

Successful Tracking of a Marbled Murrelet with a Miniaturized, Solar-Powered Satellite PTT

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Marbled Murrelets are relatively small (ca. 220g) diving seabirds that nest solitarily in stands of old-growth forests and forage in coastal waters from California to the Bering Sea of Alaska. Populations in most areas have declined substantially owing to human and natural threats. Radio telemetry has been used to locate nest sites and foraging areas for murrelets, but very little is known about murrelet movements or ecology during winter. While satellite tags could help, they have (to date) been too large to use on small seabirds such as murrelets. In July 2008 we attached a miniaturized 7g solar-powered PTT (Microwave Telemetry, Inc.) to a murrelet using a subcutaneous anchor and glue applied to the back. Before attachment, we determined that the PTT could withstand immersion in seawater to depths of 40 m, the maximum dive depth of a murrelet. After attachment, we tracked the murrelet in Puget Sound, Washington for 7 weeks until the PTT apparently failed or fell off. The murrelet stayed within the confines of Puget Sound. Despite its relatively large size (ca. 3% body mass), the PTT did not appear to interfere with the murrelet's ability to fly, dive or forage. We re-sighted the bird at sea on two occasions and observed normal behavior. Based on our observations, we would modify the design of future PTTs; including changes in shape, attachment points, and data recorded. We believe that this first-time deployment of a PTT on murrelets heralds a new era in the study of marbled murrelet ecology.