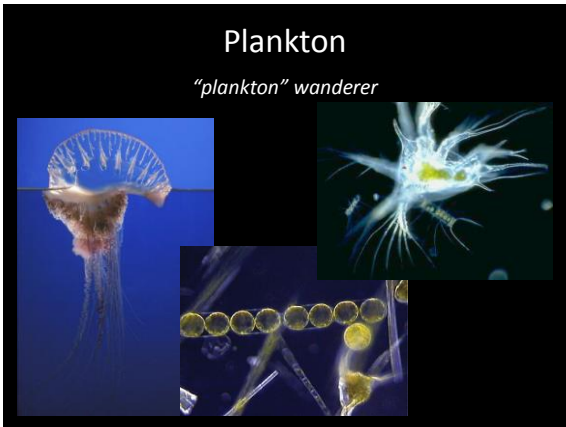


Depth Defying Drifters



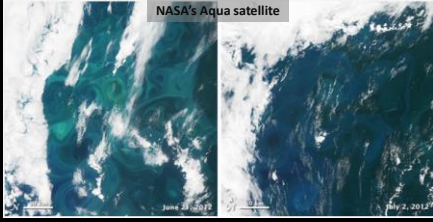
- ## Plankton: Types
- Phytoplankton
 - Zooplankton

 - Ichthyoplankton
 - Holoplankton
 - Meroplankton

Phytoplankton

"Phyto" plant + "plankton" wanderer

- Contain chlorophyll and require sunlight to live and grow



NASA's Aqua satellite

June 21, 2012

July 2, 2012

Zooplankton

"Zoo" animal + "plankton" wanderer

- Drifting animals – mostly invertebrates



Ichthyoplankton

"Ichthyo" fish + "plankton" wanderer

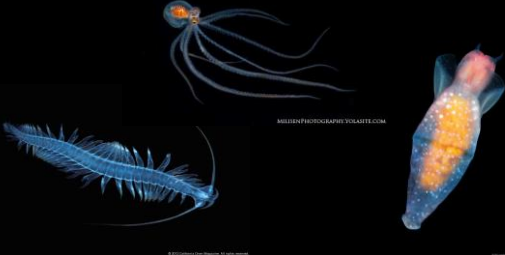
- Fish eggs and larvae



Holoplankton

"Holo" whole + "plankton" wanderer

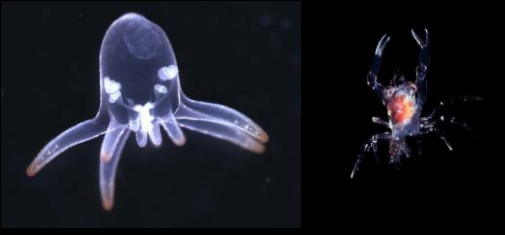
- Organisms that are plankton their whole lives



Meroplankton

"Mero" part + "plankton" wanderer

- Organisms that are plankton for only part of their lives



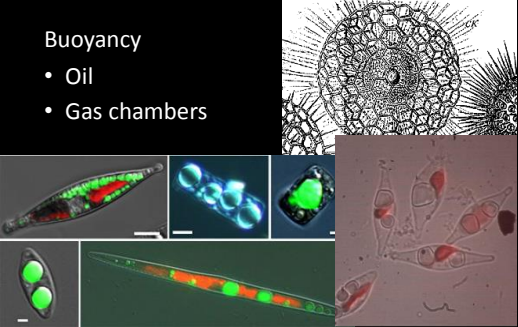
Plankton: Size

- Femto – $<0.2\mu\text{m}$
- Pico – $0.2\text{-}2\mu\text{m}$
- Nano – $2\text{-}20\mu\text{m}$
- Micro – $20\text{-}200\mu\text{m}$
- Meso – $.2\text{m}\text{-}20\text{mm}$
- Macro – $20\text{-}200\text{mm}$
- Mega – $200\text{-}2000\text{mm}$



Plankton: Adaptations

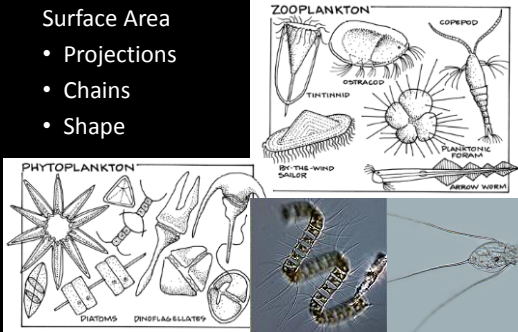
- Buoyancy
 - Oil
 - Gas chambers



This slide features a central title 'Plankton: Adaptations' and a list of 'Buoyancy' adaptations: 'Oil' and 'Gas chambers'. The visual content includes a large circular diagram of a cell with internal structures, and several smaller images: a green rod-shaped organism with red spots, a cluster of blue spherical cells, a green oval cell, a long thin rod with red and green segments, and a cluster of red and white cells.

Plankton: Adaptations

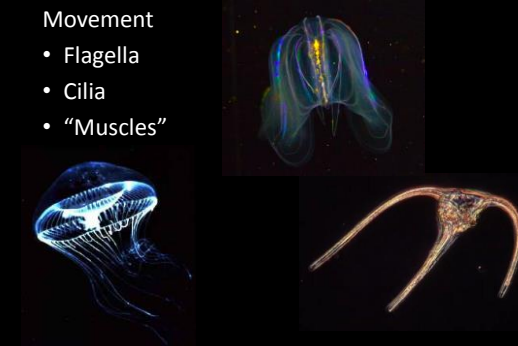
- Surface Area
 - Projections
 - Chains
 - Shape



This slide features a central title 'Plankton: Adaptations' and a list of 'Surface Area' adaptations: 'Projections', 'Chains', and 'Shape'. The visual content includes a diagram of 'PHYTOPLANKTON' with 'DIATOMS' and 'DINOFLELLATES' labeled, and a diagram of 'ZOOPLANKTON' with 'TINTINNID', 'OSTRACOD', 'COPEPOD', 'BY-THE-WIND SAILOR', 'PLANKTONIC FORAMINIFERA', and 'ANISOU SYSTEMA' labeled. There are also microscopic images of a chain of organisms and a single organism.

Plankton: Adaptations

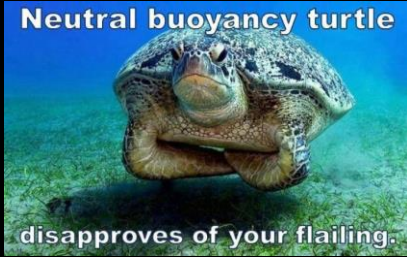
- Movement
 - Flagella
 - Cilia
 - "Muscles"



This slide features a central title 'Plankton: Adaptations' and a list of 'Movement' adaptations: 'Flagella', 'Cilia', and '"Muscles"'. The visual content includes a glowing jellyfish and a copepod.

Make a plankton

Goal: make a plankton that is neutrally buoyant



Plankton: Additional Adaptations

- Gelatinous
- Bioluminescence
- Lack of coloration
- Vertical migrations

Adaptations: Gelatinous

- Live in a fluid environment without walls or a ground



Adaptations: Bioluminescence

- Production of light via chemical reaction
- Most are expressed as blue-green light
- Used as a form of communication – hunt prey, defend against predators, find mates



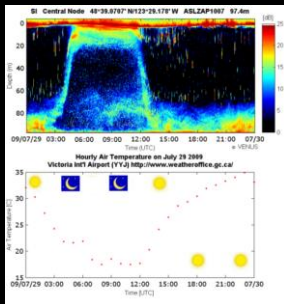
Adaptations: Lack of Coloration

- So they can hide!



Adaptations: Migration

- Daily (diel) vertical migration
 - Nocturnal
 - Twilight
 - Reversed



https://www.youtube.com/watch?v=DY_-JoUSv_0
