

Generally speaking Armer's Beach is sheltered but the heavy north-easterly seas that can occur off Kaikoura sometimes disturb it considerably. The author can recall a whale skull that was almost completely buried in the main part of the beach in 1962 being covered in 1963. Presumably it was subsequently exposed because it now decorates the entrance to the nearby farm. Further, there was very considerable erosion between September, 1965, and January, 1966, that caused great areas of siltstone reef to be laid bare, especially in the region of Transect II, and a mid-littoral belt of surface cobbles and pebbles to appear upon what was left of the sandy main part of Armer's Beach.

TIDAL OBSERVATIONS

These are of interest not only in direct relation to this work but in regard to the published tidal corrections based on predicted Lyttelton tides.

Conditions for observation were good: wind and sea were negligible but a slight swell caused surges in level. Surge was estimated as +3.1 inches and -1.4 inches relative to true water level as observed at Transect III. Tidal levels were taken as the most characteristic extreme levels during some 30 minutes' observation of each turn of the tide.

Applying the 30 minutes correction to Lyttelton tides to obtain predicted Kaikoura times it was found that observed tides were either when predicted or, more usually, 5-10 minutes earlier. (Further experience at Kaikoura suggests that tidal times are from 12 to 30 minutes later than Lyttelton, typically 20 minutes later.)

TABLE II.—Tidal levels and ranges in feet as predicted (relative to tidal datum) and as observed (relative to special datum) with calculated discrepancy of observation from prediction. For predicted levels the full spring tide Kaikoura corrections have been applied as in the 1965 N.Z. Tide Tables.

Date	Predicted			Observed			Discrepancy from Prediction		
	H.W.	L.W.	Range	H.W.	L.W.	Range	H.W.	L.W.	Range
12.5.65	5.7	1.1	4.6	6.6	1.1	5.5	+0.9	0.0	+0.9
13.5.65	5.8	1.0	4.8	5.7	0.4	5.3	-0.1	-0.6	+0.5
14.5.65	5.8	1.1	4.7	5.9	0.6	5.3	+0.1	-0.5	+0.6

Tidal levels were observed on the transects at the dates shown. The correspondence between the three observed tidal ranges (Table II) suggests that observation was quite accurate.

Observed ranges were 0.5 to 0.9ft greater than predicted and this discrepancy appears to be equally due to rise above predicted high tide and drop below predicted low tide. This suggests that the special datum adopted is effectively level with tidal datum.

The excessive observed ranges suggest that mean high and low tide Kaikoura corrections (e.g., as in the Tide Tables for 1964) would have given truer predicted levels on these dates than the spring tide corrections indicated by the Tide Tables for 1965. Lack of any other pattern in the discrepancies suggests purely local tidal anomalies that could not be met by constant corrections.

FAUNAL DISTRIBUTION

Macrofaunal distribution is represented quantitatively in Figures 2, 3 and 4. It is clear that, as at Gooch's Beach, the beach fauna divides into that of the lower intertidal zone and that of the supralittoral fringe with a barren region between.