



Dolphins of Greece

2012 FIELD REPORT

Background Information

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Report completed by: Joan Gonzalvo

Period Covered by this report: 2012



TETHYS RESEARCH INSTITUTE

*preserving the marine environment through research,
public awareness and education*

Dear Earthwatch participants,

On 30th of September, with the departure of our last team of volunteers, our 2012 research season came to an end. Behind are many unforgettable moments shared with all of you, in the good company of the magnificent creatures inhabiting the Amvrakikos Gulf and the neighbouring waters surrounding the island of Kalamos. We also enjoyed each other's company, immersing ourselves in the local culture and discussing our daily experiences. It is now time for us to look back and make a balance of all the work done so far. It could not happen without you, and we want to express our gratitude for your enthusiasm, interest, and hard work.

What started over a decade as a preliminary study carried out with limited means has quickly evolved into a fully functional and productive project, which has also expanded its geographical coverage and scope. We started to work with Earthwatchers in 2006. Since then we welcomed 96 teams, totalling 381 volunteers, from 28 different nationalities; people with remarkably diverse backgrounds, but sharing a common interest towards nature conservation.

These are difficult times. The global crisis has also had some effect in our project, as in many conservation initiatives worldwide. Your support is more important than ever. Your enthusiasm and positive attitude towards our work keep us going. Many of you said the Dolphins of Greece experience helped them look at the sea in a different way, with increasing appreciation for its beauty and fragility. This gives added meaning to what we do.

Once again, thanks for having shared this adventure with us!

Joan Gonzalvo and the 'Dolphins of Greece' team

SECTION ONE: Scientific research achievements

Top highlight from the past season

This season's highlight, without a shadow of a doubt, is the creation, implementation, and success of our new website, which is fully dedicated to the Ionian Dolphin Project (to you guys known as Dolphins of Greece). WWW.IONIANDOLPHINPROJECT.ORG aims to increase the interest about the conservation of cetaceans inhabiting the beautiful waters of Greece, by encouraging residents, charter/flotillas, sailing holiday operators, and visitors to the area to report their sightings of cetaceans, through a user-friendly on-line form. It also offers information on the species and on the appropriate behaviour of boaters when interacting with them.

Numerous public awareness and educational activities included in this report have been used to promote very successfully this new initiative. We are glad to inform you that up until now we have received over 60 reports!

Reporting against research objectives

Background information:

These two study areas (see map; Figure 1), home mainly to two dolphin species, are remarkably diverse in terms of environmental features and threats posed by human activities, therefore offering opportunities for understanding the links between dolphin status and habitat quality in different situations.



Figure 1: Map showing study areas

Area 1) Inner Ionian Sea archipelago

In 1991 the Tethys Research Institute began a study in the Inner Ionian Sea archipelago, a Natura 2000 area. Initially intended to be a long-term investigation on the ecology and behaviour of common dolphins in a central Mediterranean hotspot, the study instead became a documentation of their sharp decline. Earthwatch teams started to participate in the surveys at sea in this area in 2009.

Area 2) Amvrakikos Gulf

In 2001 Tethys started a study in the Amvrakikos Gulf, where bottlenose dolphins are the only cetacean species encountered. Pre-defined survey transects were used for the long-term monitoring of the study area since 2006, when we started our collaboration with Earthwatch. The Gulf, which is part of a larger National Park, is also inhabited by loggerhead sea turtles and has a rich bird fauna including rare species. The Gulf's biodiversity, however, is threatened by high and increasing eutrophication and pollution.

Survey effort:

Inner Ionian Sea archipelago: dataset 1991—2012

Data in the Inner Ionian Sea archipelago were collected during a total of 103 months spent in the field across 22 years of research, totalling 1,950 hours spent with 1,800 dolphin groups. A total of 1,313 daily surveys were conducted between 1991 and 2012. The navigation effort totalled 76,937 km, resulting in 507 sightings of common dolphins and 476 sightings of bottlenose dolphins that were recorded. (See Table 1) Dolphin behaviour has been recorded since 1996, sampled at intervals of 3 min (1996-2001) and then 6 min (2002-2012). Individual dive intervals were also timed between 1996 and 1999. A total of 24,001 record units ("samples") of behaviour were recorded: 9,141 for bottlenose dolphins and 14,860 for common dolphins. These samples include position, group size and composition, group formation, directionality and speed of movement, surfacing pattern, dive duration, dolphin activity and behavioural events, presence of birds and bird data, and several other variables.

Table 1: Summary of research effort in the Inner Ionian Sea archipelago (1991-2012) Dd=*Delphinus delphis*, Tt= *Tirsiops truncatus*

Year	Months at sea	Days at sea	Km surveyed total	Km surveyed on effort	Time spent with dolphins		Sightings		Groups		Behavioural samples	
					Dd	Tt	Dd	Tt	Dd	Tt	Dd	Tt
1991	3	17	528	316	4 h 51 min	9 h 25 min	6	9	-	-	-	-
1992	4	32	1,589	1,120	16 h 34 min	4 h 27 min	11	7	-	-	-	-
1993	4	36	1,752	1,188	45 h 19 min	7 h 17 min	20	5	30	9	-	-
1994	5	60	3,243	1,677	88 h 49 min	26 h 46 min	34	16	56	24	-	-
1995	3	27	2,019	1,253	43 h 23 min	9 h 56 min	13	9	45	12	-	-
1996	5	68	2,573	1,975	76 h 19 min	40 h 10 min	36	25	65	48	436	381
1997	7	125	5,321	2,918	196 h 40 min	49 h 10 min	90	25	236	58	3,371	761
1998	7	112	4,839	2,887	188 h 57 min	63 h 40 min	76	25	200	61	3,713	1,121
1999	7	85	4,140	2,608	122 h 19 min	62 h 8 min	52	31	112	63	2,404	1,169
2000	4	90	5,156	3,057	106 h 7 min	54 h 36 min	54	28	102	52	2,090	998
2001	4	86	4,540	2,597	75 h 28 min	46 h 31 min	40	33	62	52	1,306	802
2002	5	80	4,669	2,790	54 h 28 min	62 h 39 min	19	45	34	64	461	535
2003	5	78	6,424	4,766	48 h 12 min	68 h 4 min	20	32	28	49	441	593
2004	7	68	5,178	3,213	14 h 40 min	59 h 1 min	8	39	12	56	132	508
2005	4	66	4,842	2,954	11 h 39 min	74 h 58 min	7	36	10	65	103	673
2006	4	69	4,861	3,335	10 h 4 min	36 h 17 min	5	18	6	38	84	319
2007	4	64	4,702	2,846	8 h 33 min	41 h 23 min	4	32	5	64	93	487
2008	5	74	5,035	3,539	14 h 2 min	43 h 21 min	7	29	8	32	120	341
2009	4	15	1,196	951	-	6 h 41 min	-	3	-	4	-	63
2010	4	20	1,241	911	2 h 46 min	18 h 9 min	1	12	1	13	27	155
2011	4	21	1,460	1,338	7 h 35 min	8 h 29 min	3	5	3	5	46	79
2012	4	20	1,629	1,539	3 h 36 min	17 h 02 min	1	12	2	14	33	156
Total	103	1,313	76,937	49,778	1,140 h 21 min	810 h 10 min	507	476	1,017	783	14,860	9,141
					1,950 h 31 min		983		1,800		24,001	

Amvrakikos Gulf: dataset 2001—2012

Data in the Amvrakikos Gulf were collected during a total of 73 months spent in the field over 12 years of research, totalling 904 hours spent with dolphins. (See table 2) A total of 742 daily surveys were conducted between 2001 and 2012. The navigation effort totalled 32,365 km and resulted in 665 sightings of bottlenose dolphins, and 556 of loggerhead turtles. In years 2006 and 2007, monthly surveys were also conducted in the Ionian Sea open waters to look for possible sightings of bottlenose dolphins in the vicinities of the mouth of the Gulf; this resulted in a total of 667 km of survey effort under favourable conditions, which yielded only a sighting. Since 2005 dolphin behaviour was sampled based on 5 min observation intervals. A total of 7,701 units (“samples”) of behaviour were recorded. These samples include position, group size and composition, group formation, dolphin activity and behavioural events, presence of birds and bird data, and several other variables. Individual dive intervals were also recorded starting in 2006, totalling 976 individual dive times, to investigate bottlenose dolphin surfacing patterns and feeding behaviour.

Table 2: Summary of research effort conducted in the Amvrakikos Gulf (2001-2012). Tt= *Tursiops truncatus*, Cc= *Caretta caretta*.

Year	Months at sea	Days at sea	Days with dolphins	Km surveyed total	Km surveyed on effort	Time spent with dolphins	Sightings		Behavioural samples
							Tt	Cc	
2001	1	2	1	-	-	-	-	-	-
2002	2	8	6	320	85	16 h 34 min	10	-	-
2003	2	15	15	628	299	48 h 41 min	20	6	-
2004	6	51	44	1,846	470	91 h 03 min	56	31	-
2005	4	50	44	1,911	624	72 h 13 min	90	23	728
2006	9	107	68	5,090	1,630	99 h 32 min	70	43	928
2007	12	136	96	7,065	2,776	139 h 45 min	101	103	1,422
2008	12	105	74	4,786	1,648	110 h 52 min	77	103	1,139
2009	6	82	74	3,243	1,310	105 h 50 min	76	82	1,020
2010	7	88	78	3,557	1,234	97 h 36 min	80	32	1,093
2011	6	43	35	1,930	785	46 h 56 min	35	52	523
2012	6	55	48	1,989	656	75h 19 min	50	81	848
Total	73	742	583	32,365	11,517	904 h 21 min	665	556	7,701

Objective 1: Dolphin population numbers and trends

Individual photo-identification based on long-term natural marks on the dolphins' dorsal fins was performed extensively with cameras equipped with 70-200mm f2.8 zoom lenses. Colour transparency film (ISO 100) was used in the early phases of this study, and then digital photography was systematically adopted. Transparencies were scanned and turned into digital images. Both transparencies and digital photos were then cropped around the dorsal fin and visible part of the body and selected using consistent criteria (e.g. entire fin visible, right angle, appropriate sharpness and resolution). Following a quality-based selection, the total catalogue 1991-2012 included 89,217 photos on which photo-identification and other analyses were performed. Earthwatch volunteers played a key part on the processing and analysing of all these images; their hard work allows us to update our catalogue in almost real time. Photo-identification is used not only to obtain population abundance and trends of common dolphins and bottlenose dolphins in the two study areas, but also to gain information on individual movement patterns, habitat use and preferences, reproductive success, social organization (see Objectives 2 and 3).

Common dolphins in the Inner Ionian Sea Archipelago declined dramatically from approximately 150 to 15 animals between 1995 and 2007. Since then, a few sightings have been reported in the adjacent waters. Monitoring done in subsequent years (2008-2012) showed that a few animals are still present and they likely roam across a much wider area, occasionally moving into their former wonderland. Decline of common dolphins in this area

has been convincingly linked to overfishing and specific fisheries management solutions have been advocated. Bottlenose dolphins are found in relatively small numbers, but they seem to have stable trends; of about 120 individuals photo-identified in this area, about one quarter have shown high levels of site fidelity, while the others are transients. However, even individuals with high levels of 'residency' were found to make long-distance movements. Groups of striped dolphins occasionally enter these waters.

Ongoing research in the Amvrakikos Gulf showed that roughly 150 dolphins inhabit these semi-closed waters. No apparent trend in the abundance of the total population between 2004 and 2010 was observed. Moreover, based on year 2012 preliminary data, the population appears to remain stable. Years 2001-2003 were excluded from the analysis because they were years of preliminary work with insufficient effort. New population estimates are on their way at the moment of producing this report, which will allow us to get a better picture on the actual situation of the population.

Objective 2: Dolphin movement patterns, ecology, behaviour and habitat-use

Residency patterns of 174 common dolphins and 154 bottlenose dolphins identified in the Inner Ionian Sea archipelago between 1993 and 2012, based on long-term natural marks on their dorsal fins, are shown in Figures 2 and 3, respectively. In 2009 there were no sightings of common dolphins.

Bottlenose dolphins inhabiting the Amvrakikos Gulf are members of a highly 'resident' community, displaying unique behaviour and ecology. A few individuals photo-identified in the Amvrakikos Gulf were subsequently observed in the Inner Ionian Sea archipelago and in the Gulf of Corinth, but no immigration into the Gulf was recorded so far.

Residency patterns of 186 bottlenose dolphins identified in the Amvrakikos Gulf between 2001 and 2012, based on long-term natural marks on their dorsal fins are shown in figure 4. Red cells refer to an additional 15 animals identified in 2007 in open Ionian Sea waters east of the Gulf, that were never seen inside the Gulf. Three Id Codes in red correspond to those animals last seen in the Gulf in 2008 but subsequently observed in the Inner Ionian Sea archipelago and/or in the Gulf of Corinth.

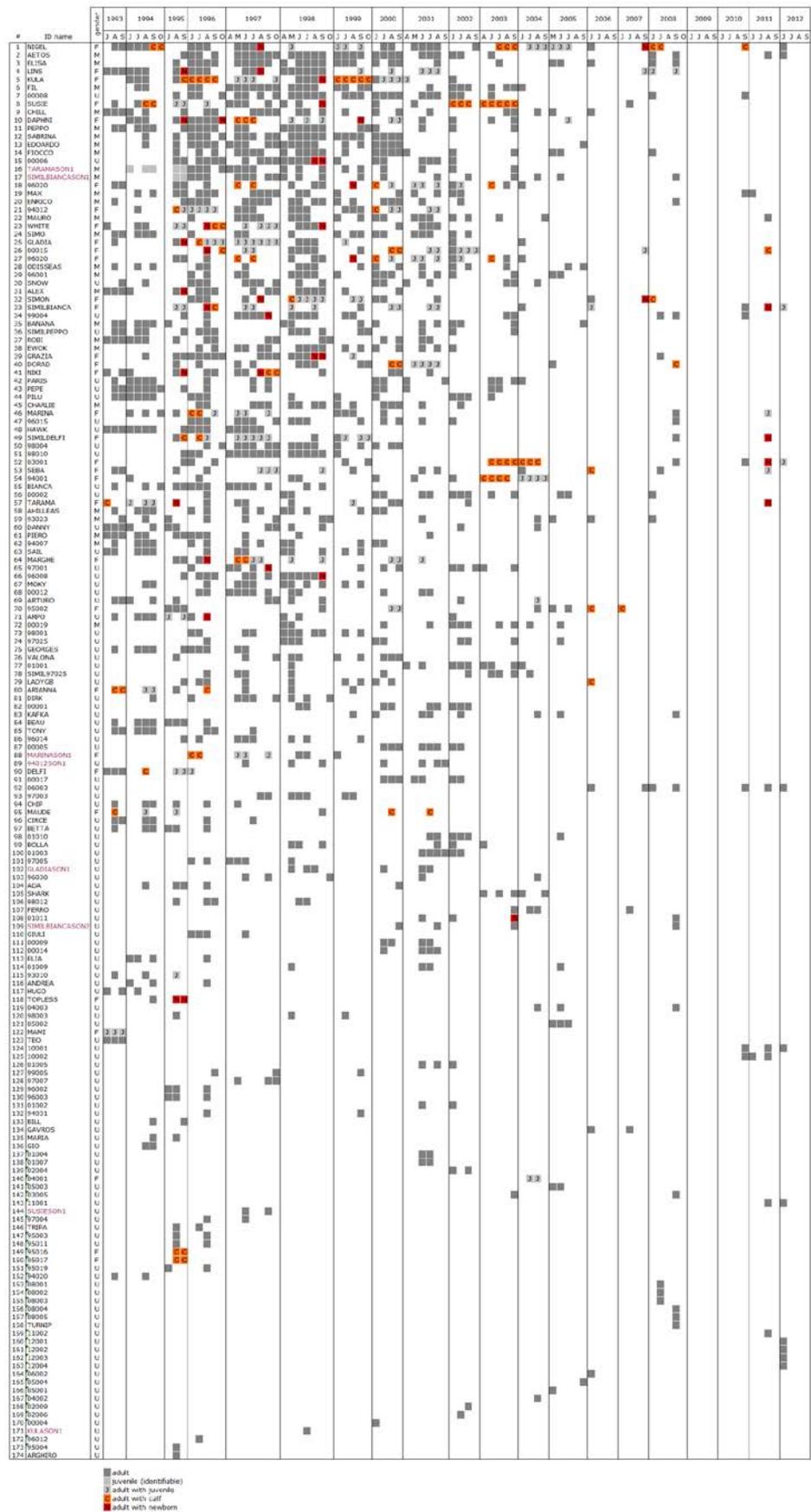


Figure 2: Residency patterns of 174 common dolphins identified in Inner Ionian Sea archipelago (1993-2012)

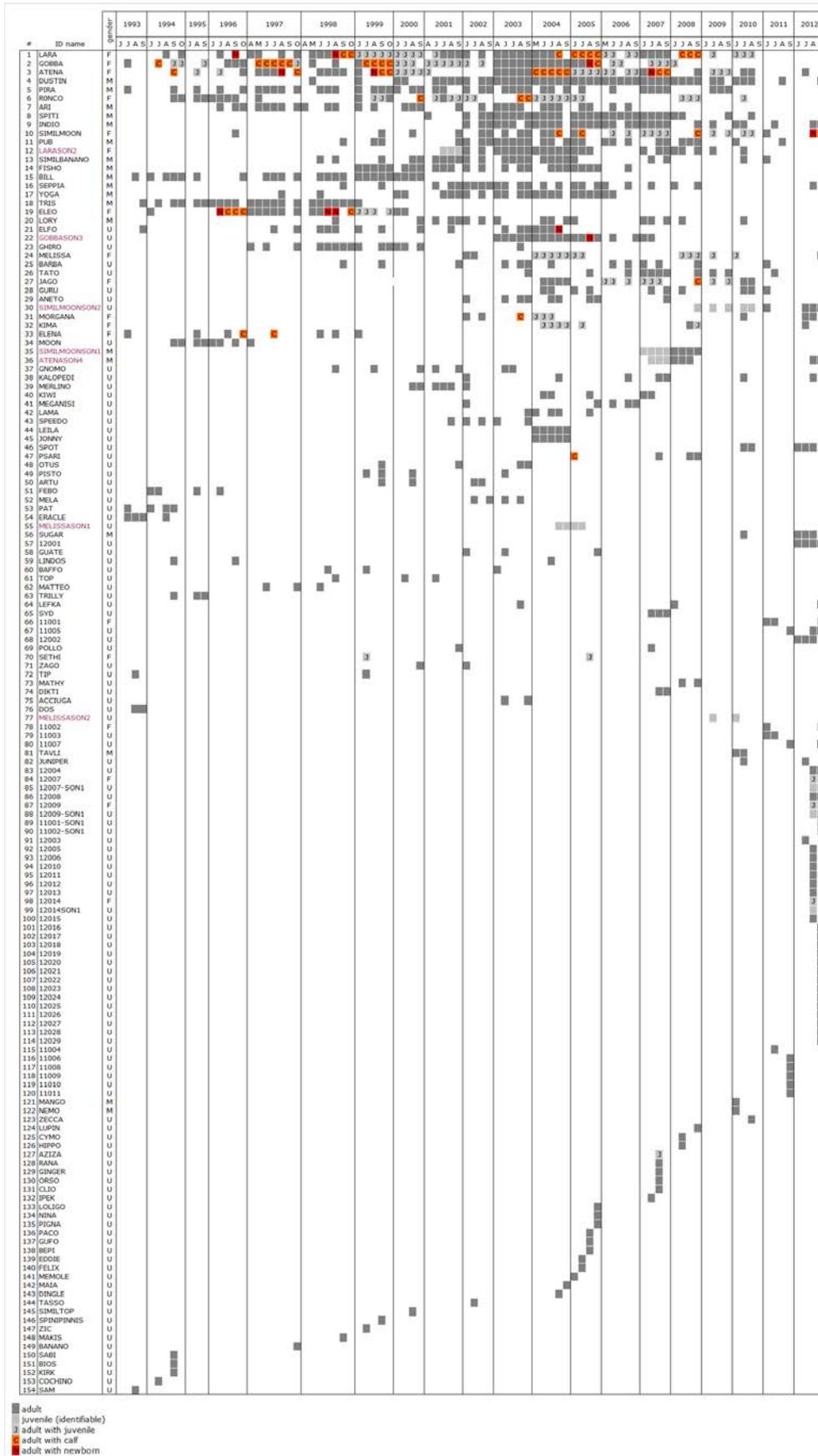


Figure 3: Residency patterns of 154 bottlenose dolphins identified in Inner Ionian Sea archipelago (1993-2012)



Figure 4: Residency patterns of 186 bottlenose dolphins identified in Amvrakikos Gulf (2001-2012)

Objective 3: Dolphin social organisation

Extensive photo-identification data collected so far are being analysed to study the social organization of bottlenose dolphins living in a semi-closed system. Patterns of association between mother-calf pairs and reproductive success will be also investigated.

Objective 4: Comparative studies

Data obtained in the Amvrakikos Gulf have been compared with information on bottlenose dolphins and common dolphins living in the Inner Ionian Sea Archipelago, outside the Gulf. Comparisons between these geographically contiguous but separated dolphin communities shed light on the ecological factors that determine differences on the carrying capacity of different ecosystems, and on fisheries-related issues.

The Amvrakikos Gulf is shallow, murky, highly eutrophic and characterised by abundant epipelagic prey. On the other hand, the surrounding Ionian Sea waters are deep, transparent, oligotrophic, and heavily overfished primarily by purse seiners and trawlers. These highly intrusive and unsustainable fisheries are banned within the Gulf. Bottlenose dolphins within the Amvrakikos Gulf are regularly and consistently engaged in specialised and cooperative surface feeding behaviour. Data based on fish scales sampled during dolphin feeding activities suggest that sardines are an important prey item for bottlenose dolphins in the Amvrakikos Gulf, but not elsewhere in the Mediterranean Sea. Similar behaviour was rare or absent in bottlenose dolphins in the Inner Ionian Sea Archipelago, where this species seem to target primarily demersal prey. In these waters, common dolphins are the ones targeting mostly small epipelagic fish (i.e. sardines and anchovies), which local fish stocks have been largely overfished leading to a dramatic decline of the local common dolphin population.

While in the Gulf, priority should be given to curtail eutrophication and pollution, as well as restoring water exchange to improve the water and seafloor quality. In the Inner Ionian Sea Archipelago, adequate fisheries management measures are urgently needed for the recovery of the ecosystem and to create conditions for common dolphin recovery.

Objective 5: Operational interactions with fisheries: depredation of fishing gear and gear destruction by dolphins and sea turtles

Dolphin carcasses stranded or floating adrift were found and investigated throughout the study period. We recorded or directly investigated those dolphin mortality events. We measured, sexed, and inspected some of these animals, looked for signs of by-catch in fishing gear or killing, and took biological samples. The information gathered was shared

with the Greek Ministry of Agriculture and the Pelagos Cetacean Research Institute, Athens. See Table 3 for detail on dolphin carcasses examined to date.

Table 3: Details of recorded dolphin mortality events

Date	Circumstances	Study area	Location	Species	Gender	Body length	Causes of death/notes
28-09-1997	Floating adrift	Inner Ionian Sea	Off Episkopi, island of Kalamos	Dd	Female	94 cm	Unknown
26-08-1999	Stranded	Inner Ionian Sea	Between Paleros and Pogonia	Dd	Male	140 cm	Unknown
5-07-2002	Stranded	Inner Ionian Sea	Between Mytikas and Paleros	Tt	Male	285 cm	Unknown
6-08-2003	Floating adrift	Inner Ionian Sea	Near Mytikas	Tt	Unknown	--	Unknown
18-05-2005	On land	Inner Ionian Sea	Near Paleros	Dd	Unknown	140 cm	Both lobes of the flukes cut by a knife, suggesting a bycatch event
19-07-2005	Floating adrift	Inner Ionian Sea	North of Kalamos	Tt	Male	200 cm	Both lobes of the flukes cut by a knife, suggesting a bycatch event
28-09-2006	Stranded	Amvrakikos	East of Vonitsa Drimo, between Vonitsa and Amfilochia	Tt	Male	210 cm	Unknown
20-06-2007	Stranded	Amvrakikos	East of Vonitsa Drimo, between Vonitsa and Amfilochia	Tt	Male	257 cm	Unknown
03-07-2007	Floating adrift	Amvrakikos	About 6 km east of Vonitsa	Tt	Male	105 cm (newborn)	Unknown
03-09-2007	Floating adrift	Amvrakikos	Near Mytikas	Tt	Female	120 cm	Unknown
10-06-2008	Stranded	Ionian Sea	Gyros beach, north of Lefkada	Gg	Female	297 cm	Unknown
03-07-2008	Agonizing	Amvrakikos	--	Tt	Unknown	Unknown (newborn)	Unknown
08-09-2009	Stranded	Amvrakikos	East of Vonitsa	Tt	Male	270 cm	Unknown
11-09-2008	Stranded	Ionian Sea	Mylos beach, north of Lefkada	Tt	Male	234 cm	Entanglement on fishing gear (trammel net)
24-05-2010	Floating adrift	Amvrakikos	--	Tt	Male	125 cm (calf)	Unknown
03-08-2010	Stranded	Ionian Sea	Kathisma beach, west of Lefkada	Sc	Male	90 cm (calf)	Unknown
06-09-2011	Floating adrift	Ionian Sea	Coastal waters, west of Lefkada	Pm	Unknown	--	Unknown
08-05-2012	Stranded	Amvrakikos	Pneumatikos Faros	Tt	Female	130 cm (calf)	Malformation on its fluke, suggesting some kind of genetic mutation
16-5-2012	Stranded	Amvrakikos	--	Tt	Unknown	120 cm (calf)	Reported by a local; no direct examination by IDP personnel

Evidence of by-catch and/or entanglement was recorded occasionally in the Inner Ionian Sea archipelago for both common dolphins and bottlenose dolphins. A total of six strandings were reported in 2005 in the Inner Ionian Sea archipelago, of which one could be documented and involved a mutilated common dolphin. Based on the reported information, the other five events were also likely to involve common dolphins.

In all cases the animals were reported to display wounds, knife injuries, and mutilations suggestive of by-catch in fishing gear. For instance, one carcass was found eviscerated, bearing longitudinal knife wounds on its belly, that were inflicted to fill the body cavity with stones and sink the animal in a sack, in a failed attempt to prevent it from washing ashore or floating adrift. In addition, in September 2008 a bottlenose dolphin was found stranded dead

in Northern Lefkada with a trammel net tight around its penduncle and fluke; big pieces of net were also found in its stomach during the examination of the corpse. In this latter case no cuts or mutilations were detected. Life-threatening lesions caused by fishing gear in both common dolphins and bottlenose dolphins found in the Inner Ionian Sea archipelago were also documented.

During the past few years an effort was made to establish good relationships with the community of local fishermen. In summer 2011, 100 formal interviews were made in both areas, Inner Ionian Sea Archipelago (n=50) and Amvrakikos Gulf (n=50), to local artisanal fishermen (Table 4). They consistently lamented a decline in catches and reported that major negative changes have occurred in the local marine ecosystem over the past decades. The interview survey aimed to increase awareness and sensibility of the fishermen towards marine conservation by inviting them to reflect on issues that traditionally have been largely ignored by their community and to gain their collaboration and support to promote adequate ecosystem-based management measures for the conservations of two increasingly fragile coastal ecosystems.

As one generation replaces another, perceptions of what is natural, change dramatically among local communities and memory of past ecosystem status is lost. In this context, we aimed to interview different generations of fishermen to gain insight into shifting baselines and investigate sequential changes. However, it was difficult to find young fishermen operating in the area. The average age of the 100 interviewed fishermen was 53.40 (± 12.98 , age range 26-85); only three of them were on their late 20s, 40 were between 31-50 years old, 43 between 51-65, and 14 were over 65 years of age. Prior to conducting private interviews, informative talks were given at the local fishermen cooperatives to call for the collaboration of their members and avoid suspicion. These events were concentrated in the ports with the largest active fishing fleet.

The questionnaire was designed to address the following issues:

- Past and present occurrence of fishing gear depredation and damage caused by dolphins;
- Estimation of the economic impact of the damage caused by dolphins;
- Occurrence of dolphin by-catch in fishing gear;
- Evidence of shifting environmental baselines with regard to sequential prey depletion and habitat degradation;
- Past abundance of fish and changes in ecosystem status and quality;
- Management needs of the area.

To avoid bias, all interviews were carried out by the same person and on one-to-one sessions to prevent the interviewed fisherman from being influenced by the presence or interference of other colleagues. To avoid suspicion and favour a relaxed communication, the interviewer presented himself as a young student working on his BSc thesis and the questionnaires were all carried out in Greek without using any paper forms or tape recorder, unless the use was approved by the persons interviewed. Pictures of different dolphin species were used to facilitate the identification of the species involved by the fishermen.

Table 4: Details from interviews with 100 local fisherman from Amvrakikos Gulf and Inner Ionian Sea

	Amvrakikos Gulf	Inner Ionian Sea
Average fishermen's age (years)	52.8 yr (± 12.9)	53.9 yr (± 13.1)
Average boat size (length/metres)	7.5 m (± 1.3)	8.1 m (± 1.4)
Fishing gear/s	Set nets (trammel and gill nets). A minority (6%) using occasionally longlines	Set nets (trammel and gill nets). 58% of them using also longlines.
Average experience (years)	27.8 m (± 15.2)	31.2 m (± 14.7)
Fishermen working year-round	74%	92%
Main activity when not fishing	Agricultural activities or construction jobs (mainly during the winter months)	Tourism (i.e. taverna, guest house; alternative activity concentrated during the summer months)
Total active fishing fleet (Reference)	360; 100% small-scale fishing boats (EC,2011 ¹)	322; 93% small-scale fishing boats (Gonzalvo et al.2011 ²)

Analysis conducted in year 2012 based on these interviews shows that while fishermen from Amvrakikos identified pollution and habitat degradation as the main threats faced by the ecosystem, their colleagues from the Inner Ionian Sea archipelago considered overfishing (primarily from bottom trawlers and purse seiners) and lack of law enforcement the most important factors. All the fishermen working in the Gulf claimed to suffer from dolphin predation on their nets; contrarily, 11 fishermen from the archipelago (22%) said that dolphin numbers have decreased and that they do not suffer from dolphin interaction. There is also evidence of a significant reduction in the continuity of fishing as a profession by the new generations; the main factor involved in such change seems to be the reduction in catches (in both areas) and overall income. Fishing is not perceived as a profession with future.

Objective 6: Bottlenose dolphin interactions with fish farms

Fish farms in the Inner Ionian Sea archipelago were recorded based on direct observations and/or located through high-definition satellite photos from GoogleEarth. No shell farms exist in this area. Fish farms in the Inner Ionian Sea archipelago were regularly inspected during the surveys, and dolphin activity around fish farm cages recorded. No interactions were ever observed between common dolphins and coastal fish farms. Conversely, bottlenose dolphins were often seen approaching fish farms and apparently searching for prey in their proximity. This behaviour was observed with increasing frequency in recent years. However, it is noteworthy that in 2011 out of five sightings of bottlenose dolphins only once a dolphin group was found in the vicinities of the fish cages, despite that local fish farms were regularly checked during our surveys at sea.

Fish and shell farms in the Amvrakikos Gulf were plotted by means of a GPS used to record the position of buoys delimiting those facilities. Fish farms in the Gulf totalled approximately 710 fish cages (either for fish of commercial size or hatcheries). A precise count of fish and shell farm numbers is hampered by the difficulty of defining what is a farm unit, considering that most farms are patchy assemblages of a large number of cages (or buoys, as in the case of shell farms). However, about 24 fish farm and five shell farm “clusters” could be counted. Gilthead seabream *Sparus aurata* is the main fish species farmed in the Gulf. Bottlenose dolphin visits to fish farms are recorded during dedicated fish farm surveys performed on a monthly basis. The fact that bottlenose dolphins inhabiting the Inner Ionian Sea Archipelago interact significantly more with fish farms than their conspecifics of the Amvrakikos Gulf might indicate an adaptation to limited prey availability as result of overfishing in coastal open waters in contrast with the rich eutrophic waters of the Gulf, where industrial fisheries are not allowed and dolphins seem to thrive on abundant prey resources.

Objective 7: Overfishing, habitat degradation, and decline of fish resources

Fishery landings in Greece increased until 1994 due to the fleet modernization and geographic expansion of the fisheries over this period. However, declining trends since the mid-1990s suggest that such effects have ceased and fisheries have become unsustainable. A 12-month assessment of fishing effort and catch, together with circumstantial evidence, suggested that decline of common dolphins in the Inner Ionian Sea Archipelago was caused largely by prey depletion resulting from overfishing. We analysed the impacts of various fishing gear and estimated the degree of resource overlap between common dolphins and

local fisheries. The total biomass removed annually by 308 fishing boats in the study area averaged 3,571 tonnes, while that consumed by common dolphins was 17 tonnes.

Resource overlap between common dolphins and fisheries – expressed as an average Pianka index of 0.5 - differed according to fishing gear, being higher for purse seiners (0.7) and beach seiners (0.4) and lower for bottom trawlers (0.1), trammel boats (0.2) and longliners (0.0). Only about ten active purse seiners (4% of the total active fishing fleet) were responsible for 33% of the biomass removal, and likely had the greatest impact on prey of common dolphins.

Since May 31st 2010 beach seining was banned in Greece as demanded by EC regulation 1967/2006 and National decree No. 60/24-1-2007. Beach seining was already banned in all European Mediterranean Countries. Therefore, 2011 was the first year without this kind of gear being used in the Archipelago. Direct observations by Tethys personnel confirmed that those fishermen formerly working with beach seines adopted trammel nets instead. In Amvrakikos Gulf, since 2005, contacts with the fishermen operating in the study area were established, and informal meetings were organised. A friendly relationship was developed with local fishermen, which helped gather information that would be difficult to obtain otherwise. Communication with local fishermen allowed them to obtain information on the level of conflict between bottlenose dolphins and artisanal fisheries. Direct observations were also conducted from fishing boats. Ongoing research aims to evaluate the significance of the interactions and quantify the economic loss suffered by artisanal fishermen as a result of conflict (See Objective 5, above).

Objective 8: Interactions between dolphins and sea birds

The Amvrakikos Gulf hosts a large diversity of bird species. To date, a total of 174 sightings of pelicans were recorded: 10 in 2005, 26 in 2006, 46 in 2007, 47 in 2008, 21 in 2009, 24 in 2010, 8 in 2011 and 6 in 2012. These included the white pelican *Pelecanus onocrotalus* and possibly the endangered Dalmatian pelican *Pelecanus crispus*, a rare species which colonies are known to nest in the area. Pelicans were photographed whenever possible to allow for species identification by bird specialists.

Other unusual bird species recorded during the surveys included Cory's shearwater *Procellaria diomedea*, Manx shearwater *Puffinus puffinus*, herons (especially the grey heron *Ardea cinerea*, often seen in the proximity of fish farms), great white egrets *Egretta alba*, little egrets *Egretta garzetta*, one black-winged stilt *Himantopus himantopus*, kingfishers *Alcedo*

atthis, unidentified Anatidae and several other unidentified bird species. A flying flock of greater flamingoes (*Phoenicopterus ruber*) including about 100-200 individuals was observed in September 2005 in the western part of the Gulf; another two flocks of about 100 and 200 individuals were observed in October 2010 and 2011.

Seagulls and terns of various species were especially abundant throughout the Gulf, and consistently associated with dolphins during surface foraging. Cormorants were seen in large quantities in winter months. Birds interacting with dolphins during surface foraging and other activities are routinely photographed. This will allow future analyses on the bird species involved and on the seasonality and pattern of interactions.

SECTION TWO: Impacts

Partnerships

Aristotle University of Thessaloniki, Greece BlueWorld Institute of Marine Research and Conservation, Croatia Cetacean Specialist Group, IUCN Species Survival Commission (international) Chantecaille, France Cultural Center Mytikas, Greece Development Agency for South Epirus and Amvrakikos (ETANAM), Greece EarthOcean, Australia Earthwatch Institute (international) Fisheries Center, University of British Columbia, Vancouver, Canada Fishermen Cooperative, Paleros, Greece Fishermen Cooperative, Preveza, Greece Fishermen Cooperative, Vonitsa, Greece Hellenic Centre for Marine Research (HCMR), Greece High School, Vonitsa, Greece Higher Technological Education Institute of Mesolonghi, Greece Island Sailing KG medmarinas management group LAWS, Lefkas Animal Welfare Society MedSharks, Italy Medasset, Greece Ministry of the Environment, Physical Planning and Public Works, Nature Management Section, Greece Ministry of Agriculture, General Directorate of Development & Protection of Forests and Natural Environment, Directorate of Aesthetic Forests, Woodland and Hunting, Greece MOm, The Hellenic Society for the Study and Protection of the Monk Seal, Greece Morigenos - Dolphin Research and Marine Conservation, Slovenia Municipality of Paleros, Greece Municipality of Mytikas and Kandila, Greece Municipality of Vonitsa, Greece Neilson Oceana Europe, Spain OceanCare, Switzerland Ocean Conservation Society, USA Pelagos Cetacean Research Institute, Greece Pew Institute for Ocean Science (international) Primary School Mytikas, Greece Primary School, Vonitsa, Greece Sail Ionian Sailing Holidays San Diego State University, USA Secondary School, Vonitsa and Katouna, Greece Small-Scale

Hellenic Fishermen Confederation, Greece
Sunsail UNEP's Agreement on the Conservation of Cetaceans of the Mediterranean Sea, Black Sea and contiguous Atlantic Area (ACCOBAMS), Monaco
UNEP's Regional Activity Centre for Specially Protected Areas (RAC-SPA), Tunisia
University of Barcelona, GRUMM (Group of Study and Conservation of Marine Mammals), Spain
University of Durham, Department of Biological Sciences, U.K.
University of Padua, Department of Experimental Veterinary Science, Italy
University of Patras, Greece
Vliho Yacht Club (Lefkada), WDCS The Whale and Dolphin Conservation Society (international)
World Wildlife Fund (WWF), Greece
WWF-MedPAN Zoological Station 'Anton Dohrn', Naples, Italy

Contributions to conventions, agendas, policies, management plans

- **International**

Work by the Tethys Research Institute in western Greece shed light on the status of local dolphins and identified the main threats affecting the animals. This resulted in a number of conservation initiatives, endorsed inter alia by the UNEP's Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS). Collaboration with WDCS - The Whale and Dolphin Conservation Society, OceanCare and other international conservation organizations resulted in a number of conservation actions.

The area of Kalamos was proposed as Marine Protected Area (MPA) at the 3rd Meeting of the Parties to UNEP/CMS Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS, 2007). The ACCOBAMS Scientific Committee also recommended the Parties to consider the Amvrakikos Gulf as a candidate MPA. Both candidatures were based on evidence provided by Tethys.

Tethys is a member of the Cetacean Alliance, a non-profit network of non-governmental organisations committed to preserving marine biodiversity and reducing human impact on cetacean populations. The network includes NGOs with bases in Argentina, Australia, Austria, Croatia, Germany, Greece, Italy, Slovenia, Spain, Switzerland, the UK and the US. NGOs in the network have a collective membership of over 100,000.

(<http://www.cetaceanalliance.org/>)

In January 2010, Tethys researchers attended the 6th Meeting of the Scientific Committee of ACCOBAMS, held in Casablanca (Morocco), and presented updated information on the situation of dolphins in western Greece. This resulted in formal Recommendations by the Scientific Committee of ACCOBAMS, which were presented at the ACCOBAMS Meeting of the Parties in November 2010:

Amvrakikos Gulf: The Scientific Committee agreed that by applying the standard criteria provided by the IUCN Red Listing system, this 'subpopulation' would qualify as Endangered. Hence, the Scientific Committee encourages Greece to implement conservation actions in the Amvrakikos Gulf, which has a range of designations but to date, no concrete protection for bottlenose dolphins.

Inner Ionian Sea Archipelago: The Scientific Committee reiterated that the implementation of the Mediterranean Common Dolphin Conservation Plan is a high priority in the region. Based on Tethys data, it was highlighted the case of Kalamos, where research indicates a high risk of local disappearance of common dolphins in the very near future unless fishery management measures are implemented immediately to reduce overfishing, as advocated and described in a Call for Action signed by 13 local and regional NGOs (see "National or regional" contributions below).

In March 2011, Tethys researchers attended the 7th Meeting of the Scientific Committee of ACCOBAMS, held in Monaco. The Terms of Reference for the realisation of the ACCOBAMS Mediterranean bottlenose dolphin Conservation Plan were approved. The Committee designated Joan Gonzalvo (PI of the Dolphins of Greece expedition) as the regional coordinator for the design of conservation actions to be implemented in Greece in collaboration with other Greek organizations (i.e., WWF-Greece and Pelagos Institute). In November 2012, Tethys researchers attended the 8th Meeting of the Scientific Committee of ACCOBAMS, held in Monaco. The priority Actions for the Conservation of Common bottlenose dolphins were presented and included in the recommendations to be presented at the next meeting of the Parties. Joan Gonzalvo was asked to organize a Steering Committee for the Conservation of Short-beaked common dolphins in the Mediterranean and to present a review of the different on-going projects involving this species in the Mediterranean basin; at the moment the Steering Committee has been created and includes 7 other members working in different areas of the Mediterranean in addition to Gonzalvo. Its main goals are:

- To facilitate the implementation of the priority actions of the Conservation Plan for short-beaked common dolphins in the Mediterranean Sea. (Members of the SC pointed out that the 2004 Action Plan has been largely ignored for a number of years; it was suggested that one of the first actions of the Committee should be to identify a subset of priority actions within the Action Plan that might be more likely to be effectively implemented in the short-term, therefore increasing the chances of success).

- To obtain information on distribution and abundance of the species, particularly in the southern and eastern portions of the Mediterranean basin;

From the review presented during this meeting on current and future projects/actions involving common dolphins in the Mediterranean Sea it is somehow obvious that there are a number of organizations working in neighbouring or, in some case, literally in the same areas. Therefore, it would be wise if the Steering Committee would facilitate the proper framework for those organizations involved to collaborate and avoid replication of effort and minimize the waste of resources that could be dedicated to other complementary initiatives.

- **National or regional**

Scientific research done by Tethys documented ecosystem damage caused by overfishing in the Inner Ionian Sea Archipelago - a Natura 2000 area. Following several months of meetings and contacts with different NGOs, fishermen representatives and stakeholders, in May 2009 a Call for Action to save the last common dolphins around Kalamos was launched by 13 regional and local NGOs. These organisations joined forces to call for urgent fisheries management action that may result in ecosystem recovery, protect biodiversity, preserve fish stocks, and ensure the long-term sustainability of fisheries in the area. This call for action is consistent with the recommendations to preserve marine biodiversity made in UNEP's Mediterranean Action Plan, and with the strong calls for the conservation of Mediterranean common dolphins made by the Parties to the UNEP/CMS Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), also ratified by Greece. (<http://www.cetaceanalliance.org/call/index.htm>) In 2012 Tethys participated actively in the Thalassa Project lead by WWF-Greece aimed to promote public awareness and education about marine mammal conservation issues in Greece.

- **Local**

Since 2009, Tethys has attended a number of meetings with stakeholders and with the Management Body of the Amvrakikos Wetlands. This body was established after the creation of the Amvrakikos Gulf National Park on March 21st, 2008. Our research personnel collaborates with local authorities, researchers from the University of Patras and Thessaloniki, the Hellenic Centre for Marine Research (HCMR), the Development Agency for South Epirus and Amvrakikos (ETANAM), and local fishermen representatives. Local fishermen have requested our presence as independent observers on a number of

occasions, when meeting with the authorities to discuss the dramatic problems faced by the Gulf, particularly increasing eutrophication and pollution. In such events, our aim is to manifest the uniqueness of the Gulf and its increasing vulnerability to human impact, as well as to call for timely management action.

In 2012, personnel of the Dolphins of Greece expedition acted as liaison between fishermen representatives of the Amvrakikos Gulf and WWF-Marine Office and the Greek Ministry of Fisheries to denounce the illegal use of trawl nets in the waters of the Gulf. This resulted in an increase in presence of the Coast Guards Patrols locally as result of which a number of illegal fishermen were caught and diligences were open to take them to court.

Developing Environmental Leaders

Capacity building and education activities including lectures and direct involvement in field work and data analysis have benefited a large number of students, researchers and volunteers from around the world.

Since 1991, Tethys has organised a series of courses on dolphin research and conservation opened to students and interested people. The courses were held on board sailing vessels between 1991 and 1994, and from 1996 at Tethys field stations situated along the Ionian Sea coast. In the Amvrakikos Gulf, courses were organised starting in 2006 in collaboration with the Earthwatch Institute. A total of 1,120 volunteers from 40+ nations, encompassing the five continents, participated in these field courses: 741 at the Kalamos field station, 379 at the Vonitsa field station and the other from sailing boats used in early years.

Since 2001, Tethys also organised a series of capacity building initiatives aimed to develop expertise on cetacean research and conservation, and encourage collaboration among researchers and institutes working in the Mediterranean and Black Seas, in collaboration with ACCOBAMS and recently with the support of WWF-MedPAN.

Training courses organised at the IDP field stations alternated theoretical seminars with field data collection and practical experiences at sea. Participants were asked to engage in report writing, abstract writing, and preliminary data analysis. Practical work such as photo-identification at sea, matching, and behavioural data collection was included. By working side by side with Tethys researchers, participants acquired essential background for field studies and learned how to plan and develop their own research project, how to analyse the data, convey the results to colleagues and the general public, and ultimately contribute to dolphin conservation. These initiatives have included:

- 2001 Training course on cetacean research and conservation for Israeli researchers;
- 2002-2003 Individual capacity building on cetacean research and conservation for Bulgarian and Romanian researchers (in collaboration with ACCOBAMS);
- 2003 Training course on photo-identification methods for Georgian, Russian and Ukrainian researchers (in collaboration with ACCOBAMS);
- 2004 Training course on cetacean research methods and conservation strategies for Slovenian and Greek researchers (in collaboration with ACCOBAMS);
- 2005 Training course on cetacean research methods and conservation strategies for Libyan and Lebanese researchers (in collaboration with ACCOBAMS);
- 2007-2011 Training course for school teachers from Greece, UK and USA (in collaboration with the Earthwatch Institute).
- 2011 Training course on photo-identification methods and dolphin-fisheries interactions monitoring for Egyptian researchers (in collaboration with WWF-MedPAN)
- 2012 Training course on photo-identification methods and dolphin-fisheries interactions monitoring for Syrian researchers (in collaboration with WWF-MedPAN)

In the context of the Year of the Dolphin, 200 copies of an educational booklet in Greek (“All About Dolphins! A multilingual educational manual”) produced by UNEP/CMS in 2007 were made available by WDCS – The Whale and Dolphin Conservation Society. These copies were used by local educators to support educational programmes including dolphin conservation during the 2007-2008 school term.

In May 2007 a beach cleaning event was organised in Paleros, to raise environmental awareness among local children. In the morning of June 11th, 2007, more than 300 school children between 4 and 8 years of age, devoted more than three hours to the collection of paper, plastics and other debris from the local beach. The success of this initiative encouraged the planning of other similar events in future years. In July 2008 another beach cleaning event was organised in Episkopi (island of Kalamos) with the participation of locals and tourists.

Lectures and presentations were given annually since 1997 to inform the local community about the work done by Tethys in the Inner Ionian Sea archipelago and raise awareness about dolphins and marine conservation. A total of 3,410 individuals (age: 4-80 years) attended public presentations given by Tethys personnel between 2004 and 2012.

“Dolphin Day” events were organised in the summers of 2004 and 2006, in collaboration with the Municipality of Vonitsa, Mytikas and Paleros. Drawings made by local children following

lectures at local schools, featuring dolphins and the threats that they are facing, were put on display. Activities for local kids were organised, including body painting and games. Videos on cetaceans were displayed to launch the evenings, also including footage from the study area. Presentations were centred on the status of dolphins in Greece coastal waters. In 2008, Tethys researchers held a video conference with a group of disabled children from a Middle School in Los Angeles, California, facilitated by science teacher Larissa Karan. These children, living in the most densely populated area of Los Angeles, could ask questions to a Tethys researcher.

In addition, in 2008 presentations and video projections featuring dolphin conservation in Greece were given at the European Cetacean Society Conference (Egmond an Zee, Holland; audience approximately 200 people), at the Royal Geographical Society, London, UK (audience over 400 people), at the theatre of Paciano, Italy (with Giuseppe Notarbartolo di Sciara, Sidney Holt and Leslie Busby; audience about 50 people), and at the Lega Navale Italiana of Porto Cesareo, Italy (audience about 40 people). In 2009, Tethys researchers held a video conference with approximately 200 students (12-17 years old) of Pentucket Middle School in West Newbury, Massachusetts, USA, with the aim of stimulating younger generations to care about dolphins and marine conservation.

As a result of collaboration with local educators, in July 2009 Tethys researchers made an oral presentation in the context of an 'Event for the Protection of the Environment' held in Vonitsa, Greece. The goal was to stimulate the local community to care about dolphins and marine conservation. This event was attended by approximately 400 people, including students and educators of Vonitsa as well as visiting students from France, Italy and Poland. In 2010, Tethys researchers held several video conferences covering a total audience of over 500 students (10-15 years old) from The Collegiate School for boys in New York City. This was possible thanks to Nicole Thompson, who joined our project as Life From The Field fellow (an Earthwatch initiative to support the participation of teachers). In a second phase, Tethys personnel gave support and provided information to Thompson for the elaboration of educational support materials that were she used to introduce marine conservation issues in the education programme of the school.

The research and conservation effort done in the context of the IDP for two decades was presented in May 2011 at the 2nd International Marine Conservation Congress held in Victoria, British Columbia, Canada. The presentation was entitled "The Challenges of Dolphin Conservation in the Eastern Ionian Sea Coastal Waters, Greece". In 2011, the IDP staff held a public presentation on the research activities conducted in the Gulf of

Amvrakikos during the last decade aimed at the conservation of its highly resident population of bottlenose dolphins and on preserving the biodiversity of this unique semi-closed ecosystem. The event was attended by a large part of the local community as well as numerous visitors from overseas. The Municipality of Vonitsa provided all the logistic support necessary for the event. Representatives of the Department of education of the region were also invited.

In October 2011, IDP personnel was invited to participate in the workshop on "Planning for Sustainable Tourism in MPAs" organized by WWF-MedPAN and RAC-SPA in Split, Croatia, to present the project's education and public awareness initiatives to scientists and managers working in MPAs in the eastern and southern Mediterranean.

In year 2012, the IDP not only continued with its educational activities in Vonitsa but organized for the first time numerous events in Lefkada. Collaboration from LAWS (Lefkas Animal Welfare Society) was key for the success of these initiatives by providing contacts with local educators and authorities. During these events, in addition to presenting the Ionian Dolphin Project activities and discussing the specific threats faced by local populations of dolphins in our study areas to raise awareness among the local children about cetacean conservation and the importance of preserving healthy marine ecosystems, we also projected a video-documentary and distributed educational leaflets produced in the context of the "Thalassa Project: Learn, Act, Protect/Awareness, Educational and Participation Campaign for Marine Mammals in Greece".

On April 2012, IDP personnel gave a conference at the American University of Kuwait entitled "Ionian Dolphin Project: Two Decades of Dolphin Research and Conservation in Western Greece". The audience included mostly AUK students and professors although it was open to everybody with an interest on dolphin research and conservation. The conference was preceded by an introductory talk delivered by the Dutch Ambassador in Kuwait, Ton Boon von Ochsée, about environmental policy and sustainable development. The event was organized with the support of AUK's Environmental Club and StudentLife. On the following day a booth was organized, with the support of StudentLife to give further information about the project to those students interested on finding out more about the project and the different opportunities to participate.

At the end of July 2012 an Intensive 2-day Photo-Id training course was carried out in Constanta (Rumanian Black Sea coast) by IDP Program Manager and scientific coordinator Joan Gonzalvo to Rumanian and Bulgarian scientist. Total number of participants 22. This

capacity building initiative was funded by ACCOBAMS and organized by Rumanian NGO MareNostrum. The participants received intensive training on dolphin photoidentification techniques as well as on design of survey effort and coverage and on the creation and management of a dedicated database.

In year 2012, the Earthwatch Community Volunteers Fellowship gave the opportunity to 5 young Greek scientist/students to join the IDP as Earthwatch volunteers. These five fellowships were granted to those candidates that demonstrated a solid background on marine conservation and that demonstrated a particular interest for learning as much as possible by participating actively in our research in the field. The hands-on experience given to these highly motivated individuals allowed them to gain some skills very difficult to be learned otherwise. This pioneer initiative in Greece was possible thanks to the support of The Chesonis Family Foundation and Earthwatch. Collaboration between the IDP and educators/researchers from the main Greek Universities organizing marine conservation and biology courses was crucial to identify the best candidates. A large number of applications were received and many candidates were left out of this initiative. Contacts with other research centres and universities have been already made to include more students in the selection process in the future and to guarantee that these fellowships are granted to those particularly motivated and prepared individuals.

Actions or activities that enhance natural and/or social capital

See above

Conservation of Taxa

Species name: Common bottlenose dolphin *Tursiops truncatus* Current IUCN Red List category and criteria: Global population classified as Least Concern in the IUCN Red List. Mediterranean subpopulation formally proposed as Vulnerable:

Bearzi G., Fortuna C.M. 2006. Common bottlenose dolphin *Tursiops truncatus* (Mediterranean subpopulation). Pp. 64-73 in Reeves R.R., Notarbartolo di Sciarra G. (compilers and editors). The status and distribution of cetaceans in the Black Sea and Mediterranean Sea. IUCN Centre for Mediterranean Cooperation, Malaga, Spain. Bearzi G., Fortuna C.M., Reeves R.R. 2010. Common bottlenose dolphin *Tursiops truncatus* (Mediterranean subpopulation). IUCN Red List of Threatened Species, Updated regional assessment - Mediterranean Sea. IUCN Centre for Mediterranean Cooperation, Malaga, Spain.

Species name: Short-beaked common dolphin *Delphinus delphis* Current IUCN Red List category and criteria: Global population classified as Least Concern in the IUCN Red List. Mediterranean population was classified as Endangered in the IUCN Red List. In 2006 they have been included in Appendix I and II of the Convention on the Conservation of Migratory Species (Bonn Convention - CMS).

Bearzi G. 2006. Short-beaked common dolphin *Delphinus delphis* (Mediterranean subpopulation). 2003 Assessment. Pp. 130-136 in Reeves R.R., Notarbartolo di Sciara G. (compilers and editors). The status and distribution of cetaceans in the Black Sea and Mediterranean Sea. IUCN Centre for Mediterranean Cooperation, Malaga, Spain.

Impacting Local Livelihoods

Collaboration was established since 2011 with the University of Thessaloniki to welcome one or two Greek students per year in our research project. See also above for more detail on opportunities granted to young Greek scientists and educators.

Local community activities

See above

Dissemination of research results

Scientific peer-reviewed publications

Most recent ones:

Piroddi C., Bearzi G., Gonzalvo J., Christensen V. (2011). From common to rare: the case of the Mediterranean common dolphin. *Biological Conservation* **144**(10):2490-2498.

(Earthwatch Acknowledged)

Gonzalvo J., Moutopoulos D.K., Bearzi G., Stergiou K.I. (2011). Fisheries mismanagement in a Natura 2000 area in western Greece. *Fisheries Management and Ecology* **18**(1):25-38.

(Earthwatch Acknowledged)

Bearzi G., Bonizzoni S., Gonzalvo J. (2011). Mid-distance movements of common bottlenose dolphins in the coastal waters of Greece. *Journal of Ethology* **29**(2):369-374.

(Earthwatch Acknowledged)

Grey literature and other dissemination

- Printed:

Gonzalvo J. and Giovos I. (2012). Ionian Dolphin Project. *Report to the Greek Ministry of Environment, Energy and Climate Change on the activities conducted between 1991 and 2012 in the Amvrakikos Gulf and Inner Ionian Sea Archipelago, Greece*. Tethys Research Institute Report. 46 pp.

- Educational resources:

Numerous educational resources are found in the NEW project's website (more detail below). Available at: <www.ioniandolphinproject.org>

- Meetings and conferences:

Giovos I & Gonzalvo J. Prevalence of a particularly severe skin condition among common bottlenose dolphins from the Amvrakikos Gulf, western Greece. *27th European Cetacean Society Conference*. Setúbal, Portugal 8–10 April 2013.

Gonzalvo J. 2012. Terms of Reference for a Steering Committee for the Mediterranean Short-beaked Common Dolphin and Review of Ongoing Projects/activities Concerning *Delphinus delphis* in the Mediterranean and/or Future Initiatives. *Eighth Meeting of the ACCOBAMS Scientific Committee*. Monaco, 12th-15th November 2012.

Gonzalvo J. 2012. Ionian Dolphin Project: Two Decades of Dolphin Research and Conservation in Western Greece. *American University of Kuwait*, 29 April 2012.

Gonzalvo J., Bearzi G. 2011. The Challenges of Dolphin Conservation in the Eastern Ionian Sea Coastal Waters, Greece. 2nd. *International Marine Conservation Congress*. Victoria, BC, Canada. 14-18 May 2011.

Gonzalvo J. 2011. *Delphinus delphis*: Terms of Reference of a common workshop with GFCM. *Seventh Meeting of the ACCOBAMS Scientific Committee*. Monaco, 29th-31st March 2011.

Gonzalvo J. 2011. A steering committee for the Mediterranean short-beaked common dolphin. *7th Meeting of the ACCOBAMS Scientific Committee*. Monaco, 29-31 March 2011.

Gonzalvo J. 2011. Ionian Dolphin Project: Research, Education and Public Awareness. *3rd capacity building workshop organized by MedPAN on "Planning for sustainable Tourism in MPAs" for MedPAN South Countries*. Split, Croatia. 3-9 October 2011.

- Media and web:

The work conducted by Tethys in Greece was recently featured in several popular articles published in European magazines and newspapers. A large number of top-quality photographs and many hours of video footage were obtained during all these years in the field and are frequently used as support materials to tell our story.

In September 1st 2011 an article based on the observations done by IDP researchers in the Amvrakikos Gulf, dealing with the different reactions of bottlenose dolphins to the death of their offspring, was published in Newscientist and subsequently reproduced and discussed in other numerous newspapers and popular-science magazines. Available at: <

<http://www.newscientist.com/article/mg21128283.700-death-in-dolphins-do-they-understand-they-are-mortal.html> > and <http://www.corriere.it/animali/11_settembre_06/delfini-hanno-il-senso-della-morte_faf62e60-d897-11e0-b038-3e67ea432e86.shtml>

In 25 September, an article in Sunday's special supplement on Science of "TO BHMA" ("The Tribune"), the most popular newspaper in Greece, reviewed extensively the IDP research.

Available at: < <http://www.tovima.gr/science/article/?aid=421181> >

In July 7th 2012, an article about the Ionian Dolphin Project was published in Ta Nea (Greek: Τα Νέα, Translation: The News). The article "Alarm for the Dolphins of the Ionian and Amvrakikos" focussed on the threats faced by dolphin populations present in Greece and, more specifically, in the Inner Ionian Sea archipelago and Amvrakikos Gulf, and encouraged boaters and sailors to follow the "Be Dolphin SMART" guidelines and to report their cetacean sightings to the IDP by visiting the project's new website.

In August 12th, an article entitled Το δίδυμό μας στο νερό! (Our twin in the water) came out on Sunday's special supplement about Science of "TO BHMA" ("The Tribune"). The article consisted on a very good review of the cognitive capabilities and contrasted intelligence of cetaceans and counted with the collaboration of Lori Marino, neuroscientist and a world leading expert on animal behaviour and intelligence. In addition, the paper also covered the Ionian Dolphin Project and our "Be Dolphin Smart" initiative to encourage boaters to behave responsibly when coming across whales or dolphins with the aim of minimizing any potential adverse effect that their boats might cause them. The article featured also our Cetacean Species Identification Guide produced to help sailors report their sightings to the IDP.

In August and September the Ionian Dolphin Project appeared in the two respective issues of THE IONIAN Magazine (<http://www.theionian.com/>). This is the leading, travel, yachting and lifestyle magazine for the Ionian Islands and adjacent mainland of Greece, which mission is to promote responsible tourism and yachting in the Ionian while serving as a platform for environment and culture appreciation and protection.

The August article about the Ionian Dolphin Project, “Yachtsmen support dolphin project”, referred mainly to our pioneer initiative in this side of Greece about encouraging boaters to report their cetacean sightings to the IDP and to promote a code of conduct about how to behave when encountering cetaceans in their natural environment.

In September’s issue, with the article “Children drawn to dolphin conservation“, The Ionian paid special attention to the public awareness and educational activities developed in the context of the IDP, while continued to encourage sailors and boaters to collaborate with the IDP by reporting their dolphin sightings and by following our “Be Dolphin SMART” guidelines. In 2012, the Ionian Dolphin Project has increased its visibility, particularly in Greece, largely due to the creation of the new project’s website and the promotion done of the IDP cetacean sightings network.

Since April 2012 the Ionian Dolphin Project has a brand new web site (Available at: WWW.IONIANDOLPHINPROJECT.ORG) with basic information about the project activities, as well as the latest news in our blog. With this new initiative the IDP aims to increase the interest about the conservation of cetaceans of the Ionian Sea, by encouraging residents, charter/flotillas sailing holiday operators and visitors to the area to report their sightings of cetaceans, through a user-friendly on-line form. The support and collaboration from Earthwatch is also reflected throughout the website.

Nowadays the use of digital cameras, cell phones and other devices capable of recording easily several minutes of video, or to capture high quality digital images is widespread among boaters. Using the on-line sighting form videos and images can be sent to us to facilitate additional information and to allow us to confirm the identification of the species reported. It also includes essential information about the cetacean species found in the Greek seas and identification tips.

The number of charter boats and flotilla sailing holiday companies operating around the Ionian Islands has steadily increased during the last decade. Together they pose a fleet of several hundred boats, regularly navigating the waters between the islands of Zakynthos

and Corfu. The resulting regular activity of this large fleet not only offers a huge potential for the recording of opportunistic cetacean sightings (i.e. common dolphins), but also calls for the design of adequate education and awareness initiatives addressed to boat users. This increase in boat traffic and the potential disturbance it generates pose a threat to cetacean populations by causing unnecessary stress by disrupting their natural behaviours. Such threats can be minimised by applying a basic code of conduct when coming across a group of dolphins or whales. With this aim we came out with the BE DOLPHIN SMART initiative (<http://ioniandolphinproject.org/dolphin-watching-tips/>).

At the moment of the preparation of this report, the IDP had received 60+ dolphin sighting reports. The success in this pioneer initiative in Greek Ionian waters could not have been possible without the collaboration of Sunsail, Neilson, Sail Ionian, Sailing Holidays and Island Sailing, who printed, laminated, and distributed the IDP Cetacean Species Guide among their clients to encourage them to collaborate, as well as basic information on how to BE DOLPHIN SMART. KG medmarinas management group, owners of Marina Lefkas and Gouvia Marina, two of the largest in Greece, helped greatly to spread the word among their clients. Colleagues from WWF-Greece and THE IONIAN magazine have played a key role in helping us to promote our website, as well as our research and public awareness and education activities. The Vliho Yacht Club (Lefkada), has also shown interest to collaborate in 2013. The IDP hopes to involve more sailing flotilla companies in the future and will continue to establish contacts with different companies and other stakeholders with the aim of not only promoting the participation of boaters in our sighting network but also to organize public awareness and educational events addressed particularly to them.

The reports referred primarily to the two species subject of our study, common bottlenose dolphin *Tursiops truncatus* and short-beaked common dolphin *Delphinus delphis*. A few sightings of striped dolphins, *Stenella coeruleoalba*, were also reported. Everyone who reported a sighting to us was diligently contacted via e-mail and acknowledged for their collaboration. Many had not initially provided us any images or video, but once contacted, provided us support material that allowed us to confirm (or to identify) the species identity. Next year we plan to emphasize the importance of providing us, whenever possible, some images or videos of their sightings. To encourage them to do so, we are considering to create some kind of prize for the best images/video and/or to include a selection of the best material sent in a specific section of the photo-gallery of the IDP.

“I have been fortunate to live and work in the Ionian since 1990 and have witnessed an unprecedented expansion to not only the charter industry but also boating in general.

Naturally, this has had an impact on the area. I feel we all have a responsibility to contribute, however little, to a project like the IDP so that those who visit in the future have the opportunity to enjoy the Ionian Sea as we have for so many years.” Brad Trusler; SunSail - Tui Marine Operations Manager in Greece

SECTION THREE: Anything else

Project funding

In the past, financial support to work by Tethys in western Greece was given by UNEP's Regional Activity Centre for Specially Protected Areas (RAC/SPA) and OceanCare. In early years, funding came from a Pew Marine Conservation Fellowship and a Pew Collaborative Initiatives Fund.

Acknowledgements

Project Pioneers Elena Politi (Ionian Dolphin Project: Director 1991-1996 and Co-director 1997-2003) Giovanni Bearzi (Ionian Dolphin Project: Co-director 1997-2003 and Director 2004-2010) Alexandros Frantzis

Past collaborators (1991-2011) Stefano Agazzi Sabina Airoidi Malvina Andris Marta Azzolin Giovanna Barbieri Mauro Bastianini Andreas Baumann Maddalena Bearzi Simona Bernasconi Annalisa Bianchessi Silvia Bonizzoni Laura Bonomi Fabrizio Borsani Sebastiano Bruno Erica Busatto Enrico Cabras Marcello Cazzola Andrea Ciboddo Stefania Clemente Marcel Clusa Mauro Colla Marina Costa Jerome Couvat Irene Crivellari Elena Cussino Carlo Della Libera Matteo Del Lucchese Christina Delyanides Lucia Di Iorio Vittorio Fadda Daphna Feingold Sabrina Ferretti Elio Filidei Tilen Genov Guido Gnone Maddalena Jahoda Shiva Javdan Vasiliki Karpouzi Giancarlo Lauriano Ruth Leeney Daniela Maldini Elisa Malevolti Gloria Marín Claudia Mazzanti Veronica Mento Cristiana Miglio Ada Natoli Gianni Neri Stamatina Nikolopoulou Simone Panigada Aina Pascual Cuadras Giorgos Paximadis Gianluca Pecetti Zsuzsanna Pereszlenyi Giovanna Pesante Kelsea Peterman Annalise Petroselli Theoni Photopoulos Nino Pierantonio Katerina Pirounakis Iva Popovic Sveva Puerari Francesco Quondam Eletta Revelli Elena Riva Giovanni Romagnoni Miriam Romagosa Vanessa Saari Aviad Scheinin Andjin Siegenthaler Arianna Sironi Anikó Szegedi Nina Therkildssen Joe Treddenick Maria Trivourea Sofia Vekerithou

