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Satellite remote sensing of baleen whales; status and prospects

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ABSTRACT:

We discuss the capability of Very High Resolution satellite imagery to detect, count and monitor baleen whales. Baleen whales have a number of pressing conservation issues such as illegal hunting, ship-strikes, pollution and habitat loss and there is an urgent need for better assessment of their distribution and abundance. Current efforts to monitor whale populations rely on aerial, ship-borne or sonar surveys which are expensive and lack accuracy. New VHR satellites with sub-metre resolution may facilitate the monitoring of cetaceans over large areas more accurately and at potentially vastly reduced costs to more traditional methods. Recent work using on southern right whales in calm waters near Peninsula Valdes, Argentina, describes the utility of WorldView2 imagery to accurately identify whales and developed a routine to semi-automate the counting of marine mammals over large areas. We discuss further work on southern right, humpback and blue whales and assess the problems and possible solution in transferring this technology to other whale species in areas of open ocean.