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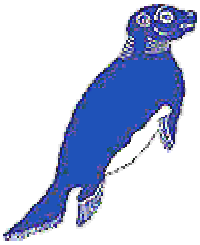


Editorial: Navigating the Monk Seal Maze – A Guide for the Layperson

Bowing to popular demand, The Monachus Guardian presents yet another satirical view of monk seal conservation. This time, we travel to Northern Greece for a United Nations Environment Programme conference in the Byzantine city of Arta…

International News

Regional News

Cover Story: Midway's Monk Seals

When attempts were made to forcibly reintroduce Hawaiian monk seals to a former breeding site at Midway Atoll, all 18 translocated animals either died or disappeared in short order. More recently, a drastic reduction in human disturbance, coinciding with the closure of Midway's Naval Base, has encouraged monk seals to recolonise the atoll of their own accord. But with ecotourism now developing on Midway, will this success story prove short-lived?

In Focus: New Discoveries in Cilicia

Researchers discover a hitherto unknown population of Mediterranean Monk Seals along Turkey's Mediterranean Coast…

Perspectives: The Life & Times of Q39

A diary of events surrounding the persecution of a yearling Hawaiian monk seal on Maui…

Monachus Science:

Antolovic, J. Mediterranean monk seal *(Monachus monachus)* habitat in Vis Archipelago, the Adriatic Sea.

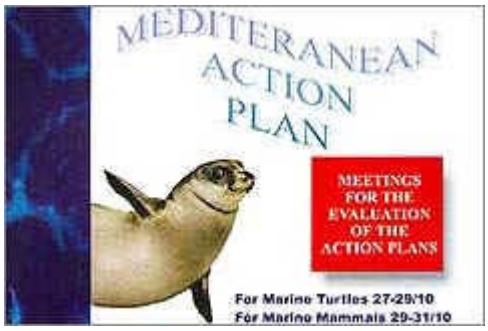
Lavigne, D.M. Historical biogeography and phylogenetic relationships among modern monk seals, *Monachus* spp.

Neves, H.C. & R. Pires. The recuperation of a monk seal pup, *Monachus monachus*, in the Ilhas Desertas – the conditions for its success.

Letters to the Editor

Recent Publications

Publishing Info



Editorial: Navigating the Monk Seal Maze

Midway's Monk Seals

Conservation on the Desertas Islands

The Monachus Guardian
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Editorial

Navigating the Monk Seal Maze – A Guide for the Layperson

In writing this Editorial, we have only one well-considered aim: to address those people who – apparently being of sound mind – persist in their unfounded suspicion that monk seal conservation is not rocket science.

In other words, we aim to provide some much-needed answers to those who, for one reason or another, are still confused. Why, they are emboldened to ask, is the monk seal more endangered than ever, even after some thirty years of 'urgent measures', 'action priorities', 'action plans', and other hyperbole of the conservation trade? How can it possibly take two decades, they demand (*apparently being so ill-acquainted with pragmatic realities at ground zero*), to produce a simple leaflet, let alone a network of inter-connecting reserve areas?

As any self-respecting bureaucrat will readily admit, issues of this nature are highly complex, some, indeed, to such a degree that few people can ever be expected to understand them. Naturally, it is precisely for this reason that explanations are rarely forthcoming at all.

However, here at The Monachus Guardian – mindful of the criticism that conservation of this one species may, at current projections, take slightly longer than the evolution of a small planet – we shall now do our best to illuminate, to correct the misconceptions of the layperson, to straighten the forked tongue.

We will not – for the sake of our own sanity as much as that of our readers – delve into more tortuous, philosophical aspects of this debate (*e.g.* the cynical view that a great deal of monk seal conservation might owe more to the survival of human careers than the survival of the species). For now, we shall merely confine ourselves to the subject of 'Achievement'. Knowledgeable readers versed in diplospeak (or, indeed, its Orwellian counterpart, 'doublespeak') will immediately realise that, by employing this term, we mean its polar opposite.

Fortunately, we need look no further for our answers than the bustling town of Arta in the Greek region of Epirus, which graciously hosted the recent *United Nations Environment Programme Mediterranean Action Plan Meeting of Experts on the Implementation of the Action Plans for Marine Mammals (Monk Seals and Cetaceans) Adopted Within the Mediterranean Action Plan*.

As most readers will no doubt realise, impressive titles of this kind are normally coined by UN staffers to inspire the general public – whose support for monk seal conservation has, after all, been pinpointed as a priority for action since at least 1978. For the sake of brevity, however, we shall, henceforth, confine ourselves to employing official UN-designated

acronyms, such as UNEP/MAP RAC/SPA (pronounced '*RACKSPAR*'). Any superficial similarity between these and Soviet-era agro-industrial monoliths like *GAZPROM* or *SOVKHOZ* is entirely coincidental – even if they were similarly adept at meeting the targets of their 5-Year Plans.

In much the same vein, the fact that a convocation of this kind – involving vital behind-the-scenes politicking and diplomatic manoeuvring – should be held in a town renowned for its Byzantine cultural heritage, and in conference facilities offered by the Hotel *Byzantinon*, holds no significance whatsoever.

At this point, for the dual purpose of instructing and entertaining our readers, we present a multiple-choice quiz – a small brain-teaser, if you will – in order to pinpoint the precise reasons for convening a marine mammal conference in the picturesque town of Arta.

The UNEP/MAP RAC/SPA meeting was held in Arta because:	**Yes**	**No**
1. Lying on the shores of the Ionian Sea, Arta could offer assembled delegates a practical demonstration of the ecological problems affecting monk seals and their habitat…		
2. Arta is due to become a Natura-2000 reserve area for monk seals…		
3. Officials realised the obvious benefits to public awareness – and therefore to the conservation of the species. With hotels, shops, restaurants and fishers all benefiting economically from the conference, the local community as a whole would be encouraged to protect its monk seals…		
4. Arta lies nowhere near the sea at all (and consequently, sightings of seals and other marine mammals are somewhat rare)…		
5. A certain high-ranking government official happens to be Member of Parliament for Arta…		

We advise readers who answered 'yes' on questions 1-3 not to quit their day jobs. Those who unhesitatingly ticked 'no' on the same items and 'yes' on 4-5 might wish to consider an obviously promising career in executive nature management.

Several alert readers have asked us: "Sir – Why are conferences of this type always held below ground, basically in converted bunkers, devoid of natural light, and yet with generous illumination by fluorescent tubes?" Despite various fanciful theories for this intriguing phenomenon – that we shall not dwell on here – evidence suggests that the unique atmosphere created in such environments stimulates, as it were, a kind of vague, listless daze or abstraction among the assembled delegates, thereby cultivating the precise state of mind required to draft UN conservation documents.

As NGO observers were reminded on several occasions during the course of the proceedings, conference recommendations would be presented to the (Government) Parties to the

Barcelona Convention, and must therefore be couched in suitably abstruse diplomatic language. We provide the following example to illustrate this on a practical level.

To avoid the diplomatic impropriety of over-emphasising the need to enact *urgent* (*i.e.* now, at once, immediately…) measures, wherever possible, relevant clauses must appear in the *past* rather than the *present* tense. Note also, how the aforementioned abstraction process effortlessly removes any direct reference to the offending nations concerned. *Incorrect:* "Immediate action is required to halt the ongoing killing of monk seals by fishermen in Greece and Turkey…" *Correct:* "Participants noted, *inter alia*, a need to address the issue of seal-fishery interactions, which was leading to human-induced mortalities in certain countries…"

Observers were also reminded that any hypothetical decision on who might be made responsible for actually implementing such measures was none of their concern. These were merely *Recommendations* to the Parties, who, in their infinite wisdom, and in the fullness of time, and at the appropriate juncture, would pronounce judgement on such matters.

In our unstinting efforts to enlighten the layperson, and to disabuse them of any temptation to criticise without due cause, this naturally brings us to Agenda Item 9: *Assessment of the Implementation of the Action Plan for the Management of the Mediterranean Monk Seal*.

In other words, it was at this particular juncture that the honourable delegates were requested to impart what progress their respective governments had made in the four years since the last UNEP/MAP RAC/SPA conclave in Rabat, Morocco. Naturally, in most cases, this did not take much time. There were, however, several impressive performances, in which the illusion of substance appears to have been created out of nothing more than thin air. Although scarcely credible, others were able to reproduce, in almost perfect facsimile, the same promises they made in 1994, or 1988. One country (note our own scrupulous use of UN protocols) recalled that its own march towards the conservation of the monk seal had started with the declaration of the Dilek Peninsula as a National Park, while studiously neglecting to mention that guards at the main gate **(a)** Actually have no idea that the Park incorporates a marine protection zone as so frequently alleged and **(b)** Do not possess even so much as a rowing boat to patrol the area even if they did…

Recalling its former efforts in captive breeding feasibility studies (apparently abandoned – although the responsible delegate offered no explanation of the whys and wherefores) *another country* stated its willingness to "take appropriate measures". This was subsequently explained as "captive breeding without enforced capture." Presumably, monk seals will be encouraged to volunteer for this programme, but in the spirit of impartiality, we shall refrain from further comment.

In an altruistic display of affection for the monk seal, Morocco risked the official displeasure of the UN, and the censure of its neighbours, to re-announce its 1994 intention to create a National Park in disputed territory on the *Côte des Phoques.*

In what is fast becoming a fashionable trend, several delegates announced that their respective governments had completed long-running plans to establish protected areas for the monk seal – the only apparent drawback being that the populations they were designed to protect had unfortunately become extinct during the intervening years.

Alert readers will no doubt have noticed, in the second paragraph of this editorial, an obscure reference to a certain "leaflet" that has yet to be published, several years (*i.e.* 20) after the idea

was first mooted (Rhodes, May 1978) and ten years after it (*i.e.* an information campaign of this kind) was officially adopted by the Parties as a component of the Action Plan (Athens, January 1988). While it may be tempting to criticise, responsible individuals must always caution against precipitate action. Thus, following some lengthy discussions on the merits of finally producing a publication that addresses the threats posed to the monk seal and its fragile habitat by a billion-dollar mass tourism industry, any specific reference in the Arta documents slipped delicately from view (apparently in favour of the more generic "Special attention should be paid to increasing awareness of decision makers" – which, as everyone will no doubt agree, hammers home the required message in no uncertain terms).

A number of participants have asked us to comment upon a curious – if rather spectacular – incident in which roughly half the world's population of Mediterranean monk seals apparently fell off the edge of the Earth. Again, we shall do our best to oblige, even at the risk of our readers jumping to the conclusion that some UN officials are obviously still convinced that the Earth is flat.

This peculiar *diplomatic versus biological reality* debate erupted when several scientists and NGOs persisted in their unreasonable demand that specific references to Atlantic populations of monk seals be included in the Recommendations to the Parties. Yet as the honourable Conference Chair so lucidly pointed out to them, under current rules of procedure, the monk seal ceases to exist beyond the Straits of Gibraltar. The geographical limits of the Mediterranean and therefore – by implication – its own Action Plan had apparently escaped their attention. Unfortunately, these same individuals were not to be dissuaded from their unseemly display of recalcitrance, eventually obliging a reluctant (and, it must be said, somewhat *ruffled*) Chair to propose a deft compromise solution, in which studious ambiguity assuaged their concerns, while removing any possible diplomatic *faux pas* from resulting documents.

Laypersons, being sadly ignorant of such matters, have questioned why governments and government institutions appear to hold the whip hand (*i.e.* in funding) when the very people who are making major strides in actually saving monk seals and their habitat are so often devoid of political influence and starved of funds. Why, they demand incredulously, did you spend millions on **(a)** studying the feasibility of capturing monk seals for a marine circus in France **(b)** studying the feasibility of capturing animals for what turns out to be a major tourist resort in Spain **(c)** constructing a weekend villa (*i.e.* laboratory) for concerned scientists *etc.* when, of all reserve areas currently established for monk seals in the Mediterranean, 99.9% have inadequate (*i.e.* non-existent) guarding, management plans or management authorities?

Responsible individuals must caution the layperson against indulging in such criticisms, particularly since a 1997 financial and administrative audit commissioned by the EC delivered a clean bill of health to EC-supported monk seal programmes. The fact that the audit report remains classified can be attributed, not to any bureaucratic intrigue – the usual clarion call of the mischief-maker – but simply to an understandable need to respect confidentiality.

Also, at this dawn of the new millennium, let us not forget that great diplomatic progress has been achieved in encouraging vital cooperation between certain countries in the Eastern Aegean that share both borders and seals. An enduring Cold War in the region had threatened to scupper this 20-year old action priority, until a hastily arranged conclave between the parties concerned forged an 11th hour compromise. A pledge of "Cooperation" was the first recommendation to be thrown onto the negotiating table, and yet for obvious reasons this proved rather too intense for those at centre stage. Unfortunately, "Collaboration" suffered a similar fate, while a proposed "Communication" was criticised as being too weak by those

striving to broker a compromise. At long last, however, agreement was reached and, under Items 17-19, the Recommendation in question now proudly reads: “RAC/SPA should encourage further contacts between conservation projects for monk seals.” It was, as the reader can well imagine, an exhilarating moment.

As one honourable delegate conceded privately after the negotiations, “It was a minefield out there.” How very true.

Indeed, one might also venture that the 100 Turkish and Greek warplanes engaged in simulated dogfights over Cyprus and the Eastern Aegean at that particular moment, provides, for the layperson, an illuminating demonstration of diplomacy’s often-unappreciated talents.

If so, readers of this calibre may well be shocked to learn of a related criticism, which we can summarise as follows: “Why spend hours negotiating semantics when, if past performance is anything to go by, there is very little chance that the governments will do any of these things anyway?”

In much the same vein, another reader asks: “Sir – In view of the fact that, **a)** in 1985, the Contracting Parties to the Barcelona Convention announced their intention to achieve the protection of the Mediterranean monk seal by 1995, and that **b)** there now appears to be only a slim chance of them reaching this deadline without the invention of a time machine, wouldn’t this sorry state of affairs indicate a pressing need to overhaul relevant international mechanisms responsible for the conservation of the species and its habitat?”

We hope that the views expressed above will serve as a cautionary tale, illustrating, in no uncertain terms, how governments and inter-governmental organisations may be held to ransom by arbitrary deadlines (even if, in some inexplicable and inadvisable fit of exuberance, they themselves were responsible for setting such unrealistic time-frames).

We also trust that readers will recognise the extent to which this represents the proverbial slippery slope, the thin end of the wedge. The inevitable dashing of unrealistic hopes will, we maintain, take an inexorable toll. A case in point: an anonymous proposal at Arta to replace the existing UNEP/MAP RAC/SPA conferences with ‘Implementation Workshops’, in which participants would be assigned *specific tasks* in order to meet the *specific targets* identified in the Action Plan.

Readers would do well to consider the hidden ramifications of such an audacious plan. Workshops of this kind, it was alleged, would also serve to restructure the administrative hierarchy influencing or governing monk seal conservation internationally. The official status accorded to individuals attending these so-called ‘Workshops’ would no longer reflect their hard-earned rank as government officials, diplomats, or top-notch nature managers, but solely their usefulness to the conservation of the monk seal.

“It appears,” ventured one participant, “that we are on the verge of thinking the unthinkable.”

Illustrating the depths to which some people may stoop, it was even suggested that government presentations detailing progress at Arta bore more than a passing resemblance to wartime newsreels – those bouncy, breezy, unashamedly upbeat broadcasts that were somewhat economical with the *actualité*. According to one particularly unrepentant cynic, RAC/SPA might wish to reinforce this particular impression by arranging for rousing, patriotic music to be piped in via our simultaneous translation headphones at subsequent meetings.

We have, naturally, no time to waste on such malicious tittle-tattle. Indeed, such critics, before rushing to judgement, would do well to remember that they may not always be privy to the facts at hand, or conversant with matters that must operate on a different plane, and in the rather more rarefied atmosphere of official confidentiality. Here, we may cite a perfect example: the criticism, heard with rather discourteous frequency at Arta, that no report had been drawn up to assess, with some degree of impartiality, the success or failure of the Parties to implement their agreed Recommendations (or, indeed, RAC/SPA's own obligations in this regard). This, of course, is nonsense, and rather typical of the misinformation propagated by critics. Indeed, according to credible reports circulating in Arta, a rather comprehensive assessment *was* prepared for the conference, detailing the gaps, failures and broken promises of governments, but was simply not copied or circulated among the assembled participants.

All of which, we would contend, only serves to demonstrate how ill-informed criticism benefits neither the seeker of truth nor the conservation of Europe's most endangered marine mammal.

Finally, at this particular juncture, we urge everyone to recall the emotive scenes of delight and relief as the Arta conference drew to a close, with all participants congratulating each other on a job well done!

International News

UNEP/MAP Conference in Arta

As readers will no doubt have realised from our tongue-in-cheek Editorial – Navigating the Monk Seal Maze: A Guide for the Layperson – an international conference was convened in Arta, Greece, on 29-31 October to evaluate progress, and to identify additional priorities, in implementing Action Plans for the conservation of marine mammals as adopted within UNEP's Mediterranean Action Plan.

Nineteen Contracting Parties were represented at the meeting – although it must be said that only a minority appeared to be particularly conversant with Mediterranean monk seals as a focus of discussion. This was regrettable, since an ideal opportunity to learn more from countries where question marks continue to hang over the status and conservation of the species was lost. This was especially true of Libya, Syria, Albania, Slovenia and Croatia. In other cases, presentations that raised particularly intriguing issues often provided inadequate details. Algeria, for example, noted that two national reserves – including two islands – had been established, although it remained unclear as to how these protected areas might benefit monk seals. Similarly, in reporting a number of recent seal sightings, Tunisia raised the possibility that the declaration of the species' extinction in that country may have been somewhat premature. Again, we can only await further details and clarification with keen interest.

As is so often the case with official gatherings of this kind, breaks for coffee, lunch and dinner offered news of a far more interesting and candid nature than available in the prepared speeches and statements of the delegates. This was particularly evident in news emanating from Mauritania and the Western Sahara. Declaring that "the past is the past", Mauritanian officials announced that they would no longer tolerate internecine squabbling between foreign research and conservation teams operating in the country – a decision that will no doubt be warmly welcomed by anyone who places monk seals higher than personal ambition and ego.

Many participants, it seems, were also somewhat astonished to learn that a monk seal pup was undergoing rehabilitation in Mauritania, in an operation organised by the Spanish Monk Seal Project in association with the UK's Royal Society for the Prevention of Cruelty to Animals (RSPCA). Although the animal had been rescued 6-9 months ago (depending on the origin of the rumour), this was apparently the first they had heard of the matter (See Regional News for further details).

As alluded to in our Editorial, UNEP/MAP rules of procedure meant that no official government representatives attended the meeting from either Madeira or Mauritania. Indeed, to all intents and purposes, for the Parties to the Barcelona Convention, the Mediterranean monk seal ceases to exist beyond the Straits of Gibraltar – a political reality whose existence was lucidly confirmed by the conference chair. Readers wishing to comment on this particular

phenomenon, or to share their impressions of the Arta conference in more general terms, are kindly invited to address their letters to the editor@monachus.org.

Readers wishing to study the conference Recommendations, as finalised by the participants by the close of the meeting, should click on the following link: UNEP/MAP Conference Recommendations [in Annex].

The Monachus Guardian hopes to publish the full proceedings of the conference – and related documents – as soon as they are made available by RAC/SPA. These will be available for online browsing or download in the Library of www.monachus.org.

Monk Seal Classic Online

Iridescent Publishing has published six substantial extracts from *The Monk Seal Conspiracy*, a critically-acclaimed book of political intrigue and front-line conservation in the Eastern Aegean. The site can be found at http://www.iridescent-publishing.com.

'A passionately written and entertaining book...' according to John Harwood in *New Scientist*, '…we need books like this to remind us how easy it is to believe that complacency is really pragmatism.'

Has Anyone Seen a Caribbean Monk Seal?

The following item is excerpted from *Circumstantial Evidence for the Presence of Monk Seals in the West Indies*, which was published in the UK journal Oryx earlier this year…

"Based on interviews with 93 fishermen in northern Haiti and Jamaica during 1997 an assessment was made of the likelihood that monk seals survive in this region of the West Indies.

Fishermen were asked to select marine species known to them from randomly arranged pictures: 22.6 per cent (n=21) selected monk seals. This number was significantly ($P < 0.001$) greater than the number who selected control species (walrus, harbour seal, and sea-lion) that they were unlikely to have observed. However, it was not significantly different (n=19, P 0.1) from the number who selected manatees, which are known to occur in the region in small numbers. More than 95 per cent of respondents also identified species that are known to occur commonly in the region.

Further questioning of the 21 respondents who selected monk seals suggested that 16 (78 per cent) of them had seen at least one in the past 1-2 years. Those fishermen that were able to provide further descriptions gave information about size and colour that was consistent with many of these seals being monk seals. It is possible that the Caribbean monk seal is not extinct." – *Ian L. Boyd, British Antarctic Survey, Natural Environment Research Council, Madingley Road, Cambridge CB3 0ET, UK.*

Responding, Greg Early of the Edgerton Research Laboratory in Boston writes:

"Those interested in the above article may also wish to check the following website: http://www.tradewinds.vi/html/960909nc.html for an account of a hooded seal stranding in St.

John's (US Virgin Islands). Hooded and Harp seal strandings have increased greatly along the east coast of the US in the past decade.

Although this may be an isolated incident (and I have not seen the full text of the above article, and do not know if photos of juvenile harp and hooded seals were used in the investigation) sightings of extralimital arctic seals may account for at least some of the sightings of phocids in this area. – *Greg Early, Edgerton Research Laboratory, New England Aquarium, Central Wharf, Boston, Mass 02110.*

Mysterious 'Marine Debris' Discovered at French Frigate Shoals

Given the reluctance of some Hawaiian scientists to implicate – at least explicitly – dumped fishing gear in the continuing decline of *Monachus schauinslandi* [see Monachus in Monaco, The Monachus Guardian Vol. 1 No. 1], recent events at the north-western Hawaiian Islands may serve as a rather rude awakening.

According to the Associated Press, on 9 November the U.S. Coast Guard unloaded 6 tons of discarded fishing nets in Honolulu that had been collected during a cleanup of coral reefs near French Frigate Shoals in the Hawaiian Islands. The cleanup was a cooperative effort mounted by federal, state and private agencies. The National Marine Fisheries Service (NMFS), reported AP, 'will work to identify the sources of net debris.'

Regional News

Croatia / Greece / Italy / Madeira / Mauritania & Western Sahara / Turkey

Croatia

Dr. Jasna Antolovic, of The Mediterranean Monk Seal Group (MMSG) in Zagreb (a division of *The Association for the Research and the Protection of Nature*), reports that the Mediterranean monk seal used to be widespread throughout the Adriatic Sea but today is very rare, mainly due to human influence. Between 1994-1998, MMSG researchers led by Dr. Antolovic conducted a survey of monk seal habitats in the Vis archipelago in the central Adriatic. During the last 20 years, only 16 specimens were reported to have been observed in the area, and the MMSG survey could find no evidence of the seal's continuing presence. However, a report on the survey notes that the seal's former habitat has not changed appreciably, and may thus be used to encourage a possible re-population of the area through the establishment of specially protected areas.

The MMSG is the only scientific research group currently undertaking fieldwork in former, and potential, habitat areas of the monk seal in Croatia. Addressing problems concerned with the preservation of the species, the group also seeks to increase public awareness (an activity that has most recently focused on a poster distribution campaign). Researchers also attempt to maintain constant informational contact with fishers in order to record any possible sightings of the monk seal.

In 1997 and in August 1998, reports Dr. Antolovic, the MMSG carried out research in the Vis archipelago (Vis, Bisevo, Svetac, Pelagruza), but failed to detect any monk seal presence, despite gathering valuable data on the species' former habitat. While sighting reports in the Adriatic have been received, MMSG researchers have yet to determine the origin and occupied habitat of the observed animals.

> **Monachus Science:** Antolovic, Jasna. 1998. The Mediterranean Monk Seal *Monachus monachus* – Habitats in Vis Archipelago, the Adriatic Sea.

Greece

IFAW-ODYSSIA Surveys Aegean Target Areas

During the summer, MOm's research team carried out an extensive field expedition to proposed Natura-2000 reserve areas in the Aegean, collecting data and evaluating the status of monk seal populations. Setting sail on the 1st June from Syros, the field team, aboard MOm's research vessel *IFAW-ODYSSIA*, travelled first to the island complex of Milos-Antimilos-

Kimolos-Polyaigos. All currently-identified monk seal shelters were visited and their use monitored. Additional data on monk seal individuals frequenting the area were also collected.

The importance of the Milos island complex as a habitat for the Mediterranean monk seal had been documented in previous studies, and through the considerable number of reported monk seal sightings collected by MOm's Rescue and Information Network (RINT). Further research identified many suitable caves for resting and reproduction along the coastline of the islands. Recent fieldwork has also verified regular use of these shelters by the animals. Emphasising the area's importance to the species, 7 newborn pups were observed during the previous reproductive period (97-98).

The next port of call for the *IFAW-ODYSSIA* was the Kasos-Karpathos complex, where the team, having the ability to be at sea for prolonged periods, monitored all presently known seal caves at both islands and neighbouring uninhabited islets. Continuing the voyage, the research vessel then put in at the island complex of Fourni. As a result of similar research in this area, MOm notes that valuable data have been collected, particularly in terms of habitat use and photo-identification of monk seal individuals.

The importance of this area for the monk seal became apparent from the number of observations collected though the six year operation of RINT. An additional 50 reports have been recorded by the local representative of the RINT since the inception of MOm's European Union LIFE project in 1997. Such reports assist in monitoring the seal's recent use of the area, while field trips have enabled a detailed survey of the coastline, thereby identifying caves that are suitable for resting and reproduction. The importance of the area for the species was suggested by the presence of two newborn pups during the previous reproductive period. Since January 1997, two adult seals were found dead in the area. Based on the findings of the necropsies, the death of one of the two animals may be attributed to a blow from a sharp object.

Culminating the 40-day expedition, that covered close to 700 nautical miles, the *IFAW-ODYSSIA* sailed back to the National Marine Park of Alonnisos, Northern Sporades. While monitoring of monk seal populations in the target areas continues, more intensive scrutiny began again in September, marking the new reproductive period.

For further information on the four key areas that are due to become Natura 2000 areas protecting monk seals and other endangered species, please turn to our Geographical Snapshot (in Vol. 1 No. 1).

Monk Seal Information Centres Established

As a key objective in raising public awareness in the Natura-2000 target areas, MOm has opened three Monk Seal Information Centres on the islands of Karpathos, Milos and Zakynthos (the latter coordinated by MOm's sub-contractor to the EC LIFE-Nature project, WWF-Greece).

The Centres are equipped with photographic exhibits and information panels, covering topics such as the biology of the Mediterranean monk seal, and efforts to conserve the species and the natural environment of the islands. Children's drawings and rare exhibits of monk seal skeletons are also on display to draw the attention of visitors. Staff and volunteers provide additional information to the public, conducting lectures, slide or video shows. A specially-designed leaflet on the natural environment of each target area is also distributed among visitors to the centres.

A priestly blessing for the information centre on Milos

Another new Information Centre is scheduled to open next year on the island of Fourni. Outside the current target areas, MOm has established similar centres on Alonnisos, Skopelos and Skiathos in the Northern Sporades Marine Park, and Syros in the Cyclades.

Monk Seal & Coastal Fisheries Study On Zakynthos

A technical-economic study on the impact of Mediterranean monk seals on coastal fisheries in Zakynthos (Ionian Sea), was recently completed by *Archipelagos – Marine and Coastal Management* for WWF-Greece (as part of MOm's EU-supported *Conservation in Action* project). Among other issues, the damage caused by seals to trammel nets was quantitatively and qualitatively investigated. Damage to catch and gear is the principal cause for deliberate killing of monk seals in Greece.

Researchers from *Archipelagos* spent the month of November 1997 on a Zakynthian fishing boat, working with local fishers and recording data firsthand. The study found that the values of catch per unit of effort, and of gross profit, were drastically reduced with the gradual deterioration of the net's condition due to seal damage. The reduction was even greater considering the market value of mullet, an important target species.

This pilot field study tends to reinforce what the fishers themselves have been saying for years: damage caused by seals is considerable, and a solution to the problem must be investigated. Specific proposals are presented in the report. For further information, please contact either Archipelagos - Marine and Coastal Management or MOm.

Ten Candles

MOm celebrated its tenth anniversary on the 5th September with a concert given by the well-known Greek composer and musician Nikos Papazoglou. Held on a beach in the Pireus area, on a mild, full-moon night, the concert attracted over a thousand people, helping – with additional publicity in the media – to keep the monk seal message in the public eye.

Summer Volunteer Program Draws to a Close

Every summer, from June to September, the ranks of MOm's field workers are swelled by an influx of volunteers, who staff the organisation's Information Centres and assist in various

other public functions. This year, the 70 volunteers in the Northern Sporades, Syros, Milos and Karpathos brought MOm's monk seal conservation message to 25,000 visitors.

MOm Records Season's Newborn Pups

Awaiting final results with bated breath, MOm continues to gather up-to-the-minute data on the numbers of newborn pups in various study areas. Although only halfway through the reproduction season, MOm researchers have so far counted 15 newborn pups in the Northern Sporades, Milos and Kimolos, Karpathos and Kasos.

Although cautioning that these represent only interim results, MOm regards the news as "greatly encouraging, giving the best possible illustration of the meaning of our work".

Monk Seal Phone Card

1998 saw the production of a monk seal phone card by the Greek Telecommunications company OTE. Although providing no direct corporate sponsorship income to WWF-Greece (who led the initiative), the card once again brings the monk seal into the public eye, while prominently listing the charity's Athens hotline for information and donations.

Italy

Sightings

The Rome-based Gruppo Foca Monaca (GFM) reports sightings of monk seals during the summer months. Observations have been reported since 1995 and average two per year. Although photographic evidence remains elusive, observers who reported the sightings are regarded as reliable. The recorded seals have been observed off the north-eastern and south-western coasts of Sardinia during the summers of 1995, 1996 and 1997. Recent sightings occurring in June, July and August of 1998 originate from the islands of Pantelleria, the south-western coast of Sicily and Malta. Observers have described these individuals as approximately 1.5 metres long. Reports usually portray the individual observed as stationary, floating at the water's surface a few hundred meters from the coast. In some cases, observers report that they approached the individual close enough to see the vibrissae (*i.e.* the whiskers). Observation duration is short (reported as a minute or two), after which the animal dives and is not seen again.

There is a general consensus of opinion in the scientific community that the Mediterranean monk seal is extinct in Italy because of the lack of a reproductively-active nucleus along national coasts. However, recurrent observations indicate a persistent presence of single individuals. These individuals are generally regarded as stragglers from other regions. The origin of these seals may be from Tunisia, due to that country's proximity to the sighting areas, although no seal observations have been reported from Tunisia in recent years (See

International News – *Ed.*). Without more specific information on monk seal habitat use by different age classes, it is difficult to hypothesise on the origin of these individuals, reports GFM.

GFM believes that the establishment of several Marine Protected Areas containing suitable habitat for monk seals, and the future design and implementation of management plans for those reserves, may provide a serious and useful tool for conservation of the species in Italy, possibly encouraging natural re-colonisation.

If this is to be achieved, however, more time and effort must be devoted to monk seal sighting research and investigation of habitat use along Italian coasts and those of neighbouring countries. GFM believes that the presence of single individuals, errant though they may be, is a reality that monk seal conservationists should not ignore since safeguarding even single individuals is, now more than ever, imperative to the survival of the species.

Madeira

The Parque Natural da Madeira reports that conservation efforts are proceeding according to plan at the main monk seal colony on the Desertas Islands. Following established practice, guarding and monitoring is taking place on a year-round basis. As in Greece and Turkey, Madeiran monk seal conservationists are anxiously awaiting the breeding season's new arrivals. According to latest reports, one pup has already been born, and two more are hoped for.

At *Ponta de Sao Lourenco*, on the north-east of Madeira island, isolated monk seals have recently been detected by Natural Parks wardens, and efforts are underway to increase monitoring in the area. A warden station, similar to the one established on the Desertas Islands, has been set up, thereby lending improved protection to monk seal habitat at the *Ponta de Sao Lourenco*. It is hoped that this increased security will eventually encourage the species to permanently recolonise the area.

The northern view of the *Ponta de Sao Lourenco* peninsula.

Full legal protection has recently been achieved with the passing of Legislative Regional Decree 11/97/M, which creates a Nature Marine Reserve in the area.

> **Monachus Science:** Neves, H.C. & R. Pires. The recuperation of a monk seal pup, *Monachus monachus*, in the Ilhas Desertas – the conditions for its success.

Mauritania & Western Sahara

Political Developments

Political uncertainty in the disputed Western Sahara continues to deadlock efforts to protect the *Côte des Phoques*, despite Morocco's politically-expedient decision to re-announce the establishment of a national park for the area during the recent UNEP/MAP conference in Arta, Greece.

On 10 November CNN/Reuters reported that U.N. Secretary-General Kofi Annan had held talks with Moroccan officials to gain final approval for a compromise plan to resolve the long-running conflict. UN sources claimed that verbal agreement had already been reached, but that Annan was seeking confirmation before proceeding with his initiative.

Annan had been scheduled to continue his North African tour with a visit to Algeria and meetings with Polisario Front leaders until the mounting crisis in Iraq intruded upon his mission. Other high-ranking U.N. officials were expected to take his place in the Polisario talks.

Morocco and the Algeria-based Polisario both claim the phosphate-rich Western Sahara, and fought a bitter guerrilla war until the late 1980s. Conflict over the 266,000 sq. km (103,000 sq. mile) territory is second only to Cyprus as the longest-running dispute involving the United Nations.

In what was interpreted as a move to break the deadlock between the opposing sides, Annan warned that U.N. peacekeeping troops stationed in the former Spanish colony since 1991 could not remain indefinitely, and he urged the rival parties to support his five-point plan to resolve the dispute.

A U.N.-organised referendum originally scheduled for January 1992 was to determine whether the Western Sahara should be incorporated into Morocco (the *de facto* administrators of most of the territory), or become independent as sought by the Polisario. However, the referendum has been repeatedly postponed due to disagreement over voter eligibility for the members of three tribal groupings. Annan's peace initiative attempts to bridge these opposing views, and CNN/Reuters reports that Morocco has promised to respond to the plan by the end of November. The vote is currently scheduled for December 1999.

Mystery Surrounds 'Captive' Pup

Little or no information has been made publicly available on the status of a monk seal pup, currently undergoing rehabilitation in Mauritania/Western Sahara. The operation is being conducted by the Spanish Monk Seal Project, in association with the Norfolk Wildlife Hospital of the Royal Society for the Prevention of Cruelty to Animals (RSPCA).

Predictably, this dearth of information has fanned rumours regarding both the fate of the pup and even the intentions of those responsible for its health and welfare in captivity. According to some reports, the pup has been undergoing rehabilitation for nine months, though sources closer to the Spanish team insist that it is only six months since the animal was rescued. These same sources maintain that, although healthy, the pup has yet to learn to eat of its own accord. The animal will be returned to the wild, it is claimed, as soon as such action is warranted from a veterinary standpoint.

Efforts by The Monachus Guardian to clarify matters have met with little tangible response so far. Spanish scientists and the Norfolk Wildlife Hospital either declined to comment or did not reply to our e-mailed requests for information in the week prior to our publishing deadline.

An official at the RSPCA's Norfolk Wildlife Hospital offered only the following comment: "All I can say is that the pup is alive and well. The rehabilitation is ongoing so there will be no real conclusions until after the seal is released and monitored post release. Until then everything is a bit premature…"

Mauritanian government experts, however, have criticised the project for constructing a temporary rehabilitation unit on a beach close to the Côte des Phoques caves – in an area they cannot access due to military and political tensions. It is also claimed that this action violates a previously-reached verbal agreement between the parties concerned.

Ironically, even a member of the Steering Committee for the Spanish Monk Seal Project, when contacted by The Monachus Guardian for additional information, was caught off guard. "What?" he responded, "I am not even aware that the Spanish team is rehabilitating a pup. The Steering Committee has expressed concern in the past about rehabilitation protocols for Mediterranean monk seals. So, I am astonished that we have not been consulted regarding the situation."

Indeed, several observers have highlighted the irony of the current situation, given the Spanish team's well-aimed and strident demands for the adoption of internationally-agreed protocols governing the rescue and rehabilitation of orphaned, wounded and sick monk seals. Predictably, perhaps, there have been some references to pots calling kettles black…

Laying Down the Law

News on the grapevine suggests that Mauritania will soon lay down the law to foreign research and conservation teams, demanding either full compliance with agreed policies, and cooperation between all chosen parties, or – to put it bluntly – they may be asked to pack their bags and leave.

Observers will recall the strife and bloodletting that surrounded last year's mass die-off of monk seals on the *Côte de Phoques*, an inter-organisational conflict that may have compromised rescue efforts. According to some observers, the Spanish and Dutch squabbles also served to cloud *in situ* activities that have never been particularly renowned for their transparency.

The reform policy underway in Mauritania appears to have been spurred by the healing of a rift between two government agencies, the Banc d'Arguin National Park and the *Centre National de Recherches Océanographiques et des Pêches* (CNROP) – a rift that may have been shamelessly exploited by certain parties in order to further their own agendas.

Now, the Banc d'Arguin and the CNROP are drawing up comprehensive guidelines and refining policy in order to coordinate monk seal activities efficiently. These are expected to be finalised early in the new year, at which time foreign experts will be invited to provide additional input in order to refine, develop and implement the action plan. Translocation, at least for now, appears to have been stricken from the agenda.

Despite some obvious misgivings in certain quarters, the Mauritanian authorities will be gratified that their promising new initiative is already being applauded by most of the monk seal conservation community.

Turkey

Foça Patrol Boat Relaunched…

After three years of being marooned on dry land, the patrol boat *Cevre* has at last been reunited with the Foça Specially Protected Area (SPA).

Earlier this year, the Ministry of Environment transferred 4 billion Turkish Liras (approx. $14.000) to its Izmir Directorate to purchase a new Volvo marine diesel engine for the vessel. Of the additional TL 3 billion required to meet the cost, 500 million was allocated by the local council of Foça, and the remainder covered by the Foça Municipality.

According to the most recent information obtained from SAD-AFAG, Cevre was re-launched on 12 November, and is once again on duty in the Foça SPA.

Local conservationists and fishers will certainly have cause to celebrate. As indicated in the May issue of **The Monachus Guardian**, the *Cevre* has been out of action for three years, largely due to bureaucratic fumbling. During this time, according to traditional fishers, illegal fishing and tourism activities have steadily increased within the SPA.

The Cevre's running costs – an issue of long-running dispute between various government agencies – are now expected to be covered by the Foça Municipality and the newly established Environment Protection Unit of the Local Governorship of Foça District.

Turkish Groups Merge

The Cilician Basin Project, formerly an independent group with WWF funding, has now merged with the Underwater Research Society's Mediterranean Monk Seal Research Group (SAD-AFAG). SAD-AFAG operations are now composed of several regional groups, including the coordinating and government relations headquarters in Ankara, the Aegean Programme Office in Foça [administering the Central Aegean Project] and the Mediterranean Programme Office in Bozyazi in the Cilician Basin [Central Mediterranean Project]. Increased political influence, improved coordination of conservation activities, and a more efficient sharing of resources are cited as the primary benefits of the merger.

Monk Seal League Formed

In a further step towards the consolidation of monk seal conservation and research activities in Turkey, SAD-AFAG and the Turkish Marine Research Foundation (TÜDAV), led by

Bayram Öztürk of Istanbul University, have formed the Monk Seal League. It is hoped that the League will act as an effective forum for inter-organisational cooperation and debate, furthering the cause of monk seal conservation in the political arena, while eliminating needless duplication of effort.

Monk Seal Bibliography

A bibliography of Turkish scientific literature relating to the Mediterranean monk seal has been prepared by the Monk Seal League. It is now available in electronic form in the Online Library of www.monachus.org as an RTF (word-processing) file. Anyone wishing to receive a printed version of the bibliography, plus the full text of a selection of these reports, should contact SAD-Izmir in Foça.

Reserve Areas Established in the Cilician Basin

Five coastal areas and an island along the Cilician Basin coast have been declared First Degree Natural Sites by the Turkish Ministry of Culture.

The decree was issued by the Ministry's Council for the Protection of Cultural and Natural Heritage on 27 March this year. Totaling some 70 km., the sites are mainly composed of cliff-bound coasts, where seal populations have been identified by the Cilician Basin Project team of the Middle East Technical University - Institute of Marine Sciences (METU-IMS), which recently merged with SAD-AFAG.

Within the protected areas, development is now strictly prohibited, with management falling under the jurisdiction of the Culture ministry's Adana directorate and local councils. Their designation as Natural Sites, however, provides no additional security for monk seals from other – possibly more urgent – threats, such as the hostility of fishers. But in a separate initiative last year, a Coast Guard patrol boat was deployed, covering an area where research had indicated that the greatest threats to the local seal population were occurring. The vessel is based in the town of Bozyazi, where the SAD-AFAG Mediterranean Project also maintains a small office. The Project has recorded a decline in illegal fishing activities in the area following deployment of the patrol boat.

Additional protection of the seals and their habitat may result from recent restrictions on industrial fisheries. According to an Aqua Products Circular issued in March 1998, the current trawling zone prohibition along this stretch of coastline – from Cape Anamur in the west, to the mouth of the River Ceyhans in the east – has been extended from 2 to 3 nautical miles. In the meantime, the project continues its efforts to close the entire area to trawling. It is hoped that such restrictions on intensive fishing methods will further help contain the hostility of local, traditional fishers towards the monk seal, who have seen their livelihoods decline as a result of industrial overfishing.

Earlier this year, in a gesture to improve relations, the Minister of Environment distributed 250 raincoats among artisanal fishers in the Cilician Basin.

Cilician Basin Fishers Call for More Patrol Boats

In the following open letter, local fishers appeal for an additional patrol boat to guard against illegal activities in the Cilician Basin:

"We are a group of artisanal fishermen from Bozyazi, on the eastern Mediterranean coast of Turkey. The waters in which we fish are inhabited by several species of endangered marine life, such as the Mediterranean monk seal; the Loggerhead Sea Turtle (*Caretta caretta*); and the Green Turtle (*Chelonia mydas*). In the past we lived alongside these creatures in peace, even though their numbers used to vastly outnumber those which there are today. However, nowadays, due to a decrease in the size of fish stocks there is increasing conflict with these animals. Not only is the size of each catch smaller but we suffer more damage to fishing gear as hungry seals attempt to steal fish trapped in gill nets or on long lines. There are no subsidies available from the Turkish government to compensate for this damage. As profits have been falling since the mid-eighties, it has become increasingly difficult to repair our damaged gear. The result has been a decrease in the number of seals as they are killed.

We do not believe that short term measures such as compensation will help to save these species or our jobs in the long run. The answer to the problem lies with the trawlers that operate in this region. Not only do they remove large amounts of fish and the profits to far off cities, but due to the topography of the region can only fish, illegally, close to the coast. This destroys the juvenile nurseries, which are the key to restocking the fish populations. All our attempts to control the illegal fishing operation occurring in our waters have failed so far. This is because the coast guard consists of one boat, which is insufficient to patrol this huge region (150 n. miles).

To reverse this situation and protect our endangered species and ecosystem, our plan is to acquire a powerful control boat. This would be manned by local government and the municipality and used to patrol the region. We also want to set up a radio station so this boat can be in contact with all local fishing boats in the region. The locals can then report illegal activities to the control boat making it difficult for the illegal fishing activity to continue."

This letter was distributed on behalf of the fishers by the SAD-AFAG Cilician Basin Project. Any organisation or individual wishing to help in efforts to deploy another patrol boat in the area, please contact: Ali Cemal Gücü.

For more information on conservation efforts in the Cilician Basin, turn to In Focus: New Discoveries in Cilicia.

WWF-Belgium Funds Cilician Basin & Foça Projects

A 1997 monk seal fund-raising campaign netted $16,000 in donations from members of WWF-Belgium. The beneficiary, the Cilician Basin Project, invested the funds in equipment, purchasing a pick-up truck and a notebook computer. Now an additional $40,000 will be donated as a result of the WWF campaign, the funds being channelled to both the Cilician Basin project and the Central Aegean project in Foça. In Foça, the donations will be devoted to refitting the research vessel *Merhaba*, a 7.6-metre traditional Aegean caique, including the purchase of a new engine, VHF radio and GPS satellite positioning system. In addition, camera-trap equipment will be purchased and deployed in both the Central Aegean and Cilician Basin regions to monitor cave-usage by monk seals.

Seal-Info Update

SAD-AFAG's *Seal-Info Project* [The Monachus Guardian Vol. 1 No. 1] has now drawn to a close. Sponsored by WWF's *Across the Waters* programme, the campaign's primary objective was to help local decision makers in Turkey's coastal states, towns and cities become better

acquainted with the monk seal and its conservation. To further these aims, 1000 booklets were designed and printed for distribution to mayors, local councillors, and provincial ministry of Environment and Agriculture directorates.

Conservation Guidelines

Also on the political lobbying front, over a hundred copies of the multilingual edition of the Conservation Guidelines have been distributed by SAD-AFAG among decision makers in Ankara and key coastal towns and cities in Turkey. Several hundred additional copies are to be distributed among newly-appointed officials following the April 1999 elections.

Re-published earlier this year in English, French, Greek, Spanish and Turkish, the Conservation Guidelines were compiled in response to controversy over captive breeding and translocation initiatives, pursued without adequate consultation or review by the wider scientific and conservation community. Based on conference resolutions and action plans, the Guidelines advocate a sequential approach to the conservation of the species in which the precautionary principle is rigorously applied. To date, 78 organisations and individuals have endorsed the document.

Monk Seal Adoption Launched

SAD-AFAG and the WWF associate organisation in Turkey, the Society for the Protection of Nature (DHKD), launched a public awareness and fundraising campaign on the 29th of August with the 'adoption' of a monk seal by the Turkish Minister of Environment, Ms Imren Aykut.

Eighteen more seals have been 'adopted' to date and the 'foster families' are given regular updates on the progress of the two field projects in the Aegean and Mediterranean through the bulletin 'Monk Seal, our Water Child'.

Funds raised through the adoption project will support these conservation efforts, while advertising and media coverage is helping to raise public awareness in Turkey on the critical status of *Monachus monachus*.

The campaign, supported by WWF's *Across the Waters* programme, offers three categories of adoption, ranging from 'mother and father' at $500–$1000, 'aunt and uncle' at $100–$500, to 'cousins' at $5–$100. Depending on the adoption category, donors receive a certificate, T-shirt, cap, badge, poster and a monk seal toy. All categories receive four news bulletins per year, giving progress reports on the Mediterranean and Central Aegean projects.

Start-up costs, report SAD/AFAG, were quickly covered due to an enthusiastic response to the campaign.

For more information please contact Alice Carswell, Fundraising Director, DHKD, Istanbul, or Ozan Veryeri, SAD-AFAG, Ankara.

New Seals Recorded

Cilician Basin researchers registered the birth of a monk seal pup in August 1998 to a previously unrecorded female. A male seal, previously unknown to the team, was also recorded during same period. Meanwhile, in Foça, researchers recently observed a juvenile seal, assumed to have been born in autumn 1997 within the boundaries of the SPA.

Dockyard Construction Plan Defeated

Plans for the construction of an industrial dockyard and harbour on the Gediz Delta, south of the Foça SPA, have been defeated as a result of protests led by Turkish NGOs, including SAD-AFAG and DHKD.

At the forefront of the development was the Turkish corporation *Golden Ship Inc*., which characterised its plans as a $350 million investment. The company had previously obtained tentative approval for the construction from the ministries of Development and Transport, but ran into opposition while attempting to file an Environmental Impact Assessment with the Ministry of Environment.

The Gediz Delta is regarded as playing a vital ecological role, serving as both a nesting site for endangered bird species – such as the Dalmatian Pelican (*Pelecanus crispus*) – and as a fish nursery ground. The fate of the delta was therefore regarded with particular concern for artisanal fishers in the area, whose livelihoods are inextricably intertwined with efforts save local monk seal populations. Protests over the scheme, which were actively supported by the Municipality of Foça, eventually prompted the Ministry of Environment to declare the area a RAMSAR site in April this year.

Private Lives under Investigation

So far, one of the most mysterious aspects of the Mediterranean monk seal's life has been its in-cave behavior. In a joint research project in October 1997, SAD-AFAG and Gruppo Foca Monaca of Italy installed a video camera, infra-red light source and microphone in a seal cave on Orak Island in the Foça SPA. Live 'feeds' to a TV monitor in a tent about 100 meters away were monitored 24 hours a day for 25 days. Two individual seals were observed using the cave on three different occasions. Activities and vocalizations of the animals were recorded on VHS tapes. Costs of the project were bourne by Panda Film, with some technical equipment being donated by the Italian electricity company ENEL.

Now, as a second stage to the project, SAD-AFAG is planning to equip a cave actively used by seals in the central Mediterranean coasts of Turkey with a permanent video system. Rather than relying on cables, however, this time image and sound data will be broadcast by a transmitter system and received at a base station. It is hoped that this system will enable researchers to continuously monitor the local seal population and gather invaluable behavioral information without disturbing the animals. Funding for the project is being provided by WWF Belgium.

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Cover Story

MIDWAY'S MONK SEALS

Peter Meisenheimer

International Marine Mammal Association

In my working life I have spent time in some pretty out-of-the-way places – Ungava, Botswana's Chobe enclave, the middle of Russia's White Sea (in March). Far off the beaten track, each has its own special magic; none is more remote or unusual than Midway Atoll.

It is also fair to say, I think, that few places would seem less probable a destination for someone in search of seals. But walk along the gleaming beach, or even board a research launch in the concrete encased harbour, and there, among the multitudes of albatrosses, terns, boobies, frigates, petrels, noddies and shearwaters, they are.

Most who are aware of Midway at all, know it as the site of a decisive WW II naval battle between the USA and Japan. Indeed, during my visit last May, Bob Ballard (of Titanic fame) found the American aircraft carrier the Yorktown, sunk in 16,000 feet of water during the battle of Midway, and the whole island turned out for a little celebration on the pier. Crumbling bunkers, rotting buildings, an enormous runway, and a massively superfluous harbour capacity are testament to its former importance as a US military outpost in the heart of the Pacific Ocean.

That is the past, however, and Midway is now a National Wildlife Refuge, populated by a unique mix of Fish and Wildlife Service staffers, dive-boat and sport-angling operators, biologists, students, eco-volunteers, tourists and contract support staff from a bunch of Asian and western Pacific countries. Most of the population would fit into the cafeteria in one sitting. As the human presence has dwindled the monk seals have returned. The tenth birth of the 1998 season took place while I was there.

Midway comprises the three islands Eastern, Sand and Spit. These days, all human habitation and most human activity is confined to Sand Island. Only visitors accompanied by Fish and Wildlife staff and officially sanctioned researchers are allowed on Eastern Island and access to tiny Spit Island is even more tightly controlled. As I saw for myself, Fish and Wildlife staff leading twice weekly guided visits to Eastern Island are not shy about discreetly turning an overly boisterous group around and heading them back to the boat ahead of schedule.

I visited under the auspices of a volunteer program organised by the Oceanic Society. I have managed projects that relied on volunteer labour, and I have visited others, so I was aware of the potential pitfalls and possible benefits of such a setup. I was to be part of a research program on the behaviour of a resident spinner dolphin (*Stenella longirostris*) group, and I had heard bad things about other volunteer "research projects" on dolphin species in other places, so I was wary of what awaited.

As someone who now works full-time in the marine mammal research world, I had also heard mutterings about the proposed use of volunteers to monitor the monk seal population on Midway. I had originally applied to volunteer on that program but had been told that the Oceanic Society was not accepting monk seal volunteers pending resolution of permitting problems.

In the end, I was pleasantly surprised. The fellow in charge of the spinner dolphin program is Lescek Karczmarski, a recent PhD graduate who takes his research very seriously. I expect a few volunteers will not be excited by the prospect of sitting in a dark room identifying dolphins from slides, and the 0600 assignments in the observation towers will not be to everyone's taste. We got to do some real work, and, although we got our share of up-close dolphin observations while working from the boat, this was no swim with dolphins holiday.

We did manage to spend a day with the two volunteers assisting the monk seal team who had been booked in before the decision to put the volunteer program on hold. They actually appeared to be enjoying the scat analysis assigned to them (surely a unique holiday experience by any measure), and seemed to understand and accept why they were not permitted to accompany the research staff on restricted beaches (almost all of them).

At any rate, for those intent on seeing them, there was never any difficulty seeing seals. Even with the prohibition on actively approaching any seal closer than 100 feet, enough of the younger animals were sufficiently unafraid of humans that anyone spending time on or near the water was unlikely to miss the opportunity to have a close look as they approached of their own accord. On both visits to Eastern Island, groups of juveniles congregated around the landing and played around the boat. On days when we were doing boat-based dolphin surveys, we often as not had to manoeuvre around a large female seal who had staked out the launching ramp as her preferred sunbathing spot.

Although there were efforts at one time to introduce monk seals to Midway from elsewhere in their range, the animals that have begun to re-establish the breeding population there have migrated from other islands in the Hawaiian Archipelago – in particular from Pearl and Hermes reefs. The great majority of births have been on Eastern and Spit islands. However, after decades of absence, restriction of access to beaches coupled with the overall reduction in human activity has led to recent celebrations of monk seal births on Sand Island, as well.

Clipper Beach is the one beach on Sand Island which is open to human visitors. It is situated between the end of a runway and the freight pier, and is said to be less favoured for monk seal pupping because its exposure to prevailing trade winds has deepened the approach, making seals vulnerable to attack by tiger sharks. This thought was never far from my mind as I swam there. The island's claim to culinary fame – a French restaurant run by a couple from Toulouse – is also situated on the dune crest on Clipper Beach, alongside a small bar that is

open for sundowners. I will say that the setting is exquisite, and the food equally so, and the single most hilarious moment of my visit involved the reaction of the owners to a Texan visitor sending his sashimi back to be cooked.

The overall impression carried away from Midway was of a fledgling endeavour seeking its feet. The US Fish and Wildlife staff are obviously motivated and thoughtful people attempting to administer a refuge in an extremely remote corner of US territory. Midway is a US possession, but not considered part of the state of Hawaii, and it is necessary to pass through passport control on returning to Honolulu. Given the antipathy for funding new initiatives within the federal US political system – even in areas of the country with local constituents – there was apparently little option for reserve managers than to seek some self-supporting system for administering their work on Midway.

Whether it is possible to operate a reserve for endangered animals like monk seals alongside profit-making sport angling and diving operations remains to be seen. Co-existence appears to be working so far, but it is clear that the level of activity will increase somewhat as the businesses gather momentum. In some respects the more interesting question is whether the US Fish and Wildlife Service will be able to maintain its presence on Midway if the tourist operations turn out to be economically unworkable. In the event that the tourism operations fail to make a go of it with the rules currently governing activities there, it behoves the monk seal conservation community to keep an eye on the situation.

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In Focus

NEW DISCOVERIES IN CILICIA

Ali Cemal Gücü

Middle East Technical University, Institute of Marine Sciences

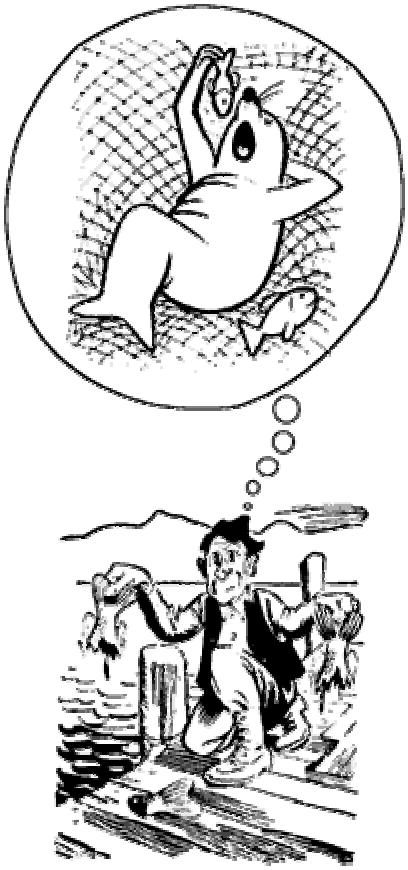
After the loss of almost two thirds of the last surviving sizeable population of Mediterranean monk seals on the Mauritanian coast in 1997, small individual groups scattered in remote locations, which have been overlooked and even ignored so far, are now gaining more importance.

The monk seals inhabiting the Cilician Basin in the Eastern Mediterranean, corresponding largely to the Turkish province of Mersin, are among these neglected individuals. Until recently, the seals of this region were unknown to science, although large herds were once known to the locals, who find it unbelievable to hear that the species is now faced with extinction. Only two decades ago the region was untouched, dominated by long, sandy, seemingly endless beaches. Fishing was a profitable way of life, and although elderly fishermen were even then complaining about a decline in their catches, fish stocks were sufficient to meet the needs of both fishermen and seals. Today, however, the beaches and other wildlife habitats have been replaced by ugly, tall buildings. The fishing industry now comprises hundreds of trawlers where there once used to be only a few small boats. Fish stocks have shrunk so drastically that neither fishermen nor seals are catching enough fish to meet their basic needs. Once there were hundreds of seals, but today only a handful survive. Now, the only hope remains in the western part of the basin, mountainous Cilicia, its steep, cliff bound coast still largely undisturbed. Here there can still be found suitable habitats for the Mediterranean monk seal, but positive action to save the seals is needed.

One such endeavour is *The Mediterranean Monk Seal Conservation Project*, launched in 1995 by the Middle East Technical University's Institute of Marine Sciences, and supported by WWF International, the Royal Netherlands Embassy of Turkey, and the PADI Foundation - USA. The project was launched after local fishermen began killing seals in considerable numbers in 1994. Interviewing these men revealed that the seals were threatening their livelihoods by damaging their nets while trying to 'steal' fish, thereby decreasing catches and

necessitating costly repairs. These problems were exacerbated by a drop in profits also caused by a general decrease in fish stocks.

In contrast, an examination of fisheries in the region reveals a long, profitable history, since fish – including uncommon species that are particularly appreciated for their flavour – sustain high market prices due to demand. Even so, the Eastern Mediterranean is considered 'unproductive' in terms of fish because of its geography, climate and current systems. Fish stocks are at a level that can only sustain a small-scale artisanal fishery. However, human greed has led to industrial-scale boats fishing within this sensitive ecosystem, equipped with huge, unselective trawl nets and purse seines. Today, a substantial reduction in total catch is apparent due to depletion of the fish stocks.



Existing fishery regulations prohibit trawling within a 3-mile zone extending from the coastline – an increase from 2 miles as a result of pressure from the project – but because of the marine topography, trawling is only possible within the coastal strip, which is, by law, reserved for the small-scale fishery. Coastal areas serve as nursery grounds for larvae, juvenile and immature fishes, which are crucially important for the health of fish stocks. As a direct consequence of illegal trawling, fish stocks are unable to rejuvenate and small-scale coastal fishermen and sea mammals are adversely affected. The monk seals then resort to stealing and the fishermen to killing.

To reverse this trend and prevent further deaths, the project opened an office in an area of high animosity towards the seals. The staff, in successfully forging friendships with local fishermen, have been able to explain the value of the seals within these waters. From the fishermen's point of view, the survival of the seals could now hold the key to banning trawling completely in the area, thus allowing the recovery of fish stocks. They have already seen progress towards these aims, with an extension of the trawling exclusion zone. As a result of action by the project, six protected areas (one of which is an island) have been established, where all construction, natural landscape modifications and destruction of flora and fauna has now been banned (*See* Regional News).

In addition, 1998 has seen the merging of the project with the *Underwater Research Society* (SAD) and the launch of an 'Adopt-a-Monk Seal' programme to raise vital funds. These are needed to provide another patrol boat for the region which, with the involvement of local fishing boats, will be more effective in halting illegal fishing activities (*See* Patrol Boat Appeal).

Another aspect of the project is concerned with monk seal research. A systematic search of the entire area, which is more than 250 km in length, was carried out in order to prepare a distribution map of the Cilician monk seals. Thirty-nine caves were discovered, in which either a seal or its remnants, such as faeces, fur and tracks, were observed.

Caves are a crucial factor in the survival of the Mediterranean monk seal. Beaches, which are their natural habitat, are no longer available to them due to ever-expanding tourism. Therefore, the number of seals which can live in the region is limited by the availability of

caves, away from human interference, in which to rest and rear their young. Realistically, such caves should be large enough to accommodate a family of monk seals, which can grow up to three meters in length.

Study of these precious animals is difficult, because those few that survive are not gregarious and are dispersed over a wide area. Counting the seals has been one objective of the project, and observations are carried out at locations and at times when the seals are sighted most frequently. So as not to count the same seal twice, each animal's distinguishing features are noted – such as the presence of a scar, distinctive colouring or markings, size, or the shape of the head. Once these features have been recorded, each animal is given its own name. So far, we have recorded thirteen individual seals in this region.

To observe seals within their caves without disturbing them, 'Trailmaster' infrared monitors were installed in the most actively used shelters. The times at which seals leave and enter these caves are now recorded and photographs taken. The data gathered in this way has produced valuable insights into the habits and behaviour of monk seals.

Conservation work undertaken by the project focuses on educational activities and raising awareness among local people. Information panels are set up on the beaches during the holiday season, explaining how people may inadvertently harm seals. Ministries and other institutions are informed of the crisis affecting the region's fishing grounds, and of proposed solutions developed in consultation with fishermen. Visits are made to local primary schools, where the main objective is to explain that the problems the seals face now may soon affect people living in the region, and that the disappearance of the seal today will be followed by birds and other wildlife tomorrow. Through its work the project is therefore addressing very broad environmental issues. Yet its central goal remains saving the Mediterranean seal from extinction, so that future generations may enjoy this fascinating marine mammal.

The Monachus Guardian
monachus / schauinslandi / tropicalis

Perspectives

THE LIFE & TIMES OF Q39

David Jordan

'Q39' sleeping on her favourite beach on Maui

12 August 1998

This morning, I happened to videotape a man attacking a monk seal near my home on Maui. First, he tossed coconuts at the animal from about 5-10 feet away, then a rock from a bit further, while a group of six others taunted the seal.

Hawaii DOCARE (Department of Conservation and Resources Enforcement) subsequently arrested the man, and NMFS (National Marine Fisheries Service) is investigating.

This seal, originally classified as 'RQ39' by NMFS researchers (according to the faded red tags she wears), was born at Kaupo on Maui 14 months ago and had been visiting a beach near my house for the better part of 10 days. Based on my observations of her and feedback from NMFS, her first moult appears imminent, so this kind of treatment is the last thing she needed.

I would like to find ways to use this video for educational purposes, for community outreach, and to pressure politicians to improve endangered species protection in the islands – anything that might bring something good out of such a senseless act.

18 August 1998

As a witness to the incident, I have had to put together a statement of events for DOCARE and NMFS. It runs to 5 legal pages, plus 2 maps. The video has also been submitted as evidence.

Unfortunately, the perpetrator of the attack, a 59-year old fisherman and taro farmer, turns out to be one of my neighbours. Two male youths (among the group of six) with him – probably visitors from elsewhere on Maui or from another island – quickly followed his lead in harassing the animal, tossing sticks in front of her, lunging at her and so on...

The arrest of my neighbour has created a sticky situation around here – hopefully just for a while. I live on the Keanae peninsula on the Hana coast of Maui, which is filled with taro fields and 'locals' – mostly Native Hawaiians. I have lived here for 7 years – 11 years altogether on Maui. However, it is entirely possible that matters will deteriorate to the point where I will have to move from here altogether. I can only hope that there is enough community support for my actions to offset the fact that none of my blood is Native Hawaiian.

This is all kind of a surreal situation for me… I started out by renting a camera for a week to document Q39's onshore behaviour, and ended up with a 'Rodney King'-type monk seal video. But my neighbour should be cursing himself for his own bad timing. I had already shot about 7-8 hours of video during the week, and this guy showed up on my last day of rental, on my last battery and my last hour of tape.

According to the NMFS researchers I have been in touch with, monk seals are generally rare throughout the eastern Hawaiian islands. Their stronghold – or at least the place where they cling on to survival – is out in the remote Leeward islands. Q39 was born on Maui, which probably makes her unique, but my NMFS contacts report that at least 4 other seals have visited the island over the last 10 years.

The most recent visitor was a juvenile seal – possibly born on Kahoolawe – which was being very 'diver friendly' and making something of a pest of himself at Molokini last year.

7 September 1998

On Labor Day, there was another harassment session involving locals. Q39 had spent the day swimming around the cove, finally hauling at around 5:30 on her favourite beach, just as a group of picnickers were packing up to leave. Their kids were playing in the shallows when the seal snuck up behind them in one of several aborted haulouts – you should have seen those little buggers run!

Half an hour after the picnickers left and 45 minutes after she had finally hauled out, the seal was having water thrown on her, whipped with a nylon rope, and her space otherwise invaded by another group of drunken locals. Once again, I caught the incident on film – all except for the 12-year old kid with the rope. I couldn't bear to turn the camera back on for that. The perpetrators were clearly unimpressed with any information I was able to provide about the seal, until my neighbour informed them of the criminal penalties involved.

It now also turns out that Q39 has a number 7 or 8 Ulua (fish) hook lodged in her lower lip, so NMFS/DOCARE are going to try to remove it, if and when she returns.

Reviewing my latest video, DOCARE officers were of the opinion that, while the actions of the locals on the beach constituted abuse and harassment, the evidence – mainly consisting of dumping water over her and crowding around her, was too weak to achieve a court conviction. They added, however, that the incident demonstrated a clear need to educate the people on Maui. They are currently trying to figure out how best to accomplish that.

14 September, 1998

I spent much of the day with two highly professional folks from NMFS, and Richard, the DOCARE officer, trying to find Q39 out Hana way. We finally located her around 3 p.m. and proceeded to capture, sedate (using Valium), and inspect the animal, paying particular attention to her mouth.

There was no sign of the fish hook that I'd observed on Labor Day, just a small area of redness on the lip. Over the weekend, Richard, the Hana DOCARE officer, found her on the shore at Koki beach and photographed her. Although there was no hook visible, he did see a swivel assembly protruding from her mouth, and he took a picture of it. Afterwards, Q39 was sighted in Hana Bay, on the beach, and a lady that saw her early Monday morning reported that she still had a hook in her mouth. She took to the water again around 10 a.m. yesterday, but returned to the beach around 2:30, so we could find her... and suddenly, no hook, no swivel, no nothing! Go figure.

After a discussion with the DOCARE officer and myself about what we had seen in her mouth, the NMFS folks agreed that we'd best check her out anyway as there was the possibility that the hook was now inside her lip, with the swivel trailing back down her throat. Thankfully that was not the case.

It was most interesting to see the angry side of Q39 after spending so much time observing her normal behaviour. It would have been a good demo of why *not* to let kids approach these animals... She tried hard for an ankle, and almost had it (only got the pants), and it seemed to take 60-90 seconds to get her netted as she was most feisty. She calmed quickly in the net, and the NMFS vet (Melissa Shaw) was masterful with the needle, quickly finding the appropriate spot to inject the Valium. She gave the drug about 90 seconds to kick in and then inspected the mouth – an inspection the seal did not seem to mind. Within 10 minutes of the start of her ordeal, Q39 was freed from the net – an act almost as challenging as getting her into it in the first place!

As she headed for the water, she cast a few spiteful glances back over her shoulder which appeared to be directed towards Chad Yoshinaga, the NMFS supervisor, and then proceeded out into the bay looking none the worse for the ordeal. Both NMFS personnel said that she looked very good for her age, probably around 200 pounds – which is 75-100 pounds more than many seals her age seen in French Frigate Shoals, apparently. It was speculated that she might be picking up a lot of things from the sea bed while foraging, and had been unlucky enough to get the hook lodged in her mouth.

16 September 1998

Just got back from a trip to Kaupo to revisit Q39's birthplace, and meet a few folks that watched over her when she was a pup. At least one of the NMFS little yellow signs is still up below the church, although the phone number to report violators has faded to oblivion. I did find out that Q39 was once named 'Mokulau' by the folks in Kaupo, after the bay lying below the church and the many islets in the sea nearby. Apparently the mailman used to call her by name and she would come out from hiding...

On the way back I stopped near Koki beach (where Q39 had been seen with the swivel sticking out of her mouth) and although she wasn't at that beach, I did spot her with binoculars at the next beach down the coast – one that is really only accessible from the water. So it seems she made it through the capture ordeal just fine...

Maui is indeed blessed that the only known animal to be born here is still alive 15 months later. Elsewhere, according to what I learnt from the NMFS (John Henderson), monk seals may not be faring quite so well. In 1997, 97 pups were born at French Frigate Shoals, of which only 58 were known to have survived to weaning (an additional 2 were still nursing when the NMFS Marine Mammal Research Program field team departed, so hopefully the total was 60). Of these, 37 died or disappeared prior to weaning. Of the 58 which successfully weaned, 52 were tagged. This year (1998), of the 52 tagged in 1997, only 6 were resighted at French Frigate Shoals as yearlings. According to John, this grim picture seems to be unique to the French Frigate Shoals population, as survival rates (both pre-weaning and from weaning to year one) are higher at all other major breeding sites, including Pearl and Hermes Reef.

But with all the threats levelled against this endangered species, we're clearly fortunate that Q39 has continued to thrive on Maui. If only everyone else on the island would think the same way…

Postscript: All the recent publicity over Q39 led to reports of another pup being born in a remote area of Maui this July – so Q39 no longer has the lonely distinction of being the one and only Maui-born monk seal. The male pup, probably with the same mother as Q39 according to the NMFS, was tagged Y32 on September 30th.

The Monachus Guardian
monachus / schauinslandi / tropicalis

Monachus Science

MEDITERRANEAN MONK SEAL (*MONACHUS MONACHUS*) HABITAT IN VIS ARCHIPELAGO, THE ADRIATIC SEA

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INTRODUCTION

The Mediterranean monk seal (*Monachus monachus* Hermann, 1779) used to be widespread throughout the Adriatic Sea but today is very rare in this area[1]. Only a few individuals were noticed recently, passing by the outermost Croatian islands. Biology and population ecology of this endangered marine mammal have been little studied scientifically in the Croatian part of the Adriatic Sea so far[2].

The Mediterranean monk seal, the largest species among seals, could reach about 3 m in length and 450 kg as recorded in the Vis archipelago[3]. Its fur is greyish-brown or dark brown with white spots especially on the ventral side. Sexual intercourse and fertilization take place under the sea. It has been recorded that one male fertilizes more females during the mating season[4]. Females give birth to only one cub per year who is, for 3 to 4 weeks, completely dependent on the mother. Sexual maturity is reached in the fourth year and individuals can live up to 20 or 30 years. A grown up individual eats 10-12 kg of food, predominantly fish and cephalopodes[5].

According to recent studies in the field and the results of fishermen questionnaires, there is no resident monk seal population in the Croatian part of the Adriatic Sea at present[3]. This species, like all seals, needs land for bearing young and for rest[5]. In the Adriatic habitats, there are suitable rock beaches and caves that have entrances at or below sea level[6].

The aim of this survey was to investigate the known former habitats of the Mediterranean monk seal in the Vis archipelago and gather as much knowledge as possible about natural caves and beaches where individuals of this species were encountered in the last 50 years.

METHODS

Two methods were used in this study: a survey among fishermen in the fishing village of Komiza, and direct examination of known former habitats of the monk seal. In the survey, 44 fishermen were interviewed about encounters with the monk seal: sites, behaviour, number of

individuals, and damage to fishing gear which might be attributed to the species. In the direct examination, all known habitats were visited, measured and described.

Fig 1: The Vis archipelago

RESULTS AND CONCLUSIONS

In this survey, 8 caves and 2 pebble beaches known as former habitat of the Mediterranean monk seal were measured and described. Seals used rocky coastal areas, caves with pebble beaches and flat rocks as well as sandy beaches surrounded by steep rocks for resting and reproduction.

No sign of the animal's recent presence at these localities was found.

According to the survey of fishermen, the monk seal has been only temporarily present in this area during the last two decades (Table 1 & Figure 2).

Caves surveyed during the study have not changed since the time when this species inhabited them, and they are still suitable as potential monk seal habitat. As far as beaches are concerned, those surveyed are no longer fully suitable as resting sites for this species, due to intense nautical traffic in the area during the summer.

Repopulating the area with Mediterranean monk seals would be possible only through the establishment of specially protected areas, such as marine parks at certain localities.

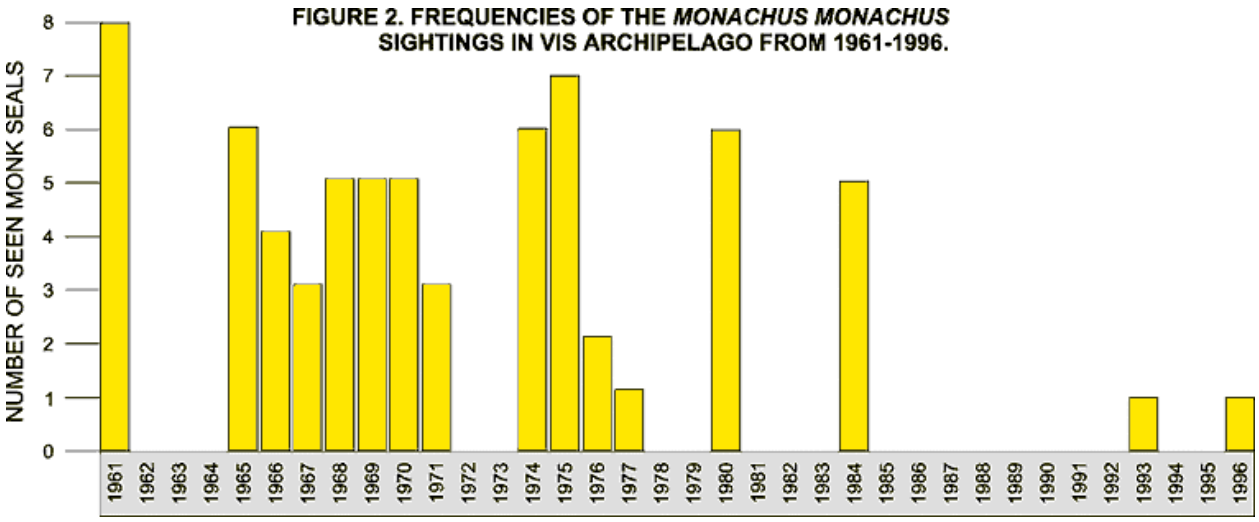

Table 1. Number of *Monachus monachus* sightings in Vis archipelago from 1961-1996. (Results of survey of 44 fishermen)

Storo medvidina i. Mala Palagruža		Kamik ol žola i. Vela Palagruža		Slatina i. Svetac		Tovorski bod i. Svetac		Corno ploca i. Svetac		Puhera i. Svetac		Medvidina špilja i. Biševo		Zakamice Okljuèina i. Vis		Punta ol pozora i. Vis		HABITAT
nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	YEAR
												8	3					1961
																		1962
																		1963
																		1964
				3	1							2	2			1	1	1965
1	1											3	2			1	1	1966
												3	3					1967
								1	1			4	3					1968
				1	1	1	1					3	1					1969
2	1											3	3					1970
				1	1							2	1					1971
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				2	1	1	1	2	1	2	1							1974
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		1	4															1993
																		1994
																		1995
														1	2			1996
3		1		7		4		11		2		38		1		3		Total of monk seals seen

nsf – number of surveyed fishermen; nms – number of monk seals seen

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HISTORICAL BIOGEOGRAPHY AND PHYLOGENETIC RELATIONSHIPS AMONG MODERN MONK SEALS, *MONACHUS* SPP.

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There are three recent species of monk seals: the Hawaiian monk seal (*Monachus schauinslandi*), the Caribbean monk seal (*M. tropicalis*) and the Mediterranean monk seal (*M. monachus*). The Hawaiian monk seal is an endangered species (IUCN 1996), currently numbering some 1300-1400 animals (T. Ragen, pers. comm.) and declining at about 5 per cent per year (Ragan and Lavigne, *in press*). The Caribbean monk seal has recently been declared extinct (IUCN 1996). The Mediterranean monk seal, a critically endangered species (IUCN 1996), is now thought to number less than 500 animals, following a mass mortality during the summer of 1997, which claimed some 70% of the largest surviving population along the coast of the Western Sahara near Mauritania (Hernandez et al. 1997).

Conflicting descriptions of the historical biogeography of pinnipeds (fur seals, sea lions, walrus and true seals) include quite different explanations to account for how the three recent monk seals came to live in such widely separated places as the North Pacific Ocean – around the Hawaiian Island chain – and throughout the Caribbean and Mediterranean Seas. Repenning (1981) assumed that monachine seals originated in the Atlantic basin and that *Monachus* radiated from the Caribbean region. The Hawaiian monk seal, he suggested, may

have reached the Hawaiian Islands (as they were then constituted) as early as 15 million years ago (also see Árnason et al. 1995). More recent evidence, which suggests that all pinnipeds are monophyletic, originating in the North Pacific (Berta et al. 1989), raises the possibility that the monachine lineage first arose in the Pacific basin and moved toward Hawaii prior to becoming established in the Caribbean.

Neither of the above hypotheses is refuted by the anatomical evidence that modern Hawaiian monk seals are "living fossils," retaining a number of traits that are more primitive than those observed in the earliest fossil monachines (e.g. *Monotherium*) found in the Atlantic basin along the eastern seaboard of North America some 14-16 million years ago (Ray 1976; Barnes et al. 1985). Repenning et al. (1979, also see Repenning 1981) further suggest that monachines probably crossed the Atlantic, following the warm Gulf Stream, some ten million years ago.

In marked contrast, de Muizon (1982, p. 202) concluded that "the original homeland of the Monachini must have been in Europe" where they eventually gave rise to a number of species, including the Mediterranean monk seal. He postulated that the lineage later crossed the Atlantic from East to West, following the warm equatorial currents in the southern North Atlantic. He speculated that the most probable migration route for the Monachini was from Europe, along the West coast of northern Africa (Mauritania and Senegal), following equatorial currents across the Atlantic to Brazil.

From there, he suggests, the Monachini moved northward to the Caribbean, where they gave rise to the Caribbean monk seal. Eventually, some animals crossed into the Pacific, via the Central American Seaway, possibly as recently as 3.5 to 4 million years ago, and gave rise to the Hawaiian monk seal. Supporting his hypothesis, de Muizon (1982, p. 204) cites King (1956) and Scheffer (1958) to the effect that the Caribbean monk seal and the Hawaiian monk seal "are closer to each other than either is to" the Mediterranean monk seal. What King (1956) actually said was, "…the skull of *M. schauinslandi* is more like that of *M. tropicalis* than *M. monachus*" (p. 229), an observation Scheffer (1958, p. 112) described as curious.

Regardless, there clearly remain differences of interpretation and opinion between Repenning et al. (1979) and de Muizon (1982), both about the centre of origin of the Monachini and the subsequent radiation of *Monachus*.

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THE RECUPERATION OF A MONK SEAL PUP, *MONACHUS MONACHUS,* IN THE ILHAS DESERTAS – THE CONDITIONS FOR ITS SUCCESS

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SUMMARY

During the period when they are nursing, young monk seals depend on their mothers to survive. Sometimes, however, some monk seal pups lose contact with their mothers due to heavy seas. In this type of situation, human intervention is crucial and a strict protocol for the rehabilitation of the animals should be followed, from the first encounter until they are released in their natural habitat. Aseptic conditions should be maintained to the extreme, and human contact avoided and kept to the minimum.

In December 1995, a pup was found which had lost contact with its mother; it was picked up and taken to the Ilhas Desertas station at Doca. There it was given shelter and exposed to frequent human contact and the corresponding possibility of infections. Although it appeared to be healthy, the animal died 12 days later. Autopsy results confirmed that the death of the animal had been caused by septicaemia. This case led to the construction of a centre for the rehabilitation of monk seals in the Ilhas Desertas.

In December 1997, another pup was found washed up on the beach at Doca, Deserta Grande, in conditions identical to those the previous one was found in. Based on previous experience, and benefiting from the facilities of the monk seal rehabilitation centre, plus the fact that the pup's mother was located, it was possible to rehabilitate the animal and later return it to its natural surroundings.

INTRODUCTION

The monk seal is one of the most endangered species in the whole world. In Portugal the only herd of monk seals is found in the Ilhas Desertas, which were classified as a Natural Reserve in 1990. Since that time, the size of the population has been increasing, and it is presently estimated to number 19 individuals. This is the result of conservation work which has been carried on there, in effectively protecting the monk seal and its habitat. Monitoring the monk seal and studying its biology and ecology are fundamental to the adopting of the most appropriate strategies for its protection. In the course of this work, it has been found that one of the threats to the population is linked to the fact that the season for births and the pups' first outings into the sea, from November to February, coincides with the season in which ocean storms are the most frequent in the Ilhas Desertas. The pups are still very vulnerable in this phase, not being able to withstand the action of the waves. Thus they run the risk of being driven into areas of strong breakers next to the rocky coast, or pushed by the ocean currents far from the cave where they were born, losing contact with their mother, upon whom they are still dependent for feeding. In this type of situation, the intervention of Man is crucial so as to accompany the pups until they are capable of surviving on their own in their natural surroundings. This is a process which should follow a strict protocol for feeding and handling the animals, in which aseptic conditions are maintained to the extreme, seeking to guarantee success. This was the experience gained with the first pup found washed ashore in the Ilhas Desertas in November, 1995, and which contributed to the successful recuperation of another pup in December, 1997.

This article proposes to set forth the procedures followed during the recuperation of the two pups, analysing the factors which contributed to failure in the first case and success in the second.

THE REHABILITATION PROCESS OF THE FIRST PUP

Location

The pup was found by one of the wardens of the Madeira Natural Park on December 3, 1995, while manning one of the observation posts used in monitoring and studying the monk seal. The post is located on the beach of an inlet called Calhau das Areias. There he noticed that the monk seal tried several times to get to the sea, but always ended up being thrown back up on land by the action of the waves. Because the sea conditions were tending to worsen the warden decided to pick up the pup and bring it to the Ilhas Desertas station at Doca.

Meanwhile, an unsuccessful search for the mother of the pup was undertaken, using a boat to run along the SW coast of Deserta Grande, which is used by the monk seals for raising their young (Pires 1997).

Identification of the pup

Sex: Female **Weight:** 19 kg

Standard Length: 100 cm **Total Length:** 106 cm

Estimated Age: 3-4 weeks

The age was calculated based on the absence of the umbilical cord, which probably falls off by the 5th day (SRRC, 1991); on the fact that the new growth of fur which appears between the fourth and sixth weeks of life (Vedder 1990; SRRC 1991; & Dendrinos, 1996) had not begun yet, and the fact that its teeth were ready to come through, which happens between 3 and 7 weeks of life (Vedder 1990 & SRRC 1991).

Name: Maria

Condition of the pup

Dehydrated and injured at the base of the flippers.

Treatment and Feeding

'Maria' remained at the station at Doca, in the same space used by the Nature Wardens who work there, being constantly in contact with them. The care given the pup was essentially in keeping it fed and hydrated. The evaluation of its condition was made by keeping track of its rectal temperature and weight, and by observing its behaviour.

The pup was fed and hydrated 7 times a day, on average, with a mixture consisting of: 100-200 g of scabbard fish, 100-250 g of oatmeal, and 250-650 ml of water with hydrating salts. The first two days, 850 g of fish were used, and this was gradually increased to 1300 g. Contrary to what happens with the majority of pinnipeds in this situation, 'Maria' ate voluntarily and 'force feeding' was not necessary.

Seeking to keep the pup hydrated and in permanent contact with its natural habitat, it was taken to the sea every day and bathed. Although the pup was carried by one of the wardens the first few times, it later became able to accompany them on its own and followed them.

Evolution of the pup's condition

Over a period of 11 days, the pup was apparently healthy. Although its weight remained stable and its temperature varied between 34.5°C and 37.1°C, it was active and the fact that it was eating regularly indicated that it was healthy. However, on the 12th day, the pup demonstrated lethargic behaviour and died at 11:30 a.m.

Results of the autopsy

The results of the autopsy confirmed that the pup's death was caused by septicaemia. Congestive haemorrhagic lesions were found in most of the organs and the following pathogenic agents were isolated: *Salmonella arizonae, Staphylococcus aureus,* grupo B *Streptococcus, Streptococcus dysgalactiae, Streptococcus bovis* I, *Streptococcus equisimilis,* hemolytic *E. Coli* ß, and type 1 *E. Coli.*

Measures taken as a result of this experience

In 1997, a Monk Seal Rehabilitation Unit was built at Doca, in the Ilhas Desertas, and a technician from the Madeira Natural Park was trained at the Seal Rehabilitation Centre at Pieterburen (SRRC) in Holland to accompany the rehabilitation of monk seals.

Mother with pup on Deserta Grande

THE REHABILITATION PROCESS OF THE SECOND PUP

The Pup's Location

At 2:30 p.m. on December 3, 1997, exactly two years from the day 'Maria' was found, a pup was found washed ashore at Doca. The animal was immediately taken to the Monk Seal Rehabilitation Unit, where its condition was checked and it was given 'first aid'.

The observation work at that time was being carried out in the Tabaqueiro inlet, where 3 days earlier it had been noted that the beach was being used by a pup and two females. The fact that both females nursed the pup indicated that one of them had lost her pup.

Condition of the Pup

Dehydrated, with injuries at the base of the flippers, obstruction of the respiratory tract and high temperature – 38.8°C.

First Aid

Following the protocol of the SRRC, the pup was hydrated with a saline solution prepared from 500 ml of sterilised water to which various vitamin complexes were added (A, B-1,2,6, 12, C, D3, and E). This mixture was given by means of a funnel and a tube inserted in the pup's oesophagus.

The wounds were disinfected and the respiratory passages were unblocked with the aid of a vapospray.

Identification of the Pup

Sex: Female **Weight:** 17.40 kg
Standard Length: 102 cm **Total Length:** 108 cm
Estimated age: 1-3 weeks

Based on the fact that the navel was not healed and the gums of the upper jaw, which are soft when the monk seals are born (Vedder 1990), were hard, and by comparison with 'Maria'.

Name: Autonomia

Treatment of the Pup

Since the pup's probable mother had been located, the pup's stay in the Rehabilitation Unit served to bring the temperature to normal and hydrate the pup so it could be returned later to its natural surroundings. By 1:00 p.m. the following day, the pup had been hydrated 4 times and its temperature recorded.

Evolution of the Pup's Condition

Soon after a 4-hour period of isolation in the Unit, the rectal temperature dropped to 37.8°C and remained stable until the pup was placed in its natural surroundings.

Integration of the Pup in its Environment

At 1:45 p.m. on December 4, the pup was placed on the beach at Tabaqueiro, about 30 m from the other three animals, who were asleep. The pup called out and the female which was alone answered immediately and came up to the pup to establish a contact typical of mother and young, and soon afterwards nursed the pup. On the following days, it was the other female who adopted the pup and began nursing it and accompanying it on excursions outside the Tabaqueiro inlet.

CONCLUSION AND DISCUSSION

The death of 'Maria' was the result of a rehabilitation process which was undertaken without the necessary conditions and experience to ensure its success. Conditions of asepsis were practically non-existent, which according to the autopsy results, was the cause of death of the pup. This, due to the fact that the pup was deprived of its maternal food, essential to mammals in the first days of life as a way of obtaining antibodies and organic defences against infections from the surrounding environment (Vedder, *pers. comm.*). Besides this, the frequent contact with the personnel on duty at the station on the Desertas would have turned out to be harmful to the pup, in the event it did survive, seeing that it was leading to a dependence upon Man. Although this was a negative experience, two years later it contributed to the success in recuperating 'Autonomia', because it had alerted us to the need for creating conditions for the rehabilitation of monk seeds in the Ilhas Desertas. Thus, 'Autonomia' was treated in the Rehabilitation Unit according to the protocol for the recuperation of seals from the Centre at Pieterburen. However, in the case of this pup, the fact that its probable mother was located was, without a doubt, the factor which led to the success of this operation, principally because she was nursing another pup. As a general rule among pinnipeds, mothers end up abandoning their pups after these are absent for 3 days because they stop producing milk due to the lack of the sucking stimulation (Vedder, *pers. comm.*). The recuperation of this pup is an excellent example of the importance of the work of monitoring and studying the monk seal for its conservation, which not only permitted the saving of the pup, but also the determining of the place and season for giving birth and raising young, which is fundamental for the establishment of a work plan which will allow human intervention in future situations of this type. This, together with the existence of conditions for the recuperation of abandoned pups reduces their mortality to a minimum.

ACKNOWLEDGEMENTS

We wish to express our gratitude:

To the wardens of the Madeira Natural Park for their dedication in the work of saving the monk seal.
To SRRC for their important long-distance collaboration during the recuperation process of 'Autonomia'.
To IFAW, in the person of Dr. Petra Deimer, for the financial support of the Monk Seal Rehabilitation Unit of the Ilhas Desertas.

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The Monachus Guardian
monachus / schauinslandi / tropicalis

Letters to the Editor

Publish or Perish…

> *'The Mediterranean monk seal* Monachus monachus *is one of three related species of warm water seals... It is found in declining numbers over its primeval range in the Mediterranean, the Black Sea and the Atlantic coast of NW Africa. It is confined to refuges in remote cliffbound coasts and islets. It is highly sensitive to human disturbance which is thought to result in abortions and desertation of young. Fewer than 500 Mediterranea monk seals survive, mainly in Greek and Turkish waters.' ~* ***IUCN Bulletin. 1984. Ten to the Dozen but Short Measure for Protected Areas. Vol. 15:No. 10-12. pp. 109-110.***

Because of its shyness and its habitat, the Mediterranean monk seal is an animal that is rarely seen, even by people who live in its proximity. I came to realize how lucky an encounter with this elusive animal can be, only while studying *Monachus monachus* during the summer of 1996. The study, kindly supported by the Hellenic Society for the Study and Protection of the Monk Seal (MOm), was carried out in the National Park of Alonnisos and the Northern Sporades in Greece, and forms part of the thesis for my biology degree at the Free University of Berlin.

During the preparation of this work I discovered that it is not only difficult to find this 'phantom' of the Mediterranean in the wild, but also in scientific literature. Most articles concerning *Monachus monachus* are either published in conference proceedings, which are printed in limited numbers, or in scientific journals with a very local distribution. This situation, combined with the fact that these articles are written in many different languages (English, French, Greek, Spanish, Turkish *etc*.), makes it practically impossible for 'outsiders' to get acquainted with the monk seal and the conservation efforts being implemented to save this endangered species.

This situation is quite astonishing, since education of the public is one of the primary measures aimed at preventing the extinction of *Monachus monachus*, recommended by all the monk seal conferences since Rhodes in 1978.

At this point I would like to congratulate the editors of The Monachus Guardian for their good work in issue No. 1, and would like to encourage them to urge monk seal scientists to publish their articles (or at least an abstract of them in English) also in the Guardian. In this way they would not only gain, through the Internet, a wider readership, but also spare us time-consuming visits to libraries and inevitable delays when ordering papers.

Yours faithfully,

Alexandros Karamanlidis, Free University of Berlin

✓ **www.monachus.org** and **The Monachus Guardian** *are* gradually evolving, and we invite members of the monk seal conservation community to submit their papers and reports on a regular basis for publication in the Library and/or Monachus Science sections. This will enable rapid electronic access worldwide by interested readers. This month we have added five new publications (from Canada, Croatia, Madeira and Turkey) to these sections and, as noted elsewhere, we hope to publish the entire proceedings of the UNEP/MAP Arta conference (with accompanying scientific reports) in the near future.

Nuclear Threat to Turkey's Seals?

I am a nuclear campaigner with Greenpeace International working against the plan by Turkey to build a nuclear power station at Akkuyu Bay in Turkey. One of the issues which has been raised by some Turkish conservation groups is the effect the building of this plant may have on nearby populations of monk seals. In particular, the island just off Akkuyu Bay, Parmak Island, is home to a monk seal and was recently declared a protected habitat.

It seems likely that the building of a nuclear power station at Akkuyu would be a danger to the monk seals. There would be increased sea traffic, increased human activity, and the inevitable pollution from both the construction and operation of the plant. All nuclear power stations discharge liquid radioactive waste as part of their routine operation.

The announcement of who has won the bid to build the nuclear power station is expected any day now. If announced, the Turkish Government is expected to conduct an Environmental Impact Statement (EIS). Greenpeace is asking organisations who work on marine mammals, and particularly the monk seal, to write to the Turkish Government and urge them to conduct an EIS which comprehensively examines the potential impact of the proposed nuclear power plant on the surrounding monk seal populations. The Prime Minister's address is:

Prime Minister of Turkey
Basbakan
Ankara, Turkey

Fax ++ 90 312 417 0476

Ben Pearson, Greenpeace International, Amsterdam

For more information on this issue, contact Ben Pearson in Amsterdam on Tel. ++ 31 20 5249563, or consult the Greenpeace International webpage: www.greenpeace.org

Monk Seals and Tidal Action

I am studying the possible influence of tidal actions on monk seal activity and behaviour. However, after searching various bibliographies, I have found only a few references to this subject. If anyone has any information on this issue, or

has ever come across a paper on the subject, could they please contact me at the following address?

Rosa Pires, Parque Natural da Madeira, Quinta do Bom Sucesso, Caminho do Meio, 9000 Funchal, Madeira, Portugal. E-mail: np24ue@mail.telepac.pt

Caribbean Monk Seals – *Are* they Extinct?

After searching several web sites for information on Caribbean Monk Seals, I came across www.monachus.org. Is the Caribbean Monk Seal much like the Mediterranean Monk Seal? I understand the Caribbean variety is considered extinct, but what are the odds that it is *not* extinct? Have there been sightings? The reason I ask is that some six to seven years ago I was on a sailboat off the coast of Stuart, Florida. While on board I looked over the side to see an animal I could not identify. At first I thought it was a baby manatee – until some years later when I saw one at an aquarium. I then remembered the Caribbean monk seal and saw the picture on your web site. If I recall correctly, the animal I saw looked much like what is pictured. The animal was less than four feet long with the same face. Could this be a Caribbean Monk Seal? *Marko Sillanpaa, USA*.

✓ David Lavigne, of the International Marine Mammal Association (IMMA Inc.), replies:

Yes, from what we know, the Caribbean monk seal was a close relative of the Mediterranean monk seal.

There have been a number of reported seal sightings in the Caribbean region since the last confirmed sighting of a Caribbean monk seal in the early 1950s. In the 1980s Burney LeBoeuf and colleagues went looking, found nothing, and declared the Caribbean monk seal extinct (LeBoeuf *et al.* 1986). I am aware of at least two subsequent expeditions that also failed to find any evidence that the Caribbean monk seal survives. The most recent edition of the International Union for Conservation of Nature and Natural Resources' Red List of Endangered and Threatened Animals declared it 'extinct' (IUCN 1996).

More recently, interviews with fishers in northern Haiti and Jamaica have kept alive the hope that the Caribbean monk seal survives (Boyd and Stanfield 1998). But given the heavy boat traffic throughout the Caribbean, and the lack of any confirmed sightings in more than 40 years, it seems unlikely that the species survives.

Rather, it seems more likely that some of the sightings, including quite possibly yours, were of wayward young hooded seals, *Cystophora cristata*, as noted recently by Greg Early from the New England aquarium [See International News, *Has Anyone Seen a Caribbean Monk Seal?*– *Ed.*]. Others may have been other North Atlantic seals beyond their normal range, or escapees (including sea lions) from captive facilities.

Or, yes, they could have been manatees as you suggest. There is a long history of confusion between manatees (and, possibly, dugongs) and monk seals in the wild (they sometimes look quite similar when they float on the surface) and both, interestingly, gave rise to mermaid legends.

Sources:

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Monk Seals – How do they differ anatomically?

How are monk seals anatomically different from other seals, which has led them to a difference in classification? I have been doing some research on them with a professor of mine and we cannot find this out with the resources we have. I'd appreciate any insight on this topic. *Maegan, Coastal Carolina University Student, USA.*

✓ David Lavigne, of the International Marine Mammal Association (IMMA Inc.), replies:

Monk seals (genus *Monachus*) have long been recognized as being somewhat different from other seals on the basis of a variety of traits, and not just on anatomical differences. Your question is difficult to answer precisely because the three species of modern monk seals have only rarely been compared in individual studies (King 1956 is an exception). The retention of primitive features in the skull (particularly in the Hawaiian monk seal, *M. schauinslandi*) is one anatomical difference that tends to separate *Monachus* as a distinct group. Monachine seals are also characterized by having a relatively straight and thick ilium (Ray 1976).

Monk seals, again like other monachine seals, are also relatively large (compared with phocine seals), with females tending to be the larger sex; they have 4 mammary glands (King 1983), produce pups with black lanugo (foetal hair) (McLaren 1975, Ling 1978), and have 2n = 34 chromosomes (Árnason 1974). Monk seals also have smooth, as opposed to beaded, vibrissae (King 1983); and are distinguished from other seals in immunological studies of serum transferrins (Sarich 1975, 1976). Monk seals are also the only modern pinnipeds that survive in warm, relatively unproductive seas (Davies 1958).

For additional information and readings, see Lavigne (1998), 'Historical biogeography and phylogenetic relationships among modern monk seals, *Monachus* spp.' in Monachus Science.

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monachus.org

Congratulations on the launch of www.monachus.org, an excellent initiative! I hope that it generates the kind of interest which will better help the prospects of the monk seals. *Peter Haddow, Seal Conservation Society, U.K.*

Thank you very much for your excellent web site. *Stefan Avramov, Bulgarian Society for the Protection of Birds.*

The Monachus Guardian
monachus / schauinslandi / tropicalis

Recent Publications

Badosa E., E. Grau, F. Aparicio, J.F.Layna and M.A. Cedenilla. 1998. Individual variation and sexual dimorphism of coloration in Mediterranean monk seal pups (*Monachus monachus*). Marine Mammal Science 14(2):390-393, Apr. 1998.

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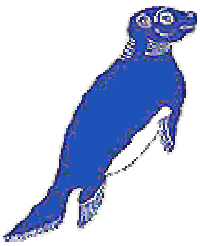
Prepared by Alexandros Karamanlidis and Melina Karamanlidou



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Annex

UNEP/MAP Meeting of Experts on the Implementation of the Action Plans for Marine Mammals (Monk Seals and Cetaceans) Adopted Within MAP

Arta, 29-31 October 1998

UNEP(OCA)/MED WG.146/CRP.1

Recommendations of the Meeting on topics to be addressed as a matter of priority in the further implementation of the Action Plan for the Management of the Mediterranean Monk Seal

Items 7.8.9.11 and 12: Reduction in adult mortality

An integrated approach combining awareness campaigns for fishermen and enforcement of appropriate legislation and regulations, on the model of what has been done in the National Marine Park of Alonissos-Northern Sporades (Greece) should be applied in areas where monk seals interact negatively with fishing activity.

The economic impact of seal damage to coastal fisheries and fish farms, and the ways to prevent or mitigate such impact, should be assessed.

Item 10: Development of systems to avoid entanglement in nets

Pilot research studies to assess the effectiveness and consequences of systems to avoid entanglement of seals in nets which are to be carried out in appropriate locations and/or seasons are considered useful.

Items 13-16: Establishment of a network of marine reserves

Already identified sites important for the conservation of the species should be urgently protected and appropriately managed.

Protected sites should be extended to include all valuable habitats for monk seals, aiming at the creation of a network of protected areas.

Items: 17-19: Monitoring. collection of data and exchange of information

E-mail regional networks should be established to facilitate ready exchange of information. RAC/SPA should encourage further contacts between conservation projects for monk seals.

Whenever appropriate, the range of seal movements should be studied as a matter of priority, using suitable techniques (e.g. telemetry). Relevant protocols should be elaborated according to the available experience.

RAC/SPA is invited to hold workshops and to promote expertise to synthesise available information on the biology, ecology and behaviour of Mediterranean monk seals that is critical for conservation. The output of these workshops should be published and be made the subject of a symposium.

Item 20: Rehabilitation of seals

A workshop to develop agreed protocols for the rehabilitation of Mediterranean monk seals should be urgently undertaken and appropriate guidelines put in place.

Items 21-22: Other conservation measures

An Emergency Action Plan should be developed to coordinate action if a mass mortality or other emergency event occurs.

Items 23-26: Information programmes

Awareness programmes for the public should be developed and should be carefully designed in order to avoid dissemination of information that might adversely affect the conservation of the monk seals (e.g. the location of seal caves).

Special attention should be paid to increasing awareness of decision makers.

Item 27: Training programmes

Emphasis should be placed on the organisation of training courses, specific workshops and training grants to address practical aspects which are relevant to the research, conservation and management of monk seals.