

Re-sight occurrence and frequency of satellite tagged humpback, fin, and sperm whales off Virginia, USA

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Introduction:

- Satellite tagging studies provide opportunities to track animal movements following an initial observation during which a tag is deployed.
- Tagged animals are not always re-sighted following a tag deployment, leaving tag site healing, and even survival, as mostly unknown outcomes.

Methods

- Medium-term Wildlife Computers satellite tags (SPOT6, SPLASH10, & SPLASH10-F) in the LIMPET configuration were deployed on humpback (*Megaptera novaeangliae*), fin (*Balaenoptera physalus*), and sperm (*Physeter macrocephalus*) whales off the coast of Virginia between December 2015 and August 2019.
- Follow-up photos of the tag site were taken whenever possible to assess tag site healing.

Humpback Whale: HDRVAMn064
Tagged twice (13 Dec 2016 & 29 Dec 2017)

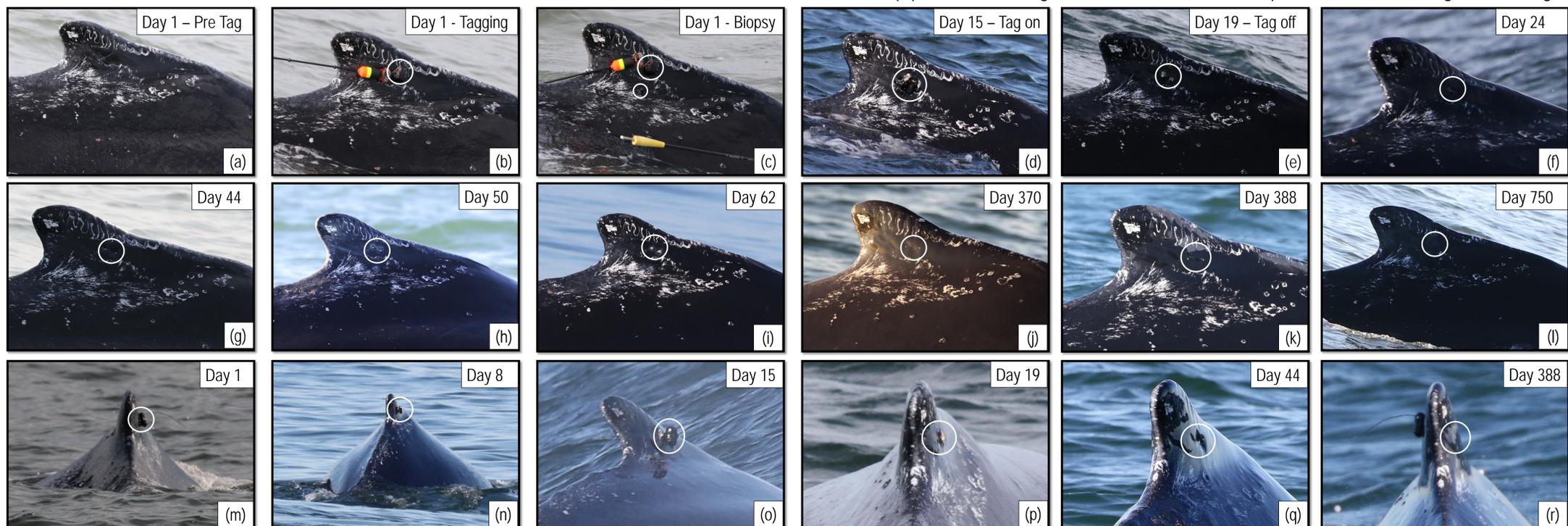


Figure 1 (a) HDRVAMn064, photographed 13 December 2016 moments before tagging, and (b) during tagging and (c) biopsy sampling. (d) Progression of tag expulsion and (e) – (l) healing of the tagging site with a view of the right side dorsal fin. (m) View from behind of tag on day of initial tagging, (n) – (o) as the tag begins to expel, and (p) – (r) as the tag site heals after tag is fully expelled; (r) also shows the placement of the second tag, from 29 December 2017, on the left side dorsal fin.

Results: Humpback whales

- 49 tags deployed on humpback whales; five individuals were tagged twice each during different years
- 32 of 45 (71.1%) individual tagged humpback whales were re-sighted after tagging
- For animals that were re-sighted, individual humpback whales were re-sighted up to 10 times after tagging (mean=2.7) (Figure 1)
- Re-sights occurred 1-774 days apart (mean=167; median=33) for humpback whales

Fin whale: HDRVABp018
Tagged 10 May 2017

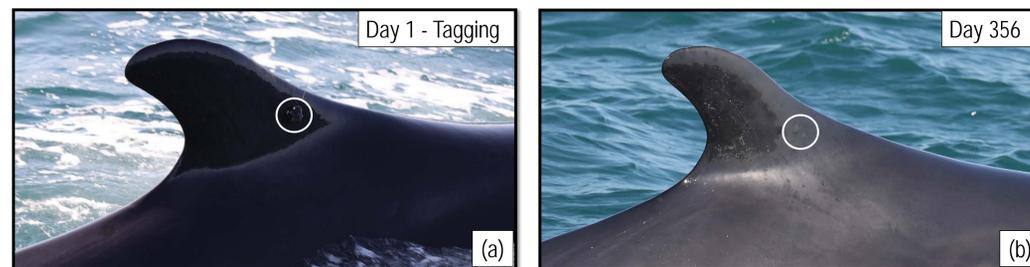


Figure 2 (a) Tag placement on the right side dorsal fin of HDRVABp018, and (b) site of the tag 356 days later.

Results: Fin whales

- 15 tags deployed on fin whales
- 3 of 15 (20.0%) fin whales were re-sighted after tagging
- For animals that were re-sighted, individual fin whales were re-sighted up to 2 times after tagging (mean=1.7) (Figure 2)
- Re-sights occurred 100-356 days apart (mean=269; median=353) for fin whales

Results: Sperm whales

- 24 tags deployed on sperm whales; one individual was tagged twice during different years
- 5 of 23 (21.7%) individual sperm whales were re-sighted after tagging
- For animals that were re-sighted, individual sperm whales were re-sighted up to 2 times after tagging (mean=1.2) (Figure 3)
- Re-sights occurred 9-428 days apart (mean=202; median=202) for sperm whales

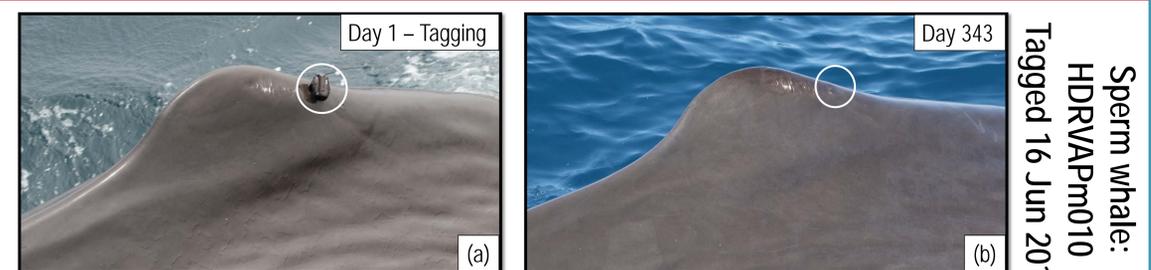


Figure 3 (a) Tag placement on the right side dorsal hump of HDRVAPm010, and (b) site of the tag 343 days later.

Sperm whale: HDRVAPm010
Tagged 16 Jun 2017

Discussion

- Re-sights occurred both when the tag was still attached and after the tag had been shed.
- Due to the more accessible nature of nearshore waters, re-sightings of humpback whales occurred more frequently than those of fin and sperm whales, which were observed further offshore, typically in the mid-shelf area for fin whales and in deep water past the continental shelf break for sperm whales.
- Based on assessment of re-sight photographs, and from a visual observations only, long-term external tissue damage is extremely minimal and typically consists of two small white scars where darts were placed.
- These observations can provide valuable opportunities to assess tag site healing and can also provide insight on survival for these large whales.