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 - 58μm
- width: 58 - 80μm

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: 42-60µm
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
phytoplankton – dinophyceae

**Ceratium fusus**

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

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**LM (coastal station Heiligendamm)**

**LM (Mecklenburg Bight)**

**gamete fusion**
phytoplankton – dinophyceae

Ceratium horridum

abundance: late summer, autumn
life-form: solitary
length: 230 - 260 µm
width: 40 - 50 µm

LM (North Sea, NEFB)
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: 300-500μm
width: 50-60μm

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)
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 - 50μm
width: 30 - 35μm

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 - 60µm
- **width:** 40 - 50µm

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 – 56μm long, in lateral view round-oval

LM (Gotland Sea)
phytoplankton - dinophyceae
Diplopsalis Group (Typ Oblea)

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

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: 30μm
width: 25μm

LM (coastal station Heiligendamm)
phytoplankton - dinophyceae

Gonyaulax verior

abundance: summer
life-form: solitary
length: 50\(\mu m\)
width: 35\(\mu m\)

LM (Arkona Sea)
phytoplankton - dinophyceae

Gymnodinium corollarium sp. nov.

abundance: spring, summer
life-form: solitary
size: 15x18μm

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
phytoplankton - dinophyceae

Gymnodinium sp. 2

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

LM (Mecklenburg Bight)
phytoplankton - dinophyceae
Gymnodinium sp. 3

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

LM (coastal station Heiligendamm)
phytoplankton - dinophyceae

Gymnodinium sp. 4

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

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: 60 μm
- width: 40 μm

LM (coastal station Heiligendamm)
phytoplankton – dinophyceae
Heterocapsa rotundatum

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

LM (coastal station Heiligendamm)
phytoplankton - dinophyceae
Heterocapsa triquetra

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

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
Micractanthodinium 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: 28-50μm
width: 15-25μm

LM (North Sea, SWWBA)
phytoplankton - dinophyceae
Noctiluca scintillans

abundance: spring, summer
life-form: solitary
width: 200-2000μm

LM (North Sea, NSB3)
phytoplankton - dinophyceae
Peridiniella catenata

abundance: spring
life-form: mostly in chains of 2 to 16 cells
length: 23 - 36μm
width: 23 - 36μm

LM (coastal station Heiligendamm)
REM (Gotland Sea)
phytoplankton – dinophyceae

Peridiniella danica

- abundance: spring
- life-form: solitary
- length: 13-36μm
- width: 13-36μm

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
phytoplankton - dinophyceae
Prorocentrum redfieldii

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

LM (North Sea, BRIFF)
phytoplankton - dinophyceae
Protoceratium reticulatum

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

LM (North Sea, NGW8)
phytoplankton - dinophyceae

Protoperidinium bipes

abundance: spring
life-form: solitary
length: 20-35\(\mu\)m
width: 17-19\(\mu\)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: 70-85μm
width: 60μm

LM (coastal station Heiligendamm)
phytoplankton - dinophyceae

Protoperidinium curvipes

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

cell stained with Calcofluar White

LM (sediment trap 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
phytoplankton - dinophyceae

Protoperidinium pellucidum

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

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: 50\,\mu m
width: 40\,\mu m
phytoplankton - dinophyceae

Protoheridinium 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 – 125μm
width: 35 – 136μm

LM (Gotland Sea)
phytoplankton - dinophyceae

Sclerodinium calyptoglyphe

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

LM (North Sea, NEFB)
phytoplankton - dinophyceae
Scrippsiella Group

abundance: spring, summer, autumn
life-form: solitary
length: 16 – 36μm
width: 20 -23μm

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

LM (Gotland Sea, sediment trap) preserved with Formol solution
phytoplankton - dinophyceae
Spatulodinium pseudonoctiluca

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

Torodinium robustum

abundance: summer
life-form: solitary
length: 60-90μm

LM (North Sea, NSGR2)
phytoplankton - dinophyceae

**Warnowia sp.**

- **Abundance:** spring
- **Life-form:** solitary
- **Size:** 15 x 35 μm

LM (coastal station Heiligendamm)