Evaluating conflict potential in the marine and coastal areas of the Kimberley region through public participation GIS

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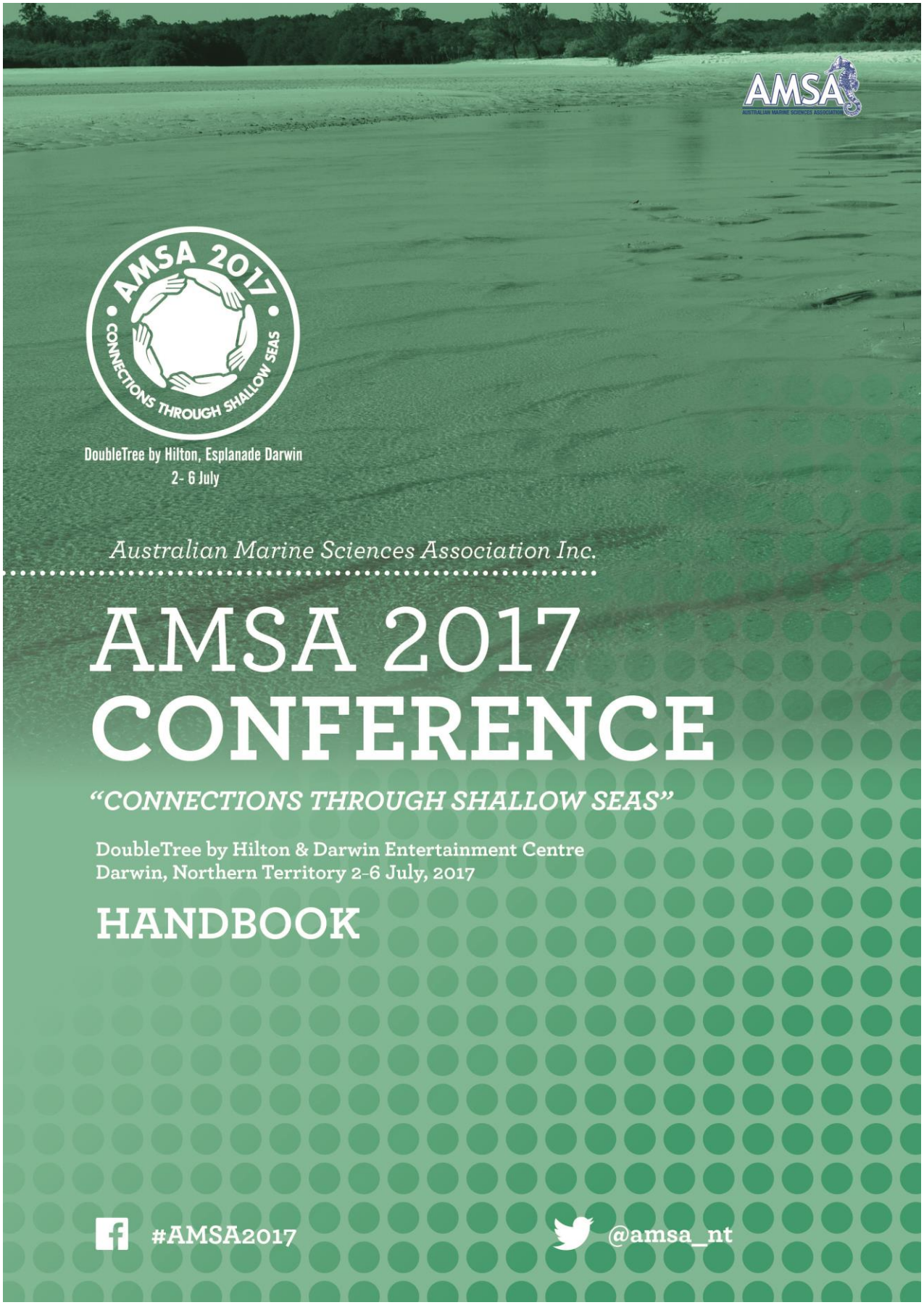
Marine spatial planning (MSP) is an approach to manage different human uses and conservation goals. Most conservation planning, including MSP, suffers from the lack of social data, hence the aim of this study was to evaluate, through the well established method of public participation GIS (PPGIS), areas of conflict potential using human values associated with marine and coastal areas of the Kimberley. The remote Kimberley region is renowned for its rich Aboriginal culture and heritage, biodiversity and wilderness. The region has a low population and dispersed economic development including agriculture, mining, fishing, and more recently oil and gas exploration. Almost 170 interviews involving participatory mapping were held with stakeholders who either visited or lived in the Kimberley. Seventeen values were elucidated from the interviews, spanning consumptive, non-consumptive, direct and indirect uses. Biodiversity, the physical landscape and Aboriginal culture were most valued. Our results show that, the entire study area was valued for one or more values. Results included maps of higher than average intensity of each particular value. We developed conflict matrices, with values categorized as consumptive and non-consumptive, and the degree of conflict potential based on the extent of social norm violation and goal interference. At least a third of existing marine protected areas were mapped as having medium to high conflict potential. These were all near-shore, with large, remote offshore marine protected areas showing very little evidence of conflict potential. As Aboriginal culture, biodiversity and physical landscape values were most marked by the respondents, careful consideration of the social impacts of future developments associated with access is essential. Our work also highlights that there is an important base for societal support for marine protected areas in the region. PPGIS based on interviews provides social data for the 'missing layer' in MSP. Such data are needed if the social concerns of stakeholders are to be recognized and included in spatial planning. PPGIS complemented by extensive field interviews is a powerful method of evaluating existing human values over large marine spaces and provides quantitative inputs into modeling of conflict potential in marine spatial planning.



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