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Biodiversity is ours: let's take care of it

Handbook for Primary Schools that Support Marine Life Conservation

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A. Introduction

A.1 The SEA MARVEL project

The project SEA MARVEL is under the Interreg Italia-Malta framework.

The main objectives of this project are:

- to increase the understanding of the risks to the marine ecosystem;
- to mitigate the effects of plastic pollution
- to make the exploitation of marine resources sustainable
- to monitor and contain the arrival of alien species (those animal or plant species that come from other environments and pose a threat to native species),
- to assess the effects of climate change on the marine ecosystem and on the protected sites of the Natura 2000 network, including the European ecological network for the conservation of natural and semi-natural habitats.

Particular attention is paid to studying the biodiversity of Italian-Maltese waters because, from the analyses of this environment, it is possible to understand how the entire Mediterranean Sea is changing due to climate change and other effects by humans;
The project includes field research and citizen science activities (involving local communities in the research world) to evaluate the presence and distribution of species sensitive to climate change. Furthermore, the project will make it possible to understand the reality of alien species and the consistency of plastic waste in Natura 2000 sites.

The project is working at the following six Natura 2000 sites:

- Oriented Nature Reserve Oasi del Simeto, located in Catania (Sicily);
- Marine Protected Area Isole Ciclopi, situated in Aci Trezza, in the province of Catania (Sicily);
- Pelagie Islands Marine Protected Area, located in Lampedusa, in the region of Agrigento (Sicily);
- Marine Protected Area “Capo Milazzo”, located in Milazzo, in the province of Messina (Sicily);
- Marine Protected Area around the island of Gozo, situated in the Maltese archipelago (Malta);
- Għar Lapsi and Filfla Marine Protected Area, located in the Maltese archipelago (Malta).

A.2 What this publication is for

This booklet is intended for primary school children and teachers to understand the topic of biodiversity, to highlight the importance of recognising its beauty and characteristics. This booklet also provides practical ideas for making direct observations of the marine environment and finding solutions to protect the richness.

The publication offers resources to understand how the European Union (EU) members give themselves standard rules and shared, quantified objectives to keep natural ecosystems healthy, starting with those inhabited by the most fragile and vulnerable species. Overtime, the EU has succeeded in building the largest network of protected natural areas called the Natura 2000 network, which is present in all EU member states and is increasing its area every year.

It is also important to understand that the rules and regulations to protect these environments are not just constraints and limits placed on human activity, but very often become opportunities to develop economic activities that benefit the social development of the area.

A.3 How to use

This booklet consists of two main parts: the first refers to understanding basic concepts, such as biodiversity, habitat, ecosystem, natural capital and ecosystem services; the second part contains operational suggestions related to ten internationals or nationals days celebrating the environment, the sea and its workers, biodiversity, and migratory fishes The format for each day is structured as follows:

- A brief description of the reason for days celebration
- Learning objectives
- Activity proposals
- Resources: on the project website (https://seamarvel.eu/) are available some resources (recommended readings,

websites, etc.) to deal in-depth with the themes of each proposed day.

The ten international days are:

- World wildlife day (3rd March),
- World fish migration day (25th May 2024),
- Tuna day (2nd May),
- European maritime day (20th May),
- International Day for biological diversity (22nd May),
- World reef awareness day (1st June),
- World Environment Day & Combating illegal fishing (5th June),
- World oceans day (8th June),
- Sea turtle day (16th June),
- Day of the Seafarers (25th June).

B. The Key Themes

B.1 Biodiversity

Biodiversity - a term comprised of the words “biological” and “diversity” - denotes the variety of all life forms on Earth: from the most microscopic bacterium to the blue whale to the immense trees that have lived for millennia.

While women and men working in science have been using this term for a long time, newspapers and television stations began to talk about biodiversity after the 1992 *Earth Summit* in Rio de Janeiro, a major event organised by the United Nations (UN) to address environmental protection issues worldwide. On that occasion, people also started discussing “sustainable development” a way of reconciling people’s social and economic needs with maintaining an environment in good condition.

In Rio de Janeiro, sustainable

Diversity of Species in Maltese waters

development was described as a way to "meet the needs of today's populations while ensuring a healthy and viable world left for future generations". This concept respects what many indigenous peoplehave handed down along generations as this ancient proverb:

"The Earth is not an inheritance received from our Fathers, but a loan to be returned to our Sons".

One of the main agreements signed in the Rio de Janeiro summit was the **Convention on Biological Diversity (CBD)**, an international treaty with the following three main objectives:

- preserving biodiversity
- using biodiversity in a sustainable way
- ensuring a fair sharing of the benefits from biodiversity and genetic resources.

The body that monitors the implementation of the CBD is the Conference of the Parties (COP)[1], an authority that meets every two years to review progress. They define priorities for action and decide how to implement them.

B.2 The home of all species: the habitat

Another term we need in order to understand biodiversity better is ***habitat***, i.e., the environment in which plants, animals or other organisms live and grow. A habitat provides the most suitable living conditions for each species and their specific needs. This is why there is an excellent variety of habitats because of the diversity of species - those that need heat, or those that require cold, those species that live by rivers or have become accustomed to living in deserts - need to find food and shelter.

This is why habitats can be very different from one another, depending on climatic conditions, the land's surface (e.g. desert or glaciers), and the

[1] https://www.cbd.int/cop/

possibility of finding water, heat, or other elements. A habitat or a group of habitats that have relationships with each other can be considered an ecosystem.

B.3 Ecosystem

The word “ecosystem” combines the terms “ecological” and “system”. Ecosystems include all kinds of living things - plants, animals, bacteria, fungi which constantly interact with each other. These living things depend on their non-living natural environments such as soil, climate, or water for life.

Ecosystems can be terrestrial or aquatic and can be any shape or size. A habitat or a group of habitats that have relationships with each other can also be considered an ecosystem, and several habitats together form a large ecosystem.

Ecosystems are fundamental to Earth because of the basic life processes that occur within them, such as the energy exchange between species or the decomposition and

Mediterranean marine life

transformation into a resource of said decompostion. Only healthy ecosystems can perform these functions, providing clean water, allowing peatlands (an environment of abundant slow-moving, low-temperature water where plants, largely herbaceous, grow) to retain carbon. Healhty ecosystems also allow forests to purify the air and soil and marine environments to produce oxygen and help keep temperatures constant.

If **one condition changes** within an ecosystem - for example, the temperature rises by a single degree, or the amount of water is reduced - **all the species within it must adapt to this change.** Let us take the increasingly frequent case of long periods of drought in environments where droughts rarely occur.

What can happen? For example, some plant species that need water disappear, and others show up that can tolerate long periods of water shortage. This change may affect the birds that are dependent on that plant that is no longer there for food or protection, or nesting. Thus, these birds are forced to move to continue to find the conditions necessary for their survival.
In turn, other animal or plant species that were connected to these bird species - either because they fed on them or depended on them for seed dispersal - will undergo significant changes that will, in turn, generate other adaptations in the system.

The same thing happens in the marine environment: changes in temperature and the presence of plastic, waste or pollutants can bring about changes whereby species that had adapted to live in these waters disappear and species from other environments arrive (so-called alien species) that can severely alter the relationships that existed in this ecosystem.

B.4 An asset for all

The concept of “natural capital” has been proposed to make people understand that everything produced by ecosystems - water,

clean air, timber, nutrients - because it ensures life on Earth, it also has an economic value that can somehow be calculated. For these reasons, it represents an asset of all, **a common good**, a benefit for everyone that must be safeguarded.

For example, when starting an industrial activity, one must not only consider how many economic resources are needed to build and operate the facilities but also those needed to regenerate the natural resources, such as clean air or water, used in the production cycle.

Many methods can be used to regenerate these resources. One method is carbon offsetting. This is a way to counterbalance carbon dioxide emissions (CO_2) - one of the leading greenhouse gases generated during many human activities ranging from industrial production, home heating, use of cars, generating electricity and air transport- by removing it from the atmosphere. Removing CO_2 can occur by planting new trees or using technologies that capture carbon dioxide and do not allow it to escape into the atmosphere.

What is essential to realise is that **the Earth's productive capacity is not immutable or infinite** precisely because natural capital and ecosystem services - which we will see in the next section - can be degraded by anthropogenic activities, i.e., those directly derived from humans. The good news is that the human society is not only capable of ruining ecosystems but can also improve them through actions that keep them healthy and balanced.

Red Starfish (*Echinaster sepositus*)

B.5 Humans and the environment: ecosystem services

The term *ecosystem services* refers to the benefits all populations and people obtain from ecosystems. One example is the production of clean water that is then used for human purposes, the production of food (fruits, fish), the regulation of the climate (if there were no seas or forests, the weather would change very quickly), the opportunity of being in beautiful and relaxing natural environments.[2] In other words, ecosystems provide essential services that sustain human life and well-being. Other examples are forests that not only continuously provide wood, food and habitat for wildlife but also absorb carbon dioxide from the atmosphere and regulate the climate. Meadows and green areas provide space for play and recreation, reduce air pollution, and provide habitats for wildlife. Oceans provide food and clean air and regulate the global climate.

Sperm whale (Physeter macrocephalus)

B.6 The EU and Biodiversity

The European Union is committed to protecting and preserving biodiversity. As we will see later, it has recently drawn up the Biodiversity Strategy, which has 2030 as its deadline. The goal is to achieve significant improvements for natural environments, for people, the climate and the entire Planet. The strategy, its goals and actions, is part of an even more important project called the European Green

[2] For a more in-depth look at the valuation of ecosystem services in the European Union, please refer to https://publications.jrc.ec.europa.eu/repository/handle/JRC120383

Deal, which aims to ensure all European citizens" economic and social growth by ensuring that good environmental conditions are maintained. One of the most critical elements for protecting European biodiversity is the Natura 2000 Network, the largest network of protected areas in the world.

It was established in 1992 and aims to safeguard Europe's most valuable and threatened species and natural habitats through the selection of the most suitable sites and their boundaries that is carried out by **EU member states.**

To date, 2639 sites in the Natura 2000 Network have been identified by the Italian Regions. In particular, 2360 Sites of Community Importance (SIC) have been identified, of which 2302 have been designated as Special Areas of Conservation (ZSC), and 639 Special Protection Areas (ZPS), 360 of which are type C sites, that is, ZPS coinciding with SIC/ZSC (source: https://www.mase.gov.it/pagina/sic-zsc-e-zps-italia , 11/05/2023).

Scopoli's Shearwater (Calonectris diomedea)

Natura 2000 sites in Italy protect a total of 132 habitats, 91 species of flora and 120 species of fauna (including 22 mammals, 10 reptiles, 17 amphibians, 29 fish, 42 invertebrates) under the Habitats Directive, as well as about 385 bird species under the Birds Directive. These Directives form the nub of EU policy on biodiversity conservation.

Malta has a total of 326 protected areas, 55 Natura 2000 sites - 22 Special Protection Areas (Birds Directive) and 40 Sites of Community Importance (Habitats Directive) - as well as 271 sites designated by national laws. The Network consists of more than 27,000 natural sites - of which detailed information of each can be obtained using the *viewer* developed by the European Environment Agency at this

address https://natura2000.eea.europa.eu/ - which are located in all Member States, and cover just under 20% of the entire territory of the EU and almost 10% of all the seas that are part of the national waters of the Member States.

B.7 Threats to biodiversity

Several factors seriously endanger the richness of biodiversity, the main ones being:

- **The loss and degradation of natural habitats:** destruction and fragmentation of habitats constitute a problem for animals having to move from one area to another in search of food or new territories to inhabit and the degradation of specific habitats due, for example, to desertification processes (20% of Italian territory is at risk of desertification) or the melting of glaciers.

- **Climate change:** global warming and rising sea levels are the most obvious consequences of climate change, but there are also other less obvious effects, such as ocean acidification and hotter, drier summers that can increase the frequency of fires.

- **Alien species:** some species - introduced by humans or moved autonomously because they have found better living conditions - may compete with local species

for resources and habitats, compromising the native species ability to survive.

• **Overexploitation of resources:** overfishing and hunting, mining, intensive agriculture and the use of pesticides can deplete natural resources, generating major imbalances in the food chain of an ecosystem and even depleting them causing loss of biodiversity.

• **Pollution:** Air, water and soil pollution can affect living organisms' health and reduce their ability to survive. Pollution can also alter natural habitats and interactions between species.

B.8 The state of nature in Europe

Nature in Europe and all its environments - the seas, mountains, forests and plains - face a significant challenge, within the next ten years, the institutions and states of the European Union will have to step up measures to protect it, mitigate the effects of climate change and reduce the consumption of natural resources in a significant way.

Even though European environmental and climate policies have helped improve the ecological situation in recent decades, Europe's progress is insufficient, and the outlook for the environment in the next ten years is far from rosy.

It is essential for all European citizens to be personally involved in solving these problems to help reduce pollution and the presence of waste in natural environments, and to personally monitor the condition of ecosystems through observation and collection of scientific information, activities under the name of *citizen science* (literally science of citizens). These are all activities that the SEA MARVEL project promotes primarily within the Natura 2000 sites in Malta and Sicily, along with other activities such as the celebration of international days, litter clean ups, and various actions to inform local communities including fishermen, sailors and school children about the importance of biodiversity and its conservation.

C. Biodiversity in Sicily and Malta

The Blue Lagoon on Comino Island, Malta Gozo.

All the world's islands have similar but, at the same time, unique characteristics because they were formed at different times and had very different geographical situations, environments and levels of isolation.

These characteristics mean that the evolution and genetics of some species, both animal and plant, especially on small and distant islands, have followed different evolutionary paths than species living on the mainland. This condition is common to Malta and Sicily and their individual reefs and islets. In fact, if we focus on some species, even those that appear most common, we realize that Maltese territory and much larger Sicily have evolved differently and have taken on sizes, colourations, habits and behaviours not found elsewhere. Among the species that have diversified and thus adapted more than others are the terrestrial reptiles. This is because reptile species not flying and unable to swim (apart from a few exceptions such as sea turtles) have remained isolated especially those living on islets or

even stacks (a large rock in the middle of the sea, uninhabited and without any connection to the island itself). Consider that islands represent only 5 per cent of the entire global land mass. Still, they harbour and provide suitable habitats for the survival of 17 per cent of the species of plants and birds on Earth.

Have you ever wondered why all classified living species have two names: a scientific one and a so-called common name one? Because the scientific name is the same in all languages of the world, it enables scientists to identify that precise species they are talking about. It consists of two Latin words written in italics; the first, with a capital initial, refers to the genus, the second specifying the species has a lowercase initial. The so-called common name changes from language to language and often from region to region within the same country. Therefore, it would not allow for the exact identification of the species.

Another term that is important to learn is ***endemic***, which is an attribute given to species of animals or plants that live exclusively in a specific territory. The term endemic is also derived from endemism which is the exclusive occurrence of these species in a given area.

Lava rocks and Lachea Island in the Marine Protected Area "Isole Ciclopi", Aci Trezza, Sicily.

C.1 Sicily

Sicily is one of the richest territories in terms of biodiversity in the Mediterranean basin, an extraordinary richness in diversity envied by the whole world often taken for granted.

Not everyone knows that in Sicily, there exists:

- 24 reptile species
- 5 species of amphibians
- 155 species of nesting birds, and approximately another 80 species of migratory passage birds
- 43 species of mammals, of which 7 species are cetaceans commonly found in Sicilian marine waters.

For example, near Aci Trezza the Nature Reserve of Lachea Island and Cyclops Rocks, established in 1998 by the Region of Sicily, is home to a lizard named in Latin, *Podarcis sicula ciclopica*. At first sight, it looks like an *ordinary* lizard, but this reptile lives exclusively on this tiny island surrounded by the sea.

And this fact, in connection with what we described earlier about the fragility of ecosystems, speaks volumes. If, for some reason, the environment in which this lizard lives were to vary even slightly, it is not difficult to imagine that this species would no longer find its habitat would probably become extinct since it only lives in that specific habitat.

The richness of Sicilian biodiversity in avifauna, i.e., bird species, can be represented by multiple species such as Bonelli's eagle (*Aquila fasciata*), whose breeding population has increased after many years of activism against poaching, the Lanner falcon (*Falco biarmicus*), a small hawk also highly threatened by humans, which is very difficult

White stork (Ciconia ciconia)

to see because it nests in very high rock walls inside which it camouflages itself with its colors, and the White stork (*Ciconia ciconia*), which has more than 60 stable pairs during the breeding season, many of which are found in the Gela Plain area and some in the Catania plain. Other Sicilian breeding species, characterized by their bright colors, are the European roller (*Coracias garrulus*) and the European bee-eater (*Merops apiaster*). In addition, Sicily represents an oasis for migrating species, many of which stop during the winter in the so-called wintering period. Some examples are the Eurasian hoopoe (*Upupa epops*), with its very fast flight, the unmistakable Northern lapwing (*Vanellus vanellus*), and the very long-range migrant European golden plover (*Pluvialis apricaria*).

But Sicily's incredible wealth of biodiversity can also be found in its sea, and its well- known shoals: the submerged mountains that start from the depths of the sea and reach just a few meters from the surface. Researchers from ISPRA (the Italian National Institute for Environmental Protection and Research) have studied these environments in depth, obtaining fascinating results. In addition to Banco Graham, they have explored Banco di Pantelleria, Banco Avventura and Banco Terribile to further study their biodiversity.

During explorations, 150 different animal and plant species were found under the surface of the sea, of which 18 are protected, 31 are sensitive by international conventions, and 13 are considered protected environments.

The survey of data on protected species in the Sicilian seas made

Cushion coral (*Cladocora caespitosa*)

it possible to find information on 123 protected species, including plants, sponges, cnidarias, molluscs, crustaceans, echinoderms, fish, reptiles, birds and mammals.

But it is important to remember that in the Sicilian Sea, there are shoals of large madrepores (a particular order of corals), which are similarly beautiful as the madrepores found in tropical seas, such as those belonging to the species *Cladocora caespitosa*, in Italian called 'Madrepora a Cuscino'.

The seas surrounding Sicily are rich in cetacean species, from the coastal *Tursiops truncatus* also commonly called the Bottlenose dolphin, to the more pelagic Sperm whale (*Physeter macrocephalus*) which is the largest living animal with teeth. Other resident cetacean species include the Fin whale (*Balaenoptera physalus*) which is the second largest whale in the world, Striped dolphin (*Stenella coeruleoalba*), Common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), Long-finned pilot whale (*Globicephala melas*) and Cuvier's beaked whale (*Ziphius cavirostris*). Sightings of Rough-toothed dolphin (*Steno bredanensis*), and False killer whale (*Pseudorca crassidens*) are occasional. It should be mentioned that rarer species such as the Orca (*Orcinus orca*), the Dwarf sperm whale (*Kogia sima*) and the Humpback whale (*Megaptera novaeangliae*), have also been observed.

Bottlenose Dolphin *(Tursiops truncatus)*

In addition, the Monk seal (*Monachus monachus*), has always been present in the Sicilian waters. This species has been hiding in the most remote places but is now being recorded more frequently, and has prompted research societies, to start a specific projects aimed at collecting information for this species around Sicily.

Also of great importance is the presence of the Loggerhead sea turtle (*Caretta caretta*), which in recent years has been increasing its presence at nesting sites along Sicilian beaches. Such marine reptiles, together with the large leatherback turtle (*Dermochelys coriacea*), demonstrate the rich biodiversity of these seas, which was already known in the 1700s, when the Strait of Messina was considered the *"paradise of zoologists"* as the unique oceanographic

Monk seal (Monachus monachus)

Loggerhead sea turtle *(Caretta caretta)*

conditions generated by the constant alternation of tidal currents and of the upward motions of the waters, combined with a great heterogeneity of the seabed, made it so that scholars, coming from different parts of the world, came to the shores of the Strait, to study abyssal fish which systematically were and still are stranded alive. This gave the possibility of finding rare species directly on the beach, instead of carrying out expensive and demanding oceanographic campaigns in the depths of the sea. This framework of Sicily's marine resources makes clear the importance of protecting such a valuable natural heritage and encourages reflection on the urgent implementation of effective environmental protection and preservation strategies, both locally and at the regional, European-Mediterranean level.

C.2 Malta

The Maltese archipelago is located in the central Mediterranean and approximately 93 km south of Sicily and 290 km north of the African continent, and consists of a group of three main islands, Malta and the two smaller islands of Gozo and Comino, together with a series of smaller uninhabited islets, which are found scattered around the 271 km long coastline of the main island. Islets such as Filfla, St. Paul's Islands and Fungus Rock are of a very high conservation value in that each harbours endemic species, as well as distinct plant communities.

Maltese rock-centaury
(Cheirolophus crassifolius)

With a relatively small land area of 316 km², Malta displays an interesting variety of flora and fauna on the islands and its surrounding water. Malta's isolated yet central position in the Mediterranean has led to some species exhibiting elements of Western Mediterranean, Eastern Mediterranean, and North African and Sicilian affinity. The historical interchange of species has particularly influenced the composition of plants and animals that currently inhabit the Maltese Islands. The urban habitats or structures, which covers approximately 22.3% of land area, is also important for certain species that have managed to adapt to living alongside man and use man-made structures as refuges. Such species include various species of birds, bats and reptiles but also several invertebrate species.

Across the Maltese Islands, 29.12% (92 km²) of the land area are considered as protected areas, of which over 43.6 km²

form part of the EU Natura 2000 network. Malta's marine Natura 2000 network encompasses 18 sites and covers over 4100 km², equivalent to more than 35% of Malta's Fisheries Management Zone.

Malta's indigenous flora amounts to some 1,200 species of flowering plants with around 25 strict endemics. The endemic - Maltese Rock Centaury, Maltese Cliff-Orache and Maltese Everlasting - are included amongst the top 50 Mediterranean island plants at the brink of extinction.

Some animal species in Malta are worth mentioning. Certainly, the Maltese freshwater crab (*Potamon fluviatile*), the Maltese top-shell (*Steromphala nivosa*), the Maltese Wall Lizard (*Podarcis filfolensis*) and its subspecies, the Mediterranean chameleon (*Chamaeleo chamaeleon*), the Painted frog (*Discoglossus pictus*), the Turkish gecko (*Hemidactylus turcicus*), the Algerian whip snake (*Coluber algirus*) that probably entered the island on some cargo ship from Africa, the Western whip snake (*Coluber viridiflavus*), the Cat snake (*Telescopus fallax*) the only species of venomous snake found in Malta. Malta is home alsoto a subspecies of the Sicilian shrew (*Crocidura sicula calypso*) which is endemic to the island of Gozo. Some other interesting endemic species for Malta include the Maltese field beetle (*Pimelia rugulosa ssp. melitana*), the Meadow brown (*Maniola jurtina hyperhispulla*). While in terms of flora, it is important to mention numerous species of orchids, including the Maltese pyramidal orchid (*Anacamptis urvilleana*) and the Maltese everlasting (*Ophrys melitensis*).

The importance of Maltese biodiversity has been echoed in various works, with authors

Cat snake *(Telescopus fallax)*

expressing the necessity to safeguard the country's natural heritage. Benefits derived from ecosystem services, such as provision of food and raw materials, freshwater and clean air, are indeed considered to be indispensable life-support services. These greatly contribute to the human well-being and quality of life of the Maltese population.

Common dolphinfish (Coryphaena hippurus)

The waters of the Maltese Archipelago are clean and very rich in species of fauna and flora; such richness makes fishing for Malta a vital activity, just think that once, in the local currency (the Maltese lira), the Common dolphinfish (*Coryphaena hippurus*) was depicted, as this species was a a symbol of the richness of the island's fisheries. In addition, the beautiful seabed and a number of shipwrecks surrounding the archipelago has led to the emergence and development of more and more diving centres. But it is essential to understand that the characteristics of such a rich marine environment present highly favourable conditions for the life of numerous species of marine mammals. Among them, the Bottlenose dolphin (*Tursiops truncatus*); the Common dolphin (*Delphinus delphis*) and the Striped dolphin (*Stenella coeruleoalba*) whichis constantly present in pelagic waters, feeding on small fish, cephalopods and marine crustaceans. The Striped dolphin is a very fast and elegant dolphin, capable of performing great leaps and aerial acrobatics and often approaching sailing boats, swimming alongside them. In the same aquatic environment, there is the seasonal presence of the Fin whale (*Balaenoptera*

physalus), which, at certain times of the year, especially in the spring months, with the growth of plankton (*krill*), approaches the coast to feed on them. The deeper, more offshore waters, on the other hand, one may find the sperm whale (*Physeter macrocephalus*) which is the largest extant odontocete, which is capable of diving to considerable depths to prey on the giant cephalopods found in large quantities in these waters. Another species capable of deep and long dives is the Cuvier's beaked whale (*Ziphius cavirostris*), which dives where depths exceed 600 to 800 meters to feed on cephalopods. Another vital presence is that of the Long-finned pilot whale (*Globicephala melas*), a beautiful black cetacean that can often be observed far from the coasts and with calm sea conditions, stays on the surface, keeping its head above water and watches the area around it, in the classic behaviour called "spy hopping." Such behaviour is also typical of the Risso's dolphin (*Grampus griseus*), which is characterized by a grey and "scratched" colouration; these scratches are actually streaks that, as the years go by, increase more and more, until the longer-lived individuals become almost completely white, especially in some parts of the body, such as on the head.

In addition, over the decades, other rare species have been

Fin whale (Balaenoptera physalus)

observed in these waters, such as the False killer whale (*Pseudorca crassidens*), and the Humpback whale (*Megaptera novaeangliaea*).

Among sea turtles, the most common species is the Loggerhead turtle (*Caretta caretta*), which is easily observed throughout the waters surrounding the archipelago and nests on the islands beaches. Uncommon is the Green turtle (*Chelonia mydas*), and the Leatherback turtle (*Dermochelys coriacea*) is extremely rare and is the most giant existing sea turtle with a length up to two meters.

Finally, the vast presence of the European storm petrels (*Hydrobates pelagicus*) in Malta should be highlighted regarding marine avifauna as half of this species' world population resides there. Among the species that nest on the Maltese Islands are the shearwaters, including the Scopoli's shearwater (*Calonectris diomedea*), of which 3 per cent of the world's population is found in the archipelago, the Cory's shearwaters (*Calonectris borealis*), and the lesser Yelkouan shearwaters (*Puffinus yelkouan*), which in large groups fly almost continuously, skimming the sea surface. The local population in Malta accounts for 10 per cent of the world's population. Finally, the Yellow-legged gull (*Larus michaellis*), the largest resident breeding bird in the Maltese Archipelago.

Yellow-legged gull (Larus michaellis)

Loggerhead sea turtle (Caretta caretta)

D. So, what can we do?

In view of the immense biodiversity and the constant anthropogenic pressures threatening this diversity means one crucial thing: we have to rethink our relationship with the Planet and find balance to allow humankind and all other animal and plant species to survive.

Scientists agree that the three most important actions to start living in balance with nature and in a sustainable way are:

• **Transforming food production and consumption so that we produce enough for everyone but in a sustainable way.** This can be achieved even by making some changes at home and during our every day life choices, such as: eating a more plant-based diet, choosing food that has not been produced in a way that causes deforestation, and consuming locally produced foods that are not packaged using plastics.

• **Address climate change by reducing greenhouse gas emissions and investing in alternative renewable energy.** We can also tackling climate change by reducing greenhouse gas emissions through the use of alternative renewable energy. At home we can also reduce waste, use energy-efficient appliances, favor suppliers of electricity that use renewable sources and make less use of private cars.

• **Support biodiversity by actively slowing climate change and protecting wildlife from its effects.** Apart from taking actions towards reducing greenhouse gas emissions which reduces the impacts of climate change on biodiversity, we can further support biodiversity by taking part in citizen science activities. Through citizen science activities one can participate in biodiversity monitoring and share the collected data on on specific citizen science platforms. One can support conservation scientists by reporting citings of vulnerable species such as dolphins, whales and turtles.

E. International Days

1. World Wildlife Day - 3rd March
2. World Fish Migration Day - 25th May 2024
3. Tuna day - 2nd May
4. European maritime day - 20th May
5. International Day for biological diversity - 22nd May
6. World reef awareness day - 1st June
7. World environment day & Combating illegal fishing - 5th June
8. World oceans day - 8th June
9. Sea turtle day - 16th June
10. Day of the Seafarers - 25th June

MODULE 1:

World wildlife day - 3rd March

What it is

The UN World Wildlife Day is an international day, on March 3rd, dedicated to celebrate the many varied forms of wild fauna and flora and to raise public awareness of the multitude of benefits that their conservation provides to people.

The World Wildlife Day is to ispire people to learn the diversity of life on this planet to find solutions to protect wildlife. This date was chosen as it is the birthday of CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, signed in 1973.

Learning objectives

- To improve understanding and knowledge of the marine environment
- To understand concepts such as species, habitats and biodiversity and their importance
- To understand the diversity of relationships within an ecosystem and their effects on its stability and resilience

Activity proposals

The game of "The sea is a big ecosystem where everything is interconnected!"

This activity can be carried out outdoors in a protected area, in a public space in an urban environment, or a gym. The game stimulates reflection on the different elements of the sea ecosystem and how they are linked. The names of the ecosystem elements (puffer fish, anchovy, plankton, salt, oxygen) are written on stickers distributed in the classroom. Each child must stick the label on the forehead of a classmate. They are sitting next to so they can only see the other's and not their own sticker. The game consists of discovering one's element by only asking e.g. "Am I an animal/plant/element?", "Do I eat other animals or plants?", "Am I small or big?".
When everyone has figured out their element, a circle is formed.
The children will have to examine each other's relationships, using a string to connect one to the other: each one will connect to another by pointing out aloud which connection there is with the companion (the

fish eats the seaweed). In this way, all possible relationships are sought by connecting all the children to the web. The string connections must be tight enough to create a solid network.

When all relationships are made evident, the activity is oriented towards having the children discover the interconnectedness of the network through the inclusion of a disruptive cause such as:

- oil spills on the sea surface which could lead to fish dying due to lack of oxygen or contamination.

The children representing the respective element needs to pull her/his rope or lower it on the ground so the other students can feel their rope being pulled. It will be noticed that even students with little connection will also be affected as part of the system.

The game ends with a concluding discussion to reflect on the experience. This game is a way for children to understand the interconnectedness of all elements in an ecosystem and the need to preserve its balance.

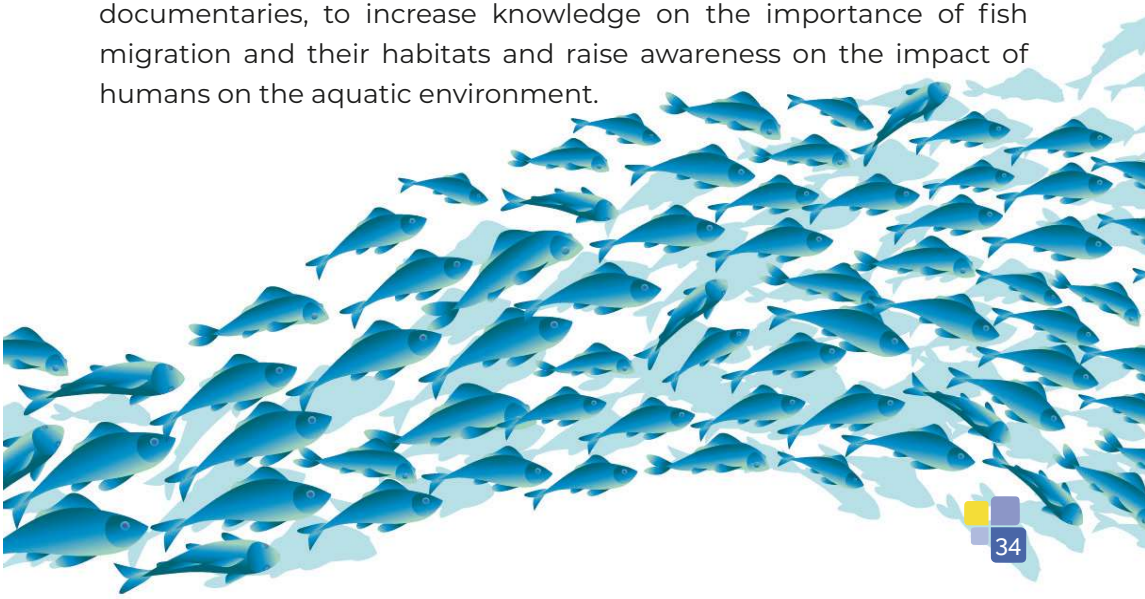
MODULE 2:
World fish migration day - 25st May 2024

What it is

World Fish Migration Day is an international day dedicated to raising awareness of fish migration and conserving their aquatic habitats.
World Fish Migration Day (WFMD) is celebrated every two years, the next edition is planned for May 25, 2024.

This international day is coordinated by the World Fish Migration Foundation. through the oganization of events to create awareness about the importance of conserving rivers, seas and migratory fish species and to promote collaboration between organisations, scientists, practitioners and local communities to protect these animals and their habitats.

On World Fish Migration Day, events are organised including excursions, educational activities, scientific presentations, films and documentaries, to increase knowledge on the importance of fish migration and their habitats and raise awareness on the impact of humans on the aquatic environment.



Learning objectives

- Improving knowledge about fish and their habitat
- Understanding biodiversity also through the different behaviours of each species
- Understanding the interrelationships between different environments, taking fish migrations as a starting point

Activity proposals

Even fish migrate!

This activity, which can be carried out in the classroom, outdoors, in a protected area but also an urban environment, involves imitating and simulating the migrations of a chosen species of fish. Here some examples! The salmon is born in rivers and lives in the sea for many years but at the moment of reproduction returns to the same river where it was delivered to spawn and fertilise its eggs. The Atlantic bluefin tuna seasonally alternates its presence in the Atlantic and the Mediterranean. The Dolphin fish is a migratory pelagic species that lives in both tropical and subtropical waters of the Atlantic, Pacific and Indian oceans but also in the Mediterranean Sea; this species approaches the coast in late summer to spawn, Balearic Island, Sicily, Malta and Tunisia are maily its nursery habitat for several months, until December, when the fish leave the region as water temperatures drop below 18° C. The European eel that comes to our waters after a very long journey that starts from the Sargasso Sea - a region of the Atlantic Ocean.

After choosing a species of fish and its migratory route through

finding information in picture books or through online classroom research, the class is divided into teams. Next, an outdoor activity is set up and each group will be tasked with drawing or building with natural objects a “piece of habitat” of the pathway the animal goes through during migration, identifying for each one the main features and relationships the fish establishes there. Each group finished the drawing or bricolage, will arrange their work in the right order forming a large circle of colors and designs that will highlight the various environments that the fish goes through in its migration

MODULE 3:

Tuna day - 2nd May

What it is

Tuna Day is an international day celebrated on the 2nd of May to raise awareness on the importance of conservation and sustainable management of tuna resources worldwide.

The day was established in 2016 by the International Tuna Industry Federation (International Pole & Line Foundation) and aims to promote the sustainability of the tuna industry and raise consumer awareness on the importance of making conscious choices when buying tuna.

Tuna Day also aims to promote sustainable practices in tuna fishing, such as line fishing, which ensures selective and environmentally friendly catching.

Learning objectives

- Understanding the importance of species conservation
- Exploring and improving knowledge of species, habitats and biodiversity
- Understand how everyone can play an active role in species protection

The Endangered Species Game

The activity, which can be carried out outdoors in a protected area, but also in a public space in an urban environment or in the gymnasium, starts by asking the class what they think a “habitat” and a “species” is and try together to find the definition with examples and illustrations, The children are divided into teams, and each group is given a list of endangered species and a world map of oceans.

Each team should try to identify on maps the habitats and geographical areas where endangered species live or are threatened. The class can use the Natura 2000 Network Viewer, https://natura2000.eea.europa.eu/, as an aid.

Then each team designs an action plan to protect the identified species. For example, proposals could be drawn for creating nature parks, specialised rescue teams, awareness-raising activities for the local population, and fundraising to finance research projects.

Finally, the teams present their action plan to the other participants and discuss how everyone can contribute to the conservation of the endangered species. This game is a fun way for children to understand the importance of biodiversity conservation and how everyone can play an active role in protecting species.

MODULE 4:

European maritime day - 20th May

What it is

European Maritime Day is an annual celebration held on 20th May to promote knowledge and awareness on the importance of the seas and oceans, not only as a source of resources but also as vital ecosystems for life on Earth.

The event was established in 2008 by the European Commission as part of the European Union's Integrated Maritime Policy, which aims to promote sustainable management of the seas and oceans by encouraging collaboration between all stakeholders, from the scientific community to governments, from non-governmental organisations to businesses and citizens.

European Maritime Day aims to involve all citizens, especially young people, in the debate on protecting the seas and oceans, promoting a culture of sustainability and environmental protection for a more balanced future for all.

Learning objectives

- Experiencing actions with a positive impact on the environment
- Reflecting on how the protection of the environment depends oan humans
- Exploring ways to monitor the state of an ecosystem

Activity proposals

Is everyone on the beach for a dip? No, to collect rubbish.

An outing is organised to the nearest beach to collect waste left by visitors/users. The activity should be scheduled between late summer and late winter to avoid causing damage to the nests of vulnerable nesting species such as the Loggerhead Turtle or the Kentish plover. Before the collection activity, a brief introduction is made on the issue of how litter can harm marine life and how each person can make a difference by adopting responsible behaviour. Trash found on beaches can be classified into different categories depending on its origin and composition. The children are divided into collection groups, and teams are formed of:

- Plastic: Plastic is one of the main types of waste found on beaches. This waste includes bottles, bags, straws, caps, containers and other plastic objects.

- Glass: glass is another common material found on beaches,

often in broken bottles or glass fragments.

- Metal: metal waste such as cans, bottle lids, sheet metal, pipes and other metal objects can be found on beaches.

- Rubber: Rubber is present in many objects on beaches, such as play balls, tyres or shoe fragments.

- Paper and cardboard: paper and cardboard waste can be found on beaches in boxes, paper bags and other objects.

- Textiles: textile waste, such as clothes, towels, and napkins, may end up on the beach.

During the outing to the beach, each team collects its own "spoils of litter" with bags and gloves; each group delivers the material to the appropriate containers. Upon returning to the classroom, there is a brief round of discussion about the experience, the assessment of the amount of waste, and how the quality and management of the coast and its ecosystems can be improved.

MODULE 5:
International Day for biological diversity - 22nd May

What it is

International Biodiversity Day, or World Biodiversity Day, is an annual event commemorated each year on 22nd of May. The United Nations established it to raise awareness of the importance of biodiversity and the need to protect and preserve the variety of life on Earth.

Biodiversity is the variety of all life forms on Earth, from bacteria to plants and animals. It is essential to the functioning of ecosystems and human well-being, providing ecosystem services such as oxygen production, air and water purification, disease control, food, and medicine.

The theme of International Biodiversity Day changes each year to reflect current biodiversity issues. Previous themes include agricultural biodiversity, island biodiversity, biodiversity and climate change, and biodiversity and sustainable development.

Learning objectives

- Improving knowledge on species and habitats
- Getting to know the Natura 2000 network and what it is for
- Familiarise yourself with the species of plants and animals in the area where you live

Activity proposals

Discovering Natura 2000 species.

The activity consists of a visit to a Natura 2000 site to discover animals and plants. The first part of the game takes place in the classroom. The children draw on cards the most common species (animals and plants) of the site they will visit. To help them represent the species, they can use the illustrations on the Natura 2000 Network Viewer site, https://natura2000.eea.europa.eu/ .

In addition to the species name, a short description can be entered under the picture. The second part of the activity takes place in the field. The children along the educational trails within the protected area must search for the species they have drawn. When these are spotted, they are photographed, documented, and the location of the sighting is highlighted on a map of the route prepared in class. To facilitate the research, signs can also be made in the classroom to guide the children along the path. This game encourages the discovery and direct experimentation of biodiversity and enables children to become familiar with animals and plants.

MODULE 6:

World reef awareness day - 1st June

What it is

World Coral Reef Day is an international day dedicated to raising awareness about the importance of coral reefs for the health of the oceans and our Planet. It is an opportunity for governments, environmental organisations, scientists and civil society to raise awareness of the importance of conserving coral reefs and the species that inhabit them.

Coral reefs are one of the most critical and biodiversity-rich ecosystems on our Planet, yet they are threatened by climate change, pollution, overfishing and other threats.

This day was first established in 2018 by the International Coral Reef Initiative (ICRI), an international organisation that protects coral reefs worldwide.

Learning objectives

- Understanding the functions that coral reefs perform
- Learn about the wealth of biodiversity within the coral reefs
- Discovering the corals of the Mediterranean Sea

Activity proposals

Coral reefs: a treasure trove of biodiversity, even in the Mediterranean.

The activity is divided into two parts. The first is the online research of elements about coral reefs, such as: what corals are, where corals are found, how a coral reef is formed, and what species of animals live in a coral reef. What are the risks to coral reefs due to climate change and illegal fishing. It is important to remember that, in both the Sicilian and Maltese waters and throughout the Mediterranean, there are shoals of large madrepores (a particular order of corals) that are no match for those found in tropical seas. In addition, Sicily is home to red coral (*Corallium rubrum*), a Mediterranean endemic species, considered to be in danger of extinction. Once all these elements have been collected, it will be possible to carry out an outdoor activity to represent what has been understood. Sheets of paper, markers and other colours will be used to make information panels on the coral reef using natural materials found in the area and recycled materials such as plastic items and other waste. Leaves, gastropod shells, seaweed, plastic objects, and other waste will represent the coral reef, the animals that live there, and the reef's risks. Then all animals or even litter (e.g., the plastic bag eaten by sea turtles) related to each other can be joined with a string. In the end, an articulated picture of positive and negative relationships within the reef will be formed.

If the activity takes place outdoors, it will end with the collection of scattered waste and its proper disposal.

MODULE 7:
World environment day & combating illegal fishing - 5th June

What it is

World Environment Day is an annual event on 5th June, established by the United Nations in 1972 to raise awareness of environmental issues and promote concrete actions for their resolution.

The theme of World Environment Day changes every year to reflect current environmental and sustainability issues. Some of the previous themes include combating plastic pollution, preserving biodiversity and reducing greenhouse gas emissions.

June 5th also marks the International Day to stop Illegal, Unreported and Unregulated (IUU) Fishing, established in 2018 by the Food and Agriculture Organization of the United Nations (FAO). Illegal fishing is a major problem that threatens the marine environment and the food security of millions of people around the world.

The International Day for Combating IUU Fishing aims to raise awareness about illegal fishing and its negative consequences on the environment, economy and society and to promote concrete actions to combat this problem.

Learning objectives

- Teaching children the importance of responsible fishing and combating illegal fishing
- Encourage collaboration and teamwork among children

Activity proposals

Responsible fishing game.

The game takes place in the classroom or outdoors, in a protected area or public space. The children are divided into teams.
Material such as markers and poster boards are distributed, and some pictures of fish are shown. Children are asked to draw the fish they know best and indicate how they are caught.
After the drawing phase, the importance of responsible fishing and the negative consequences of illegal fishing are explained, from specific thematic readings.
Here are some suggestions: *"Responsible fishing is a practice that seeks to balance fishing activity and the conservation of fish resources. This means that fishermen must respect laws and rules limiting their impact on the environment and fish populations. In addition, they must use sustainable fishing techniques, such as avoiding fishing during the fish spawning season and limiting their catch.*
Illegal fishing is defined as the practice of ignoring laws and rules that restrict fishing activity. This may include the use of prohibited fishing gear or the catching of protected or undersized species.
Illegal fishing can cause damage to the environment and local communities. Illegal fishing can damage marine habitats and reduce biodiversity. In addition, it can lead to overfishing, i.e., the over-

capture of fish species that may affect their extinction. Illegal fishing can cause a decrease in available fish resources, which can impact local communities.

To be responsible when fishing, following local rules and laws and using sustainable fishing techniques such as fly-fishing or single-hook fishing is essential. Furthermore, learning to respect the environment and local fish species is vital to avoid catching protected or undersized species. Finally, children should also be aware of their environmental impact and reduce their ecological footprint, e.g., collecting waste during fishing activities."

After introducing the topic, teams are asked to create a list of rules for responsible fishing. Once the teams have completed their lists of rules, they will present them to the class. Finally, the lists' differences and similarities will be discussed.

At the end of the game, the class will draw up a more comprehensive and valuable typical list of rules for responsible fishing.

MODULE 8:

World oceans day - 8th June

What it is

World Oceans Day is celebrated on 8th June, the Anniversary Day of the World Conference on Environment and Development in Rio de Janeiro, established by the United Nations to raise awareness of the importance of the oceans for the health of our Planet and the survival of all species living in them, including humans. World Oceans Day aims to encourage action to protect the oceans and marine resources and to promote the conservation and sustainable use of the oceans, seas and marine resources.

Learning objectives

- Knowing and appreciating the beauty and importance of the oceans
- Identifying the leading and largest cetacean species that inhabit them
- Raising awareness of the need to protect the marine ecosystem

Activity proposals

The largest inhabitants of the oceans: whales

The children explore the significance of whales by creating artistic and textual works.

The activity can be carried out in the classroom or a protected area. The children are divided into groups of 5. After each group has selected and analyzed a text and artistic work from the resources online (Sea Marvel site https://seamarvel.eu/project-summary/) as a source of inspiration, they will proceed with creating a free work: a text illustrated by pictures or a drawing accompanied by text. The imaginative work will say something about the marine mammal. The work's title and artistic and literary content will be based on the resources mentioned below. Each group will develop a title/slogan for their work (story of a man and a whale; the whale between myth and symbols; the whale as a force of nature, an extraordinary creature that populates the sea; saving the whale is saving the Planet).

During the preparatory phase of the activity, a text and an artistic work from the resources online (Sea Marvel site https://seamarvel.eu/project-summary/) will be selected and analysed by each group as a source of

inspiration. Through the images and texts in each work, the children will be stimulated to reflect on the age-old relationship between man and nature and current environmental issues. If the activity is carried out in a public space, in a protected area or on a beach in a suitable season, it may end with a collection of waste, with its census and correct disposal at the collection points.

MODULE 9:

World sea turtle day - 16th June

What it is

World Sea Turtle Day, is an annual celebration on 16th June. The day aims to raise awareness of the importance of sea turtles and their natural habitat.

Sea turtles are among the world's oldest creatures essential to the marine ecosystem. However, sea turtles are threatened by many human activities, such as overfishing, illegal hunting, pollution, climate change and habitat loss. World Sea Turtle Day is celebrated worldwide with activities including beach clean-ups, participation in conferences and seminars on sea turtle conservation, and raising public awareness through social media and other communication channels. The ultimate goal is to raise awareness about problems faced by sea turtles and promote concrete actions for their protection.

Learning objectives

- Discovering the main threats faced by sea turtles
- Introducing children to the biology and ecology of sea turtles
- Promoting the importance of responsible behaviour towards the environment

Activity proposals

SOS Sea Turtles

The activity starts with collecting information on the biology of turtles, in particular their life cycle and diet, their natural habitat, where they live, and the characteristics of these natural habitats (e.g., salt water, corals, sand) and can be carried out in a protected area, or the classroom. The research continues by collecting online information about their importance to the marine ecosystem and the dangers they face, such as pollution, global warming, overfishing and illegal hunting. At this point, children are asked to draw or cut out from especially collected magazines or prints, sea turtles and objects or human activities that threaten them, such as plastic bags, abandoned fishing nets, and hooks, etc. but also the destruction of egg-laying sites. All the drawings and cutouts folded evenly should be placed in a container made of cardboard or recycled materials. At this point, children divide into teams or can also play individually. One child or team draws a design or cutout from the box or container at each turn. If a sea turtle is drawn, it will be secured in the team's area. If it draws a threat, the child or team must answer a question about sea turtle protection (e.g., "How can we reduce the use of single-use plastic? How can we protect turtle nesting sites?"). If he/she answers correctly, the threat is removed and

placed in the team area. If it responds incorrectly, the threat is put back in the container. The game ends when all threats have been removed, and the sea turtles are safe. The child or team that saved the most sea turtles and eliminated the most threats will win.
The entries produced can also be used to set up exhibitions or propose outreach to the local community.

MODULE 10:

Day of the Seafarers - 25th June

What it is

Day of the seafarer is celebrated on the 25th of June. It was established in 2011 by the International Maritime Organisation (IMO) to honour the work and contribution of seafarers to the global economy.

The day was established to raise awareness of the importance of maritime operators who guarantee the transport and safety of goods and people daily. The theme of Seafarers Day varies each year and focuses on issues affecting the maritime community, such as health and welfare, training and qualification, gender equality and social justice.

Learning objectives

- Increasing knowledge about sea-related activities
- Promoting skills on marine species
- Raising awareness of local traditions and culture

Activity proposals

Visit a local maritime operator: a fisherman.

The first part of the activity is carried out by taking the class to visit one or more boats that have just returned from fishing. The meeting with the fisherman will be an opportunity to introduce the children to their work, the importance of preserving fish resources, and a fun and educational experience. The meeting with the fisherman may involve asking them to learn more about the fishing tools and techniques and describing the types of fish in the nets and their characteristics. The children work in groups of two, documenting the experience with photos and notes. The fishermen are asked to share some of their fishing experiences and amusing stories about life at sea with the children. This can also be an opportunity to learn some technical terms of the fishing trade. At the end of the visit, they return to the classroom and use the notes collected and photographs to define what to represent. Each group is given an A4 card on which the animal/ tool/ story told about fishing is drawn with a brief description having professional fishing as its main theme. This activity is a way to experience the world of the sea, fishing and sea-related professions playfully.

F. Resources

F.1 Biodiversity and the environment

Some important sources of information are:

• The most up-to-date system on biodiversity data in the European Union (https://biodiversity.europa.eu/): the Biodiversity Information System for Europe, a collaboration between the European Commission (the EU"s governing body) and the European Environment Agency.

• The European Environment Agency (https://www.eea.europa.eu/) contains the most critical and up-to-date information on the environment in all member states;

• A viewer of the 27000 sites of Natura 2000 sites (https://natura2000.eea.europa.eu/): a tool through which detailed information on all areas of the Natura 2000 network can be obtained.

F.2 Environmental Education

There is a wide range of resources for environmental education which are listed here:

• Public educational resources (https://natureforall.tiged.org/discovery/resources/?btnSearchFilters=Search): a range of resources in different languages on nature-related topics from different countries.

• Education for Sustainable Development in Biospheres Reserves and other Designated Areas (https://mio-ecsde.org/protarea/book/Final_ESD_in_BRs_in_one_file.pdf): a resource document in English for educators, focusing on the functioning of ecosystems, biosphere reserves and sustainable development within them.

F.3 Citizen science

EU-citizen. science (https://eu-citizen.science/): platform reporting on current and past citizen science projects within the EU

iNaturalist (https://www.inaturalist.org/) is a joint initiative of the California Academy of Sciences and the National Geographic Society to share scientific experiences also with reports via App

Ornitho (https://www.ornitho.it) is the typical information platform of Italian ornithologists, birdwatchers, and many national and regional ornithological associations whose aim is the study and conservation of birds, birdwatching and their promotion.

BioBlitz (https://www.bioblitzitalia.it) is an educational citizen science activity in which scientists, families, students, teachers and other community members work together in nature to find and identify as many living species as possible. Includes “Blue Bioblitz” section on marine biodiversity.

Observation.org (https://observation.org) is a platform to share species observations and scientific experiences on global biodiversity.

BICREF (The Biological Conservation Research Foundation) (https://bicref.org.mt/notices-to-mariners/) it is a nonprofit non government organisation and it has facilitated the reporting of dolphins, turtles and other marine species by filling in the sighting report at the link provided.

F.4 European Initiatives

At the European level, there are many important and challenging initiatives and educational programmes, including:

- Eco-Schools Network (https://www.ecoschools.global/national-offices): network of European schools for sharing useful materials and information and applying a global model for environmental education and sustainability internationally.

- MEdIES (https://medies.net/): the Mediterranean Education Initiative on Environment and Sustainability, a network of 6,000 educators and hundreds of schools throughout the region. holistically addressing all dimensions of sustainability (economic, environmental and social) for each topic covered.

Seahorse
(Hippocampus)

Università di Catania

L-Università ta' Malta

This publication, produced within the SEA MARVEL - Save, Enhance, Admire Marine Versatile Life project funded by the Interreg Italia-Malta program, is aimed at pupils and teachers of primary schools, offering support to understand the theme of biodiversity, its importance and its beauties with specific focus on Sicily and Malta. It illustrates key concepts and also serves to understand how the European Union has set itself common rules and objectives to keep natural ecosystems healthy and establish the Natura 2000 Network, the largest network of protected areas in the world. This booklet offers operational ideas for three challenges that can be organized between different classes or schools.

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