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Report of the European Cetacean Sightings Workshop

Representatives of European groups collecting cetacean sightings records met in the Novotel, Duisburg, GFR, on the morning of 11 March 1985. The Workshop was part of the 13th Symposium of the European Association for Aquatic Mammals (EAAM) and many members and other participants attended the session. The Workshop was convened by Dr M. Klinowska (Cambridge University, UK) and Mrs C. Lockyer (Sea Mammals Research Unit, Cambridge, UK) was rapporteur. The session was opened by the President of the EAAM, Dr A. W. van Foreest (The Netherlands).

Introduction

The Convenor welcomed the participants and recalled that since the 1983 EAAM meeting had considered marine mammal strandings, it was appropriate that sightings should now be examined. EAAM were thanked for providing the opportunity for the many groups collecting such data to meet and discuss their work. Harrison Horncastle Insurance had kindly agreed to act as guarantors for some of the expenses, if support was not forthcoming from other sources.

In Europe today there are at least 30 groups collecting cetacean sightings information. There is also considerable international interest in such activities. The United Nations Environmental Programme (UNEP) Global Plan of Action for Marine Mammals calls (Recommendation 21) for more public participation in research and conservation actions, the setting up of new sightings and strandings networks, the listing of existing arrangements and the development of world and regional reporting networks. The International Whaling Commission has taken some initiatives where strandings are concerned, while the present meeting reflects the interest of EAAM in the regional sightings context. Dr van Foreest had attended a meeting in Geneva on 8th March 1985 to discuss the development of the Global Plan and had been asked whether EAAM could assist with one of the research projects listed as a priority under the Plan. The project related to the status of the harbour porpoise in European waters and had also been noted as a priority activity by the International Union for the Conservation of Nature and Natural Resources (IUCN). (See discussion of Future Plans below).

International studies of wild cetaceans are particularly appropriate in Europe since the animals know no frontiers. Their distribution and habits can only be elucidated through international cooperation. This is already being set up for the western Mediterranean, but it is hoped that this Workshop will lead to further and closer cooperation between all the areas.

Group introductions

The groups were introduced either by their representatives or (for Groups participating by post) by the Convenor in alphabetical order of countries. The basic information about each activity is included in the abstracts. In addition Dr De Smet (Belgium) explained that the Belgian and Netherlands Groups had held a satellite meeting in Blankenberge (Belgium) on 9th March, addressed by Dr Klinowska. This meeting had considered some of the topics to be discussed at the Workshop and considerable interest in cooperative work had been expressed. The role which fishing communities could play in monitoring cetaceans was also discussed, but there were considerable difficulties in establishing rapport. The Danish Group, who were giving more detailed presentations of their work later in the main EAAM meeting, also contributed an abstract. In all, fifteen groups were represented in the introduction, covering the waters of all the European countries except GFR, DDR, Poland, Finland and USSR. Discussion revealed groups active in DDR, Poland and possibly GFR, who would be contacted. During the break, material which had been submitted for exhibition was examined. This included recording forms, recognition posters, recording grid maps and publicity material in a variety of languages. Copies of the UNEP Global Plan, the associated research projects and other material of general interest were available.

Workshop session

1. Recording (Klinowska)

The purposes for which records may be used and the limitations of the different collecting methods were considered; in particular the problems related to 'observer effort' and the necessity of obtaining some measure of this.

A range of study methods had been described by the Groups—special surveys—collection of records from sources including professional seafarers, ferry routes and members of the public—intensive studies

of individuals and groups of animals. For discussion purposes, the list of information noted as required for assessing the status of a stock from the research projects associated with the UNEP Global Plan was used and the study methods related to these requirements.

Stock structure, including population identity and migration, can be assessed from general records with known observer effort and from intensive work with known groups of animals. Details of the biology, including recruitment, mortality and growth, usually require examination of tissue (ovaries, testes, teeth, ear-plugs, skeleton etc.) but in the long term (ie over one or more generations of animals) such information can be obtained from intensive work with known groups of animals. When biology and stock structure are known, population dynamics can be studied. For this, information on past and present abundance and on any kills is also required before mathematical models can be developed and population trends assessed.

In many areas interactions with fisheries are important. There may be incidental kills and/or concern that animals are taking fish of commercial importance. The level of incidental kill and its significance for the health of the population need attention as well as the type of gear in use. Modifications of gear to reduce mortality may be possible. Studies of stomach contents are the only known way to monitor fish consumption, but incidentally taken animals can be used for this purpose. The habitat needs to be monitored, particularly for evidence of pollution and environmental degredation (industrial development, increased ship traffic, tourism etc.) as well as for natural changes which may affect distribution. Monitoring the animals themselves for pollutant levels requires standard tissue samples as well as full examination of carcases for evidence of any damage associated with such levels. Finally, information on interactions with other species (cetacean and other) sharing the same food resources and/or space is needed.

While collection of sightings records of all types can contribute to many aspects of the work needed to establish the status of a stock, monitoring the activities of observers is equally important. Negative records, where observation sessions yield no sightings, are particularly important for establishing stock boundaries, natural barriers to migration and seasonal movements.

The discussion revealed that many Groups were engaged in wider studies than simply collecting sightings and that the problem of assessing observer effort was being addressed in different ways. In general, apart from specific surveys where effort is known, it was felt that regular ferry lines and professional seafarers could provide the most reliable estimates of effort. It was remarked that the quickest and most efficient method for obtaining population density estimates is by aerial survey.

2. Observers (McBrearty)

The recruitment, education and support of observers were considered. In particular, ways to improve reporting and to keep the interest of recruits.

Personal contact with observers seems to be the most important factor for all these considerations. The quality of observations can be greatly improved both by correspondence with observers and by specific training. For professional seafarers, personal visits to the recorder for instruction provide not only the opportunity to improve species recognition but also allow the observer to see how their work fits into the whole scheme and provides great encouragement for future work. The problem with professional seafarers is that of transfer to other jobs or areas, leaving a gap in the network which may be difficult to fill.

There was general agreement that observers should be encouraged to describe animals observed, rather than asked simply for a species or common name. Photographs of animals are invaluable for checking identification, although sketches and written descriptions can often give sufficient information for positive identification. The problem of ambiguity in identification where local names or usages are involved was well recognised, as well as that of 'wishful thinking', particularly where identification manuals describe species as 'rare'. Without personal contact with observers, misunderstandings about species identification may be overlooked for long periods. An observer who has sent in regular reports for many years may be assumed to be reliable and experienced, when in fact they are not particularly competent. The conclusion was very clearly that the key to reliable and consistent species identification is description of the animals by observers, if possible with photographs. Elaborate identification manuals are counterproductive because they discourage description of animals in reports and may lead to wishful thinking, with the result that the number of doubtful sightings increases. The recorder must seek to obtain sufficient information about a sighting to be able to make a full independent identification. The only aids the observer requires are simple reporting forms and basic diagrams of animals common to that area.

It was suggested that in future observers might be encouraged to use video to record sightings. This would be an improvement on still photography and copies of tapes could be edited to form training videos.

A further ambiguity relating to assessment of

observer effort was noted where professional seafarers are concerned. This is the number of days at sea. Does this mean, for example 36 full 24 hour days of observations of the daylight hours available in 36 days? Reports need to clarify this.

The question of recruitment of observers from among the fishing community was raised. While it was generally felt that these were the people who were most likely to have the best knowledge about cetaceans and their food resources, recruitment was a problem. No useful suggestions were made as to how to overcome this difficulty, although there was understanding of the natural reluctance of fishers to disclose their exact positions as well as of the problems to which they may be exposed if details of the inevitable incidental catches of cetaceans became widely known.

3. Data (Evans)

A common core of information to be recorded about each event was discussed. This does not exclude recording of other details, depending on the interests of the recorder, but does ensure that records collected by different Groups can be integrated. The agreed list, arranged for computer data entry is appended. It was not felt necessary to have a common form for the use of observers—there were many opinions on form design and alterations could confuse established observers. Some agreement on a minimum uniformity for computer data entry, however, was important to facilitate exchange of data.

It emerged that many Groups have or are planning to computerise their data. As an addition to the information already collected in the abstracts, information about the various systems was needed. A list was drawn up, for circulation to the Groups. This would establish exactly which systems were in use and whether they could communicate. It might also encourage Groups about to set up systems to choose compatible hard and software. With systems which can communicate, there is potential for the development of common analysis programs. This matter can be explored when information on systems is available.

There were difficulties in being sure that correct answers were being given to some questions. For example, the number of juveniles in a group is difficult to estimate, but the observer may feel obliged to give an answer and thus make up a figure. The question of the accuracy of positions was also raised. Usually position to 1 minute is sufficient, but it was pointed out that particularly in coastal areas, more detail would be useful. However, for general purposes it was thought that 1 minute would be sufficient, although recorders could of course ask for more detail if they wished.

4. Animals (Lockyer)

Ethical questions, where the welfare of the animals is concerned, were considered. These were particularly important for the groups dealing with resident animals, as well as for others discovering areas with commercial 'whale watching' potential. Difficulties have arisen in the past when friendly resident animals have received too many visitors. The animals tend to become over-excited and may injure swimmers. Also, not all visitors behave responsibly and may endanger themselves as well as the animals.

The Swedish Group had mentioned the possibility of using their own vessels for conducted 'whale watching' tours to help finance their studies. The idea was discussed and it was concluded that such controlled access was a reasonable way to introduce more people to the animals as well as providing useful financial aid for the work.

The problem of visitors to wild friendly animals had been overcome in Australia by a warden system at Monkey Mia. There had been little difficulty in raising the necessary finance from the general public. However, wardening a rough coast in unpredictable weather would be more difficult. Wild animals, if too harrassed, do have the freedom to leave such an area. However this can be inconvenient for research programmes.

Mostly these problems relate specifically to the difficulties which can arise as a result of tourism. However, there are other problems which may arise more especially in the future with the rapid development of telemetry devices which require manipulation and tagging of the animals which are to be observed. Some countries already have the legislation to cope with this form of 'invasive research', but in others there is as yet no control.

More monitoring is needed in the future to gauge the effects of interference from boat traffic, pollution of many kinds (chemical, physical and noise), persons engaged in touristic activities and also research, and any other possible agents which may alter the distribution and behaviour of cetaceans over time.

5. Future plans (Klinowska)

It had been intended that general plans for future cooperation would be discussed, but the UNEP harbour porpoise project provided a focus for such efforts and a practical task. The work would be spread over one year and aim to collect and synthesise all the existing harbour porpoise information, identify new sources of information, identify any problem areas and reveal areas where new research is needed. Each Group would contribute as co-authors to the final report, with EAAM acting as coordinator. There was considerable interest in this work and a smaller group convened during the afternoon to draw up a full proposal for UNEP. This was posted to Geneva the following morning.

6. Conclusion

The Convenor thanked the Discussion leaders, the participants and EAAM for their contributions to the session.

BELGIUM

Vlaamse Vereniging voor de Bestudering van de Zeezoogdieren vzw (VVBZ)

Secretariat: Hoogheide 64, 2659 Puurs, Belgium.

Dr W. M. A. De Smet, (President), Universiteit Antwerpen (RUCA), Faculteit Wetenschappen, Anatomie en Embryologie van de Huisdieren, Slachthuislaan 68, 2000 Antwerpen, Belgium.

Belgian coast:

67 km, mainly sandy beach. Intensive beach use by tourists most of the year. Intensive boat traffic. Poor quality sea water. Sightings (especially from 1975) and strandings (records back from 9 c. AD). Cetacea and Pinnipedia.

Sources:

Group members (particularly coastal residents), bird watchers, beach working groups, fishermen, sometimes armed forces.

Problems:

Despite all efforts, few observations (4 sightings since 1975). This is discouraging for observers, unless linked to observations elsewhere.

Publications:

De Smet, W. M. A. 1974. Inventaris van de walvisachtigen (Cetacea) van de Vlaamse kust en de Schelde. Bull. K. Belg. Inst. Nat. Wet. 50 (1) 56pp.

De Smet, W. M. A. 1981. Gegevens over de walvisachtigen (Cetacea) van de Vlaamse kust en de Schelde uit de periode 1969–1975. Bull. K. Belg. Inst. Nat. Wet. 53 (4). 34pp.

Marswin (Quarterly Newsletter, including reports of events 1976–1980).

Collaboration:

Mr Rudy De Clerk—Sea Fisheries Institute, Ostende.

Dr John Van Gompel—veterinarian, Blankenberg.

Mr E. Lepeer—historical material.

DENMARK

Danish harbour porpoise survey.

C. C. Kinze and T. B. Sorensen.

Zoological Museum of Copenhagen (ZMUC), Universitetsparken 15, DK 2100 Copenhagen O, Denmark.

Area of interest:

Danish waters. All cetaceans, particularly harbour porpoise.

Sources:

Ferry-boats, fishing vessels, yachts and other pleasure boats, coastguard, press cuttings, ornithologists etc.

Observer education:

Standard report forms, trained watch keeping officers.

Storage of records:

Forms and cards kept at ZMUC.

Analysis of records:

Seasonal abundance, school size, migration patterns, behaviour.

Problems:

Insufficient funds.

Future:

Expanded surveys on all Danish cetaceans.

Publications:

Kinze, C. C. 1984. Forelobig rapport om marsvinets udbredelse i Danmark. Marsvinerapport 2. p. 1–15.

Kinze, C. C. and Sorensen, T. B. 1984a. Marsvinet. Danmarks Naturfredningsforenings Forlag. 32pp.

Kinze, C. C. and Sorensen, T. B. 1984b. Forelobig rapport om marsvinets udredelse langs den sonderjyske Lillebaelt kyst. Marsvinerapport 3. 1–3.

FRANCE

Centre National d'Etude des Mammiferes Marins.

Dr R. Duguy, Musee Oceanographique, Port des Minimes, La Rochelle 17000, France.

French coast:

Atlantic and Mediterranean. (Modern) sightings from 1972 and strandings from 1972. Cetacea and Pinnipedia.

Sources:

Oceanographic and meteorological vessels, Coastguards, Customs, pleasure boats, literary research.

Observer education:

Report forms for north Atlantic and for Mediterranean with illustrations of species common in each area. Identification guide, publicity material.

Storage of records:

Record sheets and cards at La Rochelle. Computer storage is in progress as follows:

Sightings—La Rochelle. (Atlantic and Channel coast); C.I.E.S.M. data base in Monaco (Mediterranean records).

Strandings—Secretariat Faune-Flore, Museum National, Paris and La Rochelle. Pre-1900 strandings records remain in Dr Duguy's personal manuscript files.

Analysis of records:

Many studies including distribution, feeding, pathology, reproduction, impact of human activities. Mediterranean records have been used for more detailed studies, particularly on the fin whale.

Publications:

Annual reports from 1970 in Annales de la

Societe des Sciences Naturelles de la Charente-Maritime.

Duguy, R., Robineau, D. 1982. Guide des Mammiferes marins d'Europe. Delachaux et Niestle, Neuchatel. 200 pp.

Annual reports to the Marine Mammals Committee, International Council for the Exploration of the Sea.

Collaboration:

Mediterranean Working Group on Marine Mammals of the C.I.E.S.M.

MONACO

Creating a data base of marine mammal observations in the Mediterranean at the Museum of Oceanography in Monaco.

Dr J. Maigret.

Director of the Aquarium, Oceanographic Institute, Avenue Saint-Martin, Monaco-Ville, MC 98000 Monaco.

A central data base is essential for monitoring population status and for more general studies of marine mammals in the Mediterranean, since records are collected by several countries. It will also greatly assist the coordination of research effort and form a point of contact between the national groups.

The CIESM Working Group on Marine Mammals met at the Museum of Oceanography, Monaco, on 15 March 1984 and decided to set up a general data base of observations of marine mammals in the Mediterranean at the Museum, under the care of Dr J Maigret. The data base will bring together records presently at the National Centre for the study of Marine Mammals at La Rochelle in France (5000), at the University of Barcelona in Spain (500) and at the University of Messina in Italy (1200). In total 6700 records are involved and new records are accumulating at the rate of 600 to 700 a year at these centres. Records from countries joining the project at a later stage will also be included.

A standard recording form has been adopted by all the participating countries. Each record contains the following information: date and hour, type of observation, position by latitude and longitude and by relationship to CIESM areas, water depth, water temperature and sea state, species, number of animals, presence of young, behaviour. An 80 character code will be used for each record. Data structure will allow analysis by species, distribution of observations and species by geographical area, relation of distribution to water temperature, etc.

This year work will concentrate on transfer of records to Monaco, precise definition of the content of the data base and its function, testing the data entry program, development of entry codes, etc. and on data entry commencing with the most recent records (1984). In the longer term programs for data analysis will be developed in consultation with users and with the CIESM Working Group. Liason with, and assistance to, other CIESM member countries in setting up their own observation networks will be given so that they may contribute to the data base (Morocco, Algeria, Tunisia and Malta). Effort will be directed mainly towards the western Mediterranean basin; it may be necessary to set up a separate data base for the eastern basin. We hope that in the years to come the data base project will become an example of international scientific cooperation for the protection of marine mammals.

NETHERLANDS

Werkgroep ZeeZoogdieren.

Secretariat: Ms C. Hoff, B. Pasternakstr. 143, 1102TB Amsterdam, The Netherlands.

Area of interest:

North Sea, (including south Norway, Germany, Denmark, UK and Ireland), rest of the world. Sightings and strandings (records from AD 808). Cetacea and Pinnipedia.

Sources:

Marine-biological expeditions, local and national police forces, volunteers, public. Literary research.

Observer education:

A simple guide and reporting form has been developed for Indian Ocean and Indonesian waters for use by non-experts participating in the Dutch-Indonesian Snellius expedition. A similar guide is in preparation for the North Sea as well as a report form for use by professional sailors.

Storage of records:

Cards, letters, photographs. Specimens kept at the Rijksmuseum van Natuurlijke Historie, Leiden. Computer storage contemplated, possibly using the Sinclair Spectrum 48K. A sightings grid reference system is being developed with Mr R. Duyndam, Belgium.

Analysis of records:

None yet, methods being investigated for study of variation of sightings and strandings in time in relation to temperature, currents, salinity and food.

Future:

Improving reliability of reports from non-experts. Development of a standard form to normalize records. Setting up a data bank compatible with other systems.

History:

The Werkgroep ZeeZoogdieren is a working group of the Vereniging voor Zoogdierkunde en Zoogdierbescherming. Founded in February

1984, it is the unofficial replacement for the Netherlands Foundation for the Study of Cetaceans (NeSOC). Open to anyone interested, its main purpose is collection and coordination of information.

Publications:

Lutra (Society for the Study and Protection of Mammals).

Collaboration:

Belgian Society for the Study of Sea Mammals.
Other groups in the Netherlands, Belgium and Luxembourg.

PORTUGAL

Portuguese sightings.

Francisco Reiner, Manuel dos Santos.
Museu do Mar, 2750 Cascais, Portugal.

Area of interest:

Portuguese continental waters, Azores and Madeira. Mr dos Santos is particularly interested in a Tursiops population resident in the area of the Sado estuary.

Sources:

The Museum attempts to collect all information on sightings and strandings of cetaceans as well as developing an osteological collection and casts of some specimens. Information is received from field work, Guarda Fiscal, fishermen, yachtsmen and other individuals.

Observer education:

Distribution of report forms and identification guides, interviews with regular observers.

Storage of records:

Files with measurements and other data, photographs etc.

Problems:

Mainly lack of educated workers, financial limitations, lack of cooperation from the Navy.

History:

Collection of information on sightings and strandings started in 1977. There are also a few records of catches before the 1981 law prohibited any harassing of marine mammals in continental waters. Some expeditions have been made to Madeira and the Azores where contacts were established to increase the flow of information. Several conservation campaigns have also been conducted, particularly in Madeira and the Azores.

Future:

Efforts will be made to help the creation of a National Centre for the Study of Marine Mammals. Data collection and the development of new programmes will continue.

Publications:

13 numbers of Memorias do Museu do Mar have so far concerned cetaceans.
Three reports of collected data have also been published.

SPAIN

Spanish programme of cetacean sightings surveys (1981–1984).

C. Sanpera, L. Jover, E. Grau and A. Aguilar.
Department of Zoology (Vertebrates), Faculty of Biology, University of Barcelona, 08071 Barcelona, Spain.

Since 1981 five cetacean sightings surveys have been conducted. Effort was mainly devoted to the sighting of fin whales (Balaenoptera physalus L.), at present the only species being exploited by our country. However, all other species of cetaceans observed during the cruises were systematically recorded. The cruises took place in Atlantic waters, ranging from the Gibraltar Straits to 54 degrees north, although a short track was run along the Mediterranean coast of Spain. Sightings were recorded using the forms designed by Best and Butterworth (1980) for the International Whaling Commission's International Decade of Cetacean Research Southern Hemisphere assessment cruises. Sightings data are stored in a computer, and those concerning fin whales have been processed to obtain abundance estimates (Mizroch and Sanpera, 1984; Sanpera and Jover, 1985). Data from the other species are being analysed in order to determine distribution boundaries and to estimate population sizes. Reports on the cruises can be found in Aguilar *et al.* 1983; Aguilar *et al.* 1984; Sanpera *et al.* 1984 and Sanpera *et al.* 1985.

References

Aguilar A., Grau, E., Sanpera, C., Jover, L. and Donovan, G. 1983. Report of the 'Ballena 1' whale marking and sighting cruise in the waters off western Spain. Rep. Int. Whal. Commn 33: 649–655.

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Best, P. B. and Butterworth, D. S. 1980. Report of the Southern Hemisphere minke whale assessment cruise, 1978/79. Rep. Int. Whal. Commn 30: 257–283.

Mizroch, S. A. and Sanpera, C. 1984. A preliminary estimate of abundance of fin whales in the Atlantic waters near Spain. Rep. Int. Whal. Commn 34: 395–397.

Sanpera, C., Aguilar, A., Grau, E., Jover, L. and Mizroch, S. A. 1984. Report of the 'Ballena 2' whale marking and sighting cruise in the Atlantic waters off Spain. Rep. Int. Whal. Commn 34: 663–666.

Sanpera, C. and Jover, L. 1985. Population estimates of fin whales inhabiting Atlantic waters near Spain. (In Press).

Sanpera, C., Grau, E., Jover, L., Recasens, E., Aguilar, A., Olmos, M., Collet, A. and Donovan, G. 1985. Results of the 'Ballena 3' fin whale marking and sighting cruise. (In Press).

SPAIN
Asturias Group.
Carlos Nores and Concepcion Perez.
Department of Zoology and Ecology, Faculty of Biology, University of Oviedo, 33071 Oviedo, Spain.
Area of interest:
Asturias, between 4 degrees 30 mins West and 7 degrees West. (Modern) sightings (from 1978?) and strandings (from 1978?). Cetacea and Pinnipedia.
Sources:
Guardia Civil (Coastguard Service), coastal local government (beach cleaning and upkeep services), individuals. Literary and archive research.
Observer education:
Standard record form, meetings.
Storage of records:
In Oviedo and at a central pool for northern Spain in the Instituto Espanol de Oceanograffa laboratory, Santander.
Analysis of records:
Distribution, case histories.
Problems:
Lack of interest by potential reporters prevents uniform recording. Financial support is insufficient to maintain an adequate reporting network, acquire current literature, etc.
History:
From about 1978 we have been acquiring marine mammal data from Asturias and publishing reports. Coordination of Spanish record sets was proposed at the I Jornadas Ibericas sobre Mamiferos Marinos (1981). The northern coast of Spain was divided into three study areas: Galicia (west of 7 degrees West) covered by the Sociedade Galega de Historia Natural, Santiago de Compostela; Asturias (our area) and Cantabria (east of 4 degrees 30 mins West) covered by the Museo Maritimo del Cantabrico, Santander. A standard record form was agreed and is now in use. At the II Jornadas in December 1983 the central data bank at Santander was set up.
Publications:
13 papers.
Collaboration:
Other Spanish Groups.

SPAIN
Cantabria Group.
Dr Gerado Garcia-Castrillo Riesgo.
Museo maritimo del Cantabrico, San Martin de Abajo s/n, 39004 Santander, Cantabria, Spain.
Area of interest:
Cantabrian Sea and coast (3 degrees 10 mins to 4 degrees 40 mins West). (Modern) sightings (from ?) and strandings (from ?). Cetacea (and Pinnipedia ?).
Sources:
Fishermen, local and coastal authorities, coastal residents, local naturalists and conservation societies.
Observer education:
Public awareness of the need to report incidents and simple recording card for primary reports by non-specialists. Visits by staff to take more detailed records (mainly for strandings).
Storage of records:
Card file of events including local and general Spanish records, based on recording forms mentioned above.
Analysis of records:
Distribution, size, sex, species, etc.. Analysis aided by microcomputer and personal program.
History:
The Museum has records going back to the XIV century and an extensive collection of specimens. In late 1983 (at the II Jornadas Ibericas sobre Mamiferos Marinos) it was decided that the Museum would become the collection centre for all Spanish records.
Publications:
It is planned to publish biannual reports of all the Spanish records.
Collaboration:
Other Spanish Groups.

SPAIN
Catalonia and Baleric Islands.
Ms C Sanpera, Record Keeper, Cetaceans Group, Department of Biology (Vertebrates), Faculty of Biology, University of Barcelona, 08071 Barcelona, Spain.
Area of interest:
North Atlantic, Mediterranean (Catalonia and Baleric Islands).
Sources:
Special sightings surveys, stranded animals, whaleboat records. Coastguards, police, educational and scientific organisations.
Storage of records:
Magnetic tapes or floppy diskettes.
Analysis of records:
Population estimates. Distribution boundaries.
Publications:
See sightings survey abstract.

SPAIN
Galicia Group.
Dr Carlos Duran Neira.
Centro de Investigaciones Submarinas, Apartado de Correos 649, Santiago de Compostela (La Coruna), Spain.
Area of interest:
Galicia, west of 7 degrees West to the Portuguese

border. Sightings (from 1979) and strandings (from 1979). Cetacea, Pinnipedia, turtles.
Sources:
Literary and archive research.
Observer education:
Identification guide, meetings.
Analysis of records:
Distribution, case histories.
Publications:
Neira, C. D., Patino, M. P. and Seage, A. P.:
Unha Guia pra identificacion dos cetaceos observados no mar. Museo do Mar, Cascais. Ser. Zool. Vol. 2 (20). 1982.
Censo de cetaceos observados en el mar y varados en las costas de Galicia (NW de Espana) en el ano 1982. Act. II Jorn Iber. Mam. Mar. Santander. 1983 (In Press).
Censo de cetaceos observados en el mar y varados en las costas de Galicia (NW de Espana) en el ano 1983. Act. II Jorn Iber. Mam. Mar. Santander 1983 (In Press).
Arroas pinto (Lagenorhynchus acutus) especie nueva para la fauna cetologica espanola. Act. I Jorn Iber. Mam. Mar. 1981, Brana (1,2).
Sobre la presencia del Rorcual Aliblanco (Balaenoptera acutorostrata) en las costas gallegas (NW Espana). Brana IV 161–168. 1980.
Relacion de varamientos y observaciones de mamiferos marinos en las aguas de la peninsula iberica desade 1900 a 1981. Act. I Jornad. Iber. Mam. Mar. Brana. 1981.
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La historia de la caza de ballenas en Galacia. Act. 1 Jor. Ibe. Mam. Mar. Brana. 1981.
Nota sobre un ejemplar de Ziphius cavirostris varado en las costas gallegas. Act. II Jorn. Iber. Mam. Mar. Santander. 1983 (In Press).
As baleas cara a extincian. Voceiro de divulgacion. S.G.H.N. 1981. 48pp.
Guia de los Mamiferos Marinos de la Peninsula Iberica. (In preparation).

SPAIN
Valencia Group.
A. Raduan Ripoll, J. A. Raga and C. Blanco.
Department of Zoology, Faculty of Biological Sciences, Dr. Moliner 50, Burjasot (Valencia), Spain.
Area covered:
Mediterranean Sea. (Modern) sightings from 1973. Cetacea.
Sources:
Commercial and military vessels, if possible with regular routes to facilitate population density estimates.
Observer education:
Forms requiring data on identification, behaviour, circumstances, etc., with illustrations of common species. Some interviews with reporters.
Storage of records:
Computer storage planned in collaboration with CIESM.
Analysis of records:
Checking data (including photographs and interviews). 60.4% of records were considered reliable.
Problems:
No facilities for scientific cruises. High proportion of unreliable reports.
Future:
Independently and in collaboration with C.I.E.S.M., efforts to harmonize cetacean data for the whole Mediterranean.
Publications:
Nouvelles donnees sur les observations des cetaces dans la Mediterranee. Rapp. Comm. int. Mer. Medit. 28 (5) 213–214. 1983.
Collaboration:
Mediterranean Working Group on Marine Mammals of the C.I.E.S.M. University of Barcelona. Museum of Zoology, Barcelona.

SWEDEN
Centre for Studies of Whales and Dolphins.
Mr Bernard Farkin.
Platmyntsgatan 7, S-414 79 Gothenburg, Sweden.
Area of interest:
Scandinavian waters, including northern Norway, Greenland, Iceland and Faeroe Islands. Social behaviour of killer whale pods off Norway. Sightings surveys off Greenland.
Sources:
The Centre is a loose network of scientists and others interested in Cetacea, aiming to provide technical and theoretical background for productive and responsible fieldwork. Three research vessels, a library (not complete) and an audio-visual archive are available.
Observer education:
Observers are from various backgrounds, but at least one experienced research worker is always present to supervise data collection.
Storage of records:
No central record keeping or record keeper. Mr Lofgren and Mr Ostrowski act as coordinators.
Problems:
Transport costs are substantial and the climate exacting for equipment and observers. Equipment usually provided by participants, but the Centre would prefer to own more, if finances permitted.
History:
From initial discussions at Gothenburg in 1980, the group now includes research workers from different fields, professional photographers and

other media experts. Three expeditions have been organized to Norway to observe killer whales and a successful exhibition held in Stockholm.

Future:

More expeditions, mainly to study social behaviour of killer whales off Norway and a permanent research station in Lofoten are planned.

Publications:

Expedition reports and prospectuses. Participants are encouraged to publish under their own names.

Collaboration:

Sweden: Zoology and Linguistics and Phonetics Depts, Stockholm University. Oceanography and Linguistics Depts, Gothenburg University. Zoological and biological institutions in the Gothenburg area. Interdisciplinary Research Programmes, University of Linkoping. Kolmardens Dolphinarium. Museums of Natural History, Stockholm and Gothenburg. Norway: Havforskningsinstitutt, Oslo. University of Oslo. Other Norwegian research institutions.

Denmark: Zoofysiologisk Institutt, Aarhus. Marine Bioacoustical Investigations, Odense.

Nordic Research Council. Faculties and corporations outside Scandinavia.

Fishing and diving communities along the Scandinavian coasts.

UNITED KINGDOM

Dolphin Survey Project.

Mr D. A. McBrearty.
Anatomy Department, University of Cambridge, Downing Street, Cambridge CB2 3DY, UK.

Area of interest:

Worldwide. Sightings from 1978. Cetacea.

Sources:

The Royal Navy, British Merchant Marine, Trinity House, fishing boat personnel and yachtsmen.

Observer education:

Standard report forms and identification posters for each sea area. Observers encouraged to correspond, submit photographs and visit Cambridge for briefing, which has greatly increased the quality of reports.

Storage of records:

Master file held in Cambridge IBM 3081 computer on magnetic tape. The Cambridge system is accessible through the international computer networks. Data-base frequently updated from incoming reports via magnetic disc on which day to day reports are held. All original letters, photographs (or copies) and standard report forms retained in alphabetical index file.

Analysis of records:

The 1978–1982 records for the northeast Atlantic have been analysed by species, school size, frequency of observation etc.

Problems:

Insufficient funds, not enough data, too few organized field expeditions.

Future:

Will carry on as before, too good a rapport with very many observers to let this all go by default.

Publications:

McBrearty, D. A. 1981. A report on cetaceans observed on passage from Palma to Plymouth. The Marine Observer. 51: 77–82.

McBrearty, D. A. and King, G. A. 1981. Cetacean sightings. I.D.W. Reports. Occasional publication. International Dolphin Watch, North Ferriby, UK.

McBrearty, D. A. 1985. Dolphin Survey Project: The use of professional seafarers in data collection on various marine species. Symposium on Endangered Marine Animals and Marine Parks. Cochin, India. 12–16 January 1985.

McBrearty, D. A., Message, M. A. and King, G. A. 1985. Observations on small cetaceans in the northwest Atlantic Ocean and the Mediterranean Sea: 1978–1982. In: M. M. Bryden and R. J. Harrison (Eds) Research on Dolphins. Oxford University Press. (In press).

UNITED KINGDOM

Cetacean Group of the Mammal Society (UK).

Dr P. G. H. Evans.
Department of Zoology, University of Oxford, South Parks Road, Oxford OX1 3PS, UK.

Area of interest:

UK and Irish waters. (Modern) sightings from 1973. Cetacea.

Sources:

Fisheries zoologists, ornithologists, merchant and Royal Naval seamen, yachtsmen, coastguards, etc., literary and archive research. Sightings cruise.

Observer education:

Identification guide and standardized recording forms have increased the proportion of reliable records from around 30% in the early years to 60–70% by 1980, with further improvements in recent years. Progress has been made in overcoming observer effort and distribution biases.

Storage of records:

Forms, cards; computer storage planned.

Analysis of records:

Distribution, population status, movements, feeding, group size, behaviour, relationship of distribution to oceanographic features etc. Methods for correcting biases in coverage and viewing conditions are being developed.

Problems:

Insufficient resources to analyse new data and to carry out further archival research. Reporting is

still somewhat uneven and more reporters are required to fill gaps.

History:

The Cetacean Group was formed within the Mammal Society (UK) in 1973 by P. K. Kinnear and P. G. H. Evans to collect together information from sightings of cetaceans in British and adjacent waters.

Publications:

Evans, P. G. H. 1980. Cetaceans in British waters. Mammal Review. 10(10): 1–52.

Evans, P. G. H. 1976. An analysis of sightings of Cetacea in British waters. Mammal Review. 6: 5–14.

ICELAND

A report was received concerning killer whale sightings only, but no sightings groups were believed to be in existence. All reports to date have been collated by individuals and the Iceland Natural History Museum, Reykjavik.

FINLAND

A seals sighting programme is in operation, but no report of a cetacean sightings programme.

ITALY

A sightings programme funded by World Wildlife Fund at Messina covers the coasts of the Mediterranean and Adriatic seas.

MALTA

Sightings are collated by the Malta Biological Association.

FAEROES ISLANDS

Pilot whale sightings are recorded, and Peter Evans reported that two individuals were collecting personal sightings data.

EASTERN MEDITERRANEAN AND TURKEY

No data or reports have been received.

Appendix 1

EUROPEAN CETACEAN SIGHTINGS WORKSHOP—11 MARCH 1985 AGENDA

09.00 Introduction—Convenor (Dr M. Klinowska—Cambridge, UK).

09.05–10.15 Group Introductions (countries in alphabetical order)

Dr W. M. A. De Smet.	Belgian Sightings.
Dr R. Duguy.*	French Sightings.
Dr J. Maigret.**	Mediterranean area data base.
Ms C. Hoff.	North Sea, rest of world.
Mr M. dos Santos.*	Portuguese Sightings.
Ms C. Sanpera.	Spanish sightings cruises.
Mr A. Raduan.***	Spain—Valencia area.
Dr G. Garcia-Castrillo Riesgo.*	Spain—Santander area.
Dr Carlos Nores.*	Spain—Asturias area.
Dr Carlos Duran Neira.*	Spain—Galacia area.
Mr B. Farkin.	Sweden—Gothenburg Group.
Dr P. G. H. Evans.	UK and Irish Sightings.
Mr D. A. McBrearty.	World Wide Sightings.

*Postal participant

**Represented by Mr M. Riddell

***Represented by Ms C. Sanpera.

10.15–10.30 Viewing exhibited material, individual discussion.

11.00–12.30 Workshop Session.

1. Recording: purposes, methods, limitations. (Convenor).
2. Observers: recruitment, education, support. (McBrearty).

3. Data: storage, analysis, exchange. (Evans).
4. Animals: disturbance, publicity. (Lockyer).
5. Future plans: (Convenor).
6. Conclusion: (Convenor).

Rapporteur—Mrs C. Lockyer (Sea Mammals Research Unit, Cambridge).
Deputy Convenor—Dr P. G. H. Evans (Zoology Department, Oxford).

Appendix 2.

CETACEAN CODING PROCEDURES

Note: within subjects, uniformity of coding between groups is not essential—computers can easily change codes from one system to another for data exchange. Groups with other needs e.g. wider area codes, could use 'spare' boxes presently numbered 76–78.

Boxes	
	0 . . . = Not Recorded throughout
1–4	Cetacean/Seal species (see below)
5–8	Best estim. no. indivs. unaged (0–9999)
9–10	Best estim. no. indivs. full-grown (0–99)
11–12	Best estim. no. indivs. juvenile (0–99)
13–16	Max. estim. no. indivs. (0–9999)
17–20	Min. estim. no. indivs. (0–9999)
21–22	Estim. max. length of indivs. (0–99)
23–24	Estim. min. length of indivs. (0–99)
25–28	Time of day (24 hour clock—GMT)
29–30	Day
31–32	Month
33–34	Year
35–38	Latitude
39–42	Longitude
43	Meridian (East or West of Greenwich)
44–45	Area code
46	Direction of Movement (1 NW, 2 N, 3 NE, 4 E, 5 SE, 6 S, 7 SW, 8 W, 9 None)
47	Most common behaviour observed (1 Normal swimming, 2 Fast swimming, 3 Porpoising, 4 Forward breaching, 5 Side breaching, 6 Sky-pointing, 7 Tail smacking, 8 Response to platform, 9 None or drifting)
48	Second most common behaviour (coded as above)
49	Associated seabirds (1 Shearwaters/Petrels, 2 Gannets/Boobies, 3 Cormorants/Shags, 4 Skuas, 5 Gulls, 6 Terns, 7 Auks, 8 Combination of Seabird families, 9 None)
50	Description/Photo/Drawing available (1 Description, 2 Photo, 3 Drawing, 9 None)
51–55	Observer name code/Recording group code (0–9999) (Within groups a group code is probably redundant, but for data exchange some provision for indicating origin is required. Code changes can be made by receiving group.)

Environmental data

56	Platform (1 Headland, 2 Ferry, 3 Yacht, 4 Fishing vessel, 9 Aircraft)
57–58	Speed of vessel (in case of boat/ship)
59	Course of vessel (coded as for direction of cetacean movement)
60–61	Wind direction (coded as for direction of cetacean movement)

62	Wind force (Beaufort scale) (1 = 1 . . . . 8 = 8 +, 9 = None)
63	Cloud cover (in Oktas, i.e. 1 1/8 . . . . 8 8/8, 9 = None)
64	Precipitation: type (1 Rain, 2 Snow, 3 Fog, 9 = None)
65	Precipitation: intensity (1 Contin. light, 2 Contin. heavy, 3 Intermittent light, 4 Intermittent heavy, 9 None)
66	Visibility (1 less than 1 km, 2 1–10 km, 3 more than 10 km)
67	Sea state (using international sea state codes)
68	Swell height (1 Light, 2 Moderate, 3 heavy, 9 = None)
69–71	Sea surface temperature
72–73	Salinity
74–75	Water depth
(76	Depth contour index
77	Plankton density index
78	Fish density index)

(76–78 are as used by the Oxford group, but may not be of general interest. These boxes could therefore accommodate any group special interests etc.)

79–80	Observer effort (no. hours of watching associated with observation)

CODES FOR COMMONER MARINE MAMMALS (COLUMNS 1–4)—NE ATLANTIC

Note: the four boxes provide ample space for extending codes to all cetacean and seal species. Codes suggested here refer to the NE Atlantic. Uniformity in coding between groups is not essential—computers can easily change codes from one system to another for data exchange, provided that there are no gross discrepancies e.g. very different numbers of boxes allowed. Seals have been included because of the wider interests of most groups. The groupings of species are those in the experience of the Oxford group most commonly confused with each other, but other methods are possible.

Grey Seal	1001		
Common Seal	1002		
Walrus	1003		
Bearded Seal	1004 etc.		
Seal spp.	1000		
Right Whale	2101		
Sperm Whale	2111		
Humpback Whale	2103		
Indistinct dorsal = Sperm—Humpback			2011
Blue Whale	2106	Blue/Fin/Sei	2013
Fin Whale	2104		
Sei Whale	2107		
Large Whale = Right—Sei			2010
Minke Whale	2105	Minke/B-n	2014
N. Bottlenose Whale	2113		
Distinct dorsals = Blue—N. Bottlenose			2012

Cuvier's Whale	2114	Beaked	2021
Sowerby's Whale	2115		
True's beaked Whale	2116		
Narwhal	2117		
White Whale	2118		
Pilot Whale	2119	Pilot/Fa K	2022
False Killer Whale	2123		
Killer Whale	2122	Large fin	2023
Risso's Dolphin	2231		
Medium whale = Minke—Risso's			2020
Bottle-nosed Dolphin	2251		
White-beaked Dolphin	2252	Lag. spp	2033
White-sided Dolphin	2253		
Common Dolphin	2254	Com/Euph	2034
Euphrosyne Dolphin	2255		
Whitebread—Euphrosyne = Patterned Dolphin			2032
Small Whale (not Porpoise) = Bottlenose—Euph.			2030
Pygmy Sperm Whale	2112		
Common Porpoise	2241		
Whale spp = Right—Risso's			2100
Dolphin spp = Risso's—Porpoise			2200
Unidentified cetacean =			2000

Appendix 3.

COMPUTER INFORMATION RECEIVED

Denmark

REGNECENTRALEN—RC PARTNER 750: 16 BIT OPERATING SYSTEM: CP/M86

LANGUAGE: FORTRAN 77

2 DISC DRIVES: 5.25″ DIAMETER: DOUBLE SIDE: DOUBLE DENSITY: 80 TRACK
KNOWLEDGE MAN: DATA BASE COMMUNICATION via RS232C

Netherlands

(In current use by members, but future use uncertain. A PHILLIPS 2000 is also available.)

ACORN—BBC-B: 8 BIT OPERATING SYSTEM: OS 1.20

LANGUAGE: BASIC, PASCAL, FORTH

4 DISC DRIVES: 5.25″ DIAMETER: DOUBLE SIDE: SINGLE DENSITY
40 TRACK/80 TRACK SWITCHABLE

COMMUNICATION via MODEM: USE OF SARA: COMPUTERS CYBER 750, SPSS etc.

PRINTER: EPSON RX80—F1/T

SINCLAIR—SPECTRUM 48KB: 8 BIT

LANGUAGE: SINCLAIR BASIC, BETA BASIC, NOS BASICODE (= BBC BASIC), OTHERS AVAILABLE IF NECESSARY

MICRODRIVES, OTHER DRIVES AVAILABLE IF NECESSARY

MASTERFILE: DATA BASE COMMUNICATION via RS232

PRINTER 80/132

Spain–Barcelona
IBM—MODEL PC/XT: 16 BIT (IBM) OPERATING SYSTEM: PC/DOS

LANGUAGE: BASIC

2 DISC DRIVES: 5.25″ DIAMETER: DOUBLE SIDE

D–BASE II, LOTUS COMMUNICATION via RS232

UK–Cambridge
(The BBC–B is used for data entry only. Data is transfered to IBM 3081 mainframe for analysis. The mainframe has a vast range of communications, storage, program packages, languages, peripherals etc.)

ACORN—BBC–B: 8 BIT OPERATING SYSTEM: OS 1.20

LANGUAGE: BASIC

2 DISC DRIVES: 5.25″ DIAMETER: SINGLE SIDE: SINGLE DENSITY: 40 TRACK/80 TRACK: SWITCHABLE

COMMERCIAL SOFTWARE: various available, but own programs used.

COMMUNICATION via RS232

OTHER RELATED EQUIPMENT: various printers, plotters, TORCH DISC PACKS, etc.