

**The influence of environmental variables on the
nesting activity of green turtles (*Chelonia mydas*)
at North West Cape, Western Australia**

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Abstract

Green turtle (*Chelonia mydas*) nesting activity was correlated with environmental factors at North West Cape, Western Australia for three seasons, 2002-2005. Environmental factors included air temperature, tidal rhythms, sea surface temperature, moon phases, wind speed, wind direction and cloud cover. There were no strong correlations detected, however significant relationships between turtle nesting activity and sea surface temperature and air temperature were found across three seasons. There was variation in turtle nesting numbers between 2002/2003, 2003/2004 and 2004/2005 which alone couldn't be explained by environmental factors assessed in this study. There was a weak yet significant correlation between turtle nesting emergence and sea surface temperature which could be related to thermal habitat requirements which provide cues for nesting events. There was a weak yet significant negative correlation between turtle nesting success and air temperature parameters which indicates that as temperatures increased towards maximum air temperatures for seasons 2002/2003 and 2004/2005, the nesting success decreased and false crawls increased. Correlations in 2004/2005 indicated that green turtles showed a significant preference to nesting during neap tides. The NTP provides an improving dataset for the identification of important nesting beaches and the assessment of turtle nesting activity over time, however, does not provide the complete dataset necessary to assess overall adult population status over time. There are a number of data that could be collected as an expansion of the Ningaloo Turtle Program which could provide more opportunities to investigate the impacts of environmental variables and turtle nesting behaviour at North West Cape which will provide for information to incorporate into population status analyses over time. This study concludes that there were other environmental factors, not included within the scope of this study that could be responsible for the variation in turtle nesting activity within a season and between seasons.