

ITALY. PROGRESS REPORT ON CETACEAN RESEARCH, DECEMBER 2000 TO JANUARY 2001.

Compiled by

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This report summarises the activities carried out by: **AQUASTUDIO (AQ)**, Banca Italiana Tessuti (**BIT**), “Centro Interdisciplinare di Bioacustica e Ricerche Ambientali” of the University of Pavia (**CIBRA**) in cooperation with NATO Saclantcen and Centro Studi Cetacei (**CSC**), Centro Ricerca Delfini CTS Ambiente (**CTS**), Central Institute for Applied Marine Research (**ICRAM**).

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Bottlenose dolphin	<i>Tursiops truncatus</i>	Lampedusa Island – Archipelago of Pelagian Island – Sicily Maddalena Archipelago National Park + wider area. North eastern Sardinia	2.1, 2.2, 3.1.1, 3.2, 7.1, 9, 11. 1..2.
Striped dolphin	<i>Stenella coeruleoalba</i>	Ligurian/Tyrrhenian Sea	2.1.1, 2.2
Sperm whale	<i>Physeter macrocephalus</i>	Ligurian/Tyrrhenian Sea	2, 2.1.1, 2.2., 3.1.3, 5
Fin whale	<i>Balaenoptera physalus</i>	Mediterranean Sea	2., 3.1.3., 5.
Unidentified dolphins	N/A	Ligurian/Tyrrhenian Sea	2.1.1, 2.2

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

- **AQ.** Aquastudio's staff was involved in the SOLMAR Project “SIRENA 2001”, carried out in the Ligurian Sea (Mediterranean) in October by the R/V Alliance, under the scientific co-ordination by the SACLANTCEN. A study was carried out in the Marine Protected Area of the Egadi Isles and in the gulf of Catania (Sicily, Mediterranean), with observers on board of fishing vessels, to monitor marine mammals-fishery interactions. Opportunistic observations are carried out in the Strait of Messina, always from fishing vessels.
- **CIBRA.** Most field work of CIBRA in 2001 has been devoted to study marine mammals in their environment and to record their underwater sounds. New recording methodologies have been developed and tested to better support the recording and classification of underwater sounds for monitoring and censusing purposes. Systematic activities carried out in 2000: participation in the research cruise "Sirena '01" organized by Saclantcent in the Ligurian Sea with the research vessel R/V Alliance. The cruise was aimed at testing "Dual Uses" of acoustic detection methodologies and instruments and at conducting a combined acoustic/visual survey. CIBRA carried out an acoustic survey by means of wideband towed arrays.
- **CTS.** Research around Lampedusa island and in Maddalena Archipelago. Regular daily monitoring has been carried out during the 2001 summer seasons. Boat surveys follow standard routes around the islands and last between 3 to 6 hours. Boat outings are equally distributed between 4 arbitrary time categories (dawn 5.00-10.00, morning 10.01-14.00, afternoon 14.01-18.00 and sunset 18.01- 21.00). 39 bottlenose dolphin sightings were made in Lampedusa Island and 20 sightings in the Maddalena Archipelago.
- **ICRAM.** Sightings of the target species collected within the Cetacean Sanctuary in the Ligurian sea, the National Park of Asinara Island (Sassari, Sardinia) and the Marine Protected Area of Capo Carbonara (Cagliari, Sardinia) are stored and plotted into a GIS and linked with oceanographic features. A dedicated study on the competitive interaction between bottlenose dolphin and small scale fishery was held in waters surrounding the Asinara Island National Park (North western Sardinia). Fishes species and fishing gears involved in the interaction were analysed. An economic damage deriving from the interaction was estimated.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

N/A

2.2 Analyses/development of techniques

- **CIBRA.** New instrumentation for real-time sound recording, analysis and display were used by CIBRA in order to facilitate the detection of biological sound while surveying an area with towed arrays and/or sonobuoys to support the application of Acoustic Risk Mitigation Policies as well as to carry out monitoring and censusing activities. The instrumentation allows to monitor and record continuously for the whole duration of a survey with GPS tracking and GIS plotting of received sound categories. CIBRA developed a low cost oceanographic GIS for plotting acoustic survey data.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Species	Feature	Area/stock	Calendar year/season/ no.	Catalogued (Y/N)	Catalog ue total	Contact person/insitit
Bottlenose dolphin	Dorsal fin	Lampedusa Island – Archipelago	2001/7-10	Y	125	CTS.
Bottlenose dolphin	Dorsal fin	Maddalena archipelago National Park,	2001/8	Y	16	CTS.
Bottlenose	Fluke	Mediterranean	2	Y	NA	AQ
Bottlenose dolphin	Dorsal fin	Sardinian Channel (MPA Capo Carbonara)	12	Y	15	ICRAM
Bottlenose dolphin	Dorsal fin	Corsican sea (Asinara National Park)	9	Y	39	ICRAM

3.1.3 TELEMETRY DATA

- **ICRAM** A custom designed miniaturized Argos-satellite transmitter is being designed and tested at sea.

4. Tissue/biological samples collected

4.3 Samples from stranded animals

Species	Area/stock	Calendar year/ season	Archived (Y/N)	Tissue type(s)*	Contact institute
<i>Ziphius cavirostris</i>	Tyrrhenian Sea	1 male	Y	Kidney, thyroid, liver, spleen, heart, lung, stomach	BIT
<i>Grampus griseus</i>	Adriatic Sea	1 male	Y	Heart, stomach, intestine, kidney, spleen, trachea, liver, testicle, muscle, lung, kidney, brain, umbilical chord	BIT
<i>Stenella coeruleoalba</i>	Adriatic Sea (2) ; Ligurian Sea (1)	3 males	Y	Tongue, oesophagus, stomach, intestine, diaphragm, heart, pericardium, lung, larynx, liver, spleen, lymphnodes, kidney, ureter, adrenal, bladder, testicle, brain, dorsal fin, aorta, eye, teeth, melon, pancreas, blubber	BIT

5. Pollution studies

Recording and analysis of underwater noise sources.

- **ICRAM.** A two-year semi-continuous acoustic recording effort with the aim of characterizing both biological (finwhale, spermwhale) and anthropogenic noise sources and their density has reached its second phase. The location is the Ligurian Sea.

6. Statistics for large cetaceans

6.1 Direct catches.

No catches of large cetaceans are reported for year 2001.

Data regarding strandings that occurred along the coasts of Italy during the year 2001 are presently being collected, filed and examined.

6.2 *Other non-natural mortality for the calendar year 2001 or the season 2001/02*
CSC 2001 report in preparation.

6.3 *Earlier years' statistics*

Earlier years' statistics are available for the period 1986-1995 (Bortolotto and Podestà, 1997) included in Borri *et al.*, (1997). CSC 2001 report in preparation.

7. Statistics for small cetaceans

7.1 *For the calendar year 2001*

The CSC report for year 2001 is in preparation.

7.2 *Earlier years' statistics*

Earlier years' statistics are available for the period 1986-1995 (Bortolotto and Podestà, 1997) included in Borri *et al.*, (1997). CSC 2001 report in preparation.

8. Strandings

- **CSC.** A network to monitor cetacean stranding along the Italian coasts has been operating since 1986 by CSC, resulting in annual stranding reports as well as scientific output. Activities are in cooperation with other Institutions:
 - AQ is one of the operative units of CSC for Sicily and its biologists and technicians usually collect stranding data from all the events in the area, following the national protocols;
 - CIBRA and SACLANT were mainly involved in the organization of data and in setting up a database (see paragraph 9).
 - ZNM is working on behalf of CSC in case of cetacean stranded alive and in setting up the CSC's web site (see paragraph 11.2)
- **BIT.** An Italian Tissue Bank (BIT) containing organ samples from stranded cetaceans was set up by the Department of Experimental Veterinary Sciences of the University of Padova, in collaboration with ICRAM. The bank was formally established in January 2002 although it already contains samples from cetaceans stranded and sampled before the date of establishment (note: these do not appear in the present report which lists only those sampled during the year 2001). Organ samples are obtained through the cooperation with the stranding network of the Centro Studi Cetacei. The contact person for the BIT is Prof. Bruno Cozzi, bruno.cozzi@unipd.it.
- **CIBRA.** The "Centro Interdisciplinare di Bioacustica e Ricerche Ambientali" (CIBRA) participates in the research program on strandings managed by the Italian "Centro Studi Cetacei (CSC)". CIBRA developed a low cost oceanographic GIS for plotting stranding data.

9. Other studies and analyses

Aquastudio, together with the Department of Electronics and Electrical Engineering at the Loughborough University and the IFREMER – Station de Sete, carried out an EC project (ADEPTs) concerning the use of deterrent devices to reduce or eliminate interferences between small cetaceans and the artisanal gillnet fishery. The research was completed in 2001 and the results are available.

At the same time, Aquastudio, on the behalf of the Italian Direction General for Fishery, continues to study all the problems related to incidental by-catch of cetaceans in the large pelagic species fisheries in the Mediterranean

- **CIBRA.** CIBRA participates in the "Sound Oceanography and Living Marine Resources" (SOLMAR) research project set up by the NATO Saclant Undersea Research Center.

The activities of CIBRA focused mainly on:

- managing databases on scientific literature concerned with underwater bioacoustics, strandings, sightings
- developing sound analysis systems for field research on the acoustic emissions of cetaceans
- scientific support and participation in acoustic and visual surveys
- scientific support for the development and tuning of Acoustic Risk Mitigation Policies

CIBRA carried out the project "Bioacoustic Characterization of the Mediterranean Sea" granted by Office of Naval Research (ONR USA - Grant N00014-99-1-0709). The project is aimed at:

- collecting information about the sounds emitted by marine mammals in the Mediterranean

- improving the already existing Cetacean Sound Library at CIBRA
- developing classification methods to identify vocalizing species
- developing instrumentation and methodologies for field research
- education and training

The "Cetacean Tissue Bank" (CTB) cooperates with many research organization concerned with the study and protection of the marine environment and of marine mammals in particular and namely ICRAM, Centro Studi Cetacei (CSC) and Zoönomia (ZNM).

The activities of CTB focused mainly on:

- scientific support for post-mortem diagnosis on stranded specimens as well as tissue sampling;
- founding of a tissue bank;
- founding of a blood (serum) bank;
- free medical consulting in case of live strandings;

CTB provides biological samples to museums and to research institutions to carry out a number of different studies:

- Several studies are carried out on samples collected from the CSC and stored by the CTB:
- stomach contents
- pathology
- osteometric and osteodensitometry
- parasites
- brain anatomy
- microscopic anatomy

11. Publications

11.1 Published or 'In Press' papers only

Centro Studi Cetacei, (2001). Cetacei spiaggiati lungo le coste Italiane. XIV° Rendiconto 1999. Atti Soc. Ital. Sci Nat. Museo Civ. Stor. Nat. Milano, 141/2000 (II): 351-363

Fozzi A., Aplington G., Pisu D., Castiglioni D., Galante I. e Plastina G. "The Bootlenose Dolphin in the La Maddalena Archipelago National Park- Sardinia-Italy Status and conservation measures" presentato alla 15th Annual Conference of the European Cetacean Society - Rome, May 2001

Fozzi A., Aplington G., Castiglioni D., Galante I. Pisu D., Rotta. A., Pizzo. A., Fresu. L., Colnago., Ugo. M.e Plastina G. "Tursiops truncatus" e turismo nautico nel Parco Nazionale dell'Arcipelago di La Maddalena: i dati dei primi tre anni di ricerca (1999-2001). Convegno Nazionale sui Cetacei (CSC), Porto Santo Stefano, Dicembre 2001.

Laist, D.W., Knowlton, A.R., Mead, J.G., Collet, A.S., Podestà, M., (2001). Collisions between ships and whales. *Marine Mammals Science*, **17** (1): 35-75

Lauriano, G. Di Muccio S. (In press.). Check list of fish damage caught in bottom trammel nets in the Asinara Island national park (north western sardinia). *Biol. Mar. Medit.*

Lauriano, G., Di Muccio, S., Cardinali A. and G. Notarbartolo di Sciarra. (In press.). Interactions between bottlenose dolphins and small scale fisheries in the asinara island national park (north-western sardinia). 15th European Cetacean Society Conference, Rome, Italy

Pulcini, M. Triossi, F. Pace D., *Distribution, habitat use and behaviour of bottlenose dolphin (Tursiops truncatus) at Lampedusa island, Archipelago of the Pelagian Islands (Sicily – Italy): results of five years of survey.* 15th Annual Conference of the European Cetacean Society, Rome, 6-10 May 2001.

Zotti, A., Podestà, M., Cozzi, B., Bernardini, D., Digiancamillo, M., Guglielmini, C., (2001). Bone density in the striped dolphin's thoracic limb: a tool for development and age definition. 15th European Cetacean Society Conference, Rome, Italy.

Zotti A., Podestà M., Cozzi B., Bernardini D., Digiancamillo M., Guglielmini C. 2001. Bone density in the striped dolphin's thoracic limb: a tool for development and age definition. Poster presentation. 15th European Cetacean Society Conference, Rome, Italy.

11.2 Unpublished literature

Annual research reports (year 1999, 2000, 2001) – Contact the CTS – Centro Ricerca Delfini, Stagnali, 07024 La Maddalena (SS), Italy (email- faberto@tiscali.it)

Castiglioni, D. Il Tursiops (*Tursiops truncatus*) nel Parco Nazionale dell'Arcipelago di La Maddalena; consistenza della popolazione e proposte per la gestione e la conservazione. Thesis – University of Milano, 2002

Fozzi A., Aplington G., Pisu D., Castiglioni D., Galante I. e Plastina 2001- Group size, distribution and habitat use of the Bottlenose Dolphin (*Tursiops truncatus*) population in the La Maddalena Archipelago National Park- (Sardinia-Italy) during the summer months. Abstract 14th Biennial Conference on the Biology Marine Mammals. Vancouver, november 2001.

Lauriano G., Piccione M.E., Moltedo, G. (2001). Cartographic description of the competitive interaction between *Tursiops truncatus* and *Mullus surmuletus* trammel net. 14th Biennial Conference of the Biology of Marine Mammals, Vancouver, Canada, November 28 - December 3 2001.

Piccione M.E. & Lauriano G. (2001). Trammel nets and Bottlenose dolphins occurrence in the Asinara Island National Park: a cartographic representation. 14th Biennial Conference of the Biology of Marine Mammals, Vancouver, Canada, November 28 - December 3 2001.

SIRENA '01 - CDROM published by Saclantcent. CD-53.

Technical reports of the "Centro Interdisciplinare di Bioacustica e Ricerche Ambientali"

Triossi, F. Pace D. *Behaviour of Bottlenose dolphin (Tursiops truncatus): Results at Lampedusa island, Archipelago of the Pelagian Islands (Sicily – Italy)*; 14th Biennial Conference of the Biology of Marine Mammals, Vancouver, Canada, November 28 - December 3 2001.

The Cetacean Tissue Bank's web site <http://digilander.iol.it/cetaceantissuebank>

Zannetti, A. Di Marco, S. *Interaction between a resident population of bottlenose dolphin (Tursiops truncatus) and fishing activity around the Island of Lampedusa, Archipelago of the Pelagian Islands (Sicily – Italy)*, "Marine mammals health from individuals to populations", 16th Annual Conference of the European Cetacean Society, Liegi, 8-11 April 2002.