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BOOK OF ABSTRACTS



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adsorb persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs) in seawater. If marine animals ingest plastics, they may be exposed to adsorbed chemicals. However, there are few studies verified the risks specifically. We analyzed plastic materials, the mucosa, and the juice in the stomach of Ziphiidae whales stranded in Japan regarding POPs profiles respectively to figure out the elution of POPs from plastic to the stomach mucosa and/or the juice. We analyzed 10 plastics collected from 4 whales, 11 mucosa samples collected from 11 whales and 8 juice samples collected from 8 whales as materials using by a gas chromatograph-mass spectrometer (GC-MS). POPs profiles of the plastics were different from those of the blubber. PCBs in plastics were composed with high adsorption ratios of lower chlorinated PCB congeners. It was also different from those of the blubbers, on the other hand, and was close to the profiles of seawater and plastics in seawater. OCPs profiles including HCHs, CHLs and DDTs, were also different between plastics and blubber. It suggests the possibility of plastic adsorbing POPs from the seawater and transports directly to the whales. As PCBs profiles of the stomach mucosa were similar to those of blubbers, it was accumulated through the food web. On the other hand, as PCBs profiles of the juice showed high ratios of lower chlorinated PCB congeners, it indicated POPs in the plastics could be eluted to the stomach juice directly. It is said that lower chlorinated PCB congeners may exhibit higher toxic effects to marine animals. We confirm POPs were absorbed onto the plastics and may have been influenced the gastric tract in the Ziphiidae.

Vertebral shape in Delphinidae within a phylogenetic frame

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Differences in vertebral morphology in cetaceans would be related to various functional abilities, promoting ecological diversity and adaptive radiation. We used three-dimensional landmark configurations as well as a calibrated phylogeny to explore vertebral morphology along the vertebral column of 24 dolphin species within a phylogenetic context. We employed various phylogenetic comparative methods to explore the presence and relevance of phylogenetic signal in vertebral morphology within Delphinidae, and to estimate to what extent vertebral modifications are constrained by phylogeny or could be linked to adaptation to particular habitats. Visual inspection of three different component analysis allowed us to evidence species with particular habitat requirements diverging greatly from their closest relatives. Differences between the angles of the first components of our analysis showed greater amount of variation not related to phylogeny in three regions, the anterior thorax (Th), the posterior thorax (ThTo), and the synclinal point (SP). Similarities between the angles in the mid-torso (Tm) and tail stock (TS) suggest as greater effect of phylogeny on vertebral morphology. Despite this, even in these regions, species with similar biomechanical requirements seem to be located relatively close disregarding phylogeny. Through Phylogenetic ANOVAS and tests for phylogenetic signal with different data sets (Procrustes coordinates, reductions of components), we found that both ecology and phylogeny have effect on vertebral morphology. Results showed statistical differences between the different ecological groups, in all regions but the anterior thorax (Th). Most regions showed weak but significant phylogenetic signal, with low z values. Vertebral morphology in Delphinidae may reflect habitat requirements within certain phylogenetic constraints, and this varies along the vertebral column. Further studies are needed to elucidate the factors behind vertebral morphology in these mammals of axial locomotion.

Vessel strike encounter risk model informs mortality risk for endangered North Atlantic Right Whales *Eubalaena glacialis* along the