The Indian prawn Penaeus indicus, one of the major commercial shrimp species globally is widely distributed in the Indo-West Pacific. They have been recorded to reach 22cm and inhabiting water depths of 100m. Majority of studies on P. indicus have focused on developmental stages between shallow waters and deep seas. Studies indicate that development takes place in the sea before larvae move into estuaries to grow, then return as sub-adults. However, studies on the maturity of this species in shallow waters, creeks and embayments are clearly lacking for the coastal waters and creeks along the Kenya coast. This study was conducted in the Kilifi Creek from the mouth at the Kilifi Bridge to past Kibokoni. Samples were collected from six landing sites. Morphometric and biological data including total length, carapace length, body weight and sex were recorded. The specimens were dissected to check for ovarian development and maturity by observing size, shape, color and cortical granules. 2,657 specimens were sampled. Most comprised of the 2.5-2.9cm CL size class. Some individuals in the >4.0 cm CL size class were recorded suggesting that some individuals still matured in the creeks although majority are known to migrate deep sea. Regression analysis showed a significant relationship between CL, and TL ($r^2=0.7454$) and BW ($r^2=0.847$). The condition factor ranged from 0.19-0.94 for indicating presence of both immature/spent (4.7%) and ripe individuals (95.3%) in good condition. Size frequency analysis of the ovary cortical granules displayed a poly-modal pattern with 2 peaks of immaturity and 3 peaks for developing and near-ripe, respectively. The presence of spent stages specimens in the creek waters indicated that apart from using these habitats as nursery and feeding grounds, some of the individuals might also be growing, maturing and spawning in the creek.