

## **An investigation of changing human-environment interaction on the southern coast of Hainan Province, China**

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Throughout history humans have expressed a geographic preference for cultural aggregation adjacent to bodies of water. Presently, this spatial pattern of settlement is occurring at an unprecedented rate and magnitude in China. Some of the most aggressive development has occurred with the establishment of Special Economic Zones (SEZs) proximate to coastal areas, in most cases to exploit ready access to resources and to export markets via seaports. The expediency of development in these areas has produced rapid transformation away from traditional processes of human-environment interaction. One of the resultant manifestations of this shift is a copiously altered pattern of land use and corresponding land cover. This research seeks to explore change that has occurred in the coastal zone of Hainan Province resultant from these altered human-environment interactions. Specifically, a holistic approach to time-series analysis of changes in land-use and potential ecological implications at the landscape level is described for the Sanya Region. Methods for identifying and monitoring change go beyond the traditional approach to digital change detection that quantifies change from one representative land cover to another, to invoking temporal alterations to landscape metrics as an indicator of ecological change. Data used to map land use and land cover in the Sanya Region was obtained for a thirteen-year duration beginning in 1987, prior to rapid coastal development, and concluding in 2000. These data were obtained from three high spatial resolution satellites that include Landsat 5, SPOT, and Landsat 7. Practical implications of this research are important for future development planning in the Sanya Region and for similar areas in China, while it has the potential to contribute theoretically to the refinement of integrating landscape ecology techniques with high spatial resolution remotely sensed data.