

DISTRIBUTION OF MERCURY IN TISSUES AND ORGANS OF TWO CETACEAN SPECIES (*STENELLA COREULEOALBA* AND *TURSIOPS TRUNCATUS*) STRANDED ALONG THE ITALIAN COASTS

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Abstract

Mercury concentrations were determined in tissues and organs of two cetacean species (*Stenella coreuleoalba* and *Tursiops truncatus*) stranded along the Italian coasts between 2000 and 2009. According to previous authors, mercury accumulates preferentially in liver and shows a positive correlation with length in both analysed species. Mercury concentrations found in this study are generally higher than those found by previous authors in tissues of dolphins from Atlantic areas. Significant differences were also found for Hg contents in different marine areas within the Mediterranean basin suggesting the existence of different and separated populations of *S. coreuleoalba* and *T. truncatus*.

Keywords: *Cetacea, Mercury*

Large amounts of organic and inorganic chemicals enter estuarine and coastal marine environments from natural and anthropogenic sources. Several metals, such as mercury, are considered highly toxic [1], and, at least in dolphins, are accumulated throughout the entire life of an individual. The main aims of this research is at attempting to: (1) verify, on the basis of a new and larger dataset, previously reported mercury distribution patterns in cetaceans; (2) verify differences on mercury concentrations between sampling areas within the Mediterranean basin to assess the importance of cetacean as indicator of marine pollution. Samples of muscle, liver, lung, kidney and heart were collected from specimens of *S. coreuleoalba* (n=12) and *T. truncatus* (n=12) that were found stranded along Italian coasts during the period 2000-2009. Metal concentrations were measured by ICP-AES Varian Vista MPX. Liver shows the highest concentrations of Hg in all analysed species. Positive correlations emerges between Hg concentrations and length in all analysed tissues indicating that bioaccumulation occurred over time. Mercury concentrations found in this study seem to be higher than those found by previous authors in tissues of dolphins from Atlantic areas. Higher Hg concentrations were found in liver of specimens from the French coast [2] and Adriatic sea [3]. Dolphins seem to exhibit lower Hg concentrations in Ligurian sea [4] and Sicily channel (this study). These differences may reflect the existence of different and separated populations of *S. coreuleoalba* and *T. truncatus* in Mediterranean basin with different feeding habitats exposed to different anthropogenic activities.

References

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