

IMPACTS OF SEDIMENT ON KAHAWAI



Sediment can affect mahinga kai by influencing habitat, behaviour, feeding, growth and survival.

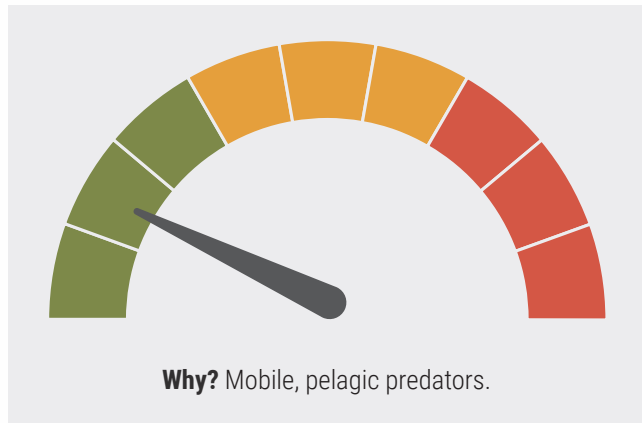
Background on kahawai (*Arripis trutta*)

Kahawai are found throughout New Zealand waters but are more common around the North Island and on the east coast of the South Island¹. Kahawai (i.e., 'Australian salmon') are also found in south-eastern Australia². Inshore schools of adult kahawai mainly feed on small, regionally-common, pelagic fish (e.g., smelt, anchovy and sprats) and planktonic crustaceans^{3,4}. They also feed on small fishes (e.g., whitebait and yellow-eyed mullet)⁵, benthic crustaceans (e.g. crabs) and molluscs in estuaries and at river mouths throughout the year^{6,7}. Kahawai mature at ~400 mm after about five years⁸ but they can live for over 25 years⁹ with some individuals reaching 790 mm¹⁰ in length.

Kahawai (*Arripis trutta*)



Kahawai sensitivity to elevated sediment



Low Medium High

Prepared by Mike Hickford, Michele Melchior and Melanie Mayall-Nahi from NIWA for Our Land and Water National Science Challenge, March 2023. Image of kahawai by NIWA.

For references and further information see niwa.co.nz/sediment-impacts

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Effects of suspended sediment on kahawai

Habitat	Turbid water may restrict areas where kahawai can feed effectively. Larger kahawai appear to preferentially feed at the mouth of rivers and estuaries ⁷ . It is possible that better water clarity in these areas improves the feeding success of kahawai ¹¹ , which are visual predators ¹² . The effects of turbidity on juvenile kahawai (< 2 years old), which use estuaries and shallow bays as nursery habitats ¹³ , are unknown but juveniles are very uncommon in turbid, upper-estuary areas ¹¹ .
Behaviour	Kahawai are obligate schoolers ¹⁴ ; the feeding success of individuals is improved by schools of kahawai herding and concentrating prey species ¹⁵ . This behaviour requires kahawai to be able to see each other and the prey ¹² , and the prey to be able to see the schooling kahawai ¹⁶ . Turbid water may cause a breakdown in this feeding behaviour.
Feeding	Kahawai are visual predators ¹² , so turbid water may reduce their ability to school and their feeding effectiveness. When feeding in schools, kahawai feed mainly on prey in the water column, but when feeding alone, kahawai switch to preying on benthic crustaceans and fishes ¹⁷ .
Growth	Direct effects unknown.
Survival	Direct effects unknown.

Effects of deposited sediment on kahawai

Habitat	Mostly, adult kahawai are schooling, pelagic feeders that take their prey from the water column ¹⁷ . It is unlikely that deposited sediments will directly impact their coastal habitats; juveniles are already uncommon in muddy, upper-estuary areas ¹¹ .
Behaviour	Adult kahawai mainly feed by schooling and taking their prey from the water column ¹⁷ . It is unlikely that deposited sediments will directly impact their feeding behaviour.
Feeding	Direct effects unknown.
Growth	Direct effects unknown.
Survival	Direct effects unknown.

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Further information:

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