



**The Australian Marine Science  
Association Inc**

**BACKGROUNDER**

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Evans, K1, **MA Hindell**<sup>1</sup>, R Warneke<sup>2</sup> & R Thresher<sup>3</sup>  
<sup>1</sup> Antarctic Wildlife Research Unit, School of Zoology, University of Tasmania, Private Bag 5, Hobart Tas. 7001  
<sup>2</sup> Blackwood Lodge, 1511 Mt. Hicks Rd, Wynyard Tas. 7325  
<sup>3</sup> CSIRO Marine Research, GPO Box 1358, Hobart Tas. 7001

### **Cetacean strandings: is climate a driving force?**

Ascertaining the causes of cetacean strandings has perplexed scientists for many years. Theories abound, but little quantitative research has been conducted into this, one of the most puzzling of biological mysteries.

We analysed a long term data set of whale strandings in south-east Australia (Tasmania and Victoria) and observed a clear circa-10 year periodicity in the number of whales stranded each year.

This quasi-decadal cycle in the number of whales that strand occurred across all groups of whales and coincides with a major climatic cycle - the yearly regional persistence of strong zonal westerly winds (ZWW).

The ZWW belt or Antarctic circumpolar vortex varies in intensity on annual, quasi-decadal and longer time scales reflecting long-term and large-scale shifts in hemispheric sea level pressure, in general, and the position of the Sub-tropical Ridge, in particular. Colder nutrient rich waters are driven closer to Tasmania and water column productivity is increased during periods of persistent ZWW, periods which coincide with times of maximum whale strandings.

These findings suggest that these climatic events may provide powerful distal influence which results in a greater *propensity* for whale strandings to occur.

Our study provides the first clear test of existing hypotheses for this mysterious behaviour, and provides managers with a powerful predictive tool to enable them to prepare for years of peak stranding activity.

**All media enquiries: Jess Tyler, SciBiz Media. 0408 298 292**