

A study regarding the shrinking of Thane Creek

Creeks are the inherent coastline features that connect rivers to the sea and play an important role in the coastal ecological processes. The GIS Cell of the Mangrove Foundation conducted a study regarding the shrinking of the Thane Creek (reduction of the water spread area) in Maharashtra.

Multi-temporal satellite images of Landsat series for the years 1972, 1978, 1988, 2000, 2010, 2014 and 2020 were considered to analyse the changes in the mudflat, growth of the mangroves, as well as the changes in creek width. Supervised analysis using multi-spectral resolution confirmed that there is an overall increase in the spatial extent of mangroves and reduction in the width of the Thane Creek. Mangrove area around Thane Creek has increased from 68.11 km² in 2014 to 79 km² in 2020 which is a 10.72 Km² increase in mangrove area in the last 6 years.

The study revealed that the Thane Creek width has reduced over time most probably due to siltation (details in the table below). Results of the study showed that the area of the creek (water spread area) in 1972 was around 232 Km² and that in 2020 was 202 Km². Thus, an overall reduction of around 30 Km² in the area of the Thane creek was recorded from 1972 to 2020.

Between 2014 and 2020, the creek area decreased by 9 Km² (2014: 211 Km² & 2020: 202 Km²; Thus, decreasing around 1.5 Km² per year).

Change in width of the creek at different profiles from mouth to upstream over the years (1972-2020)

Profile	Width in 1972	Width in 1978	Width in 1988	Width in 2000	Width in 2010	Width in 2014	Width in 2020
A	10.77	10.73	10.5	10.74	9.72	9.71	9.72
B	7.42	7.15	6.91	5.97	5.77	5.71	5.77
C	4.61	4.8	4.6	4.15	4.01	4.05	4.19
D	3.55	3.58	3.6	3.33	3.27	3.27	3.27
E	3.98	3.9	3.83	3.66	3.34	3.21	3.12
F	2.52	2.46	2.33	2.06	1.85	1.87	1.76
G	1.82	1.7	1.67	1.23	0.93	0.9	0.91
H	0.95	0.87	0.9	0.7	0.51	0.46	0.43
I	0.63	0.59	0.45	0.36	0.19	0.24	0.17
J	0.52	0.45	0.37	0.34	0.17	0.15	0.16
K	0.18	0.1	0.18	0.12	0.01	0.09	0.1

L	0.25	0.145	0.2	0.04	0.26	0.11	0.13
M	0.21	0.132	0.2	0.17	0.13	0.2	0.05

Change in area of the Thane Creek (water spread area of the creek) over the years

Year	Area in Sq. km	Area in Hectares
1972	232.16	23215.97
1978	232.93	23293.35
1988	227.06	22706.41
2000	216.70	21670.60
2010	211.36	21136.40
2014	211.30	21130.60
2020	202.42	20241.95

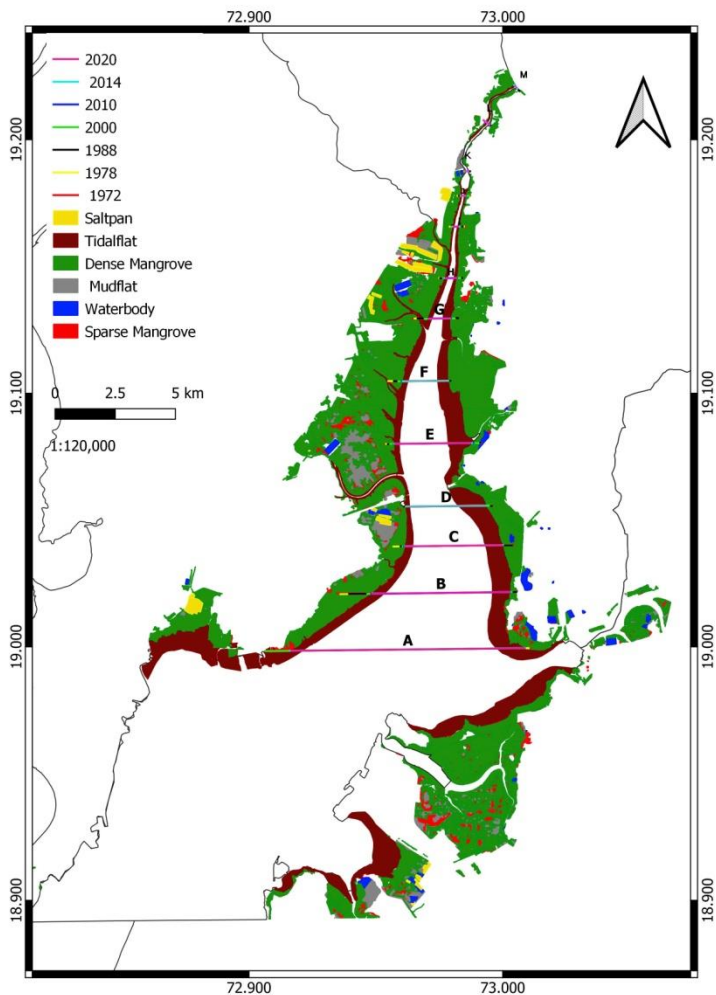


Figure showing the width profiles of the Thane creek