Scent of a lamprey, a novel population monitoring tool

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The pouched lamprey, Geotria australis, can be regarded as a "living fossil" and is the only lamprey species found in New Zealand. Aside from their intrinsic value for native biodiversity, lamprey have historically been a very important mahinga kai for Maori communities. However, populations are in decline and presently, lamprey are classified as "Threatened - Nationally Vulnerable" in the New Zealand Threat Classification. In order to manage and restore lamprey populations, a better knowledge of their distribution is required. However, suitable habitats are often in remote headwater streams; electric fishing is often ineffective at sampling larval lampreys (ammocoetes); and although adults spend over a year in freshwater before spawning, they are cryptic and cannot be captured in nets or through electric fishing outside of their upriver migration. To overcome these sampling limitations, we have developed, instream pheromone samplers as an alternative population monitoring technique. Pheromones are chemicals that pass between members of the same species that have inherent meaning. We have found that lamprey are the only species in New Zealand to release the chemical, petromyzonol sulphate, which is thought to form one of the pheromone cues used by adult lampreys to select spawning streams during their upriver migrations. This presentation describes recent field trials and discusses how the pheromone samplers could be used as a population monitoring tool, to determine the presence and abundance of ammocoetes, and thus infer the importance of different areas for adult spawning. This knowledge can be used in prioritising catchments for restoration and protection of lamprey habitats.