

COMMON BORDERS. COMMON SOLUTIONS.



STOP LITTER SAVE NATURE

A manual of best educational and training practices that aim to
reduce the amount of river based and marine litter



STOP

Pollution of sea and wetlands

Take action

NOW

For a better future

TOMORROW!

This guide was created in the context of BioLearn project with the aim to keep you updated and the steps you can follow in order to be informed and active against river based and marine pollution. We wish to achieve a Good Environmental Status and contribute to the prevention and mitigation of litter pollution. Are you –an educator, an NGO, a Management body of Protected Areas, a local authority, a fisher, a citizen scientist or any kind of stakeholder ware of the problems litter pollution poses to environment, the society, the human health and the finances? Take a look at some examples of educational activities and best practices already implemented and inspired! You can become part of the solution against litter pollution. You can “explore” some of the valuable wetlands of the Black Sea Basin, look for further information on the issue of litter pollution here and spread your message for environmental protection through your actions.

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BIOLEARN “**Eco-conscious Minds to Stop Pollution in the Valuable
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BioLearn

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EXPLORING THE BLACK SEA

Oceans, seas, rivers and related wetlands cover most of the surface of our planet (Likens, 2009). However, we know very little about them. Over the centuries we have accumulated much more knowledge about the land than about the depths of the sea. Only in the last few decades, we have begun to understand the secrets and stories that the sea has to tell us.

Of all the continental seas - such as the Aegean, Baltic and Mediterranean - the Black Sea is the most isolated from the Global Ocean (Yanchilina et al., 2017). This is the reason why the large rivers flowing into the Black Sea maintain relatively low salinity (about 17-18 ‰) of its surface layer, which extending to a depth of about 100 m, contains almost the entire biodiversity.

About 1,520 species of animals have been found in the Black Sea, of which 164 are species of fish and 4 species of mammals. There are approximately 600 species of plants. Overfishing, by-catch, poaching and disturbance in places of growth have high impact on the stocks of pelagic fish which are subjected to sharp

fluctuations due to the different survival rates of the young generation (BSC, 2008; Salihoglu, et al., 2017). Newly hatched fish congregate in shallow coastal areas that are inaccessible to large predators, giving them refuge and the opportunity to survive long enough to reach reproductive age. Unfortunately, these coastal and shallower areas are also the most heavily affected by various human activities - transport, tourism, fishing and sports (ESPON, 2013).

In comparison, the salinity of the Global Ocean is about 36 ‰ and most of its inhabitants do not tolerate salinity below 20 ‰, which is why the Black Sea ecosystem is relatively species-poor compared to other seas.

A basic principle in ecology is the relation between the diversity of an ecosystem and its resilience to harmful effects, or diversity-stability hypothesis: more species = greater resilience (Nilsson & Grelsson, 1995; Ricard, 2014). This, combined with the abiotic conditions that determine poor species diversity, put the Black Sea at the top of the list of the world's most en-



Harbour porpoises in the Black Sea



Plastic floating litter

dangered seas (Micheli et al., 2013).

Moreover, its coastline is also heavily polluted. In the heart of the Black Sea, large islands of litter are shaped from floating litter washed away from the beaches through tides. Up to 50 pieces of litter every hour enter the Black Sea, from each river flowing into it, about 85% of them being plastic (EMBLAS)!!! Mainly plastic bottles, bags, containers, wrappers, straws and stirrers are the items of litter observed, which decompose into microplastics. Find more in EMBLAS project. (www.emblasproject.org)

THERE ARE ISLANDS OF WASTE IN THE BLACK SEA

In the period September 18-26, 2019, Russian scientists from the Institute of Ecology and Evolution “A.N. Severtsov” of the Russian Academy of Sciences conducted an expedition to study marine mammals and the ecosystem in the Black Sea. During the study, scientists came across a unique for the region, but also quite disturbing finding - the first “islands” of waste formed in open waters. A similar finding, albeit small-scale accumulation of marine litter, was encountered by Green Balkans specialists during the aerial survey of the maritime territory of Ukraine, Romania, Bulgaria, Turkey and Georgia, which took place at the end of June 2019.

Twenty-five years ago, on October 31, 1996 the six Black Sea countries - Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine, officially adopted measures to combat marine pollution and signed a Strategic Action Plan for the Restoration and Protection of the Black Sea. The celebration of the International Black Sea Day aims to draw public attention to the problems of the sea and ways to protect it. Due to its specificity, the Black Sea is one of the most vulnerable marine ecosystems in the world. In order to preserve its vitality and resources, there is an urgent need for human activities taking place at sea to be carefully assessed and planned.

BLACK SEA BASIN VALUABLE WETLANDS

Wetlands (i.e. lakes, swamps, rivers) are one of the most productive ecosystems on Earth, preserving unique biodiversity (see Ramsar Convention on Wetlands, 2018). At the same time, they are the pivot of essential resources, ensuring the livelihoods of millions of people (see Ramsar Convention on Wetlands, 2018). However, they are also one of the most endangered habitats on the planet.

Let's explore
some of them...



LAKE GALA



©Mustafa Kaya

Flamingos at lake Gala



©Ersin Şenerler

Lake Gala

Gala Lake National Park is located in the middle of Ipsala and Enez Districts, in the area where the Meriç River flows into the Aegean Sea, the so-called “Meriç Delta”. Lake Gala was formed as result of the Meriç River that changed its bed during heavy rainy periods, overflowing up to the foothills of Hisarlı and Çandır Mountains and blockage of the areas in the Meriç River Delta by the alluvium.

A total of **1043** living species, including **511** plant taxa (**491** vascular plants, **20** cryptogamic plants) and **532** animal species (**337** vertebrate species, **195** invertebrate species), were identified in the Lake Gala National Park. A total of **337** species of vertebrate have been identified in the Lake Gala National Park as a result of the conducted literature and field studies. The number of bird species that was identified and counted was **217**, mammal species **44**, inland fish species **27**, reptile species **25** and amphibians **9**. Among the bird species, **6** species appertain to the “Vulnerable” (VU) category and **9** species to the “Near Threatened” (NT) category. Among the mammals, **5** species are in the VU category and **2** species are in the NT category. Among the fish species, **1** species, *Anguilla anguilla* (eel), is in the category of “Critically Endangered” (CR), indicating an extreme danger of extinction, and **1** species is in the VU category. Among the reptiles, **8** species are in the VU category and **3** species are in the NT category.

There is not a stream that flows directly into Lake Gala. However, after the rainfall, there are temporary streams and creeks that converge in the vicinity and the Keşan Valley, and reach the lake. These streams and creeks dry out shortly after the rainfall and do not indicate a continuous flow. The Meriç River, which is located in the wetlands including the Lake Gala National Park, is in interaction

with the Hamzadere Dam, Yenikarpuzlu Pond, Enez Lagoons and water conduits of State Hydraulic Works. The Lake consists of two parts: Grand Gala Lake (Çeltik Lake) and Small Gala Lake. These two lakes and Lake Pamuklu can form a single lake by being flooded during overflows in the basin (SHW, 2003). The surface area of Lake Gala varies, depending on the meteorological conditions and the hydrostatic equilibrium.

Lake Gala National Park is an important stopover site especially for waterbirds, located on the western branch of bird migration routes. By **232** bird species are observed in the National Park.

*Food packaging and wipes are the most abundant litter in the area of Lake Gala. The most common sources of pollution identified are the ones dependent on agricultural, recreational and industrial activities. Disruption in the lake's ecological balance is also caused by nutrient pollution which leads to the damage of birds' nesting materials and the disruption of the waterfowls. Industrial pollutants drifting across Ergene River and Meriç Rivers also affect Lake Gala. Find more in **LAKE GALA NATIONAL PARK, WASTE TYPES AND QUANTITIES, CURRENT STATE ANALYSIS***

POMORIE LAKE



©Green Balkans

Pomorie Lake

The Pomorie Lake is a natural hyper saline lagoon situated along the Bulgarian Black Sea coast. A total of **71** seaweed taxa (**8** of which green seaweeds) are found in the lake and its protected areas, including also **87** vascular plant species, **200** invertebrate species (of which **16** zooplankton and 25 zoobenthos organisms), **7** fish species, **17** amphibian and reptile species, 268 bird species and **31** mammal species according to the Green Balkans. In addition, **27** mappable units (habitats) are also described under the Classification of Palearctic Habitats according to the Green Balkans.

Among all resources of the Pomorie Lake, birds are of greatest diversity. According to the Green Balkans, most of the breeding, wintering and migrating species found in this region are rare and threatened, such as Pygmy Cormorant, White-headed Duck, Red-breasted Goose, Dalmatian Pelican, Ferruginous Duck, Sandwich Tern and Avocet. In terms of a total number of bird species, the Pomorie Lake ranks third among the Black Sea coastal wetlands. Fifty-seven bird species breed in the area of the lake, which is one of Bulgaria's most important breeding sites for Sandwich Tern, Avocet, Black-winged Stilt, Kentish Plover, Common

Tern, Little Tern, and Shelduck (Green Balkans). For example, the Sandwich Tern colony breeding on the artificial islands built and maintained by Green Balkans' volunteers has been numbering 2,500 pairs, being the biggest Sandwich Tern colony on the Balkan Peninsula (Green Balkans). The lagoon is also situated on the Europe's second biggest migration route Via Pontica and thousands of storks, pelicans, geese and raptors migrate annually above the lake on their way to Africa and back.

In 1998, Pomorie Lake was designated as an Important Bird Area. Few years later, to secure the protection of rare and threatened species, and habitats, the lake and the adjacent territories were also designated as Protected Site (2001) and as Ramsar Site (2004) according to the Bulgarian legislation and the Ramsar Convention on Wetlands of International Importance, respectively (Vassilev et al., 2013-2020). Especially, Pomorie Lake, as Waterfowl Habitat, is one of Bulgaria's ten sites listed in the Ramsar List (registered under No. 1229). Pomorie Lake was officially included into the NATURA 2000 Ecological Network; as a site subjects to the protection under the EU Birds and Habitats Directives (Vassilev et al., 2013).

Pomorie Lake is known for the healing properties of its mud, which accumulates on the bottom as result of the slow decay of organic matter that remains in an oxygen-free and hypersaline environment. In 1905, Dr. Peter Stoyanov described Pomorie mud as a healing source since ancient times. For several years, he studied its healing properties. Subsequently, a mud bath was built and the town of Pomorie was established as a national sea mud resort. During these years, mud therapy, along with salt production, has been the main livelihood for the local population, and healing mud the important attraction for the visitors of the town and a prerequisite for the development of sustainable tourism. The location of the sanatorium on the lagoon's coast - one of the few remaining places with beautiful and preserved nature in Pomorie - makes the place even more attractive for those in need of therapy, and the healing process - more complete, thanks to the proven beneficial effects of the contact with nature on all healing processes.



Pollution negatively impacts the therapeutic mud production and disrupts natural processes of forming and maturing of the mud. Especially during the tourism high season, drastic changes in content and structure of salts in the lake waters during sea salt production. Apart from domestic waste, illegal dumping sites very close to the lake or inside the lake affect the therapeutic mud production. Find more in Litter pollution of Pomorie Lake, Current situation and distribution,

REPORT.

Sea salt

In Bulgaria, there are two operating salt pans for the production of sea salt by evaporation of seawater - Bourgas salt pans in Atanasovsko Lake and Pomorie salt pans in Pomorie Lake. Sea salt is rich in trace elements and is an indispensable part of our food. In addition, it is widely used in the canning industry and road maintenance in winter, and recently in cosmetics (see Yoneda, 2001; Featherstone, 2015). Marine litter

directly affects the properties of sea salt, which is obtained by evaporation of seawater. The waste in the water at the end of the process remains in the salt crystals. If the macrowaste is visible to the naked eye and can be easily removed from the salt, this is not the case with microplastics.

This is another reason to protect marine waters and related wetlands from pollution!



©Green Balkans

Visitors enjoying the medical mud of Pomorie Lake



Bird species of Pomorie Lake

The Green Balkans' experience shows that every year the Wildlife Rescue Center of the association treats many young storks, entangled in various synthetic objects - from ropes and plastic bags to tights and clothes - used by adult birds in the construction of the nest. Unfortunately, most of the affected birds could not receive treatment at all, because they are found dead, strangled or twisted in the various waste in the nests.

In the area of Pomorie Lake during the nesting period, one of the most numerous and attractive species is the stilt. In their particularly interesting nests, resembling mud craters are often found together with woven ropes and ties, plastic bags, plastic bottles and other debris, which can be dangerous for both juvenile and adult birds. We often come across poignant images on the Internet showing marine life directly killed or injured/trapped by human waste in the ocean.

The hidden ingredients of the healing mud: what else does it contain?

Pomorie Lake is subject to contamination since decades. In the past, uncontrolled waste disposal of household and construction was considered a common phenomenon. Apart from the tons of waste that fell into the lake's shores during that period, part of the waste now lie deep in the mud that covers the bottom.

The plastic waste dumped on the shores and in the waters of the lake decomposes into smaller

and smaller particles until they turn into microplastics smaller than a grit. They mix with the healing mud and stay in it forever (Doncheva et al., 2020).

As the total surface area of plastics increases with the decay of smaller particles, accumulate more and more environmental toxins on their surface, which then fall on the skin and enter the human and animal body and cause damages (Smith et al., 2018).

EVROS DELTA

AT the southeastern edge of Evros Prefecture, on the border with Turkey, the river Evros, after flowing through Bulgaria and Turkey, and dividing in two branches, forms an extensive Delta of international ecological importance, covering an area of 188 km². The river's mean water supply is estimated at 100 m³/sec, which accounts for an extended deposition of sediments in the Evros Delta.

The Evros Delta is an extensive area including fresh and saltwater marshes, riparian forests, lakes (Nymphon), lagoons (Drana, Paloukia, Laki), irrigation and drainage canals (Sarantametros, Dekametros), wet meadows and sandy islets. The Evros Delta is one of the most important wetlands in Greece and Europe. It maintains a variety of habitats over a relatively small area, several of which are of great importance to the Mediterranean region. It hosts, preserves and protects a big variety of birdlife and it is an important habitat for the wintering, migration and breeding of many rare and endangered species.

The favorable geographical position of the Evros Delta in relation to the migration routes of birds, the rich habitats and the relatively mild climate of the area, as well as the fact that the area is relatively isolated,

are decisive factors that created the ideal conditions for the co-existence of many animal species. The Evros Delta provide home to 40 species of mammals, 21 species of reptiles, 7 species of amphibians and 46 species of fish (Management Body of Evros Delta and Samothraki Protected Areas). Many of these species are rare and protected by international, European and national conventions and laws. Apart from its international ecological importance, the wetland is further supporting the local communities providing a variety of resources and thus, an array of human activities are taking place in the area. Agriculture, animal breeding and fishing are the main economic activities of the productive sector performed in the area of Evros Delta.

More important, however, is the rich bird fauna found in the area. At least 324 species of birds have been recorded in the wetland out of the 456 found in Greece. The Evros Delta is an important link to the wetland chain that exists in the wider area and is crucial for the survivor of birds (Management Body of Evros Delta and Samothraki Protected Areas). It functions as a nesting and feeding area for many species and a refuge for large populations of waterfowl from northern parts of Central and Eastern Europe during the winter.



©Management Body of Evros Delta and Samothraki Protected Areas

Site of Evros Delta



©Management Body of Evros Delta and Samothraki Protected Areas

Waterbirds at Evros Delta

Large populations of birds, moving from Africa to Europe and vice versa, cross the Evros Delta where they stop, to feed and rest in its rich and safe habitats, until they reach their final destination.

Apart from its international ecological importance, almost half of the Evros Delta is given to agriculture. From that, about 5,000-6,000 ha are cultivated, mainly with wheat, clover, rice and cotton. The construction of various flood defense barriers and other drainage works has resulted in soil salinization, due to the infiltration of saltwater into large areas of the Evros Delta. Wetlands, as a place for grazing farm animals, are particularly valuable and attractive. They have high quality and quantity of available grazing material, as well as the possibility of water disposal and easy access to it compared to other pastures. In the Evros Delta, thousands of sheep and cattle graze freely for the most of the year. Fishing is carried out in the marine waters and, in rivers and canals of the Evros Delta, categorized into marine and inland waters fishing, respectively. Fishing is mainly divided into professional and amateur. The professional fishermen fish with boats and mainly use nets, reeds and longlines, while the amateur fishermen fish both on land and at sea using various means (rods, reins, etc.). The production mainly consists of eels, sea bream, seabass, mackerel.

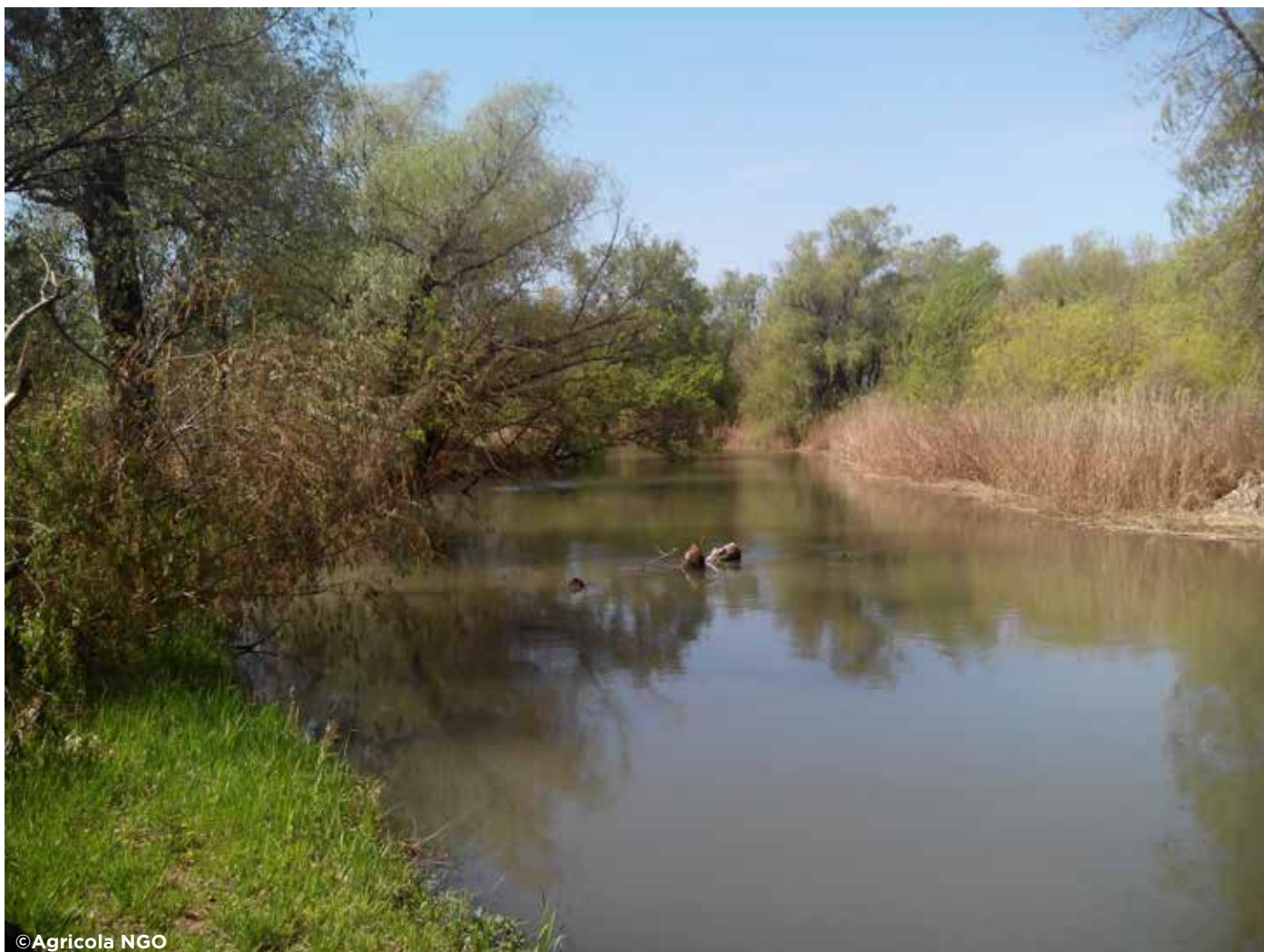
Unfortunately, the ecological importance of the wetland does not protect Evros Delta against pollution. In fact, 58% of the plastic items (persistent buoyant) observed in the riverbanks were also detected on beaches adjacent in Evros Delta estuary, proving that Evros River is an important input of pollution for the marine environment. Of course, land-based litter entering the ocean through Evros River is a cross border issue affected by all activities taking place in the Black Sea Basin.

Plastic bags are the most abundant items observed in Evros Delta National Park. Lightweight plastic bags appear in most of the areas, whereas heavyweight plastic bags for ice packaging, sold in the Central Markets and Fisheries Organisation SA (CMFO SA) outnumber them in the fishing ports.

DNIEPER AND DANUBE DELTAS



The Ramsar convention was enforced in Ukraine on 1st December 1991. Ukraine currently has 50 sites designated as Wetlands of International Importance (Ramsar Sites), with a total surface area of 802,604 ha.



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Dnieper River

Dnieper River Delta

The site, a delta of the third largest river in Europe, includes swampy areas, floodplain forests, sandy ridges, and a lake complex. The diverse vegetation consists of hydrophilic communities, islands of floodplain forest, and reed thickets and includes endemic, relic and nationally rare species.

Internationally important numbers of Great White Egret breed and large numbers of numerous species of waterbirds molt at the site. An important source of drinking and irrigation water, the site provides the largest water transport artery between Ukraine and Black Sea countries. Human activities include hunting, aquaculture, fishing, and recreation.

Danube Biosphere Reserve

The Danube Biosphere Reserve (until 1998, the Danube Plavni Reserve) is situated around Vylkove in the north-eastern part of the Danube Delta. In the east the Reserve borders in the Black Sea, and in the south, it lies alongside Romania. The main geographical parts of the Reserve are the secondary (marine) delta of the Kilia Branch, the Zhebriyansky beach, the Stentsovo-Zhebriyansky reed beds and Yermakov island. In addition, the Decree of the President of Ukraine No. 117/2004 of 2 February 2004 attached two separate sites to the Reserve: the headwaters of Lake Sasyk and Dzhantshey estuary. The total area of

the Reserve along with channels, inland water bodies, a two-kilometre strip of the Black Sea and the sites attached in 2004 amounts to 50,253 ha. On 9 December 1998, the International Coordinating Committee of the UNESCO “Man and the Biosphere” Programme admitted the Reserve to the global network of biosphere reserves as part of the bilateral Romanian-Ukrainian biosphere reserve “Danube Delta” (Vadineanu & Voloshyn, 1999).

The most important resources of the Reserve are wetlands that support huge numbers of waterbirds in terms of shelter, feeding, resting and breeding. The



©Agricola NGO

Site of Danube Biosphere Reserve

flora of the Reserve totals about **950** species of vascular plants belonging to **371** genera and **97** families. By the number of fauna species, the Danube Delta is perhaps the richest place in modern Europe. More than **350** species of birds have been recorded (including up to **1000** pairs of pygmy cormorants and **360** pairs of spoonbills, and many thousands of White Pelicans visit to feed). There are **107** species of fish recorded in the reserve (including all 7 species of fish from the European Red List). Mammals are represented by **45** species of which **7** are on the European Red List and **19** are in the Red Book of Ukraine. For some of them, like the European Mink and the Wild Cat, the Danube Delta is very important for their survival at a European scale.

Kyliiske Mouth, a delta of a Danube River tributary, is situated along the Black Sea near the Romanian border. It comprises numerous channels, alluvial islands, swamp areas, floodplain forests, freshwater lakes, and sandy spits enclosing bays. Vegetation includes hydrophilic communities, reed and sedge marshes, and dune communities. The site supports numerous rare, relict and endemic plant species. The threatened waterbirds Dalmatian Pelicans and Ferruginous Ducks nest at the site, and the threatened Red-breasted Goose winters in the area. The site provides habitat for large numbers of many species of wintering, migrating, breeding and molting waterbirds, as well as breeding and nursery places for fish and amphibians. Human activities include hunting, fishing, livestock grazing, haymaking, and recreation.

Sasyk Lake is artificially maintained as a freshwater area by pumping, the site consists of a reservoir near the Danube Delta and the Black Sea and includes various floodplain areas (Ramsar Sites Information Service). Vegetation consists of emergent and submerged plants and salt meadows and includes nationally rare and relic species. The wetland is important for numerous species of migrating, breeding (25,000 pairs), and molting waterbirds and supports seasonal concentrations of up to 100,000 individuals (Ramsar Sites Information Service). Large numbers of the threatened species White Pelicans and Red-breasted Goose occur at the site. Numerous species of fish also occur (Ramsar Sites Information Service). Human activities include fisheries, forestry, livestock grazing, environmental education, recreation, and scientific research. The site is of religious and archaeological importance.



June 29 - Danube Day

Danube Day is celebrated on June 29 - the date on which the Convention for the Protection of the Danube River was signed. The mission of the day is to draw attention to the importance and protection of the river and its tributaries. The organizer of the campaign at a European level is the International Commission for the Protection of the Danube River.

WETLANDS OF CENTRAL KOLKHETI AND TBILISI

Kolkheti is among the 36 hot spots of the world's biodiversity. Kolkheti National Park is located in West Georgia. It occupies the eastern line of Black Sea coast and Paliastomi Lake: The lake basin National Park was created in 1999 to protect and preserve Kolkheti as high humidity ecosystems of international importance. The area of the park is 28,571 ha of land and 15,742 ha of sea area.

Extensive parts of the Kolheti (Colchis) Lowlands are wetlands due to the warm and wet climate and numerous rivers flowing from the Caucasus Mountains

Imnati mire only existing here. The peatlands of the Kolkheti lowland (in ancient times called Phasis) comprise the major part of the peatlands of Georgia. The diversity of peatlands and partly still pristine mires in this ancient cultural landscape is unique. In percolation mires, the water level hardly drops and the peat remains weakly decomposed, with large pores, and elastic. As the related high hydraulic conductivity leads to a substantial water flow through the whole peat body, percolation mires are only found in places where water supply is not only very evenly distrib-



© I. Matchutadze

Site of Kolkheti wetlands

to the Black Sea. Large parts of the wetlands are peatlands. The Kolheti Lowlands are characterized by a high diversity of ombrotrophic (Sphagnum-dominated) and minerotrophic (Carex-dominated) peatlands. The special character of the area and its peatlands led to the recognition of a specific Kolkheti peatland region within Eurasia.

Wetland habitats of global importance in Kolkheti Lowlands are: Sphagnum mires, natural freshwater ponds, swampy forest. Globally extraordinary habitats in the Kolkheti Lowlands are the percolation mires (feeds only by rain water), such as Ispani 2 and

uted over the year but also quite large. In Kolkheti Lowlands ombrogenous (solely fed by rain) percolation mires occur because: 1) the climate is very wet and the precipitation surplus is very evenly distributed over the year, 2) the bog has a convex shape, 3) there are no clear hummocks and hollows, because surface patterning depends on lateral water flow, 4) the vegetation is acid and possibly more nutrient demanding than in 'normal' bogs, because of rheotrophy effects, 5) the peat is hardly decomposed over a large depth. Extremely high mire oscillation with a maximum rise up to 25 cm can occur.

Wetlands of Kolkheti have a significant ecological and economical value of their ecosystem services such as local, regional and global climate and hydrology regulation, supplier, habitat conservation and cultural services. That is why the park has a special ecological and economic value for the Kolkheti (Colchis) Lowlands.

Since 1997 wetlands of Kolkheti Lowland Ispani 2, Imnati, Tchuria, Nabada, Anaklia and Paliastomi Lake are protected under Ramsar convention. In 2000, wetlands of Kolkheti Lowlands became also protected under Kolkheti National Park and Kobuleti Protected areas.

Flora (including mosses, ferns, vascular plants) of Kolkheti mire consist of **175** species.

In the wetland habitats of Kolkheti lowland **276** species of migratory, water and nesting birds were recorded: **74** species are water birds, **63** are nesting species. Some are included in the IUCN Red list birds: Leseer White-fronted Goose, Pochard, Velvet Scoter, Yelkouan Shearwater, Dalmatian Pelican); from Ichthiofauna – Beluga Sturgeon, Common Sturgeon, Starry Sturgeon, Russian Sturgeon, Persian Sturgeon, Black Sea Salmon.



Site of Kolkheti wetlands

Wetlands of Kolkheti mire are protected under Bern Convention and Emerald Network.

Main threats to the peatlands:

- ✓ Household waste;
- ✓ Cattle/buffalo grazing;
- ✓ Constructions for industrial infrastructure, e.g. harbour for Black Sea terminal;
- ✓ Low public awareness on the global importance of Kolkheti Sphagnum mires;
- ✓ Eutrophication in the Lake Paliastoni caused by climate change;

Sources of pollution and pollutants which are found in Kolkheti National Park Wetlands are wastes input to the park through rivers Ronis, Supsa, Choloki, Adjaristckali etc

TBILISI NATIONAL PARK



Tbilisi National Park is one of the nine national parks in Georgia, it is located to the north of the city of Tbilisi. The national park was established in 1973 on the basis of the previously existing Saguramo National Reserve (established in 1946) and is the oldest national park in Georgia. The area of the park is 243 km².

Tbilisi National Park belongs to the moderately humid subtropical climate type. Here 4 types of climate are shaped up instigated by forms of relief and exposition. As a result, low and average-high mountain landscapes with mixed hornbeam oak, pure oak and beech plants are found in the area. Therefore, Tbilisi National Park is a geographic knot which is an important segment of the emerging unified network of protected territories in the Caucasus.

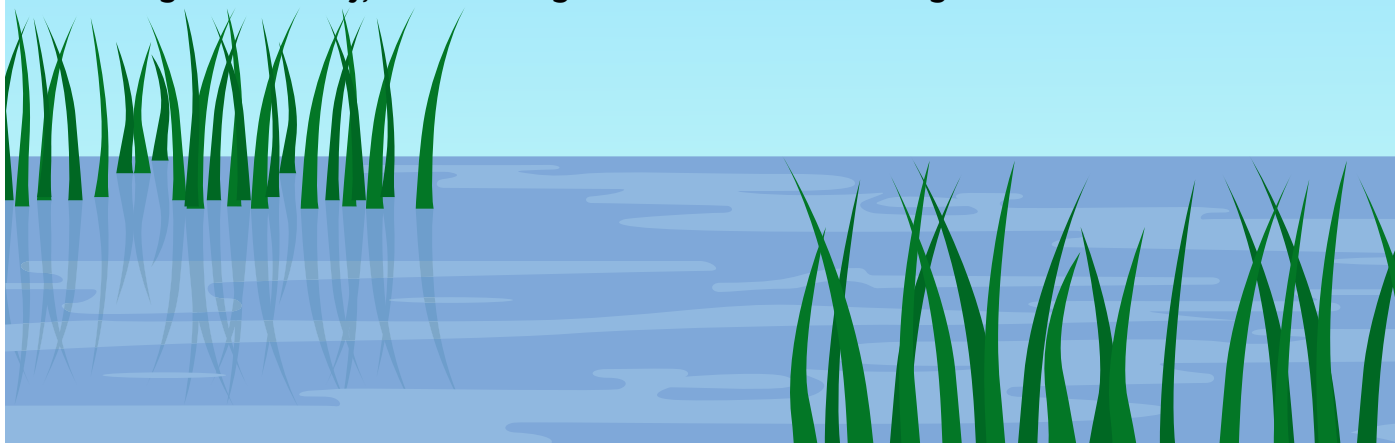


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Site of Tbilisi National Park

2nd day of February - World Wetlands Day

In 1971, the Wetlands Convention was signed on this date in the Iranian city of Ramsar. The Ramsar Convention is the first international treaty on the conservation and sustainable use of natural resources targeting specific ecosystems. Initially, the Ramsar Convention was established as an international treaty to protect wetlands primarily as a habitat for waterfowl. Since then, the Convention has expanded its scope to cover all aspects of wetland conservation and prudent use, recognizing them as vital ecosystems for the conservation of biological diversity, water management and the well-being of human communities.




Water bodies in Tbilisi National Park



Three water bodies are located in the Tbilisi: Tbilisi Sea (artificially water reservoir), Turtle Lake (natural) and Lisi lake (natural).

These areas for Tbilisi have recreational importance. However, nearby there are swampy areas which require protection due to their drainage function.

Lisi Lake is also an eutrophicated water body with some wetlands in the surrounding areas.

A sea turtle is swimming in clear blue water, moving from left to right. In the foreground, there is a large, crumpled piece of yellow plastic litter. The turtle's head and front flippers are visible, and it appears to be looking towards the litter. The background shows some green seagrass on the seabed.

**Are you a teacher working
on the issue of river-based
and marine litter?**

A black trash bag icon with a tied top, positioned behind the text box.

MARINE LITTER

According to the EU Marine Strategy Framework Directive (MSFD;2008/56/EC), marine litter are persistent, manufactures or processed solid materials that have been used by people and are deliberately discarded or unintentionally lost in the marine or coastal environment and/or transported by winds, rivers and the sewage systems into it. Refers to anything dumped in the sea, lakes, rivers and coasts that is not a product of nature, but of human origin.

©iSea

Marine life interacting with seafloor plastic litter



Organise a cleanup

Commit to constantly (at least twice a year, or even every month) organize a cleanup in the order to keep it clean.

- You can even Adopt a Beach or a wetland!
- Engage more people in your action!
- Create an invitation for the other teachers and students and transform it to an open public event! Do not forget the power of Social Media in order to spread the message. Students participating in “Trash shouldn’t splash” campaign brought it to their community. Find out the ways they engaged their local community through their toolkit!

Monitor marine litter

- Use Marine Litter Watch mobile application in order to monitor the litter during a cleanup or a monitoring event! You can easily submit the data through the application and get feedback about the results of your action. You can even process the data with the students before submitting them. The application even provides communication materials for presenting your results.

National Institute for Marine Research and Development 'Grigore Antipa' Constanta as part of the policy-oriented marine Environmental Research for the Southern European Seas (PERSEUS) project along with the Romanian students adopted and monitored three beaches for a year! They found out that cigarette butts and plastic containers were the main litter items observed.



Beached litter



Collecting, sorting and monitoring marine litter



- Participate in the World Cleanup Day
- Watch **“How Plastic Pollution Reaches the Ocean from Land”** from Plastic Oceans International to understand the reason why your litter is potential marine litter!
- Find out **“What we will leave for the future generation”** from The Ministry of Environment and Water, Black Sea Basin Directorate!

There is a huge “island” of plastic in the Pacific Ocean between Hawaii and California (Emens, 2014), the so-called “Plastic Continent” that is three times larger than France and continues to grow. Due to marine and air currents, its location is constantly changing. The Plastic Continent is the largest of the five plastic “islands” in the World Ocean. The Plastic Continent was discovered by accident in 1997 by Captain Charles Moore, who was returning to California after a sailing race held in the area. He and his crew came across this patch of litter in the middle

of the ocean, and since then the site has been explored and solutions sought to clear it. The giant island is formed by glued plastic debris that falls into the ocean, brought by rivers, dumped by ships or dragged from the shores by the surf and low tide. Up to 12.7 million tons of plastic litter are dumped into the oceans every year; of which 1.15 – 2.41 million tons reach the oceans through rivers (Lebreton et al., 2017). Some of them have a density less than that of water and therefore remain floating on the surface, carried by currents and wind for thousands of kilometers.



The amount of plastic that enters the world’s ocean every half second

Moby-Duck is a true story! 28,800 rubber bath toys were lost at sea!

The toys were dumped aboard a container ship in the Pacific Ocean on January 10, 1992 and were subsequently found on beaches around the world. The phenomenon has been used by oceanographers, including Curtis Ebesmayer, to track ocean currents.



© iSea

Plastic toy beached in South Greece

Types of marine litter

There are different categories and classifications of marine litter depending on the material: **artificial polymer (plastic)**, **rubber**, **clothing and textiles**, **paper and cardboard**, **processed wood**, **metal**, **glass and ceramics**, etc. (this classification is widely used in order to be compatible with the observations in different parts of the world's oceans).

Recycle

Install different bins and separately dispose litter.

- Train students on proper recycling or upcycling techniques and item separation.
- Inform them about Sustainable Development Goals 12 and 14: Responsible consumption and production. Always remember that reducing the waste foregoes recycling it!

Call for Recycle Rangers and certify their effort!!!

Students in Greece gathered 16,000 pieces of recyclable items and upcycled old items giving them new and interesting uses in the context of Walk the Global Walk project.

Adover High School students conducted a project with the aim to recycle and compost in their cafeteria through the installation of eight waste separation stations. They engaged the school community and finally decreased their waste by almost 50%. Find more about the ways they addressed all the challenges.



In the context of the project “The Green LEGO School”, the PMGKN Little Robotics team from High School of Math and Science “Think globally and acted locally”, part of Robotics for Bulgaria initiative are monitoring the amount of waste that is collected at home, school, and playgrounds. Their goal is to start a real separate waste collection at their school, strive for zero waste by contacting a company that will collect it. The money that they will receive for their collection, will be used to buy supplies for their 3D printer, through which they can make pieces for the robot and STEM projects.

Forty high school students from Bulgaria who participated in the Erasmus+ GREENT project were challenged to generate business ideas that fulfill the principles of the circular economy assisted by mentors. Experts in the green entrepreneurship field gave the first prize to a student team who offered new opportunities for household waste recycling by means of an innovative waste bin.



Wetland cleanup by young volunteers

©Agricola NGO

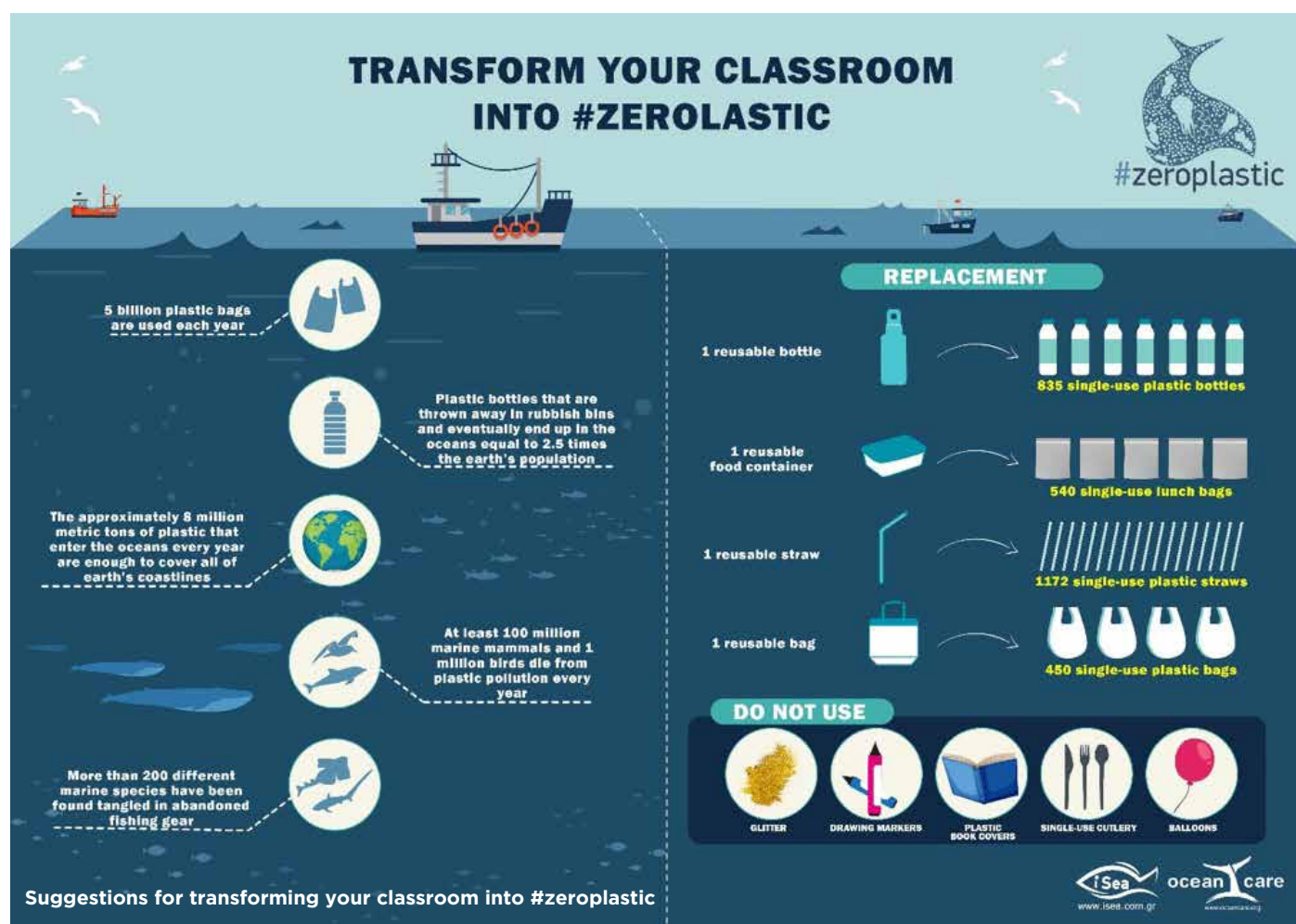
Plastic pollution

Plastic pollution is recognized as a major global threat to different marine species, ocean health, ecosystems, biodiversity, wild animal conservation and welfare, but also raises social and aesthetic problems affecting the economy, particularly fisheries, aquaculture, recreation and heritage values.

Find more in The Plastic Age and the A Plastic Ocean documentary!

Become zero waste

Read Plastic Soup: An Atlas of Ocean Pollution (2019) in which Michiel Roscam Abbing reveals the scope of the problem: plastic waste is everywhere on the planet, even in the farthest places from civilization. With its stunning photographs and graphics, Plastic Soup is a challenge for readers of all ages.



- Ask from the students to replace their single use plastic water bottles, food wrappers, straws and bags with reusable ones.
- Ban glitter, plastic book wrappers, markers, single use cutlery and balloons in your class!
- Discover with your students how much plastic waste is disposed in the context of your school activities, look for solutions in order to reduce your plastic waste and transform your classroom into #zeroplastic following the instructions of the awareness raising campaign against plastic debris and microplastics in the Greek seas.



Activity sheet for counting the plastic items disposed in a classroom and replace them with the aim to reduce the waste

Guidelines for teachers:

- 1 Ask your students to list the plastic items that they threw away during the day within the rubbish bin or the recycle bin and write them down within the first column.
- 2 Discuss with them the possible solutions for each one of them.
- 3 Write down the suggestions that came up from the previous discussion in the second column.
- 4 Use the results to develop a list with advice and/or suggestions to reduce the plastics thrown away by your classroom!

Finally, if it turns out that within the classroom you discover a single use plastic that cannot be replaced by a reusable item, you could examine whether or not it can be recycled.

Fill in the following form:

Plastic waste	Suggestions to note

Solutions can derive from asking questions: Is there a reusable item that you could use to replace it (e.g. use a reusable water bottle instead of a single-use plastic bottle)? How could you reuse it instead of throwing it away?

In cases where single-use plastic items cannot be replaced with reusable ones, examine if you really need to use them (e.g. could you ban the use of straw if you do not own a reusable one?).

For more examples and information, you can visit our iSea webpage.

Thirty kindergartens in Bulgaria in more than 13 districts rejected plastic cups under the “I choose reusable glasses” project. The required quantities of single-use glasses were startling - about 150 plastic glasses a day for 30 children. And so - every day. Then they found the support of environmental organizations through the Global Plastic Free Campaign. The citizens’ initiative has grown to become an ‘I choose the reusable glasses’ campaign, currently being implemented by the Community Center for Environment and Sustainable Development (OCOSUR) - Varna, and a partnership for the implementation and production of ZERA glasses.

In the case of Town of Framingham School Organics Diversion & Reusable Tray Program, disposable foam trays and plastic utensils were replaced with reusable trays and silverware, refurbishing dishwashing machines were installed in four elementary public schools and more than 16 tons of foam trays, plastic utensils and organic waste were avoided!!

Whereas, during the “Five Schools Trial Solutions to Reduce Plastics” and in accordance with Sustainable Development Goals 12 (responsible consumption and production) and 13 (climate action), schools are trying for 10 weeks to replace single use plastics in their lunch service through a new waste management initiative. They are trialing a refundable-fee scheme, which involves lunch vendors or the school canteen serving lunches with reusable containers. Students are refunded a small portion of their lunch payment if they return the container after finishing their lunch. They are also testing a discount plan, through which students will pay slightly less if they bring a reusable container from home.

The first synthetic plastic

In 1907, the Belgian-American inventor Leo Baekeland created a technology for the production and processing of phenolic resin. Bakelite, named after him, became the first industrially produced thermoset synthetic plastic. The German Hermann Staudinger is considered the founder of polymer chemistry. In 1920, he published his article “On Polymerization”, which became fundamental to the modern science of polymers. In 1938, new synthetic nylon fibers appeared the market. In 1937, the German Paul Schlack created kapron, which entered mass production only a year later. In the second

half of the 20th century, the chemistry of polymers developed rapidly, in parallel with the sharp increase in the production of plastics. With the development of thermoplastic technology, elements in various shapes began to be produced cheaply from various plastics, displacing traditional materials from industrial mass production. **At that time, the annual consumption of plastics per capita was 92 kg in Western Europe, 13 kg in Eastern Europe, 130 kg in North America, 19 kg in Latin America, 86 kg in Japan, 13 kg in Southeast Asia and 8 kg in The Middle East and Africa.**

Sources of marine litter



© iSea

Fish that led his eggs in a disposed beverage can

The main feature of solid waste in the marine environment is that their origin is mostly from land-based sources. Instead, the so-called marine sources (e.g. maritime transport and fishing) share about 20% of generated marine solid waste.

Special attention must be paid to the discarded, lost or abandoned fishing gears and especially fishing nets, which pose a significant risk to the life and health of marine mammals, turtles and birds.

Role playing

- Separate the students in groups. Each group acts with different stakeholder groups. Beachgoers, boat crew, fishers, local community, tourism industry representatives, or other groups familiar to the students according to the activities taking place in your area.
- Ask from every group to look for solutions for the types and amount of litter they produce.
- Each group has to present the main litter they produce according to their activities, the way they mainly manage their litter, their opinion on where their litter end and their suggested solutions for litter prevention and mitigation measures.
- Different groups can end up with synergies and common commitments.

A kindergarten in Greece became zero-waste. Kookoonari is an experiential educational project training students, teachers, parents and the local community to a zero-waste lifestyle. Floor games for the students, workshops for the parents, zero-waste parties for everyone and other raising awareness activities were implemented for everyone in order to become zero waste.

Other schools have also become litter free!!!

St Terese's Catholic Primary School students went straight to the decision makers asking the ban of helium balloons in the Haldon Street Festival, after experiencing balloons released during the festival and ending in the environment. They succeeded!!!! Festival guidelines changed!

The journey of microplastics

The path of plastics to the World Ocean most often starts from the land, not necessarily from a beach or coast. As rivers end their journey in the seas, so too do the sewage systems. This is how, even far from the seashore, the ingress of plastic products into the sewers leads them to the seas and oceans. Despite their longevity, when plastic objects are exposed to weathering, they become extremely fragile and brittle. Under the mechanical influence of waves and wind, in combination with ultraviolet radiation from the sun, they break down into smaller and smaller parts, called "microplastics".

Microplastics are small plastics with a diameter of less than 5 mm and are usually divided into two sub-categories: the primary microplastics, which are purposely produced to be included in many everyday products, such as toothpaste, personal care creams, cosmetics, etc. and secondary microplastics, which are the result of fragmentation (break down) of larger plastic items (Jiang, 2017). The microplastics represent an important proportion of plastics in the oceans, posing threats to marine life, ecosystems and human health!

© National Oceanic and Atmospheric Administration
Factors lead to plastics' fragmentation



Use the lab to observe microplastics with the students

- Collect water from your nearest river, beach or lake, use a coffee filter to filter it and investigate for microplastics with your students via microscope or stereoscope.
- Instead of water, you can collect sand from the nearest seashore, lakeside or river bank.
- You can even observe cosmetic products like handwashing creams and toothpaste.

Watch The Story of Microbeads from The Story of Stuff Project to find out about microbeads in cosmetics!

The presence of plastic particles in the World Ocean is well known, but a recent research shows that plastic particles and fibers are everywhere, even in rainwater (Cox et al., 2019). It's literally raining plastic all around. The latest research shows that people involuntarily consume an average of about 200 pieces of microplastics per week or 21 grams per month, which makes 50 thousand pieces per year (Cox et al., 2019)! Twice as much plastic is consumed with drinking water. Other sources of microplastics are seafood, beer, sea salt (Cox et al., 2019).

And the amount of plastic that can harm our health is still unknown!



© www.theguardian.com

Microplastics detected in seasalt

A Plastic Ocean, 2016/1h 40m/Netflix: A documentary presenting the latest scientific data showing how plastics, once in the oceans, break down into small particles that enter the food chain, where they attract toxins like a magnet. These toxins are stored in the fatty tissues of marine organisms and are eventually consumed by us.

The effects of marine litter

In addition to the purely aesthetic aspects of the problem, waste that often falls into the seas and other water bodies cause various damage to biodiversity. Most often they are the cause of entanglement or trapping of animals in various objects, which leads to the inability of the limbs to function properly, suffocation and ultimately to their death.

■ Watch the impact of marine litter from Marlisco!



A huge danger for marine life is also the so-called “ghost fishing gears” - fishing nets, lines and traps that are most often lost at sea for various reasons - carried away by a storm or a bottom trawl, floating in the water column and/or hooked to rocks on the seabed. They are very difficult to find and remove. In many areas, such lost fishing gears remain in the marine environment for decades, posing a long-term threat to wildlife.

A recent UN study claims that 40% of whales, dolphins and porpoises, as well as 44% of seabirds, are affected by the ingestion of marine litter (UN, 2016). Others suffer from entanglement, followed by excruciating starvation and death.

For the wetlands, the so-called “fishing tackle” - lines equipped with lead sinker and hooks, lost or thrown into the water- are also a serious threat. They are often swallowed by swans, gulls and other birds looking for food in the lake, and lead to their death due to internal bleeding and/or prolonged starvation, as well as lead poisoning.



- Look for ocean literacy resources in order to teach the way the ocean's influence on human, and our influence on the ocean is crucial to living and acting sustainably. You can find projects, tools, methods, reports, programs and materials from the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) and in the Ocean Literacy Portal.
- Join the Network of European Blue Schools and have your students become agents for change and sustainability of the ocean and seas!
- Look for “Sustainable Development Goal 14 (life below water)” educational materials to teach about the pressures posed by marine litter to the marine life provided by UNESCO.
- Watch “How litter harms the Black Sea” prepared as part of the UNDP EMBLAS project and find out about the impact of marine litter on the Black Sea, the contamination it causes to the food chains, the displacement it causes to the natural habitats and other threats it poses to them.
- Watch How Does Plastic Get In Our Food from Plastic Oceans!
- Join the environmental education projects implemented in your local wetland by the nature conservation and visitors' centers, in order to develop a relationship among your students and nature and promote its protection among them.

The history of the 3Rs

Have you seen this logo? It is a symbol often used on packaging in some European countries and it means that the manufacturer has a financial contribution to recovery and recycling.

This is related to the so-called “The three Rs” or 3Rs. A widely used abbreviation for the waste management hierarchy: **Reduce, Reuse, Recycle.**

Reducing is minimizing the amount of waste we generate; reuse is finding a new application of waste so that we do not have to dispose of it; and recycling is the preparation of waste for use in the production of new goods that can be reused.

Drawing the world’s attention to environmental issues led to the first **Earth Day** held in 1970. That gives reason to the Container Corporation of America, a large manufacturer of recycled cardboard, to sponsor a competition for art and design students in high schools and colleges across the country in order to raise awareness of environmental issues. The competition was won by Gary Anderson, then a 23-year-old student at the University of Southern California, who applied with the image now known as a universal recycling symbol. The symbol is not a trademark and is in the public domain. However, the symbol was probably inspired by similar recycling symbols existing at the time, such as the one involving two arrows chasing each other in a circle that Volkswagen placed on some car parts in the early 1960s, which are recyclable.

We believe that it is not so important what happens to the amount of waste that each of us throws in the trash can, right?

WRONG!



Symbol indicating a recyclable item

Wrong! Consider how much waste is generated each day by multiply that amount by **6.7 billion** people on our planet. That is a lot of garbage, isn’t it? If we continue to produce so much waste, we will have no place to store it. Using the Three Rs will help us reduce the amount of waste we throw away.

In fact, we can find out the amount of plastic waste that each of us throws away every day through a simple and practical experiment. Collect garbage separately - identify bins for different categories of waste - plastic, paper, metal, glass, organic and inorganic. At the end of each day, note in which of the bins the most waste. This simple experiment will show us how many plastic packages and bags go in our trash without even paying attention. Setting a goal to register them, it will prove to us that the problem is real.

Make art, not waste!

Art projects are a great way to spread the message to act green and think blue. Use the garbage found in your area to make compelling applications and murals. Prepare a school mural project in your school and propose it to the principal. Invite students from other classes to get involved and do it together. Share the result on social networks with a hashtag #BioLearn.



A mosaic made with bottle caps by students in Carmel, USA (above).

Artwork from plastic bottles collected during a cleanup (left).

As part of the international Erasmus+ project “Kids Against Plastic Pollution” students, by using recycled plastic materials, made jewelry, fashion items, toys, pots for flowers, furniture for the school library and bird houses. Cotton bags, made from recycled old sheets, were painted with eco- motifs and inspiring messages. The students also attended workshops where they used microscopes and analysed samples of water from each country participating in the project and planted a tree in the school’s yard.

Let’s students collect each piece of waste at home that could be used for creative and do-it-yourself activities



Cardboard decoration
from paper rolls
suggested by
www.krokotak.com

- Make a picture or photo frame from waste cardboard rolls of toilet or kitchen paper, plastic cups and bottles. Choose your design and color. You can paint the cardboard parts in any color you like.
- Boxes for storing coins, buttons or other small objects.
Cut out the bottoms of the plastic bottles you throw away.
Paint them in cheerful colors and assemble them so that they look like fruits.
Make them handles and leaves from green waste bags or paper.
You can make an incision through which to put pennies and use the created apples for piggy banks.
- From plastic bottles, with the help of acrylic paints and additional materials -such as ribbons from bags, unnecessary buttons, foil, etc.- you can make vases or flower pots.
- You can make bird feeders from plastic bottles and other available materials, which can also help populations of songbirds wintering in your area during the period of unfavorable weather conditions. For perches, you can use disposable cutlery - plastic spoons and more.



Party decoration created from waste suggested by www.krokotak.com

- Dresses, mantles or other accessories from plastic bags.
Use your imagination to create a clothing or accessory (tiaras, scarves, belts, cloaks, hats and ribbons) from plastic bags in a variety of colors.
Make a contest “Miss and Mr. #BioLearn” for the best idea in class or organize a ball/party with these costumes.
Invite other classes and share your experience with them, exchange experiences and ideas.
- Toys from waste materials.
Use the holidays to make use of the waste available by making them, for example, Christmas toys or decorations for Easter, Birthday or other holiday.
Organize a party and decorate with similar materials or exchange Christmas gifts of this kind at school.
- You can design rag toys of old and useless clothes, socks, towels and other cloths.
Use buttons or even natural materials for the details.
Decorate them with ribbons, dresses or aprons from plastic bags, hats from plastic cups.



**Flowers made
from plastic
waste**

- Unleash your imagination.
Make them accessories such as sleds, skis, houses and others from plastic bottles, egg boxes, caps and never stop at anything, any idea is welcome.
- Do not throw away the plastic stirrers when you come across them.
Collect them and then use them to create photo frames, wrap of pots for flowers, pencil boxes and other.
- Make jewelry and ornaments - necklaces, earrings, bracelets, appliques - from plastic waste. Use pieces of bottles or cups, pre-rounding and smoothing their edges with a nail file.
- Organize a school charity bazaar with toys, decorations and jewelry made entirely of waste materials. Promote your achievement by sharing it on social media with the hashtag #BioLearn.



**Toys made from
old clothes**

Are you an organization working with the civil society?





Agricola NGO in Ukraine works with local communities and schools on the topic of Danube and Dnieper estuaries pollution!

- During cleanup events, items are gathered and their possible source is discussed with the participants.
- Art works are also created from the participants with the litter items collected and posters depicting their cleanup experience are expedited!
- Competitions with the aim to collect the highest amount of litter are organized among participating teams.
- Students are also encouraged to meet with the local authorities, express their suggestions and discuss the marine litter issue of the areas!
- Students also collaborate on video making in order to present marine litter pollution.
- Organise a video contest in order to engage youngsters in the topic of marine litter and encourage them to think about the sources, impacts and solutions to marine litter.

The environmental organisation iSea, since 2017 succeeded to transform its cleanup campaigns into zero waste, by replacing all of single use materials with reusable last longing (liner bags and gloves) and setting an example of good practice. During the cleanup events, volunteers are also trained in data collection. In addition, cleanup tool kits are disseminated in schools, including all the reusable equipment and instructions needed for the implementation of cleanups.

In Bulgaria, with the aim to actively engage a high number of citizens, NGOs and stakeholders started a common effort in the context of “For the Nature in Bulgaria” campaign. Many environmental NGOs and hundreds of citizens joined the coalition created under the same name “For the Nature in Bulgaria” and incredible achievements are gained!

Are you a professional fisher?



Fishing for Litter

You can also fish for litter! “Fishing for Litter” projects (FFL) aims to reduce marine litter by involving one of the key stakeholders, the fishing industry. Fishing boats are collecting the litter gathered in their nets during normal fishing activities. FFL is also an implemented activity in the context of the Black Sea Marine Litter Regional Action Plan.



You can also contact the competent national and international organisations and join an FFL project. Some projects even cover the costs of collection and disposal and demonstrate the fishing industry’s commitment to a healthy environment!



Dipteki bir balıkçı teknesinden “avlanan” deniz çöpleri

Acquire a Happy Fish, the cleaning apparatus, designed to collect litter from the water's surface without harming marine life launched by Waste Free Ocean! Cleanup the ocean collecting floating marine debris and bring it back to land for recycling and sorting. The project is also called “Guardian of the Sea”. It is led by the Turkish Plastics Manufacturers Research, Development and Educational Foundation (PAGEV) and engages the fishing community.

Fishing for Energy

Abandoned and/or lost fishing gear is a huge problem. Thousands of marine animals become entangled and die in them, and they also pose a danger to navigation. Based on an experimental program in Hawaii, an Energy Fishing Program was established in 2008 to address this problem through new and creative methods for recycling materials, and the remaining non-recyclable material is converted into energy (waste-to-energy). The program is implemented in partnership between NOAA, Covanta Energy Corporation, the National Foundation for Fish and Wildlife and Schnitzer Steel. This program offers the fishing community a free way to dispose of old or obsolete fishing gear. Once removed from the sea, they are transported to the nearest Covanta Energy-from-Waste facility. About a ton of discarded gears is enough to produce electricity to power a home for 25 days!

Are you a manufacturer, industry or business operator?



Are you a manufacturer, industry or business operator?

KDYT 100 Marine Cleaning Boat is a boat model developed in Turkey and designed by EPS Marine Company, designed to operate in the Black Sea, mostly in the Bosphorus. Collects plastic waste - disposable bottles, packaging, bags and all other floating waste from the sea and transports it to the shore, then to the relevant landfills.

Extended producer responsibility is needed!!!

A total of 11,290 children from 6 Bulgarian towns handed over 62.5 tons of paper for recycling during “Old Paper for New Book”. In return, the young activists received 12,870 new books as gifts.

Tourism businesses

Keep your sand and beach plastic free!

- Train your staff on how to use less plastic
- Change practices in order to avoid single use plastics
- Raise awareness among the residents and tourists in order to gain support
- Encourage local people to cut out single use plastics

The initiative brings together tourists, tourism businesses and residents to cut consumption of single use plastic. In its context, a Plastic Free Hotel Training Toolkit is provided to help hotels in order to reduce the amount of single use plastic waste created by their operations and are enabled to make changes and educate their staff in Cyprus.

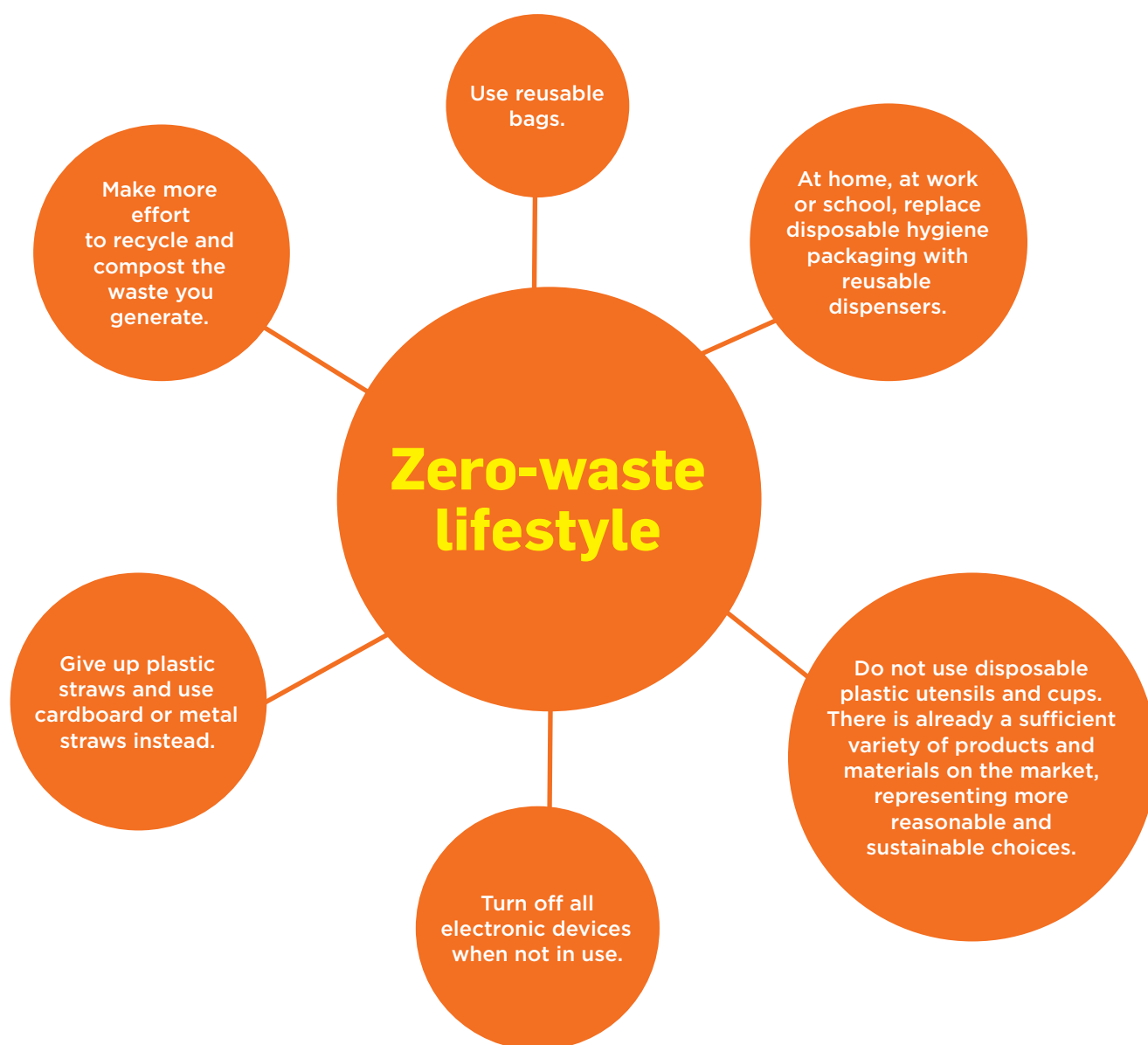
Become a #zeroplastic diving center!

- Implement underwater cleanup events for the direct removal of marine litter and the awareness-raising among the local community
- Dive to collect data
- Ban and replace single use plastics and the products containing microplastics
- Inform your visitors about the issue of plastic pollution and microplastics in the marine environment

Become members of the citizen science community by participating in Project Aware and being trained on data collection from the tools and materials provided through Dive Against Debris project.



Are you a consumer?



Start with a personal example!

How To Give Up Plastic

Read "How To Give Up Plastic: A Guide to Saving the World, One Plastic Bottle at a Time by McCallum Will" (McCallum, 2019) presenting simple and easy actions, by taking which each of us could live more responsibly and environmentally. By providing shocking statistics and opinions of leading experts in the field of ecology and biology, the author manages to draw readers' attention to the important topic of reducing waste dumped by each of us and falling into the seas and wetlands associated with them.

Shop eco friendly

Food despoliation has consequences for both the economy and our environment. In addition to waste generation, resources are wasted, for the production of which land is often taken from the wild. A few simple measures can limit the damage. Who are they?



@iSea

Reusable bags' distribution to the volunteers after a cleanup organized in the context of European Maritime Days 2020

■ Do not shop without a preliminary list

Only list the products you really need. In the store, stick to it, so as not to succumb to the temptation to shop indiscriminately according to promotions, packaging, advertising, etc.

■ Be careful with promotions

Four for the price of three - this can be both economical and wasteful shopping option. Think about whether you need such an amount and for how long you will use it. In the case of fresh products, the idea is rather bad, because there is a high probability that additional yoghurts, for example, will go to waste.

■ Avoid over packing

If possible, choose products that are not packed with several layers of packaging - paper, plastic, etc. Don't be tempted by individual packaging of biscuits and other products - they are practical, but you create more waste.

■ Don't buy plastic bags

Do we need to explain why? Replace them with long-term textile alternatives.

■ Don't shop when hungry!

It sounds ridiculous, but your basket will be full of many unnecessary things if you break into the supermarket hungry.

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List of best practices included in the Manual

Adopt a Beach UNEP (2018) Regional Meeting on Marine Litter Best Practices

Trash shouldn't splash www.trashshouldntsplash.org

Walk the Global Walk www.walktheglobalwalk.eu

Andover High School's Cafeteria Program www.thegreenteam.org

The Green LEGO School www.sdw-blog.eun.org

GREENT Erasmus+ project www.greentproject.eu

#zeroplastic awareness raising campaign www.isea.com.gr

I choose reusable glasses www.interregeurope.eu/plasteco

School Organics Diversion & Reusable Tray Program www.mass.gov

Five School's Trial to Reduce Plastics www.pacific.undp.org

Become Kookoonari project www.kookoonari.org

Litter Free Schools www.taronga.org.au

Marlisco www.marlisco.eu

Network of European Blue Schools www.webgate.ec.europa.eu

Kids Against Plastic Pollution www.facebook.com/kidsagainstplasticpollution

For the Nature in Bulgaria www.forthenature.org

Fishing for Litter www.isea.com.gr/fishing-for-litter-project

Happy Fish www.mutlubaliklar.com

Fish for Energy www.nfwf.org/programs/fishing-energy

KDYT 100 Marine Cleaning Boat www.epsmarine.com

Old Paper for New Book www.ecopack.bg

Keep your sand beach plastic free www.sandseaplasticfree.org

#zeroplastic diving centers www.isea.com.gr

Dive Against Debris www.projectaware.org/diveagainstdebris

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