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ASSESSMENT OF THE CONSERVATION STATUS OF CETACEANS IN THE ACCOBAMS AREA

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THE IUCN RED LIST

Established in 1964, the International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global conservation status of animal, fungi and plant species¹.

The goal of The IUCN Red List is to provide information and analyses on the status, trends and threats to species, in order to inform and catalyze actions for biodiversity conservation. To achieve these goals the Red List aims to (i) establish a baseline from which to monitor the change in status of species; (ii) provide a global context for the establishment of conservation priorities at the local level; and (iii) monitor, on a continuing basis, the status of a representative selection of species (as biodiversity indicators) that cover all the major ecosystems of the world.

The IUCN Red List assesses individual species according to a set of criteria and assigns them to different categories according to their relative probability of risk of extinction (IUCN, 2001). All species fall into one of nine categories: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE).

The Red List Assessment is conducted at both global and regional levels. Global status refers to the status of a particular species worldwide, and regional status describes a species' conservation status, or likelihood of extinction in a particular region (i.e. the Mediterranean Region or the Black Sea Region). Due to the different scale of analysis, the same species can be assigned to different categories, so that a species listed as not threatened at global level could be listed as threatened at regional level, and vice versa.

ACCOBAMS CETACEANS SPECIES STATUS ASSESSMENT BACKGROUND

As a first step to establishing an agreed regional baseline against which cetacean population status changes can be measured at a regional scale, ACCOBAMS and the IUCN Centre for Mediterranean Cooperation organized in March 2006 a meeting of experts from the IUCN Cetacean Specialist Group and from the ACCOBAMS Scientific Committee in order to assess the status of the species of cetaceans known to be regular in the ACCOBAMS region. The conservation status of twelve resident species and subspecies of marine mammals from the Mediterranean and Black Sea biogeographical regions was assessed² at this occasion. A Mediterranean Red List assessment of resident cetacean species emerged from this workshop and following further updates in 2010, led to the publication of the ACCOBAMS Cetacean Status Report in 2010³.

On this basis, a Red List assessment of cetaceans at the Mediterranean and Black Sea regions level started in 2010 and was published in 2012⁴, with a Red List Category assigned to each evaluated cetacean species of the Mediterranean and Black Sea.

¹ <http://www.iucnredlist.org>

² Reeves R., Notarbartolo di Sciara G. (compilers and editors). 2006. The status and distribution of cetaceans in the Black Sea and Mediterranean Sea. IUCN Centre for Mediterranean Cooperation, Malaga, Spain. 137 pp.

³ Notarbartolo di Sciara G., Birkun A., Jr. 2010. Conserving whales, dolphins and porpoises in the Mediterranean and Black Seas: an ACCOBAMS status report, 2010. ACCOBAMS, Monaco. 212 p

⁴ IUCN (2012). Marine Mammals and Sea Turtles of the Mediterranean and Black Seas. Gland, Switzerland and Malaga, Spain: IUCN. 32 pages.

In November 2013, an evaluation of the Mediterranean subpopulation of the Cuvier's beaked whale was submitted for review, and the status was updated on red list site in 2018 from Data Deficient to Vulnerable.

In 2018, an assessment process of the Gibraltar strait subpopulation of the killer whale was launched in view of its submission to be included in the Mediterranean IUCN Red List. The assessment document was presented to the 12th Scientific Committee of ACCOBAMS for review before submission and acceptance by the IUCN Species Information Service (SIS) in 2019.

CURRENT STATUS OF CETACEAN SPECIES IN THE ACCOBAMS AREA

Up to date, nine species of cetaceans were assessed at the Mediterranean subpopulation level, three taxa were assessed at the sub specific level for the Black Sea, and one species assessment is in preparation. Details can be found below (tables 1 and 2).

Table 1. Cetacean taxa assessed for their risk of extinction in the Mediterranean and Black sea. (details taken from the IUCN Red List of Threatened Species <https://www.iucnredlist.org/>)

| Species/subspecies | IUCN Category | Status population trend | Last assessed | Link to the IUCN Red List assessment |
|--|---------------|-------------------------|-------------------|---|
| MEDITERRANEAN | | | | |
| Fin Whale <i>Balaenoptera physalus</i> Mediterranean subpopulation | VU | Decreasing | 07 July 2011 | https://www.iucnredlist.org/species/16208224/17549588 |
| Sperm Whale <i>Physeter macrocephalus</i> Mediterranean subpopulation | EN | Decreasing | 27 September 2006 | https://www.iucnredlist.org/species/16370739/16370477 |
| Short-beaked Common Dolphin <i>Delphinus delphis</i> Mediterranean subpopulation | EN | Decreasing | 30 April 2003 | https://www.iucnredlist.org/species/41762/10557372 |
| Common Bottlenose dolphin <i>Tursiops truncatus</i> Mediterranean subpopulation | VU | Decreasing | 18 November 2009 | https://www.iucnredlist.org/species/16369383/16369386 |
| Striped Dolphin <i>Stenella coeruleoalba</i> Mediterranean subpopulation | VU | Unknown | 09 August 2010 | https://www.iucnredlist.org/species/16674437/16674052 |
| Risso's Dolphin <i>Grampus griseus</i> Mediterranean subpopulation | DD | Unknown | 01 April 2010 | https://www.iucnredlist.org/species/16378423/16378453 |
| Long-finned Pilot Whale <i>Globicephala melas</i> Mediterranean subpopulation | DD | Unknown | 26 April 2010 | https://www.iucnredlist.org/species/16376479/16376495 |
| Cuvier's Beaked Whale | VU | Decreasing | 27 January 2018 | https://www.iucnredlist.org/species/16381144/50286386 |

| | | | | |
|--|----|-------------|-----------------|---|
| <i>Ziphius cavirostris</i> Mediterranean subpopulation | | | | |
| Killer Whale <i>Orcinus orca</i> Gibraltar strait subpopulation | CR | Unknown | 30 sep/2019 | |
| BLACK SEA | | | | |
| Black Sea Harbour Porpoise <i>Phocoena phocoena</i> <i>ssp. relicta</i> | EN | Decreasing | 30 June 2008 | https://www.iucnredlist.org/species/17030/6737111 |
| Black Sea Bottlenose Dolphin <i>Tursiops truncatus</i> <i>ssp. ponticus</i> | EN | Decreasing | 01 July 2008 | https://www.iucnredlist.org/species/133714/17771698 |
| Short-beaked Common Dolphin <i>Delphinus delphis ssp.</i> <i>ponticus</i> | VU | Unspecified | 30 June 2008 | https://www.iucnredlist.org/species/133729/3875256 |

Table 2. Cetacean taxa in process of evaluation for the IUCN Red List

| Species/subspecies | IUCN Category | Status population trend | Last assessed | annotations |
|--|---------------|-------------------------|---------------|--|
| Rough-toothed dolphin <i>Steno bredanensis</i> Mediterranean subpopulation | | | | Under preparation - The status of subpopulation was accepted by the Red List unit based on a provided paper ⁵ |

Assessment scope

An informal meeting with experts was organized in December 2019, during the World Marine Mammal Conference in Barcelona, to revise the species list and organize working groups for data compilation. After the revision of the previous assessments to the light of the current guidelines for using the IUCN Red List categories and criteria⁶, some issues regarding the assessment scope were identified and it needs to be addressed. A note on population definition issues is available in Annex 2. Some species previously assessed as a Mediterranean subpopulation seems to do not meet the definition for that term as used by IUCN. In consequence, a revision and justification of subpopulations for assessable species needs to be done. The change in the assessment scope does not affect in any case the classification of species in RL categories, but it has effect on how the assessments are classified. Species not meeting the Mediterranean subpopulation conditions, will be evaluated as a Mediterranean regional assessment. While species with a justified Mediterranean subpopulation will be assessed as a subpopulation assessment (being considered a “piece” of the global assessment).

After discussions with experts from the IUCN SC Cetacean Specialist Group, it has been suggested to raise the question to the Red List unit in order to reach a final decision. It is worth to mention that compilation activities should not be interrupted because of this discussion.

In the same way, the need for capacity building on the application of Red List categories and criteria was raised by some experts as well as the need to organize a workshop to validate the species assessments once the data compilation will be finished. IUCN Med does not have budget allocated for this activity but could provide travel and staff time to one Red List trainer to give a 1-day training course and to facilitate in subsequent days a validation and

⁵ See Annex 1

⁶ <https://www.iucnredlist.org/resources/redlistguidelines>

review workshop. The participation of an expert from the IUCN SSC Cetacean Specialist Group is fundamental for the success of this workshop.

PERSPECTIVES

The ACCOBAMS Work program foresees - as a Scientific Committee assignment within the CA1 Conservation Action related to improve knowledge about state of cetaceans and monitor cetacean status - **'to assess IUCN threat status of cetaceans in the ACCOBAMS Area and update it regularly, and more specifically to gather information to assess the data deficient species'**.

Following the Recommendation 10.3 of the 10th Meeting of the ACCOBAMS Scientific Committee (Nice, France, 20-22 October 2015) and the Resolution 6.15, adopted by the Sixth Meeting of the Parties (Monaco, 22-25 November 2016) regarding the assessment of the IUCN conservation status of cetaceans in the ACCOBAMS Area, the Scientific Committee decided during its 11th Meeting (Monaco, 7-9 February 2017) to assess the status of killer whale in priority and to postpone the (re)assessment of the other species after the results of the ACCOBAMS Survey Initiative (ASI), when updated information and robust data on population abundance and distribution will be available.

In this line, and considering the now available results of the ASI project as well as other data and observations collected in the last few years, new assessments of the conservation status of Mediterranean and Black Sea cetaceans and update of existing ones according to the IUCN Red List Categories and Criteria were launched in 2019.

This initiative is the result of a collaboration between ACCOBAMS and the IUCN Centre for Mediterranean Cooperation and will use all new sources of information for an updated Red List Status of Mediterranean and Black Sea cetaceans. Under the coordination of the Chair of the ACCOBAMS Scientific Committee, the process has started mid-2019.

The first meeting of several experts involved in this procedure that took place in December 2019 in Barcelona, on the sidelines of the WMMC 19, allowed to refine the work to be conducted, the list of experts involved for each concerned species and to agree on the next steps and define a working calendar.

Out of the 9 species currently assessed at the Mediterranean level, 7 species are going under an assessment process, 1 species will be assessed for the first time at Mediterranean level (*Steno bredanensis*, Mediterranean subpopulation). The 3 species of the Black Sea are also being reassessed in particular in light of the results of the Black Sea Survey conducted during the summer 2019 with the CeNoBS project.

The Calendar of work is the following:

| CALENDAR | Option 1 | Option 2 | 2020 | | | | | | | | | | | | 2020 | | |
|---|----------|----------|----------|-------|-------|---------------------------|------|------|--------|-----------|---------|-------------------------------------|----------|---------|----------|-------|--|
| | December | January | February | March | April | May | June | July | August | September | October | November | December | January | February | March | |
| Working groups conformed | | | | | | | | | | | | | | | | | |
| Data collection, consultation with other experts | | | | | | | | | | | | | | | | | |
| Assessment updated and validated with other experts | | | | | | | | | | | | | | | | | |
| Assessments updated in SIS database | | | | | | | | | | | | | | | | | |
| Validation and review | | | | | | | | | | | | | | | | | |
| Edition and consistency check | | | | | | SIS Lockdown: 01 May 2020 | | | | | | SIS Lockdown: around november (TBC) | | | | | |
| Submission to the RL Unit | | | | | | | | | | | | | | | | | |
| Data analysis, report, communication materials | | | | | | | | | | | | | | | | | |
| Publication in IUCN RL | | | | | | | | | | | | | | | | | |

The experts currently assigned to the assessments/reassessments are listed in the table below:

| Scope | Assessment | Species | year of last assessment | Current Category | Criteria | first assessment | | | second assessment | | |
|---------------|-----------------------------|---|-------------------------|------------------|----------|---|--|---|---|--------------|------------------------------------|
| | | | | | | assessors | contributors | reviewers | working group 2019 | Genetic data | country/ topic contributors |
| Mediterranean | Mediterranean subpopulation | <i>Delphinus delphis</i> <i>Mediterranean subpopulation</i> | 2003 | EN | A2abc | Bearzi, G. | | Reeves, R.R. & Taylor, B. | Ada Natoli Tilen Genov | Ada Natoli | |
| Mediterranean | Mediterranean subpopulation | <i>Physeter macrocephalus</i> <i>Mediterranean subpopulation</i> | 2010 | EN | C2a(ii) | Notarbartolo di Sciara, G., Frantzis, A., Bearzi, G. & Reeves, R. | Tejedor Arceredillo, A., Agusti, C., Airoldi, S., Panigada, S., de Stephanis, R. & Engelhaupt, D. | Brownell Jr., R.L. & Smith, B.D. | Alexandros Frantzis, Caterina Lanfredi tbc, Renaud de Stephanis, Pauline Gauffier | Ada Natoli | Massimiliano Rosso, Eva Carpinelli |
| Mediterranean | Mediterranean subpopulation | <i>Balaenoptera physalus</i> <i>Mediterranean subpopulation</i> | 2011 | VU | C2a(ii) | Panigada, S. & Notarbartolo di Sciara, G. | | Taylor, B.L. & Perrin, W.F. | Panigada, S., Notarbartolo di Sciara, G., Pauline Gauffier | Ada Natoli | Aur lie Moulins |
| Mediterranean | Mediterranean subpopulation | <i>Stenella coeruleoalba</i> <i>Mediterranean subpopulation</i> | 2010 | VU | A2bcde | Aguilar, A. & Gaspari, S. | | Notarbartolo di Sciara, G. & Perrin, W.F. | G Bearzi, Aur lie Moulins | Ada Natoli | Clara Monaco Sabina Airoldi |
| Mediterranean | Mediterranean subpopulation | <i>Tursiops truncatus</i> <i>Mediterranean subpopulation</i> | 2008 | VU | A2cde | Bearzi, G., Fortuna, C. & Reeves, R. | | Hammond, P.S. & Perrin, W.F. | Ada Natoli, Renaud de Stephanis, Caterina Fortuna, (J. Gonzalvo tbc) | Ada Natoli | |
| Mediterranean | Global assessment | <i>Steno bredanensis</i> | 2018 | LC | | Kiszka, J., Baird, R. & Braulik, G. | Hammond, P.S., Bearzi, G., Bj rge, A., Forney, K.A., Karkzmarski, L., Kasuya, T., Perrin, W., Scott, M.D., Wang, J.Y., Wells, R.S. & Wilson, B | Reeves, R. | Dan Kerem, Alexandros Frantzis, Aviad Scheinin (tbc) | Ada Natoli | |

| | | | | | | | | | | | |
|---------------|-----------------------------|---|------|----|----------|--------------------------------------|--|--|--|------------|--------------------|
| Mediterranean | Mediterranean subpopulation | <i>Globicephala melas</i> <i>Mediterranean subpopulation</i> | 2010 | DD | | Cañadas, A. | | Aguilar, A., Birkun, A., Bearzi, G., Donovan, G., Hammond, P.S., Fortuna, C., Gaspari, S., Perrin, W.F., Reeves, R. & de Stephanis, R. | Philippe Verborgh, Renaud de Stephanis, Pauline Gauffier | Ada Natoli | Massimiliano Rosso |
| Mediterranean | Mediterranean subpopulation | <i>Grampus griseus</i> <i>Mediterranean subpopulation</i> | 2010 | DD | | Gaspari, S. & Natoli, A. | | Reeves, R. & Crespo, E. | Caterina Lanfredi, Lea David, Ada Natoli, Massimiliano Rosso, Antonella Arcangeli, Drasko Holcer | Ada Natoli | Clara Monaco |
| Black sea | subspecies | <i>Phocoena phocoena ssp. relict</i> | 2008 | EN | A1d+4cde | Birkun Jr., A.A. & Frantzis, A. 2008 | | Brownell Jr., R.L. & Rojas-Bracho, L. | Alexandros Frantzis | Ada Natoli | |
| Black sea | subspecies | <i>Tursiops truncatus ssp. ponticus</i> | 2008 | EN | A2cde | Birkun, A. | | Brownell Jr., R.L. & Crespo, E. | | | |
| Black sea | subspecies | <i>Delphinus delphis ssp. ponticus</i> | 2008 | VU | A2cde | Birkun Jr., A.A. | | Brownell Jr., R.L. and Gales, N. | | | |

EXPECTED OUTPUTS:

The new species status are expected to be accepted for publication in the IUCN Red List by the end of 2020 or early 2021. All the results of these processes will be included in an updated Cetacean Status Report in the ACCOBAMS area to be published early 2021, as a major output of the ACCOBAMS Survey Initiative project, and will be also used in the context of the ongoing development of Conservation Management Plans for Mediterranean cetaceans.

ANNEXE 1 - Justification for the existence of a(n eastern) Mediterranean subpopulation of rough-toothed dolphin (*Steno bredanensis*)

The following text, if not otherwise cited, is based on Kerem et al. (2016). It will address 2 definitions of a species' subpopulation, taken from the guidelines and the website of the IUCN RL, to show how rough-toothed dolphin (RTD) in the Mediterranean meets said definitions:

1. "Geographically separate subpopulations of a species are defined as those populations that are so isolated from others of the same species that it is considered extremely unlikely that there is any genetic interchange. In general, listings of such subpopulations should be restricted to those that have been isolated for a long period of time."

Evidence gathered from dedicated surveys and opportunistic sightings from the last forty five years show RTD to be restricted to the eastern Mediterranean basin and within it to maintain two seemingly disparate fragments, one in the Levant Basin (westernmost sighting off Cyrenaica on the Libyan coast) and one in the Ionic Sea (westernmost record in Donnalucata, Sicily). As of today, there are 28 records from the former and 5 from the latter. The closest known RTD record from the Atlantic Ocean is a sighting approximately midway between Lisbon, Portugal and the Canaries (33.7°N; -12.47°E; Correia et al., 2019), some 2,500 km away from Donnalucata. The closest Atlantic resident population is in Madeira Island, Portugal (Alves et al., 2018), 500 km further west. The distance could theoretically be covered over a month of continuous straight travel (Wells et al., 2008) but should be considered extremely unlikely.

The lack of sightings in the western Med cannot be passed over by dearth of survey effort. On the contrary, the Alboran Sea and the Strait of Gibraltar have been extensively surveyed over the last decades with no records of the species (personal communications by Ana Cañadas & Renaud de Stephanis, respectively, September 2015). Preliminary genetic evidence suggests an Atlantic origin with long separation. Distance to the northernmost record of RTD in the Red Sea (Eritrea; Notarbartolo di Sciarra et al., 2017) is about 2,000 km, but all Levantine sequences markedly differed from Indian Ocean (Oman) ones.

2. "Geographically or otherwise distinct groups in the population between which there is little demographic or genetic exchange (typically one successful migrant individual or gamete per year or less)".

There is no large enough genetic database from which to calculate migration rates. Also, tissue samples from the Ionian fragment were not included in the above-mentioned preliminary analysis. All 3 Levantine sequences had private alleles.

References:

- Alves F, Ferreira R, Fernandes M, Halicka Z, Dias L, Dinis A. 2018. Analysis of occurrence patterns and biological factors of cetaceans based on long-term and fine-scale data from platforms of opportunity: Madeira Island as a case study. *Marine Ecology*. 2018;00:e12499. <https://doi.org/10.1111/maec.12499>
- Correia AM, Gandra M, Liberal M, Valente R, Gil Á, Rosso M, Pierce GJ, Sousa-Pinto I. 2019. A dataset of cetacean occurrences in the Eastern North Atlantic. *Scientific Data*. Available from www.nature.com/scientificdata.
- Kerem D, Goffman O, Elasar M, Hadar N, Scheinin A, Lewis T. 2016. The rough-toothed dolphin, *Steno bredanensis*, in the eastern Mediterranean Sea: a relict population? In: G. Notarbartolo di Sciarra, M. Podestà, B.E. Curry (eds) *Mediterranean Marine Mammal Ecology and Conservation*. *Advances in Marine Biology* 75: 233-258.
- Notarbartolo di Sciarra G, Kerem D, Smeenk C, Rudolph P, Cesario A, Costa M, Elasar M, Feingold D, Fumagalli M, Goffman O, Hadar N, Mebrathu YT, Scheinin A. 2017. *Cetaceans of the Red Sea*. CMS Technical Series 33, 86 pp.
- Wells RS, Early GA, Gannon JG, Lingenfelter RG, Sweeney P. 2008. Tagging and tracking of rough-toothed dolphins (*Steno bredanensis*) from the March 2005 mass stranding in the Florida Keys. NOAA Technical Memorandum NMFS-SEFSC-574, 44 pp. Available from NMFS, 75 Virginia Beach Road, Miami, FL 33149.

ANNEXE 2 - NOTE ON POPULATION DEFINITION

The IUCN definition of a subpopulation is given in the Red List Categories and Criteria (ver 3.1, 2nd edn), page 10.

2. Subpopulations (Criteria B and C)

Subpopulations are defined as geographically or otherwise distinct groups in the population between which there is little demographic or genetic exchange (typically one successful migrant individual or gamete per year or less).

Some Mediterranean populations of cetaceans would not meet that criterion (e.g. for fin whales there is observably more than one individual per year migrating through the Straits of Gibraltar).

However, the Guidelines for Using the IUCN Red List Categories and Criteria Version 14 contain the following text:

Subpopulations: *If a subpopulation assessed under the criteria is not isolated (i.e., if it may be exchanging individuals with other subpopulations), its assessments must follow the regional guidelines (IUCN 2003, 2012a). In addition, it must be a biological subpopulation (i.e., not defined by political or national boundaries). Although the regional guidelines can in principle be applied at any geographical scale, application within very small geographical areas is strongly discouraged. The smaller the subpopulation as a proportion of the global population of the species, the more often the subpopulation will exchange individuals with other subpopulations. Therefore, the assessment of extinction risk based on the criteria would become more unreliable (IUCN 2003, 2012a). See also Geographical scale of categorization below.*

The parallel listing of some species as Mediterranean regional listing and also as a Subpopulation on the global list is a source of confusion for many people and should perhaps be avoided.