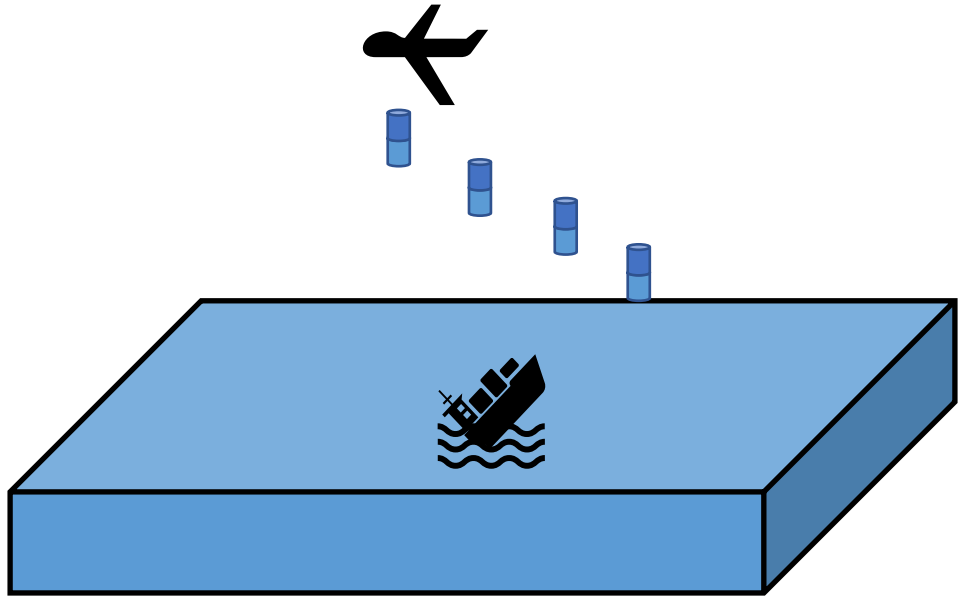
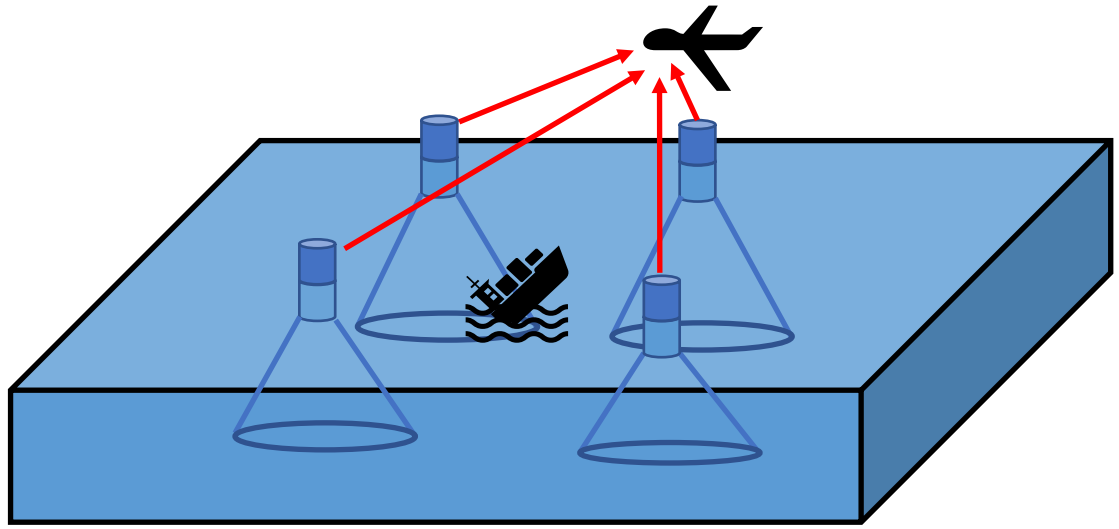
Two applications for the last manuscript (device lifetime maximization)

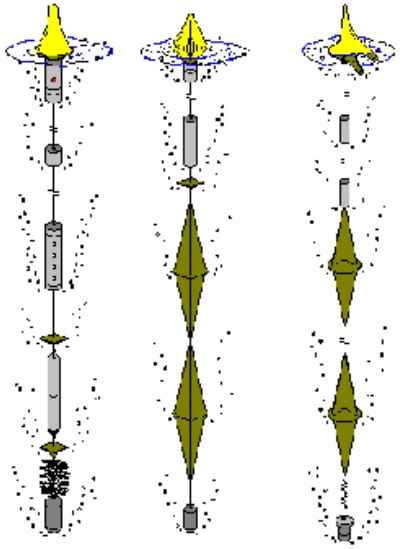
- Emergency communication
- Precision salmon System

Emergency communication

- An example: In World War II, expendable sonobuoy was dropped into the ocean in response to detect submarines to the devastating destruction of shipping in the Atlantic caused by U-boats.
- The Directional Command Activated **Sonobuoy** System sonobuoy
  - An active acoustic sonobuoy used by the Navy to detect submarines.
  - Operate for up to **one hour** at depths of up to 457 m (1,500 ft).



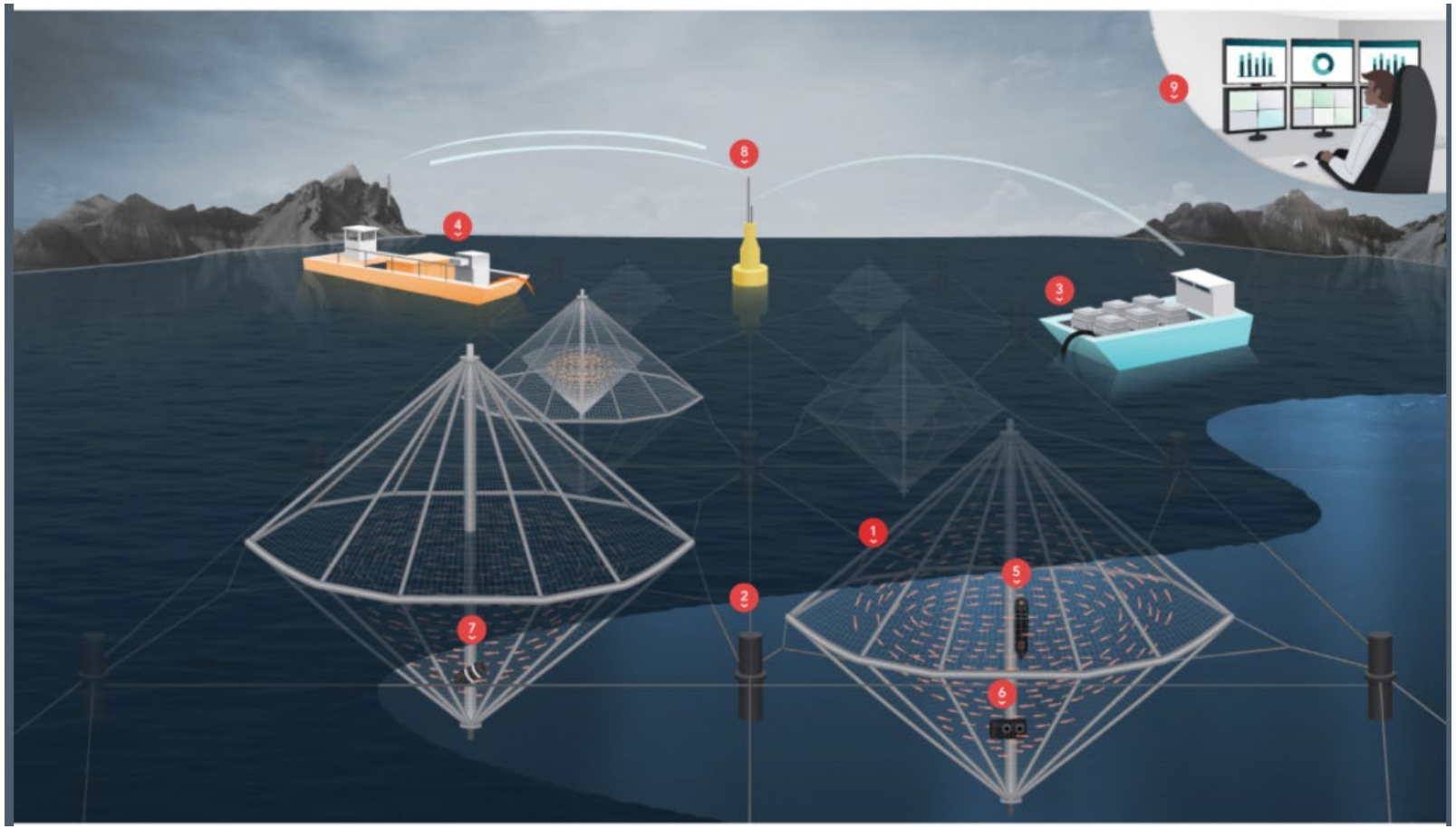




My idea: The longer the transmission time of the sonobuoy, the more conducive it is to detect the submarines. Thus, we need to consider lifetime maximization of sonobuoy

- https://apps.dtic.mil/dtic/tr/fulltext/u2/a597432.pdf
- https://dosits.org/galleries/technology-gallery/locating-objects-by-listening-to-their-sounds/difar/

Precision salmon System



sensors were installed to collect information determining the vertical **distribution of the fish** in the **cage**, while a network of **environmental sensors** characterized local site conditions.

Fish response based on thermoregulation (temperature variations), oxygen levels, or weather data can be used to **inform feeding schedule, oxygen supplementation, or stocking densities to ensure fish health**.

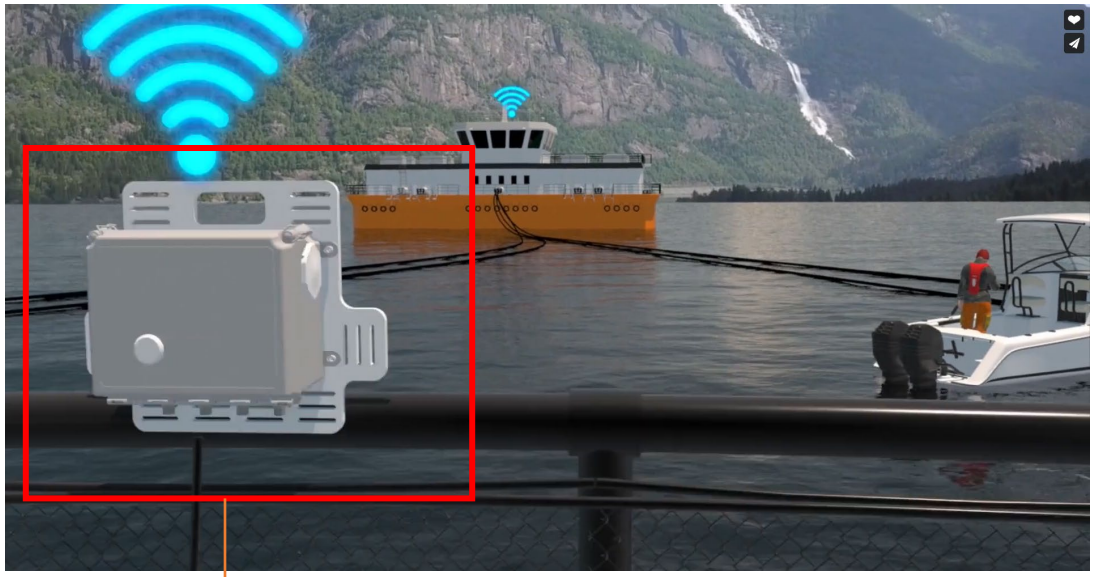
aquaMeasure sensors

https://www.innovasea.com/open-ocean-aquaculture/


A
GAIN Project: Precision Salmon
Thermoregulation
Oxygen Levels
Weather data
Institute of Aquaculture
UNIVERSITY of STIRLING
稍后观看
分享


Project: Precision Salmon

Cloud Communications for Aquaculture



- **All the information from aquaMeasure sensors is sent to the aquaHub**, which can be mounted on existing infrastructure or on a feed barge.
- Roughly the **size of a shoebox**, the aquaHub uploads the data to the cloud via **cellular, Wi-Fi or Iridium satellite**

My idea: Using the UAV to collect the data of aquaHub in remote area periodically