The economic importance of skillful location-specific seasonal forecasting of tropical cyclones (TCs) for the Australian region is indisputable. In the past 20 years, the Australian economy was affected by multi billion dollar losses due to various TC events hitting the Australian coastline. Most recently, in late December 2010 TC Tasha made landfall on Australia’s northeast coast and was accountable for a proportion of the disastrous flooding in Queensland at the beginning of 2011. Here, we develop and present a seasonal forecast model of the spatial (2.5°x2.5°) exposure to TCs (and intense TCs) in the Australian region. Our model enables to provide quantifiable estimates of the upcoming seasonal risk of landfalling TCs, and also the risk for offshore industry in the eastern Indian Ocean. We applied a Bayesian inference modeling approach to estimate grid-scale exposure (affectation) based on the forecast probability of TCs in the upcoming TC season. The statistical forecast model uses the Markov Chain Monte Carlo method via a multivariate slice-sampler generating 25,000 synthetic TC climatologies on the basis of the conditional functions between the model predictand (here TC hits per season) and predictors (pre-seasonal values of carefully selected climate indices). A stepwise approach ensures that the best combination of predictors has been chosen, by calculating the probabilistic root-meansquared error of cross-validated model TCG hindcasts over the period 1968/69-2007/08. We have applied this method successfully to the spatial (grid-scale focused) and temporal probabilistic forecasting of annual number of TC development across the Australian region tropics.