

# CHW Chinaman Wells Land System

Low lying marine and coastal sediments

**Area:** 26.2 km<sup>2</sup>

**Landscape:** Low lying marine and coastal sediments (St Kilda Formation) forming a basin, between the plains to the east and the rising land of the Point Pearce peninsula to the west. The system has been covered by a shallow sea in very recent geological times. There are shelly sediments of marine origin, often mixed with loamy to light clayey alluvial/lacustrine deposits; calcrete which is derived from old wind-blown calcareous sediments; and more recent carbonate sand deposits on dunes and flats.

**Annual rainfall:** 365 – 370 mm average

**Main soils:**

- N2** Saline soil (around 36% of area)
- H1** Carbonate sand (around 25% of area)
- B1** Shallow carbonate sand to highly calcareous sandy loam on calcrete (around 17% of area)

*Note: 22% of area is sub-tidal flat with no practical soil*

**Main features:** The system is almost entirely non arable. Low lying areas are saline due to the presence of a saline watertable, are seasonally waterlogged, and some areas are at risk of flooding (tidal and otherwise). Low sands dunes have a high wind erosion potential and are highly infertile. Nature conservation is the prime concern in this system.

**Soil Landscape Unit summary:** Chinaman Wells Land System (CHW)

SLU	% of area	Main features
WGD1 WGE1 WGH1 WGJ1 WGN1	0.5 2.4 1.0 1.6 0.7	Coastal deposits dominated by coastal dunes composed of shell sand. Main soils: <i>carbonate sand H1a</i> . With <i>shallow carbonate sand on calcrete B1</i> in some areas. <b>WGD1</b> – coastal dunes. <b>WGE1</b> – low jumbled dunes and sand spreads and low coastal dunes. <b>WGH1</b> – low coastal dunes with a few highly saline swampy depressions <b>WGJ1</b> – jumbled coastal dunes and low dunes with some salinised coastal flats. Probably including some <i>shallow carbonate sand on calcrete B1</i> on flats. <b>WGN1</b> – low coastal dunes or sand spreads overlying coastal slopes; with some narrow tidal beach areas (slopes 0-15%). Probably including some <i>shallow carbonate sand to highly calcareous sandy loam on calcrete B1</i> .
WKR1 WKR4 WKU2 Wku1	6.3 8.9 4.0 3.1	Coastal deposits dominated by flats composed of carbonate sand. Main soils: <i>carbonate sand H1a</i> , <i>shallow carbonate sand to highly calcareous sandy loam on calcrete B1</i> , and possibly some <i>highly calcareous sandy loam A1</i> . <b>WKR1</b> – non arable salinised flats with a few very low dunes and a few highly saline depressions. <b>WKR4</b> – semi arable salinised flats (approx. 40% arable): a series of very low coastal dunes. <b>WKU2</b> – mostly non arable land (approx. 10-20% arable) with salinised flats and some low coastal dunes <b>Wku1</b> – non arable land with salinised flats and low coastal dunes and highly saline swampy depressions.
WLR1	6.1	Coastal deposits dominated by flats composed of shell grit and carbonate sand. Main soils: <i>shell grit carbonate sand H1b</i> grading to <i>carbonate sand H1a</i> . Possibly with some <i>shallow carbonate sand on calcrete B1</i> .



		<b>WLR1</b> – non arable salinised flats with some very low dunes.
WN-	0.9	Coastal swamps and tidal areas.
WO-	37.3	Main soils: <i>saline soil N2</i> . With <i>shallow carbonate sand on calcrete B1</i> on salinised flats.
WQ-	1.8	<b>WN-</b> – saline coastal swamps/flats.
WT-	2.9	<b>WO-</b> – highly saline coastal swamps with numerous drainage channels in the main unit, and with some salinised flats: mostly covered in samphire.
WU-	22.4	<b>WQ-</b> – backswamp with a mixture of extremely saline bare depressions and highly saline samphire covered depressions/flats, and some salinised flats. <b>WT-</b> – tidal flats with drainage channels: mostly samphire covered. <b>WU-</b> – tidal/subtidal flats

### Detailed soil profile descriptions:

#### Main soils:

- N2** *saline soil* [Salic-Hypersalic Hydrosol].  
Highly calcareous lacustrine/alluvial silty loams to silty light clays which typically overlie sandy marine sediments with shell fragments. There can be alternate layers of lacustrine/alluvial and marine sediments. Found in highly saline swamps; typically samphire covered.
- H1** *carbonate sand* [Shelly Calcarosol-Rudosol]
- H1a** deep to moderate depth soils with grey brown sand grading to light brown, pale brown or very pale brown sand. Profiles are dominantly composed of carbonate sand particles. Soils can be underlain by calcrete at moderate depth. Found on low sand dunes and some flats.
- H1b** a variant type with abundant shell grit. These can be found on coastal flats, seaward of coastal dunes.
- B1** *shallow carbonate sand to highly calcareous sandy loam on calcrete*.  
[Petrocalcic Shelly Calcarosol-Rudosol with some Petrocalcic Supracalcic Calcarosol]  
Carbonate dominant sand overlying calcrete at shallow depth. Or a highly calcareous loamy sand, sandy loam, or occasionally loam or clay loam, overlying calcrete at shallow depth. Salinised variants of these soils occur on the lowest lying flats.

**Further information:** [DEWNR Soil and Land Program](#)

