Transport Canada Transports Canada

Statistics Canada
www.statcan.gc.ca

Presentation of AIS

- *A Canadian Example* -

INTERNATIONAL TRANSPORTATION FORUM

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Canada

Usefulness of AIS Data

- Canada found AIS to be very useful, with multiple policy applications:
  - Traffic density analysis in specified areas
  - Trip totals
  - Traffic pattern identification
  - Trip traces (origin, destination, path)

AIS is not perfect

- No database can fill all needs, whether Big Data or "small"
- AIS requires a lot of work to use:
  - AIS data fields are limited. Requires a secondary source to identify ship characteristics
  - Origin / destination identification work requires an accurate and comprehensive secondary source of ports
  - Quality (# pings per minute) varies by provider, which can compromise ability to conduct meaningful analysis (e.g., analyzing coastal traffic or accurately identifying international origins/destinations and trip paths)

AIS requires work to use

- AIS data vastly exceeds the amount of data required for most problems, posing processing challenges
- Strategies to address this include:
  - Eliminate superfluous data (e.g., close proximity pings when frequency is high)
  - Define an area of interest and vessels that went through the specified area.
  - Split the database into smaller components to do matching and processing that has no impact on the final structure of the file, then regroup the partitions. This is usually smaller than the original database.

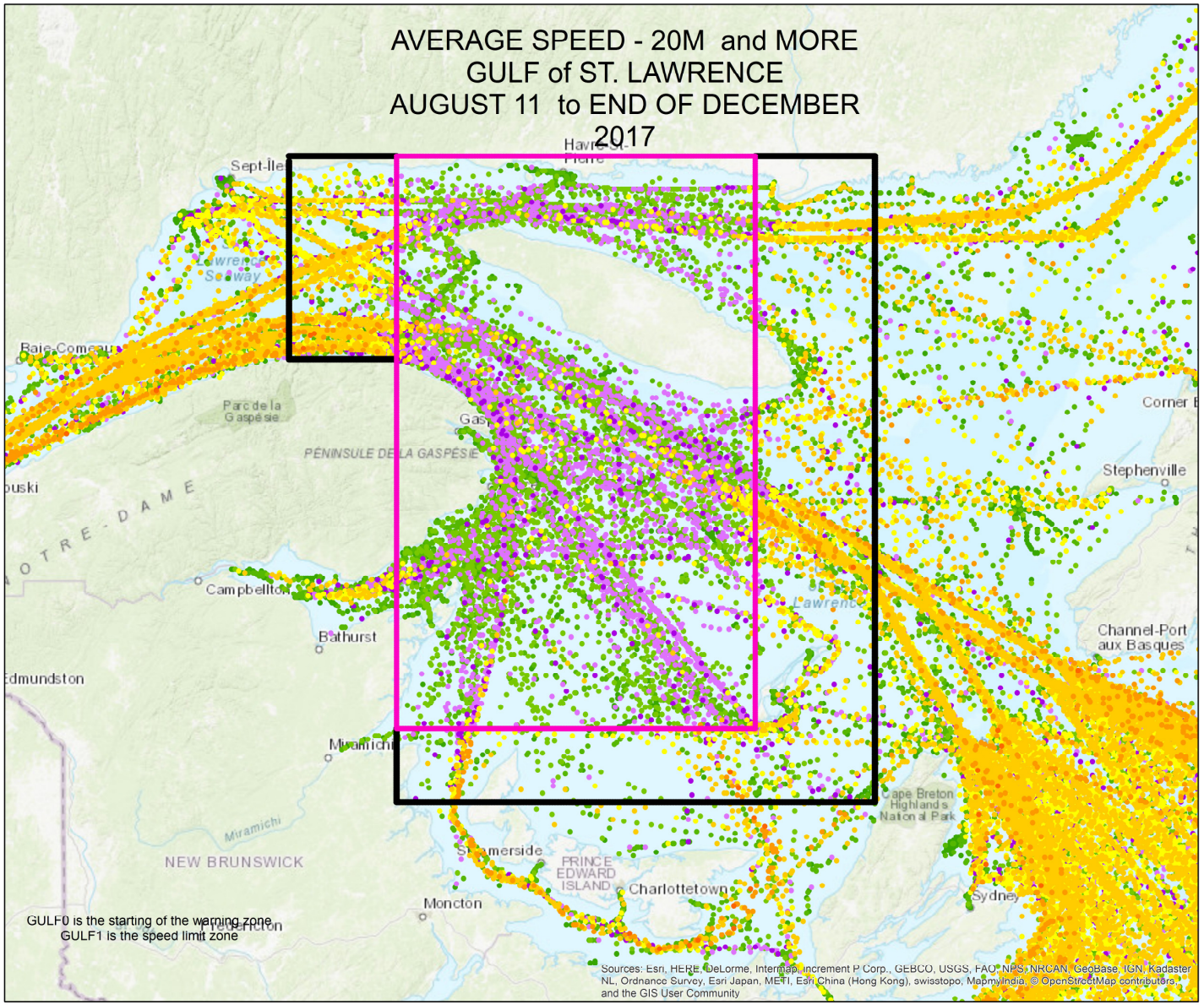
AIS requires work to use (2)

- AIS work requires the development of rules to determine where and whether ships have stopped.
- Significant judgement is required.
  - Port location: Some port locations must be adjusted or, alternatively, proximity rules must be defined.
  - Fishing Boats/Waiting Areas: fishing boats are stationary at sea for long periods); vessels wait at canal and lock entrances
  - Trip Start/End: Proximity rules are very sensitive, and solving one observed problem may cause new problems elsewhere in the dataset. There is always a tradeoff between local accuracy and foreign port accuracy. Secondary matching could improve local accuracy.

A recent application of AIS….

- On August 2017, Transport Canada implemented a mandatory speed reduction in the Gulf of St Lawrence after the death of more than 10 Right Whales, an endangered species, in the Gulf between May and August.
- The mandatory speed reduction to a maximum of 10 knots applied only to ships 20 meters and longer.
- AIS data was used to evaluate various impacts of the speed reduction including the respect of the speed limit in the restricted speed zone.

AVERAGE SPEED - 20M and MORE
GULF of ST. LAWRENCE
AUGUST 11 to END OF DECEMBER 2017



Legend

speed_class

- 0-2.5 knots
- 2.5-7.5 knots
- 7.5-9.5 knots
- 9.5-10 knots
- 10-10.5 knots
- 10.5-12.5 knots
- 12.5-17.5 knots
- 17.5-22.5 knots
- 22.5-27.5 knots
- 27,5-32.5 knots
- More than 32.5 knots
- GULF0
- GULF1

THANK YOU!

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