



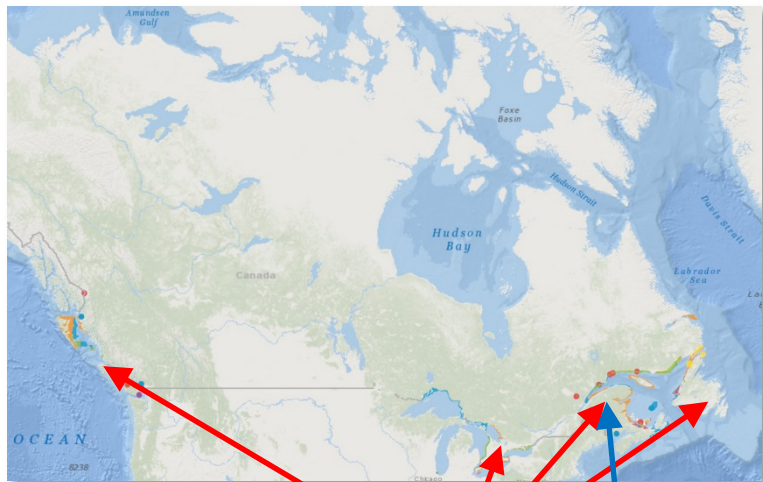
Canadian Hydrographic Service Autonomous surveying 2019-20





National assets:

- Autonomous Hydrographic Autonomous Vehicles (AHSV) - SeaRobotics
 - 4 distributed in each region
 - Operationalization started in 2017 (official survey conducted for ECCC)
 - Fully operational in 2018 (8 surveys)
- Autonomous Hydrographic Survey Launch (AHSL) – ASV Global
 - 1 located in Mont-Joli
 - 26 foot launch (Garrot)



AHSV AHSL





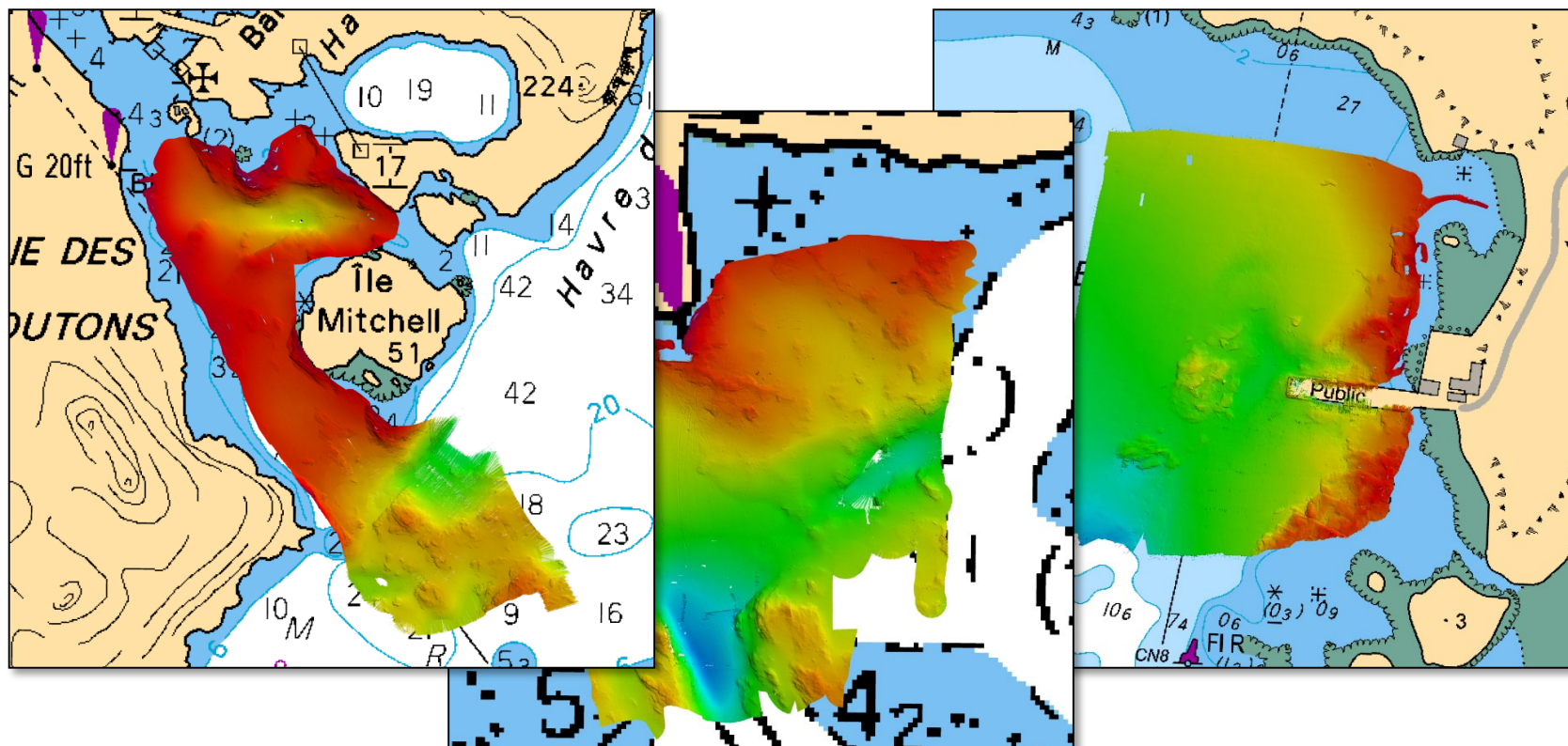
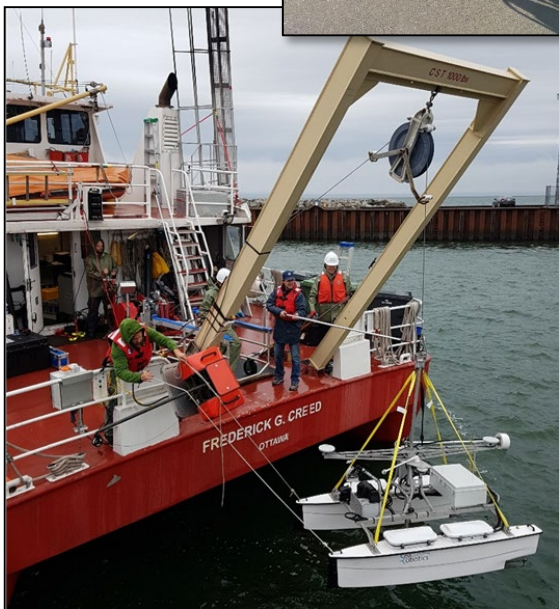
AHSV:

- Pros
 - Quick and easy launching
 - **Green: Reduced ecological footprint**
 - Simple transportation logistics
 - Survey in very shallow water area
 - Reduced risk of damages or injuries
- Cons
 - Limited capacity in rough sea
 - Reduced autonomy, speed, range
 - Noise in the data (depth of transducer)



Some accomplishments (2018):

95% in full autonomous mode





AHSL:

- Not in operation yet
- Complex system
- More robust collision avoidance system
- Capacity to operate in manual or autonomous mode
- Need CCG acceptance
- Void in the regulation on autonomous navigation slows the implementation (work in progress with TC & CCG)



AHSL:

- Naval Oceanographic Office Visit
- Interested to convert many launches
- Visit CHS for 2 days (mid-October)
 - Denis Aidoo & Jack Love



'Liem' replacement:

- Light Science vessel - 22m replaced by 28m
- CCG jump in innovation
- Agreed (CHS-Science) to add MB system
- Multitask versatile platform
- Addition of communications links to enable operations from the office





Next steps:

- Work on regulation with Transport Canada (lead) and CCG
- Opérationnalisation of all autonomous vehicles

Autonomous shipping progress

- National perspective of a worldwide initiative
- TC lead Marine Autonomous Surface Ship (MASS)
- Roger Côté (CHS) participates in 2 workshop
 - September: 2 days Workshop on MASS – Ottawa
 - October: 1 day Symposium on Autonomous Navigation and Artificial Intelligence – Montreal