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After decades of whaling, Oceania humpback whales *Megaptera novaeangliae* have such a low rate of recovery that a trend is not currently measurable. They are listed as Endangered by the IUCN, and any possible threat to the whales needs to be carefully monitored and mitigated. Whale-watching activities represent an important economic development throughout the South Pacific but also carry a potential risk of impact for these recovering populations. New Caledonia is among the leading countries for humpback whale watching in Oceania. Land-based theodolite observations were conducted between 2005 and 2007 to assess the effect of boats on humpback whale behaviour in New Caledonia. Natural experiments were used to investigate the response of whales to boat approaches, and opportunistic observations were used to assess which variables best described variability in behaviour. Over 80% of whales approached by boats significantly changed their behaviour. Changes in path predictability (directness and deviation index) were most commonly affected and are likely to represent an efficient and low-cost avoidance strategy. Linear models showed that as boats get closer, humpback whales significantly increased the sinuosity of their path. The threshold for such a response corresponded to an approach distance of 335 m. Based on these results and considering the vulnerability of the humpback whale population in New Caledonia, we suggest reinforcing management measures to increase the likelihood that the whale-watching industry is sustainable.