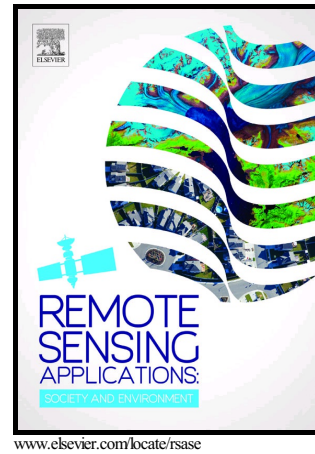


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**Monitoring mangrove forest dynamics in Campeche, Mexico, using Landsat satellite data<sup>★</sup>**

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**Abstract**

The mangrove forests of Campeche, Mexico, are important facets of the regional ecology and economy. In addition to supporting commercially fished populations of pink shrimp (*Farfantepenaeus duorarum*), white shrimp (*Litopenaeus setiferus*), and octopus (*Octopus* spp.), the area's coastal mangroves and associated seagrass flats provide crucial habitat for juvenile tarpon (*Megalops atlanticus*), for which Campeche is a burgeoning destination for catch-and-release sport fishing. Mexico's total mangrove area has decreased by more than 20 percent throughout the past two decades, but no previous study has specifically mapped mangrove change dynamics in Campeche. To address this gap in the literature, this study used unsupervised classification of Landsat satellite data from 1999 and 2016 to map and quantify mangrove forest cover changes along Campeche's coast and worked with local fishing guides to identify regional drivers of mangrove degradation. Results demonstrated a 14.10 percent decrease in mangrove area and a 19.09 percent increase in Campeche city's urban extent during the study period. Mangrove decline was concentrated in coastal fringes, with local informants indicating that much of the degradation resulted from localized alteration of mangrove channels' water flows due to road construction projects, as well as increased indirect pressures from Campeche's expanding population. Importantly, these results indicate that although Campeche's coastal mangrove corridor is protected as a UNESCO Biosphere Reserve, its close proximity to the large and growing urban center of Campeche city makes it vulnerable to direct and indirect drivers of mangrove degradation. Future updates to this study's results will be essential to monitoring Campeche's mangroves' ongoing responses to the dueling influences of increased anthropogenic pressures and localized mangrove restoration initiatives.

**Keywords:** mangroves; forest cover changes; remote sensing; Campeche; Mexico

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