

Freshwater Eels – Creatures of Importance and Mystery

Presentation by Dr Don Jellyman

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Despite being told “eels were bad because they ate trout”, Don Jellyman retained his fascination for these fish and eventually joined the Marine Department.



New Zealand has three species of eel – Short- and Long-finned and an Australian Long-finned. “People are fascinated with large eels,” Don said, adding that “We needed to do more to protect these fish.”

“Eels form an important part of our eco-system,” he said. They had importance ecologically as biomass scavengers and as a customary food source for Maori. Don mentioned their recreational importance in regard to Scandinavians who came here to fish for eels on a catch and release basis. Commenting on commercial importance, he said almost all eel catches were sent overseas. Eels are a fishing quota species, with an annual catch of 400 tonnes.

In reference to their biology, Don said eels were marine species that invaded freshwater and they undergo complex migrations, spawning at sea once they reach their maximum size. They were adaptable feeders and, in the wild, lived in crevices and holes. Short-finned eels loved floods because “they could gorge on worms.”

Sex is determined by the environment. Where eel numbers are at low density and further inland, most were females, whereas where numbers are at high density, most are males. Males do not grow as large as females. Long-finned eels spawn in the vicinity of New Caledonia and Vanuatu from September to November. The eggs hatch into “leaf-shaped” fish before becoming glass eels which migrate at night in large shoals up rivers and as elvers they remained in freshwater “for years.” Eels grow approximately 1 cm a year and the adult stage lasts for decades – about 40 years for Short-finned and up to twice that for Long-finned. Eventually they reach the migrating phase. A Long-finned eel caught in Lake Rotoiti weighed 22kg and had reached 1.7m in length. They are efficient long-distance swimmers and did not feed while at sea to breed.

Don gave us some insights into customary Maori eel fishing techniques with photographs of spears, hināki (eel pots) and extensive eel weirs. A traditional fishery still exists at Lake Forsyth.

Eel habitat was affected by loss of wetlands, hydro-electric schemes and drain clearances. Answering a question in reference to public apathy on the fate of eels, Don had noted a “changing awareness.”

Some interesting eel facts:

*Eels have a sense of smell equivalent to that of a bloodhound.

*Eels are adept at finding the scent of blood – they can detect an amount equivalent to 1 mL in a volume 48 times that of Lake Taupo!

*Eels have large stomachs and will eat almost anything. They tend to grab and rip their food. Their food varies as they grow.

*A Long-finned eel can live for over 60 years.

*There are approximately 5000 glass eels in 1 kg.

*In the spawning grounds the eels remain at depths of 600 to 1000 m below the surface during the day, but come to the surface at night.

Allan Horwell