HEBRON DEVELOPMENT PROJECT
2024 Environmental Assessment Update

FINAL REPORT

Submitted by:

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1 INTRODUCTION

ExxonMobil will be conducting a 4D seismic program in the Hebron field in the off the coast of Newfoundland and Labrador in 2024. The program will consist of a monitor seismic survey which will allow ExxonMobil to continue to improve the understanding of hydrocarbon movements beneath the Hebron fields. The data collected from these surveys will improve life of field and help inform drilling and production decisions.

The Hebron Project was subject to a detailed and comprehensive Environmental Assessment (EA) review, pursuant to the requirements of the *Canadian Environmental Assessment Act* (CEAA). In December 2011 the federal Minister of the Environment issued his EA decision, which stated that "no additional information is necessary" and that "taking into account the mitigation measures described in the Comprehensive Study Report (CSR), the Project is not likely to cause significant adverse environmental effects". In June 2013 the Proponent submitted an Addendum to the Hebron Project CSR, which described proposed changes to several planned Project activities. This EA Amendment was also subject to review and the provision of additional information and clarification by the Proponent and was subsequently approved in June 2013.

Since EA approval for the Hebron Project was obtained, the Proponent has subsequently prepared and submitted several EA Updates and EA Amendments for the Project. As part of the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) requirements, these EA Updates provide an overview of planned Project activities for the upcoming year, update any applicable environmental baseline information for key environmental components that has become available since the CSR and previous EA Updates were produced, describe any public and stakeholder consultation activities that have occurred, and evaluate and confirm that the nature and scope of the planned activities are within the scope of those assessed and approved in the EA review, including the appropriateness and adequacy of the associated environmental effects predictions and mitigation measures.

In support of these requirements, the EA update provides the following information:

- An overview of the planned Project activities for the upcoming year (Section 2);
- Information on consultation and engagement activities undertaken (Section 2.2);
- Updated applicable baseline information for key environmental components since the initial EA and associated updates were produced (Section 3), specifically, updated information regarding:
  - Species of conservation concern (Section 3.1);
  - Commercial fisheries (Section 3.2).
- Evaluation and confirmation that the nature and scope of the planned activities are within the scope of the approved EA (Section 4).

The Hebron Project is continuing planned production operations in 2024 and there are no operations activities that warrant an EA update. Therefore, this update focuses on the planned 2024 seismic survey activities. There have been no updates to special areas since the previous EAs and are not further described in this update.

Table 1-1: Environmental Assessment Summary

Project	**ExxonMobil Canada Properties Hebron Development Project (2013-2046)**
Environmental Assessment Documents	Hebron Project Comprehensive Study Report. (EMCP 2011). 2013 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2013a). Hebron Project Comprehensive Study Report Addendum. (EMCP 2013b) 2014 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2014) 2015 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2015) 2016 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2016a). Revised 2016 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2016b). 2017 EA Update. Hebron Project Comprehensive Study Report. (EMCP 2017a) 2017 EA Amendment. Hebron Project. (EMCP 2017b) 2019 EA Update: Hebron Project Comprehensive Study Report. (EMCP 2019)
Reference Number	ExxonMobil Canada Properties: CEAR No. 09-03-46144
Temporal Scope	Year-round, 2013-2046 inclusive
Geographic Scope	Eastern Offshore NL (Figure 2-1)
Planned 2024 Project Activity	Production Operations 4D Seismic Survey Supply and Servicing Follow up monitoring

2 PROJECT DESCRIPTION

The Hebron Project included production, operations and maintenance of the offshore production platform and associated facilities and offshore surveys (EMCP 2011). This section provides an overview of the seismic survey Project components and activities that are planned to occur in 2024.

2.1 Overview of the Original Project Description

The Hebron project activities are described in the first EA Hebron Comprehensive Study Report (EMCP 2011) include geophysical surveys such as 2D / 3D / 4D seismic surveys. The geophysical / seismic surveys are undertaken by a specialized vessel towing a submerged, compressed air-driven gun (sound source) array to produce short bursts of sound energy. The acoustic pressure pulse travels into the seafloor and reflects off various seafloor layers. Hydrophone assemblies are towed as streamers behind a vessel at several metres below the sea surface and record the reflected sound waves (EMCP 2011). The goal of seismic surveys are to investigate subterranean structure and explore the features where hydrocarbon reserves could accumulate beneath the Hebron Field. Seismic airguns release most of the acoustic energy focused in a vertically downward direction with sound levels off to the sides of the array are generally lower. Richardson et al. (1995 in EMCP 2011) indicated noise associated with airguns can range between approximately 215 and 235 dB re 1 µPa-m for a single airgun and approximately 235 to 260 dB re 1 µPa-m for arrays. As described in EMCP (2011), seismic surveys last several weeks and covers a linear distance range of approximately 555 to 1,110 km. The towed array is typically 60 to 90 m long and moves through the water at speeds usually in the range of 8 to 10 km/h (4.5 to 5.5 knots).

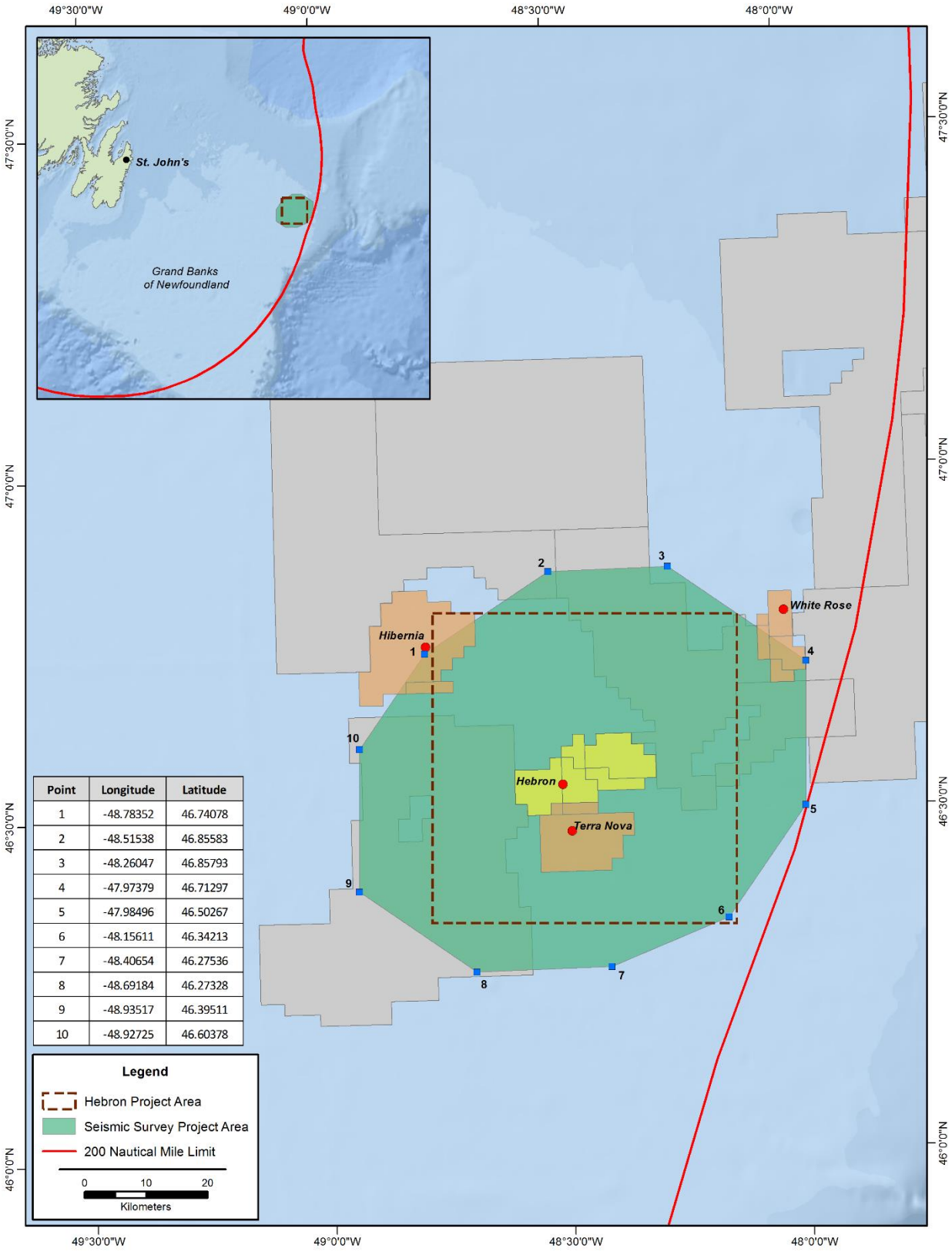

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Figure 2-1: Project Areas for the Seismic Activities.

2.1.1 Potential Environmental Interactions and Associated Mitigations

Geophysical surveys were predicted to result in potential change in habitat quality and use by marine fish, marine mammals and sea turtles, and marine birds and potential mortality of marine fish. Geophysical surveys were also predicted to have potential effects on fishing vessel operations, fishing gear and catchability of species (EMCP 2011). Several mitigation measures were detailed to minimize the effects on environmental and socio-economic receptors in the CSR and are summarized below.

Seismic activities associated with the Project and the potential environmental interactions and associated mitigations will adhere to the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2019) provided in the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB). ExxonMobil would ensure that these guidelines align with the mitigation measures highlighted in the Fisheries and Oceans Canada (DFO) Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment (hereafter referred to as the SOCP). Measures will include but not limited to:

- Ramp-up of the airgun array over a minimum of 20 minutes.
- Monitoring by a trained marine mammal observer.
- Shutdown of the airgun array when a Schedule 1 endangered or threatened marine mammal or sea turtle is sighted within the 500 m safety zone.
- Delay of ramp-up if any marine mammal or sea turtle is sighted within the 500 m safety zone.

ExxonMobil will obtain a Canadian Wildlife Service (CWS) permit related to wildlife and habitat conservation to enable trained and designated personnel to salvage and release migratory birds that may be stranded on the seismic vessel. This is to ensure increase protection for migratory bird species, their nests, and their eggs while they are within the bounds of the protected area (ECCC 2020). ExxonMobil would also ensure that all records associated with the seabird interactions within the protected area as per the Permit conditions are documented via a seabird salvage Log. Best practices for stranded oiled and non-oiled birds encountered within the protected area would be implemented and in accordance with the CWS Bird Handling Permit. In addition, the marine mammal observers (MMOs) will conduct a monitoring program for seabirds that will include systematic counts based on protocols issued by the Environment and Climate Change Canada-Canadian Wildlife Service (ECCC-CWS). Likewise, mitigation measures and monitoring for stranded birds will follow established ECCC-CWS procedures.

ExxonMobil will provide details of the planned seismic program and schedule to fisheries representatives and Fisheries and Oceans Canada (DFO) (refer to Section 2.2) to minimize effects on fishing activities and scientific research cruises. The vessel transit route will follow existing traffic routes to the offshore platforms to reduce potential gear interaction. A Fisheries Liaison Officer (FLO) will be onboard the seismic vessel to mitigate risks associated to fishers and fishing gear. Relevant details on marine operations outside of established safety zones will also be publicized through existing communication pathways such as the Notice to Mariners. Project vessels will also facilitate information exchange with fishers via marine radio.

2.1.2 Planned 2024 Project Activities

2.1.3 Operations

Planned project activities to be executed by ExxonMobil in 2024 include a 4D seismic program in the Hebron field in the off the coast of Newfoundland and Labrador. Seismic surveys are geophysical methods used to explore / map rock layers and properties with sound propagation and related echo / seismic mapping with the aid of a seismic streamer vessel. The goal of a seismic survey is to develop an image of the subsurface geology and understanding of hydrocarbon movements beneath the subsurface strata and structures. The 4D Seismic program for the Hebron field will consist of a monitor seismic survey which will allow ExxonMobil to continue to improve the understanding of hydrocarbon movements beneath the Hebron fields. The data collected from these surveys will improve life of field and help inform drilling and production decisions.

2.1.4 4D Seismic Survey

ExxonMobil will be conducting 4D Seismic Survey. The 4D seismic program will consist of a monitor seismic survey which will allow ExxonMobil to continue to improve the understanding of hydrocarbon movements beneath the Hebron fields. The data collected from these surveys will improve life of field and help inform drilling and production decisions.

The monitor seismic surveys will take in the vicinity of 50 days, starting in early-August through September 2024. The undershoot programs will be conducted at the start of Hebron monitor seismic survey. The undershoot vessel is expected to be on contract for approximately one weeks.

The primary seismic streamer vessel, the *Amazon Conqueror*, will tow twelve (12), 6,000 m long multi-component seismic streamers. Streamer separation will be of 50 m for Hebron monitor seismic survey. Streamer depth will also vary, namely 18 m for Hebron monitor seismic survey. The seismic sources, in tow behind the streamer vessel (*Amazon Conqueror*) and behind the undershoot source vessel (*Shearwater Gallien*), will be typical seismic sources (3,000 – 4,000 cubic inches; 2000 PSI) at a depth of 6 m.

2.1.5 Supply Vessels

Two full time vessels will be on contract through the duration of the entire program including a support vessel and an escort vessel. The Victory G (supply) and Patrick and William (escort) have been contracted. Existing shore-based facilities and port infrastructure in St. John’s will be used for vessel support.

Both support vessels will be equipped with a probe to obtain speed of sound velocity profiles and measure conductivity, temperature, and depth throughout the water column. Measurements are typically conducted weekly by lowering the probe to the seabed and then raising it back to the surface using a winch. The frequency of the measurements can be increased to better characterize rapidly changing conditions in the water column.

2.2 Consultation and Engagement

As part of its on-going and planned operations off Eastern Newfoundland, ExxonMobil regularly consults with relevant individuals and stakeholders through existing forums (such as the One Ocean initiative)

and conducts additional and specific engagements with applicable persons and groups if and as particular issues and requirements arise.

Table 2-1 details engagement activities for the 2022 project activities.

Table 2-1: Engagement Activities for the 2024 Exploration Program Activities.

Stakeholder Group	Date	Description of Engagement
Commercial Fishers	Nov 30, 2023	Meeting held to Program overview provided to the provided to Fish Food and Allied Workers Union (FFAW-Unifor).
	Dec 29, 2023	Email to FFAW-Unifor regarding Fisheries Liaison Officer arrangements during the Program and update on the timing of information to be shared with FFAW-Unifor members.
	Jan 10, 2024	Email to FFAW-Unifor with the Program overview and a few additional details as requested.
	Jan 11, 2024	Program overview provided at the One Ocean Working Group meeting, attendees included One Ocean Director, FFAW-Unifor, Ocean Choice International (OCI), Atlantic Groundfish Council (AGC), Association of Seafood Producers (ASP) and other Operators.
	Jan 24, 2024	Email to FFAW-Unifor on the information provided on Jan 10th and status on supporting the seismic research being done by Dr. Corey Morris with the Department of Fisheries and Oceans (DFO).
	Feb 13, 2024	Email to FFAW-Unifor with an update on collaboration with Dr. Morris seismic research project.
	Feb 23, 2024	Phone call with FFAW-Unifor to provide an update on collaboration with Dr. Morris seismic research project.
Fisheries and Oceans Canada	Feb 1, 2024	Met with Dr. Corey Morris of DFO on operational activities associated with his seismic research project.
	Feb 7, 2024	Call with DFO Science on the Program including timing and locations and implications for the DFO scientific cruises. Follow up information to be provided.
Environmental Studies Research Fund	Jan 9, 2024	Met with ESRF to discuss seismic program and better understand if Dr. Morris' (DFO) research would be applicable to our program. Email to ESRF on expression of interest information posted for Program to share with Dr. Morris to see if sufficient information was included to determine applicability to his work.
	Jan 15, 2024	Met with ESRF and Dr. Morris to further discuss details of seismic program and understand what Dr. Morris would require in order to conduct research and how we can support via our seismic program.
	Jan 25, 2024	Met with ESRF and Dr. Morris to get an update on research funding and next steps to proceed with research. Point of contact for ExxonMobil was provided for going forward to align on operational requirements and execution plan.

Stakeholder Group	Date	Description of Engagement
Commercial Fishers	Nov 30, 2023	Meeting held to Program overview provided to the provided to Fish Food and Allied Workers Union (FFAW-Unifor).
	Dec 29, 2023	Email to FFAW-Unifor regarding Fisheries Liaison Officer arrangements during the Program and update on the timing of information to be shared with FFAW-Unifor members.
	Jan 10, 2024	Email to FFAW-Unifor with the Program overview and a few additional details as requested.
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Fisheries and Oceans Canada	Feb 1, 2024	Met with Dr. Corey Morris of DFO on operational activities associated with his seismic research project.
	Feb 7, 2024	Call with DFO Science on the Program including timing and locations and implications for the DFO scientific cruises. Follow up information to be provided.
	Feb 20, 2024	Email from Dr. Morris requesting update on information in order to proceed with research planning. Information to be provided.

3 ENVIRONMENTAL SETTING AND ASSESSMENT

The Hebron Project CSR provided a detailed overview of the existing (baseline) environment within and around the proposed Project Area and associated EA Study Area (nearshore and offshore environments), including relevant aspects of the existing physical, biological, and socioeconomic environments. In keeping with previous EA Updates for the Project, this section provides updated information related to the following environmental components, for which any associated changes are considered particularly relevant to on-going environmental planning and management related to the Project:

- Species at Risk
- Commercial Fisheries

Special Areas were previously described in Section 12 of the CSR (ExxonMobil 2011). There have been updates to special areas in the wider Study Area, however there are no special areas that overlap with the Project Area (Figure 2-1). Therefore, special areas are not further discussed.

3.1 Species at Risk

The Canadian *Species at Risk Act* (SARA) provides for the protection of species at the national level to prevent extinction and extirpation, facilitate the recovery of endangered and threatened species, and to promote the management of other species to prevent them from becoming at risk in the future. Designations under the Act follow the recommendations and advice provided by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

There are currently a few schedules associated with the SARA. Species that have formal protection are listed on Schedule 1, which includes the following potential designations:

- Extirpated: A species that no longer exists in the wild in Canada, but exists elsewhere;
- Endangered: A species that is facing imminent extirpation or extinction;
- Threatened: A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and
- Special Concern: A species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Schedule 1 of SARA is the official federal list of species at risk in Canada. Once a species is listed, measures to protect and recover a listed species are established and implemented, including the development of a Recovery Strategy. Action Plans summarize the activities required to meet recovery strategy objectives and goals, and Management Plans set goals and objectives for maintaining sustainable population levels of one or more species that are particularly sensitive to environmental factors.

At the provincial level, the Newfoundland and Labrador *Endangered Species Act* (NL ESA) provides protection for indigenous species, sub-species and populations considered to be endangered, threatened, or vulnerable within the province. These potential designations under the legislation are defined as follows:

- Endangered: A species that is facing imminent extirpation or extinction;
- Threatened: A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and
- Vulnerable: A species that has characteristics which make it particularly sensitive to human activities or natural events.

Designations are based on recommendations from COSEWIC and/or the provincial Species Status Advisory Committee (SSAC). Habitat that is important to the recovery and survival of endangered or threatened species can also be designated as critical habitat or recovery habitat and protected under the NL ESA.

The following sections provide a listing of identified species at risk, as identified and considered in the original EA and subsequent EA Updates, indicating their current designations under applicable legislation and by COSEWIC. As of November 2016, blue shark is no longer designated by COSEWIC.

Species that are not included below but that may rarely occur in the Project Area are the red knot, harlequin duck, and short-eared owl. These are largely shore-bound species but have been seen very rarely by surveys in offshore Newfoundland. Cells shaded in grey are species that have been added since the previous EA amendment.

3.1.1 Marine Fish

The conservation status of Shortfin mako within the Project Areas has changed (Table 3-1) since the most recent approved EA document. Updates to species of conservation concern across the Study Areas of both EAs include the following:

- Shortfin mako (*Isurus oxyrinchus*): Designation was changed during the May 2019 COSEWIC assessment from “Special Concern” to “Endangered” (COSEWIC 2019)
- White shark (*Carcharodon carcharias*): Designated Endangered in April 2006. COSEWIC status history has not changed but re-assessed and confirmed in May 2021.

No additional biological or ecological information is included here for Shortfin Mako as the species had been included in the original EA. The potential environmental effects on these species are similar to those outlined for other marine finfish in the EAs, and the species-specific description given in the EAs (EMCP 2019). Mitigation measures described in the original EA for other marine finfish species will also apply to Shortfin mako and thus Project activities are not likely to result in significant adverse effects.

Since the acceptance of the various EAs and associated updates, the status of some species have improved and have therefore been removed from the listing of species of conservation concern in the region, as listed in Table 3-1.

Table 3-1: Updated Marine Fish Species at Risk or otherwise of Special Conservation Concern

Species		Status/ Designation [1,2]			Relevant Population (Where Applicable)
Common Name	Scientific Name	NL ESA	SARA	COSEWIC	
Acadian Redfish	*Sebastes fasciatus*			T	Atlantic (COSEWIC)
American Eel	*Anguilla rostrata*	V		T	
American Plaice	*Hippoglossoides platessoides*			T	Newfoundland and Labrador (COSEWIC)
Atlantic Bluefin Tuna	*Thunnus thynnus*			E	
Atlantic Cod	*Gadus morhua*			E	Newfoundland and Labrador (COSEWIC)
Atlantic Salmon	*Salmo salar*			T	South Newfoundland
				SC	Quebec Eastern North Shore
				SC	Quebec Western North Shore
				E	Anticosti Island
				SC	Inner St. Lawrence
				SC	Gaspe-Southern Gulf of St. Lawrence
				E	Eastern Cape Breton

Species		Status/ Designation [1,2]			Relevant Population (Where Applicable)
Common Name	Scientific Name	NL ESA	SARA	COSEWIC	
				E	Nova Scotia Southern Upland
				E	Outer Bay of Fundy Population
Basking shark	*Cetorhinus maximus*			SC	Atlantic (COSEWIC)
Cusk	*Brosme brosme*			E	
Deepwater Redfish	*Sebastes mentella*			T	Northern (COSEWIC)
Common Lumpfish	*Cyclopterus lumpus*			T	
Northern (Broadhead) Wolffish	*Anarhichas denticulatus*		T	T	
Porbeagle	*Lamna nasus*			E	
Roundnose Grenadier	*Coryphaenoides rupestris*			E	
Shortfin Mako	*Isurus oxyrinchus*			E	
Smooth Skate	*Malacoraja senta*			E	Funk Island Deep
Spiny Dogfish	*Squalus acanthias*			SC	Atlantic (COSEWIC)
Spinytail Skate	*Bathyraja spinicauda*				
Spotted Wolffish	*Anarhichas minor*		T	T	
Striped (Atlantic) Wolffish	*Anarhichas lupus*		SC	SC	
Thorny Skate	*Amblyraja radiata*			SC	
White Hake	*Urophycis tenuis*			T	Atlantic and Northern Gulf of St. Lawrence (COSEWIC)
White Shark	*Carcharodon carcharias*		E	E	Atlantic (COSEWIC/SARA)
Winter Skate	*Leucoraja ocellata*			E	Eastern Scotian Shelf – Newfoundland (COSEWIC)

[1] Not at Risk (NR), Data Deficient (DD), Least Concern (LC), Vulnerable (V), Near Threatened (NT), Special Concern (SC), Threatened (T), Endangered (E), Critically Endangered (CE). Blank cells are considered to be not assessed.
[2] Multiple designations refer to multiple populations or sub-populations.
Grey cells represent changes to status or addition of species listing from the most recent EA.

The planned 2024 activities associated with the Project will not result in any increases or other changes in the Project's potential to interact with, or have negative effects upon, key or particularly sensitive species (including any that are designated as being species at risk) or habitats.

3.1.1.1 Recovery Strategies and Plans

Schedule 1 of SARA is the official federal list of species at risk in Canada. Once a species is listed, measures to protect and recover a listed species are established and implemented, including the development of a Recovery Strategy. Action Plans summarize the activities required to meet recovery

strategy objectives and goals, and Management Plans set goals and objectives for maintaining sustainable population levels of one or more species that are particularly sensitive to environmental factors.

The amended Recovery Strategy for the Northern Wolffish and Spotted Wolffish found along the northeast shelf and slopes of the Grand Banks (Figure 3-1) was posted on the Public Registry (DFO 2020). Critical habitat was delineated using seasonal wolffish presence based on sea bottom temperature and depth. Northern Wolffish critical habitats are located between 118-636 m depth with sea bottom temperatures of 2.3-5.1°C and function to support all portions of wolffish life history. Spotted wolffish habitats are located between 82-346 m with sea bottom temperatures of 0.1-4.2°C and function to support all portions of wolffish life history. No critical habitat has been established for the Atlantic wolffish (DFO 2020).

No overlap exists between the Hebron Project Area and the established critical habitats (Figure 3-1). They are most abundant off northeastern Newfoundland and in the Labrador Sea (DFO 2020). Project activities are not likely to result in thermal habitat alteration or habitat destruction that are considered key threats to the critical habitat. These species were also considered and assessed in the previous EA Report (EMCP 2019) for potential environmental effects of the Project on this species.

The planned 2024 activities associated with the Project will not result in any increases or other changes in the Project's potential to interact with, or have negative effects upon, key or particularly sensitive species (including any that are designated as being species at risk) or habitats.

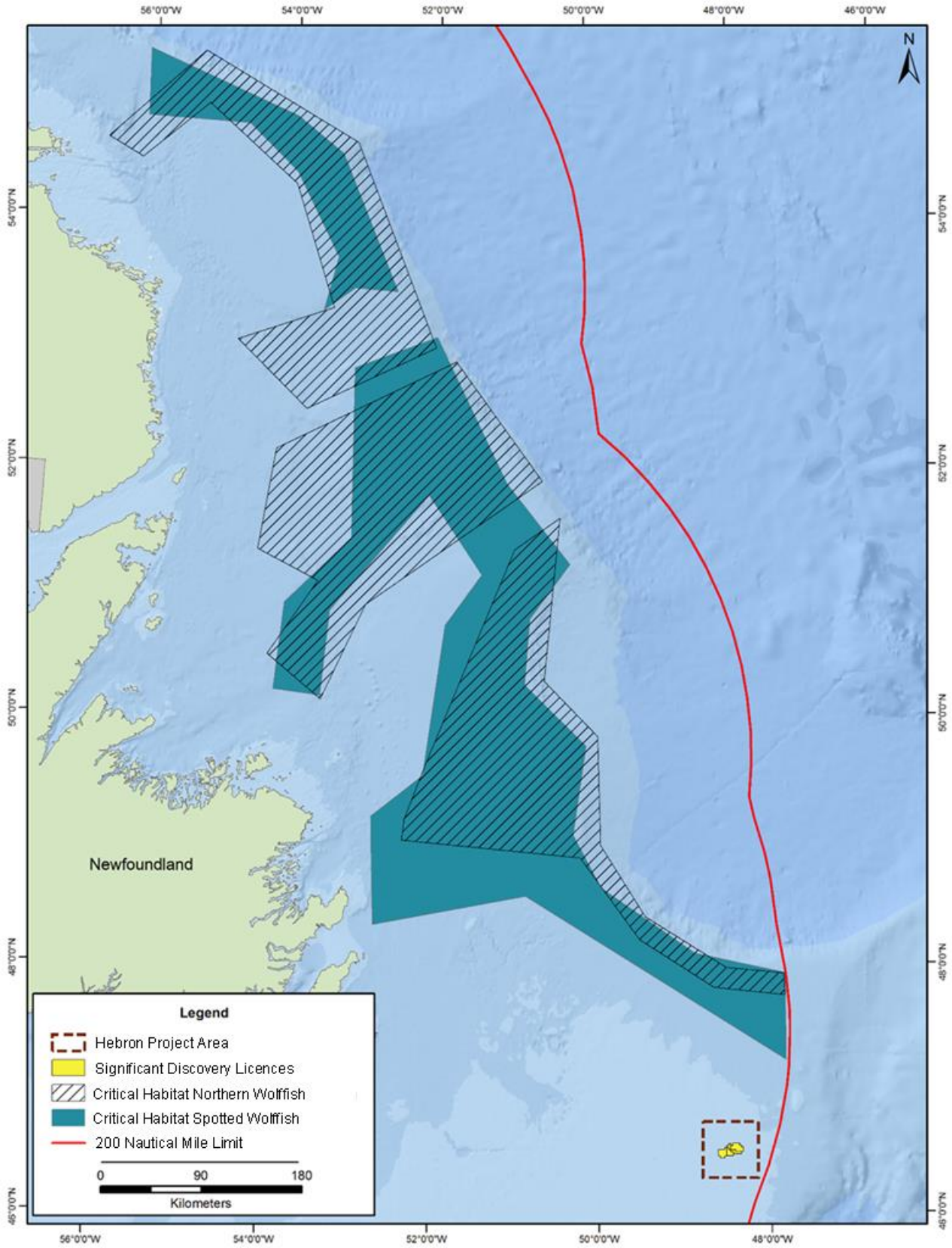

Figure 3-1: Northern and Spotted Wolffish Critical Habitat in relation to the 2024 Project Areas

3.1.2 Marine and Migratory Birds

The conservation status of a few marine bird species within the Project Areas has changed (Table 3-2) since the most recent approved EA document. Updates to species of conservation concern include the following:

- Red-necked Phalarope (*Phalaropus lobatus*): Designated as "Special Concern" status on Schedule 1 of the SARA in May 2019 (ECCC 2023);
- Leach's Storm-Petrel (*Oceanodroma leucorhoa*): Designated as "Threatened" during the November 2020 COSEWIC assessment (COSEWIC 2020). It was not originally listed in the previous EA report; and
- Ross's Gull (*Rhodostethia rosea*): Designation was changed during the May 2021 COSEWIC assessment from "Threatened" to "Endangered" (COSEWIC 2021).

Red-necked Phalarope are currently listed as "Special Concern" that are potentially seasonally present in the Project Area and were considered in the original EAs, including details on biological and ecological information used to inform the assessments.

Leach's Storm-Petrel was not originally listed in the previous EA report and is the smallest and most wide-ranging procellariform in the Northern Hemisphere. The Atlantic population is listed as "Threatened" (COSEWIC 2020). There are over 80 nesting colonies in eastern Canada, where adults nest in burrows and forage at night for bioluminescent prey (COSEWIC 2020). Low adult survival related to higher predation rates by gulls at colonies is a factor in the observed declines. Leach's Storm Petrel is most threatened by changes to the food web and interactions with offshore activity, especially oil and gas platforms, as well as vessels that use artificial lighting due to its unique nocturnal behaviour and its attraction to light. There are indications that major colonies have experienced declines up to 54% over the past 44 years (COSEWIC 2020). While the conservation status of Leach's storm-petrel has been updated, this species and associated special areas (e.g., largest colony at Baccalieu Island, Newfoundland) were not considered in the original EAs. During Atlantic Leach's Storm-Petrel non-breeding period, the species is primarily associated with warm productive waters and dwells in coastal regions (COSEWIC, 2020). Current mitigations specific to stranded birds in offshore Newfoundland apply to Leach's storm-petrel, and so potential environmental effects from the project on this species are anticipated to be within EA predictions.

Ross's Gull is primarily an Arctic species, with the largest breeding area in northeastern Siberia and smaller colonies in Greenland, Svalbard, and Arctic and subarctic Canada. Fewer than 20 individuals are known to breed in Canada, with only 1-3 known colonies in the Canadian High Arctic (COSEWIC 2021). The species has low productivity and there has been no fledglings in the past 14 years at the only active colony in Canada (COSEWIC 2021). Adult Ross's Gulls feed on small invertebrates in freshwater, and small fish and zooplankton while migrating or overwintering at sea (COSEWIC 2021). These birds overwinter at sea mostly in Arctic waters but have been tracked as far south as the northern portions of the Project Area. As this is primarily an Arctic species and only occasionally known to be present in the Project Area, interactions with project activities are unlikely. Understanding the threats to Ross's Gulls is ongoing, but high rates of chick mortality in shared colonies (specifically caused by Arctic terns), as well as predation by other predators are thought to be major known threats (COSEWIC 2021). Infertility and low rates of hatching are also thought to be caused by pollutants in the environment (COSEWIC 2021).

Mitigation measures described in the EAs for other marine and migratory bird species will also apply to bird species of conservation concern, and so the potential environmental effects from the Project are not likely to result in significant adverse effects.

Table 3-2: Updated Marine and Migratory Bird Species at Risk or Otherwise of Special Conservation Concern.

Species		Status / Designation [1]			
Common Name	**Scientific Name**	**NL ESA**	**SARA**	**COSEWIC**	**Relevant Population (Where Applicable)**
Ivory Gull	*Pagophila eburnea*	E	E	E	
Red-necked Phalarope	*Phalaropus lobatus*		SC	SC	
Leach's Storm-Petrel	*Oceanodroma leucorhoa*			T	Atlantic (COSEWIC)
Ross's Gull	*Rhodostethia rosea*		T	E	

[1] Not at Risk (NR), Data Deficient (DD), Least Concern (LC), Vulnerable (V), Near Threatened (NT), Special Concern (SC), Threatened (T), Endangered (E), Critically Endangered (CE). Blank cells are considered to be not assessed.
Grey cells represent changes to status or addition of species listing from the most recent EA.

3.1.2.1 Recovery Strategies and Plans

Since the original EAs, a management plan has been proposed for Red-necked Phalarope (ECCC 2023).Given the fact that Red-necked Phalarope has been designated as Special Concern due to declines at migratory stopovers in the past 40 years, a management plan for this species was to achieve increasing population trends by 2043 (ECCC 2023). This management plan should be achievable by conserving habitat across the full annual cycle and managing the risk of oil spill contamination in the oil and gas industry (ECCC 2023).

3.1.3 Marine Mammals and Sea Turtles

The conservation status of a few marine mammal species within the Project Areas has changed (Table 3-3) since the most recent approved EA document for each project. Updates to species of conservation concern include the following:

- Killer whale (*Orcinus orca*): Species considered in April 1999 and in November 2001, and placed in the Data Deficient category. COSEWIC status was re-examined in November 2008 and designated Special Concern. COSEWIC status has not changed but was re-examined and confirmed in December 2023 (COSEWIC 2008).

Mitigation measures described in the EAs for other marine mammal and sea turtle species will also apply to bird species of conservation concern, and so the potential environmental effects from the Project are not likely to result in significant adverse effects.

Table 3-3: Updated Marine Mammal and Sea Turtle Species at Risk or Otherwise of Special Conservation Concern likely to Occur in the Project Area.

Species		Status/ Designation [1,2]			
Common Name	**Scientific Name**	**NL ESA[2]**	**SARA**	**COSEWIC**	**Relevant Population (Where Applicable)**
Beluga Whale	*Delphinapterus leucas*		E	E	St. Lawrence Estuary (COSEWIC/SARA)
Blue Whale	*Balaenoptera musculus*		E	E	Atlantic (COSEWIC/SARA)
Bowhead Whale	*Balaena mysticetus*			SC	Eastern Canada-West Greenland (COSEWIC)
Fin Whale	*Balaenoptera physalus*		SC	SC	Atlantic (COSEWIC/SARA)
Harbour Porpoise	*Phocoena*			SC	Northwest Atlantic (COSEWIC)
Killer Whale	*Orcinus orca*			SC	Northwest Atlantic / Eastern Arctic (COSEWIC)
Leatherback Sea Turtle	*Dermochelys coriacea*		E	E	Atlantic (COSEWIC/SARA)
Loggerhead Sea Turtle	*Caretta*		E	E	
North Atlantic Right Whale	*Eubalaena glacialis*		E	E	
Northern Bottlenose Whale	*Hyperoodon ampullatus*			SC	Davis Strait-Baffin Bay-Labrador Sea (COSEWIC)
			E	E	Scotian Shelf (COSEWIC/SARA)
Sowerby's Beaked Whale	*Mesoplodon bidens*		SC	SC	

[1] Not at Risk (NR), Data Deficient (DD), Least Concern (LC), Vulnerable (V), Near Threatened (NT), Special Concern (SC), Threatened (T), Endangered (E), Critically Endangered (CE). Blank cells are considered to be not assessed.
[2] Multiple designations refer to multiple populations or sub-populations.
Grey cells represent changes to status or addition of species listing from the most recent EA.

3.1.3.1 Recovery Strategies and Plans

Since the original EAs, action plans and recovery strategies have been released for several species of marine mammals and sea turtles within the Project Areas. No critical habitats have yet been identified for these species that overlap with the Project Areas.

3.2 Commercial Fisheries

Given the fact that fisheries are an integral part of this EA update, ExxonMobil on-going Project planning and implementation placed more emphasis on potential for interactions with Project components and activities and commercial fishing activity within and near the Project Area.

The information provided in these maps is based on the geospatial data received from DFO. They show the general presence of recorded fishing activity for a series of 6 x 4 nautical mile “cells” that together comprise a map grid that covers the region. The information represents the fishing intensity for all years from 2017 to 2021, aggregated for all species. The data is quantified using Jenk's (Natural Breaks) classification, where each grid square represents the number of fishing records for the location, the resulting heat map indicates areas of greatest activity.

Commercial fishing activity spatially overlaps with the Project Area based on recent overall fishing patterns (Figure 3-4, Figure 3-5) and fixed and mobile gear types (Figure 3-6 and Figure 3-7, respectively). Key fisheries detailed in the CSR (EMCP 2011) included Snow Crab, Northern Shrimp, offshore clams and groundfish. Snow crab remains a key fishery on the Grand Banks with fishing effort around the Project Area. Northern Shrimp fishing in NAFO area 3L has been suspended since 2015 (DFO 2018), therefore there is no fishing effort that overlaps with the Project Area. The offshore clam fishery for Stimpson’s Surf Clam, Greenland Cockles, and Propeller Clams spatially overlaps with the Project Area in recent years. Fishing effort for offshore clams is mainly distributed to the southwest of the Project Area. Groundfish fishing remains important regionally but does not spatially overlap with the Project Area.

Mitigation measures described in the EAs continue to apply to commercial fisheries and so the potential environmental effects from the Project are not likely to result in significant adverse effects.

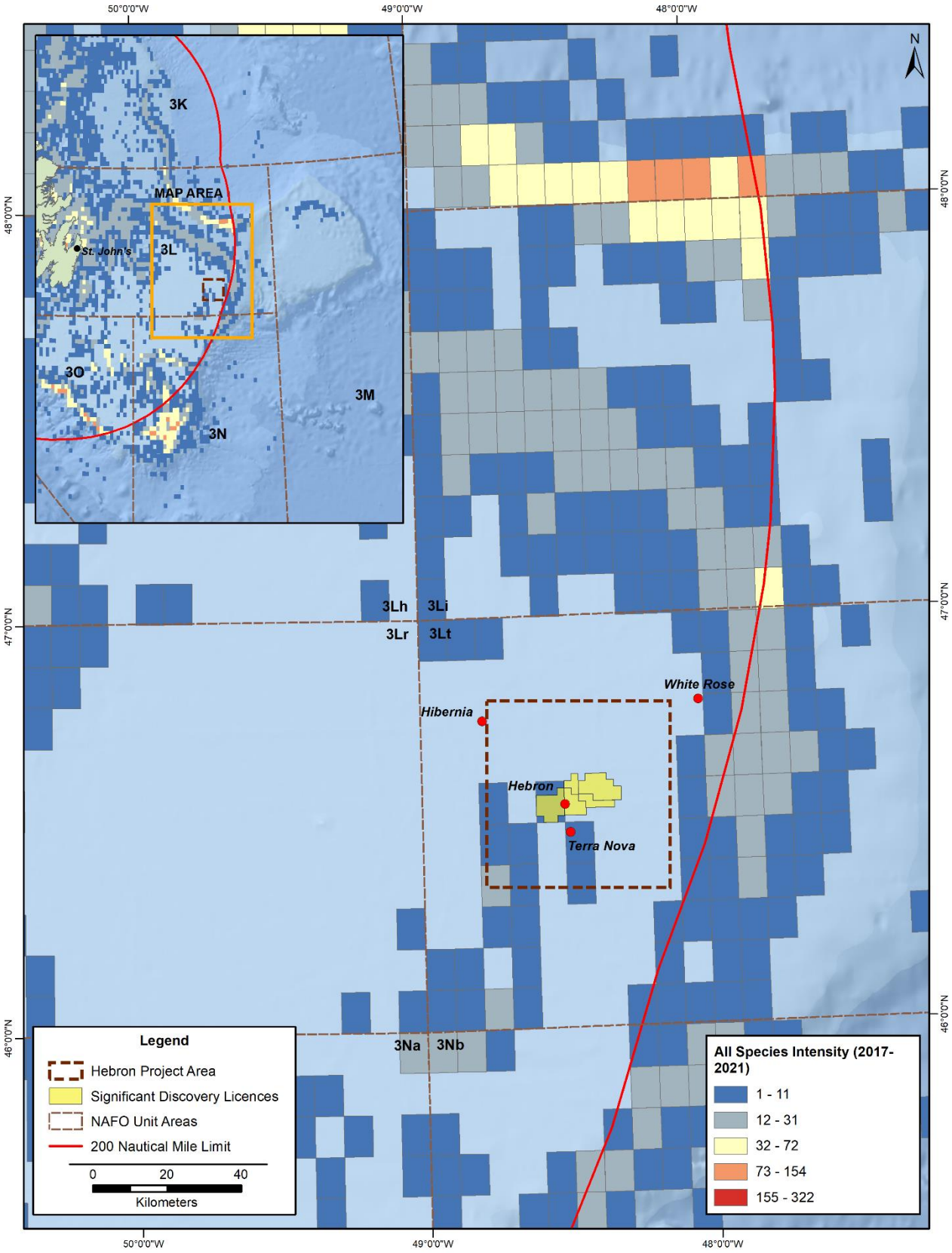

Figure 3-2: Commercial Fishing Intensity; All Species (2017-2021).

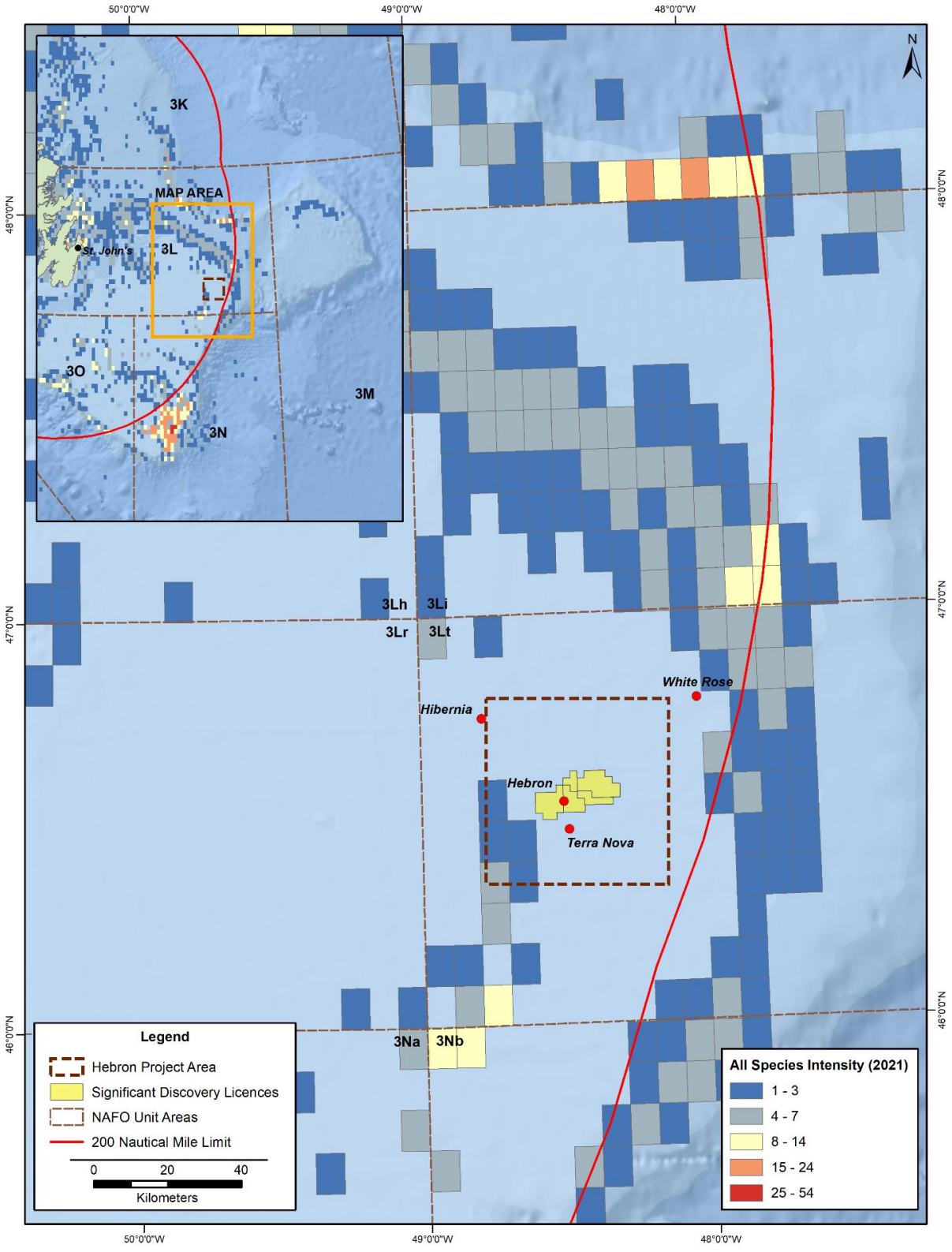

Figure 3-3: Commercial Fishing Intensity; All Species (2021).

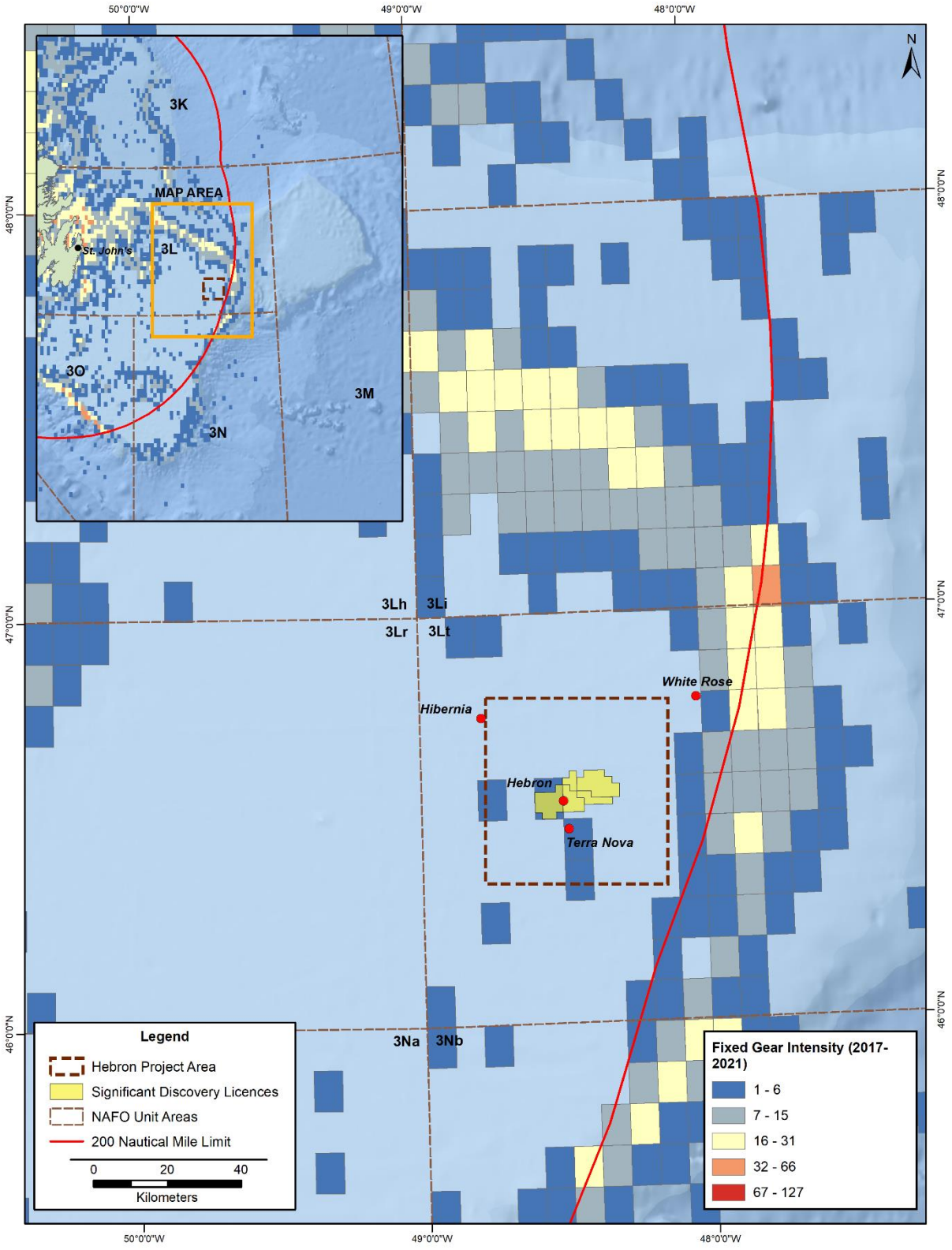

Figure 3-4: Commercial Fishing Locations; Fixed Gear Types (2017-2021).

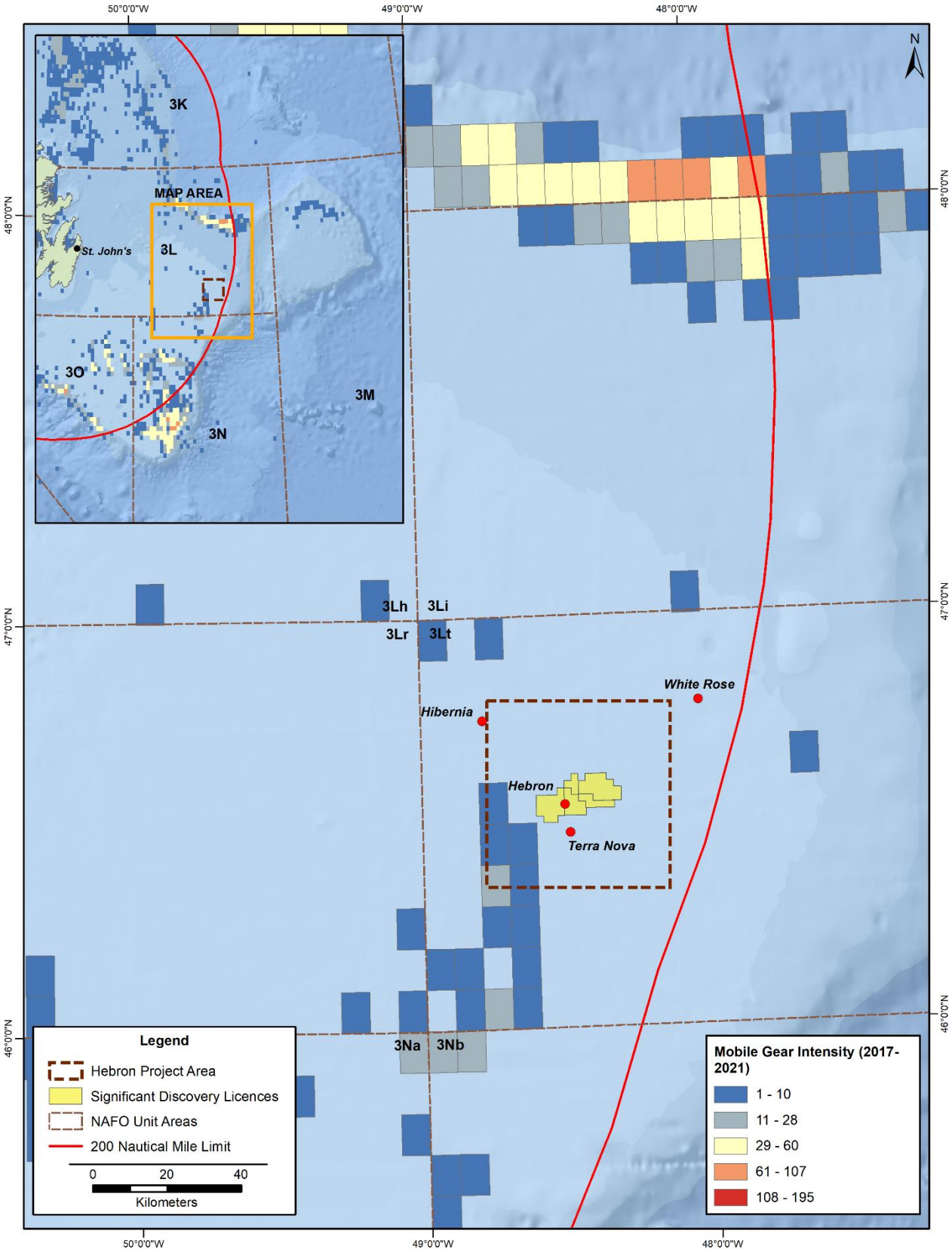

Figure 3-5: Commercial Fishing Locations; Mobile Gear Types (2017-2021).

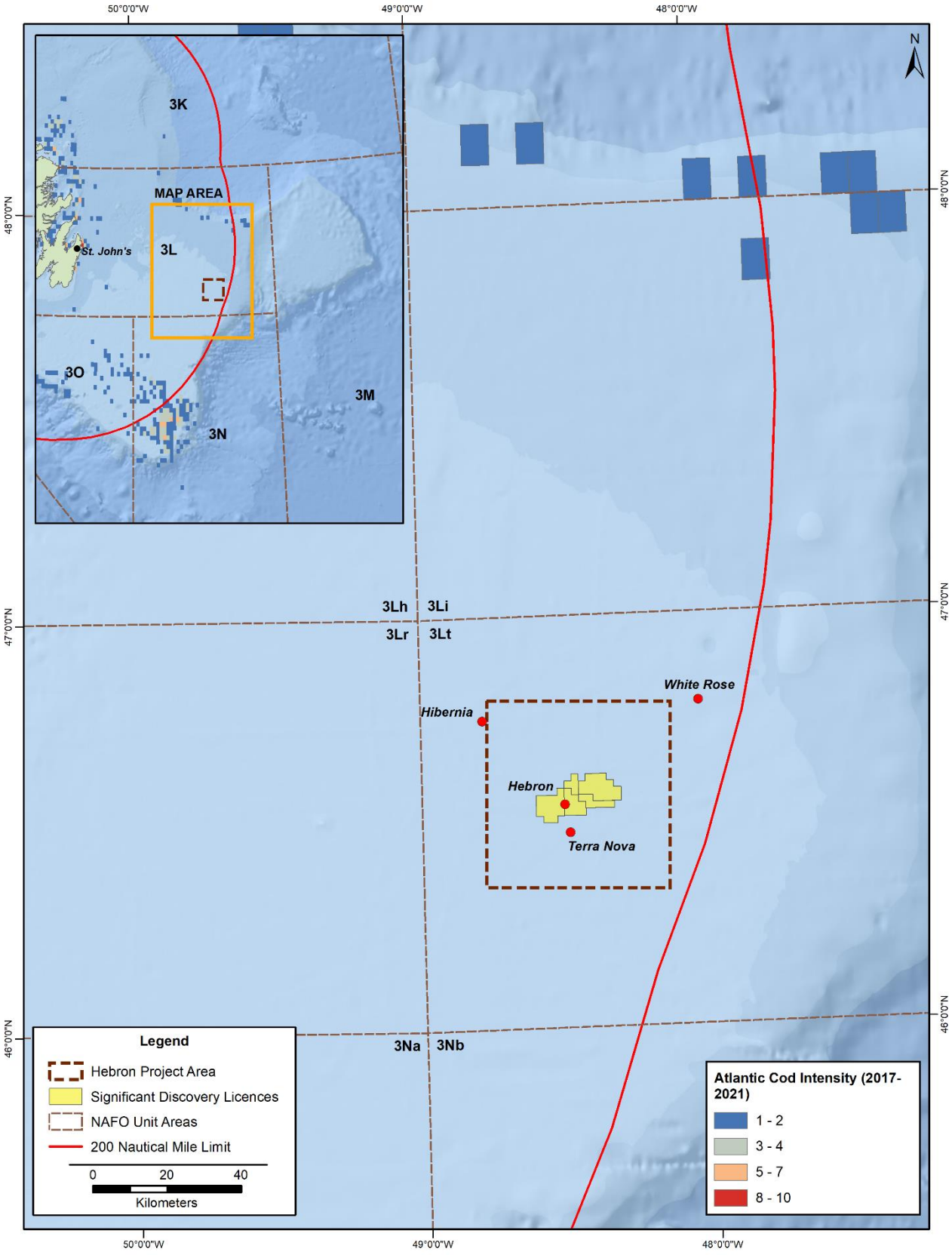

Figure 3-6: Commercial Fishing Intensity; Atlantic Cod (2017-2021).

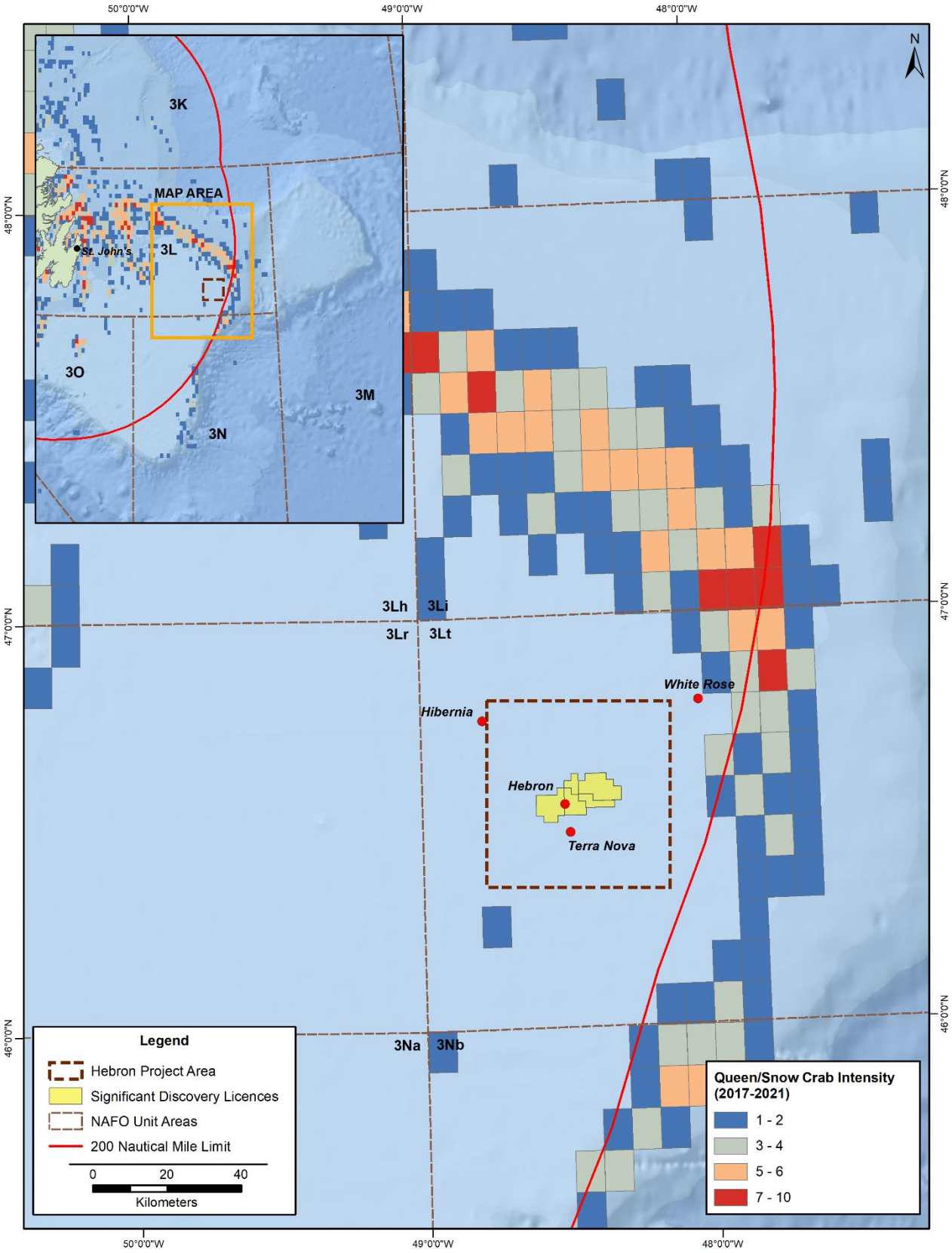

Figure 3-7: Commercial Fishing Intensity; Queen/Snow Crab (2017-2021).

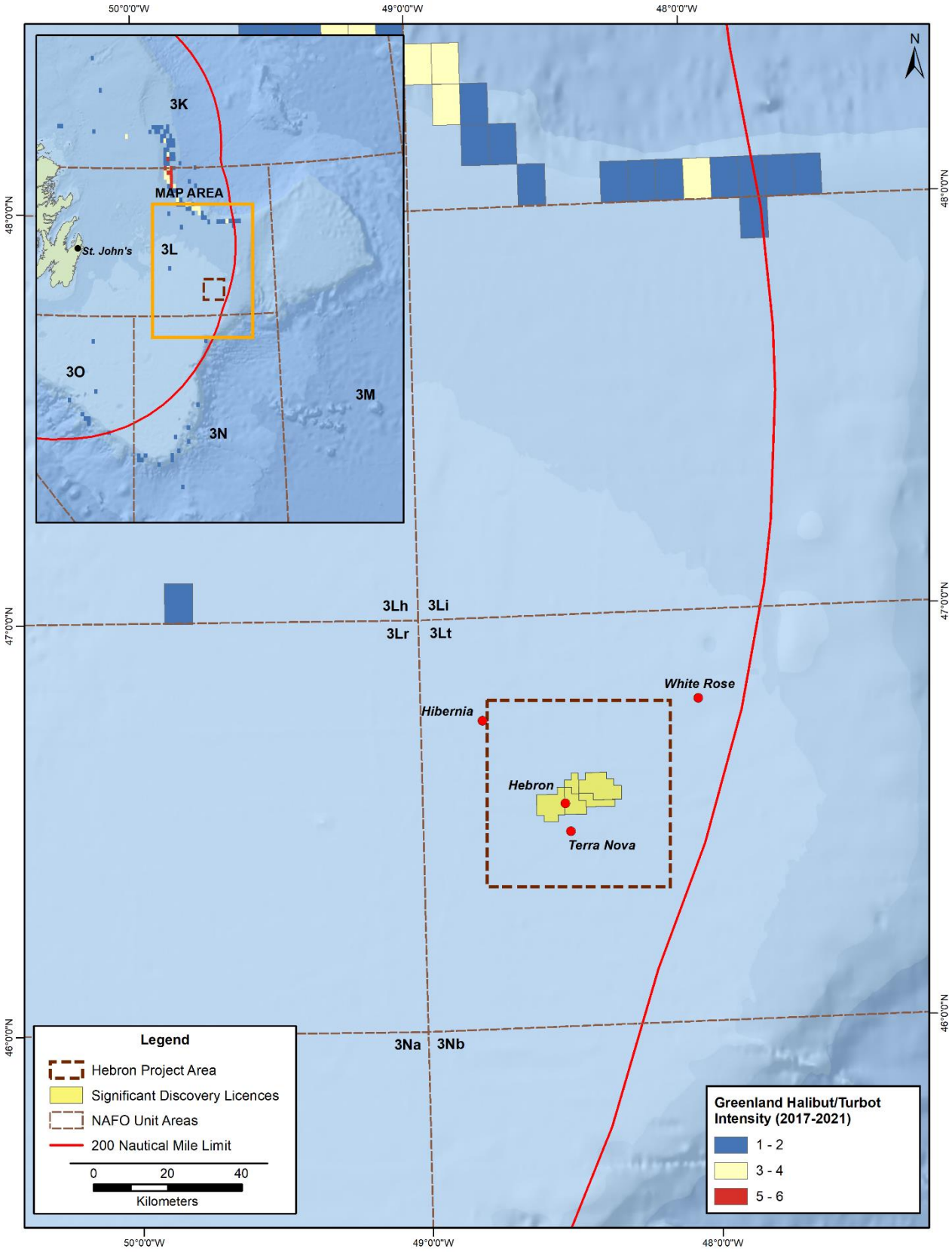

Figure 3-8: Commercial Fishing Intensity; Turbot/Greenland halibut (2017-2021).

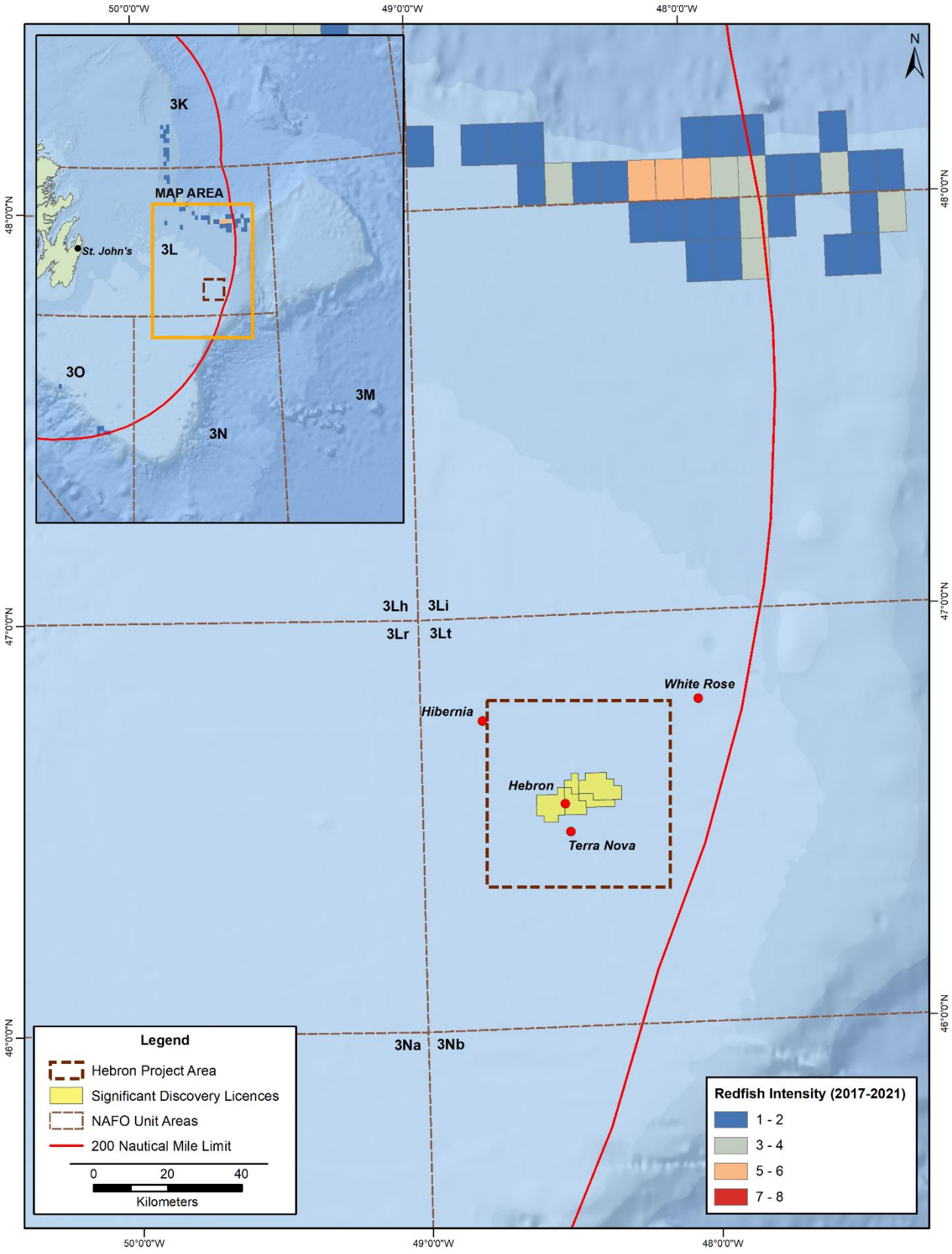

Figure 3-9: Commercial Fishing Intensity; Redfish (2017-2021).

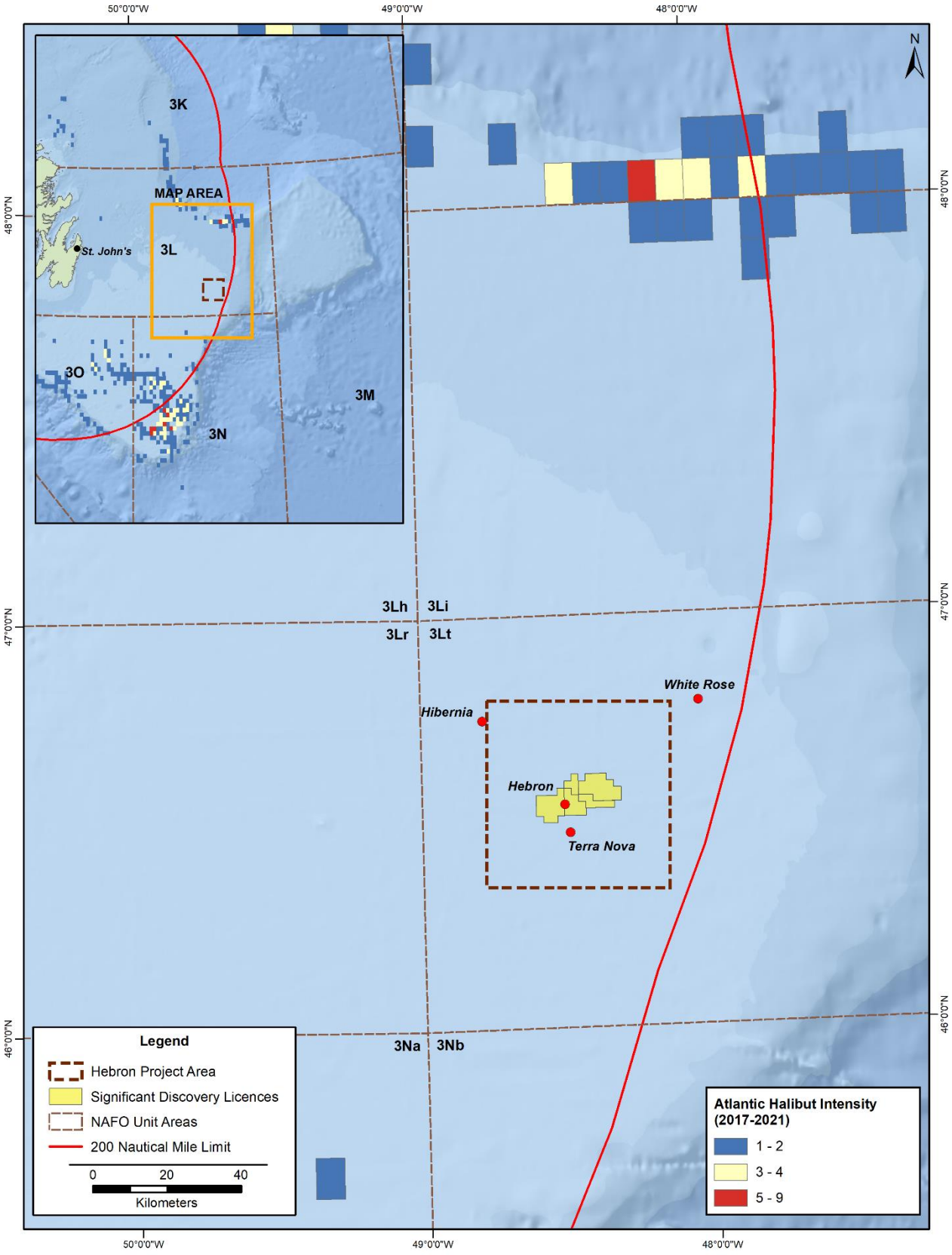

Figure 3-10: Commercial Fishing Intensity; Atlantic Halibut (2017-2021).

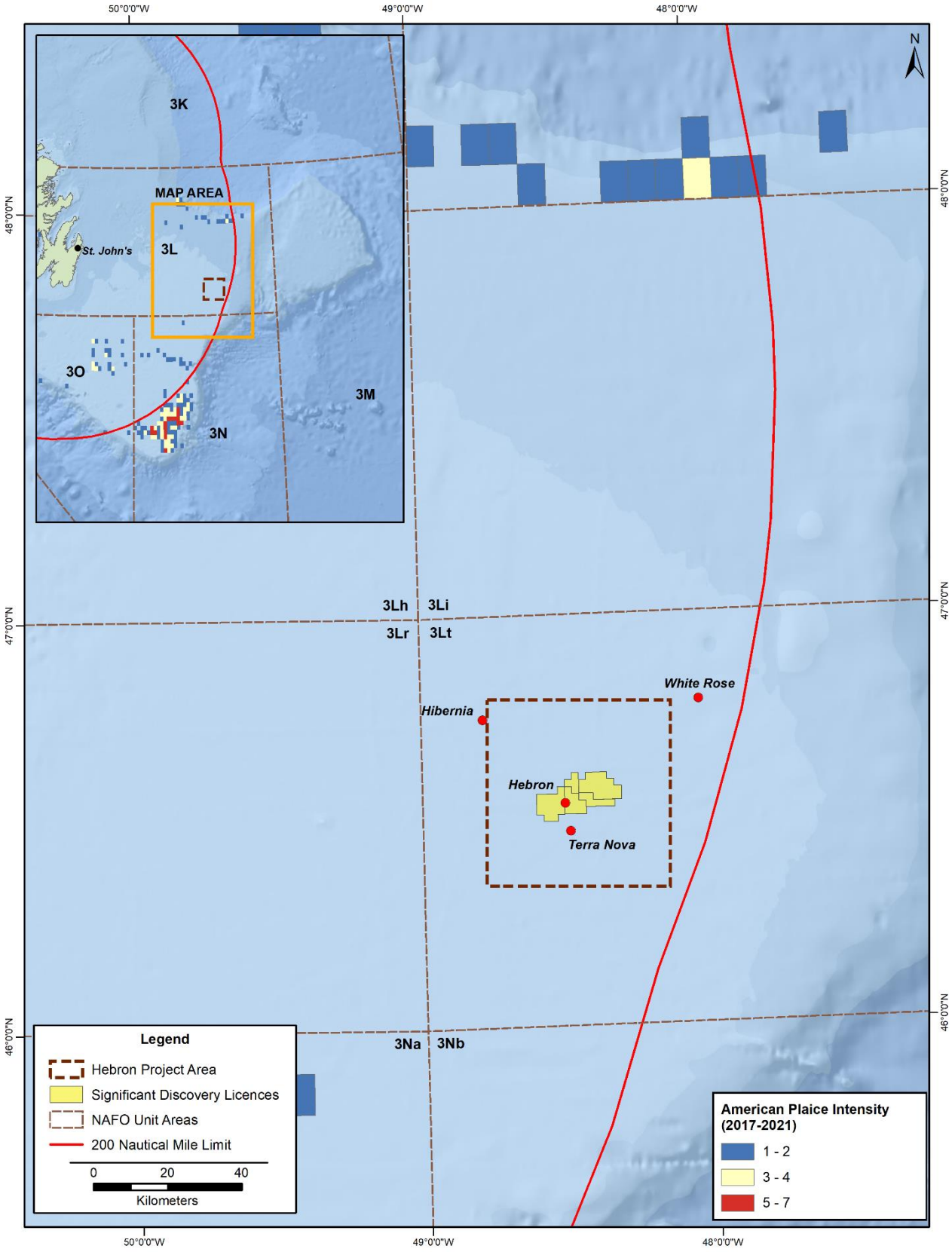

Figure 3-11: Commercial Fishing Locations; American Plaice (2017-2021).

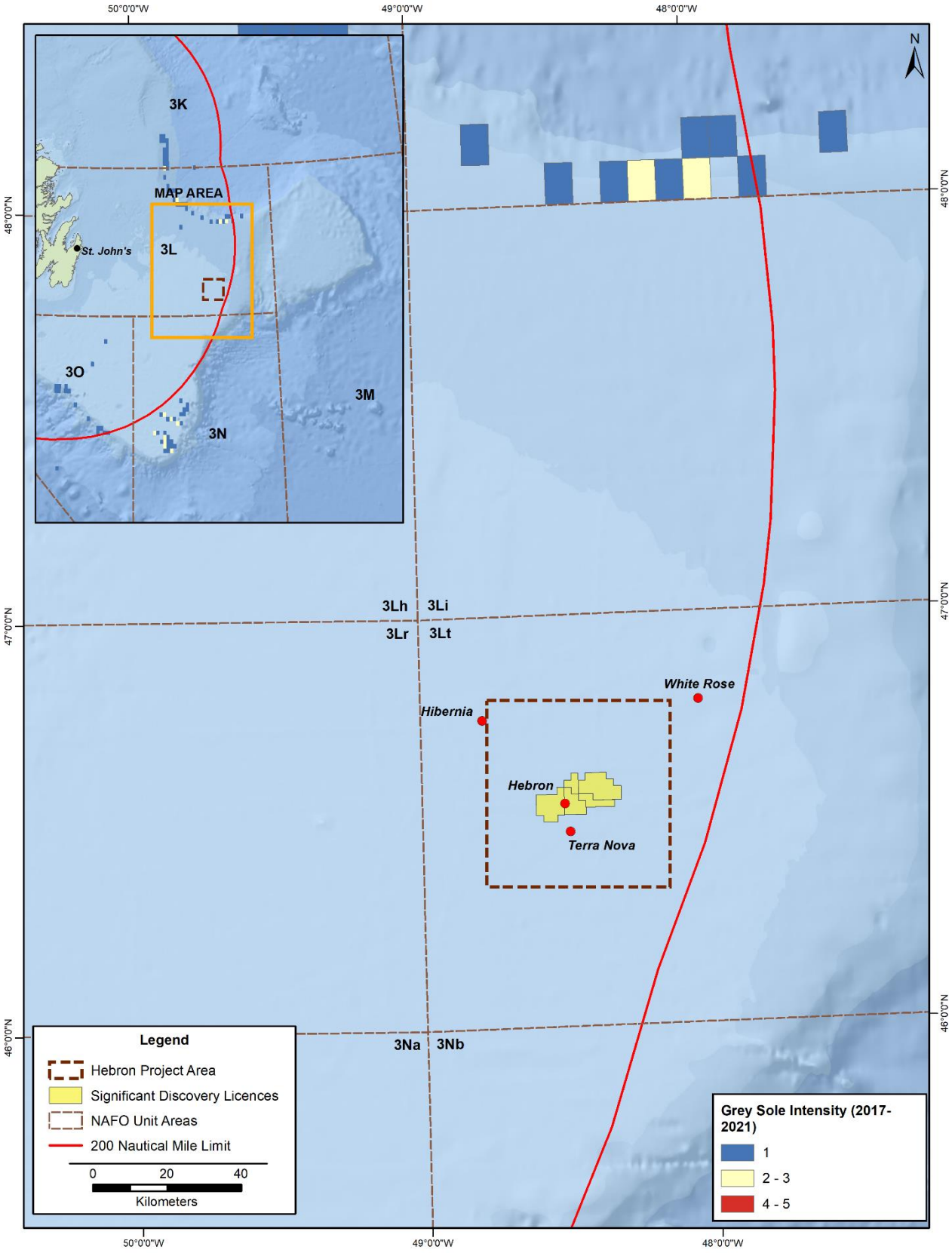

Figure 3-12: Commercial Fishing Locations; Grey Sole (2017-2021).

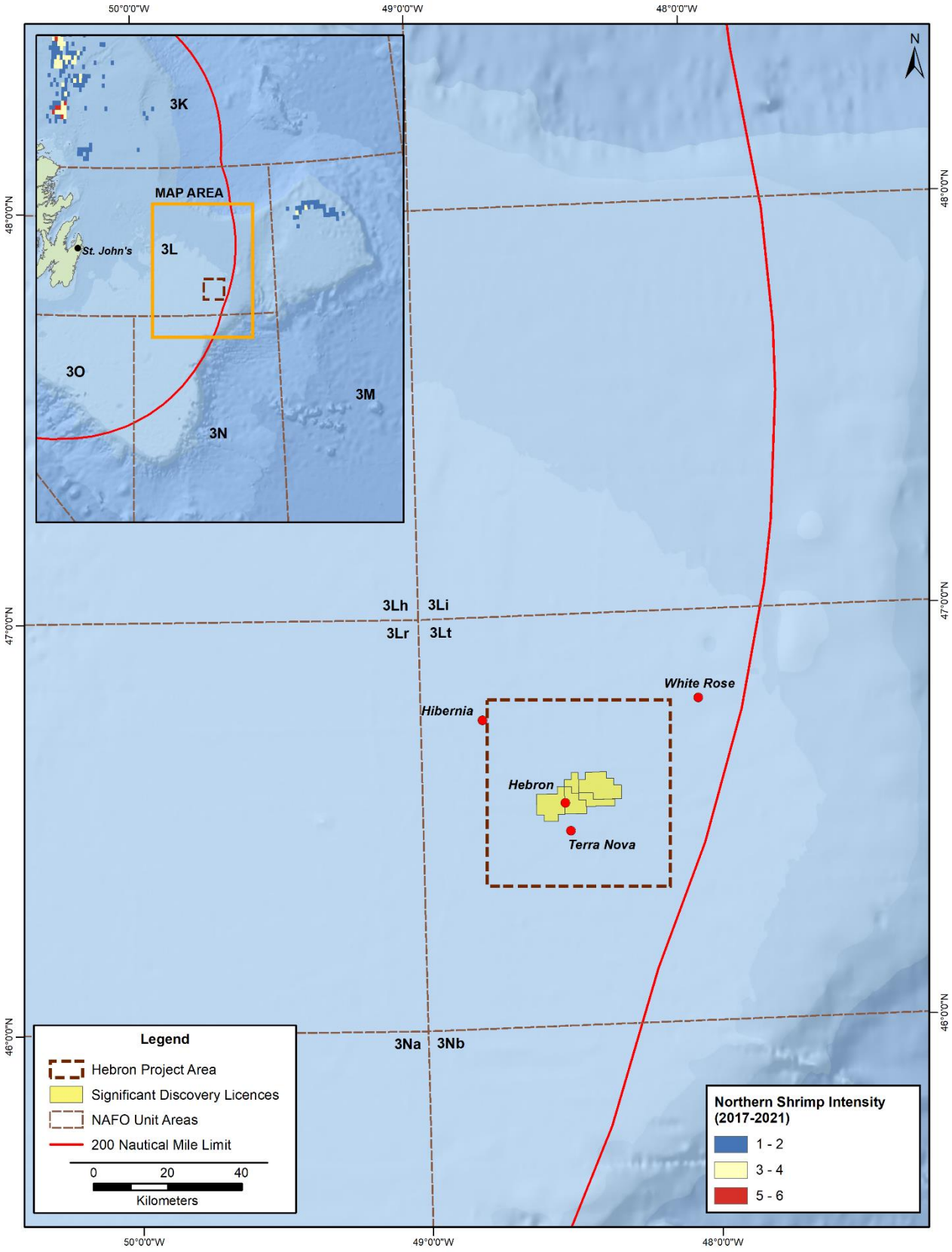

Figure 3-13: Commercial Fishing Locations; Northern Shrimp (2017-2021).

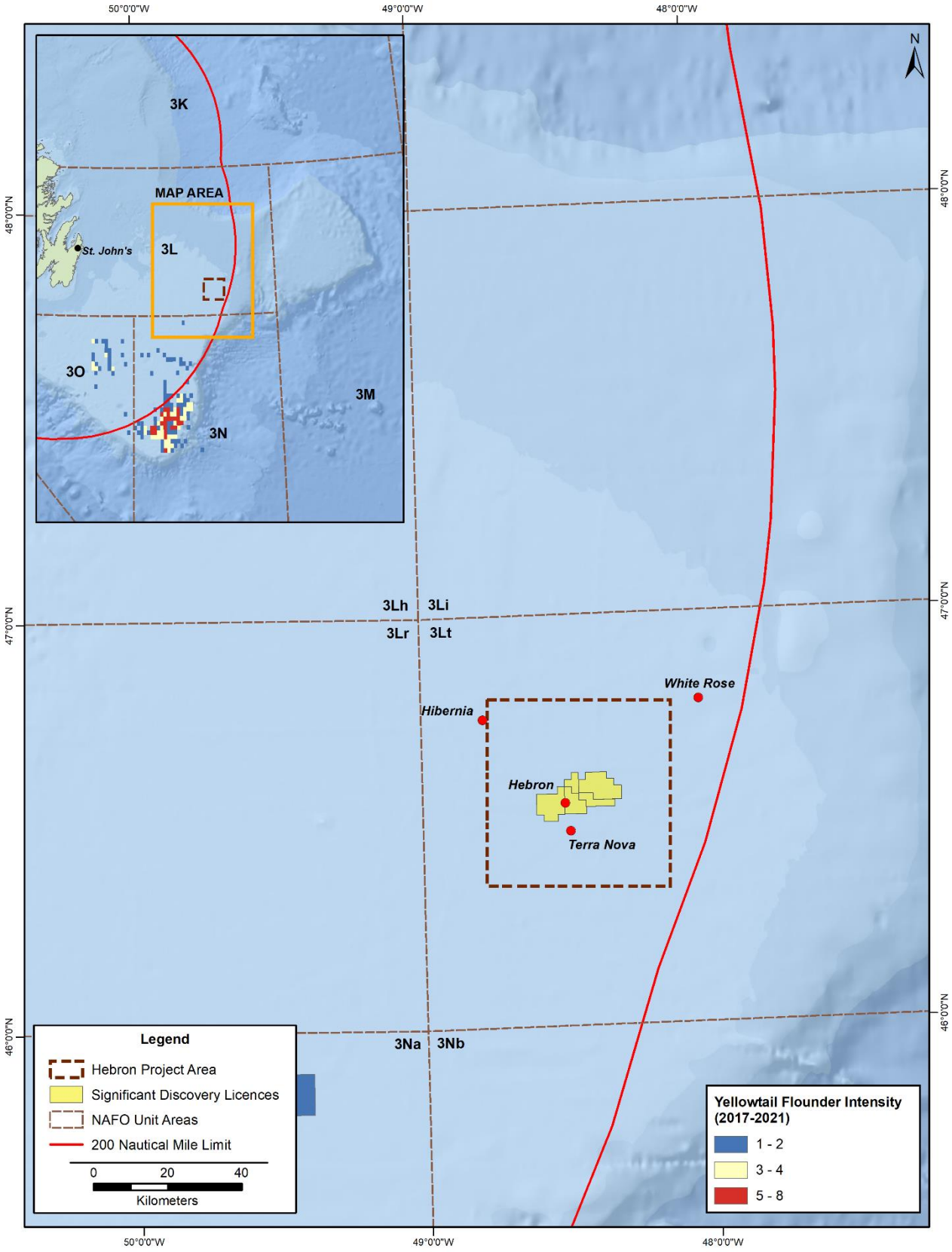

Figure 3-14: Commercial Fishing Locations; Yellowtail Flounder (2017-2021).

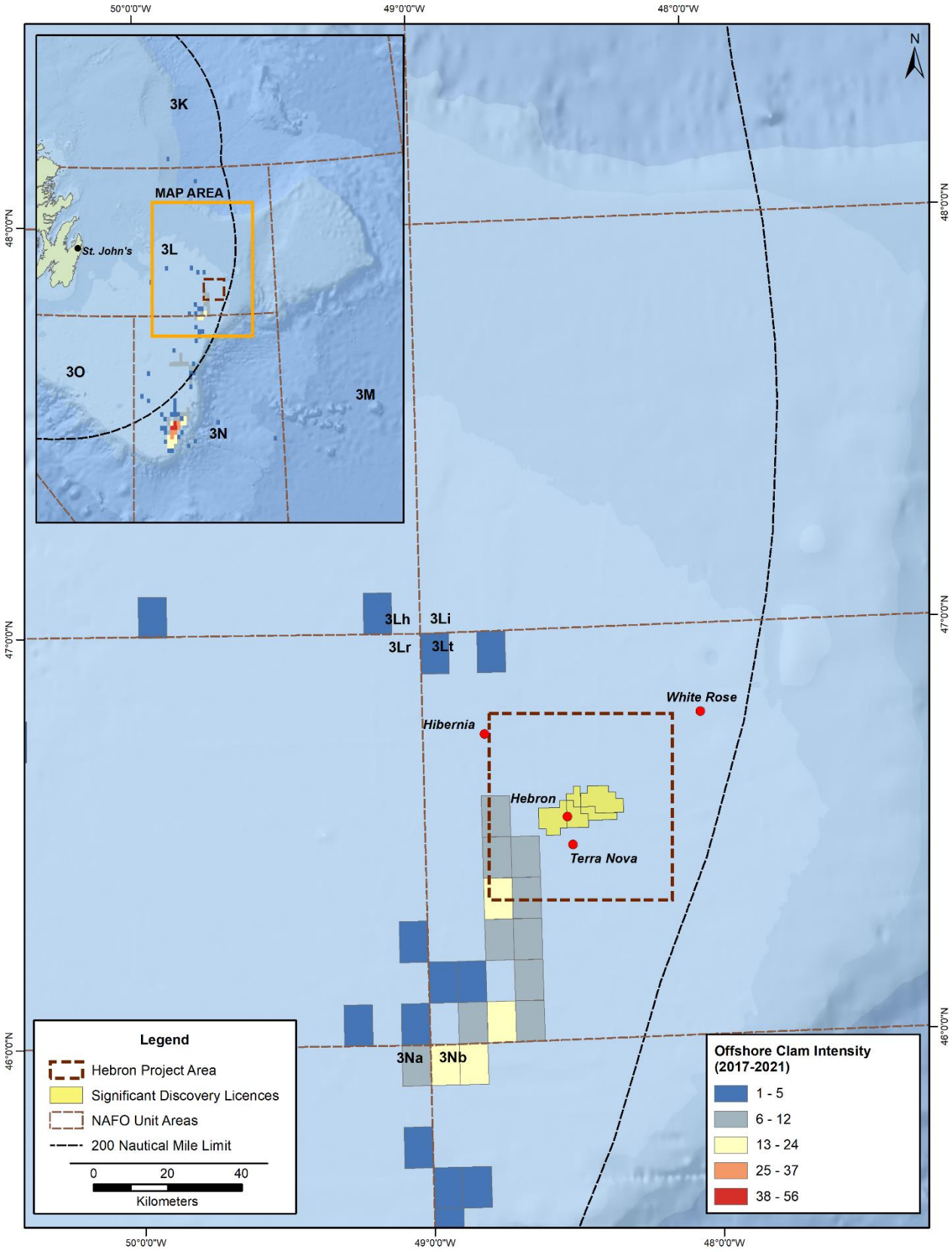

Figure 3-15: Commercial Fishing Locations; Offshore Clam (2017-2021).

3.2.1 Industry and DFO Science Surveys

DFO and fishing industry research surveys occur annually in the eastern Newfoundland offshore region. It is anticipated that DFO scientific surveys will occur around the Hebron field between April and June of 2024. ExxonMobil will continue to discuss the Project activities and schedule with DFO and the fishing industry through existing and relevant forums (e.g., One Ocean) to reduce to the potential for potential effects on scientific surveys. The timing of the research survey activities will be considered in the planning and undertaking of the seismic survey program.

4 ENVIRONMENTAL EFFECTS ASSESSMENT AND SUMMARY

This document comprises the EA Update for the planned 2024 seismic surveys in the Hebron Project Area. The planned 2024 activities with the Project are in keeping the with the project, temporal and spatial nature and scope of the Project as described, assessed and approved. Since the posting of the previous EA update, there have been updates to species of conservation concern and commercial fisheries.

The conservation status (SARA Schedule 1 and COSEWIC) of several species have changed since the previous EA with additional species listings or change to species status following reassessment. Some species status' have remained following reassessment. Critical habitat for spotted and northern wolffish has also been established since posting of the previous EA Update but it does not overlap with the Project Area.

There has been a change in the distribution of fishing effort with higher spatial overlap between commercial fisheries (fixed and mobile gear types) in recent years (2017-2021) and the Project Area. Key fisheries in the Project Area and surrounding region remain the similar to what was previously assessed. Northern shrimp has not been fished in 3L since 2015. Offshore clam and snow crab fishing effort is distributed within the Project Area. Groundfish remain an important fishery regionally, but are not distributed within the Project Area.

The updated information on environmental components does not result in changes to environmental effects predictions, required mitigation or associated determinations related to environmental effects significance for any component of the environment. The geophysical survey activities potential effects on marine fish and fish habitat, marine and migratory birds, marine mammals and sea turtles, and commercial fisheries remains of low to medium magnitude, between 1-100 km² geographic extent, 11-50 events per year frequency, and reversible following cessation of the activity. The 2024 planned activities is anticipated to take less than 100 days which is lower than predicted in the assessment (13-36 months). The Project – including the planned 2024 Project survey activities described herein - is therefore not likely to result in significant adverse environmental effects.

The use of good planning and proven operational practices and procedures, supported by standard mitigations that are well established and outlined in relevant regulatory procedures and guidelines (as reflected in the EA submissions) remain applicable to the nature and scope of the planned 2024 Project activities. These mitigations will continue to be implemented in accordance with ExxonMobil's commitments and obligations pursuant to the Project's EA approval and other applicable legislative and regulatory requirements.

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