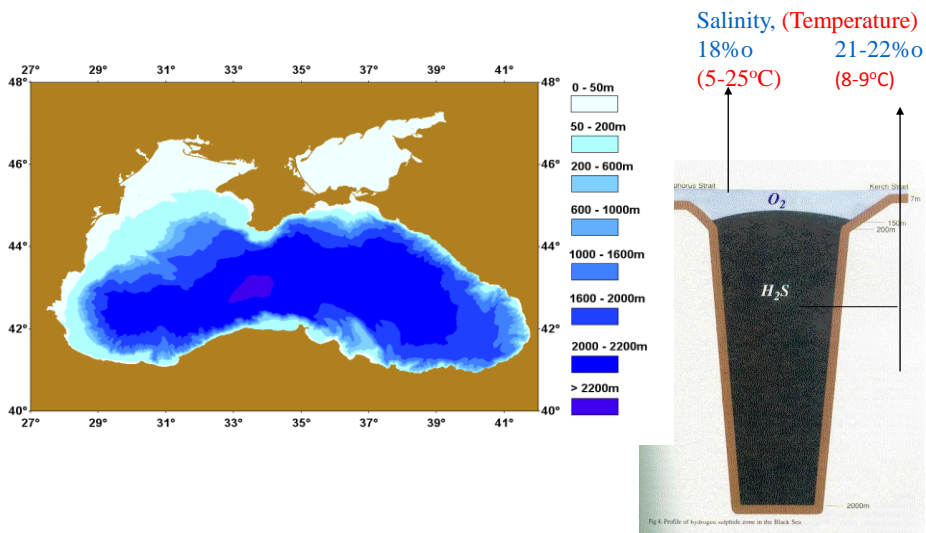
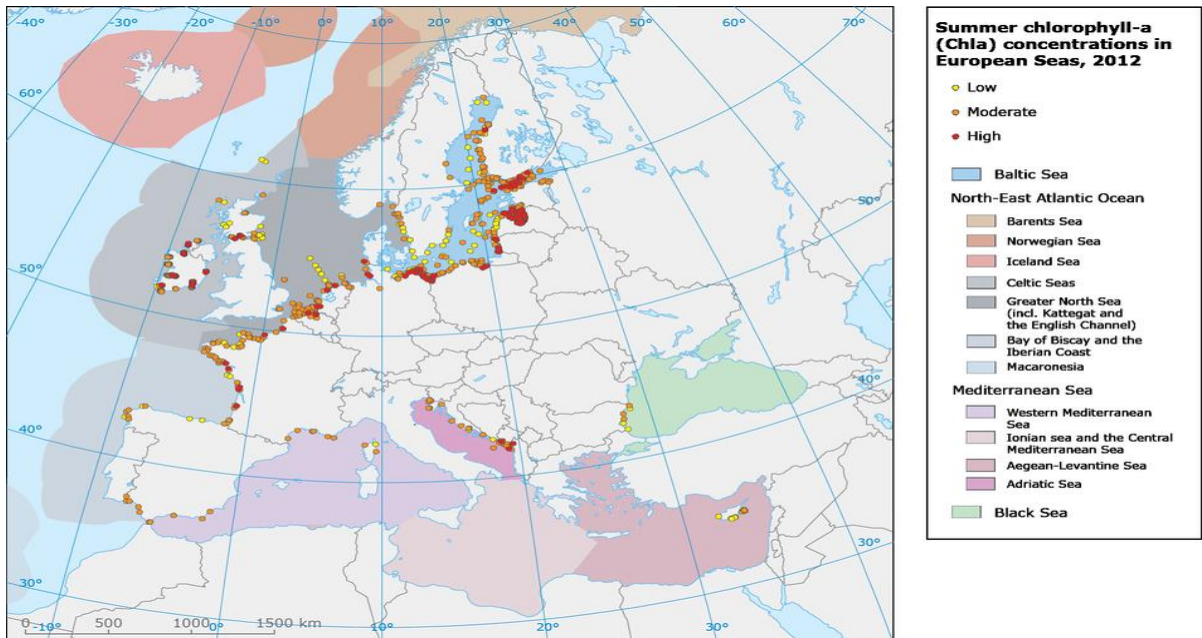
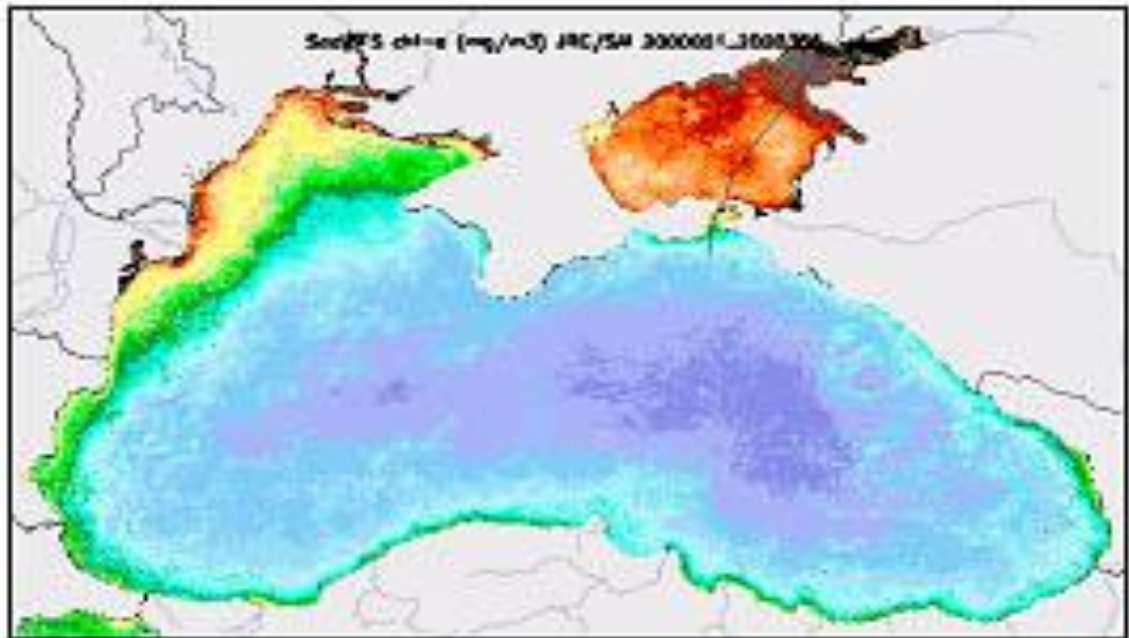


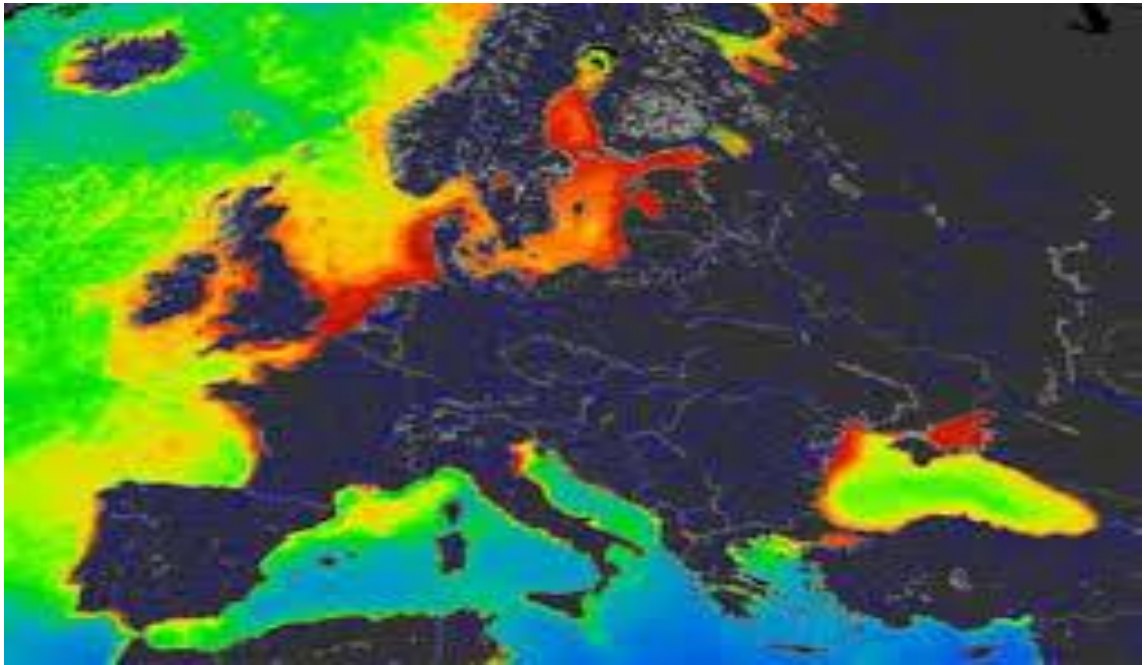
curriculum in natural environmental science, 2005

Bathymetry of the Black Sea & Anoxia

(5.5 x10⁶ km²; Zaitsev & Mamaev 1997)







Transboundary problems in the Black Sea Region

- Eutrophication/nutrient enrichment
- Chemical pollution
- Biodiversity/habitat changes
- Changes in marine living resources

Black Sea SAP

- First launched in 1996
- Updated 3 times (deadlines)
- Activities not yet implemented
- Actions beyond Black Sea countries jurisdiction
- Need for wider basin approach

Main sources for the Black Sea eutrophication

- Land based sources
 - Urban Waste Water
 - Nutrients coming from agricultural activities
 - Soil erosion
 - Discharge from industry (fertilizer industry)
- Airborne pollution
 - Power plants on fossil fuels

BSSAP measures to reduce Black Sea eutrophication

- Reform agricultural practices
- Improved waste-water treatment, where applicable, through the use of alternative technologies
- Rehabilitation of key basin (aquatic) ecosystems
- Changes in consumer practices (including use of phosphate-free detergents)

Danube impact on the Black Sea

- MONERIS model estimated that, altogether, 733 kt of N and 55 kt of P in total are annually emitted into the DRB.
- Input from agriculture of N pollution is the most relevant (totalling 43% of total emissions)
- P emissions from agriculture are the second largest source after input from urban settlements.
- Contribution of nutrient pollution to atmospheric deposition include transport, the combustion of oil and derivatives, agriculture (livestock farming) and industry. The share for N is high (39%) but less so for P (13%).

Targets for reduction pollution of the Black Sea through the Danube River

- Main target is to reach the levels of nutrient discharges into the Black Sea existing in 60's
- The DRBM Plan highlighted that the nitrogen load to the Black Sea will reach a level that is below the present state but still far above (40%) that of the 1960's
- Management objectives and the WFD environmental objectives for nutrients, on the basin-wide scale, have not been achieved in 2015.
- For phosphorous, the level in 2015 was 15 % above the level from the 60's.

Impact on the implementation of the Urban Waste Water Treatment Directive

- The entire territory of the Danube River Basin is/will be declared as a sensitive area
- The waste water treatment plants for the agglomeration with more than 10,000 inhabitants will have to implement and operate projects for the removal of nitrogen and phosphorus
- The environmental objectives for some waters within the Danube River Basin will be enhanced in order to allow the improving of water stream.

Impact on the on the implementation of the Nitrate Directive

- The entire territory of the Danube River Basin could be declared as a nitrate vulnerable zone
- The implementation of the Programmes of Action and Code of Good Agricultural Practices will be applied on the larger territories
- There will be a reassessment of the agricultural activities within the Danube River Basin, particularly related to the livestock and the environmental protection investment
- An increased effort for farmers training and public awareness will be needed throughout the basin

