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First three-dimensional skull of the Middle Triassic mixosaurid ichthyosaur *Phalarodon fraasi* from Svalbard, Norway

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The marine Middle Triassic sediments of Svalbard are rich in fossiliferous material and are particularly well-known for marine reptile fossils. Here, we present a new specimen of the small-bodied mixosaurid ichthyosaur *Phalarodon fraasi* from the Botneheia Formation. PMO 235.393 is unusual in being the first three-dimensional mixosaurid skull recovered from this formation, allowing us to use computed tomography to reconstruct the obscured right side of the cranium, resulting in the first 3D model available for a mixosaurid ichthyosaur. Although separated into different slabs, the specimen preserves most of the dermatocranium as well as some partial post-cranial elements. In particular, the rostrum, external naris, dentition, quadrate and sclerotic ring are well-preserved. This methodology gave new insights into the adaptations this taxon has to durophagy, as well as a detailed look at the heterodont dentition present in PMO 235.393. After comparing with other *Phalarodon* specimens, it was clear that the maxillary heterodonty of this genus is a synapomorphy. As such this was added as a new character in our phylogenetic analysis, supporting the separation of *Phalarodon* and *Mixosaurus.*

Key words: Ichthyosauria, Mixosauridae, *Mixosaurus, Phalarodon*, Triassic, Spitsbergen, Svalbard.

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