

Seainsights report on marine mammal strandings in the Northern Adriatic completed

As part of the SEAINSIGHTS project, the deliverable dedicated to the analysis of marine mammal strandings along the Northern Adriatic coast has been completed. This activity represents an important step toward understanding the health status of the marine ecosystem and monitoring the environmental and anthropogenic pressures affecting cetaceans and other large marine vertebrates.

The report gathers and analyzes data related to strandings recorded between 2023 and April 2026 along the Italian and Slovenian coasts of the Northern Adriatic, thanks to the collaboration among universities, research institutions, monitoring networks, veterinary services, and organizations involved in marine conservation. A total of 39 stranded marine mammals were documented, almost exclusively represented by the common bottlenose dolphin (*Tursiops truncatus*), a symbolic species of the northern Adriatic Sea.

The activities carried out went far beyond the simple recording of stranding events and included necropsies, biological sampling, microbiological, parasitological, and toxicological analyses. In particular, the report investigates the presence of emerging contaminants such as PFAS and mercury in cetacean tissues, providing new insights into the exposure of marine mammals to pollutants in the marine environment.

Among the most significant events documented during the study period were exceptional cases such as the discovery of a fin whale in the port of Muggia and the rescue of a live striped dolphin stranded along the coast of the Friuli Venezia Giulia Region. These events highlighted the importance of a rapid and coordinated response network capable of intervening in both health emergencies and conservation activities.

The deliverable confirms the value of stranding monitoring networks as essential tools for scientific research, marine biodiversity conservation, and the implementation of the One Health approach, which connects animal, human, and environmental health. The results also provide an important basis for future monitoring activities and for strengthening cross-border cooperation between Italy and Slovenia in the protection of the Adriatic ecosystem.



Seainsights joint protocol developed for assessing marine mammal health status

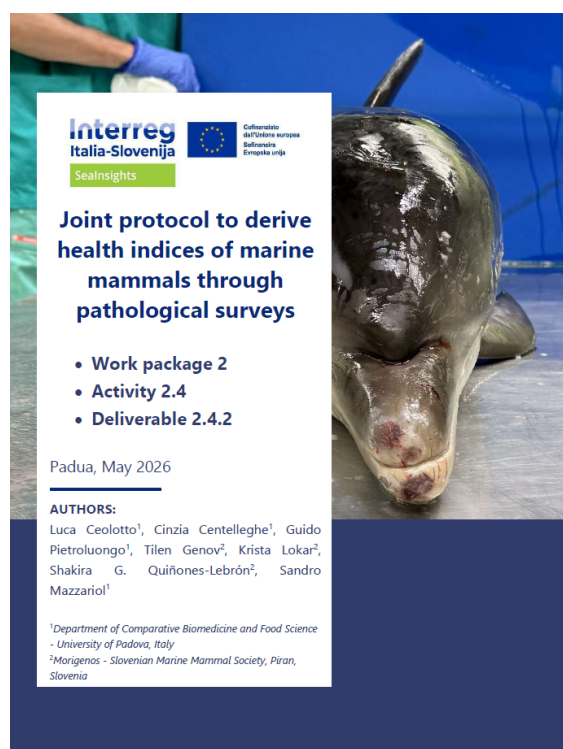
As part of the SEAINSIGHTS project, the deliverable dedicated to the development of a joint protocol for deriving marine mammal health indicators through standardized pathological investigations has been completed. The document represents an important step forward in harmonizing cetacean monitoring and necropsy activities between Italy and Slovenia, strengthening cross-border cooperation in the protection of the Adriatic ecosystem.

Marine mammals are considered true “sentinel species”, capable of reflecting the health status of the marine environment and the effects of anthropogenic pressures such as pollution, maritime traffic, fisheries, and climate change. In this context, post-mortem investigations of stranded animals represent a fundamental tool for collecting information on the health status of marine populations and identifying possible emerging threats.

The protocol developed within SEAINSIGHTS is based on the ACCOBAMS/ASCOBANS guidelines, the main international references for cetacean necropsies, and introduces standardized operational forms designed to facilitate the homogeneous collection of data and biological samples even under difficult logistical conditions. The forms allow the recording of information related to carcass preservation status, pathological findings, biometric parameters, possible anthropogenic interactions, and samples collected for subsequent laboratory analyses.

One of the most innovative aspects of the deliverable concerns the definition of health indicators based on data collected from strandings. Through the integration of pathological, microbiological, toxicological, and ecological information, the protocol makes it possible to transform necropsy data into useful tools for evaluating the pressures affecting cetacean populations in the Northern Adriatic Sea.

The document also highlights how the use of harmonized methodologies is essential to improve data quality, ensure reliable comparisons among different geographic areas, and support European marine biodiversity conservation strategies. In a complex transboundary area such as the Northern Adriatic, the adoption of shared protocols represents a key element for building increasingly effective and coordinated monitoring systems.



Seainsights sviluppato un protocollo condiviso per il monitoraggio sanitario dei mammiferi marini tramite droni

Nell'ambito del progetto SEAINSIGHTS è stato completato il deliverable dedicato allo sviluppo di un protocollo condiviso per la valutazione dello stato di salute dei mammiferi marini attraverso l'utilizzo di droni (UAV – Unmanned Aerial Vehicles). Il documento rappresenta un importante passo avanti verso l'adozione di metodologie innovative, non invasive e armonizzate per il monitoraggio dei cetacei nell'Alto Adriatico.

I mammiferi marini sono considerati specie sentinella degli ecosistemi marini, in grado di riflettere gli effetti delle pressioni ambientali e antropiche come inquinamento, traffico marittimo, pesca, turismo e cambiamenti climatici. In particolare, il delfino tursiope (*Tursiops truncatus*), specie costiera tipica dell'Adriatico settentrionale, rappresenta un modello ideale per programmi di monitoraggio a lungo termine grazie alla sua elevata fedeltà territoriale e alle frequenti interazioni con le attività umane.

Il protocollo sviluppato nell'ambito di SEAINSIGHTS definisce linee guida comuni per l'utilizzo dei droni nelle attività di monitoraggio, fotogrammetria, foto-identificazione e campionamento del soffio respiratorio ("blow sampling"). Questa tecnica innovativa consente di raccogliere materiale biologico emesso dallo sfiato dei cetacei senza contatto diretto con gli animali, riducendo al minimo il disturbo e lo stress associati ai metodi tradizionali di campionamento.

Attraverso l'uso dei droni è possibile ottenere immagini ad alta risoluzione utili per valutare lo stato nutrizionale, la presenza di lesioni cutanee, cicatrici, interazioni con attrezzi da pesca e altri indicatori visibili di salute. Parallelamente, i campioni respiratori raccolti possono essere utilizzati per analisi genetiche, microbiologiche, ormonali e molecolari, contribuendo allo studio dello stato fisiologico e sanitario delle popolazioni di cetacei.

Il deliverable pone inoltre grande attenzione agli aspetti etici e operativi, definendo procedure standardizzate per minimizzare il disturbo agli animali, garantire la qualità dei campioni raccolti e ridurre il rischio di contaminazione durante le attività di campo e laboratorio. Particolare importanza viene attribuita anche all'integrazione dei dati ottenuti con i programmi di foto-identificazione già attivi nell'area Adriatica, così da collegare le informazioni biologiche ai singoli individui monitorati nel tempo.

L'adozione di un protocollo condiviso tra partner italiani e sloveni permetterà di migliorare la comparabilità dei dati raccolti, rafforzare la cooperazione scientifica transfrontaliera e sviluppare sistemi di monitoraggio sempre più efficaci per la conservazione dei mammiferi marini dell'Alto Adriatico.

