

ADAPTATIONS OF PLANKTON



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ADAPTATIONS OF PLANKTON

Condition:

Seawater is **dense** enough to support marine organisms

Adaptations:

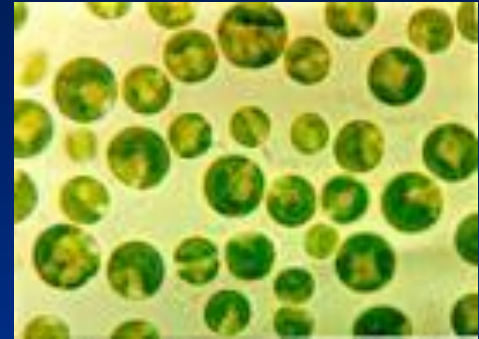
Many marine organisms **lack rigid skeletons** and **vast root systems**.

Instead, they rely on **buoyancy** and **friction** to maintain their position within the water column



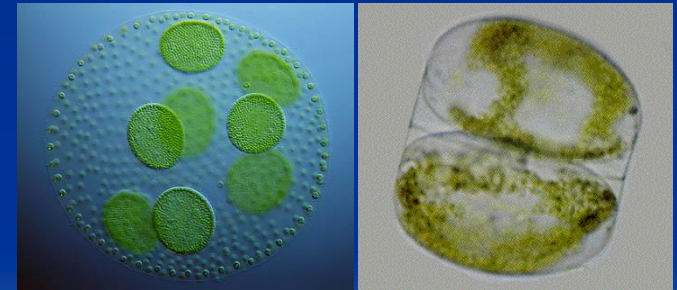
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The **reduction in size**, by which the organisms can have **larger surface area** in relation to their mass, hence the particles will have **more frictional resistance** and would avoid sinking



Chlorella sp.

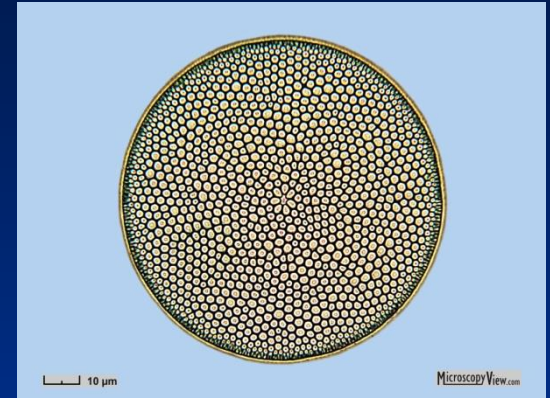
Several planktonic organisms carry **globules of fat/oil**, so that their **specific gravity** will be less.



Coscinodiscus sp.

ADAPTATIONS OF PLANKTON

- Some shelled plankton such as diatoms are even heavier-often these have **flattened disc shapes**, so their sinking takes longer time
- Some have also **bladders** or **vacuoles**, filled with **light fluid** or **sap** mentioned.



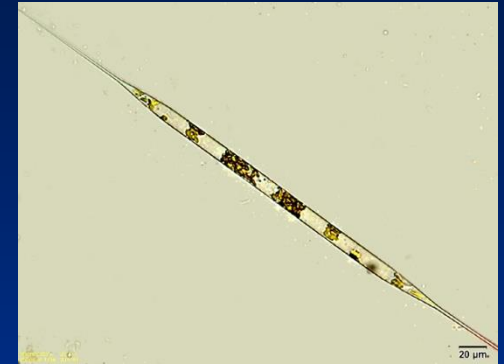
Coscinodiscus sp.



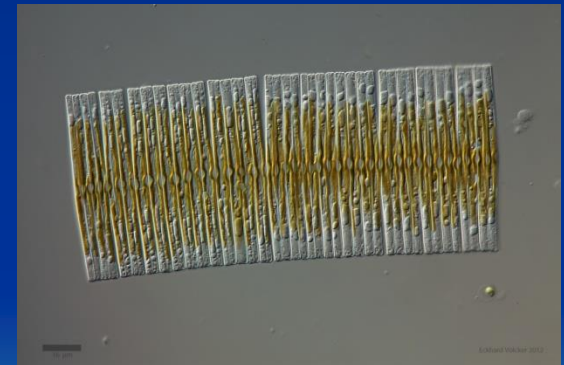
Pleurosigma sp.

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- Needle and hair type of adaptation also enable floating e.g. *Rhizosolenia* sp.
- Some are ribbon shaped. Eg. *Fragillaria* sp.



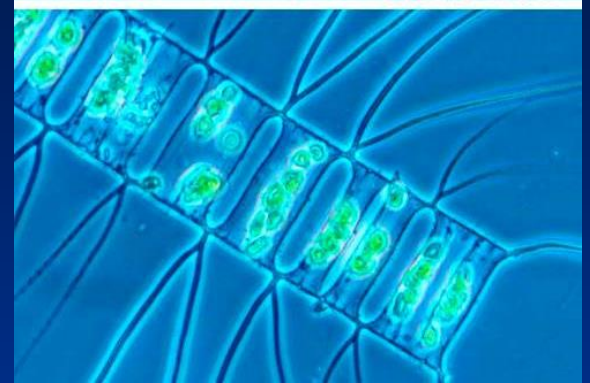
Rhizosolenia sp.



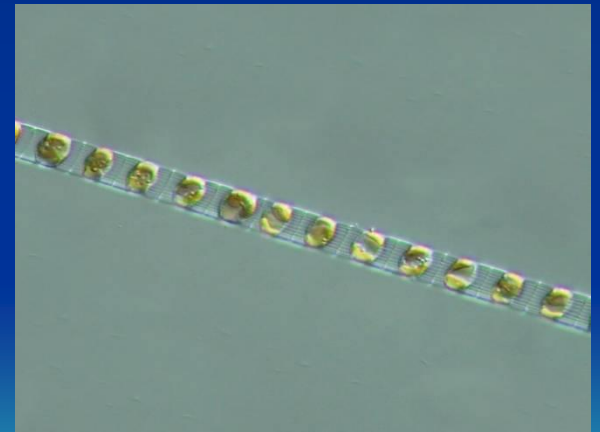
Fragillaria sp.

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- The diatom, has many **spines** and **projections** to avoid sinking.
- Some diatom species form **long chains**, which help them float and avoid being eaten



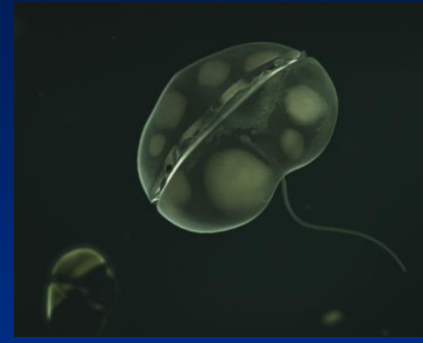
Chaetoceros sp.



Skeletonema sp.

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- The dinoflagellates have two **whip like flagella** and are not strictly passive-some have low **horn like structures** the length of which change with ambient temperature.
- Most of the zooplankton forms have **elongated appendages, spines or bristles** and are at times **dorso-ventrally flattened**.



Karenia brevis



Ceratium sp.



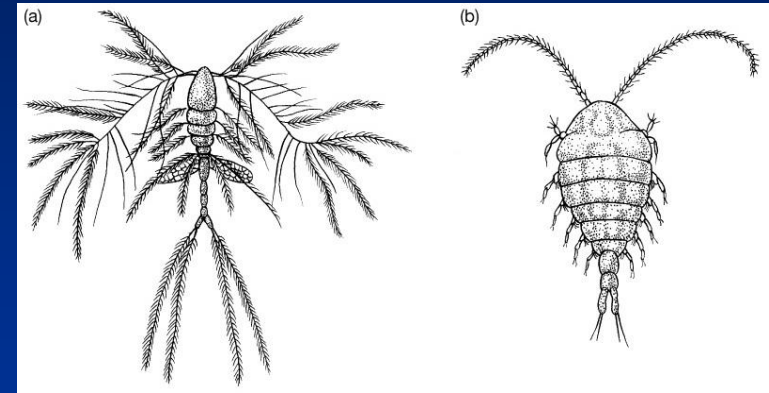
Sea Jelly



Copepods

ADAPTATIONS OF PLANKTON

- Appendages increase **frictional resistance**
- Many warm-water organisms have **ornate appendages** to stay afloat
- Many cold-water organisms are **streamlined** to swim more easily



Warm-water
copepod

Cold-water
copepod

ADAPTATIONS OF PLANKTON

In addition, water currents caused by convection and upwelling can stir the water and help keep plankton from sinking

