

Impact of Climate Change

On Qalipu First Nation Communities

Criteria

- Coastal Flooding
- Proximity of Roads to Coastline
- Water Quality Reports
- Community Connectivity and Self Sufficiency
- Inland Flooding
- ATK Interviews

Location

- 9 Communities
- 1 Community per ward in QFN
- Suggestions by ward councillors or RNG

Communities

- St. George's
- Stephenville Crossing
- Cape St. George
- Lark Harbor
- Cox's Cove
- Burgeo
- Lewisporte
- Bishops Falls
- Gander Bay*

Gander Bay

- Local service district – no municipal boundary
- Comprised of many small communities
- Combined population only about the size of a small town

Data

- Digital Elevation Models
- 19x19m horizontal, 1m vertical
- CanVec
- ESRI Imagery
- Some elbow grease

Coastal Flooding

- Estimated 1m rise by 2100 (varies)
- Estimated 3m Storm Surge for 2100 (Vasseur and Catto, 2008; Westley et al., 2011)
- Digital Elevation Models
- 19 x 19m Horizontal, 1m vertical
- Simple procedure in ArcGIS

Community Connectivity

- Routes in and out of towns
- Ex: Burgeo. One way in, one way out, almost 200km of highway. A washout anywhere along that highway isolates Burgeo

Self Sufficiency

- Essential and Non essential services
- Essential: Electricity, water supply, firefighting, grocery
- Non Essential: Building supplies, schools, gas station
- In combination with Connectivity gives us an idea of how vulnerable a community is to becoming isolated

Water Quality

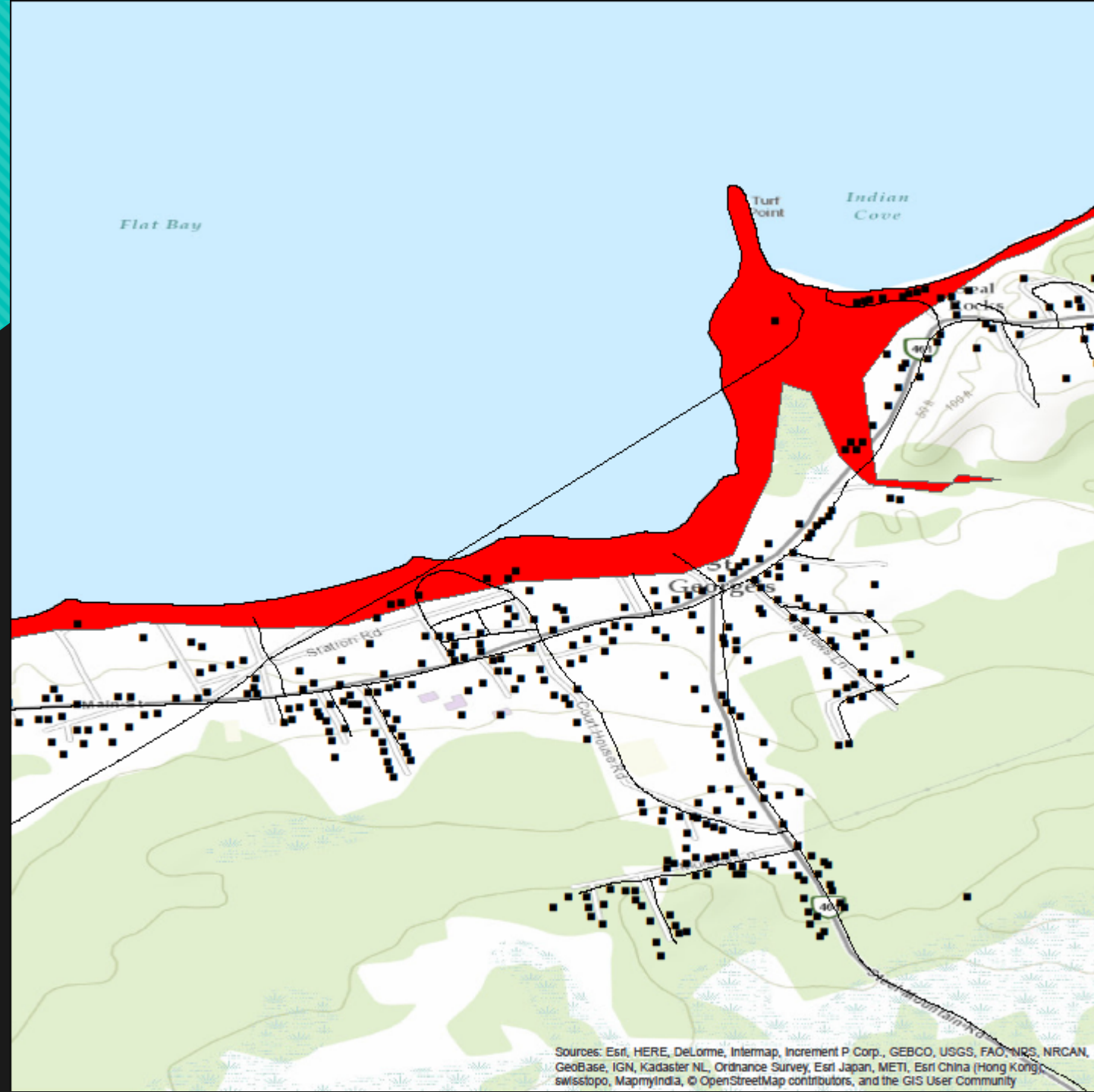
- DWQI
- Trihalomethane (THM) and Haloacetic Acid (HAA)
- Supply type and source
- Saline Intrusion
- Groundwater depletion
- Pollution mobilisation

Proximity of Roads to Coastline

- Roads close to the coast are at risk of erosion and washout
- Towns with large amounts of coastal roadways risk isolating citizens
- Used buffers along the coastline to intersect roads

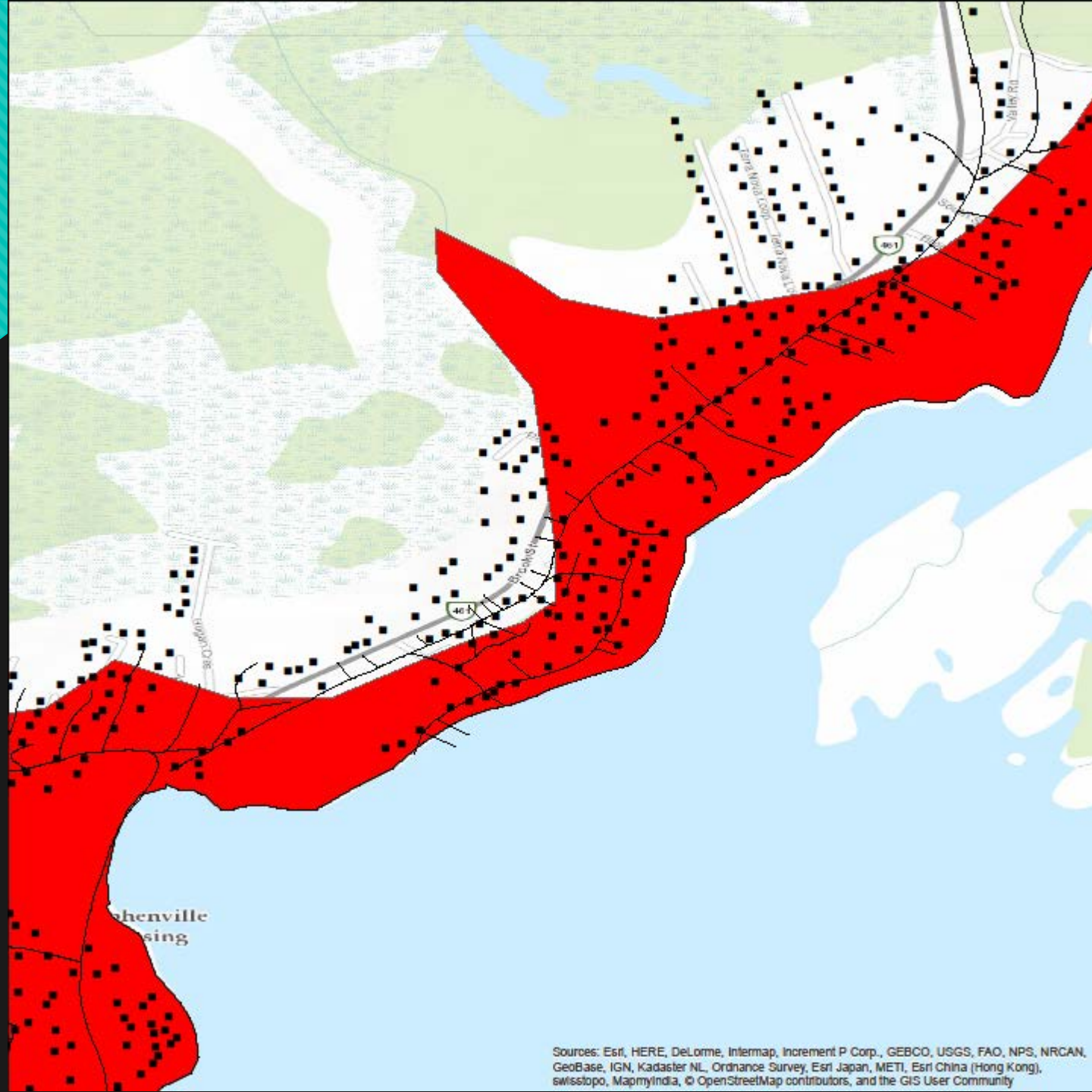
St. George's

- Structures susceptible to flooding: 24 out of 664 (3.6%)
- Road length at risk from the coastline: 0.89km / 24.7 (3.6%)
- Community Connectivity: 2 exits
- Services: Gas Station, Convenience/Grocery stores, Healthcare, Fire Department
- Water Quality: 88 (Good)



Stephenville Crossing

- Structures susceptible to flooding: 350 / 823 (42.5%)
- Road length at risk from the coastline: 4.2 / 38.9km (10.7%)
- Community Connectivity: 3 exits
- Services: Convenience and Grocery Stores, Healthcare
- Water Quality: 95 (Excellent)



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

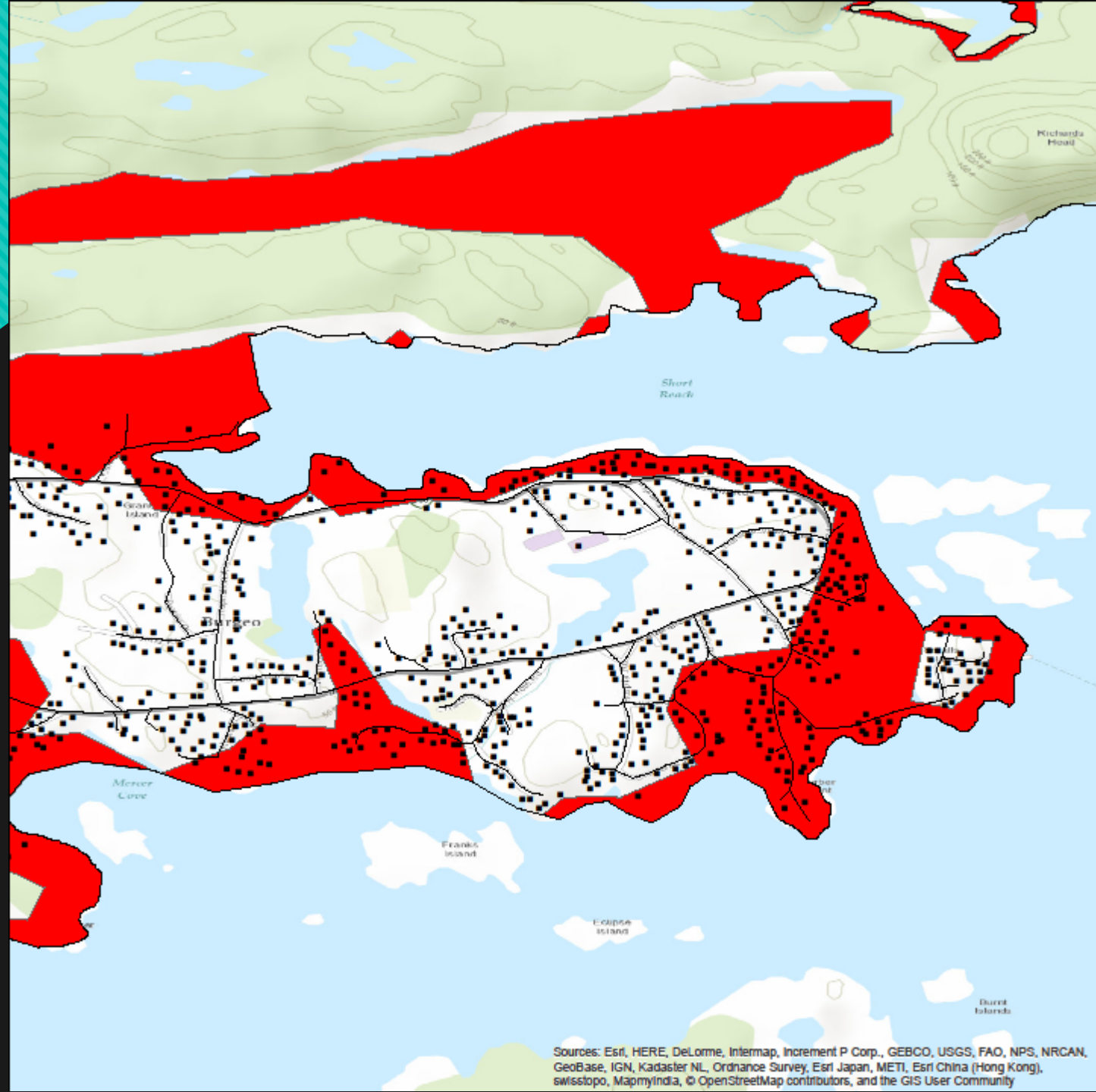
Cape St. George

- Structures susceptible to flooding: 81 / 634 (12.7%)
- Road length at risk from the coastline: 0.7 / 22.53km (3.1%)
- Community Connectivity: 1 exit
- Services: Grocery
- Water Quality: 98 (Excellent)



Burgeo

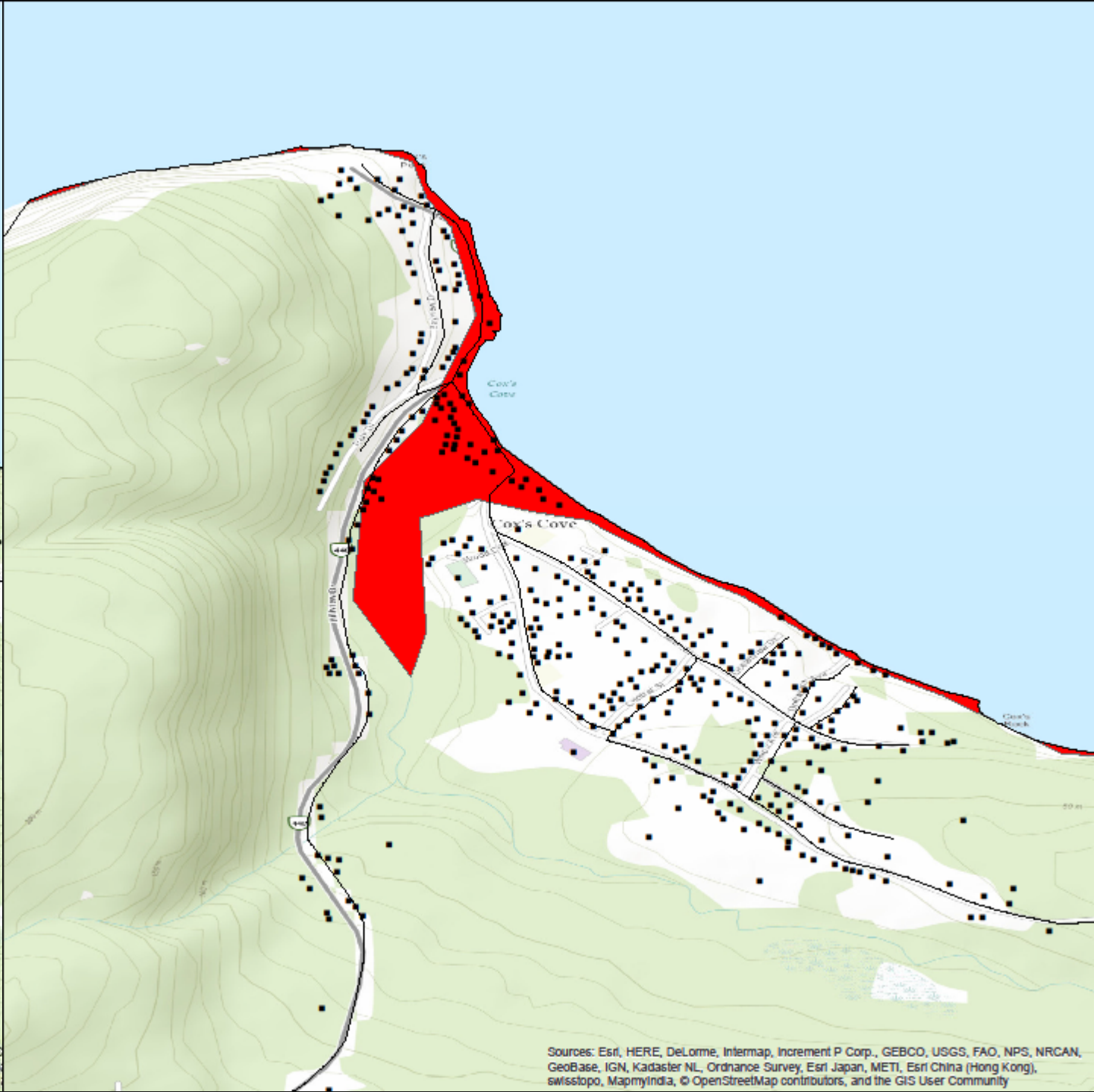
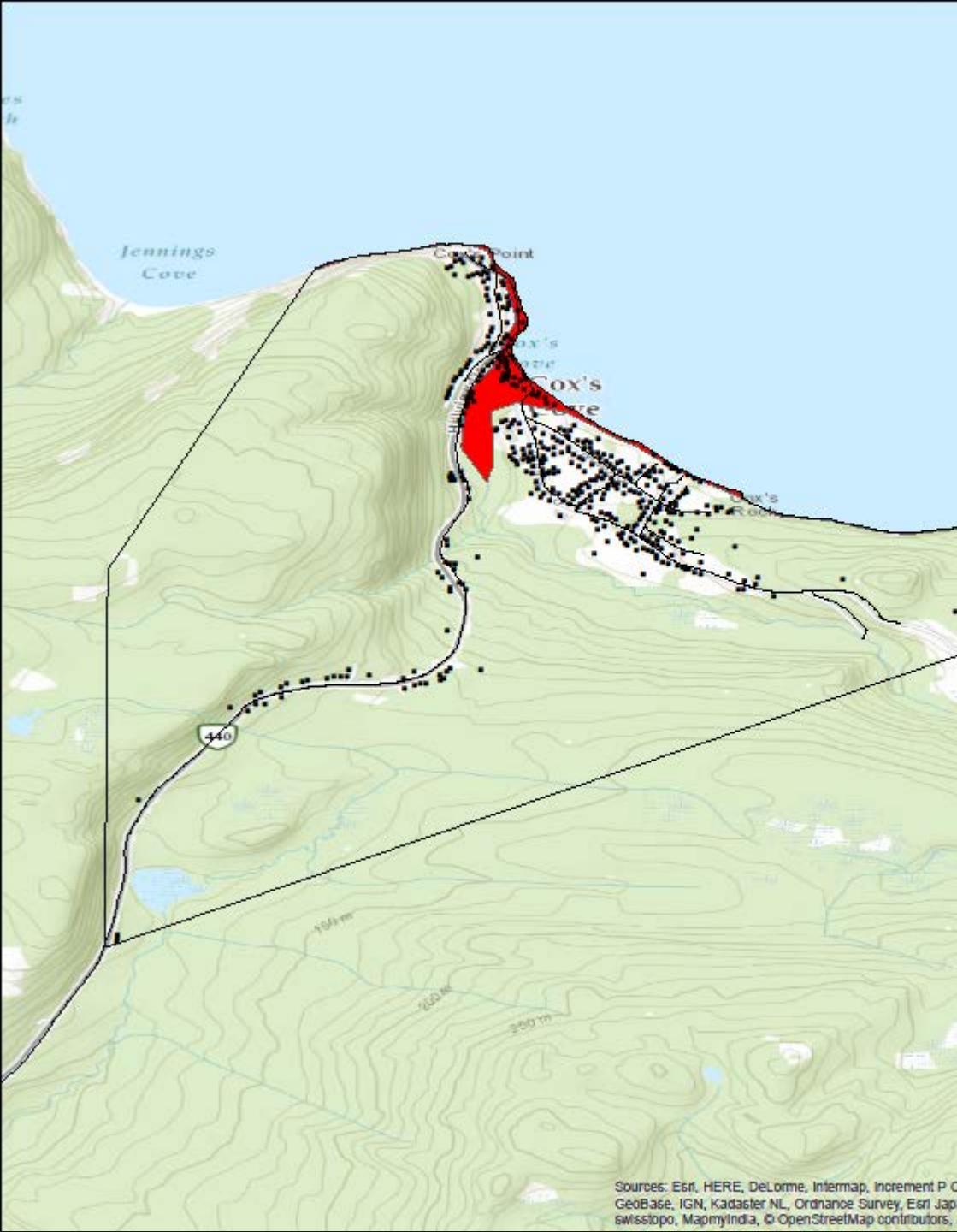
- Structures susceptible to flooding: 278 / 789 (35.4%)
- Road length at risk from the coastline: 7.19 / 15.98 (45%)
- Community Connectivity: 1 exit
- Services: Grocery, Healthcare, Fire Department, RCMP
- Water Quality: 80 (Good)



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

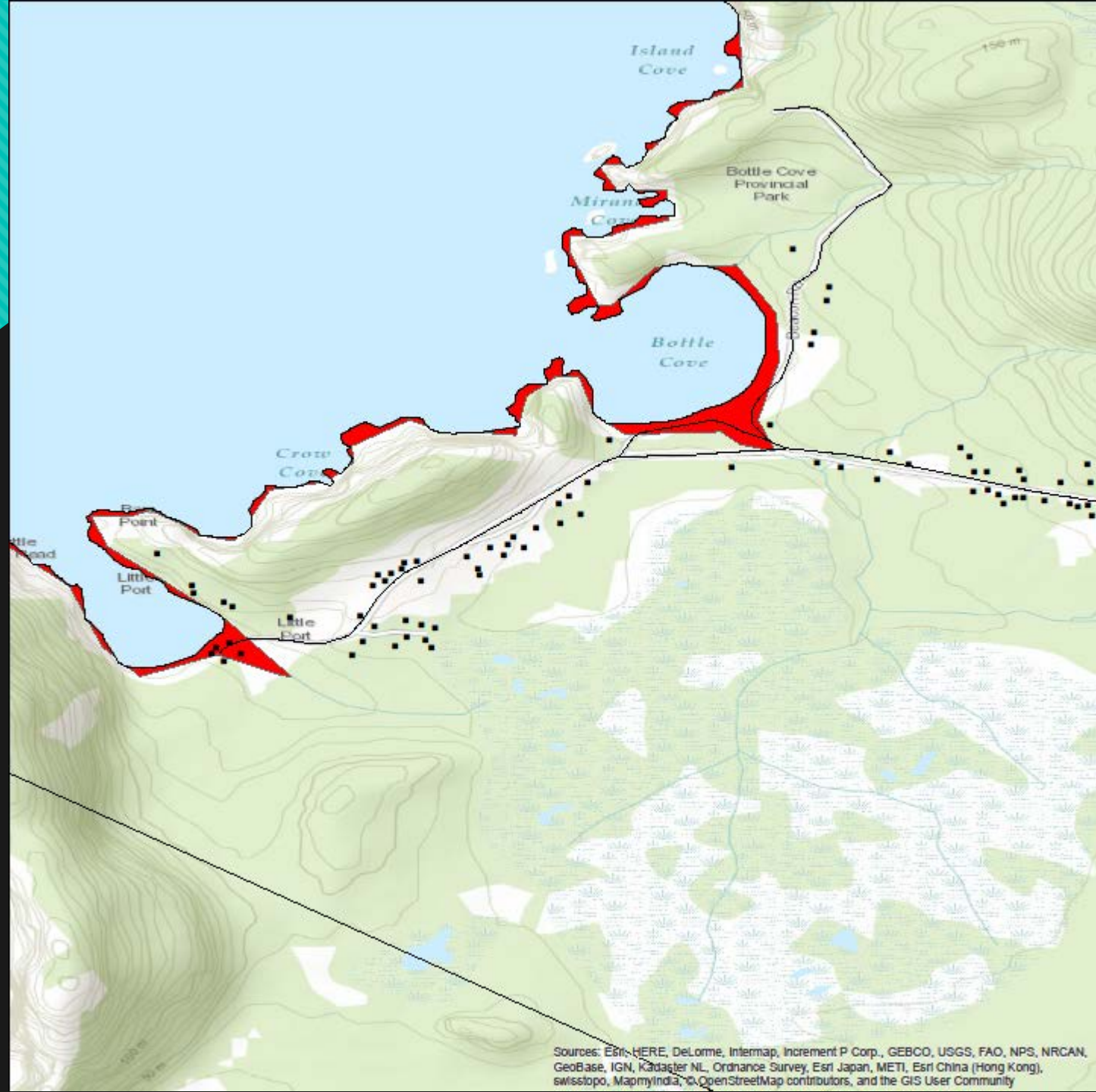
Cox's Cove

- Structures susceptible to flooding: 50 / 428 (11.6%)
- Road length at risk from the coastline: 1.2 / 9.92 (12.1)
- Community Connectivity: 1 exit
- Services: Convenience/Grocery Store, Fire Department
- Water Quality: 95 (Excellent)



Lark Harbor

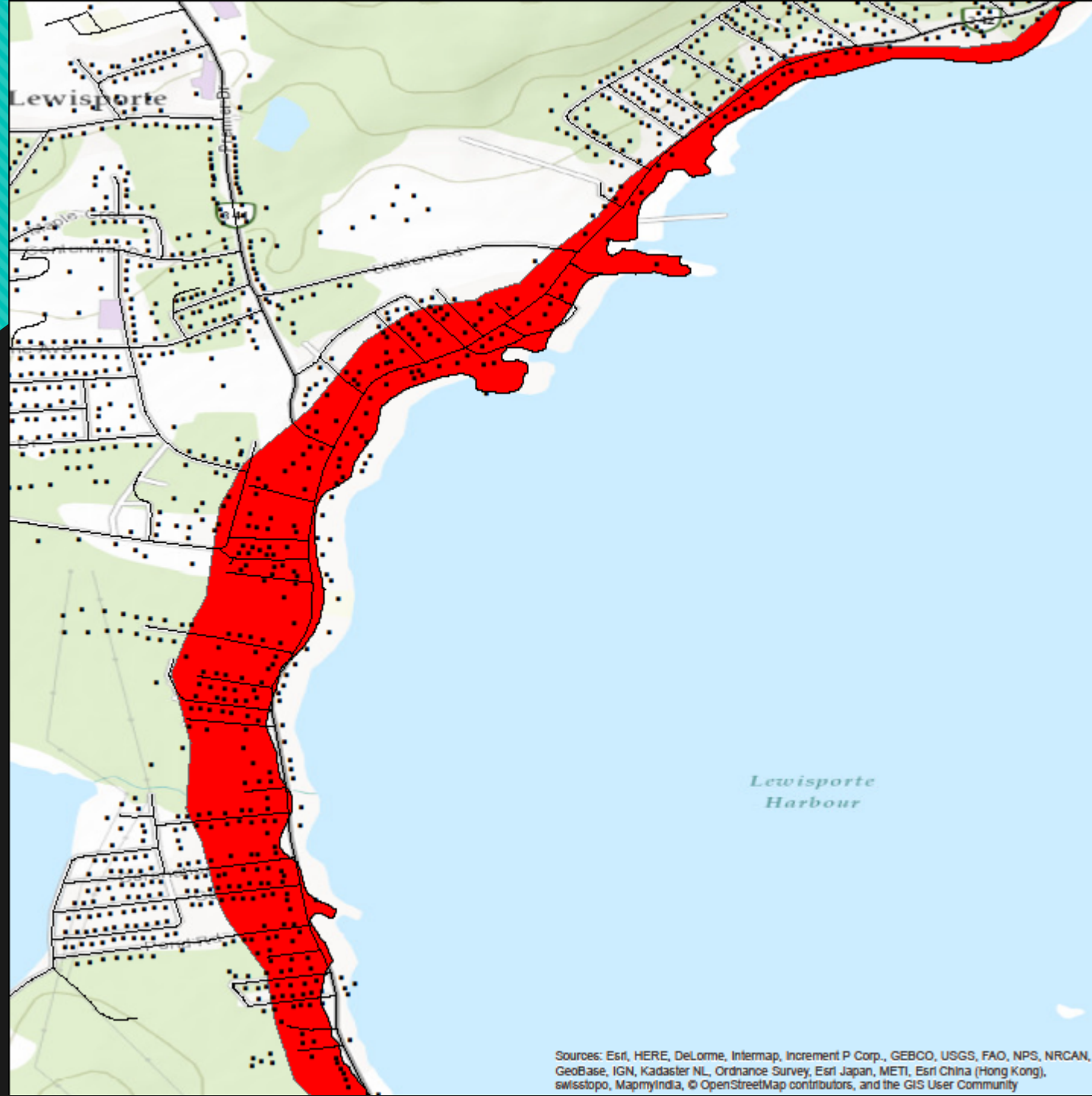
- Structures susceptible to flooding: 50 / 428 (11.6%)
- Road length at risk from the coastline: 1.92 / 8.97 (21.4%)
- Community Connectivity: 1 exit
- Services: Convenience/Grocery Store, Fire Department
- Water Quality: Unranked – Everyone has their own well and septic



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Lewisporte

- Structures susceptible to flooding: 371 / 1478
- Road length at risk from the coastline: 4.57 / 23.64
- Community Connectivity: 1
- Services: Convenience/Grocery Store, Healthcare, RCMP
- Water Quality: 80 (Good)



Sources: Esri, HERE, DeLorme, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Bishop's Falls

- Structures susceptible to flooding: 0
- Road length at risk from the coastline: 0
- Community Connectivity: 2 exits
- Services: Convenience/Grocery Store, Healthcare, Fire Department
- Water Quality: 90 (Very good)

Gander Bay

- Structures susceptible to flooding: 470 / 877 (53.6%)
- Road length at risk from the coastline: 10.35 / 23.6 (43.9%)
- Community Connectivity: 2 exits
- Services: Fire Department, RCMP
- Water Quality: 92 (Very Good)

