


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EXPEDITION WHALESONIC:

Synchronized Acoustic and Video Data of Killer Whales and Humpback Whales in Northern Norway

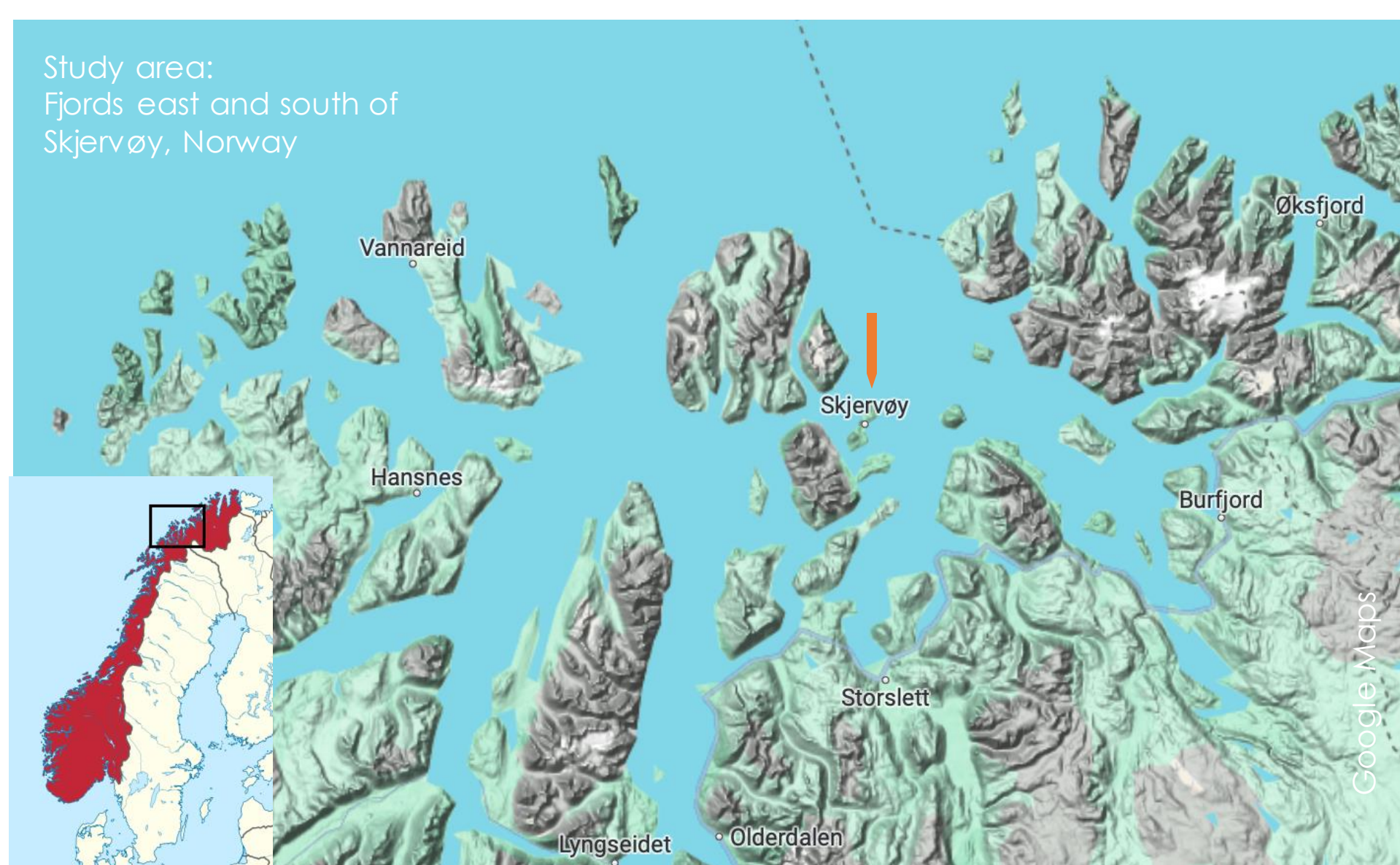
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MOTIVATION

- When collecting acoustical data, a big challenge lies in attributing recorded vocalizations to specific individuals
- Killer whales vocalize extensively during hunting & socializing (Filatova O. *et al.*, 2013)
- Each November, killer whales (*Orcinus orca*) and humpback whales (*Megaptera novaeangliae*) migrate to the fjords of northern Norway to prey on Atlantic herring (*Clupea harangus*)
- In the winter 2023/24 the expedition WhaleSonic was carried out in the fjords around the village Skjervøy, Norway, to collect video & audio data of these species

EXPEDITION

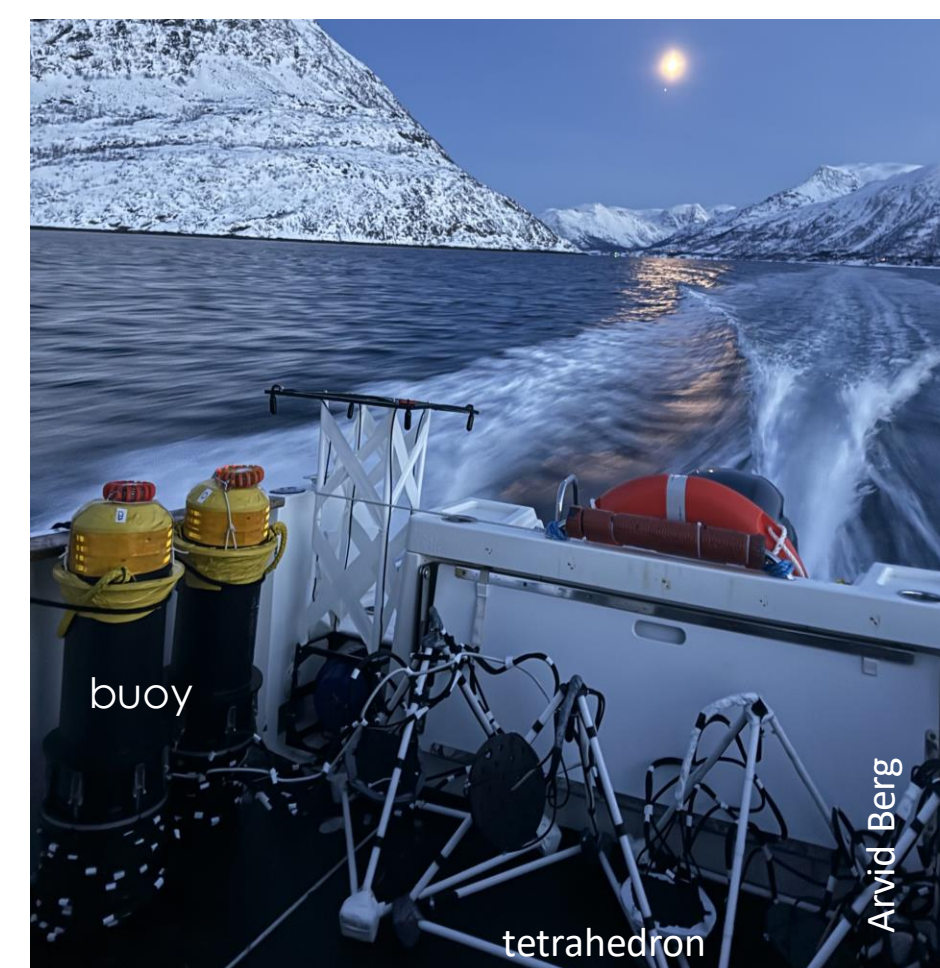
- Data was collected on day and night shifts for six weeks
- 60 excursions (~5 hours), 16 participants, 85 deployments of acoustic recording instruments (total ~130 hours)
- Recordings were made within an area of 35 km²



TECHNOLOGY

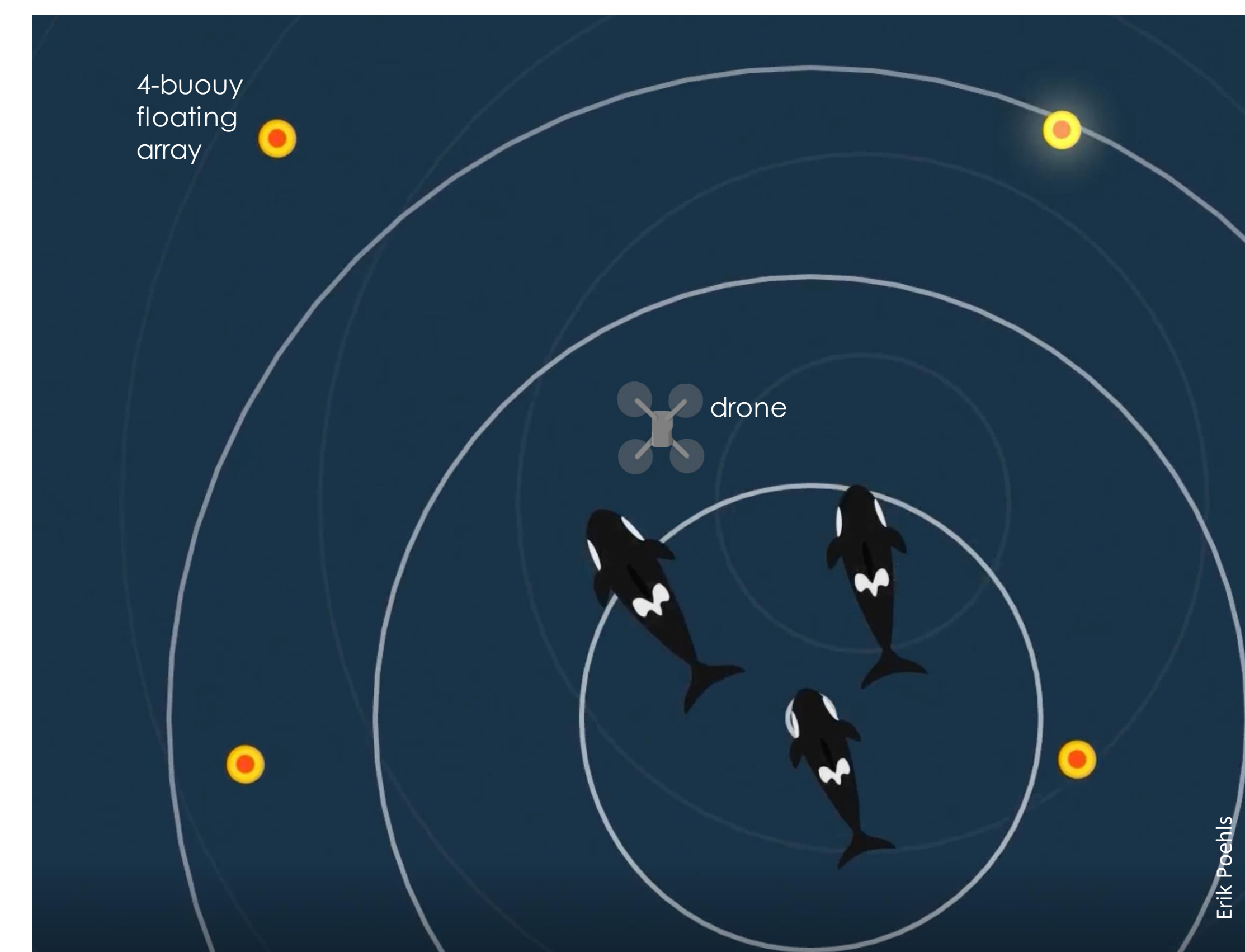
AUDIO

- To allow signal source separation and localization a 4-buoy floating array was used
- Each buoy carried a tetrahedron with four hydrophones
- Tetrahedrons hang under the buoys at depths of 10 and 20 meters
- The audio recordings of the buoys were GPS synchronized



VIDEO

- Recorded with drones flying above the animals
- Information on height & location per frame will allow localizing individuals
- UTC times were recorded in frame to synchronize audio and video



OUTLOOK

- The data will be consolidated into single files with aligned sampling, GPS tracks of buoys and drones and excursion logs
- The consolidated dataset will offer the possibility to analyze vocally coordinated movement of wild cetaceans
- The data includes recordings of killer whales (*Orcinus orca*), humpback whales (*Megaptera novaeangliae*), sperm whales (*Physeter macrocephalus*) and fin whales (*Balaenoptera physalus*)
- The data will be published open access