Location, Location, Location: Quantifying high density patterns of Hector’s dolphin in relation to oceanographic features

Deanna Clement¹ and Peter Whigham²

¹ Department of Zoology
University of Otago, Dunedin, New Zealand
Phone: +64 3 479-5240, Fax: +64 3 479-8336
Email: dclement@ihug.co.nz

² Spatial Information Research Centre
University of Otago, Dunedin, New Zealand
Phone +64 3 479-7391, Fax: +64 3 479-8311
Email: pwhigham@infoscience.otago.ac.nz

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ABSTRACT

Hector’s dolphin (Cephalorhynchus hectori) is the only endemic dolphin species to New Zealand waters. From population estimates, it has been established that this species is one of the rarest of the world’s cetaceans and has been listed as a threatened species under the New Zealand Marine Mammals Protection Act. Large-scale surveys have clearly demonstrated the patchy distribution patterns of these dolphins with DNA evidence supporting the existence of four sub-populations; three along the South Island and the fourth on the North Island. Recent movement and photographic identification studies have indicated that localised “hotspots” may yet exist on even a smaller scale within these regional sub-populations. This study identified and quantified high density areas of Hector’s dolphins within the region of Banks Peninsula (South Island) and determined their consistency. In order to more specifically determine the spatial distribution and potential habitat preference of Hector’s dolphins on a localised scale, this project also examined these high density areas in relation to oceanographic features. Spatial analysis tools being utilised are the density function of ArcView’s Spatial Analyst extension while potential spatial tools currently being explored include cluster analyses and geographically weighted regressions (GWR).

Keywords and phrases: geographically weighted regression, cluster analysis, high density areas, habitat “hot spots”