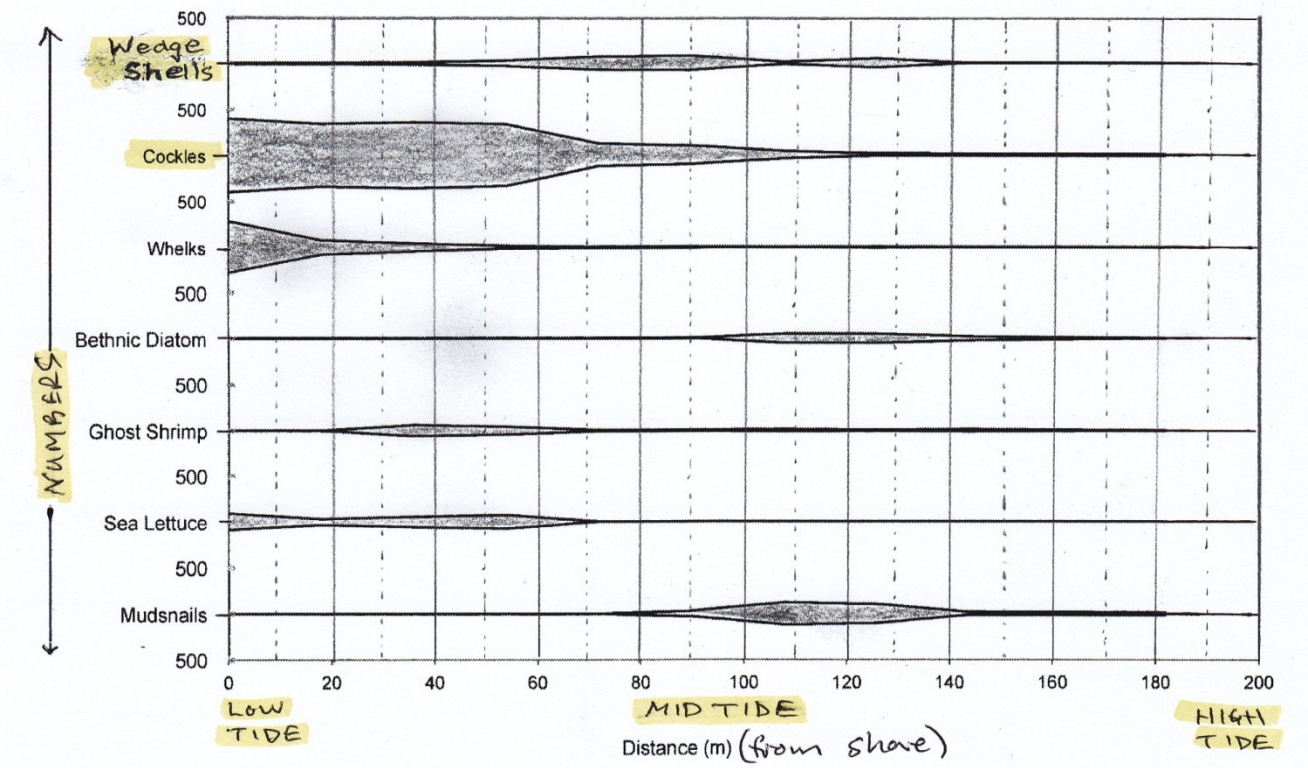
Please note – These are extracts from one student's response

Class Results: Kite graphs showing distribution of species from low tide water mark at Mahara Bay Estuary on 26 February 2014



The collated class results came from field work done by 10 groups at Mahara Bay estuary. Transect lines were placed at right angles to the low tide and samples taken at stations every 20m using a 0.5m x 0.5m quadrat. At each station, all organisms on the surface were identified and counted, before digging up the whole quadrat to a depth of 0.1m and counting organisms found in that. We recorded substrate and habitat type at each station.

My investigation focus was to study the community pattern in the Mahara Bay. We observed a variety of life there, including predatory birds like oyster catchers.

2

Mahara Bay is mainly mudflats that came from when mud was deposited by tides or rivers. The main environmental factor affecting life there is the tidal movement.

In the mudflats there were a variety of patterns that I observed from the organisms (living things) in the estuary.

1

The obvious pattern shown by the living things is zonation. This is because there are clear areas of living things from the low to the high tide. Things such as tide and exposure affect the mudflat and things that live in it. There are also things like competition for food and space.

2

While there were lots of other species, the two species that I chose to study in this community were cockles (*Austrovenus stuchburyi)* and wedge shells (*Macomona liliana*). Other interesting species that showed the zonation were mud snails, sea lettuce and whelks. All the organisms were related in some way in a food web. They need each other to live.

In general, as you get closer to the low tide the number of organisms increase.

1

We found a very small number of cockles in the high tide. As you head towards the low tide, the number of cockles rapidly increases. Cockles were found in the low and mid tide. They mainly live below the surface in muds in the mid tide, as shown by the graph.

Cockles need food and oxygen to survive. They have adaptations to carry out gas exchange and feed. They have gills that carry out gas exchange underwater when the tide is in. The gills do two jobs – take in oxygen and filter out fine food particles. Cockles are filter feeders, found just below the surface of the mud with siphons opening just above. Oyster catchers prey on cockles for their food. To stay away from predators the cockle has a muscular foot which it uses to bury downwards in the mud.

3

1

Wedge shells were found mainly in the mid tide. Wedge shells are also filter feeders, but feed on the organic matter on the mud beds as well. Their distribution overlaps with cockles, meaning there is competition between them.

Wedge shells have a wide range of tolerance, as they were found in higher numbers in the mid-tide. They are better suited to live and feed in this area as it is covered by seawater less of the time.

3

Overall my group found that there was a clear pattern present at Mahara Bay. The two animals we chose to study showed this. The cockle has special features to live in its area. It needed heaps of water to filter feed and that is why it is found in the low tide. The cockle had to fight for space and that is why some cockles were found in the mid tide area.

3