



Dates	Amt.	Rate
1738 - 1986	9450 m	38 m/yr
1856 - 1963	2070 m	19 m/yr
1963 - 1981	680 m	34 m/yr

Figure 19. Shoreline erosion updrift of New Topsail Inlet. Cartoon depicts shoreline positions in 1972 and 1981, inlet position in 1856 and migration rates. Maximum erosion rates were recorded at the 1972 position of the shoreline bulge, north of the finger canals. Erosion is a result of planform adjustment (modified in part after USACE 1990 and Cleary 1994).

Figure Eight Island

Figure Eight Island is a narrow 6.5 km long island separated from Coke Island by Rich's Inlet and from Wrightsville Beach/Shell Island by Mason's Inlet (Fig. 20 A&B). The island exhibits two distinct physiographic sections. The northern half of the island is narrow, yet possesses a high, continuous, basically single, forested dune ridge. Toward Rich's Inlet, the island is offset seaward from Coke Island. The offset consists of a series of parallel dune ridges which undergo erosion or accretion as the ebb tidal shoals of Rich's Inlet change (Fig. 20 A). Rich's Inlet has shown little tendency to migrate, however, the cyclical re-orientation of the ebb channel can produce very rapid erosion on adjacent shorelines (Fig. 21).

Several 'marsh islands' are evident in the lagoon behind Figure Eight Island (Fig. 20 B). These islands are characteristically narrow linear areas of higher elevation with the long axis of the island parallel to the seaward barrier island. These islands form landward of an inlet where flood tidal delta sands overtop the marsh. The higher ground is occupied by less salt tolerant plant species, including various shrubs and trees. As an inlet migrates and/or closes, a chain of islands is preserved within the marsh. Thus, these islands can be used as indicators of the location of historic inlets in areas where lagoons are infilled with marsh. Several good examples of marsh islands are found in the lagoon behind Figure Eight Island.

The southern section of Figure Eight Island exhibits a generally low, washover, inlet-influenced shoreline (Fig. 20 B). A large recurved foredune marks the historic northern limit of Mason's Inlet. Sequential aerial photographs show that the inlet has migrated more than 1100 m since 1938. Before construction of homes began along this section of the island in 1970, sand dredged from the sound side of the island was deposited on the berm. Erosion along the southern half of the island was inconsequential until Mason's Inlet re-initiated a rapid migration to the south. Similar to events at Topsail Island, migration of the ebb channel of Mason's Inlet removed protecting bars of the ebb delta and exposed the southernmost section

of the island to erosion. Despite the positioning of large sandbags to form a protective seawall and subsequent nourishment of the intertidal beach, erosion continues to threaten homes. Since the island is privately owned, the landowners themselves, not the Federal Government, are responsible for re-nourishment. Several renourishment projects have attempted to mitigate the chronic erosion. An additional phase is planned for late 1996.



Figure 20. Figure Eight Island and adjacent inlets.

A. Rich Inlet, a stable inlet forms the northern border of Figure Eight Island.

B. Mason's Inlet a small migrating system borders Figure Eight Island to the south. Note the straightened shoreline updrift of the inlet.



Figure 21. Rich Inlet Erosion.

A. Ebb channel is shore-normal and flanked by wide flood channel on Figure Eight shoulder. Encroachment of marginal flood channel onto south shoulder is prompted by deflection of ebb channel.

B. Welding and migration of attached bars produced temporary erosion in lee of sand bar. Sand packet eventually moves into estuary and accretion commences. Erosion rates were as high as 2m / day for a six week time period in mid 1984. Area is now fronted by a 200 m wide intertidal beach.