

ARCHELON, THE SEA TURTLE PROTECTION SOCIETY OF GREECE: 21 YEARS STUDYING AND PROTECTING SEA TURTLES

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Background on sea turtles in the Mediterranean

Of the world's seven species of sea turtle, three are regularly found in the Mediterranean Sea. All are categorised as in need of protection according to CITES and the IUCN Red Lists. The loggerhead turtle (*Caretta caretta*) is most abundant and nests widely in the eastern Mediterranean. Next is the green turtle (*Chelonia mydas*) whose regional population is categorized as critically endangered, with a more limited distribution and nesting sites restricted to the easternmost part of the eastern Mediterranean. Finally the leatherback (*Dermochelys coriacea*) roams the entire Mediterranean in low numbers, never nesting, and is considered a visitor from the Atlantic.



Swimming
loggerhead turtle.
Photo by Alan
Rees/Archelon

The turtle nesting season extends from late May to August and hatchlings erupt from late July to October. These summer months coincide with the massive influx of tourists who come to the seaside area to be on the beach and soak up

the sun. Tourism and its associated developments form a major threat to turtles in the Mediterranean. The other main threat to turtles there, and indeed around the world, is the turtles' interaction with fisheries. Most fishing practices have been shown to affect turtles, ranging from hook ingestion to entrapment and drowning during trawls. It is in this context that I will attempt to describe ARCHELON's activities over the last 21 years, highlighting the various components of its programmes and the extent of its activities.

Start of turtle conservation in Greece

Scientific knowledge and investigations for sea turtles in Greece started in 1977 when Dimitris Margaritoulis and his family were holidaying on the Island of Zakynthos. They witnessed the sea turtle nesting there, from the tracks on the beaches, and discovered that this fact was not known to the scientific community. Consequently Dimitris and Anna, his wife, organised a group of friends to start monitoring the nesting activity and promote its existence.

Promotion of sea turtle conservation in these early years resulted in a Presidential Decree, in 1983, for the protection of the nesting beaches of Zakynthos. The decree was based on building restrictions (because at that time there were no relevant laws for the protection of nature). In 1983 this volunteer group of 'turtlers', or 'helonades' in Greek, formalised its goals and mission and set up a system of democratic operation. It was with this structure that the Sea Turtle

Protection Society of Greece (now known as ARCHELON for short) was founded. Over these early



Rethymno nesting beach and natural beach hatchery.
Photo by Alan Rees/Archelon

years, and later on, ARCHELON explored the greater part of the Greek coastline, searching for other important nesting areas. These were discovered in the Peloponnese, and on the Island of Crete with diffuse nesting occurring at many places around Greece (Margaritoulis et al, 1995; Margaritoulis, 2000)

The essence of ARCHELON's programmes

ARCHELON is involved with the turtles, not only through nest management and turtle rehabilitation, but also with stakeholders – the people associated with the turtles – through awareness raising activities at nesting beaches and collaboration projects with fishermen. We believe that unless people know the facts and understand the situation, and hence become more sympathetic to the cause, all direct actions to protect the turtles and their nests will have no long-term rewards.

The main programmes started in the 1980s, before the creation of ARCHELON, and still exist today. It is their long-term nature that makes them so valuable and effective. Turtles are long-lived, late-maturing animals and the effects of mismanagement do not appear quickly but only come to light over a period of years.

All ARCHELON's programmes are run using volunteer support. Each year ARCHELON hosts around four hundred Greek and foreign volunteers; foreigners make up by far the greatest percentage and the majority of foreign volunteers are British! Volunteers are essential to ARCHELON's projects as it is they who make the project work. In the Rescue Centre a small team of volunteers undertake all the day-to-day chores of feeding and cleaning the turtles as well as interacting with visitors to the centre. During summer nesting projects, volunteers, trained by field leaders (themselves previously unpaid volunteers) undertake all the beach monitoring, nest protection and public awareness activities. Our projects on Crete and Zakynthos in the busy months of July and August may have upwards of 30 volunteers living and working at each site. The work we do and the results we obtain would simply not be possible if we were to rely on a body of paid workers.

It is perhaps because of their essential role in the success of our projects that the volunteers come to feel they are really helping ARCHELON reach its goals and hence they know they are playing a significant part in the conservation of sea turtles in Greece.

Nesting beach monitoring and nest management

Every morning, soon after first light, from late May to October, Greece's seven main nesting areas on Zakynthos, Crete and the Peloponnesus are patrolled by teams of international volunteers. They record every adult turtle track and every hatching nest. It is through this standardized long-term activity that vital data on nesting levels and fluctuations have been recorded on the beaches for 15 years or more in some cases (Table 1). This information has been used to strengthen the case for protection measures and formed the backbone of proposed NATURA 2000 sites in Greece designated to protect the loggerhead sea turtles.

Beach	Length (Km)	Range of nest numbers (in parenthesis: number of seasons on which data are based)
Zakynthos	5.5	857 – 2018 (16)
Kyparissia	44.0*	286 – 927 (15)
Lakonikos	23.5	107 – 239 (7)
Rethymno	10.8	315 – 516 (8)
Chania	13.1	77 – 192 (6)
Messara	7.8	15 – 80 (8)
Koroni	2.7	35 – 66 (5)
TOTAL	73.8	1692 – 4033

Table 1. Nesting levels and monitoring effort at Greece's seven most important nesting areas.
*Kyparissia Bay total length is 44km; however, only the core nesting area of 9.5km, identified after a six-year study of the total length, is monitored each year. Source: Margaritoulis (2000), Margaritoulis & Rees (2001), Margaritoulis et al. (2003).

Laganas Bay on Zakynthos has by far the most nests of any Greek area (Table 1). It hosts the largest number of nests of any site in the Mediterranean, and about 25% of all documented Mediterranean loggerhead nests (Margaritoulis et al, 2003). Nesting density on the main nesting beach of Sekania is one of the highest in the world.

Threats to nests vary around Greece. In the Peloponnesus, for example, we have a problem with nest predation, whereas on Zakynthos and Crete, tourism and beach-use by people are greater threats. Accordingly ARCHELON has adopted site-specific nest protection measures. To deter predators while allowing free

movement for emerging hatchlings we use metal or 'bamboo' screens placed over the nests, whereas to stop the nests being trampled on or otherwise damaged by negligent beach users, metal cages are placed over the clutch. One further threat to nests at all beaches is inundation from storm waves which drown the eggs. Consequently, ARCHELON relocates all nests considered 'doomed' to safer spots on the beach. Generally these nests are relocated to isolated individual locations, but when necessity demands (for example, when there are a high number of nests and small area of suitable beach) nests are relocated to high density natural beach hatcheries.

Through these nest protection measures, ARCHELON increases the number of live hatchlings produced, thus enhancing the yearly numbers of turtles added to the at-sea population. It is estimated that loggerheads may mature after 20 to 30 years so it must be remembered that the work ARCHELON started on some of the nesting beaches 20 years ago may only now be starting to bear fruit.

Conservation of nesting areas

Because of our year-on-year presence, and the data sets we have built up, ARCHELON has been in the position to compile Management Plans (MPs) for the main nesting areas of Greece (Irvine et al, 1998; Irvine et al, 2000). EU-cofunded, LIFE-Nature projects for Crete, Lakonikos Bay and southern Kyparissia Bay provided the resources to elaborate the MPs for each area and persistent lobbying has resulted in implementing parts of them in cooperation with local communities, especially on Crete. The MPs define the most important areas of the nesting beaches and provide guidelines for 'turtle friendly' development, including identifying areas where development is discouraged. Additionally, they provide guidelines for minimizing disturbance to turtles by the established infrastructure. This includes shading or redirecting night lighting to eliminate hatchling disorientation, and relocating sun loungers/umbrella operations to areas on beaches that least interfere with turtles crawling up the beach to nest in a safe spot. Other topics such as prohibiting access to heavy vehicles are also covered by the MPs.

The biggest success to date, however, was the establishment of the National Marine Park of Zakynthos which was initially proposed by ARCHELON in the late 1980s and did not become a legal entity until December 1999 (Dimopoulos, 2001). One of the most significant achievements in setting up the NMPZ was the establishment of a Management Agency (MA), the first of its kind in Greece for a protected area. This was important as all other areas in Greece are under

the jurisdiction of the public services (forestry service, coast guard etc) which in effect meant nothing happened, due to their non-specialisation and inadequacy in funding and personnel, plus too many other areas of responsibility.

The Park protects both terrestrial and marine areas for the conservation of the loggerheads that breed there. In the past, development threatened to destroy the important nesting beaches, while speed boats taking tourists around Laganas Bay regularly killed basking turtles. Park regulations have (legally) put an end to development near the beaches. In some parts of the bay boats have been banned and, for the rest, a 6 knot speed limit reduces the chances of boats striking the turtles. The initially disgruntled speed boat owners who were killing turtles by their negligent behaviour are now 'turtle spotting' boat owners. They make a living by exploiting the turtles in a positive way, following guidelines to ensure minimal disturbance to the turtles and in the process raising awareness of the turtles' plight.

ARCHELON has an agreement with the MA to undertake all monitoring of the turtle population and its volunteers work side by side with NMPZ wardens in information stations and beach entrances, safeguarding them for the turtles. Sadly, in 2004, the NMPZ ceased to function as the government cut funds to support the MA. The legislation and infrastructure remains, but no money is provided to bring life to this necessary body. However, a little progress has been made, at the time of writing, to release the state funds necessary to re-activate the marine park.

Through all these developments, ARCHELON has been there on Zakynthos, monitoring and protecting the turtle nests, safeguarding the beaches and informing tourists and the general public of the need to protect the sea turtles. We will be there again in summer 2005, helping to protect the turtles for the 22nd consecutive year, with or without the reactivation of the NMPZ. However, it must be said that this is not a long-term solution. The state must re-activate the NMPZ and fulfil its obligations; ARCHELON will be doing as much as it can to bring this about.

Sea turtle rescue network and turtle rehabilitation

The National Sea Turtle Rescue Network (STRN) in Greece (incorporating a stranding network) was started in 1992 with the co-operation of the Ministry of Mercantile Marine who are responsible for the Coast Guard. It was through this

network that ARCHELON realised that many of the stranded turtles were alive and in need of treatment. For this reason the Sea Turtle Rescue Centre (STRC) was established in Glyfada, near Athens, in 1994. The Greek Coast Guard are the backbone of the STRN, but they are not alone; other members include: research institutes, fishermen and fishermen associations, environmental NGOs, concerned individuals and finally ARCHELON project personnel who are involved in the nesting beach projects. Detailed records of strandings from all over Greece are sent to ARCHELON by the Coast Guard and other members of the STRN.

If a turtle is found dead, then all relevant information is recorded. Often the local state vet is asked to undertake a basic necropsy and make a report. Photographs are also taken, and if the turtle bears tags these are removed. All information and physical material is sent to ARCHELON to be added to the national database. Following data collection the turtle carcass is disposed of. This is arranged by local municipal authorities following hygiene laws.

If the turtle is found injured then ARCHELON is notified to prepare for its arrival at the Rescue Centre. If individuals or NGOs are involved, they are encouraged to contact the local port authorities to collect the turtle. The turtle is prepared for transportation according to ARCHELON's instructions, placed in a box or restrained on a pallet with damp towels or other suitable material, depending on time of year, and then sent by the fastest means possible to the Rescue Centre, even by aircraft.

During 1992–2000, ARCHELON received notification of 1080 stranded turtles. From the 226 turtles stranded alive and admitted to our Rescue Centre between 1994 and 2000, it was estimated that about 80% of the turtles were injured because of fisheries interaction (Panagopoulos et al, 2003). The Rescue Centre is mainly composed of renovated train wagons which comprise four of the five 'buildings' of the centre. It has an office, volunteer living quarters, public exhibition and multimedia rooms, a surgery/reception area and a 'hospital wagon' where the most critical turtles are kept sheltered from the elements. The Rescue Centre has 15 permanent tanks and several other removable ones in which to house injured and debilitated sea turtles. ARCHELON has a trained vet who oversees the rehabilitation work and performs any surgical operations deemed necessary. The remaining work is undertaken by a team of 2–4 volunteers who live at the centre and other volunteers that come during the day in their spare time.



I. Release of rehabilitated turtle 'Eve'.



II. Turtle with transmitter heading for the sea.
Photos by Alan Rees/Archelon



III. Swimming loggerhead turtle, Zakynthos.



IV. Resting loggerhead turtle.
Photos by Alan Rees/Archelon.



Release of rehabilitated turtle (Tim). See also colour plate 1.
Photo by Alan Rees/Archelon

Most of the turtles that end up at the rescue centre do so because of some negative impact of human activity. They have either swallowed baited hooks and become entangled in fishing line, or have been intentionally beaten and injured by fishermen who have accidentally caught them in their nets. In November 2004, ARCHELON held a workshop on sea turtle rehabilitation in the Mediterranean region (Panagopoulou, 2005). The workshop was attended by veterinarians and associated workers from Italy, Spain, Greece, Turkey and Tunisia. The workshop was arranged around four main themes: The Role of Rescue Centres, Treatment and Rehabilitation, Infrastructure of a Rescue Centre and Networking among Rescue Centres. This workshop proved an excellent method of bringing together the knowledge and experience gained throughout the Mediterranean and has resulted in actions to establish a website for networking all the turtle rehabilitation centres, facilitating exchange of information and expertise.

Environmental education

ARCHELON's environmental education programme started in 1985 on Zakynthos and soon expanded all over Greece. It started out with ARCHELON members giving live presentations in schools on conservation of the sea turtle and the environment. The programme is approved by the Ministry of Education

and promoted yearly via a circular sent to all schools in Greece.

As the programme expanded, it was realised that there were not enough people to make all of the presentations that were wanted and a new method of getting the message out to the schools was devised. The method chosen was in the form of a portable education kit, 'The Turtle Briefcase', created in 1990 (Kremezi-Margaritouli, 2000). This kit was designed to illustrate more general environmental topics, but using the sea turtle as the flagship species. It was the first travelling kit on environment and nature used in Greece, a pioneering work that has subsequently been followed by other organisations. The kit, still used around Greece today, contains slides and associated text, a small photographic exhibition and instructions for the teacher (Kremezi-Margaritouli, 1996).

In 1993 another Briefcase was added to ARCHELON's repertoire, 'Life on the Coast', which was designed to demonstrate to school children the function and value of coastal ecosystems (remember Greece has 15,000km of diverse coastline with many subject areas that can be used to stimulate and raise awareness with the children). Finally, in 2001 our latest portable education kit was produced: 'Fishermen and Turtles' (Kremezi-Margaritouli, 2003). This kit describes the historical significance of fishing and how fishing activities are related to the turtles, through incidental captures for instance. The aim is to encourage acceptance of the turtles as an important part of the marine ecosystems that need our protection.

In addition to our education kits, ARCHELON has other educational 'tools' aimed at children. We have a simple wooden turtle puzzle, a table game and a colouring book, each being adopted by the Ministry of Education, and, in the case of the table game, being purchased for distribution to schools around Greece. In very simple ways these items teach children about turtles, their nature and the problems they are facing in Greece. Aside from these portable education kits, ARCHELON has three education centres around Greece that host thousands of school children every year. The first of these centres is our Rescue Centre (Kremezi-Margaritouli, 1998). Daily, in term time, the centre welcomes pre-arranged parties of school children who receive a live presentation on turtles and the environment, watch some videos on sea turtles in Greece and finally have the opportunity to see some of the turtles that are normally present in outdoor tanks.

The second Centre is based in Lakonikos Bay, at The Environmental Centre of Evrotas, which was an old school donated by the local Municipality and renovated by ARCHELON. Bus loads of school children visit each winter to be

given a live presentation, a multimedia presentation and a trip on the sand dune nature trail. The nature trail, running through the important coastal dune system, has signs and information boards explaining the ecology of dune systems and identifying key species of dune plants. This information is supplemented by a live commentary provided by ARCHELON staff as the party progresses along the trail.

The third Centre is based in Kyparissia Bay at The Environmental Centre at Agiannaki. It is an old railway station, donated by the Railway Service of Greece and renovated by ARCHELON. Again, parties of school children or other groups arrive for pre-arranged visits to receive a live slideshow presentation on sea turtles and the environment. (See colour plates). They are then taken on a guided tour of the coastal forest system and low beach dunes that are common, but threatened, in the area.

Raising awareness

When ARCHELON first started working on the beaches it soon became clear that people (visitors and locals) needed to be informed about the presence and predicament of sea turtles. Environmental organisations and agencies knew relatively little about the turtles, so how was a tourist on holiday for a week expected to know anything! Thus, in 1987, ARCHELON opened its first seasonal information station at Laganas on Zakynthos. By the mid-1990s all ARCHELON's projects were using seasonal information stations as outlets at the major nesting beaches. Leaflets are distributed by the hundred and promotional items are acquired by interested parties in exchange for small donations.

This reactive approach, though very valuable, is not sufficient, so ARCHELON is also proactive in its campaign to raise awareness. Project volunteers patrol the beaches during the day, offering information to beach users on the turtles and inviting them to attend one of the regular slide shows held in key hotels and camp-sites in the area, so that they may learn even more about the sea turtles. Other 'one off' events that are used to raise awareness are the public release of rehabilitated turtles. Generally the local media become involved, school parties attend and, on one occasion in 2002, we were fortunate to have the Greek Ecumenical Patriarch involved in a turtle release on Crete.

Another resource in ARCHELON's drive to raise awareness is the Rescue Centre itself. Not only is it a place where turtles can recuperate and be rehabilitated for release back to the wild, and a cornerstone in ARCHELON's environmental education programme, but it also functions as a Visitor Centre, open every day of the week, for people to come and learn about turtles, raise their environmental awareness, and to see some of these fascinating creatures in the flesh. Children and adults alike are impressed when they see one of these huge and ancient creatures swimming round, surfacing to breathe with a loud rasp of air. The unsightly injuries the turtles often bear, together with the stories told of what happens to the turtles in the wild, reinforce each other in the minds of the visitors so that they leave with memories that may change perspectives and habits, as well as developing compassion for nature protection.

Lastly, in 2003, through an ongoing LIFE Nature project, ARCHELON developed a 3-part mobile exhibition on the themes of 'Mediterranean Sea, Fisheries and Sea Turtles'. This exhibition is installed at important environmental events around the country, and also erected in public places in fishing communities and other places where turtle interactions occur. There is always a trained ARCHELON representative in attendance to provide further information on the subjects other than what is presented, who tries through discussions to encourage respect for turtles and their environment.

Special projects – Impact of fisheries on turtle populations and collaborations with fishermen

ARCHELON recognises the significant impact of fishing activities on turtle populations. Our aim is to sensitise fishermen to be respectful of turtles and nature in general. Since 1989 ARCHELON has undertaken five projects in collaboration with fishermen to learn the impact fishing has on turtle populations in different areas of Greece. Our first project was undertaken in Lakonikos Bay. Local fishermen working together with ARCHELON personnel recorded sea turtle captures from trawls and beach seines over the 8-month winter fishing season. Forty-four turtles were captured that winter on the monitored vessels, 38 loggerheads and, surprisingly, six immature green turtles (Margaritoulis et al, 1992). In 1997 a follow-up 3-year collaborative project was started, during which incidentally caught animals were recorded, tagged and released.

The second main aim of the project was to raise awareness amongst the fishermen in order to reduce deliberate killing of turtles. Deliberate injury of

turtles is a major cause of turtle strandings, and accounts for a large proportion of turtles admitted to ARCHELON's Rescue Centre. The third project ran from 1998 to 2001 as part of the LIFE Nature project in southern Kyparissia Bay. Again, local fishermen were contacted for cooperation in collecting data concerning sites and number of captures. At the same time, the fishermen were persuaded to stop deliberate harming of turtles. Over the project period almost 60 turtles were captured in trawls and gill nets, several of them having been previously tagged after nesting on the nearby beaches (Teneketzis et al, in press).

The fourth project from 1999 to 2000, the 'European Marine Turtle Project', was an EU cofunded collaboration between France, Greece, Italy and Spain using standardised methods to record incidental turtle captures by surface long-line and trawl fisheries. The aim was to quantify the impact of the two fishing methods on sea turtles. ARCHELON undertook the task to research the impact of trawling on sea turtles in Greece. On-board observers from three major fishing ports observed 674 hauls. From all these hauls only four turtles were caught (three loggerheads and one green). They were all immature and in good health, and were released back to the sea after being tagged and measured. Though the captures are small in number, if extrapolated then this equates to several hundred turtles captured in Greece per year (Margaritoulis et al, 2003).

The final project 2001–2003 (part of LIFE Nature project coordinated by the local Development Agency ETANAM) was based in Amvrakikos Bay (NW Greece), an important Ramsar site featuring extensive wetlands, lagoons and also an important foraging area for loggerhead turtles. Once again, contacts and interviews were made with fishermen to ascertain the level of the fisheries/turtle interaction in the bay and the attitudes of the fishermen to the turtles. Good cooperation was made which has resulted in setting up a turtle first aid station and exhibition at one of the fishing ports.

Special projects – Turtle telemetry

In 2002 ARCHELON gained its first experience with the high-tech world of turtle telemetry. Tagging turtles on their flippers, as done by ARCHELON since its inception, gives us information on turtles' whereabouts when they are next seen, but provides no information about their life between the two sightings. Satellite tags are glued to the turtle carapace and can send information whenever a turtle is at the surface and a satellite available (colour plate II). With the remote

sensing technology of the Argos satellite data collection system, ARCHELON has been able to track the movements (and non-movements!) of turtles anywhere in the Mediterranean, in near real-time, without the need of third party assistance.

Only one turtle in 18 years of conventional flipper tagging in Zakynthos and Kyparissia Bay has been found near the coasts of either Libya or Syria (Margaritoulis et al, 2003). However, one satellite-tracked turtle from NW Greece headed straight to Syria before travelling north and west along the Turkish coast, while another turtle released from our Rescue Centre made a beeline for the coast of Libya (Rees and Margaritoulis, in prep). Clearly, satellite tagging has the potential to give novel and detailed positional information that we have so far been unaware of. We intend to deploy transmitters on nesting turtles during 2005 to follow their progress, thus getting a much better picture of their range and behaviour.

Special projects – Sea turtle nesting survey in Syria

In 2004, ARCHELON, in cooperation with Tishreen University, Syria, had the exciting opportunity to undertake some baseline turtle work in Syria. This was the first time ARCHELON has ‘exported’ its expertise in a joint project. Prior to 2004 the last available record of sea turtles in Syria came from a spot survey undertaken in 1991. That survey revealed that on the whole 183km Syria coast only one beach, south of Lattakia City, showed significant turtle nesting, with 29 tracks being observed. All were thought to be loggerheads’ (Kasperek, 1995). Syrian scientists had no more nesting information, but reported loggerhead capture in nets. ARCHELON carried out a two-month monitoring project of the single known loggerhead nesting beach to quantify nest numbers and prevalent threats, and they conducted further spot surveys of Syria’s other beaches. This project was supported by the Marine Conservation Society Marine Turtle Fund. Flipper tags and their applicators were purchased thanks to a BCG Grant.

The results of the monitoring far exceeded everybody’s expectations. We found a few loggerhead nests, so it was encouraging to learn that they are still nesting there. However, far more importantly, we discovered a major rookery for the Mediterranean green turtle, a population that is listed by the IUCN as Critically Endangered. The two months of surveys recorded over 100 green turtle nests on 12.5km of beach in a year, which by all accounts was a good but not record year for Mediterranean green turtles elsewhere (Rees et al, in press). Apart from the obvious difference in tracks made by loggerhead and green turtles on the nesting

beaches, species confirmation was made by observing turtles at night as they came ashore and nested. These nocturnal observations proved the turtles to be greens and provided opportunities to tag six individuals (Rees, this issue!) to have a chance of discovering where they may go after nesting.



Searching for
green turtle eggs,
Syria, 2004.
*Photo by Alan
Rees/Archelon*

Incidental to the surveying work, a leatherback turtle (*Dermochelys coriacea*) was captured by fishermen during the project period. This turtle was photographed and returned to the sea alive. Investigations showed that this was the first leatherback to be recorded in Syrian seas (Rees et al, 2004). Since the close of the initial project local scientists have continued conservation and monitoring activities, dealing with fishermen and tagging turtles accidentally caught in their nets. As consultants, ARCHELON will return again to Syria in 2005, ensuring application of the most effective conservation measures and reliability of information obtained.

Special projects – At-sea tagging programme

Our turtle telemetry investigations in Amvrakikos Bay provided the opportunity to practise the rodeo technique for capturing turtles in shallow seas. This basically involves jumping from the boat onto the turtle and then man-handling the objecting turtle onto the boat for measuring and tagging. Both male and female turtles were encountered in such numbers that it was decided to initiate (in 2004) a flipper tagging programme specifically designed for at-sea turtles in the area.



Catching a turtle to tag, Amvrakikos.
Photo by Giannis Rousopoulos/ Archelon



Catching a turtle to tag.
Photo by Michi Jancsy.

This important new project will provide vital information on utilisation of the bay by turtles, including size of the turtle population and residency times for individuals. It will provide information on movements of male turtles, something that is poorly known at the moment since hitherto only nesting females have been tagged. It will provide growth rates for wild turtles as they are repeat-captured after periods of time. Furthermore, our presence in the area two or three times over the summer, combined with the establishment of a First Aid Station there, will help raise awareness of the turtles and consequently reduce the

number of injured turtles and improve survival chances for those that are injured.

Special projects – Sand dune restoration

In the last few decades, engineering works on the Evrotas river channel (Lakonikos Bay), coupled with conversion of sand dunes and coastal wetlands into agricultural fields, plus road construction, afforestation and sand extraction have caused significant erosion and beach regression in the area. Responding to this situation, ARCHELON, in collaboration with local authorities, launched a pilot project in 1997 to restore the dunes, the first project of its kind in Greece (Irvine et al, 2002). Different kinds of sand trapping fences were tried and portable wooden paths were constructed to reduce dune erosion at beach access points. Regular monitoring of the fences showed high rates of sand accumulation, up to 50cm in the first year, and when a suitable dune profile was obtained, native marram grass was planted to stabilise the sand. This restoration project is a work-in-progress. The sand trapping fences are monitored and grasses planted where appropriate in our continuing efforts to restore the damaged dunes.

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