

5 ENVIRONMENTS WITHIN THE STUDY AREA

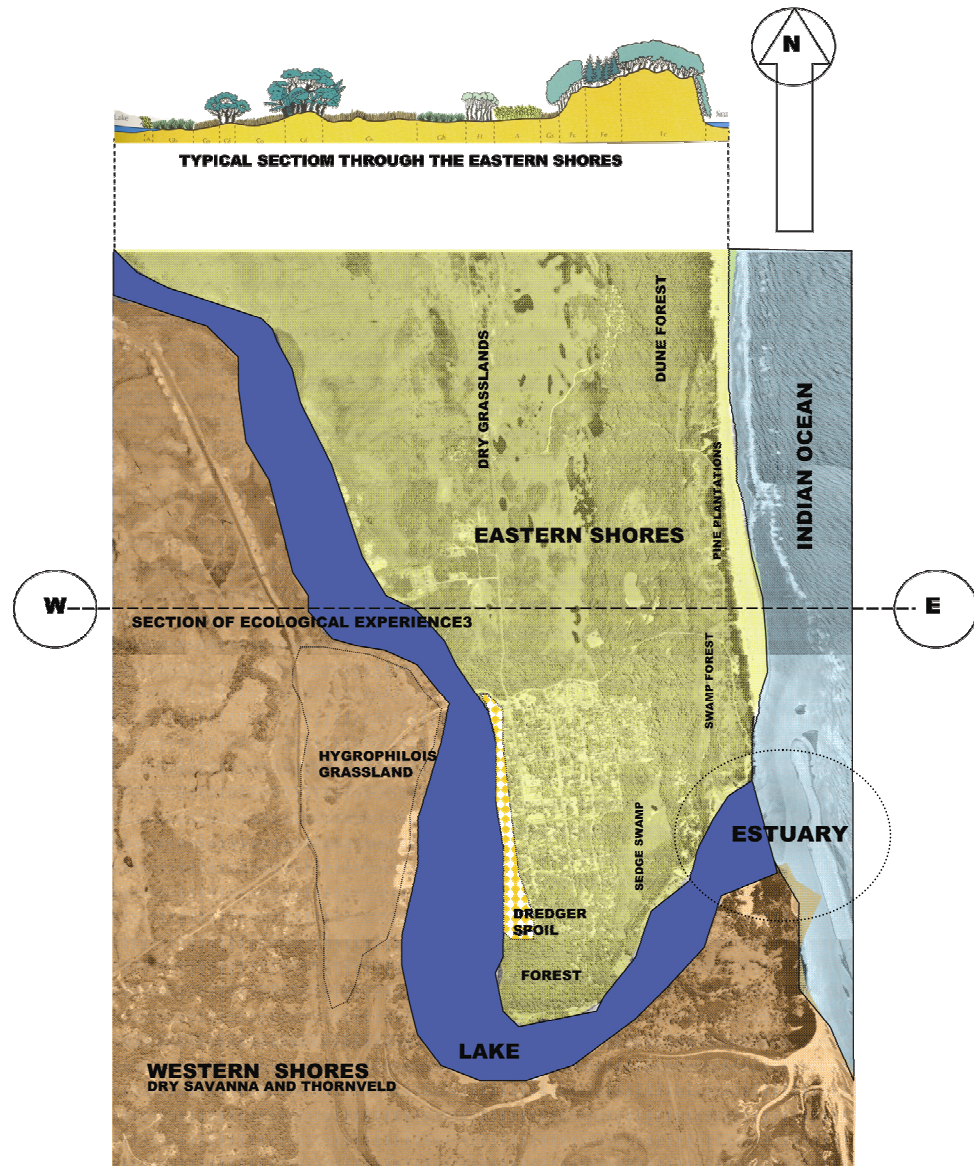
5.1 THE EASTERN SHORES

5.1.1 East- West section of Ecological Experience

The landmass separating the lake and the ocean is referred to as the Eastern Shores. The Eastern Shores are made up of several distinct vegetation types, all arranged in a linear pattern running North-South and parallel to the landform. Therefore by cutting an East-West section perpendicular to the landform a line of ecological experience is formed. This line will cut through fourteen distinct vegetation types, as discussed in Taylor (1991:21), and take a visitor on an educational journey from the lake habitat to the open ocean in approximately 1500 meters.

5.1.2 Sunrise – Sunset

This Eastern Shores allows for breathtaking vantage points to watch the sun rise over the Indian Ocean in the East and sunsets over the lake in the west.



5.1.3 Estuary Mouth and Maphelane

The estuary, as described by Taylor (1992:32), is a connection between the lake and ocean. It is an ecologically diverse area playing a role in the reproduction of several species of fish and other animals. From here one also has an outstanding view of Maphelane to the south. It is the second highest vegetated dune in the southern hemisphere. The estuary could also act as a connection between St.Lucia and Maphelane for visitors.

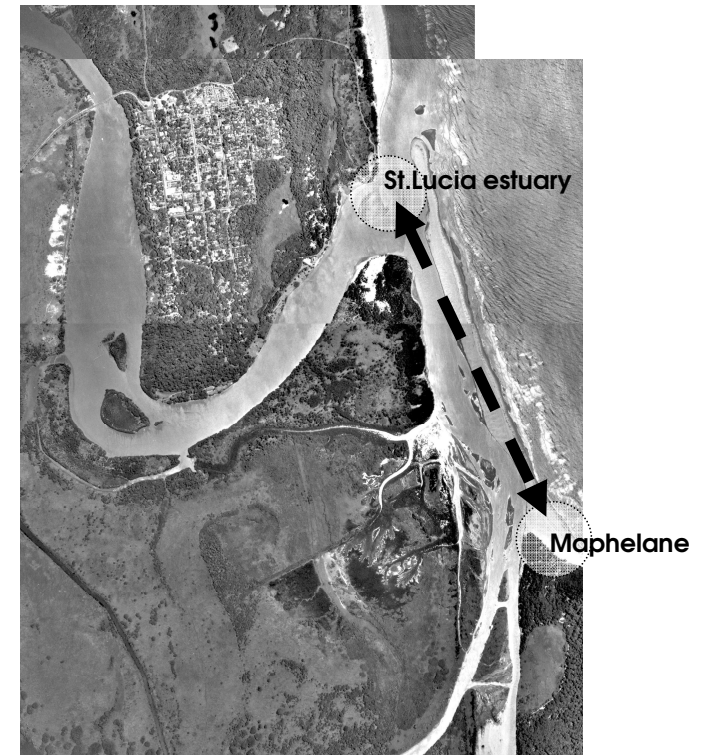
Maphelane is currently only accessible by vehicle and implies a 100 km detour of badly maintained road. A pleasure boat connection will enable visitors to reach Mapelaan within ten minutes.

At the moment only KwaZulu-Natal Wildlife staff members are transported by boat to Maphelane. The tourism implications of the above mentioned connection is illustrated in the proposed St.Lucia Development Framework, point 6.



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KZNW staff members travel by boat from the St.Lucia Estuary to Maphelane. This could become an important tourist connection



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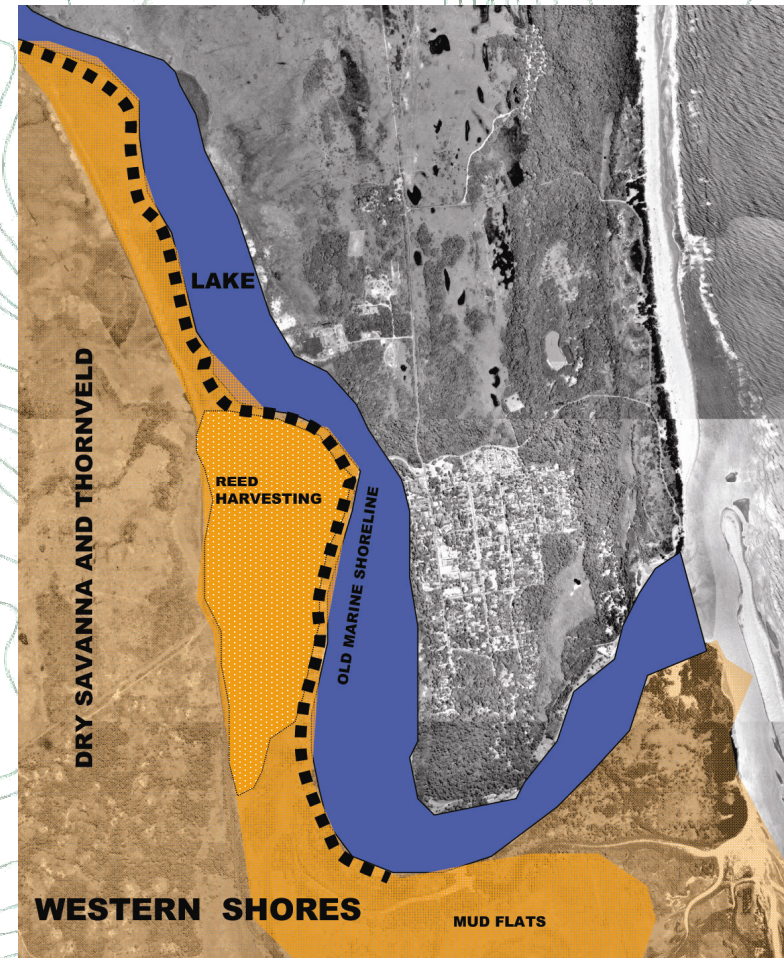
Arial photograph showing St.Lucia Estuary in relation to Maphelane and the proposed connection

5.2 THE WESTERN SHORES

This area has a much earlier origins than that of the rest of St.Lucia. It was the marine shoreline prior to the formation of the lake system. Please refer to point 5.5.1.1 for the geomorphologic explanation.

The Western Shores consist mainly of savanna and thornveld.

On the edge of the lake are the periodically flooded mudflats, the short lawns of salt-resistant grasses and taller stands of reeds and sedges. *Juncus kraussii* (Ncema grass) is a renewable resource harvested by the local Zulu people every spring.





31 Mudflats of the Western Shores.



32 Woman harvesting Ncema in spring (Taylor, 1991, 40).

5.3 DREDGER SPOIL



In 1940 a project was launched to dredge out the sediments silting up the lake. The dredger spoil was dumped on the eastern side of the lake shore. To fully understand the extent of the dredging activities please refer to the aerial photographs, Figure 50, point 5.5.1.3 documenting the development of St. Lucia.

This changed the profile and hydrology of the land from gradually sloping to a much steeper slope as seen in Figure 34.

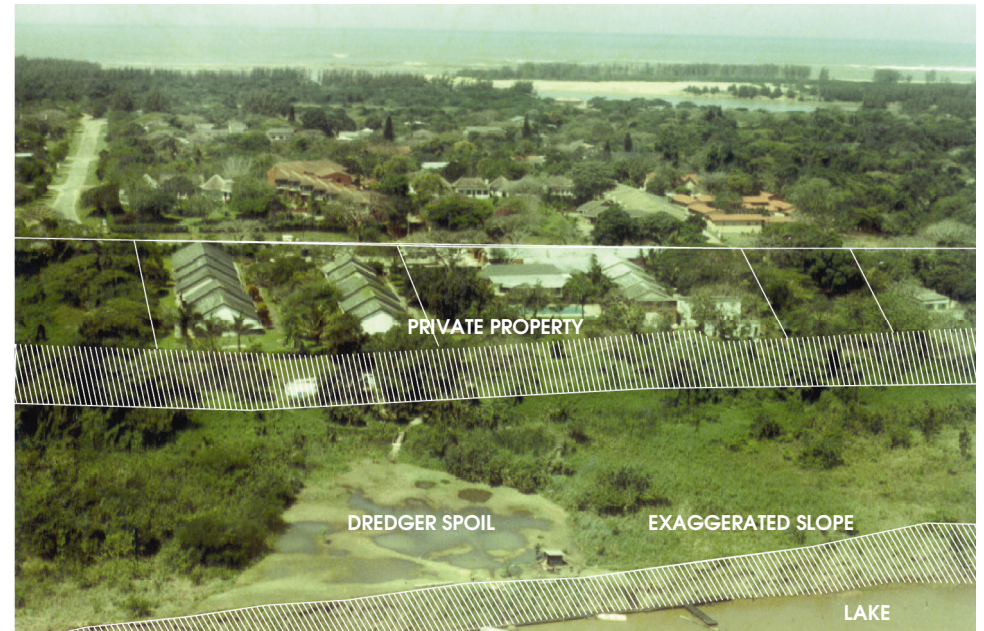
Also the grassland covering these slopes were destroyed and replaced by a swamp like microclimate.

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Dredger spoil on the banks of the Eastern Shores, approximately 1950's

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Dredger spoil on the banks of the Eastern Shores showing vegetation growth, approximately 1960's



As a result of the fertile dredger spoil, the low water table and the year round warm climate, woody plants and trees quickly took over the dredger spoil and turned the area into a dense swamp forest. Refer to Figure 35.

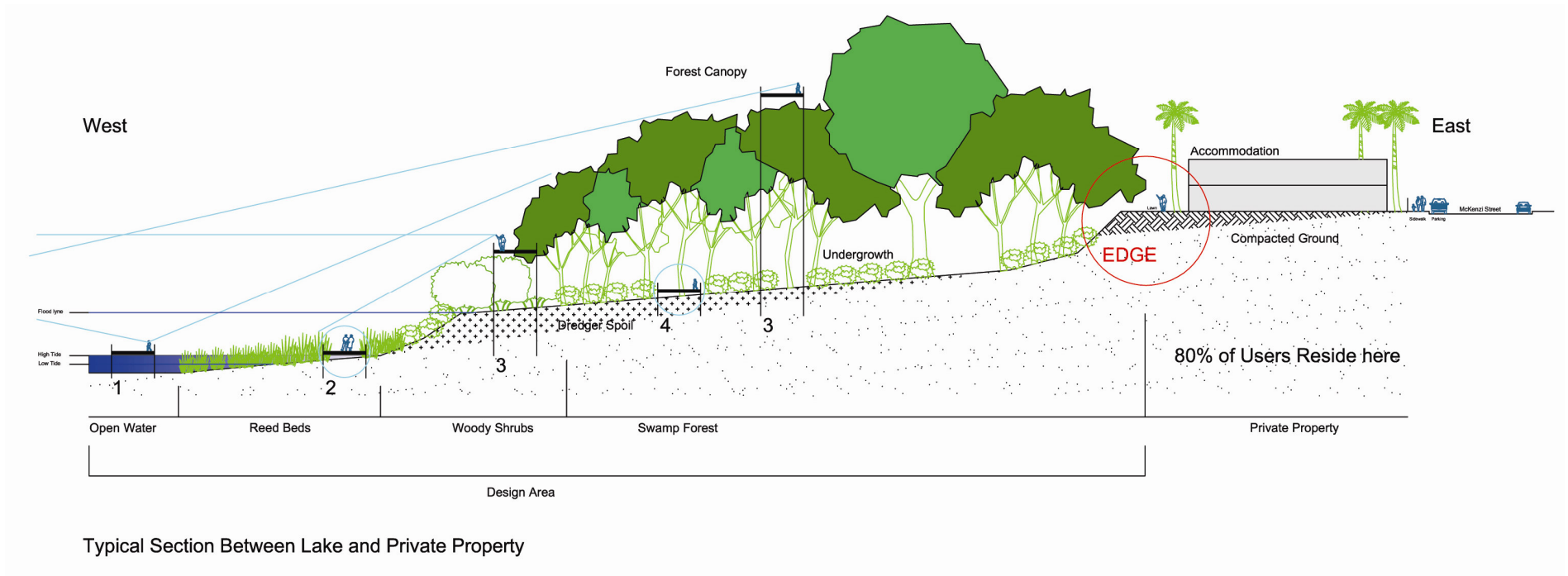
The newly formed vegetation screen, steeper slopes and swamp like conditions formed a buffer zone between the lake and the town. The buffer zone is discussed in point 5.5.3 of this thesis.

Figure 36 is a typical section through the dredger spoil area with the current vegetation cover. Four habitats are indicated that could be utilized for eco-tourism development.

35 Swamp forest covering the dredger spoil and visually screening off the town, 2006. Compare the vegetation cover to Figure 34



36 Typical profile through dredger spoil (Eastern shores) with the new habitat



5.4 THE LAKE

The lake has a surface area of 350 km². Although this is very large, its average depth is less than one meter.

The lake is a tidal system connected to the sea. Because of the tidal factor and shallowness of the lake the turbulent energy of the waves cannot be avoided when combined with strong winds.

Lake water level can range from about 40 cm below that of mean sea level in extreme droughts to over 50 cm above during wet periods. The wind factor can push the water to such an extent that water levels can change by more than 50cm over a period of half a day when a north wind changes to a south wind.

The study area of this thesis is situated in a high tidal fluctuation zone due to the proximity of the area to the estuary mouth. The difference between low and high tide can vary as much as 1, 5 meters, taking into account the effect of winds.

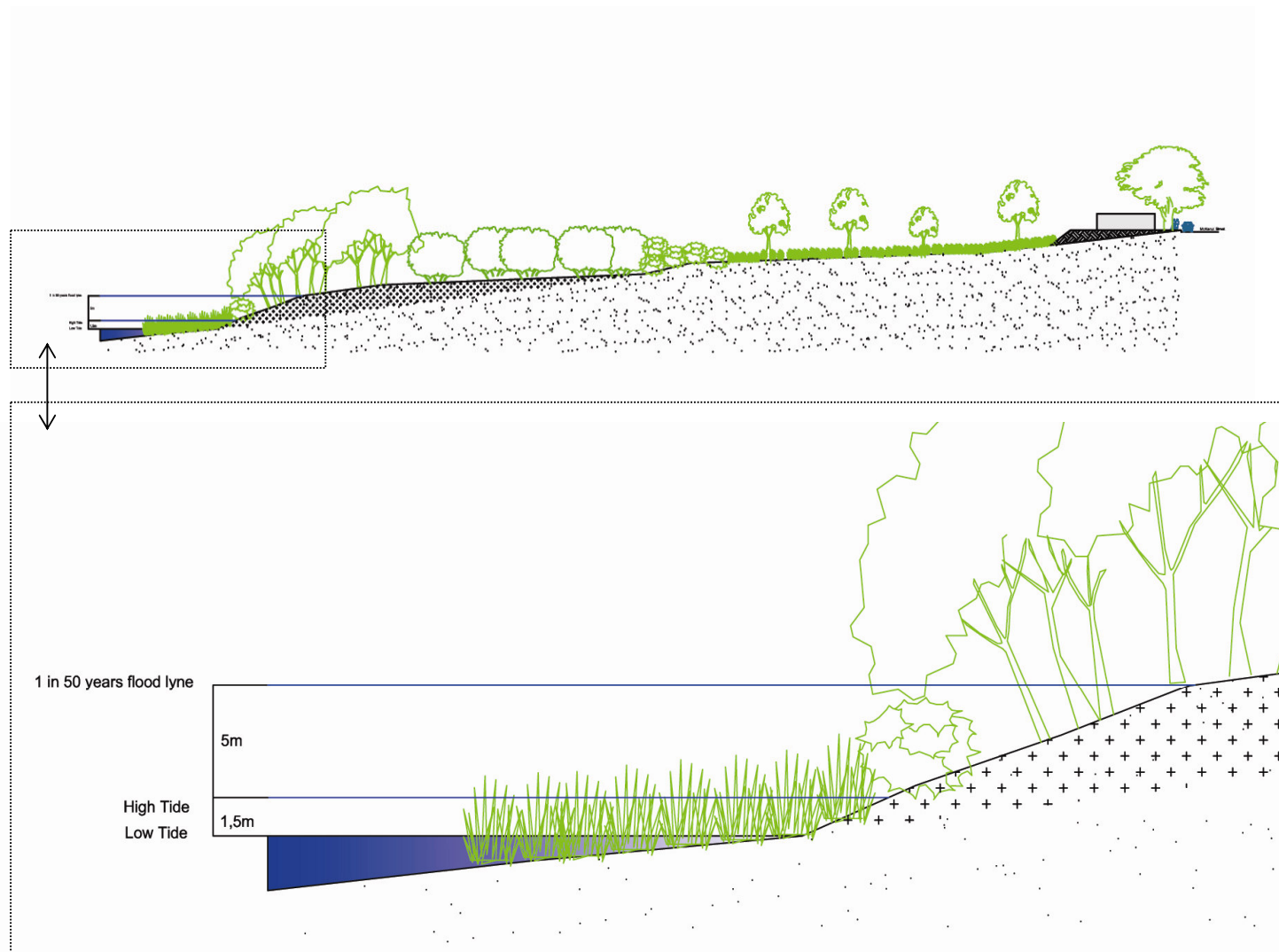
The 1 in 50 year flood line is situated 5m above that of high tide. Please refer to Figure 38.

The lake has salinity concentrations which range from that of completely fresh water to that which, at times, is three times more saline than the sea.

The lake bed of the Eastern Shores generally has a sandy texture. This is in contrast to the Western Shore that has a fine-grained mud consistency. Please refer to point 5.5.1.1 explaining the formation of St.Lucia.



37 The Lake and views to the south as seen from the St.Lucia bridge



38 Figure illustrating the impact of tidal water levels and the 1 in 50 year flood line on the study area