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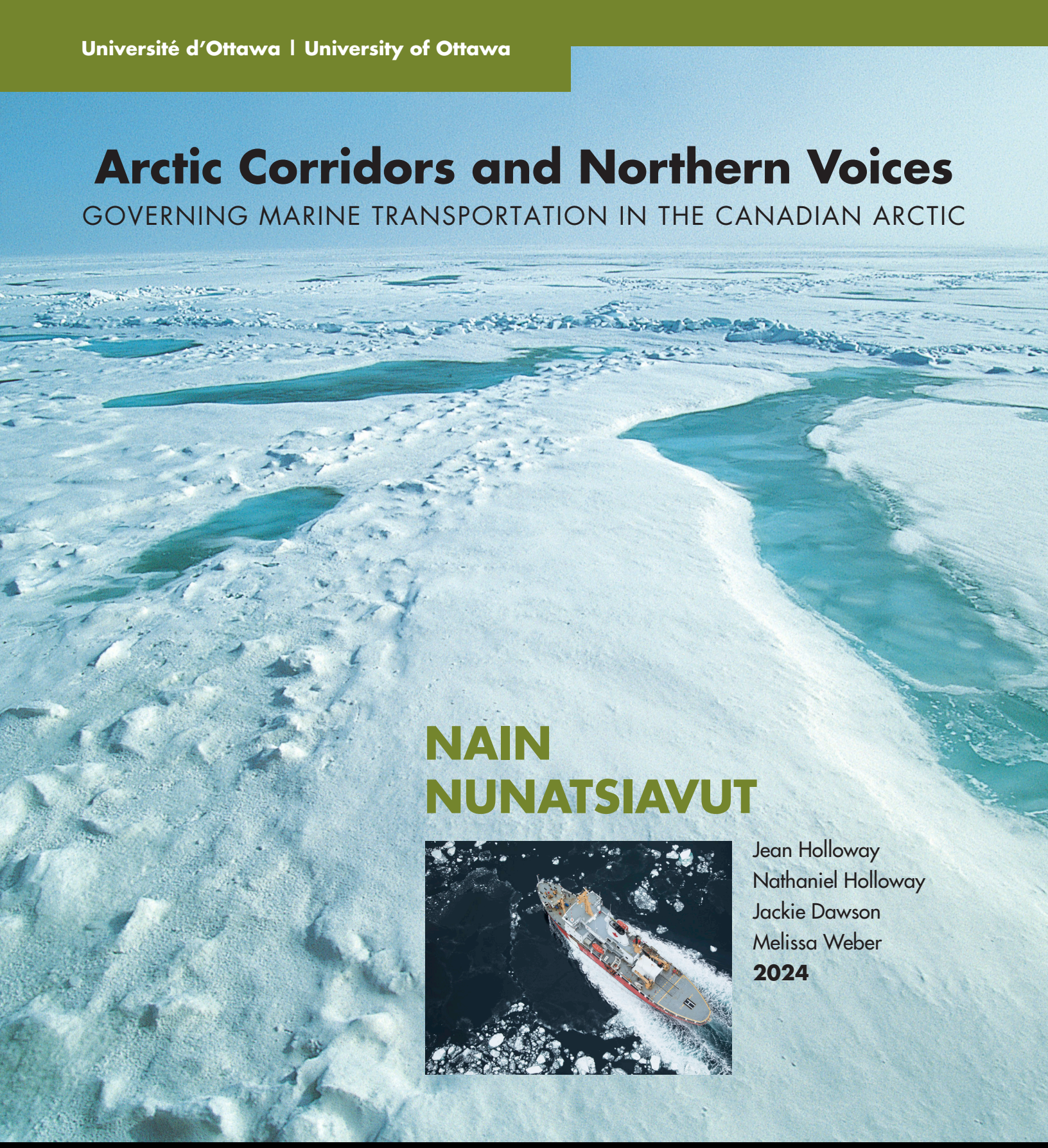
Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC



NAIN
NUNATSIAVUT

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2024

ARCTIC CORRIDORS RESEARCH

ESPG Environment, Society and Policy Group

uOttawa

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ACKNOWLEDGEMENTS

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Photos by: Nunatsiavut Government, Environment Division; ESA (cover); Canadian Coast Guard (cover inset); Nunavut Tourism (whale tail)

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EXECUTIVE SUMMARY

Ship traffic in the Canadian Arctic has been increasing over the past decade. The typical distribution of ship traffic in the region includes tugs and barges, tanker ships, oil or gas exploration/exploitation vessels, government vessels and icebreakers, general cargo, fishing vessels, bulk carriers, pleasure craft and passenger ships – and each of these ship types are increasing at different rates and operate in different regions.

To support management of increasing shipping traffic across Arctic Canada, the Government of Canada has developed a network of low-impact marine transportation corridors that encourages marine transportation traffic to use identified routes that pose less risk and that minimize impact on communities and the environment. The Low Impact Shipping Corridors framework is being used to guide future federal investments to support marine navigation safety in the North, including improved charting and increased hydrography. The corridors initiative involves three federal government departments including the Canadian Coast Guard, Transport Canada, and the Canadian Hydrographic Service, and also relies on local and Indigenous expert knowledge and the inclusion of regional communities.

Key considerations in the prioritization of the Low Impact Shipping Corridors includes Inuit and Northerners' perspectives on 1) the potential impact of marine vessels on marine areas used by community members for cultural and livelihood activities and 2) potential management strategies for the Corridors that reflect local perspectives.

To support the corridors initiative and the prioritization of shipping routes, this report focuses on outlining the knowledge and opinions from the community of Nain, Nunatsiavut. A group of local experts, who were identified by the Nunatsiavut Government, participated in this study as key knowledge holders and their perspectives were documented during a participatory mapping and group discussion workshop that took place in February 2024. Results of the study are outlined in this report and were validated with research participants prior to publication and public release.

THE SPECIFIC OBJECTIVES OF THE COMMUNITY WORKSHOP IN NAIN WERE TO...

- Describe local marine use areas including significant socio-cultural, archaeological and ecological areas, and local travel routes, for integration into the Low Impact Shipping Corridors;
- Outline the potential impacts of marine vessels on identified marine use areas and community members; and
- Provide community-identified recommendations for the placement and management of the Low Impact Shipping Corridors.

KEY FINDINGS...

- The potential impact of marine vessels using the Low Impact Shipping Corridors include:
  - Oil spills
  - Exchange of ballast water and bilge water leading to the introduction of invasive species
  - Groundings and accidents
  - Dumping of garbage and washed-up ghost nets
  - Seismic testing
  - Wake
  - Risk to hunters travelling back to the community at night
  - Disturbing animals, fish and birds
  - Icebreaking can disturb the sea ice
  - Cruise ships pose a risk to important heritage and ecological sites
  - Noise from ships
  - Impact to travel routes
  - Impact to harvesting and fishing
- The existing spill capacity in Nain is not sufficient.
- Increased monitoring of vessels transiting in and around Nain.
- Increased transparency of and enforcement and accountability to rules.

COMMUNITY-IDENTIFIED RECOMMENDATIONS INCLUDE...

- Safe anchorage sites and sites where there should be no anchoring
- Areas to avoid
- Preferred corridors
- Areas of reduced wake and speed
- Areas where there should be no icebreaking
- Areas of restricted shipping (e.g., cruise ships only or seasonal shipping)
- No dumping zone (ballast water, garbage)
- Areas where charting is needed

The participants expressed that whenever possible ships should stay further out in the ocean away from the islands not only for safety but to minimize the impacts on the environment and the community. The participants recognized that shipping is important for their livelihood but expressed a desire for it to be done in a sustainable way that ensures minimal impacts on the environment, wildlife and the community.

BACKGROUND

Transport Canada and the Canadian Coast Guard, with support from the Canadian Hydrographic Service, have developed a dynamic network of low-impact marine transportation corridors in the Arctic. The Low Impact Shipping Corridors initiative is now establishing a management framework that will promote safer marine activities in designated shipping corridors that pose less risk and minimize the impact on communities and the environment.[1]

This report documents Nain community members' knowledge and extensive year-round use of important marine areas (ecological, socio-cultural, and travel routes), the potential impacts of shipping on those areas and on community members, and potential management strategies for the Government of Canada's proposed Low Impact Shipping Corridors.

In September 2014, the Nunatsiavut Government and the Government of Canada signed a Statement of Intent to begin an ocean management initiative in the Labrador Sea. As part of this initiative, the Imappivut Knowledge Study[2] gathered information from Labrador Inuit about how they use and value the marine environment. Between 2017 and 2022, researchers conducted interviews with Labrador Inuit and recorded how they use and value the marine environment, and mapped out areas of significance for livelihoods, domestic harvesting, recreation, and cultural value. Although all Nunatsiavut communities were included, only data collected from the community of Nain has been used in this report.

In February 2024, the Government of Nunatsiavut and uOttawa researchers Dr. Jean Holloway and Nathaniel Holloway co-facilitated a participatory mapping workshop. Seven Nain residents (see Acknowledgements) who were recognized by the local co-facilitators as topical experts within the community, participated. They included current and active users of local marine areas, holders of expert knowledge of significant socio-cultural, archaeological, and ecological marine areas and travel routes, and those with knowledge of the potential impacts of marine vessel traffic. Local co-facilitators led the recruitment of participants. Participants were remunerated for their time as per local guidelines.

During the workshops, participants identified historic and potential future impacts of marine vessel traffic, recommendations for shipping and marine vessel-management options for the proposed Low Impact Shipping Corridors. These areas were documented on topographic maps covered with plastic overlays using coloured markers.

Following the workshops, a digital set of preliminary maps showing a compilation of participants' knowledge was produced in a report summarizing the key findings. The report and maps were shared with the community and checked for accuracy and completeness. Feedback was incorporated and this report is the resulting final version.

This report begins with an introduction to the Government of Canada's proposed Low Impact Shipping Corridors, and recent changes in shipping traffic activity in Arctic Canada and Nunatsiavut. This is followed by participants' knowledge about the areas around Nain including: 1) ocean conditions, 2) culturally significant marine areas, 3) potential impacts of marine vessel traffic on wildlife, the environment, and Nain residents, and 4) their recommendations for the location and management of the proposed Low Impact Shipping Corridors. Maps of culturally significant marine areas and participants' recommendations for the Low Impact Shipping Corridors are presented.

[1] Dawson, J., Carter, N.A., Reid, M.B., Lalonde, S., Orawiec, A., Pelot, R., and Schmitz, P. (2019). Development and Management of Low-Impact Shipping Corridors in Nunavut: workshop discussion paper. Ottawa: University of Ottawa.

[2] Nunatsiavut Government Department of Land and Resources. (In Prep). Imappivut Knowledge Study: Phase 1 Report (2017-2023). P 1-68.

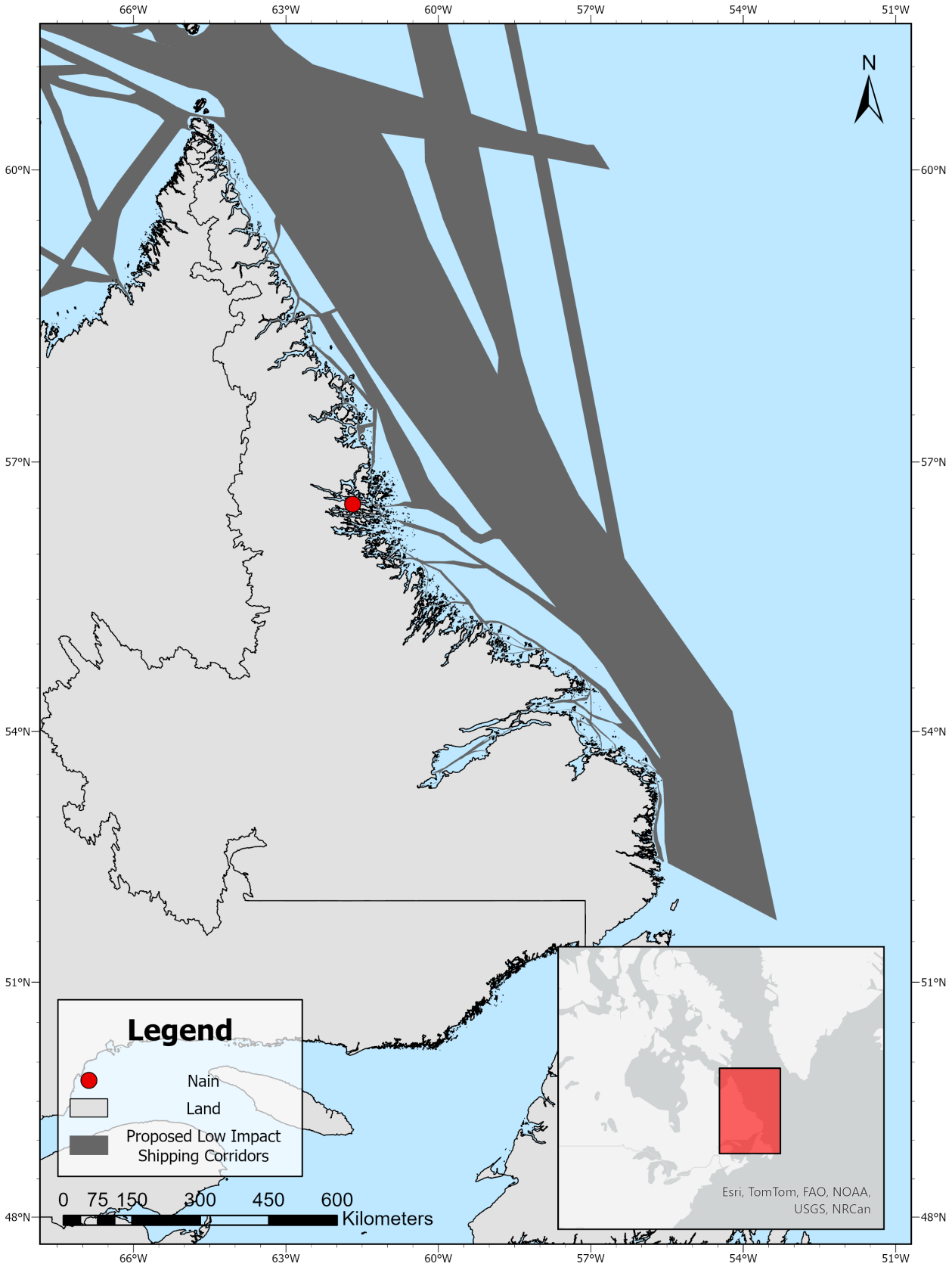

Figure 1. Example of Low Impact Shipping Corridors along the Nunatsiavut coast.

CHANGE IN SHIPPING ACTIVITY

In the Canadian Arctic, there has been a rapid increase in ship traffic with a near-tripling of kilometres travelled by vessels since 1990.[3-4] From 2011 to 2019, Inuit Nunangat experienced an increase in ship traffic by 37% (see Figure 2). Despite having the second-highest traffic overall, Nunatsiavut experienced a slight decline in activity between 2015 and 2019 (8%).[5] Cargo and fishing vessels had the highest traffic overall, but bulk carrier and pleasure craft traffic increased the most during that time.[6]

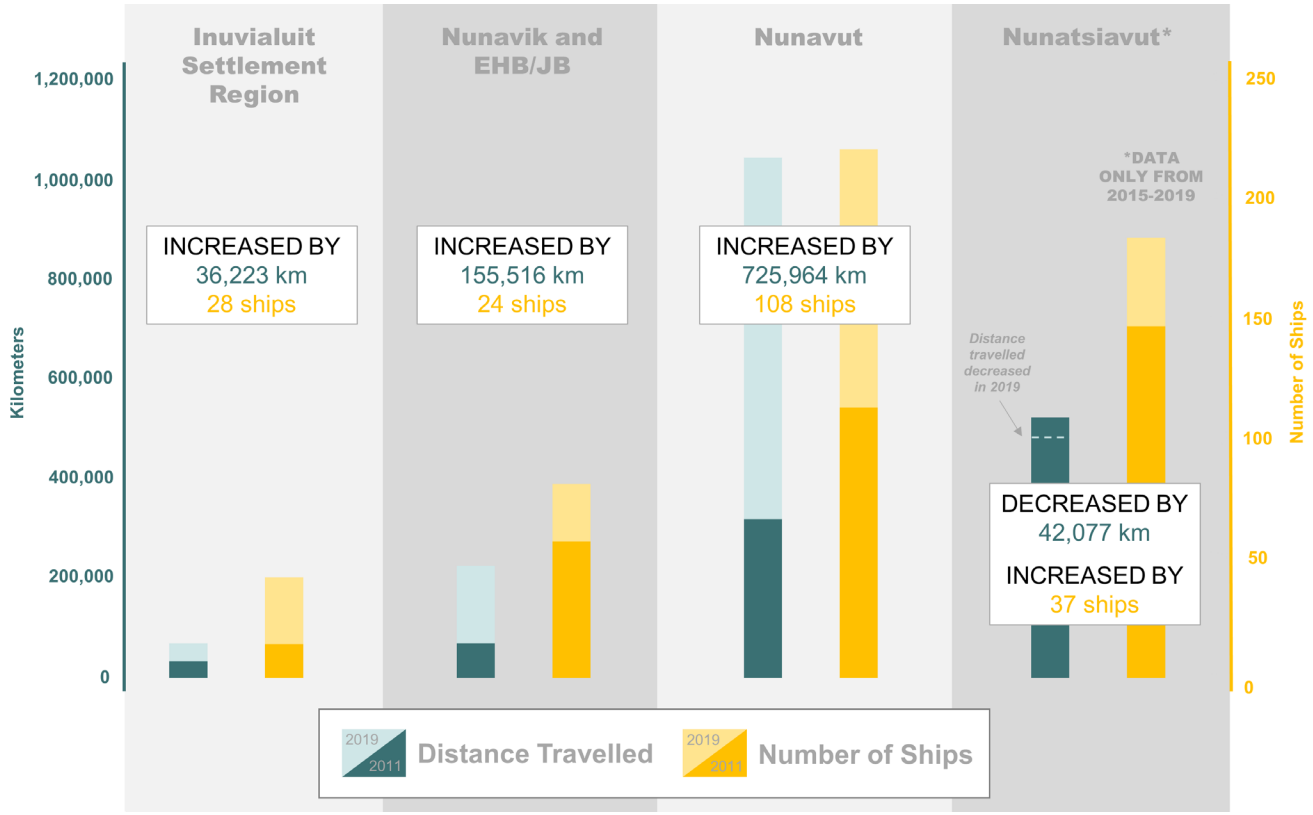

Figure 2. Summary of shipping data for each region in Inuit Nunangat 2011–2019. Note that data is only from 2015–2019 for Nunatsiavut. Source: van Luijk et al. (2021).

[3] Dawson, J., Pizzolato, L., Howell, S. E. L., Copland, L., & Johnston, M.E. (2018). Temporal and Spatial Patterns of Ship Traffic in the Canadian Arctic from 1990 to 2015. Arctic, 71(1), 15-26. https://doi.org/10.14430/arctic4698

[4] Ng, A. K. Y., Andrews, J., Babb, D., Lin, Y., & Becker, A. (2018). Implications of climate change for shipping: Opening the Arctic seas. WIREs Climate Change, 9(2), e507. https://doi.org/10.1002/wcc.507

[5] van Luijk, N., Holloway, J., Carter, N. A, Dawson, J., Orawiec, A. (2021). Gap Analysis: Shipping and Coastal Management in Inuit Nunangat. A report prepared for Inuit Tapiriit Kanatami. Ottawa, Canada.

[6] van Luijk, N., Holloway, J., Carter, N. A, Dawson, J., Orawiec, A. (2021). Gap Analysis: Shipping and Coastal Management in Inuit Nunangat. A report prepared for Inuit Tapiriit Kanatami. Ottawa, Canada.

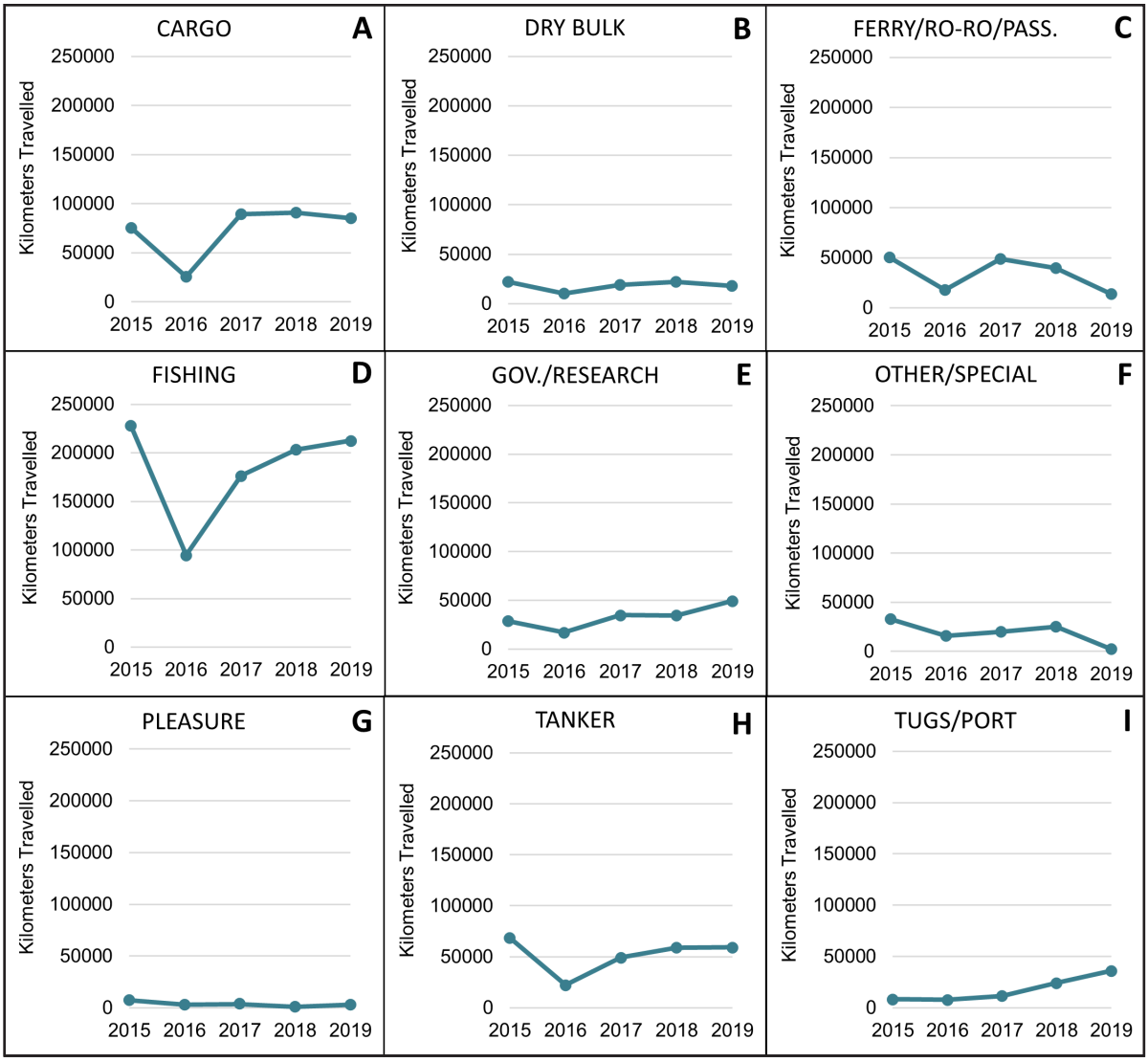

Figure 3. Kilometres travelled by vessel type in Nunatsiavut from 2015–2019. Source: van Luijk et al. (2021).

Vessel traffic in Nunatsiavut is comprised of different ships, including Cargo, Container, Ferry, Fishing, Government/Research, Passenger, Pleasure Craft, Tanker, Tugs, and Other (e.g., exploration survey vessels) (Figure 3). Between 2015 and 2019, vessels travelled a total of 2.2 million kilometres throughout Nunatsiavut.[7] Fishing vessels had the highest number of kilometres travelled in Nunatsiavut, followed by Cargo and Government/Research vessels (Figure 3). Distance travelled has been fairly consistent in Nunatsiavut between 2015 and 2019. However, 2016 was an exception, where kilometres travelled decreased by 59% from the previous year. This could be attributed to the increased concentration of sea ice[8] and the early arrival of multi-year ice[9] in the Labrador Sea that year.

[7] van Luijk, N., Holloway, J., Carter, N. A, Dawson, J., Orawiec, A. (2021). Gap Analysis: Shipping and Coastal Management in Inuit Nunangat. A report prepared for Inuit Tapiriit Kanatami. Ottawa, Canada.

[8] Petty, A. A., Stroeve, J. C., Holland, P. R., Boisvert, L. N., Bliss, A. C., Kimura, N., & Meier, W. N. (2018). The Arctic sea ice cover of 2016: a year of record-low highs and higher-than-expected lows. *The Cryosphere*, *12*(2), 433-452.

[9] Barber, D. G., Babb, D. G., Ehn, J. K., Chan, W., Matthes, L., Dalman, L. A., ... & Gariepy, A. (2018). Increasing mobility of high Arctic sea ice increases marine hazards off the east coast of Newfoundland. *Geophysical Research Letters*, *45*(5), 2370-2379.

OCEAN CONDITIONS

The seasonal calendar in Nunatsiavut comprises six seasons that correlate with the freeze and thaw cycle of the ocean (see Figure 4). Ocean conditions change throughout the year and hold significant importance to Inuit and how they experience the land.[10] The calendar is generalized to represent all of Nunatsiavut, but the seasons' timing varies slightly in each community.

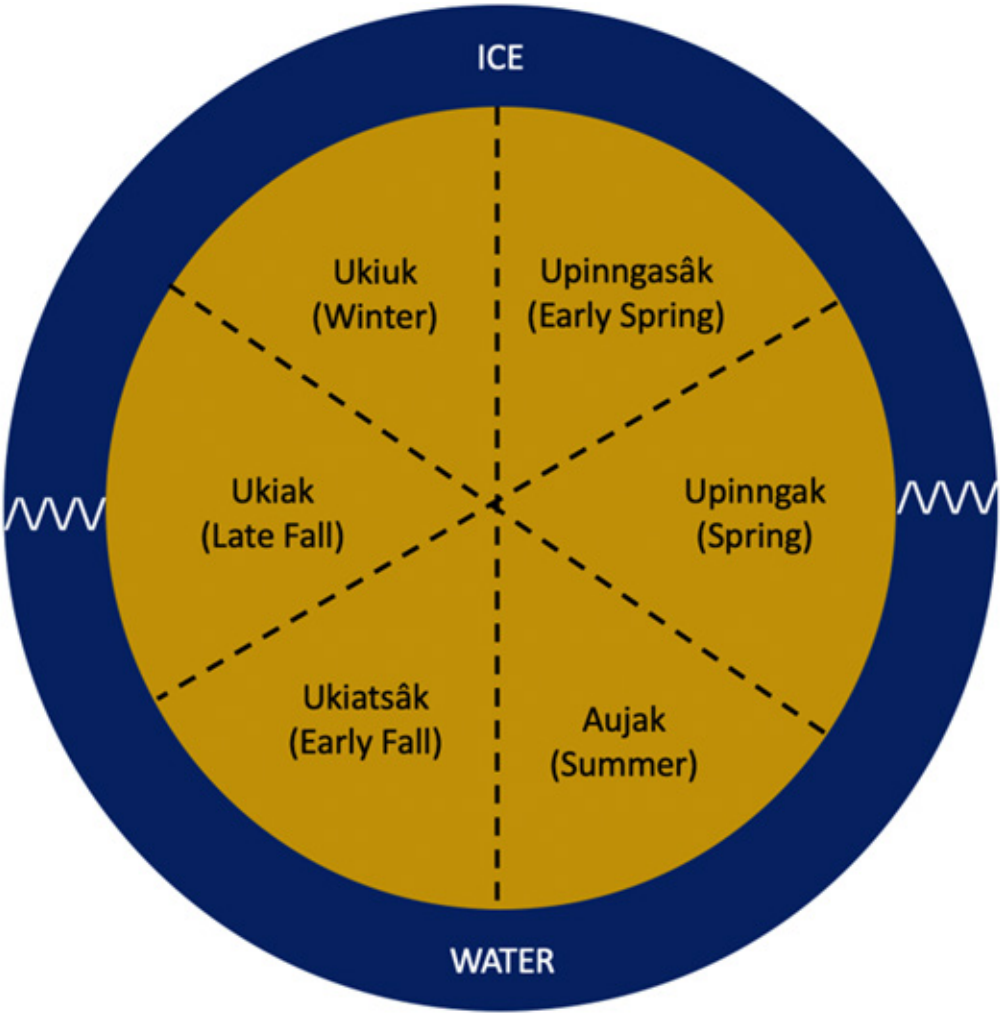

Figure 4. Seasonal Calendar for Nunatsiavut.
Source: Nunatsiavut Government Department of Land and Resources.

[10] Nunatsiavut Government Department of Land and Resources. (In Prep). Imappivut Knowledge Study: Phase 1 Report (2017–2023). P 1-68.

MAPS OF CULTURALLY SIGNIFICANT MARINE AREAS

The government of Nunatsiavut has been mapping culturally significant marine areas as part of the Imappivut Knowledge Study. Therefore, to minimize research fatigue and not duplicate efforts, this exercise was not undertaken in this project. Instead, data was provided by the Government of Nunatsiavut and our research team created the following maps.

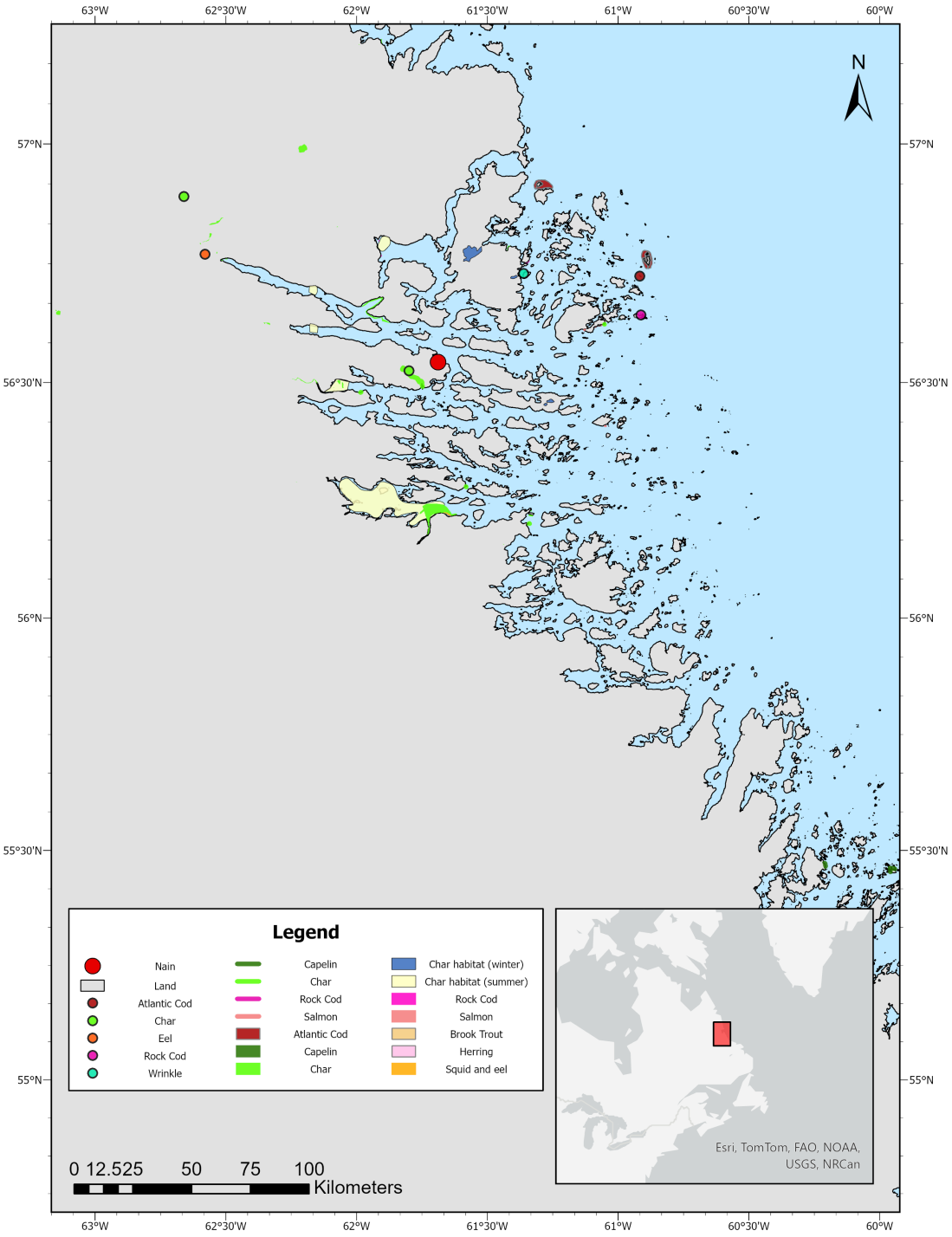

Figure 5. Location of community members' fishing areas and fish habitat near Nain, Nunatsiavut. Points represent harvesting sites, while lines and polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

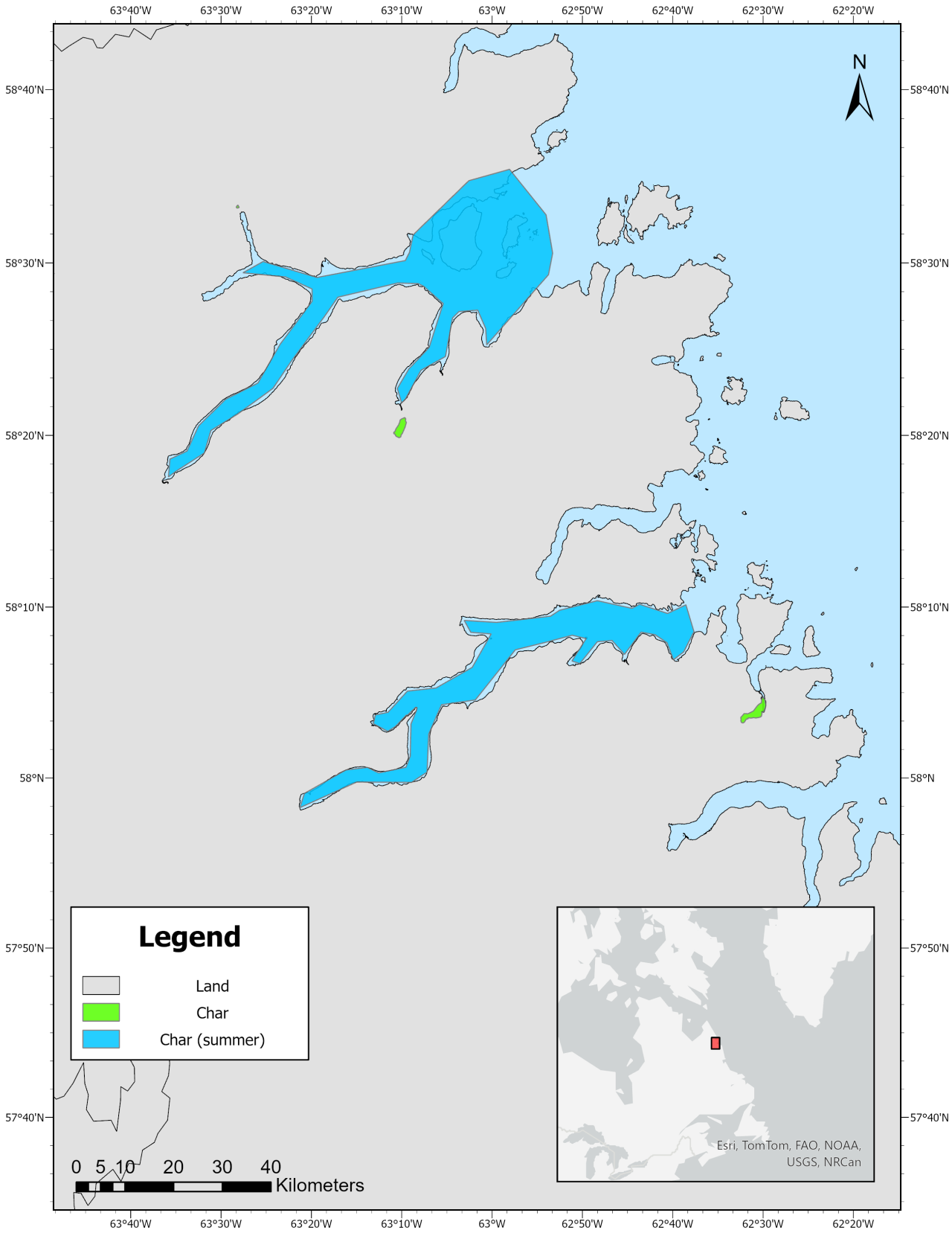

Figure 6. Location of community members' fishing areas and fish habitat north of Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

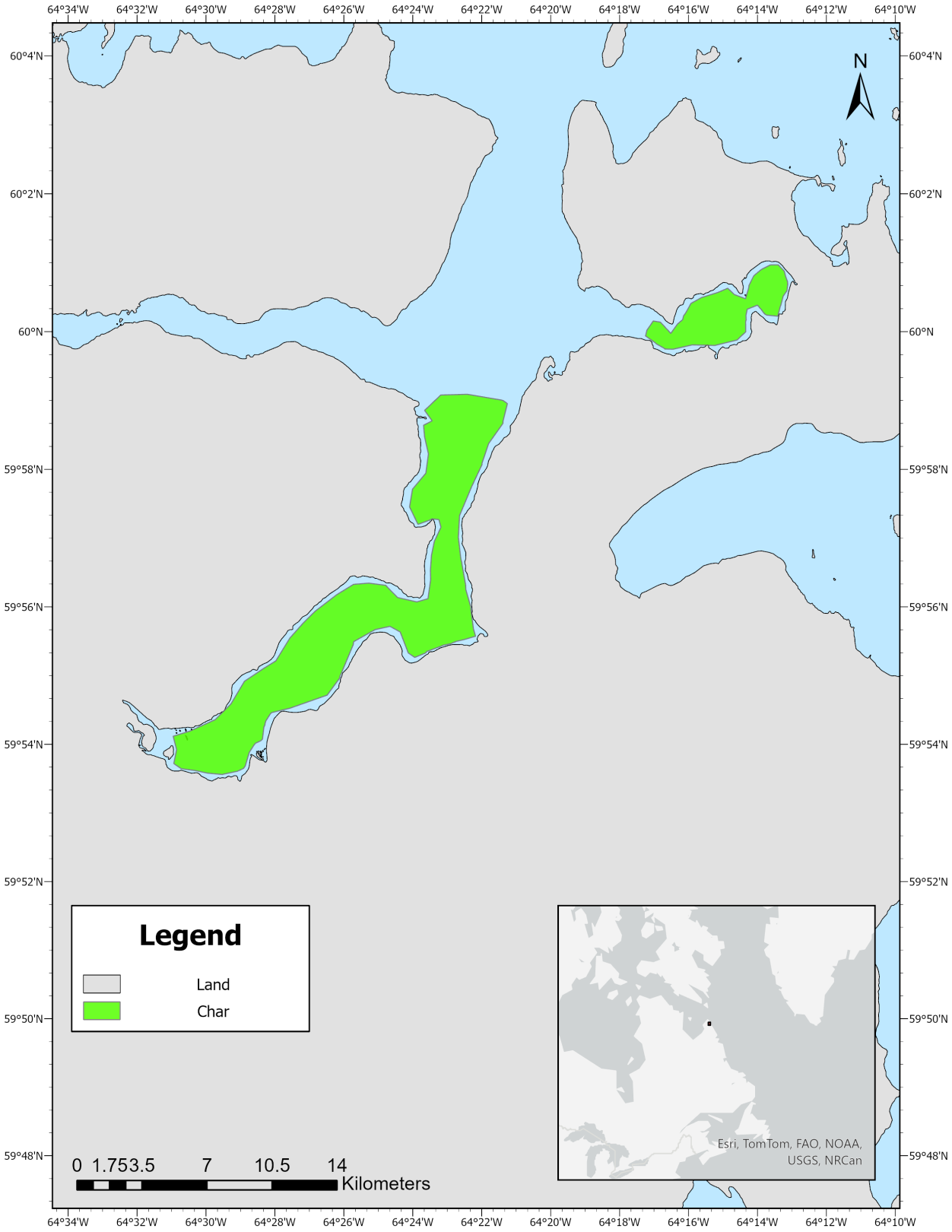

Figure 7. Location of community members' char fishing areas north of Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

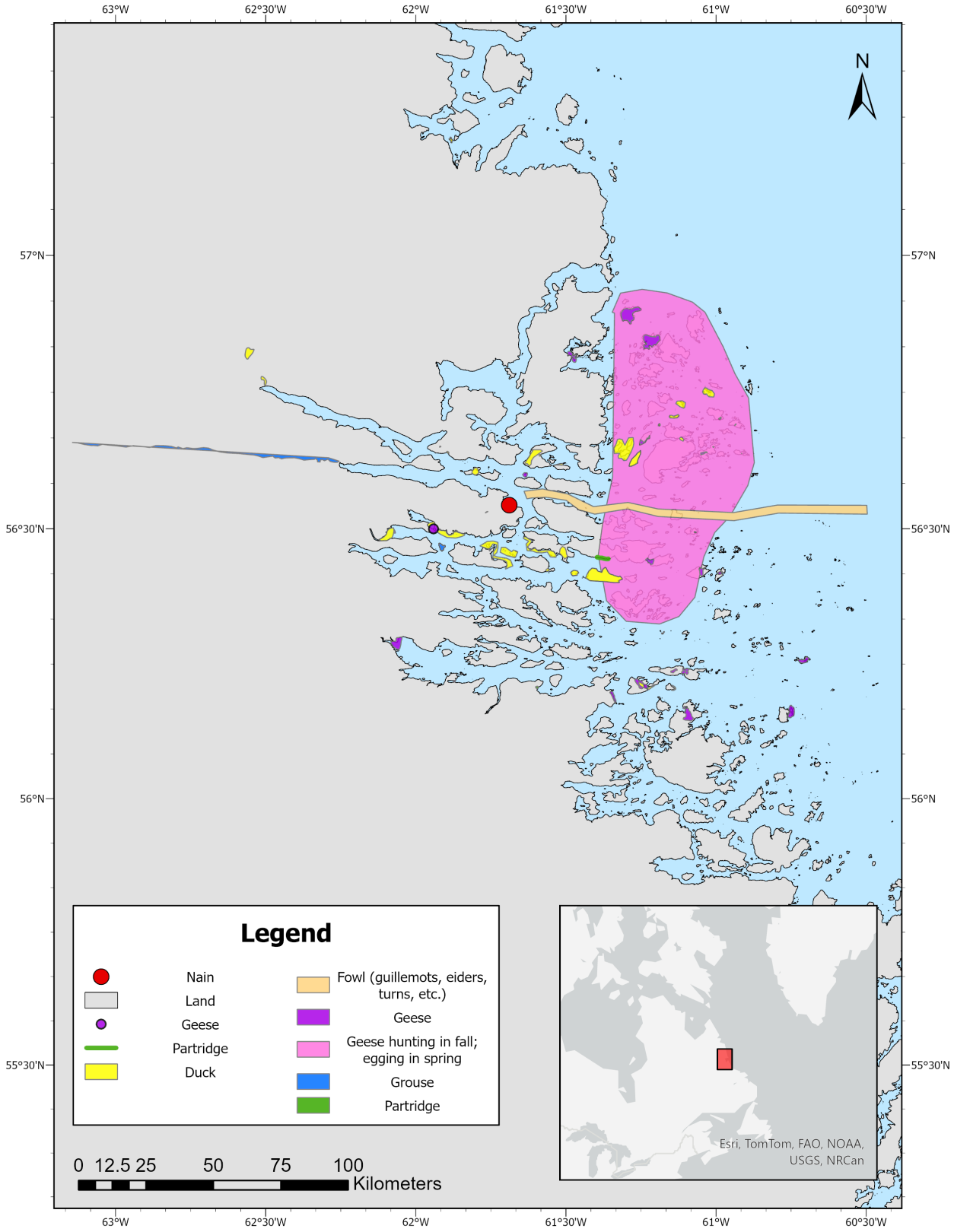

Figure 8. Location of community members' fowl harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while lines and polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

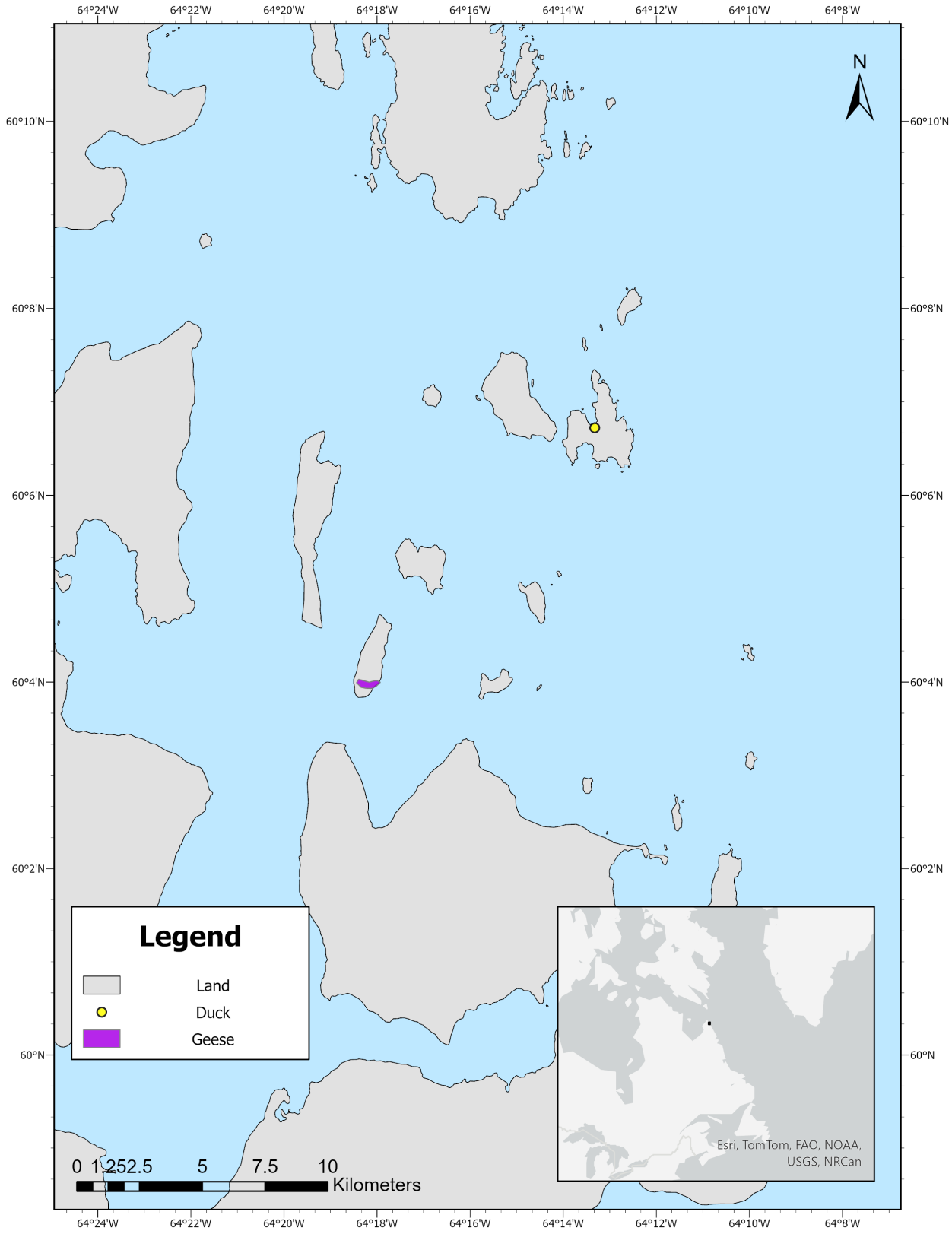

Figure 9. Location of community members' fowl harvesting areas north of Nain, Nunatsiavut. Points represent harvesting sites, while polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

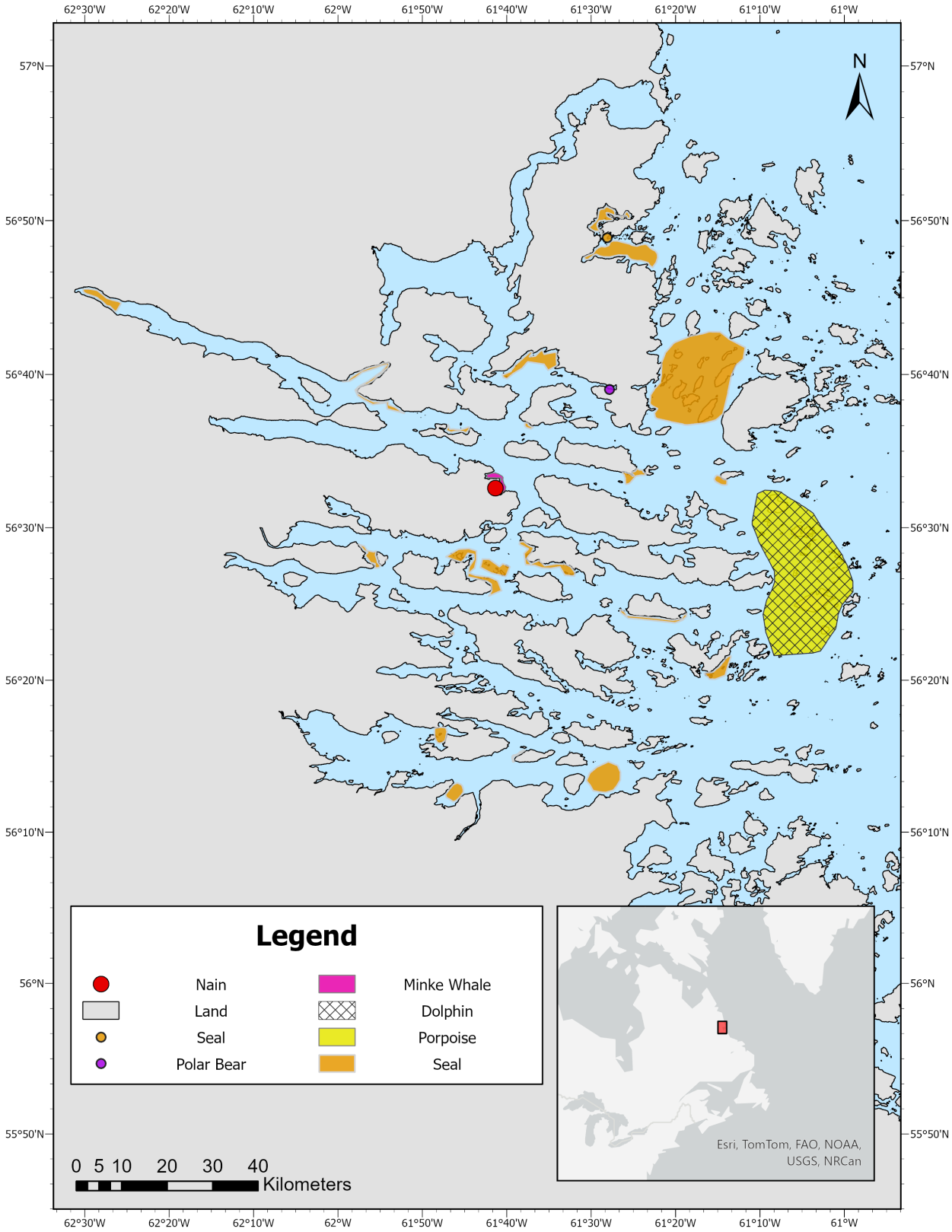

Figure 10. Location of community members' marine mammal harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while polygons represent harvesting areas. Data is courtesy of the Nunatsiavut Government.

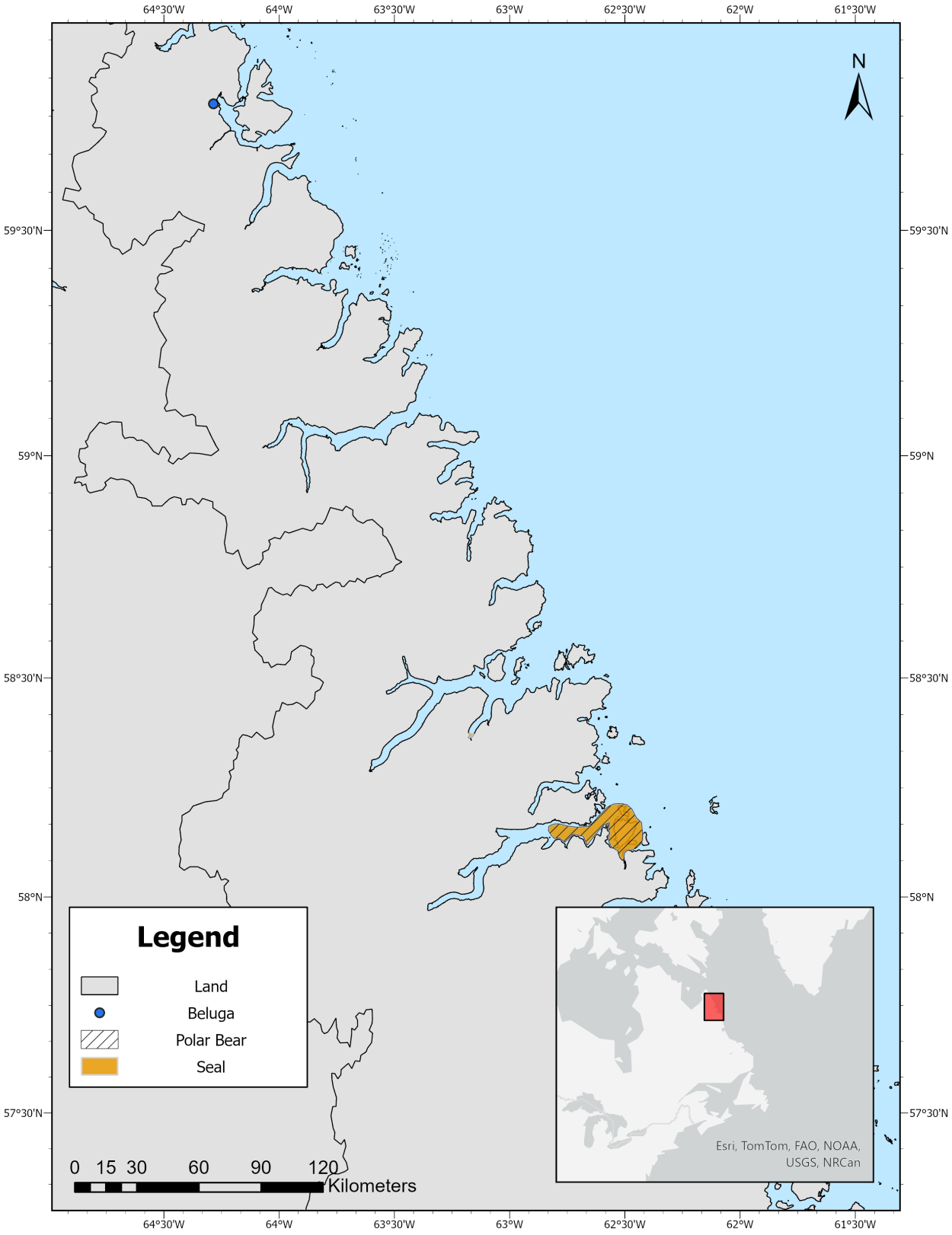

Figure 11. Location of community members' marine mammal harvesting areas north of Nain, Nunatsiavut. Points represent harvesting sites, while polygons represent harvesting areas. Data is courtesy of the Nunatsiavut Government.

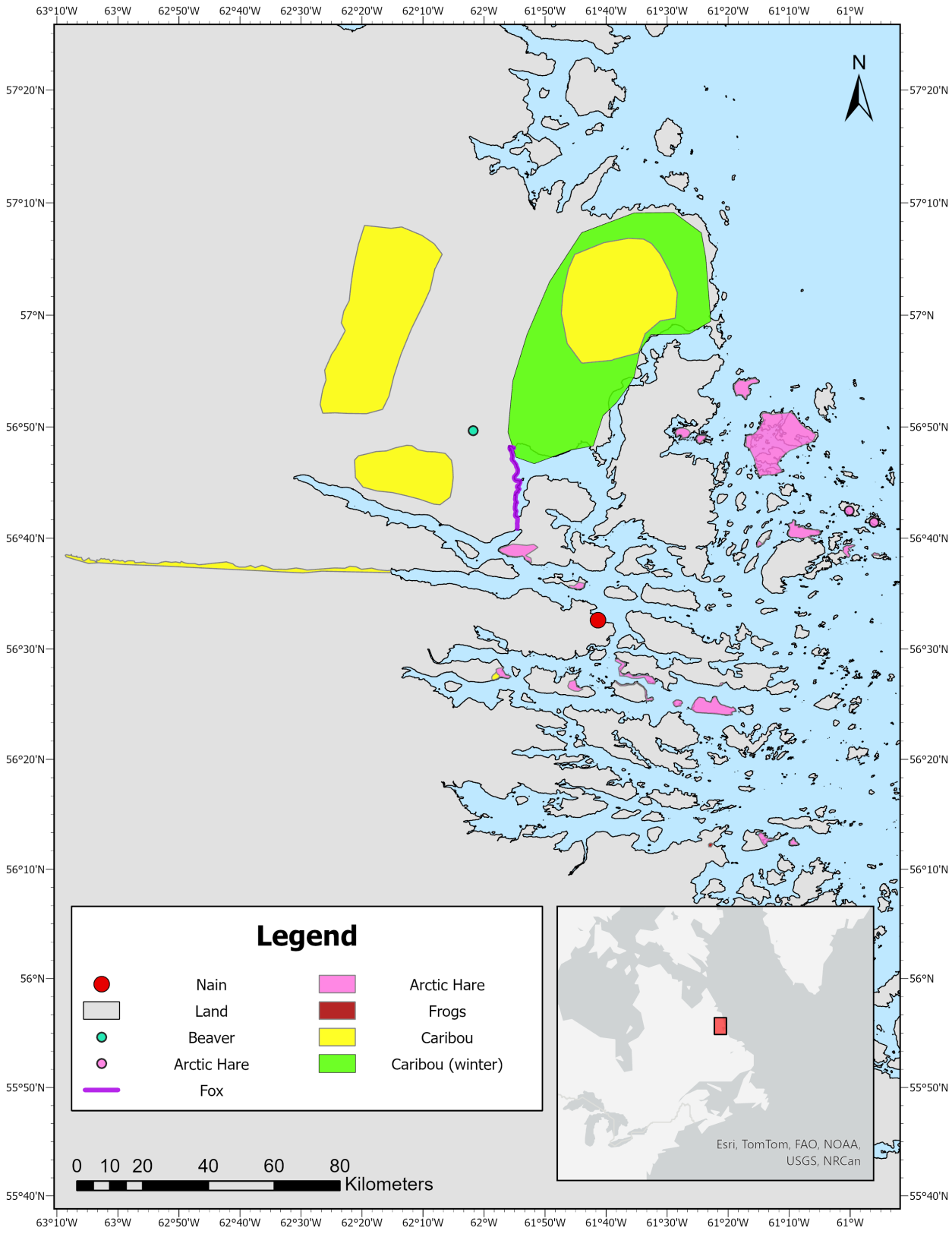

Figure 12. Location of community members' terrestrial animal harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while lines and polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

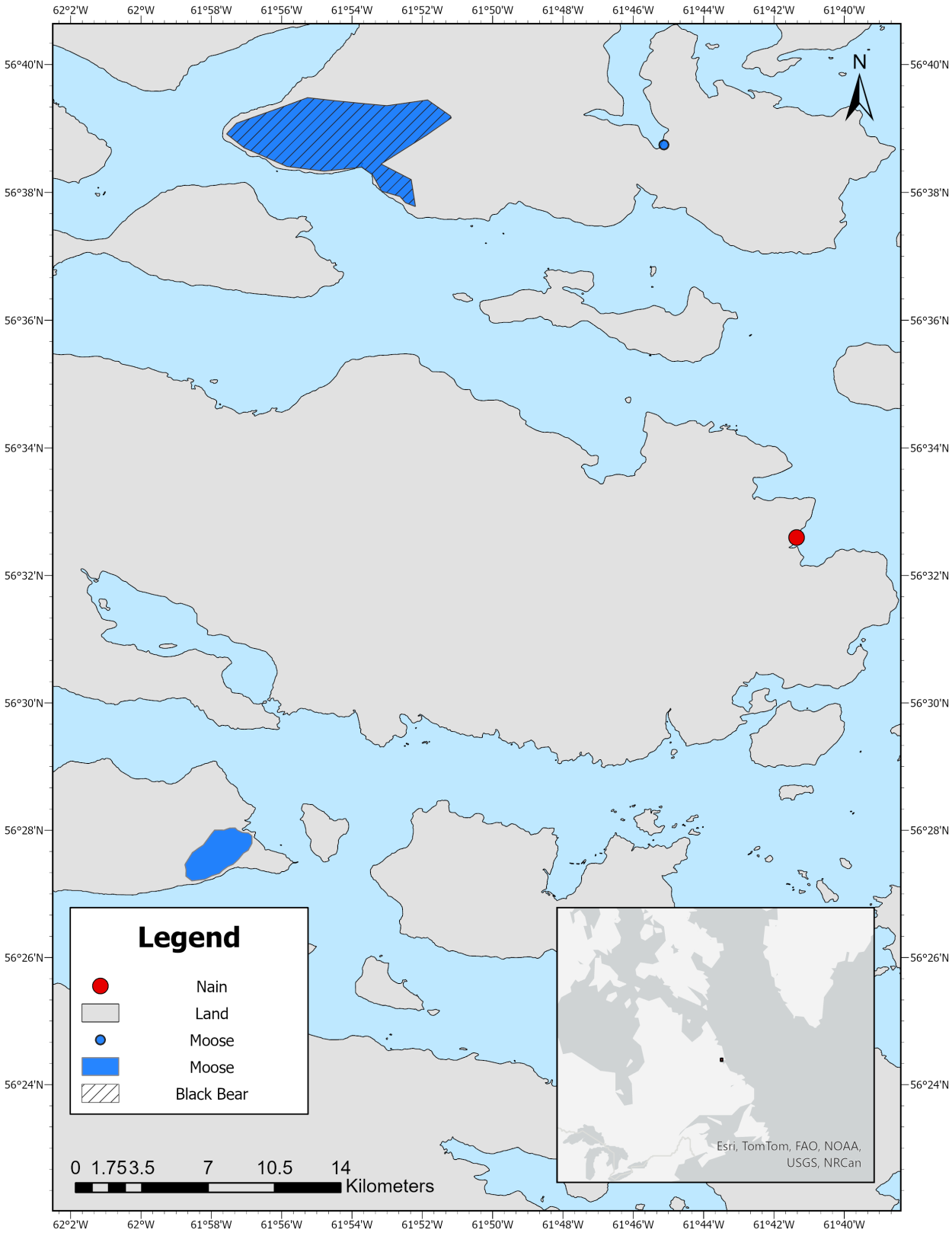

Figure 13. Location of community members' moose and black bear harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

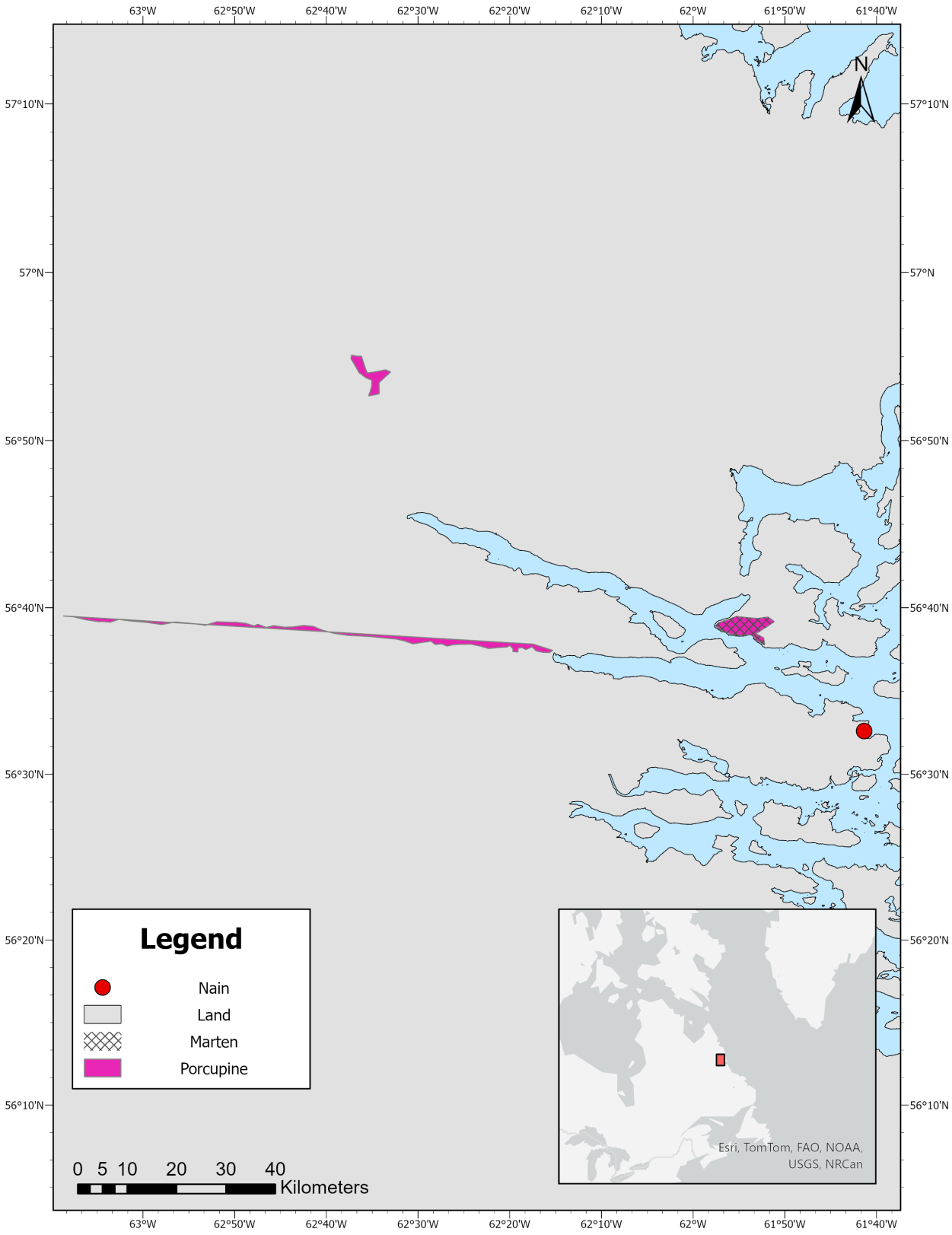

Figure 14. Location of community members' porcupine and marten harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

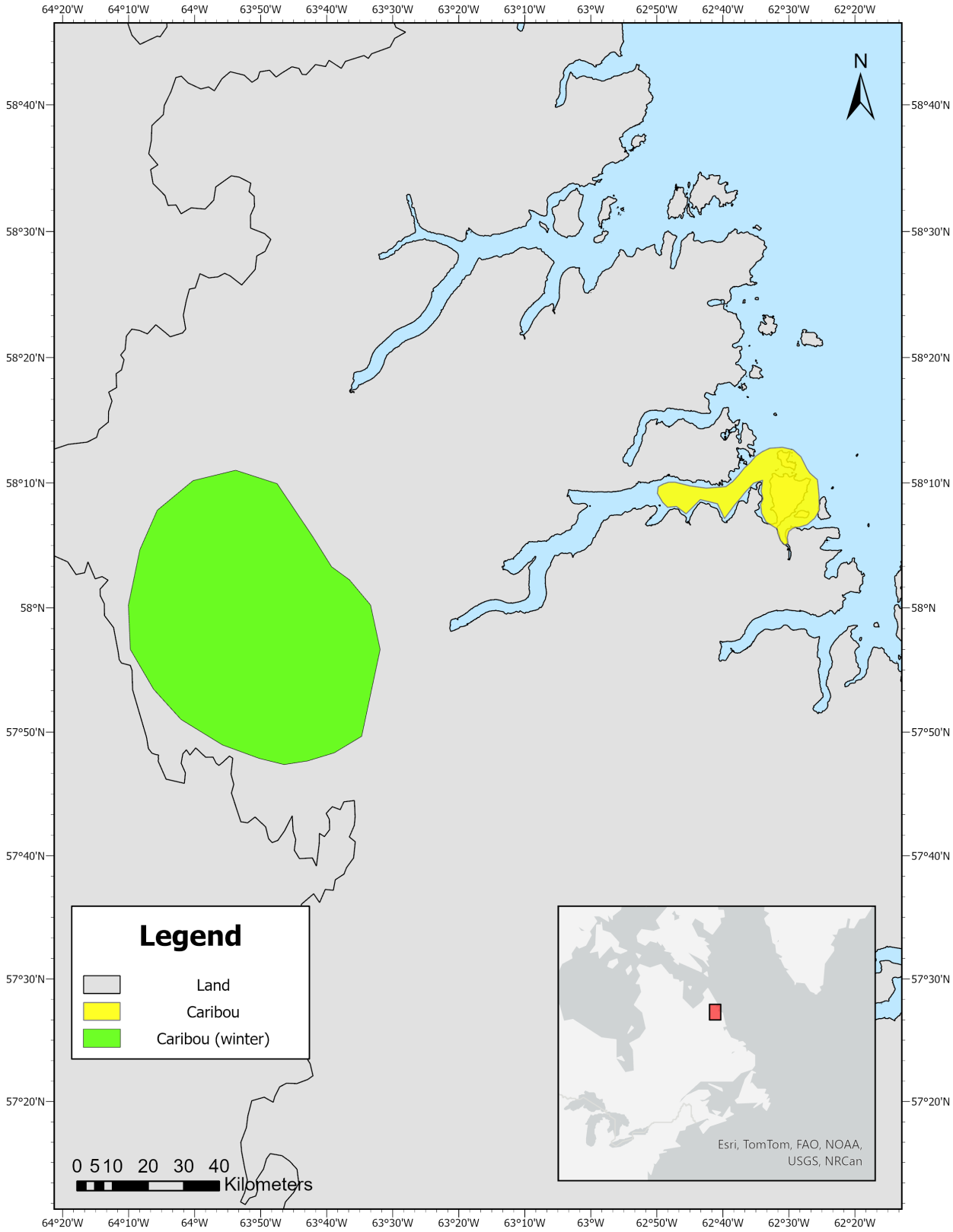

Figure 15. Location of community members' caribou harvesting area and habitat and polar bear harvesting area north of the community of Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

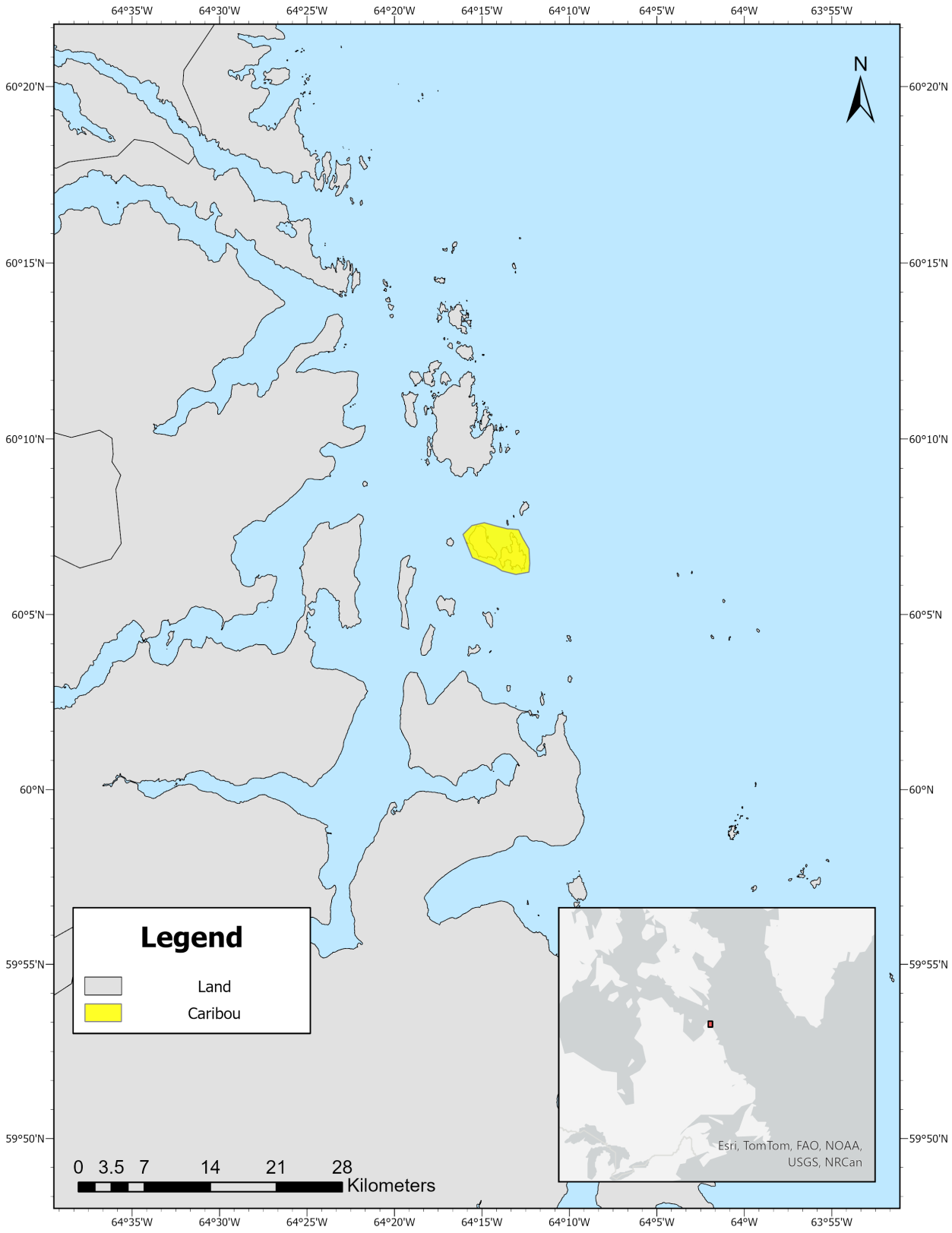

Figure 16. Location of community members' caribou harvesting area north of the community of Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

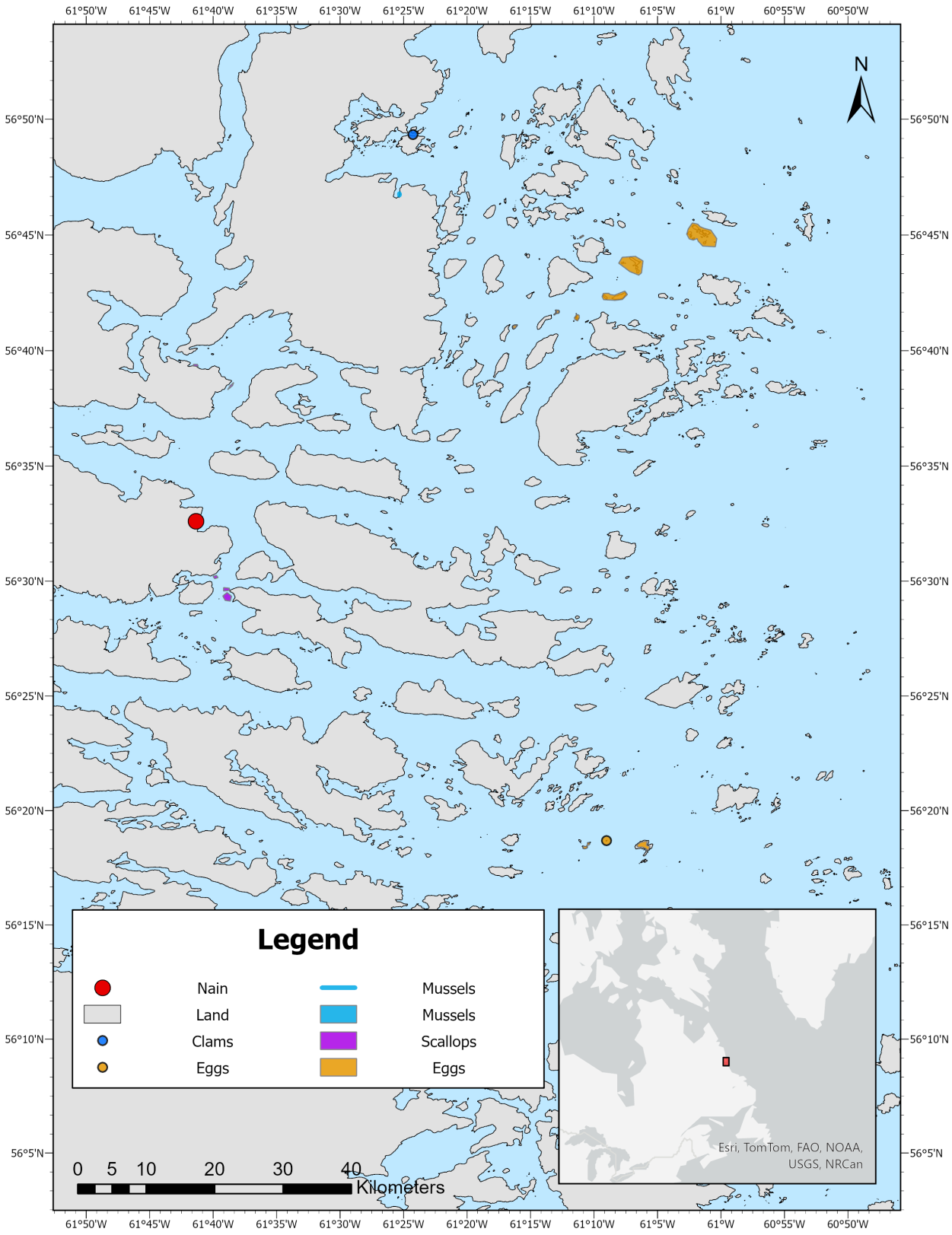

Figure 17. Location of community members' eggs and mollusc harvesting areas near Nain, Nunatsiavut. Points represent harvesting sites, while lines and polygons represent harvesting areas or habitat. Data is courtesy of the Nunatsiavut Government.

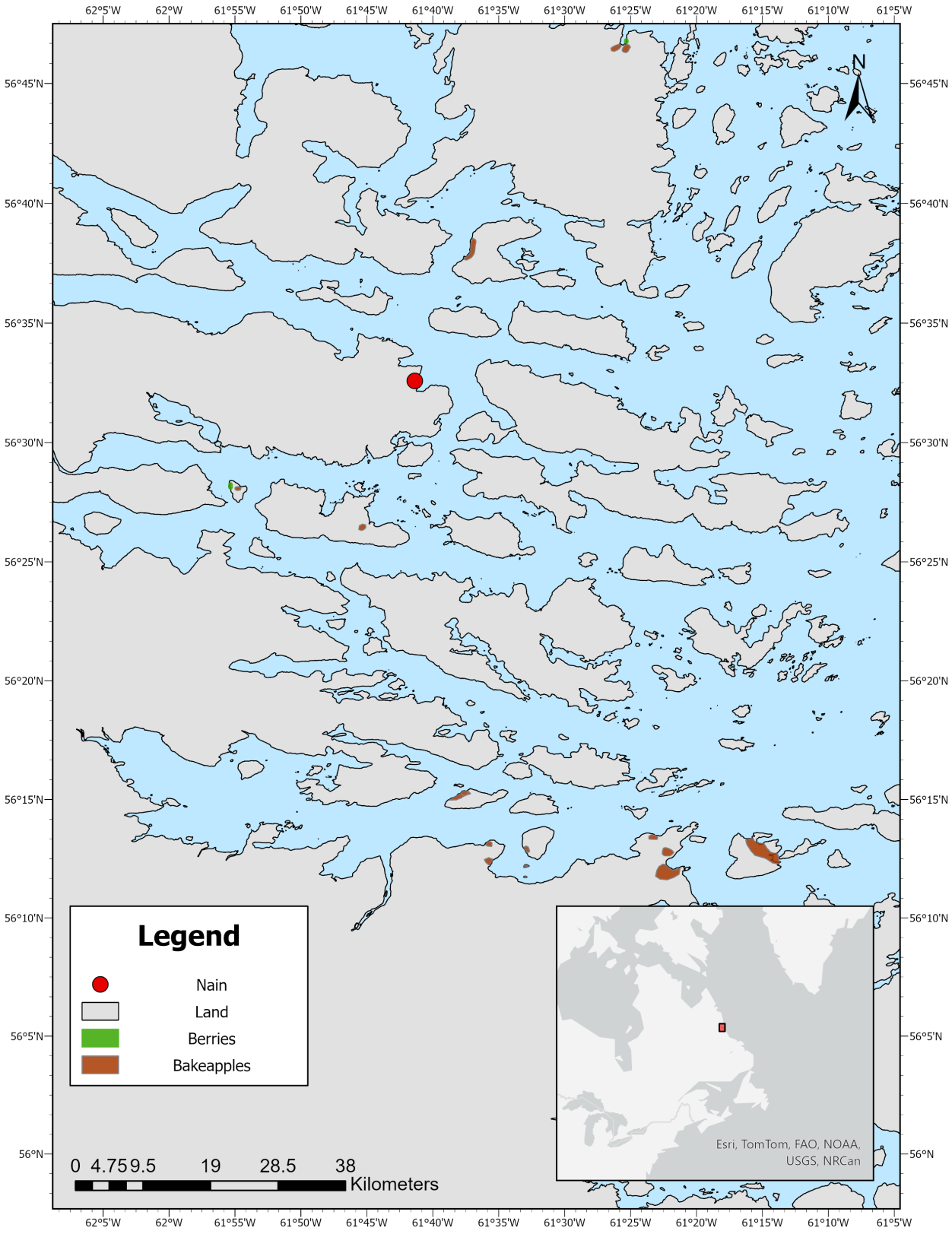

Figure 18. Location of community members' berry harvesting areas near Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

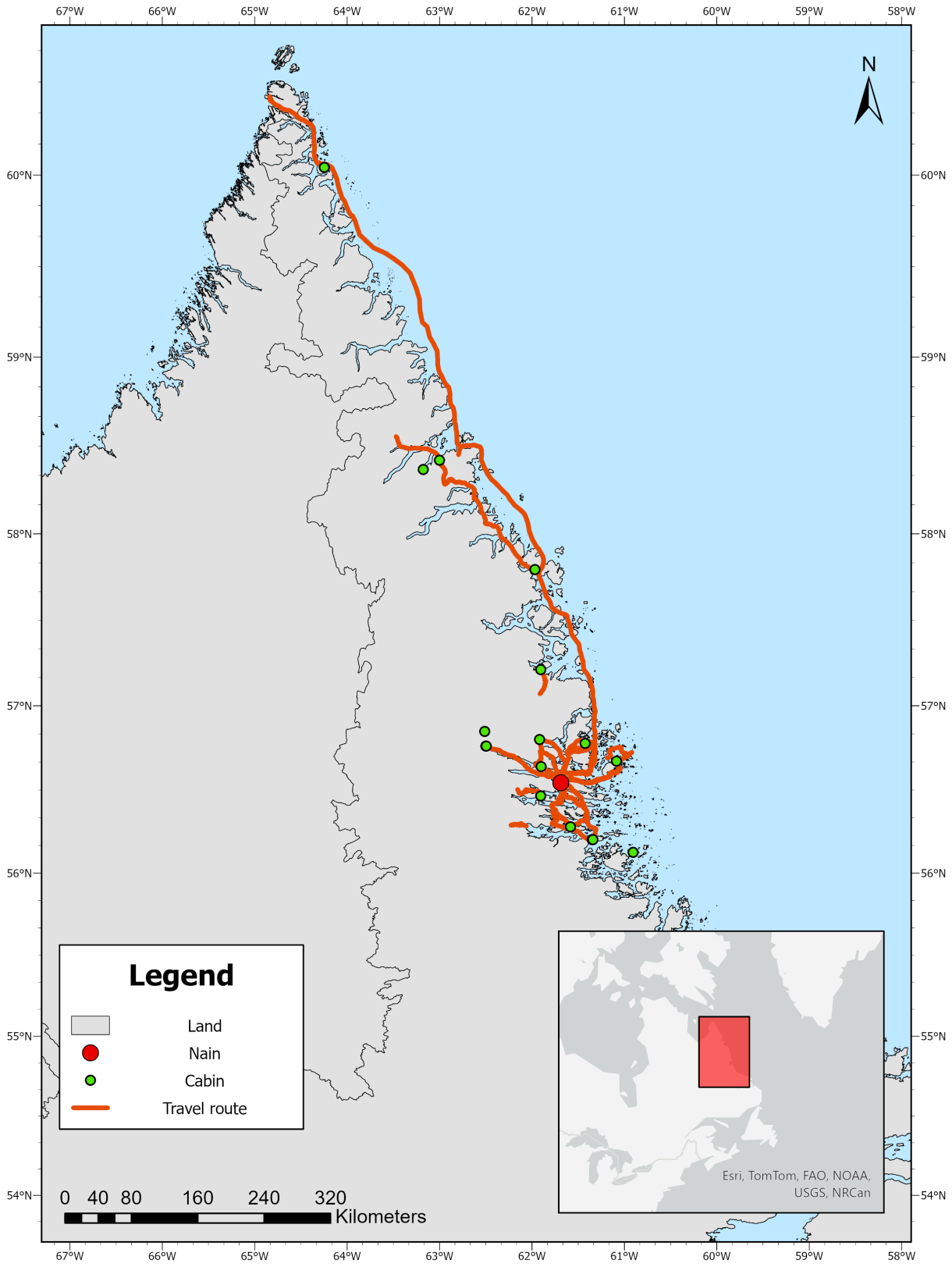

Figure 19. Location of Nain community members' general travel routes and cabins. Data is courtesy of the Nunatsiavut Government.

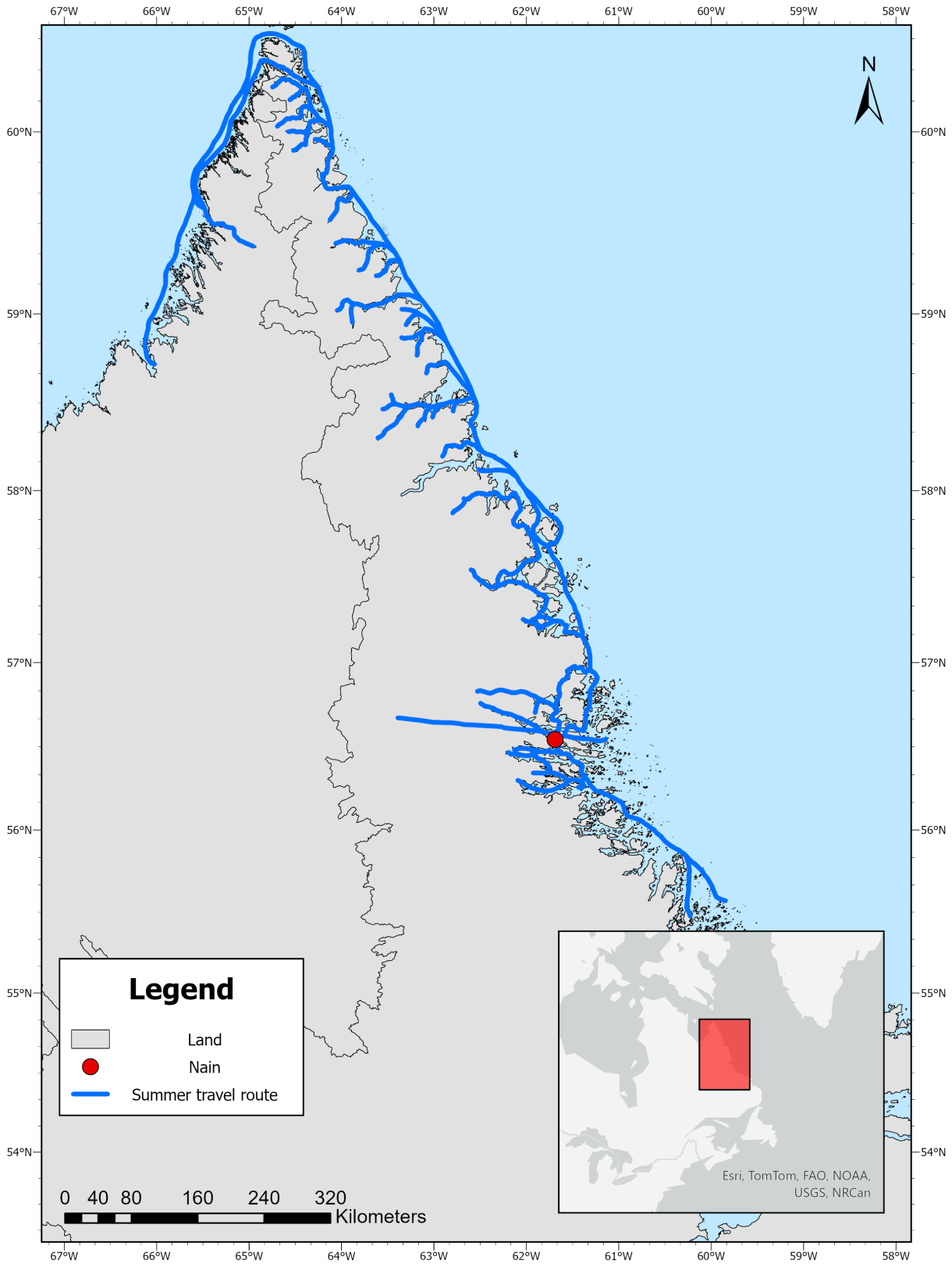

Figure 20. Location of Nain community members' summer travel routes. Data is courtesy of the Nunatsiavut Government.

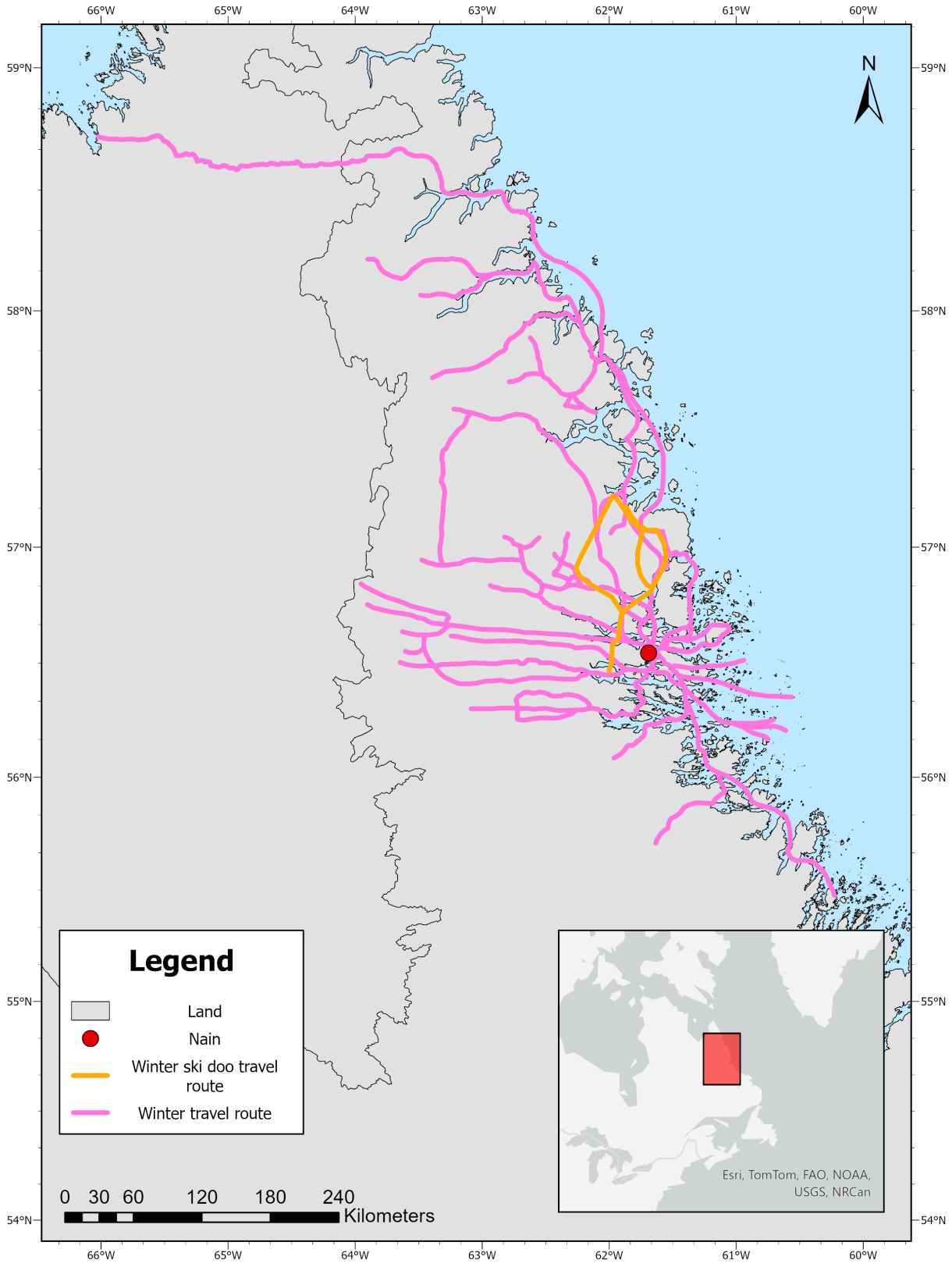

Figure 21. Location of Nain community members' winter travel routes. Data is courtesy of the Nunatsiavut Government.

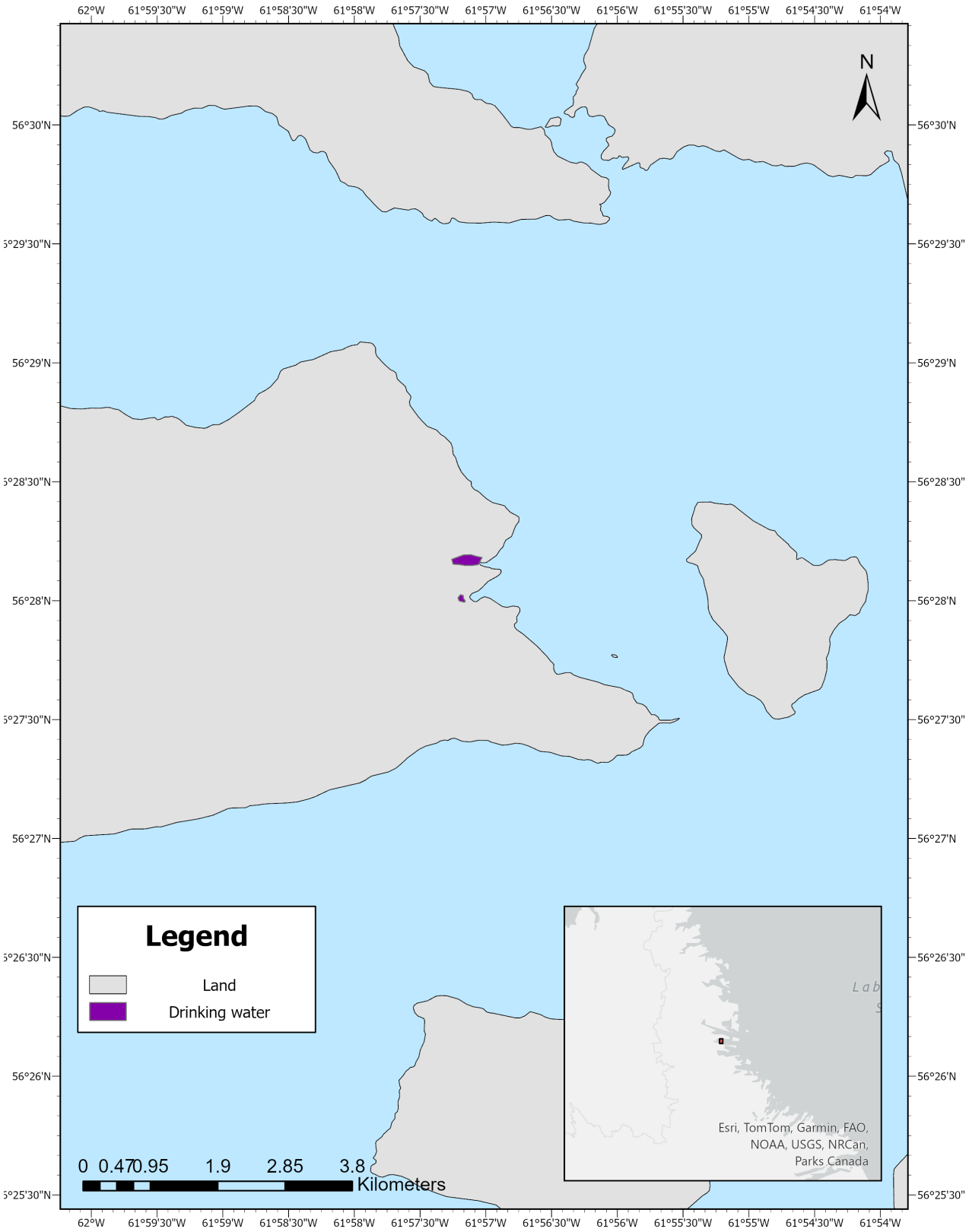

Figure 22. Location of community members' drinking water area southwest of Nain, Nunatsiavut. Data is courtesy of the Nunatsiavut Government.

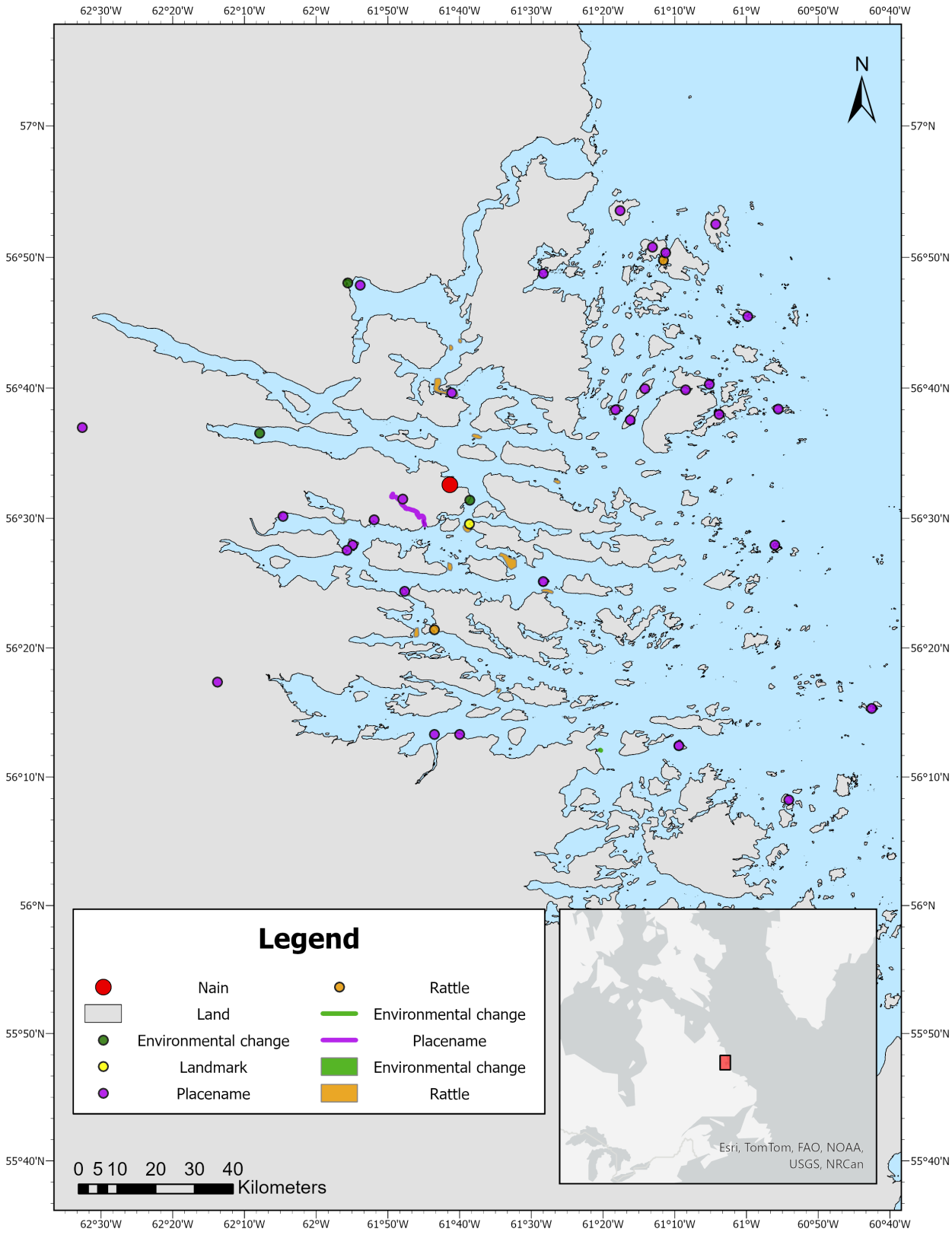

Figure 23. Location of cultural sites and areas with environmental observations near the community of Nain, Nunatsiavut. Points represent sites and polygons represent areas. Data is courtesy of the Nunatsiavut Government.

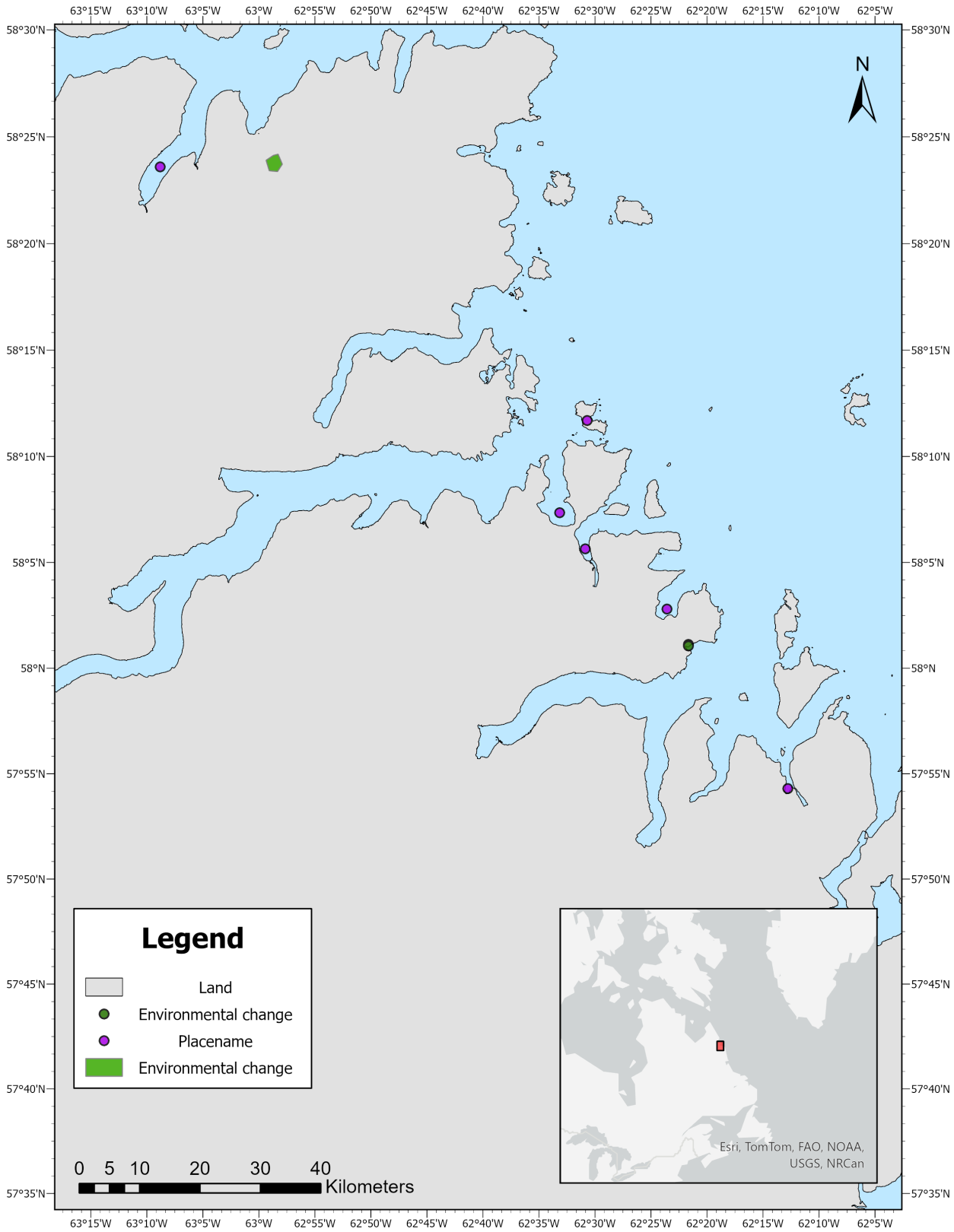

Figure 24. Location of cultural sites and areas with environmental observations north of the community of Nain, Nunatsiavut. Points represent sites and polygons represent areas. Data is courtesy of the Nunatsiavut Government.

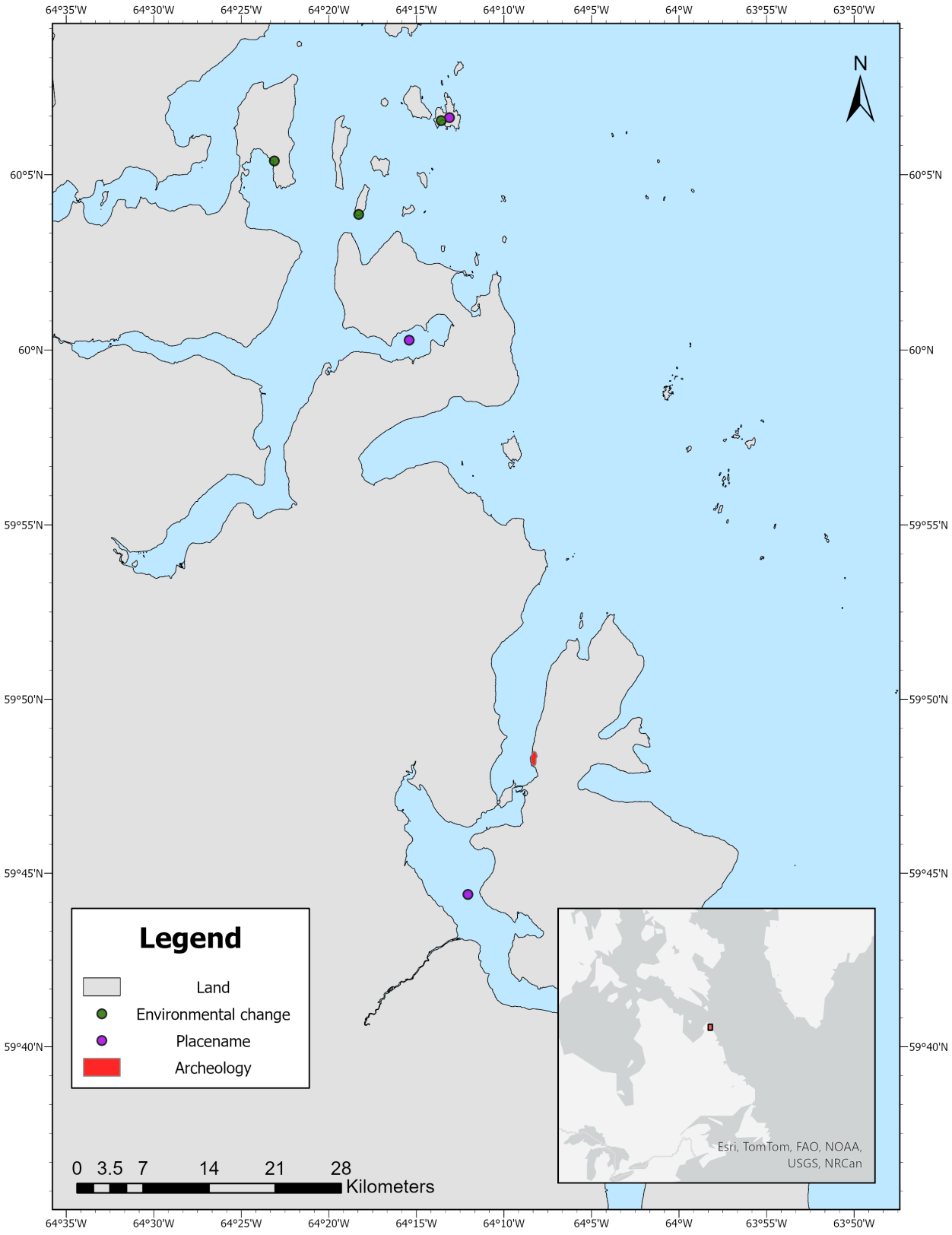

Figure 25. Location of cultural sites and areas with environmental observations north of Nain, Nunatsiavut. Points represent sites and polygons represent areas. Data is courtesy of the Nunatsiavut Government.

POTENTIAL IMPACTS OF MARINE VESSELS

Marine vessels transiting in and around Nain may impact the community, wildlife and the environment. Participants shared numerous observations and perspectives about shipping, described the potential impacts of marine vessels, and provided relevant recommendations (see Table 1).

Most of the Low Impact Shipping Corridors in and around Nain are currently being used by most vessels as these are known routes that are safe. Participants explained that current routes taken by boat are how they've been travelling for years because they know it is safe. However, one participant expressed hesitancy with proposing new vessel corridors, saying: "if we were to suggest a route, we don't know if it is safe or not" (due to lack of charting).

The participants indicated that the biggest concern is large cargo vessels and tankers carrying fuel offshore and/or coming into the community. Nain had the unfortunate experience of dealing with oil spills from vessels transiting within the area. As one participant explained: "*We had an oil spill last summer, you could call it a small one, but looking at it and smelling it, even though they call it a small one, it's not good looking at it right there in the harbour.*"

Whenever possible, ships should stay further out in the ocean away from the islands not only for safety (e.g., to avoid shoals) but to minimize impacts on wildlife and the community. However, participants noted they are concerned that ships are not following the rules "out there" (referring to offshore waters) due to a lack of monitoring. As one participant explained "One of the bigger concerns is what is offshore too passing along on the shipping route outside. A lot of people don't realize how many ships go by... No one to police them out there, we have to take their word for it I guess." Due to the nature of the currents around Nain, anything that happens offshore in the open water will inevitably impact the community.

Some participants noted that all ships should follow the same regulations as it is confusing having to remember which rules applied to specific types of ships, while another participant noted: "*I don't think you can have a policy that applies to all boats*." However, overall, there was a desire to see greater regulation and monitoring of shipping, especially ships transiting through Nunatsiavut waters on to other destinations. They also indicated that any new vessels coming into a mine should have a shipping agreement in place with the Nunatsiavut Government.

Participants explained that while shipping is necessary for their community, it should be done in a sustainable way that minimizes impacts on the environment, wildlife and the community. Participants noted that there are often different perspectives and feelings on marine vessels depending on the type of vessel and the purpose of the vessel. For example, freight is what brings in someone's new truck. There was also a desire to be open to new opportunities (e.g., tourism) within the region because of the economic benefits. Given the potential opportunities which shipping can bring to the community, it was cautioned to altogether refuse shipping in and near the community.

Participants felt that there should be a greater effort toward maximizing shipping which is already happening. For example, if a ship was 70% full and going to Pond Inlet, there should be an opportunity for Nain (or another community) to take that other 30% to receive fresh food from Montreal. If ships are going to be transiting within the region, there should be some benefit to Nunatsiavut.

Table 1. Potential impact of marine vessels on the environment, wildlife and community members and related recommendations.

POTENTIAL IMPACT OF MARINE VESSELS	RELATED RECOMMENDATION
Oil Spills are a potential impact of marine vessels transiting in and around Nain. Oil spills can also happen as a result of ships taking short cuts and entering into narrow or dangerous areas with shoals or during fuel transfers. An oil spill can negatively impact: • Wildlife, specifically birds and seals; • Hunting area; • Wildlife travel, and if there was a spill they could spread it to further regions; and • Community members as they will have to travel further to hunt for country food. *"Today gasoline is very expensive and we can do so much hunting at one spot – if there was a spill in that spot, we'd have to spend more gas to go out further to hunt."*	• All ships should have spill equipment onboard due to the lack of supplies in the community. • Oil spill kits should be available in the community. • Wherever the ship is coming from should have people ready to respond to a spill. • *"If we had a big spill, we don't have anything. We'd have to rely on the ship itself."*
Ballast and Bilge Water are a potential impact of marine vessels if they are exchanged in and around Nain. The community has no way of knowing where ships are exchanging ballast water. Ballast and bilge water can: • Negatively impact species who are dependent on specific water temperatures and conditions; and • Lead to the introduction of invasive species that spread along the coast due the nature of the currents.	• All ships should have logs where they record when/where dumping of garbage, bilge water and ballast water has taken place. • All ships should have an automatic sensor that sends a signal when they are exchanging ballast water, that way it is known where and when they are exchanging. • Ballast and bilge water should be exchanged in the deep ocean. • Increased monitoring along the coast by the Canadian Coast Guard. • More standardized measures are needed for all regions and communities. • Ballast and bilge water should not be dumped in Ungava Bay due to the currents. • There is a government agreement in place with the Umiak Vessel (Ore Tanker) about ballast water, dumping of garbage, and routes the ship can transit. All vessels transiting in and around Nain should have a similar agreement in place and be subject to the same rules/regulations.
Groundings and Accidents are a potential impact that could result in oil or cargo spills. Voisey's Bay is shallow because the river mouth is depositing sediments and sand, navigating the islands can be challenging, and there are dangerous areas with shoals.	• Ships to avoid the islands, if possible. • More charting and soundings needed. • It is safer for big ships to stay further out (away from islands) in the spring time/early summer because of the icebergs.

Table 1 (continued). Potential impact of marine vessels on the environment, wildlife and community members and related recommendations.

POTENTIAL IMPACT OF MARINE VESSELS	RELATED RECOMMENDATION
Garbage dumped in the open sea where no one can see. The nature of ocean currents will result in garbage and ghostnets washing up on shore in or near the community.	• Vessel operators should have logs where they record all their activity related to garbage disposal, ballast and bilge water exchange and oil spills.
Seismic Testing can have an impact on fishing. Participants explained that when a seismic survey takes place the fish are gone and it seemed like everything (wildlife) were running away. Nobody really knows what the impacts are.	
The speed of ships can create wake that can impact sea ice in the winter and community boaters, hunters and fishers during open water conditions.	• All vessels should follow dedicated routes unless there is bad weather. • All vessels should reduce speed near the community. • Umiak is not supposed to go over 20 km per hour when going through the ice (outside the community). At that speed, wake would be eliminated. • All vessels should follow a speed limit of 8-10 knots in open water.

Table 1 (continued). Potential impact of marine vessels on the environment, wildlife and community members and related recommendations.

POTENTIAL IMPACT OF MARINE VESSELS	RELATED RECOMMENDATION
Risk to hunters travelling back to the community. When community members go goose hunting they come back in the dark and use the same route as big ships. Some people are getting in the habit of coming back in bad weather or fog and just monitoring the GPS, not watching what is in front of them – they don't have radar so they don't know what is ahead.	• All vessels should have good lights. • All vessels should have running lights. • No anchoring in the runs. • Ice monitoring or access to live data on icebergs and fog for local boaters (bigger ships usually have some sort of radar equipment). • Alert and skilled crew ready to change course at a moment's notice.
Disturbing wildlife, including char, caribou, terns, eiders and murres. One participant noted *"the fish are not the same… [There's] too much traffic with the boats and in the air."* Even though ships are offshore, they can still affect the whole land. Ships can impact animals, fish and birds by: • Driving animals away and not letting them be at peace; • Affecting community members' ability to hunt; • Affecting the quality of wild food; and • Disturbing birds having their young on the islands.	• More regulation for international shipping. • Increased monitoring for fishing vessels. • Monitoring for all ships so the community knows what ships are in the area. • Stay away from islands – avoid going further into the bays beyond Hebron to avoid disturbing the wildlife. • No-go zone further in the bays for passenger vessels (tankers have no reason to go into the bays). • Ships can go in the bays if they need shelter from a storm.
Affect community members geese hunting in the fall and egging in early spring	• Keep ships out past the islands (away from islands) – (See Figure 8).
Icebreaking can impact the community, reducing where and when community members can travel to certain areas. As one participant described *"The sea ice is our highway."*	• To avoid ice breaking, bring ore over on a sled to open water. • Important to not break up land-fast ice, but if land-fast ice is going to be broken it must be highly regulated (like what is done currently with the Umiak). • Have dedicated places where ice is being broken (and where this is known to community members). • Pick areas that don't freeze anyway for icebreaking. • Future ships should have an agreement with the Nunatsiavut Government.
Cruise ships are big ships with a lot of people and a ton of fuel. There is a risk of them running aground, disposing of garbage and other waste, and ballast water. They tend to visit heritage sites, including Hebron. There is a risk of artifacts being stolen.	• Cruise ships should inform the Nunatsiavut Government of their travel plans. • Cruise ships should have someone onboard from Nunatsiavut when transiting the area. • All cruise ships should respect the wildlife and listen to community members. • Cruise ships should have a bear guard when going on shore.

Table 1 (continued). Potential impact of marine vessels on the environment, wildlife and community members and related recommendations.

POTENTIAL IMPACT OF MARINE VESSELS	RELATED RECOMMENDATION
Sound from ships, including the noise from the motors and ships breaking through the ice. The sound underneath the water also bounces off the land, increasing the impact.	• Reduce speed to avoid noise, accidents and collisions, specifically around islands. Out away from the islands, ships can go their normal cruising speed. • Maximum winter speed of 6-8 knots. • Have an instrument to measure sound in the ice and for monitoring acoustic noise.
Disruption of ski-doo and speed boat route. One corridor is on ski-doo route and speed boat (see Figures 19–21 for travel routes and Figure 1 for corridors).	

Shrimp harvesting and fishing. These activities happen near corridors. An increase in ship traffic could impact shrimp harvesting. Ships could come in contact with fishing gear or hit boats. There have historically been close calls with ships and boats (see Figure 33).	• Need to make these fishing locations known spots that are being utilized by community members during certain times of year.
	• Need the Department of Fisheries and Oceans to communicate with Transport Canada to tell vessels to stay clear from certain areas (not just one area) during certain time-periods. These include (see Figure 33):
	  • 15 June and 15 July
	  • July to middle of August
	  • August 20 – October 1
	  • July to November Nain Bank – inside deep alongside shoal – that's the one with the shrimp
	• In regard to shrimp harvesting, "*Cause everybody is like it's an entire ocean, but it's not, it carries on land, they are only in certain places.*"

MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

Through this research project, participants in Nain identified and mapped recommendations for the Government of Canada's proposed Low Impact Shipping Corridors. The recommendations presented here are limited to areas that participants in this research project utilize and feel they are knowledgeable about. Thus, additional recommendations may exist which have not been documented.

Maps include community identified:

- Anchorage sites
- Areas to avoid
- Areas of concern
- Dangerous areas
- Preferred corridors
- Reduced wake and speed zones
- Speed limits
- No anchoring zones
- No icebreaking zones
- Restricted shipping (cruise ships only)
- Seasonal no-shipping zones
- No dumping zones (ballast water, garbage)
- Areas where charting is needed

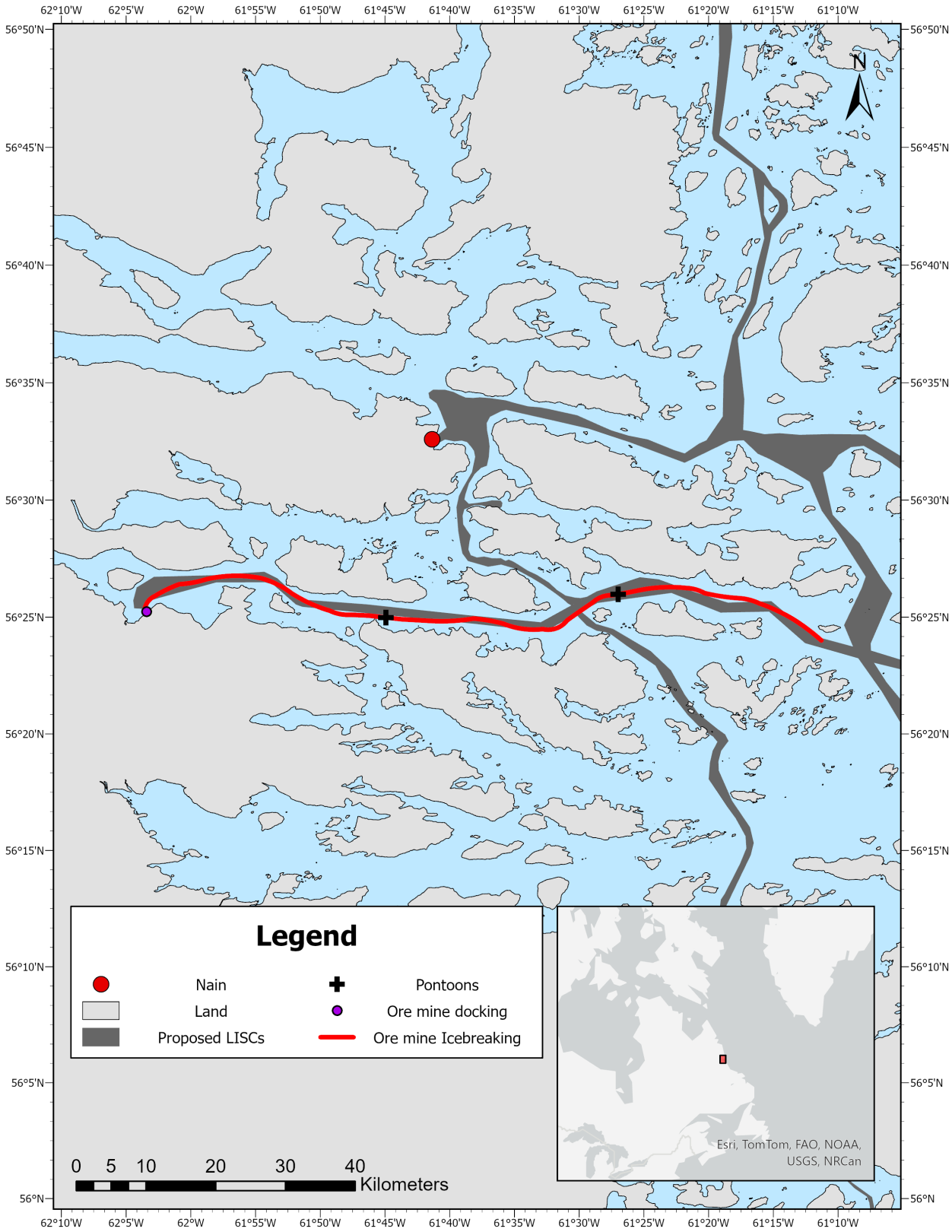

Figure 26. Participant-identified shipping operations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

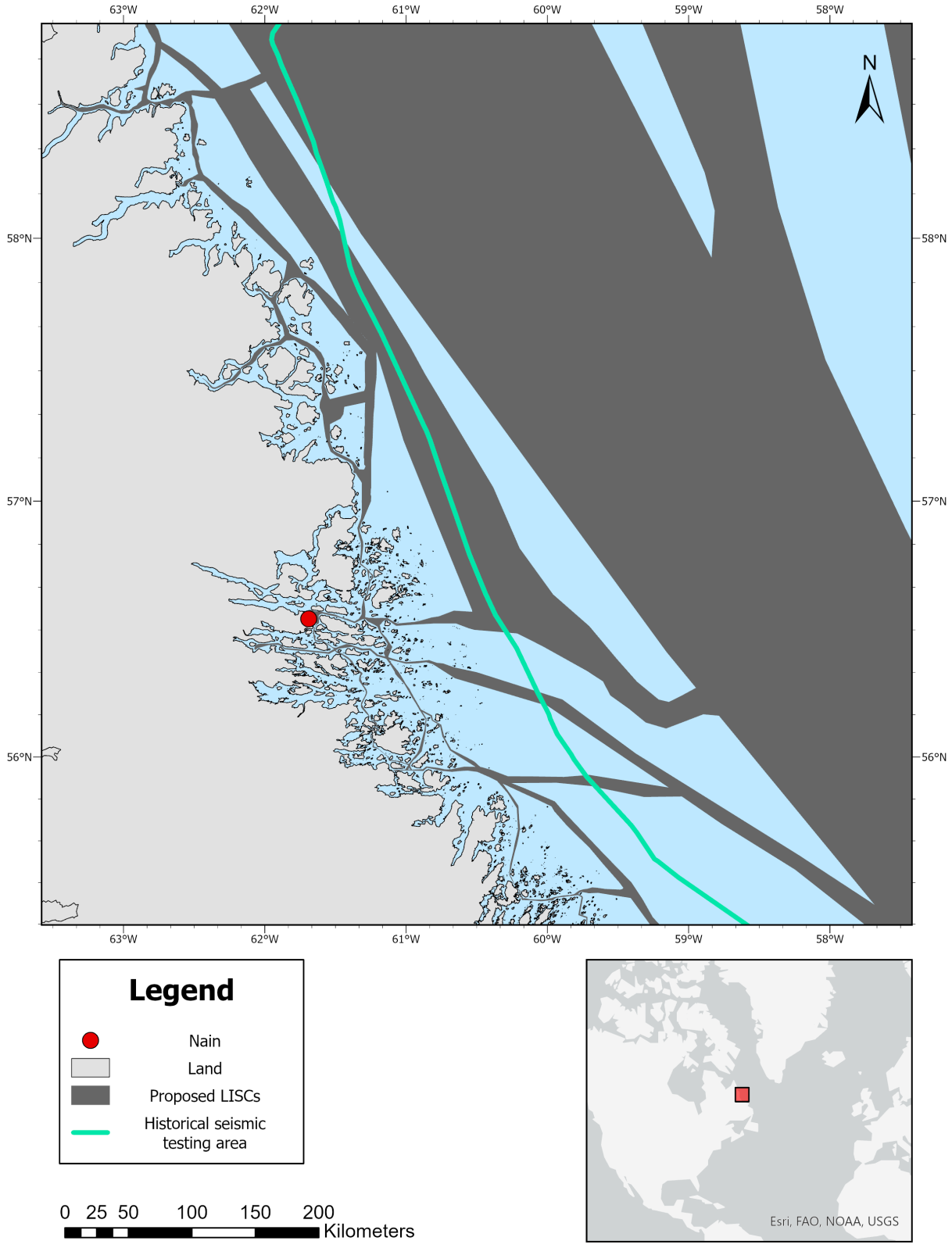

Figure 27. Participant-identified historic seismic testing area near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

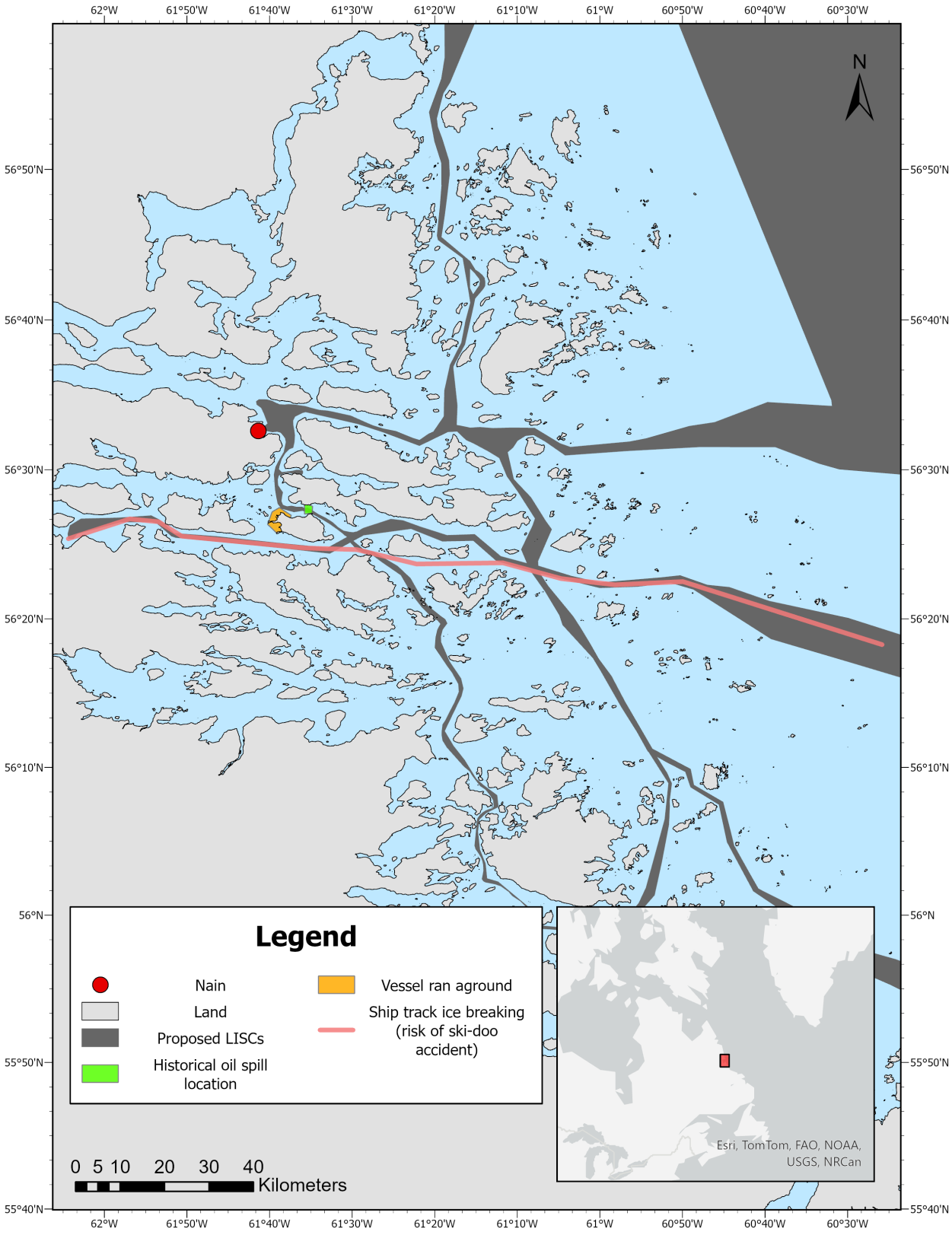

Figure 28. Participant-identified shipping impacts near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

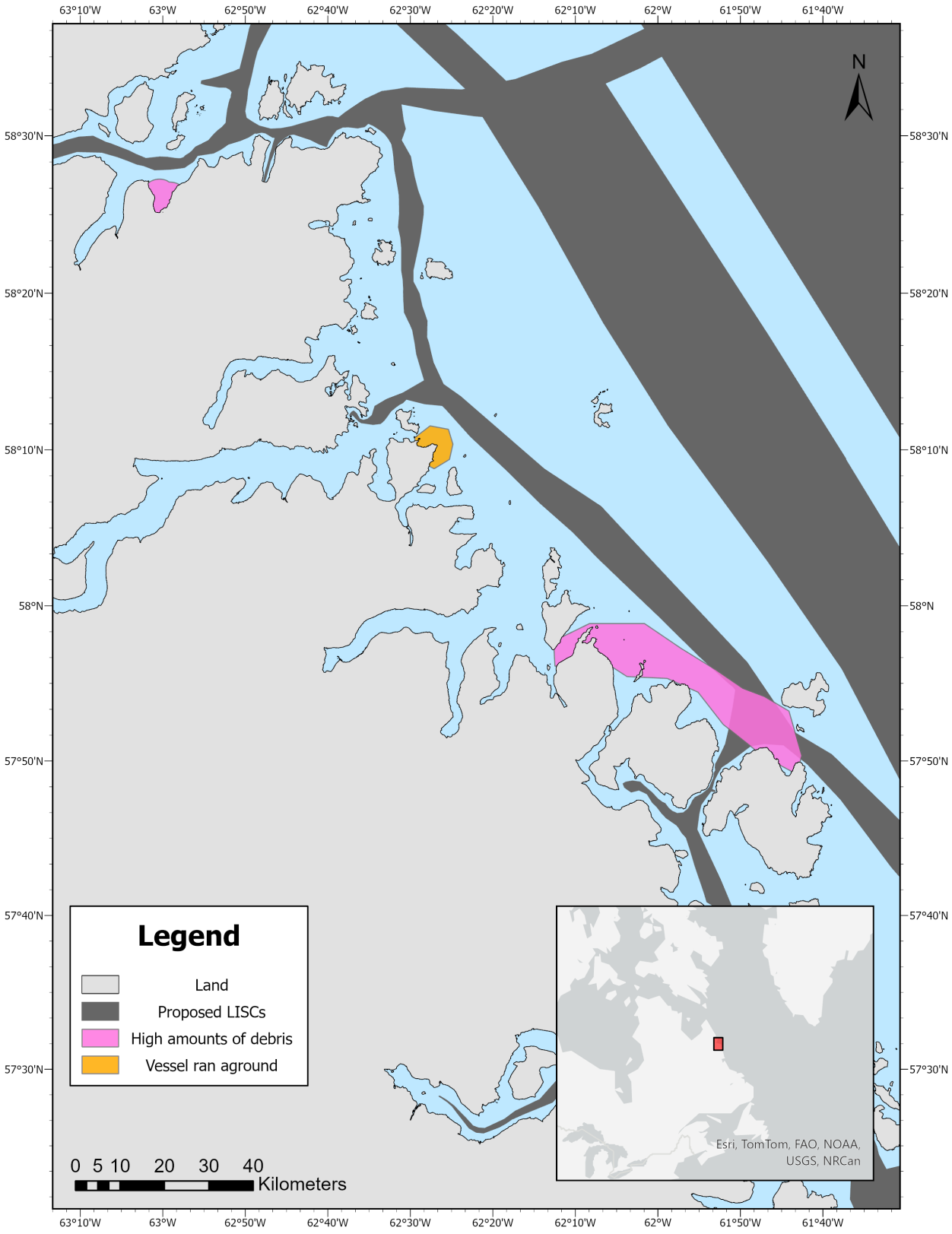

Figure 29. Participant-identified shipping impacts north of the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

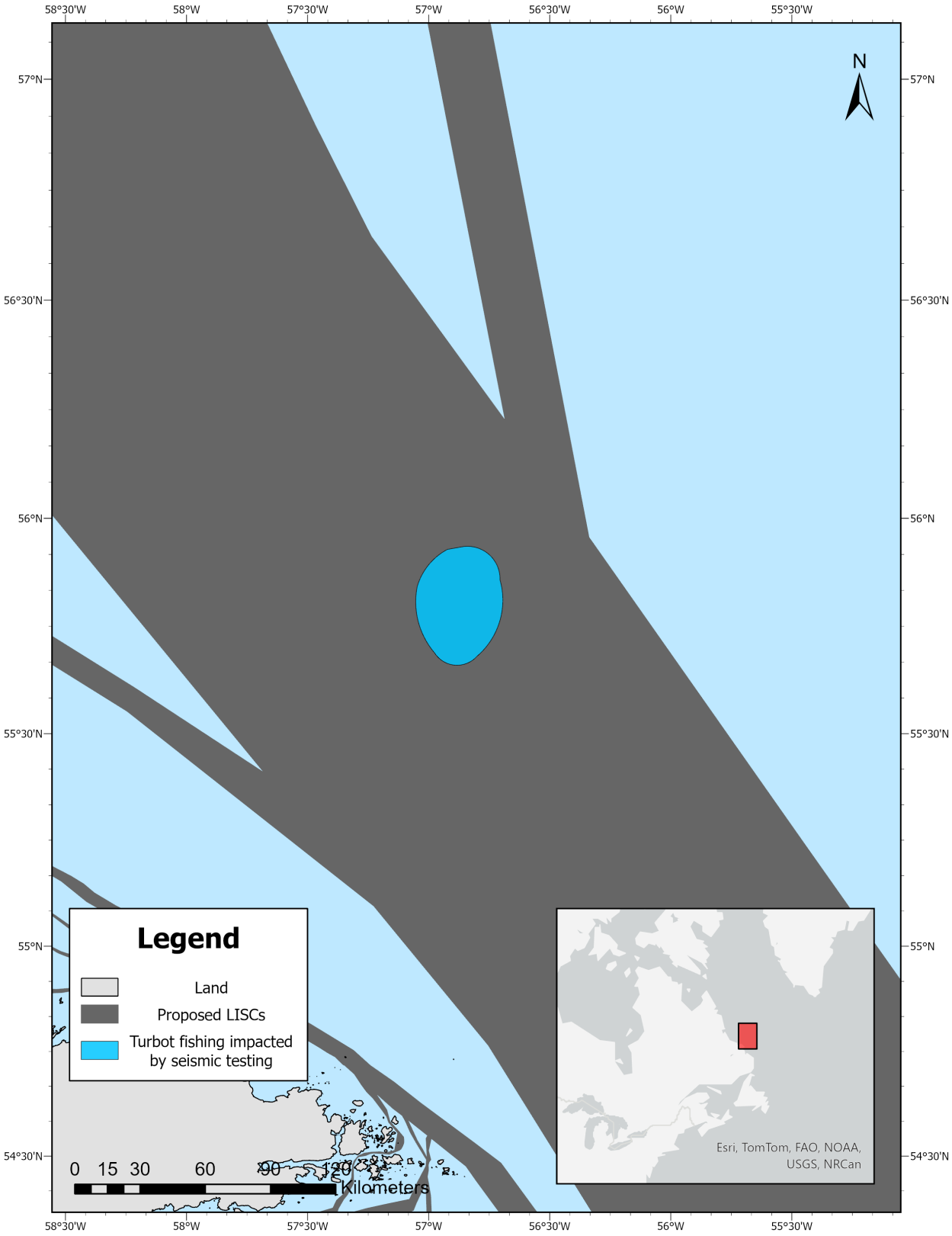

Figure 30. Participant-identified area where turbot fishing was impacted by seismic testing near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs)

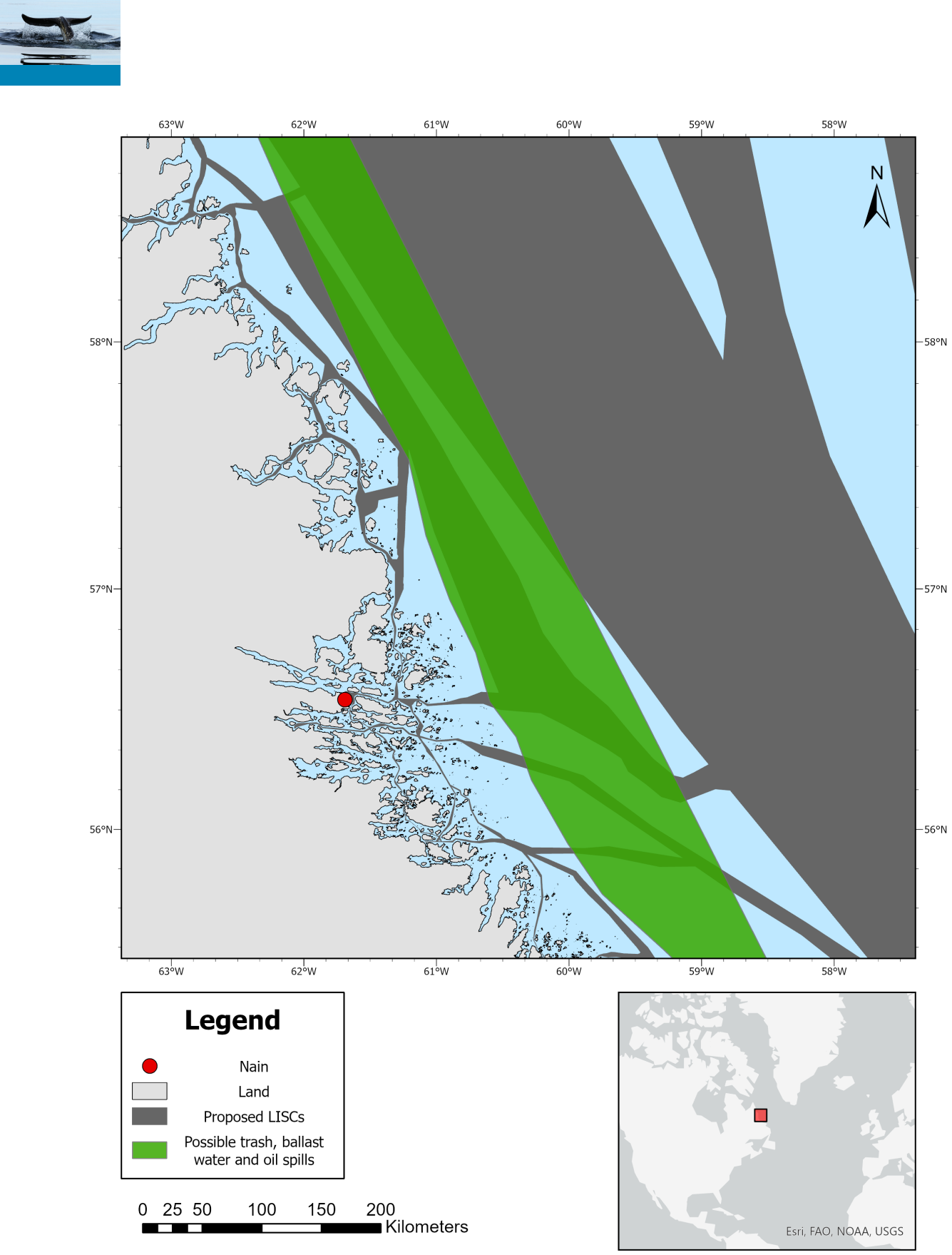

Figure 31. Participant-identified possible trash, ballast water and oil spill area near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

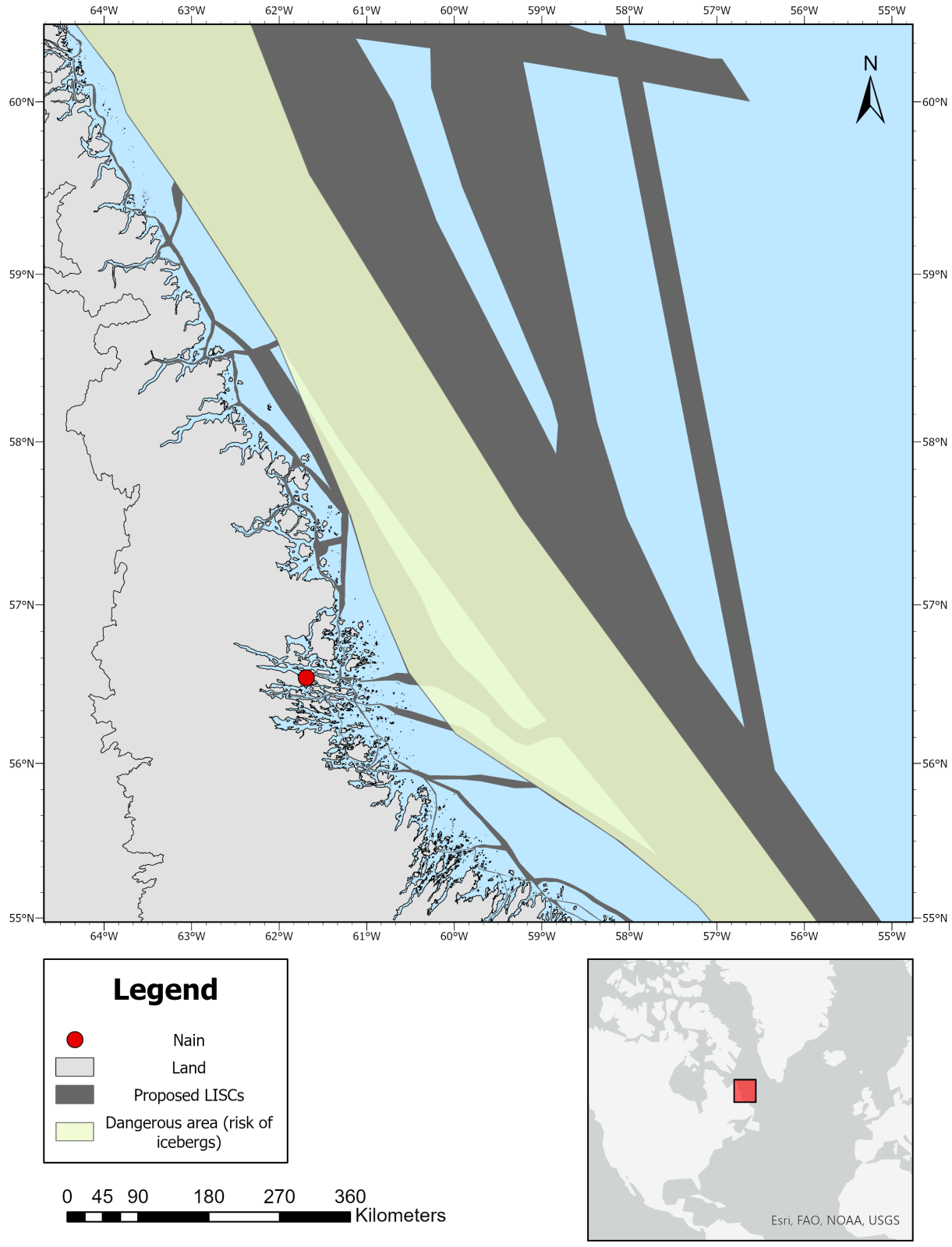

Figure 32. Participant-identified areas to avoid near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

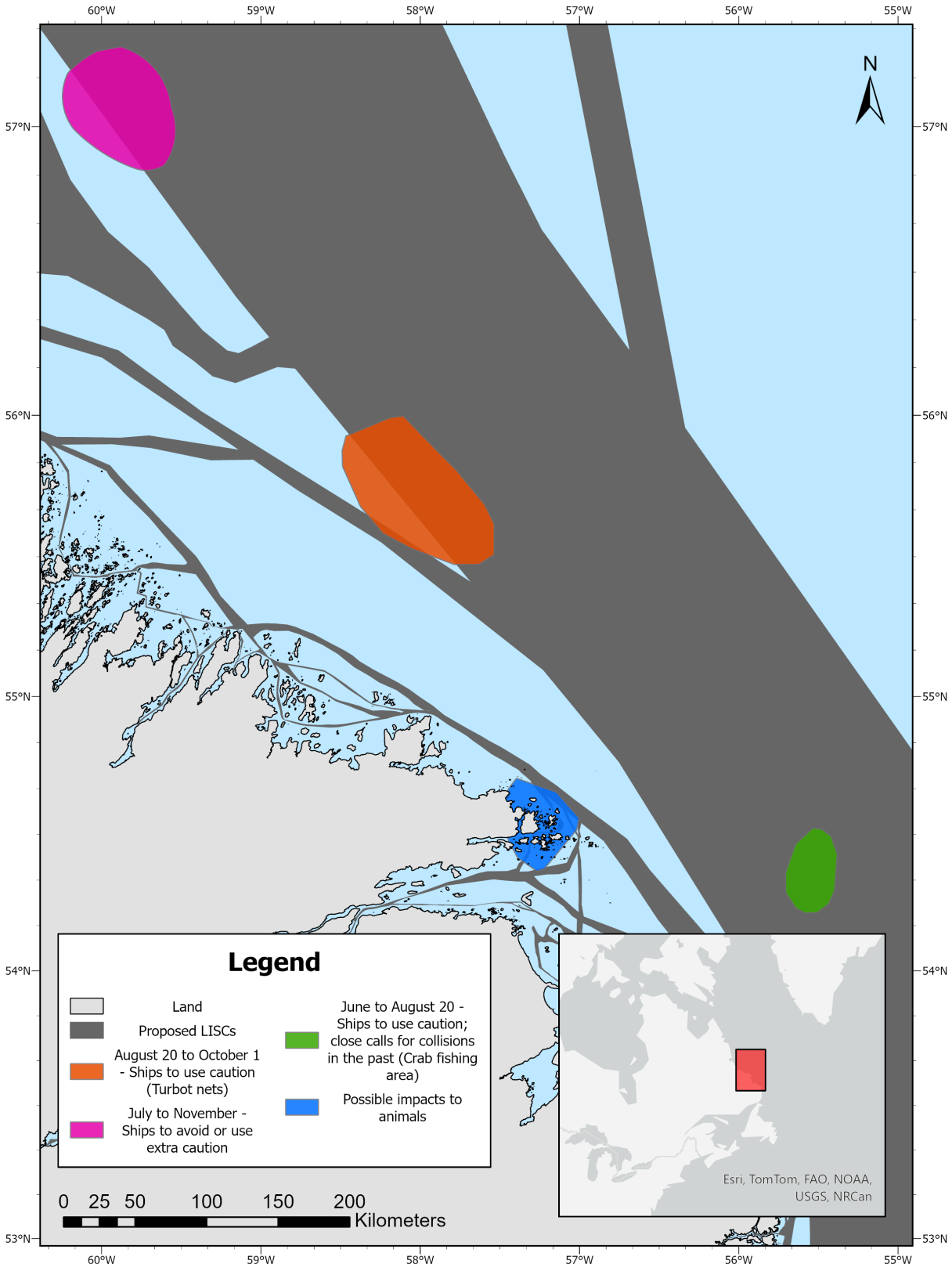

Figure 33. Participant-identified areas to avoid near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

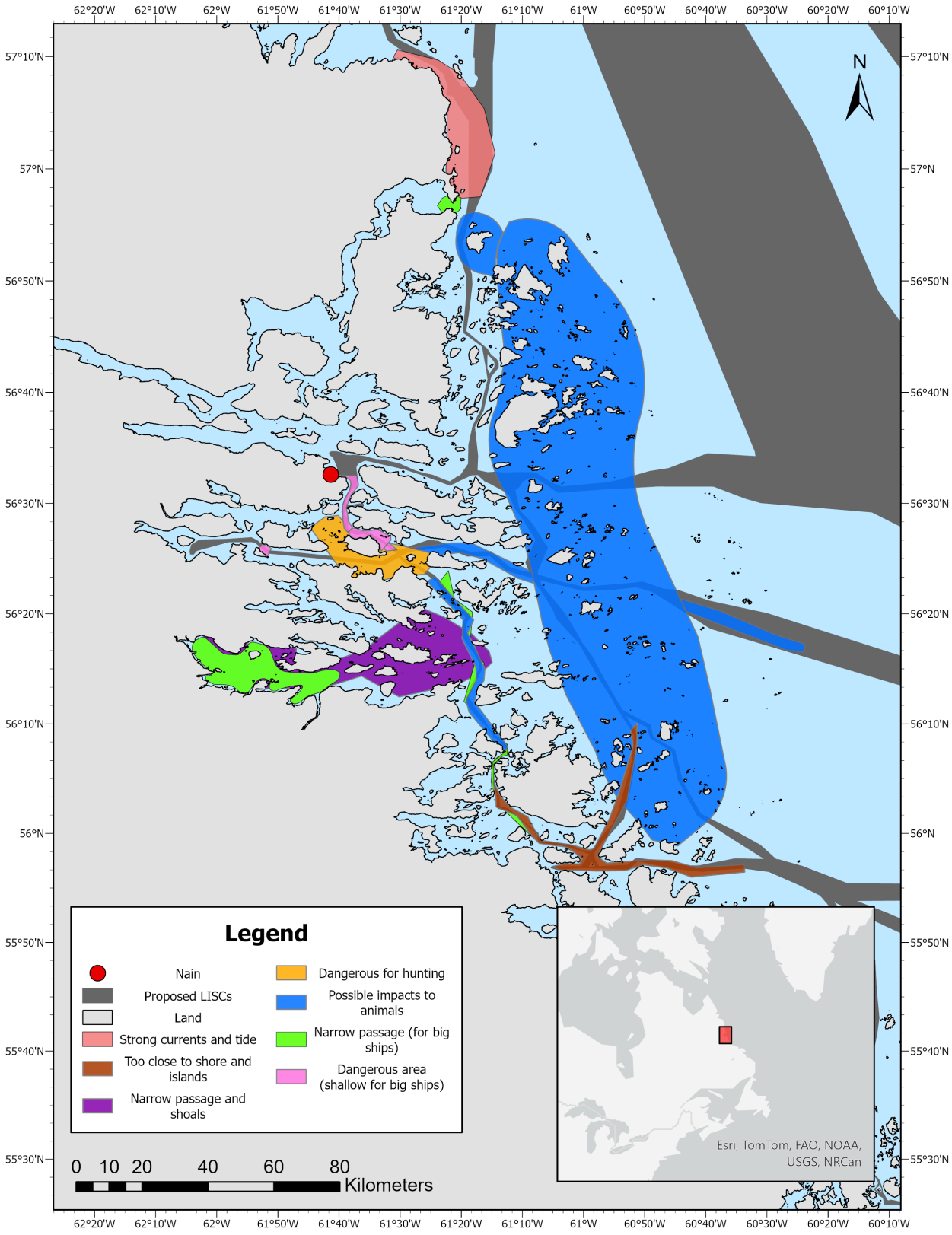

Figure 34. Participant-identified areas to avoid near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

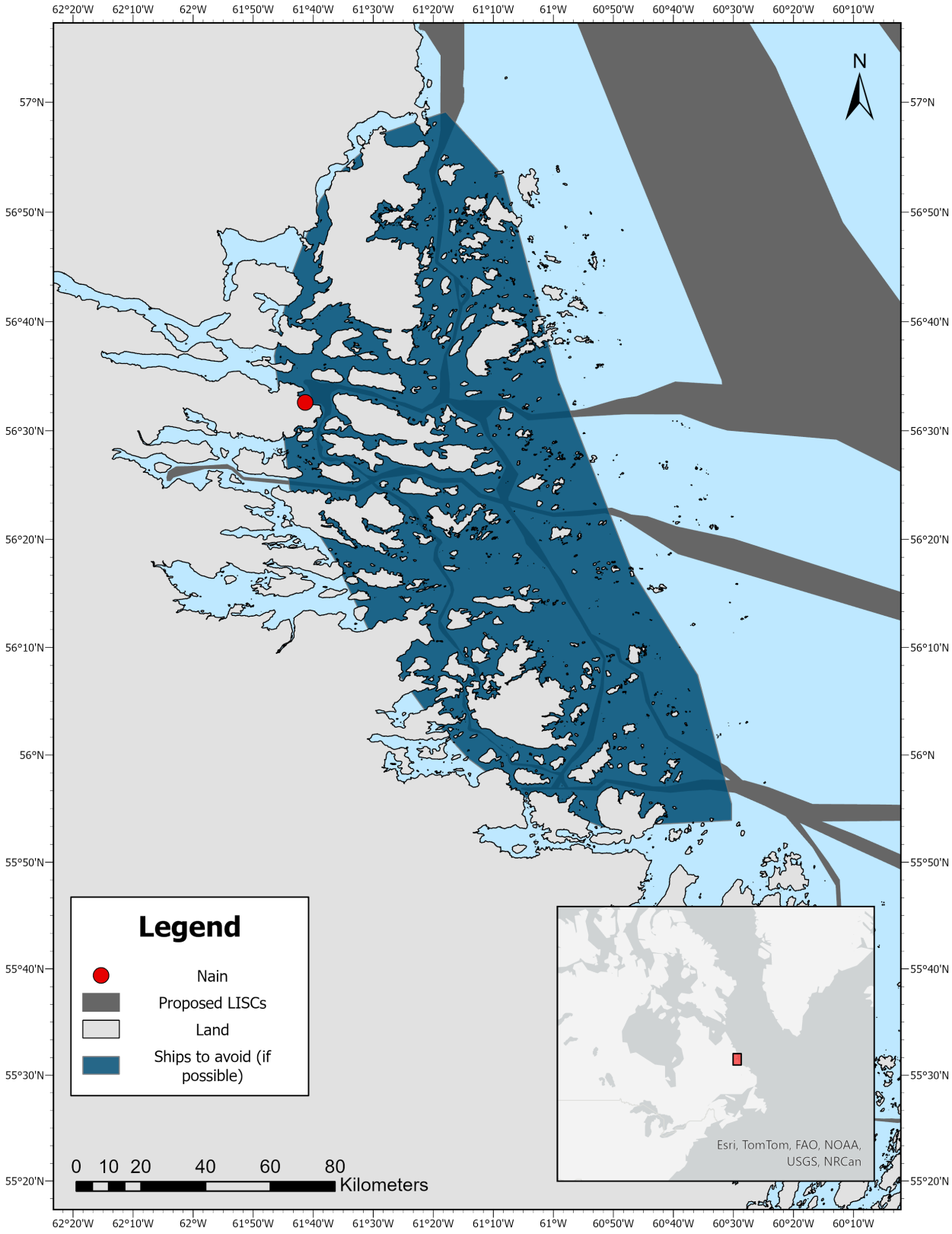

Figure 35. Participant-identified area to avoid (if possible) near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

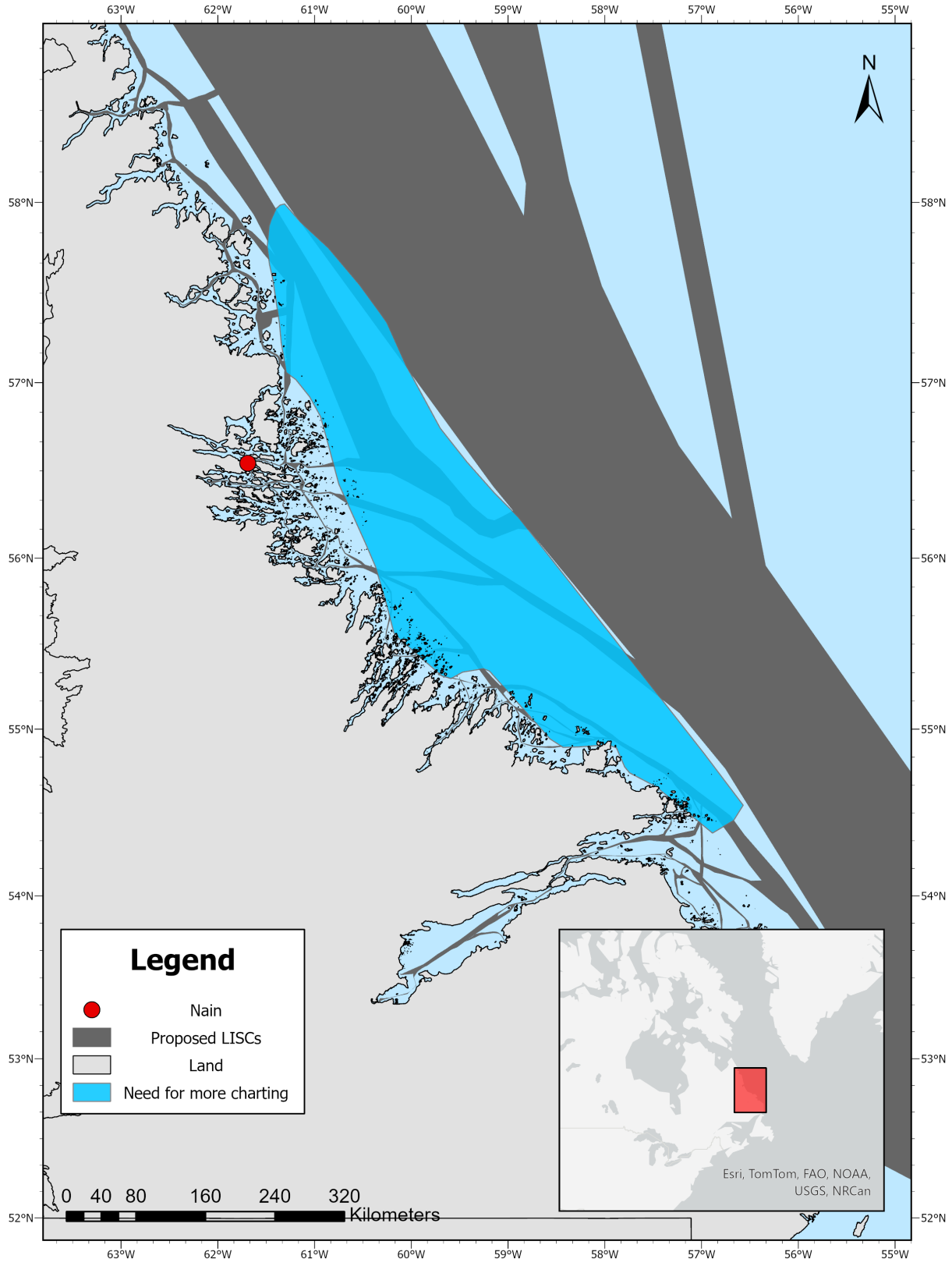

Figure 36. Participant-identified area where more charting is needed near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

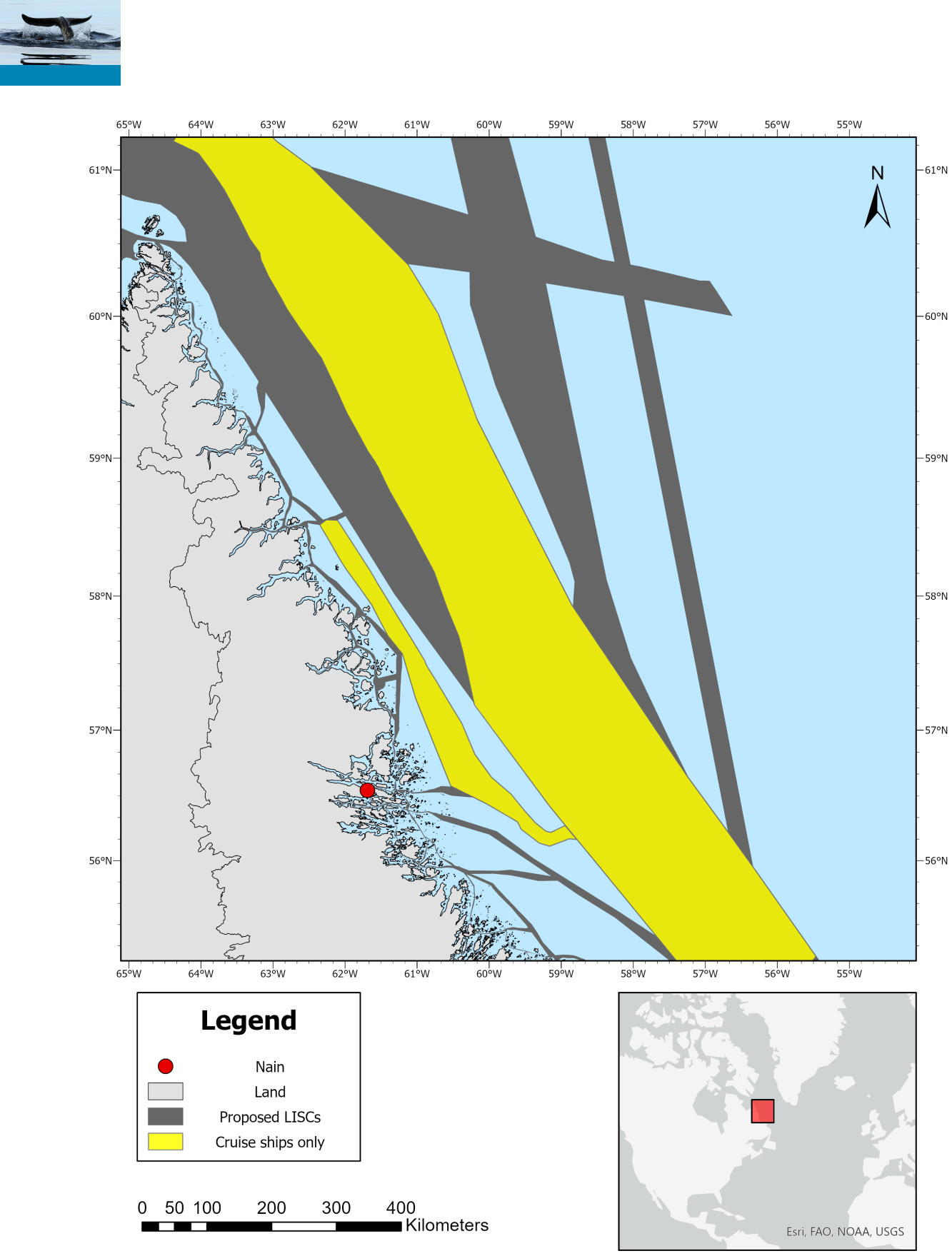

Figure 37. Participant-identified restricted shipping zone near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

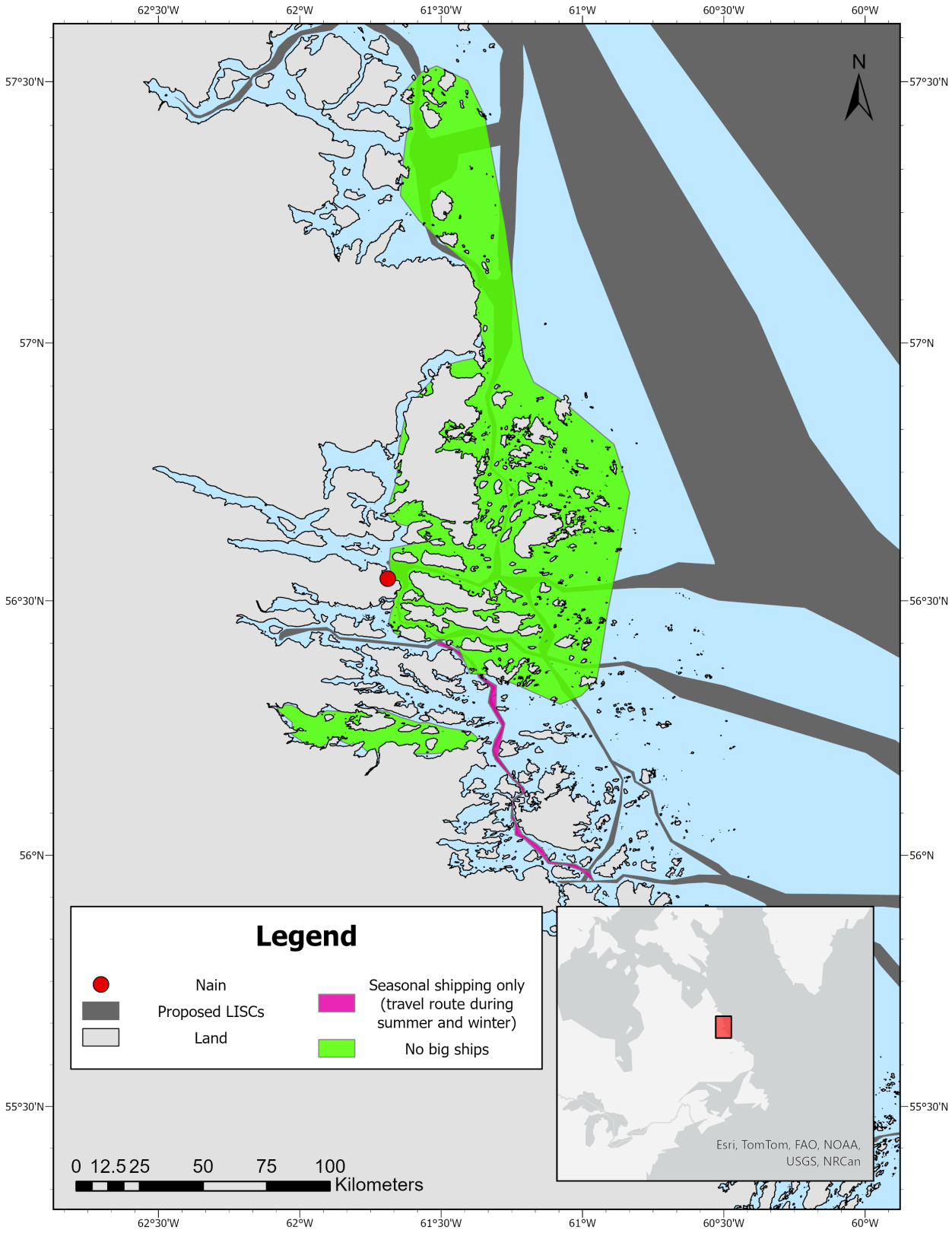

Figure 38. Participant-identified restricted shipping zones near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

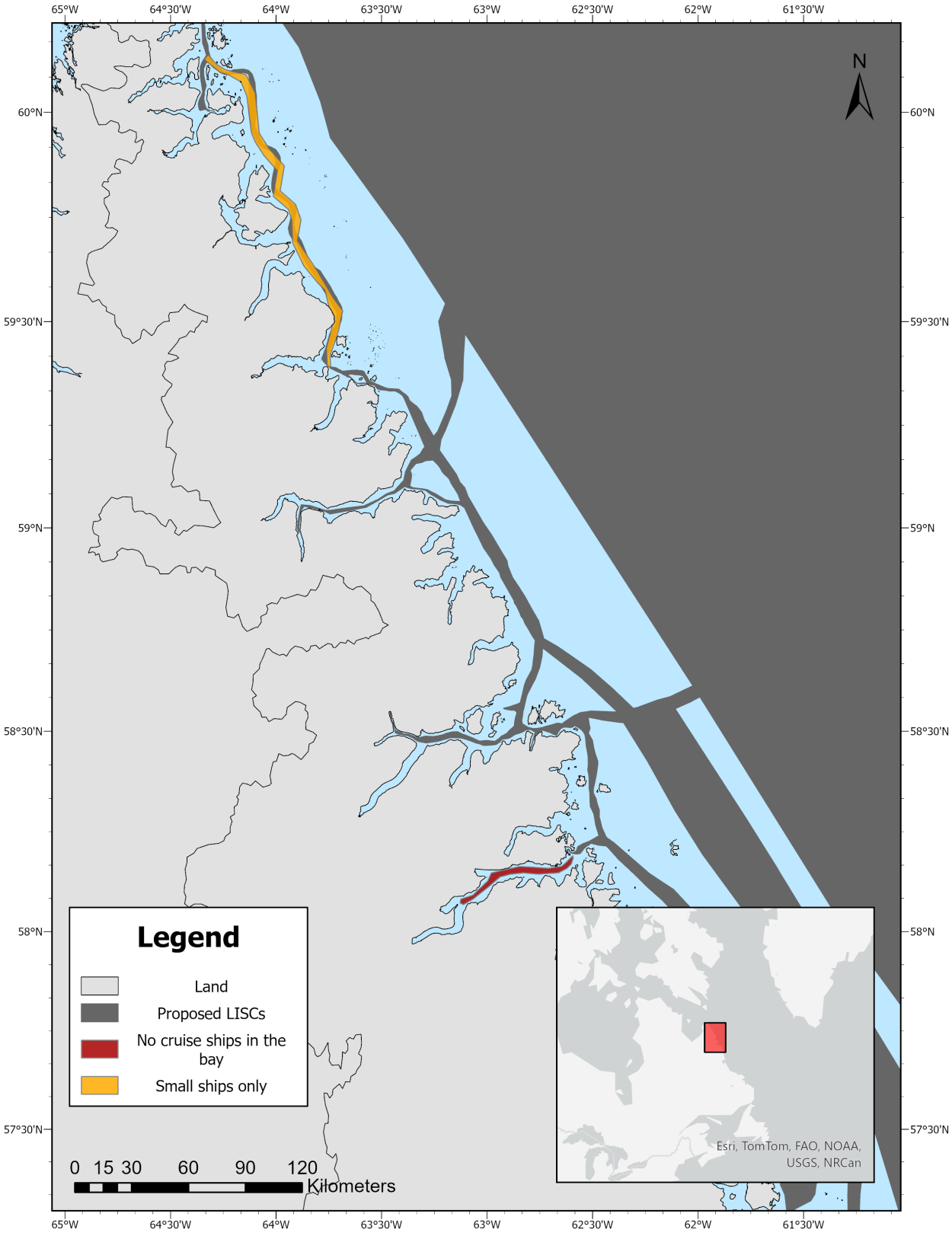

Figure 39. Participant-identified restricted shipping zones north of the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

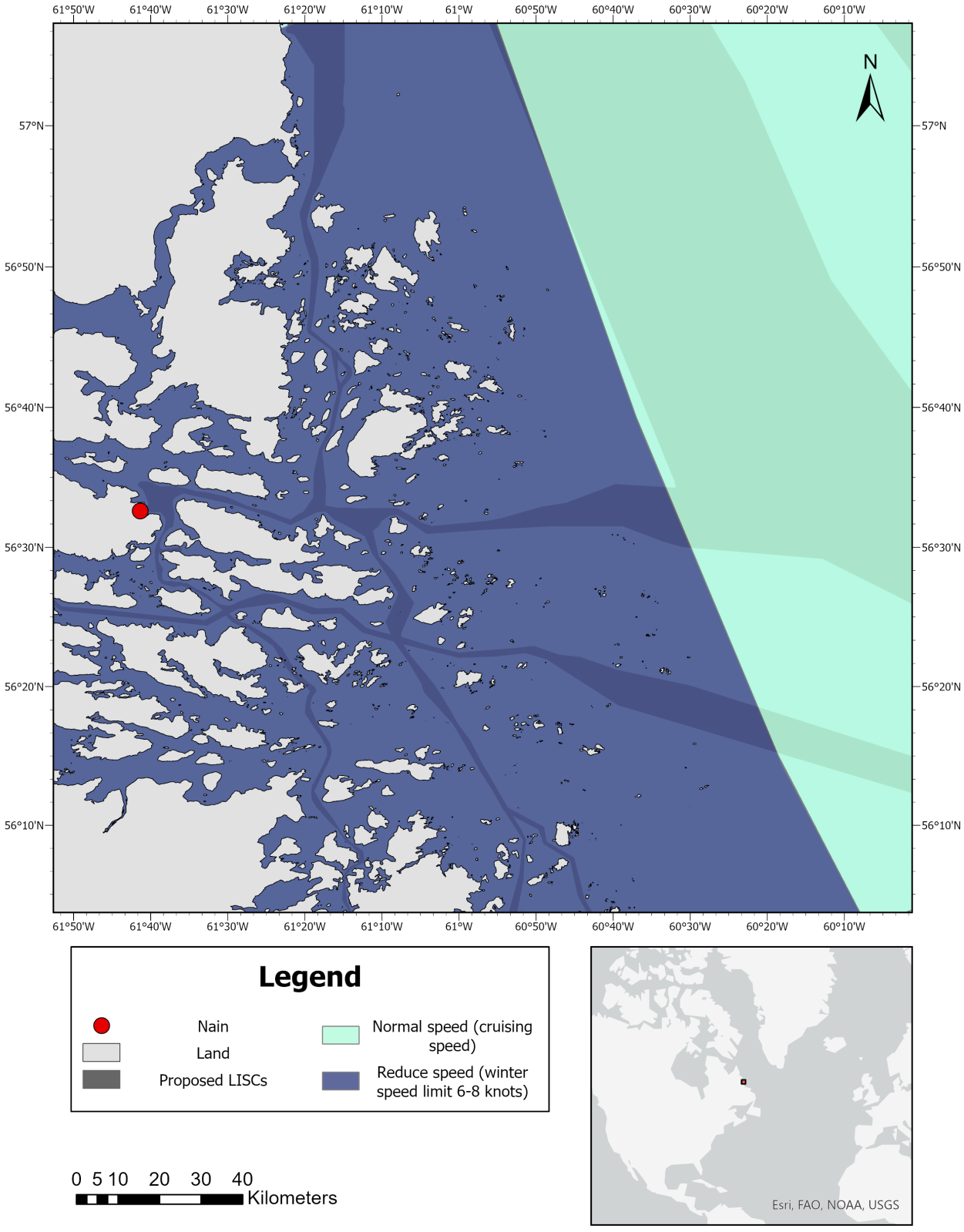

Figure 40. Participant-identified speed limit recommendations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

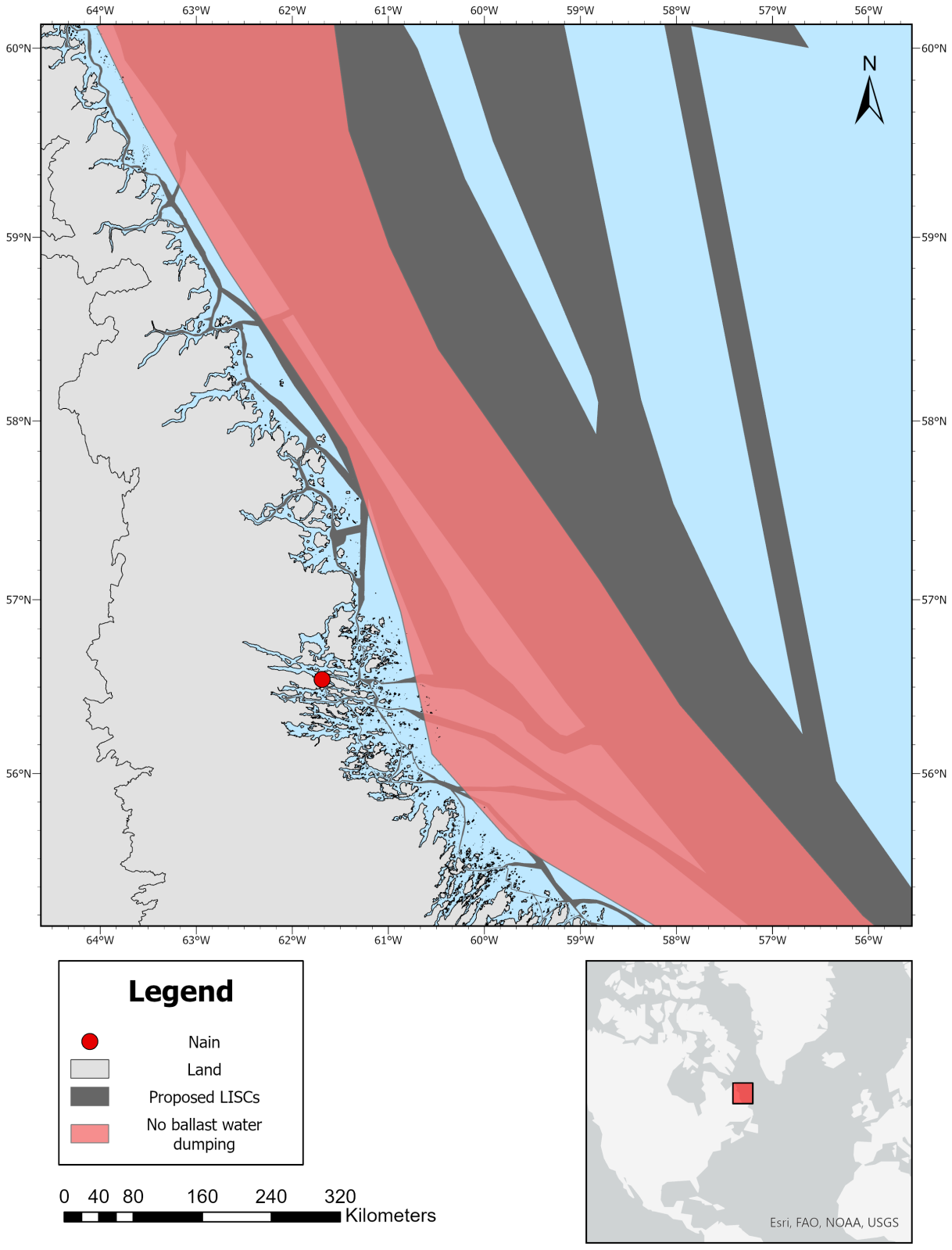

Figure 41. Participant-identified ballast water dumping recommendations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

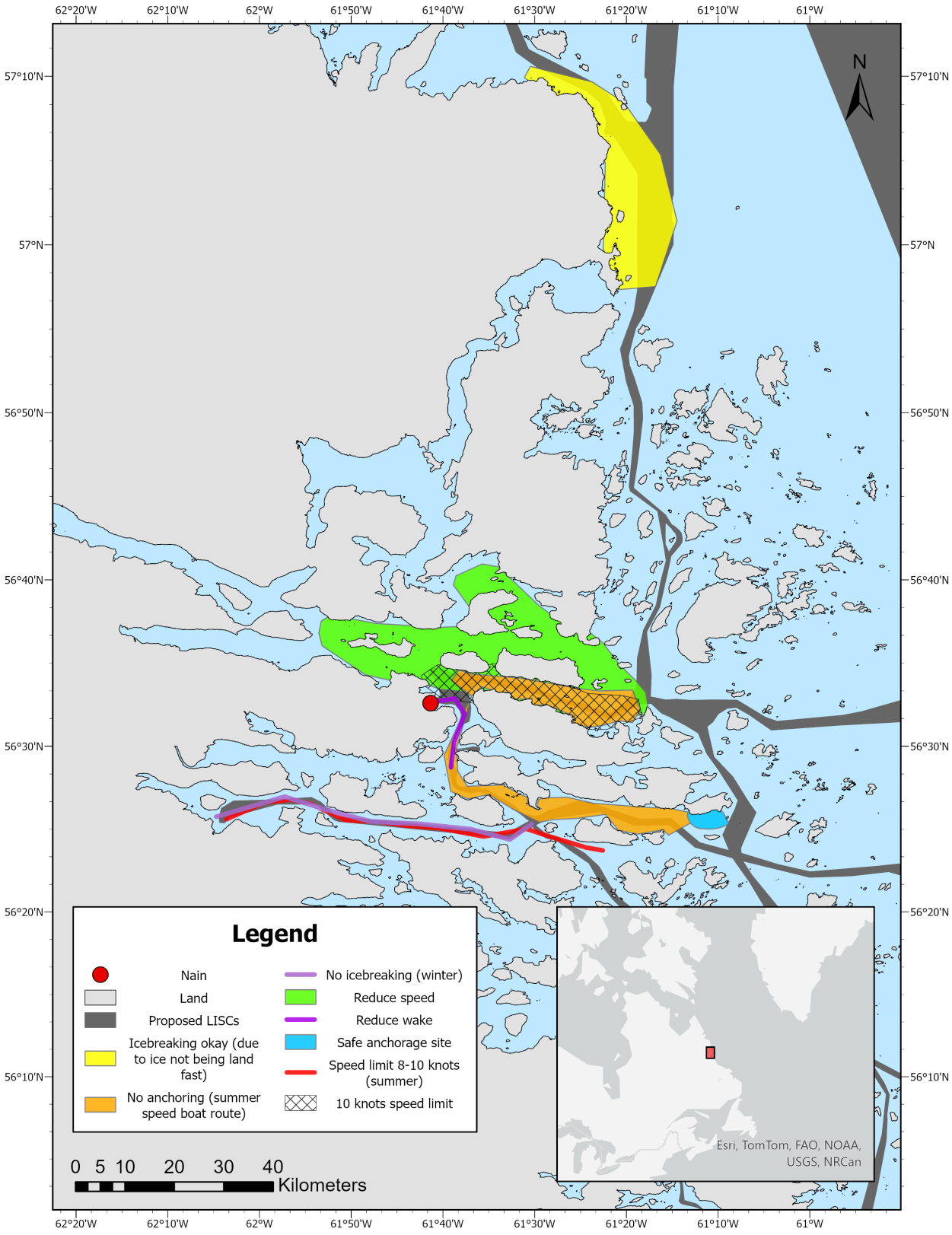

Figure 42. Participant-identified anchoring, ice-breaking, speed limits, and dumping recommendations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

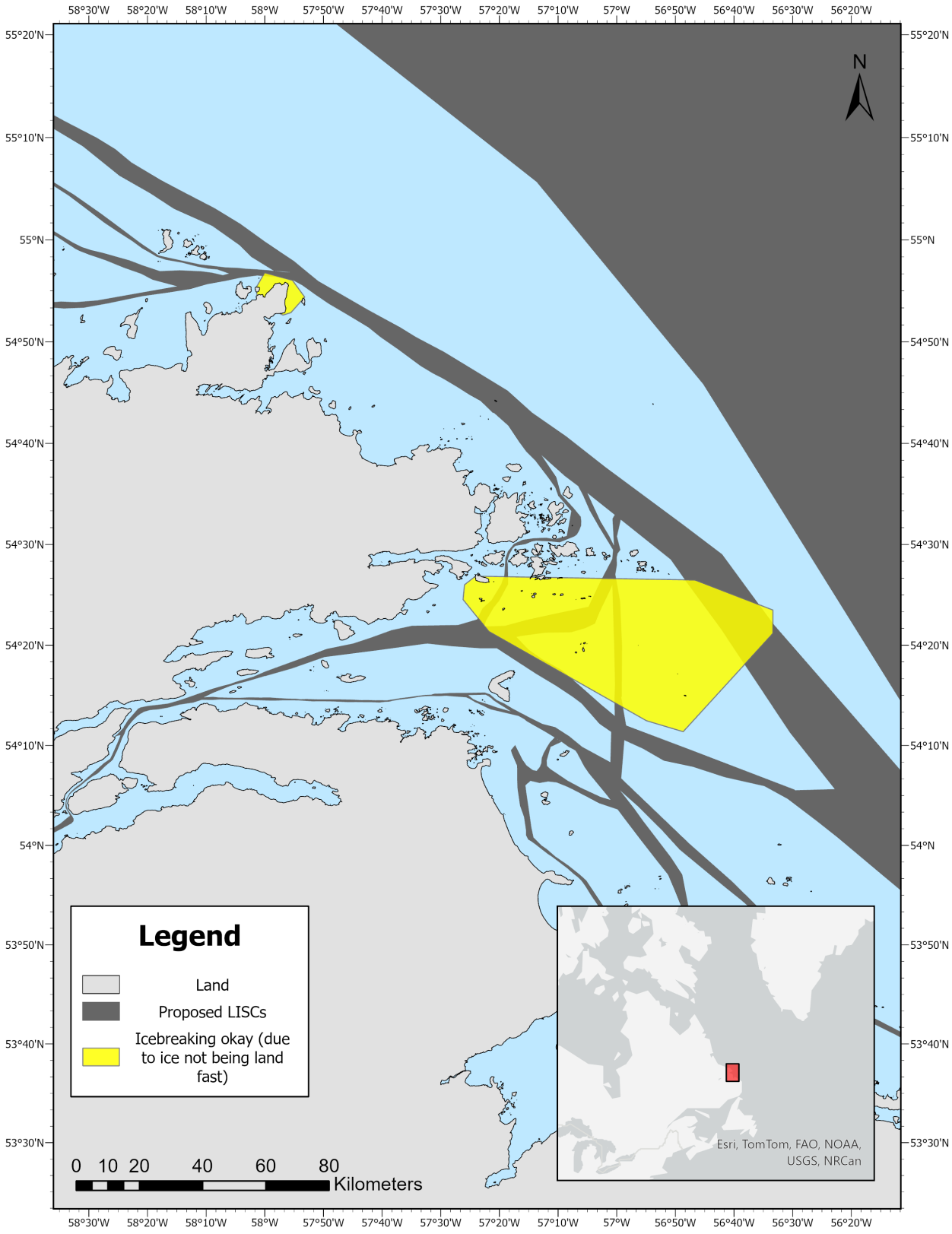

Figure 43. Participant-identified icebreaking recommendations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

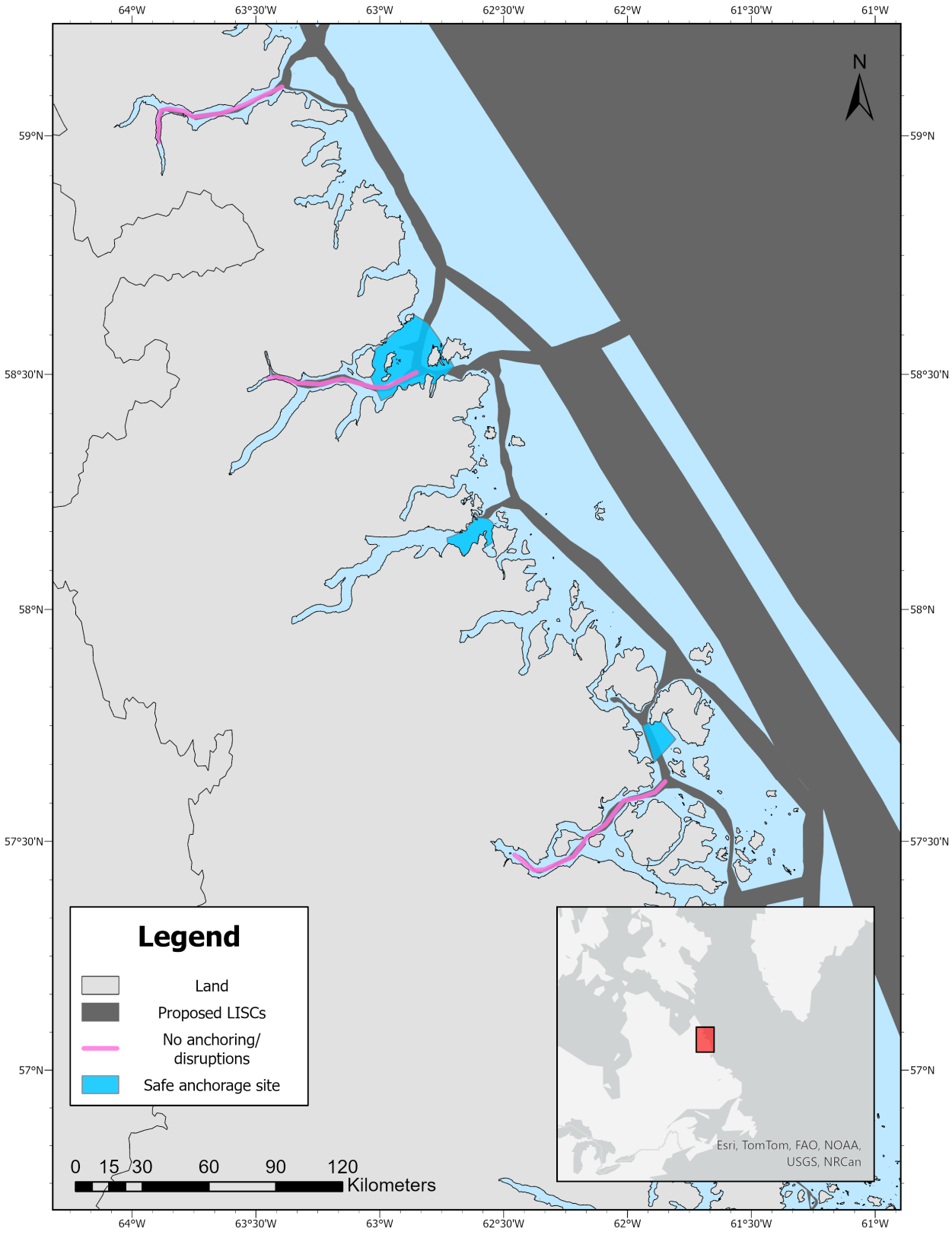

Figure 44. Participant-identified anchoring recommendations near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

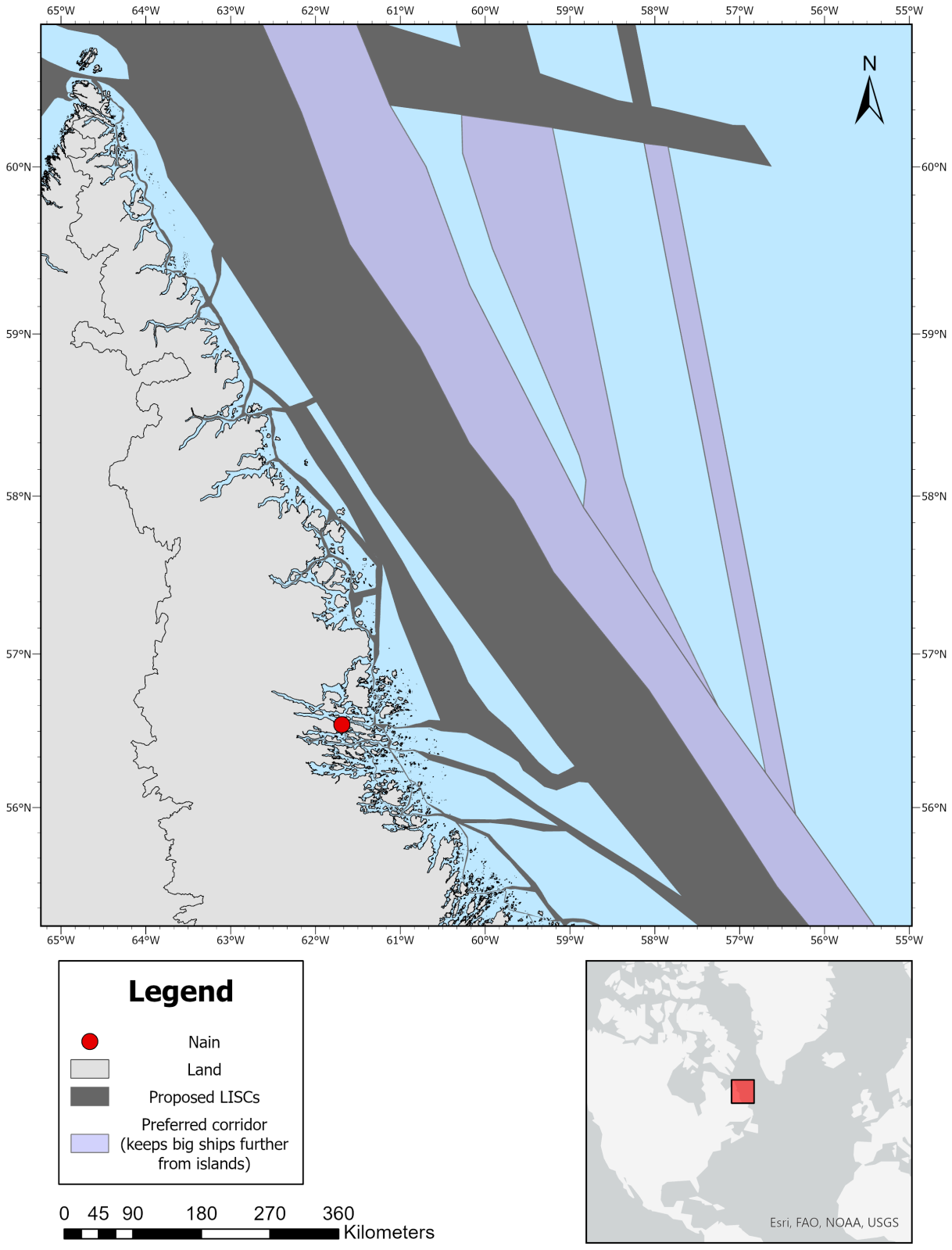

Figure 45. Participant-identified preferred corridors near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

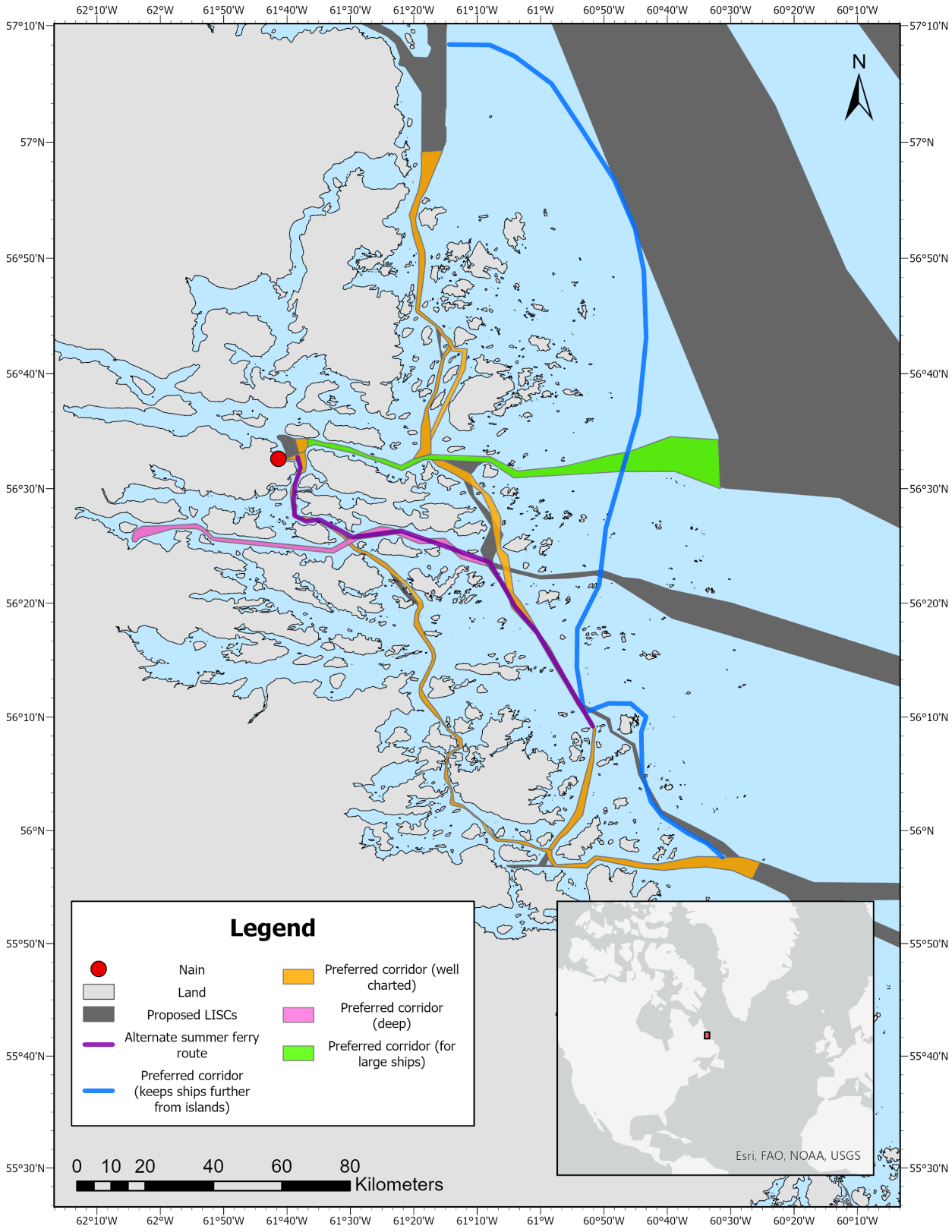

Figure 46. Participant-identified preferred corridors near the community of Nain, Nunatsiavut overlain on the proposed Low Impact Shipping Corridors (LISCs).

RECOMMENDATIONS FOR MANAGING SHIP TRAFFIC AND LOW IMPACT SHIPPING CORRIDORS

Participants indicated that the Nunatsiavut Government and Nunatsiavut Research Centre should be involved and informed in all aspects of managing shipping and the Low Impact Shipping Corridors. The community (locals and beneficiaries) should have input. Community sessions should be held to inform the community and allow opportunities for feedback, discussion and questions. Participants did note that often community sessions are not well attended but acknowledged they are unsure how else to get the word out to people or allow consultation.

Participants expressed a desire to see the Nunatsiavut Government govern the Low Impact Shipping Corridors in the region but acknowledged that this may not be possible due to limited capacity. As one participant explained, "I'd love to see the capacity for them doing more stuff like this every day." Another participant cautioned that handing the power to the communities to govern the Low Impact Shipping Corridors could lead to problems. For example, the provincial government was the governing body for harbour and wharfs for many years until they made the decision a few years ago that the harbour authorities should be run by communities. As a result, the wharf fees in different communities were significantly different. This participant went on to explain that they fear that if the jurisdiction of the Low Impact Shipping Corridors was, similarly, passed on to local communities, something similar could happen.

Recommendations for managing ship traffic and Low Impact Shipping Corridors include:

1. Large vessels transiting in and around Nain should be required to have a local/beneficiary as an onboard observer when navigating their waters to keep an eye on all processes on the ship, ensuring they are following rules and regulations and to hold them accountable.
2. Public (specifically for Nunatsiavut communities) access to AIS data to better understand what kind of ships are transiting near their community, where ships are transiting, and at what speed they are moving. This would be good for tracking spills if or when they happen.
3. Locally specific regulations. For example, rules and regulations that apply in the South don't apply everywhere. There was a situation where a ship was not allowed to come to Nain because the community didn't have a terminal. If something (e.g., policy or regulation) is implemented, it must make sense for the local context – everything is connected.
4. The Federal Government (i.e., Transport Canada) should be responsible for managing the Low Impact Shipping Corridors. However, they should ensure communities have their say in the management of the corridors.
5. Having community members with relevant experience involved in decision-making, for example on a board or committee.

CONCLUSION

The number of marine vessels transiting within the Canadian Arctic waters continues to grow. Given the community members' concerns about and stake in the potential impacts associated with marine vessel traffic in and around Nain, the perspectives of Nain community members and all communities should be a fundamental consideration during the implementation and management of the Low Impact Shipping Corridors. The consequences of a marine incident (e.g., oil or fuel spill, vessel collision or grounding) would have deep, lasting, and potentially irreversible ecological, environmental, and cultural impacts. As such, involving the community in the management of the Low Impact Shipping Corridors is vital. Finally, this report was focused on one of six communities/key regions in Nunatsiavut, and it is recommended that workshops and reports also be completed in the other residential areas across Nunatsiavut to ensure appropriate inclusion of varying perspectives and geographies.

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