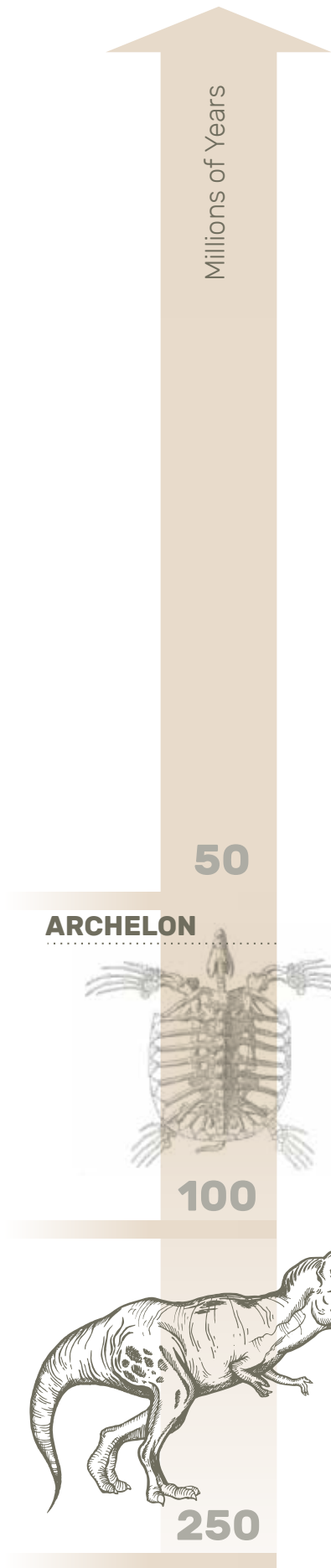


Life **Euro
Turtles**

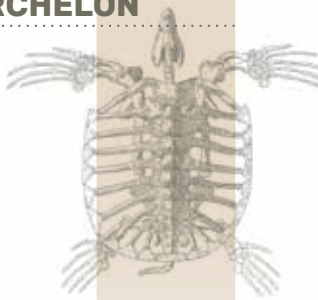
LAYMAN'S REPORT

Collective actions for improving the conservation status of the EU sea turtle populations





ARCHELON



7

**SPECIES OF
SEA TURTLES**



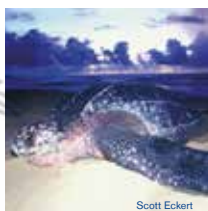
Meera Anna Oommen & Karik Shanker

**LEPIDOCHELYS
OLIVACEA**



Nicolas Pilcher

CHELONIA MYDAS



Scott Eckert

**DERMOCHELYS
CORIACEA**



K.Papafotis/ARCHELON

**CARETTA
CARETTA**



Doug Perrine C Seapics.com

**NATATOR
DEPRESSUS**

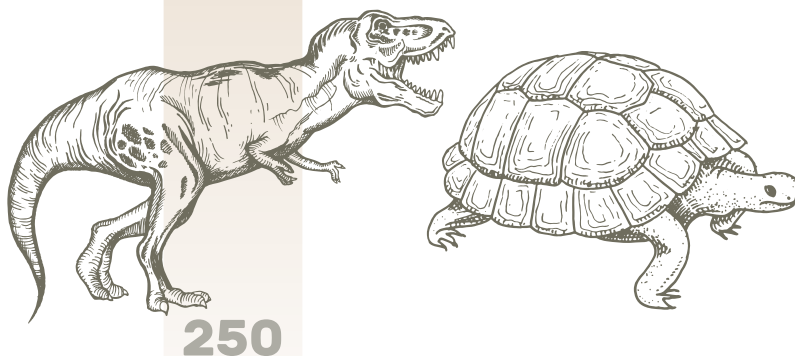


Doug Perrine C Seapics.com

**LEPIDOCHELYS
KEMPII**



**ERETMOCHELYS
IMBRICATA**



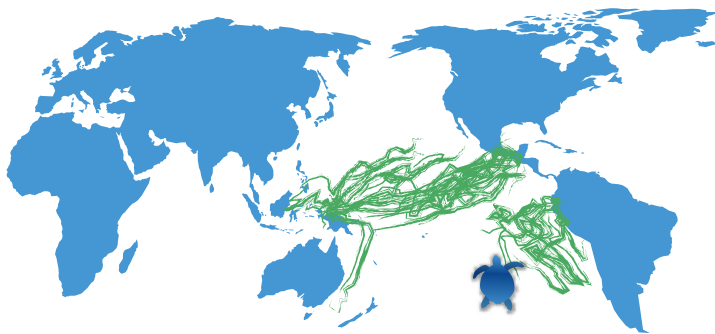


SEA TURTLES

Sea turtles are reptiles relative of terrestrial tortoises, but long time ago (about 150 million years ago) their ancestors adapted to the marine habitat. They spend all their life at sea, with one important exception: females must return on land to lay eggs and they all born at land. Moreover, like all vertebrates of terrestrial origin they breath air and they have lungs. Nowadays, only seven species of sea turtles exist and three can be found in the **Mediterranean Sea**. Two of them, the **loggerhead turtle** (*Caretta caretta*) and the **green turtle** (*Chelonia mydas*) also reproduce in the basin and in EU countries.

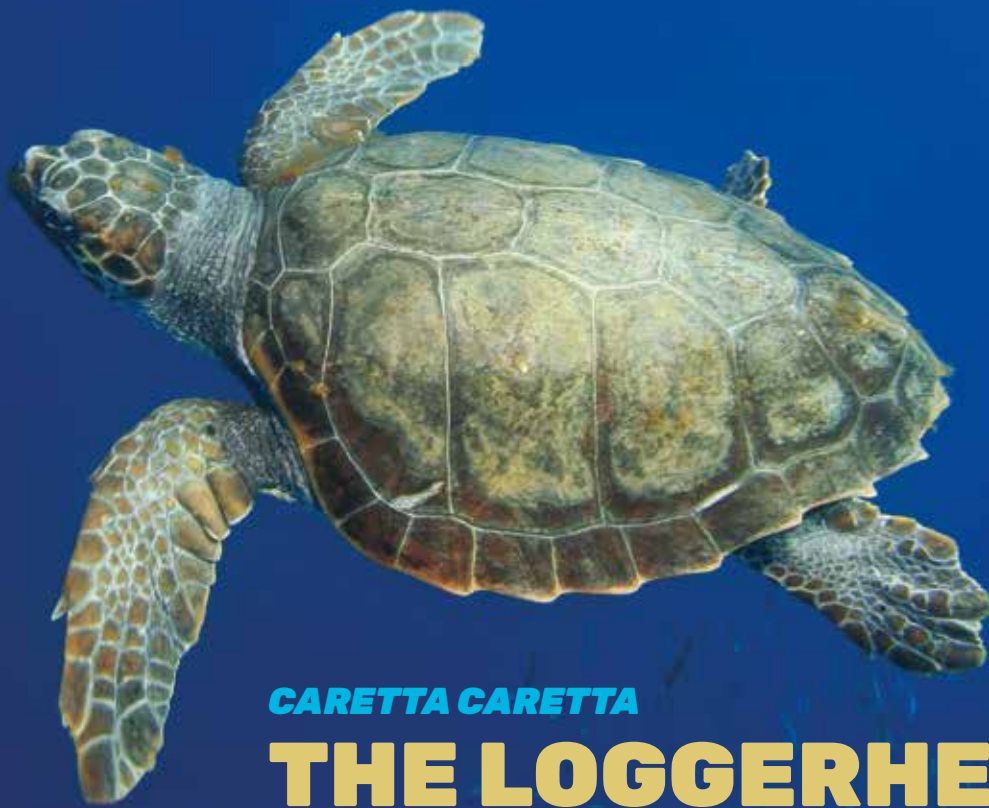


One of the most amazing aspects of sea turtles is their **long-distance migrations**, even thousands of kilometers, between foraging and breeding grounds. How they can do that is still a mystery, although their capacity of sensing the geomagnetic field is probably involved. Given that individuals belonging to the same population can disperse across large areas (potentially the entire Mediterranean), a single population is subject to many different anthropogenic threats and for this reason, **sea turtle conservation requires an international approach**. The **LIFE EU-ROTURTLES** project aims to implement such an approach at Mediterranean scale.



Movements of loggerhead and leatherback sea turtles tracked by satellite tags (after Block et al 2011)





CARETTA CARETTA

THE LOGGERHEAD TURTLE

Ante Žuljević

The **loggerhead turtle** (*Caretta caretta*) reproduces mainly in Greece, Turkey, Cyprus and Libya, where more than 8000 clutches are laid every year in average, although scattered nests may be found almost everywhere. Small juveniles wander in open waters of the western basin, the Ionian and southern Adriatic Sea and probably in the Levantine basin. They start to frequent shallow areas and to feed upon benthic preys at small size, even smaller than 30 cm of carapace in some cases. The most important shallow foraging areas currently known are the large continental shelves off the Adriatic sea and north-eastern Africa, and several smaller areas mostly in the eastern Mediterranean.

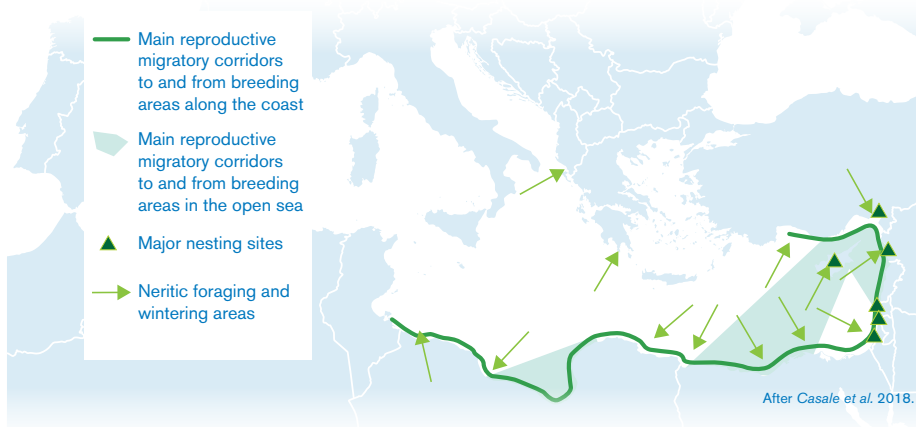




CHELONIA MYDAS

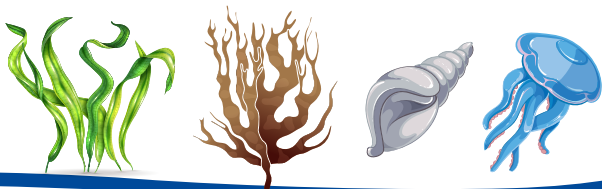
THE GREEN TURTLE

The **green turtle (*Chelonia mydas*)** breeds in the easternmost part of the Mediterranean (Turkey, Cyprus, Syria), with more than 2000 clutches laid per year in average. Foraging areas are located in the same region and also in north Africa, from Egypt to Tunisia, and only a few individuals frequent foraging areas in Greece and the Adriatic.





CARAPACE LENGTH: **up to 150 cm**
WEIGHT: **up to 180 kg**
CLUTCH SIZE: **110 eggs**
LIFE SPAN: **about 80 years**



Sea turtles are affected by many anthropogenic threats, both on land and at sea, making their conservation a great challenge. Nesting sites are threatened by **habitat loss** caused by development for tourism, intensive beach use, predation by dogs, foxes and other animals favored by human presence. At foraging grounds, sea turtles are incidentally caught and killed in high numbers by **fishing gears** such as trawl nets, longlines and set nets.

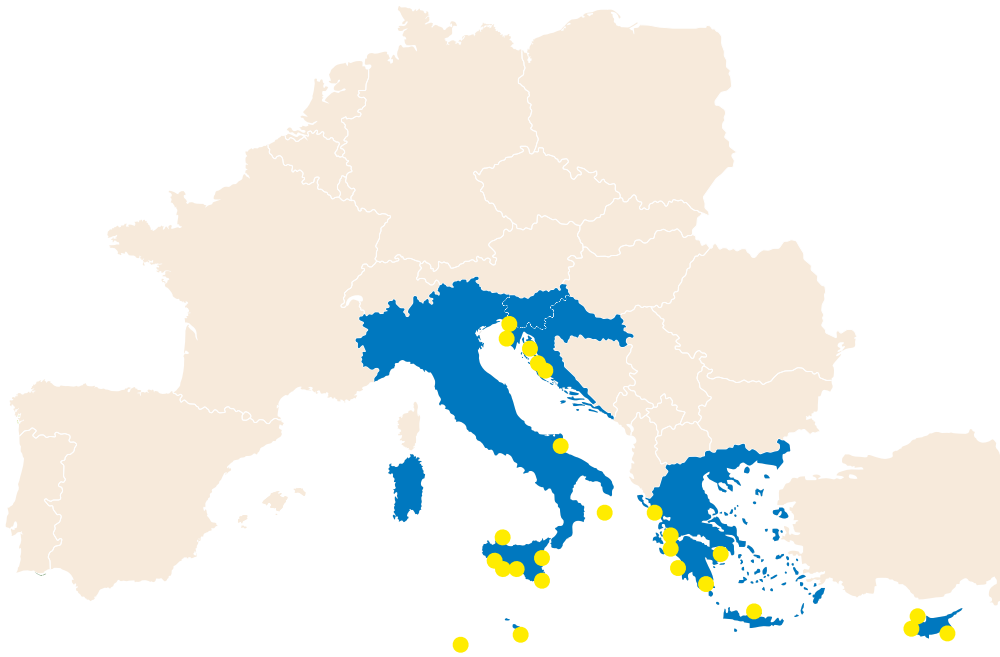




Ante Žuljević

The **LIFE EUROTURTLES** project aims to:

- Reduce the impact of anthropogenic threats at nesting sites;
- Reduce fishery-related threats at foraging grounds;
- Extend the marine Natura 2000 network for sea turtles in some countries;
- Develop a common approach for sea turtle conservation in the EU;
- Contribute to the fulfillment of the Marine Strategy Framework Directive by developing common methods and providing baseline data for monitoring;
- Promote sea turtles as a common and shared natural heritage of all EU citizens;
- Set up a network of relevant stakeholders for sea turtle conservation



The **LIFE EUROTURTLES** project focuses on areas that are pivotal for the conservation of the two sea turtle species occurring in the EU territory (*Caretta caretta* and *Chelonia mydas*). The nesting sites and foraging grounds located in the EU territory are extremely important for Mediterranean sea turtles as a whole.

High coastal development and fishing effort, which combined affect all sea turtle stages, from the critical reproductive phase to all age classes at sea, make conservation actions in key EU areas crucial for EU and Mediterranean sea turtle populations. The project is focused on those areas where conservation measures are deemed as important and urgent, and can make a difference for the sea turtle status at EU, national and local levels.

The **LIFE EUROTURTLES** project carried out sea turtle conservation activities in **6 countries** (Croatia, Cyprus, Greece, Italy, Malta, Slovenia), through **9 beneficiaries**.





Title **Collective actions for improving the conservation status of the EU sea turtle populations**

Short title **LIFE15-NAT/HR/000997 - LIFE Euroturtles**

Duration **5.3 years (1 Sep 2016 - 31 Dec 2021)**

Budget **5,116,167 Euro**

Funding **74% co-funded by the LIFE financial instrument of the European Union**

Coordinating Beneficiary **Croatian Natural History Museum (Croatia)**

Associated Beneficiaries **Blue World Institute of Marine Research and Conservation (Croatia), Oceanography Centre University of Cyprus, Department of Fisheries and Marine Research (Cyprus), ARCHELON the Sea Turtle Protection Society of Greece, Dept. Biology and Biotechnologies "C. Darwin" Univ. Rome "La Sapienza" (Italy), WWF Italy, University of Primorska (Slovenia)**



INNOVATIVE ASPECTS

The project developed several **new tools and practices** to improve the capacity to carry out conservation activities.

Unmanned Aerial Vehicles (**UAV or drones**) were used both at land and at sea. Drones made it possible to detect nests scattered over long coastal tracts, including new or previously hard to reach areas. UAVs were used to patrol previously unmonitored beaches allowing an early detection of nesting attempts or nests at risk of predation or inundation and allowing prompt intervention by ground teams. UAVs were also used to observe and assess the behavior of sea turtles in the sea along the nesting beaches during internesting periods helping better protection of breeding sea turtles. Finally, UAVs were used to assess the fine-scale distribution of turtles (observed while they are at the sea surface) and to identify hot-spot areas for conservation.



Plane used for aerial surveys in the Northern Adriatic.



New GSM transmitter developed within LIFE Euroturtles project.



Northern Adriatic presents one of the key habitats with large number of loggerhead sea turtles present throughout the year. In Croatia, large portion of the Northern Adriatic was surveyed using small plane to provide estimates of abundance and distribution of sea turtles using that area and helping identify areas for conservation through proposal for declaration of new Natura 2000 sites.

Spatial information is of a crucial importance for the effective conservation management of sea turtle populations and identification of high used habitats. However, obtaining quality data through satellite telemetry is expensive limiting the number of tracked animals and insights in spatial patterns of habitat use. The project developed a **new type of sea turtle tracking device** that significantly reduces the costs of obtaining high-quality spatial data, making telemetry more available to researchers in the future. This new tag is applied on the top of the turtle's carapace and collects the GPS position whenever the turtles surface to breathe. Then it transmits these data through the GSM network (the same of cellular phones). It is equipped with a solar panel, which recharges the battery and extends the operational time of the device.

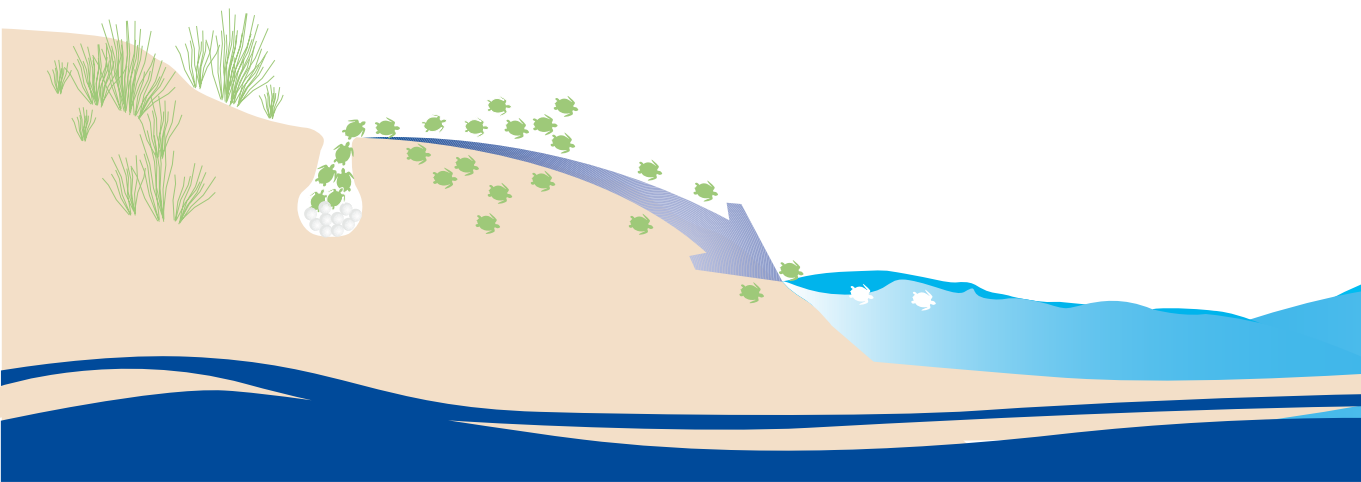
A citizen science mobile app, **eTurtle** (www.euroturtles.eu/web-app) was created to involve the general public into sea turtle conservation and to increase the data about sea turtle distribution. The App transmit photo, data and coordinates of a turtle encounter (a sighting at sea, a stranding along the coast, an incidental capture by a fisher, a nest on a beach) to a central database.



ACTIONS AND RESULTS

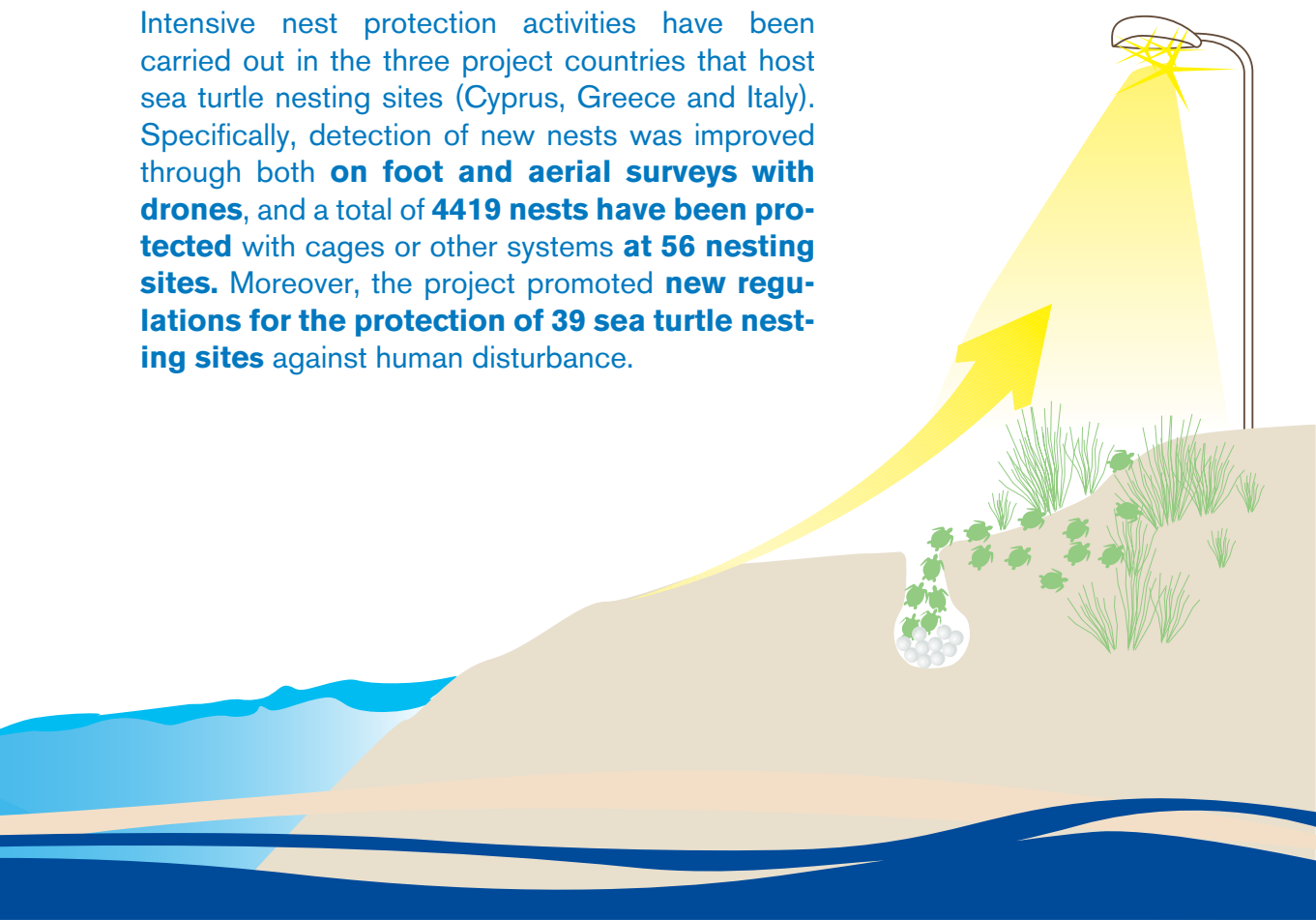
Sea turtle conservation at land

To reproduce, sea turtles need beaches, but these are increasingly threatened by human activities. Lights and human presence on the beach can prevent the female to come ashore to nest or to complete the nesting process. The eggs can be damaged by umbrellas, motor vehicles, beach cleaning machinery and others. The lights of houses, hotels, and streets may disorient the just emerged hatchlings, which find the sea attracted by the reflection of stars on the sea surface. They can go in the opposite direction, dying under the sun the next morning or being found by predators. Finally, wild and our domesticated animals roaming freely on the beaches can destroy entire nests by excavating them.

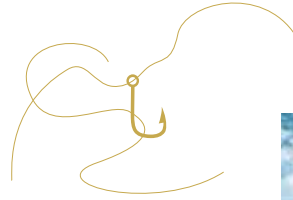




Intensive nest protection activities have been carried out in the three project countries that host sea turtle nesting sites (Cyprus, Greece and Italy). Specifically, detection of new nests was improved through both **on foot and aerial surveys with drones**, and a total of **4419 nests have been protected** with cages or other systems **at 56 nesting sites**. Moreover, the project promoted **new regulations for the protection of 39 sea turtle nesting sites** against human disturbance.



Sea turtle conservation at sea



The project tackled the problem of **sea turtle bycatch** through different synergic approaches, in all project countries.

Turtles are air-breathers and can drown if submerged for long, as it can happen when captured by **trawl or set nets**. When they arrive on the deck, some turtles may be dead or comatose (almost drowned and apparently dead or very weak) and sometimes the two cases are not easy to distinguish. Comatose turtles will die if released in this condition, because they cannot swim to the surface in order to breath.

Turtles incidentally captured by **longlines** (fishing gears with hundreds or thousands of hooks) are usually released alive, but **many will die, mainly for the ingested line**.



RAC/SPA Tunis



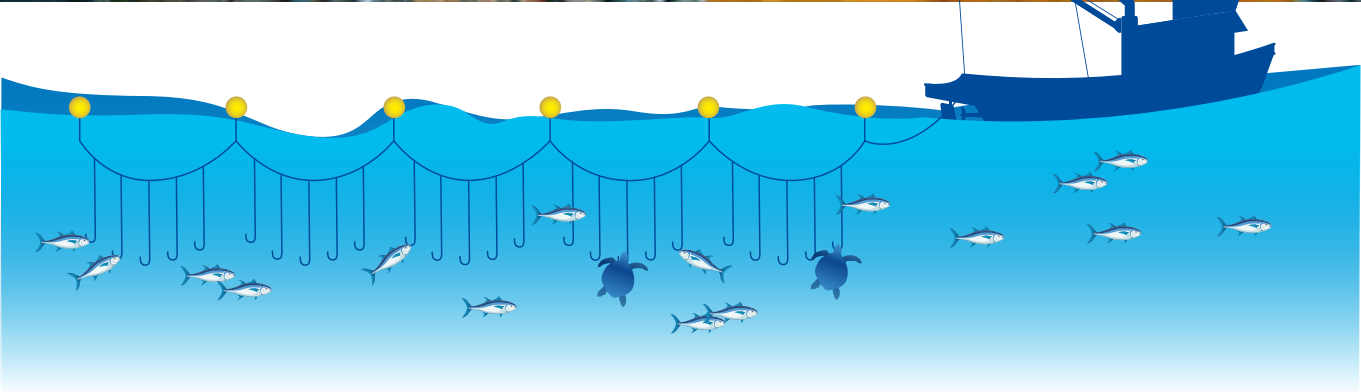
Blue World Institute



Malta Nature Trust



Plesić BWI





Modifications of set nets, aimed to reduce turtle bycatch, were demonstrated in **12 fishing boats** in Croatia and Cyprus. The set net is made of thin transparent filaments that are hard to see. The project introduced the use of special LED lights to illuminate the set nets making them more visible to sea turtles. At present this is the only by-catch mitigating measure available for this fishing gear.

Eight hot-spot areas, where turtles concentrate and where the risk of bycatch is higher, were investigated through a threefold approach: (i) **collaborating fishers** provided coordinates of turtle bycatch events, also through the **App** of the project; (ii) **aerial surveys with aircrafts or drones** informed about the distribution of 1290 turtles observed at the sea surface; (iii) **GSM-GPS tags** of the project were attached to 61 turtles to provide their positions while at sea. The overall results were provided to fishers in order to avoid those areas whenever possible.





Ante Žuljević



Monica Demetrou

Fishers of 317 fishing boats in 9 areas were informed about relatively simple onboard best practices that can reduce the high mortality of captured turtles after being released alive. By keeping on the deck any turtle apparently dead or very weak until they become active again (in the case of trawl or set nets) or by cutting the line very close to the mouth (in the case of longlines), fishers can significantly reduce the mortality of these animals.

Set nets are particularly dangerous because are left in place for the whole night and a turtle cannot survive this long without breathing. These nets are very common all over the Mediterranean. Although each net captures only a limited number of turtles per year, they are so many (actually the real number is even difficult to know) that as a whole they represent a serious threat for sea turtle populations.



Matej Jancić

Large numbers of **fishing gears are continuously left in sea representing the deadly traps** for sea turtles and other marine life that can get entangled into them. Such gear is often called "**ghost gears**". The project undertook a pilot action to tackle this problem. In Cyprus, ghost gears were searched and removed through underwater surveys by **scuba diving** and **ROV** (remotely operated vehicles) and **side scan sonar**. Other gears were properly **discarded by fishers** at land. All this material was converted to thermal energy.



Three **turtle rescue centers and rescue networks** in **Croatia, Cyprus and Greece** were improved, resulting in their capacity to successfully find, transport, rehabilitate and release many more turtles. Moreover, rescue centres provide valuable information to the public enabling them to learn about sea turtles biology and conservation activities. They also collect an impressive amount of data that can be extremely valuable for research on turtle biology and on conservation-related aspects.

The project promoted the creation or extension of **Natura 2000 marine sites in Croatia and Italy** to cover turtle hot-spot areas.





**The rescue centers
operated by the LIFE
Euroturtles partners:**

BLUE WORLD Institute,
Kaštel 24, Veli Lošinj, Croatia
+385 51 604 666

ARCHELON Sea Turtle Rescue Centre,
3rd Glyfada Marina, Athens 166 75, Greece
+30 21 0898 2600

Nature Trust FEE Malta Rescue Centre,
Marsaxlokk, Malta
+356 9999505

MENEQU Turtle Rescue Center, Department of
Fisheries and Marine Research of Cyprus
+357 9695 2929



Although the LIFE Euroturtles project has been completed, the actions it has implemented will be continued:

The project successfully set up several procedures that the Beneficiaries will continue to implement after the end of the project.

At project nesting sites, the project drones will continue to be used for early detection and protection of nests. The adoption of the local regulations to minimize human disturbance will be promoted to other municipalities of the areas.

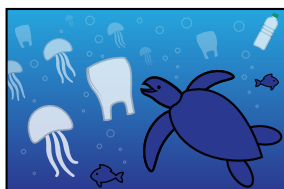
DISSEMINATION & AWARENESS

A fundamental component of all the conservation actions was the public awareness activity targeting all the involved communities and stakeholders.

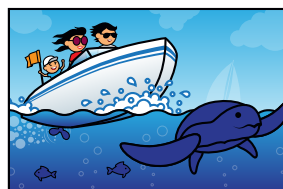
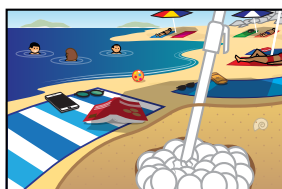
Information about the project and the sea turtle conservation issues were disseminated through 279 public events, 36 conferences, 157 mass-media releases, and information tools such as the project web site, video and exhibition. Supporting information material (posters, brochures and t-shirts) was also distributed.

The project created a citizen science APP for smartphone to report sea turtle encounters. It has been used widely by citizens of the project countries and elsewhere (5332 downloads and over 1200 records provided)

The project informed more than 7 million EU citizens about the project and sea turtle conservation.



Ante Zuljević



PLASTIC KILLS! BE AWARE! SLOW DOWN!
SEA TURTLES SEA TURTLES SEA TURTLES

The best practices and technical modifications for reducing turtle bycatch and mortality will be further disseminated among fishers. The citizen science App and drones will continue to improve our knowledge on sea turtle hot-spot areas, that could inform further conservation measures in the future.

The improved rescue centers and networks will continue to promptly save many sea turtles stranded along the coasts or incidentally captured by fishers.



Download
http://bit.ly/eTurtles



www.euroturtles.eu
Produced with the assistance of LIFE financial instrument of the EU (LIFE15 NAT/HK/000997).
The content does not necessarily reflect the official opinion of the EU.

The LIFE Euroturtles project has already been exported to other Mediterranean areas in the Western and Eastern parts.

One of the most important achievements of the LIFE Euroturtles project is transfer of approach to joint conservation throughout species distribution range through collaboration with new project Collective actions for improving the conservation status of the eu sea turtle populations: bordering areas - LIFE Medturtles (LIFE18 NAT/IT/000103) that expands the same conservation actions to other 4 EU and Mediterranean countries (Spain, Tunis, Albania and Turkey).



SAPIENZA
UNIVERSITÀ DI ROMA



**DEPARTMENT OF FISHERIES
AND MARINE RESEARCH (DFMR)**



University of Cyprus
Oceanography Centre



Croatian
Natural History
Museum



BLUE WORLD INSTITUTE



NTM
nature trust (malta)



WWF



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Collective actions for improving the conservation status of the EU sea turtle populations (LIFE15 NAT/HR/000997) Project is carried out with the assistance of LIFE financial instrument of the European Union

