

Kōaro

Galaxias brevipinnis

OTHER NAMES:

Climbing galaxias, whitebait

THREAT RANKING

At risk: Declining

Sharing Pastoral Streams with Native Fish

New Zealand's long isolation has created a unique freshwater fish fauna with many species found nowhere else on earth. Our freshwater fish are taonga (treasures), and species that constitute our whitebait play an important role as mahinga kai, holding significant cultural, ecological and environmental value. In our streams, native fish rely on healthy, connected habitats that extend from shaded headwaters through to lowland waterways. This connectivity is important not only for species that live within pastoral environments, but also for those that need a clear pathway between freshwater and the sea to complete their life cycles. Farm waterways are a key part of this network, providing habitat for spawning, feeding and growth, as well as the connections between these areas. Understanding which fish live in your waterways is a rewarding first step toward sharing these spaces and supporting healthy, thriving fish communities.

Kōaro are exceptional climbers, using specialised fins to grip wet surfaces and climb waterfalls that stop many other fish.

Kōaro are one of five migratory galaxiid species found in New Zealand, alongside īnanga, giant kōkopu, shortjaw kōkopu, and banded kōkopu. Together (and with common smelt in some regions), their juveniles make up the whitebait catch.

Juvenile kōaro can be identified from the other galaxiid whitebait species by their fin position. The dorsal (back) fin starts noticeably further forward than the anal (underside) fin (Figure 1). As adults, kōaro

are slender, tube-shaped fish with light-coloured blotches that help them blend into rocks and the streambed (Figure 2).

Kōaro are also known as the climbing galaxias for their strong climbing abilities. Their pectoral (side) fins are larger than those of other whitebait species and are shaped to sit flat like feet. This orientation, along with a corrugated gripping texture, allows kōaro to attach to and climb wet surfaces.



Figure 1: Kōaro showing the dorsal fin starting well forward of the anal fin, a key identifying feature. Figure 2: Kōaro colouration.

Where do kōaro live?

Kōaro are native to New Zealand and are widespread throughout the country, occurring in streams, rivers, and lakes across both the North and South Islands, as well as Stewart Island and the Chatham Islands (Figure 3). They are also the only New Zealand freshwater fish found on the sub-Antarctic Auckland and Campbell Islands. Outside New Zealand, kōaro are also found in Australia.

Kōaro are strongly associated with upland and headwater habitats and are commonly found in cool, fast-flowing streams and rivers. Due to their exceptional climbing ability, they can penetrate further inland than other whitebait species, reaching remote headwaters and sites above natural barriers such as waterfalls.

They have been recorded more than 300 km inland and at elevations exceeding 1000 m above sea level, making them one of the most widely distributed and inland-reaching native fish species in New Zealand.

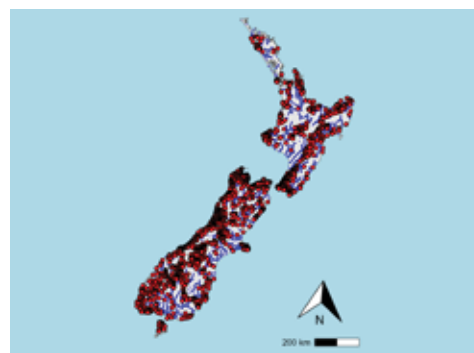


Figure 3: National distribution of the kōaro. Data represent records held in the New Zealand Freshwater Fish Database (NZFFDB) April 2026.

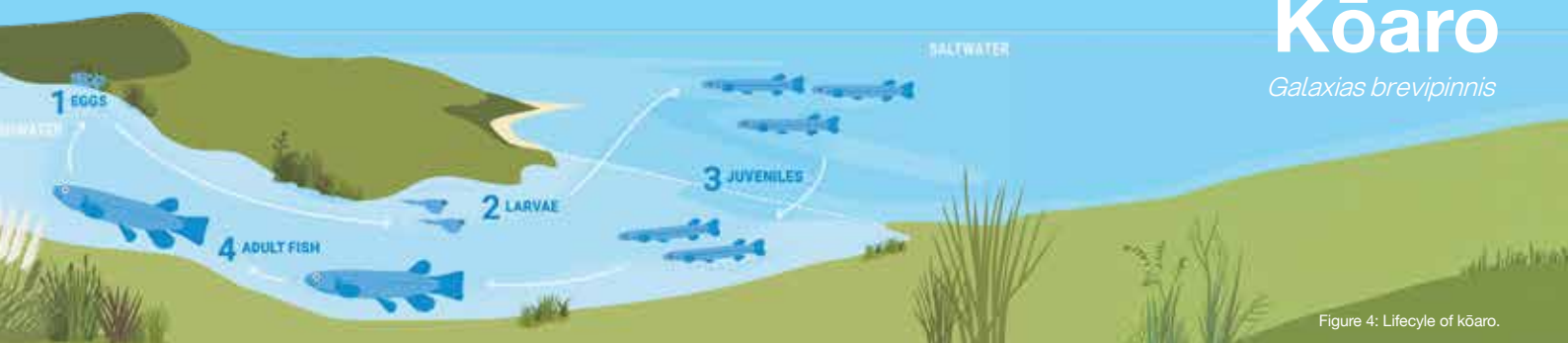


Figure 4: Lifecycle of kōaro.

Lifecycle of the kōaro

Kōaro are amphidromous, meaning their larvae are washed out to sea soon after hatching and return to freshwater a few months later as juveniles, known as “whitebait” (Figure 4). This lifecycle is shared with giant kōkopu, banded kōkopu, and shortjaw kōkopu. Īnanga follow a similar pattern but use different spawning habitats.

Once back in freshwater, juveniles migrate upstream to find suitable habitat where they grow to adulthood. Spawning takes place wherever adults are present, with two strategies observed. Eggs are laid among tightly packed gravel and cobble substrates. In some cases, eggs remain fully submerged at base flows, while in others they are laid during elevated flows and develop out of the water, requiring subsequent high flows to inundate them and trigger hatching.

Kōaro can also complete their entire lifecycle within freshwater. In these cases, larvae rear in lakes before juveniles migrate back into streams to grow to adulthood. This flexibility helps kōaro persist in catchments where access to the sea has been lost or restricted.

What kōaro need in streams

Kōaro are habitat specialists that prefer cool, fast flowing streams with coarse substrates. They are most commonly found in forested catchments and are seldom present in pastoral streams.

They are strongly associated with high velocity habitats such as rapids, runs, and riffles, where well oxygenated water flows over cobble and boulder substrates. The spaces between these substrates provide important refuge and feeding habitat but can be filled by fine sediment, reducing habitat quality.

Although rarely resident in lowland pastoral streams, these waterways are important migration corridors that allow kōaro to reach upland headwaters. Maintaining cool, shaded streams with intact margins and good habitat helps kōaro move upstream and reduces predation risk.

Kōaro feed mainly on aquatic insects associated with the streambed but will also take drifting invertebrates in fast flowing water.



Photo credit: Michele Melchior, Rachel Crawford, Emily White, DairyNZ

» Actions you can take to make your local stream a better place for kōaro

- Fence streams to exclude stock and reduce bank erosion and damage to streambeds.
- Plant and maintain native riparian vegetation to provide shade and keep stream temperatures cool. Riparian planting also stabilises banks, adds habitat complexity (such as roots and woody debris), and supplies organic matter. Shading can also reduce nuisance weed growth and the need for mechanical channel maintenance, which can disturb benthic habitats.
- Retain logs, boulders and undercut banks as these provide important refuges for migrating kōaro.
- Improve fish passage at instream structures such as culverts, weirs and floodgates. Ensure structures are correctly sized and installed so they do not create drops, barriers, excessive water velocities or scouring that restrict kōaro movements.

Refer to regional DairyNZ guidance & NZ Fish Passage Guidelines for more information