

Pelagic Data Systems Solar Logger Case Study

Kathi George
The Marine Mammal Center
CA Dungeness Crab Fishing Gear Working Group

Solar Logger Pilot Project

Goals in 2018/19:

- Explore viability of solar loggers to support data needs for Risk Assessment and Mitigation Program (RAMP) developed by the California Dungeness Crab Fishing Gear Working Group (CA Working Group)
- Quantify and clarify the spatial distribution of commercial Dungeness crab fishing and whales, and the relationship between the two
- Inform the relative risk of whale entanglement

Solar Logger Pilot Project

Duration: December 2018 - January 2021 (in-process extension to **August 2021**)

Key Partners:

- Volunteer commercial D crab fishermen (25/40)
- Volunteer whale watch organizations (10/20)
- CA Working Group



The Marine Mammal Center®



OCEAN PROTECTION COUNCIL

The Nature Conservancy



The Marine Mammal Center.



PELAGIC DATA SYSTEMS



OCEAN PROTECTION COUNCIL

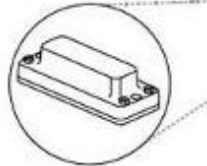
Data* & Functionality

**Data is encrypted and secure. Access is controlled by the fisherman*

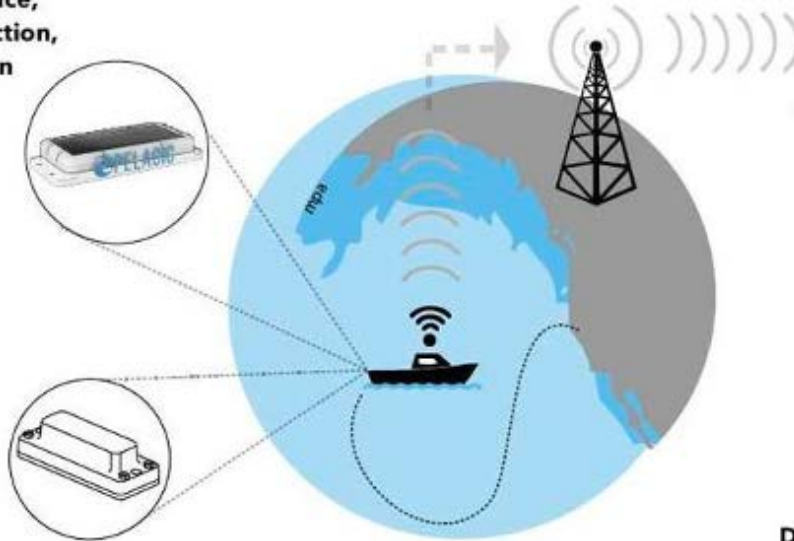
**Solar-powered device,
automatic data collection,
simple installation**



**Application-specific
wireless sensors**



Uploads via cellular network



**Data visualization and alerts
on a customizable dashboard**



PDS Portal

PELAGIC data systems Multiple Trips

Customer: Kathi (Kooztz) George

FILTER

Customers: Dick Ogg;

Date Range: 16 - 17 Dec 2019

DEVICES
BOATS
TRIPS
ALERTS
MANAGEMENT

Search

1 Selected

<input checked="" type="checkbox"/>	Boat	Captain	Start	End	Duration	Distance
<input checked="" type="checkbox"/>	Karen Jeanne	--	2019.12.16 13:16:34	2019.12.17 20:58:33	1d 7h	220.64 km

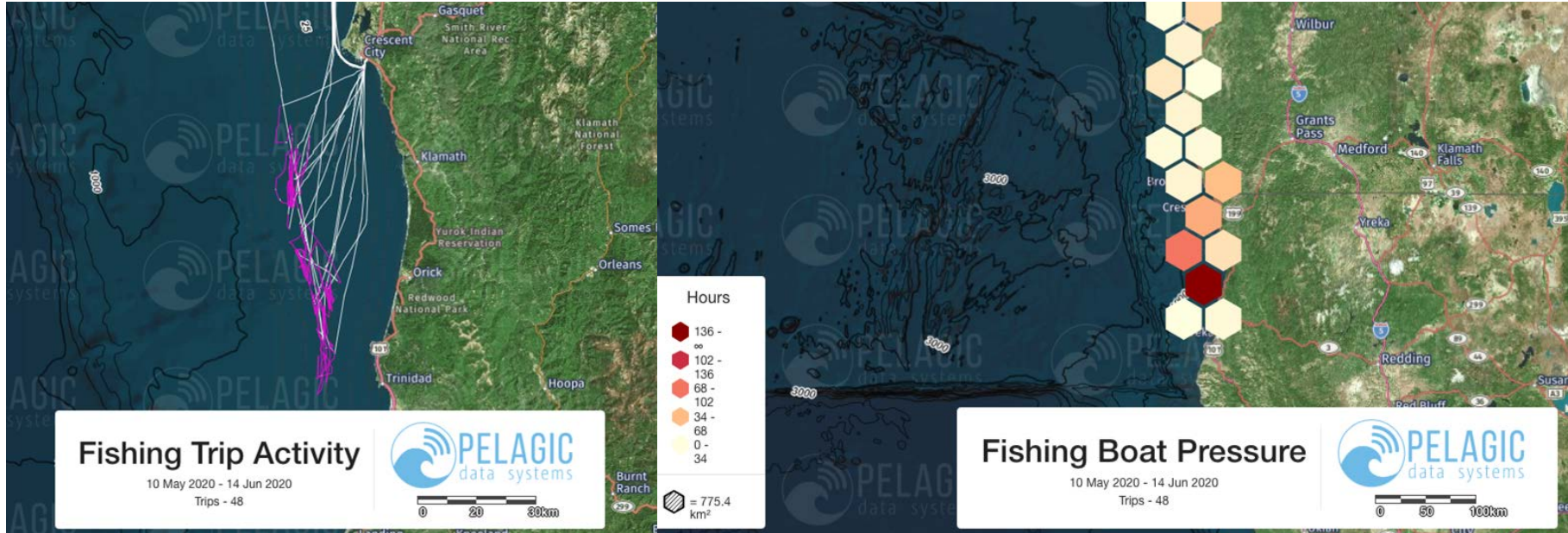
1-1 of 1 | Page 1 | Rows per page 30

Total trips 1

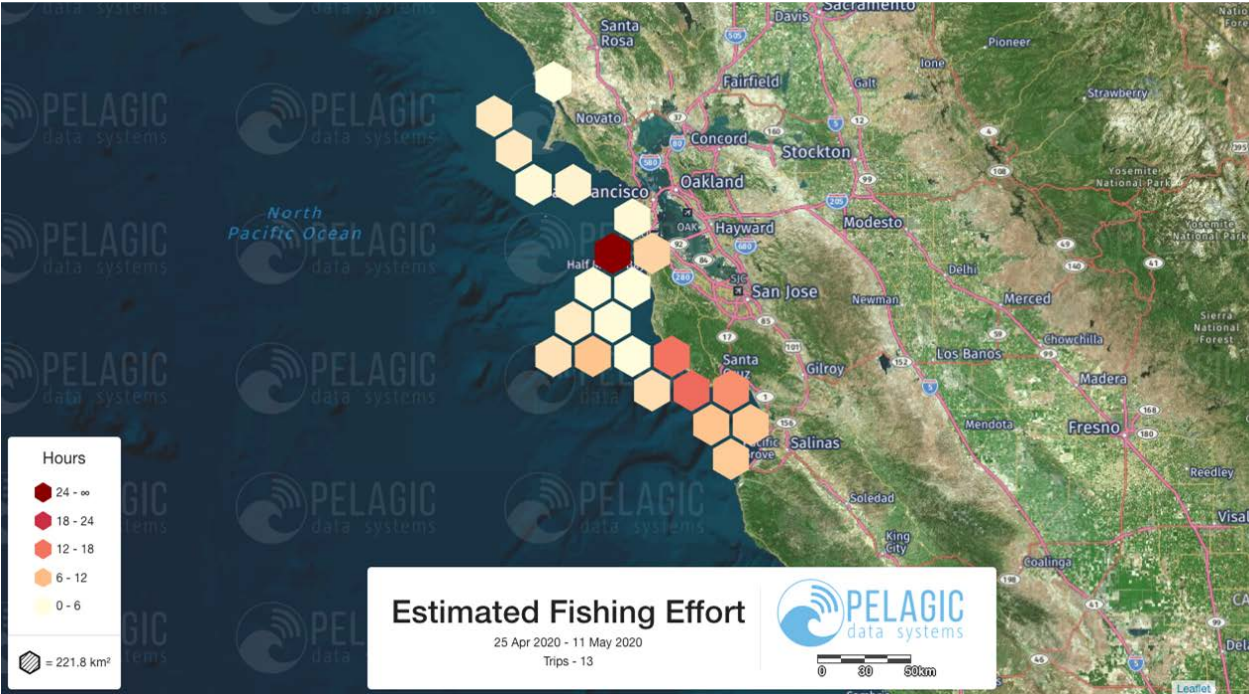
Trip ID: 852432
Boat: Karen Jeanne
Duration: 1d 5h
Range: 0.0 km
Start Time: 2019.12.16 13:17:59
End Time: 2019.12.17 18:39:29

Map showing trip route near Bodega Bay, California. Locations include Jenner, Forestville, Graton, Occidental, Sebastopol, Santa Rosa, Rohnert Park, Valley Ford, Dillon Beach, Marshall, Inverness, Nicasio, Point Reyes Station, Golden Gate Nat'l Recreation Area, and Bo Inas.

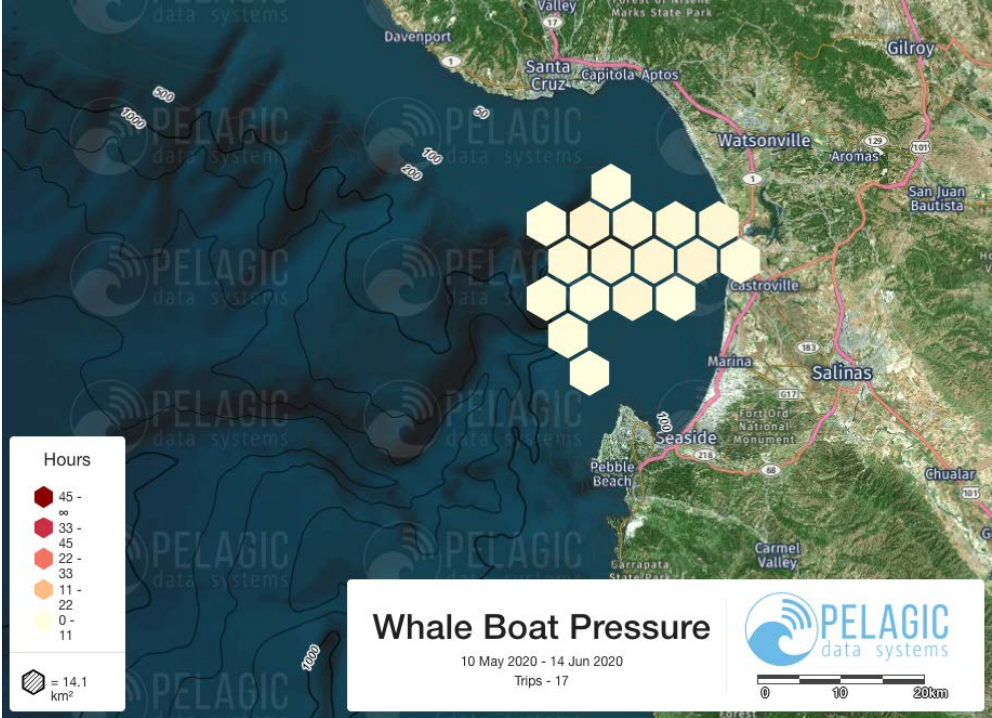
PDS Maps (with Bathymetry)



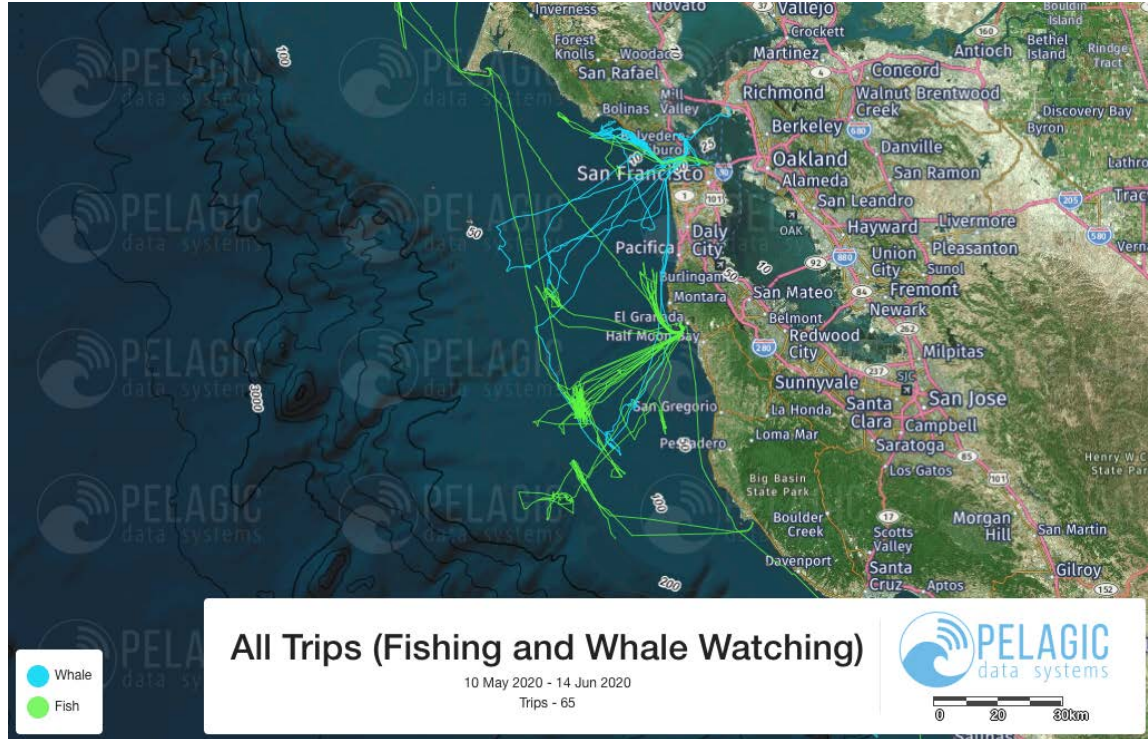
PDS Maps



PDS Maps



PDS Maps



Solar Logger Project Challenges & Observations

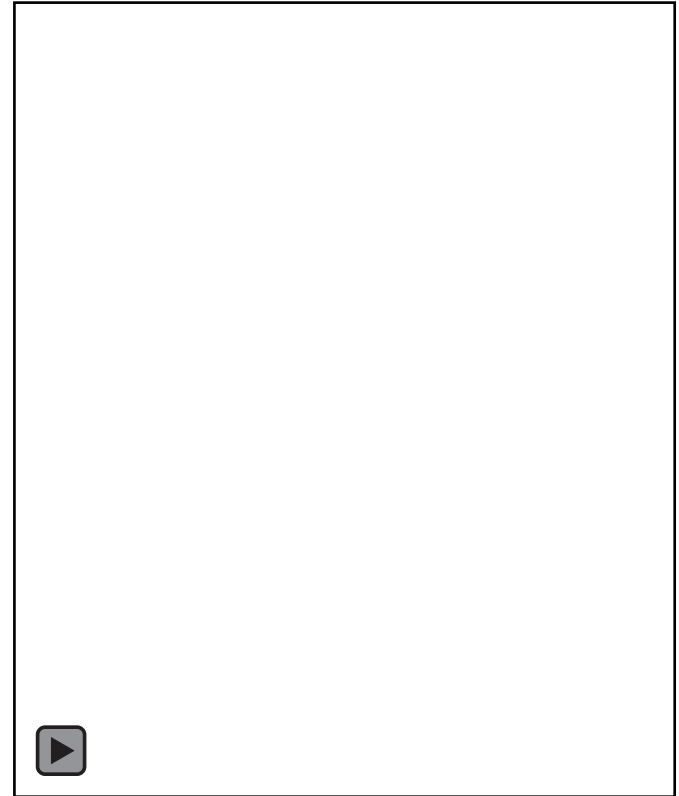
- Unclear management objectives
- Low participation in the pilot project
 - Hard to show data at a meaningful scale
 - Dec 2019 - Jan 24, 2020: 65 trips
 - Feb 2019 - April 24, 2020: 83 trips
 - No whale sightings recorded in fishing areas
- Manual effort is required
 - Refine algorithm to detect D crab trips (improve machine learning)
 - Monthly aggregated reports/visualizations
 - Scripts are required to get depth and other data elements

PDS Data with Depth

(Point Blue Conservation Science script)



Sample of data points



Next Steps

- Complete the pilot project with + participants
- DA Testing
- Explore/Refine
 - Scripting opportunities
 - New analyses and reports
 - Opportunities to comply with regulations
 - Other uses for solar loggers



Outside of my pay grade:

- Fishing Opportunity - transit closed areas
 - DA closure or District 10 closure prior to original July 15th closure

Closing Thoughts

- Collaborate, not replicate
 - Shared learnings
 - Device, data, analysis, output
- Credible data is credible science: review data to ensure accuracy
 - Active management tool for fishermen
- Standardize script creation (for depth, fishing zone, etc.)
 - Across California and the West Coast
- Identify overlapping management objectives across CA, OR, and WA
 - Support for each other or standardization
 - Applicability to other fisheries?
- Can solar loggers be acceptable technology instead of VMS?



Kate Cummings / BOWW

Thank you!



kathikoontz@gmail.com

