

The 7th International Palaeontological Congress



Ichthyosaur evolution and biology

Ichthyosaurs are iconic animals. With a good fossil record spanning from the direct aftermath of the Permian-Triassic mass extinction until the middle Cretaceous 93 million years ago, a body shape convergent to modern day toothed whales and more than two centuries of research interest, they are in some ways some of the best known extinct marine reptiles from the Mesozoic. Despite this, some of the most fundamental questions remain: What is the phylogenetic position of the group and which are their ancestors? When, where and why did the transition from land to water happen? Were they really the “dolphins of the Mesozoic”, or is that a too simple interpretation of their biology? And why did ichthyosaurs go extinct, a long time before the other marine reptiles?

The transition from land to water for ichthyosaurs is not known, either in space or time. Small, possible ichthyosaur ancestors have been discovered from localities in the Tethys Sea, but has not yet helped to solve the position of the group and its relation to other diapsids. Large ichthyosaurs from the Early and Middle Triassic are excavated from localities outside the Tethys, most notably localities in the US and at Spitsbergen, hinting either at a rapid transition to fully pelagic taxa or a pre-Triassic origin.

Through the Triassic, ichthyosaurs acquired what is often called a “tuna” or “dolphin”-shape, but as they were reptiles and neither fish nor mammals, a range of life histories and physiologies might have been available and probably changed through this period. New methodologies and new fossil discoveries might answer whether ichthyosaurs were really the dolphins of the Mesozoic, or if they turned into them at some point.

New interpretations in the last ten years have also challenged traditional views on ichthyosaur diversity and disparity through both the Triassic-Jurassic and the Jurassic-Cretaceous boundary. Building on this can make it possible to understand the group’s own mysterious disappearance in the middle Cretaceous, and hopefully for enhancing our knowledge on the fate of large, marine predators through times of ecological changes.

The last fifteen years have seen leaps forward in our understanding of the group, and researchers from an increasing number of institutions are working to understand more. In this symposium, we aim to gather scholars working on this fascinating animal group that work on these questions using a variety of approaches. We want the symposium to showcase new ideas, new methods, and new fossils. It will be inclusive and collaborative, and open for researchers at all career stages. We encourage scientists from the entire world to participate.

Conveners:

- Lene Liebe Delsett (l.l.delsett@nhm.uio.no)
- Judith Pardo-Pérez (judith.pardo@umag.cl)

If you are interested in this symposium, please contact the conveners.