**East Coast Cape Barren Island Lagoons Ramsar Site**

**RIS additional information – special geomorphic components**

Specific features identified in the East Coast Cape Barren Ramsar Site as key geomorphic components that influence the diversity of wetland types and conditions (from Dunn et al. 2010) are:

Small low energy estuarine systems. These barrier-impounded systems are flushed by intermittent fresh water inputs from shallow, frequently dendritic stream channels and are represented by Thirsty Lagoon, Little Thirsty Lagoon, Little Creek and two unnamed systems. Spits and bars have formed at the entrances to these estuarine systems, suggesting intermittent flushing by marine waters and some isolation from marine influence for long periods.

Impounded lagoons. In the Ramsar site these are generally located inland of shore parallel dunes or beach ridges. A string of these lagoons occurs in the north of the site. These lagoons may be the result of deflation basins originally formed during colder climatic stages, subsequently becoming impounded. There is marked variation in depth of basin and duration of inundation between the lagoons. Some lagoons contain fresh water, others are brackish to hypersaline.

Deflation basins. There are several lagoons, mainly in the southern part of the site, formed predominantly in response to deflation by wind at the site, including lagoons 3338, 2338, 329, 341 and 335 (Dunn et al. 2010)). Lagoon 341, covering 33 hectares in the south end of the Ramsar Site near Jamiesons Bay, is the most obvious example of a deflation basin and is possibly of Pleistocene origin. This lagoon has a lunette and is of at least regional significance as a representative example of this landform, and possibly outstanding given its condition (Ian Houshold, in ECD).

Deflated plains. These features are formed by wind reducing the dune surface to either ground water level or to bedrock, forming low lying areas that are subject to inundation for variable periods. The distribution of wetted areas and degree of inundation is not documented for the Ramsar site. The deflated plains have a network of dendritic drainage channels that originate in the Mount Kerford range and are particularly evident in the northern portion of the site. The drainage channels disperse water across the deflated plains after effective rainfall. The moist conditions of the plains may be enhanced by groundwater flow lying on impermeable bedrock or subsoils.

Drainage channels. These originate in the ranges external to the Ramsar Site and become low energy stream capture channels on the low gradient plain. The channels that run through the sandy sediments are typically deeply scoured whereas the channels in the deflated plains typically form only shallow indentations. The channels are more numerous in the northern portion of the Ramsar site, dispersing fresh water flow across the wetlands of the plain, then subsequently reforming into single channels and draining into impounded lagoons or estuaries. Some channels are lined with vegetation. Some channels may be barred by sediment dams with resulting formation of organic soils.

Polygenetic wetlands. These wetlands are a mixture of dune (or beach-ridge) barred lagoons and deflation basins. Examples of these wetlands mostly occur in the northern half of the site and all are good representative examples because of their good condition, including the two Flyover Lagoons (wetlands 330 and 331).