

Gravid Fish Fossil First

Recent fish fossils show the earliest documented development.

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Materpiscis attenboroughi giving birth.

© B. Choo, Museum Victoria. The time when young vertebrates first began to develop within their mothers' bodies has now been pushed much further back in geological time, thanks to two remarkable discoveries involving fish. The story begins in the Gogo region of the northwest part of Western Australia, where a new species of fish was unearthed in May 2008. Measuring about 10 inches in length, it was named *Materpiscis attenboroughi*, after the broadcaster Sir David Attenborough who visited this area for his popular *Life on Earth* television series.

What made this find unique was the presence of an embryo attached to an umbilical cord within the fish's body. It is exceedingly unusual to find soft tissue preserved in fossils. Normally, just the remains of the hard tissue, such as bones, are transformed in this way. *Materpiscis* was a well-armored bony fish, and it may have been that its body casing actually helped to preserve the soft tissue.

At the Natural History Museum in London, the existence of another fossilized gravid fish has just been confirmed. This species, called *Incisoscutum ritchiei*, was another placoderm swimming in the oceans at the same time as *Materpiscis* - about 380 million years ago during the late Devonian period. Scientists originally thought that the embryo in the body was actually the fish's last meal, until the *Materpiscis* discovery caused them to reexamine this finding.

Further studies at the Museum Victoria, carried out by a team headed by Dr. John Long, have revealed just how these and similar placoderm fish mated. Their pelvic fins were actually similar to those of today's sharks, which also mate by means of internal fertilization. Males possessed an extra lobe on these fins, which allowed them to transfer sperm directly to the female.

Placoderms as a group lived in the world's oceans for more than 70 million years, between 420 million and 350 million years ago. They were the dominant predators on the planet during this period, with their strong jaws helping them to seize prey. Their lineage ultimately died out completely, leaving no present-day descendants.