

Madon et al 2012\_MMS

A phenomenon of transience in the humpback whale population breeding in New Caledonia has been highlighted in recent analyses. We used these data to illustrate the risk of flawed inference when transience is not properly accounted for in abundance estimation of resident populations. Transients are commonly defined as individuals that pass through the sampling area once, i.e., have a null probability of being caught again, and therefore induce heterogeneity in the detection process. The presence of transients can lead to severe bias in the estimation of abundance and we demonstrate how to correct for this feature when estimating abundance of resident populations. In New Caledonia, very different conclusions about the number of resident whales in the southern lagoon between 1999 and 2005 are obtained when the abundance estimate accounts for the transient whales. Without correction, the estimates of the abundance were up to twice as high across all years compared to the estimates of the resident population when a correction for transients had been incorporated. Having reliable population estimates when assessing the status of endangered species is essential in documenting recovery and monitoring of population trends. Therefore, we encourage researchers to account for transients when reporting abundances of resident populations.