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The family of Freshwater eels (Anguillidae) are not only one of the most widespread groups of fish on Earth. Their lifecycle is also unique and the animal has fascinated people and scientists for millennia dating back to Aristotle. At present, 19 species is known, the majority in tropic regions. However, the discovery of their life cycle and migrations has all happened within the last 100 years and new species may still be discovered. They spawn in remote and nutrient-poor places in the sea, and still no human has ever witnessed reproduction in the wild. Their rice-sized hatchlings embark on an odyssey of up to 6,000 kilometres to find fresh or brackish water, where they grow for decades — reaching weights of more than 20 kilograms — only to return to the sea, where they spawn, die and sink into the abyss.

Although eels have been exploited as a high quality food for millennia, they cannot yet be cultured profitably. Thus, all traded eels are captured in the wild — and populations are plummeting. Species in temperate areas, including the American, Japanese and European eel, have become scarce, with populations dropping by more than 70-90% in the past four decades. European eels are now listed as "critically endangered" by the International Union for Conservation of Nature, a shocking development for a fish once found across all the accessible waters of Europe. Suggested contributors to their decline are many: loss of habitat, dams, fishing, introduction of parasites, pollutants and changes in ocean currents. These factors and our lack of knowledge about key stages of the eel life cycle make population management problematic and undoubtedly restoration of eel populations will be difficult.

However, the plight of temperate species has led to a surge in eel research in the past few years. Recent papers have described the first captures of eggs from Japanese eels as well as individuals that have spawned, the first description of the adult eel's oceanic migration behaviour and revealed the diet of newly hatched eel larvae (called leptocephali). The talk will give a historical overview of the most important discoveries in eel biology, bring you up to date on newest discoveries in eel biology and discuss? where science will go next to fully reveal the secrets of these fantastic fishes.

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