



21st Biennial Conference on the Biology of Marine Mammals

13-18 DECEMBER 2015
HILTON SAN FRANCISCO UNION SQUARE
SAN FRANCISCO, CA USA

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Surveying marine mammals with high-powered "bigeye" binoculars from a shore-based platform.

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A shore-based platform, incorporating high-powered 25x150mm binoculars ("bigeyes"), was evaluated as an alternative approach for surveying marine areas for protected species (marine mammals and sea turtles). During a pilot study at a test site on Oahu (273m elevation), humpback whale blows were visible through bigeyes 37km away in Beaufort Sea State (BSS) 2. This suggests the approach could be effective at detecting baleen and sperm whales from long distances, priority species under the U.S. Navy's Marine Species Monitoring Program. Systematic scans using bigeyes were performed in Guam over 20 days from a north-facing (193m) and a northeast-facing (157m) shore station in May 2014 and March 2015. These two sites were chosen because of mostly unobstructed views of the ocean, as well as generally high BSS that prohibit visual surveys from small vessels in this area. A SnapZoom digiscoping adapter, equipped with an iPhone or GoPro, was attached to the bigeye eyepiece allowing collection of photos and video, complementing super-telephoto (500-800mm) photography on a DSLR to assist with species confirmation. Observers recorded 33 odontocete sightings comprised of 4 confirmed species (spinner and bottlenose dolphins, pilot and melon-headed whales), but no baleen or sperm whales were observed. Several sightings were distant from shore, including two unidentified dolphins observed 9 km offshore in BSS 6, cued by diving birds, and a group of 160 melon-headed whales 14km offshore in BSS 5. The species observed and the sighting rate of 0.28 per hour, or 1.7 per day, were comparable to results from small-vessel surveys in Guam, suggesting an overall low density of marine mammals, and large whales in particular, during this time of year. These results demonstrate that shore-based surveys can provide an alternative means of surveying an area where use of other research platforms are impractical or cost prohibitive.

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