

TEAM SUSTAINERS



team sustainers presents

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AIS: HALT

HACKOVERFLOW 2.0



WHAT ARE THE BOATS FISHING?



GLOBAL
FISHING
WATCH
globalfishingwatch.org

OCEANA

SKYTRUTH

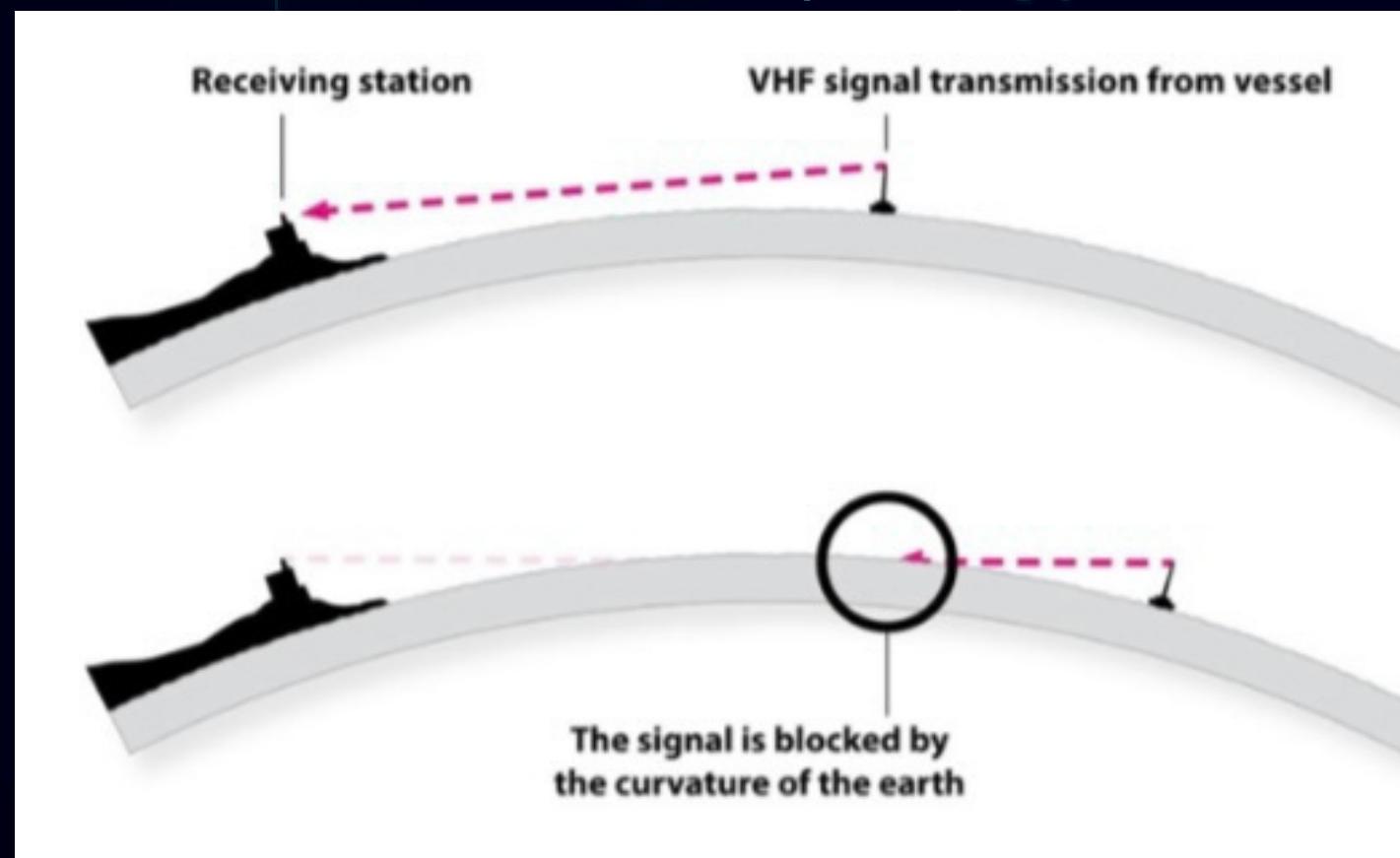
Google



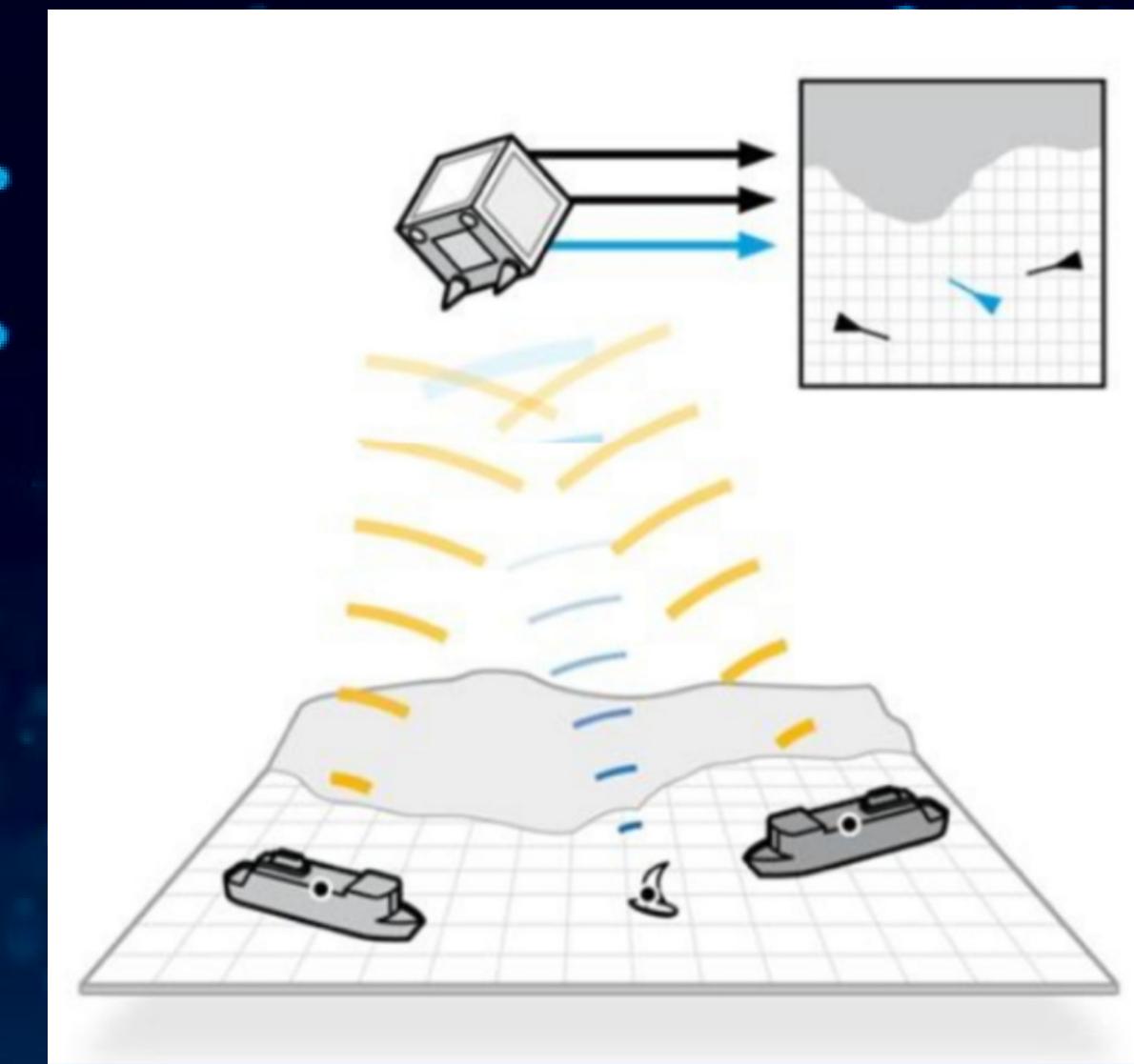
**IDENTIFY AND VISUALIZE WHERE
FISHING IS TAKING PLACE AT A
GLOBAL SCALE IS IMPORTANT
TO ELIMINATE ILLEGAL,
UNREGULATED, AND
UNSUSTAINABLE FISHING
PRACTISES**

AUTOMATIC IDENTIFICATION SYSTEM (AIS)

EMITTED BY ALL
BOATS IN ORDER TO
PREVENT COLLISIONS



PICKED UP SATELLITES



2M ROWS OF LABELED DATA

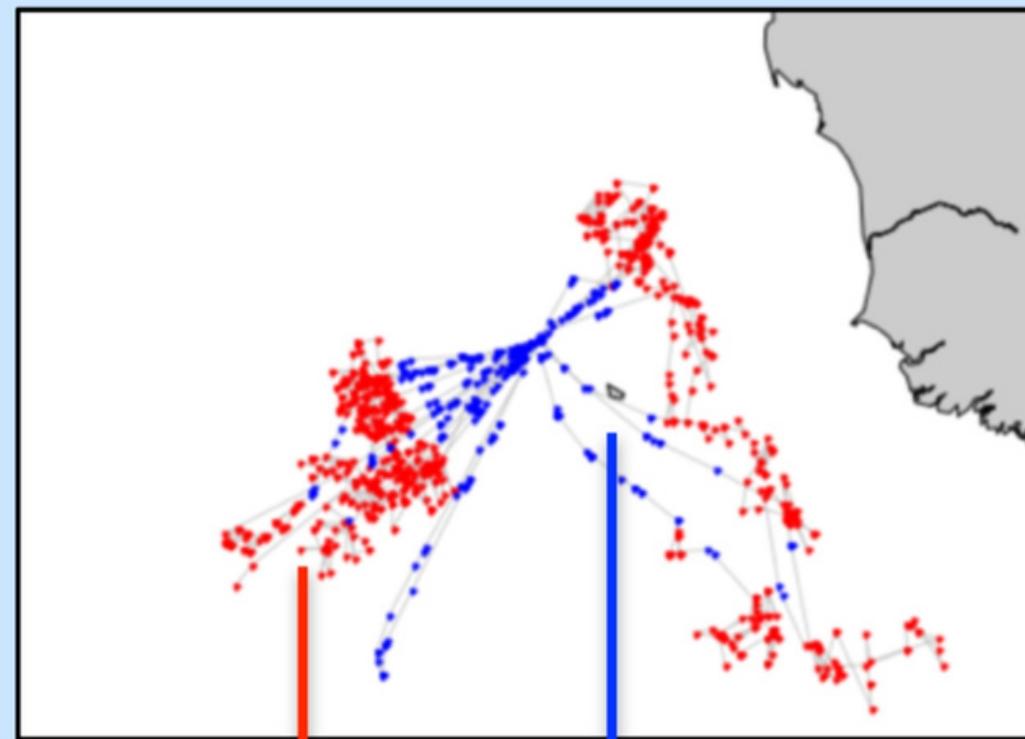
LATITUDE

LONGITUDE

COURSE

SPEED

Track example



Fishing

No Fishing

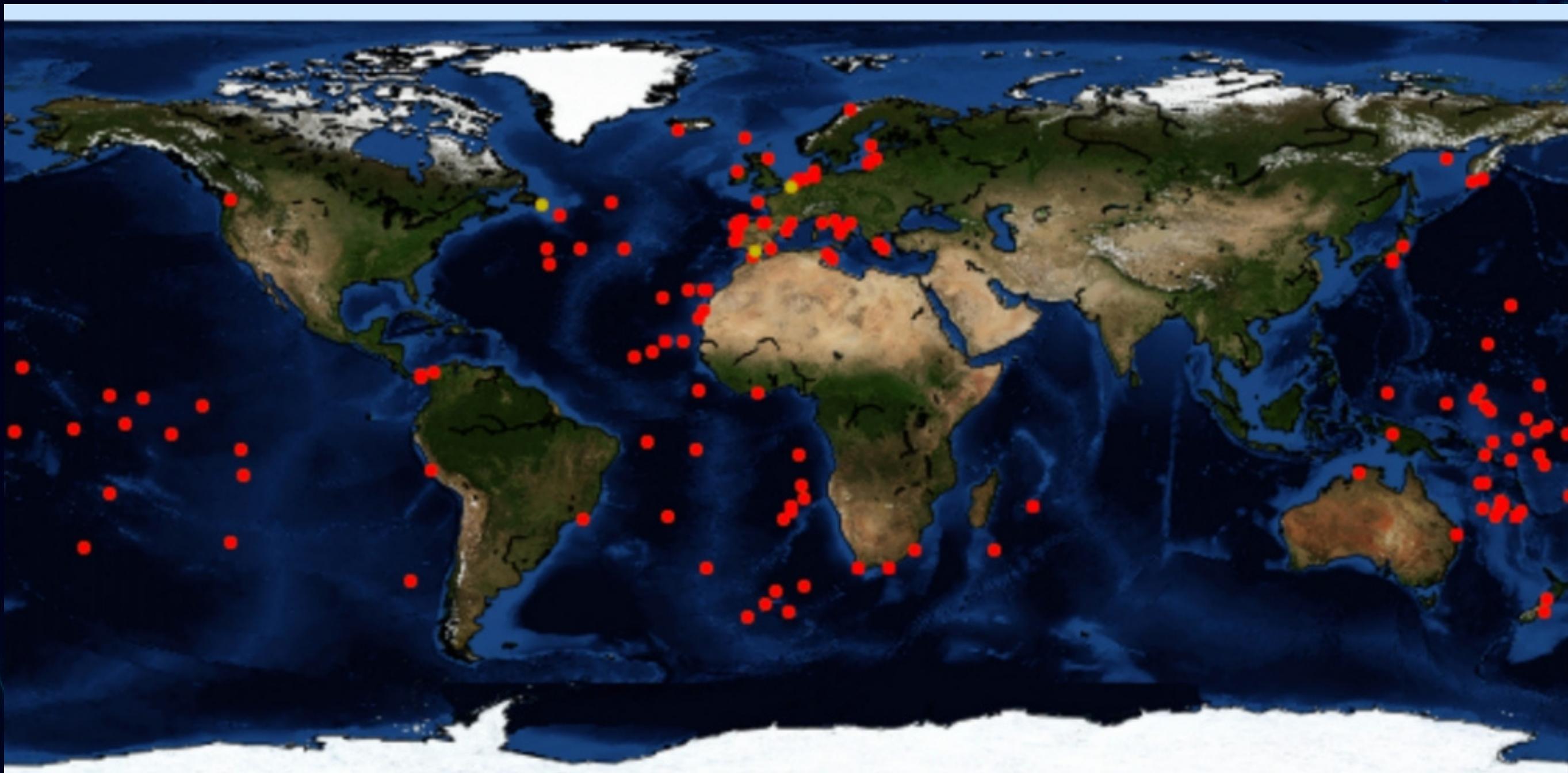
70 ENGINEERED FEATURES

DAYLIGHT

MEAN, STANDARD DEVIATION
TIME WINDOWS: 0.5h-24h

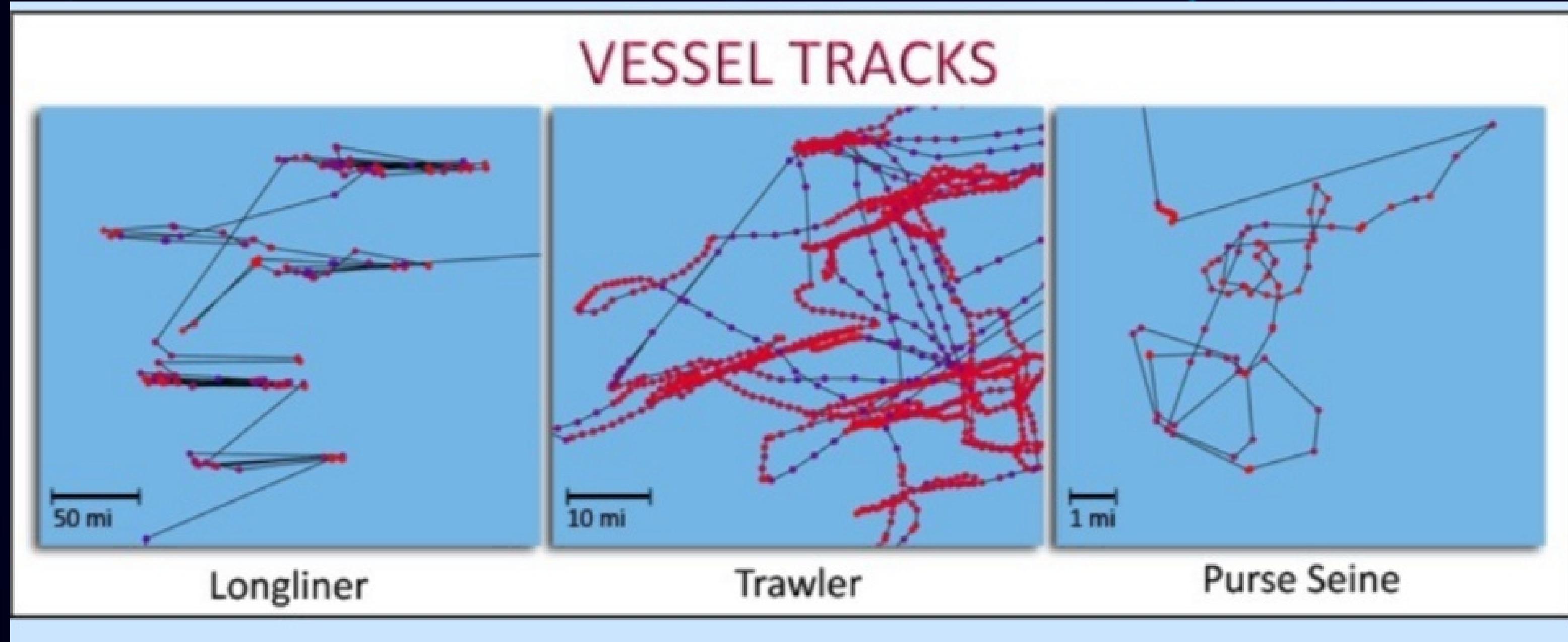


FISHING around the world



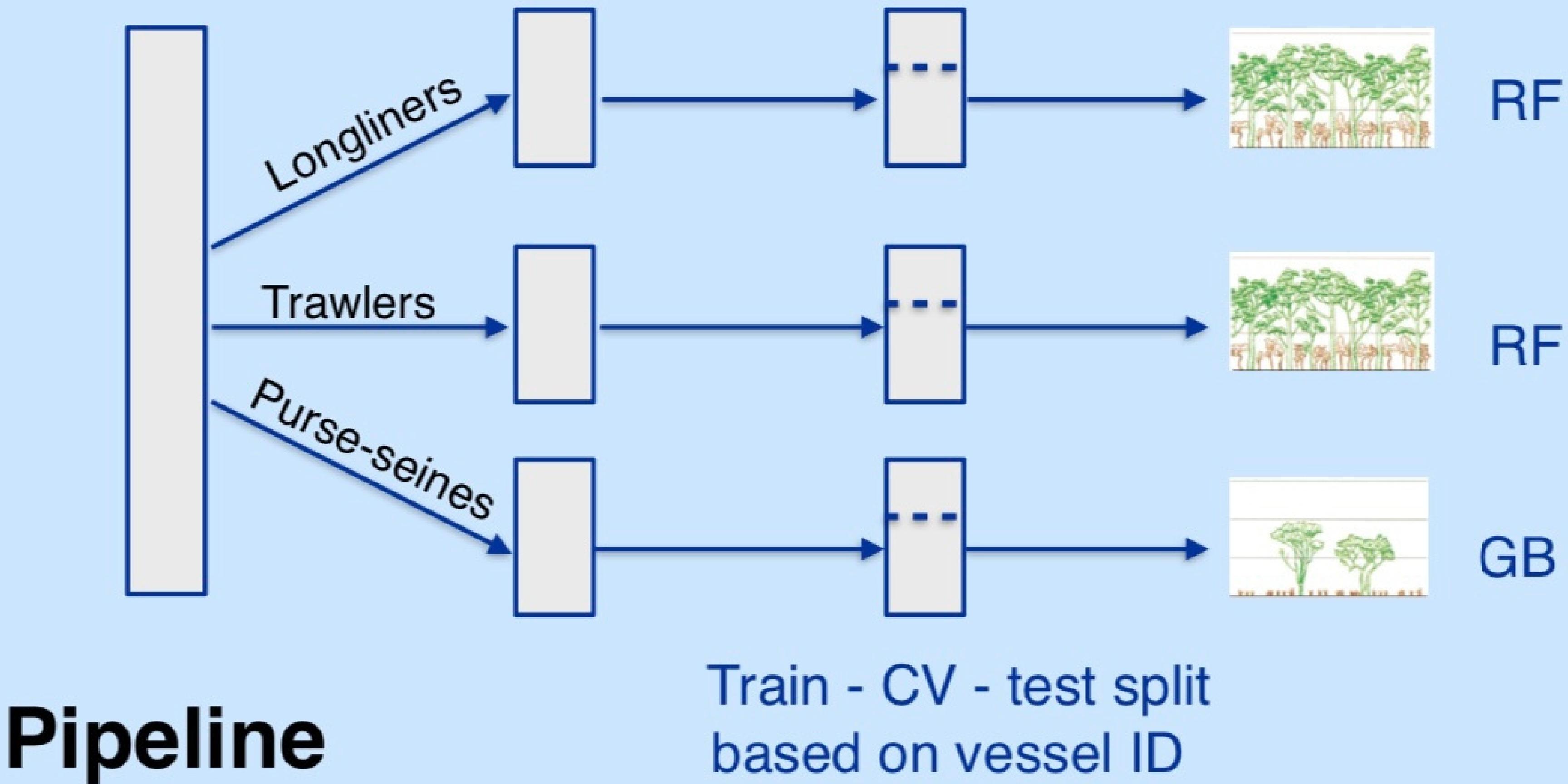
● BOATS USED FOR THIS PROJECT

EACH TYPE OF VESSEL PRODUCES A DIFFERENT SIGNATURE TRACK



Data separation by vessel type

Best model for each vessel type



LONGLINERS

**Actual
fishing
sites**

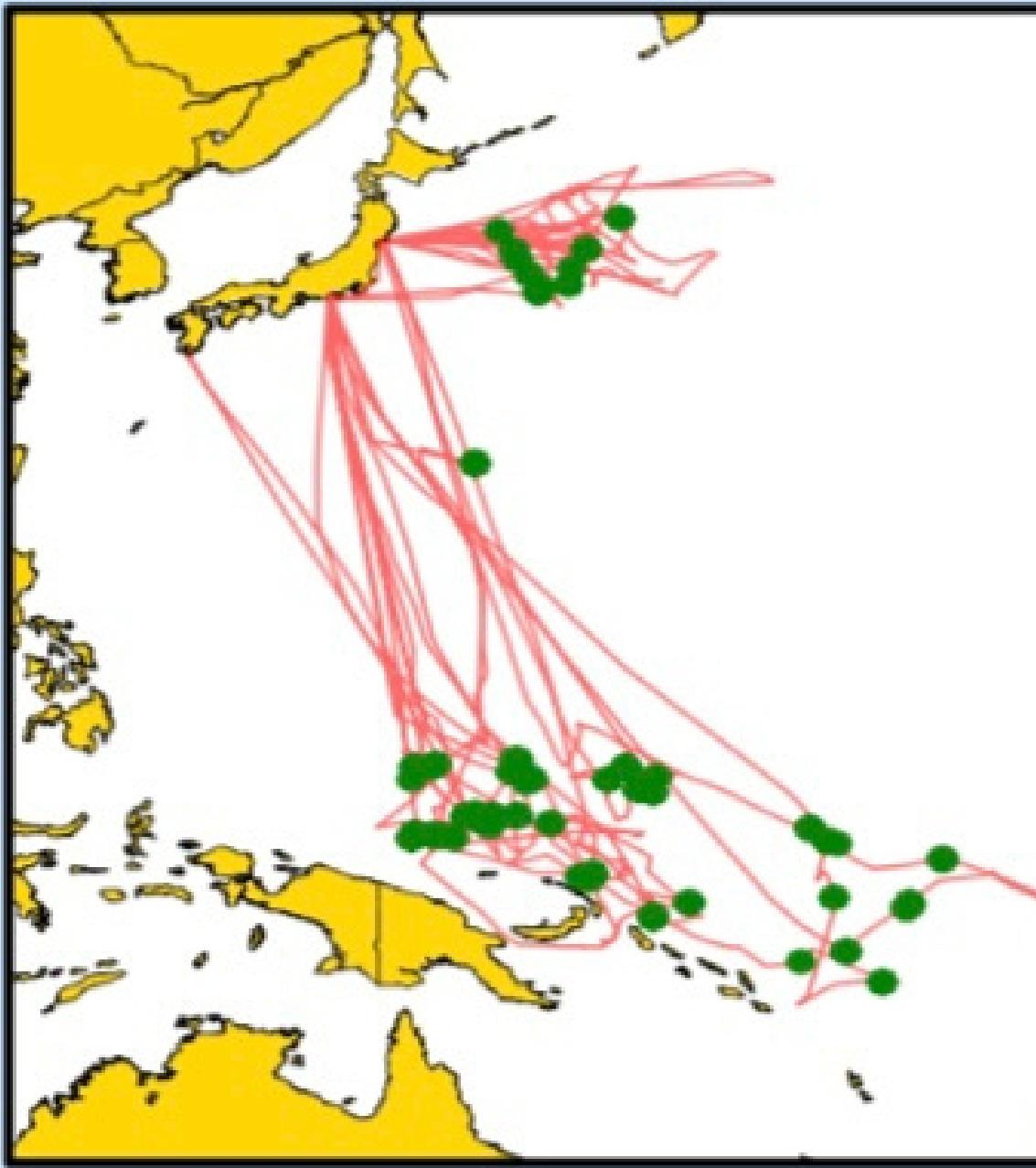


**Predicted
fishing
sites**

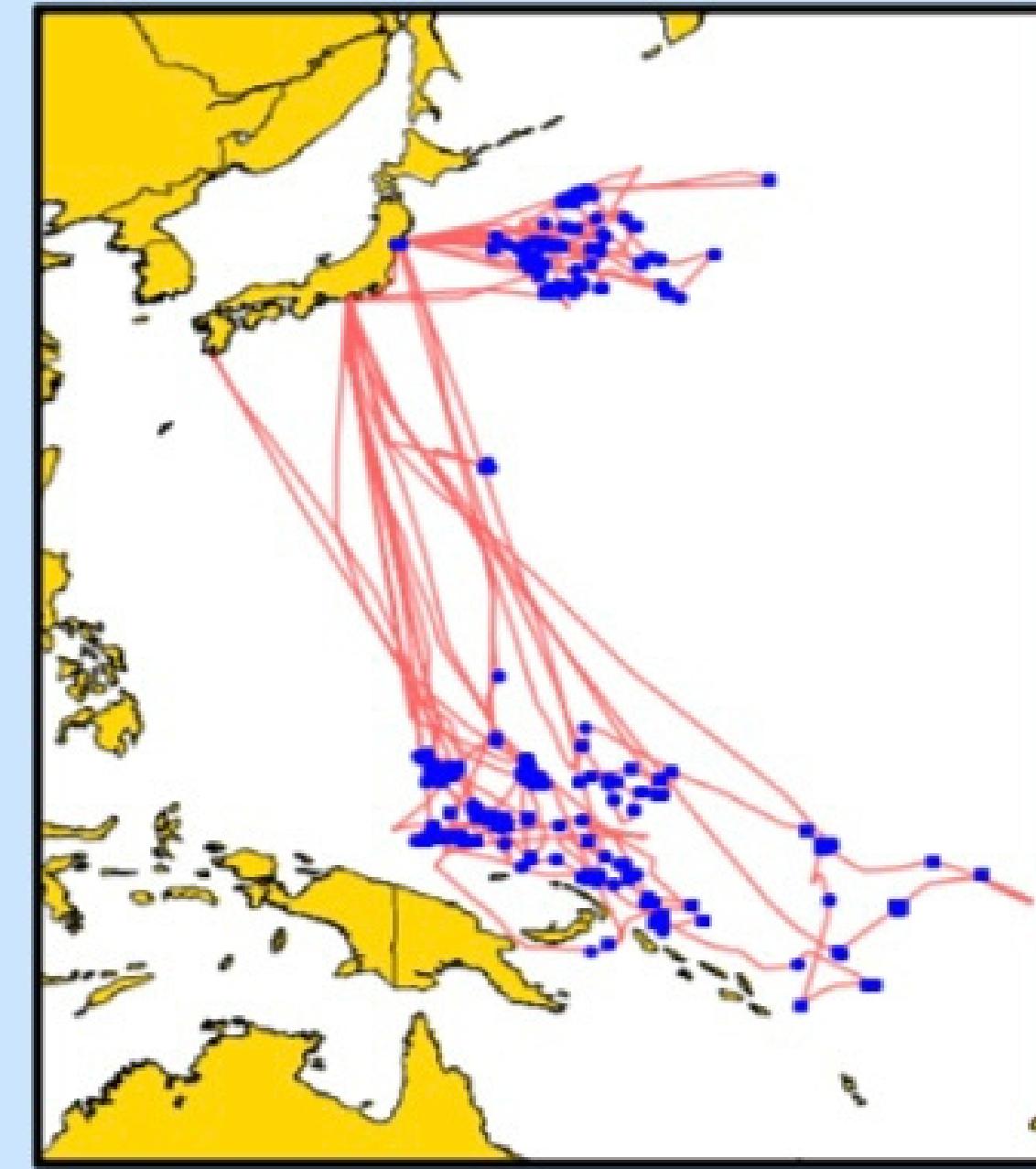


PURSE SEINES

Actual
fishing
sites



Predicted
fishing
sites





PERFORMANCE RESULTS

Performance results

| | Accuracy | F1-score |
|-----------------------------------|----------|----------|
| Longliners (RF + 24h windows) | 0.99 | 0.95 |
| Trawlers (RF + 24h windows) | 0.98 | 0.87 |
| Purse Seines (GB + 6h windows) | 0.88 | 0.45* |

RF: Random Forest Classifier

GB: Gradient Boosting Classifier