



C-NLOPB Exploration Update

Geoscience Day, March 21, 2019

Deanne Duff
Exploration Geophysics Lead

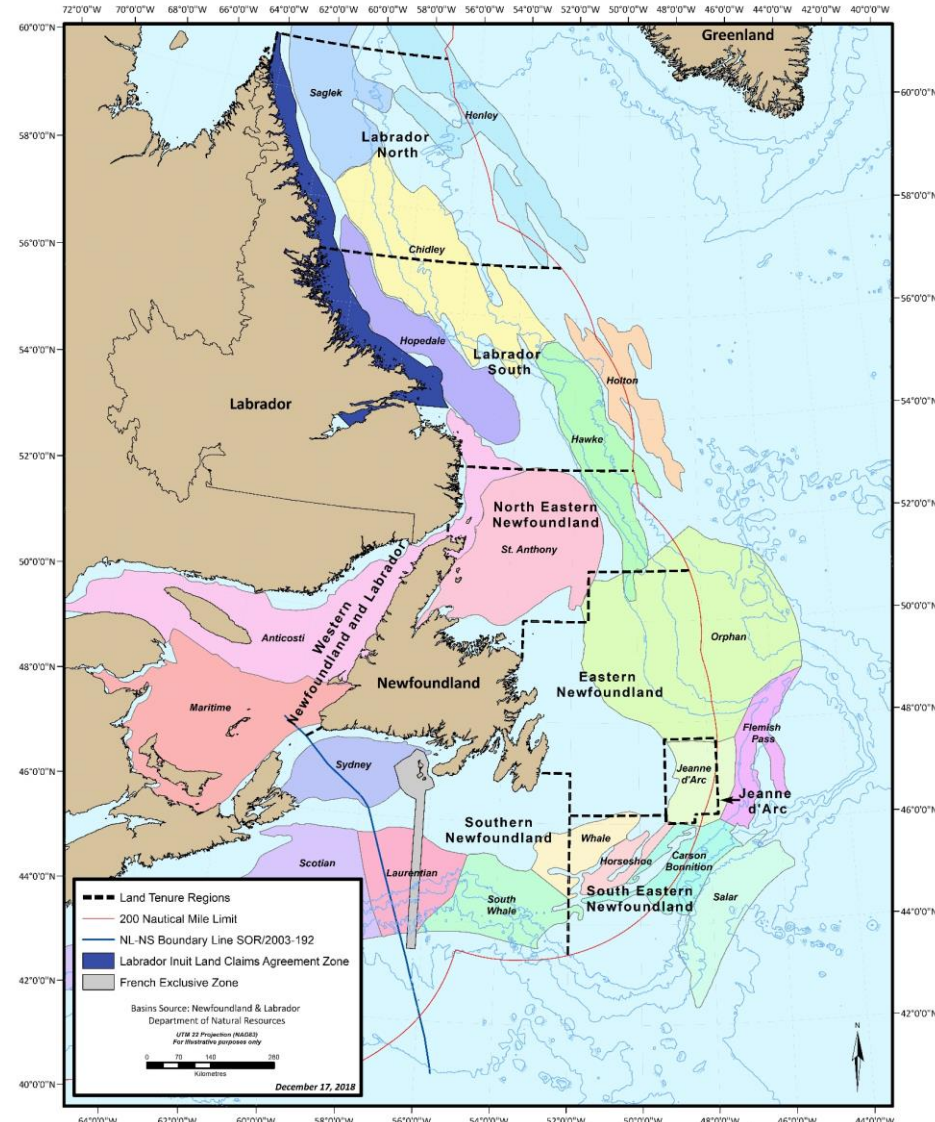
Introduction to the C-NLOPB

- Established by Atlantic Accord in 1985
- We are the regulatory agency responsible for the oversight of all petroleum related activities for the Newfoundland and Labrador Offshore Area
- We report to Federal and Provincial Ministers of Natural Resources and the Provincial Minister of Service NL on matters relating to workplace health and safety
- Four pillars:
 - Worker Health and Safety
 - Environmental Protection
 - Resource Management
 - Industrial Benefits



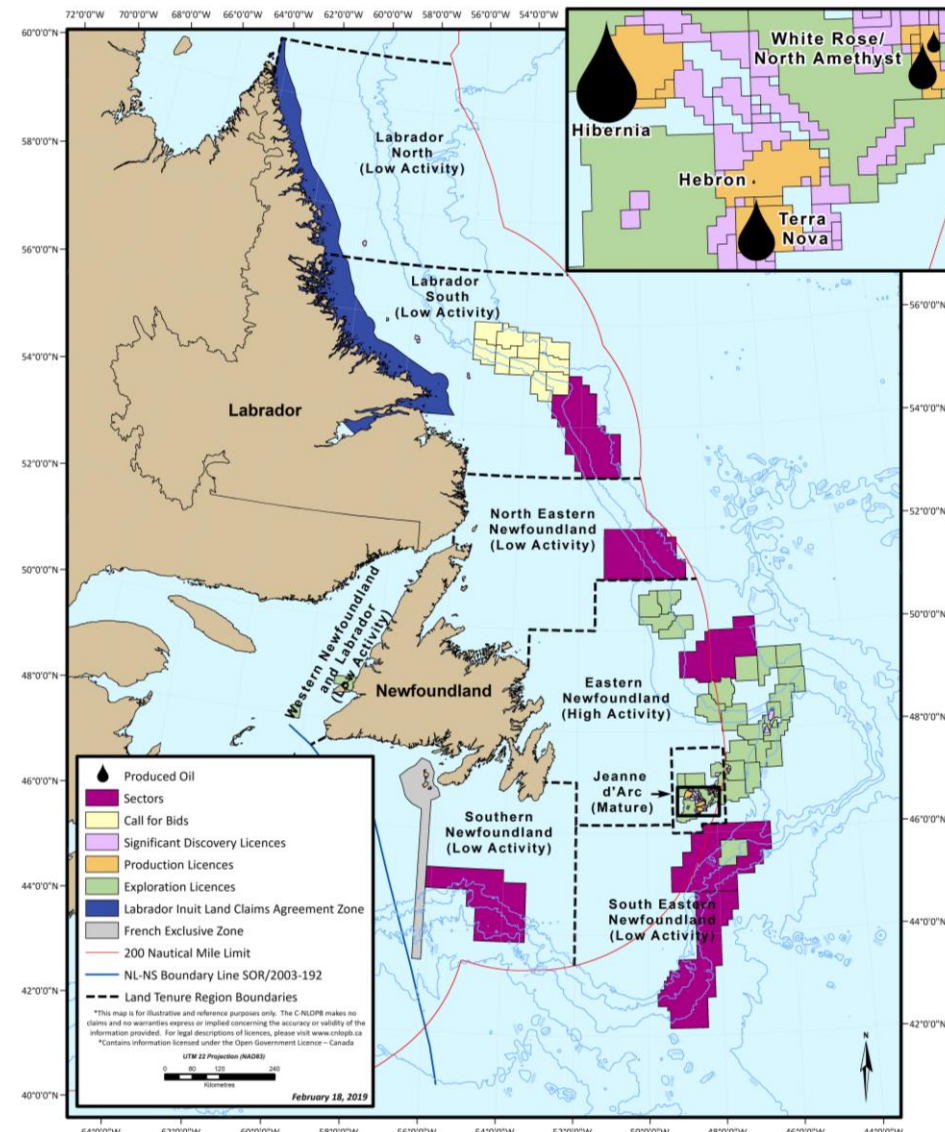
Canada-Newfoundland and Labrador Offshore Area

- Jurisdiction extends to the outer edge of the continental shelf
- Areal extent exceeds 1.8 million km²
 - Comparable to the combined area of Alberta and Ontario
- Larger than...
 - US Gulf of Mexico – 1.6 million km²
 - Norwegian Continental Shelf – 1.5 million km²
- Over 20 offshore sedimentary basins within 8 Land Tenure Regions
- Proven petroleum systems in several basins



Canada-Newfoundland and Labrador Offshore Area

- 468 wells spud since 1966, including 171 exploration wells
- 1.8 billion barrels of oil produced from 5 projects – Hebron, Hibernia, Terra Nova, White Rose and North Amethyst
- Equivalent of 4.6 million line km of seismic data acquired
- Current Licences/Land Tenure Items
 - 30 Exploration Licences (ELs)
 - 56 Significant Discovery Licences (SDLs)
 - 12 Production Licences (PLs)



Geoscience Programs and Exploration Drilling

2018 - Geoscience Programs with Fieldwork

Acquired during the 2018 field season:

- **Geophysical and Geological Programs**

- One 2D Seismic survey (Green)
- Five 3D Seismic surveys (Red)
- One Geological survey (Blue)
- Three Geohazards surveys (Orange)

- **Multiple Operators**

- GXT
- MKI
- Fugro
- Equinor
- Exxon-Mobil

- **2D Seismic**

- Acquisition total of 10,756 line km

- **3D Seismic**

- Acquisition total of 14,735 km²

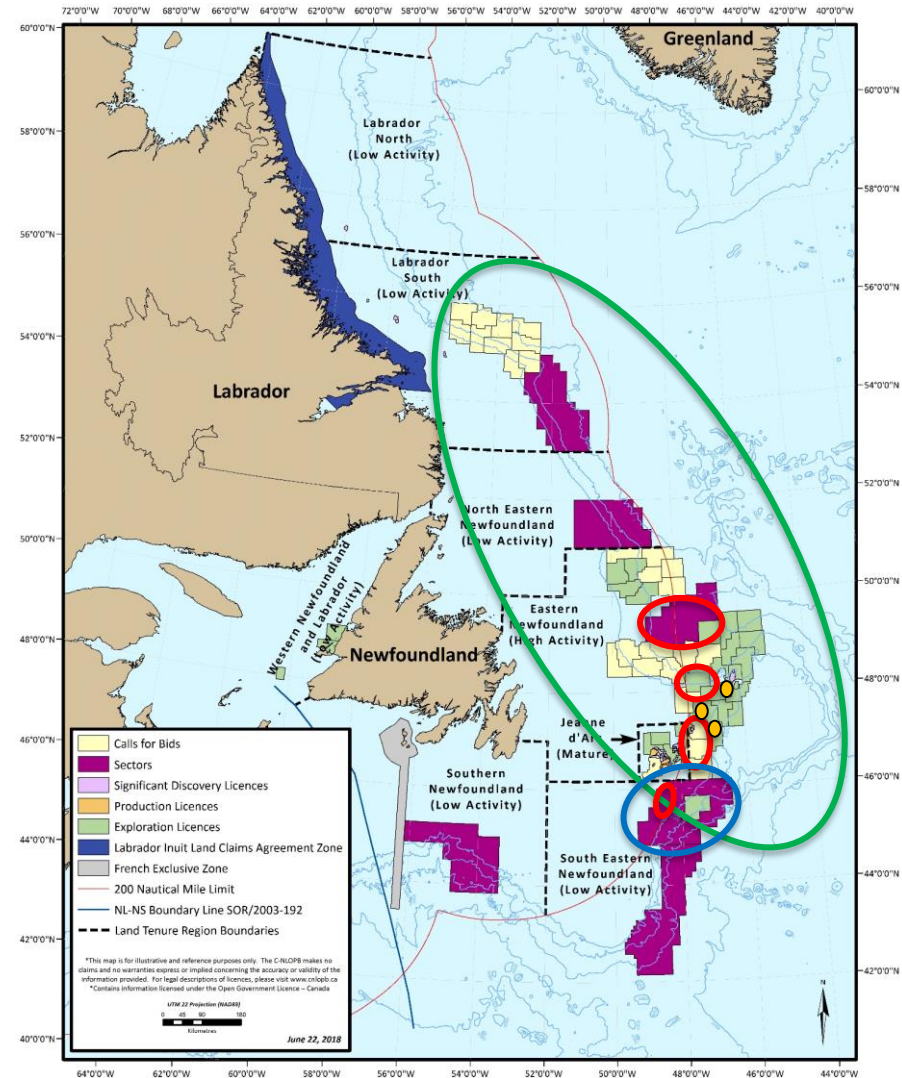
- **Geological Seep Sampling**

- 105 samples and 10 heatflow measurements along a 10,875 km transit

- **Geohazard Surveys**

- Acquisition total of 12,893 line km along with videos

- 5 of 8 Land Tenure Regions were explored



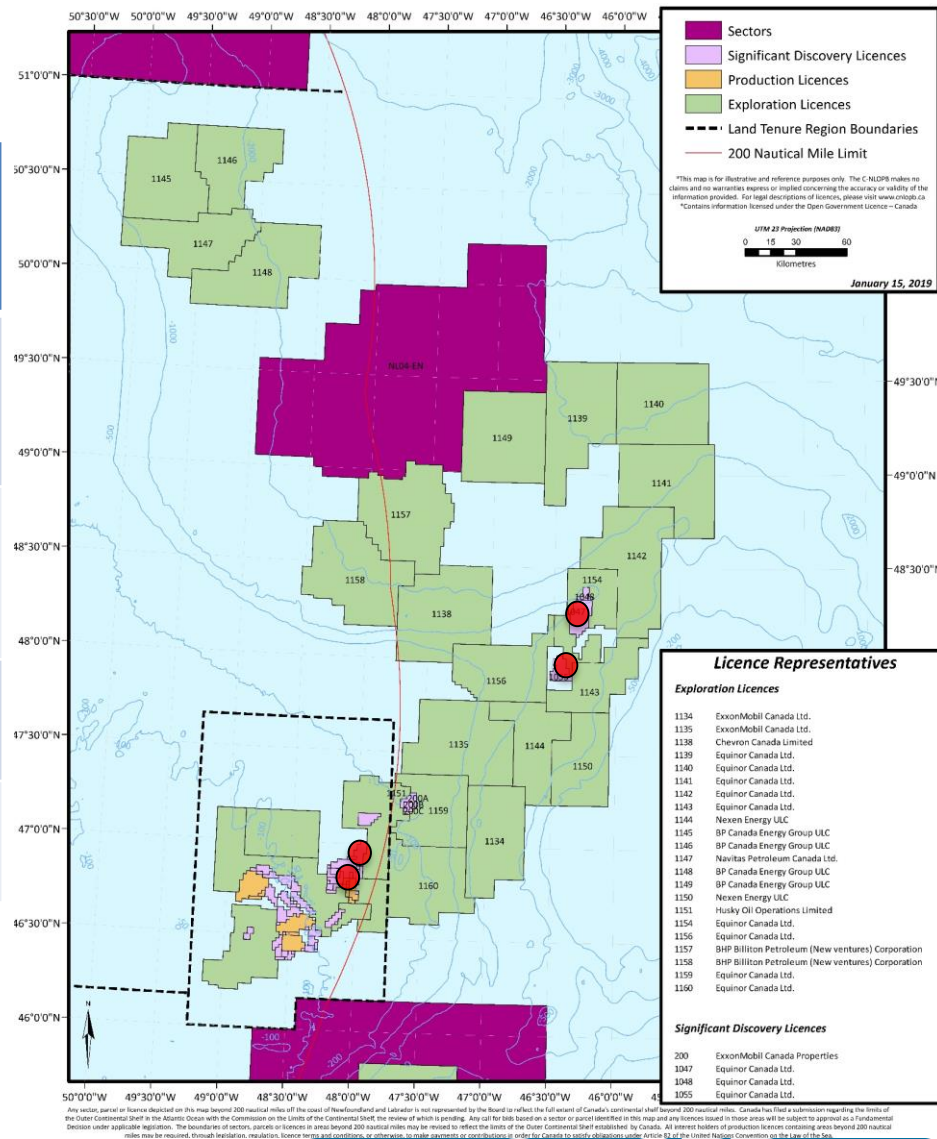
2018 Geological Programs without Fieldwork

Work completed via borrowing samples from the Core Storage and Research Centre (CSRC):

- Applied Petroleum Technology
 - Geochemical Study (JDA)
- BHP Petroleum
 - Geochemical Study (JDA, EN)
- Chemostrat Ltd
 - Chemostratigraphic, XRF, and Reservoir Quality Study (JDA, EN)
- ExxonMobil Canada
 - Trap and Seal Evaluation Study (EN)
 - Petroleum System Study (JDA)
 - Reservoir Quality Study (JDA, EN)
- Future Geoscience Ltd
 - Stratigraphic Study (SEN)
- Husky Energy
 - Petrographic Study (JDA)
 - Petrographic Study (JDA, EN)
- Memorial University of Newfoundland
 - EOR Study (JDA)
 - Reservoir Quality Study (EN)
- Rockwash Prep and Store Ltd
 - Digital Imaging and X-Ray Fluorescence Study (EN, NEN)
- Statoil Canada Ltd
 - Fluid Inclusion Study (EN)
- St. Mary's University
 - Provenance Study (EN)
- University of South Carolina
 - Provenance Study (LN)

Recent Exploration/Delineation Drilling

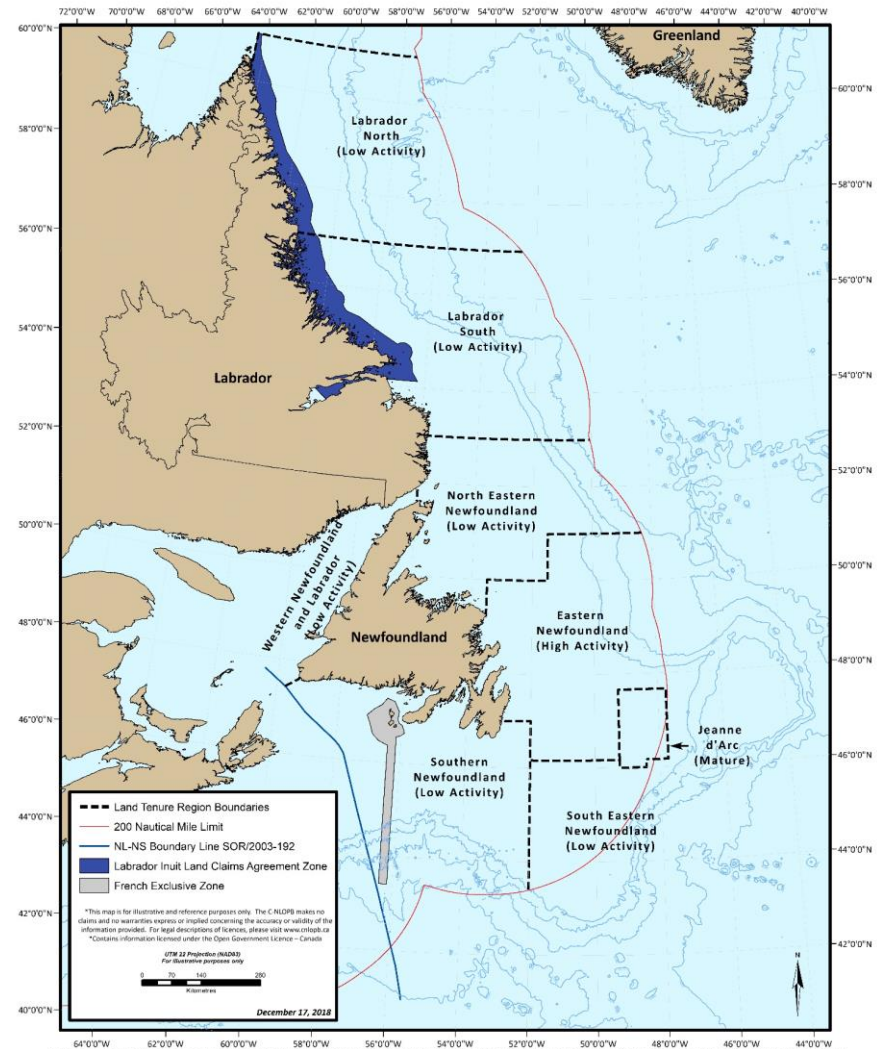
Year	Operator	Licence	Land Tenure Region	Well Classification
2017	Statoil (now Equinor)	SDL 1047	EN	Exploration/Delineation
2017	Statoil (now Equinor)	EL 1143	EN	Exploration
2017	Husky	SDL 1026	JDA	Delineation
2018	Husky	SDL 1028	JDA	Exploration



Review of Scheduled Land Tenure System

Scheduled Land Tenure System

- Introduced in 2013, divides offshore into 8 Land Tenure Regions.
- Improves transparency, predictability and user input.
- Provides additional time for operators to assess hydrocarbon prospectivity.
- Timing of the process is defined by the activity designation of the Region
 - Three activity categories:
 - Low Activity
 - High Activity
 - Mature
 - Three licence timing cycles:
 - 4-year for Low Activity Regions
 - 2-year for High Activity Regions
 - 1-year for Mature Regions

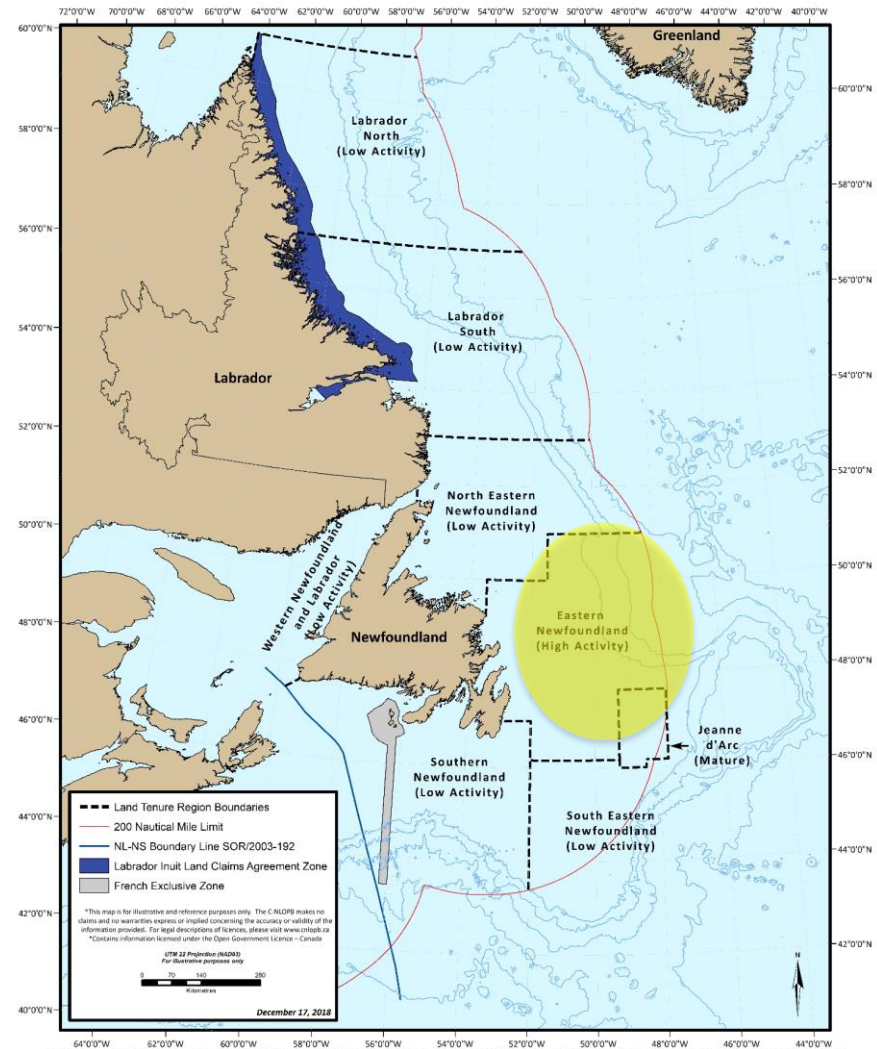


Scheduled Land Tenure System Process

Region is Announced in the Schedule by C-NLOPB

Call for Nominations – Areas of Interest (AOI)

- Request Nominations (AOI) from interested parties.



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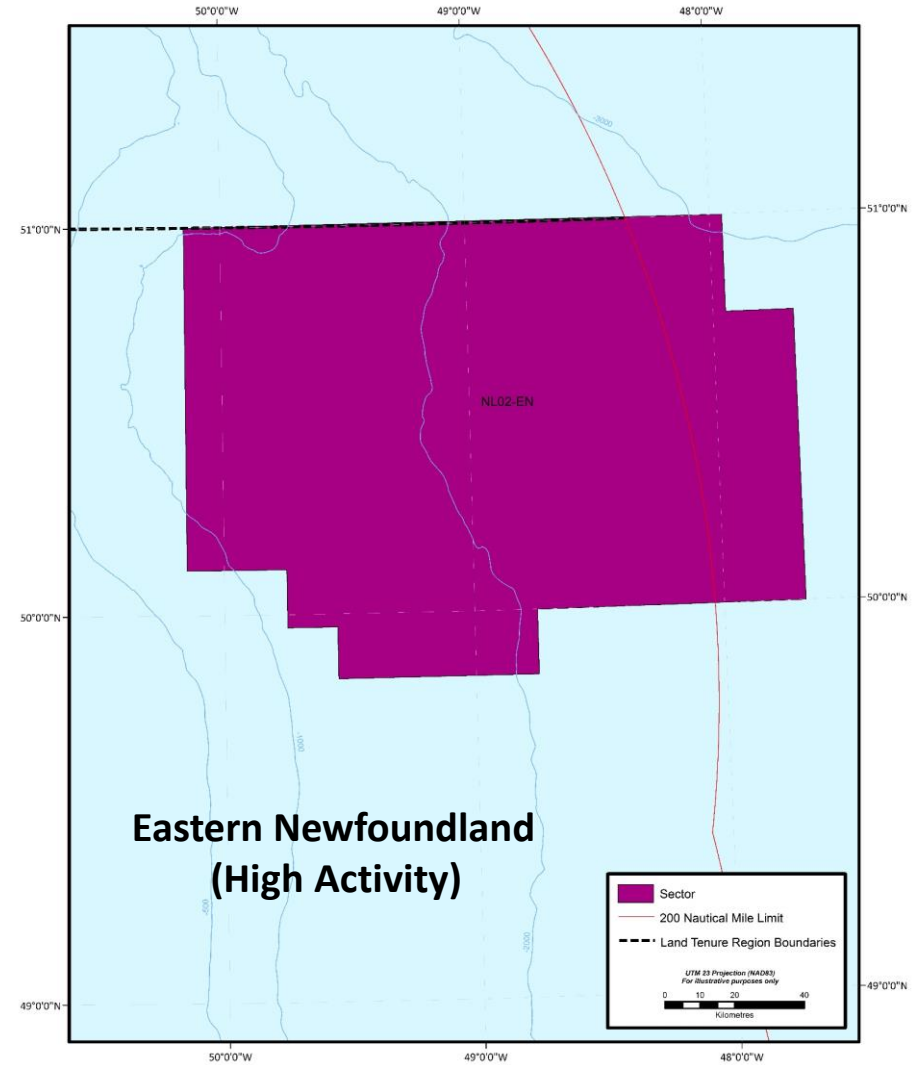
- Request Nominations (AOI) from interested parties.

Sector Identification

- Nominations (AOI) and internal assessments used to define Sectors. Sectors are announced by C-NLOPB.

Call for Nominations - Parcels

- Request Nominations (Parcels) within the Sector.



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Call for Bids

- Nominations (Parcels) and internal assessment used to design Call for Bids Parcels. C-NLOPB opens bid round.



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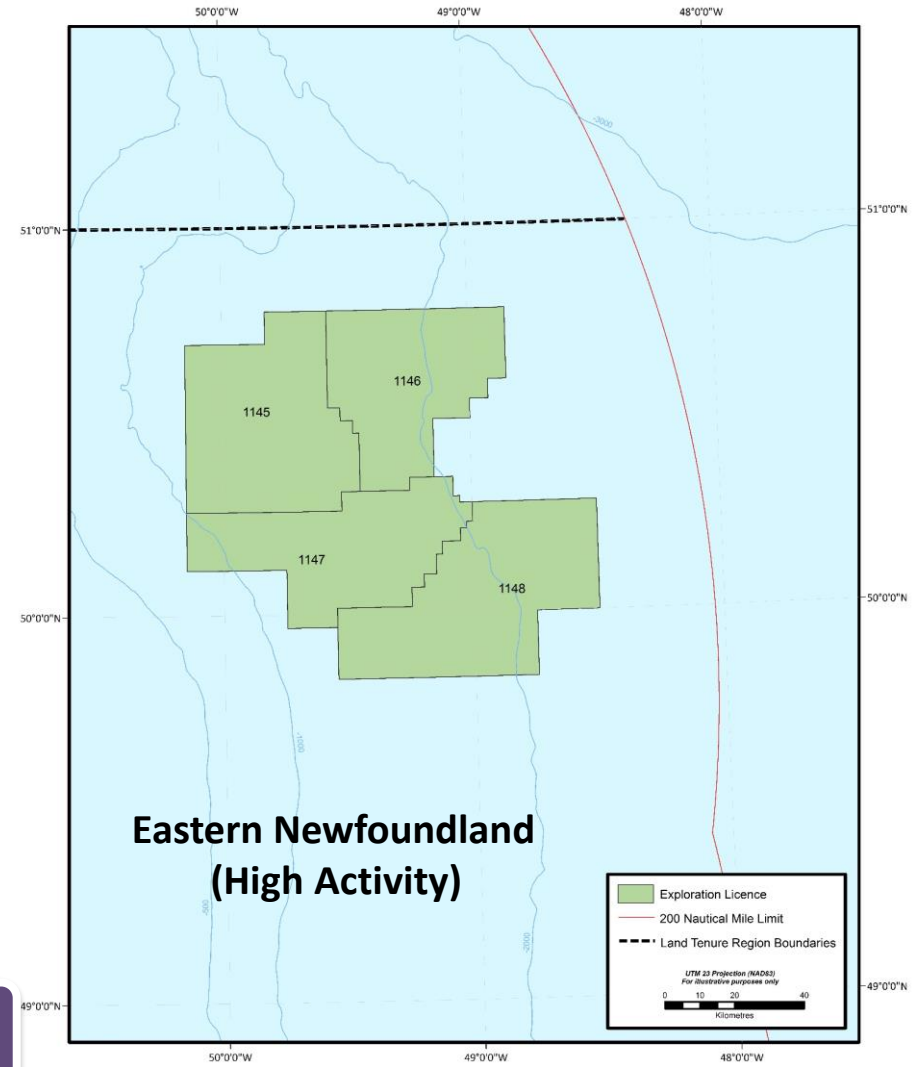
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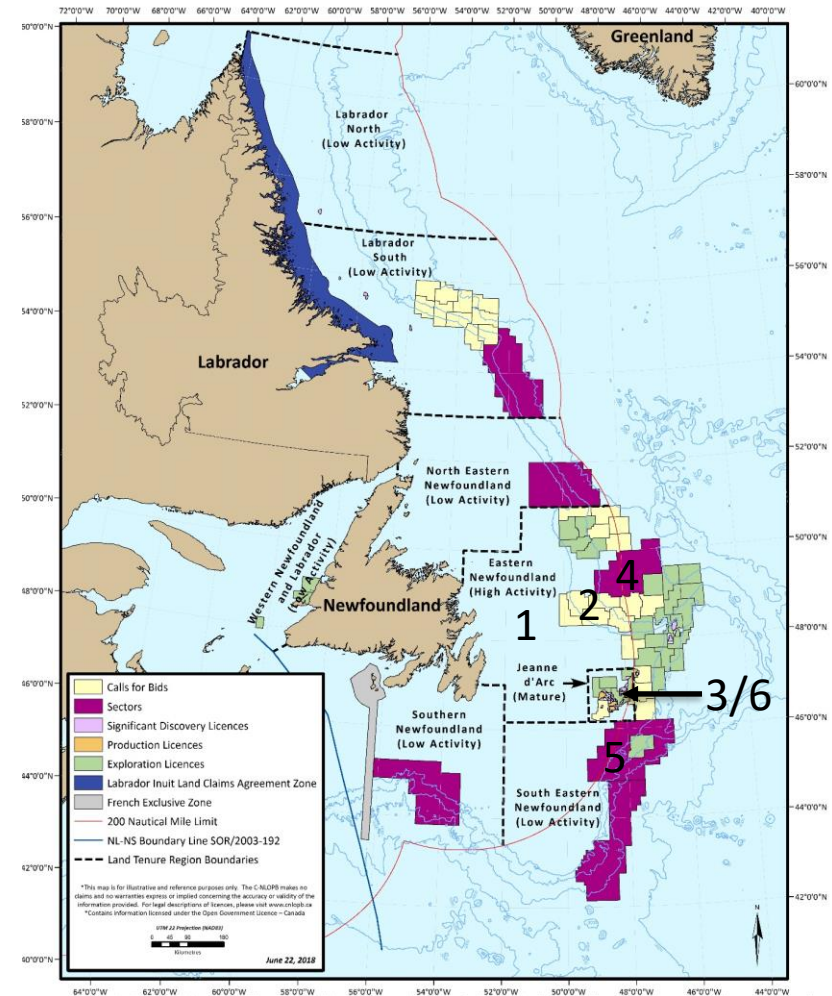
Exploration Licences are Awarded



2018 Land Tenure Activities

2018 Land Tenure Activities

- January
 1. Call for Nominations (AOI) – EN – NL18-CFN01
- April
 2. Open Call for Bids – EN – NL18-CFB01
 3. Open Call for Bids – JDA – NL18-CFB02 & CFB03
- June
 4. Sector Identification (NL04-EN)
- August
 5. Open Call for Nominations (Parcels) – SEN – NL18-CFN02
 6. Open Call for Nominations (Parcels) – JDA – NL18-CFN03
- November
 7. Close of Call for Nominations (Parcels) – SEN – NL18-CFN02
 8. Close of Call for Nominations (Parcels) – JDA – NL18-CFN03*
 9. Close of Call for Bids – EN – NL18-CFB01
 10. Close of Call for Bids – JDA – NL18-CFB02 & CFB03



2018 Call for Bids Results

- **NL18-CFB01 (EN – High Activity)**

- 16 Parcels offered

PARCEL	HECTARES	SUCCESSFUL BIDDERS	SUCCESSFUL BID AMOUNT
Parcel 8	269 799	BHP Billiton Petroleum (New Ventures) Corporation (100%)	\$621,021,200
Parcel 12	273 579	BHP Billiton Petroleum (New Ventures) Corporation (100%)	\$201,021,200
Parcel 14	159 036	Equinor Canada Ltd. (70%) Husky Oil Operations Limited (30%)	\$32,231,981
Parcel 15	253 608	Equinor Canada Ltd. (60%) Suncor Energy Offshore Exploration Partnership (40%)	\$480,000,000

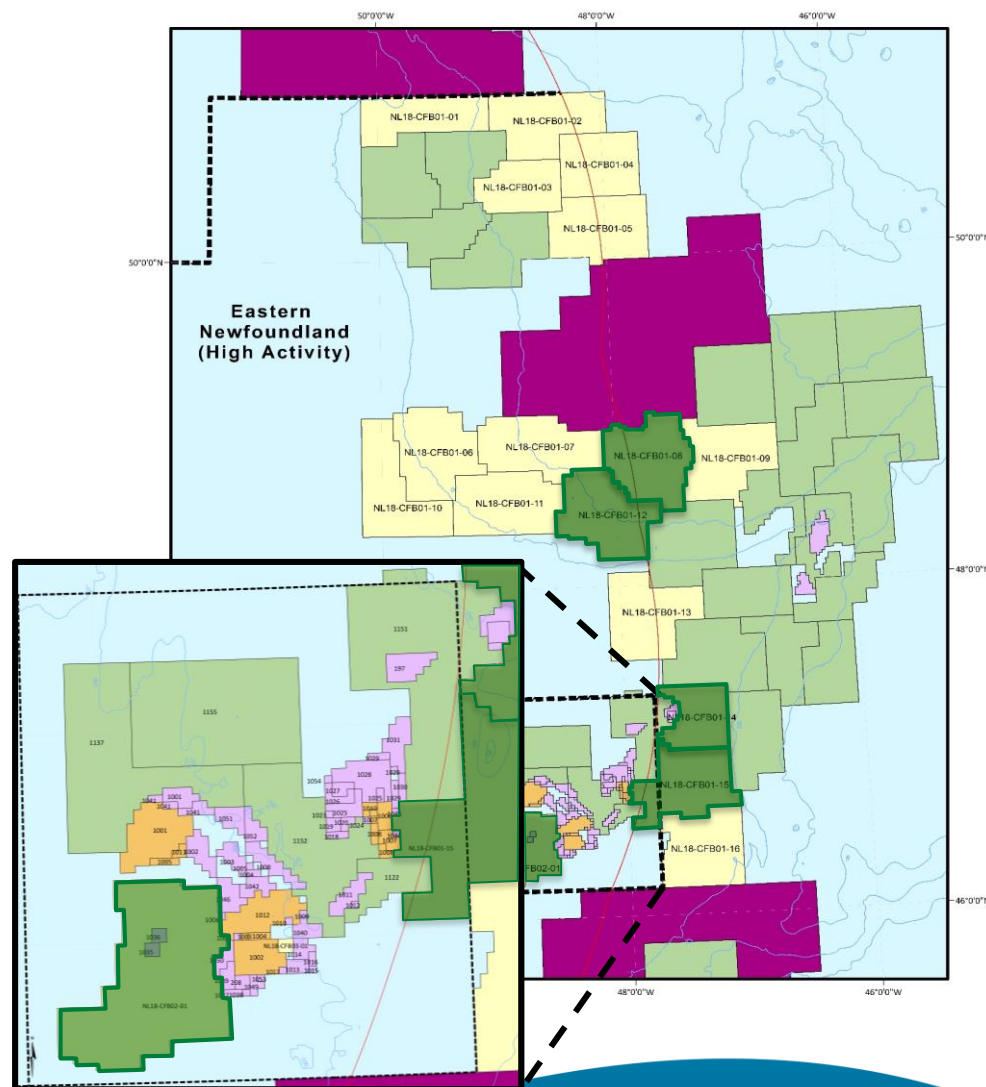
- **NL18-CFB02 (Jeanne d'Arc – Mature)**

- 1 Parcel offered

PARCEL	HECTARES	SUCCESSFUL BIDDERS	SUCCESSFUL BID AMOUNT
Parcel 1	142 448	Suncor Energy Offshore Exploration Partnership (40%) Husky Oil Operations Limited (30%) Equinor Canada Ltd. (30%)	\$51,999,555

- **NL18-CFB03 (Jeanne d'Arc - Mature)**

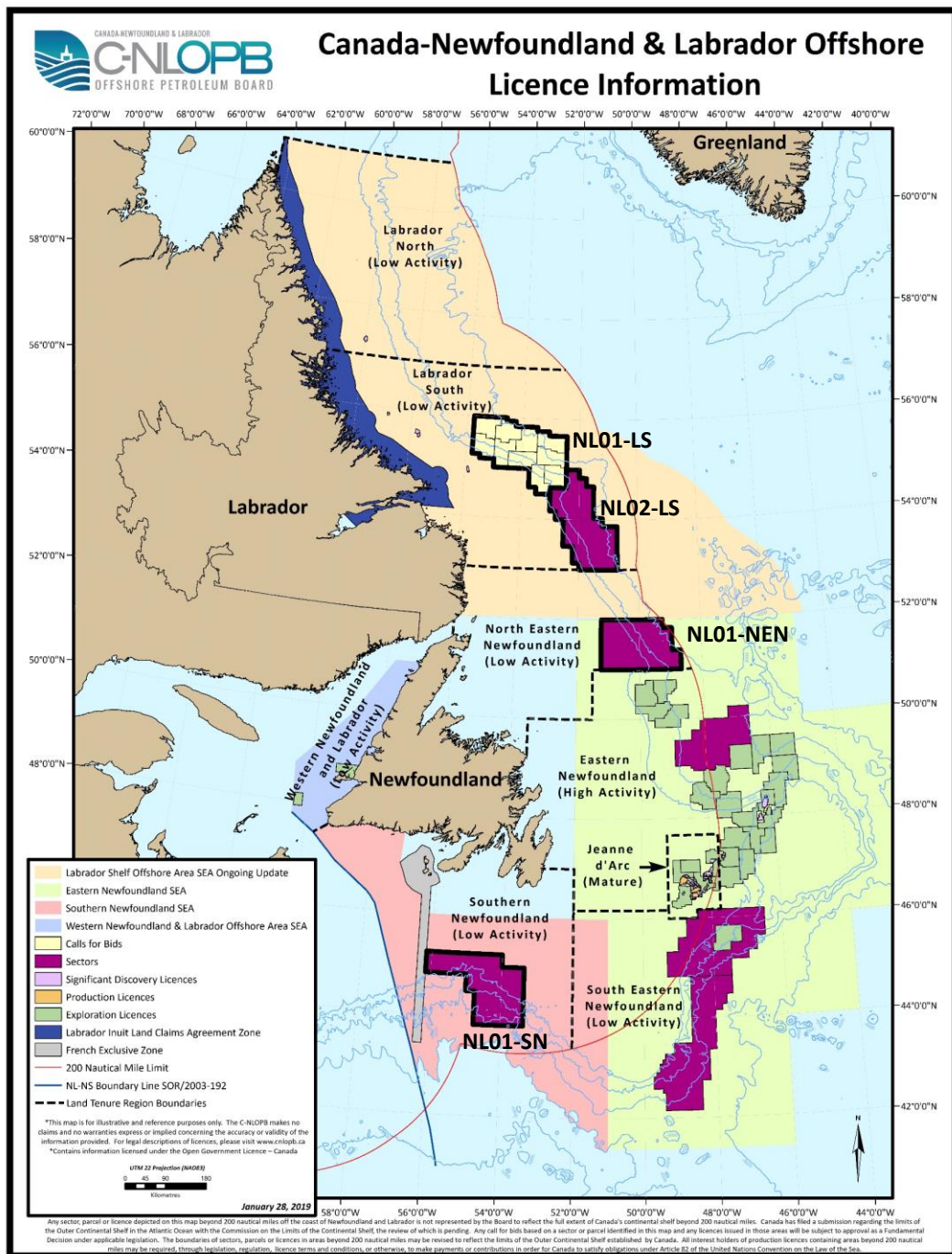
- 1 Production Licence
- No bids submitted



Updates to Scheduled Land Tenure System

Rescheduling of Active Sectors

- Both Sectors in Labrador South are covered by the ongoing Labrador SEA Update.
- Close of Labrador South Sectors was rescheduled to allow for completion of the SEA.
- Sector in North Eastern Newfoundland is covered by Eastern Newfoundland SEA, but strategically, will follow the close of the Labrador South Sectors.
- Sector in Southern Newfoundland is covered by an active SEA, however it is now up for renewal ahead of the scheduled close. The Southern Newfoundland Sector has been rescheduled to allow for completion of the SEA or RA.



Labrador South, North Eastern Newfoundland and Southern Newfoundland – Updated Timing

Year of Call for Bids Close								
Region	2017	2018	2019	2020	2021	2022	2023	2024
Jeanne d'Arc	X	X (2)	X	X	X	X	X	X
Labrador North								
Labrador South	NL01-LS		NL02-LS		NL01-LS		NL02-LS	
North Eastern Newfoundland				NL01-NEN				NL01-NEN
Eastern Newfoundland		X		X		X		X
South Eastern Newfoundland			X		X			
Southern Newfoundland				NL01-SN		NL01-SN		
Western Newfoundland and Labrador								
Total Calls for Bids	1	3	2	3	3	3	2	3

The yellow cells above represent the years that CFB were scheduled to close but were delayed as a result of the ongoing Labrador SEA and Southern Newfoundland SEA. Green cells represent the rescheduled closing dates for the CFB.

Cumulative Parcels

- Scheduled Land Tenure system designed to operate such that any parcels not awarded in a CFB will be reassessed and re-posted in the subsequent CFB for the region in question.
- This re-posting will be supplemental to the lands defined by the nomination processes for that call and will allow for a cumulative increase of lands being available in the Scheduled Land Tenure system over time.
- If a parcel is unawarded, it doesn't necessarily mean that that parcel is permanently unattractive, it simply means that it didn't meet the economic threshold in the year in which it was offered.
- 2019 will see the first closing of a Low Activity Land Tenure Region.
- Need has arisen to provide a means to strategically offer unawarded parcels in Low Activity Regions subsequent rounds.

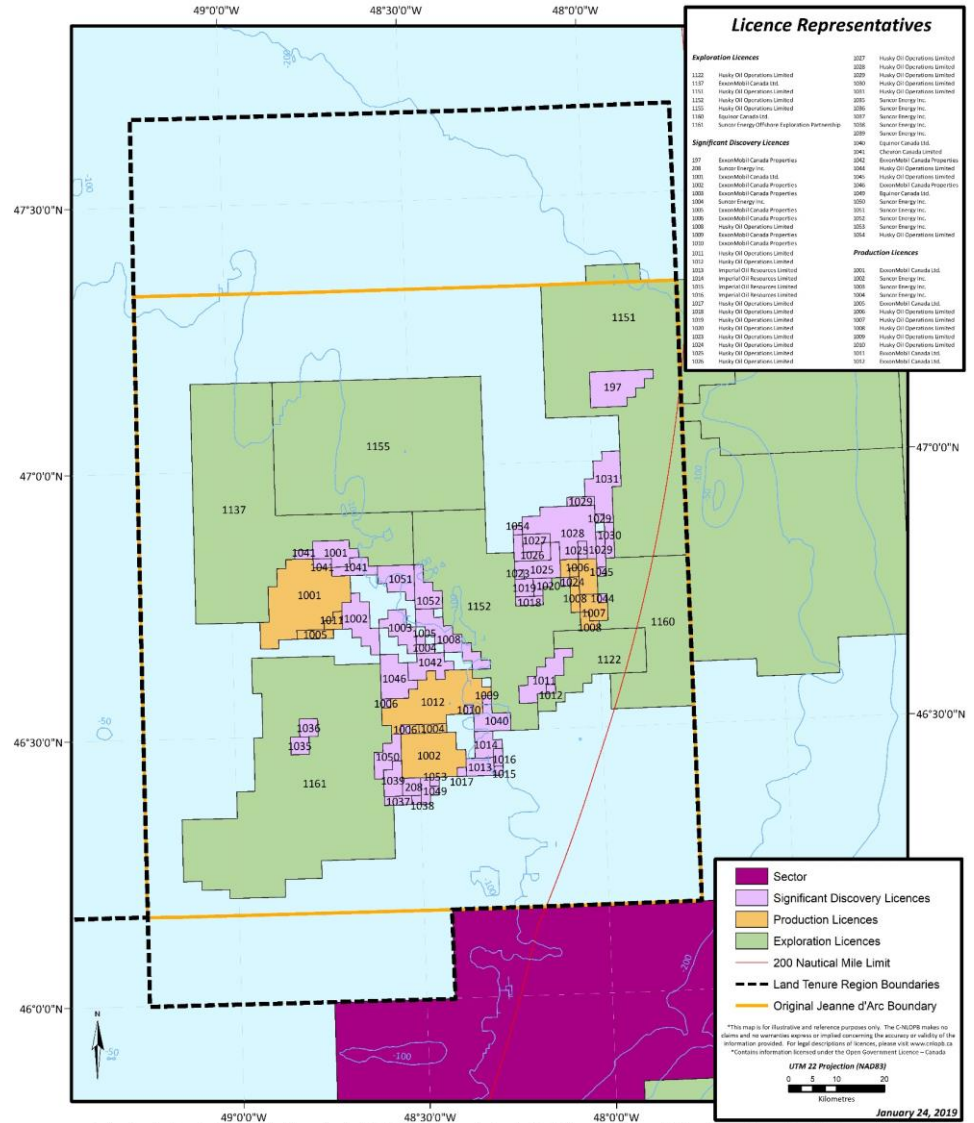
Cumulative Call for Bids Summary

Year of Call for Bids Close – Cumulative Parcels (CP)											
	Region	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	Jeanne d’Arc (Mature)	CP	CP	CP	CP	CP	CP	CP	CP	CP	CP
Northern (Low Activity)	Labrador North										
	Labrador South					CP				CP	
	North Eastern Newfoundland									CP	
	Eastern Newfoundland (High Activity)		CP		CP		CP		CP		CP
Southern (Low Activity)	South Eastern Newfoundland			CP				CP			
	Southern Newfoundland							CP			
	Western Newfoundland and Labrador										

Jeanne d'Arc Boundary and Parcel Design Policy

Jeanne d'Arc Boundary

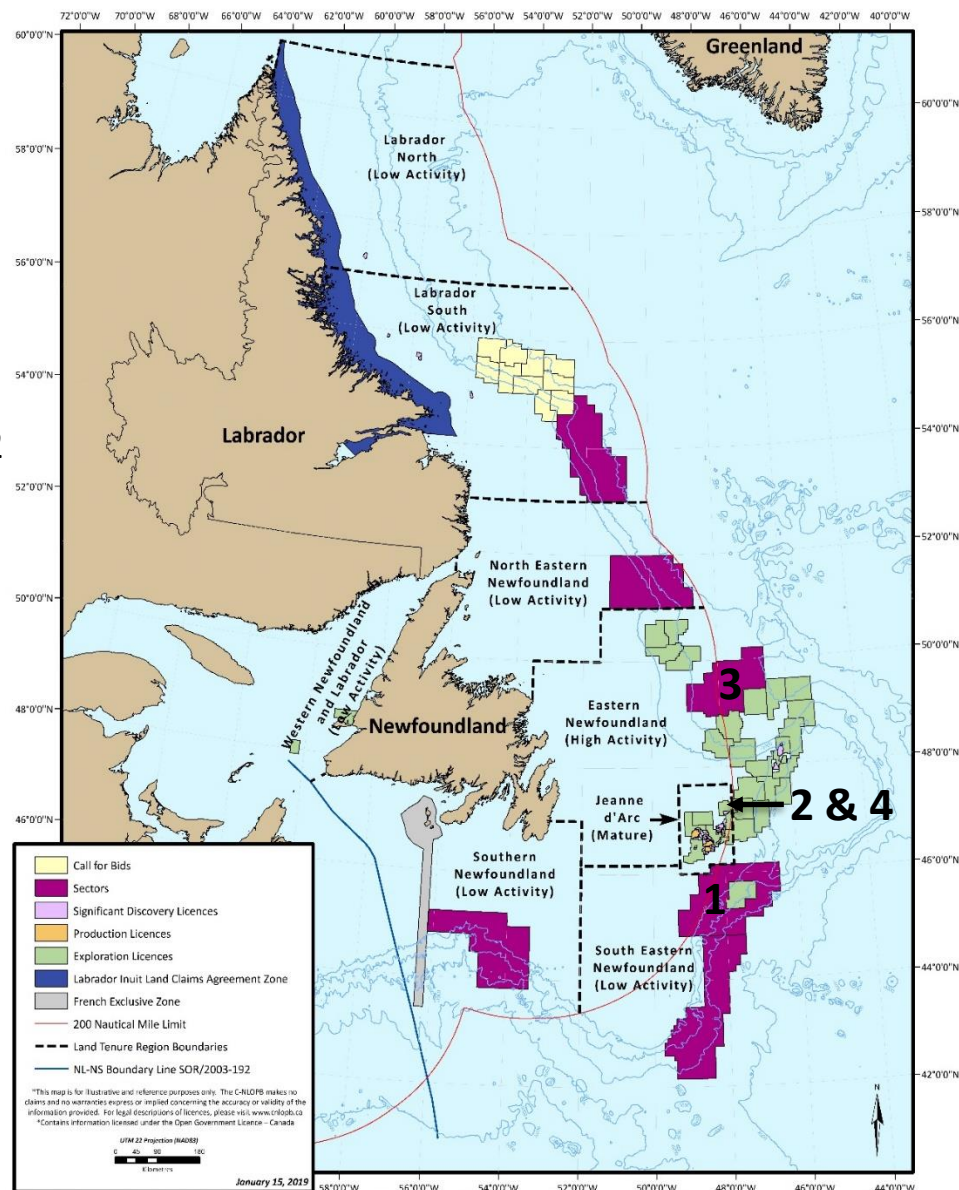
- Since inception of the Scheduled Land Tenure system, there has been a continued licencing of lands within the JDA which has resulted in minimal exploration lands available for active explorers in the Jeanne d'Arc Basin.
- The boundary of the JDA Region initially did not include these lands as they were considered at that time to be in a less mature outer areal extent of the mapped Jeanne d'Arc Basin.
- The northern and southern boundaries of the JDA Region have been extended to capture Jeanne d'Arc Basin prospects.



Upcoming Schedule Land Tenure Activities *2019 and Beyond....*

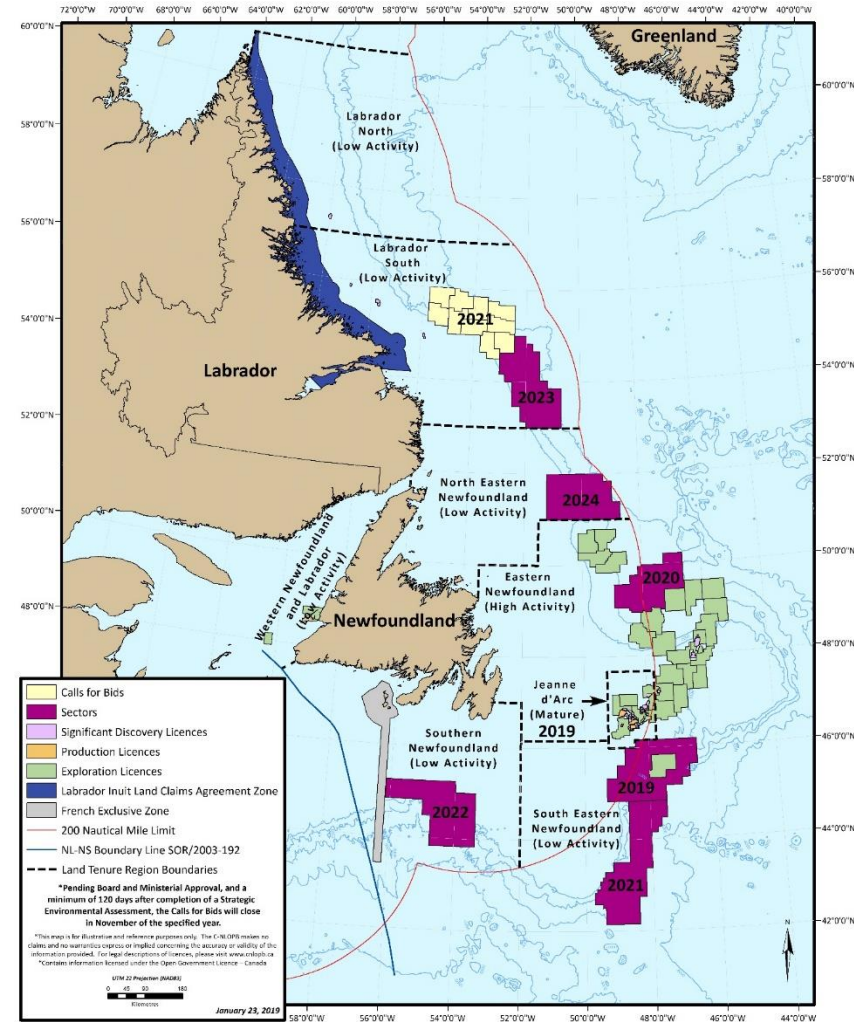
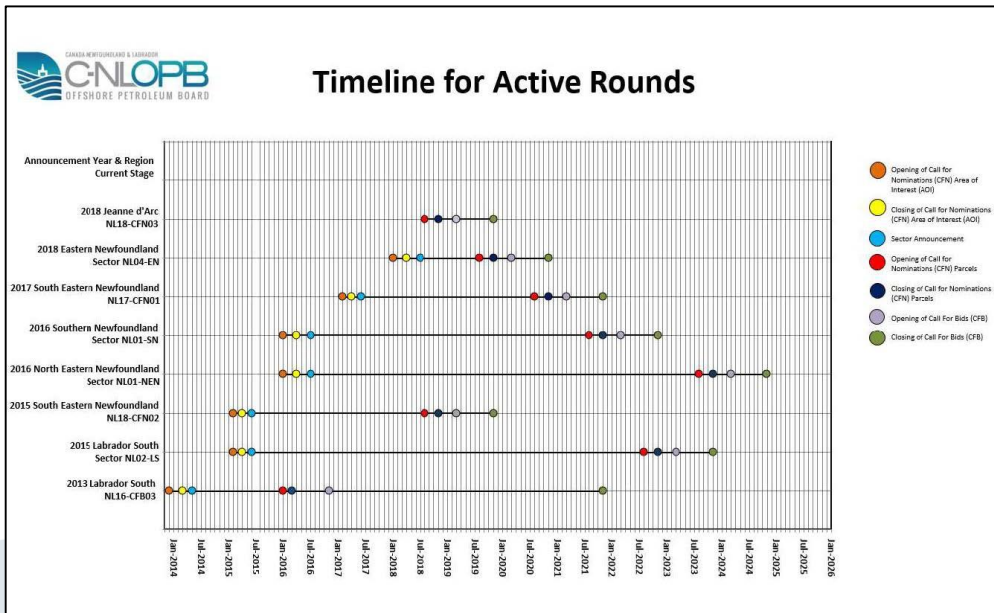
2019 Scheduled Land Tenure Activities

- Call for Bids (Parcels) – SEN – NL19-CFB01
- Call for Bids (Parcels) – JDA – NL19-CFB02
- Call for Nominations (Parcels) – EN – NL19-CFN01
- Call for Nominations (Parcels) – JDA – NL19-CFN02



Timing of Future Calls for Bids

- Timeline and map illustrate future land tenure cycles including Call for Nominations (Area of Interest), Sectors, Call for Nominations (Parcel), Call for Bids and Issuance of Exploration, Significant Discovery and Production Licences



Exploration-Related Initiatives

Frontier and Offshore Regulatory Reform Initiative (FORRI)

- C-NLOPB staff are part of several Technical Working Groups tasked with writing a single Framework Regulation that will replace several existing Regulations
- The new Framework Regulation will both include goal-based and prescriptive Regulations

Core Storage and Research Centre (CSRC)

- Steady increase in number and complexity of geological programs
- Increase in the use of the CSRC
- Reorganization of existing space to increase capacity/functionality
- Third viewing room opened in 2017 to cater to demand



2019 and Beyond

- Cautiously optimistic forecast
- Considerable underexplored acreage
- Continued geoscience activity anticipated
 - 2D and 3D surveys
 - Geological surveys
 - CSEM surveys
 - Multiple operators
 - Multiple regions
- Extensive exploration licencing opportunities as a result of the Scheduled Land Tenure System
- Substantial exploration work commitments to be met over next 6 years - approx. \$2 billion





Thank You

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