

# Rough-toothed dolphins on a Navy range in Hawai'i: using LIMPET satellite-tag data to assess movements, habitat use, and overlap with Navy activities

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## Why is this interesting?

- Re-sightings and genetic analyses indicate that rough-toothed dolphins off Kaua'i and Ni'ihau are demographically isolated from the Hawai'i Island population (Albertson et al. submitted; Baird et al. 2008).
- Navy training activities in Hawai'i are concentrated between Kaua'i and Ni'ihau, on the Pacific Missile Range Facility (PMRF).
- Rough-toothed dolphins are the most frequently encountered odontocete species around Kaua'i and Ni'ihau, and thus are regularly exposed to mid-frequency active (MFA) sonar.



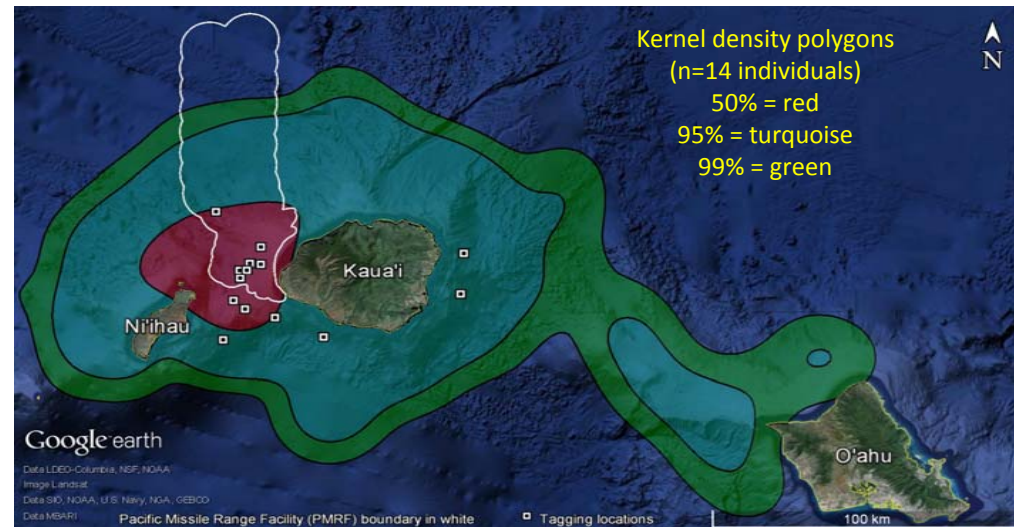
## What we did

- We used data from remotely-deployed LIMPET satellite tags on 14 different individuals tagged off Kaua'i and Ni'ihau in 5 years (2011-2015), in 6 different months of the year.
- Data were obtained for periods from 7-27 days (median = 13 days) and processed through the Douglas Argos-filter.
- We estimated the proportion of time spent inside the PMRF boundaries, and calculated the 50% (core range), 95% and 99% kernel density utilization distributions (see polygons on map), excluding the first 24 h from each individual.

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## The core range of rough-toothed dolphins off Kaua'i and Ni'ihau overlaps with the Pacific Missile Range Facility

- Tagged dolphins moved a cumulative 13,026 km, yet remained a grand median distance of 25 km from where they were tagged (range of median distances 10.7 – 63.8 km).
- Seven of 14 individuals were tagged off PMRF, yet all visited it (median = 0.8 times/day; range = 0.18 – 1.32) and spent a grand median of 39.6% of their time inside range boundaries.



## Individuals from the resident population of rough-toothed dolphins off Kaua'i and Ni'ihau are regularly and repeatedly exposed to MFA sonar

- Ongoing studies are examining movements of tagged animals in relation to MFA sonar exposure (e.g., Baird et al. 2014).
- Future studies will assess age structure of this population in comparison to the resident population off Hawai'i Island, with relatively little sonar exposure, to assess potential population-level impacts.

## References

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