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Guest Editorial: Twenty Years of Action

by Vangelis Paravas

International News

including: Know your flagship from your keystone

Caribbean News

including: Extinct monk seal tells of once-teeming Caribbean reefs

Hawaiian News

including: Protection turns to volunteers

Mediterranean News

- including:
- <u>Greece</u> Monk seal massacred in the Cyclades
- Mauritania & Western Sahara
 Productivity remains high at Cabo Blanco
- <u>Turkey</u> Badem wanders freely in Gökova Bay

<u>Cover Story:</u> The changing face of marine litter

by Constantinos Triantafillou

In Focus: Orphan Returns to 'Mother' Sea... but researchers are still waiting for her call

by William M. Johnson

<u>Monachus Science:</u> So many seals, so little time: The rapid extinction of the Caribbean monk seal

by Kyle Baker

Letters to the Editor

including: Question mark over monk seal pup in Turkey?

Recent Publications

Publishing Info



Cover Story: Marine litter; a great and growing threat



In Focus: Viktoria: Still waiting for your call



Monachus Science: Caribbean extinction

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Guest Editorial



Home

Twenty Years of Action

by Vangelis Paravas

MOm – twenty years of action. A flashback that reminds me of the course all of us in MOm have followed, contributing to the development of the organisation, conducting research activities in the field and weighing up the results. Everyone who currently works and actively supports MOm has his or her own personal staring point in this long effort. Some of us have been involved from the beginning, and the very first formation of the organisation, whilst others – like me – were just children twenty years ago. However, in MOm we all share a common goal: the effective protection and conservation of the natural environment.

I started my collaboration with MOm in 2003, at the isolated and "virgin" island of Kimolos. As a field biologist, I was very enthusiastic about the prospect of studying and protecting this critically endangered and magnificent marine mammal, the Mediterranean monk seal.

Because it is one of the rarest animals in the world, very few

people have the opportunity to observe them in the wild. My very first encounter was an experience I'll never forget. It took place during my first field training course on monitoring techniques, with MOm's research team on Kimolos Island. It was mid-summer, a period when monk seals are mostly away from their shelters, the sea caves. I was just a "rookie" being instructed to enter silently and cautiously into the dim marine caves and solely depend on smell and hearing to detect the possible presence of a *Monachus monachus*. Suddenly, two weaned seals popped out of the blue, swimming two to three meters away from me. Both were curious about my presence and were observing me from a safe distance, swiftly glancing at each other and then turning again towards me in a very communicative way. I was completely stunned, bound up with this unique scene in front of me. The whole event lasted less than a minute, and the two youngsters quickly vanished into the deep, leaving me floating with a dreamlike dazzle.

A new underwater world was laid bare in front of me on that day. At those, my first steps with monk seals, MOm had just turned fifteen years old, a "milestone" that clearly showed me the achievements and results accomplished at that point. This motivated me to shift my own perspective towards collective actions on matters that concern us all, especially the protection of the natural environment.

Five years later, I realise the mounting difficulties in accomplishing such a task, yet the enthusiasm I had back then still remains undiminished – not only for the wonders of monk seals, but also for the non-stop conservation effort that we undertake at MOm, illustrated by achievements in the past, but mostly in what is yet to come.

Vangelis Paravas, May 2007.

Vangelis Paravas was appointed President of the Board of Directors of Mom/Hellenic Society for the Study & Protection of the Monk Seal on 24 February 2008.





Reversible absence

The government of the Balearic Islands, Spain, has published a lavishly illustrated, 150-page book dedicated to the Mediterranean monk seal. Written by Joan Mayol, of the Endangered Species Service of the government, the edition covers the history of the species among the islands, its persecution and decline, and the steps that have been taken to encourage its return, including the establishment of the Cabrera National Park.

The edition is published in four languages: Catalan, Spanish, English and German.

Thanks to the author and publisher, a PDF version of the book is being made available for download from the TMG Library [see 'Further information' below].

In introducing the book, the Conseller de Medi Ambient, Miquel Àngel Grimalt Vert, notes that attitudes towards monk seals and the natural environment have changed radically since the species became extinct in the islands. "The people who, at a quite different moment in history from the present, killed the last of the seals were in all



likelihood the object of the admiration of their contemporaries," writes Grimalt Vert. "Nowadays, the opposite would be true: the social scale of values has been completely reversed, and we see in this animal a magnificent, living symbol of the integration of nature in the Mediterranean in all its grandeur. This is why it is important to make all possible contributions to the recovery of this species, increasing even further the interest and the attention given to it in the Balearics, and facilitate its return to waters from which it should never have been expelled. Let us hope, as the title of the book suggests, that this truly be a reversible absence!"

Those wishing to obtain a hardcopy of the book can do so by contacting the publisher, Baltar, by email at <u>baltar@baltaredit.com</u>. The cost is €15.- plus delivery.

Further information

Mayol, Joan. 2008. El vell marí, una absència reversible. The monk seal, a reversible absence. Conselleria de medi ambient del govern de les Illes Balears. In Catalan, Spanish, English and German: 1-51. [PDF 26.1MB]

Happy 21st

With this, the May 2008 issue, The Monachus Guardian is 10 years old, and this is our 21st issue. We published the first edition in May 1998 [TMG 1(1): 1998], under the imprint of IMMA (International Marine Mammal Association). Though slim by today's standards, the issue reported from Sardinia where determined efforts were underway to sell the image, if not the actuality, of monk seal conservation to summer tourists; from the site of an oil spill in Turkey; and from an international monk seal workshop in Monaco.

Over the years, thanks largely to the efforts of researchers, campaigners, and volunteer correspondents throughout the current and former ranges of the monk seals, we have expanded the scope and coverage of The Monachus Guardian considerably.

On average, TMG has been visited this year by over 4,500 unique visitors per month (not including those who download PDF versions for onward distribution by intranet and online libraries).

Sponsors have included IMMA, IFAW, the Bellerive Foundation of the late Prince Sadruddin Aga Khan, WWF International, the Humane Society of Canada, and currently, the Government of the Balearic Islands and Piraeus Bank.

Know your flagship from your keystone

Everyone has come across them somewhere, be it in the media, a grant request or an NGO leaflet. Yet confusion abounds regarding the correct definition of – and what constitutes – a "flagship" or "keystone" or "priority" or "indicator" species.

WWF International has published its own definitions on its <u>web site</u>, and even if the explanations offered may not necessarily be shared by everyone, and may even occasionally muddy rather than clear the waters ("Flagship species may or may not be keystone species and may or may not be good indicators of biological process"), this page might help the cause of accuracy.

Applying the WWF definition, the Mediterranean monk seal is definitely a "flagship" species... or is it an "indicator" species? Comments and contradictions to editor@monachus-guardian.org.

Captive Breeding

Those who have followed the on again, off again monk seal captive breeding debate over the years, may wish to consult WWF International's 2007 Captive Breeding Policy Statement.

The Statement seeks to define the potential uses of captive breeding as a conservation tool, and although noting its merits in certain cases and with certain species, cautions that it should be a strategy of last resort:

"WWF considers captive breeding of rare, threatened, or endangered species, with the aim of eventual reintroduction to the wild, to be a "last resort" strategy. It is exceedingly difficult and must be part of a scientifically-based management plan for the species, working closely with the range country government authorities. It is also expensive, and should not be seen as a substitute for insitu efforts, except in rare circumstances. Captive situations may interfere with the behavioural development of animals by removing them from natural predators and prey. Furthermore, having captive populations of animals does not solve underlying problems of habitat destruction, which are often one of the key causes of the species' decline."

Captive breeding of Mediterranean monk seals has twice been defeated (in 1990 and 1994 respectively) in international campaigns spearheaded by the Bellerive Foundation and IMMA.

As far as we are aware, only one group in the Mediterranean currently incorporates captive breeding of the species in its long-term contingency planning.

Further information

WWF. 2007. Captive Breeding - WWF Policy Statement 2007.

Johnson, William M., and David M. Lavigne. 1994. Captive Breeding and the Mediterranean Monk Seal – A Focus on Antibes Marineland. International Marine Mammal Association Inc., Guelph, Canada: 1-44. [PDF 700KB] Johnson, William M., and David M. Lavigne. 1998. The Mediterranean Monk Seal. Conservation Guidelines. Multilingual Edition. International Marine Mammal Association Inc., Guelph, Ontario, Canada: 1-152. [PDF 72955KB]

Precautionary principle

In what might be viewed by many as an essential precursor to captive breeding considerations, IUCN released in 2007 its Guidelines for applying the Precautionary Principle to Biodiversity Conservation and Natural Resource Management.

"The Principle," says IUCN, "is based on the recognition that a false prediction that a human activity *will not* result in significant environmental harm will typically be more harmful to society than a false prediction that it *will* result in significant environmental harm."

The precautionary principle, or variants of it, has already found its way into various conservation mechanisms or conventions, including the 1992 Rio Declaration and CITES.

Besides discussing its importance in various aspects of conservation, sustainable development and in human attitudes towards the natural world, the Guidelines also provide advice on how the precautionary principle may be integrated into policy framework and action.

Further information

IUCN. 2007. Guidelines for applying the precautionary principle to biodiversity conservation and natural resource management. As approved by the 67th meeting of the IUCN Council 14-16 May 2007. [PDF 194 KB]

Publications Watch

We take the opportunity of alerting our readers to the following publications, on protected area management marine biodiversity and broader conservation issues.

IUCN. 2007. European Newsletter. Marine biodiversity, vol. 13 (2007): 1-16. [PDF 2848KB].

Includes an overview of the EU-funded project seeking to mitigate seal-fishery interactions in Greece, by Spyros Kotomatas of MOm, and "New Initiatives for the Monk Seal," by Hemmo Muntingh, Senior Policy Advisor of IFAW, on an international framework for monk seal conservation.

IUCN. 2007. Protected Areas and Spirituality: Proceedings of the First Workshop of the Delos Initiative: 1-327. [Info]

The Delos Initiative focuses on the sacred natural sites in developed countries throughout the world, including Europe and the USA. Its main purpose is to help in maintaining both the sanctity and the biodiversity of these sites, through the understanding of the complex relationship between spiritual/cultural and natural values. This publication includes all presentations made at the First Workshop of the Delos Initiative, which took place in Montserrat in 2006. All speeches delivered and case studies presented at the workshop have been included, as well as conclusions and lessons learned.

IUCN. 2007. Economic Valuation of Large Marine Ecosystems. Report from the IUCN workshop, July 29-30, 2007: 1-18. [PDF 132KB]

Discusses the methods, advantages and pitfalls, of valuating marine ecosystems for the purposes of conservation and sustainable development.

MEDPAN, IUCN, UNEP. 2007. Port-Cros Declaration, 26 October 2007: 1-3. [PDF 132KB]

Experts attending the First Conference of the Network of Marine Protected Areas in the Mediterranean (MedPAN), held at the Port-Cros National Park in France in October 2007, adopted the Port-Cros Declaration, calling for swifter action to create a coherent, representative, and effectively managed network of MPAs in the Mediterranean Sea by 2012 to halt loss of biodiversity and to meet conservation targets. The Declaration was signed by 110 field experts and protected area managers, as well as IUCN, WWF and







the Regional Activity Centre for Specially Protected AreasRAC/SPA. Proceedings of the conference are available at www.medpan.org.

MEDPAN, RAC/SPA, IUCN, WWF. 2008. Supporting the development of a representative, effective network of MPAs in the Mediterranean Sea, Almería, 16 January 2008: 1-50. [PDF 2.8MB]

Among other pressing issues, the Almería Conference proceedings ponder the current status of MPAs in the Mediterranean Sea, and recommendations for future action.



Nature Conservancy. 2007. A quick guide to conducting marine ecological gap assessments. A quick guide for protected area managers: 1-21 pages. [PDF 1.2MB]

EndQuote

Earth losing 3 species an hour, UN says

OSLO – Human activities are wiping out three animal or plant species every hour and the world must do more to slow the worst spate of extinctions since the dinosaurs by 2010, the United Nations said Tuesday. [...]

"Biodiversity is being lost at an unprecedented rate," UN Secretary-General Ban Ki-moon said in a statement. Global warming is adding to threats such as land clearance, pollution and rising human populations.

"The global response to these challenges needs to move much more rapidly, and with more determination at all levels," he said.

Many experts reckon the world will fail to meet the goal set by world leaders at an Earth Summit in 2002 of a "significant reduction" by 2010 in the rate of species losses.

"We are indeed experiencing the greatest wave of extinctions since the disappearance of the dinosaurs," said Ahmed Djoghlaf, head of the UN Convention on Biological Diversity. Dinosaurs vanished 65 million years ago.

"Extinction rates are rising by a factor of up to 1,000 above natural rates. Every hour, three species disappear. Every day, up to 150 species are lost. Every year, between 18,000 and 55,000 species become extinct," he said.

"The cause: human activities." [...]

The World Conservation Union also said that one in every six land mammals in Europe was under threat of extinction, including the Iberian lynx, Arctic fox and the Mediterranean monk seal. [...]

Earth losing 3 species an hour, UN says, Alister Doyle, Reuters/Vancouver Sun May 23, 2007.

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The Monachus Guardian

Caribbean News



Review concludes Caribbean monk seal is extinct

A just-published U.S. status review has concluded that the Caribbean monk seal is extinct, and that sightings reports that have generated much intrigue and hope in recent decades are likely to have been of other species than *Monachus tropicalis*.

In this issue of Monachus Science, the Guardian is publishing an article based on that 5-year review, by Kyle Baker, Fishery Biologist at NOAA/NMFS: <u>So many seals, so little time: The rapid</u> extinction of the Caribbean monk seal.

The US Marine Mammal Commission has endorsed the review's conclusion, adding that it "recommends, with regret, that the National Marine Fisheries Service proceed with steps to remove the Caribbean monk seal from the Endangered Species Act's List of Endangered and Threatened Wildlife on grounds that the species is now extinct."

NMFS is currently preparing to publish a proposed federal rule to that end.

Further information

NMFS. 2008. Endangered Species Act 5-Year Review for the Caribbean Monk Seal (*Monachus tropicalis*). National Marine Fisheries Service Southeast Regional Office, St. Petersburg, Florida, March 7, 2008: 1-20. [PDF 255KB]

Marine Mammal Commission. 2008. The biological viability of the most endangered marine mammals and the cost-effectiveness of protection programs. The Marine Mammal Commission's Report to Congress, February 2008: 1-448. [PDF 25.5MB]

Extinct monk seal tells of once-teeming Caribbean reefs

PARIS (AFP) - Several hundred years ago, the coral reefs of the Caribbean had up to six times more fish than they have today, according to a study published Wednesday.

The estimate is made by US scientists poring over the fate of the Caribbean monk seal, a fishloving mammal driven to extinction in 1952.

Historical records from the 17th and 18th century show there were huge numbers of monk seals, distributed among 13 colonies across the Caribbean.

They were so plentiful that some ships' maps of the West Indies even noted particularly dense locations of seals.

Alas for *Monachus tropicalis*, colonisation of the West Indies unleashed unbridled hunting, the bounty being seal oil that was used to grease machinery in sugar plantations.



Towards the end of the 19th century, the seals were reduced to a final redoubt of a few atolls - and their worst enemy became natural history museums and private collectors keen for monk seal skeletons.

In one disastrous episode, a 1911 expedition to Mexico by natural-history enthusiasts killed 200 seals, leaving just a handful alive, and driving the depleted population further towards extinction.

In a study published on Wednesday in the British journal Proceedings of the Royal Society B, oceanographers Loren McClenachan and Andrew Cooper perform a heroic act of biostatistics in recreating the life and sad demise of the seal.

They calculate that, before the massacre, between 233,000 and 338,000 monk seals lived in the Caribbean. Such a huge population could only survive, of course, provided there was a huge supply of food.

At a rough estimate, each adult seal would eat 245 kilos (539 pounds) of fish per year, and a juvenile seal 50 kilos, say McClenachan and Cooper.

"The biomass of free fish required to sustained the estimated population of historical monk seals is four to six times greater than the average Caribbean reef, which exceeds that found on the most pristine Caribbean coral reef today and is in the same range of the most pristine reefs" in the remote Pacific, their paper says.

The study gives a crucial pointer about the pace of degradation of Caribbean coral reefs, where the biggest problem has been overfishing.

"Realistic construction of these past ecosystems is critical to understanding the profound and longlasting effect of human hunting on the functioning of coral reef systems," they write.

Extinction of the monk seal also had a huge knock-on effect across the Caribbean's food web. Removal of a major predator allowed some species of fish to expand at the expense of others, eventually transforming the picture of biodiversity.

Caribbean Net News, 19 March 2008, <u>Extinct seal tells of once-teeming Caribbean reefs</u>.

Further information

McClenachan, Loren and Andrew B. Cooper. Extinction rate, historical population structure and ecological role of the Caribbean monk seal. 2008. Proceedings of The Royal Society B – Biological Sciences: 1-8. [Abstract]

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Hawaiian News



The <u>Marine Mammal Commission</u>'s Annual Report to Congress for 2006 was published in October last year. For those interested in current Hawaiian monk seal population trends, human and natural threats to the species, and the efforts now underway to stem the species' continuing decline, the MMC report is an indispensable guide.

The report is available for download directly from the MMC:

Marine Mammal Commission. 2007. Annual Report to Congress 2006. Marine Mammal Commission, Bethesda, Maryland: 1-208. [PDF 52.6MB]

Viability and cost-effectiveness of protection

Another recently-published Marine Mammal Commission report addressed to Congress discusses the biological viability of the country's most endangered marine mammals, and also the cost-effectiveness of programmes implemented to conserve or protect them. Species covered include the Hawaiian monk seal, *Monachus schauinslandi*, and the Caribbean monk seal, *Monachus tropicalis*.

Marine Mammal Commission. 2008. The biological viability of the most endangered marine mammals and the cost-effectiveness of protection programs. The Marine Mammal Commission's Report to Congress, February 2008: 1-448. [PDF 25.5MB]



MonkSealMania.blogspot.com

Reflecting a growing public interest in Hawaii in the fate of the monk seal, and new blog devoted to the species has been set up at <u>www.monksealmania.blogspot.com</u>. The site airs news, comment and opinion on seal issues on the Main Hawaiian islands, acting as a focal point for sightings and protection activities by volunteers.

Protection turns to volunteers

Under increasing pressure to deliver tangible conservation results for a species still tail-spinning into extinction, NMFS is spearheading a raft of measures to stem the decline and promote recovery.

Aside from other key activities, some of which are reflected in our Press Watch below, or discussed in the Marine Mammal Commission reports above, one priority is to engage more Hawaiian residents in sightings and population surveys, thereby gathering vital information on the species while enhancing public awareness and providing monitoring and protection for hauled-out seals.

For those interested in participating, volunteer information can be found at the following sites:

Various locations

Hawaii International Year of the Reef: <u>http://www.iyor-hawaii.org/2008/02/25/monk-seal-volunteer-orientations-various-locations/</u>

MonkSealMania: www.monksealmania.blogspot.com

Monk seal volunteer opportunities on O'ahu http://raisingislands.blogspot.com/2008/02/monk-seal-volunteer-opportunities-on.html Monk seal volunteer counts on Kauai http://savekauai.org/thrid-annual-monk-seal-count

Management explained for Papahanaumokuakea

The second issue of the Papahanaumokuakea Marine National Monument newsletter, published in February, outlines the protected area's management plan, and explains recent changes in the permit application process.

PMNM. 2008. Monument management plan update 2. Ka Palapala Ho'omaupopo, February 2008 [PDF 1700KB]

Press Watch

Objections to Monk Seal as State Animal

Several [Hawaii State Legislature] bills dealt with banning cruelty to animals, eating pets and hoarding large numbers of animals. A bill that would make the Hawaiian monk seal the state land mammal brought objections by Sen. Slom. He produced a poster of the Hawaiian hoary bat, which is Hawaii's only native land mammal. In contrast, the monk seal is a pinniped, a species of marine mammal. (Hawaii Reporter, 3 May 2008).

http://www.hawaiireporter.com/story.aspx?fce89197-87b1-448a-99da-8ec981f2abf3

Biologists look for ways to protect monk seals from sharks

HONOLULU (AP) Federal marine biologists have received state approval to begin testing nonlethal ways of protecting Hawaiian monk seal pups from sharks in the Papahanaumokuakea Marine National Monument.

The biologists are expected to try magnets and boat engine recordings to deter the sharks. They also plan to use visual arrays made of PVC tubing, fishing floats or foam 'noodles'.

George Antonelis of the National Marine Fisheries Service says the experiment would be the first of its kind.

Officials say attempts to reduce the number of sharks using a controversial culling program have been unsuccessful.

The Hawaiian monk seal population is estimated between 11 and 12-hundred, the lowest number in recorded history. [...]

The state Board of Land and Natural Resources granted the permit for the shark-deterrent experiments Friday. The experiments are planned for May through September, the pupping season. [...] (Associated Press, 27 April 2008)

http://news.aol.com/story/_a/biologists-look-for-ways-to-protect-monk/n20080427004309990009

Monk seals face 'dire straits' Volunteers sought to collect data, educate public about species

Long before the first speck of land that would become the Big Island of Hawai'i ever appeared above sea level, Hawaiian monk seals by the thousands were swimming those Pacific waters.

Today, the mammals are on their way to extinction.

"This is a very critically endangered species," said David Schofield, regional marine mammal response coordinator for the National Oceanic and Atmospheric Administration Fisheries. "They are in dire straits."

Schofield coordinated the monk seal count efforts yesterday of some 500 volunteers who scouted beaches across the state. The count is a pilot project that began with the first count last April, another in October, and the third yesterday. The initial count was 41 sightings, the second 26, and yesterday's preliminary count was 24. (Schofield believes the tally will be greater as more numbers come in this week.)



In addition to the count, the exercise is part of a concerted effort to raise awareness about the plight of the seals and drum up volunteer support.

Gov. Linda Lingle issued a proclamation making April 19, 2008, Monk Seal Day, pointing out that according to NOAA, "a sustained population of 2,900 (monk) seals is required for the species' recovery."

And that population, according to Schofield, needs to be maintained for two decades in order to move monk seals out of the endangered species category. Sadly, he said, the seals are declining at the alarming rate of about 4 percent a year, and their population has dwindled to about 1,100 in the Northwestern Hawaiian Islands, with an additional 80 to 100 here in the main Hawaiian Islands — putting the population well below half the number needed to keep the species alive.

State Rep. Kymberly Pine, who was among the seal watchers on O'ahu yesterday, has also tried to raise awareness and educate the public about the crisis by introducing two bills that would make the monk seal the state mammal as well as make the third Saturday in April a permanent Monk Seal Day.

Pine, R-43rd ('Ewa Beach, Iroquois Point, Pu'uloa), said she got involved when she discovered that many residents and visitors are unaware of the existence of monk seals in Hawai'i.

"And a lot of them are not aware that monk seals are in huge decline," said Pine as she walked the beach off Diamond Head, with Schofield and volunteer NOAA Monk Seal Response Team members Senchal Chai and Chelsea Dudoit. "We've got about 1,220 monk seals now. But they think that in about five or six years, that will drop to around 1,000."

Compounding the problem have been horror stories, she said - such as the female monk seal that came ashore on the Wai'anae Coast last year snarled in so much fishnet that it died, or the man who actually turned his dog loose on a monk seal recently this year.

Pine, Schofield and the volunteers believe the seal's dismal prospects can be turned around if more people become involved.

"It can't just be me and the other federal agencies trying to recover this species," Schofield said. "It's going to take all of us at the community level to take responsibility over these animals. If we start now, we can save the species."

There are numerous ways people can get involved. Among the simplest is to stop throwing trash and netting on the beaches or in the ocean. More active involvement include staying 150 feet away from any monk seal that's sighted, and to call NOAA Fisheries to alert them to the seal's presence.

"Just calling and letting us know where the monk seals are is important because we know most of them as individuals here on the main islands. And if people send us a picture or a description of the animal, we'll be able to tell which one it is," Schofield said.

Otherwise, he said volunteers are needed to watch over monk seals that are molting sometimes for weeks on the beach to protect them from dogs and other disturbances.

"And if we have a pupping event, people can volunteer to watch over the mom and pup for a total of five to seven weeks. We need volunteers to collect nursing and behavioral data and to educate the public about the mom and pup and why it's important not disturb them."

To report a monk seal sighting, call the NOAA Fisheries 24/7 hot line at 888-256-9840, or on O'ahu, to volunteer or report a seal sighting, call 220-7802. (Will Hoover, Honolulu Advertiser, 20 April 2008) http://www.honoluluadvertiser.com/apps/pbcs.dll/article?AID=/20080420/NEWS14/804200349/1025/LOCALNEWSFRONT

Chester the monk seal is found dead on island

After more than five years of making appearances around the state's beaches, a 'celebrity' Hawaiian monk seal was found dead Wednesday.

Hawaiian monk seal RK15, dubbed Chester, was found dead Wednesday afternoon on Rabbit Island. At about 4:30 p.m. a team of marine mammal experts retrieved the carcass.

Chester was identified through natural bleach marks on his neck and flipper. He was most recently seen on Kailua Beach, where he molted ashore for about 27 days in January.

"This seal raised a lot of public awareness," said David Schofield, marine mammal response coordinator for the National Oceanic and Atmospheric Administration's Fisheries Service.

"It helped to build our volunteer network here on Oahu. We're very disappointed and sad at the loss of this animal." [...]

Schofield said there were no signs of blunt trauma or human interference in the seal's death. Tissue from the seal's body will be sent to labs nationwide for further analysis.

There might be anywhere between 80 and 100 monk seals in the Hawaiian islands. There are about 1,100 in the world today, according to NOAA officials. [...] (Gene Park, Honolulu Star Bulletin, 28 March 2008)

http://starbulletin.com/2008/03/28/news/story04.html

Diary from the middle of nowhere

Our environment correspondent David Shukman is on the remote Pacific island of Midway to report on the threat of plastic rubbish drifting in the ocean. Plastic debris collects around the island, scene of a seminal World War 2 battle, with serious consequences for its wildlife.

On an island far, far away... Anyone missing this little toy, some kind of futuristic space warrior? I found it on a beach during a clean-up operation. It has a lot of miles under its belt - it must have travelled across a great tract of the Pacific Ocean to get here. How do I know? Well, for one thing there are no children on Midway and haven't been for years. Also, it was buried amid a vast tangle of fishing nets, bottles, computers, crates and baskets, all of which had drifted here on one of the world's great ocean currents, the North Pacific Gyre. Like something out of the film Toy Story, this little figure must have spent months at sea, surviving storms and maybe even being swallowed by an albatross and fed to a chick that then died. Who knows? Maybe a child dropped it overboard during a holiday cruise. Or it was chucked into the rubbish and somehow got swept into the sea. Maybe a household in Japan or California was having a spring-clean and, with the children growing up, the toys were no longer wanted. Any ideas? Please let me know. Witnessing a beach clean-up is like peering into a darker side of our throwaway culture.

We talk about 'throwing away' but in reality 'away' can mean a place like Midway. And the cost is grisly. The island is littered with the bodies of albatrosses that haven't made it. Their stomachs are brimming with plastic. Brightly coloured, and similarly shaped to the birds' much-loved diet of squid, the tiny plastic items we use every day often prove lethal. (BBC News, Science/Nature 26 March 2008),

http://news.bbc.co.uk/2/hi/science/nature/7312777.stm

Animal instincts fill Senate

Naming a hoary bat or monk seal as the state mammal. Making it illegal to eat cats, dogs or horses.

Animal issues prowled the state Senate floor yesterday.

Republican Sen. Gordon Trimble accused the Democrats of 'cultural insensitivity' by pushing Senate Bill 3146, which would make it a misdemeanor to consume a cat, dog or horse. [...]

Another Republican, Sen. Sam Slom, tried to get attention for a forgotten state mammal, the Hawaiian hoary bat.

Slom (R, Diamond Head-Hawaii Kai) said SB 2465, which would make the monk seal the state mammal, was confusing because the state has already designated the humpback whale as the state marine mammal and the seal also swims in the ocean.

The bat, however, Slom said is a true Hawaiian land animal and deserved recognition.

"Who speaks for the hoary bat, Madame President? I do," said Slom as he unfurled a poster of the bat named for the frosted color of its hair. Slom then voted for the seal bill, which also was sent to the House. (Richard Borreca, Honolulu Star Bulletin, 5 March 2008)

http://starbulletin.com/2008/03/05/news/story05.html

Why plastic is the scourge of sea life

One cigarette lighter, a toothbrush, a toy robot and a tampon applicator. The list of plastic items recovered from the stomach of a Laysan albatross chick that died on a remote Pacific island reads like a random assortment of everyday household objects.

It is now clear this chick is among many thousands of seabirds that have died from ingesting plastic debris, and nowhere in the world seems to be too isolated for this deadly form of marine pollution.

Dutch scientists have found that more than nine out of 10 European fulmars – seabirds that eat at sea – die with plastic rubbish in their stomachs. A study of 560 fulmars from eight countries revealed they had ingested an average of 44 plastic items. The stomach of one fulmar that died in Belgium contained 1,603 separate scraps of plastic.

Birds are not the only ones to suffer. Turtles, whales, seals and sea lions have all eaten plastic. But the most sinister problem may be a hidden one at the other end of the food chain.

Small sand-hoppers, barnacles and lugworms have also been found to have ingested tiny fragments of plastic, some of which are thinner than a human hair. Apart from the physical damage these particles cause, they may also transfer toxic chemicals to creatures at the base of the marine food web.

It is fairly well established that certain toxins in the ocean, such as polychlorinated biphenyls (PCBs), the pesticide DDT and other potentially dangerous substances, can become concentrated on the surface of plastic debris. [...] (Steve Connor, The Independent, Science, 5 February 2008)

http://www.independent.co.uk/news/science/steve-connor-why-plastic-is-the-scourge-of-sea-life-778017.html

The world's rubbish dump: a garbage tip that stretches from Hawaii to Japan

A 'plastic soup' of waste floating in the Pacific Ocean is growing at an alarming rate and now covers an area twice the size of the continental United States, scientists have said. The vast expanse of debris – in effect the world's largest rubbish dump – is held in place by swirling underwater currents. This drifting 'soup' stretches from about 500 nautical miles off the Californian coast, across the northern Pacific, past Hawaii and almost as far as Japan.

Charles Moore, an American oceanographer who discovered the 'Great Pacific Garbage Patch' or 'trash vortex', believes that about 100 million tons of flotsam are circulating in the region. Marcus Eriksen, a research director of the US-based Algalita Marine Research Foundation, which Mr Moore founded, said yesterday: "The original idea that people had was that it was an island of plastic garbage that you could almost walk on. It is not quite like that. It is almost like a plastic soup. It is endless for an area that is maybe twice the size as continental United States."



Curtis Ebbesmeyer, an oceanographer and leading authority on flotsam, has tracked the build-up of plastics in the seas for more than 15 years and compares the trash vortex to a living entity: "It moves around like a big animal without a leash." When that animal comes close to land, as it does at the Hawaiian archipelago, the results are dramatic. "The garbage patch barfs, and you get a beach covered with this confetti of plastic," he added. [...]

According to the UN Environment Programme, plastic debris causes the deaths of more than a million seabirds every year, as well as more than 100,000 marine mammals. Syringes, cigarette lighters and toothbrushes have been found inside the stomachs of dead seabirds, which mistake them for food.

Plastic is believed to constitute 90 per cent of all rubbish floating in the oceans. The UN Environment Programme estimated in 2006 that every square mile of ocean contains 46,000 pieces of floating plastic.

Dr Eriksen said the slowly rotating mass of rubbish-laden water poses a risk to human health, too. Hundreds of millions of tiny plastic pellets, or nurdles – the raw materials for the plastic industry – are lost or spilled every year, working their way into the sea. These pollutants act as chemical sponges attracting man-made chemicals such as hydrocarbons and the pesticide DDT. They then enter the food chain. "What goes into the ocean goes into these animals and onto your dinner plate. It's that simple,"

said Dr Eriksen. (Kathy Marks, Asia-Pacific Correspondent, and Daniel Howden, The Independent, 5 February 2008)

http://www.independent.co.uk/environment/the-worlds-rubbish-dump-a-garbage-tip-that-stretches-from-hawaii-to-japan-778016.html

Monk Seal Molts on Windward Oahu

A Hawaiian Monk Seal named Chester (named for the scar on its chest) hauled up onto a Windward Oahu beach Jan. 1, 2008.

Two weeks later it had not gone back into the water. Not to hunt for fish. Not even to cool off.

Chester, however, is not sick or dying. Chester is molting.

"The animal will physically shed its skin and fur, so if you watch him long enough, when he scratches you'll see big clumps ... come off his body. This is important. All seal species will shed their fur and skin, and it's to rejuvenate and renew that insulated and protective barriers that seals have," said David Schofield, a marine mammal response coordinator for the National Oceanic and Atmospheric Administration.

NOAA does not want us to disclose Chester's exact location. Too many visitors could disrupt the molting process.

Monk seals are an endangered species. They rarely haul up on the beach where Chester's been for two weeks. In fact, Chester is often spotted in the water off Ewa Beach but not on the Windward side. [...]

Volunteers are giving up their free time to stand guard over Chester. They ask people to leash their dogs and answer questions for curious beach goers.

"People will ask, is it dead? Is it sick. How do you know it's not sick. And I think they associate it with a dolphin or a whale. Do we need to push it back into the water," Donna Festa told KGMB9.

Festa said she did not know too much about monk seals before Chester arrived. Since then she has learned a lot and grown to like her role as Chester's protector. (Brooks Baehr, KGMB9, 14 January 2008)

http://kgmb9.com/main/content/view/3339/40/

Hawaii Land Department Receives U.S. Fish and Wildlife Service Grant to Restore Kure Atoll Wildlife Habitats

The State of Hawai'i's Department of Land and Natural Resources will receive a \$400,000 grant from the U.S. Fish and Wildlife Service's National Coastal Wetlands Conservation grant program to restore approximately 300 acres of wildlife habitat at Kure Atoll State Wildlife Sanctuary. The award is one of 29 grants announced today by the Service for conservation projects encompassing nearly 10,000 acres of coastal wetlands in 11 states and Puerto Rico.

The grant will allow Division of Forestry and Wildlife staff to restore 1 acre of emergent wetland habitat for the reintroduction of the endangered Laysan duck, restore 13 acres of seabird nesting habitat by removing invasive plant species, and remove marine debris from 36 acres of marine intertidal shore habitat and 250 acres of subtidal coral reef habitat. The federal funding will be matched by more than \$150,000 from partners.

Located at the northwest tip of the Hawaiian archipelago within the Papahanaumokuakea Marine National Monument, Kure Atoll provides nesting habitat for 17 seabird species, including four species identified as "highly imperiled" or of "high concern" in the U.S. Seabird Conservation Plan for the Pacific Region and listed as priority species by the North American Bird Conservation Initiative. These four species are the black-footed albatross, Laysan albatross, Christmas shearwater, and Tristram's storm-petrel.

The atoll also hosts the endangered Hawaiian monk seal, threatened green turtle, Hawaiian spinner dolphins, Galapagos and tiger sharks, spotted eagle rays, and large predatory jacks. Despite its northern location and relatively cool waters, Kure has almost 80,000 acres of coral reef habitat supporting 155 species of reef fishes. [...]

Approximately 4,000 pounds of marine debris will be removed from Kure Atoll over the next 2 years with funding from this grant. The endangered Hawaiian monk seal suffers one of the highest entanglement rates of any seal or sea lion species, with 261 monk seals found entangled in debris between 1982 and 2003 across the state. Marine debris also affects sea turtles, seabird species, and other marine mammals. Removing debris such as fishing nets and lines, rings, buckets, and plastic crates from shorelines and coral reefs will help reduce this threat. In addition, marine debris adversely affects coral reef ecosystems by breaking or smothering reefs. [...] (Barbara A. Maxfield, Hawaii Reporter, 4 January 2008)

http://www.hawaiireporter.com/story.aspx?747a8a01-6c26-421a-906f-3f3846e5753e

Monk seal encounter at Pearl and Hermes

On the first dive of the day I was out snorkeling over the benthic teams taking photographs. We were at a back reef site at Pearl and Hermes Atoll just inside the barrier reef in a shallow patch reef area. [...]

To my delight, and then to my shock, I saw a young monk seal ensconced with fishing nets around its neck, trailing thick heavy line over six feet in length. It seemed to want help, coming so curiously close to me, yet fearful and stressed by the object so obviously tight and burdensome. I watched as the monk seal rubbed its body and the net repeatedly against the vertical sides of the rocky reef structure, attempting to free itself from its bondage. It was unknowingly making the situation worse. The netting needed to come off over its head. It looked like an easy fix...but the monk seal kept distance. The 'omilu from the cleaning station showed up with interest in the seal and out of the blue appeared an 'ulua. Both jacks pursued the seal out of sight.



The entangled monk seal. Courtesy: Darla White / www.hawaiianatolls.org

Some of the divers on the benthic team witnessed the monk seal, too. The helplessness we all felt was excruciating. The horror and tragedy of such a fragile species vulnerable to the hundreds of tons of marine debris that finds its way here to the Northwestern Hawaiian Islands should not go unnoticed. The damage by the net was still minimal at this point, but it will get worse and the animal will most likely die, either weakened to predation or from injuries due to the net itself. Our encounter with the monk seal weighed heavy in our hearts and minds, and will forever be etched in our memories. (Darla White, NWHI Multi-Agency Education Project, 5 October 2007)

http://www.hawaiianatolls.org/research/Sept_Oct2007/Seal_debris.php

Big Isle monk seal's fate is unknown

Question: What ever happened to the Hawaiian monk seal that was getting too friendly with swimmers on the Big Island's Kailua-Kona Coast a few years back and was relocated to Johnston Atoll? [see <u>TMG</u> 6 (2): 2003]

Answer: The seal in question, a 300-pound male, was flown to Johnston Atoll in December 2003 after two attempts to relocate it away from people but keep it on the Big Island failed.

Though the then-2 1/2-year-old seal known as RM 34 was outfitted with a radio transmitter, the device never worked after the seal was released, said Thea Johanos, a National Oceanic and Atmospheric Administration wildlife biologist.

The seal has not been spotted since its relocation, and NOAA officials are unsure of its fate because the tracking device does not work.

Since the 1980s as many as nine male Hawaiian monk seals have been relocated to Johnston Atoll, mostly because they have bullied or killed other seals, Johanos said. Because there are no permanent wildlife officials at Johnston Atoll, how many of those seals remain there is also unknown. [...] (Diana Leone, Honolulu Star Bulletin, 15 September 2007)

http://starbulletin.com/2007/09/15/news/whatever.html

Superferry Bad for Hawaii's Sealife?

I was just told that a Superferry official is quoted as saying that since the Superferry has no propellers, it does not pose a hazard to sea life. This person has a bright future waiting if they ever become a state Department of Transportation official. Imagine how this kind of thinking could simplify life for automobile drivers.

Cars and trucks have no propellers, therefore, at speeds up to 42 mph they should pose no hazard to dogs, cats, and little children. No more slowing down in school zones. Cars and trucks are blunt, so kids should be able to bounce right off and be just fine. Wait, that's not fair. School zones are heavily populated, so maybe we should have drivers plow through at 25 mph or so. Residential streets are sparsely populated, though, so cruising along at 42 mph, a dull thud from the occasional dog, cat, child, or monk seal won't be noticed. [...] (Neil Rhoads, Hawaii Reporter, 30 August 2007)

http://www.hawaiireporter.com/story.aspx?3fbc709a-46eb-45e7-a1f0-525ac95a87a0

EndQuote

Rethinking Hawaiian monk seal conservation

SANDY BEACH (KHNL) – Hawaiian monk seals are extremely endangered marine mammals. One dedicated Oahu resident works daily, without pay, to protect the species.

"The one thing that I know about monk seals is, I don't know anything about monk seals, and the more I know, the less I know," said volunteer DB Dunlap.

Source: <u>Hawaiian Monk Seals Protected by Dedicated Volunteer</u>, by Tracy Gladden, KHNL, 3 April 2008.

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Mediterranean News

Home

Croatia / Greece I / Greece II / Madeira / Mauritania & Western Sahara / Turkey

Croatia

New sightings in north and central Adriatic

Another seal sighting has been reported from the area of Svete Stijene near Pula-Verudela in Istria, writes Jasna Antalovic, of the <u>Mediterranean Monk Seal Group</u> (Grupa Sredozemna Medvjedica).

Similar observations were reported previously at Verudela in November 2005 [see <u>Back from the</u> <u>Dead?</u> TMG 8 (2): December 2005] and near Banjola, south of Pula, in September 2007 [see <u>Croatia</u>, TMG 10 (2): 2007].

The latest sighting, caught on video by Mr. Dragan Puseljic, was made on 8 February 2008 at around 17.00 hrs.

A spate of recent monk seal sightings have occurred in the north and central Adriatic, reports Antalovic, whose organisation, Grupa Sredozemna Medvjedica, is collecting data sightings along the Croatian coastline, with its numerous islands and islets (see map).



Greece

Monk seal massacred in the Cyclades

On 27 February 2008, MOm's research team was called to perform a necropsy on a Mediterranean monk seal at Syros Island, in the Cyclades.

The adult female weighed 200 kilos, was 2.20 metres long, and pregnant. The necropsy clearly showed the seal had been shot to death. The bullet had penetrated the lower thoracic cavity into the ventral area, causing internal haemorrhage and eventually, death. The skull of the animal had been skilfully skinned and removed, leaving the facial skin hanging off from the body. There was also a trauma near the seal's genital area. This was most likely caused by a sharp tool, with which the seal must have been dragged either onto a boat or onto the shore, in order to be skinned.



With 20 years' experience in monk seal necropsies the research team had examined deliberatelykilled seals before, but had never encountered such a macabre sight. Regrettably, the culprit was impossible to find, but the case made prominent headlines in Greece, even raising the issue of monk seal protection in the Greek Parliament.

According to necropsies conducted over the past 20 years in Greece, one of the main factors driving monk seal mortality is still deliberate killing, due mainly to competition with fisheries. It is in addressing this factor that MOm and its organisational partners have embarked on the four-year, EU-funded MOFI project, aimed at devising means to mitigate the monk seal and fisheries conflict in Greece.

MOFI project partners

WWF Hellas The National Fisheries Research Institute of Greece Department of Virology, Erasmus University of Rotterdam Department of Zoology, University of Aberdeen

MOFI funding bodies <u>LIFE-NATURE</u> <u>Piraeus Bank</u> <u>Prefecture of Magnesia</u> International Fund for Animal Welfare

The project ends in 2009. For more information, please visit <u>www.mofi.gr</u>. – Calliope I. Lagonika, MOm.

Monk seal Status Report for 2007

Every year, MOm produces a population Status Report on *Monachus monachus* in Greece. Viewed over a 5-year period, the annual results can yield deeper insights into the species' population and its status in Greek waters.

Topics presented in the Status Report include distribution, habitat, biology, population size and trends, as well as limiting factors and threats.

Mediterranean monk seal sightings in 2007 by age group

Age group	Field research activities	RINT			
Newborn pups	17	28			
Subadults	0	55			
Adults	12	98			
Unclassified	0	54			
TOTAL	29	263			

Newborn pups recorded in Greece during MOm's 2007 field research activities

Source of data	Location	Number of newborn pups
	Kimolos-Polyaigos Island	7
MOm research activities	Argolida	1
(monitoring, rescue,	Gyaros Island	7
field research)	Tinos Island	1
	Skopelos Island	1
	Milos Island	2
	Karpathos Island	1
	Kavala	2
Rescue and Information	Evoia Island	2
Network	Zakynthos Island	1
	Kythira Island	1
	Magnesia	1
	Naxos	1
	TOTAL	28

- Calliope I Lagonika, MOm.

Marine Mammal-Fisheries Network Workshop

In order to exchange information on marine mammals and fisheries interactions, in a fast and costeffective manner and amongst a number of experts in various countries, MOm has set up the MMF Network (Network for Marine Mammals and Fishery Interaction). Electronic communications amongst the MMF members is already taking place, while the first workshop of the group took place on 10 May 2008 at MOm headquarters in Athens.

The subjects presented were:

- The MOFI project presentation of the project, by Stella Adamantopoulou, MOm.
- Measuring the extent of monk seal-fisheries interaction in Greece, by Tasos Papadopoulos, Fisheries Research Institute, Athens.
- Monk seal diet study results to date, by Dr. Graham Pierce, University of Aberdeen.
- Monk seals and fisheries the Madeira experience, by Rosa Pires, Parc Natural da Madeira.
- Monk seals and fisheries the Turkish experience, by Dr. Harun Güçlüsoy, SAD-AFAG / Dokuz Eylul University.
- Saimaa seal and fisheries interactions the Finnish experience, by Dr. Tero Sipilä Metsähallitus, Natural Heritage Services, Finland.
- Sea turtles, cetaceans and fisheries the Sicilian experience, by Irene Galande, CTS.
- Monk seals, cetaceans and fisheries the Spanish experience, by Dr. Manel Gazo, SUBMON SettoreConservazionedellaNatura.

- Carreta carreta and fisheries the Greek experience, by Aliki Panagopoulou, Archelon.
- Cetaceans and fisheries the ACCOBAMS experience, by Dr. Giuseppe Notarbartolo di Sciara, ACCOBAMS.

Topics discussed included:

- Use of technical measures in mitigating seal fisheries conflicts (various types of equipment acoustic devices, nets etc.), and effectiveness.
- Compensation (monetary or other) measures for fishermen as a management tool in mitigating seal fishery conflicts.
- Legislative framework, and eventual modifications required to address the problem.
- Involvement of fishing cooperatives and local stakeholders in finding possible solutions to the problem.

The meeting was organized by MOm within the framework of the EU-funded MOFI project. – Calliope I. Lagonika, MOm.

Travelling light in the Mediterranean sea

Picture a group of kids, playing "sea games", turning plain paper into animals, solving crossword puzzles and creating short stories by listening to the sound of rare animals. Can you find a more fun way to raise awareness about the marine environment when your audience is children?

With MOm's brand new environmental education "suitcases", children travel around the wonderful world of the marine ecosystems of the Mediterranean Sea, dive in our planet's oceans and become aware of the threats facing the marine environment today. They also learn ways by which they can protect these fragile ecosystems.

The educational suitcases contain a teacher's guide, an activities guide, loads and loads of games about the marine environment (with sounds, images, proverbs, memory tests, etc.), a comic



featuring sea animals, audio and photo CD, a DVD, a book about the monk seal, posters and leaflets.

Each of the 10 suitcases stay at a school for two weeks, after which they are returned to MOm, for more travelling. The 'travelling light in the Mediterranean Sea' project is for children 4-7 years of age and for 8-12 year-olds; it begins in September 2008.

The environmental education suitcases were produced in collaboration with the Bodossaki Foundation, a privately-owned public welfare organisation whose principal objectives are the promotion of education, human health and the protection of the natural environment of Greece. – Irini Tsevi, MOm.

Fisheries guide

The Fisheries Guide, one of MOm's new environmental educational tools, is a short, concise and easy to follow guide to fisheries in Greece.

Flipping through its pages, you can read about the history of fisheries in different civilizations, the current state of the fishery sector, the problems it faces, and how those problems are interlinked with the state of the marine ecosystem.

The aim of the Guide is not only to inform, but also to raise awareness about the marine environment. Each thematic unit of the publication is followed by other sources of information as well as ways in which we, as individuals, can protect our seas. A list of press cuttings from Greek newspapers gives an overview of today's issues facing the fisheries sector in Greece.

The Fisheries Guide was designed by MOm as a complementary tool to the environmental education programme of the <u>MOFI</u> project, but can also be useful to anyone who has a genuine interest in issues concerning the marine environment.

For a free copy of the Guide (available only in Greek), please contact MOm at <u>info@mom.gr</u> or call us on +30 210 5222 888. – Irini Tsevi, MOm.

Greek NGOs against trawlers

Six of the largest environmental NGOs of Greece recently joined forces against the Greek State's readiness to allow trawlers to fish at distances less than that set by European regulation.

The six NGOs issued a strongly-worded request for the revocation of the Ministerial Decree of the Minister of Rural Development and Food, which permits fishing with trawling gear at a distance 1 n.m. from the coast, while the European Regulation 1967/2006 defining management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, explicitly limits fishing with trawlers to 1.5 nautical miles from the coast.

A specific exemption might be provided by Regulation 1967/2006, but only as long as it has "no significant impact on the marine environment" – something that is not substantiated by available scientific data. On the contrary, the data provided by the Hellenic Center for Marine Research demonstrate that trawling is the least selective of all fishing gear, with a bycatch and discards (i.e. marine organisms of no commercial value that are fished and thrown back to the sea) averaging 44% annually. In addition, trawling has detrimental effects on the marine environment, especially when gear is towed along the seabed, seriously damaging marine biotopes.

Through a joint press release, the six environmental NGOs expressed their disappointment in discovering that the Ministry of Rural Development and Food has proceeded with adjustments that are contrary to Regulation 1967/2006 without any previous consultation with stakeholders (fishermen, scientific community, environmental NGOs). Coastal fishermen associations also protested the decision.

The NGOs that put the Ministerial Decree under the spotlight, and requested its revocation are: Archelon/Sea Turtle Protection Society, Mediterranean SOS Network, Pelagos Cetacean Research Institute, Greenpeace, WWF Greece, and MOm/Hellenic Society for the Study and Protection of the monk seal. – Calliope I. Lagonika, MOm.

Open public meetings at Alonissos and Kalymnos

Within the framework of the <u>MOFI</u> project (Monk seals and fisheries: mitigating the conflict in the Greek seas), MOm organized in March another two open public meetings at the key Aegean islands of Alonissos and Kalymnos. The first is at the heart of the National Marine Park of Alonissos, Northern Sporades, one of the most important habitats for *Monachus monachus*. The second hosts the largest fishing fleet of Greece, with more than 700 coastal fishing boats.



The aim of the open public meetings is to inform local people about the MOFI project, and to raise

awareness amongst local stakeholders about the thorny issue of monk seals and fisheries. During the meetings, locals have the opportunity to express their views on the issue and talk with the project's scientists about the conflict.

A short documentary, presented during MOFI's open public meetings is available online.

Last but not least, MOm also held its fifth monk seal rescue seminar on Kalymnos. - Calliope I. Lagonika, MOm.





Croatia / Greece I / Greece II / Madeira / Mauritania & Western Sahara / Turkey

Greece II

Marine litter campaign for the Mediterranean

<u>HELMEPA</u>, in cooperation with the non-governmental organizations Clean-Up Greece and MIO-ECSDE, is implementing a public awareness campaign entitled *'Keep the Mediterranean Litter-Free'*, under the auspices of the United Nations Environment Programme (UNEP).

Awareness raising activities implemented within the framework of the campaign in several Mediterranean countries include voluntary beach cleanups with the participation of schoolchildren, companies' staff. seafarers, local/port authorities, NGOs and the wider civil society, as well as environmental exhibitions and seminars, drawing and photograph contests. The 'vehicles' of the campaign so far include a poster/brochure with useful information on marine litter and advice to all major stakeholders in 11 Mediterranean languages, and a publication in English entitled Public Awareness for the Management of Marine Litter in the Mediterranean.

The latter is based on a proposal by the three NGOs to MED POL for a common regional approach on how to raise awareness and educate appropriately all stakeholders in the Mediterranean about solid waste management. It introduces the basic parameters of the problem and features specific sector-based guidelines for the main stakeholders, i.e. agriculture, industry, the tourism and maritime sectors, regional, national and local authorities. Apart form these specific sectors, the publication has also been developed for use by NGOs, the media and the Mediterranean public at large.

It is anticipated that the campaign, along with other relevant activities of the Mediterranean NGO community, will contribute significantly to the effective implementation of a Regional Strategy to address the



problem of marine litter in the Mediterranean, which is currently under development by MED POL and the Regional Seas Programme of UNEP. – Constantinos Triantafillou, HELMEPA.

Further information

The Changing face of marine litter, Cover Story, this issue.

Press release claims increased strandings and killings of marine mammals in Greece

A press released issued by Greek NGO <u>Archipelagos</u> on 14 May 2008 claims an alarming increase in strandings and deliberate killings of protected marine mammal species in Greek waters.

Research results, says Archipelagos, point to "an ongoing slaughter", with "over 45 Striped dolphins, Bottlenose dolphins, Risso's dolphins, Sperm whales, Cuvier's beaked whales, Harbour porpoises, but also Loggerhead and Leatherback turtles", being found dead along Greek coastlines.

Deliberately killed monk seals, the organisation states, were also found at the islands of Ikaria and Syros.

Besides deliberate killing, the organisation also blames "increasing levels of marine pollution", "marine explosions" and "usage of high frequency sonars during military exercises" for the killings.



Dead monk seal found at Ikaria.

The organisation has voiced its intention to draft proposed management measures and practical solutions to address the strandings and deliberate killings.

Although the Archipelagos press release gained widespread coverage in the Greek media, other NGOs in the country have cast doubt on the veracity or interpretation of some of its findings.

Further information

Archipelagos. 2008. Worrying increase in strandings/killings of protected marine mammals in the Greek seas. Press release, 14.05.2008. Kathimerini. 2008. Dead sea mammals mystery, 30 April 2008.

Cartoon book re-published in Greek

In what is the most recent of several previous incarnations, a monk seal cartoon book for children has been published by the <u>Archipelagos Marine and Environmental Research</u> <u>Institute</u>, with technical backing by TMG sponsor, the Government of the Balearic Islands, Spain. The brainchild of Joan Mayol, of the government's Endangered Species Service, who composed the text, with drawings by Aina Bonner, the book has had a long run, appearing in various countries and languages.

Although improvements in content and design, as well as refinements for local readership have been implemented



along the way, previous editions in black-and- white have appeared in Catalan, French and Arabic, German, Greek and English. Revised colour editions are now appearing in Catalan and Greek, the latter through Archipelagos.

The latest version published by Archipelagos can be downloaded from the Monk Seal Library.

Archipelagos/Government of the Balearic Islands. 2007. ^aÂÛÔÁÂȷΛ ^oÒÎÈ·. Original text by Joan Mayol, with drawings by Aina Bonner: 1-16. [PDF 2.5MB]

News Watch

Natura 2000 problems

Environmentalists WWF said that most of the areas in Greece that are protected by the EU's Natura network have not been appointed any body or organization to manage them. In Greece, there are 238 areas and 27 large national parks that have been placed in the Natura program.

"Most of these protected areas do not have any management and their boundaries have not been clearly set," said WWF. (<u>Natura programs</u>, Kathimerini, 25 April 2008)

Shoppers urged to shun plastic

Shoppers are being urged to ditch plastic bags after Athens Mayor Nikitas Kaklamanis announced that reusable, environmentally-friendly carrier bags would soon be introduced to the capital's supermarkets. Presenting Athens' membership to the C40 Cities, an international initiative aimed at pooling resources to combat climate change, Kaklamanis said that non-plastic carrier bags would be available in supermarkets from March 1. [...]

Environmental groups have long argued that plastic bags present a risk to marine and other animal life, as well as to groundwater quality. An estimated 60,000 tonnes of such bags are believed to end up in Greek landfills yearly. A sample alternative bag unveiled by Kaklamanis at a January 15 press conference included the slogan: "A plastic bag is used once or twice but has a life expectancy of 400 years." (Shoppers urged to shun plastic, Athens News, 18 January 2008)

Waste deep in plastic

With the lowest recycling levels in Europe and no energy-recovery facilities in the country, Greece's landfills are being clogged up with plastic

Consider this fact for a minute. Not a single kilogram of plastic is landfilled in Switzerland. And now look at the other end of the scale. Greece missed its European Union target to recycle a measly 15 percent of its plastic packaging waste by the end of 2006 by some distance. While the country is doing better than might be imagined in paper and cardboard recycling (above 70 percent), and more than half of industrial steel is reused, Greece props up the table where plastic is concerned.

By combining the quantities of plastic recycled or burned for energy recovery in 2005, the association of plastic manufacturers in Europe, Plastics Europe, has highlighted Greece's position as the most wasteful European country in the management of plastic waste, coming below the likes of Cyprus, Malta, Lithuania and Estonia. According to figures given to this newspaper by the Ecological Recycling Society in central Athens, the country managed to recycle only 30,000 of the 300,000 tonnes of plastic packaging waste produced in 2006. [...] (Waste deep in plastic, Athens News, 8 February 2008)

Lax disposal of toxic waste draws EU ire

Tons of dangerous refuse ending up in landfills due to inadequate planning

The European Commission is expected to issue a stern warning to Greece today for failing to adequately manage hundreds of thousands of tons of toxic waste produced in the country every year, which is believed to be ending up in landfills.

According to the Commission, which first warned Greece about toxic waste in 2005, no measures have been taken to ensure that some 330,000 tons of toxic waste produced every year are safely disposed of. Another 600,000 tons of such waste has been buried in inappropriate locations, chiefly on industrial sites, according to the EC.

The EC has highlighted a list of measures that need to be taken to prevent the ongoing environmental damage and the potential health risks posed by piles of festering waste across the country, described by experts as "toxic time bombs." If Greece fails to take action it faces a large fine.

Authorities have been asked to draw up maps showing proposed sites for dumping toxic waste. At the same time, the central government will have to specify the powers each region has for disposing of the waste it produces.[...]

Another EU requirement is that waste be categorized before it is disposed of. Certain types of waste – like animal waste and polychlorinated biphenyls (used in the manufacture of plastics) – are currently not categorized as dangerous substances. (Lax disposal of toxic waste draws EU ire, Kathimerini, 30 January 2008)

Acting on Dimas's recommendations

The Greek public can only agree with European Environment Commissioner Stavros Dimas, who on Monday called on the Greek government to implement a more effective environmental strategy for the country.

Greece is facing more ecological challenges than any other European Union country, but, regardless, does not have an autonomous environment ministry to deal with these problems. In fact, environmental issues are left to the devices of Greece's Public Works Ministry.

Dimas's recommendations were made in a rather gentle fashion because he happens to be a Greek citizen. However, as long as Greece continues to use so-called creative accounting in its measuring of its carbon dioxide (CO2) emissions while failing to bring national legislation in line with EU regulations, the principal casualties will be the country and public health – not the European Commission.

It is Greece's image that is being tarnished by the EU and UN, not that of Commissioner Dimas. (<u>Acting on Dimas's recommendations</u>, Kathimerini, 24 January 2008)

MPA TIP: The fundamental criterion for MPA success

"MPA Tip" is a recurring feature in MPA News that presents advice on planning and management gathered from various publications on protected areas. The purpose is two-fold: to provide useful guidance to practitioners, and to serve as a reminder of valuable literature in the MPA field.

MPA News excerpted the following tip from <u>Guidelines for Marine Protected Areas</u> (IUCN, 1996), edited by Graeme Kelleher [...]

Tip: The fundamental criterion for success in MPA planning and management is to bring in from the beginning every significant sector that will affect, or be affected by, the MPA. The reasons for this are simple. First, if those in a sector like fisheries or tourism are not involved from the beginning, they will be inclined to see the MPA planners and managers as either not interested in their sector or actively trying to disadvantage their interests. Second, no expert, however competent, has the detailed knowledge that would allow him or her to define adequately the interests of most sectors. (MPA Tip, MPA News 9 (4):October 2007)

Alonnisos Marine Park in trouble

A crisis, lesser in scale yet reminiscent of the Galapagos conflict between park officials and local businessmen & fishermen, is brewing in the otherwise quiet and offbeat island of Alonissos, part of the Sporades island group in North Western Aegean. Alonissos is the only inhabited island of the Alonissos National marine park, which was set up in 1992 to protect the endangered Monachus Mediterranean monk seal (only 300-400 remaining in Greek seas). [...]

Local business interests attempted on the 3rd of August to occupy the offices of the marine park, however they were resisted by office personnel, and thus confined themselves to blocking the entrance to the park's offices and throwing eggs & yogurt. The police apparently kept a low profile, not wanting to take sides, with no arrests reported. Then on August the 4th a protester verbally abused and physically attacked the coordinator of the Alonissos park Vassilis Kouroutos, a leading marine biologist and veteran conservationist, who has since pressed charges. Tensions are still high and park officers expect further vandalisms to their boat and offices.

The protesters allege they are being held 'hostage' to a 'strict' conservation regime which 'scares away' tourists and developers. They appear particularly irate about patrols and spot checks (and fines) to boats carrying tourists within the marine park. Protesters have organised a petition, signed by 1,500 locals, and sent it the ministers, local MPs and the prefecture of Magnesia, demanding a renegotiation of park boundaries. And they have allies in some unlikely places: the current head of Mom, the society for the protection of the Mediterranean seal (founded and previously headed by Vassilis Kouroutos) was quoted by Ethnos, a daily traditionally supportive of the (300,000 strong) recreational hunting & fishing community, that it was a mistake to ban diving tourism within the Park, while the park authorities 'were to blame' for falling out with the local

community [...] (Sealing the fate of the Monk Seal? Islanders protest against the National Marine Park of Alonissos in Greece, EcoClub.com, Ecotourism News & Releases, 7 August 2007)

EndQuote

Sea Change

"It's big; enormous in fact. But it's certainly not clever. There is a massive area of circulating rubbish in the Pacific Ocean, stretching from the coast of California to Japan. Around 100 million tons of floating, mostly plastic, debris bobs just below the surface of the waters, covering an area twice the size of the continental United States. This island of trash is not visible from satellite photographs because the plastic is translucent and lies beneath the surface. But it is there. And it is growing.

We in Europe cannot afford to shrug off the problem. The Mediterranean is the most polluted sea in the world, with 2,000 pieces of plastic per square kilometre. The problem is less conspicuous because most of it lies on the seabed and there are only very weak tides to bring it together. Our polluted seas are a depressing phenomenon. These colossal tracts of trash are an indictment of how careless with the environment we have become. Historically, the flotsam of the oceans has biodegraded. But modern plastics take hundreds of years to disintegrate."

Source: Sea Change, Leader, The Independent, 5 February 2008.

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Croatia / Greece I / Greece II / Madeira / Mauritania & Western Sahara / Turkey

Madeira

Augmenting public awareness

Monk seals are currently much closer to humans since their recent return to Madeira Island. Considering this fact, public awareness activities have been augmented, mainly within crèches and primary schools. Between 2006-2007, 494 children and 23 schools participated in the monk seal workshop created specifically for young children; 1,014 students involving 15 primary and secondary schools participated in talks about the species. A touring monk seal exhibition travelled all around Madeira, and has proven the most requested exhibition of its kind from the PNM Service. – Rosa Pires, Parque Natural da Madeira.



Madeira schools programme.

Seals monitoring around Madeira Island

During the last three years it has become evident that many members of the public do not report their monk seal sightings to the PNM Service. The reason appears to be that such sightings around Madeira are no longer considered something new or exceptional.

However, without this information it is almost impossible to monitor the species around the island. In an effort to remedy the problem, the PNMS launched a visit programme to beach resorts, marinas, and scuba diving centers in the southeast of Madeira. In total, 21 locations are visited every month, in Caniçal, Santa Cruz and Funchal, with members of the public being made aware of the importance of their monk seal sightings records by PNMS staff. – Rosa Pires, Parque Natural da Madeira.

Desertas Islands Nature Reserve on CD

The Desertas Islands Nature Reserve was created with the aim of protecting, both rationally and effectively, a natural heritage with a high ecological value. A glance at the Desertas islands awakens in our imagination a sense of adventure and mystery. The mystery of nature... This is how a new educational CD on the Desertas invites us to discover some of the mysteries of those islands.

Launched in March, the CD is in Portuguese and English and introduces the Desertas Islands Nature Reserve through written information, pictures, and also games for younger people. The monk seal is portrayed as the figurehead species of the islands. – Rosa Pires, Pargue Natural da Madeira.



Madeira Magic

Also on the audiovisual-educational front, an animated film about monk seals at the Desertas Islands premiered on YouTube in December.

Though some factual details are open to question, the animations are exceptional, and the conservation message undisputed. The film, produced by Madeira Magic/Arquimedes is in Portuguese and English, and in two parts. The films have attracted a 4 and 5 star user rating respectively.



Mauritania & Western Sahara

138 animals individually catalogued at Cabo Blanco

The presence of scars as a result of interactions between animals and interactions with the environment can be used to individually photo-identify the members of the Cabo Blanco population. Also, in the case of adult males, the unique design of their ventral patch can also be used to individually identify them.



From the catalogue.

As a result of 4 photo-identification sessions during the period 2003-2007, and the continuous monitoring performed at the colony breeding caves through the video surveillance cameras, 17,488 pictures and 1,646 images captured from the video cameras of the members of the colony were obtained in order to identify individuals and complete the existing catalogue.

As a result, 59 adult males, 59 reproductive females, 5 sub-adult males and 15 adults and subadults of undetermined sex were individually identified. In total, 138 individuals from the adult and sub-adult section of the population have been identified. So far, no juveniles have been included in the catalogue due to the difficulty of individually identifying them because of the scarcity of scars and natural distinguishing marks. – Miguel A. Cedenilla, Mercedes Muñoz, Moulaye Haye and Pablo Fernández de Larrinoa, Fundación CBD-Habitat.

Productivity remains high in the Cabo Blanco colony

As reported previously in The Monachus Guardian [Notable increase of newborn pups at Cabo Blanco, TMG November 2006], an average 26.5 pups per year were born during the period 2000-2005 at the Cabo Blanco colony. In 2006, pup production increased significantly to 48 pups, and this 2007 breeding season, productivity has remained at this high level, with 46 pups being detected in the breeding caves colony. This notable increase in pup production is due to the incorporation of new females into the reproductive section of the population.

Together with the increase in pup production, the pup mortality rate has also remained lower than in previous years, with 74% of the pups born having survived to the first moult. This is due to the widening of the breeding season to the summer months, causing many pups to be born during months with good weather conditions.



Mother and pup at Cabo Blanco.

Both facts, a higher number of pups being

born, and a higher number of pups that survive to the first moult, undoubtedly contribute to a higher recovery of the Cabo Blanco population. – Miguel A. Cedenilla, Moulaye Haye, Hamdi M'Barek and Pablo Fernández de Larrinoa. Fundación CBD-Habitat.

Results of survey published

The Mediterranean monk seal is among the ten most endangered mammals in the world. Its largest population, and the only one that maintains a colony structure, is on the Atlantic coast of the Cabo Blanco peninsula (Morocco/Mauritania). However, despite years of study and conservation efforts made mainly by the team of the <u>CBD-Habitat Foundation</u>, the coastline to the north of the colony (between Cabo Corbeiro and Castillete de la Mesa) has remained practically unexplored, mostly due to its inaccessibility problems. Previous expeditions to this area performed in the last twenty years (Soriguer 1976; Marchessaux et al. 1988; El Amrani et al. 1992) showed the possible presence of monk seal individuals along this coastline, although their exact locations and the population size couldn't be determined.

In May (2005), within the framework of the International Monk Seal Recovery Plan in the Eastern Atlantic, developed by Morocco, Mauritania, Portugal and Spain (Convention on Migratory Species, UNEP/CMS), most parts of the coast were surveyed on board the R/V "Song of the Whale" of the International Fund for Animal Welfare (IFAW). The objective was to locate monk seal individuals and gather information about the conservation status and threats of the species in the area.



Exploring the unexplored coast.

The whole coastline between Cape Corveiro and Castillete de La Mesa was surveyed. Although no monk seals were observed during the survey, questionnaires conducted with local fishermen and Moroccan military personnel, confirmed several sightings in recent years, implying that the area is used by seals. Human threats were also identified, most of them related to illegal fishing and collection of crustaceans, as well as an increase of human disturbance, which leads us to include some preliminary recommendations in the present document.

The full report can be downloaded from the Monk Seal Library via the citation link below. – Pablo Fernández de Larrinoa, Fundación CBD-Habitat.

Further information

Fernández de Larrinoa, P., M. Idrissi, T. Lewis, A. El Mokhtar, M. Cedenilla and L.M.Gonzalez. 2007. Status of the Mediterranean monk seal (*Monachus monachus*) on the coastline between Cape Corveiro and Castillete de la Mesa (Morocco). Fundación CBD-Habitat, INRH/ANI/IFAW: 1-17. [PDF 2534KB]

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Mediterranean News

Croatia / Greece I / Greece II / Madeira / Mauritania & Western Sahara / Turkey

Turkey

Badem wanders freely in Gökova Bay

Badem, found in an ailing condition in Didim, western Turkey, on 5 December 2006, was taken into rehabilitation by <u>SAD-AFAG</u> after deciding that the animal was truly orphaned, following a day's wait for the pup's mother to return.



Following her rehabilitation, she was successfully released back to nature in Gökova Bay on 28 April 2007. Thirteen months later, Badem remained in the same general area, freely wandering the whole bay, and covering long distances. After November 2007, she started to frequent the coastline from Karacasögüt up to Bodrum, mostly spending time in the inner part of Gökova Bay. The Ministry of Environment, Mugla Governorship, Datça sub-Governorship, Turkish Coast Guard boats, fish farm operators, private and touring yacht owners, local people and press were duly presented with information, advising people not to approach Badem to help her to readapt more quickly to her life in the wild. An illustrated colour leaflet in Turkish and English was also designed and printed by SAD-AFAG including 'Dos & Donts' and basic information about monk seals; these were widely distributed in the area. Most local people, fishermen, yacht captains and

conservationists approached the problem in a very constructive manner, while Turkish Coast Guard boat commanders proved always conscientious and knowledgeable, and remained in close contact with SAD-AFAG via a 24-hour GSM hotline in case a new observation or development warranted immediate action or advice.

For several weeks since 2 February 2008, Badem began wandering around the Karaca fish farm in Karacasögüt. The operator, who is already an AFBIKA member of SAD-AFAG, contacted us as an additional precautionary step. He was afraid that Badem might cause damage to his fish cages. An outer protection net encompassing the whole farm was proposed as a solution by us, as this method has been tried many times elsewhere in Turkey with full success.



The owner agreed to lay the outer net, and did so with his own efforts. However, because of openings left at the bottom, Badem was able to break through the outer net and swim around the nursery cages. The owner, meanwhile, had become rather attached to the young seal, and would not bring himself to harm it.

In order to resolve the situation, however, SAD-AFAG urgently deemed it necessary to provide additional materials (anchors, J-iron bars, and additional outer protection net), labour (including divers), and diving/filming/photography equipment to the fish farm, and allocated funds obtained from an additional sponsorship by Mustafa Koç for this action. After modification and reinforcement jobs had been completed by our divers on 28 March 2008, Badem could no longer enter through the outer protection net. In conclusion, the fish farm sustained no damage in their cages and no financial loss, while 2 or 3 other fish farms in the vicinity were reportedly not visited by Badem.

Badem has, of course, received some attention from tourists and local people during the most recent period, despite public information through the press, newspapers, TV and radio channels. On 10 May 2008, for example, 5 local people and a German tourist wanted to take Badem to the beach in Akyaka after they swam together with Badem in shallow water. And finally Badem, as an instinct to defend herself, bit all of them, inflicting upon two serious injuries.

This event has been covered in the press very extensively, most voicing the opinion – without SAD-AFAG intervention – that Badem had been right to sink her teeth into such arrogant guys, and people should take it as a warning not to interact with her.

The incident served as a reminder to tourists and local people that Badem is a wild, not a domestic, animal. At the same time, Badem has helped to create along Turkish coast a significant public awareness boost for endangered marine mammal species, and monk seals.

No other public awareness or environmental education activity could disseminate such information in such a short period of time. However, although we are quite satisfied with this unexpected development, our primary aim was not to create a PA campaign in Turkey, but rather for Badem to readapt to her natural way of life as soon as possible. Zafer Kızılkaya of SAD-AFAG visited Badem in the 3rd and 4th week of May 2008 to check on the situation in Gökova Bay, and reminded local people and tourists on their conduct when in the vicinity of the seal –reminders he also delivered through the media. – Cem O. Kıraç and Harun Güçlüsoy / SAD-AFAG.

Lloyd's List 2008 Turkish Shipping Awards goes to SAD-AFAG

On 15 May 2008, London-based Lloyd's List, the prominent press and publication organization for the world's maritime and shipping industry, held a ceremony to announce the 2nd Turkish Shipping Awards at Kempinsky Çıragan Palace in Istanbul. With more than 500 guests from Turkey and abroad in attendance, including Hasan Naiboglu, Undersecretary of Maritime Affairs, Dr. Özkan Poyraz, Director General for Maritime Transport and Metin Kalkavan, President of Turkish Shipping Chamber, the Turkish Shipping Awards were presented in their various categories. As a special SAD-AFAG, together with category. Foca SRRC (Seal Rehabilitation and Municipality, Research Centre Lenie 't Hart) and Mr. Mustafa Koc, were presented plaques for the rescue,



Recipients receive their awards for the rescue, rehabilitation and release of "Badem" from Christopher Meyer, Executive Editor in Lloyd's List.

rehabilitation and successful release of young monk seal "Badem" in April 2007. Cem Orkun Kıraç, Harun Güçlüsoy, Yalçın Savas, Haluk Camuscuoglu and Guzden Varinlioglu represented SAD-AFAG in the ceremony, while Mayor Gokhan Demirag and Dr. Avni Gök represented Foca Municipality; Yagiz Eyuboglu Koç and his family were also in attendance. – Münevver Çakır, SAD-AFAG.

Young monk seal found killed in Mersin

The commander of the Coast Guard boat in Bozyazı, Mersin, in southern Turkey reported the discovery of a dead monk seal to SAD-AFAG's headquarters on 11 March 2008 as part of AFBIKA – AFAG's Monk Seal Information & Rescue Network. The alert was swiftly transferred to Mehmet Sarı, SAD-AFAG's Aydincik Representative, who immediately visited the site and reported the incident to the Ministry of Environment and Forest, National Parks and Wildlife General Directorate. Officers dispatched to the scene found the body of a dead juvenile female seal.

From first impressions, the cause of death could not be determined. The body was not in a state of decomposition, nor were there any apparent signs of injury or trauma to her body, though her mouth bore signs of copious bleeding. Following an official request, authorized officers from the Ministry of Environment and Forest granted authority to Mehmet Sarı for a necropsy and further investigation to be conducted. The seal's body was preserved in a deep-freeze until veterinary surgeon Dr. Avni Gök could travel to the region to conduct the necropsy on behalf of SAD-AFAG.

When Gök arrived at Aydıncık on 19 March 2008, his first action was to take an x-ray, which indicated trauma, with signs of cerebral haemorrhage. Following detailed internal and external examination the following day, the cause of death – which had been the cause of much speculation among fishermen and NGOs in Bozyazı – was confirmed: according to the official necropsy report of the veterinary surgeon, the young female



Death at Bozyazı.



The necropsy, performed by Dr. Avni Gök.

seal died due to cerebral haemorrhage and a trauma, caused by a violent blow to the front of the head. – Cem O. Kıraç and Harun Güçlüsoy / SAD-AFAG.

SAD-AFAG wins court case against Tourism & Cultural Assets Protection Council

Concerned that the degrees of protection afforded to some SIT protected areas in the Çesme and Alaçatı regions of Izmir, western Turkey, were being decreased, SAD-AFAG applied to the

Supreme Court (Danitay) to halt the decision of the Council of Ministers for development plan changes followed by decreased SIT degrees from 1st to 2nd and even from 1st to 3rd – against the interests of coastal habitats [see <u>NGOs unite against downgrading of protected areas</u>, TMG 9(1): June 2006]

In May 2008, our lawyers were notified that the joint consortium including SAD, Doga Dernegi, Ege Doga Dernegi and Greenpeace had won the court case against the Tourism & Cultural Assets Protection Council (TCAPC) in Izmir, thereby halting the decision of the Council of Ministers for development plan changes in the Alaçatı and Çesme areas. Prior to the decision of the Council of Ministers, TCAPC had downgraded the SIT status of some coastal areas in Alaçatı & Çesme regions. The above-mentioned NGO consortium had also applied to the District Administrative Court (Bölge Idare Mahkemesi) to reverse these decisions. Though our joint application was partially accepted by the court, downgrading decisions affecting other SIT areas remained in place. The consortium will now appeal that decision in the Higher Supreme Court (Temyiz).

The untouched coasts having 1st and 2nd degree SIT protection status under question are very important for the continued survival of monk seals as well as other elements of coastal and marine ecosystems in the Çesme Peninsula and Alaçatı-Sıgacık regions, since construction and restoration of existing buildings are impossible or very limited, keeping the coastal habitat virtually undisturbed.

Should these milestone decisions be finally established by the Supreme Court and the District Administrative Court in Turkey, the pristine coastal habitats near Çesme and Alaçatı would be protected for many long years. SAD-AFAG places habitat protection as a priority in the conservation of endangered species and ecosystems. – Cem O. Kıraç / SAD-AFAG.

Towards a Management Plan for Foça

On 24 October 2007, a panel known as **Local Problems and National Solutions**, operating under a general framework for Integrated Coastal Zone Management (ICZM), was organized in Foça. The panel represented the final activity of an EC-funded SMAP project entitled 'Promoting Awareness and Enabling a Policy Framework for Environment and Development Integration in the Mediterranean with Focus on Integrated Coastal Zone Management', carried out by the UNEP-MAP PAP/RAC and the Underwater Research Society in Turkey. The main aim of the project was to increase public awareness of the ICZM and establish a specific day for celebrations and PA activities in all Mediterranean countries on 24 October. One of the important outcomes of the panel project was the declaration of the necessity of a Management Plan for the Foça Special Environmental Protection Area. Immediately after this declaration, SAD-AFAG wrote an official letter to the Environmental Protection Agency for Special Areas (EPASA) (formerly the Authority for the Specially Protected Areas), as a reminder that it is the responsibility of the Agency to prepare the management plan for Foça, and that SAD-AFAG stands ready to provide and help with its own data and logistics for such a plan.

This letter was well received by the Agency and, as a first step, the President of EPASA Mr. Önder Kıraç, publicly revealed the roadmap and draft planning procedure for the Foça SPA that would form the basis for further consultation at the Foça and Turkish Maritime Symposium, held on 9-11 January 2008. The Symposium, in which SAD-AFAG played a key role, attracted wide participation.

Further developing the process, on 1 February 2008, the Agency invited SAD-AFAG to Ankara in order to brief Agency technicians and directors on the data and information that SAD-AFAG have compiled on the Foça Special Environmental Protection Area. Following the meeting, the Agency announced two tenders to determine the present socio-economic status and the carrying capacity of the area in terms of maritime traffic and the marine environment. Currently, the first study is in progress, while the other is still in the tendering process. It is predicted that the plan will be ready by the end of 2009. – Harun Güclüsoy, SAD-AFAG.

Joint habitat survey

SAD-AFAG and CSIC are jointly carrying out surveys of the Turkish coast as part of a Mediterranean-wide project that aims at diagnosing the health of the underwater ecosystem. The

surveys focus on five areas (Ayvalik, Gokova, Fethiye, Kas and Aydincik) along the Aegean and Mediterranean coasts of Turkey, to take place between 3 - 24 May 2008. The main concept of the study is to develop a cost-effective method to evaluate the ecosystem status of any given site. The results of the surveys can be used to determine conservation priorities (e.g. where to create a marine reserve), to support adaptive management to fulfil reserve goals and, most important, to accelerate the recovery and ensure the conservation of coastal ecosystems. The project's main focus of interest in the Eastern Mediterranean is to survey coastal ecosystems that harbour Mediterranean monk seals. The results will allow us to determine the ecological scale of habitat use by monk seals. A similar study will be conducted in Greece in June 2008, in collaboration with MOm. – Zafer Kızılkaya / SAD-AFAG and Enric Sala / CSIC.

New monk seal pups at Teke Peninsula, SW Turkey

Three new pups have been recorded along Turkey's SW coasts, from Fethiye, Kas and Kemer respectively, on the Teke Peninsula. Locals from the Ölüdeniz region near Fethiye called AFAG's GSM line on 28 November 2007, reporting a monk seal pup on a beach. The photos later sent via email clearly show that the pup is around 2-3 months old and healthy.

SAD-AFAG did not take any action to move the pup from the area and waited for the animal to leave the beach of its accord and move away from human activities later that same day. Our contact person and local fishermen scanned the vicinity on 28 and 29 November but did not encounter the pup.

News of a second pup reached SAD-AFAG member Atila Kara and SAD-AFAG Kas representative K. Gökhan Türe from a pebble beach near the town of Kas on 6 December 2007. The pup was observed trying to hide under a bush near the shoreline. Again, the animal was monitored by SAD-AFAG members; it appeared healthy and was no doubt born during the 2007 pupping season.



Monk seal pup in Ölüdeniz near Fethiye.



Monk seal pup in Kemer Marina in Kemer town near Antalya.

The pup later returned to the sea of its own accord, swimming away from the coast. Monitoring by SAD-AFAG members and fishermen on that and subsequent days failed to encounter the pup again.

Finally, news of a third pup was received from Kemer Marina officials on 12 December 2007. Information from both telephone calls and emails with photos, indicated that a pup about 3 months old was wandering inside the port and swimming among the boats without any fear. Kemer Marina officials requested instructions on how to protect the young monk seal, though all indications were that the pup was healthy. During a continuous contact with SAD-AFAG, marina officials were strongly advised not to intervene, but only to monitor the juvenile seal in case any assistance might be needed. It left the marina area the same day after spending some time among the boats. Despite careful monitoring with the help of local people, no sighting of the animal was made during subsequent days.

Combined, the three sightings raise hopes for the continued survival of the species along the SW coasts of Turkey, where SAD-AFAG and IFAW conducted joint habitat surveys in the summer of 2007. – Cem O. Kıraç / SAD-AFAG.

Rare sightings in the Sea of Marmara

An adult female monk seal was observed on 8 and 10 December 2007 by a local on the north coasts of the Marmara Sea, near Istanbul. This represents an exceedingly rare sighting, since the species is thought to exist only in very small numbers in the Marmara. Detailed information and photos were obtained from the observer, and the sighting data duly entered into SAD-AFAG's FokData database. – Cem O. Kıraç and Harun Güçlüsoy, SAD-AFAG.



Sighting along north coasts of Marmara.

Documentary on Badem

In February 2008, a documentary film on orphaned monk seal Badem was completed, following the course of her rehabilitation and release back to the wild. Produced by SAD-AFAG, the film, in Turkish, was directed by Yurdakul Kabasakal.

Besides featuring the course of the rehabilitation, the film also covers SAD-AFAG conservation activities in Foça and other coastal locations since 1993. Ninety minutes in length, the documentary was prepared with the financial support of the Foça Municipality. DVD copies of the documentary are available at SAD-AFAG headquarters in Ankara and at the organisation's Foça office. –Cem O. Kıraç / SAD-AFAG.

Awareness at school and university

SAD-AFAG participated in environmental education programmes at the Bilkent university and schools of Ankara from February to April 2008. SAD-AFAG's Cem Orkun Kıraç made presentations covering various issues, including the importance of wild habitats for endangered species, such as monk seal, sea and shore birds. –Münevver Çakır / SAD-AFAG.

SAD-AFAG's 20th Anniversary

AFAG celebrated its 20th anniversary in Ankara on 16 December 2007, with the participation of SAD and METU Subaqua Society members, on the occasion of the 7th General Assembly of SAD. Founding principles, main activities and achievements were shared with the support of archive photos, while future targets were explained and discussed among the members and supporters. Founded in September 1987, AFAG ultimately aims and struggles for the protection of both monk seals and their wild habitats along Turkish coasts. –Münevver Çakır / SAD-AFAG.

WWF-Turkey Panda Award goes to SAD-AFAG

WWF-Turkey presented SAD-AFAG with the 2008 Panda Award for its long term conservation efforts for the survival of the monk seal in Turkey, in a ceremony held on 24 May in Bodrum. The awards ceremony was held during the WWF Annual Congress, whose theme this year is Global Climate Change. The Congress is also the venue for the presentation of WWF-Turkey's first-ever Panda Awards. Also receiving the same award was Esra and Aylin Koç, the daughters of Turkish businessman Mustafa Koç who sponsored the rehabilitation of Badem. WWF-Turkey declared that both Esra and Aylin had made a positive difference in the perceptions of the public at large in the conservation of the critically endangered monk seals. –Harun Güçlüsoy / SAD-AFAG.

News Watch

Ambassador with Attitude

Since her release in April 2007, Badem, the orphaned monk seal pup, has become something of an ambassador for her species. But while endearing herself to the Turkish public with her antics, attracting tourists, and spawning pages of press coverage, this ambassador-with-attitude also bites, posing a risk not only to those who may deserve it most, but also innocent swimmers who venture too close. Potential risks to Badem herself have also been voiced.



Rescued in December 2006, Badem underwent rehabilitation in Foça with both Turkish and Dutch

expertise, but became imprinted on her human carers during the 5-month process.

We present below a selection of recent press and media coverage of Turkey's famous seal.

Badem, the Mediterranean monk seal

We have been extremely fortunate at our resort with regular visits from a very friendly and famous Mediterranean Monk Seal (*Monachus monachus*) called Badem (translates to Almond). [...]

There are a few basic rules with Badem in the water however, to ensure that she does return to life in the wild successfully:

Please do not get close to her and try and stand at least 10 meters away when she is sleeping on the beach, do not speak loudly and do not touch her. If she does play with you underwater or on the surface, please do not be afraid of her but try not to show an interest in her if possible and most important rule of all DO NOT give her any kind of food.

We generally found that she has a routine when she comes into Defneli, arriving between 9-10 in the morning (just as the beginners and snorkellers are getting ready to go in the water) and has a couple of hours swimming around with people from the beach, after lunch when she has been playing all morning she will come up onto the beach for her afternoon nap on one of the sunbeds or will even try and get into one of the kayaks!

- Badem, the Mediterranean monk seal. <u>European SeaSports</u>, Marmaris, Turkey, date accessed, 25February 2008.

Didim seal becomes a tourist attraction!

A RESCUED seal from Didim is becoming an instant hit with tourists on the high seas as it follows their tourist voyager boats.

The baby seal, nicknamed Badem, was found wounded on Didim Mavisehir shore last year and treated in Izmir before being released in the sea at Gökova by the Minister of Forestry.





It spent most of the winter on the open seas around the Bodrum Akyaka region and people from across the area have been flocking to the shore to see the seal.

Captain Osman Demirci, who runs blue voyage tours in Didim and Bodrum, said the arrival of Badem had seen his tours increase – even if they are out of season.

He said: "Especially on Saturdays and Sundays, many people from Mugla and its districts come to see Badem. Badem is very accustomed to people and does not leave here. It is like the mascot of the area." Osman said that Badem had come on their boat during a blue voyage.

He said: "The tourists on the boat could not believe their eyes and some were scared. Badem was following the boat. I was curious as to what it would do so I stopped the boat. It looked around for a few minutes and then came on the boat. It was our guest for six hours. All our customers had an unforgettable day."

Didim seal becomes a tourist attraction! The Voices Newspaper, 2 March 2008.

The Seal in Love

[...] Obviously she finds a dinghy again, and hey presto she's in it. Most of the owners are not delighted at all, as Badem smells somewhat sharp. With all kinds of tricks they try to keep Badem out of the dinghies. A protective tarpaulin over the dinghy, rocking the dinghy, if need be join forces to throw her out and lay her on the jetty, what doesn't all occur to people? Mostly in vain, however, because Badem is so in love with small boats, that sooner or later she finds another one and cheekily looks out of it. If nothing at all helps anymore, she lies on the rusty fish cages of the restaurant and sleeps there for a spell.

Naturally it would be nice if she could join other monk seals. The specialists, which have raised her, ask in their information sheet not to pay any attention to Badem when she wants to play, not to touch and in no case to feed her. The latter is easy, she does not give a hungry impression. But the former is easier said than done. Such a trusting seal is undoubtedly THE attraction wherever she appears. [...]

Die verliebte Robbe, Der Insider, Autumn 2007.

Does seal Badem need people?

[...] Although the animal protectionists call for caution and consider too much attention too dangerous for the health of the animal, it seems precisely the opposite: Badem is seeking contact, climbs on fishing boats and dinghies, doesn't shy away from crawling up swaying gangways up onboard sailing yachts and there, pleasurably lies down for hours of sleep on the upholstery of the cockpit bench. During daytime she easily manages to sleep for 10 to 12 hours. At night she crawls away, disappears in the sea and goes fishing.



Wherever she appears she becomes the attraction. The people come running, surround her, take out photo and film cameras, and even try to pet her or swim with her. Not always does this end without injuries: in [...] a girl was bruised and had to have her leg treated. But Badem is not at all malicious, just sometimes a little bit too wild when splashing around and diving.

Admittedly, no one knows quite what is going on in the head of the seal. Does she search for people because she was raised by them? Are they even something like 'substitute parents'? Or does she act like an actor used to applause, who, once enjoying the affection, can no longer be without it? It'd certainly be good if experts could take care of the psyche of Badem, to prevent her being harmed by too much (or too little) human contact. [...]

Braucht Robbe Badem die Menschen? Der Insider, April 2008.





Badem endearing herself to tourist onlookers at a Gokova Bay fishing harbour. 12 May 2008.

Rough and tumble: Tourists making Badem's acquaintance on the beach – sometimes, when they least expect it. 27 May 2008.

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Monk seal pup 'Badem' returns home. The Monachus Guardian 10 (1): June 2007. Orphan's behaviour provoking concerns in Turkey. The Monachus Guardian 10 (1): June 2007. Orphaned pup's welfare monitored daily, The Monachus Guardian 10 (2): November 2007. SAD-AFAG Badem information brochure, 2007. [PDF 2286KB] For Badem's Journal, a blog of the rehabilitation crew (English and Turkish), photos and video, visit www.sadafag.org/yavrufok_eng.htm AFAG Video of Badem and her rehabilitation can be found on youtube.com at: http://www.youtube.com/watch?v=XMOSb3-tGgI http://www.youtube.com/watch?v=MoIDeS241jg Divers and the Mediterranean Monk Seal, by European Seasports Turkey: http://www.youtube.com/watch?v=ig9JfIOA9PE&feature=related

Pay to prey

"However many types of hunting a hunter knows, a bear knows just as many escape routes." - Turkish proverb

FETHIYE, Turkey - The Turkish Ministry of the Environment and Central Hunting Commission recently announce its 2007-08 hunting fines. Editors are never happy to miss an arresting headline, so Hurriyet newspaper jazzed up the news with a picture of a large brown bear sitting with its paw raised toward the article titled "Permission to kill - 18,000 liras" (US\$14,000).

The fines depend on the rarity of the animals. Killing an Anatolian leopard nets the highest fine on the list at 35,000 liras (\$27,000), but that sum is largely irrelevant, as most wildlife organizations suspect that the breed is already extinct because of trophy hunting in the 1980s and 1990s. Second in the pantheon come fallow deer, red deer, wild sheep (Anatolian and other), and Asian brown bears, which will each set you back 18,000 liras. Brown-bear populations in Turkey have not been subject to detailed surveys, but it is known that outside of four core areas in the east of the country, their numbers have been declining rapidly as forests decrease in size, human populations increase, and expanded road networks allow man to invade what was previously secluded bear habitat.

Next on the list are spotted hyenas at 12,000 liras and the Mediterranean monk seal at 8,000 liras [€ 4,200 approx.]. Considering there are only about 400 monk seals in the Mediterranean and only about 50 in Turkey, and that the animal is listed as "critically endangered" by the World Conservation Union (WCU), this price seems a little low. The list of other mammals includes ibex and chamois at 7,000 liras, roe deer, gazelles and lynx at 5,000 liras, water sables, wild cats and caracals at 4,000 liras, and finally the bargain basement of the mammalian world, wolves and spotted martens at only 850 liras. [...]

- Fazile Zahir, Pay to prey, Asia Times, 15 August 2007.

EndQuote

So why do they call it the Black Sea? No one really knows the answer - but theories abound.

Locals I talked to say it got the name because of the countless boats that have gone out and never returned, leaving generations of women mourning for their lost husbands. Recent catastrophic events support the theory that the name reflects an association with mortality. In the last few weeks terrible storms have claimed up to 20 lives and wrecked four ships, including a Russian-registered oil tanker that left a black slick lapping the shoreline. Yet such calamities are not exclusive to this sea.

Though ignorant of these scientific facts, the ancient Persians were wary of these stormy waters, referring with trepidation to what they called the "dark sea." So were the ancient Greeks, who called it the "Inhospitable Sea," purportedly because the fierce Thracian tribes living along the coast would attack their ships. But the Greeks were flexible people; they changed their view once they had colonized much of the coast, and began calling it the "Hospitable Sea."

The name didn't stick. It wasn't until the 13th century that the Turks started calling it the Black Sea. During this period, the descendants of Genghis Khan and his Mongol empire were pushing westward into Europe. [...]

Today, the coast here is lively as can be. Everywhere you turn there is ground being broken and another crane pulling in. Vacation resorts are sprouting up as foreign investors discover the beauty of the beaches and the value of the waterfront. Soon the coast will be lined with balconies providing wonderful views of the crystal blue waters that cover the dark, lifeless depths and their wrecked ships.

Source: <u>Black and blue and beautiful</u>, International Herald Tribune, 22 November 2007.

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Cover Story

Previou

Home

The changing face of marine litter

Constantinos Triantafillou

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Extensive media coverage over the first months of 2008 have once again brought under the spotlight the resurgent issue of marine litter and plastic pollution (1). Unlike the obvious direct and devastating impacts of a large oil spill in the marine environment, the long-term effects of pollution of our seas and oceans by plastics, which over the years break down into small pellets leaching chemical substances into the environment and entering the food chain, are only just becoming apparent.

Despite efforts so far at the global, regional, national and local level to address the issue, there are indications that the marine litter problem keeps growing. According to the United Nations Environment Programme (UNEP), it is estimated that about 6.4 million tons of marine litter are disposed of in the seas and oceans each year, while 13,000 pieces of plastic litter are floating on every square kilometer of ocean surface! (2).

Plastic garbage items constitute the main threat to the marine environment due to their persistence. Being synthetic materials, plastics are not biodegradable. Through solar heat and photodegradation they break down into smaller particles that drift for hundreds of years in the marine environment, reaching the remotest parts of the world. Even worse, plastics release the chemical substances they contain, which enter the food chain and constitute a serious threat to the health of marine life and humans alike.

The accumulation of plastics in our seas and oceans has also been highlighted through the work of Charles Moore, oceanographer and founder of the NGO Algalita Marine Research Foundation. Capt. Moore has for over 10 years been studying the build-up of a "plastic soup" in a vast sea area known as the "North Pacific gyre" – a vortex where the ocean circulates slowly because of little wind and extreme high pressure systems. According to his research, it is estimated that close to 100 million tons of plastic are floating only in the North Pacific region, a quantity accounting for 2.5% of all plastics manufactured since 1950.

His last research expedition to the area in September 2007 has been vividly portrayed through a documentary series by VBS TV ($\underline{3}$).

The problem of marine litter is also acute in the Mediterranean and is closely linked with the lack of integrated solid waste management systems, coupled with a low level of environmental awareness in the region.



Samples of marine litter from a beach in the Northern Sporades Marine Park.

Although there is a lack of data regarding the extent of the problem in the region, the impacts of marine litter are considered serious when taking into account the special characteristics of the Mediterranean Sea (enclosed area, lack of tides, extensive river inflow, endangered marine fauna, high concentrations of coastal populations which double during the summer period) and the importance of the tourism industry to local economies.

A recent assessment study on the status of marine litter in the Mediterranean, which is being implemented by NGOs under the auspices of UNEP's Mediterranean Action Plan, aims to highlight areas for priority action within the framework of a Regional Strategy to address the problem. Initial findings of this study support those of other studies regarding the changing nature of marine litter.

Within the framework of this assessment study, the Athens-based NGO *Hellenic Marine Environment Protection Association* (<u>HELMEPA</u>) conducted research on marine litter found on Mediterranean beaches and within the sea itself. Certain findings are of particular relevance to public environmental awareness, and policy, shedding light on the amounts and types of marine litter in the region.

Data from beach cleanups in Mediterranean countries

Acting as the national coordinator in Greece of the International Coastal Cleanup (ICC) campaign, a global volunteer initiative of the Washington-based NGO *Ocean Conservancy*, HELMEPA processed the figures from the Mediterranean countries that participated in the ICC campaign between 2002-2006 (<u>4</u>).

Public environmental awareness

Public participation in the ICC campaign in Mediterranean countries decreased steadily during the 2002-2006 period (Diagram 1). Thus, the 15,648 volunteers taking part in ICC 2002 fell to 7,305 volunteers in ICC 2006, which corresponds to a decrease of over 50%.

Although this declining trend can be associated with other factors, such as lack of promotion of the initiative by the organizers or country-specific circumstances (e.g. political turmoil, natural catastrophes etc.), it may also indicate a combination of the following factors:



- 1. a decrease in the environmental awareness and/or volunteer spirit of coastal inhabitants in the Mediterranean;
- 2. a shift in focus in the general public's attention, possibly to other current environmental concerns that have dominated media coverage in recent years, such as global warming;
- 3. a reduced impact of environmental NGOs' action in the region.

Amounts of marine litter in the Mediterranean

There is was an overall decrease in the number of items and also the weight of marine litter collected in Mediterranean countries during the 2002-2006 period (Diagrams 2 and 3). In general terms, this follows the decreasing trend in public participation in clean-ups.



Due to a number of changing variables every year, i.e. total number of volunteers collecting litter, it is difficult to draw conclusions regarding the overall increase or decrease of marine litter in the Mediterranean during the period under study.

However, an interesting observation when examining the average number of litter items and weight per volunteer during the 2002-2006 period (Diagram 4) is that whereas the number of litter items per volunteer increased in the long run, the weight of collected litter per volunteer had a decreasing trend, with the exception of an upward movement between 2004 and 2005. The increase in litter items per volunteer between 2004-2005 was accompanied by an increase of the average weight per volunteer, which may indicate an overall increase in marine litter during that



period. However, the following year (2006), while litter items per volunteer increased, the average weight per volunteer decreased once again rather than increased, as one would expect.

This finding indicates that we may be facing a proliferation of lighter marine litter items in the Mediterranean, e.g. plastics, aluminum and smoking-related litter, as opposed to heavier items from dumping activities, such as household appliances, construction materials, car parts, etc.

Indeed, if we examine the average weight of litter items in the same period (Diagram 5), there is a steadily decreasing trend, with the exception of the 2004-2005 period. Therefore, while the average litter item weighed 511 grams in 2002, it weighed only 258 grams in 2006, which constitutes an almost 50% decrease in weight.

The above finding is further confirmed by an evident decrease in the number of heavy litter items resulting from dumping activities (Diagram 6), which particularly in the case of construction materials was severe. As we can



see in Diagram 7, there was also a decreasing trend in the Top 3 plastic marine litter items since 2003. However, these can still be found in large numbers on Mediterranean beaches and in the sea, and considering their highly persistent nature, they constitute a major threat to the Mediterranean marine environment.



The decrease in heavier waste items and the predominance of lighter marine litter in the Mediterranean could be due to various factors. It may indicate a gradual increase in the environmental awareness of the general public who, conscious of the impact, do not use beaches as disposal sites for heavy garbage items as casually as they did in the past. Therefore, the removal of these heavier items, combined with the persistent nature of plastics and other lighter marine litter items, which can still be found in considerable numbers in the Mediterranean, has led to the changing nature of marine litter in the region.

Another contributing factor may be the adoption and/or implementation of stricter legislation governing dumping activities, particularly in Mediterranean EU member-states. Or it may be due to a combination of the above and other factors.

Types of marine litter in the Mediterranean

Marine litter in the Mediterranean includes a wide variety of items also encountered in other marine and coastal areas of the world. The main types of litter found on Mediterranean beaches, floating on the sea surface or lying on the seabed are listed in Table 1.

Table 1 Main types of maxima littler in Mediterreneon
main types of marine litter in mediterranean
Plastics: bags, balloons, beverage bottles, caps/lids, food wrappers/containers, six-pack holders, straws/stirrers, sheeting/tarps, tobacco packaging and lighters
Glass: beverage bottles, light bulbs
Paper and cardboard of all types
Metals: aluminum beverage cans, pull tabs, oil drums, aerosol containers, tin cans, scrap, household appliances, car parts
Polystyrene: cups/plates/cutlery, packaging, buoys
Cloth: clothing, furniture, shoes
Rubber: gloves, boots/soles, tires
Fishing related waste: abandoned/lost fishing nets/line and other gear
Munitions: shotgun shells/wadding
Wood: construction timber, crates and pallets, furniture, fragments of all the previous
Cigarette filters and cigar tips
Sanitary or sewage related litter: condoms, diapers, syringes, tampons
Other: rope, toys, strapping bands

Table 2 presents the Top 12 marine litter items collected from Mediterranean beaches and the seabed during ICC campaigns in the 2002-2006 period, which account for over 89% of total marine litter.

Table 2Top 12 marine litter items in Mediterranean (2002-2006)						
Item	Items	%				
Cigarettes/Cigarette filters	222.563	27				
Cigar tips	86.146	10				
Plastic bottles 2 It or less	81.238	9,8				
Plastic bags	70.912	8,5				
Aluminum beverage cans	63.282	7,6				
Caps/lids	60.920	7,3				
Beverages bottles (glass)	48.085	5,8				
Cups/plates/forks/knives/spoons	32.037	3,8				
Tobacco packaging/wrappers	23.648	2,8				
Food wrappers/containers	21.029	2,5				
Straws/stirrers	17.184	2,1				
Pull tabs	15.488	1,9				



As indicated by the above Chart, 55% of the Top 12 litter items originated from shoreline and recreational activities including mainly plastics (bottles, bags, caps/lids etc.), aluminum (cans, pull tabs) and glass (bottles).

The remaining 45% of the Top 12 marine litter for the 2002-2006 period originated from smokers, including waste items such as cigarette filters and cigar tips, tobacco packaging and wrappers. This percentage for the Mediterranean region was considerably higher that the global average for the same period (32%) and is certainly an area that has to be addressed by policy makers and targeted by awareness raising campaigns.

By far the No. 1 marine litter item in the Mediterranean are cigarette filters (closely followed by cigar tips), which constitute a real scourge for the region and can be found even in the most remote areas. Thus, in the 2002-2006 period, 57,810 volunteers collected 222,563 cigarette filters, which corresponds to almost 4 cigarette filters per volunteer, while the global average in 2006 was only 0.2 cigarette filters per volunteer!

A fact unknown to the majority of the wider public is that it may take between 1-5 years for a cigarette filter to decompose in the marine environment. The slow decomposition of cigarette filters is mainly due to contained substances such as foamed plastic and chemicals, which may also cause serious problems to marine fauna and flora.

Table 3 below provides an indication of the necessary time for the decomposition of various litter items in the marine environment.

Table 3How long does it take for marine litter to decompose?						
glass bottle	1 million years					
fishing line	600 years					
plastic bottle	450 years					
aluminum can	80-200 years					
rubber boot sole	50-80 years					
plastic cup	50 years					
tin can	50 years					
nylon fabric	30-40 years					
plastic bag	10-20 years					
cigarette filter	1-5 years					
woolen clothes	1-5 years					
plywood	1-3 years					
waxed milk carton	3 months					
apple core	2 months					
newspaper	6 weeks					
orange peel	2-5 weeks					
paper towel	2-4 weeks					

Source: The Ocean Conservancy, "Pocket Guide to Marine Debris", 2006.

Sources of marine litter in the Mediterranean

Sources of marine litter are traditionally classified into land-based or ocean-based, depending on where the litter item enters the water. Other factors such as ocean current patterns, climate and tides, and proximity to urban centers, industrial and recreational areas, shipping lanes, and commercial fishing grounds influence the type and amount of marine litter found in open ocean areas or collected along beaches and ocean including underwater areas (5).

According to GESAMP (6), land-based sources account for up to 80 percent of the world's marine pollution. Much of the litter reaches the ocean by beach-going activities, being blown into the water, or being carried by creeks, rivers, and storm drains/sewers to ocean areas. Other litter comes from activities on the water, including vessels (from small sailboats to large ships), offshore drilling rigs and platforms, and fishing piers.

As this study was primarily based on the analysis of data collected within the framework of the ICC campaigns in Mediterranean countries, the classification system used is that applied by the *Ocean Conservancy*.

Chart 2 presents the sources of marine litter in the Mediterranean for the 2002-2006 period.



According to the analysis of data collected between 2002-2006, 52% of marine litter in the Mediterranean originated from shoreline and recreational activities. In general terms, this figure is in line with the global average. As we can see in Chart 3, shoreline and recreational activities were the main source every year of the period under study except for 2004, when it was surpassed by smoking-related waste.

Marine litter from smoking related activities accounted for 40% of total marine litter in the same period. Although the number of litter items from smokers dropped significantly between 2004-2005, since 2005 it is on the rise again. The figure for the 2002-2006 period in the Mediterranean is considerably higher than the global average and constitutes a serious problem that has to be given priority in a Regional Strategy to address the issue of marine litter.

Another worrying observation when looking at Chart 3 is that marine litter from shoreline and recreational activities and from smoking-related activities continues to increase between 2002-2003 and 2005-2006 despite the considerable decrease in the numbers of volunteers participating in the ICC campaigns in Mediterranean countries in the same years.



Ocean and waterway activities accounted for 5% of marine litter in the Mediterranean and remained steadily low throughout the period under study. This could be largely due to the fact that all vessels above 400 tons or carrying more than 15 persons are obliged to implement garbage management plans in accordance with international maritime law. Prohibitions regarding the disposal of solid wastes are particularly strict in sea areas with special characteristics, such as the Mediterranean, which is termed a Special Area under the MARPOL International Convention.

Equally low were the figures for marine litter relating to dumping activities and medical/personal hygiene, which are 2% and 1% respectively.

From the above evidence, it is clear that marine litter from shoreline and recreational activities and from smoking related activities are two areas for priority action by regional policies or awareness raising campaigns in the Mediterranean.

Impacts of marine litter in the Mediterranean

The impacts of marine litter on the environment and humans are multi-faceted. Garbage in the sea and on the beaches poses an insidious threat to human health and wildlife: it is estimated that over one million seabirds and 100,000 marine mammals and sea turtles die each year from entanglement in or ingestion of marine litter. Moreover, marine litter degrades the coastal environment and impacts local economies through loss of revenue from tourism as well as damage to boats and fishing nets. These problems are exacerbated by the persistent nature of many of these litter items.



Entanglement in "ghost nets" remains one of the most serious mortality factors and causes of decline affecting the Hawaiian monk seal. Here, a monk seal is being rescued from entanglement in marine debris.



Hawaiian monk seal entangled by plastic packing strap.

Although there is a lack of available data on the impact of litter on marine wildlife in the Mediterranean, it is interesting to see the most recent statistics released by the Ocean Conservancy based on the findings of ICC 2007.

In 2007, 378,000 ICC participants in 76 countries worldwide encountered 237 entangled animals. Birds represented nearly 35% of entangled wildlife followed by fish (27%), invertebrates (20%) mammals (almost 13%) reptiles (almost 5%) and amphibians (less than 1%).

Discarded monofilament fishing line is perhaps the single-most dangerous litter item accounting for 65% of entanglements found during ICC 2007. In fact, derelict fishing gear, which includes fishing line, nets, rope, lures and light sticks, and crab/lobster/fish traps, represented 72% of all entanglements.

In the Papaha⁻naumokua⁻kea Marine National Monument in Hawaii, entanglement in so-called "ghost-nets" and other fishing debris remains one of the most serious causes of mortality and species decline affecting the Hawaiian monk seal. Elsewhere in this vast protected area, sea birds perish from ingestion of plastic debris mistaken for food on the ocean.



The remains of a dead Laysan albatross on Midway; amid the bones and feathers, the plastic articles it ingested, but could not expel or excrete, before it died.

While in the Mediterranean data is not available to differentiate between entanglement in deployed fishing gear as opposed to net debris, incidents of the latter have been recorded in which seals have died as a result of entanglement in discarded nets and net debris.

A detailed account of the ICC 2007 findings regarding entanglements of marine wildlife worldwide are presented in Table 5 below.

Table 5 ICC 2007 - Entangled animals worldwide									
Type of litter	Invertebrates	Fishes	Reptiles	Birds	Mammals	Amphibians	Total	Percentage	
Ballon ribbon/ string	0	0	0	4	1	0	5	2.1%	
Beverage can	1	1	0	0	0	0	2	0.9%	
Building materials	2	0	0	0	2	0	4	1.7%	
Crab/lobster/fish traps	2	1	0	0	0	0	3	1.3%	
Fishing line	22	32	5	43	8	0	110	46.8%	
Fishing nets	13	12	0	6	4	0	35	14.9%	
Glass bottle	3	2	1	0	2 0		8	3.4%	
Miscellaneous	2	0	2	5	1	1 0		4.3%	
Plastic bags	2	3	0	12 5 0		0	22	9.4%	
Plastic container	r 0 0 0 0 1		0	1	0.4%				
Rope	1 9 2 6 5		1	24	10.2%				
Six-pack holders	0	2	0	1	0	0	0 3		
Tire	0	1	1	0	0	0	2	0.9%	
Wire	1	0	0	4	1	0	6	2.6%	
Totals	49	63	11	81	30	1	235	100%	
Total percentage	20.9%	26.8%	4.7%	34.5%	12.8%	0.4%	100%		

Survey of marine litter in the Mediterranean Sea

Besides the research study on marine litter collected during beach cleanups in Mediterranean countries, HELMEPA also coordinated a survey of floating litter at sea involving its member-vessels traveling in or transiting the Mediterranean. The survey was based on a simple Data Card, which was used by seafarers for the recording of litter floating on the sea surface.

Between the period February – April 2008, 14 reports were received by HELMEPA membervessels containing information on litter observations from various sea areas in the Mediterranean, mainly in the eastern Mediterranean (Aegean Sea, Libyan Sea and Eastern Mediterranean Levantine Sea), in the Alboran Sea between Spain and Morocco, and in the Adriatic Sea.

The total number of items of marine litter recorded was 366, corresponding to a concentration of one item per 3 nautical miles (n.m.) or 2.1 items per km². The concentration of marine litter ranged from 0.08 to 71 items/n.m. Relatively higher concentrations of marine litter were observed along routes close to coastal areas, while there were cases where lengthy observations (more than 120 n. miles) revealed no existence of marine litter.

Plastics accounted for about 83.0% of marine litter items, while all other major categories (textiles, paper, metal and wood) accounted for about 17%, as the following graph shows.



The average quantity of marine litter was estimated to be 230.8 kg/km² ranging from 0.002 to 2,627.0 kg/km². Relatively heavy items such as steel drums, wooden pallets and crates observed on the sea surface were responsible for the greater quantity of marine litter on certain routes. In terms of the length of observation, the average quantity was 0.47 kg/n.m.

Conclusions

One of the initial findings of this assessment study is that we are witnessing a change in the profile of marine litter in the Mediterranean. The steady decrease in the number of heavy litter items on Mediterranean beaches could indicate an increase in the environmental awareness of coastal inhabitants, or the more widespread availability facilities to dispose of them properly. The gradual removal of these heavier items, combined with the persistent nature of plastics and other lighter marine litter items, has led to a significant decrease in the average weight of marine litter items in the period under study.

With regard to types of marine litter in the Mediterranean, by far the No. 1 litter item are cigarette filters and cigar tips. High in the Top 12 list of litter items are also plastics (bottles, bags, caps/lids etc.), aluminum (cans, pull tabs) and glass (bottles). These litter items are highly persistent and do not degrade quickly in the environment, which allows them to continue increasing over time and to travel vast distances with ocean currents and winds, impacting even the remotest parts of the Mediterranean.

The increasing concentration of plastics in the Mediterranean Sea is also verified by the survey conducted in various Mediterranean areas. It should be noted that most types of plastics contain additives in their polymer matrix offering an extended product life, better protection against heat, light or chemicals. Their concentration varies to a great extent, from less than 1% (foaming agents) to 40% (flame retardants, plasticizers and stabilizers), and the slow degradation of plastics at sea might cause leaching of these additives.

One out of two marine litter items in the Mediterranean originates from shoreline and recreational activities, e.g. beachgoers and other users of the coast. This is an area that can be improved significantly by intensifying public awareness campaigns on the insidious nature and impacts of marine litter.

Smoking related waste accounts for 40% of total marine litter in the 2002-2006 study period. This figure for the the Mediterranean is considerably higher than the global average and constitutes a serious problem that has to be given priority in a Regional Strategy to address the issue of marine litter.

Low figures for marine litter from ocean and waterway activities, such as commercial shipping, fishing vessels etc, may be due to the implementation of strict international maritime legislation regarding the disposal of garbage into the sea, particularly in the case of Special Areas such as the Mediterranean. However, special attention should be given to nest, lines and other types of fishing gear, which constitute a major threat to marine wildlife and accounts for 72% of all entanglements worldwide.

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GREENbanking4Life

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See the <u>GREENbanking4Life</u> website for further details, and also <u>Banking on</u> <u>Conservation</u>, by Vrassidas Zavras, TMG 10 (2): November 2007.

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In Focus

Contents Next Previous

Home

Orphan Returns to 'Mother' Sea

Viktoria is released into the protected waters of the Sporades Marine Park with a mobile phone... but researchers are still waiting for her call

William M. Johnson

Steni Vala, Alonnisos, Greece – Orphaned monk seal pup Viktoria was released into the Northern Sporades Marine Park on 2 February 2008, equipped with a GSM telephone tag to track her movements and behaviour – but Greek researchers are still awaiting that first call back to base.

Blue skies and unseasonably balmy temperatures welcomed a large crowd of well-wishers to this small fishing village to bid Viktoria farewell. Guests gathered at 'Tassia's' waterfront taverna – decorated with banners and posters just for the occasion – to hear <u>MOm</u> researchers and Monk Seal Centre staff explain the rescue and rehabilitation process that almost certainly saved Viktoria's life.

"A monk seal release is always an exceptional event," said Jeny Androukaki, who is head of the Centre. "Because of the rarity of the species, every individual is precious to the survival of the species. If Viktoria survives, she will give birth to about 15 pups during her lifetime."

The critically-endangered Mediterranean monk seal is thought to number less than 600 individuals throughout its range.

Viktoria was rescued last October by her namesake, Viktoria Drouga, a taverna owner on the Cycladic island of Tinos, who saved the pup from battering storm waves by jumping into the sea herself [Newborn pup in dramatic rescue, TMG 10 (2): November 2007]. Weak and exhausted from her ordeal, pup Viktoria was then just 4 days old and weighed only 15 kg. Transferred to the Seal Rehabilitation Centre on Alonnisos, she responded well to the 4 month treatment regime, and weighed in during a final veterinary check at 52 kg.







water and salts – then highly nutritious fish porridge, delivered by stomach tube. Then it was on to skinned filleted fish, then gutted whole fish, and finally – to help hone her diving and hunting skills, live fish introduced to her rehabilitation unit pool.

Some 300 well-wishers attended the release event, including local inhabitants of Alonnisos; Viktoria Drouga who rescued the ailing pup from stormy seas back in October 2007; Sofia Staikou, President of Piraeus Bank Group Cultural Foundation and Head of Corporate Social Responsibility, which has supported the rescue and rehabilitation financially through its CSR

programme; the Mayor of Alonnisos; marine park officials, and a visiting representative of the Government of the Balearic Islands, Spain.

"I'm so proud," said Viktoria Drouga after a brief final visit to the pup before its release. "It was just a feeling, but even from the beginning I was convinced she would survive."



- <u>Seal rescuer calls for action</u>, Kathimerini, 20 October 2007.

For Piraeus Bank, it was also something of a symbolic moment.

"It is more than 15 years now that we have been supporting efforts to conserve the monk seal, the most endangered marine mammal and symbol of the biodiversity of Greece," said Sofia Staikou. "We earnestly hope that we can set an example for others to follow. Protecting the natural environment is not only a concern for all of us, it is an obligation."

Now a hefty 52-kilos, Viktoria was placed in her blue transport cage, then carried towards the village dock, eager onlookers watching from the sidelines.

Looking calm yet puzzled by all the attention, she was placed onboard the launch that would carry her to a secluded bay within the Marine Park, the release monitored only by her principal carers and researchers in order to minimise stress and aid acclimatisation.

Approaching the release site at the island of Yura, the team sighted another young seal swimming off shore. It quickly disappeared. Viktoria was then ferried to the chosen release site by inflatable, an open cave with pebble beach. "She left her cage





almost immediately," Jeny Androukaki later reported, "and quickly began exploring her surroundings, the beach and shoreline waters, playing with the waves and the rocks underwater."

Prior to her release, Viktoria was fitted with a compact <u>GPS/GSM transmitter pack</u> courtesy of the St. Andrews-based <u>Sea Mammal Research Unit</u>. Unlike satellite tags used in the past, this system

is designed to communicate location, depth of dives and other data to researchers via the mobile phone network. However, the device – which can only operate within narrow parameters, in which network coverage, animal behaviour and battery-saving presets all play a part – has so far failed to respond. Though failures in such instruments are far from unheard of, MOm still holds out some hope that Viktoria will make that first call.

"Up till now, unfortunately, Victoria has not sent any message," says Jeny Androukaki. "At remote islands and, of course, in caves, there is not always a cell phone signal. Although the transmitter does not operate continuously, the integrated computer stores all data on Viktoria's life, such as times spent on land, or in swimming, diving depths, and movements. Once the transmitter is on in an area receiving a cell phone signal, it will send all data collected so far."

Assuming it is not broken, that information could still arrive at any time up until the animal's first moult in September, when the end-of-life transmitter is designed to be shed naturally.

For further information:

<u>Newborn pup in dramatic rescue</u>, TMG 10 (2): November 2007. <u>Piraeus Bank supports 'Viktoria's' rehabilitation</u>, Press Release, TMG News archive, 17 December 2007. TVMallorca, L'aguait. 2007. http://tvmallorca.net/pages/verclip/3697

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The Monachus Guardian

Contents Next Previous

Monachus Science

Home

So many seals, so little time: The rapid extinction of the Caribbean monk seal

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Introduction

The U.S. National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) recently completed a review of the status of the Caribbean monk seal (Monachus tropicalis). The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the World Conservation Union (IUCN) have set 50 years with no sightings as the cut-off for species extinction (World Conservation Union 1982). The last authoritative sighting of Caribbean monk seals was reported by C.B. Lewis in 1952 (Rice 1973), despite multiple survey efforts to locate the species. A sufficient period of time has elapsed since the last confirmed sighting of this once commonly observed species in the Caribbean, to support the conclusion that the species is now extinct. The IUCN Seal Specialist Group listed the Caribbean monk seal as extinct on its Red List of threatened and endangered species in 1996 (Seal Specialist Group 1996). However, interviews with coastal residents and fishermen, and reports of unidentified sightings of pinnipeds in the greater Caribbean region since 1996, resulted in speculation that a small population may have remained on some isolated reefs and atolls in the Caribbean Sea; thus, it has remained listed under the U.S. Endangered Species Act until its proposed removal due to extinction can be reviewed, and the public is provided an opportunity to comment on this finding, published in the species' recent status review [see Further Information, below].

Upon review of the natural history and population decline of Caribbean monk seals, it is remarkable how a large population of an estimated few hundred thousand seals in the Caribbean region was so rapidly extirpated, and how little was actually known of the species prior to extinction. Caribbean monk seals were within the extinction vortex by the time any conservation actions could be implemented. The U.S. recently initiated status reviews on four species of pinnipeds: ribbon seals (*Histriophoca fasciata*), bearded seals (*Erignathus barbatus*), ringed (*Phoca fasciata*), and spotted seals (*Phoca largha*) to assess these species' populations and evaluate their threats.Considering the threats to the remaining species of monk seals and other pinnipeds today, evaluation of rapid extinction of Caribbean monk seals and the conservation of extant species may be put into perspective. The following discussion evaluates some of the major events leading to the decline of Caribbean monk seals, most recent efforts to locate the species, and what can be learned from the first species of pinniped to be driven to extinction in modern times due directly to human activities.

Until recently, the genus *Monachus* included 3 allopatric species: *M. tropicalis* (Caribbean monk seals), *M. schauinslandi* (Hawaiian monk seals), and *M. monachus* (Mediterranean monk seals), of which the two surviving species are currently in danger of extinction. It is believed that Caribbean monk seals were more closely related to Mediterranean monk seals than to Hawaiian monk seals (Wyss 1988). However, the phylogenetic relationship among species of monk seals remains in dispute (Lavigne 1998), and no genetic studies of Caribbean monk seals have been conducted. Caribbean monk seals were the only pinniped commonly found in the southeastern United States and wider Caribbean region, including the Gulf of Mexico. The historic distribution of

Caribbean monk seals (Figure 1) has been interpolated from historical sightings, archaeological records, fossil evidence, and geographical features bearing names suggestive of their presence (Timm et al. 1997, Debrot 2000, Adam and Garcia 2003).



Figure 1. Historical distribution of Caribbean monk seals based on data summarized in Timm et al. (1997) and Adam and Garcia (2003) from historical sightings (●), archeological records (○), and geographical features bearing names suggestive of their presence (▲). There is evidence that Caribbean monk seals used mainland beaches of North and Central America as haul-out sites in great numbers prior to intense hunting for their blubber. Most sighting records were from isolated islands, cays, and reefs in the eastern Gulf of Mexico (Ray 1961) and western Caribbean Sea. The only evidence of Caribbean monk seals in the Lesser Antilles is from archaeological remains in the northern end of the chain (Wing 1992) and a single sighting record (Timm et al. 1997).

The Extinction Clock

Caribbean monk seals were first reported during the second voyage of Columbus in 1494 (Kerr 1824), when at least 8 animals were killed for their meat. This event in history marks the arrival of Europeans to the Caribbean, and the point in time at which the "extinction clock" was set in motion for this species (Table 1). Accounts of Caribbean monk seals were usually from isolated islands, keys, and atolls surrounded by shallow, reef-protected waters (Gaumer 1917 and Hill 1843, as summarized in Adam 2004, Kerr 1824, Ward 1887); nearshore rocks; and only occasionally from mainland beaches and inlets (Allen 1880). Prior to depletion, the species was reported to have hauled out in groups of up to 500 individuals (Nesbitt 1836).

Table 1. Timeline	to extinction for	Caribbean monk seals.
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Year	Description	Reference
1492	The first sighting records of Caribbean monk seals were made during the second voyage of Columbus, when 8 individuals were killed for their meat.	Kerr 1824
1600s- 1900s	Caribbean monk seals were exploited intensively for their oil, and to a lesser extent for food, scientific study, and zoological collection following European colonization.	Allen 1880
1849	The type specimen for the Caribbean monk seal was described from the scientific literature from a specimen taken in Jamaica.	Gray 1849
1886	6 Caribbean monk seals were reported to occur in the Triangle Keys in the Gulf of Campeche, where 49 seals were killed during a scientific expedition.	

1897	The New York Aquarium acquired two specimens captured from the Triangle Keys.	Townsend 1909
1906	On February 25, fishermen killed a Caribbean monk seal five miles off Key West, Florida. This account was the first sighting of the species in Florida in approximately 30 years.	Townsend 1906
1909	The New York Aquarium received four live Caribbean monk seals from a dealer in Progresso, Yucatán. At the time, the last known population of the Caribbean monk seal was restricted to islands and reefs off the Yucatán, Mexico.	Townsend 1909
1911	An expedition off the coast of Mexico killed approximately 200 seals for scientific study and collection.	Gaumer 1917
1922	A monk seal was killed by a fisherman near Key West, Florida, on March 15. This was the last confirmed sighting of the seal in the United States. Townsend noted that a small breeding colony still remained in the Triángulos reef group (i.e., the Triangle Islands) in the Campeche Bank islands off Mexico.	Townsend 1923
1932	Following interviews with men having seen seals in the lower Laguna Madre region of Texas, Gordon Gunter concluded that a few Caribbean monk seals were scattered along the Texas coast as late as 1932 (Gunter 1947). It was later suggested that the sightings of seals along the Texas coast were probably feral California sea lions.	Gunter 1968
1949	IUCN included the Caribbean monk seal in a list of 14 mammals whose survival was considered to be a matter of international concern requiring immediate protection.	Westermann 1953
1952	C.B. Lewis made the last authoritative sighting of Caribbean monk seals at a small seal colony off Seranilla Banks (Colombia), located between Jamaica and the Yucatán peninsula.	Rice 1973
1973	The International Union for the Conservation of Nature (IUCN) distributed circulars in both English and Spanish throughout the Caribbean region, offering U.S. \$500 for information on recent sightings of the species. No confirmed sightings were made.	Boulva 1979
1973	The U.S. Fish and Wildlife Service conducted aerial surveys off the Yucatán, south to Nicaragua, and east to Jamaica of all the areas where Rice suggested that Caribbean monk seals may still exist. The species was not sighted in the survey area.	Kenyon 1977
1980	Canada's Department of Fisheries and Oceans Arctic Biological Station supported a search for evidence of Caribbean monk seals in remote islands of the southeastern Bahamas by vessel and through interviews with local fishermen. The vessel survey produced no sightings of seals. Interviews with fishermen produced a few new accounts of seals in the area during the 1960s and 1970s, but the sightings could not be confirmed as Caribbean monk seals.	Sergeant et al. 1980
1984	From September 5-15, a survey was conducted across the Gulf of Mexico to Campeche, Mexico, aboard the Scripps Institution of Oceanography research vessel, Robert G. Sproul. The survey crew landed at three island groups off the north coast of the Yucatán Peninsula considered possible haul-out sites still used by monk seals: Islas Triangulos, Cayo Arenas and Arrecife Alacran. Another island, Cayo Arcas, was visited by helicopter on September 7, 1984. The survey yielded no seal sightings or evidence of their continued existence.	LeBoeuf et al. 1986
1985	The United States Marine Mammal Commission commissioned a survey of local fishermen, coastal residents, and sailors in northern Haiti. Two of 77 people interviewed reported having seen a seal, one of which – a sighting at Île Rat in the Baie de l'Acul in 1981 – was considered a reliable account. In neither case, however, was it possible to confirm the sighting as a Caribbean monk seal.	Woods and Hermanson 1987
1996	The IUCN Seal Specialist Group listed the Caribbean monk seal as extinct on its Red List of threatened and endangered species.	Seal Specialist Group 1996
1997	Based on interviews with 93 fishermen in northern Haiti and Jamaica during 1997, it was concluded that there was a likelihood that Caribbean monk seals may still survive in this region of the West Indies. Fishermen were asked to select marine species known to them from randomly arranged pictures: 22.6 percent (n=21) selected monk seals of which 78 percent (n=16) had seen at least one in the past 1-2 years.	Boyd and Stanfield 1998

	2001	A review of seal sightings and marine mammal stranding data in the southeast U.S. and Caribbean region documented evidence of several pinnipeds positively identified as arctic phocids between 1917 through 1996 that had strayed into the tropical and subtropical waters of the Western North Atlantic. Due to confirmed sightings of extralimital arctic species, mostly hooded seals (<i>Cystophora cristata</i>) in the Caribbean region, confirmed sightings and recaptures of feral California sea lions that had escaped from captivity, and lack of any confirmed Caribbean monk seal sightings since 1952, the authors concluded that unidentified sightings since 1952 were likely species other than Caribbean monk seals.	Mignucci- Giannoni and Odell 2001
	2007	Based upon a review of stranding data between 1996 and 2008, 22 additional sightings of hooded seals were reported in the southeast U.S., with nine additional sightings from the tropical and subtropical waters of the Western North Atlantic.	Southeast U.S. Marine Mammal Stranding Database data 2008
2008		U.S. status review concludes that recent pinniped sightings have been of other species than Caribbean monk seals, and that sufficient time has passed since the last authoritative sighting to infer extinction of the species.	NMFS 2008

Due to their hauling out behaviour, Caribbean monk seals were readily and intensively exploited as a source of oil by Europeans colonizing the region, and to a lesser extent for food, scientific study, and zoological collection. Seals were presumably hunted in smaller numbers during the 1500s and 1600s, with intense exploitation beginning in the latter 1600s. Adam (2004) provides an excellent review on the historical exploitation of Caribbean monk seals. Blubber was processed and used for lubrication of machinery, caulking of boats, and as lamp and cooking oil. Large numbers of seals persisted in some areas as late as the early 1800s and were also hunted for food by sailors and fishermen for meat until about 1885. In at least one instance, two monk seals were killed simply "for fun" (Allen 1880).

Documentation of harvest levels and other impacts that led to this species' population decline is nearly absent; however, reconstruction of the species' decline and geographic pattern of extinction has been modelled using historical accounts of the species (McClenachan and Cooper 2008). The intense level of exploitation that occurred during the relatively brief period of time humans hunted the seals resulted in the rapid decline of the population throughout its range over a short period of time. Due to the heavy hunting pressure on the population following the arrival of Europeans in the wider Caribbean region, the species had changed its status from being considered common to rare by the mid-1800s (Allen 1887a, Elliot 1884, Gratacap 1900).

During the 1800s, Caribbean monk seal distribution became increasingly fragmented and their range drastically reduced by the time the species was first taxonomically described (Gray 1886). Consequently, little information on the species was available by the time scientific expeditions were organized to study the species. As accounts of the now rare species in the wild were reported, expeditions were organized to capture live specimens for zoological gardens (Townsend 1909), and dead specimens for scientific study (Allen 1887b, 1887c, Ward 1887). It is believed that expeditions to the Triangle Keys region of the Yucatan peninsula (Gaumer 1917, Ward 1887) led to the extirpation of what may have been one of the last remaining large colonies of Caribbean monk seals in the wild. Notably, few reports of seals exist following expeditions to the Triangle Keys region in the early 1900s.

Attempts to Locate a Vanishing Species

In 1949, the International Conference on the Protection of Nature (United Nations Scientific Conference on the Conservation and Utilization of Resources) included the Caribbean monk seal in a list of 14 mammals whose survival was considered to be a matter of international concern requiring immediate protection (Westermann 1953). However, the last confirmed sighting occurred in 1952 at Seranilla Banks in the western Caribbean (Rice 1973), thus limiting any conservation efforts for the species. Unconfirmed sightings of pinnipeds since that time resulted in speculation that the Caribbean monk seal still existed in a few, isolated colonies. Several efforts were made to investigate unconfirmed reports of the species in or near the Caribbean Sea, Gulf of Mexico, the Southern Bahamas, and Atlantic coast of the Greater Antilles from the 1970s through the 1990s (Table 1).

Following a review of the species' status in 1984, the U.S. Marine Mammal Commission contracted a study to interview local fishermen, residents, and sailors along the north coast of Haiti. Although two reported seal sightings were obtained during the survey, there was no tangible evidence to confirm whether those sightings involved Caribbean monk seals or some other species. However, based upon a credible account of a sighting, it was believed that some isolated animals potentially remained in remote regions off the northern coast of Haiti (Woods and Hermanson 1987). A subsequent survey of fishermen in waters off Haiti and Jamaica also generated a few oral accounts of seal sightings, but again, there was no corroborating proof that these sightings involved seals, much less Caribbean monk seals (Boyd and Stanfield 1998).

Since the time of these surveys, a review of sightings and stranding data provided evidence of several positively identified arctic phocids in tropical and sub-tropical waters of the Western North Atlantic from 1917 through 1996 (Mignucci-Giannoni and Odell, 2001). Recently, analysis of NMFS stranding data from 1997 through 2007 resulted in 22 sightings of hooded seals in the southeast U.S. and Caribbean region (Table 2). Nine of these reports occurred in Florida or the Caribbean region (NMFS Southeast U.S. Marine Mammal Stranding Database 2008). All confirmed sightings have been of extralimital occurrences of arctic species in the Caribbean region.

Hooded seals, usually juveniles, have been documented wandering over large ranges. The wide ranging movement of hooded seals (*Cystophora cristata*) was recently supported by DNA research showing genetic exchange between four main breeding areas. Coltman et al. (2007) reported that mtDNA and microsatellite analyses indicate that the world's population of hooded seals could be considered a panmictic breeding population. Many accounts of hooded seal sightings and strandings have been reported in the southeastern United States and Caribbean region (Mignucci-Giannoni and Odell 2001, Mignucci-Giannoni 1989, Mignucci-Giannoni and Haddow 2001, NMFS 2008), and hooded seals have also been recently reported in the Mediterranean Sea around the Straits of Gibraltar (Bellido et al 2007). Although some seal sightings in the Caribbean were not identified as a particular species, all those that have been confirmed in recent decades within the known range of the Caribbean monk seal have proven to be of other species, namely feral California sea lions (*Zalophus californianus*) (Rice 1973), misidentified manatees (*Trichechus manatus*), or hooded seals (Mignucci-Giannoni and Haddow 2002, Mignucci-Giannoni and Odell 2001, NMFS 2008).

Table	2.	All	reported	hooded	seal	sightings	and	stranding	s in	the	southeast	U.S	and
Caribl	bea	n, a	s well as	other pin	niped	species ir	the	former rar	ige c	of Ca	ribbean mo	onk s	eals,
incluc	le s	ight	ings from	n Florida	and tl	he Caribbe	an fr	om 1997 th	roug	gh 20	007.		

Species	Stranding/Sighting	Date	Locality	State/Territory/Country	Sex	Length (cm)	Weight (kg)
harbor seal	stranding	02 May 1997	Fernandina Beach	Florida	F	157	41.7
hooded seal	stranding	05 September 1999	Corova	North Carolina	М	_	38.2
hooded seal	stranding	01 March 2000	Kitty Hawk	North Carolina	F	119	_
hooded seal	stranding	27 March 2001	Avon	North Carolina	_	109	_
hooded seal	stranding	20 July 2001	Vega Baja	Puerto Rico	_	_	_
hooded seal	stranding	21 July 2001	Cape Hatteras	North Carolina	М	114	37.0
hooded seal	stranding	06 August 2001	Cape Lookout	North Carolina	F	96	22.0
hooded seal	stranding	12 August 2001	Runaway Beach, St. John's	Antigua	М	108	28.0
hooded seal	stranding	19 August 2001	Ft. Fisher, Dare	re North Carolina M		94	22.7
hooded seal	stranding	28 August 2001	Pea Island NWF	North Carolina	—	_	_
harbor seal	stranding	28 February 2004	New Smyrna Beach	Florida	М	100	18.1
hooded seal	stranding	28 September 2005	Not reported	Antigua	F	_	_

unid. seal	sighting	25 December 2005	Chapman Lagoon, Biscayne Bay	Florida	_	_	_
harbor seal	stranding	21 February 2006	Cape Canaveral, Brevard	Florida	М	140	47.6
hooded seal	stranding	16 May 2006	Duck	North Carolina	м	113	_
South American sea lion	stranding	06 Jun 2006	Vega Alta	Puerto Rico	_	122	49.9
hooded seal	stranding	27 July 2006	Ocean Sands	North Carolina	м	113	31.9
hooded seal	stranding	03 August 2006	Rio Grande	Puerto Rico	F	89	15.4
hooded seal	multiple sightings (unconfirmed)	05-07 August	Port Canaveral to Sebastian Inlet	Florida	_	_	_
hooded seal	stranding	08 August 2006	Shackleford Banks	North Carolina	М	124	20.0
hooded seal	sighting (unconfirmed)	13 August 2006	St. Thomas	U.S.V.I.	_	_	_
hooded seal	stranding	16 August 2006	Melbourne Beach	Florida	F	111	24.5
hooded seal	stranding	15 September 2006	Wrightsville Beach	North Carolina	М	113	35.7
hooded seal	stranding	16 September 2006	Hobe Sound	Florida	F	107	29.5
hooded seal	stranding	17 September 2006	West Palm Beach	Florida	F	101	31.7
hooded seal	sighting	21 September 2006	_	North Carolina	_	_	_
bearded seal	stranding	03 May 2007	Stuart, Martin	Florida	М	193	186.3
hooded seal	multiple live sightings (confirmed)	August 2006	Megans Bay, St. Thomas	U.S.V.I.	_	_	_

*These data have not been validated and may contain errors or possibly missing records. These data are from the NOAA National Marine Mammal Health and Stranding Response Database and the NOAA SER Marine Mammal Stranding Database. All hooded seal sightings in the southeast U.S. and Caribbean region are included; however, only those sightings of other species of pinniped occurring in the former range of Caribbean monk seals (Florida and the Caribbean) are included since these species strand relatively more frequently in the mid-Atlantic region of the U.S. and include more numerous records.

Retrospective Analysis of Extinction

The unbridled hunting of Caribbean monk seals as a source of oil and meat by early mariners and European colonizers of the Caribbean region was the primary factor leading to extinction of the species. An analysis of the reef productivity in the Caribbean required to support a pre-exploited monk sea population was recently modelled using historical accounts on the spatial distribution and abundance of Caribbean monk seals. The historical population size for the entire Caribbean was estimated to have been approximately 233,000–338,000 individuals (McClenachan and Cooper 2008). Using an estimated annual consumption rate for juvenile and adult Caribbean monk seals, the historical biomass required to support the seal population was estimated to have been four to six times greater than those found on most Caribbean reefs today (McClenachan and Cooper 2008). Although this estimate of the pristine animal biomass supported by Caribbean reefs exceeds the productivity found on any Caribbean reef today, it is comparable to that supported by pristine Pacific reef communities, indicating that this is a reasonably accurate estimate.

Declines in reef productivity are not believed to have contributed to the decline of monk seal numbers; however, it is likely the extirpation of Caribbean monk seals as a major predator in the reef ecosystems had an ecological effect in the Caribbean region. In addition, although declines in prey from fishing activities are not believed to have contributed to the population decline, it is likely that entanglement and drowning in fishing nets or slaughter by fishermen viewing the seals as

competitors for fish also contributed to their decline. Once the population was depleted and human encroachment increased, Caribbean monk seals were reported to have been sensitive to human disturbance (Allen 1880, Gaumer 1917, Ward 1887), including hunting, fishing, and other activities. As with both Hawaiian and Mediterranean monk seals, Caribbean monk seals apparently became sensitized to human presence after exposure to hunting or other negative interactions. Thus, although many recent descriptions of monk seals state that they are highly sensitive to human disturbance, some accounts, including early accounts of the species (e.g., E.W. Nelson, as cited in Adam and Garcia 2003), describe them as being very approachable when hauled out on beaches. As human settlements expanded in areas inhabited by this species and persistent hunting reinforced evasive seal behaviours, avoidance of human presence near populated shorelines and areas frequented by fishermen likely caused seals to abandon historic haul-out sites. Human encroachment also likely exacerbated natural stresses on a rapidly declining seal population.

By the time the alarm was sounded by the International Conference on the Protection of Nature (United Nations Scientific Conference on the Conservation and Utilization of Resources) on the dire need for immediate protection of Caribbean monk seals in 1949, remaining colonies of the species were unknown. It is possible that the Caribbean monk seal persisted for a short period in the years following their last confirmed sighting in 1952 at Seranilla Bank. Caribbean monk seals are estimated to have had a lifespan of 20-30 years. Although long-term studies of the species in the wild did not confirm such longevity, this estimate is consistent with that of other monk seals. Assuming its accuracy, adults and any newborn individuals may have possibly persisted in the wild between the 1950s and early 1980s. If any remnant population did survive, it seems likely they consisted of scattered individuals, with no remaining colonies large enough to be viable in the wild.

In retrospect, the Caribbean monk seal population was already severely depleted, and likely extirpated throughout most, and possibly all, of its range prior to the passage of protective legislation under the U.S. Endangered Species Act and Marine Mammal Protection Act. In a span of approximately 300 years (from the latter 1600s through the latter half of the 1900s), uncontrolled hunting and human exploitation of Caribbean monk seals resulted in the extinction of a species that is estimated to have numbered a few hundred thousand. Caribbean monk seals killed for scientific collections in the late 1800s and early 1900s may have been the last major human impacts on the population, sealing the fate of this species several decades later.

Discussion

Due to their status, little information is known about the life history, habitats, and ecology of species currently considered endangered, threatened, or rare. In the case of Caribbean monk seals, very little was known of the species (see Figure 2) until it was extirpated throughout much of its range. We will never know whether some of the unconfirmed seal sightings in the Caribbean region during the latter half of the 20th century were among the last remaining individuals of the Caribbean monk seal or some other species. The call to protect Caribbean monk seals regrettably came too late and afforded little protection for a species that was already within the vortex of extinction before any meaningful conservation and recovery efforts could be undertaken.

Species' extinction due to human causes can occur quite rapidly. After only about fifty years of commercial hunting for their blubber in the early 1800s to 1860, the northern elephant seal (*Mirounga angustirostris*) nearly became extinct (Townsend 1885). Fortunately, the northern elephant seal population has recovered remarkably well following a ban on hunting. It is unfortunate that Caribbean monk seals were not afforded diligent protection in due time, and have become the first pinniped to become extinct in modern times as a direct result of human activities. The swiftness with which human activities can extirpate a species from the wild should serve as a reminder of the need for continued support of research, proactive conservation efforts, and international cooperation to implement conservation and recovery actions for threatened and endangered species.

The decline of Caribbean monk seals demonstrates the importance of taking immediate conservation actions when a species shows signs of decline, regardless of the available information on the species. Immediate conservation actions should be implemented while coordinated research and monitoring plans are developed to better understand the threats to a population, and how it would be expected to respond to conservation actions through adaptive management. Research should not only focus on the behaviour and life history of a species, but also its ecological context so as to manage effectively its long-term recovery. Based on modelling of the historical productivity of the Caribbean reef system required to support the Caribbean monk seal population (McClenachan and Cooper 2008), the biomass supported by Caribbean reefs today would support perhaps onefourth to one-sixth of the historical monk seal population. If seals still persisted in the region implications of restoring today. the reef productivity and protecting haul out sites would be integral to the recovery of seals as part of healthy



Figure 2. Studies of monk seals are limited to retrospective analyses based on very limited information on the species and data from the Caribbean reef ecosystems that once supported a thriving population of seals. Caribbean monk seal bones and pelts remain in scientific collections and it is recommended genetic samples be isolated from them for future reference and analysis. Genetic characterization of the species should occur while genetically useful samples of the species remain available for analysis. (Caribbean monk seal replica skull and mandibles photograph courtesy of Skulls Unlimited International Inc., Oklahoma City, Oklahoma.)

reef ecosystems. Current conservation strategies must consider the direct impacts on a species, understanding both the natural processes affecting ecosystems, and human activities impacting them. Incorporating adaptive strategies into conservation and recovery plans is needed to respond to new information and meet the challenges of ecosystem management to maintain stable populations and manage the long-term recovery of threatened and endangered species. The success of conservation and recovery strategies in keeping the imperilled Hawaiian and Mediterranean monk seal populations from the brink of extinction will depend on the success of continued study and monitoring of the populations, adaptive management strategies, and effective cooperation among stakeholders to implement needed conservation actions to recover these remaining species of *Monachus* to sustainable levels as part of a healthy ecosystem. The extinction of the Caribbean monk seal is regrettable, but should serve as a beacon for the conservation of species and their habitat, and as a reminder that species can, and do, quickly go extinct on our watch.

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The Monachus Guardian

Letters to the Editor

Question mark over monk seal pup at IMS-METU in Cilicia, Turkey?

Various Underwater Research Society – Monk Seal Research Group (SAD-AFAG) members have been informed by veterinarians in Mersin and Bursa (Uludag University) about a Mediterranean monk seal pup of the 2007 breeding season that was found along Turkey's Cilician coasts. According to those sources, the pup was brought to IMS-METU (Institute of Marine Sciences-Middle East Technical University) in January 2008, with the knowledge of Dr. Ali Cemal Gücü. Following exsitu rehabilitation for an as yet unspecified time, the pup died, according to the veterinarians.

SAD-AFAG is an open and transparent organization and has, since 1987, been providing information in detail on all the developments and stages of its research and conservation activities to public, relevant governmental organizations and the press. This includes information concerning the juvenile monk seal "Badem", from the beginning of her rescue and rehabilitation to the present day, where she is still freely wandering the whole of Gokova Bay, SW Turkey.

Through the platform provided by TMG, we would like to ask Dr. Ali Cemal Gücü to explain the claims reported to us above, and transparently confirm to the international public and press, as well as Turkish governmental organizations, whether such a pup or juvenile monk seal was found or not, and, if found, what kind of rehabilitation procedure was applied, when and where it was applied, and what was the fate of the rehabilitation. Further, if the seal died, what was the cause of death, and was a detailed necropsy report completed? And, if the story is indeed accurate, why has such an important development not been reported to the Ministry of Environment or publicized since January 2008? We strongly believe that it is a right to have public information on a critically endangered species made freely available, rather than at special request.

- SAD-AFAG, Ankara, Turkey, 22 May 2008.

✓ Ali Cemal Gücü, Deputy Director of IMS-METU, replies:

On 26 December 2007, a juvenile monk seal was found on a beach near to the IMS-METU campus. She was brought to the institute by a local fisherman guided by two staff from the regional branch of the Ministry of Environment and Forestry. The animal was extremely weak and unable to move. IMS-METU accepted the animal and immediately contacted the wildlife veterinary department of the Veterinary Faculty of Uludag University. Since it would have taken some time for the expert to reach the Institute, a local clinic veterinarian undertook the first treatment until Dr. Huseyin Cihan DVM arrived at the Institute.

The seal was kept in a cottage located within the harbour of the Institute. Entry to the site was forbidden and no one, except the vets and those involved in tube feeding, was allowed to see the animal. Unfortunately, the seal did not respond to the treatment and died few days after she arrived at the Institute. The postmortem report was prepared by the Veterinary Faculty of Uludag.

Readers of TMG will remember that this is not the first attempt of the IMS-METU to save the orphaned seals found on the Turkish coast; a pup was rescued in 2006, but the news was released <u>only after</u> the animal had been safely returned to its mother [see <u>Pup rescue in Samandag</u>, TMG 10(1): 2007]. The IMS-METU has always refused, and has been against, using such an event for publicity and fund-

raising. The principle adopted by the Institute is; a wild animal will become domesticated and imprinted on man if it is not isolated from people during the rehabilitation period. An intelligent animal, such as seal, densely interacting with people during the early stages of its life, will face difficulties readapting to nature and finding its place in the wild population. The concern for the fate of animals kept in captivity has been intensified by an unfortunate rehabilitation practice in Turkey. Although veterinary treatment was first-rate, Badem, a pup "transparently" rehabilitated, is now exhibiting aberrant behaviour never seen in the wild populations, such as resting in boats. Moreover, she is posing a threat to the people in the area; 8 swimmers were badly injured during her playful attacks just before the onset of the high tourist season. It is feared that the number of attacks will increase in the rest of the season. Therefore, like many other similar works IMS-METU practices to save the Mediterranean monk seal, the rehabilitation was not publicized. On the other hand, at the moment the animal was introduced to the Institute, all the relevant authorities involved, the Ministry of Environment and Forestry, in particular, were informed.

Using this opportunity, IMS-METU wishes to address a problem faced in the conservation studies carried out in the NE Mediterranean. As has been published in various articles in the TMG, the conservation team of the IMS-METU has been studying the seal colony in the northeastern Mediterranean. Until now, various studies have been carried out and the results of these studies have guided sound conservation measures, through which the decline of the colony has been reversed. One of these studies is to monitor the demographic changes in the colony. This is done by so called Population Viability Analysis. In order to perform this analysis, all the individuals in the colony have been identified to assess the size of the colony. After each breeding season, these estimates are updated by the number of pups born each year. Another crucial data required to perform this analysis is to know the individuals that die each year. This data is particularly important, because by knowing the cause of death of an individual, the threats to that particular age group can be assessed, so that the conservation measures can be modified.

The IMS-METU team does its best to obtain the data necessary to run this analysis; however in some cases, the carcasses could not be reached before they were taken away by others. In December 2004, April 2005 and March 2008, the carcasses of three seals were taken by SAD-AFAG, who later refused to share necropsy reports (assuming there are any), or any other info on the dead seals. Now the question to the monk seal community is why a "transparent" NGO takes the carcass of a seal in an area where research is carried out by a governmental research institute? What they do with this precious material? Where do they keep this material? How do they use this valuable data for the benefit of the rarest mammal of the Mediterranean?

Until now, IMS-METU has sent to TMG only news concerning its scientific works conducted for the conservation of the species; and this is the first and the last letter outside the Institute's mission.

- Ali Cemal Gücü, Deputy Director of IMS-METU, Icel, Turkey.

Sighting on Cyprus

While free-diving in Cyprus, my attention was drawn to a cloud of sediment suspended at about 7 meters' depth. I dived through this cloud to reach the bottom, and only then noticed the cave.

While I was returning to the surface, I realized that a cloud that big (1 x 3 meters) could only have been made by a fish disturbing sediment in the cave (there being no boats or scuba divers in the area), and so I dived again for a better look (by the way, I dive with no breathing apparatus and no hunting weapon). Suddenly, I saw something pale moving in the cave, and I stopped my descent.

After a few seconds a seal emerged from the cave: it was grey, with a paler underbelly, between 1.2 and 1.5 meters long and, after a few movements at the entrance of the cave, it swam towards the open sea.

I suppose the seal was hunting octopuses, since that cave was a place I would definitively look for such animals. Anyway, the encounter was rather brief and I cannot be more precise on the size of the seal or other details.

The sighting occurred at about 19:30 on the 22 July 2007.

- Luca Morandini, Italy, 28 July 2007.

Second sighting

I saw a seal 80m offshore from Makenzie beach, Larnaka, today Friday 25.01.2008 4pm. I was windsurfing alone and the animal appeared about 4-5m away on the surface, it was black and 1.5-1.8m long. First I saw the back making a swimming movement then it lifted up the head, saw me and disappeared. I think I am a lucky guy! Hope it will survive its visit to all-animal-killing-Cyprus!

- Jorg Grether, Cyprus.

✓ Editor's note:

We have edited the first of these letters from Cyprus to remove location names; the Mediterranean monk seal remains under unremitting pressure in Cyprus due to tourism pressures, coastal development, lack of in situ protective measures and a poor public awareness record.

Both sighting records were passed on to the responsible authorities in Cyprus and although we requested updated information on the status of the monk seal around the island, unfortunately, none had been received by the time we went to press.

Based on most recent available reports [see <u>Mediterranean Monk Seal Fact Files</u>], a question mark hangs over the status of Europe's most endangered marine mammal on Cyprus, despite sporadic sightings around the island (including northern Cyprus). A field survey in 1997 found evidence that monk seal individuals, although rare, continued to use certain suitable caves along the coastline [<u>The Mediterranean monk seal in Cyprus</u>, TMG 3 (2): 2000].

A 2005 monk seal status report by UNEP (RAC/SPA 2005) cited a figure of 2 individuals for Cyprus, largely, it appears, on guesswork.

A more protected monk seal population along the Cilician coast of Turkey may have some bearing on the fate of the species around the island of Cyprus, with individual seals crossing back and forth between coasts. A 2005 survey in northern Cyprus sighted 3 individuals (Gücü et al. 2006).

Further information on the last seals of Cyprus

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The editor reserves the right to edit letters for the sake of clarity and space





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- **Güçlüsoy, H.** 2008. Interaction between monk seals, *Monachus monachus* (Hermann, 1779), and artisanal fisheries in the Foça Pilot Monk Seal Conservation Area, Turkey. Zoology in the Middle East 43 (2008): 13-20. [Abstract]
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- McClenachan, L. and A.B. Cooper. Extinction rate, historical population structure and ecological role of the Caribbean monk seal. 2008. Proceedings of The Royal Society B – Biological Sciences: 1-8. [Abstract]



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• Karamanlidis, A.A., E. Androukaki, S. Adamantopoulou, A. Chatzispyrou, W.M. Johnson, S. Kotomatas, A. Papadopoulos, V. Paravas, G. Paximadis, R. Pires, E. Tounta and P. Dendrinos. 2008. Assessing accidental entanglement as a threat to the Mediterranean monk seal. Endangered Species Research. [prepress Abstract]

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- Marine Mammal Commission. 2007. Annual Report to Congress 2006. Marine Mammal Commission, Bethesda, Maryland: 1-208. [PDF 2.6MB]

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- NMFS. 2008. Endangered Species Act 5-Year Review for the Caribbean Monk Seal (*Monachus tropicalis*). National Marine Fisheries Service Southeast Regional Office, St. Petersburg, Florida, March 7, 2008: 1-20. [PDF 1255KB]



 SAD-AFAG. 2007. Report of Mediterranean monk seal habitat survey along SW Turkish coast performed jointly by SAD-AFAG & IFAW, July 2007. SAD-AFAG Report December 2007, Ankara, Turkey: 1-7. [PDF 21.9MB]

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Contents Next Previous

Home

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