# IMPACTS OF SEDIMENT ON PĀTIKI MOHOAO BLACK FLOUNDER

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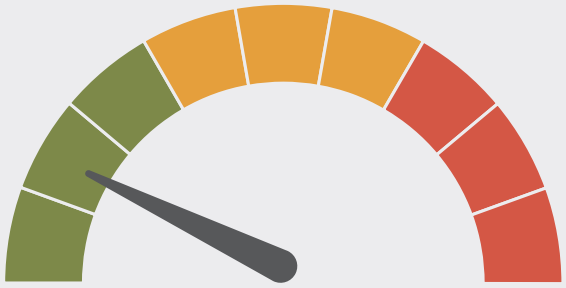
Sediment can affect mahinga kai by influencing habitat, behaviour, feeding, growth and survival.

## Background on pātiki mohoao – black flounder (*Rhombosolea retiaria*)

Black flounder are endemic and found throughout Aotearoa New Zealand[1]. They are unique in the flatfish family because they spend the remainder of their life in freshwater after a marine larval phase[2]. They are primarily a coastal species inhabiting estuaries, lowland lakes and rivers[3, 4] but they can penetrate long distances inland (>100 km) in rivers that are not too steep[5]. Black flounder are carnivorous and feed on a variety of bottom-dwelling aquatic insects[6] and molluscs; they are also known to feed on migrating whitebait[7]. Black flounder grow quickly. They are around 200 mm long when one year old and live for over three years[8]. Females mature after around two years[8].

### Pātiki mohoao black flounder (*Rhombosolea retiaria*)

### Pātiki mohoao black flounder sensitivity to elevated sediment



**Why?** Can thrive in a range of habitats.

Low Medium High

*Prepared by Mike Hickford, Michele Melchior and Melanie Mayall-Nahi from NIWA for Our Land and Water National Science Challenge, April 2023. Image of pātiki mohoao black flounder by Dr R M McDowall.*

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

# IMPACTS OF SEDIMENT ON PĀTIKI MOHOAO BLACK FLOUNDER

| Effects of suspended sediment on black flounder | |
|---|---|
| **Habitat** | The specific habitat requirements of black flounder are not known but their distribution includes highly turbid coastal lakes, such as Te Waihora/Lake Ellesmere, where they are very abundant[9, 10] . |
| **Behaviour** | Direct effects unknown. However, highly turbid water does not prevent large numbers of black flounder fry (<15 mm) entering the outlet of a coastal lake when it is open to the sea[2]. |
| **Feeding** | Direct effects unknown. Flounder species are mostly nocturnal, and they are mainly ambush predators – they do not chase their prey, instead, they wait for it to come to them. Black flounder in a highly turbid coastal lake appear to be feeding effectively because their growth rates are like those elsewhere[2, 9, 11]. |
| **Growth** | Direct effects unknown. However, black flounder fry and adults grow quickly in a highly turbid coastal lake[2, 9]. |
| **Survival** | Direct effects unknown. Nevertheless, large black flounder (>250 mm) are resident and abundant in a shallow coastal lake that has a long history of very high turbidity[9]. |

| Effects of deposited sediment on black flounder | |
|---|---|
| **Habitat** | Black flounder are mobile and are equally abundant over a broad range of substrate types (e.g., soft clay, mud, and sand) in a heavily sedimented coastal lake[9]. |
| **Behaviour** | Direct effects unknown. |
| **Feeding** | Direct effects unknown, but black flounder fry and adults appear to be feeding effectively in a coastal lake with a fine substrate bed because their growth rates are equivalent to elsewhere[2, 9]. |
| **Growth** | Direct effects unknown. Nevertheless, black flounder fry and adults appear to grow equally quickly in a coastal lake with a fine substrate bed as elsewhere[2, 9]. |
| **Survival** | Direct effects are unknown, but large populations of adult black flounder (>220 mm) have been recorded in a heavily sedimented coastal lake. This suggests that their survival is relatively unimpacted by deposited sediments. |

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## Further information:


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