

### **Karnataka has mangrove patches, a study finds**

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Mangroves act as “green shields” buffering the coastline against sea erosion, and the potentially devastating impacts of cyclones and tsunamis.

***The Forest Survey of India missed recording mangroves patches as they were not large***

Scientists analysed a set of satellite imagery to discover mangrove, an unlikely ecological wealth on Karnataka’s coast that successive forest surveys of India have completely missed out. In fact, the State has a sizeable stretch of mangrove

forests, a vibrant saline-water ecosystem generally associated with India's east coast.

In a paper published recently in the journal *Geophysics & Remote Sensing*, researchers identify 300 hectares of mangrove forest in Karnataka, spread over three coastal districts. Mangrove shrubs, known best for a thriving aquatic life nurtured within their mesh of stilt-roots also serve a vital socio-economic function. They act as “green shields” buffering the coastline against sea erosion, and the potentially devastating impacts of cyclones and tsunami.

Its impact-reducing potential was best evident along the east coast after tsunami struck India in December 2004. The team looked at high spatial resolution, multi spectral data to infer the geographical distribution and status of mangroves, including plant species, along the coast. And they found that while mangroves have been declining in several parts of the world from timber harvesting and pollution, these forests in Karnataka have in fact grown spatially over the last two decades.

At the confluence of four rivers — Aghanashini, Gangavali, Sharavati and Venkatapura — and the Arabian Sea “is a long stretch of dense and tall mangrove vegetation... with a high number of mangrove plant species” locally known as Kandla or Sundari, says the paper. Mangroves exist and are growing in the districts of Udupi, Dakshina Kannada and Uttara Kannada. “The rejuvenation owes entirely to local conservation efforts, both by forest officials and communities, in reforestation and protection,” said lead author of the research paper T.V. Ramachandra, professor with the Indian Institute of Science (IISc), Bengaluru. These patches of mangroves went unrecorded by the Forest Survey because they are not very large, said co-author Bharath Setturu, of IISc. “FSI also only recently began using remote sensing and relied largely on ground-reporting.”

A devastating super cyclone of 1999, followed by the 2004 tsunami raised awareness about the irreplaceability of mangroves, he added. The rate of expansion indicates the mangrove's resilience and ability to occupy new habitats, the paper says. In Aghnashini estuary, mangroves grew by four per cent between 1989 and 2010. A decline in shrimp culture in the 1990s led to a natural regeneration of mangroves, aided by reforestation with select mangrove species.

In the Gangavali estuarine region, mangroves went up from 48.77 to 51.59 per cent in the same time frame, this time from a reduction in monoculture plantation. Two other estuaries — Sharavathi and Venkatapura — showed a similar rejuvenation of mangrove species. Plant species such as *Rhizophora mucronata*, *Sonneratia caseolaris*, *Avicennia officinalis*, *Sonneratia alba*, and *Kandelia candel* representing both high salinity and low salinity tolerant shrubs were assessed in these estuaries.

The importance of mangroves cannot be emphasised more, Dr. Ramachandra said: “They support livelihood, essentially aquaculture, they supply medicinal plants, and fuel wood and construction materials. And in terms of ecological services, they stabilise shorelines, are nurseries for fish breeding and filter heavy metals.”

According to the paper, the value of an estuary is calculated as \$19120 per hectare per year if all “goods and services” are taken into account: shrimps, fish and crabs; mangrove shrubs; nutrient cycling, hydrology, soil protection and a sink for carbon.

Keywords: [Karnataka mangroves](#), [Karnataka ecological wealth](#), [forest surveys of India](#)

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