Brown Pelican Tracking Using Electronic Leg Bands and the Motus System

A proposal to the San Mateo Harbor District for a Sensor Station

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PEL Pacific Eco Logic

Oiled Wildlife Care Network
UC Davis Wildlife Health Center

PELICAN SCIENCE

Purpose of the Research

- Test new method for electronically tracking brown pelicans without impacting on their behavior and survival
- Primary funding from Oiled Wildlife Spill Network Competitive Grants Program
  - Applicability to post spill research and survival analysis
- Future work will advance studies of movement ecology, chick survival

https://owcn.vetmed.ucdavis.edu/blog/new-way-track-pelicans-4

Oiled Wildlife Care Network
UC Davis Wildlife Health Center

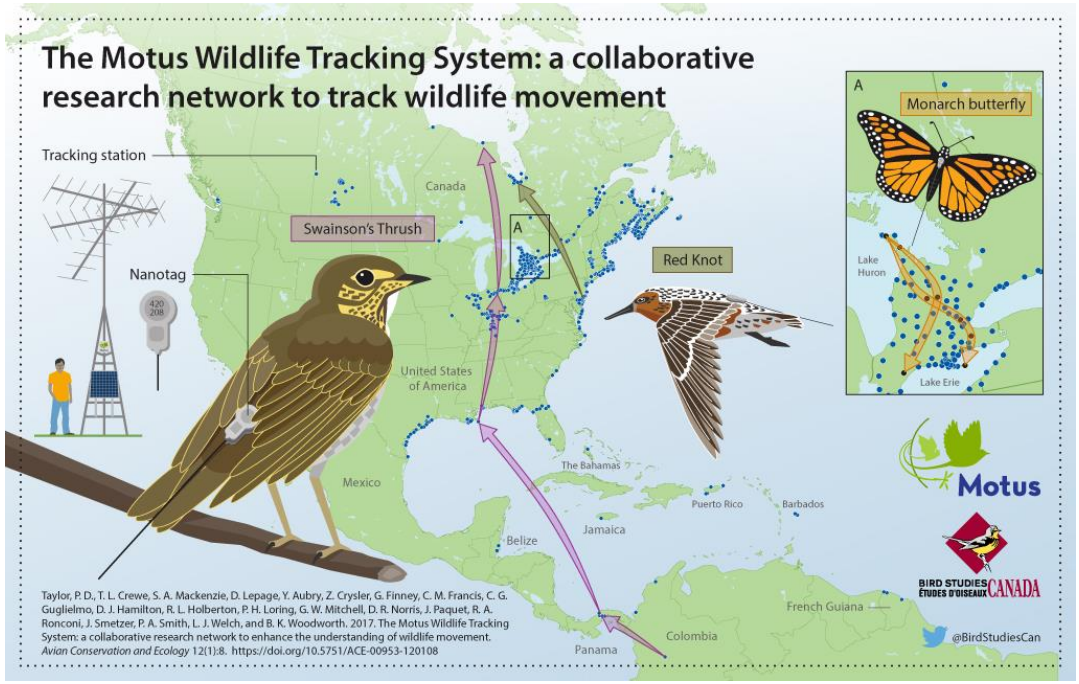
CTT HybridTag Legband

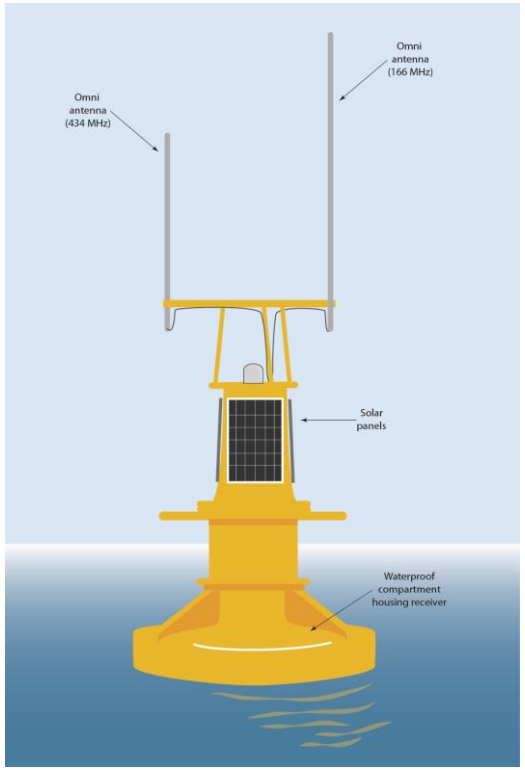
- Pelican eBand developed in 2021 modeled after color aux band
- UHF radio microtransmitter
- Hybird power- Solar and battery
- Battery back up lasts several days
- Internal antenna
- Sliding latching door
- Detected as far as 3 km from sensor station in testing

The Motus Stysem

How it works

https://motus.org





First seabird study using Motus on US Pacific Coast

- 16 rehabilitated pelicans tagged and moving to date
- Plans for 20 tags on pre-fledged chicks Channel Islands breeding colonies 2025
- Field tracking to search for eBands at roosts using hand-held receivers and visual ID
- Set up Motus station at a major pelican roost

https://motus.org/data/projectTagDeployments?id=468

Home - Google Drive | Sensor Station - Google Drive | Motus Species summary

motus.org/dashboard/#e=profile&d=species&s=40261

Motus About Resources Explore Manage EN Donate

STATIONS ANIMALS PROJECTS SPECIES REGIONS Search Motus HELP FEEDBACK

Home > Species > Brown Pelican (California)

← Back to species list View Map Chart Table

MOTUS SPECIES

Brown Pelican (California)

Stations visited (12) Projects (1)

Elkhorn Slough (#12431) ACTIVE

6 SPECIES DETECTED | 21 ANIMALS DETECTED | 2024-07-13 LATEST DATA

Martin Griffin Preserve (#12387) ACTIVE

3 SPECIES DETECTED | 5 ANIMALS DETECTED | 2024-07-13 LATEST DATA

Toms Point (#12386) ACTIVE

5 SPECIES DETECTED | 57 ANIMALS DETECTED | 2024-07-12 LATEST DATA

CDFW_SantaCruz (#13095) ACTIVE

7 SPECIES DETECTED | 19 ANIMALS DETECTED | 2024-07-08 LATEST DATA

Piedras_Blancas (#13449) ACTIVE

5 SPECIES DETECTED | 36 ANIMALS DETECTED | 2024-07-10 LATEST DATA

Map Legend

Detection date | Speed (km/h) | Project

Animal

2023 2023 2024 2024

Stations | Antennas | Clusters | None

Selected stations

Connected stations

Other stations

Tracks | Heatmap | None

Dashed: imprecise

Solid: direct

Not shown: unlikely

Deployment site

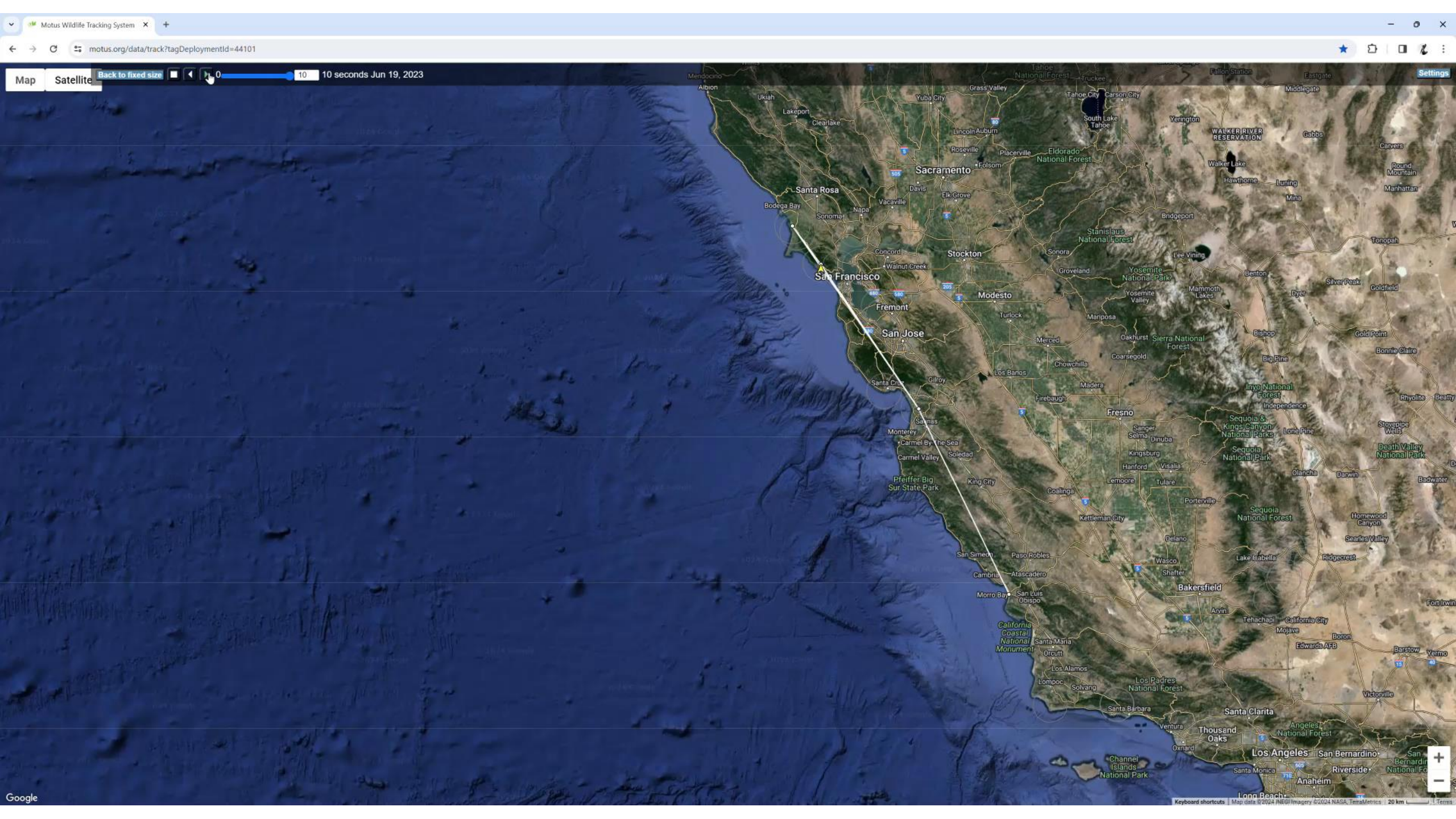
Battery tags

Solar Tags

Leaflet | © MapTiler © OpenStreetMap contributors

2023-06-01 2023-07-01 2023-08-01 2023-09-01 2023-10-01 2023-11-01 2023-12-01 2024-01-01 2024-02-01 2024-03-01 2024-04-01 2024-05-01 2024-06-01 2024-07-01

Search 9:30 AM 7/15/2024


Motus Wildlife Tracking System
motus.org/data/track?tagDeploymentId=44101
Map
Satellite
Back to fixed size
0
10
10 seconds Jun 19, 2023
Settings
San Francisco
Sacramento
Santa Rosa
Stockton
Modesto
Fremont
San Jose
Fresno
Bakersfield
Los Angeles
Google

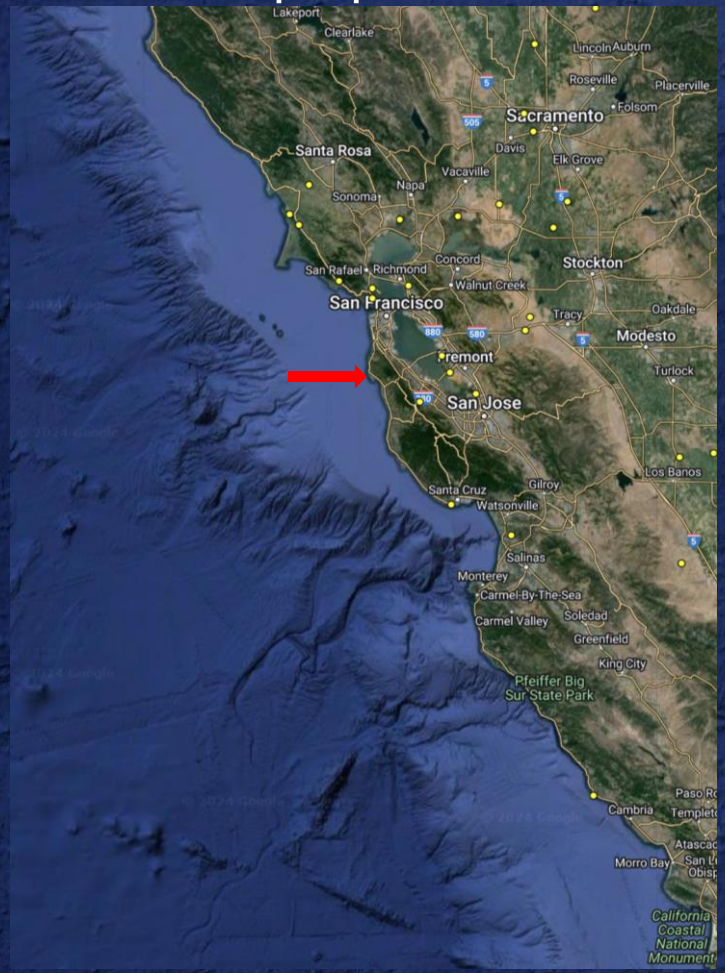
Why Pillar Point Harbor?

- Major communal roost site
- Fills a gap in central coast sensor station build out
- Opportunity to look for failed tags
- Easy access safe harbor for kayak-based surveys

Map Satellite

Why Pillar Point Harbor?

Gaps in West Coast Motus Stations and proposed site at Pillar Pt.



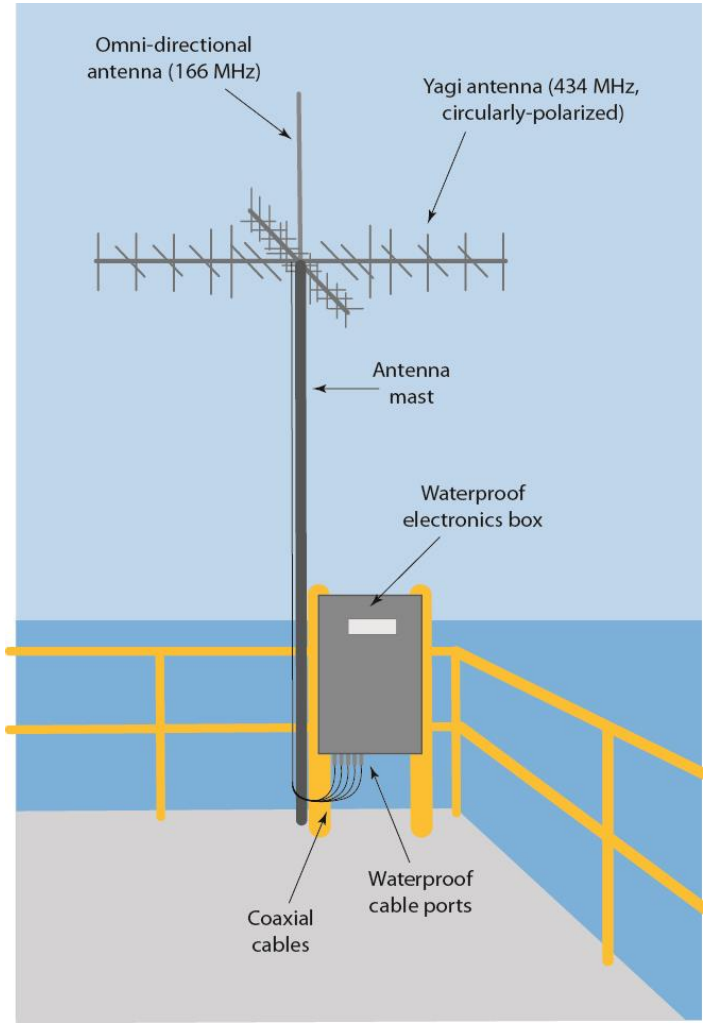
Why Pillar Point Harbor?

- Opportunity to look for failed radio tags
- Evaluate condition of tagged birds

Sensor Station Components

Equipment

- CTT SensorStation in weatherproof box
- Source of power
  - 50W solar panel and marine battery
- Omnidirectional antenna, single whip
- Mounting gear, for example: https://www.antennapartsoutlet.com/products/easy-up-non-penetrating-roof-mounts
- Cellular transmission



Possible rooftop locations at Pillar Point

Johnson’s Pier Fuel Station

Johnson’s Pier Fish Building

Logistics

- Site inspection
- Mounting considerations
- Additional equipment purchase
- USGS assist with installation
- Project duration 1-2 years

- Photos show USGS station at Rincon Island with two antenna types, omni on rail, versus single omni, flat roof mount in remote location example

Thank you!