

The Black Sea

project by

“Avram Iancu” High School



Connecting Seas - Erasmus

General information

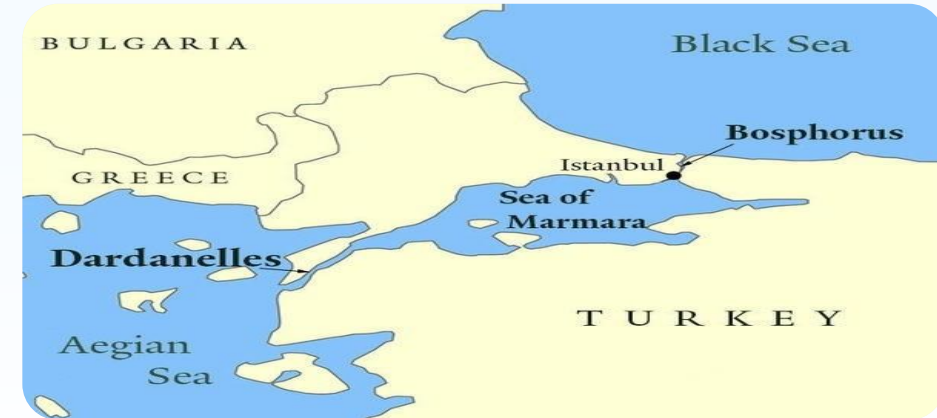
The Black Sea is a large body of water reaching from **Eastern Europe** to the **Caucasus and Western Asia**.



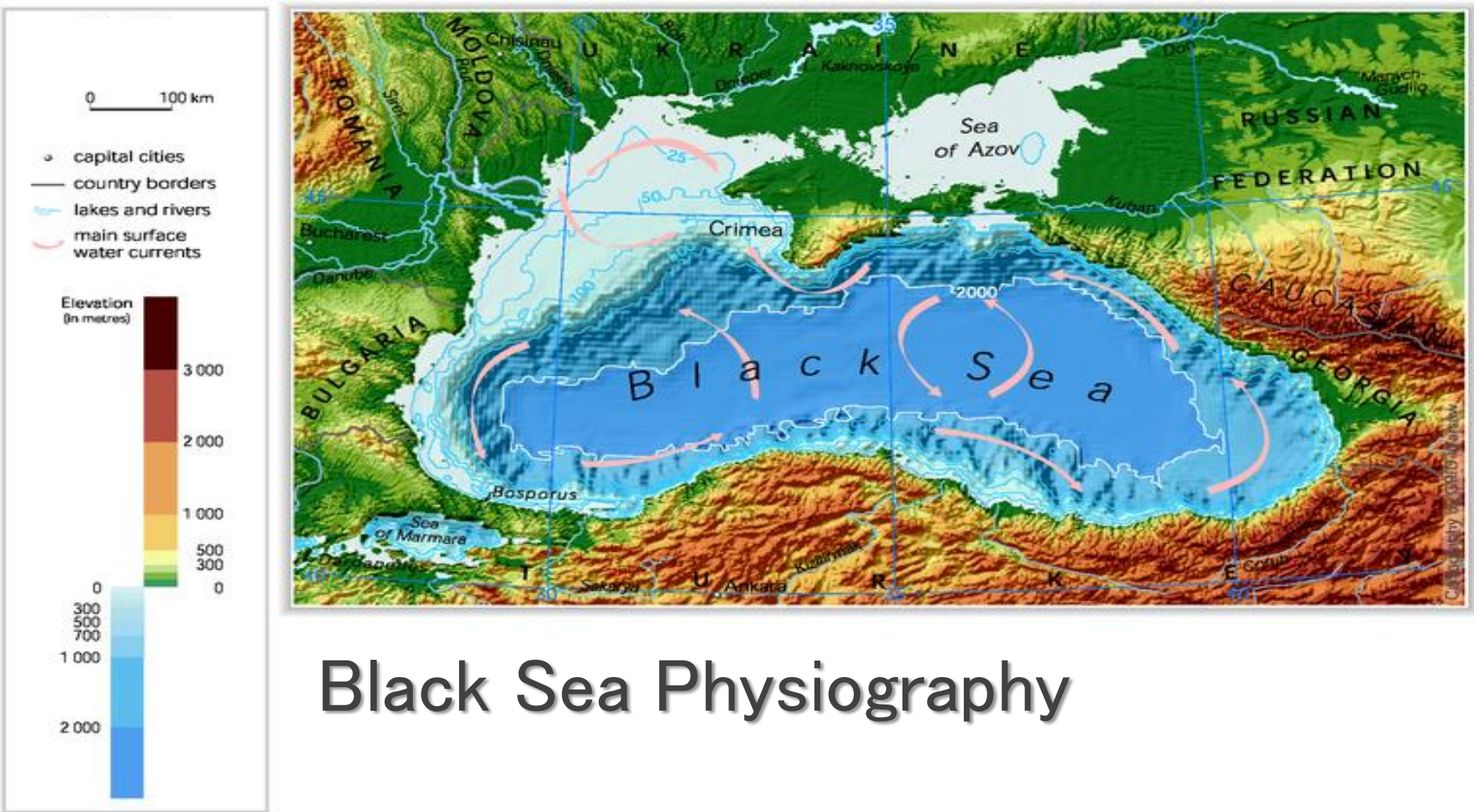


**Total Coastline length
5 800km.**

Black Sea communicates with the Aegean
Sea through Bosphorus and Dardanelles Strait



It has a maximum depth
of 2 212m.

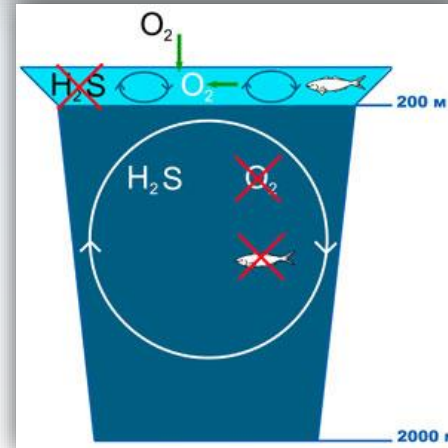


Black Sea Physiography

ONLY 10-15% of its total volume is suitable to sustain life.



The Black Sea is the largest body of water with a meromitic (where layers of water do not mix) basin.



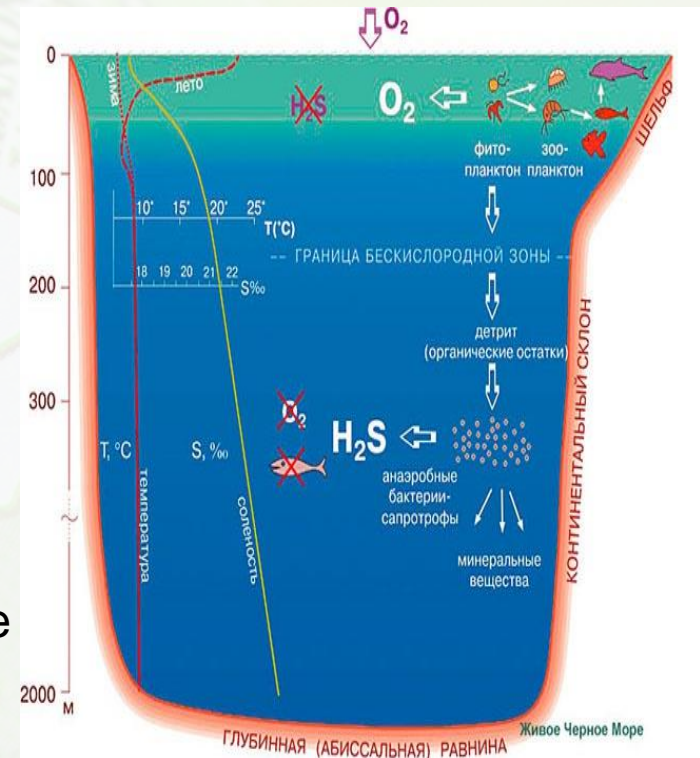
Characteristics:

The Black Sea consists of 2 layers of water:

- the first one is oxygenated and sustains marine life.
- the second one lacks oxygen(=anoxic water), containing H_2S . Therefore, life can not exist under depths of 200m.

However, simple organisms like chemosynthetic bacteria can live in this habitat.

The Black Sea is a closed sea and the vertical currents are weak in its deep part. The consequence is that the deep water **do not mix** with the upper water.



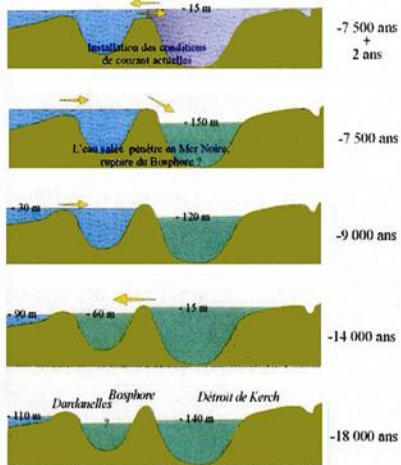
Salinity

The amount of salt here is much lower than the planetary medium level.

21g/liter in great conditions

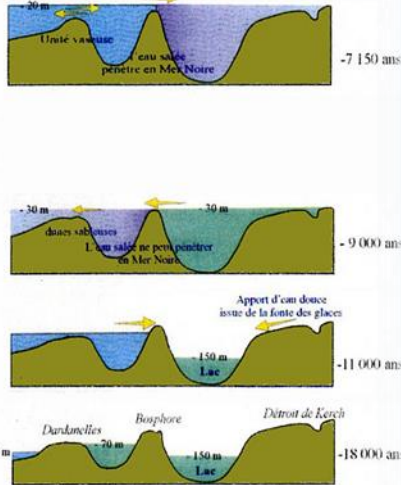


Mer Egée Mer de Marmara Mer Noire



-7 500 ans + 2 ans
-7 500 ans
-9 000 ans
-14 000 ans
-18 000 ans

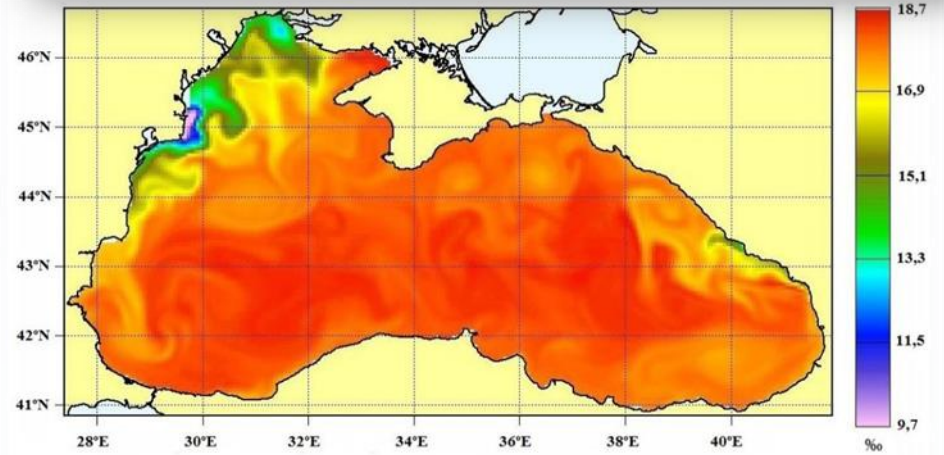
Mer Egée Mer de Marmara Mer Noire



-7 150 ans
-9 000 ans
-11 000 ans
-18 000 ans

Eau Douce Eau Salée Eau Saumâtre

Eau douce Eau salée Eau saumâtre



Hydrology

The Black sea is classified as a **salt wedge estuary**.

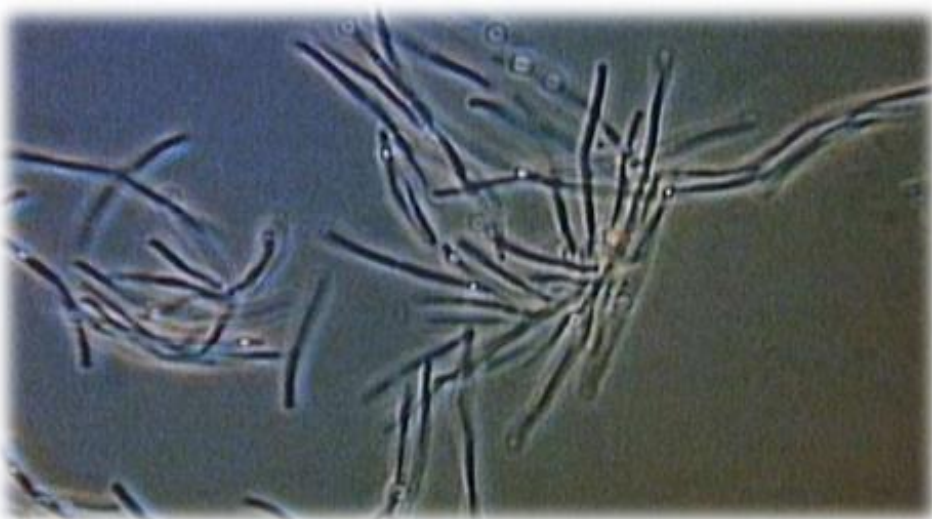
Inflow: from the Mediterranean Sea – dense, salty water in the bottom of the basin –to the Black Sea

Outflow: from the Black Sea –less dense, oxygenated water –to the Mediterranean Sea.



The uniquely **high river discharge into the relatively small semi-enclosed sea** has **2 major consequences**:

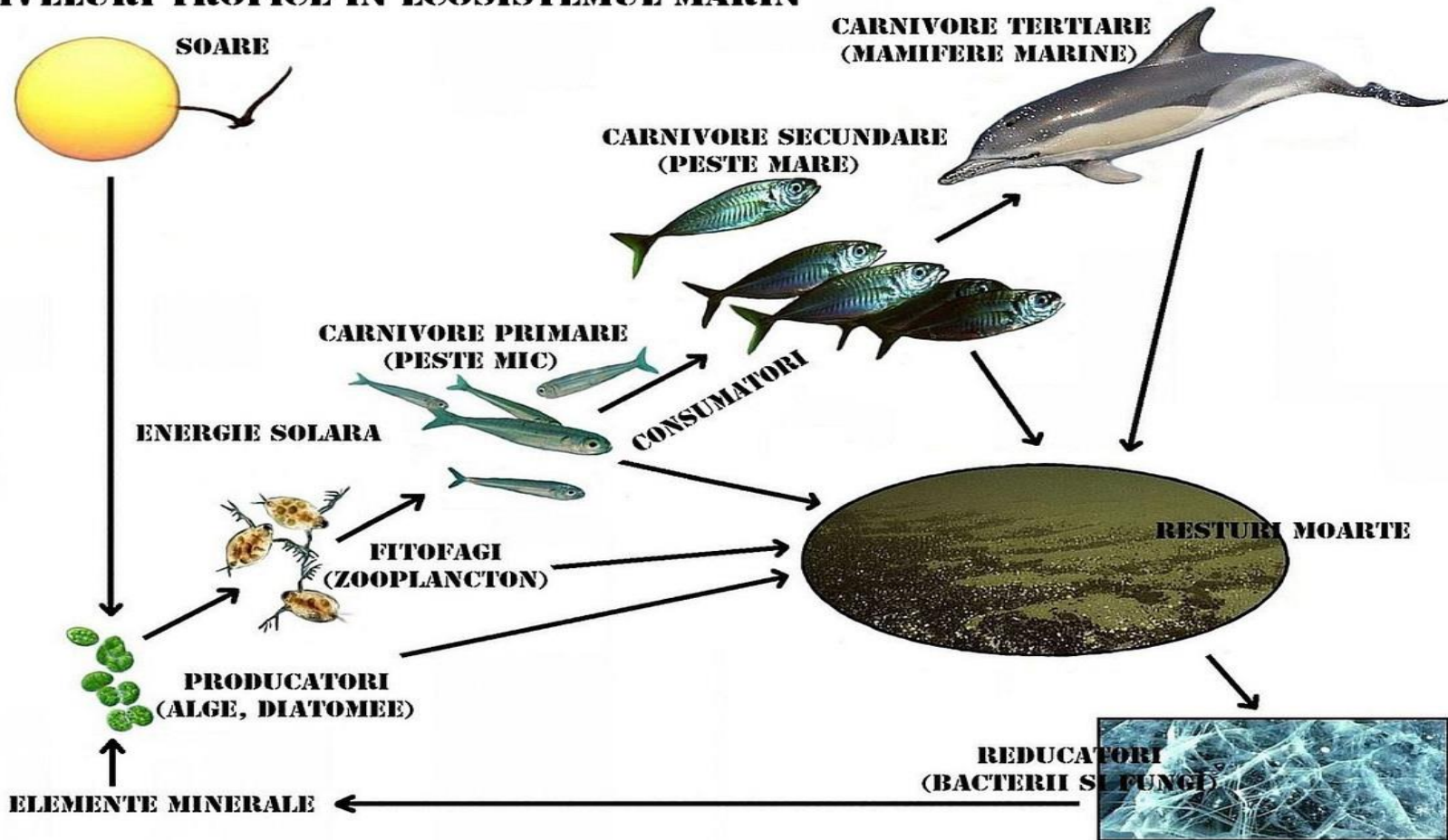
- rivers dilute the Black Sea water reducing its biodiversity
- they supply sea vegetation with an unusually high amount of nutrients, providing its fast proliferation.



**Life
in
the
Black
Sea**



NIVELURI TROFICE IN ECOSISTEMUL MARIN



Taxonomic classification



- 1. MICROORGANISMS:**
- Fungi
 - Bacteria
 - Phytoplankton
 - Zooplankton

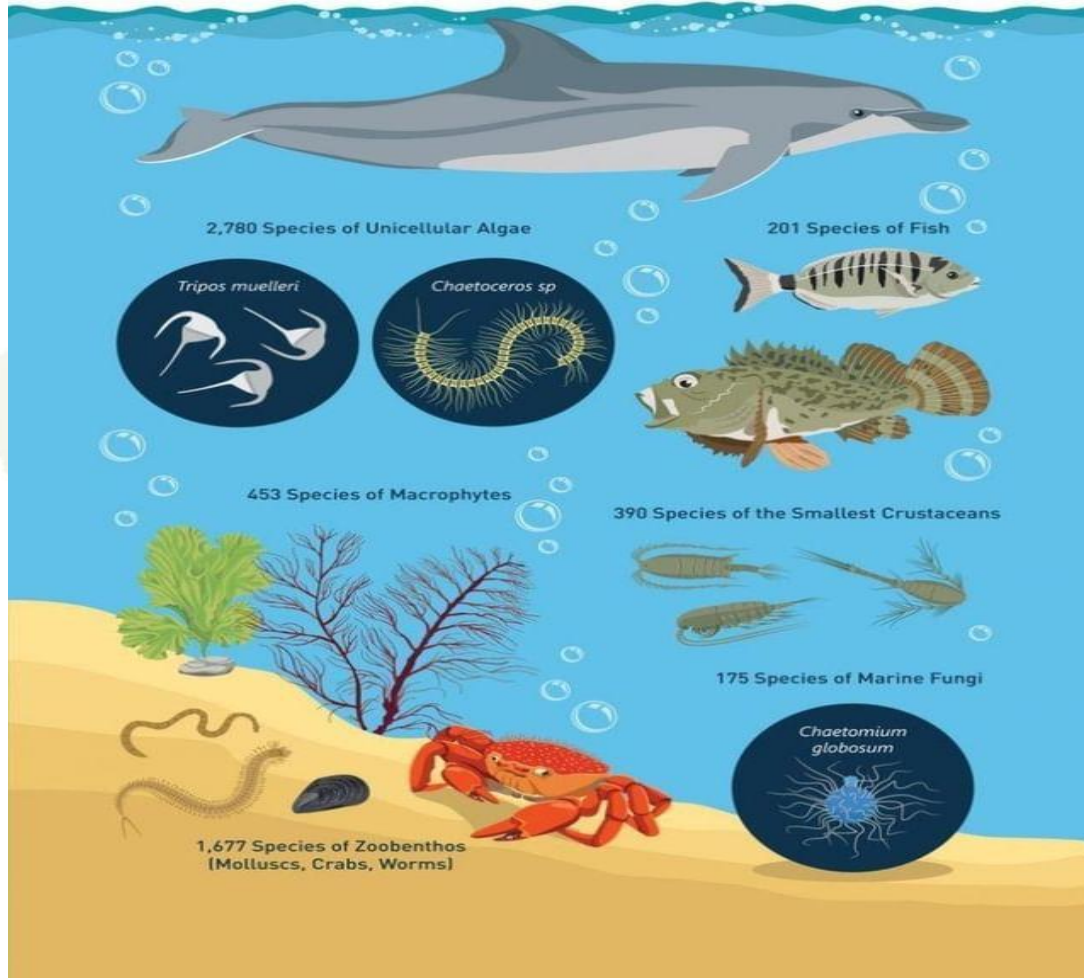


- 2. INTERVERTEBRATES:**
- Molluscs
 - Crustaceans



- 3. VERTEBRATES:**
- Fish
 - Mammals
 - Reptiles
 - Bids
 - Amphibians

Three Species of Cetaceans



2,780 Species of Unicellular Algae



201 Species of Fish



453 Species of Macrophytes



390 Species of the Smallest Crustaceans

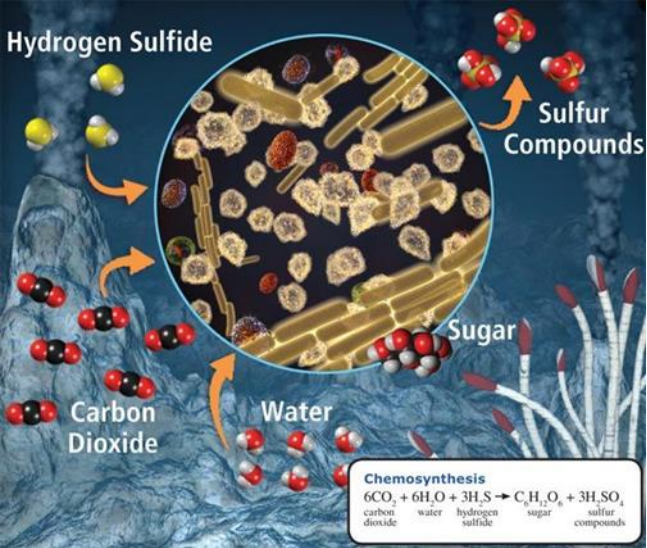


175 Species of Marine Fungi



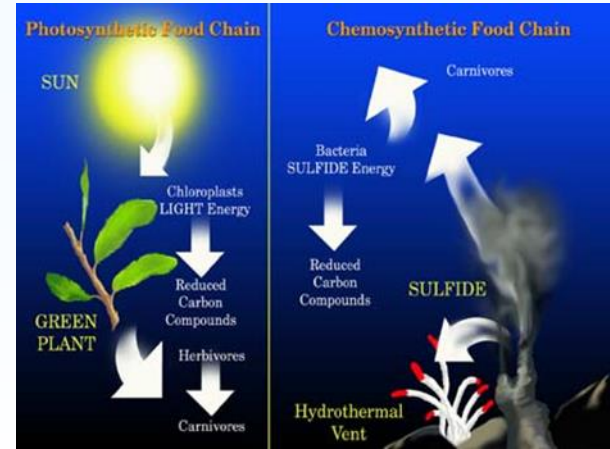
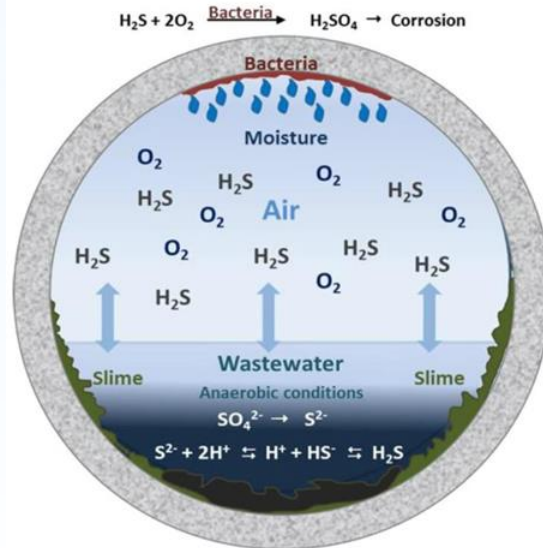
1,677 Species of Zoobenthos
(Molluscs, Crabs, Worms)





BACTERIA

- A large number of bacteria species present in the Black Sea consists of **chemosynthetic bacteria**.
- **Chemosynthesis** involves the use of energy released by inorganic chemical reactions to produce food.



Phytoplankton



It includes microscopic **unicellular algae** and **photosynthetic bacteria**. The power of the light channeled through their photosynthetic machine of the chloroplasts, turns water and carbon dioxide into organic matter. The ecology of the Black Sea is **primarily plankton ecology**.



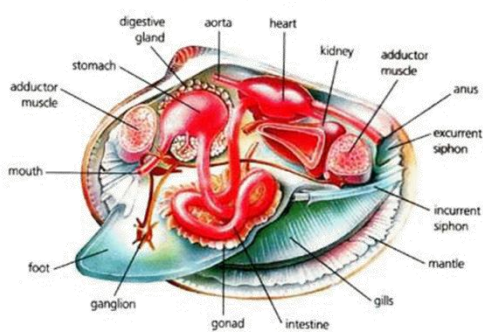
MOLLUSCS

They are animals whose bodies are soft and smooth protected by a shell

Blue mussel



It attaches to underwater rocks with a bunch super-strong byssus threads. Deeper it lives on soft sediments where several mussels make a bunch attaching to each other.



Bela Nebula



Bela nebula <0.7 cm. very rare snail

RAREST

Venus gallina
Donas trunculus



MOST COMMON



In 1924 it was recognised as an official species of the Black Sea and they can be found on the coast of Bulgaria.

It is one of the rarest species in the Black Sea and they live at depths of 40-60m.

It is the most common shrimp in the Black Sea. During winter they migrate deeper into the sea, reaching depths of 35 to 45m.



Baltic Prawn

CRUSTACEANS



Their shell contains chitin conferring it strength and great resistance.

They are usually aquatic animals.

-CRABS-



Lesser spotted dogfish



Smooth hammerhead



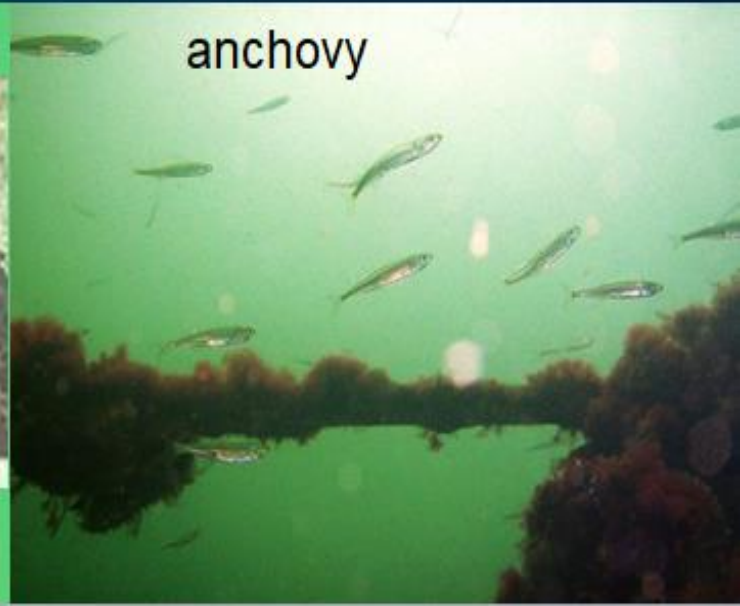
Turbot



Platichthys Flesus



RAJA



anchovy



European EEL



Puffinus Puffinus



red-breasted goose



seagull



Mediterranean gull



Sterna Hirundo

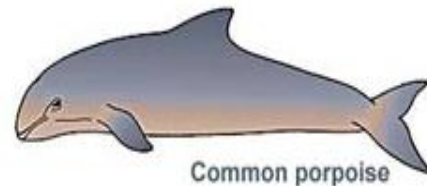
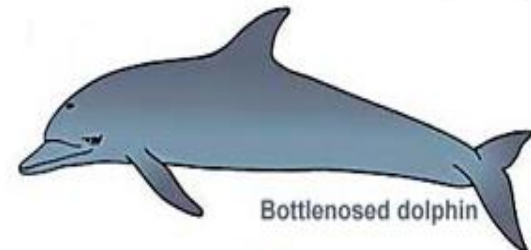
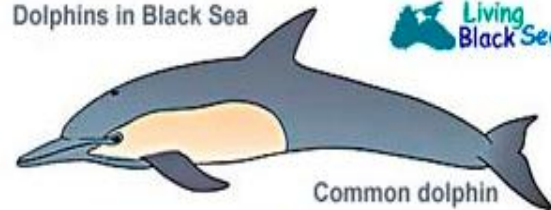
DOLPHINS

Common dolphins:

They are bluish gray to brown on the back and have a length of no more than **2 m**. It is very **sensitive to chemical and noise pollution**. They are usually grouped in flocks of 10-15 specimens, also in isolated couples or individuals. It swims very fast, reaching **speeds of about 50 km / h**. It also performs short dives and breathes frequently on the surface, moments when it can be observed by humans.



Dolphins in Black Sea



Dolphins living in the Black Sea

Dolphins

The bottlenose dolphin

They are larger than common dolphins, with a length of 2.5-3.5 m, but also slower, their speed being about 33 km / h.

-playful and curious-

VS

The porpoise

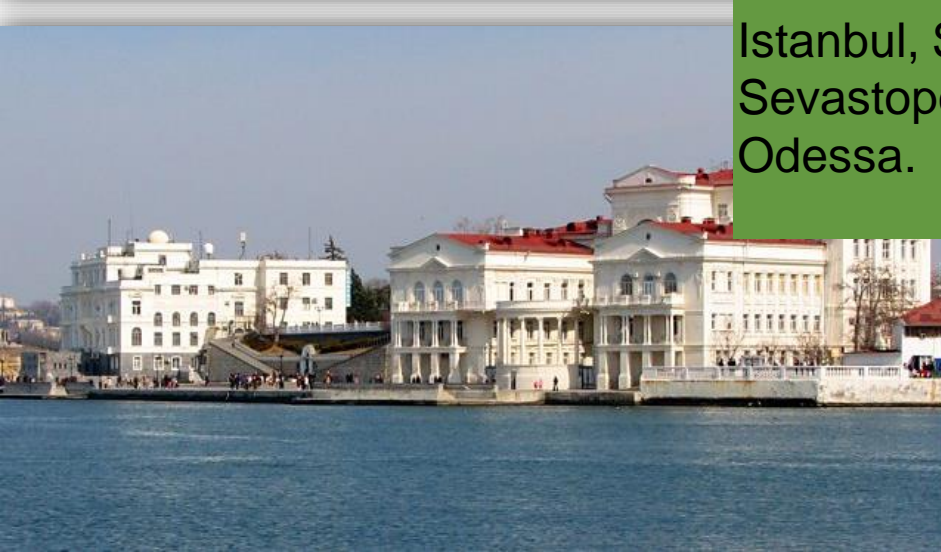
They swim along the coast and it is very difficult to get close to them and they never play in the bow of ships.

In November and December, they are found near the spouts of the Danube Delta.





A few important cities that are located on the coast of the Black Sea are Istanbul, Samsun, Sevastopol and Odessa.

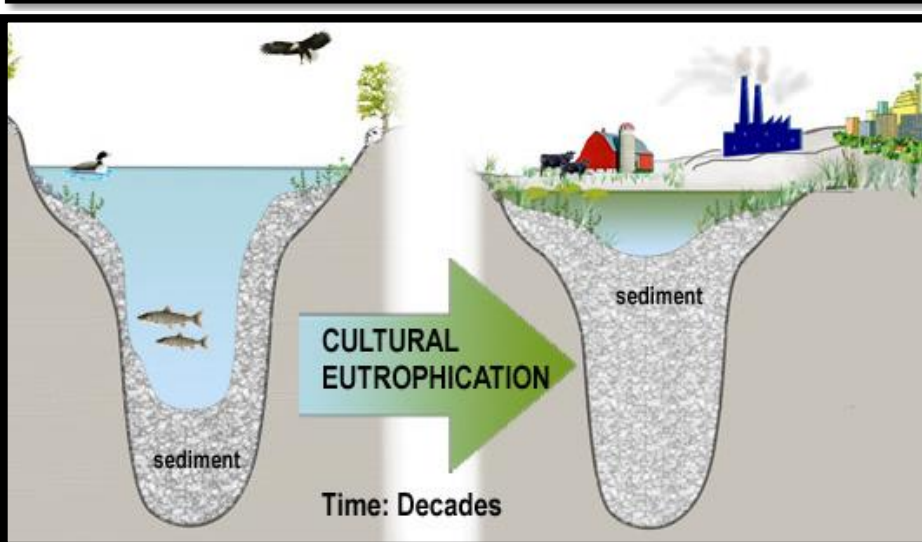




Other important cities are:

Năvodari (Ro),
Constanța (Ro),
Batumi (Ge),
Poti (Ge),
Burgas(Bu),
Varna(Bu).





Control and prevention of pollution

- Black Sea countries have joined a number of **conventions** designed to give additional protection to its biodiversity.
 - ❑ the Ramsar convention on wetlands
 - ❑ the UN Biodiversity Convention
 - ❑ the Bucharest Convention
- Another key tool for protecting marine ecosystems is the creation of networks of **marine protected areas (MPAs)**.

Why the **Black** Sea?

According to Rüdiger Schmitt the name comes from the Greek term Póntos (son of Gee) Áxeinos (dark object).

There are two theories as to why it is called this way.

