U. SHORES

Field Note U8c2. Arniston shores – Geomorphological features – Abrasion tables

Abrasion tables at Arniston East Shore. View to the north.

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Abrasion tables are cut by the relentless action of the waves, with the diurnal, tidal changes of sealevel (Figure 1).

Figure 1. Satellite image of abrasion tables at low tide.

Some of the abrasion tables are detached from the shore (Figure 2).

Figure 2. Top and bottom - abrasion tables off the East Shore of Arniston.

The abrasion table can be best explored during low tide (Figure 3).

Figure 3. Abrasion tables at low tide.

Some abrasion tables are nearly perfectly flat and display tilted bedding (Figure 4A).

Figure 4A. Bedding on the surface of an abrasion table.

Some abrasion tables display crossbedding (Figure 4B).

Figure 4B. Top and bottom: crossbedding on the surface of abrasion tables (probably the result of a collapsed block of a sea cliff).

The abrasion tables are at the level of the contact between the Klein Brak Formation and the overlying Waenhuiskrans Formation. The abrasion table surface can be smooth with some seaweeds, or coarse with algae growth (Figure 5 to 7).

Figure 5. Top and bottom – different abrasion table surfaces.

Some abrasion tables are smooth, others are rugged (Figure 6).

Figure 6. Top and bottom – different appearances of abrasion tables.

There is a multitude of dissolution pools on the abrasion tables (Figures 7 and 8).

Figure 7. Top and bottom – dissolution pools.

Figure 8. Top and bottom – dissolution pools on an abrasion table, of a different type of rock than that in Figure 7. These pools are further enlarged (mechanically) by the waves, which swirl the pebbles which are trapped in them.

Fluting is a process of differential weathering and erosion by which an exposed well-jointed coarse-grained rock develops a corrugated surface of flutes, especially the formation of small-scale ridges and depressions by wave action. Some abrasion tables exhibit fluting (Figure 9).

Figure 9. Fluting occurs on some abrasion tables.

Features, which are the result of fluting, and the formation of tiny dissolution pools can be seen along the Arniston Shore (Figure 10).

Figure 10. Shore-perpendicular fluting with tiny dissolution pools occur on some abrasion tables.

Fluting also took place inside the Waenhuiskrans cave (Figure 11).

Figure 11. Fluting of the Waenhuikrans Cave floor.

B***arrage pools*** with rims built by algae, can be found on some abrasion tables (Figure 12).

Figure 12. Barrage pools on abrasion tables near Arniston.

The lateral changes in the appearance of the abrasion table surface occur, due to lateral changes in the lithology of the Klein Brak Formation (Figure 13).

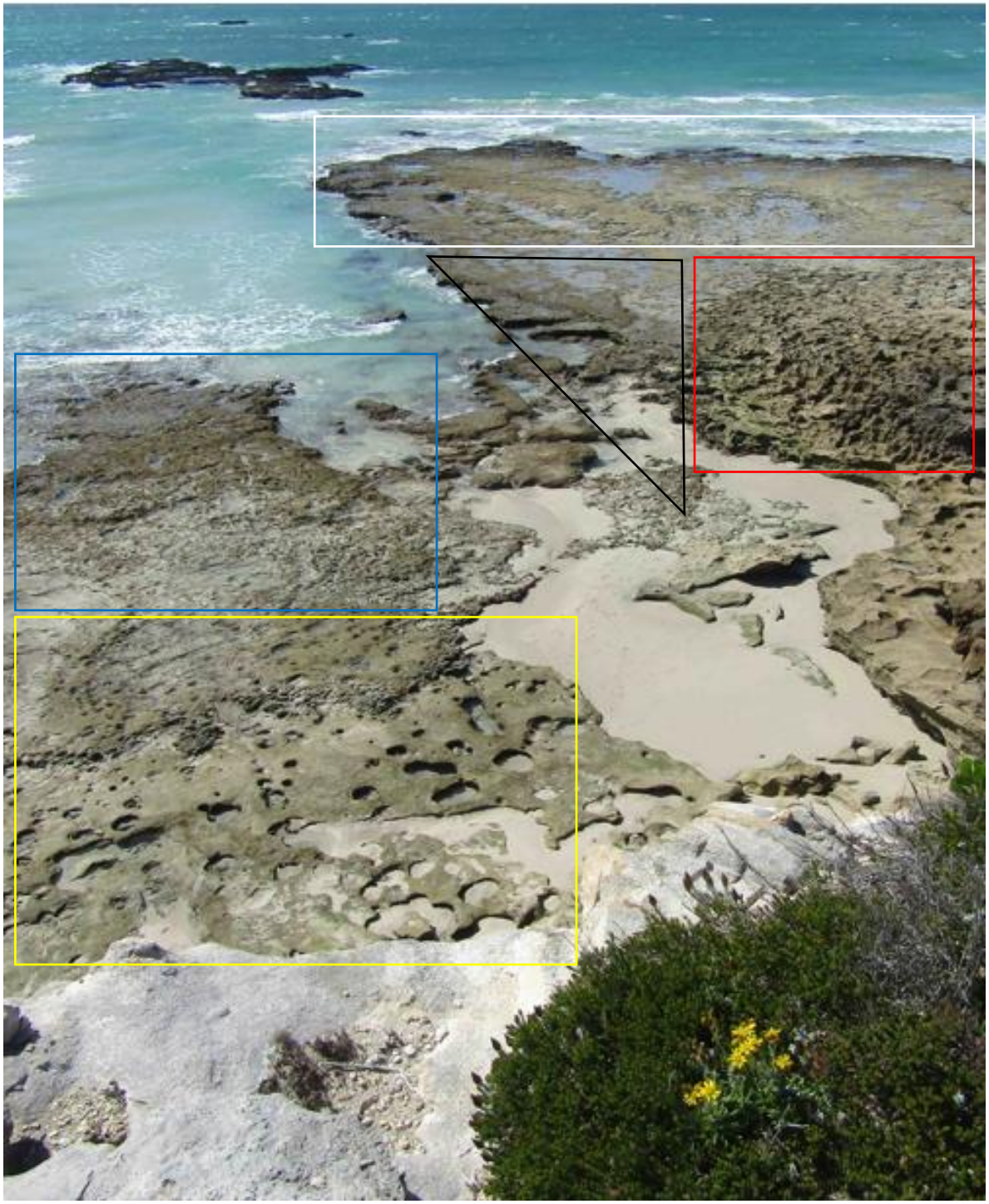

Figure 13. Five different appearances of the abrasion table surface in an area which measures ~15x15 m. Boxes represent the approximate confines of: yellow – mini dissolution pools; blue – algae; black – small barrage pools; red – low, sharp pinnacles; white – big dissolution pools.

