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Why better whale detection ?

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British Columbia

Humpback whale found dead after possible collision with B.C. Ferries vessel

The DFO will co-ordinate a necropsy to determine the cause of death

CBC News · Posted: Sep 18, 2025 8:58 PM EDT | Last Updated: September 18

+783%
in vessel # since 1890

75
species affected by vessel strikes

~384
NARW left

⅓ to ½
NARW die by vessel strikes

NARW calf killed in vessel collision FWC photo, NOAA permit 18786.

Estimated ten-thousand whales globally are killed by vessel strike annually

Thermal imaging whale detection

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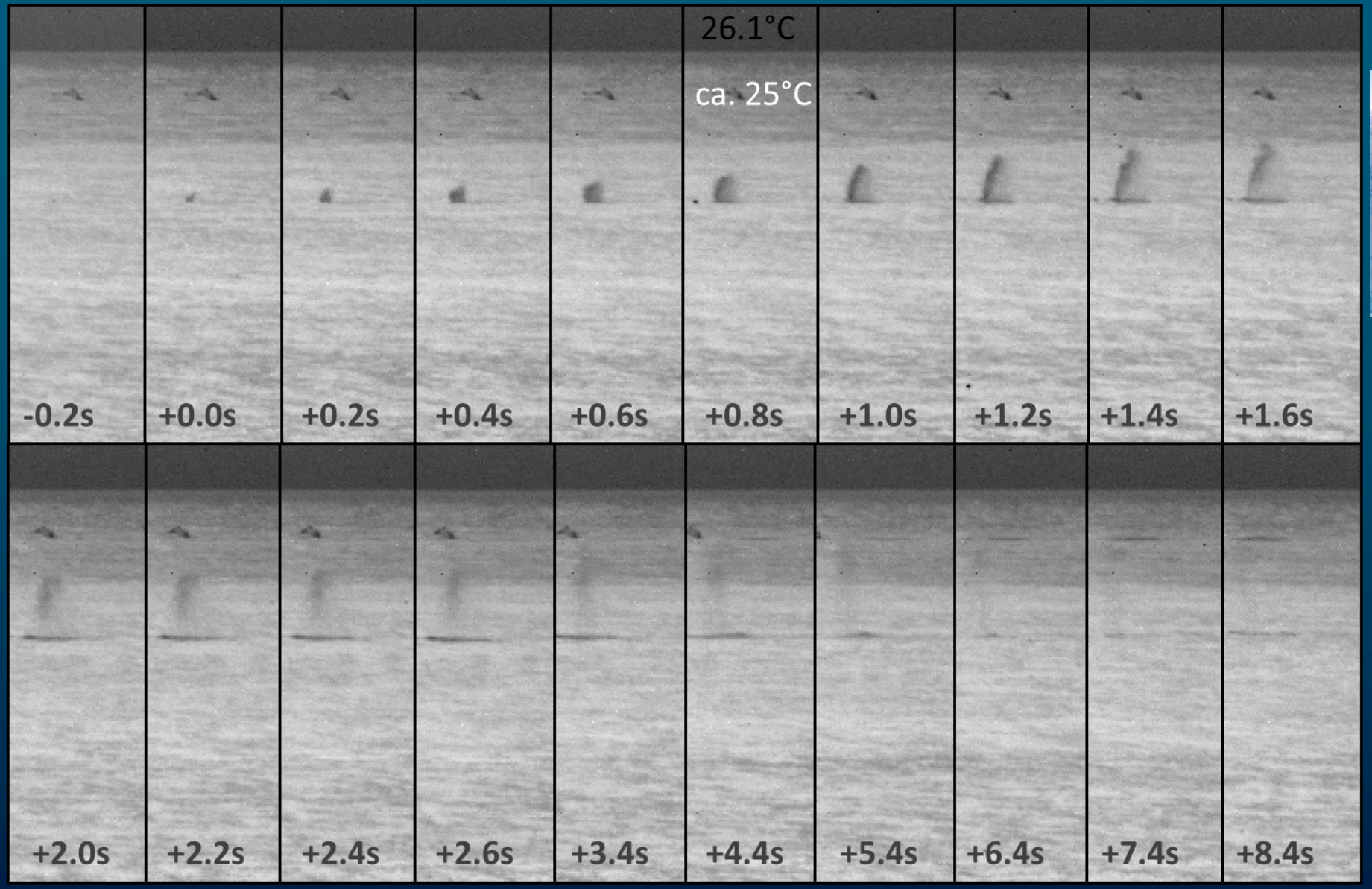

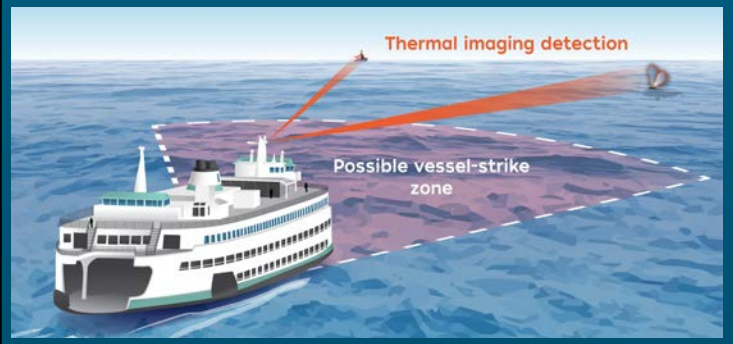

- ✓ apparent temperature difference between animals' body parts / blow and water
- ✓ only at surface level
- ✓ trialed since 2009 across the worlds oceans

Long-range whale detection

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Thermal and visual paired for automatic matching

4.7km / 2.5 NM

Species Identification examples

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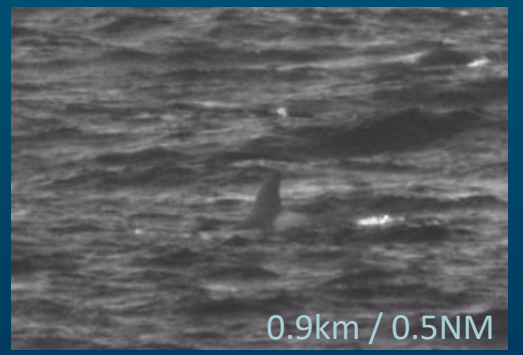
Humpback Whale

Killer Whale



Minke Whale

Marine life detection examples

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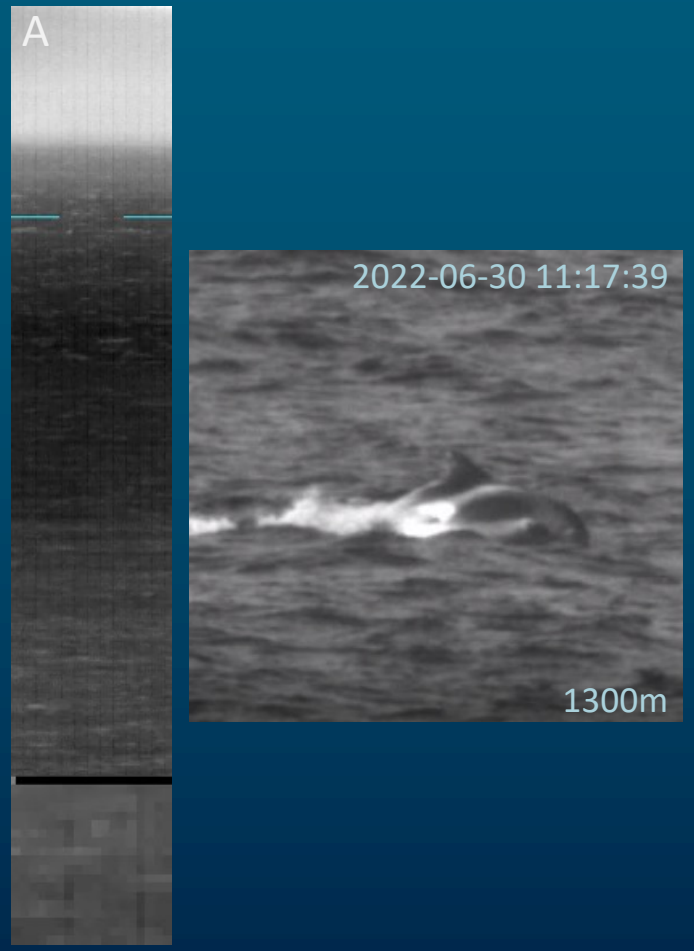
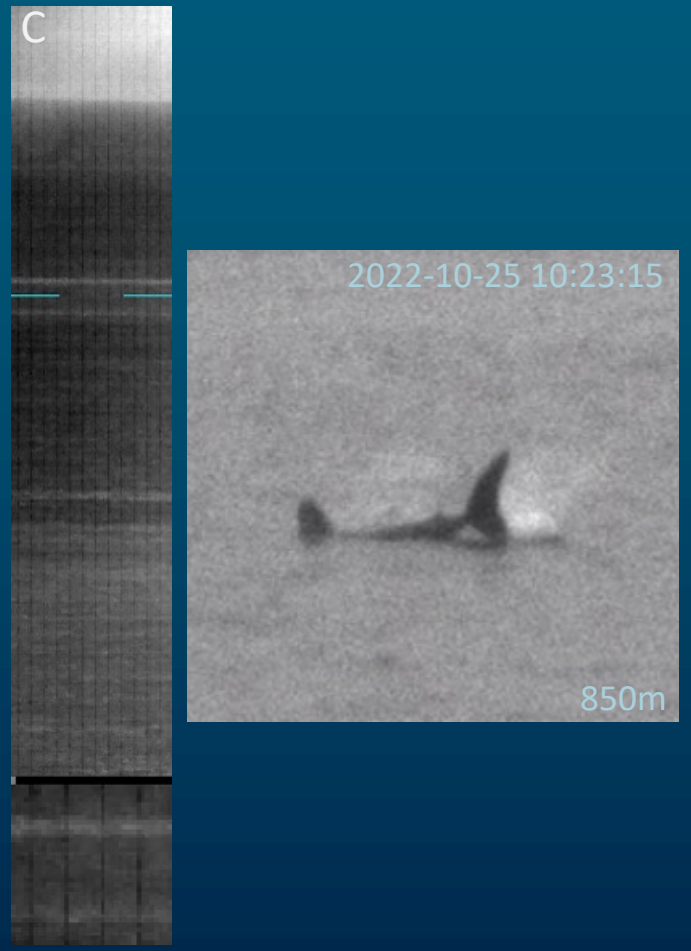
White-Beaked Dolphin



Tuna

Basking Shark



WhaleSpotter devices

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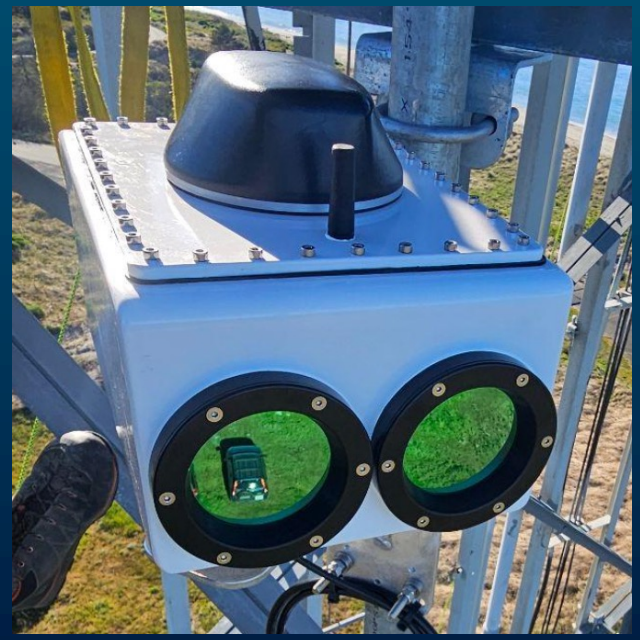
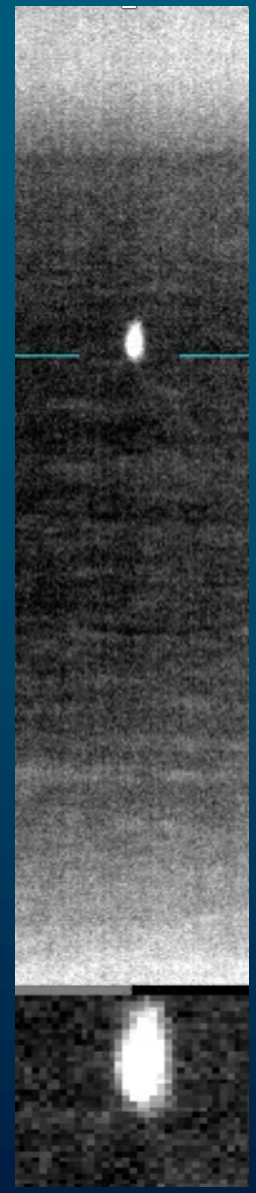
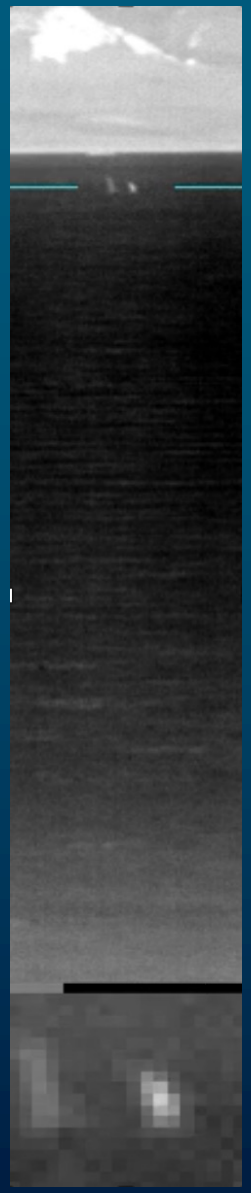
Specification

- Long-range marine mammal detection
- Day and Night
- 24/7 expert validation within seconds
- near ZERO false alerts
- 1 - 3.5 nm (2 - 6.4km) reliable detection range
- 7kg / 14lbs, 22x20" footprint
- 24° FOV, 2x thermal & color cameras
- Operation in up to sea state 6
- Any vessel class (>15ft elevation)







Application:

- Whale strike mitigation
- Marine construction (Noise impact mitigation)
- Biodiversity monitoring

Results:

- 230,000 whales detected
- > 47 years cumulative operation

Deployment examples

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Land

Supply / Escort

Autonomous vessels

Construction

Ferries (high and low speed)

Research

Container

Cruise vessels

Installation examples

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Global distribution

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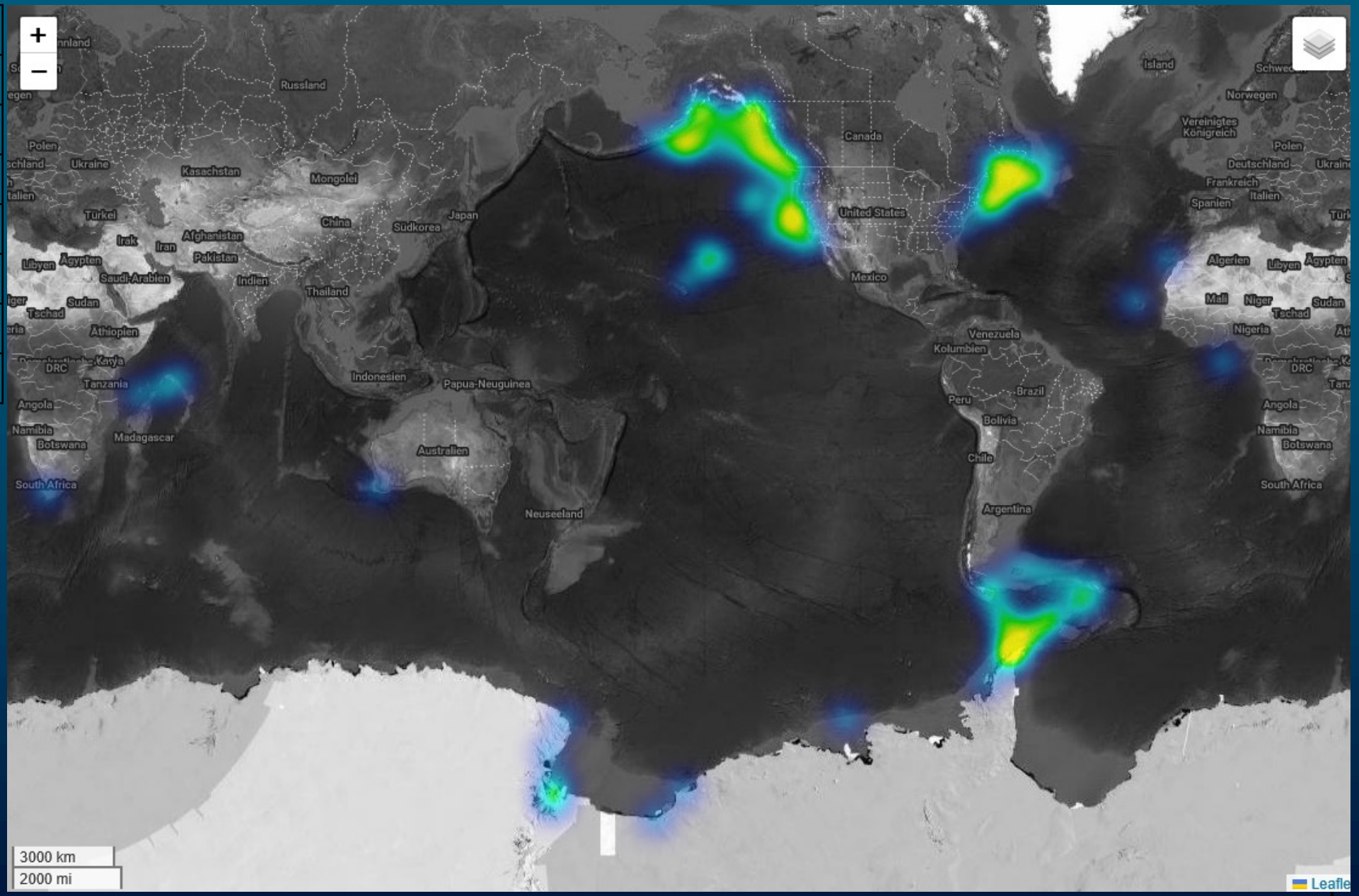
Year	# Detections
2019	78
2020	361
2021	3,958
2022	17,224
2023	22,556
2024	51,258
2025	129,974



Interface

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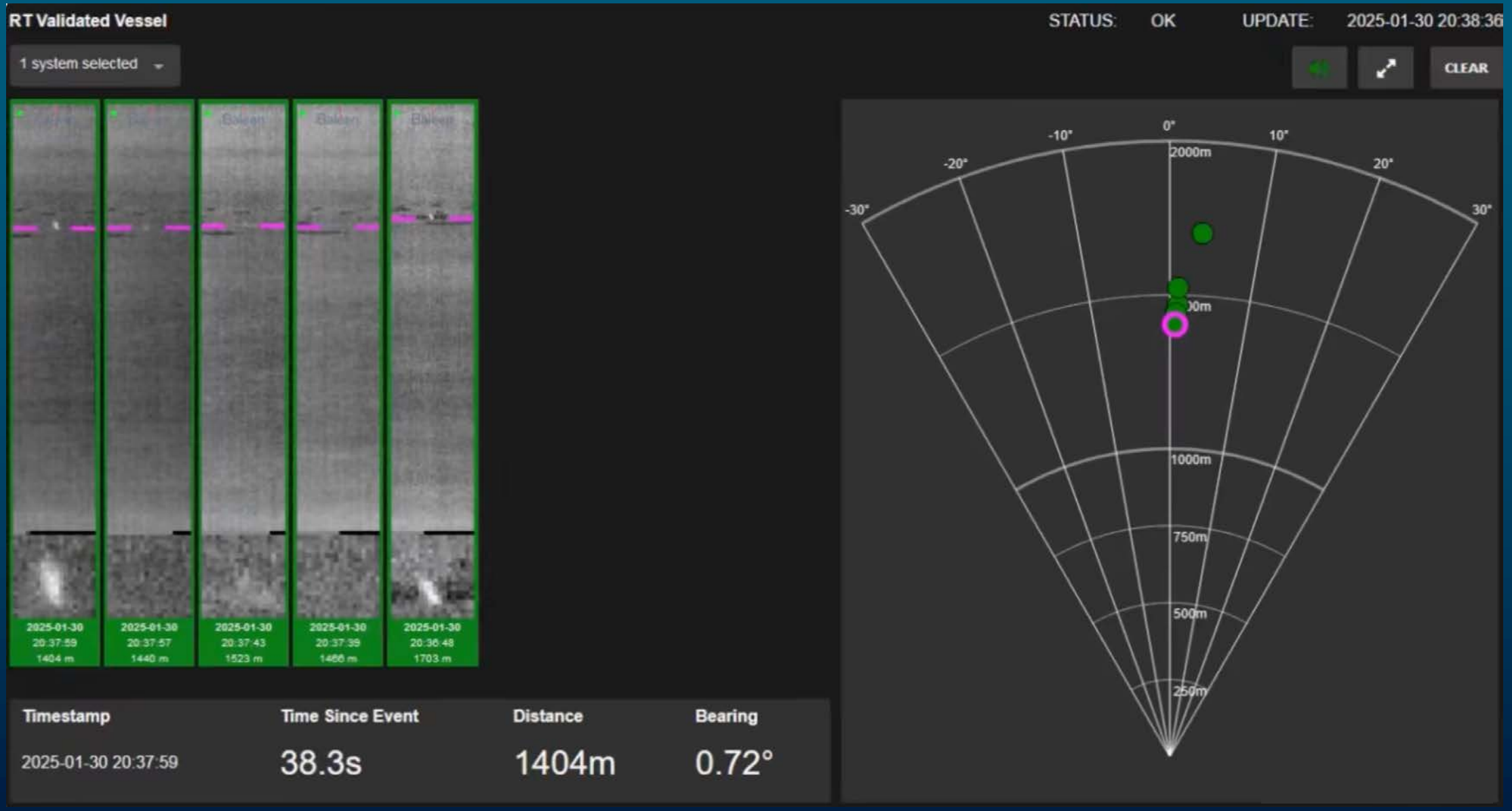

Avoid example 1

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End user products

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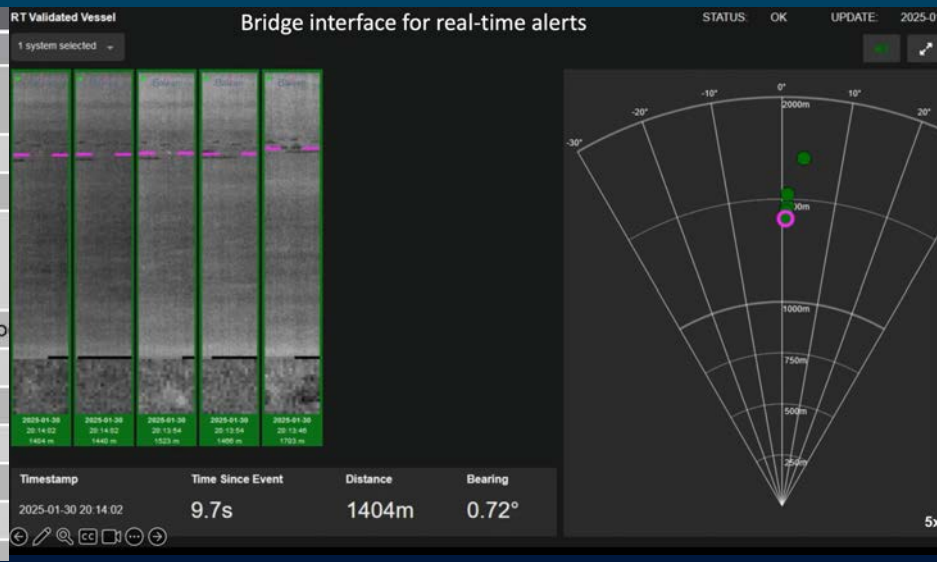
- Real-time alerts on bridge with dedicated app
- WhaleSpotter dashboard (map, encounter list)
- Real-time data to whale dissemination networks such as WRAS & WhaleAlert
- NMEA integration
- Daily summary email
- Tabular data download (xlsx, csv)

2024								
12								
7	2024-12-30	13:18:58	CAPERAY	Humpback Whale	OK	7	7	
3	2024-12-30	11:55:41	CAPERAY	Minke Whale	OK	3	3	
3	2024-12-30	08:53:17	CAPERAY	Baleen	OK	3	-	
43	2024-12-29	18:13:13	CAPERAY	Minke Whale,Pilot Whale	OK	43	43	
5	2024-12-29	17:37:09	CAPERAY	Pilot Whale	OK	5	5	need a double check - seems to big for porp
1	2024-12-29	14:09:20	CAPERAY	Porpoise	OK	1	1	
8	2024-12-29	12:28:20	CAPERAY	Minke Whale	OK	8	8	
2	2024-12-29	11:58:43	CAPERAY	Minke Whale	OK	2	2	
3	2024-12-29	11:25:23	CAPERAY	Minke Whale	OK	3	3	
2	2024-12-28	08:05:03	CAPERAY	Baleen	OK	2	-	training
1	2024-12-28	01:01:00	CAPERAY	unidentified	OK	1	-	



Summary

- Thermal imaging whale detection is **proven, matured** and now used **routinely**
- **WhaleSpotter** provides expert verified real-time **long-range** whale detection & alerts, with sufficient **lead time** for captains to take evasive action, day and **night**
- Our network provides large spatial coverage, with sharing in mind (**WRAS & WhaleAlert** implemented)
- **WhaleSpotter** provides 90-99% whale strike risk reduction

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https://www.whalespotter.com/