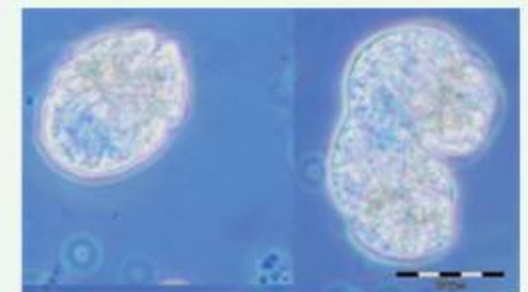
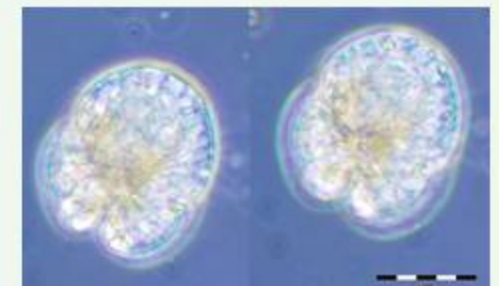
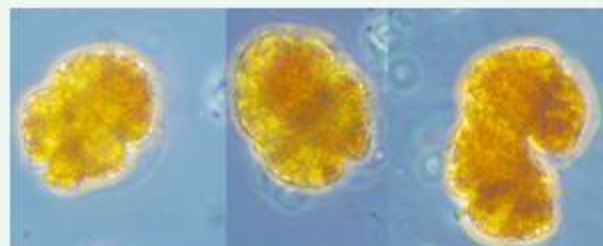
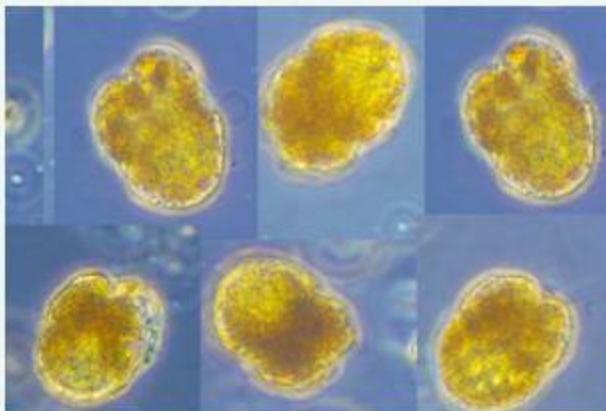
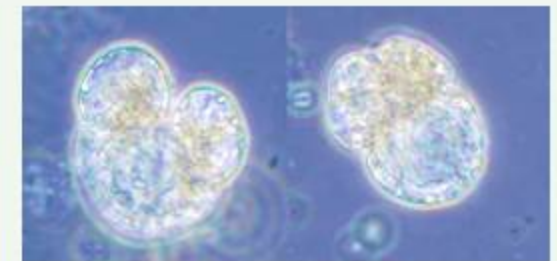
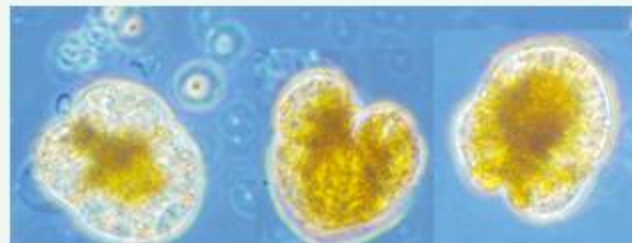
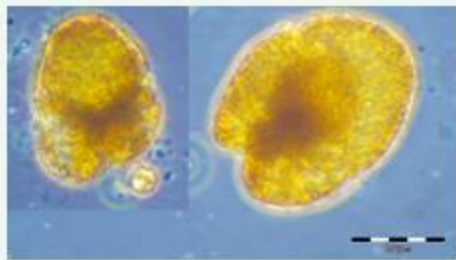


phytoplankton – dinophyceae

Akashiwo sanguinea

abundance: summer
life-form: solitary
length: 40 – 80µm

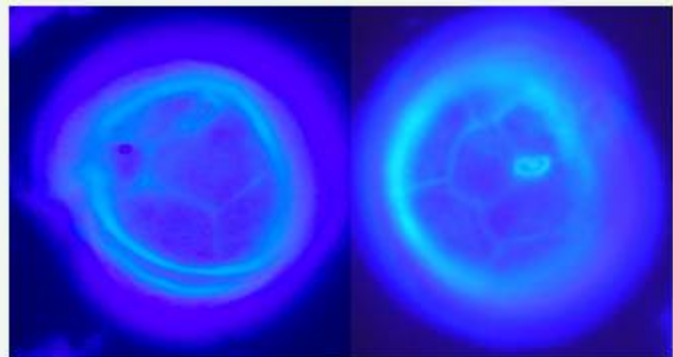


LM (Bornholm Sea)

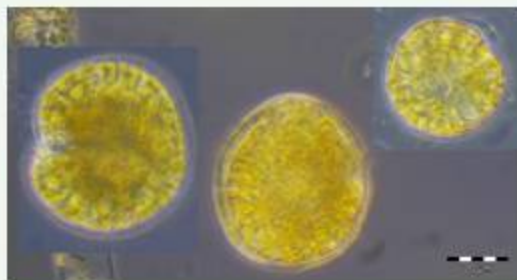
phytoplankton - dinophyceae

Alexandrium pseudogonyaulax

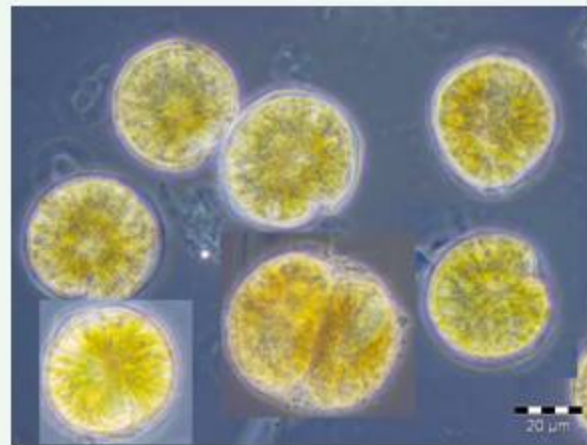
abundance: summer
life-form: solitary
length: 41 - 58 μm
width: 58 - 80 μm



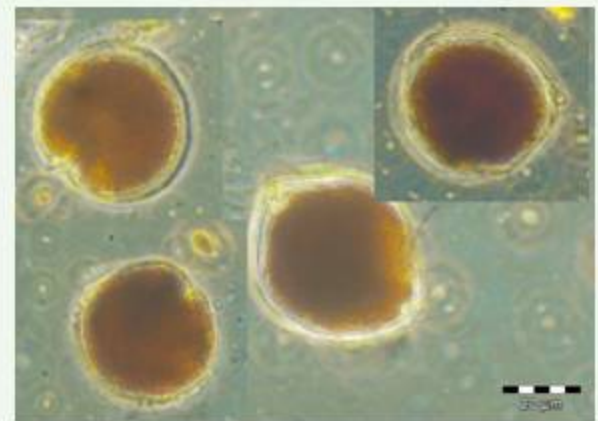
cells stained with Calcofluor White



living cells



Formalin-fixed cells



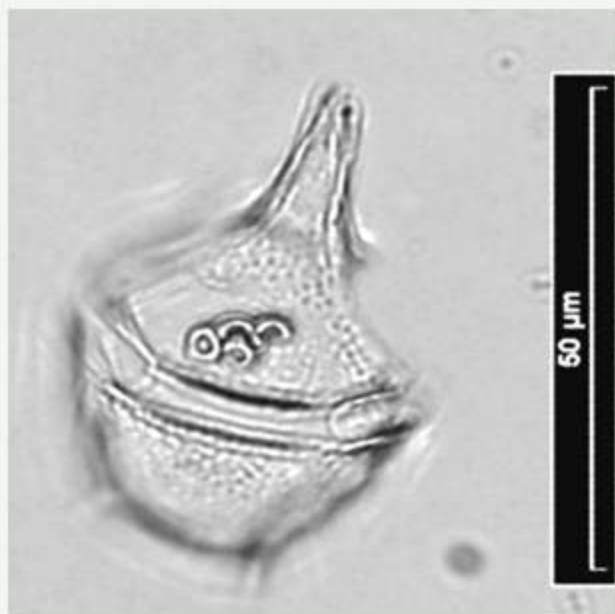
Lugol-fixed cells

LM (coastal station Heiligendamm)

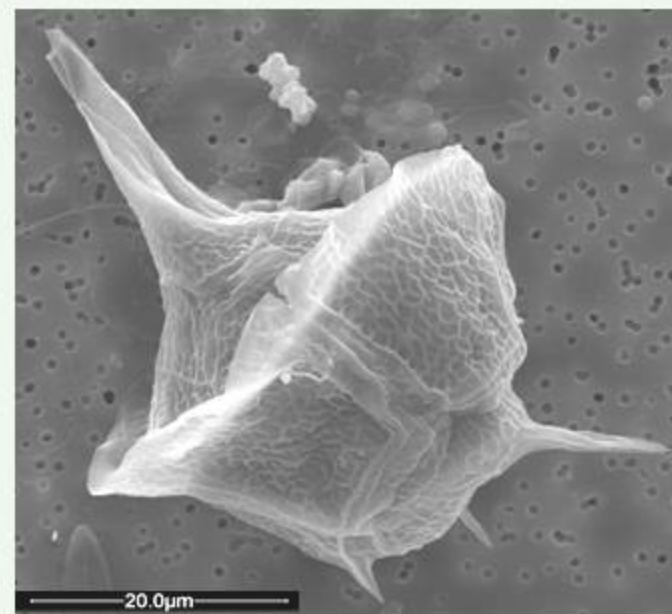
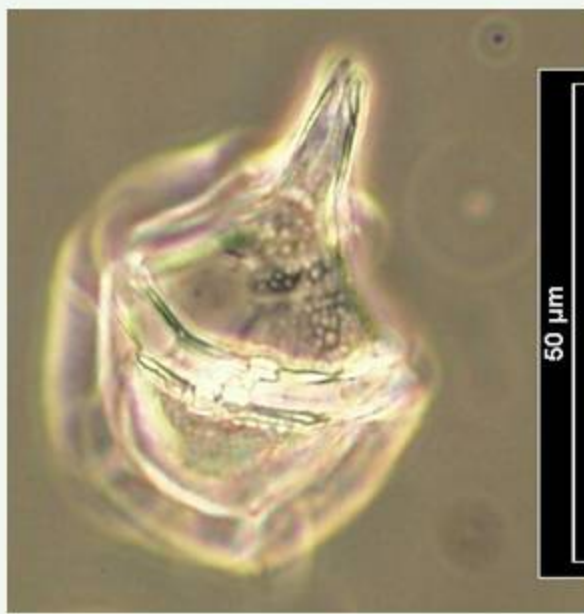
phytoplankton - dinophyceae

Amylax triacantha

life-form: solitary
length: 42-60 μm
abundance: spring



LM (coastal station Heiligendamm)



ESEM (Gotland Sea)

phytoplankton – bacillariophyceae

Ceratium furca

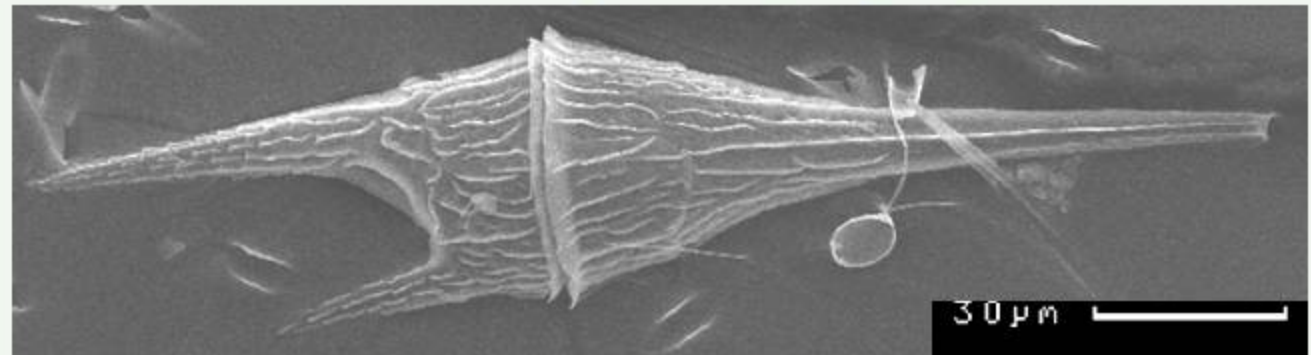
abundance: late summer, autumn
life-form: solitary
length: 210 - 380 μm
width: 30 - 50 μm



LM (North Sea , Skagerak)



LM (North Sea, Skagerak)



REM (North Sea, Skagerak)

phytoplankton – dinophyceae

Ceratium fusus

abundance: late summer, autumn
life-form: solitary
cell-length: 300 – 600 μm
cell-width: 15 - 30 μm



LM (coastal station Heiligendamm)



LM (Mecklenburg Bight)

phytoplankton – dinophyceae

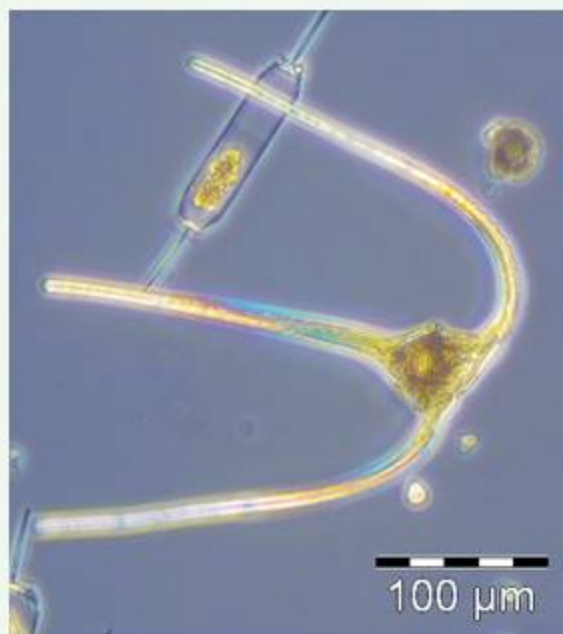
Ceratium horridum

abundance: late summer, autumn

life-form: solitary

length: 230 - 260 μm

width: 40 - 50 μm



phytoplankton – dinoflagellates

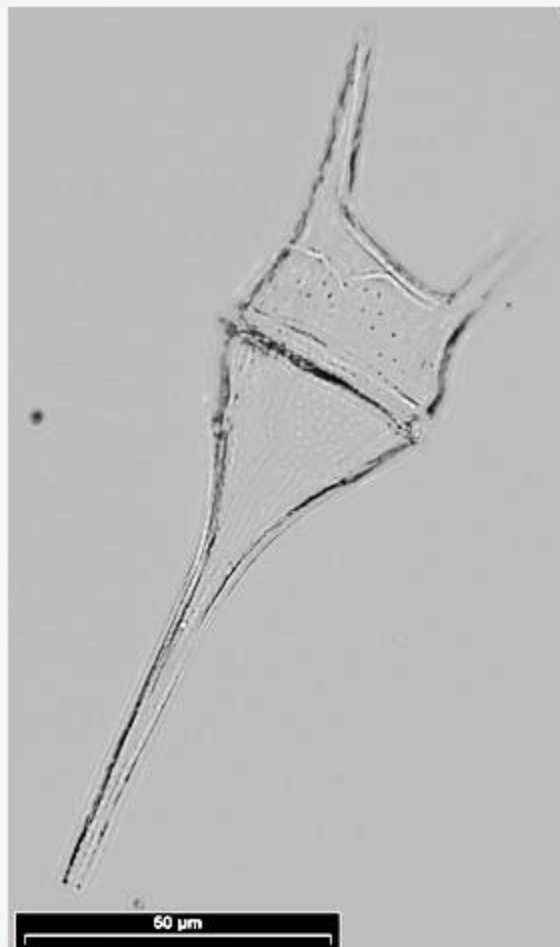
Ceratium lineatum

abundance: late summer, autumn

life-form: solitary

length: 100 -130 μm

width: 35 -45 μm



LM (coastal station Heiligendamm)



LM (North Sea, German Bight)

phytoplankton – dinophyceae

Ceratium longipes

abundance: early summer

life-form: solitary

length: 140 - 290 μm

width: 45 - 65 μm

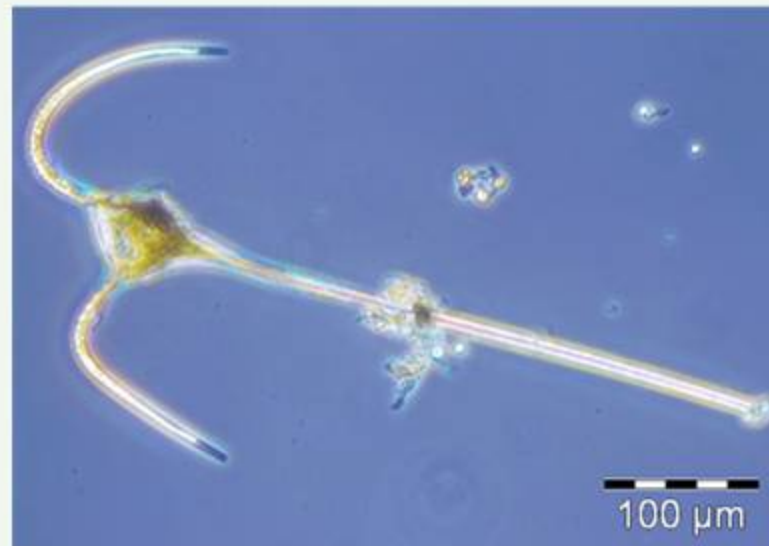
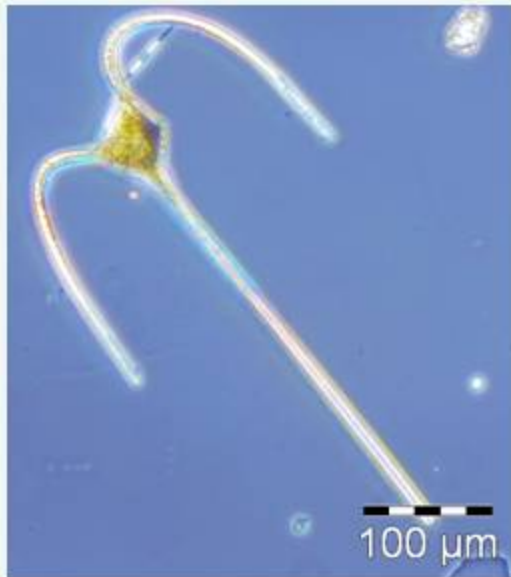
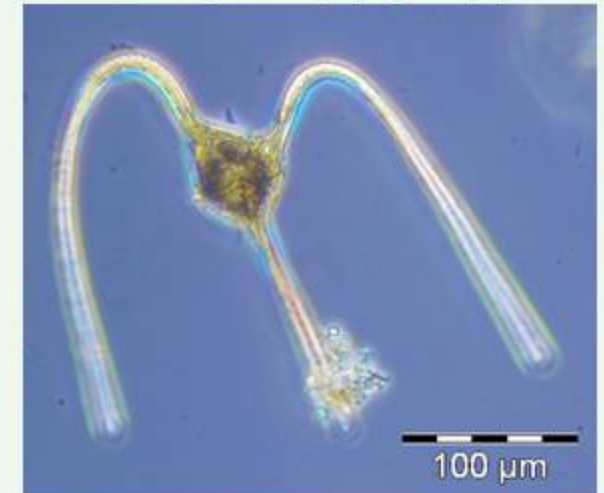


LM (Mecklenburg Bight)

phytoplankton - dinophyceae

Ceratium macroceros

abundance: late summer, autumn
life-form: solitary
length: 300-500 μ m
width: 50-60 μ m



LM (North Sea, NSGR2)

phytoplankton - dinophyceae

Ceratium tripos

abundance: late summer, autumn

life-form: solitary

length: 195 - 360 μm

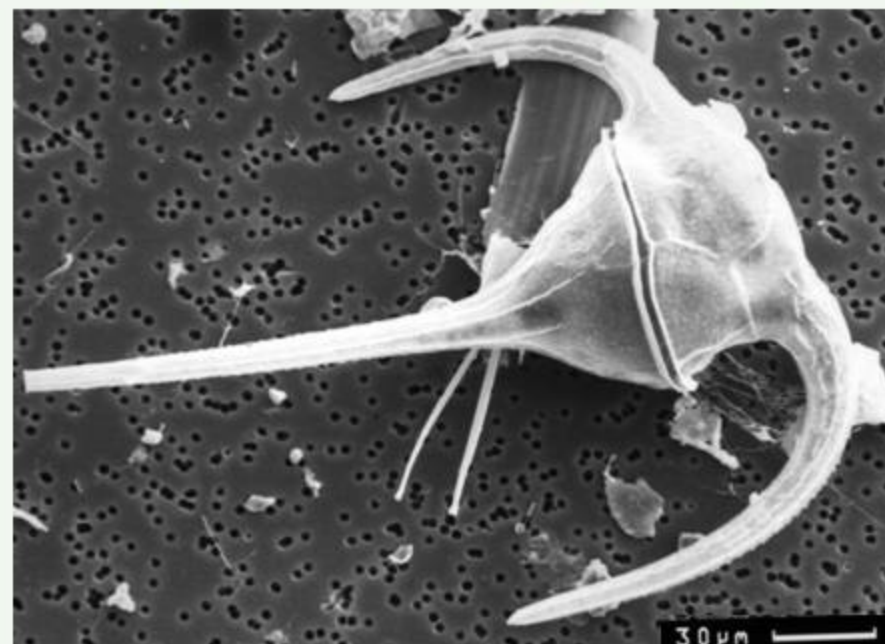
width: 65 - 90 μm



LM (coastal station Heiligendamm)



LM (coastal station Heiligendamm)

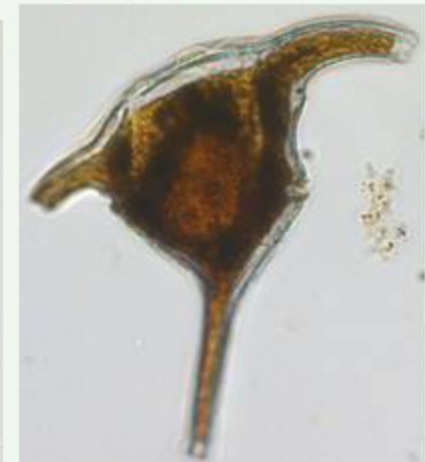


REM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Ceratium tripos gamete fusion and gametes

abundance: late summer, autumn

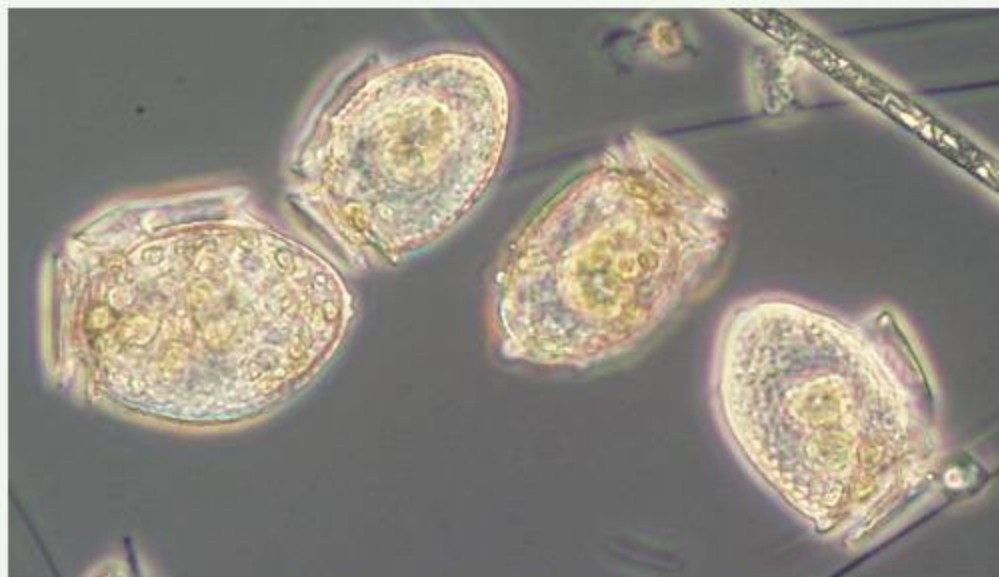


LM (Mecklenburg Bight)

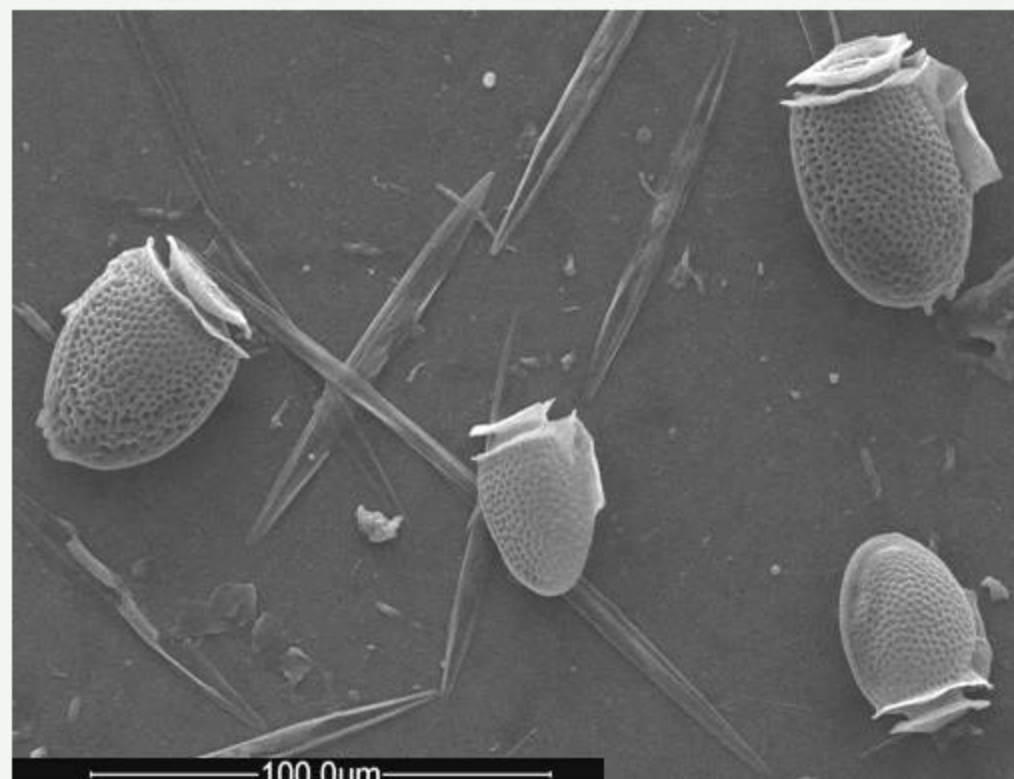
phytoplankton -dinophyceae

Dinophysis acuminata

abundance: summer, autumn
life-form: solitary
length: 40 - 50 μm
width: 30 - 35 μm



LM (coastal station Heiligendamm)

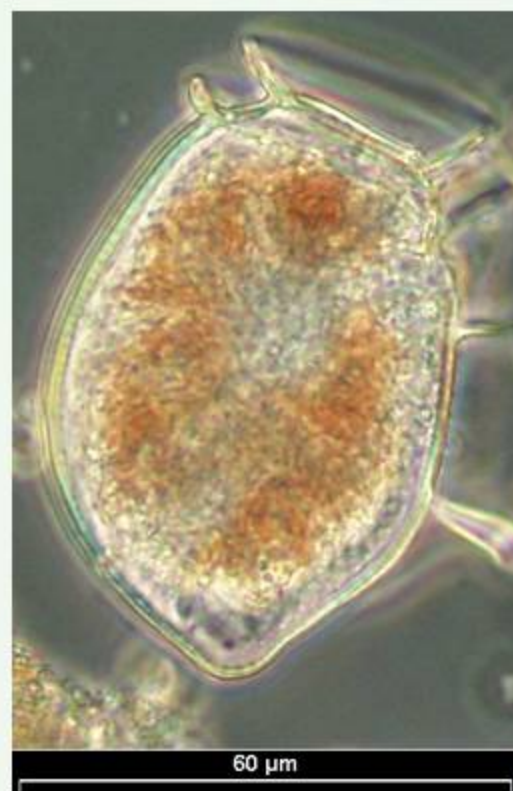


REM (North Sea, SWWBA)

phytoplankton -dinophyceae

Dinophysis acuta

abundance: late summer, autumn
life-form: solitary
length: 54 – 94 μm
width: 43 – 60 μm

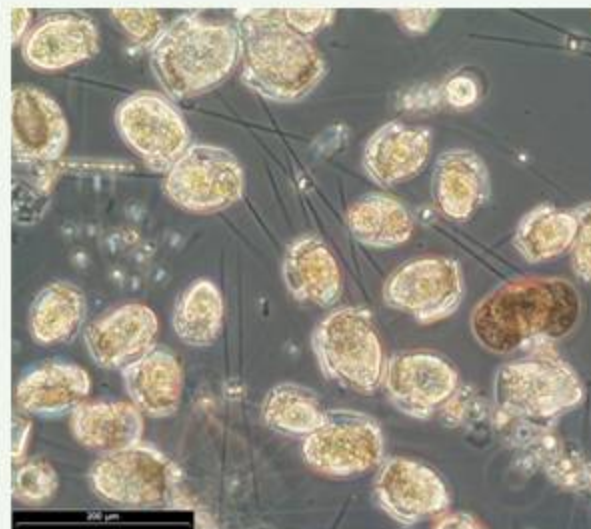


LM (coastal station Heiligendamm)

phytoplankton -dinophyceae

Dinophysis norvegica

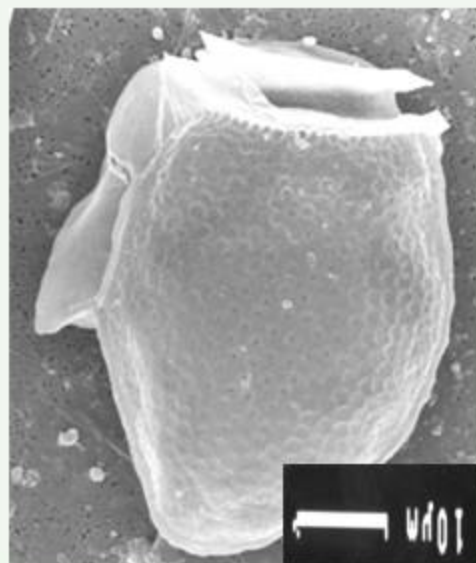
abundance: summer, autumn
life-form: solitary
length: 50 - 60 μm
width: 40 - 50 μm



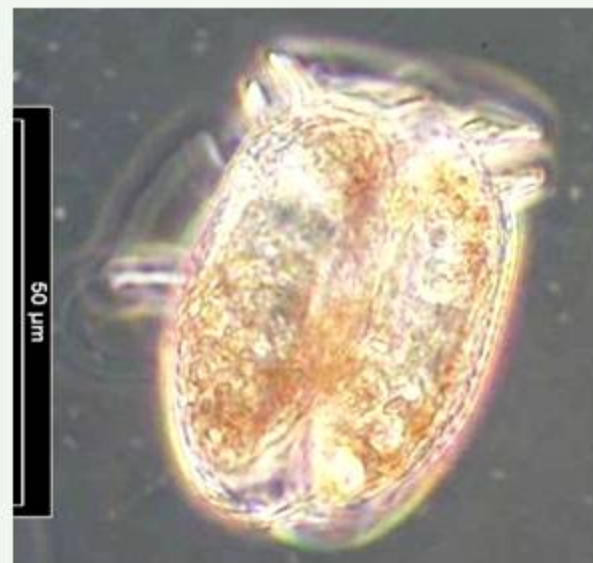
LM (Gotland Sea)



LM (coastal station Heiligendamm)
preserved with Lugol's solution



REM (Kiel Bight)

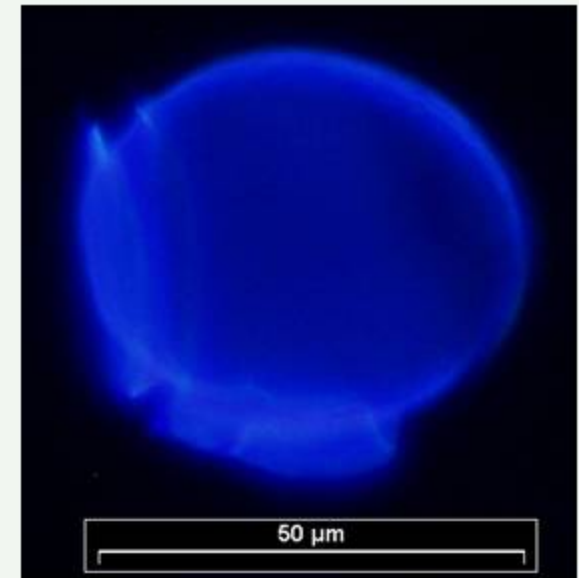
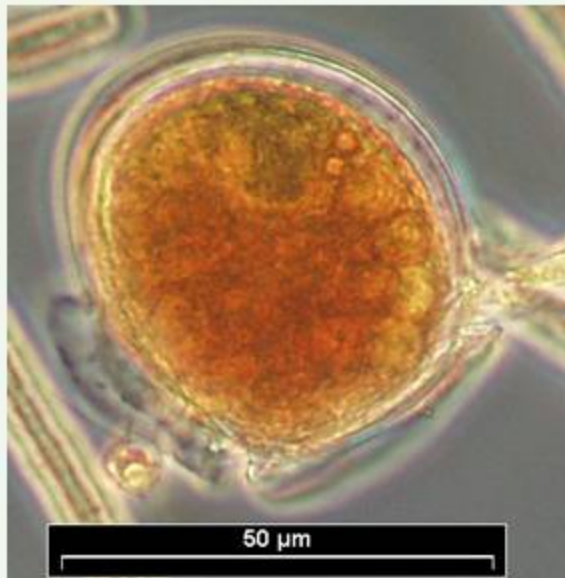


LM (coastal station Heiligendamm)

phytoplankton – dinophyceae

Dinophysis rotundata

abundance: summer
life-form: solitary
cell-size: 36 – 56 μm long, in lateral view round-oval

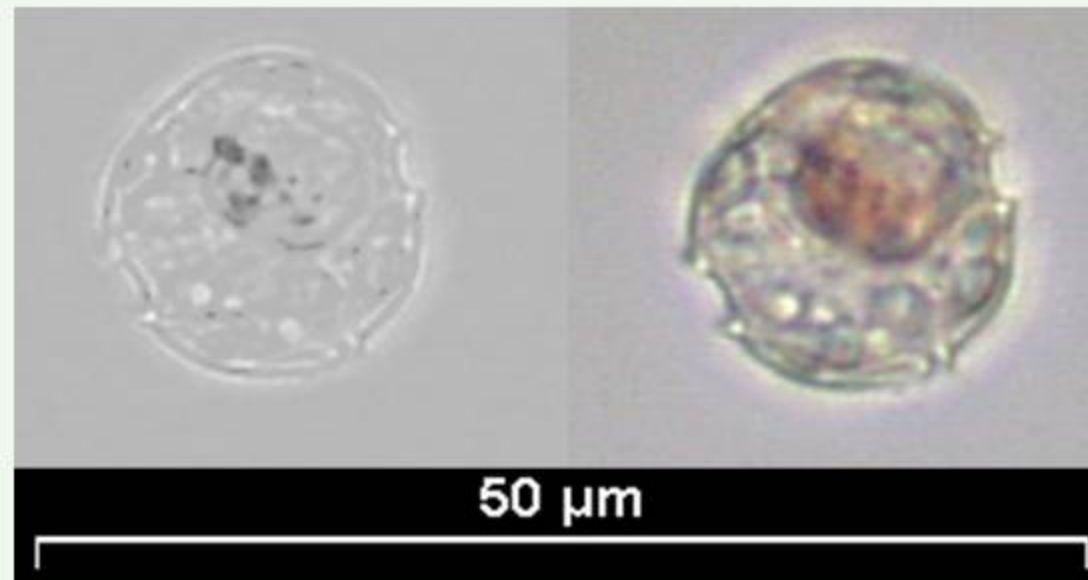


LM (Gotland Sea)

phytoplankton - dinophyceae

Diplopsalis Group (Typ Oblea)

abundance: spring, summer
life-form: solitary
diameter: 15 μm



LM (coastal station Heiligendamm)

phytoplankton – dinophyceae

Dissodinium pseudolunula

abundance: all year
life-form: solitary
cell length: 100 - 140 μm



LM (Oder Bight) secondary cyst

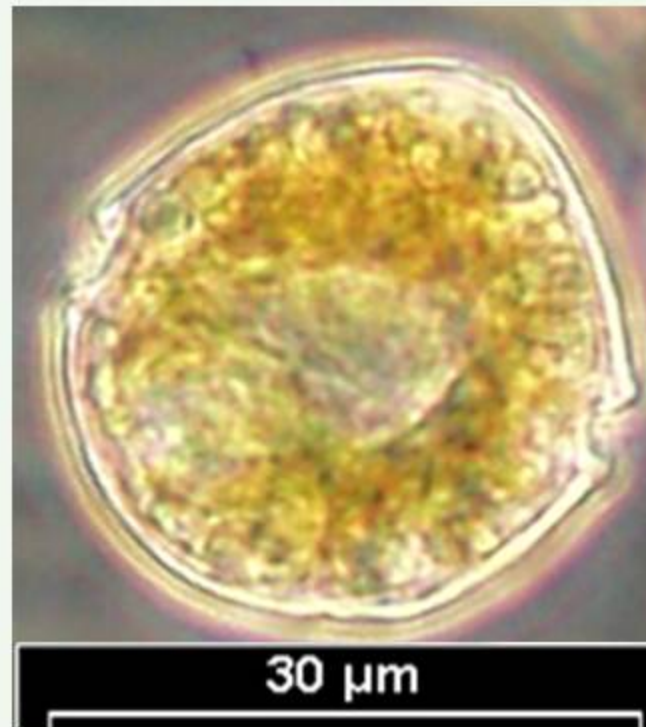


LM (Arkona Sea) resting spore

phytoplankton - dinophyceae

Glenodinium sp. 2

abundance: spring,
life-form: solitary
length: 30 μ m
width: 25 μ m

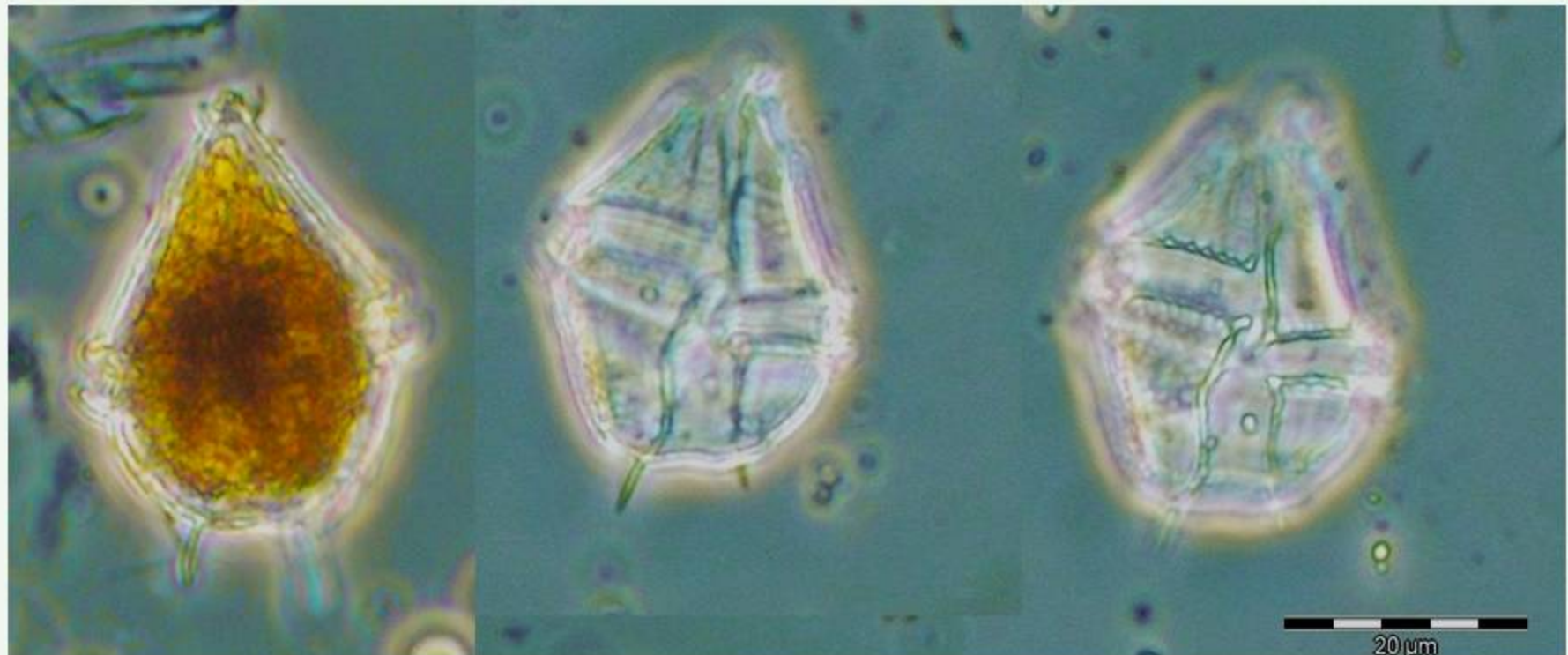


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gonyaulax verior

abundance: summer
life-form: solitary
length: 50 μm
width: 35 μm

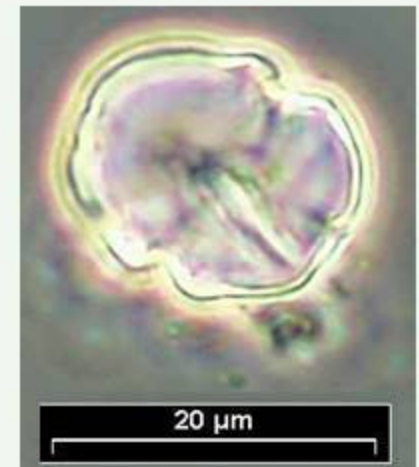
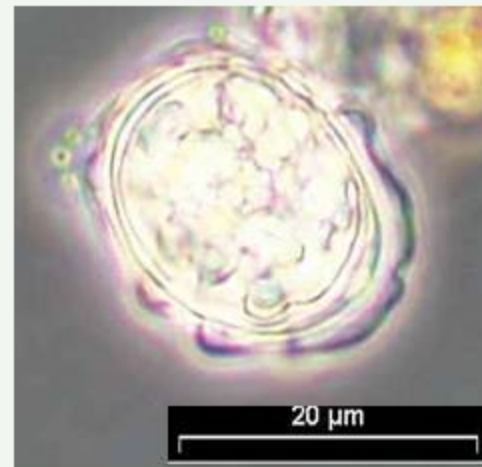
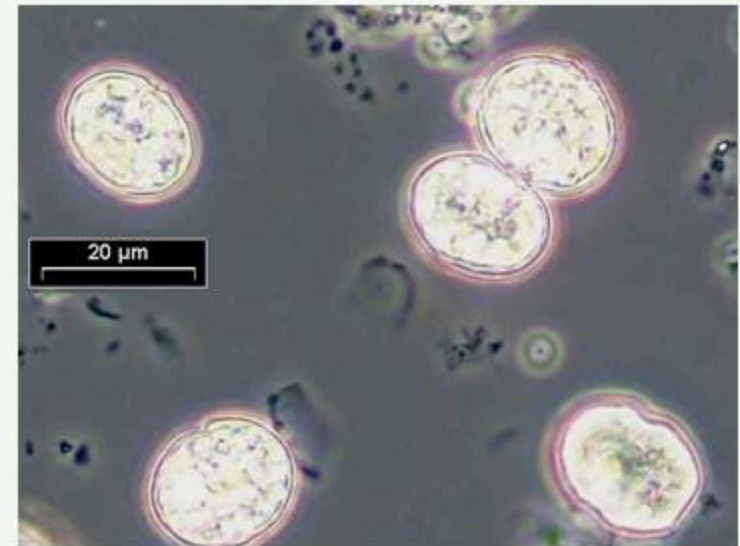
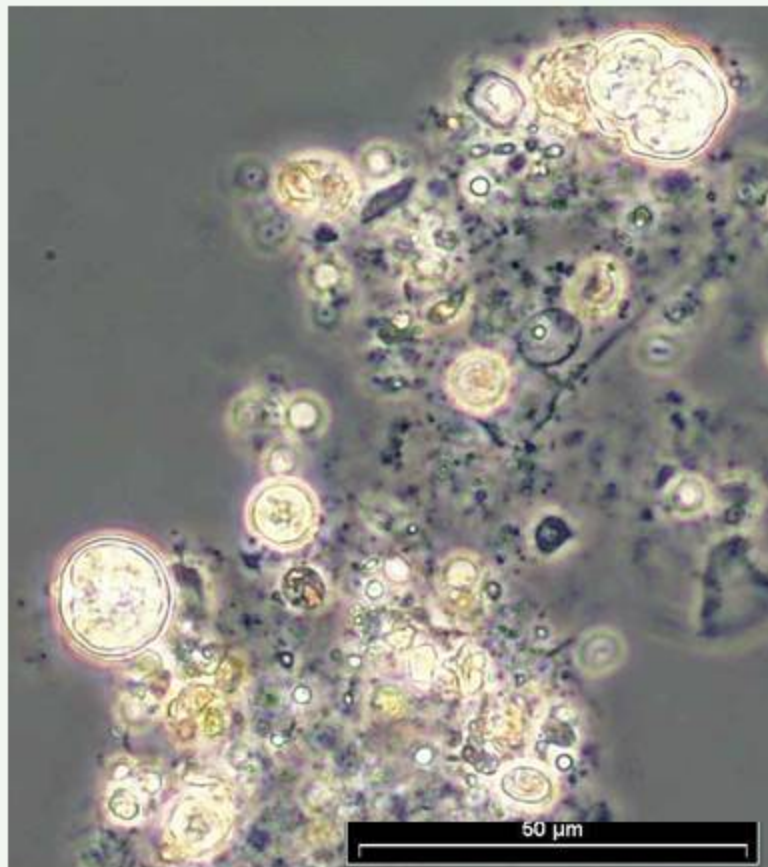


LM (Arkona Sea)

phytoplankton - dinophyceae

Gymnodinium corollarium sp. nov.

abundance: spring, summer
life-form: solitary
size: 15x18 μ m



LM (Gotland Sea, sediment trap)

phytoplankton - dinophyceae

Gymnodinium lebourae

abundance: occasional abundant

life-form: solitary

length: more than 100µm

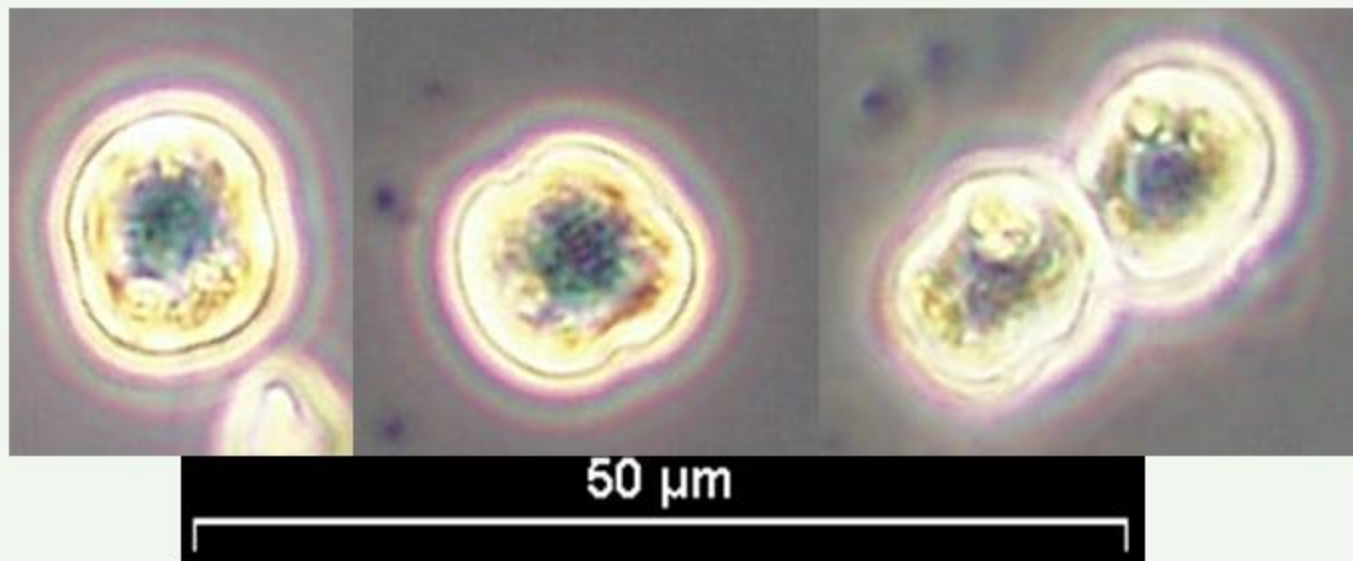


LM (North Sea, AMRU2)

phytoplankton - dinophyceae

Gymnodinium simplex

abundance: spring
life-form: solitary
size: 10x12µm

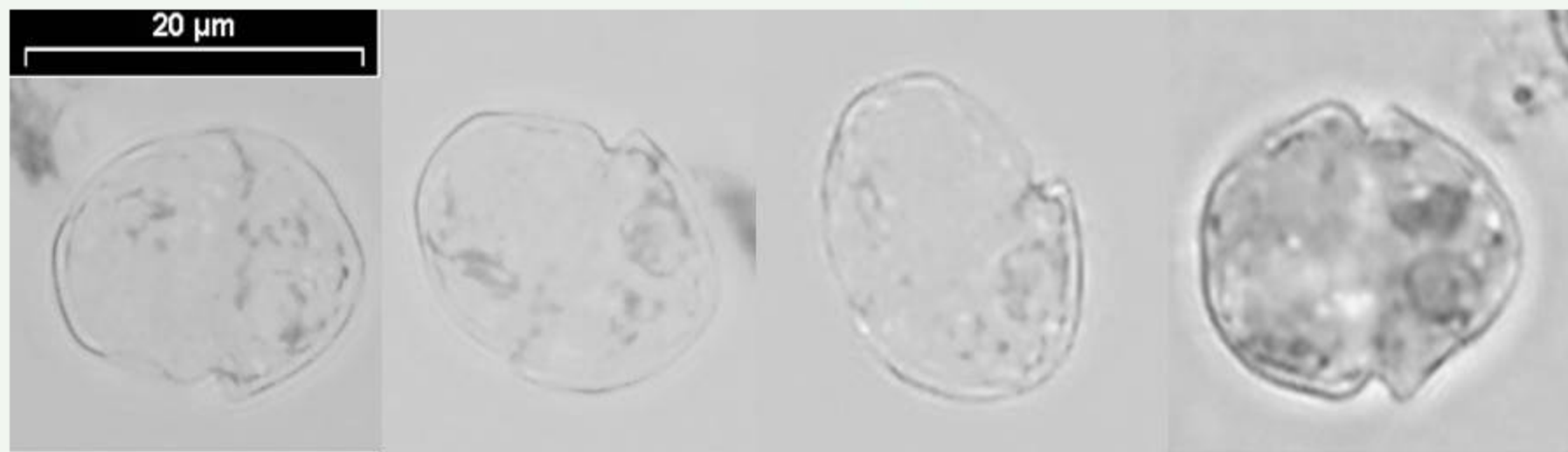
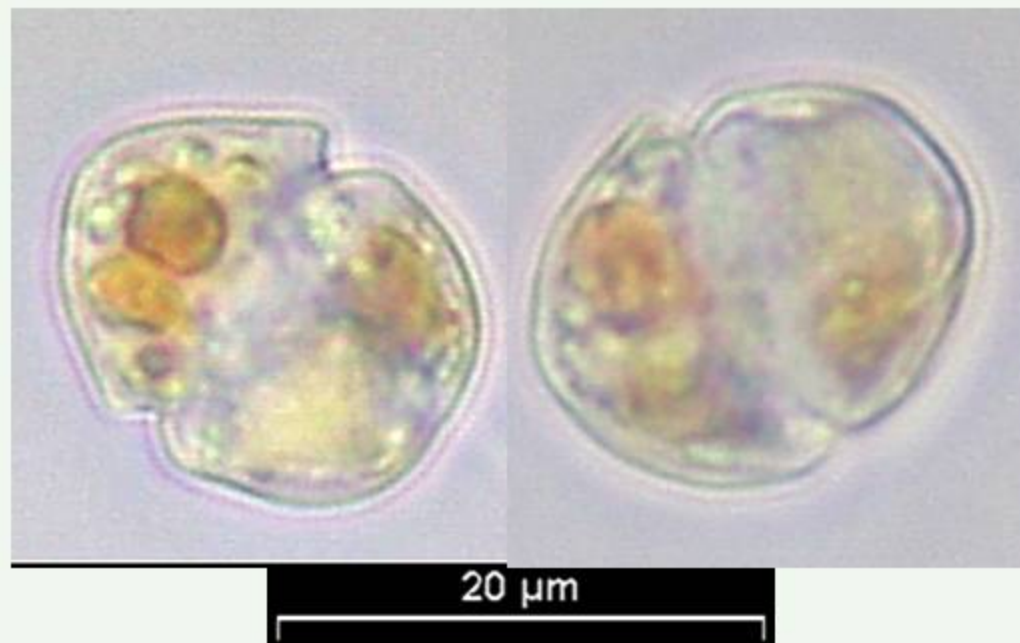


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gymnodinium sp. 1

abundance: spring
life-form: solitary
size: 15x20µm



LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gymnodinium sp. 2

abundance: spring,
life-form: solitary
length: 32 μm
width: 26 μm

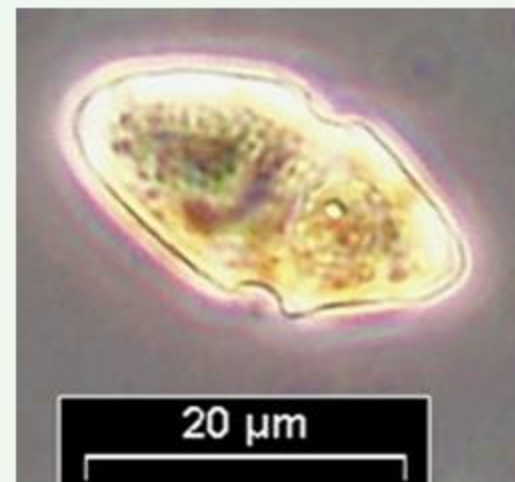
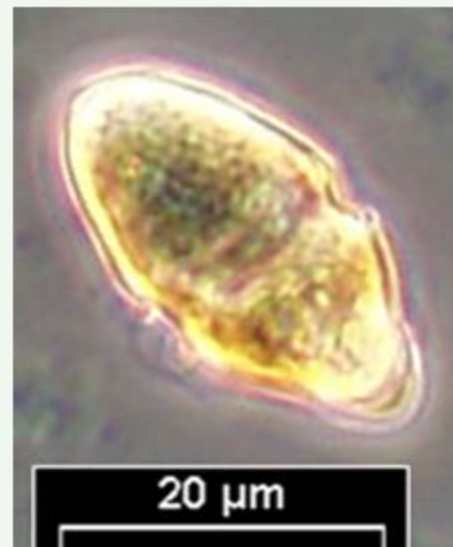


LM (Mecklenburg Bight)

phytoplankton - dinophyceae

Gymnodinium sp. 3

abundance: spring,
life-form: solitary
length: 27 μ m
width: 14 μ m



LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gymnodinium sp. 4

abundance: spring,
life-form: solitary
length: 20 μ m
width: 17.5 μ m



LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gymnodinium sp. 5

abundance spring,
life-form: solitary
length: 50µm
width: 40µm



LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gyrodinium spirale

abundance: autumn
life-form: solitary
length: 80µm
width: 30µm

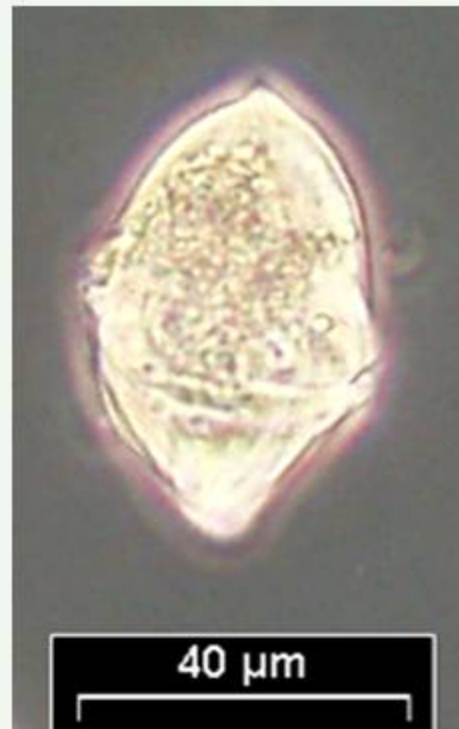


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Gyrodinium sp. 1

abundance spring,
life-form: solitary
length: 60µm
width: 40µm

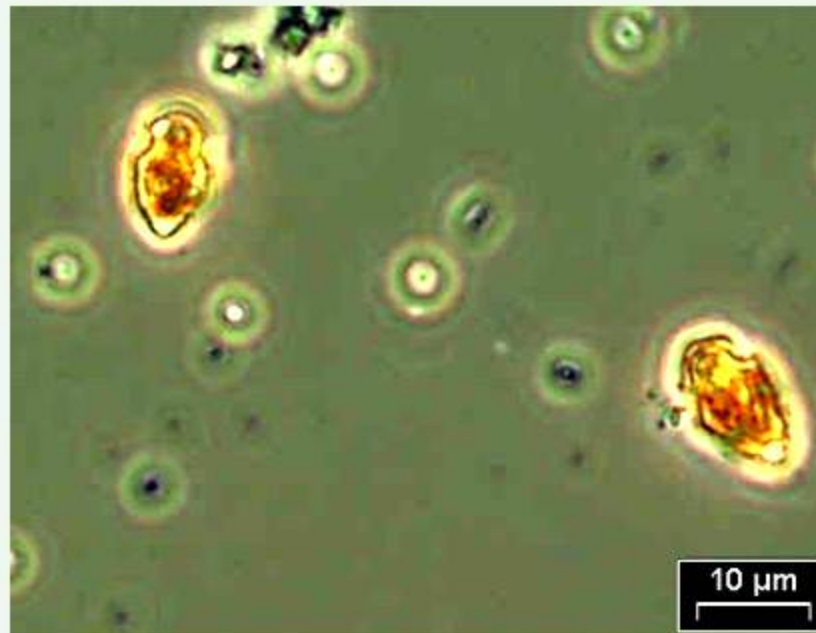


LM (coastal station Heiligendamm)

phytoplankton – dinophyceae

Heterocapsa rotundatum

abundance: all year
life-form: solitary
cell length: 8 - 17 μm



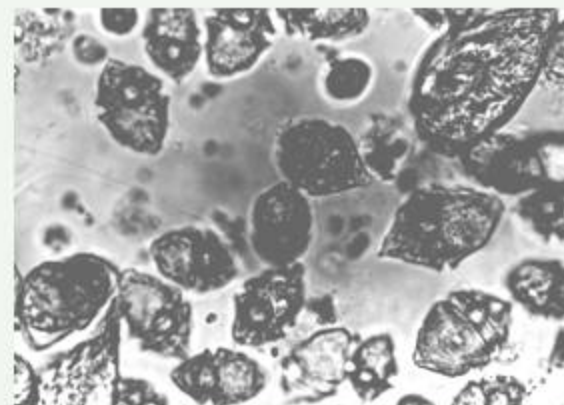
LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

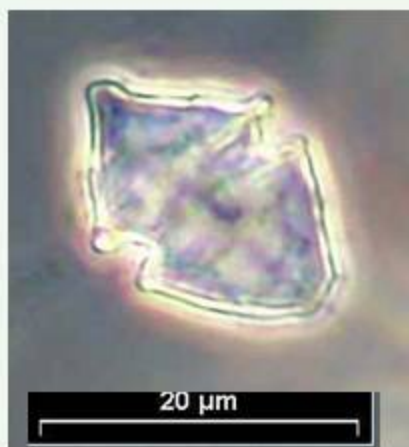
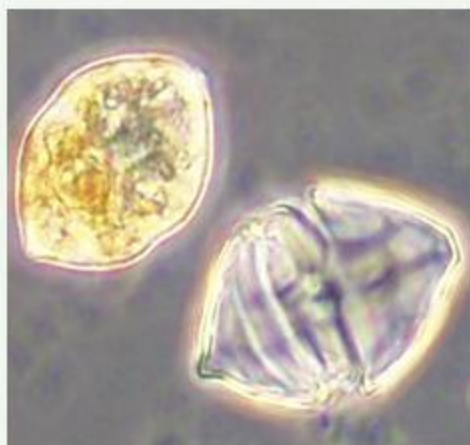
Heterocapsa triquetra



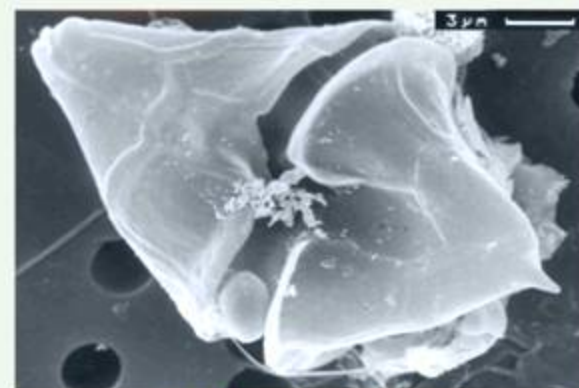
abundance: summer
life-form: solitary
size: 15 x 30µm



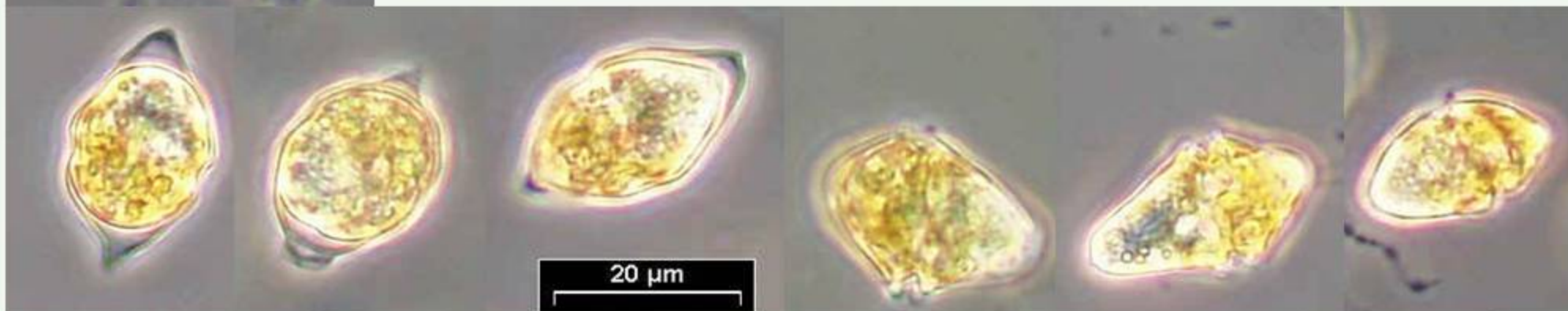
LM (Kiel Bight, bloom)



LM (Gotland Sea, sediment trap)



REM (Black Sea)



LM (bloom in the harbour of Rostock)

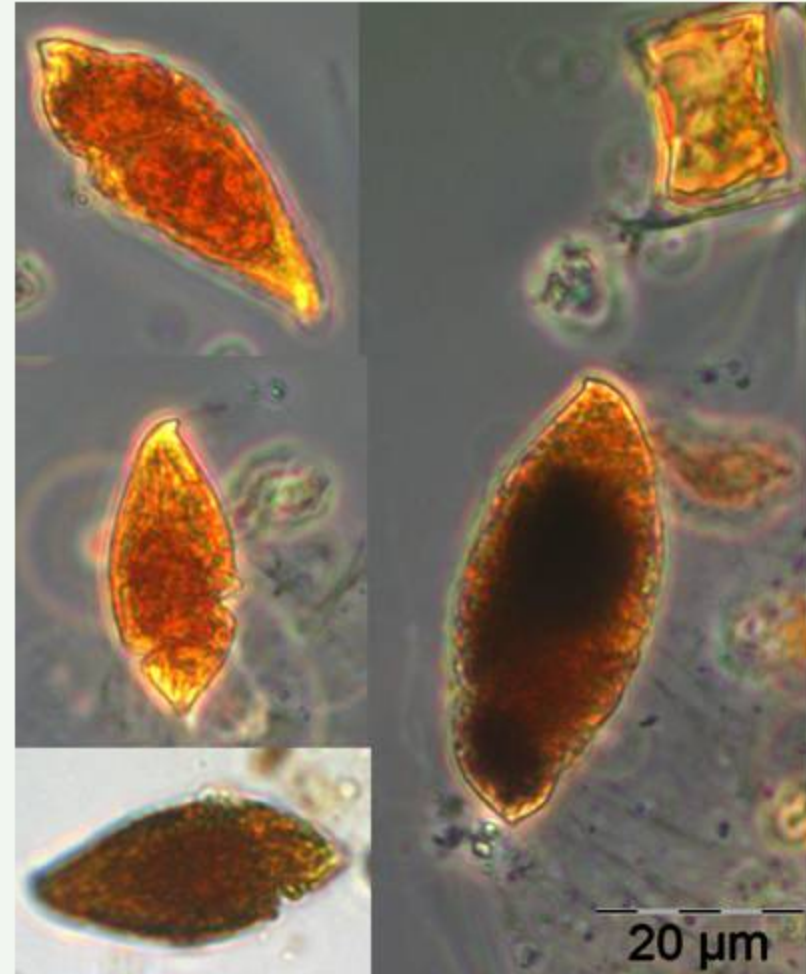
phytoplankton -dinophyceae

Katodinium glaucum

abundance: summer, autumn
life-form: solitary
length: 40 - 56 μm



LM (Mecklenburg Bight)
preserved with Lugol's solution
and cleared with sodium thiosulphate

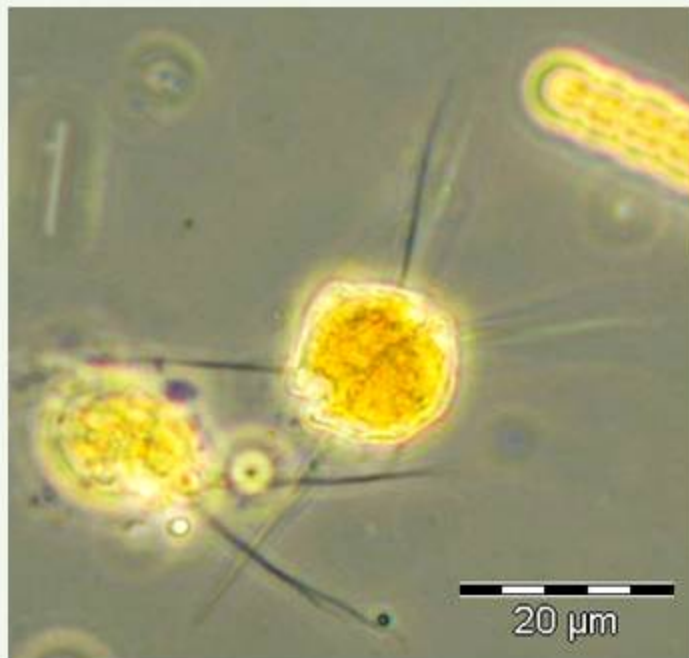


LM (Mecklenburg Bight)
preserved with Lugol's solution

phytoplankton - dinophyceae

Micracanthodinium claytonii

abundance: summer
life-form: solitary
length: 12 – 20µm

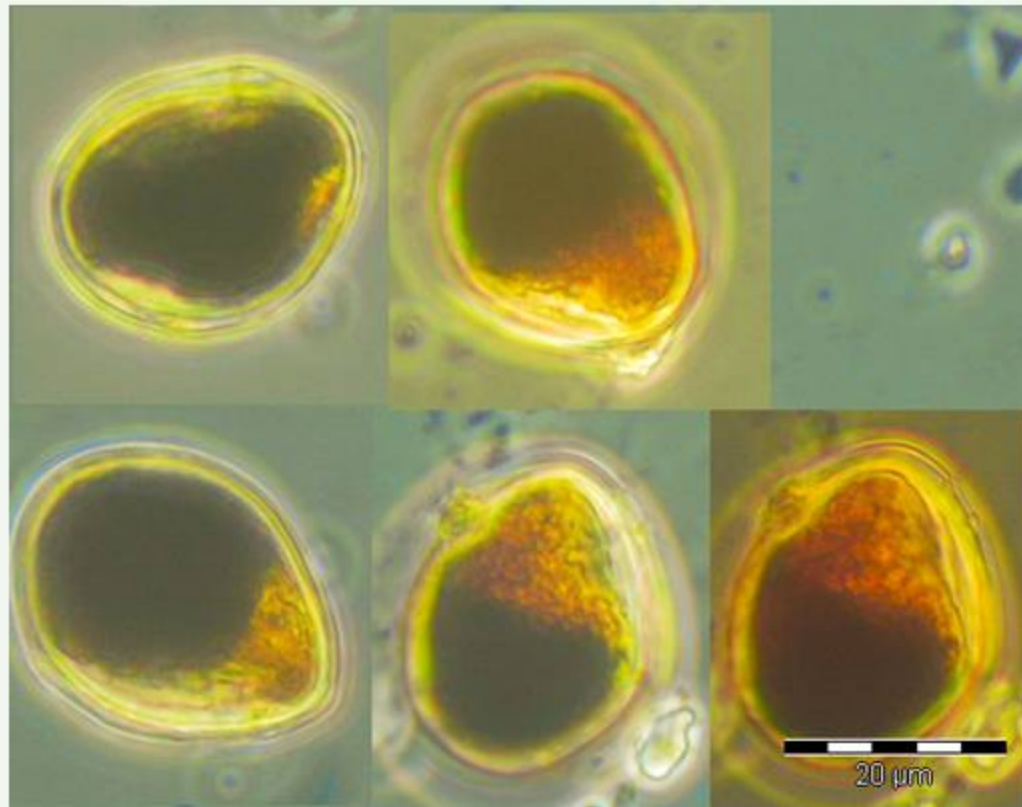


LM (Gotland Sea) Lugol preserved

phytoplankton - dinophyceae

Nematodinium armatum

abundance: all year
life-form: solitary
length: 28-50 μ m
width: 15-25 μ m



LM (North Sea, SWWBA)

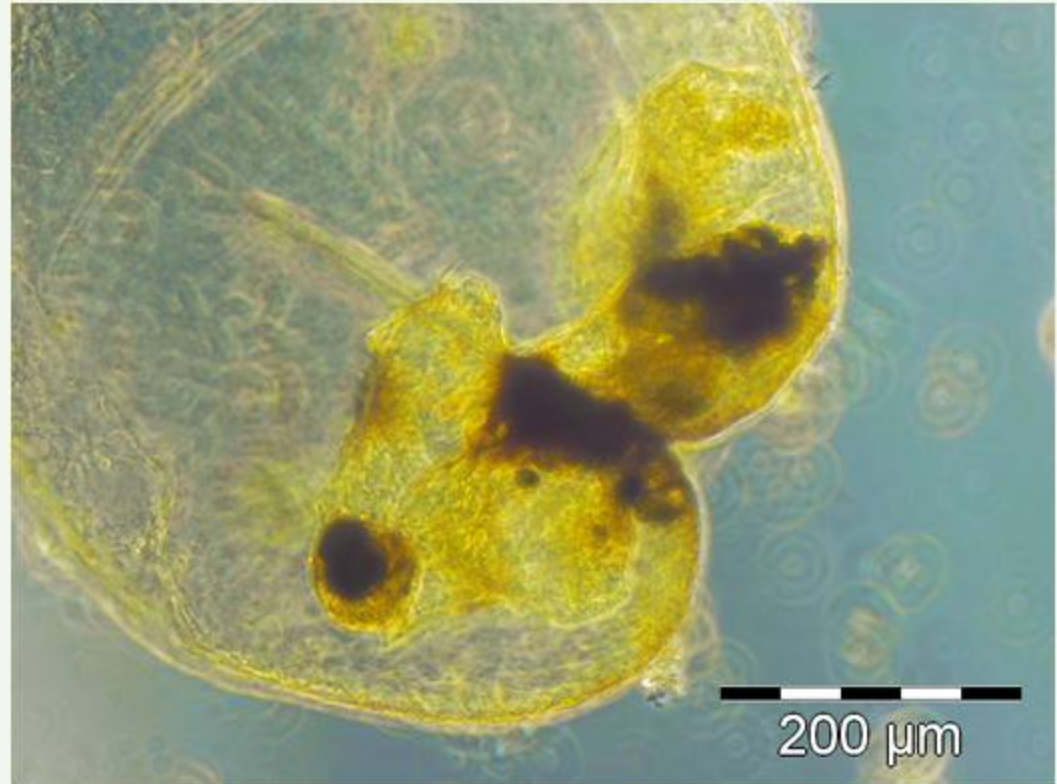
phytoplankton - dinophyceae

Noctiluca scintillans

abundance: spring, summer

life-form: solitary

width: 200-2000 μ m



LM (North Sea, NSB₃)

phytoplankton - dinophyceae

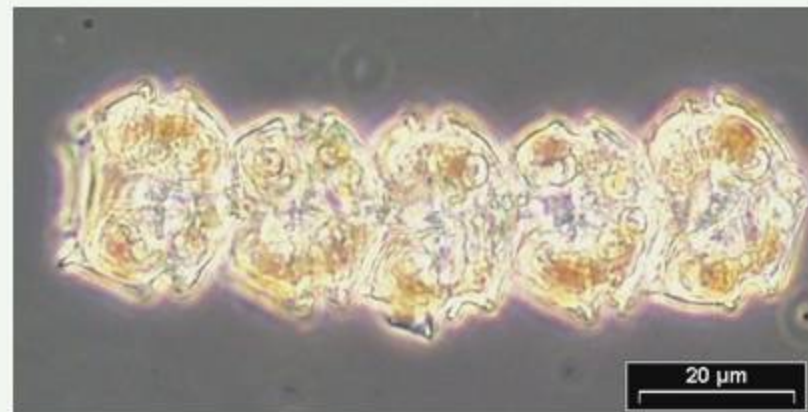
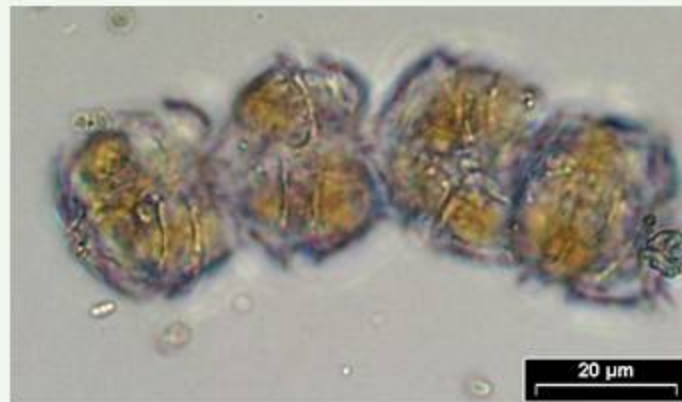
Peridiniella catenata

abundance: spring

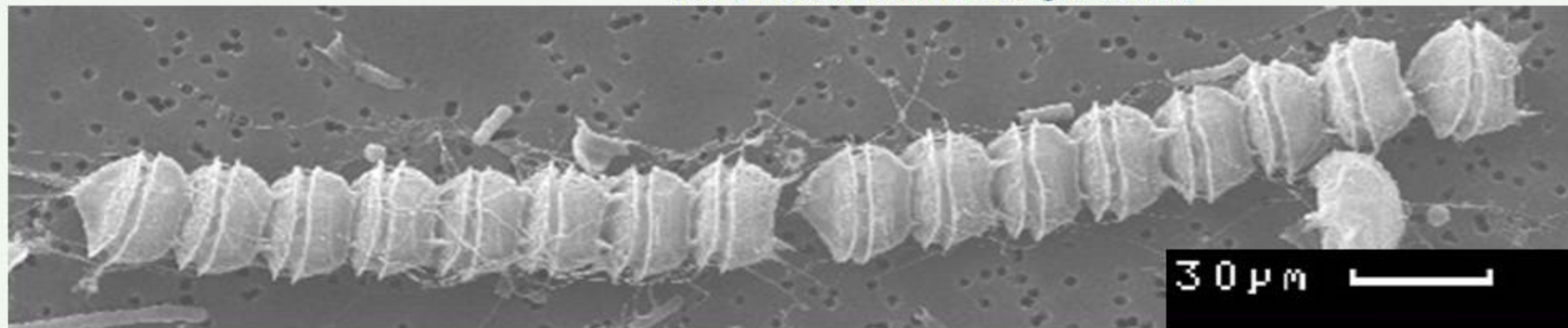
life-form: mostly in chains of 2 to 16 cells

length: 23 - 36 μm

width: 23 - 36 μm



LM (coastal station Heiligendamm)

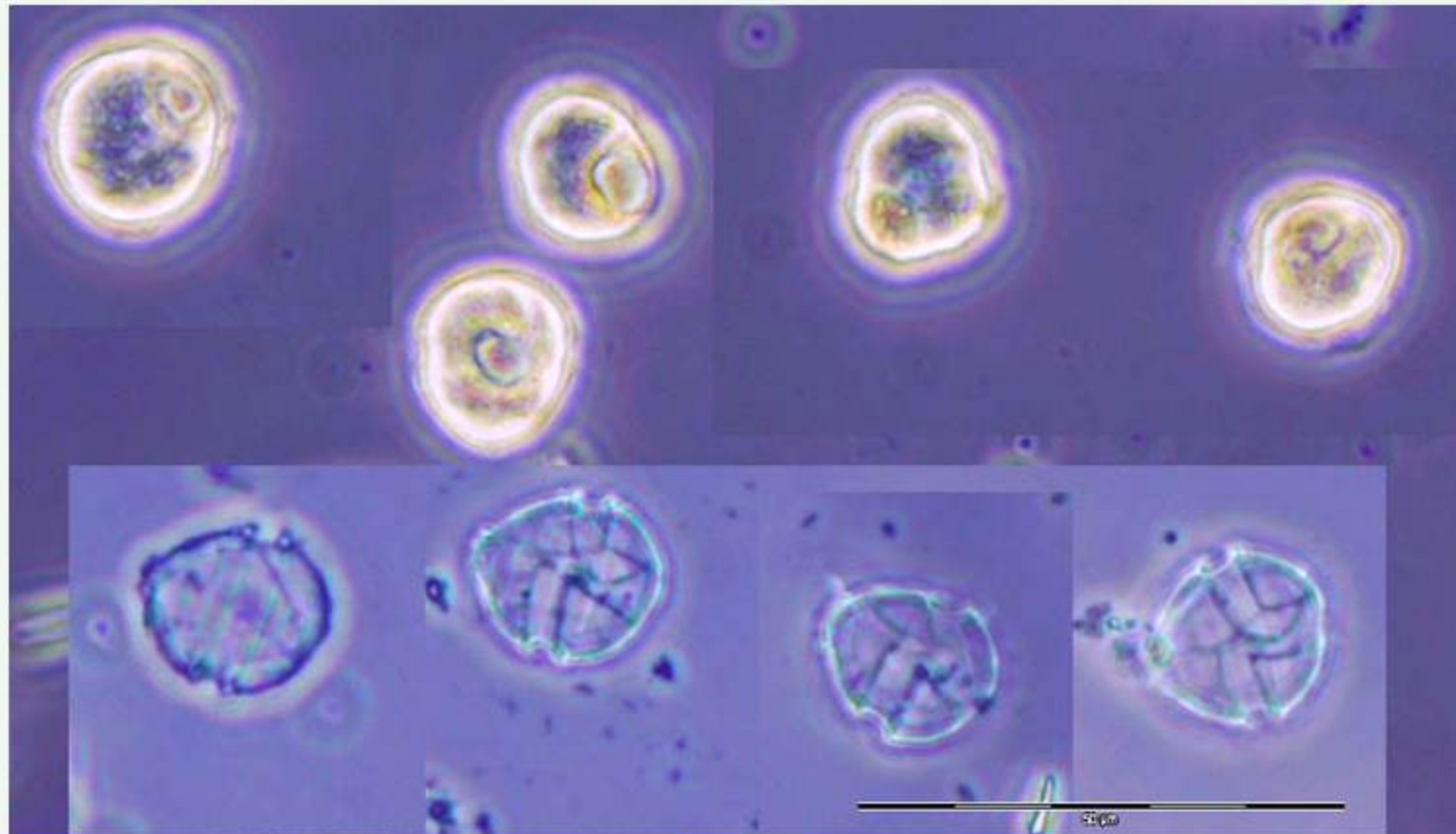


REM (Gotland Sea)

phytoplankton – dinophyceae

Peridiniella danica

abundance: spring
life-form: solitary
length: 13-36 μ m
width: 13-36 μ m



LM (Mecklenburg Bight)

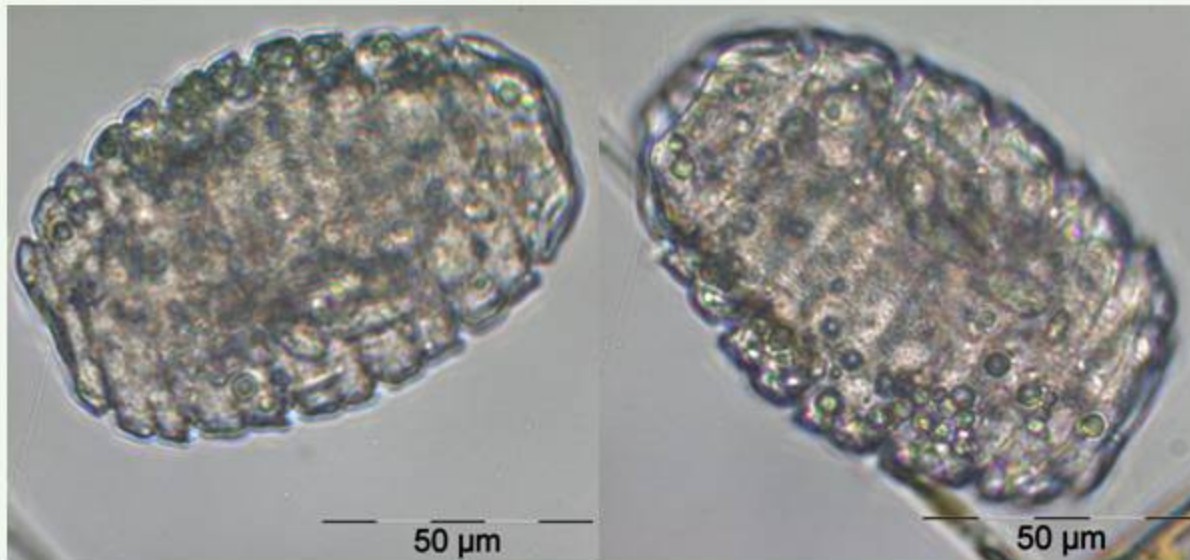
phytoplankton – dinophyceae

Polykrikos schwartzii

abundance: spring to autumn

life-form: pseudocolony composed of 2, 4 or 8 cells

length: pseudocolony of 8 cells: 100-160µm



LM (Mecklenburg Bight) living pseudocolony

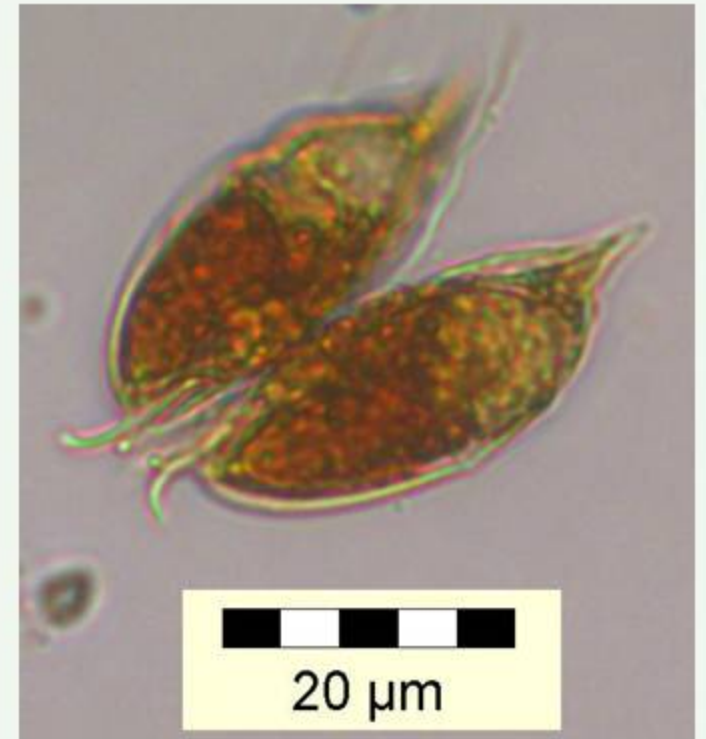


Lugol-preserved pseudocolony

phytoplankton – dinophyceae

Pronoctiluca pelagica

life-form: solitary
length: 12 – 45 μm

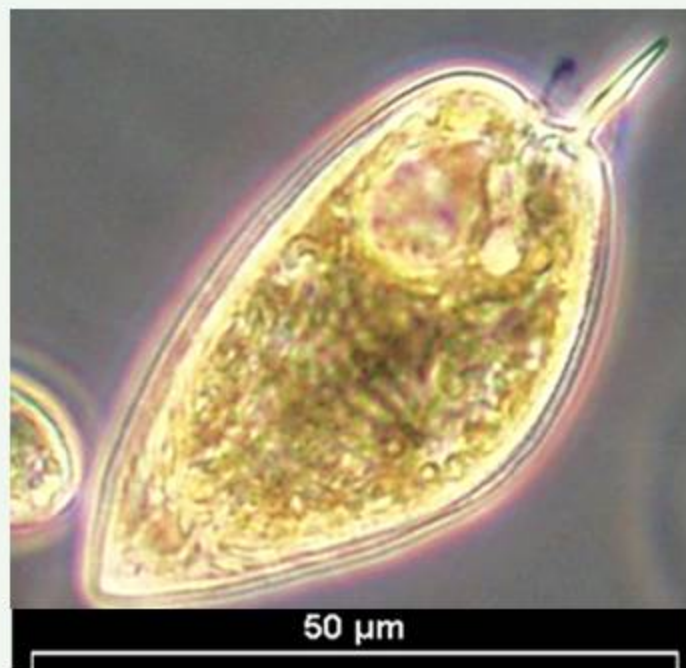


LM (Gotland Sea)

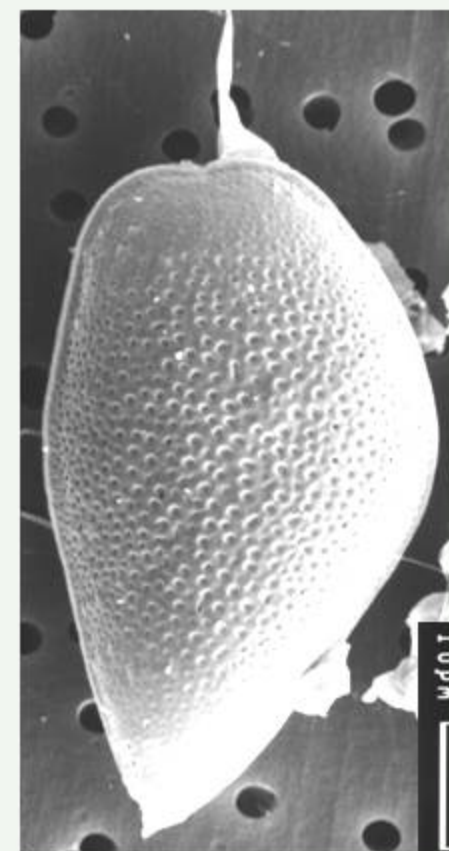
phytoplankton - dinophyceae

Prorocentrum micans

abundance: summer, autumn
life-form: solitary
length: 40 - 50 μm
width: 30 μm



LM (coastal station Heiligendamm)

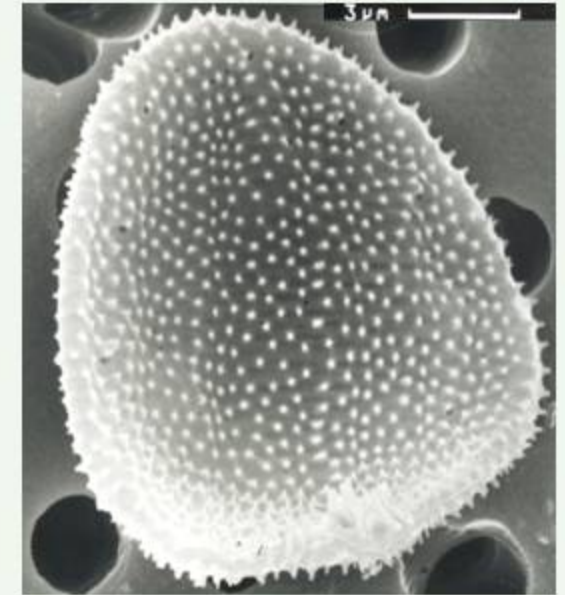


REM (Gotland Sea, sediment trap)

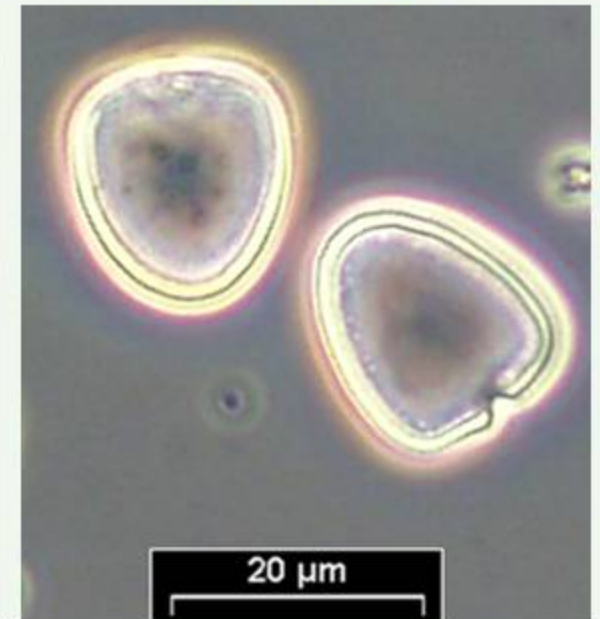
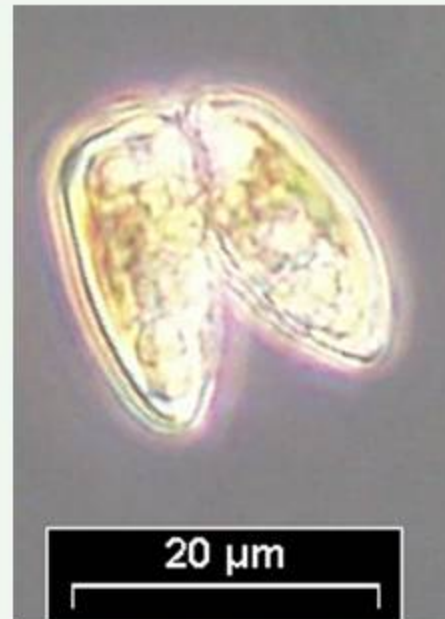
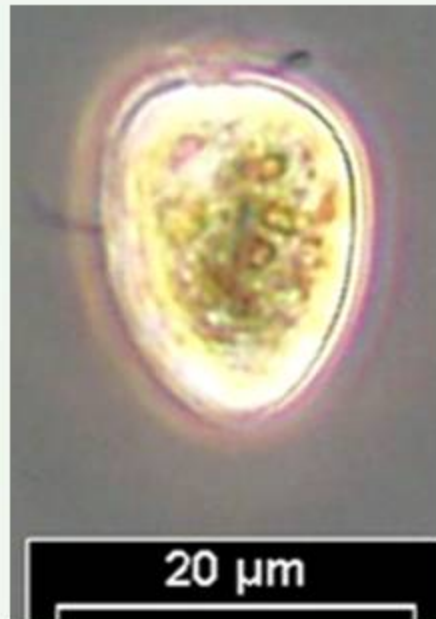
phytoplankton - dinophyceae

Prorocentrum minimum

abundance: summer,
life-form: solitary
length: 15 - 20 μm
width: 15 μm



REM (Kiel Bight)

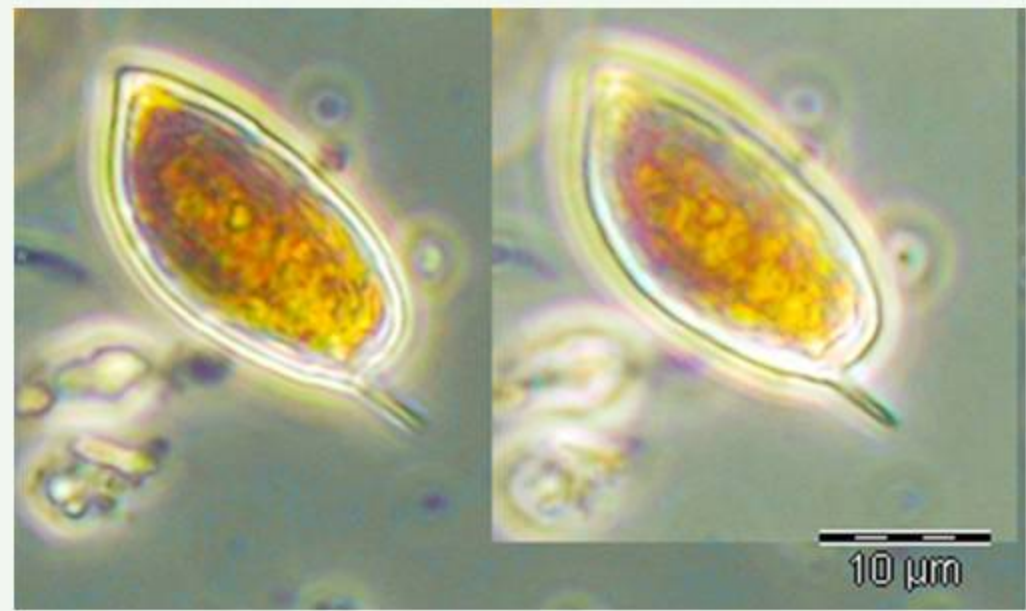
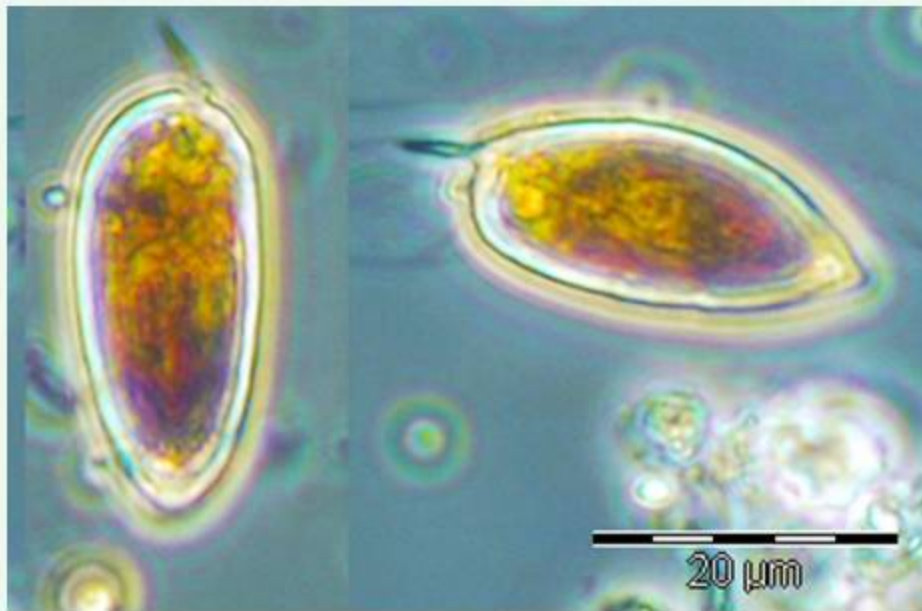


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Prorocentrum redfieldii

abundance: summer
life-form: solitary
length: 18-22 μm
width: 6-11 μm

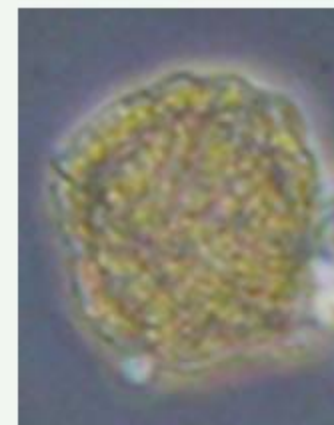
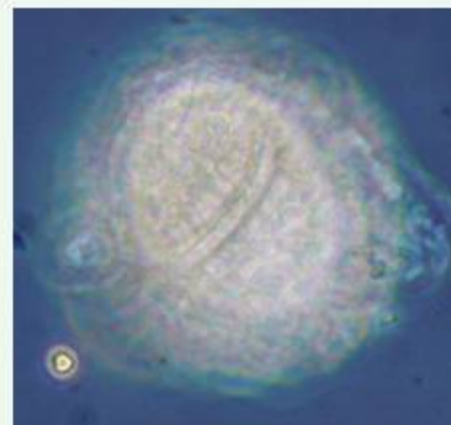
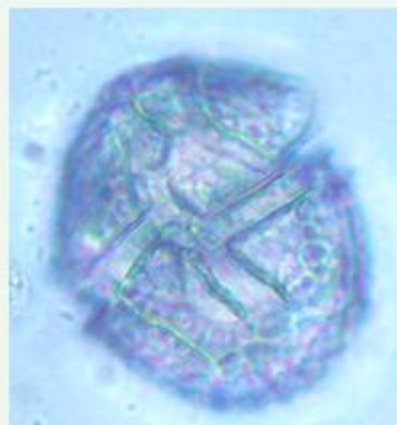


LM (North Sea, BRIFF)

phytoplankton - dinophyceae

Protoceratium reticulatum

abundance: all year
life-form: solitary
length: 25 - 55 μm
width: 25 - 35 μm

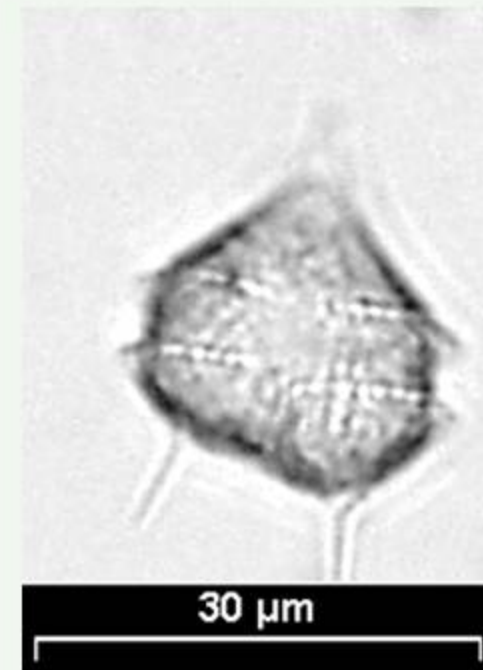
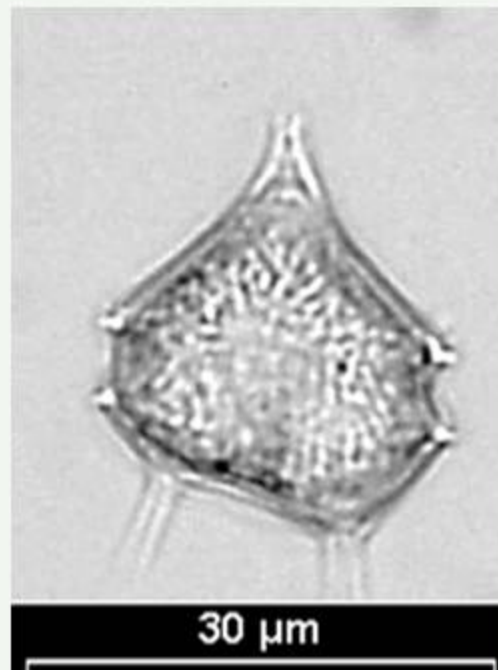
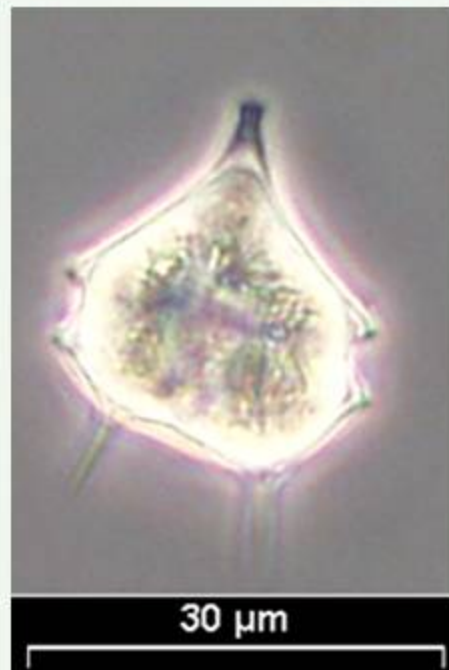


LM (North Sea, NGW8)

phytoplankton - dinophyceae

Protoperidinium bipes

abundance: spring
life-form: solitary
length: 20-35 μ m
width: 17-19 μ m

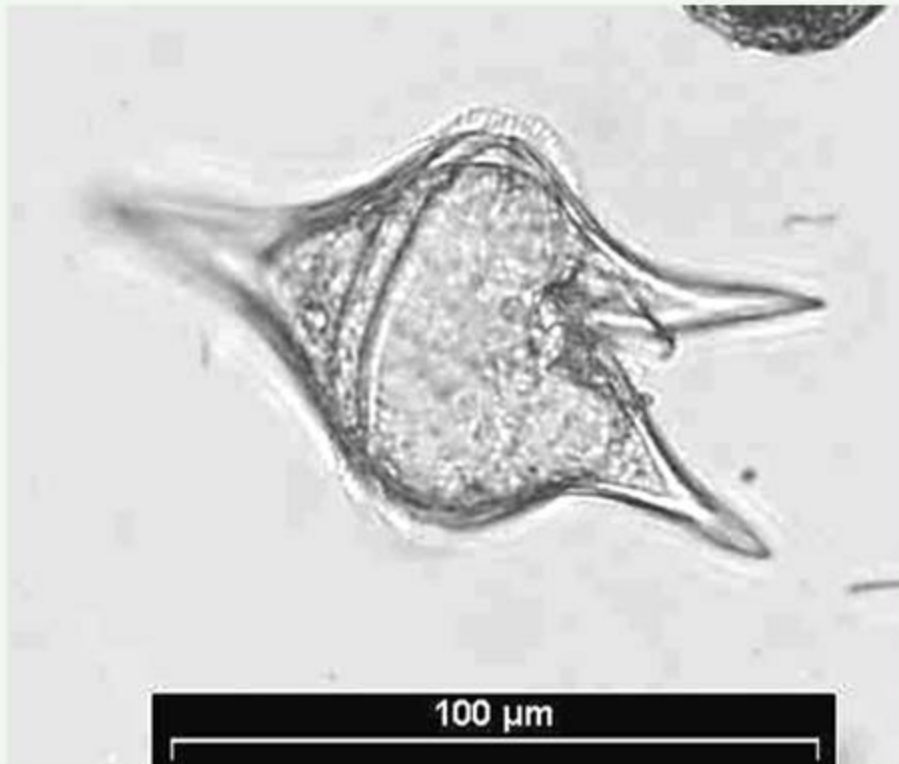


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium claudicans

abundance: spring
life-form: solitary
length: 50 – 100µm

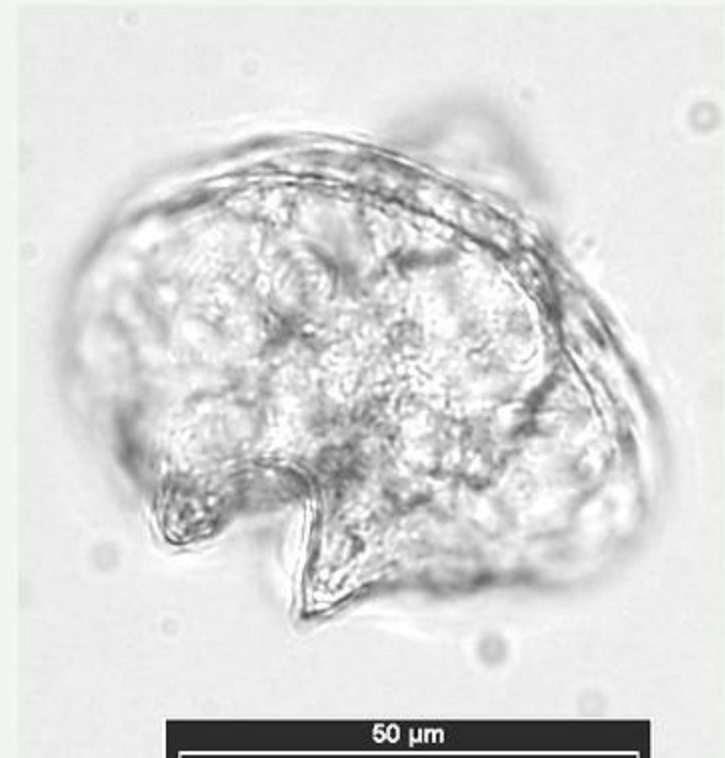
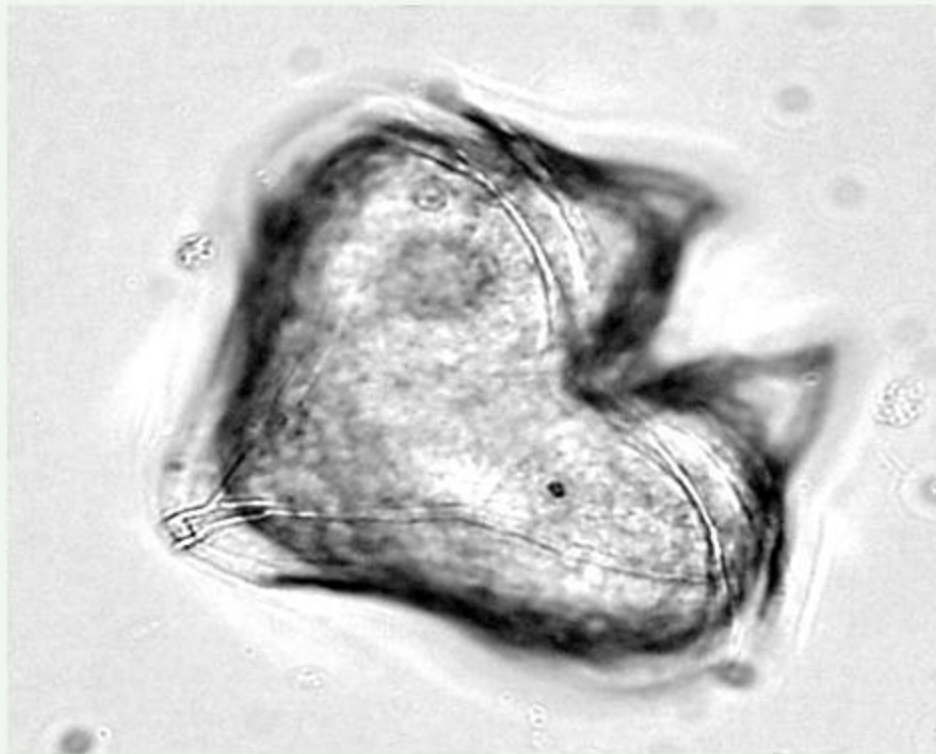


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium conicum

abundance: spring
life-form: solitary
length: 70-85 μ m
width: 60 μ m

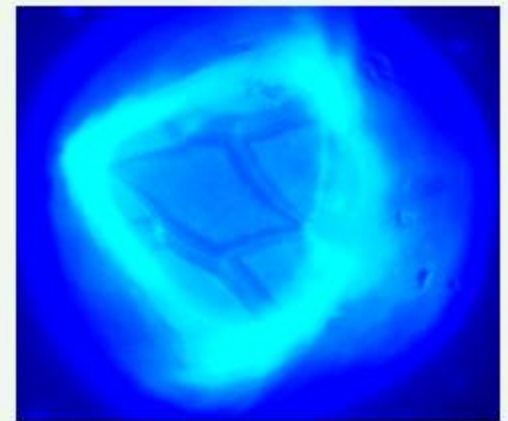


LM (coastal station Heiligendamm)

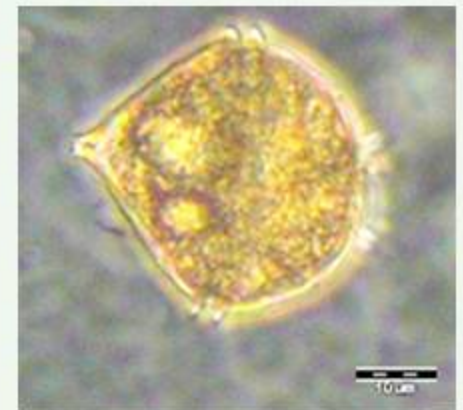
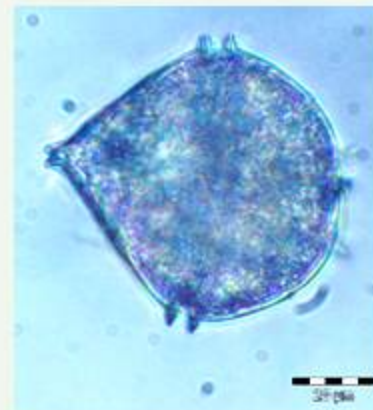
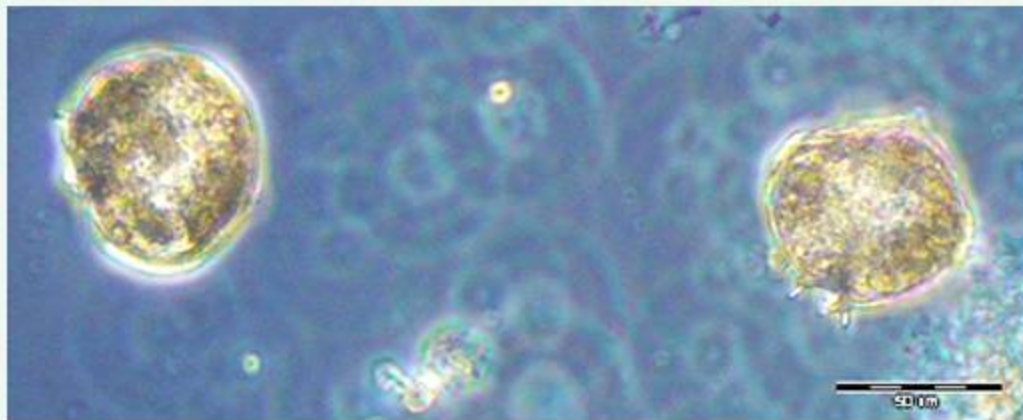
phytoplankton - dinophyceae

Protoperidinium curvipes

abundance: spring
life-form: solitary
length: 40 - 70µm
width: 30 - 50µm



cell stained with Calcofluor White

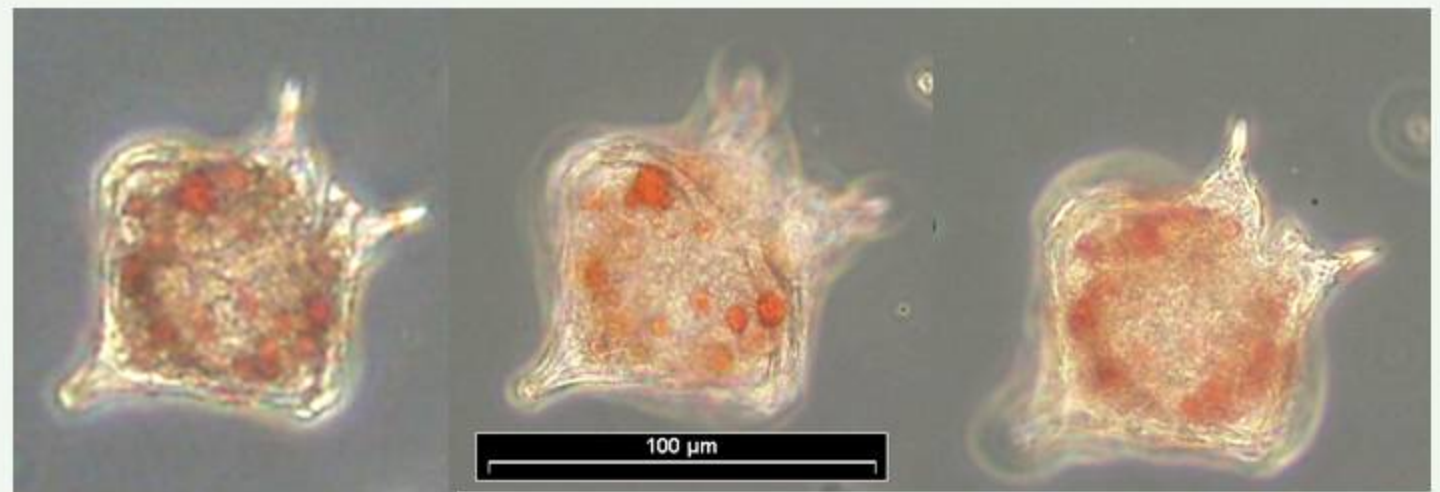
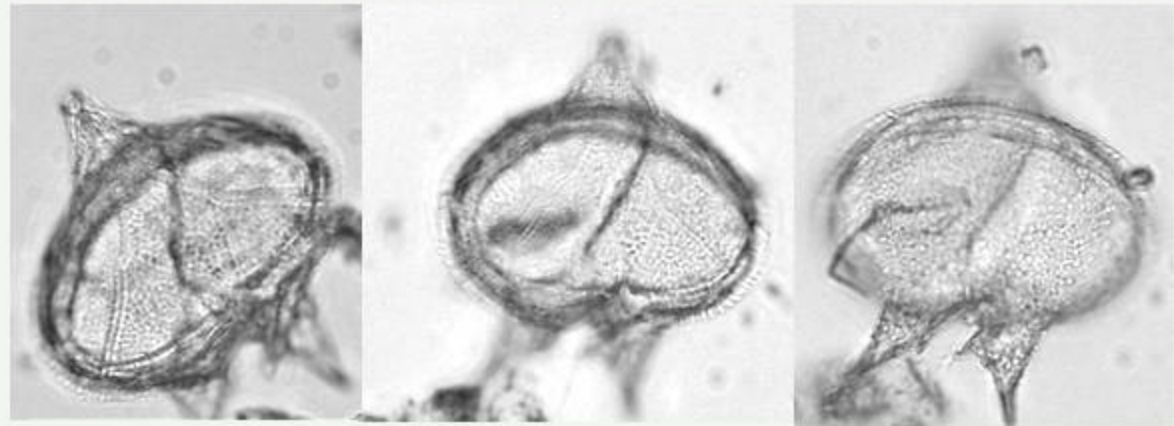


LM (sedimenttrap Arkona Sea)

phytoplankton - dinophyceae

Protoperidinium divergens

abundance: autumn
life-form: solitary
length: 80 – 84µm
width: 60µm

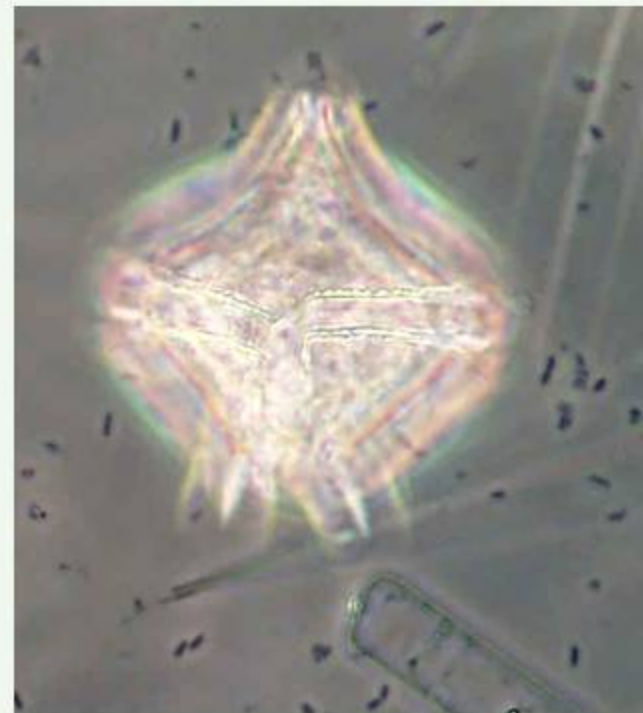
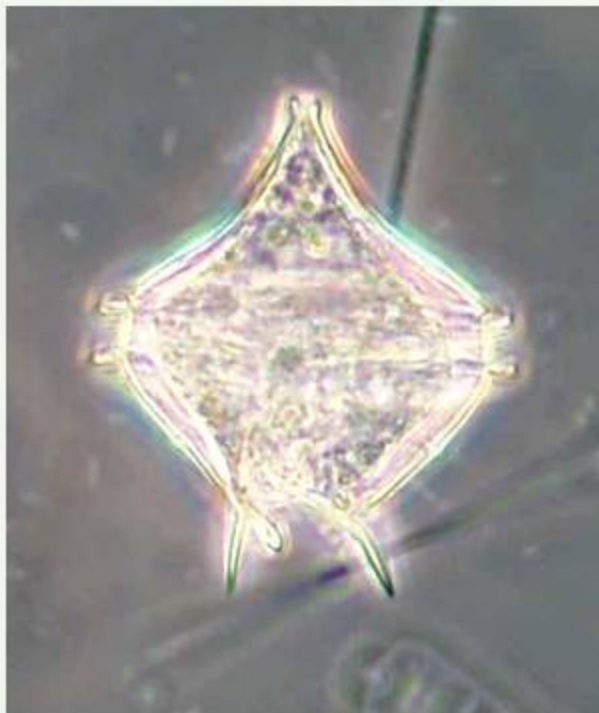


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium pallidum

abundance: spring
life-form: solitary
diameter: 70 – 100µm

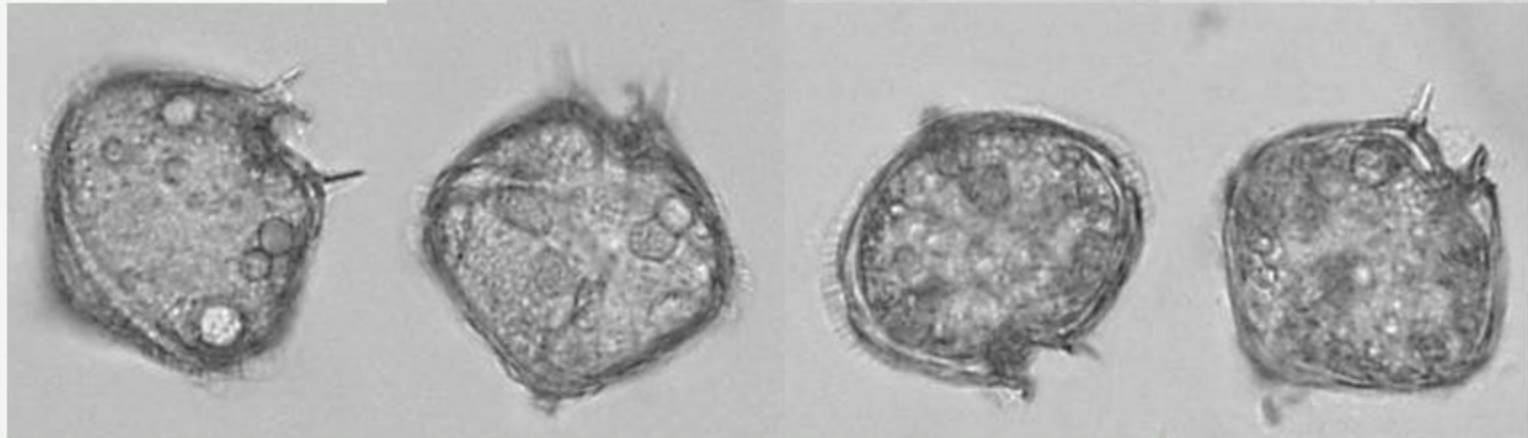
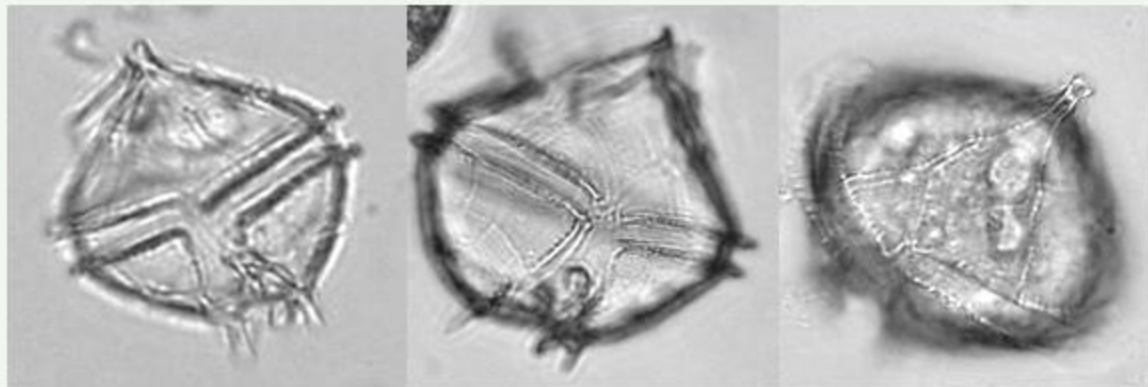


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium pellucidum

abundance: spring, summer
life-form: solitary
length: 40-68 μ m
width: 36-70 μ m



LM (coastal station Heiligendamm)

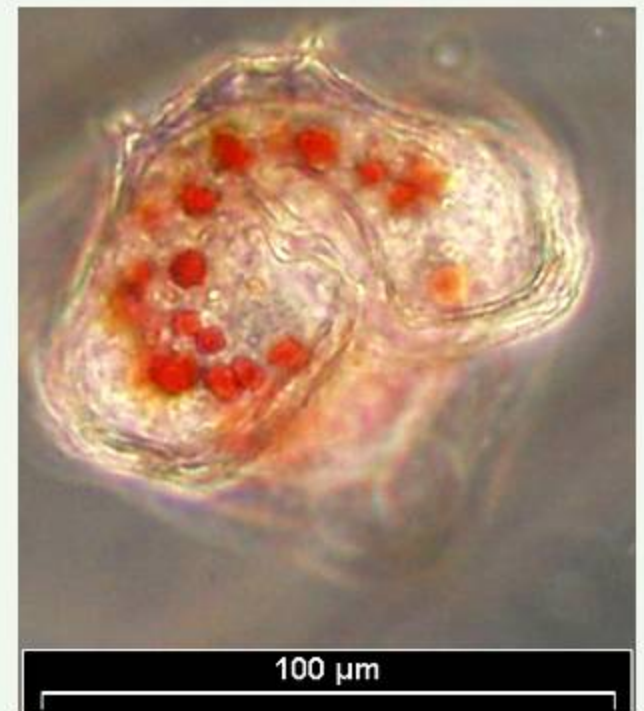
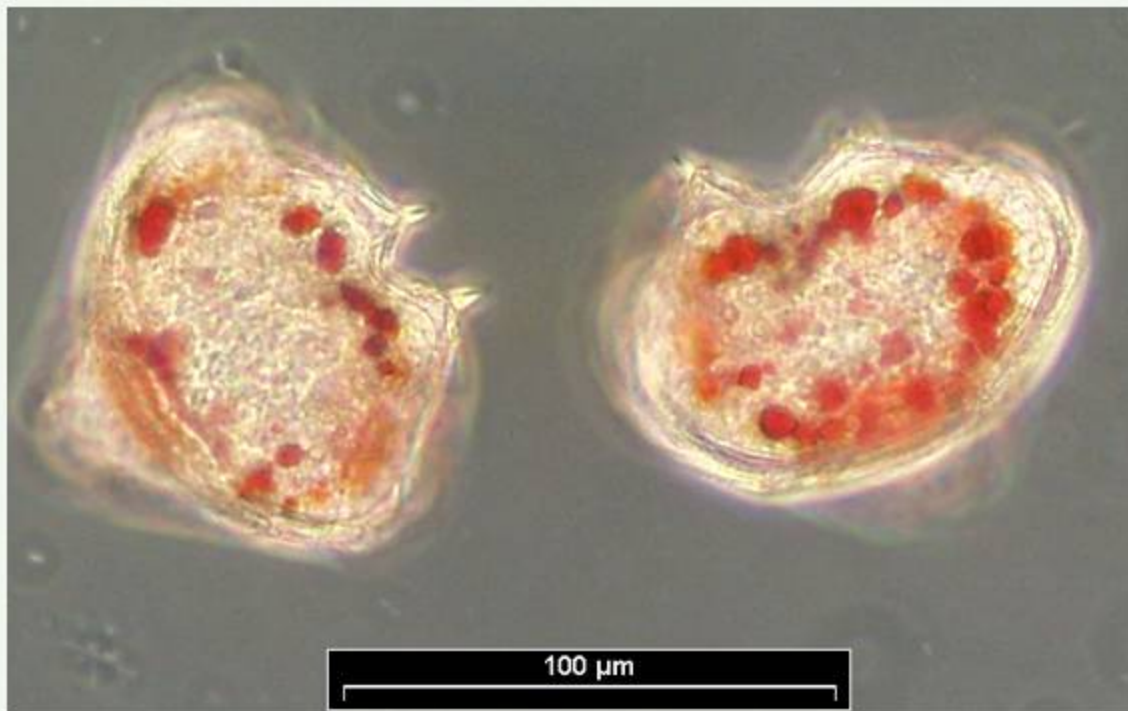


REM (North Sea, NSB₃)

phytoplankton - dinophyceae

Protoperidinium pentagonum

abundance: autumn
life-form: solitary
length: 65 – 110µm
width: 75 – 120µm

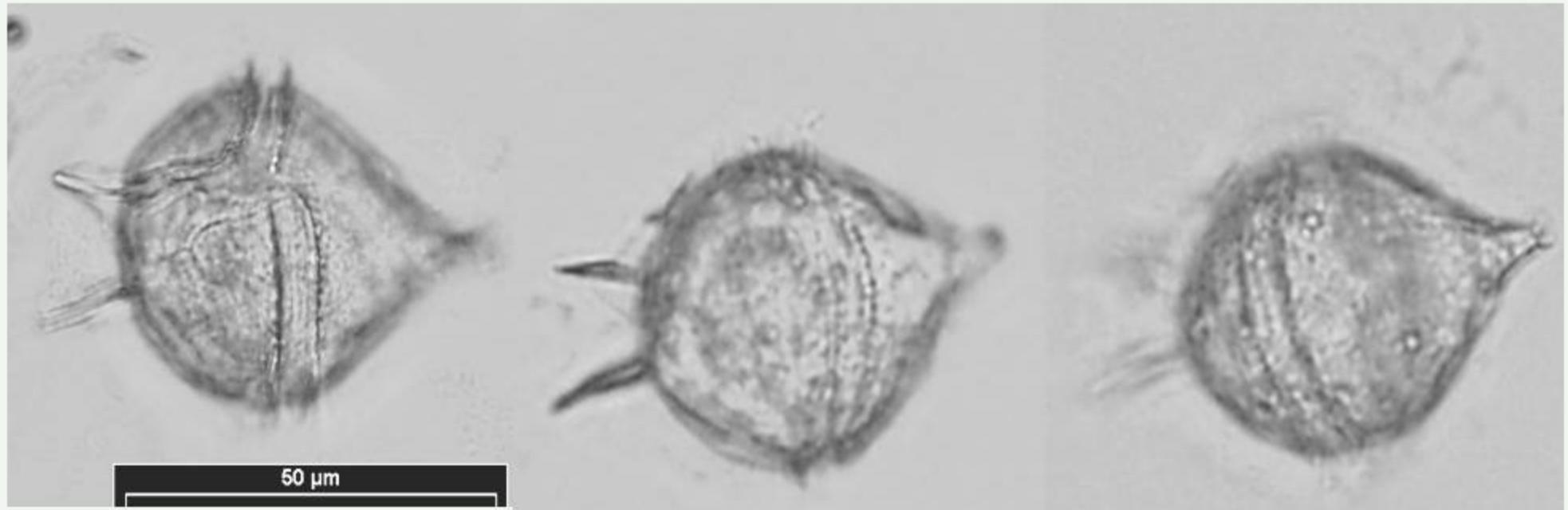


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium steinii

abundance: spring, summer, autumn
life-form: solitary
length: 50µm
width: 40µm

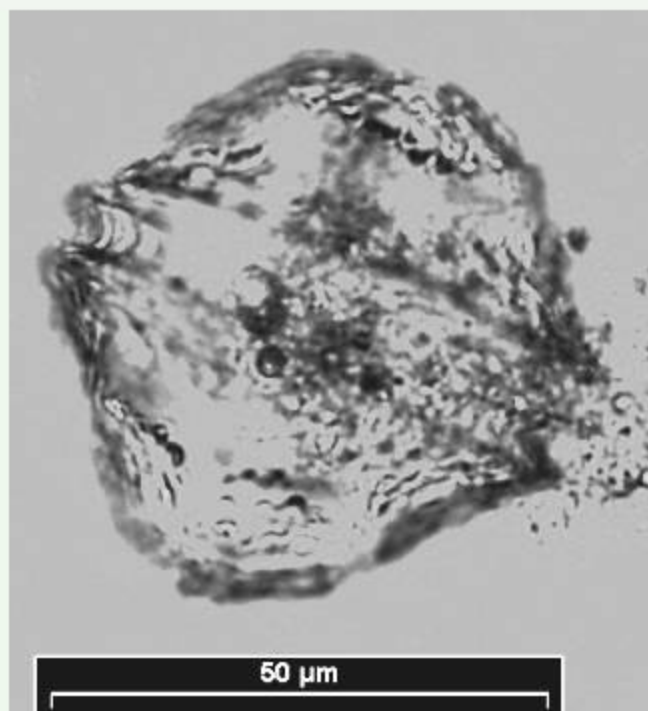
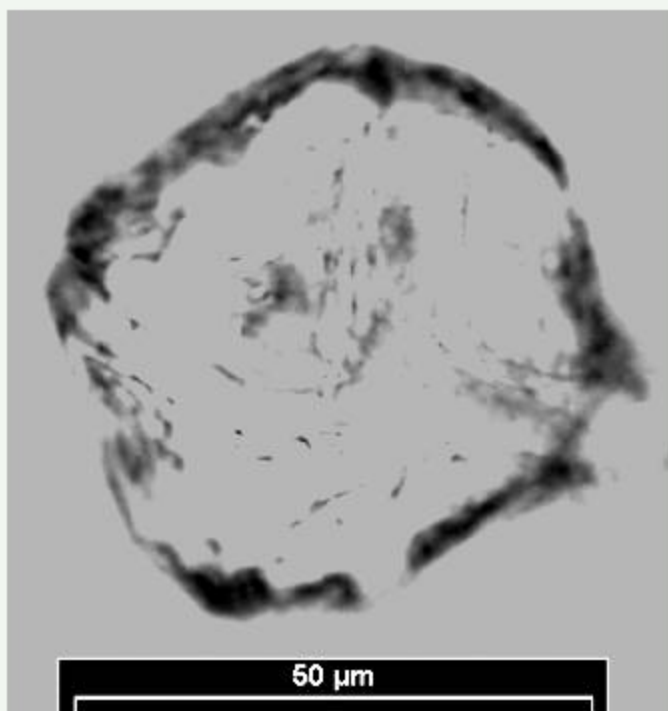


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Protoperidinium thorianum

abundance: spring, summer
life-form: solitary
length: 56-70µm

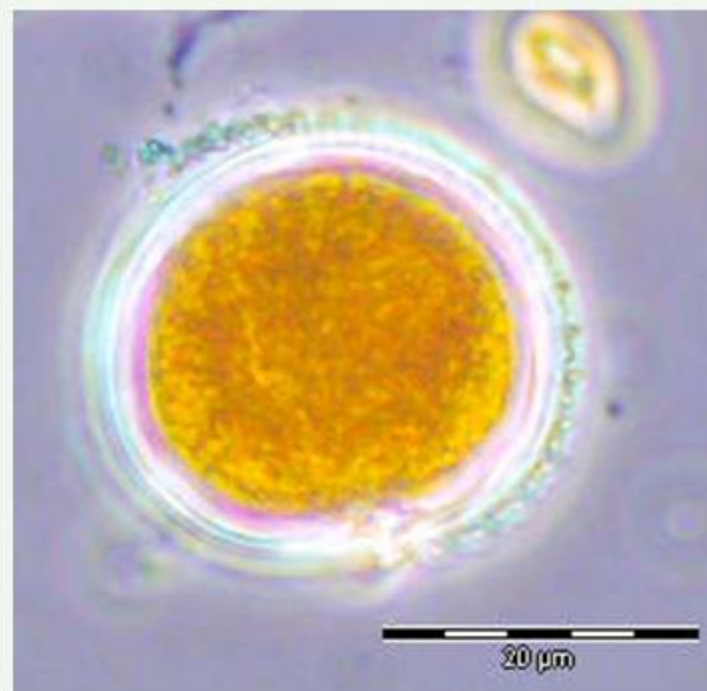


LM (coastal station Heiligendamm)

phytoplankton - dinophyceae

Pyrophacus horologicum

abundance: summer
life-form: solitary
length: 32 – 125 μm
width: 35 – 136 μm

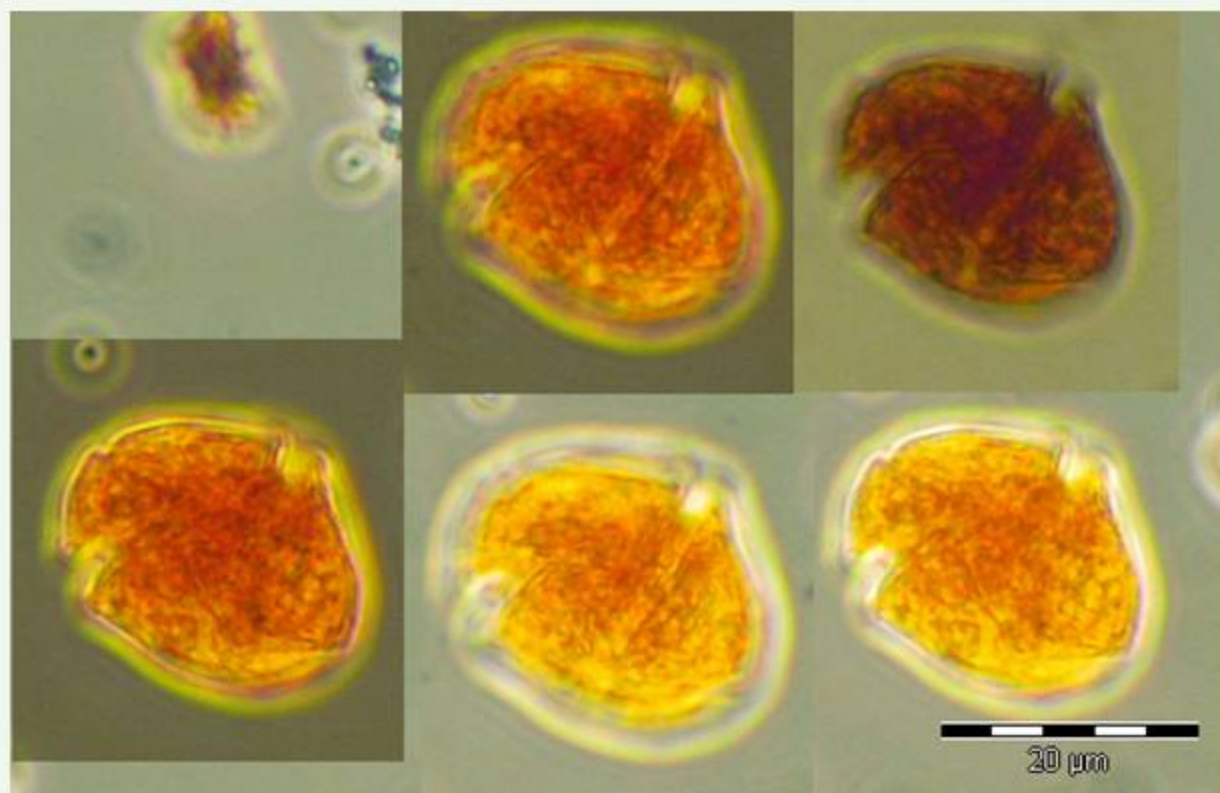


LM (Gotland Sea)

phytoplankton - dinophyceae

Sclerodinium calyptoglyphe

abundance: all year
life-form: solitary
length: 20-30 μ m
width: 15-22 μ m



LM (North Sea, NEFB)

phytoplankton - dinophyceae

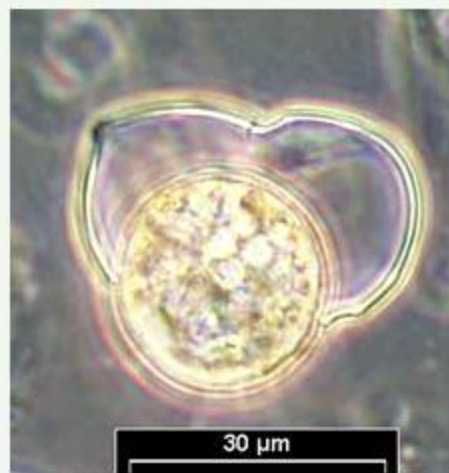
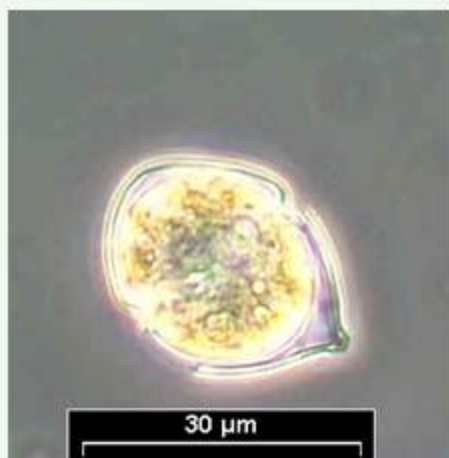
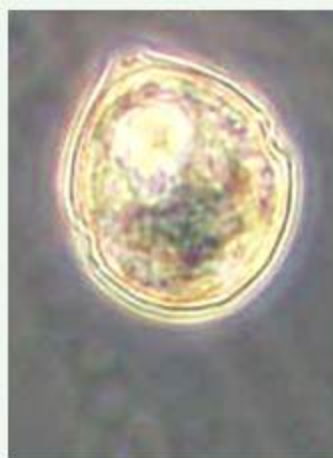
Scrippsiella Group

abundance: spring, summer, autumn

life-form: solitary

length: 16 – 36 μm

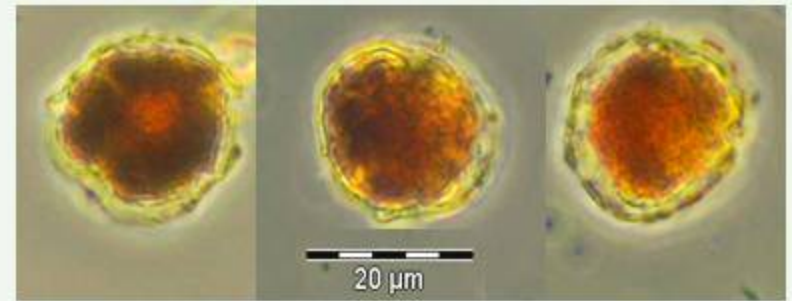
width: 20 -23 μm



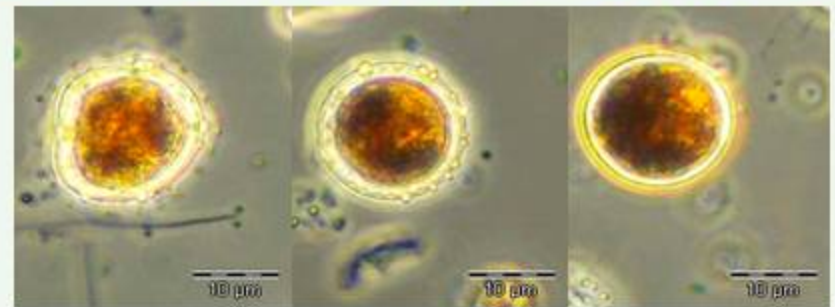
LM (coastal station Heiligendamm)

phytoplankton - dinophyceae cf. *Scrippsiella hangoei*

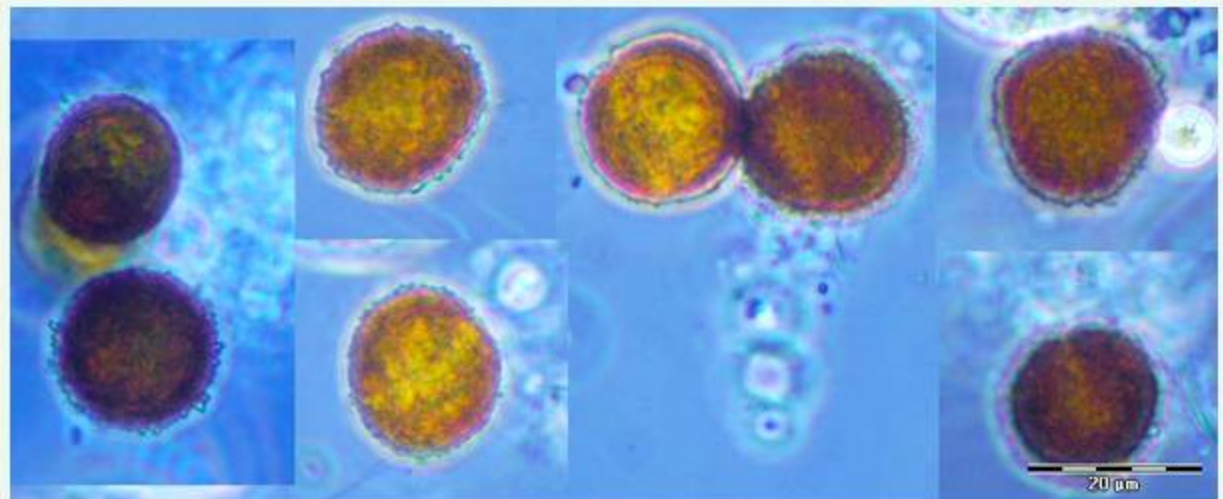
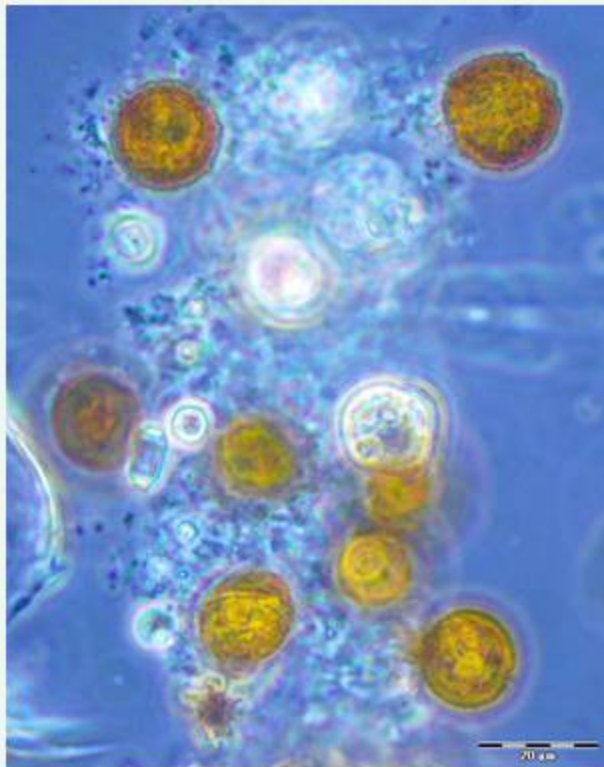
abundance: summer
life-form: solitary
length: 23 – 35µm
width: 18 – 32µm



LM (Gotland Sea) preserved with Lugol`s solution



cysts????



LM (Gotland Sea, sediment trap) preserved with Formol solution

phytoplankton - dinophyceae

Spatulodinium pseudonociluca

life-form: solitary
length of mature cell: 90-170µm
width of mature cell: 70-120µm

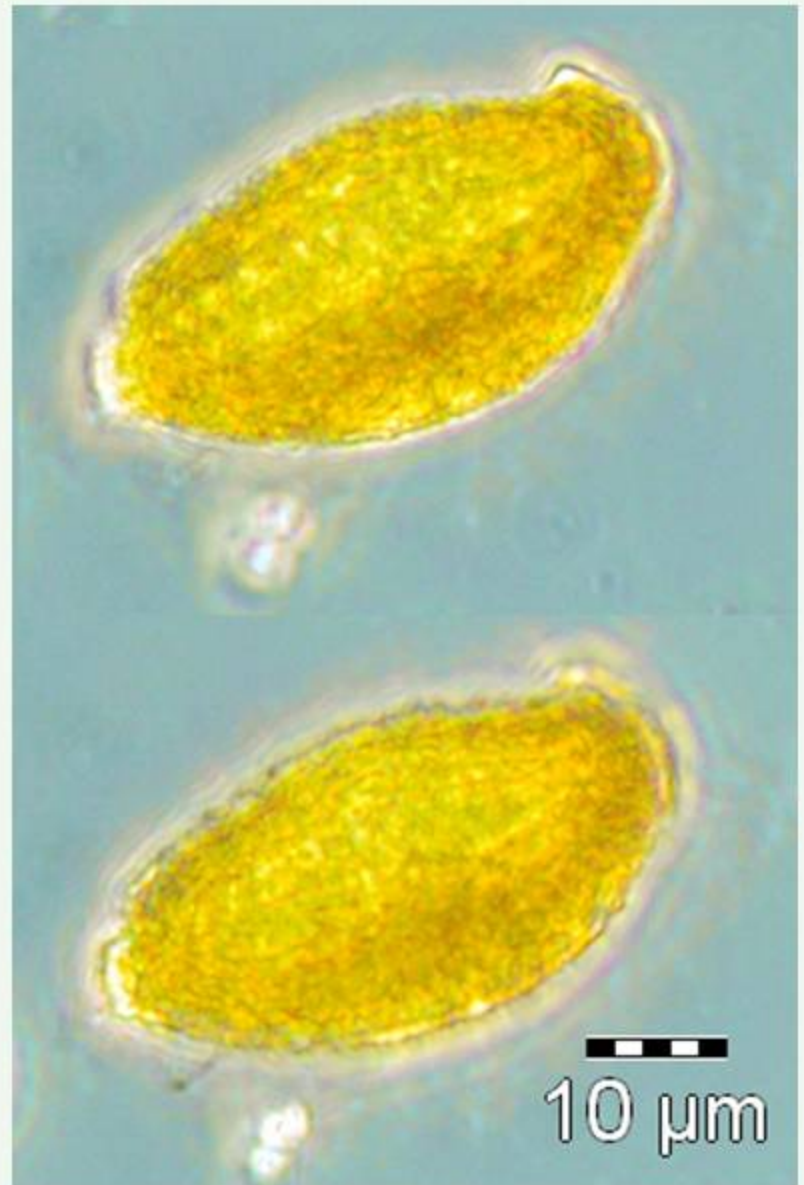


LM (Kiel Bight)

phytoplankton - dinophyceae

Torodinium robustum

abundance: summer
life-form: solitary
length: 60-90 μ m

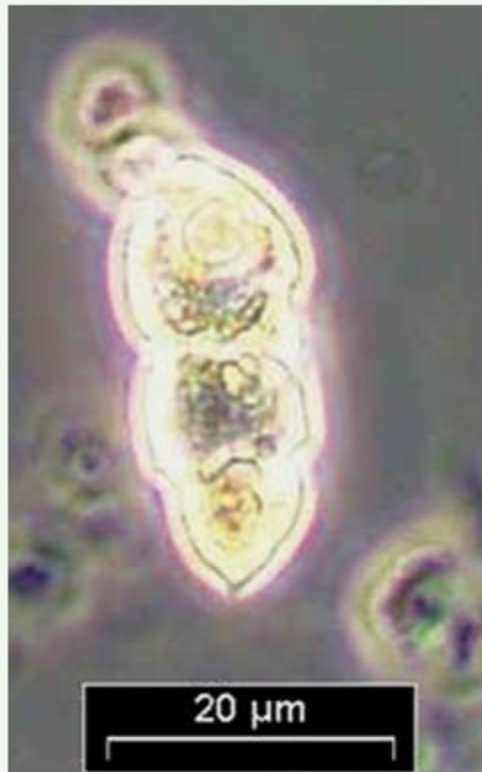


LM (North Sea, NSGR2)

phytoplankton - dinophyceae

Warnowia sp.

abundance: spring
life-form: solitary
size: 15 x 35 μm



LM (coastal station Heiligendamm)