

## **1. Italian stranding network: cause of death and evidence of human interaction in cetaceans stranded along the Italian coastline between 2015 – 2020**

In 2016, under ACCOBAMS Resolution n° 10, Italy established a stranding network responsible for collecting and analyzing data and samples from marine mammals found stranded along the entire Italian coastline. The Italian Stranding Network (ISN) includes 10 veterinary public health control institutions (Istituti Zooprofilattici Sperimentali - IZS), led by the “National Reference Center for Diagnostic Investigations in Stranded Marine Mammals” (C.Re.Di.Ma.). Other bodies are also part of the network, such as the Department of Comparative Biomedicine and Food Science (BCA) of the University of Padova, running the Mediterranean Marine Mammal Tissue Bank ([www.marinemammals.eu](http://www.marinemammals.eu)) and the Cetacean strandings Emergency Response Team, and the Interdisciplinary Centre for Bioacoustic and Environmental Research (CIBRA) of the University of Pavia, running the Italian Stranding Database ([www.mammiferimarini.unipv.it](http://www.mammiferimarini.unipv.it)) with the Natural History Museum of Milano. This stranding network is supported by the Coast Guard, the local Authorities, and NGOs for regular monitoring of cetacean strandings and cooperates with other Research Institutes.

Every year, the network elaborates an annual report summarizing the strandings data and the results of the post-mortem investigations. The evidence-based approach helps to identify the likely cause of death (COD) and any evidence of interaction with human activities.

From 2015 to 2020, the Italian stranding network responded to 1236 single-stranding events of 10 different species. The carcass decomposition code at necropsy, logistics, and functionality of regional stranding networks limited the post-mortem examination to 586 individuals. The COD was hypothesized in 53.07% of examined animals (311/586), while for the remaining 46.93% (275/586) it was not determined.

The monitoring of sentinel species represents a strategic method to assess mortality patterns, emerging and reemerging pathogens, and environmental changes from a multidisciplinary One Health perspective.

## **2. Integrated health assessment for the conservation and management of dolphin and sea turtle populations in the Northern Adriatic Sea**

In the European context of the Marine Strategy Framework Directive 2008/56/EC and the 2030 Agenda, the development of research capable of adopting multidisciplinary approaches is an effective tool for conservation, sustainability and the creation of new socio-economic opportunities. The Adriatic Sea, due to its geomorphological characteristics, constitutes a biodiversity and habitat model for the study of environmental changes and consequent impacts or adaptations. The northern part of the Adriatic Sea falls under the classification of Important Marine Mammals Area (IMMA) and the area in front of the Veneto coasts is considered a Site of Community Interest forming part of the Natura 2000 European ecological network for the species *Caretta caretta* and *Tursiops truncatus* (S.I.C. IT3270025 "Northern Adriatic Veneto - Po Delta"). These species are protected by national and international regulations, which aim to implement monitoring activities of their health status through conservation actions.

The implementation of demographic (population fitness) and health (health status) knowledge on these species is a fundamental support for monitoring and understanding how these populations respond, in the short and long term, to impacts and changes of various origins. This type of innovative research approach considers the Northern Adriatic as an ecological model and a laboratory for sustainable development, and can therefore represent an example to be exported to other realities, particularly those considered to be in disadvantaged situations, fostering the same scientific and socio-economic spin-offs. Moreover, this model, due to its environmental characteristics, is useful for monitoring, projecting and preventing the consequences of climate change where many gaps still persist.

The transfer of certain knowledge and the sharing of research results applied to this context, together with conservation and mitigation actions on species and their key habitats, may therefore contribute to the activation of new projects and investments aimed at reorganizing policies and the labor system on innovation and sustainability issues.