Collective actions for improving the conservation status of the EU sea turtle populations: bordering areas (LIFE18NAT/IT/000103). Project is carried out with the assistance of LIFE financial instrument of the European Union / **info@medturtles.eu**

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LAYMAN'S REPORT

COLLECTIVE ACTIONS FOR IMPROVING THE CONSERVATION STATUS OF THE EU SEA TURTLE POPULATIONS: BORDERING AREAS

Photo: FC

Photo: PSCA

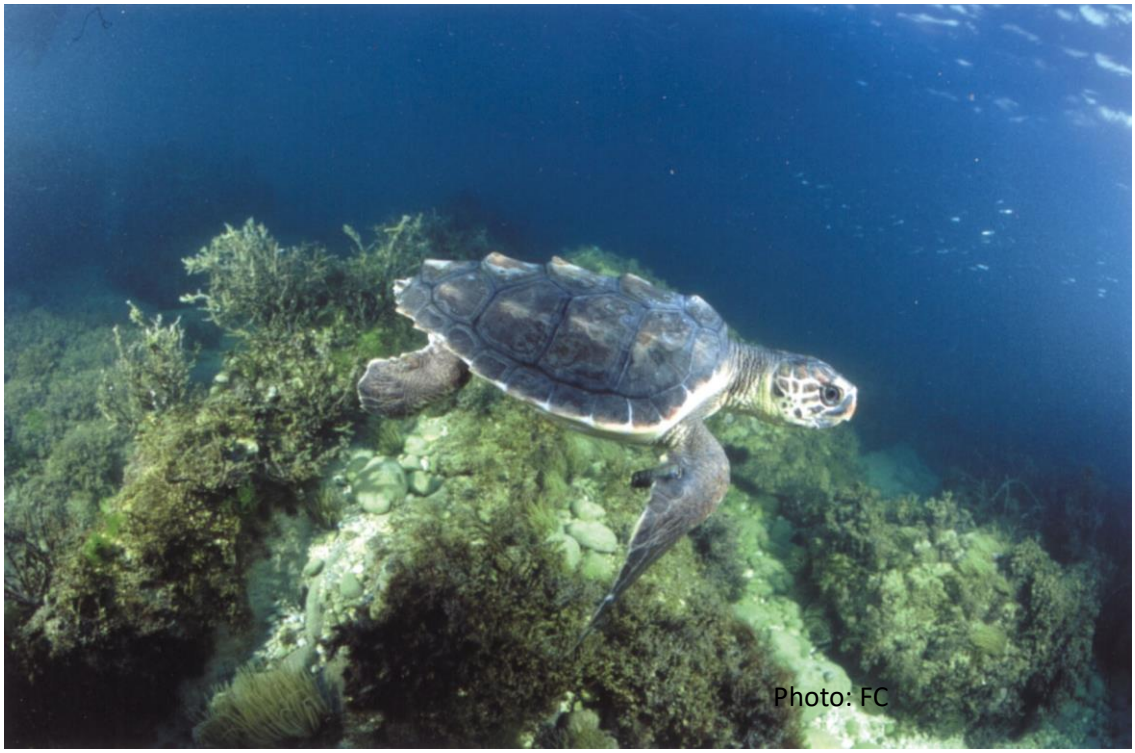
Sea turtles are reptiles relative of terrestrial tortoises, but a long time ago (about 150 million years ago) their ancestors adapted to the marine habitat. They spend all their life at sea, with one important exception: females must return on land to lay eggs and they are all born on land. Moreover, like all vertebrates of terrestrial origin they breathe 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.

Photo: FC

The **loggerhead turtle (*Caretta caretta*)** reproduces mainly in Greece, Turkey, Cyprus and Libya, where more than 8000 clutches are laid every year on 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 prey when they are still small, 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.

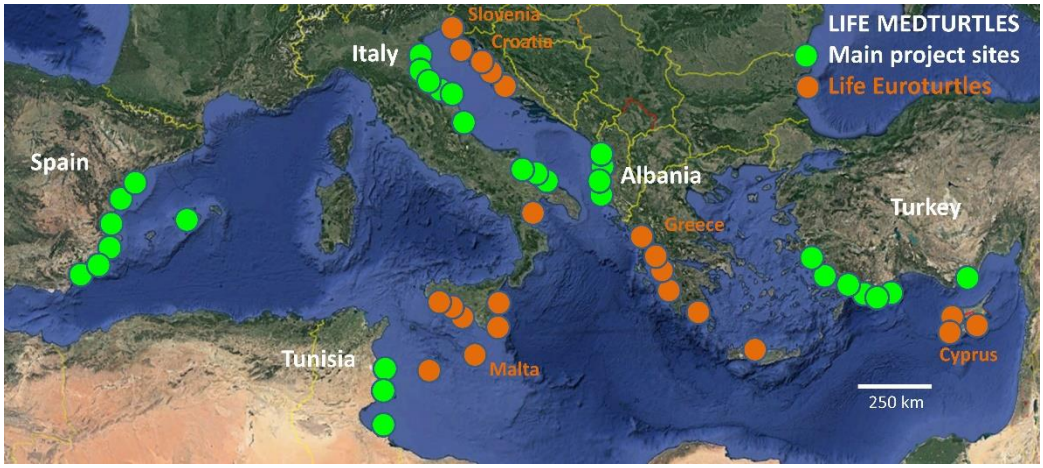
Photo FSS

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 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.



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**.

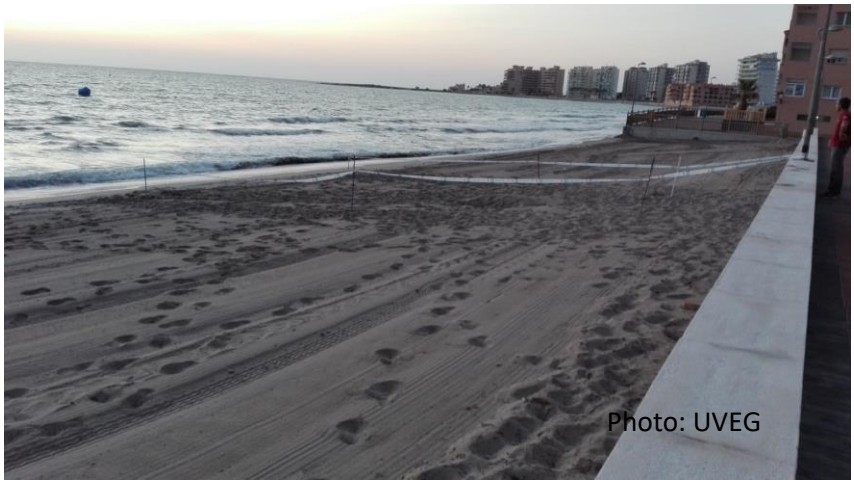
The **LIFE MEDTURTLES** project aims to implement such an approach at the Mediterranean scale, as a geographical extension of the LIFE EUROTURTLES project (www.euroturtles.eu).



It carried out sea turtle conservation activities in **5 countries** (Albania, Italy, Spain, Tunisia and Turkey), through **6 Beneficiaries.** It focused 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 and non-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 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 Mediterranean, national and local levels.

Many **anthropogenic threats** affect sea turtles, 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 favoured by human presence. At foraging grounds, sea turtles are incidentally caught and killed in high numbers by **fishing gear** such as trawl nets, longlines and set nets.



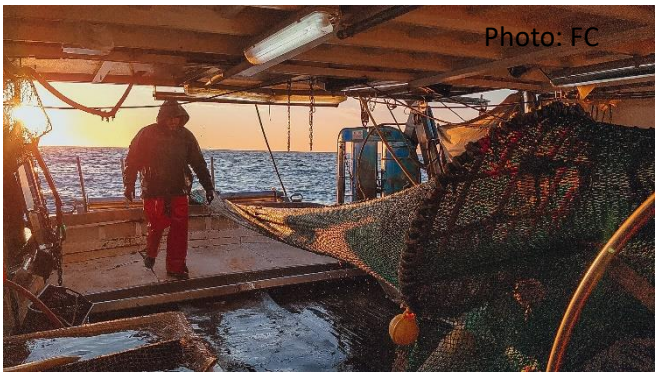


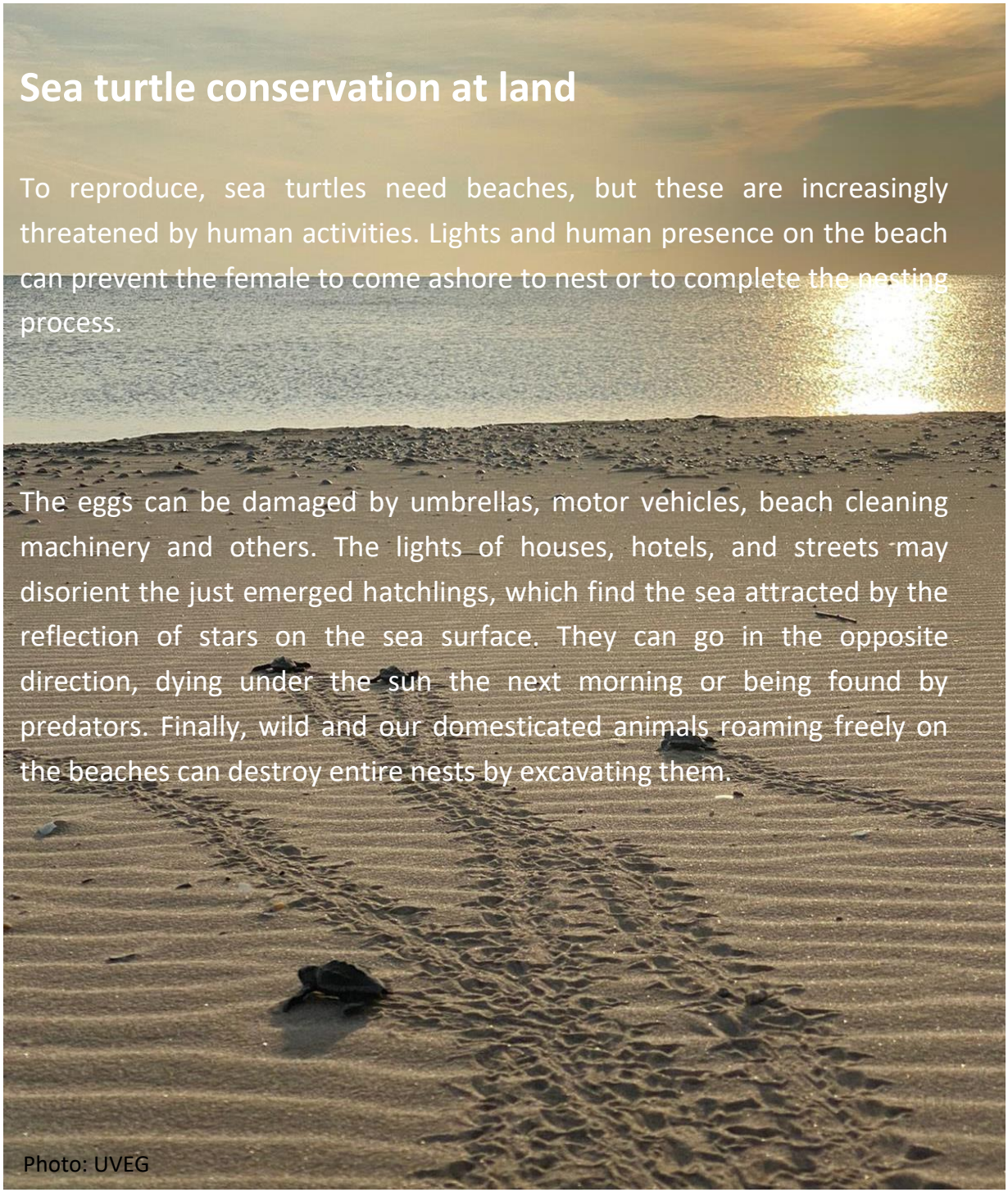
Photo: FC

The **LIFE MEDTURTLES project aims to**:

- Reduce fishery-related threats at foraging grounds;
- Reduce the impact of anthropogenic threats at minor nesting sites;
- Develop a common approach for sea turtle conservation in the Mediterranean;
- Set up a network of relevant stakeholders for sea turtle conservation
- Promote sea turtles as a common and shared natural heritage of Mediterranean citizens;

Photo: FSS

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.

Photo: UVEG

Intensive nest detection and protection activities have been carried in Albania and Spain, where nests are scattered and early detection (before they can be damaged by humans) is essential. Detection of new nests was improved through both **on foot and aerial surveys with drones** (Albania), with a total of **19 nests protected**. Moreover, in Spain the project promoted a **new protocol for the protection of nests** against human disturbance (Spain).

Photo: HAS

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Photo: UVEG

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 breathe.

Photo: FSS

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

Photo: UNIPI

Fishers of 1546 fishing boats in 60 ports 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.

Photo: PSCA

Photo: UVEG

Photo: FSS

Photo: FC

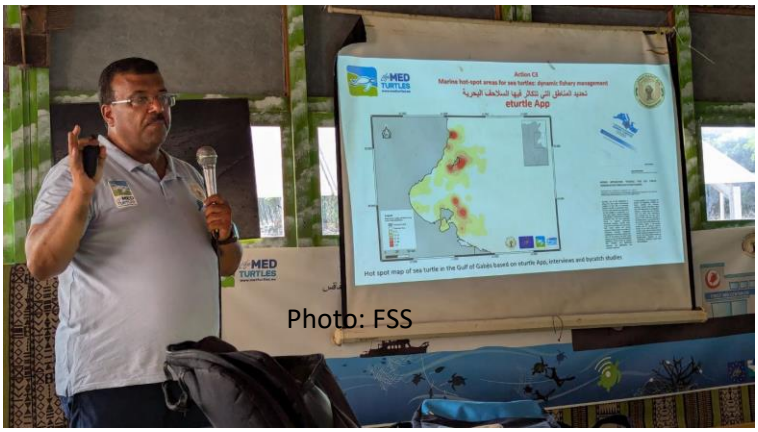
Photo: PSCA

Modifications of the three fishing gears aimed to reduce turtle bycatch, were demonstrated in **128 fishing boats in 35 ports**. The **set net** is made of thin transparent filaments that are hard to see. In Albania, Spain, Tunisia and Turkey, the project introduced the use of special LED lights to illuminate the set nets making them more visible to sea turtles. In Italy, the project proposed to fishers a substitution with fishing traps, that don't catch turtles at all. For **trawl nets**, in all countries the project demonstrated Turtle Excluder Devices (special grids that deviated turtles out of the net. In Tunisia and Turkey, circle hooks for **longlines** were demonstrated. Results show a complex and heterogeneous situation, with modifications being suitable depending on the specific area.

Photo: UNIPI

Photo: UNIPI

Hot-spot areas, where turtles concentrate and where the risk of bycatch is higher, were investigated in all countries through a threefold approach: (i) **collaborating fishers** provided coordinates of turtle bycatch events, also through the **App** of the project; (ii) **aerial surveys data (from aircrafts or drones)** informed about the distribution of turtles observed at the sea surface; (iii) **satellite tags** were attached to **128 turtles** to provide their positions while at sea. The overall results were provided to fishers to avoid those areas whenever possible. A total of **453 fishing boats** were involved in this action



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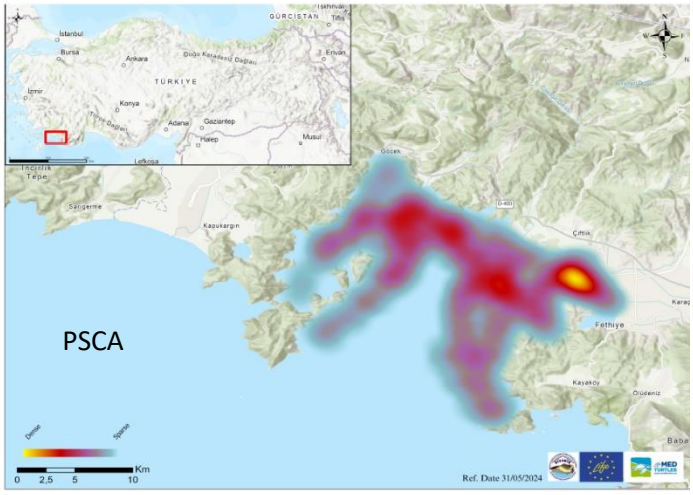

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Large numbers of **fishing gears are continuously left in the sea representing the deadly traps** for sea turtles and other marine life that can get entangled into them. Such gear is often called **"ghost gears".**

The project communicated about the problem of ghost gears through direct contacts with fishers and a specific Code of Conduct in all project countries, and through removal of ghost gears in Albania, Italy, Tunisia and Turkey.

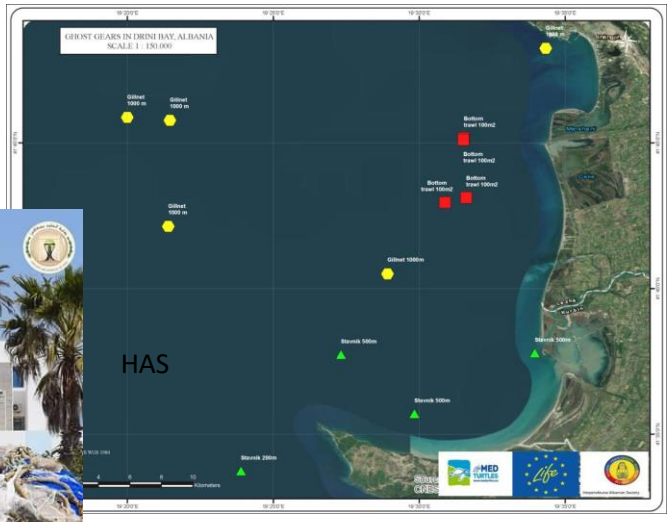

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Photo: FSS

Four **turtle rescue centers or first aid centers and rescue networks** were created or improved in Albania, Italy, Tunisia, and Turkey, resulting in their capacity to successfully find, transport, rehabilitate and release many more turtles (about 200 per year), with **803 turtles** rescued during the project. 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.

DISSEMINATION & AWARENESS

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

Photo: UVEG

Information about the project and the sea turtle conservation issues were disseminated through 385 public events, 40 conferences, 92 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.

Photo: FC

The project promoted a **citizen science App** for smartphones (developed by LIFE EUROTURTLES) to report sea turtle encounters.

The project informed **more than 13 million people** about the project and sea turtle conservation.

Although the LIFE MEDTURTLES 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, drones and protocols will continue to be used for early detection and protection of nests.

The best practices and technical modifications for reducing turtle bycatch and mortality will be further adjusted or investigated. 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.

Photo: UVEG

Title	**Collective actions for improving the conservation status of the EU sea turtle populations: bordering areas**
Short title	**LIFE18 NAT/IT/000103 - LIFE Medturtles**
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Associated Beneficiaries	**Faculté des Sciences de Sfax, Tunisia (FSS)** **Fondazione Cetacea, Italy (FC)** **Herpetofauna Albanian Society, Albania (HAS)** **Pamukkale Bilim Merkezi Derneği, Turkey (PSCA)** **Universitat de València, Spain (UVEG)**

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