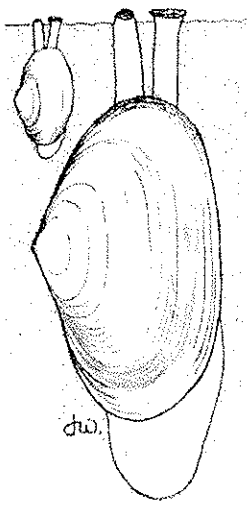
Pipi Fact Sheet

The pipi (*Paphies australis*) is a common burrowing bivalve molllusc and distributed around the New Zealand coastline, including the Chatham and Auckland Islands. Pipi are characteristic of protected beaches, bays and the mouths of estuaries and are tolerant of moderate wave action. Pipi prefer mud to sand and commonly inhabit coarse shell sand substrata in bays and at the mouths of estuaries or near channels with fast flows, where silt has been removed by waves and currents. A lack of tolerance to dilute sea water and fine sediments generally means they aren't found further into estuaries.

The pipi has a triangular / oval shaped shell with a smooth surface. The shell is coloured creamy white and sometimes patchily stained with orange, brown or black from the sediment. Pipi commonly grow up to 75 mm long by 40 mm wide on sandy exposed beaches but they are likely to be smaller on sheltered intertidal sand / mud flats (less than 40mm).



Pipi usually burrow 2-3 cm below the surface and are generally found below the mid tide line. They have a broad tidal range, occurring intertidally and subtidally in high-current harbour channels to water depths of at least seven metres.

Pipi are suspension feeders and feed by removing particles from the water column. When the tide is in, a pair of siphon tubes protrudes above the sand. The pipi draws water in through one siphon to strain out microscopic plants (phytoplankton) before pushing the filtered water out through the other siphon.

Because pipi feed by removing particles from the water column they are likely to be affected by changes in the suspended sediment. Laboratory studies by NIWA have found adverse affects of increased suspended sediment on the condition and reproductive output of pipi. In the laboratory, feeding rates of pipi decreased as the concentration of suspended sediment increased.

Pipi reproduce by free-spawning (releasing eggs and sperm into the water column), and most individuals are sexually mature at about 40 mm shell length. The production of gametes (eggs and sperm) begins in autumn, and by late winter many pipi have mature, ready-to-spawn gonads. Pipi have an extended breeding period from late winter to late summer, with greatest spawning activity (release of gametes) occurring in spring and early summer. Fertilised eggs develop into planktotrophic larvae (larvae that feed in the water column), and settlement and metamorphosis (change) to the recognizable pipi form occurs about three weeks after spawning.

Larvae settle out of the water column and metamorphose (change) into juveniles higher on the shore than the adult populations. Juvenile pipi subsequently move gradually down the shore as they grow. Adult pipi are usually found at the low tide mark and deeper (subtidal). This change in position on the shore increases their period of submergence and thereby increases the time available for feeding.

Pipi growth dynamics are not well known. Initial growth appears to be fairly rapid, at least in dynamic, high-current environments such as harbour channels, with growth rates slowing as the shellfish ages. There is a strong seasonal component to growth, with rapid growth occurring in spring and summer, and little growth in autumn and winter.

Little is known about the natural mortality or maximum longevity of pipi. It has been suggested that pipi are unlikely to live much more than 10 years.