abundance: late spring, summer, autumn

life-form: in chains, often helically curved

apical axis: 10 - 100  $\mu\text{m}$

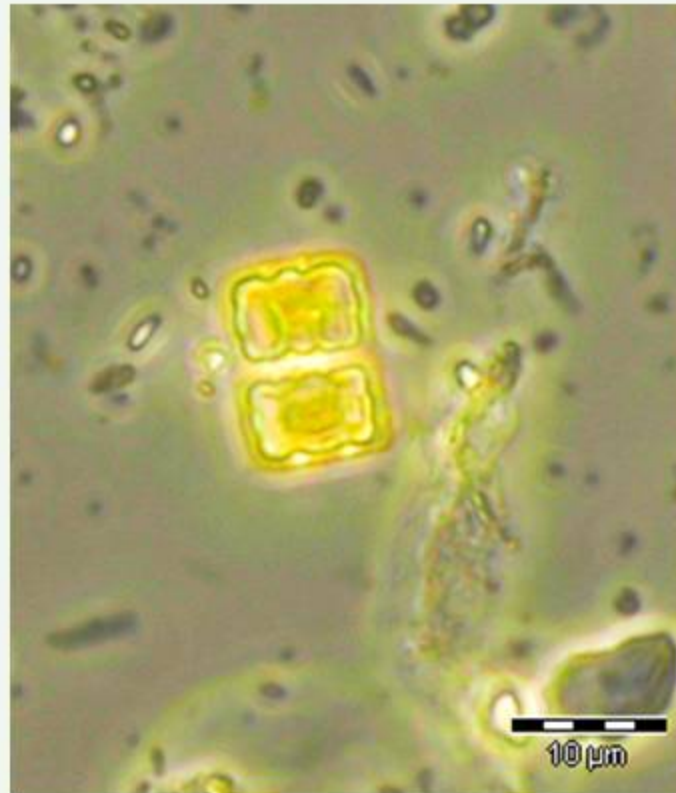




# phytoplankton - bacillariophyceae

## Eunotogramma dubium

abundance: all year  
life-form: solitary or in short chains  
length: 6-18 $\mu$ m  
width: 3-5 $\mu$ m

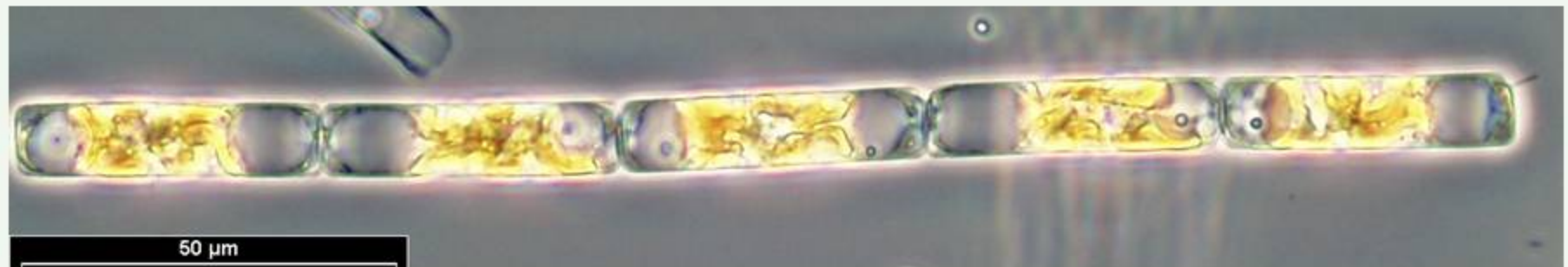


LM (North Sea, ES1)

phytoplankton - bacillariophyceae

## Guinardia delicatula

abundance: spring, summer  
life-form: in closed chains  
diameter: 10 - 50  $\mu\text{m}$

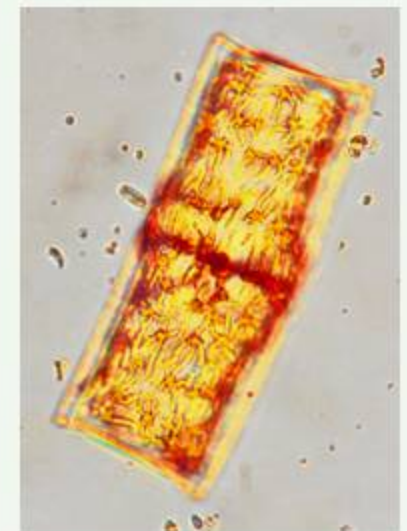
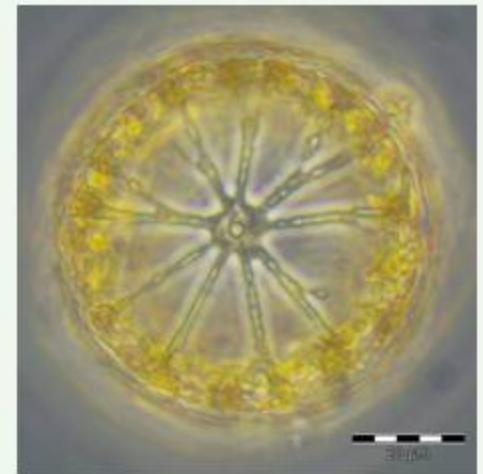
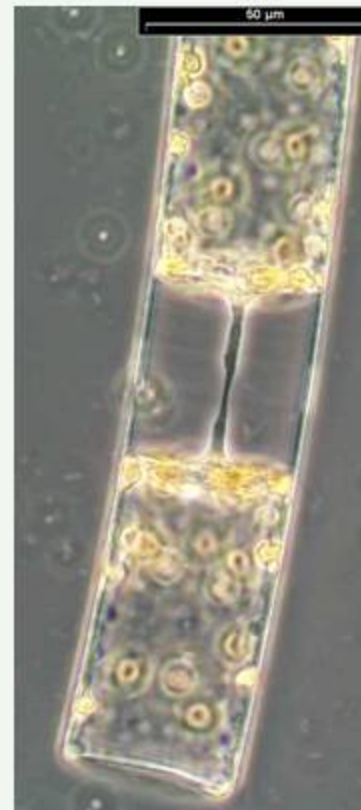


LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## Guinardia flaccida

abundance: summer, autumn  
life-form: in chains  
diameter: 24 - 60  $\mu\text{m}$   
perivalvar-axis: 80 - 155  $\mu\text{m}$



LM (coastal station Heiligendamm)

Lugol fixed

# phytoplankton – bacillariophyceae

## *Guinardia striata*

abundance: summer, autumn

life-form: in close set curved, often spiraling chains

diameter: 6 - 50  $\mu\text{m}$

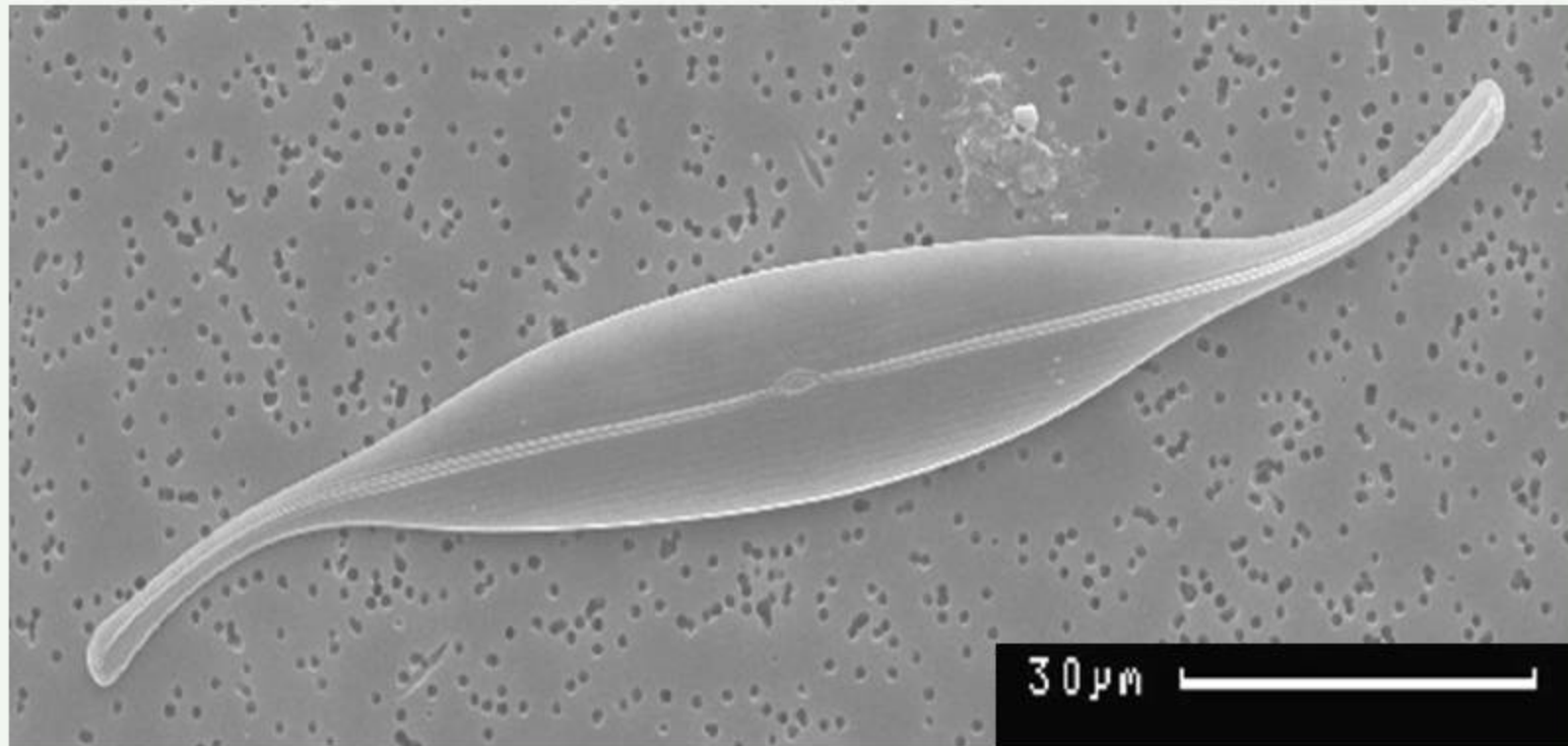


LM (North Sea, German Bight)

# phytoplankton - bacillariophyceae

## Gyrosigma sp.

abundance: autumn, winter  
life-form: solitary  
cell-length: 130µm  
cell-width: 20µm

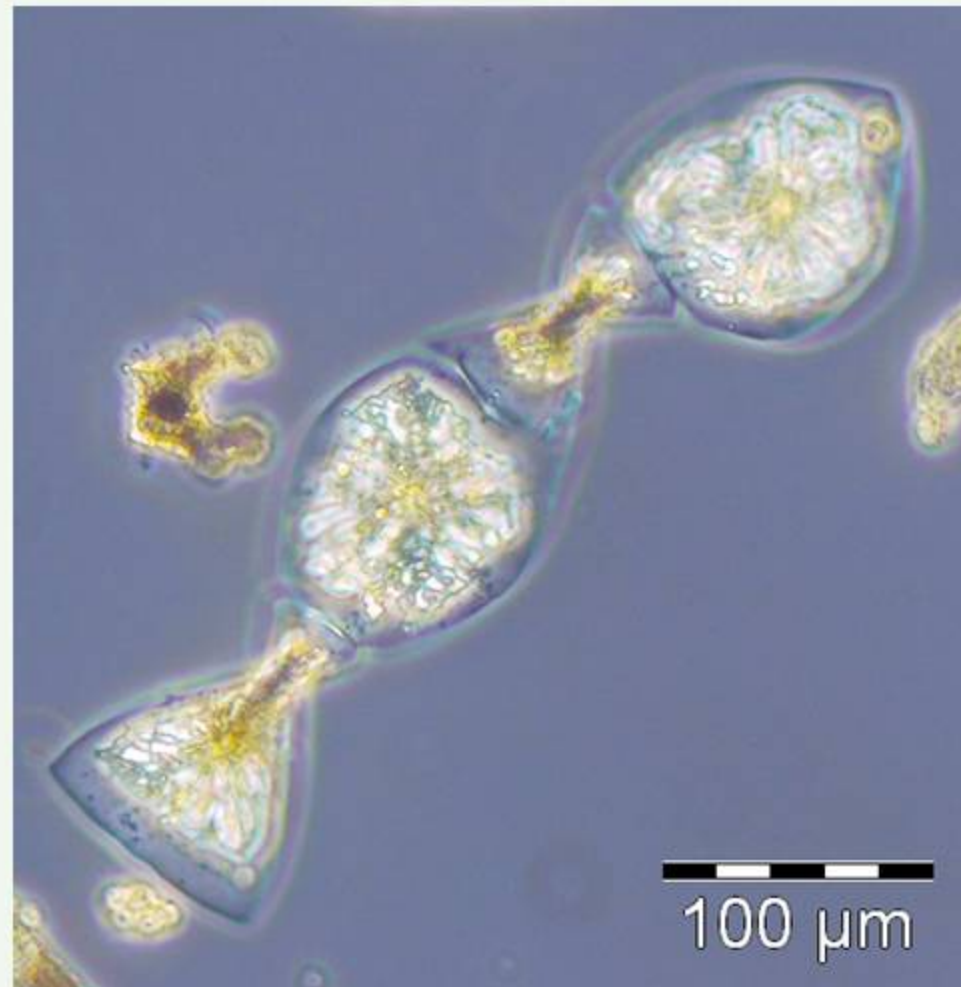


REM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## *Helicotheca tamesis*

abundance: autumn  
life-form: in chains  
perivalvar axis: 56-120  $\mu\text{m}$   
apical axis: 26-160  $\mu\text{m}$



LM (North Sea, NEFB)

phytoplankton - bacillariophyceae

## Hyalodiscus scoticus

abundance: autumn, winter

life-form: ephiphytic, cells attached to the substratum by thick mucilage pads

diameter: 15 – 32  $\mu\text{m}$

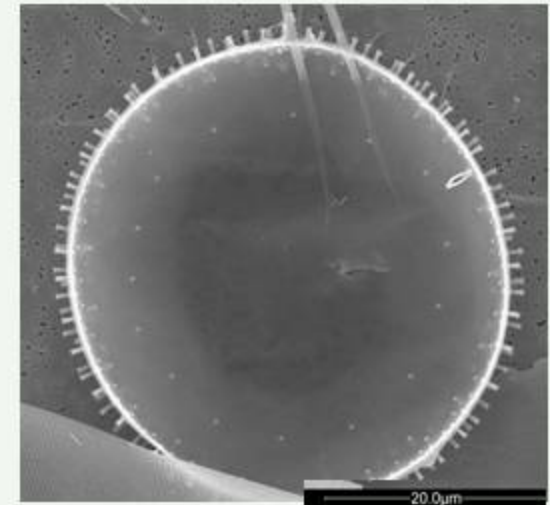


LM (Mecklenburg Bight)

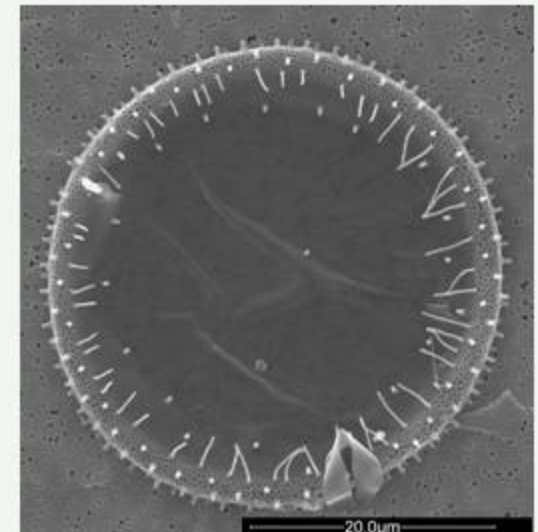
# phytoplankton - bacillariophyceae

## *Lauderia annulata*

abundance: spring, summer  
life-form: in chains  
diameter: 20-60  $\mu\text{m}$

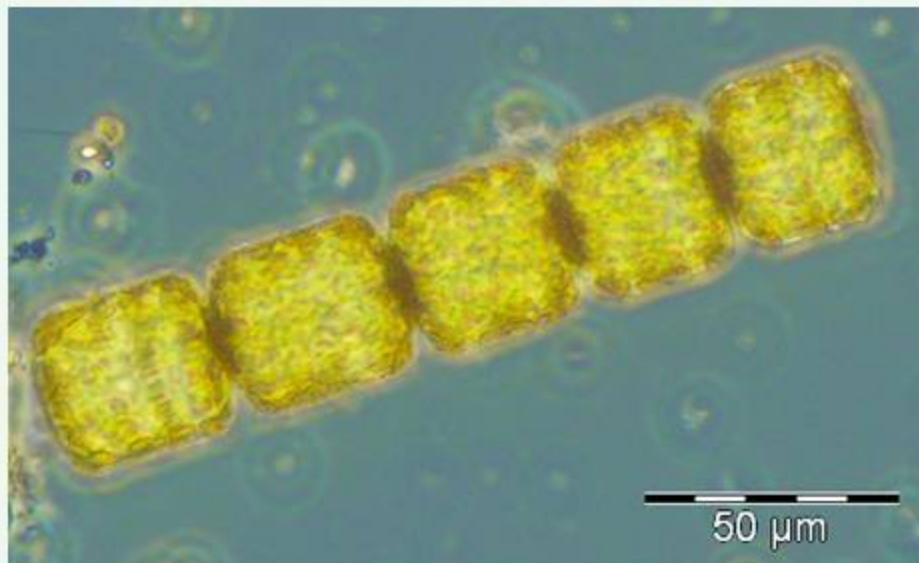


valve interior



valve exterior

REM (North Sea, SWWBA)



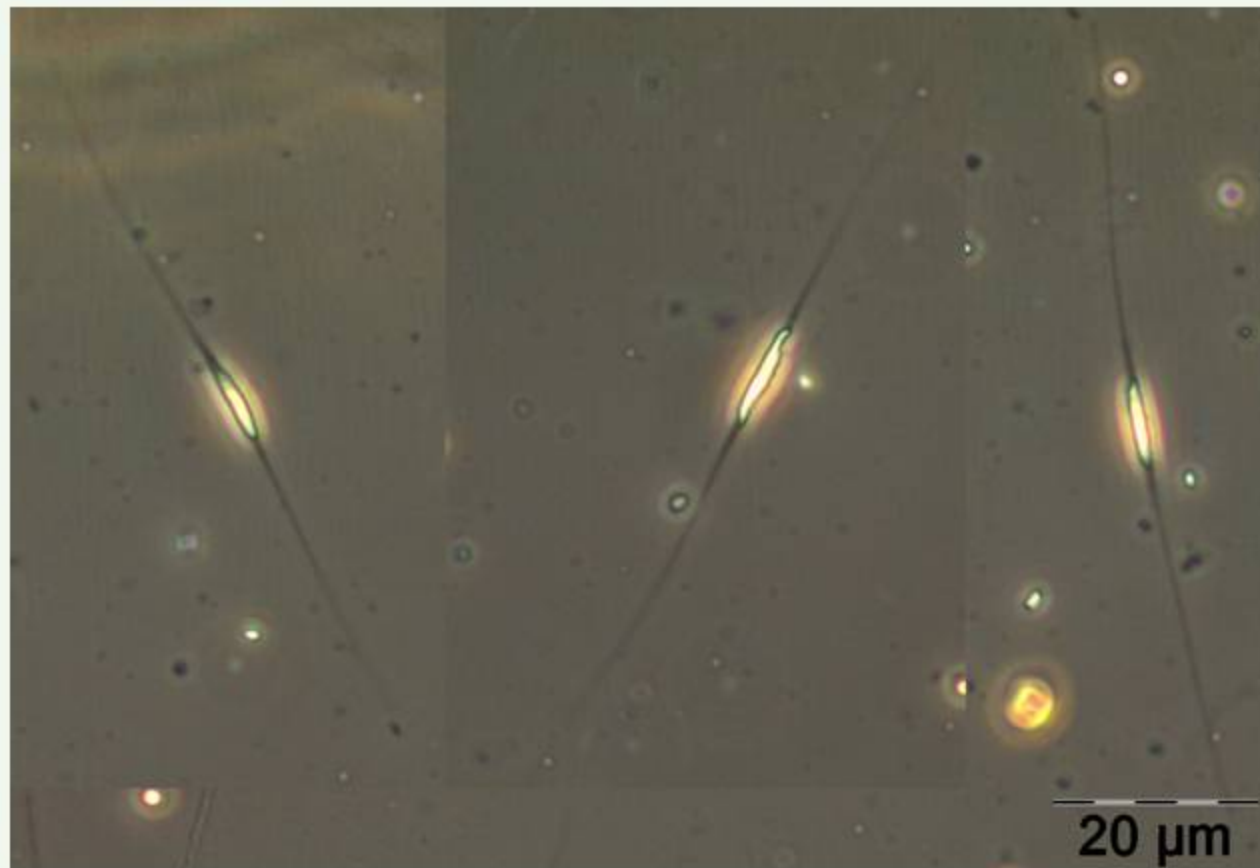
LM (North Sea, HELGO)



# phytoplankton - bacillariophyceae

## *Lennoxia faveolata*

life-form: solitary  
length: 55-74  $\mu\text{m}$   
width: 1-2  $\mu\text{m}$



LM (coastal station Heiligendamm)

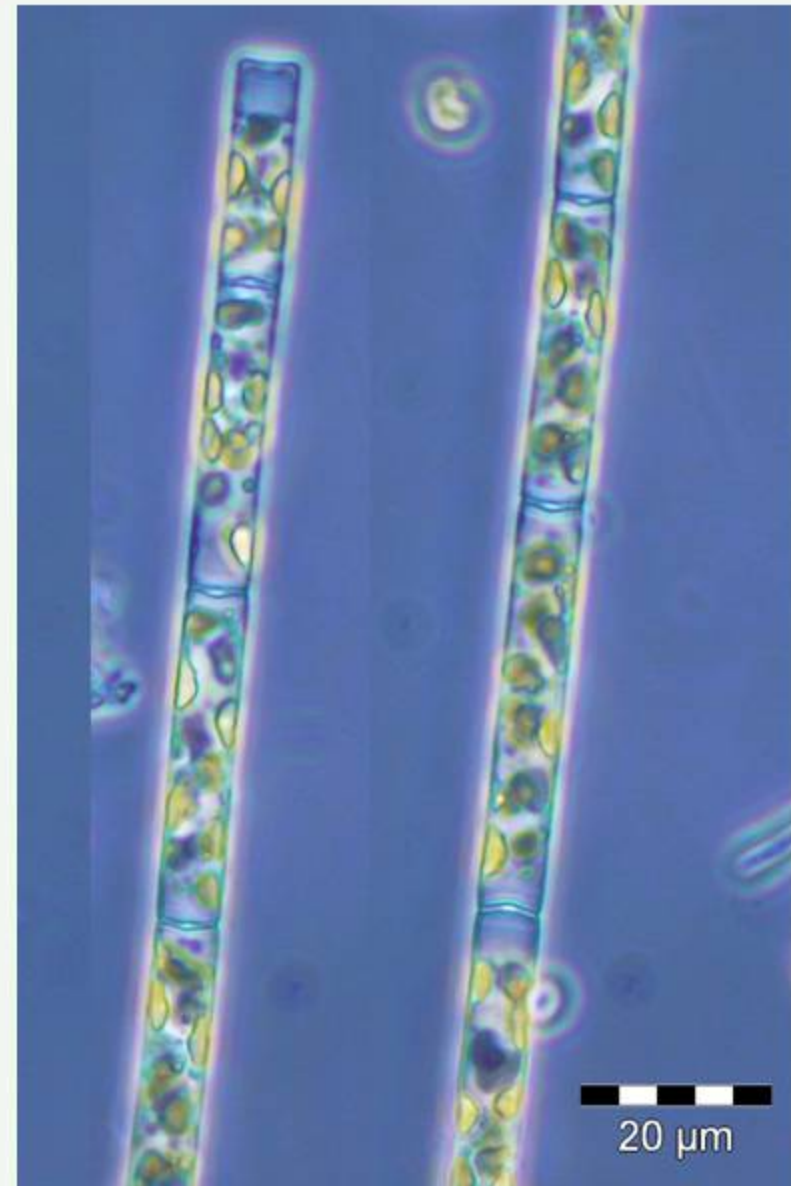
phytoplankton - bacillariophyceae

## Leptocylindrus danicus

abundance: spring, summer, autumn

life-form: in straight chains

apical-axis: 5 - 15  $\mu\text{m}$



LM (Mecklenburg Bight)

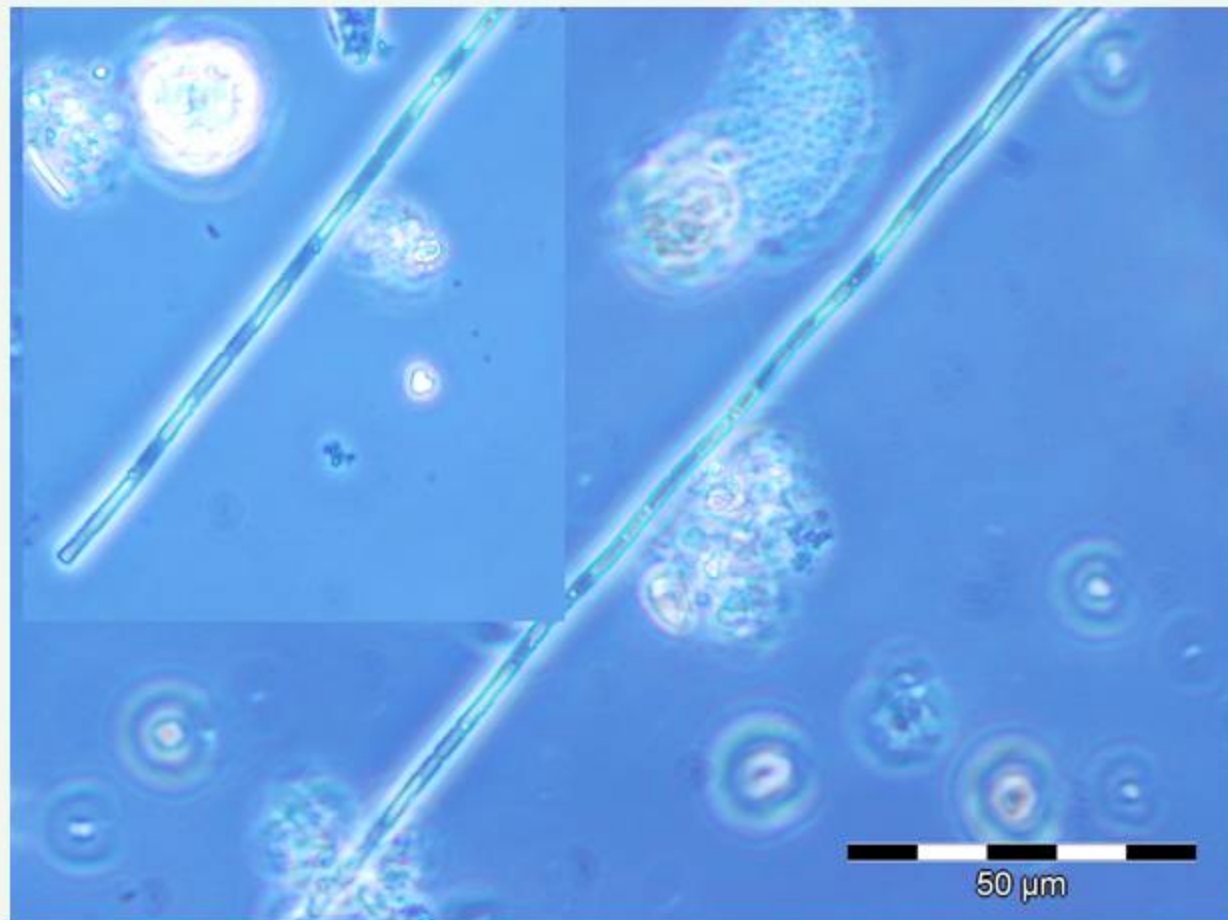
phytoplankton - bacillariophyceae

## Leptocylindrus minimus

abundance: spring, summer

life-form: in chains

apical-axis: 1,5 – 4,5 $\mu$ m



LM (Mecklenburg Bight)

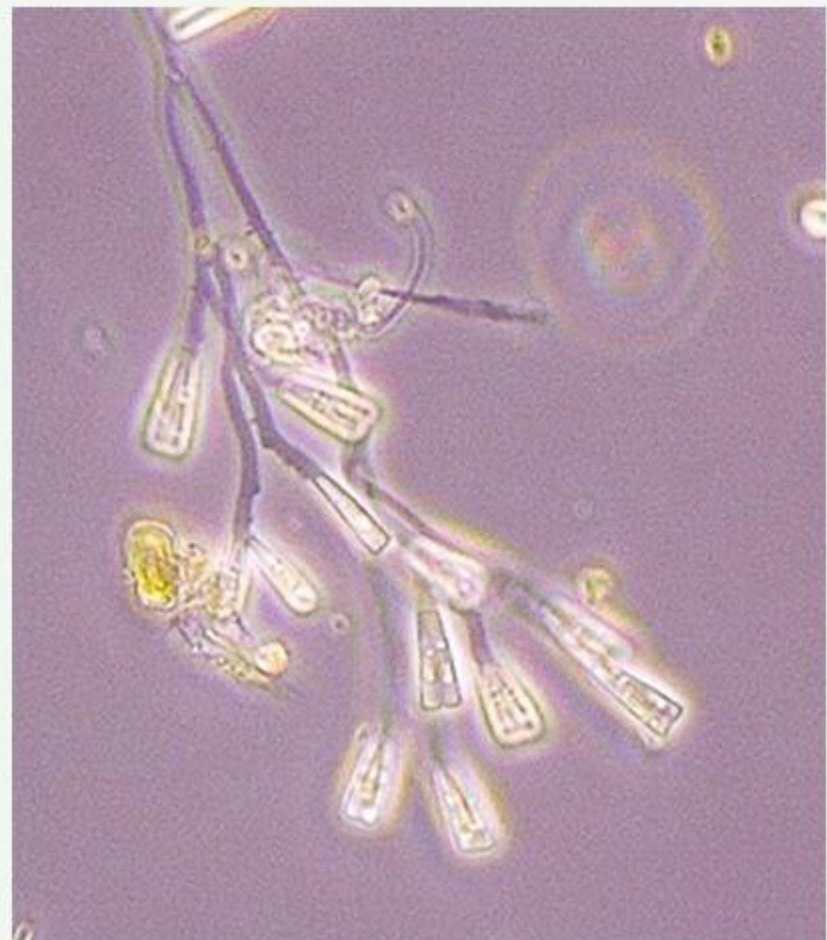
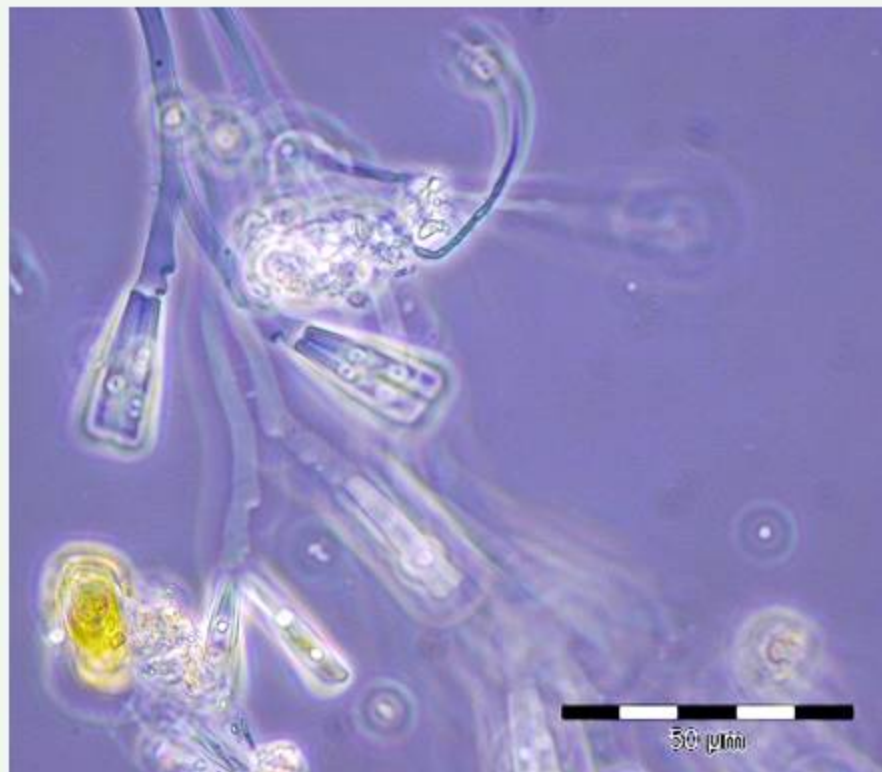
# phytoplankton - bacillariophyceae

## Licmophora sp.

abundance: spring

life-form: epiphytic, cells attached to the substratum (colonies)

cell length: 25 $\mu$ m

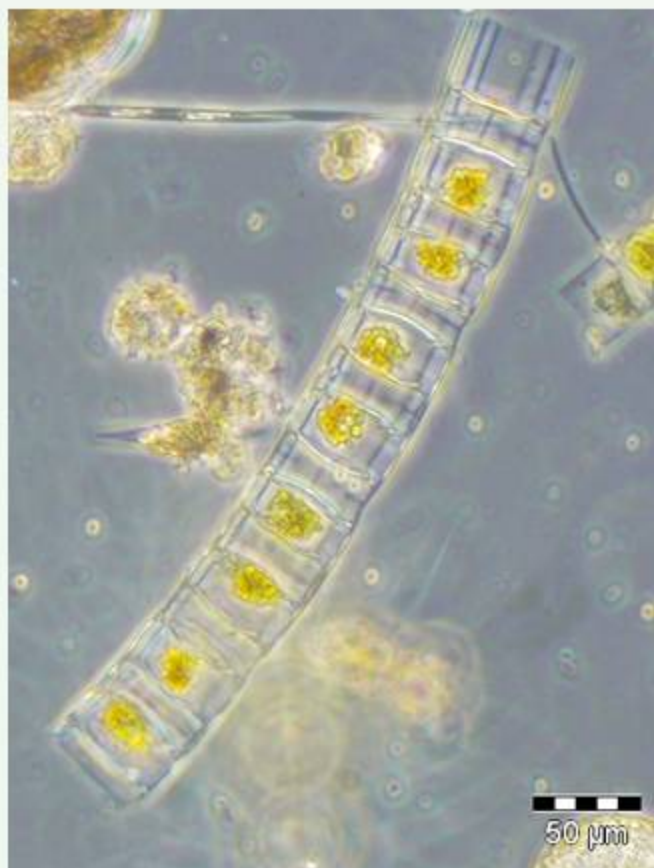


LM (Mecklenburg Bight)

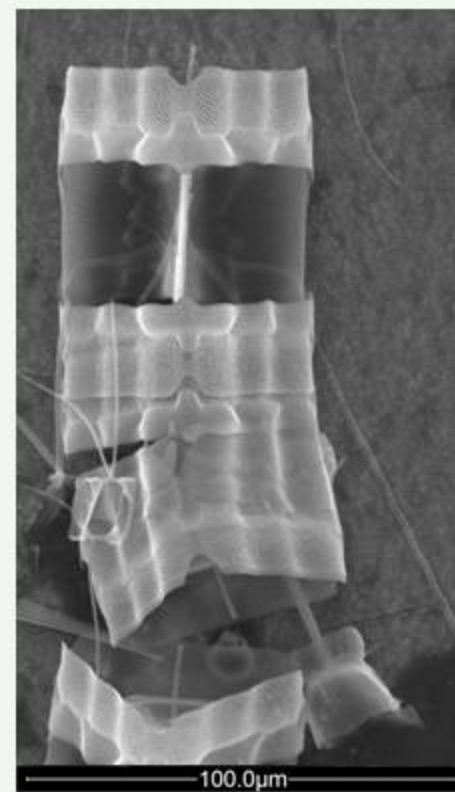
# phytoplankton - bacillariophyceae

## Lithodesmium undulatum

abundance: throughout the year  
life-form: in chains  
length of valve side: 37-93 $\mu$ m



LM (North Sea, ES1)

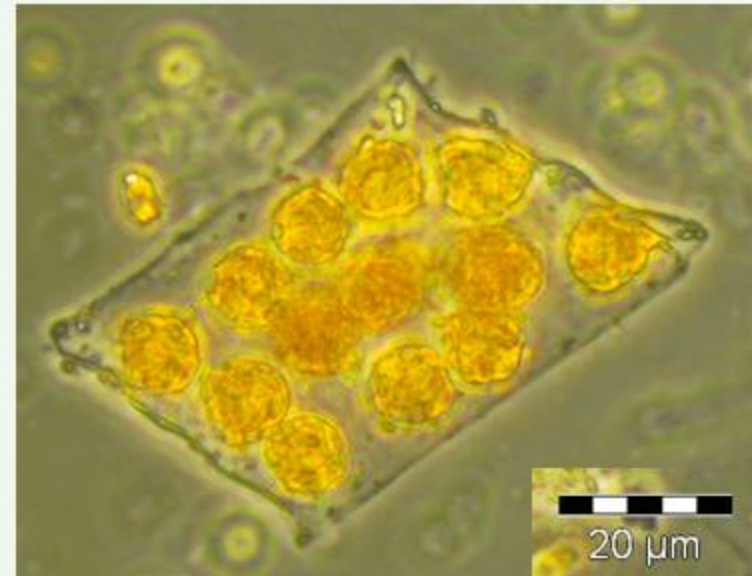
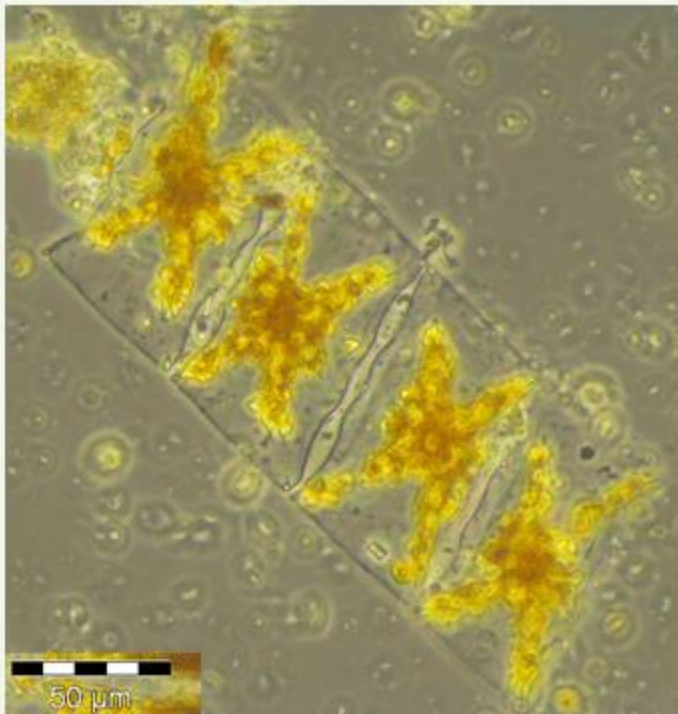


LM (North Sea, SYLT1)

# phytoplankton - bacillariophyceae

## *Mediopyxis helysia*

abundance: spring  
life-form: in short chains or solitary  
apical axis: 44-125  $\mu\text{m}$   
perivalvar axis: 27-78  $\mu\text{m}$

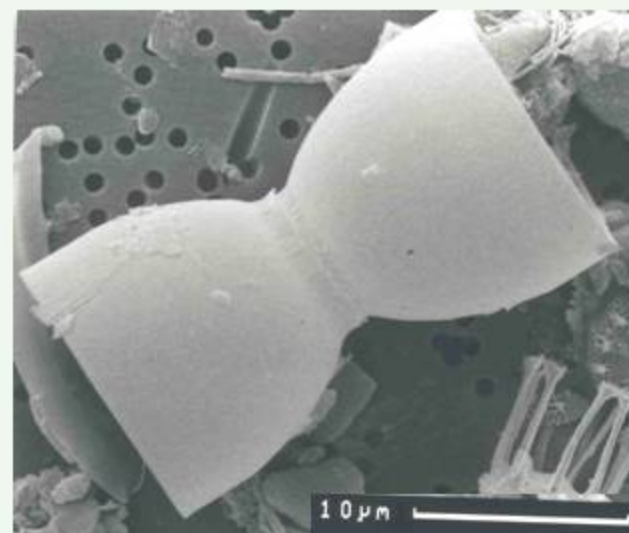
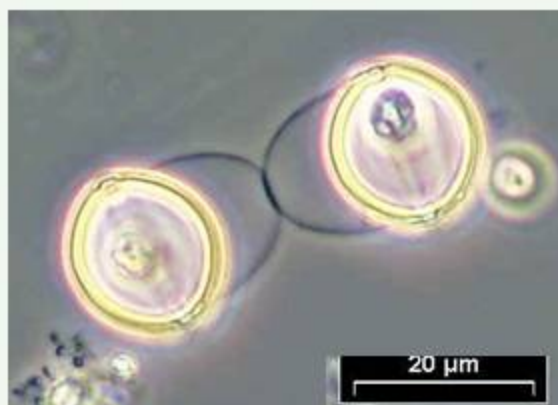
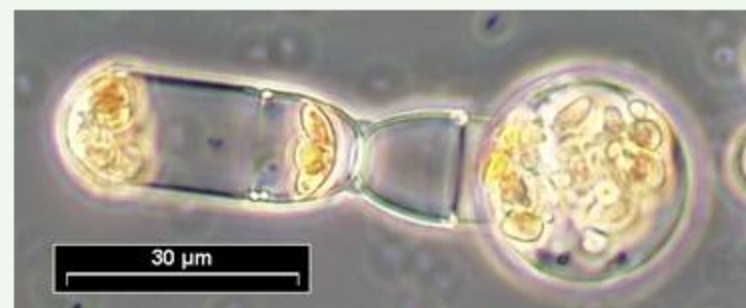
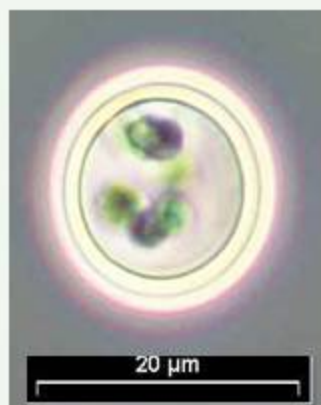
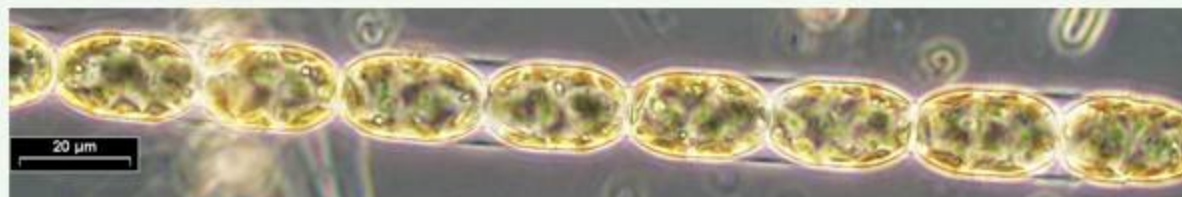


LM (North Sea, ES<sub>1</sub>)

# phytoplankton - bacillariophyceae

## Melosira arctica

abundance: spring, early summer  
life-form: in long chains  
size: cell: 15 x 20  $\mu\text{m}$   
resting spore: 10 - 15  $\mu\text{m}$



LM (Gotland Sea, sediment trap) resting spores

REM (Gotland Sea, sediment trap)

# phytoplankton - bacillariophyceae

## Melosira granulata

life-form: in chains  
cell diameter: 5 – 21  $\mu\text{m}$   
morphology: endcell with spines and stright lines of pores;  
middle cells with convoluted lines of pores



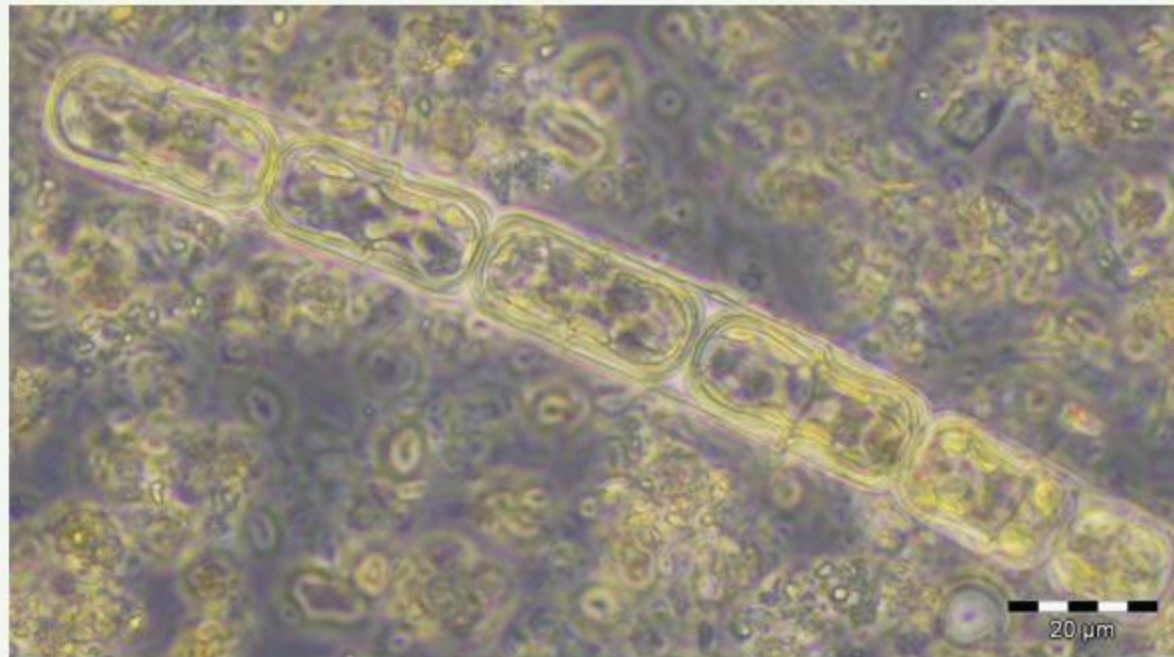
LM (Pommeranian Bight)



phytoplankton - bacillariophyceae

## **Melosira lineata**

abundance: all year  
life-form: in chains  
length: 10-40µm

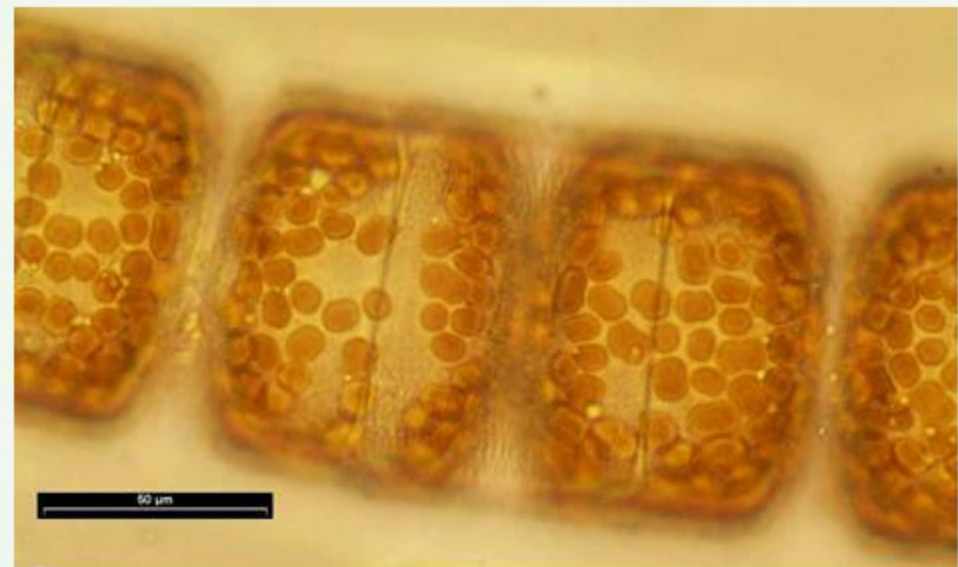
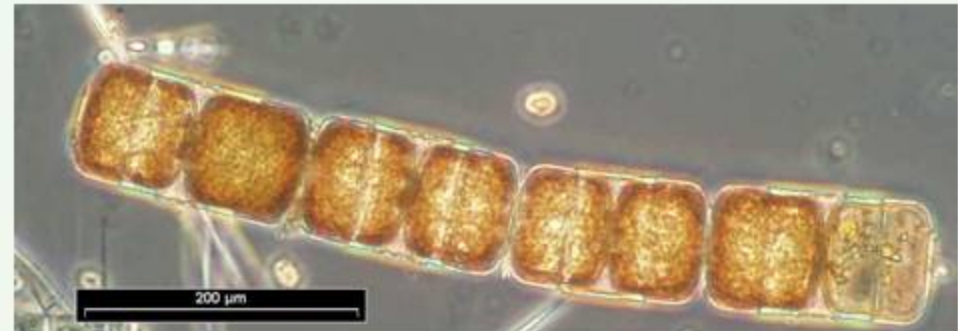
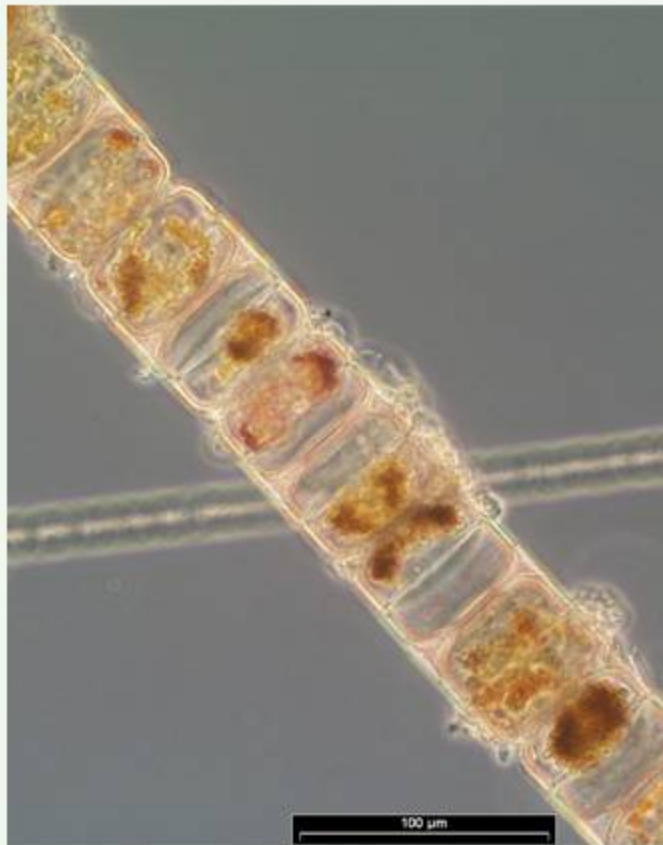


LM ( Bothnian Sea, sediment trap)

phytoplankton - bacillariophyceae

## Melosira moniliformis

abundance: winter, spring  
life-form: in long chains  
diameter: 25 - 60  $\mu\text{m}$

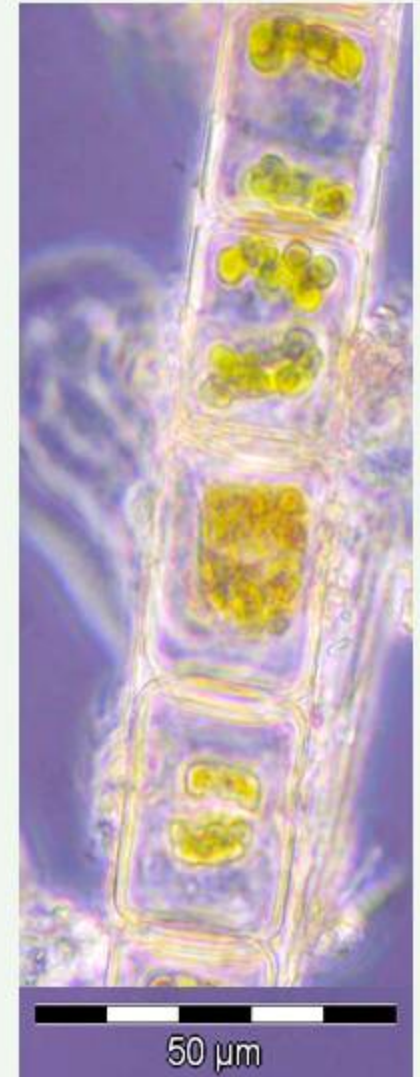


LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## *Melosira varians*

abundance: summer, autumn  
life-form: in chains  
diameter: 8-35  $\mu\text{m}$

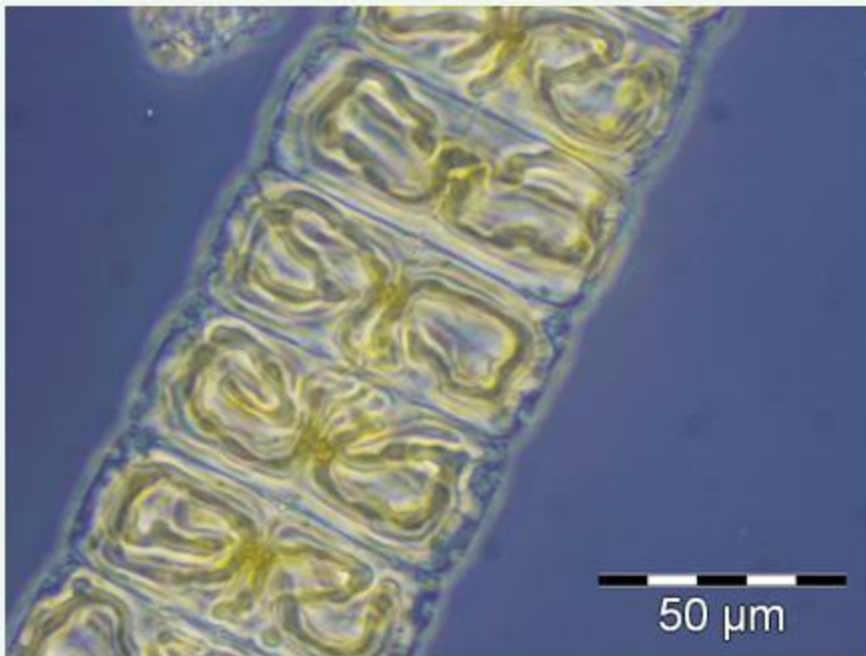


LM (coastal station Heiligendamm)

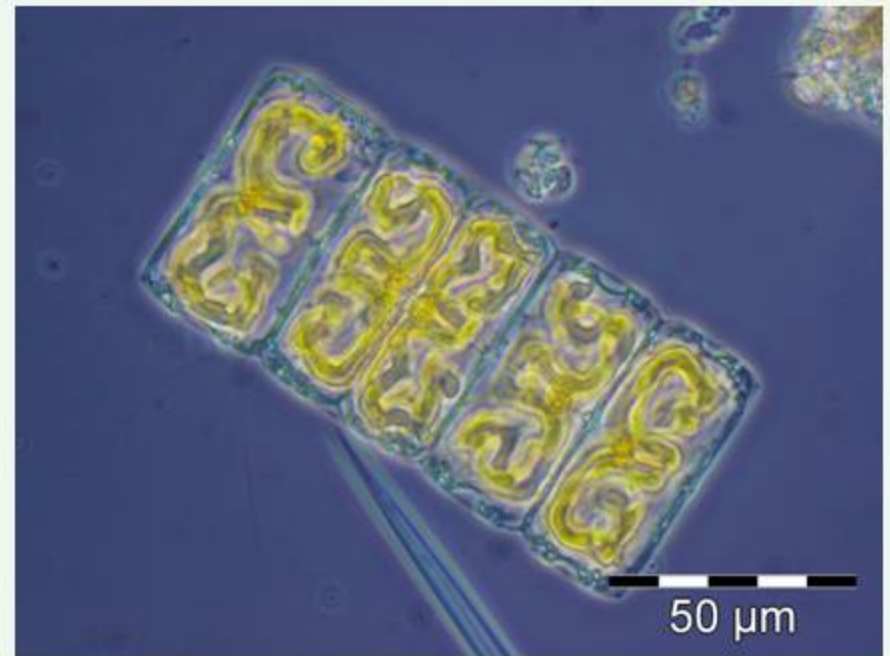
# phytoplankton - bacillariophyceae

## *Meuniera membranacea*

abundance: autumn  
life-form: in chains  
perivalvar axis: 30-40µm  
apical axis: 50-90µm



LM (North Sea, NGW8)



LM (North Sea, UFSDB)

# phytoplankton - bacillariophyceae

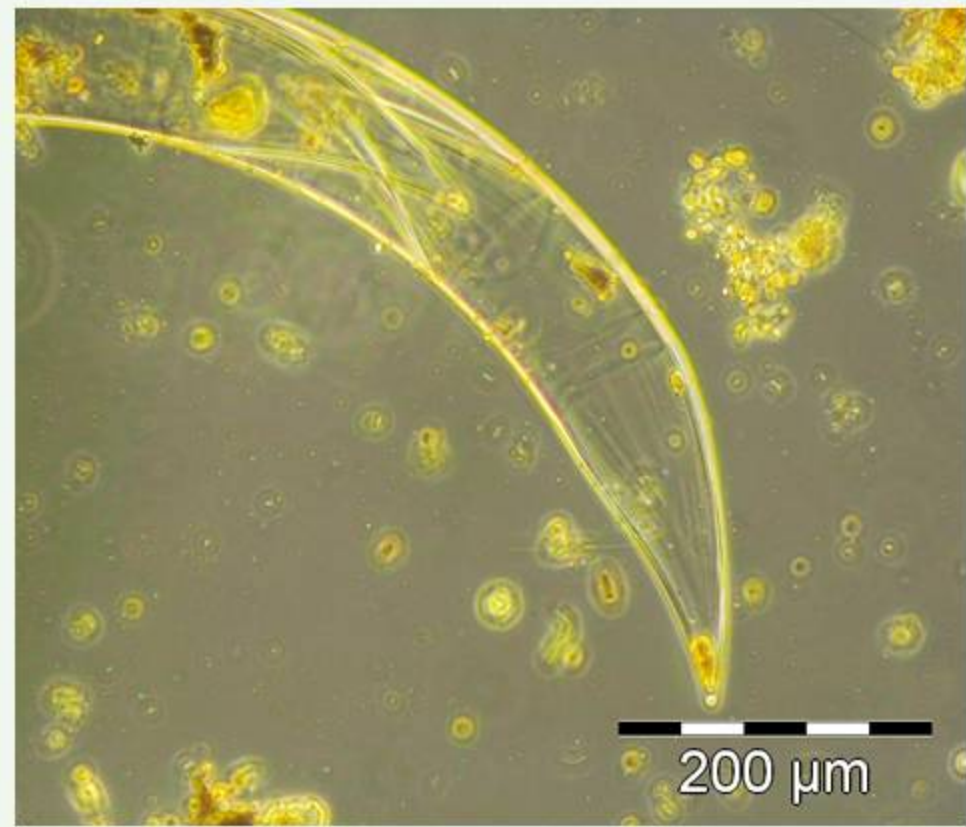
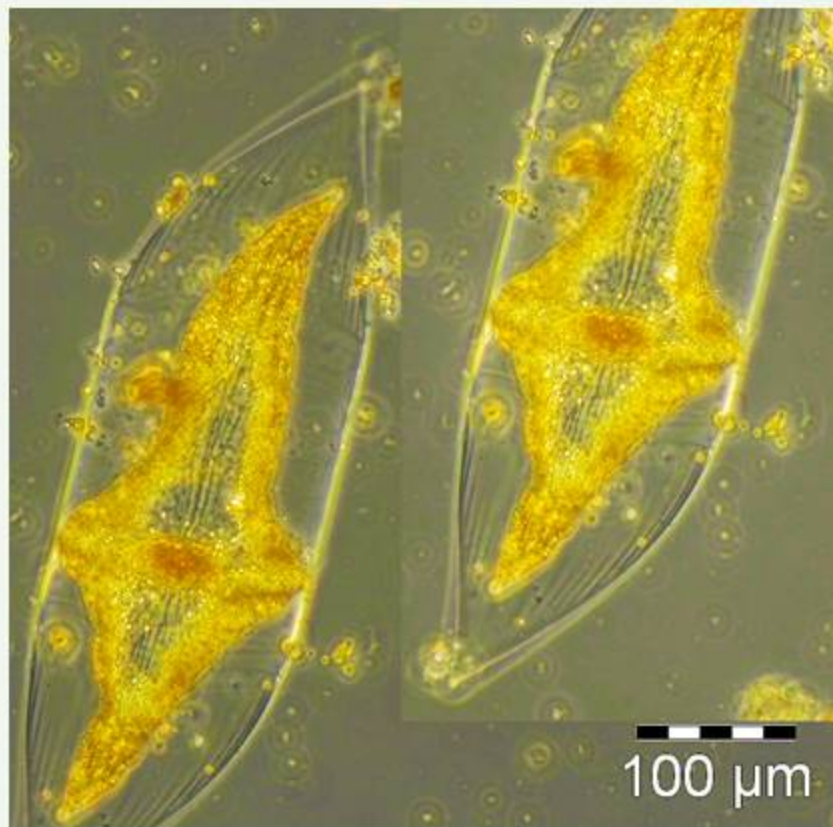
## Neocalyptrella robusta

abundance: summer, autumn

life-form: solitary

diameter: 40-400 $\mu$ m

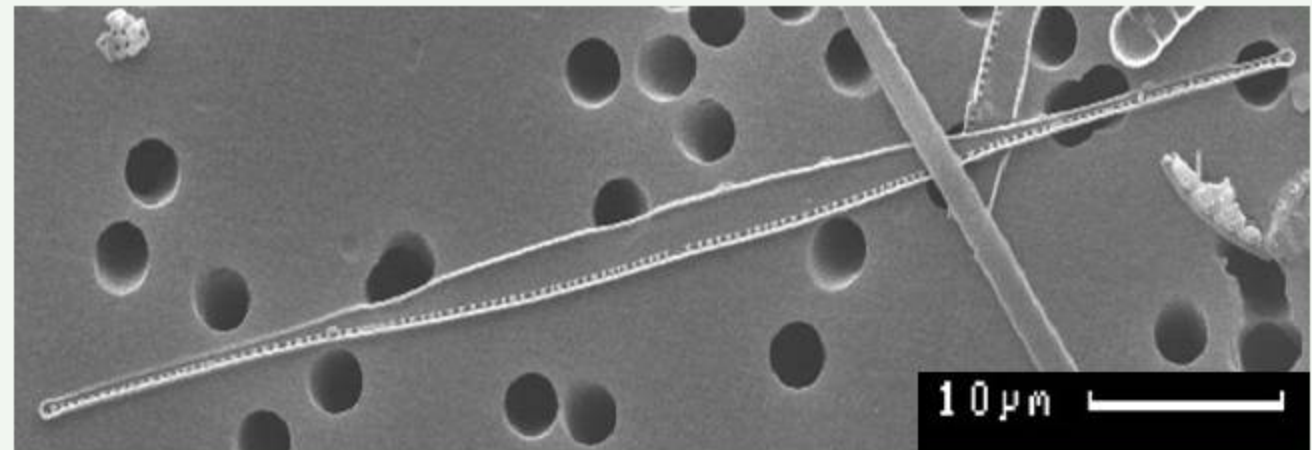
cell length: 0,5-1mm



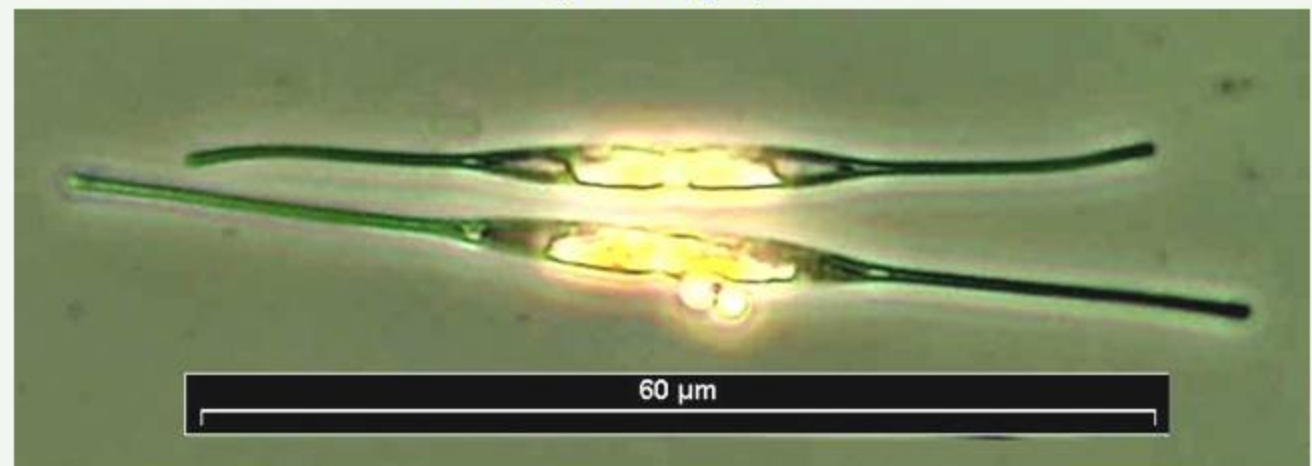
# phytoplankton – bacillariophyceae

## *Nitzschia acicularis*

life-form: solitary  
length: 55-100 $\mu$ m  
width: 3 - 4 $\mu$ m



REM (Oder Bight)

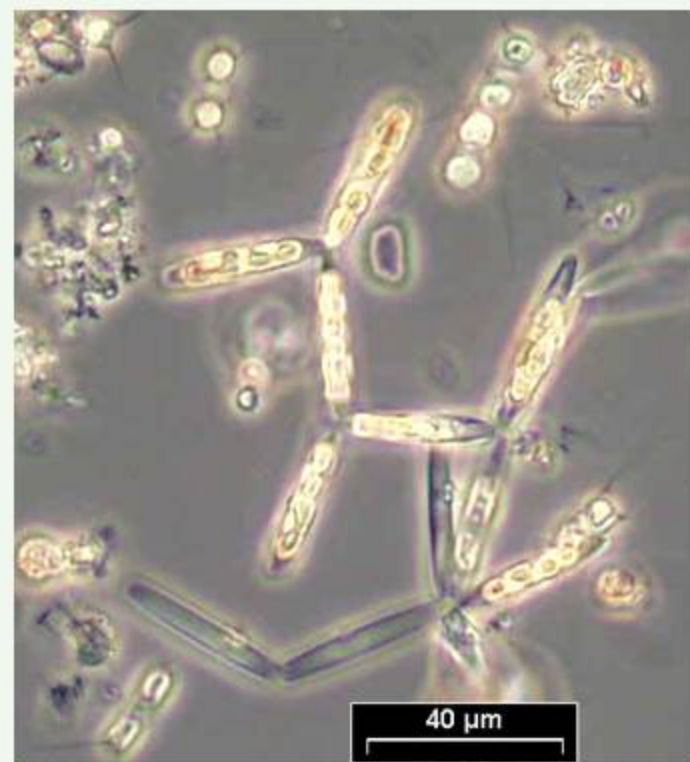


LM (Oder Bight)

# phytoplankton - bacillariophyceae

## *Nitzschia frigida*

abundance: spring  
life-form: in colonies  
apical axis: 32 – 64  $\mu\text{m}$   
transapical axis: 4 – 5  $\mu\text{m}$



LM (Gotland Sea)

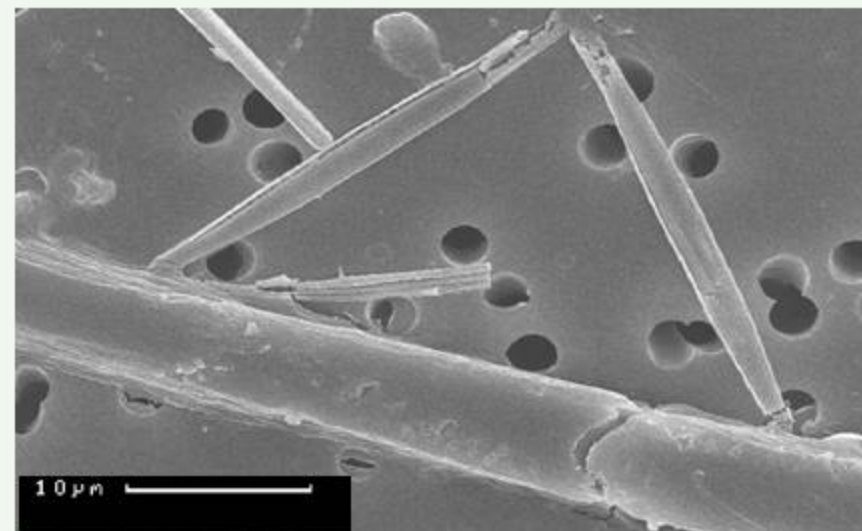
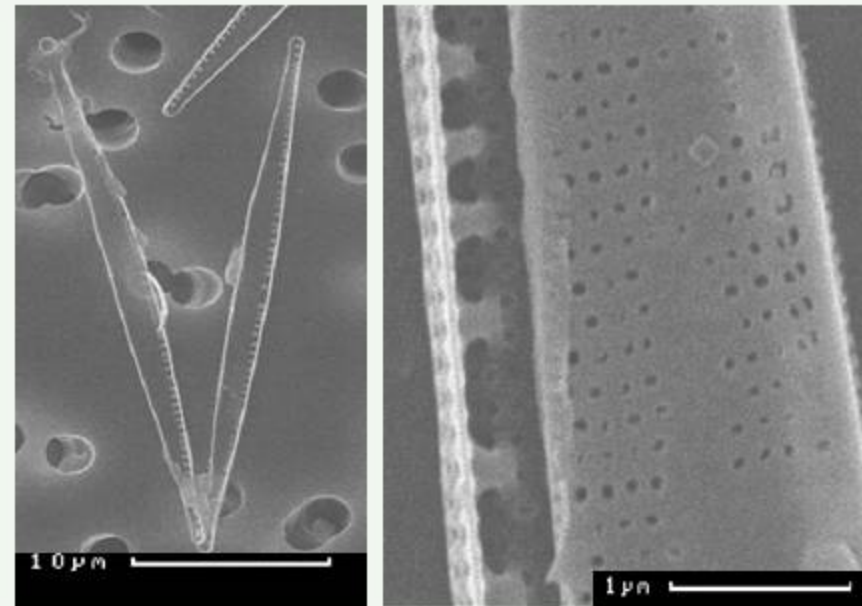
# phytoplankton – bacillariophyceae

## *Nitzschia paleacea*

abundance: summer, autumn  
life-form: epilithic, solitary  
apical axis: 14 - 54  $\mu\text{m}$   
transapical axis: 2  $\mu\text{m}$



*N. paleacea* epiphytic on filaments  
of *Nodularia spumigena*  
LM (Gotland Sea)



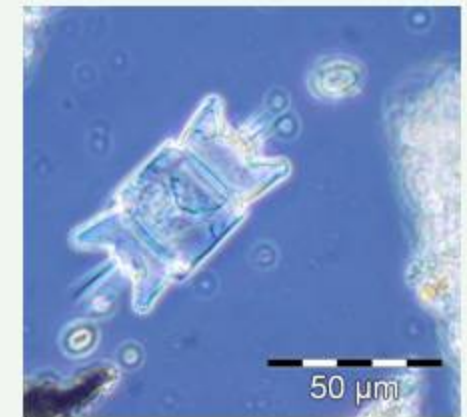
REM (Gotland Sea)



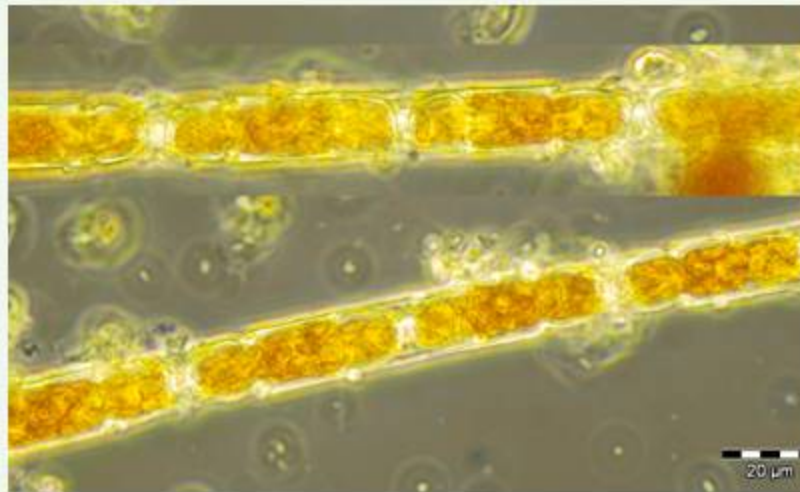
# phytoplankton - bacillariophyceae

## *Odontella aurita*

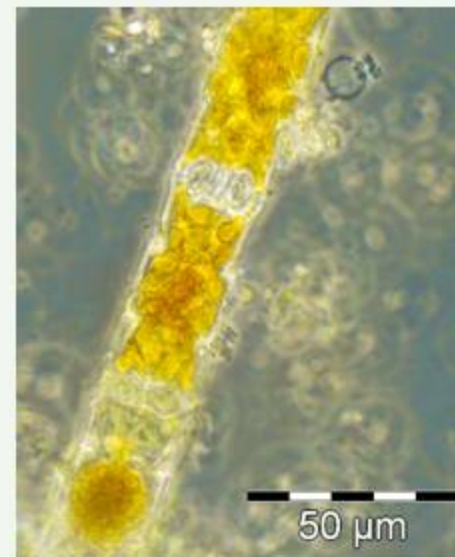
abundance: all year  
life-form: in chains  
length: 10-97µm



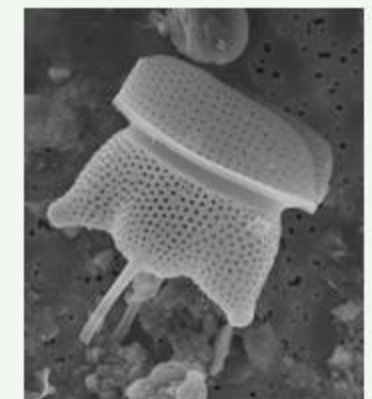
LM cleaned material



LM (North Sea, HELGO)



LM (North Sea, ES1)



REM (North Sea, SYLT1)

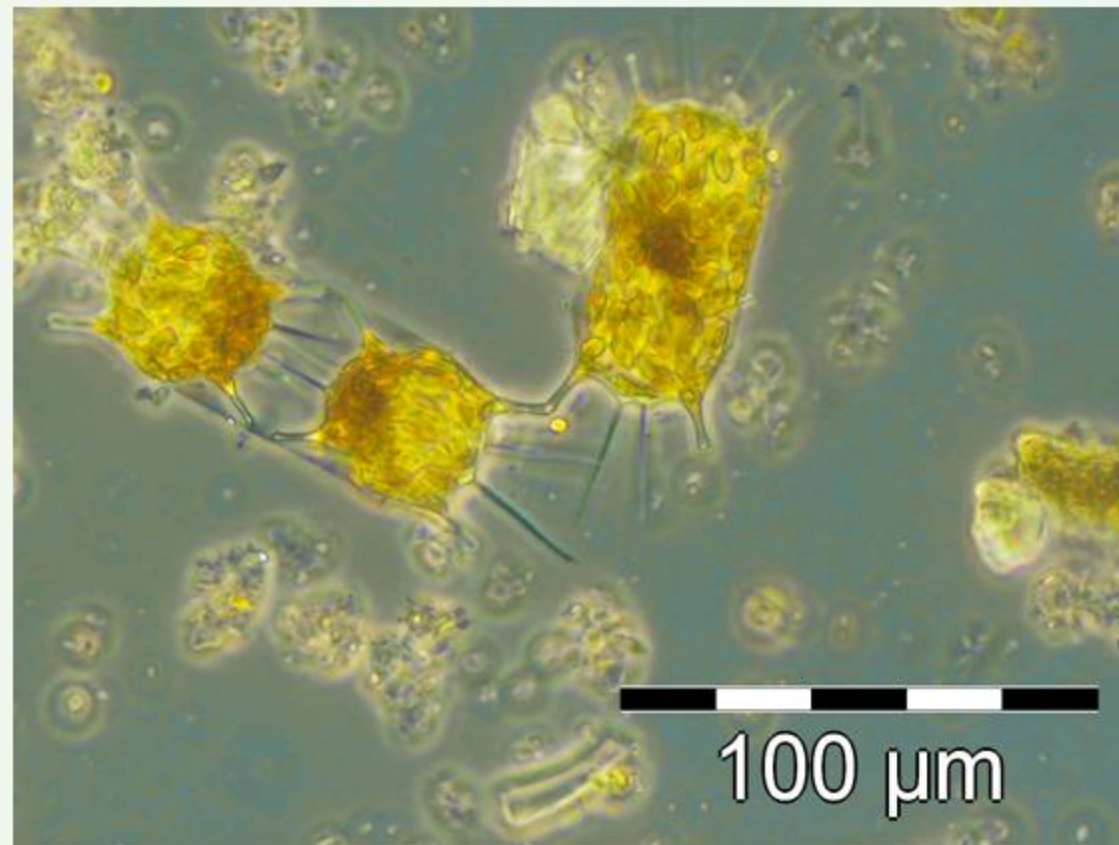
phytoplankton - bacillariophyceae

## Odontella mobiliensis

abundance: summer, autumn

life-form: single cells or short chains

apical length: 70-150µm



LM (North Sea, AMRU2)

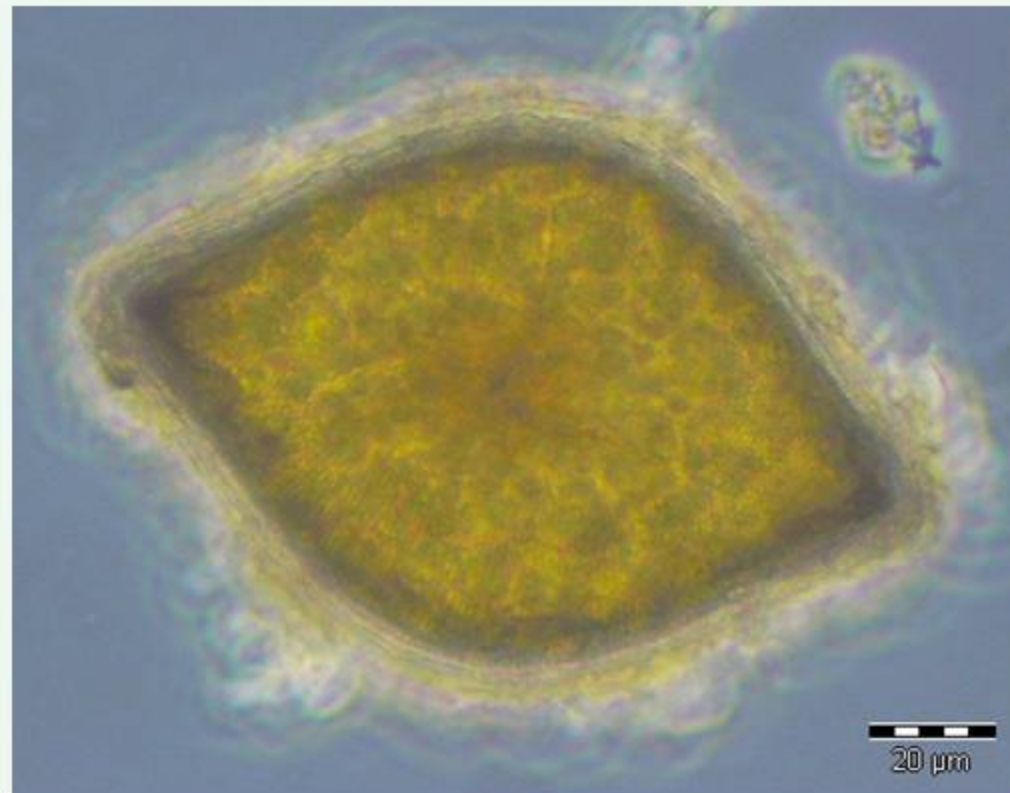
phytoplankton - bacillariophyceae

## Odontella rhombus

abundance: all year

life-form: single cells, sometimes short zigzag chains

apical axis: 20-200µm



LM (North Sea, SYLT<sub>1</sub>)

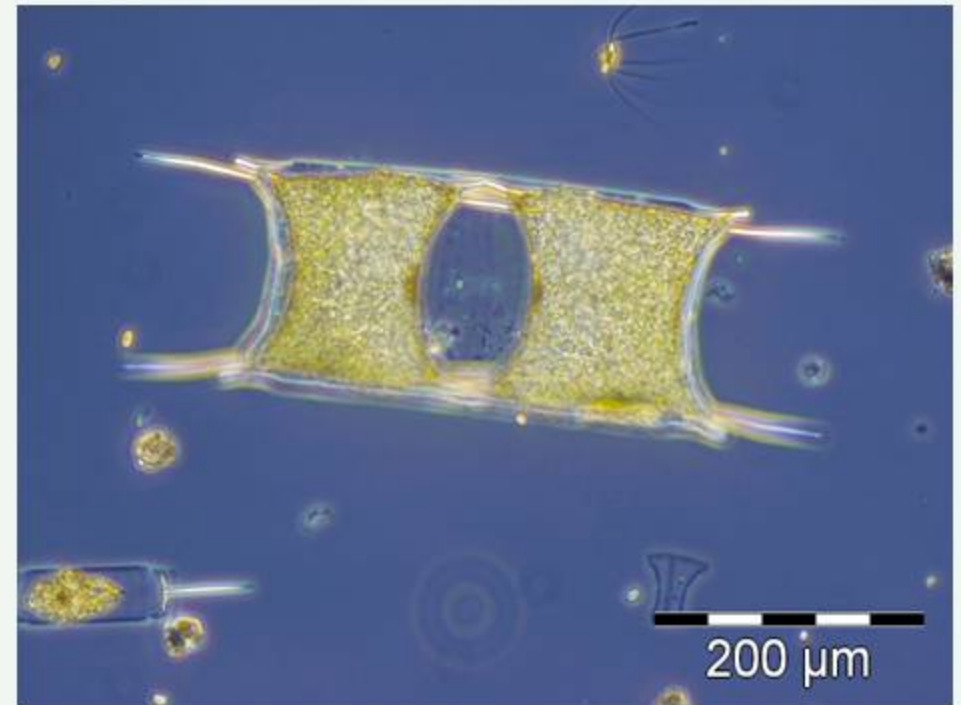
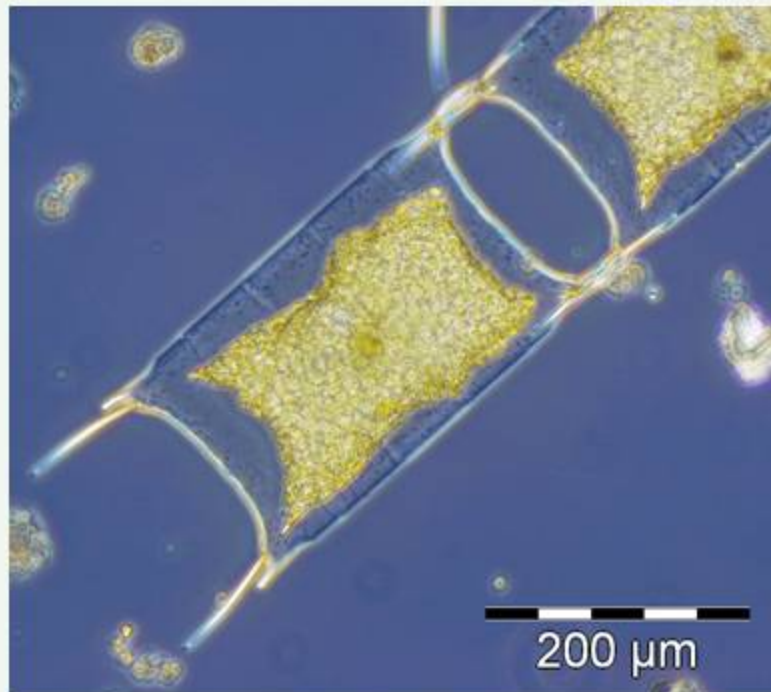
# phytoplankton - bacillariophyceae

## *Odontella sinensis*

abundance: summer, autumn

life-form: in chains

apical length: 80-440µm

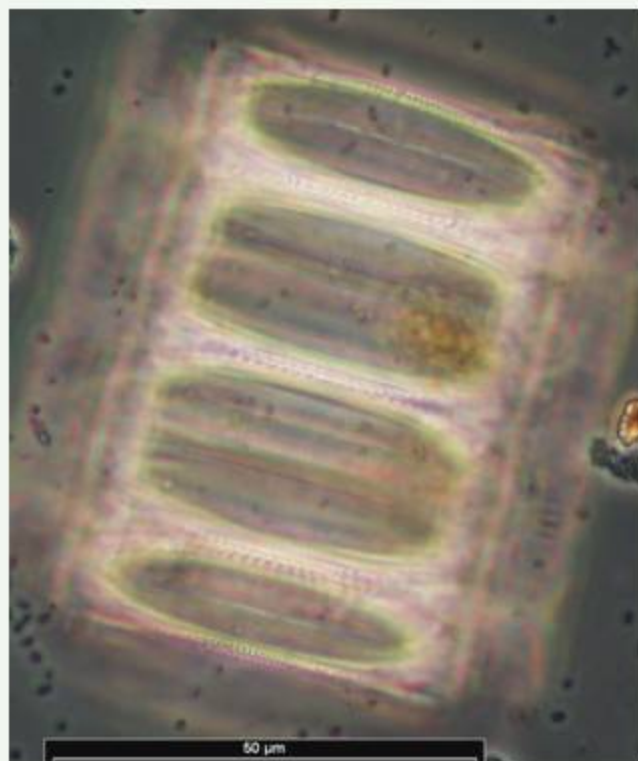


LM, (North Sea, AMRU2)

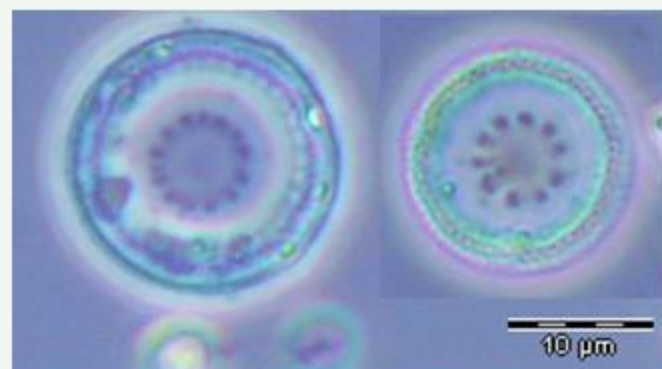
# phytoplankton – bacillariophyceae

## Paralia sulcata

abundance: spring  
life-form: in chains  
diameter: 10-80µm



LM (coastal station Heiligendamm)

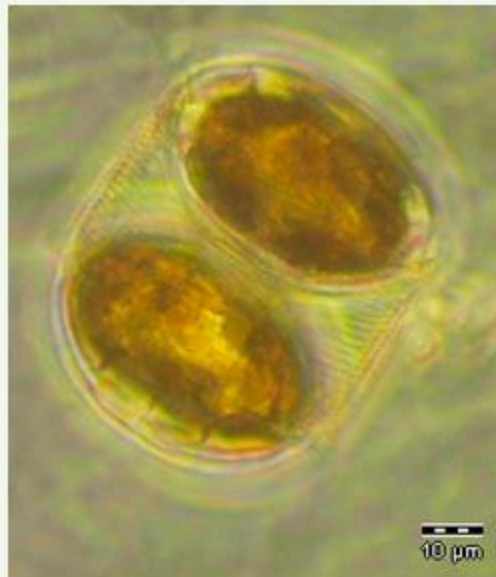


LM (North Sea, NGW8 ) cleaned material

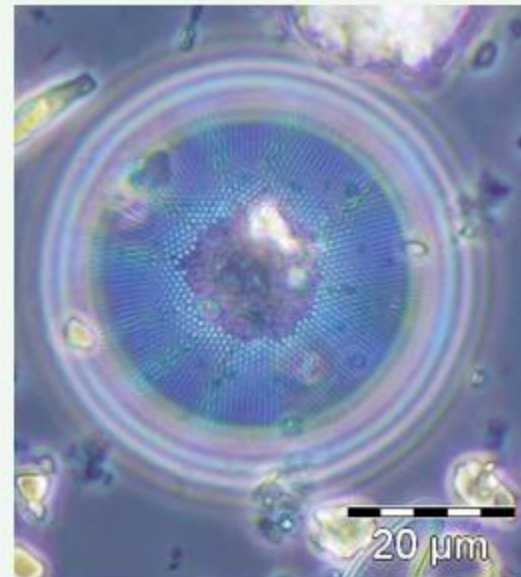
# phytoplankton - bacillariophyceae

## *Podosira stelliger*

abundance: occasional abundant  
life-form: single cells or in pairs  
diameter: 30 - 125  $\mu\text{m}$



LM (North Sea, ES1)



LM (North Sea, NGW8)  
cleaned material

phytoplankton - bacillariophyceae

## Porosira glacialis

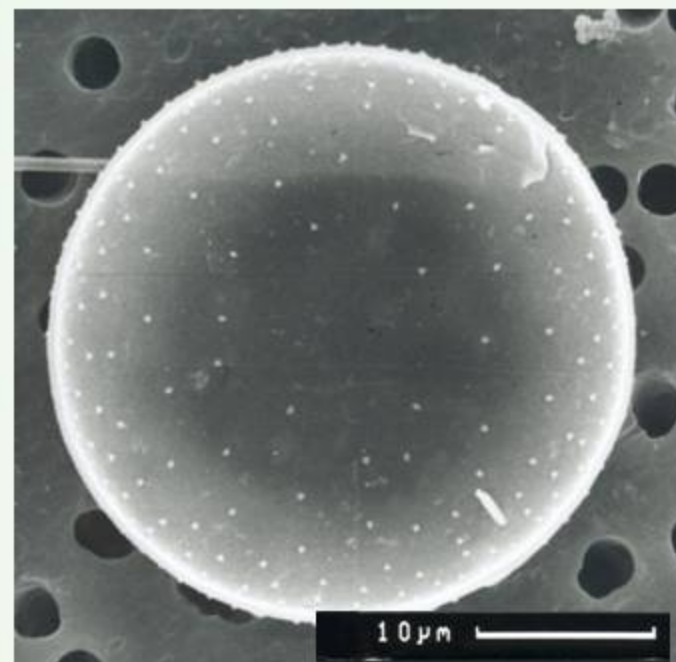
abundance: winter, spring  
life-form: in chains  
diameter: 30 - 70  $\mu\text{m}$



LM (coastal station Heiligendamm)



LM (coastal station Heiligendamm)



REM (Kiel Bight)

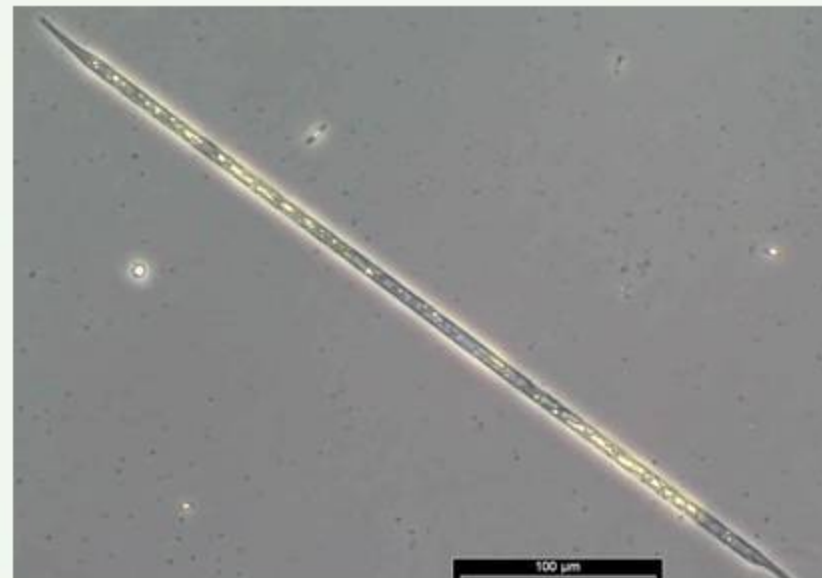
# phytoplankton - bacillariophyceae

## **Proboscia alata**

abundance: spring, summer

life-form: in chains or solitary

diameter: 3,5 - 10 $\mu$ m



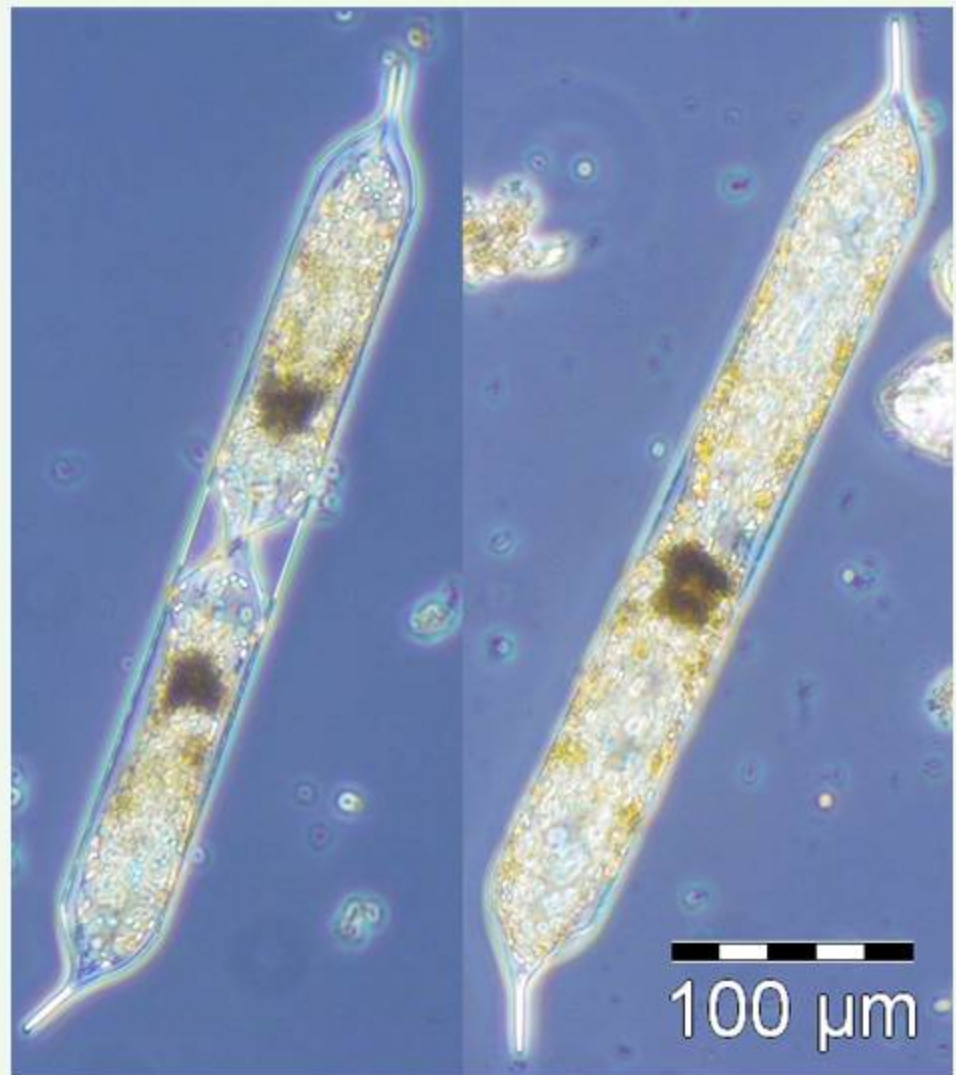
LM (coastal station Heiligendamm)



# phytoplankton - bacillariophyceae

## *Proboscia indica*

abundance: summer, autumn  
life-form: solitary or in chains  
diameter: 20 - 70  $\mu\text{m}$



LM (North Sea, AMRU<sub>2</sub>)

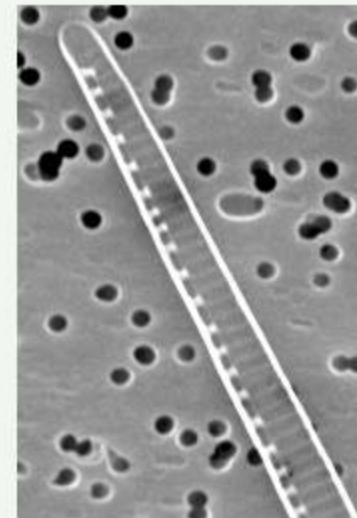
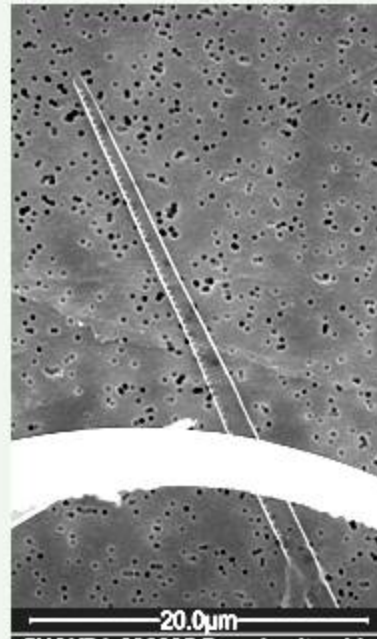
# phytoplankton - bacillariophyceae

## *Pseudo-nitzschia delicatissima*

abundance: spring to autumn  
life-form: solitary or in chains  
length: 19 - 80  $\mu\text{m}$   
width: 1,5 - 2,0  $\mu\text{m}$   
cell overlap: one ninth of cell length



LM (North Sea, SWWBA )



REM (North Sea, SWWBA )

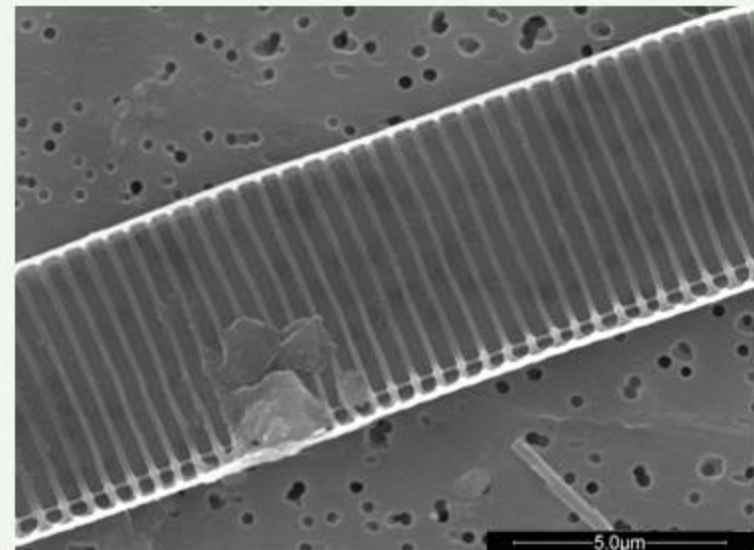
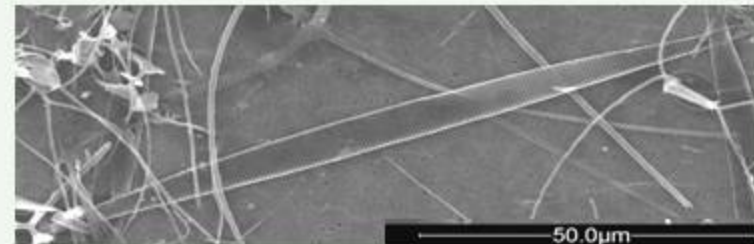
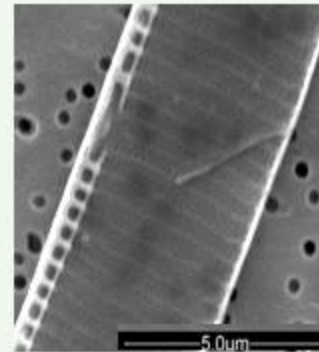
# phytoplankton - bacillariophyceae

## *Pseudo-nitzschia fraudulenta*

abundance: spring, early summer  
life-form: in chains  
length: 50 - 119  $\mu\text{m}$   
width: 4,5 - 10  $\mu\text{m}$   
cell overlap: very short



LM (North Sea, SWWBA )



REM (North Sea, SWWBA )

phytoplankton - bacillariophyceae

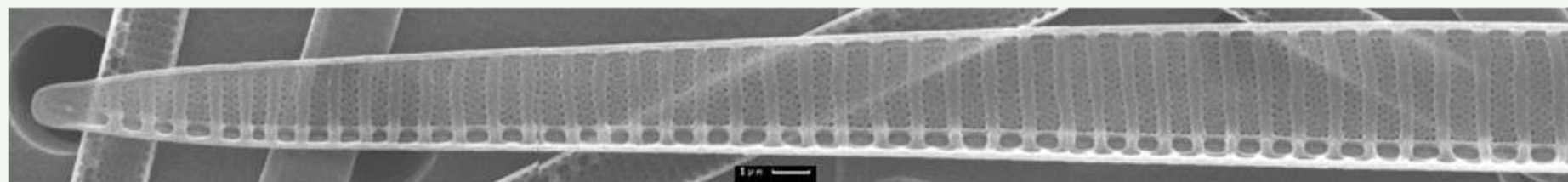
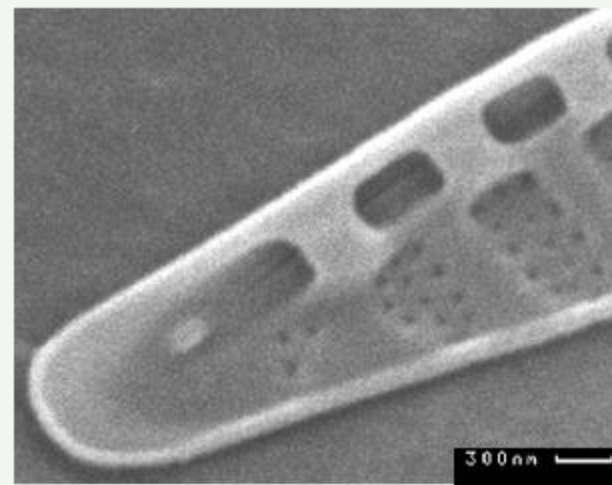
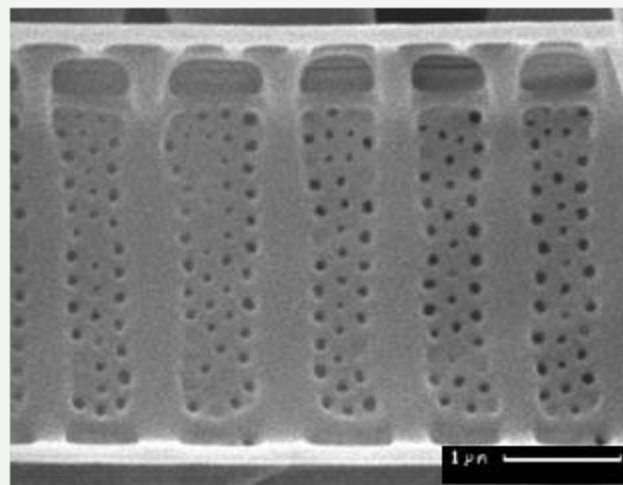
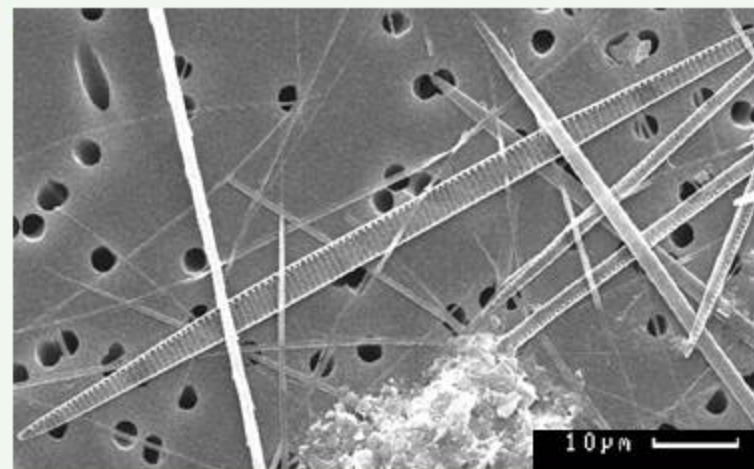
## Pseudo-nitzschia multiseriata

abundance: late summer, autumn

life-form: solitary or in chains

length: 70 - 140  $\mu\text{m}$

width: 3,4 - 5  $\mu\text{m}$

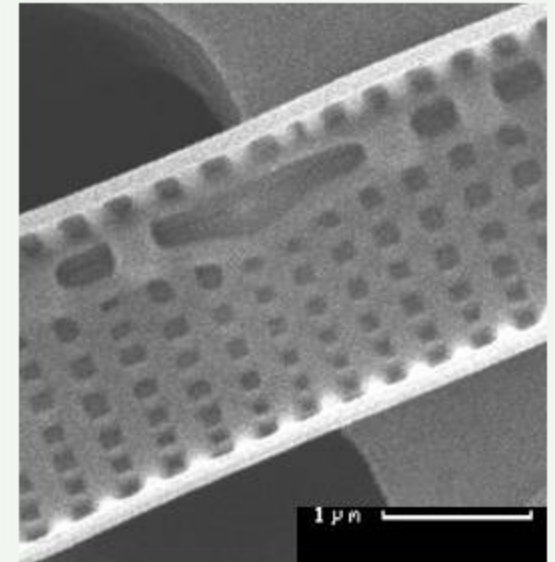


REM (coastal station Heiligendamm)

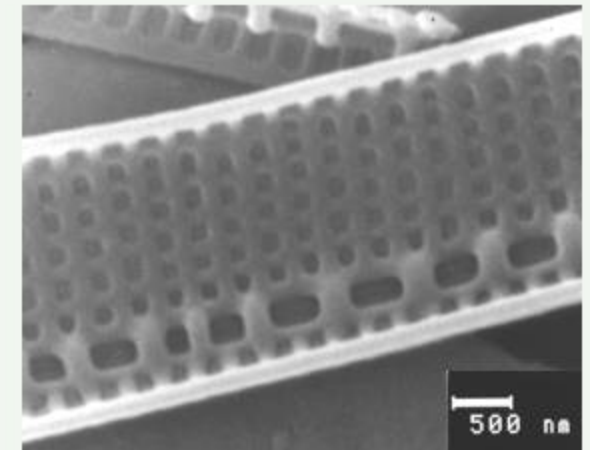
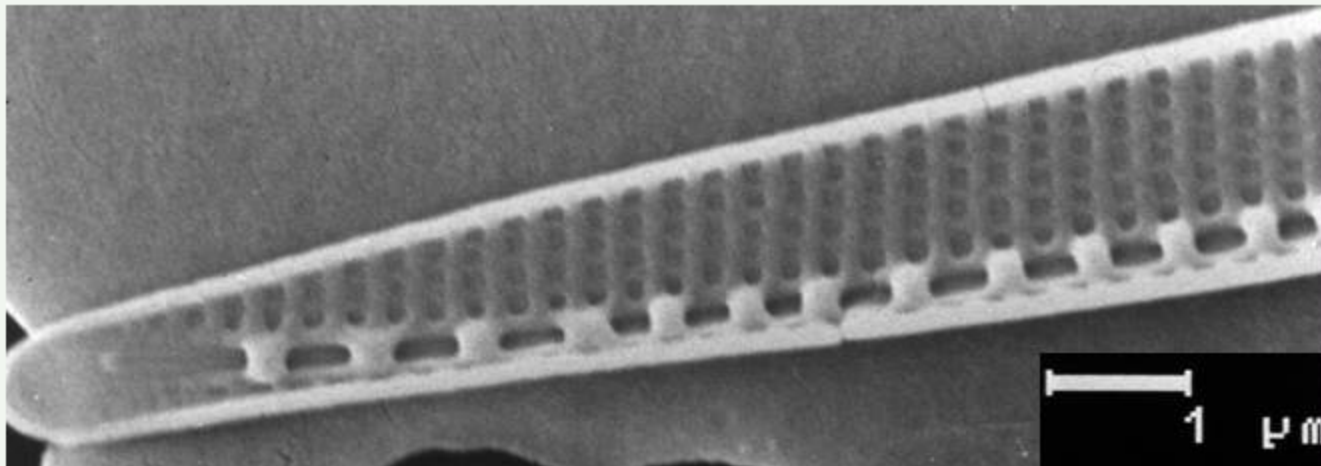
phytoplankton - bacillariophyceae

## Pseudo-nitzschia pseudodelicatissima

abundance: late summer, autumn  
life-form: solitary or in chains  
length: 80 - 110  $\mu\text{m}$   
width: 1,5 - 2.5  $\mu\text{m}$



REM (coastal station Heiligendamm)  
central nodule



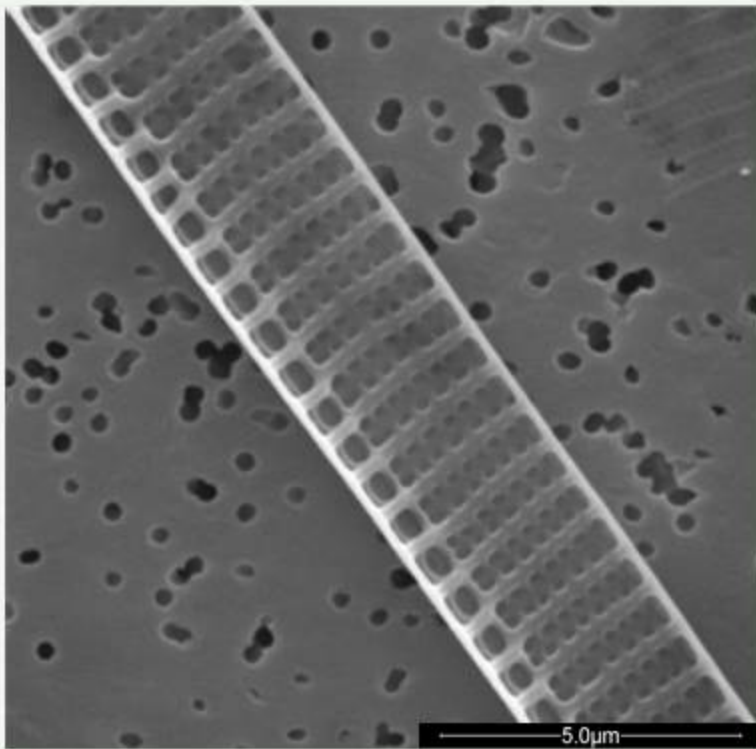
REM (Kiel Bight)

# phytoplankton - bacillariophyceae

## Pseudo-nitzschia pungens



abundance: spring to autumn  
life-form: solitary or in chains  
length: 70 - 140  $\mu\text{m}$   
width: 2,5 - 4,5  $\mu\text{m}$   
cell overlap: one third or more of cell length



REM (North Sea, SWWBA)



LM (North Sea, SWWBA)



LM (coastal station  
Heiligendamm)

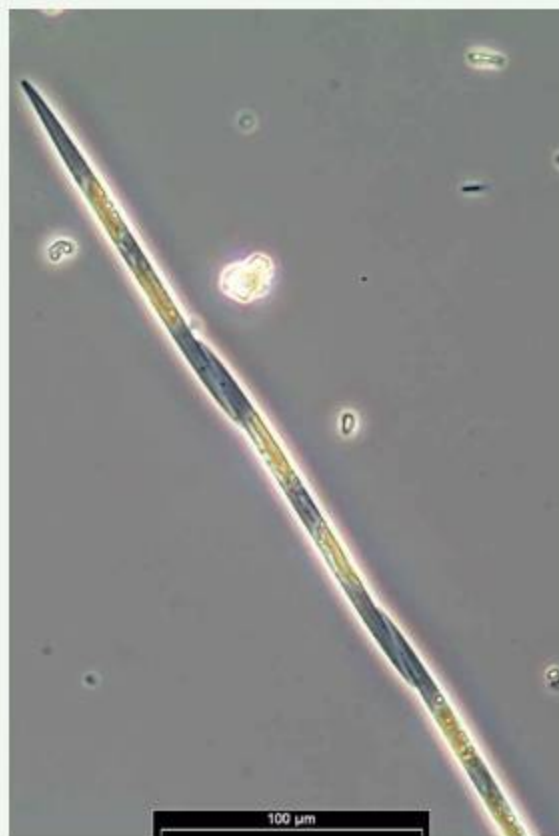


LM (North Sea, HELGO) cleaned material

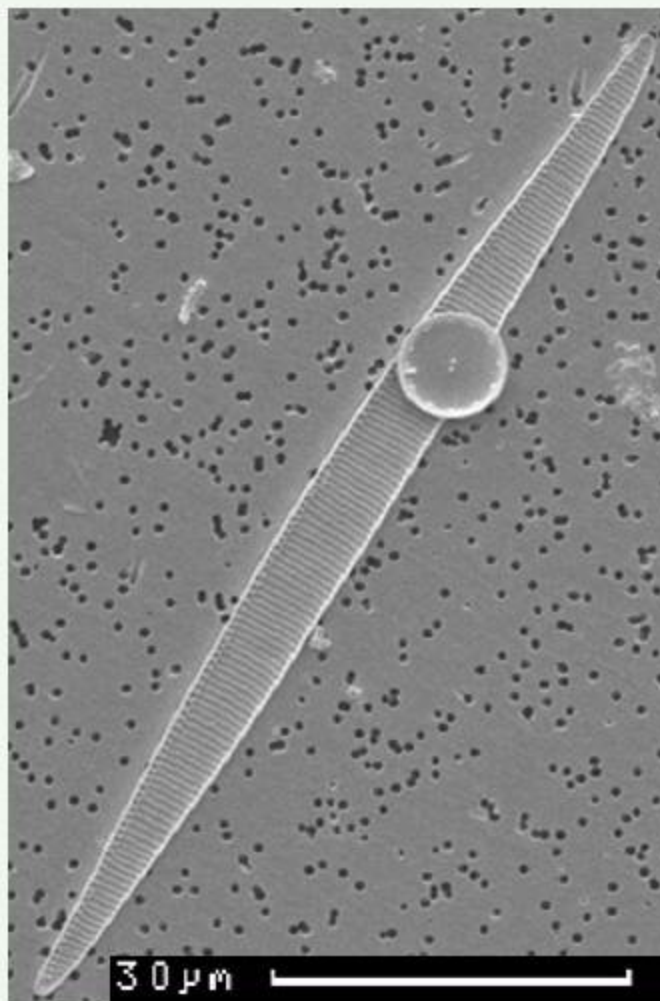
# phytoplankton - bacillariophyceae

## *Pseudo-nitzschia seriata*

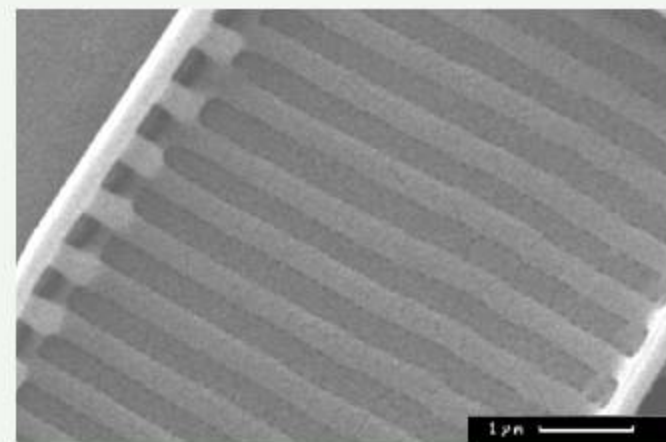
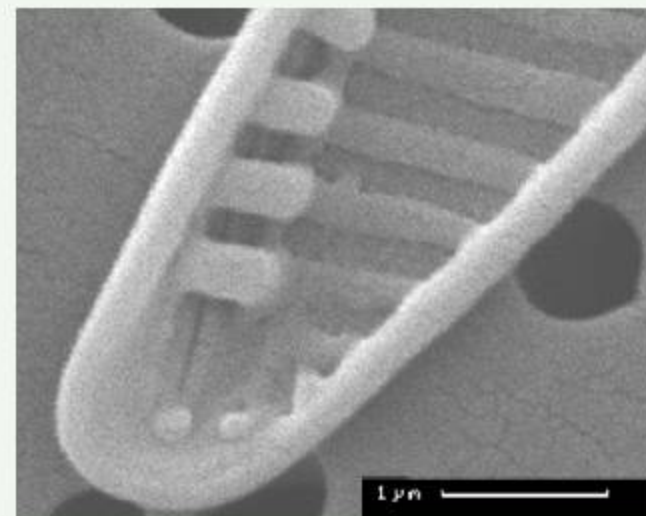
abundance: winter, spring  
life-form: in chains  
length: 90 - 160  $\mu\text{m}$   
width: 5,5 - 8  $\mu\text{m}$



LM (coastal station Heiligendamm)



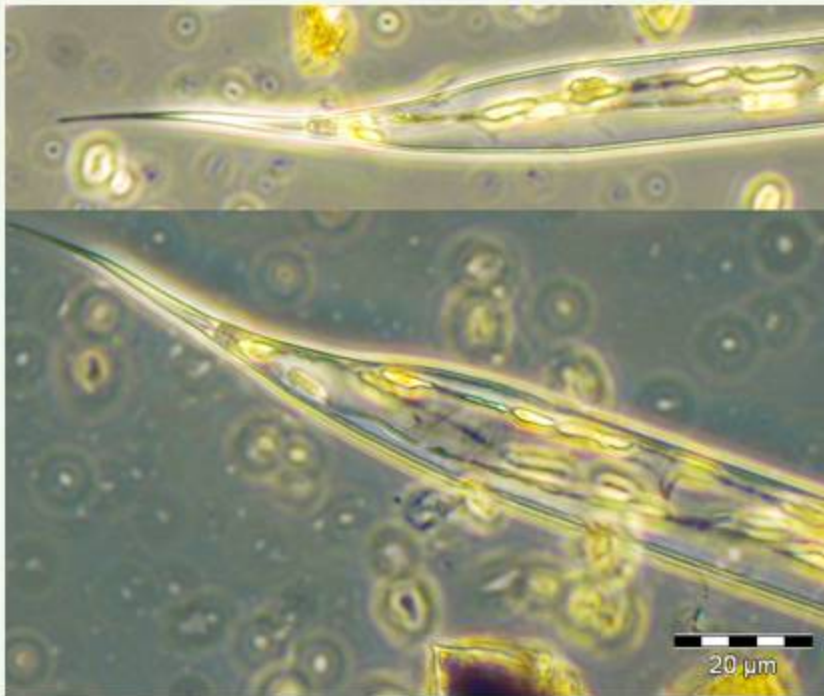
REM (coastal station Heiligendamm)



# phytoplankton - bacillariophyceae

## *Pseudosolenia calcar-avis*

abundance: summer, autumn  
life-form: solitary  
diameter: 5 - 190  $\mu\text{m}$



LM (coastal station Heiligendamm)



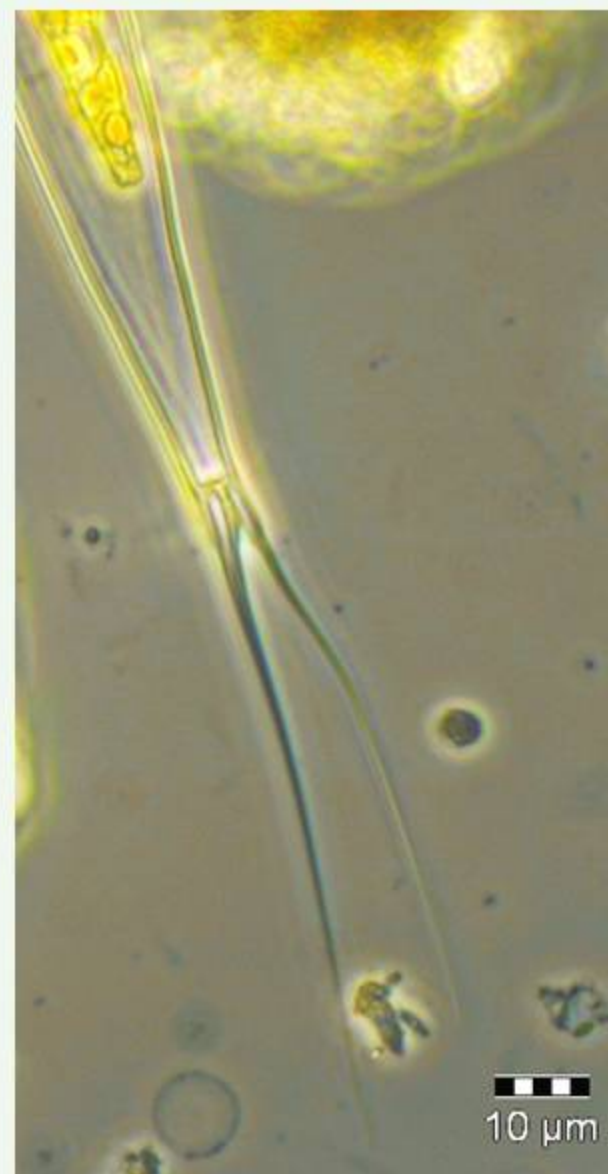
phytoplankton - bacillariophyceae

## **Rhizosolenia antennata f. antennata**

abundance: spring

life-form: solitary

diameter: 18 – 45µm

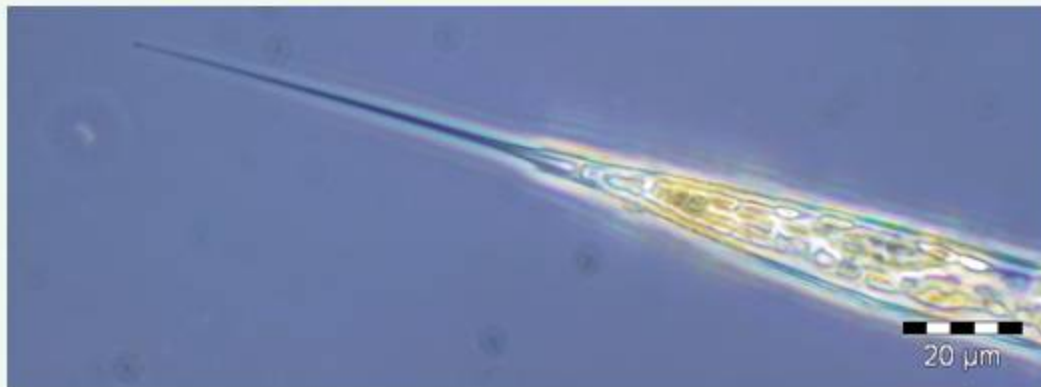
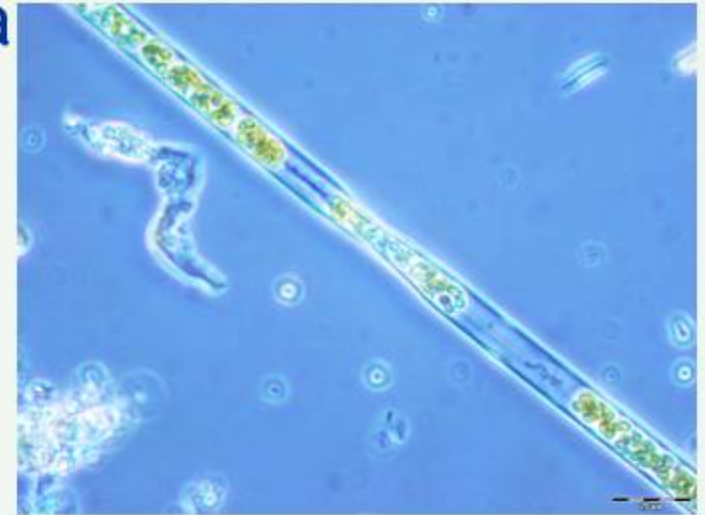


LM (North Sea, NGW8)

# phytoplankton - bacillariophyceae

## *Rhizosolenia hebetata* f. *semispina*

abundance: spring  
life-form: solitary or in pairs  
diameter: 2.5 – 25  $\mu\text{m}$



LM ( North Sea, SYLT1 )

LM ( coastal station Heiligendamm )

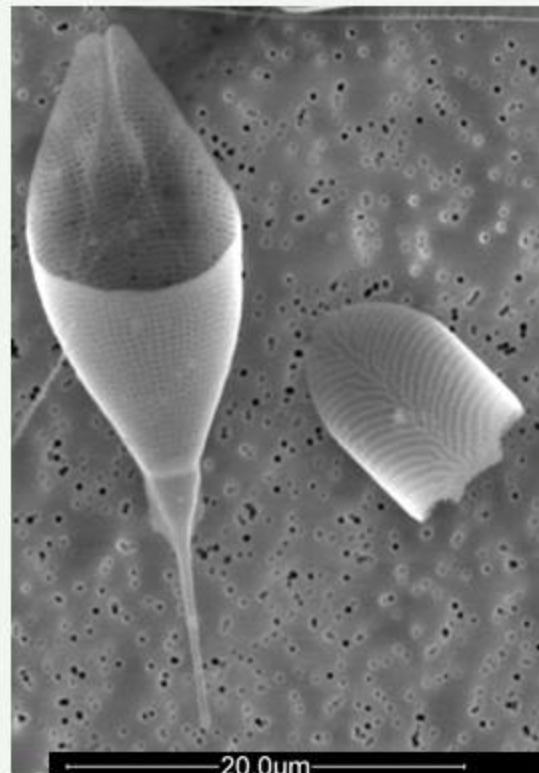
# phytoplankton - bacillariophyceae

## *Rhizosolenia imbricata*

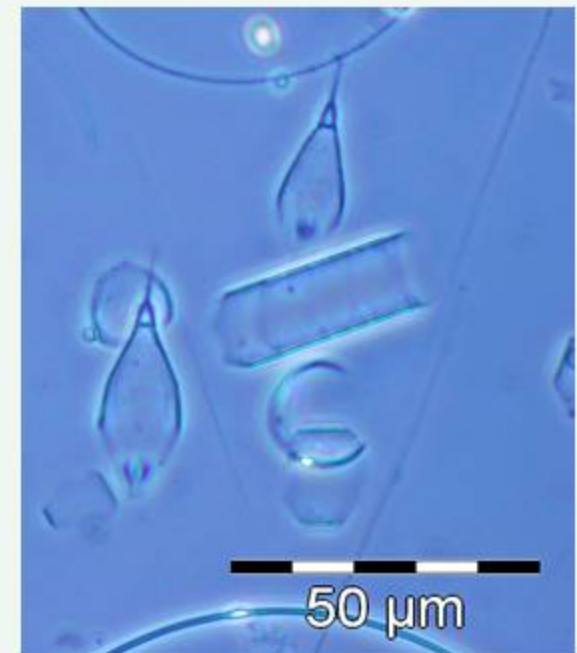
abundance: spring, summer, autumn  
life-form: solitary or in chains  
diameter: 2.5 - 57  $\mu\text{m}$



LM (North Sea, UFSDB)



REM

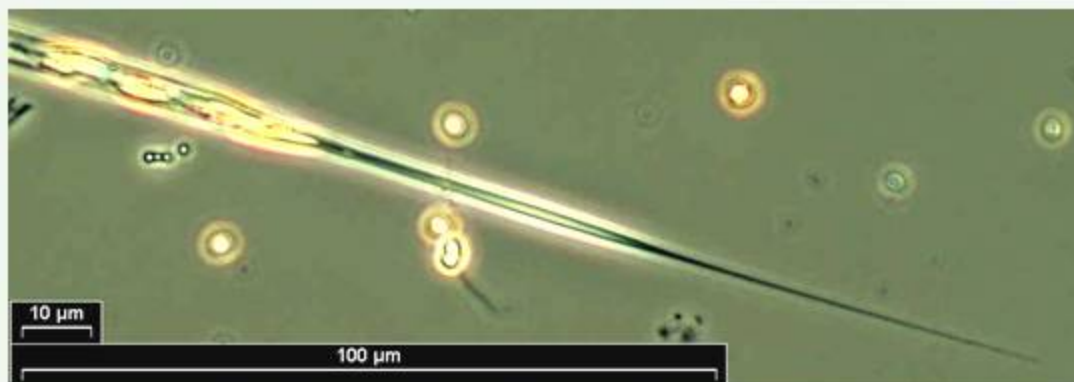


LM cleaned material

phytoplankton – bacillariophyceae

## Rhizosolenia pungens

life-form: solitary  
diameter: 8 – 14  $\mu\text{m}$

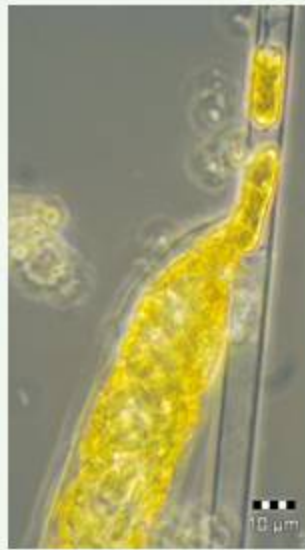


LM ( coastal station Heiligendamm )

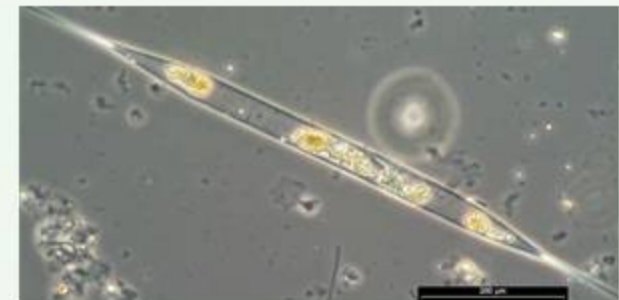
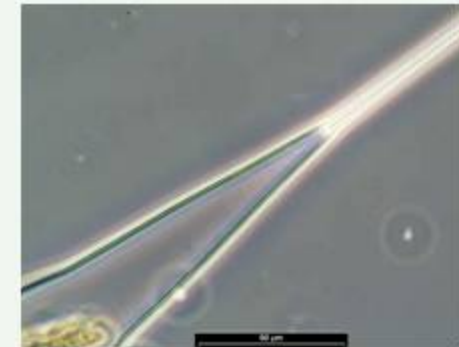
# phytoplankton - bacillariophyceae

## Rhizosolenia setigera

abundance: spring, summer  
life-form: solitary  
diameter: 15 - 50  $\mu\text{m}$



LM (North Sea, SYLT1)



LM (coastal station Heiligendamm)

# phytoplankton - bacillariophyceae

## *Rhizosolenia similoides*

abundance: spring  
life-form: solitary  
diameter: 5-6 $\mu$ m

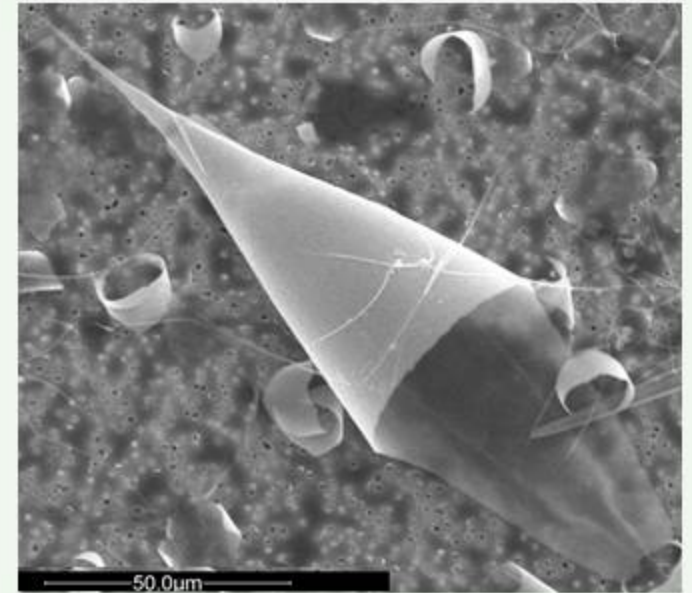


LM (North Sea, HELGO)

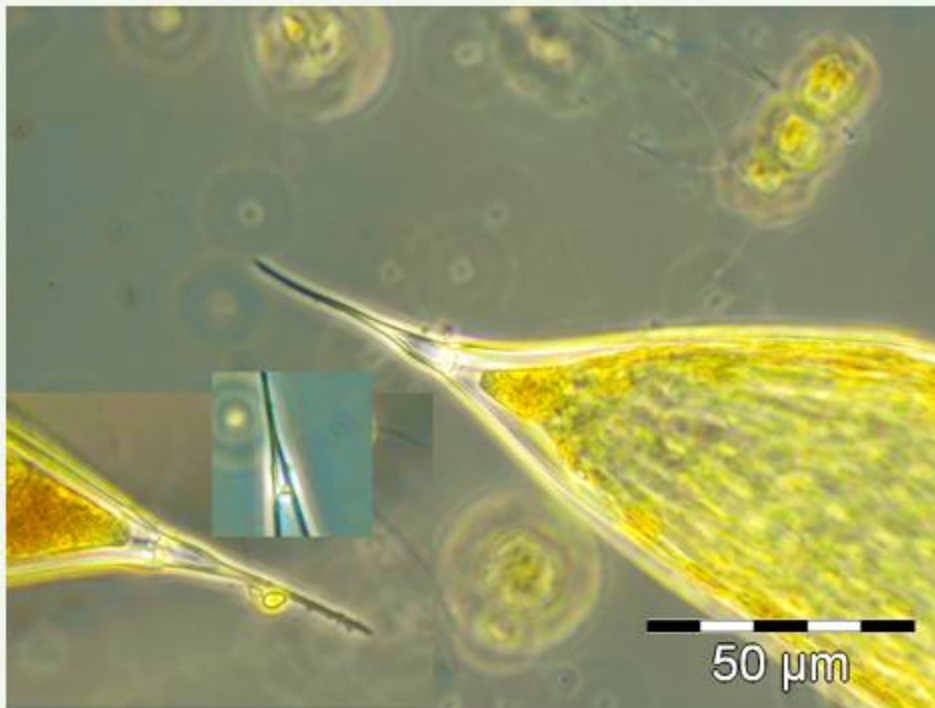
# phytoplankton - bacillariophyceae

## *Rhizosolenia styliformis*

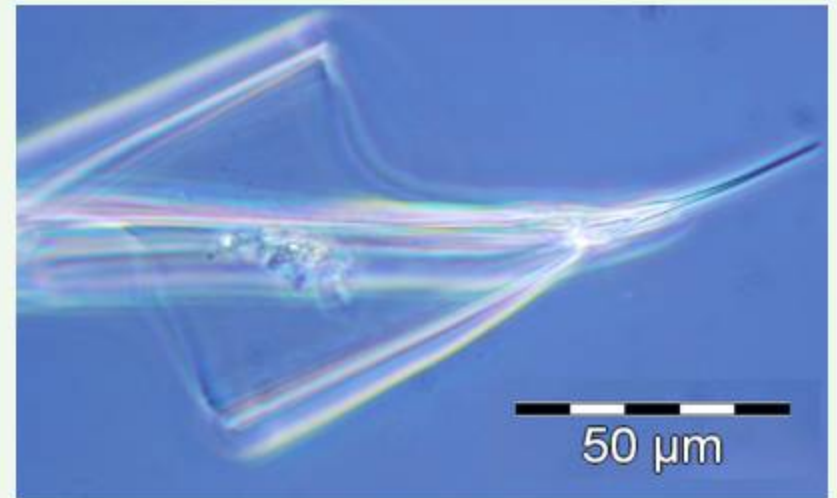
abundance: spring, summer, autumn  
life-form: solitary  
diameter: 23 - 90  $\mu\text{m}$



REM



LM (North Sea, UFSDB)



LM cleaned material

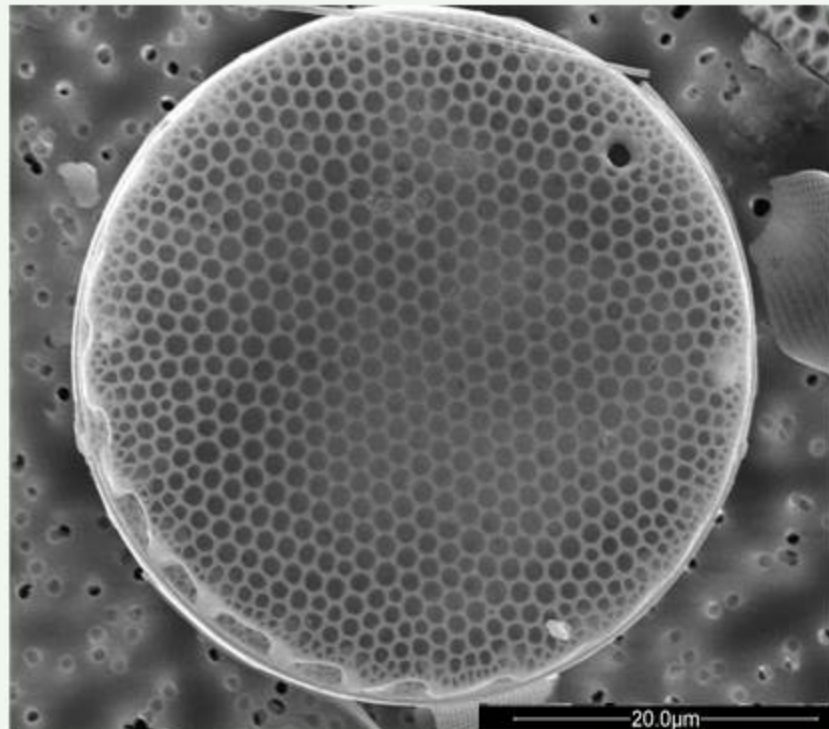
# phytoplankton - bacillariophyceae

## *Roperia tesselata*

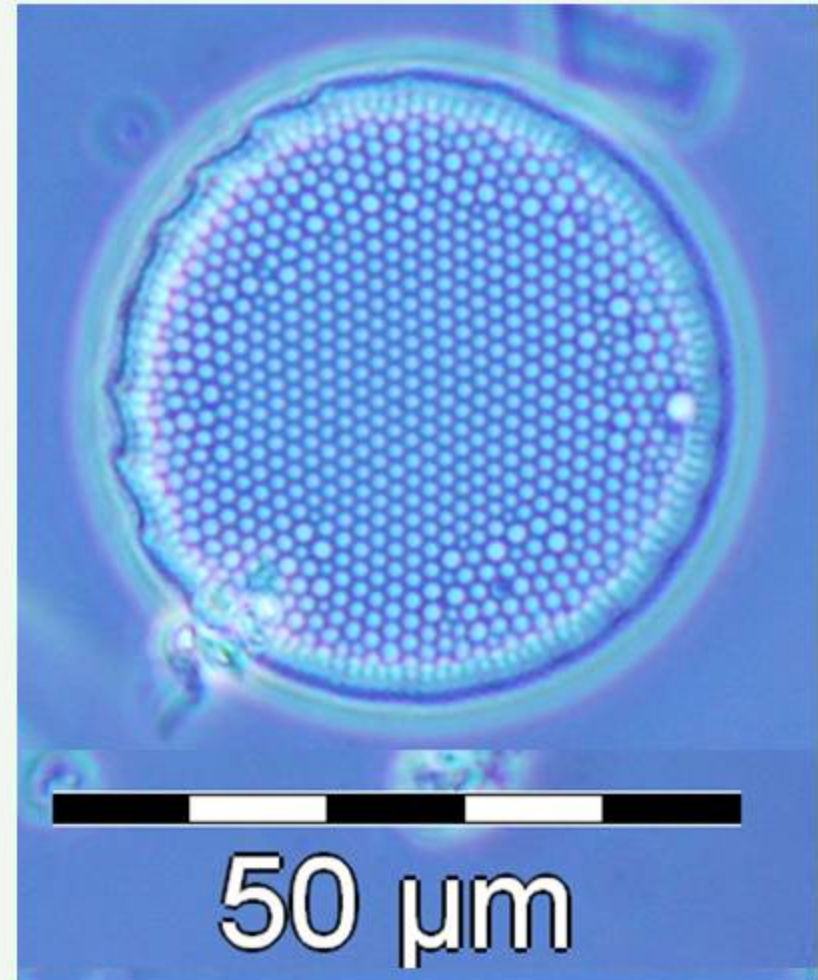
abundance: summer, autumn

life-form: solitary

diameter: 40-70 $\mu$ m



REM (North Sea, NGW8)



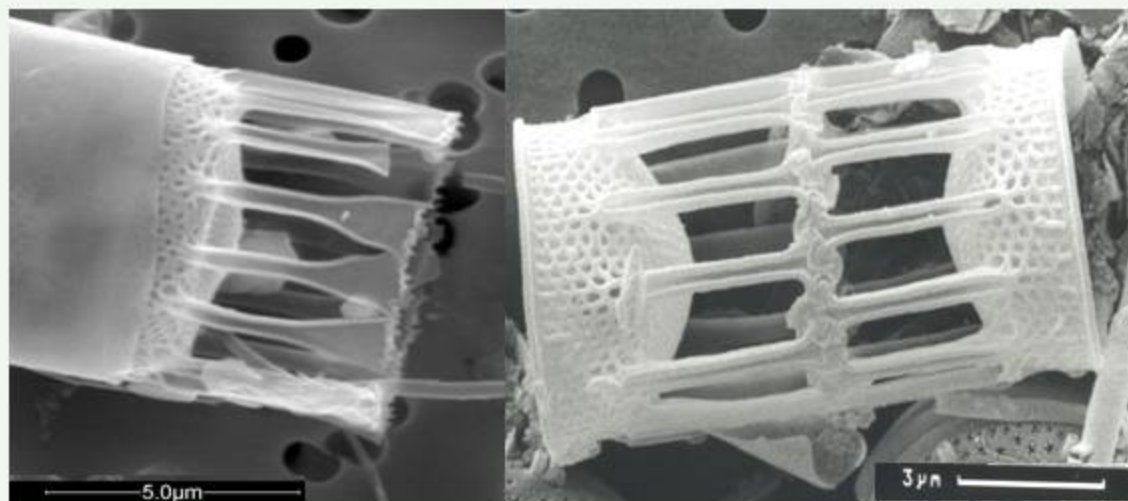
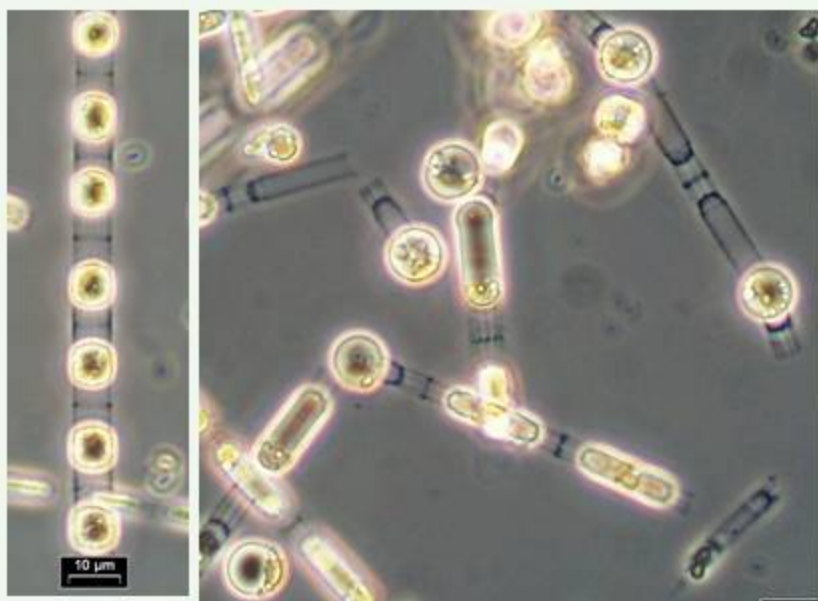
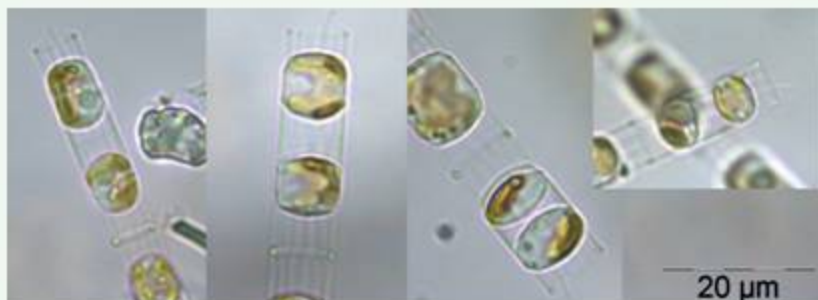
LM cleaned material



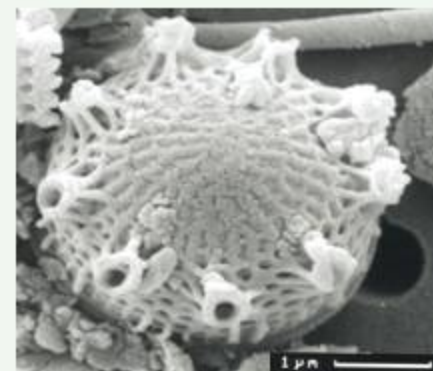
# phytoplankton - bacillariophyceae

## Skeletonema marinoi

abundance: spring, summer, autumn  
life-form: in long chains  
diameter: 2-12  $\mu\text{m}$



(coastal station Heiligendamm)



LM (coastal station Heiligendamm)

REM (Gotland Sea)

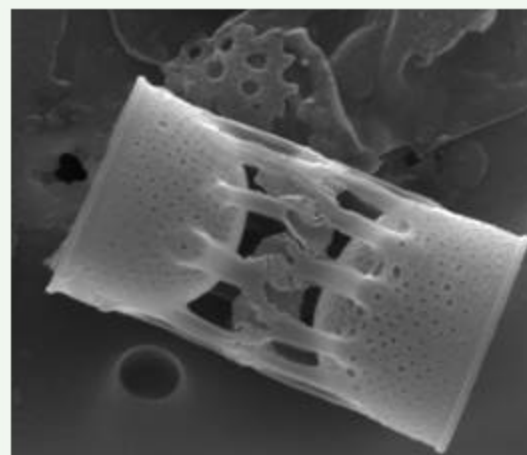
# phytoplankton -bacillariophyceae

## Skeletonema subsalsum

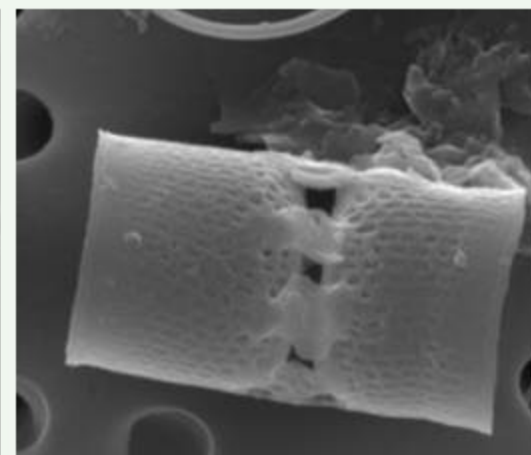
abundance: spring, summer, autumn  
life-form: in long chains  
diameter: 4-8 $\mu$ m



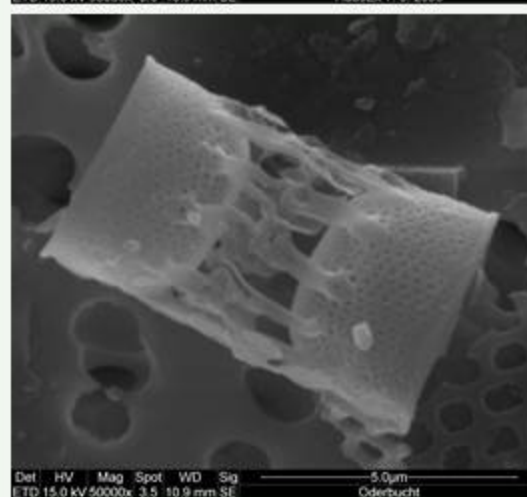
LM (Oder Bight)



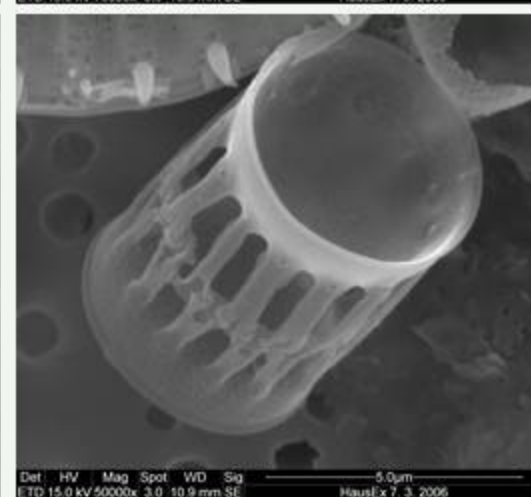
Det HV Mag Spot WD Sig  
ETD 15.0 kV 50000x 3.0 10.9 mm SE  
Haußl x 7.3.2006



Det HV Mag Spot WD Sig  
ETD 15.0 kV 76353x 3.0 10.9 mm SE  
Haußl x 7.3.2006



Det HV Mag Spot WD Sig  
ETD 15.0 kV 50000x 3.5 10.9 mm SE  
Oderbucht



Det HV Mag Spot WD Sig  
ETD 15.0 kV 50000x 3.0 10.9 mm SE  
Haußl x 7.3.2006

REM (Oder Bight)

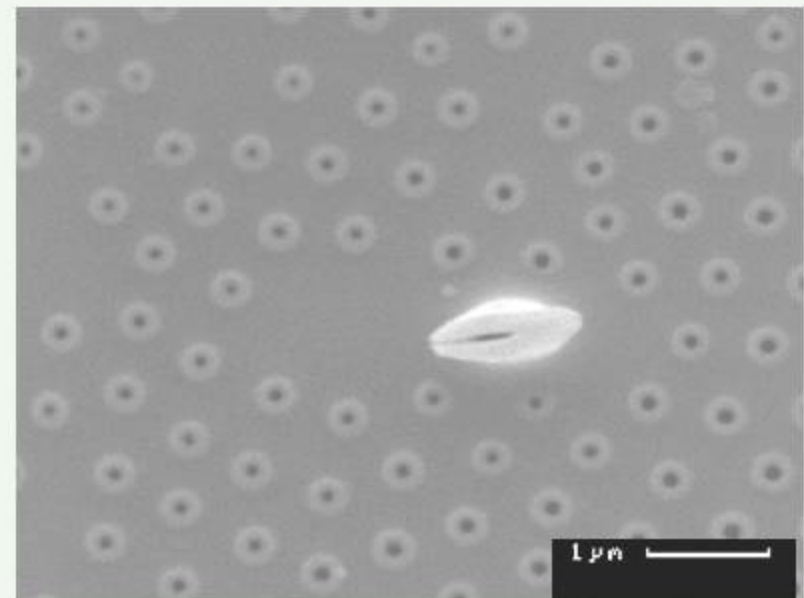
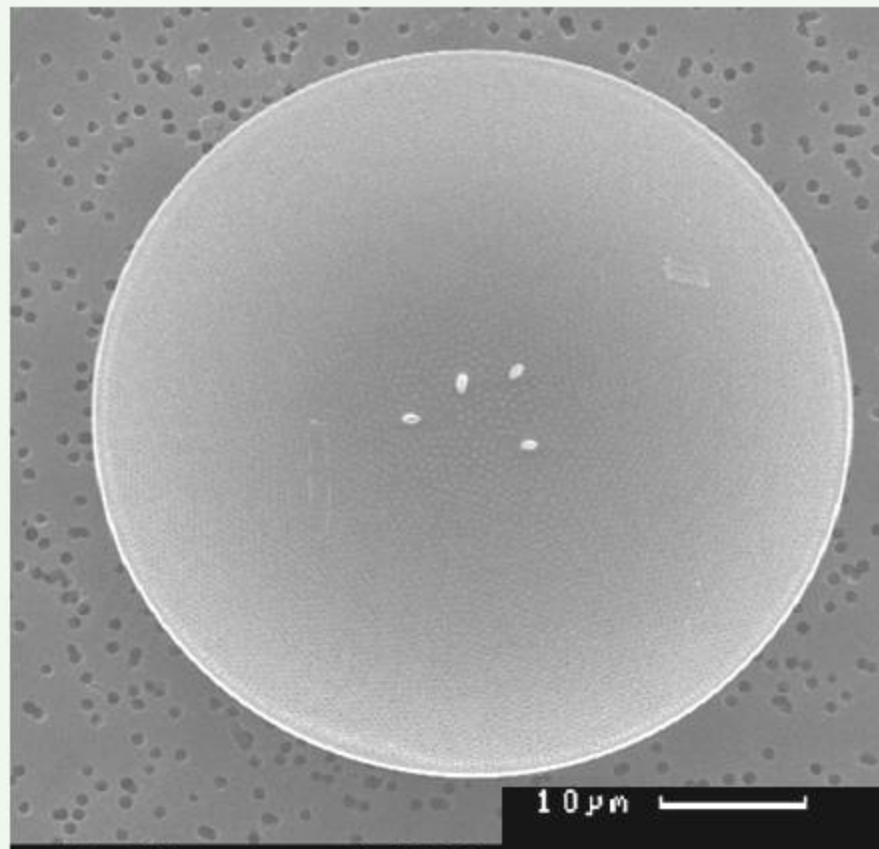
# phytoplankton - bacillariophyceae

## *Stellarima stellaris*

abundance: autumn, winter

life-form: solitary

diameter: 60 – 175  $\mu\text{m}$



REM (coastal station Heiligendamm)

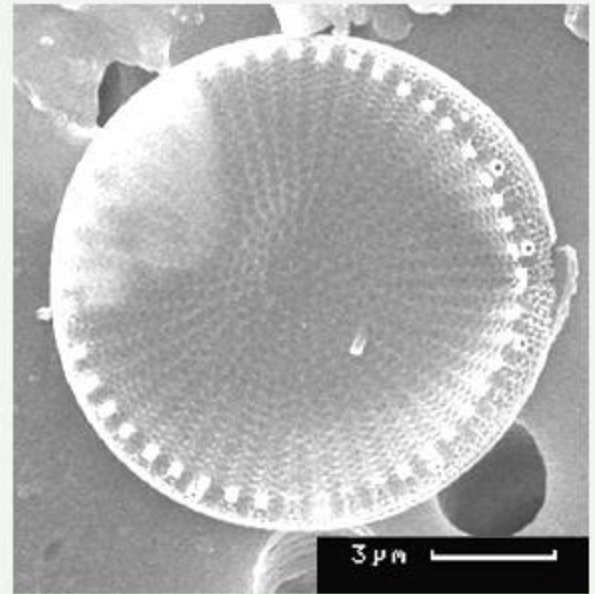
phytoplankton – bacillariophyceae

## Stephanodiscus hantzschii

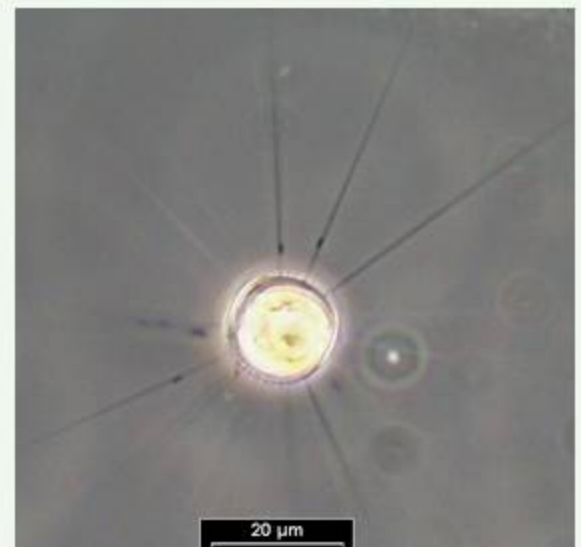
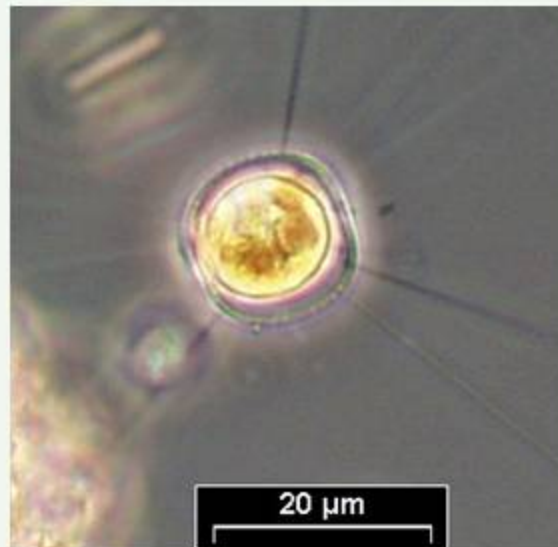
abundance: spring

life-form solitary or in short chains

diameter: 8 - 20  $\mu\text{m}$



REM (coastal station Heiligendamm)



LM (coastal station Heiligendamm)

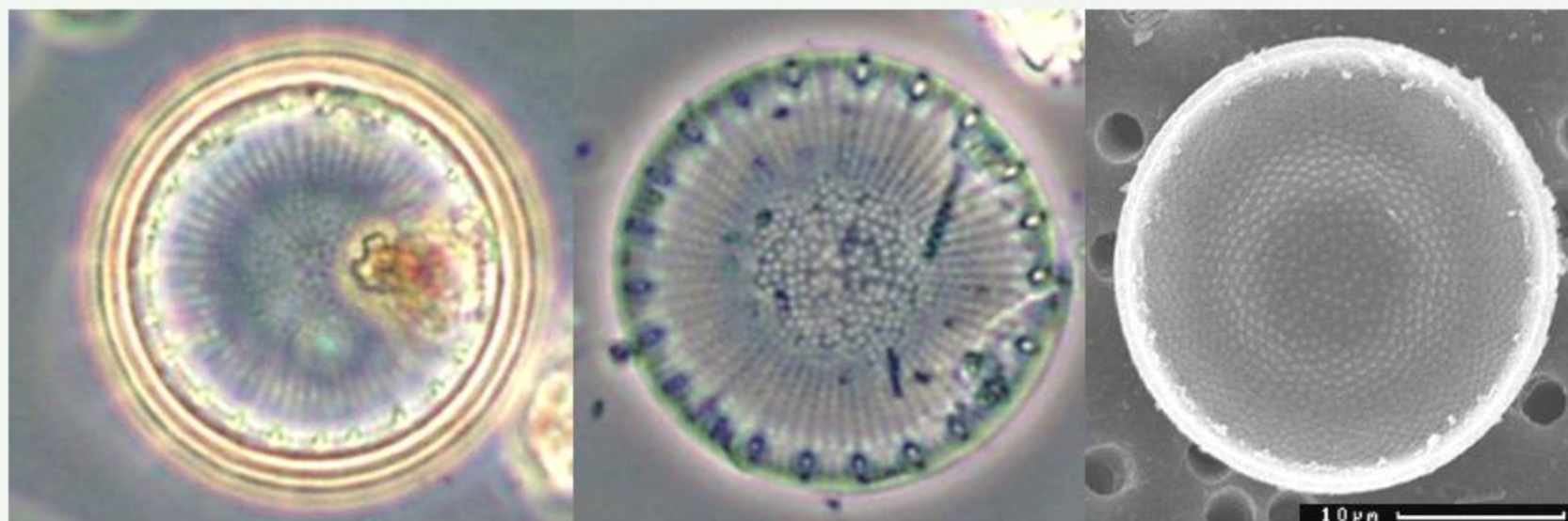
phytoplankton – bacillariophyceae

## Stephanodiscus rotula

abundance: spring

life-form: solitary

diameter: 20-40 $\mu$ m



LM (Gotland Sea, sediment trap)

REM

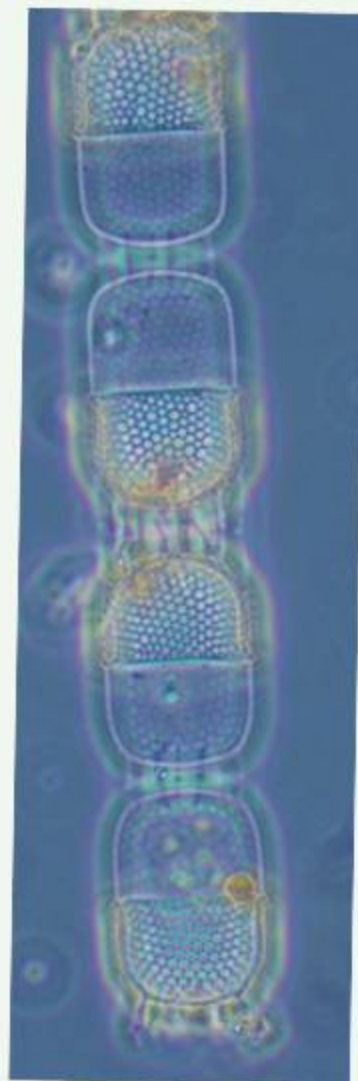
# phytoplankton - bacillariophyceae

## Stephanopyxis turris

abundance: spring, summer, autumn

life-form: solitary

diameter: 10 - 115  $\mu\text{m}$



LM (North Sea, URST3)

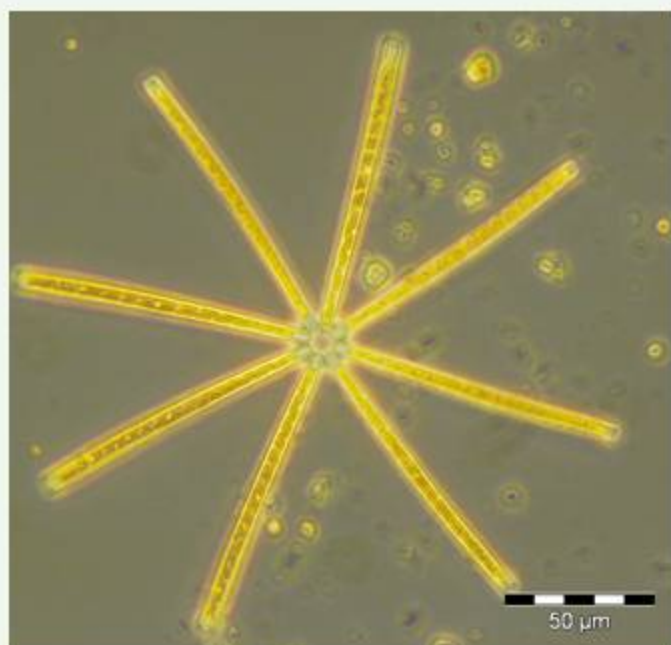
# phytoplankton - bacillariophyceae

## Thalassionema frauenfeldii

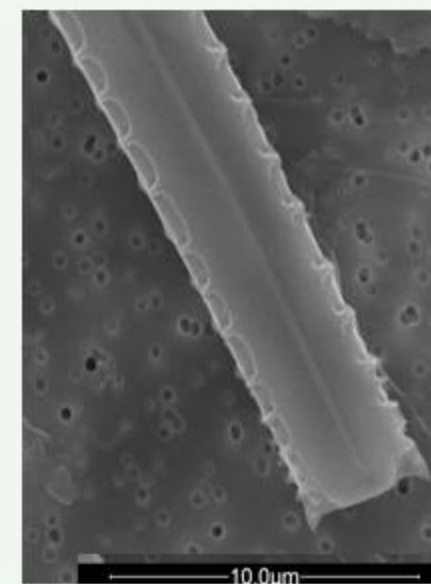
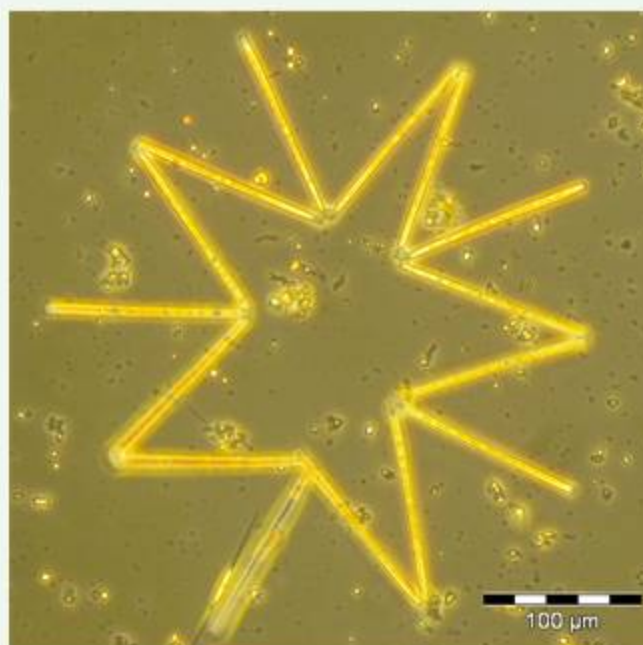
abundance: summer, autumn

life-form: in fan to starshaped colonies

apical axis: 54-200µm



LM (North Sea, UFSDB)

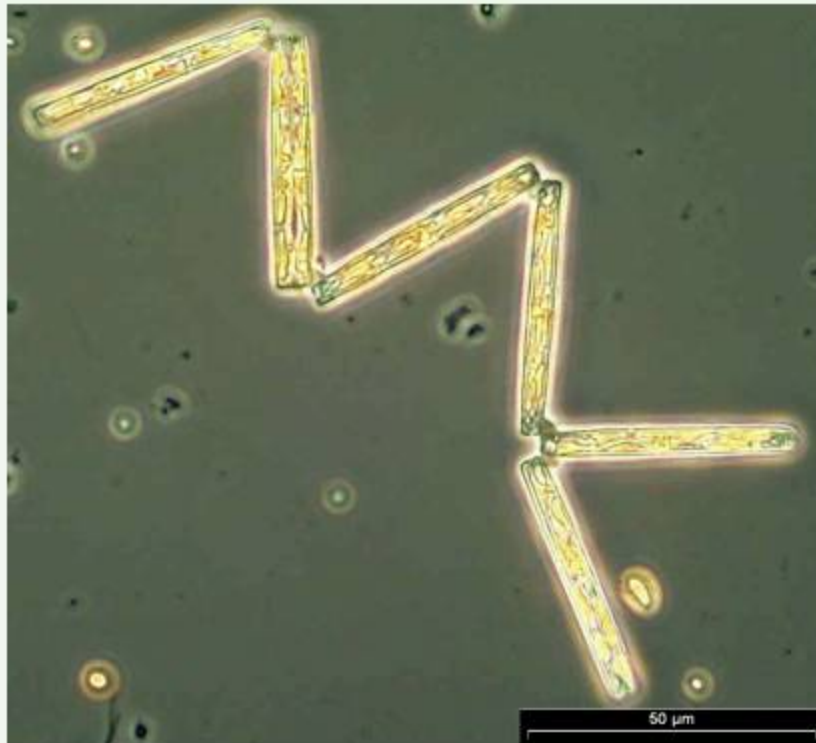


REM (North Sea, UFSDB)

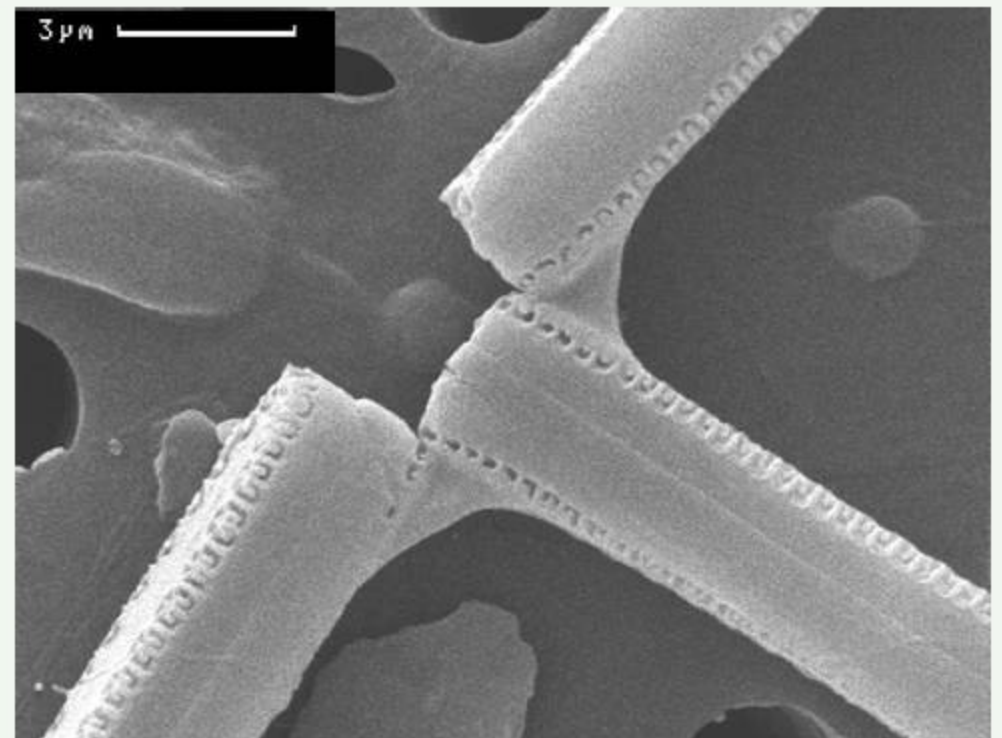
# phytoplankton – bacillariophyceae

## Thalassionema nitzschioides

abundance: spring, autumn  
life-form: solitary or in chains  
cell-length: 10 -110  $\mu\text{m}$   
cell-width: 2 - 3  $\mu\text{m}$



LM (coastal station Heiligendamm)



REM (Gotland Sea, sediment trap)



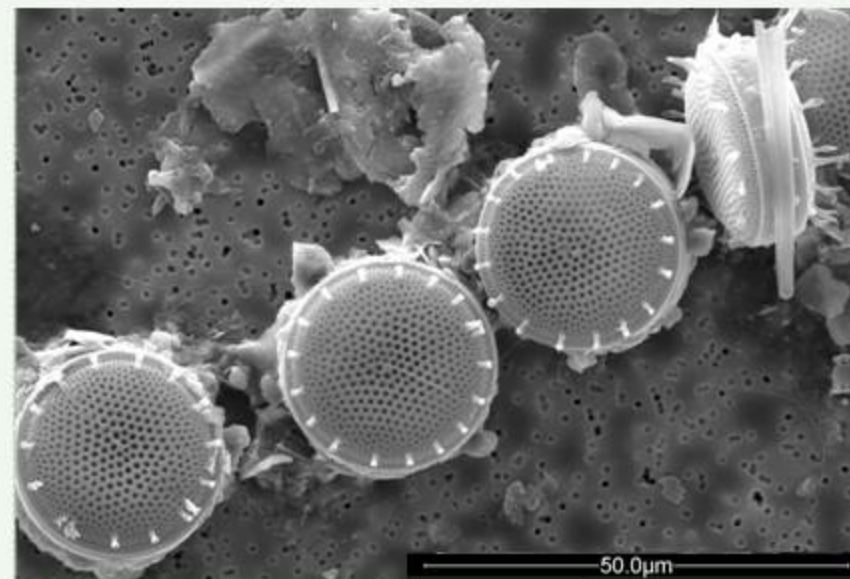
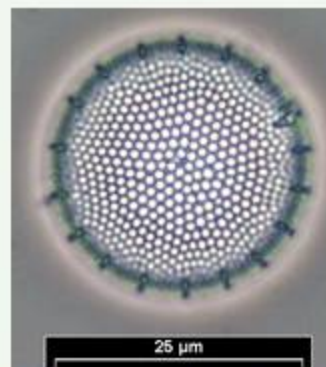
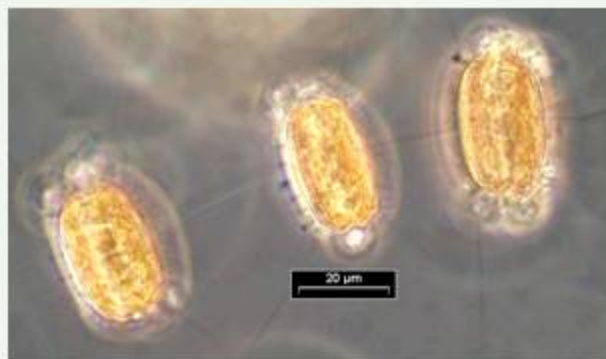
# phytoplankton - bacillariophyceae

## *Thalassiosira angulata*

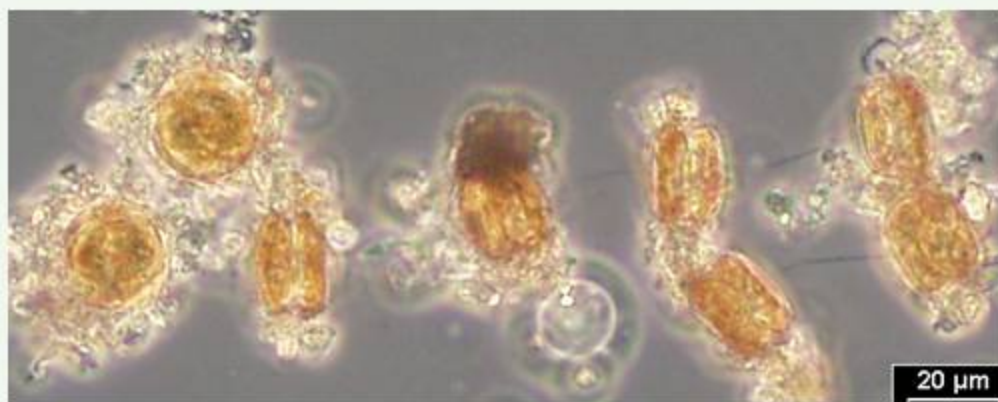
abundance: spring

life-form: in loose chains

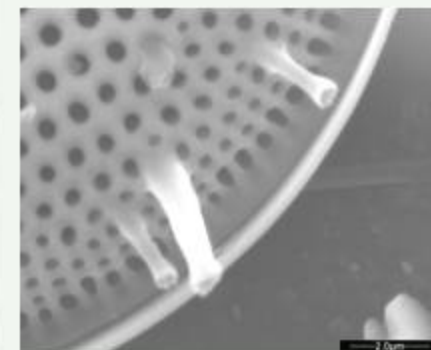
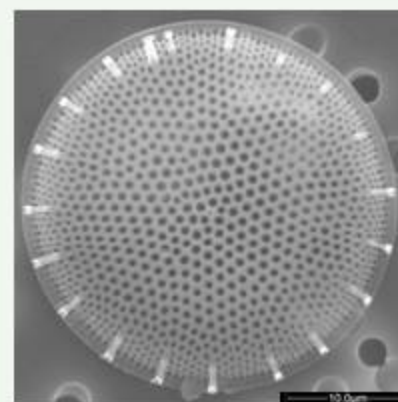
diameter: 12 – 40  $\mu\text{m}$



LM cleaned material



LM (Mecklenburg Bight)



REM (Mecklenburg Bight)

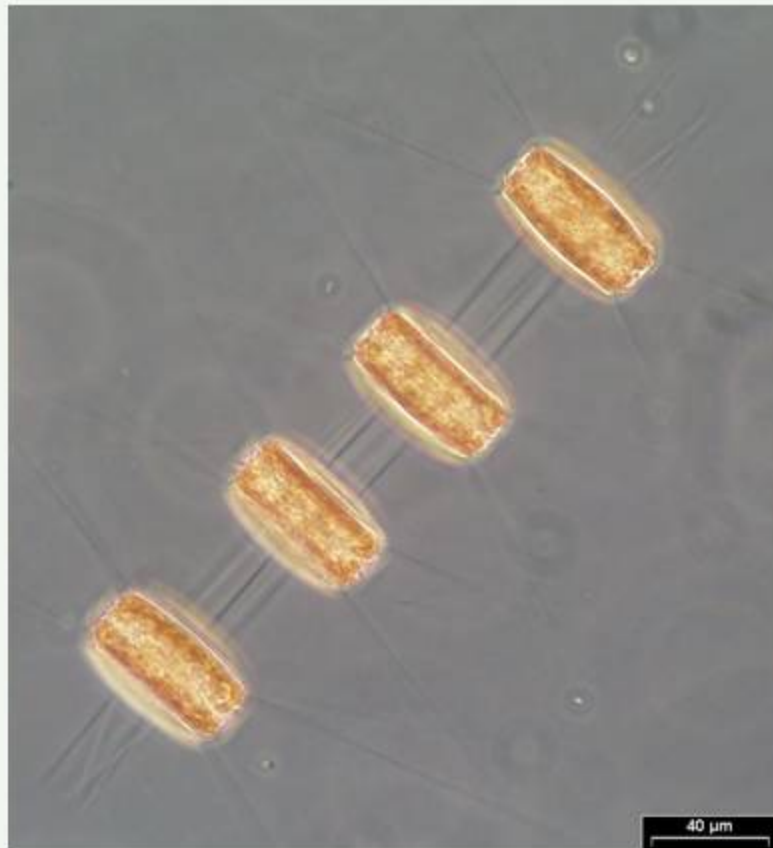
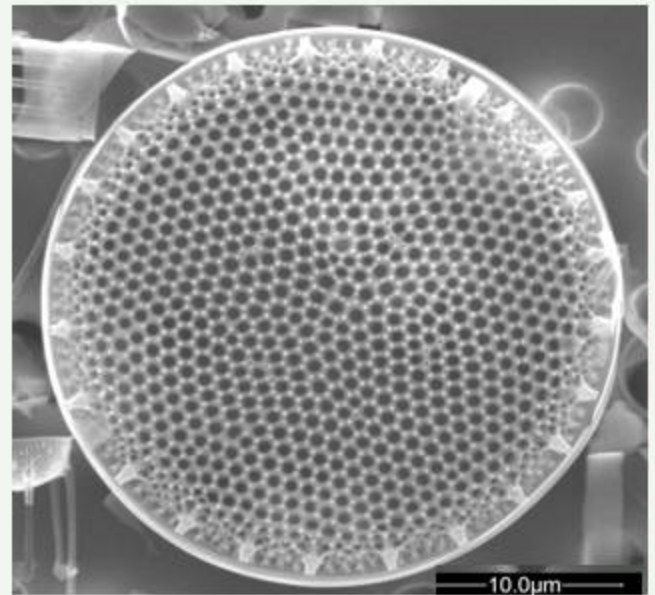
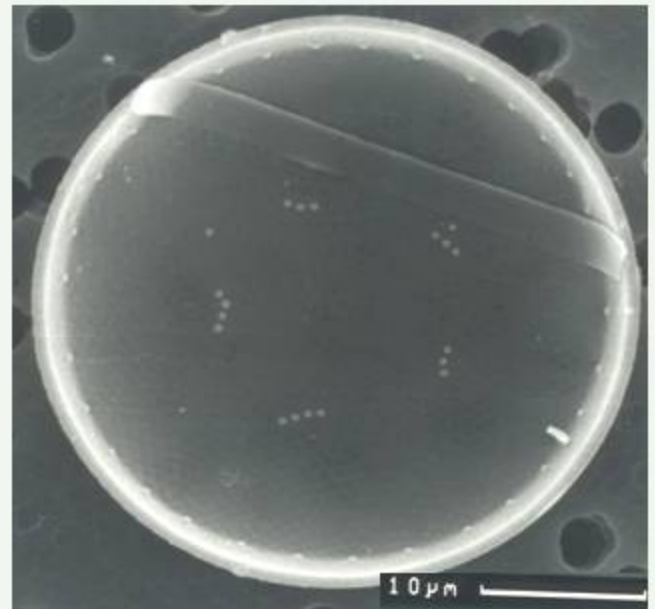
phytoplankton - bacillariophyceae

## Thalassiosira anguste-lineata

abundance: spring

life-form: in loose chains

diameter: 20 - 75  $\mu\text{m}$



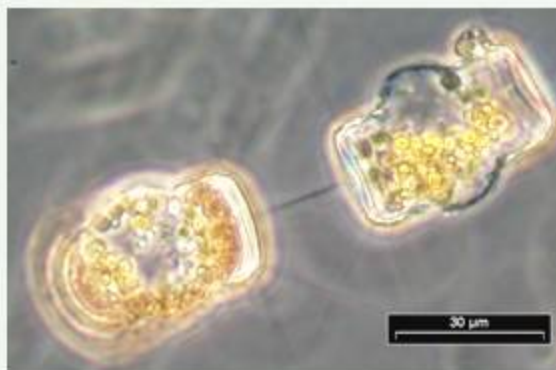
LM (coastal station Heiligendamm)

REM (coastal station Heiligendamm)

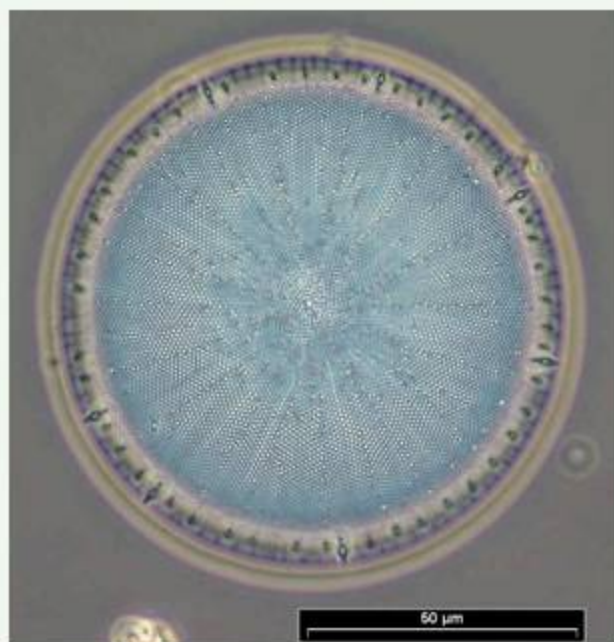
# phytoplankton - bacillariophyceae

## Thalassiosira baltica

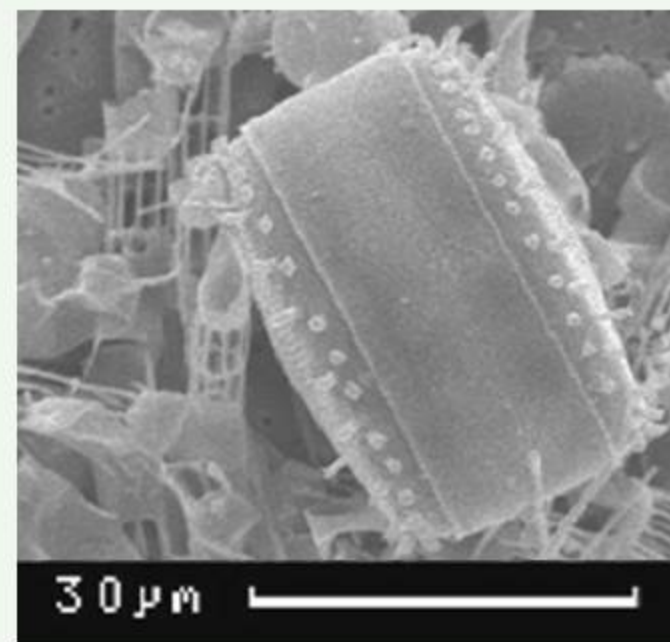
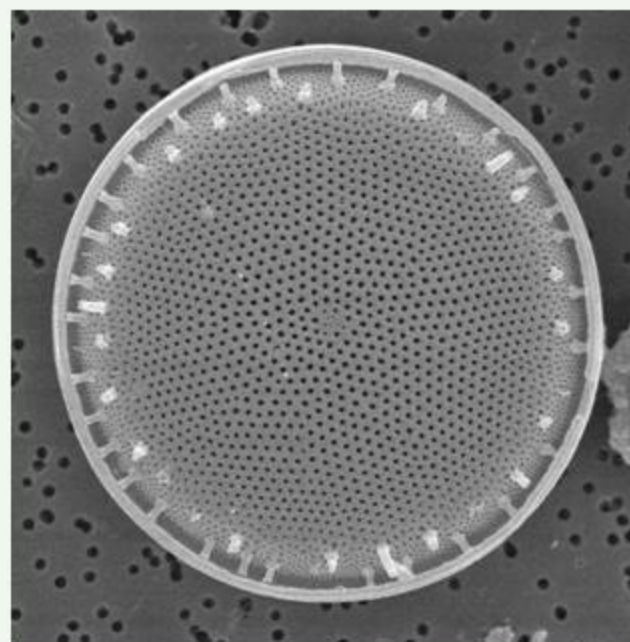
abundance: spring/summer  
life-form: cells in loose chains  
size: 40 - 80µm



LM (North Sea, ES1)



LM (Gotland Sea, sediment trap)



REM (Gotland Sea, sediment trap)

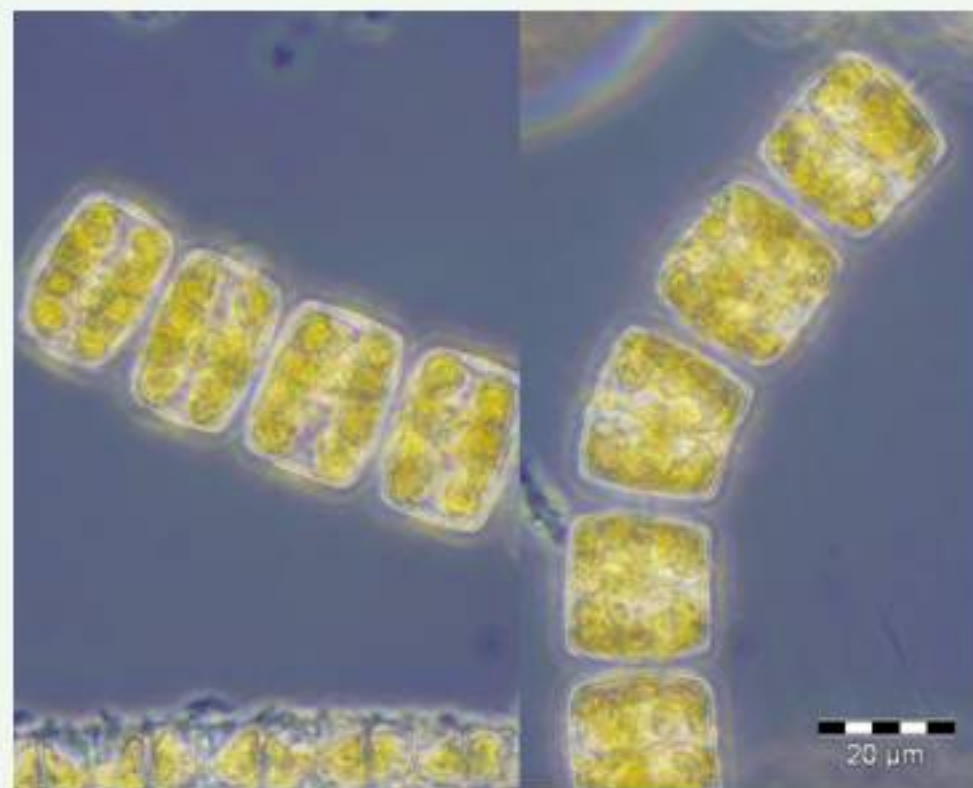
# phytoplankton - bacillariophyceae

## *Thalassiosira constricta*

abundance: spring  
life-form: in chains  
diameter: 12-32  $\mu\text{m}$



LM (North Sea, AMRU2)



LM (North Sea, Sylt1)

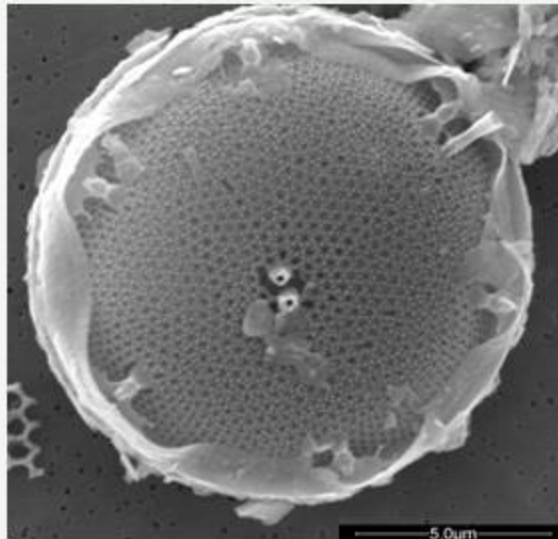
# phytoplankton - bacillariophyceae

## *Thalassiosira curviseriata*

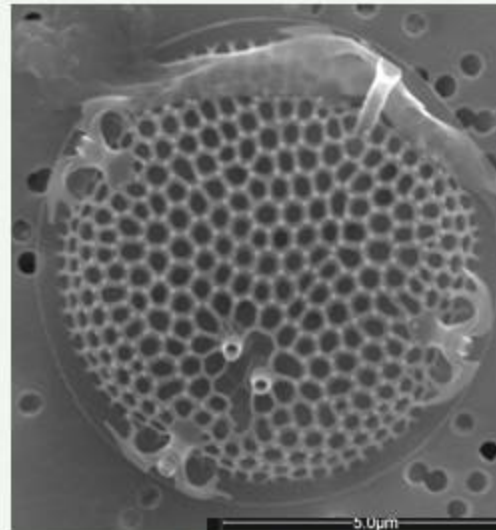
abundance: autumn, winter, spring

life-form: in chains

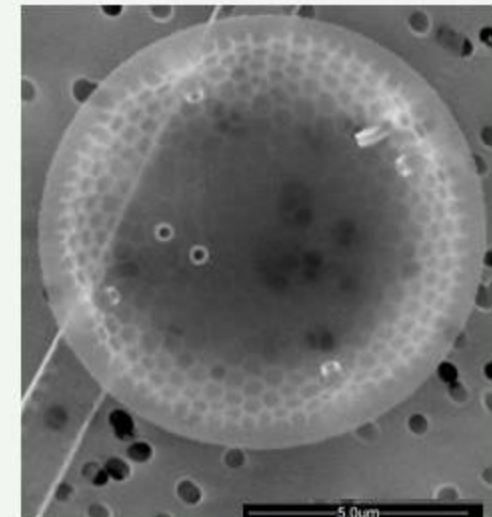
diameter: 5-14  $\mu\text{m}$



REM (North Sea, NSB<sub>3</sub>)



valve exterior



valve interior

REM (North Sea, SYLT<sub>1</sub>)

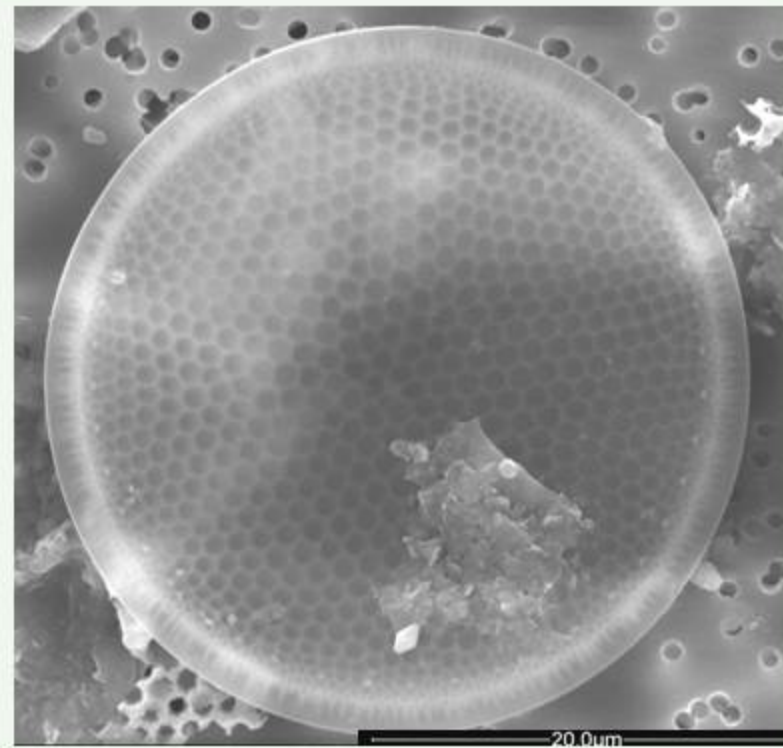
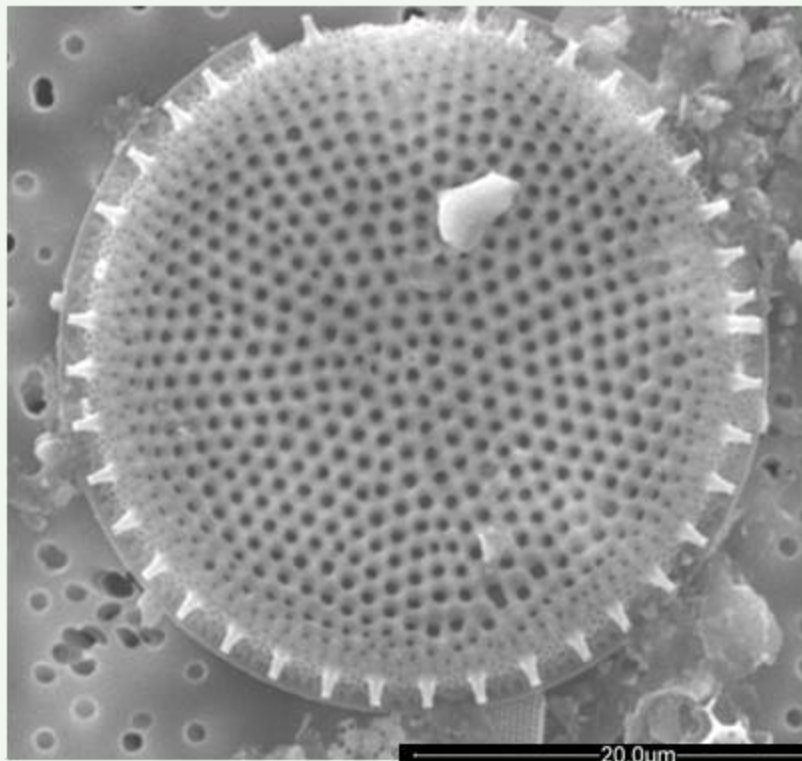
phytoplankton - bacillariophyceae

## *Thalassiosira decipiens*

abundance: autumn, winter

life-form: in loose chains

diameter: 9 – 40  $\mu\text{m}$



REM (sediment trap, Gotland Sea)  
cleaned material

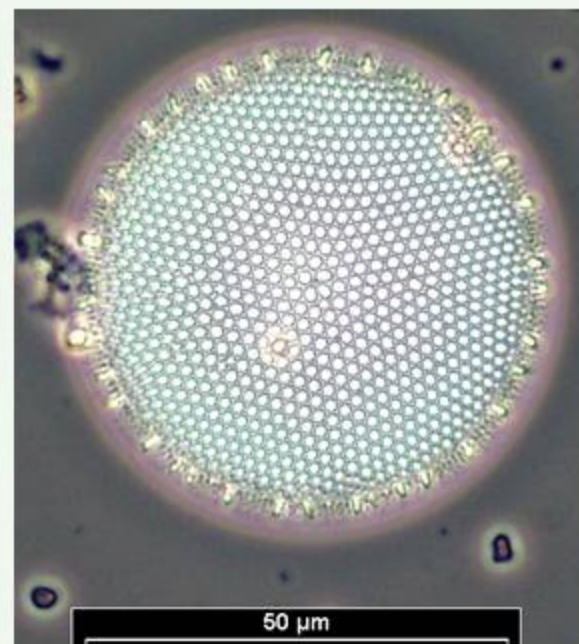
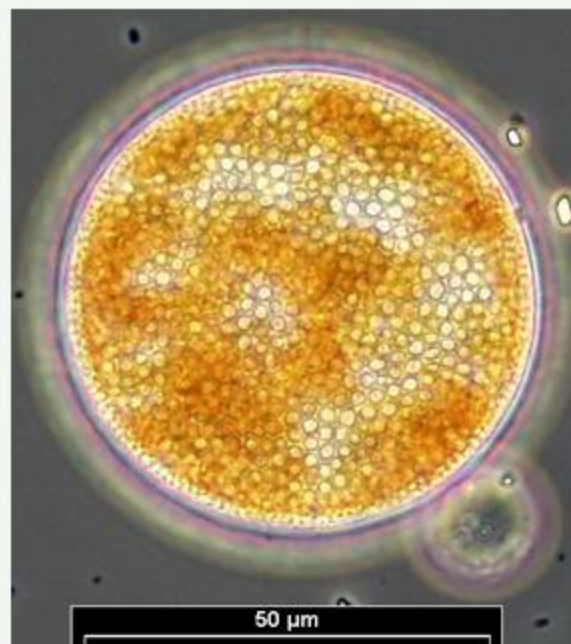
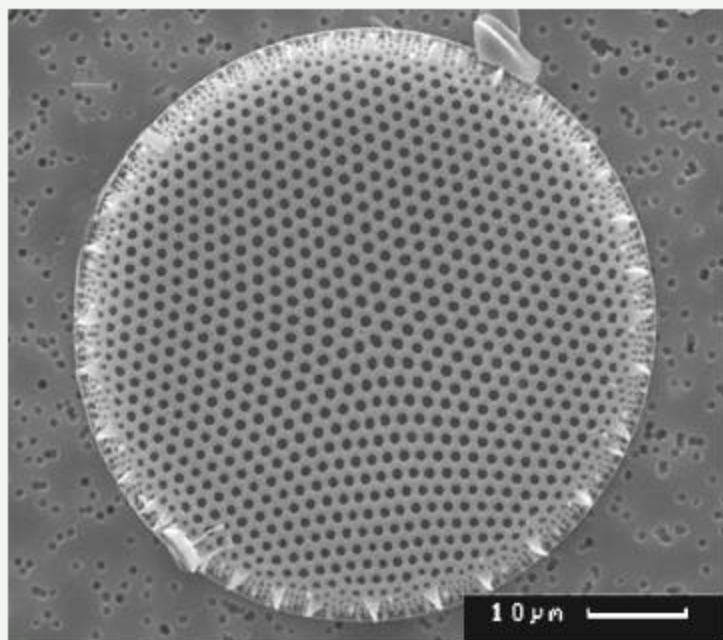
# phytoplankton - bacillariophyceae

## Thalassiosira eccentrica

abundance: spring, autumn, winter

life-form: solitary or in short chains

diameter: 20 - 100µm



REM (coastal station Heiligendamm)

LM (coastal station Heiligendamm)

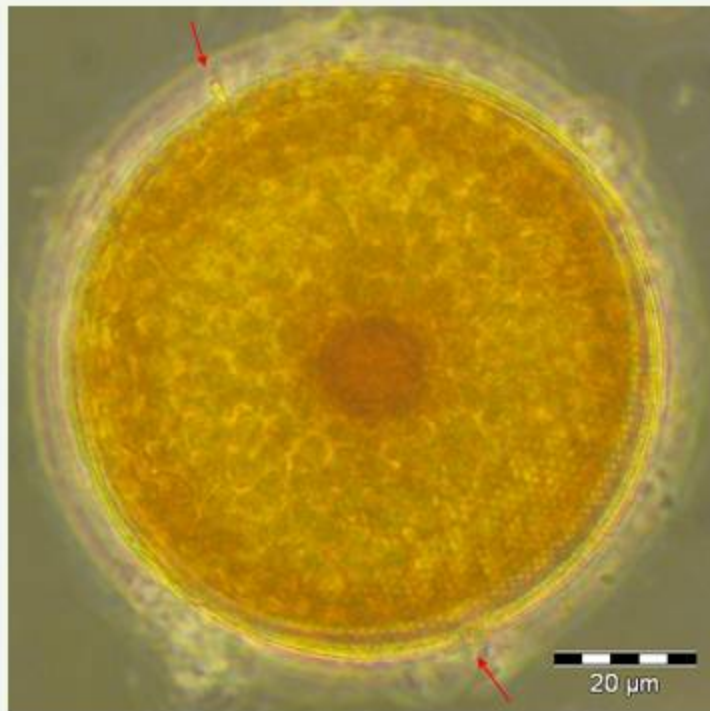
phytoplankton – bacillariophyceae

## Thalassiosira hendeyi

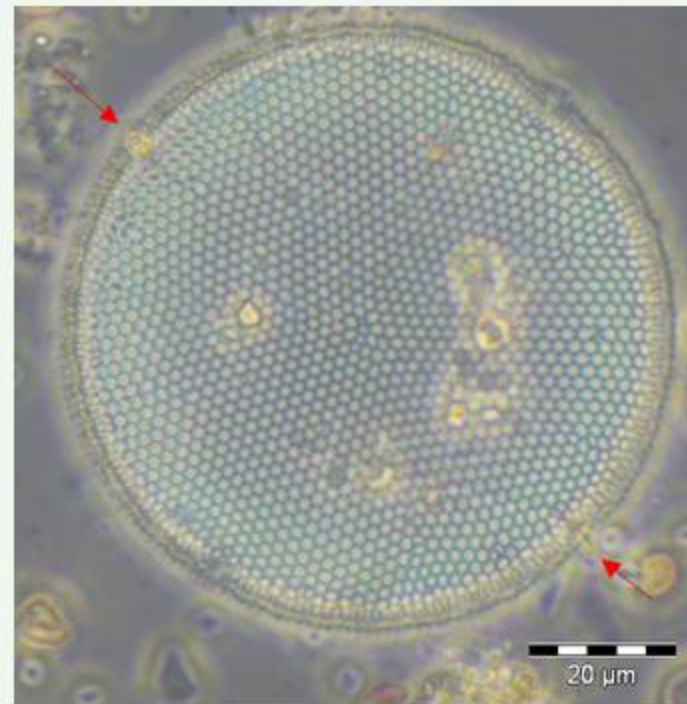
abundance: spring, autumn

life-form: single cells or in chains

diameter: 38-120  $\mu\text{m}$



LM (North Sea, NSGR2)



LM cleared material (North Sea, SYLT1)



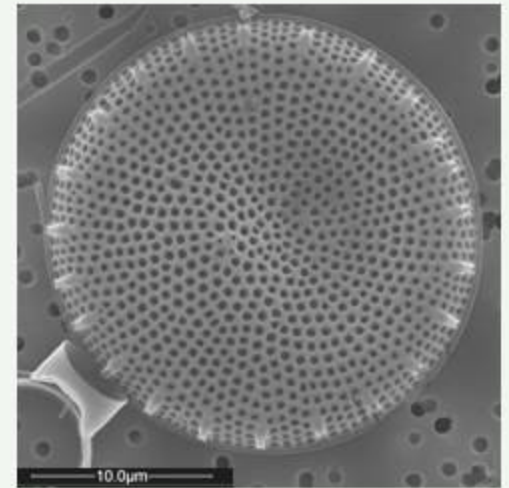
phytoplankton - bacillariophyceae

## Thalassiosira hyperborea

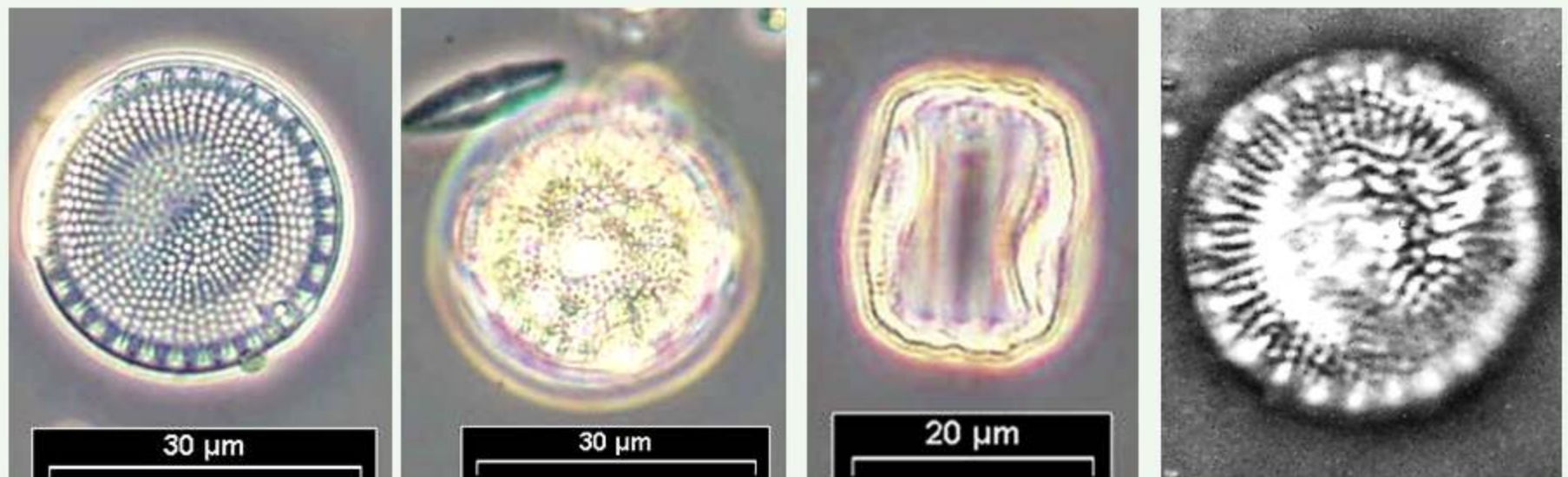
abundance: permanent abundant

life-form: solitary

diameter: 17 - 52  $\mu\text{m}$



REM (Gotland Sea, sediment trap)

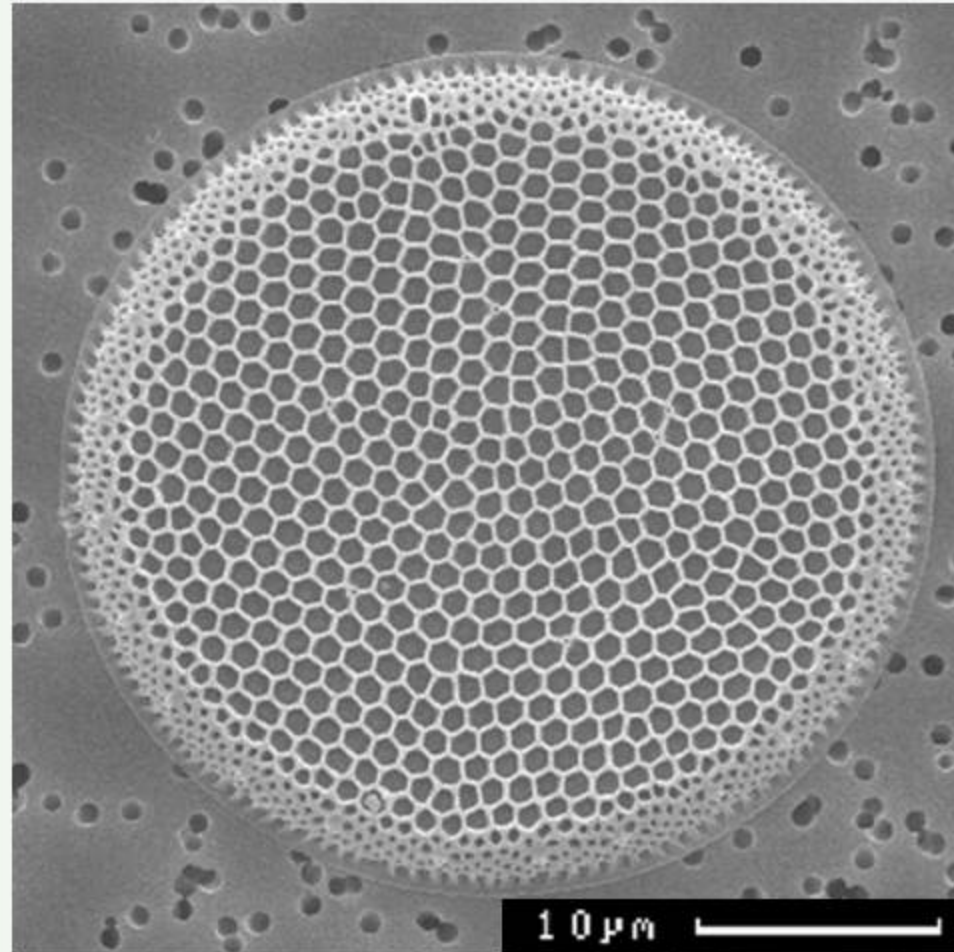


LM (Gotland Sea, sediment trap)

# phytoplankton - bacillariophyceae

## *Thalassiosira leptoporus*

abundance: autumn, winter  
life-form: solitary  
diameter: 40 – 70  $\mu\text{m}$



REM (Mecklenburg Bight)

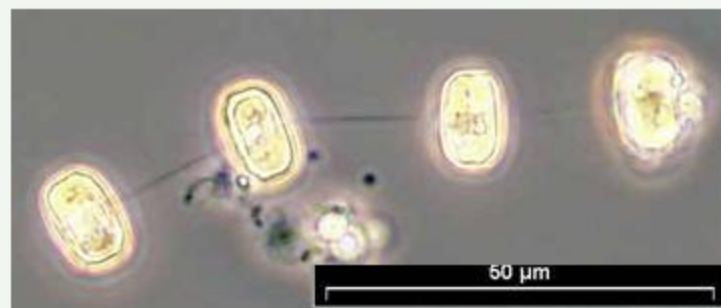
# phytoplankton - bacillariophyceae

## Thalassiosira levanderi

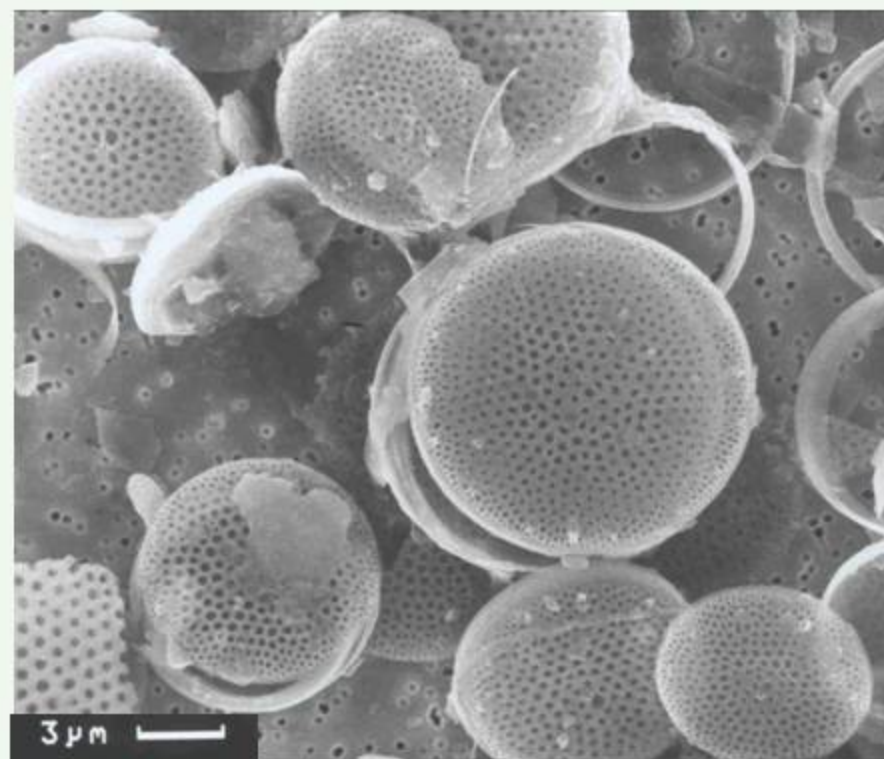
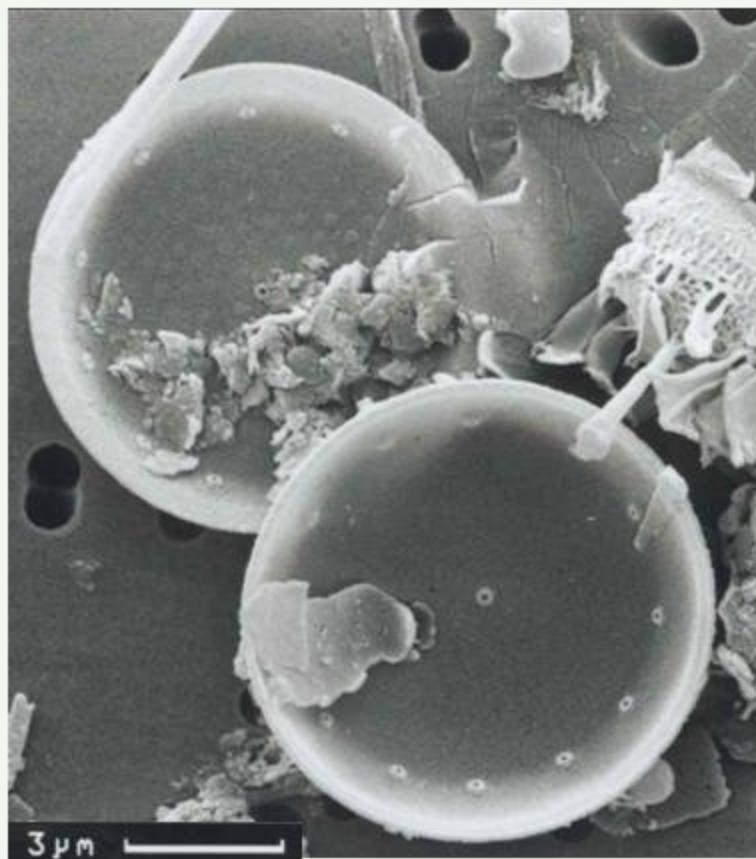
abundance: late spring, summer

life-form: in loose chains

diameter:: 7 - 12  $\mu\text{m}$



LM (Gotland Sea)



REM (Gotland Sea, sediment trap)

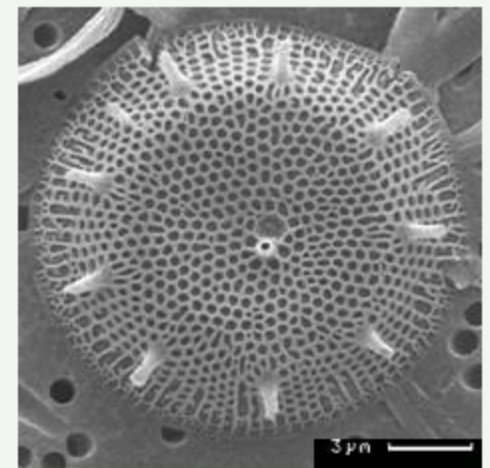
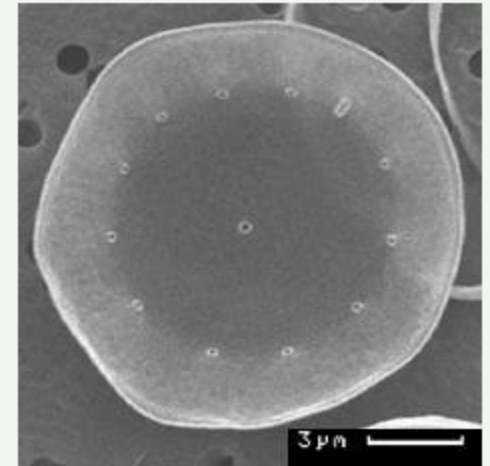
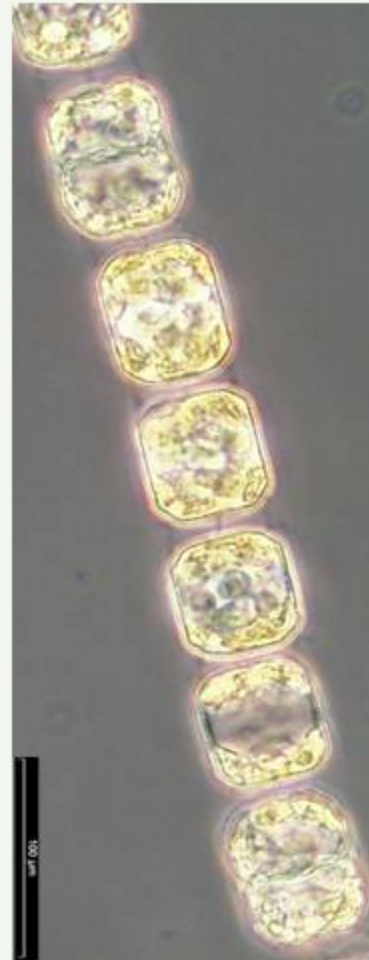
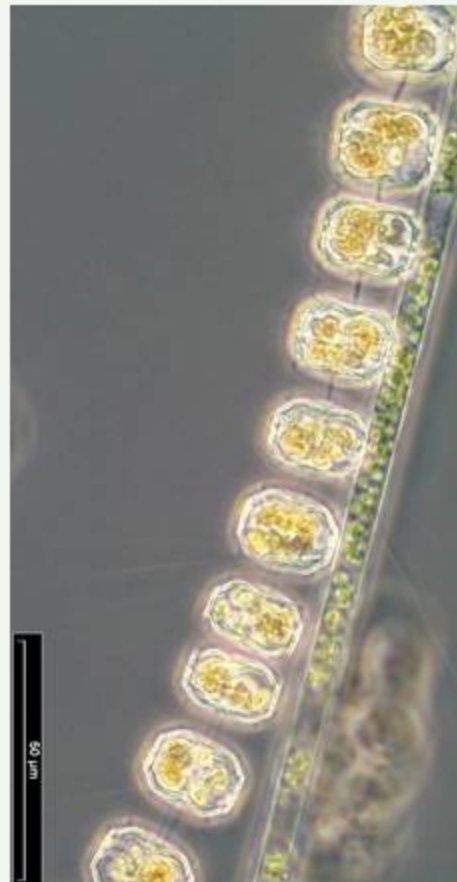
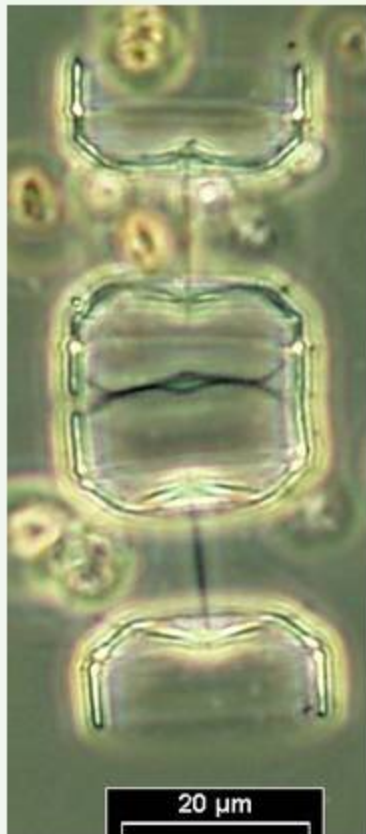
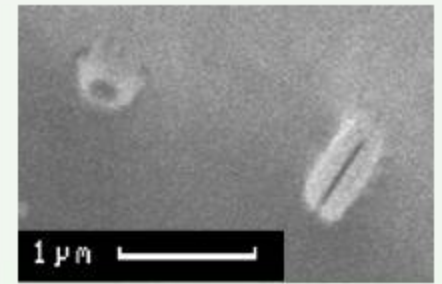
# phytoplankton - bacillariophyceae

## *Thalassiosira nordenskiöldii*

abundance: spring

life-form: in long chains

diameter: 12 – 43  $\mu\text{m}$



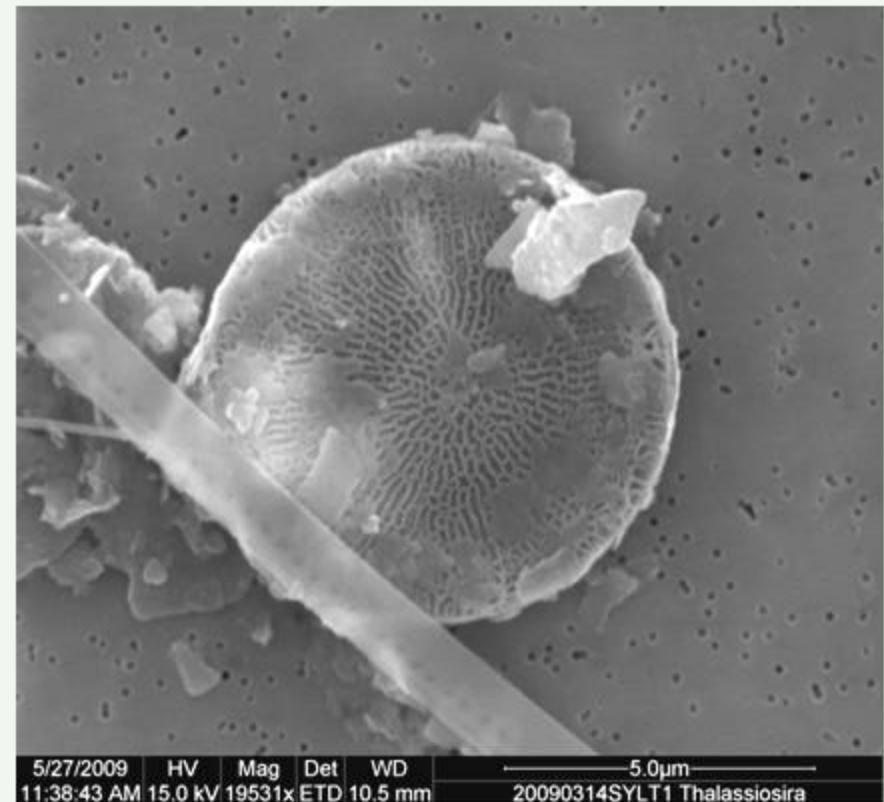
LM (coastal station Heiligendamm)

REM (culture)

# phytoplankton - bacillariophyceae

## Thalassiosira oceanica

abundance: winter, spring  
life-form: single cells  
diameter: 3-12  $\mu\text{m}$



REM (Noth Sea, SYLT1)

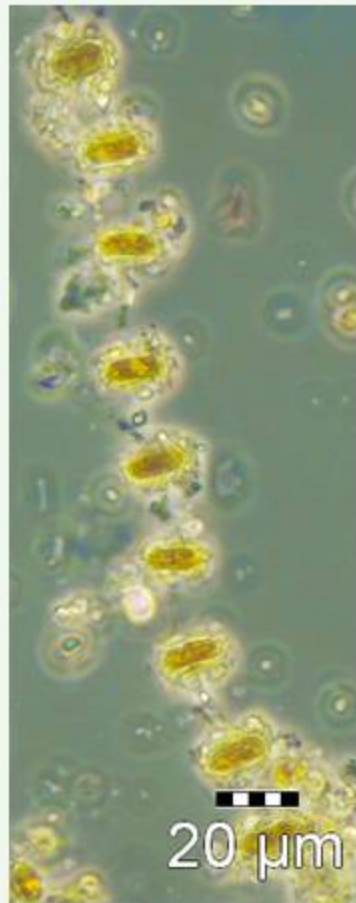
# phytoplankton – bacillariophyceae

## *Thalassiosira pacifica*

abundance: spring

life-form: single cells or in chains

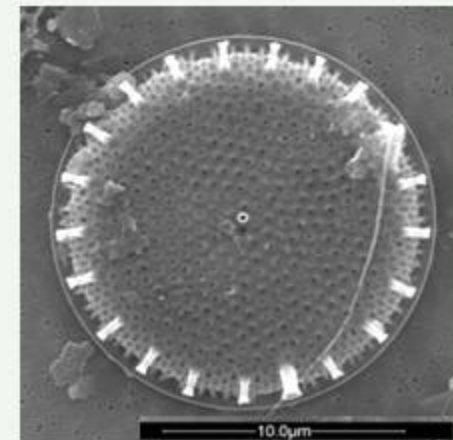
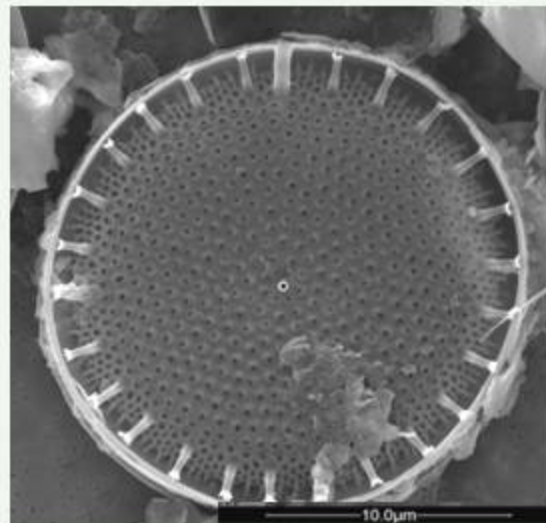
diameter: 5-20  $\mu\text{m}$



LM (North Sea, UFSDB)



LM cleaned material (North Sea, ES1)



REM (North Sea, SYLT1)

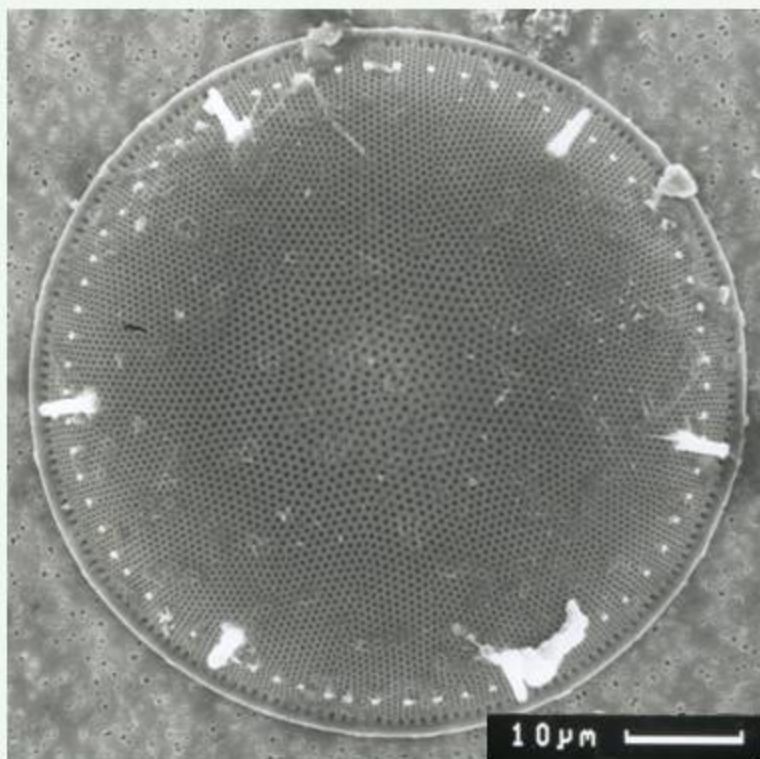
# phytoplankton - bacillariophyceae

## Thalassiosira punctigera

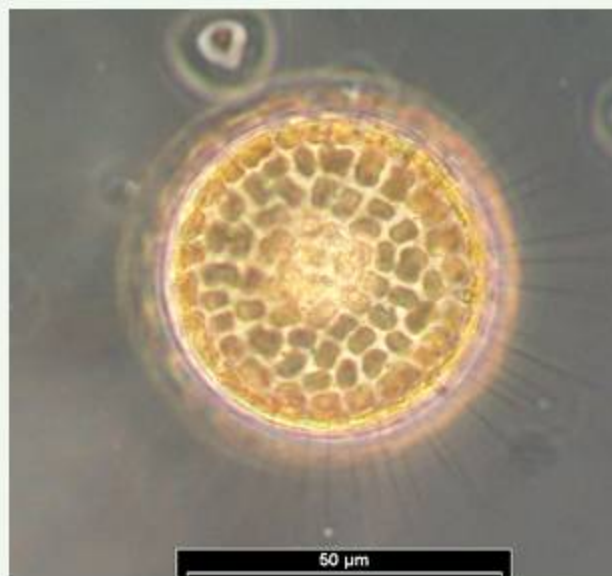
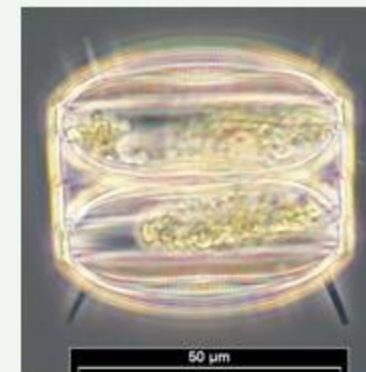
abundance: spring, summer, autumn

life-form: cells in loose chains

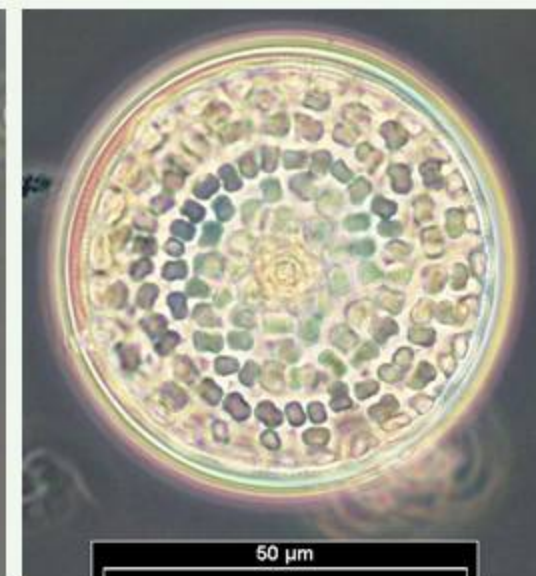
diameter: 25 - 75  $\mu\text{m}$



REM (Kattegat)



LM (coastal station Heiligendamm)



LM (Kattegat)

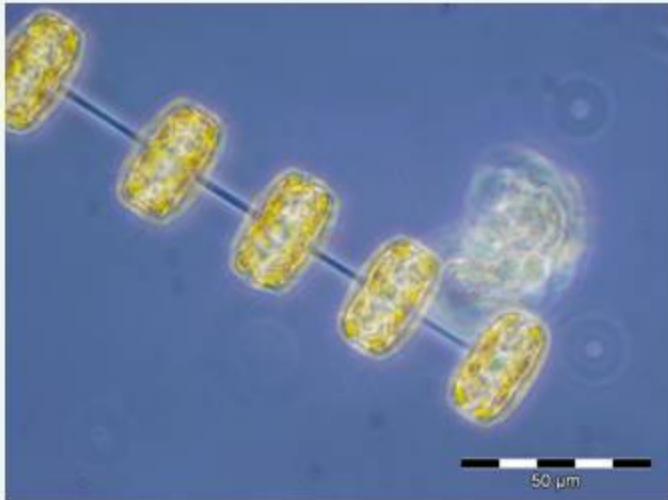
# phytoplankton – bacillariophyceae

## *Thalassiosira rotula*

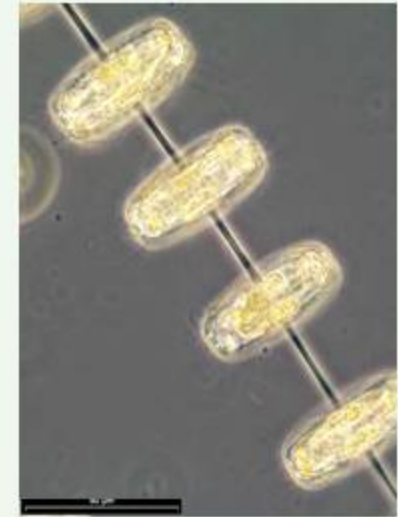
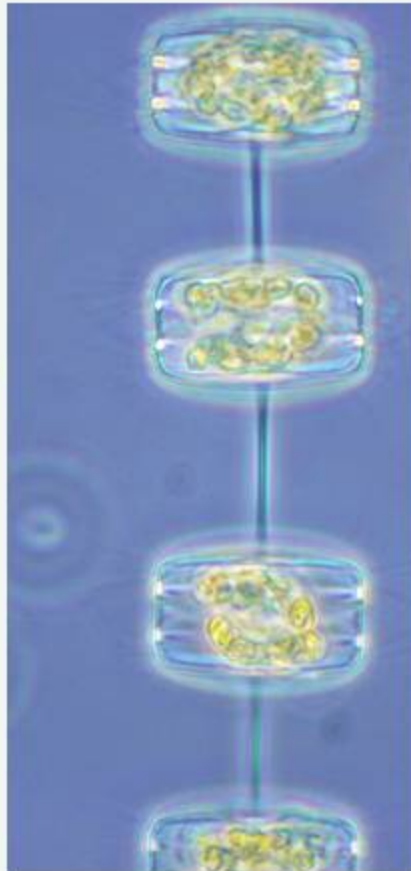
abundance: permanent abundant

life-form: in chains

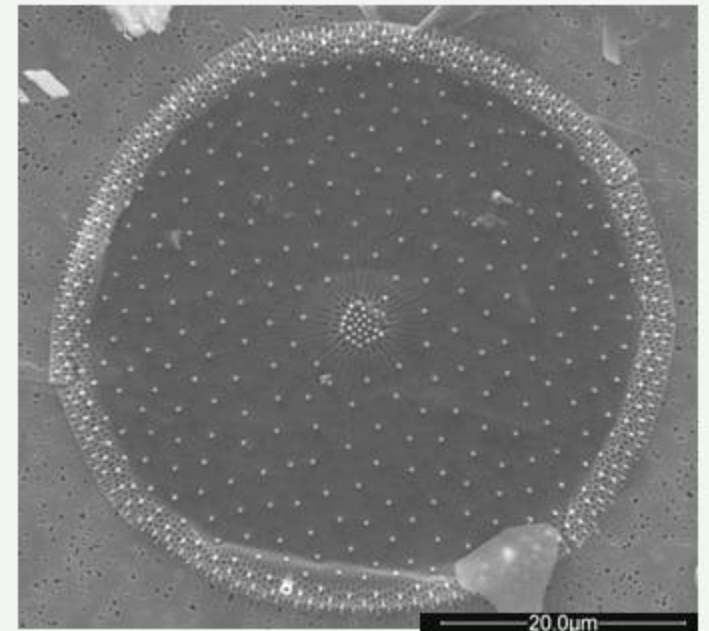
diameter: 30 - 60µm



LM (coastal station Heiligendamm)



LM (North Sea, German Bight)



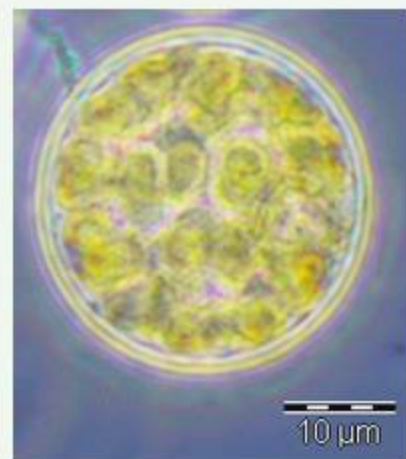
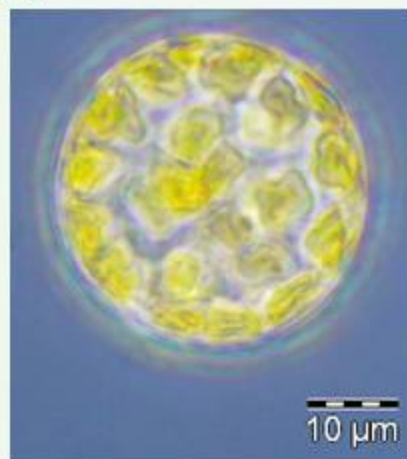
REM (North Sea, SWWBA)



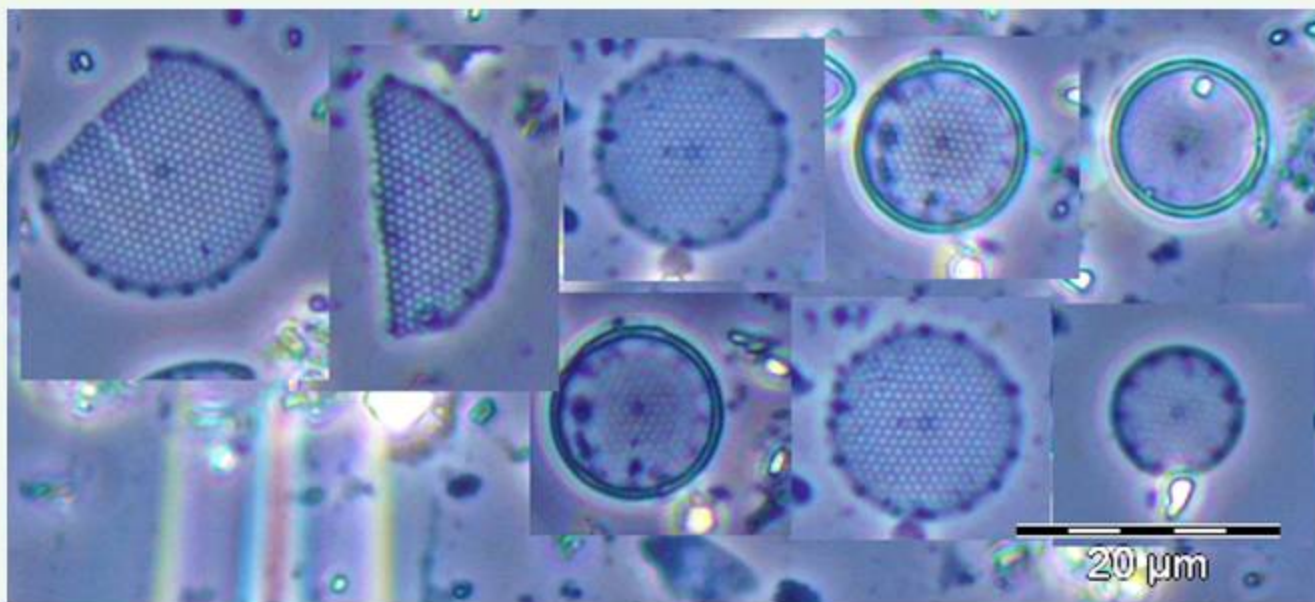
# phytoplankton - bacillariophyceae

## *Thalassiosira tenera*

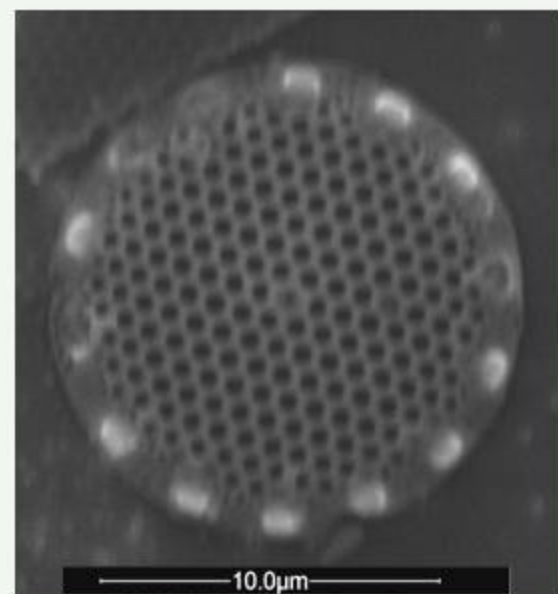
abundance: autumn  
life-form: solitary  
diameter: 10-29mm



LM (North Sea, ES1)



LM (North Sea, ES1) cleaned material



REM (North Sea, ES1)

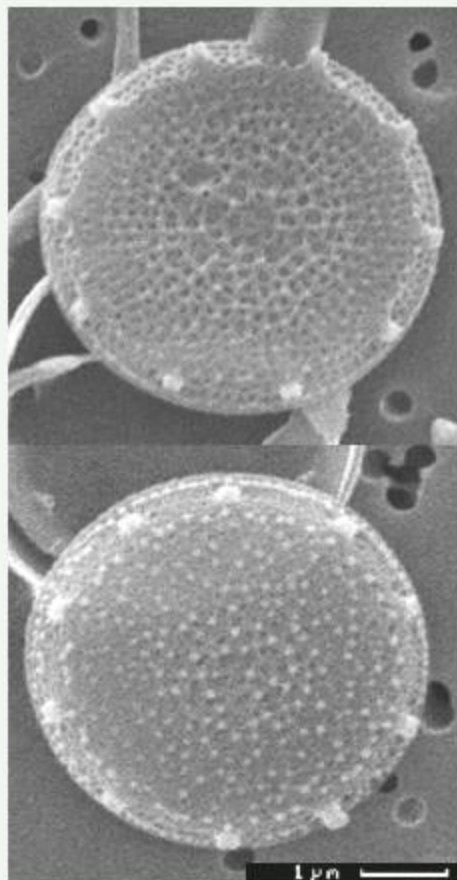
# phytoplankton - bacillariophyceae

## Thalassiosira weissflogii

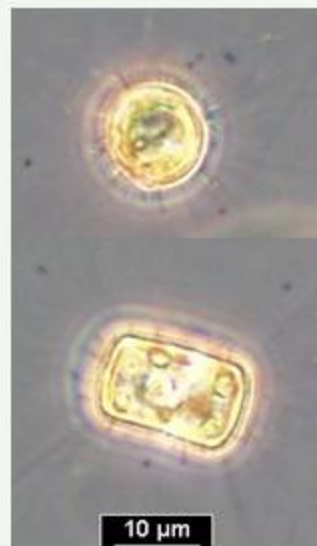
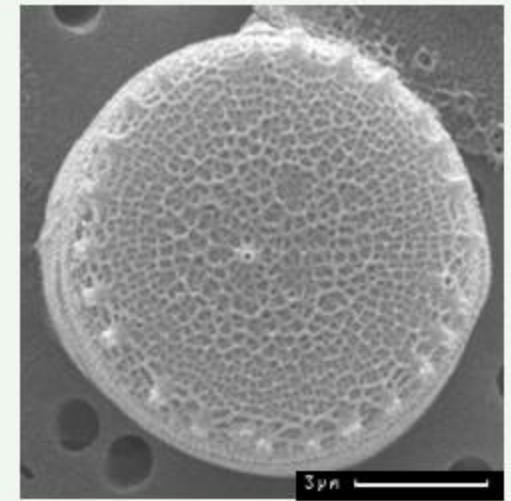
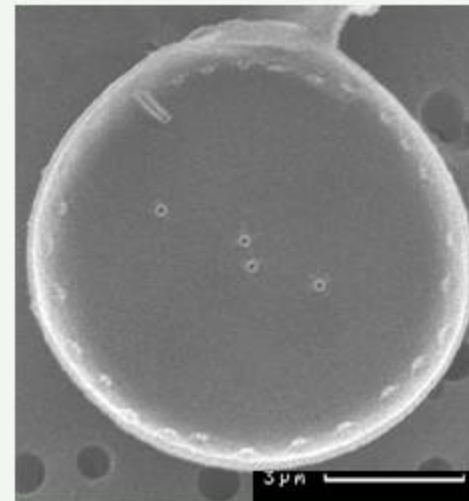
abundance: spring

life-form: solitary or in loose chains

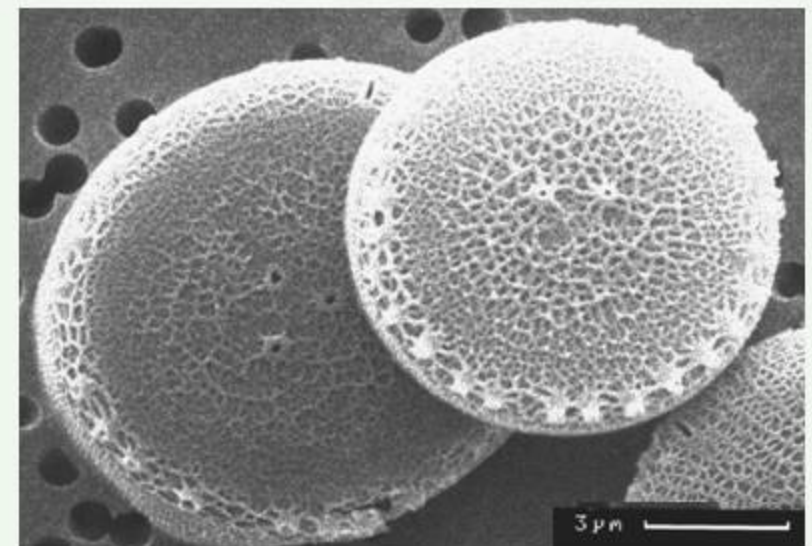
diameter: 5 - 32  $\mu\text{m}$



LM (coastal station Heiligendamm)



LM (culture)



REM (culture)