There are two members of the Mugilidae (or mullet) family in New Zealand, the yelloweyed mullet and the grey mullet. The mullet family has a worldwide distribution in rivers and seas of all regions except the Arctic and Antarctic Oceans, with about 70 species in total. The two species found in New Zealand are not really freshwater fish, but both are common in river estuaries and they can penetrate upstream for several kilometres in large rivers.

All mullets have two dorsal fins, and the first one is tall with four obvious spines. They also have large, easily dislodged scales. New Zealand mullets belong in two separate genera based on the presence of an adipose eyelid. This is a thick fleshy eyelid that forms an oval, vertical slit over the pupil on the grey mullet. For amateurs, however, the bright yellow eye of the appropriately named yelloweyed mullet is probably the easiest way to distinguish the two species.

Yelloweyed mullet occur all around New Zealand and they are also found in western and eastern Australia. They are never found far from the coast. Yelloweyed mullet are very familiar to any youngster who has spent time fishing off wharves or in harbours, competing with the spotty as the most easily caught fish. Fish 150–200 mm long are commonly caught, although fish of up to 500 mm have been reported. Yelloweyed mullet may spend considerable time in fresh water, for example they are found at all times of the year in Lake Ellesmere south of Christchurch, but their spawning takes place in the sea.