

# Collaborative Remediation of Abandoned, Lost or Otherwise Discarded Fishing Gear in Southwest Nova Scotia

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# Project Work

## COLLABORATIVE REMEDIATION OF ABANDONED, LOST, AND DISCARDED FISHING GEAR (ALDFG) IN SOUTHWEST NOVA SCOTIA

Collaborative project to prevent, reduce, and assess impacts of ALDFG on the South Shore of Nova Scotia (LFAs 33, 34, and 35 – Nova Scotia only) from July 2020 to March 2022.

- This project is possible thanks to the financial support of Fisheries and Oceans Canada (DFO) Sustainable Fisheries Solutions and Retrieval Support Contribution Program (SFSRSCP).





## **Abandoned, Lost, or Otherwise Discarded Fishing Gear (ALDFG)**

is considered fishing related debris,  
either accidentally or deliberately  
disposed into the marine environment,  
with the ability to cause significant  
environmental and economic impacts.





# How is ghost gear generated?

**Accidental**





# How is ghost gear generated?

**Industry Conflicts**



# How is ghost gear generated?

**Marine Conditions**



# How is ghost gear generated?

**Inappropriate Disposal**





# Impacts

## Economic and Social

For target species such as lobster, lost traps can indiscriminately capture by-catch for long periods after the trap is lost due to the **ghost fishing cycle**.

Baseline assessment research from this project resulted in an estimated commercial loss of target species upward to **CAD\$172,000 annually**.

## Environmental

' **Ghost fishing** ' can trap species that aren't targeted as part of the fishery, like some species-at-risk, or entangle marine mammals, resulting in extensive injuries, deter their ability to reproduce and feed, starvation, and possible death

Dynamic ocean conditions and lost gear can damage ecosystems developed on the bottom of the ocean, and lead to **provide unsuitable habitats**.

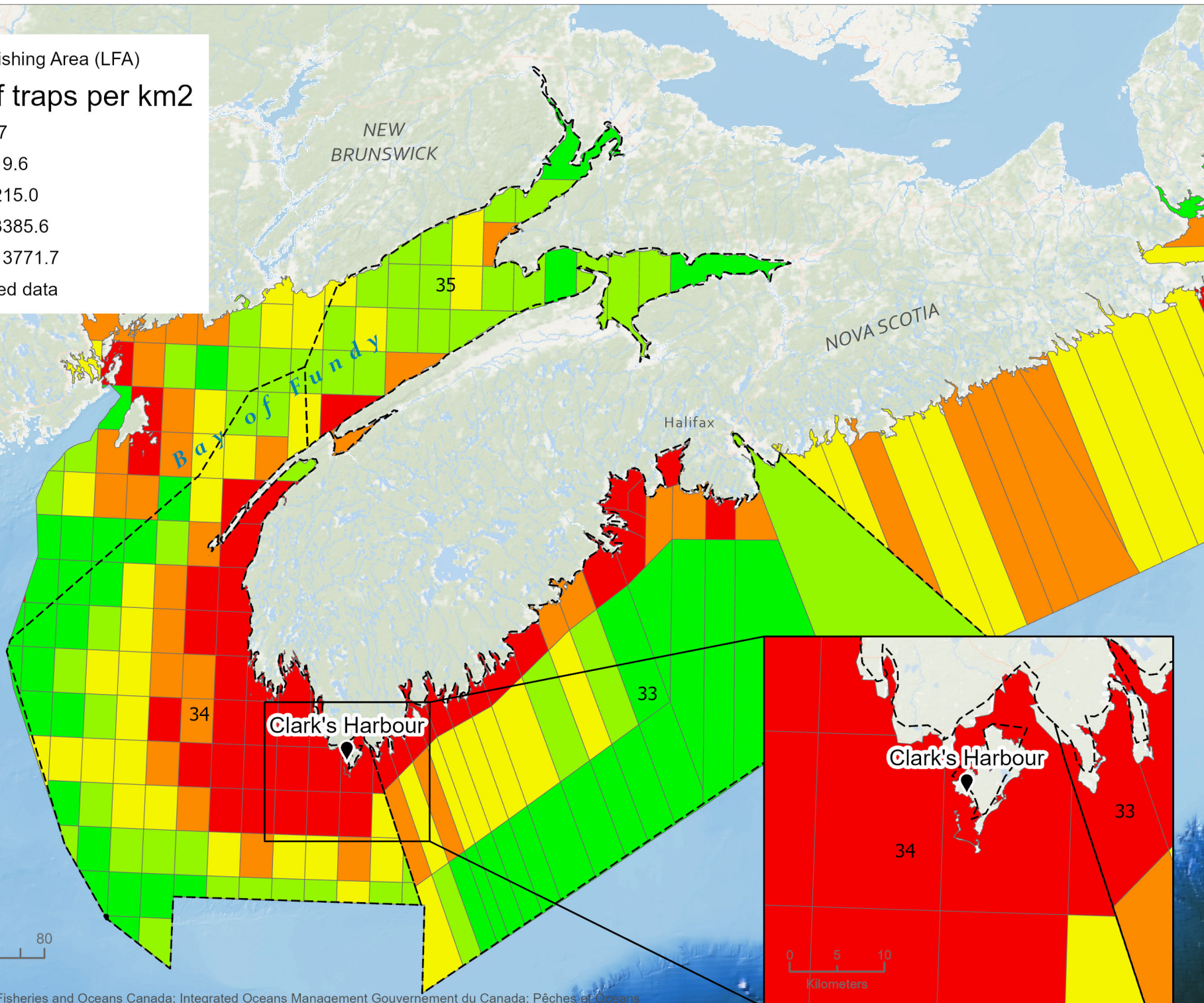
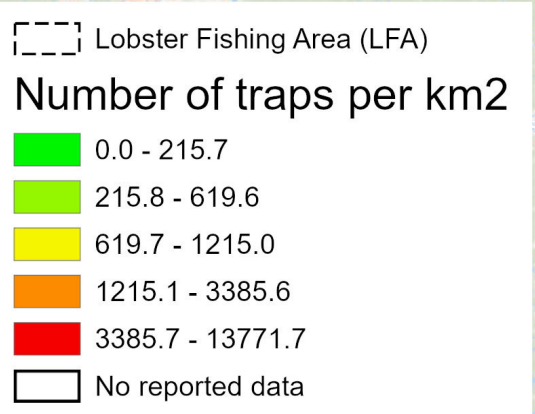
# Scope: Southwest Nova Scotia

**Most productive  
American Lobster  
fishing area in  
Canada**

**Harvest of this  
crustacean  
contributes to over  
\$500 million each  
year.**

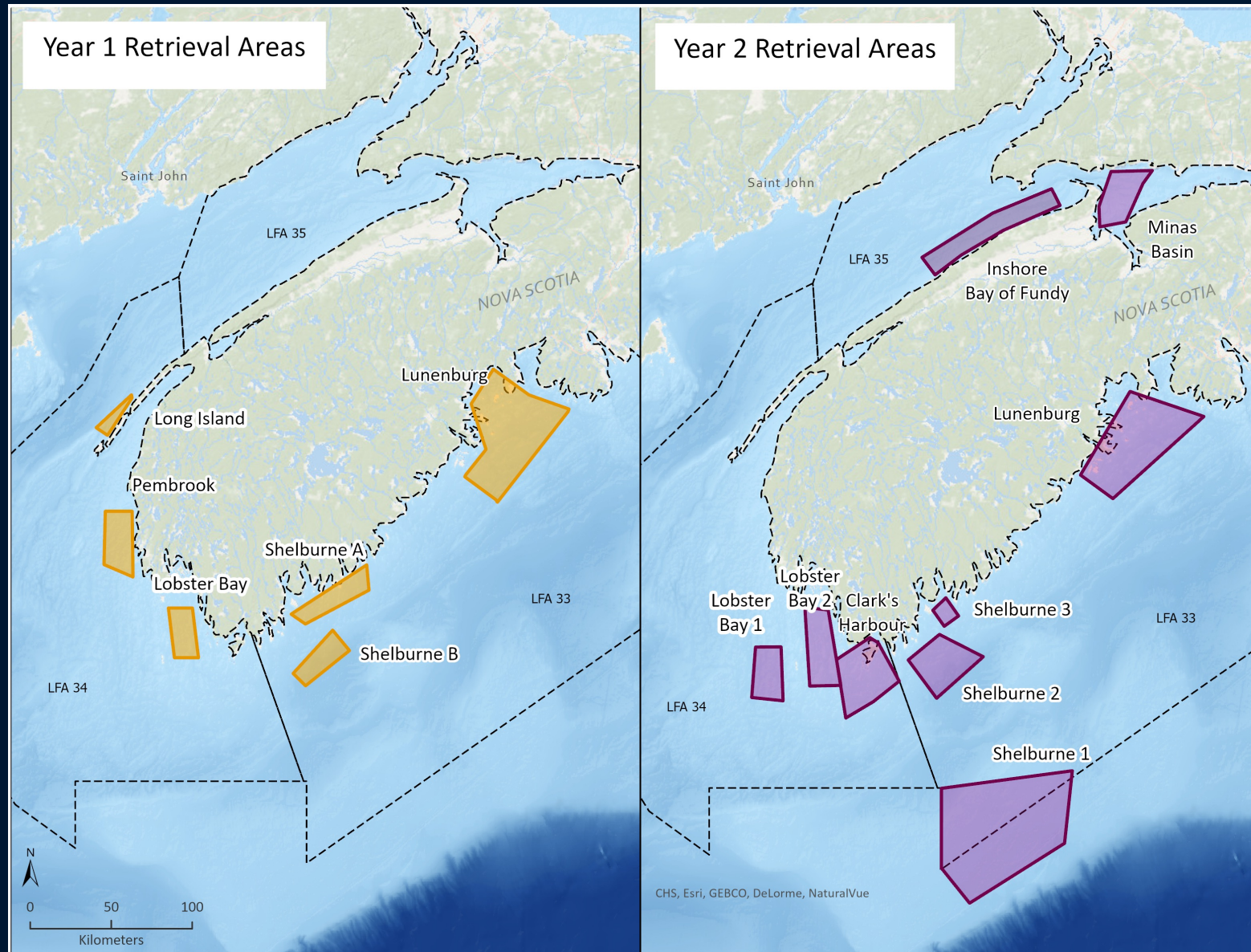






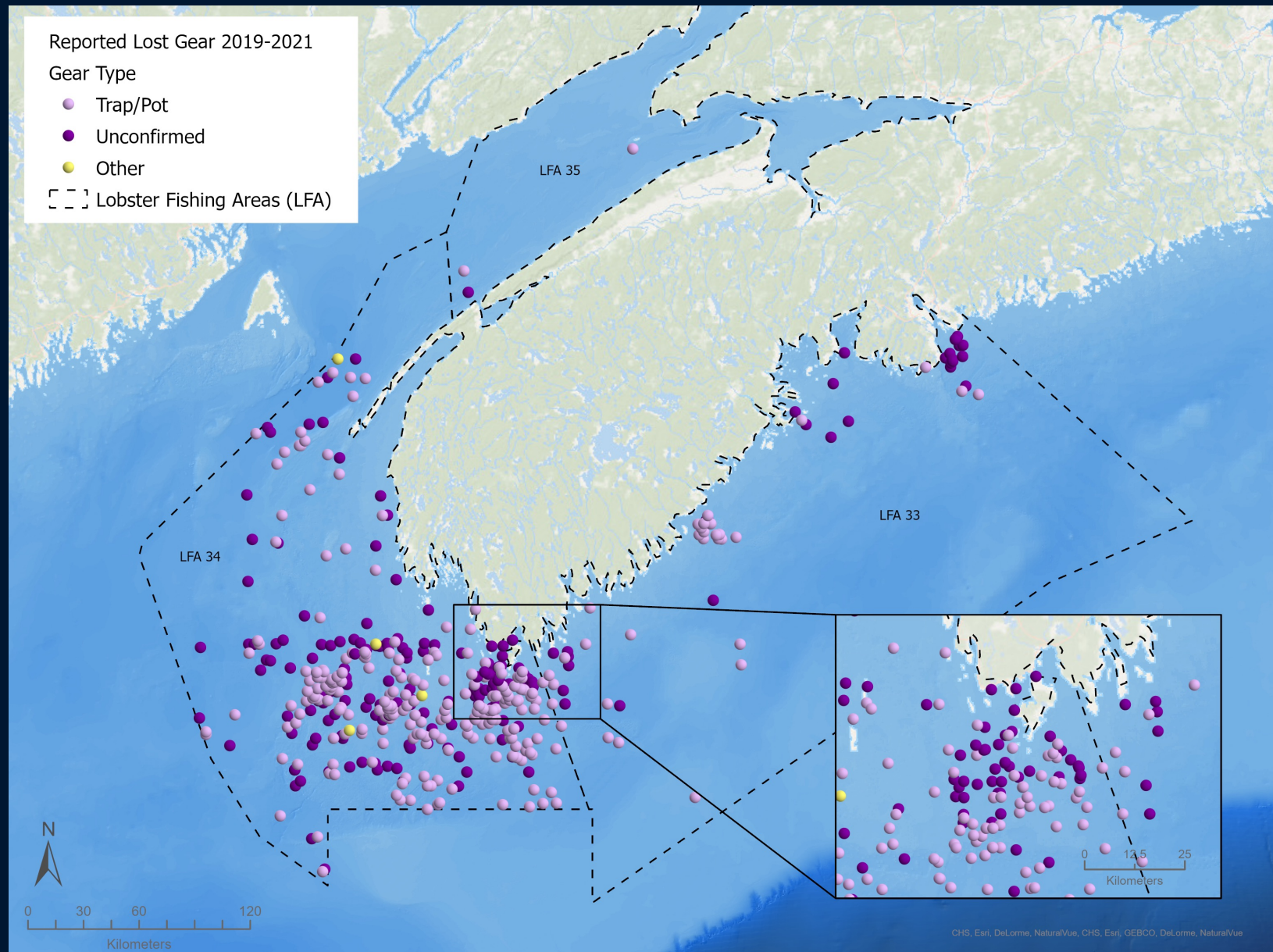


# Retrieval Area Selection





# Reported Lost Fishing Gear



# AIS Data for Retrieval Missions

## Gear Detection

- AIS data used in conjunction with sonar data acquisition software for gear detection.

## Gear Retrieval

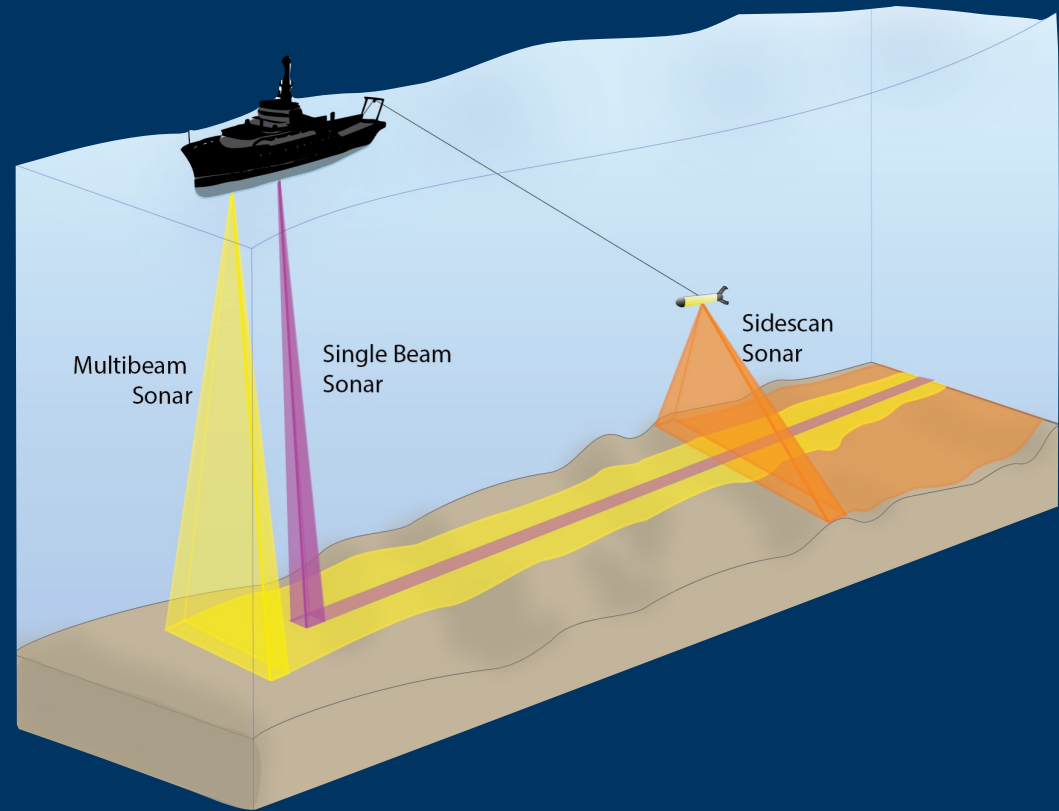
- Using fishers intel to determine search areas.
- Using AIS data to understand towing patterns.
- AIS data from retrieval operations to provide insight into future retrieval missions.



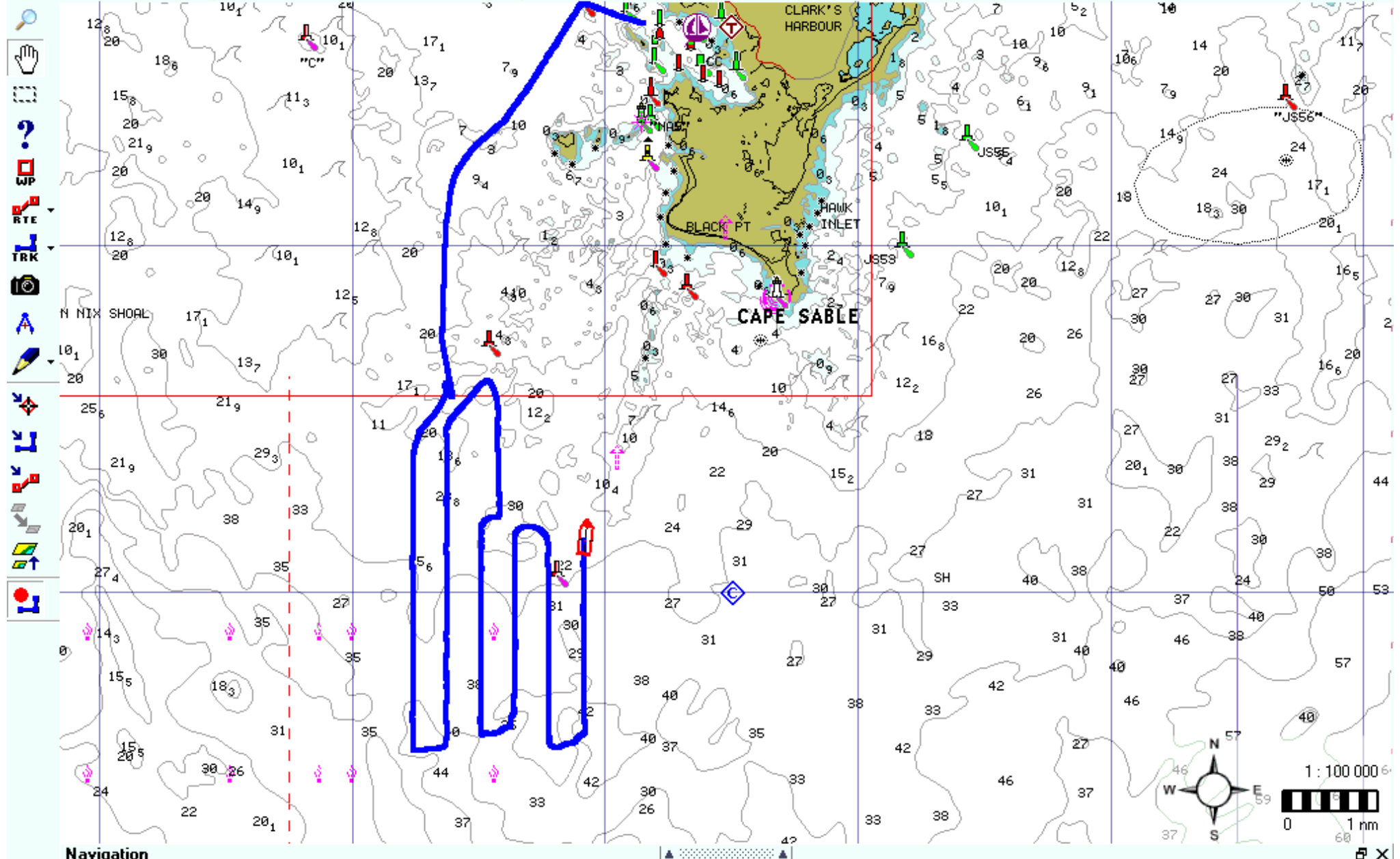
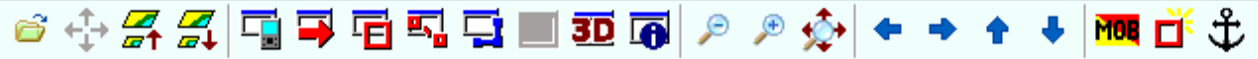
# Gear Detection

In 2017, the Global Ghost Gear Initiative highlighted side scan sonar as a primary tool for gear detection.

Side scan sonar systems record acoustic data from a swath of seafloor to produce an image pertaining to the surficial seabed characteristics.



Graphical illustration of the differences between multi-beam, single beam, and side sonar sonar (Vicki Gazzola).



Navigation

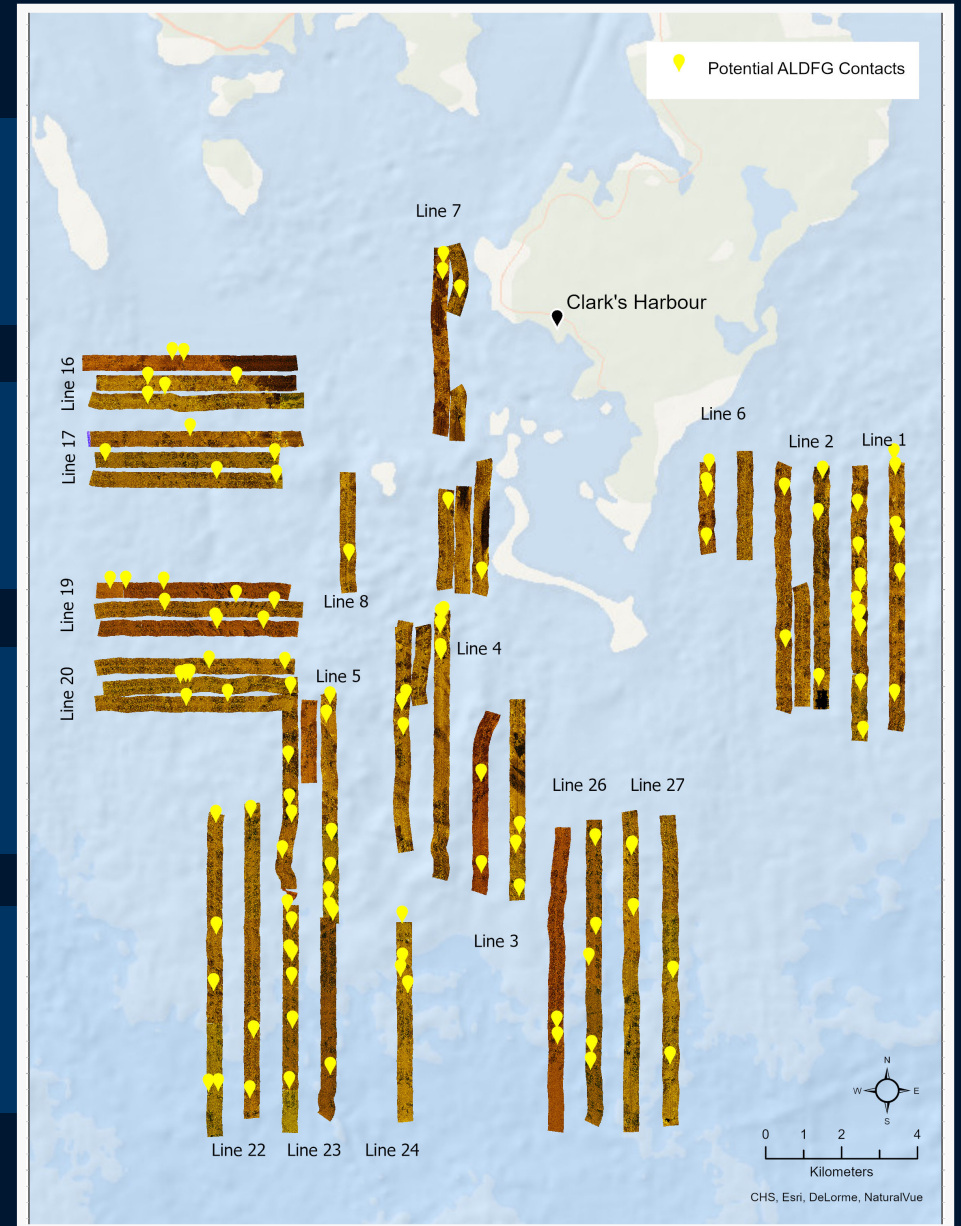
# Gear Detection

**91** km<sup>2</sup> Area collected by side scan sonar in Clark's Harbour, NS.

**114** Potential contacts upon second comprehensive review of data.

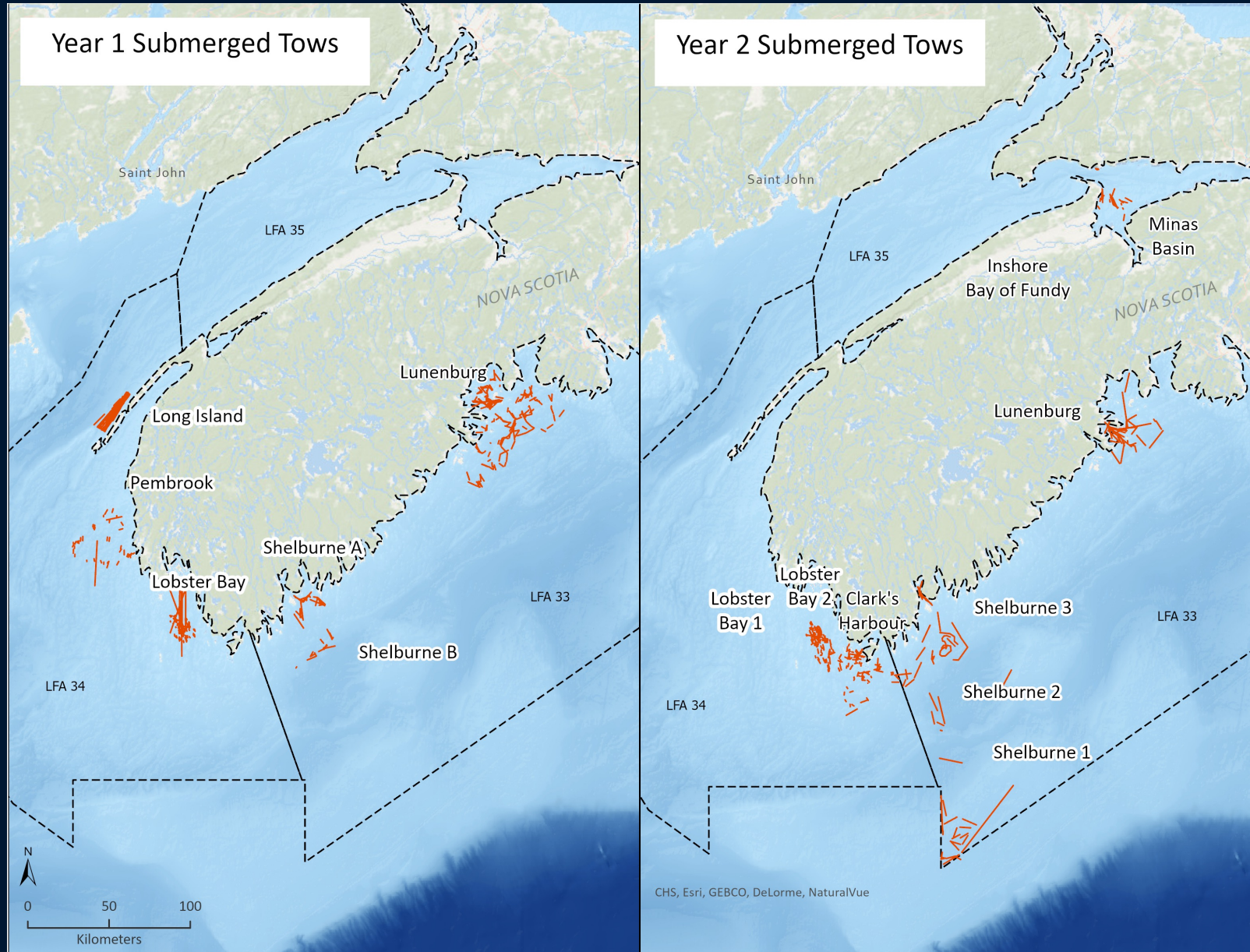
**55** Items retrieved from the benthic environment

**1** Confirmed retrieved object from identified contacts



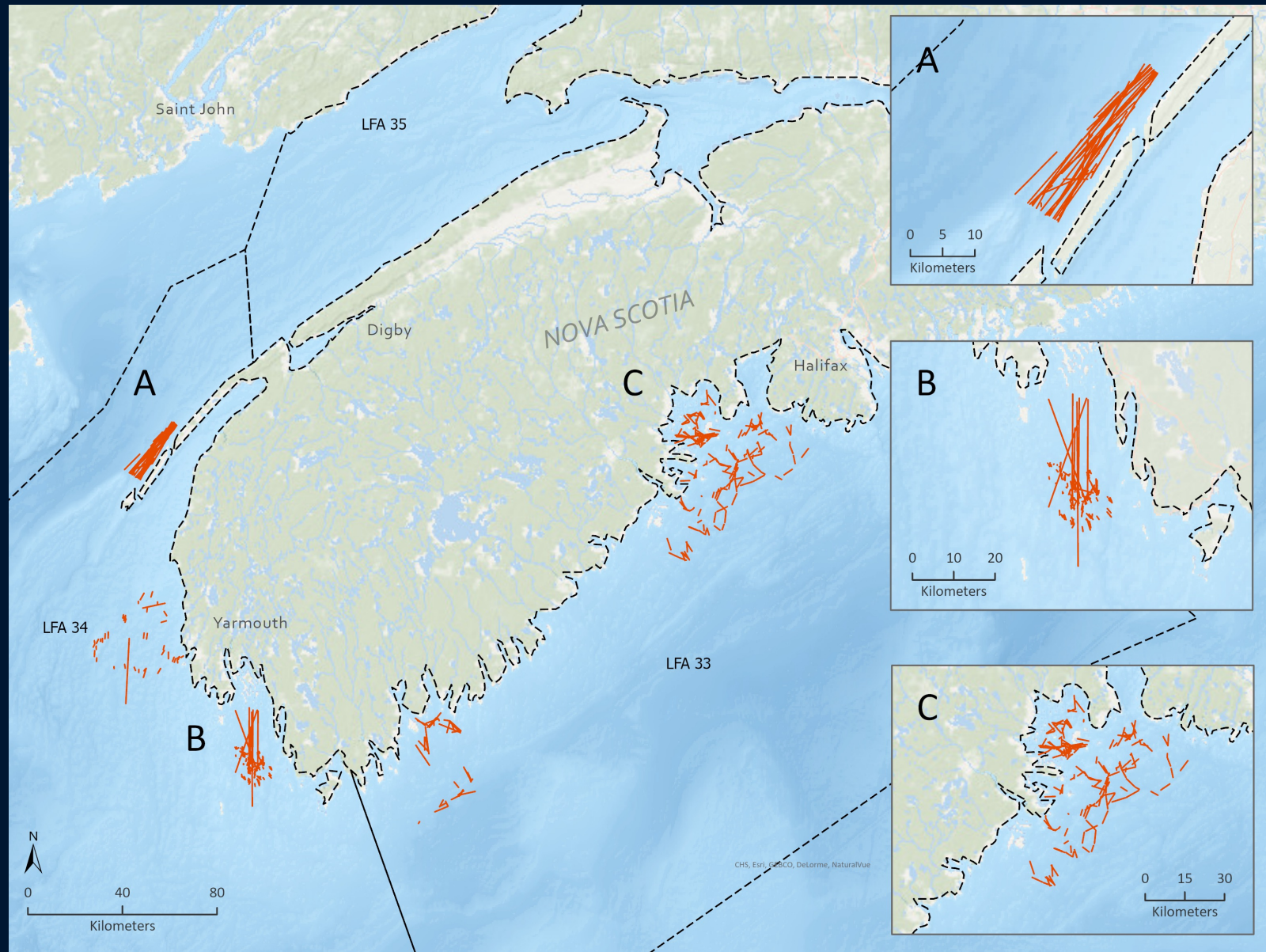


# Submerged Retrieval Tows



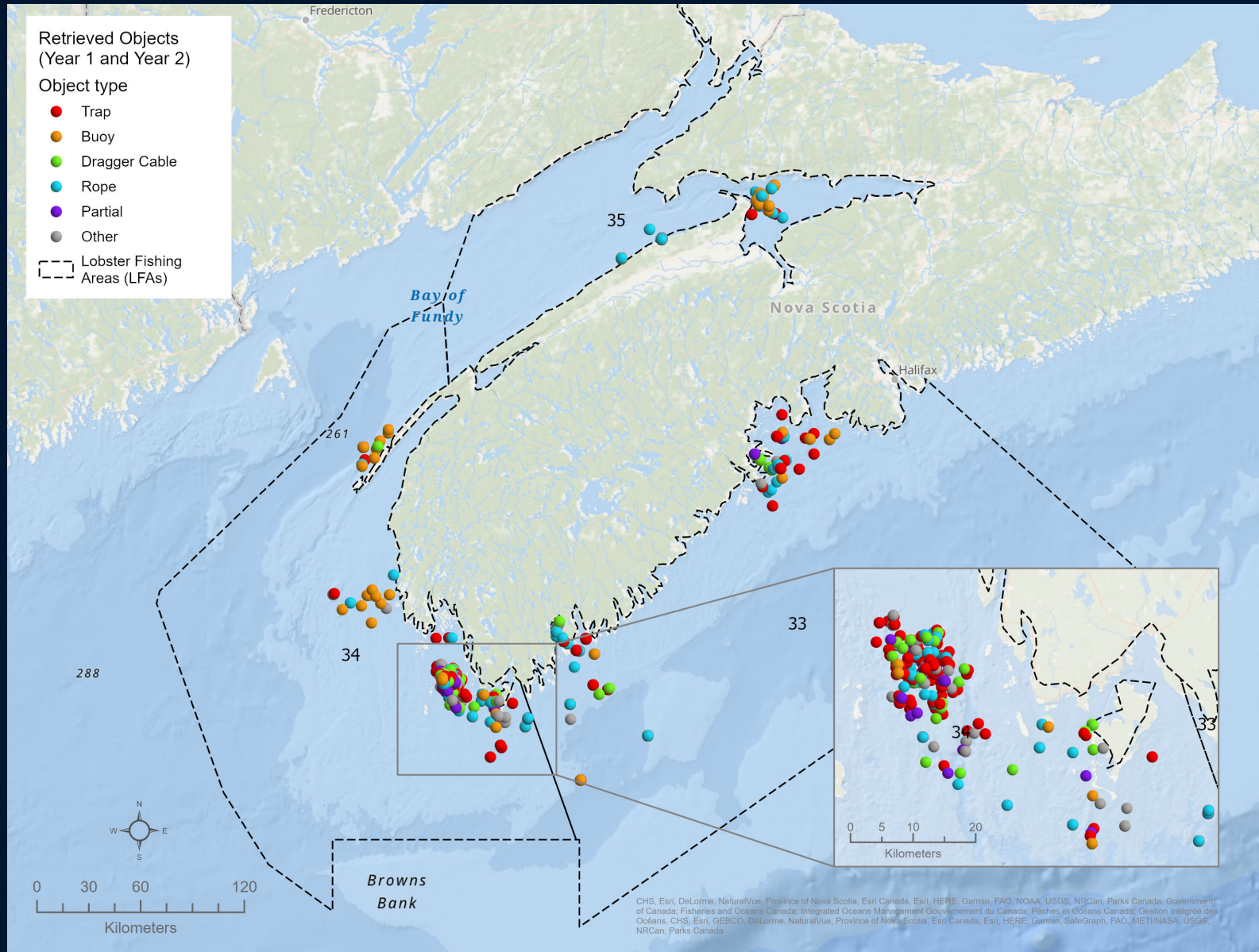


# Submerged Retrieval Tows





# Derelict Gear Retrieval





# Challenges

**AIS Software Compatibility**

**Data transfers and sharing**

**AIS data sharing for competitive purposes**

**Blending spatial data and fishers intel**







# The Tale of Lost Fishing Gear

Abandoned, Lost and Discarded Fishing Gear in Southwest  
Nova Scotia

Leah Fulton, MMM, Dalhousie University

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# Thank you.

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