

Department of Mines and Energy
Government of Newfoundland and Labrador



OFFSHORE NEWFOUNDLAND
AND LABRADOR
CALL FOR BIDS

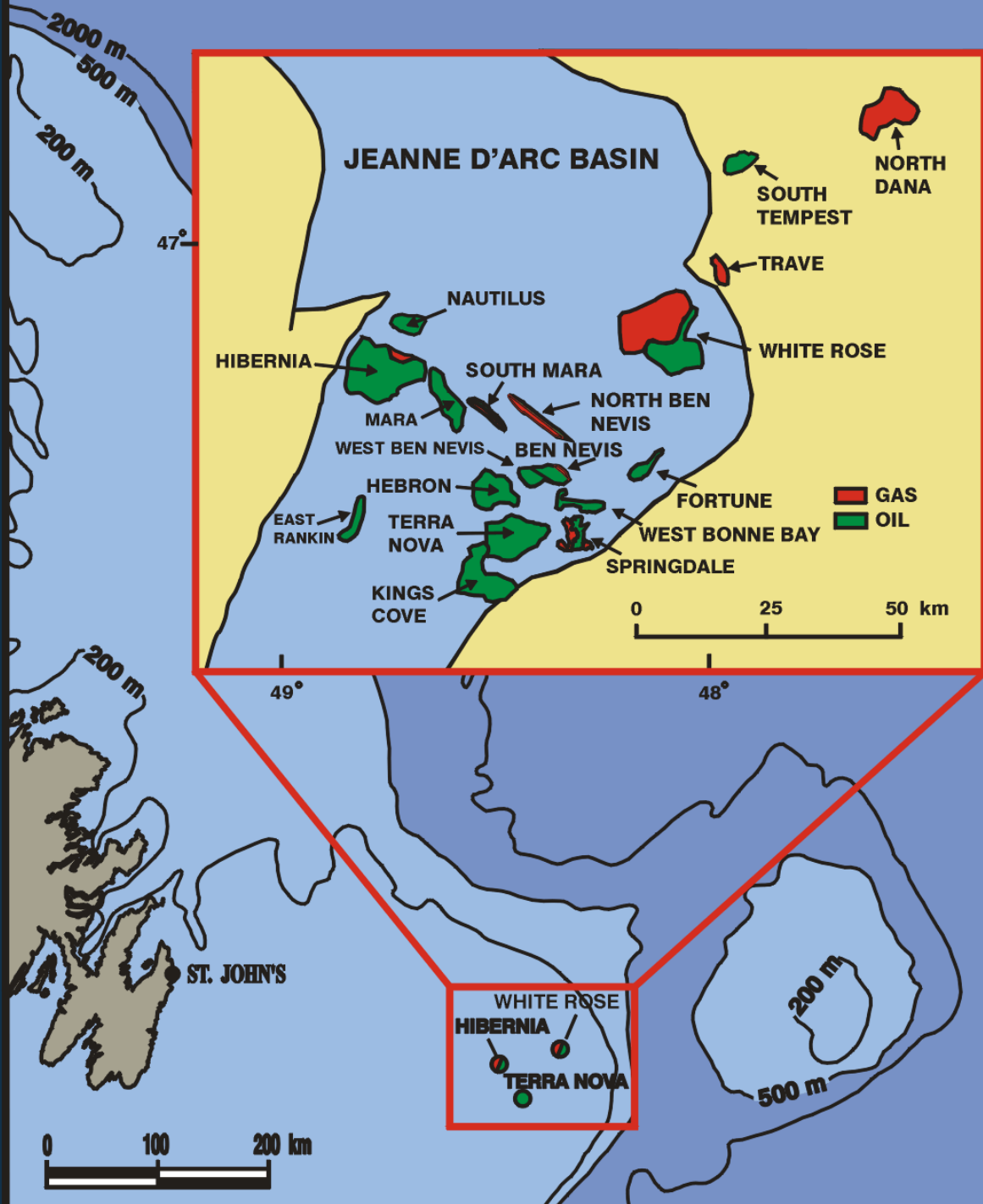
And
Overview of
Newfoundland and Labrador
Offshore Exploration
and Development



GOVERNMENT OF
NEWFOUNDLAND
AND LABRADOR

Department of
Mines and Energy

SIGNIFICANT DISCOVERIES OFFSHORE GRAND BANKS



NOTE: For illustrative purposes only
After: C-NOPB

OFFSHORE NEWFOUNDLAND AND LABRADOR

FOREWORD

The purpose of this report is to provide information on offshore petroleum exploration and development opportunities in the Province of Newfoundland. General information is provided on the overall business climate, petroleum related infrastructure and geology, along with specific information on 10 land parcels being offered in a Call for Bids closing November 17, 1999.

TABLE OF CONTENTS

<i>Introduction</i>	2
<i>Section 1 - Strategic Location</i>	4
<i>Section 2 - Industrial Infrastructure : A Brief Introduction</i>	6
<i>Section 3 - Geological Framework</i>	10
<i>Section 4 - Request For Bids Parcels</i>	18
<i>Section 5 - How To Make A Bid</i>	29
<i>Section 6 - Fiscal Regimes and Taxation</i>	30
<i>Section 7 - Related Web Links</i>	32
<i>Section 8 - Bibliography, Endnotes and Acknowledgements</i>	33
<i>Appendix A - Released Geological and Geophysical Reports</i>	34

INTRODUCTION



**Figure 2.4
Hibernia Gravity
Based Structure (GBS)**

Hibernia production will increase to more than 180,000 bbls/day in the coming months

Mobil has recently upgraded its Hibernia reserve estimate to 750 million barrels recoverable.

The C-NOPB estimates that an additional 111 million barrels of NGL can be recovered.

The East Coast of Canada, including offshore Nova Scotia and offshore Newfoundland and Labrador, has recently come to prominence as a major new territory for petroleum exploration and development.

The Hibernia field, in 80 metres of water on the Grand Banks of Newfoundland, began production with a gravity based structure in 1997, and is currently producing about 140,000 barrels of oil per day. Production is expected to increase to more than 180,000 barrels per day in the coming months as development drilling continues.

The Terra Nova field, located 35-km southeast of Hibernia, will be brought onstream next year using a floating production system that is expected to produce more than 115,000 barrels of oil per day at startup.

Other large fields are currently being delineated offshore Newfoundland, while exploration for new fields is ongoing. To date, 125 exploration wells, 29 delineation wells and 20 development wells have been drilled and resulted in the discovery of 2 billion barrels of recoverable crude and 8 trillion cubic feet of natural gas. The international petroleum industry, along with local companies and research institutions, have success-



Terra Nova Floating Production Storage and Offloading Facility

fully adapted technologies developed in the North Sea, Gulf of Mexico and elsewhere to meet the challenges of the Northwest

Terra Nova is expected to produce 115,000 bbls/day by December 2000.

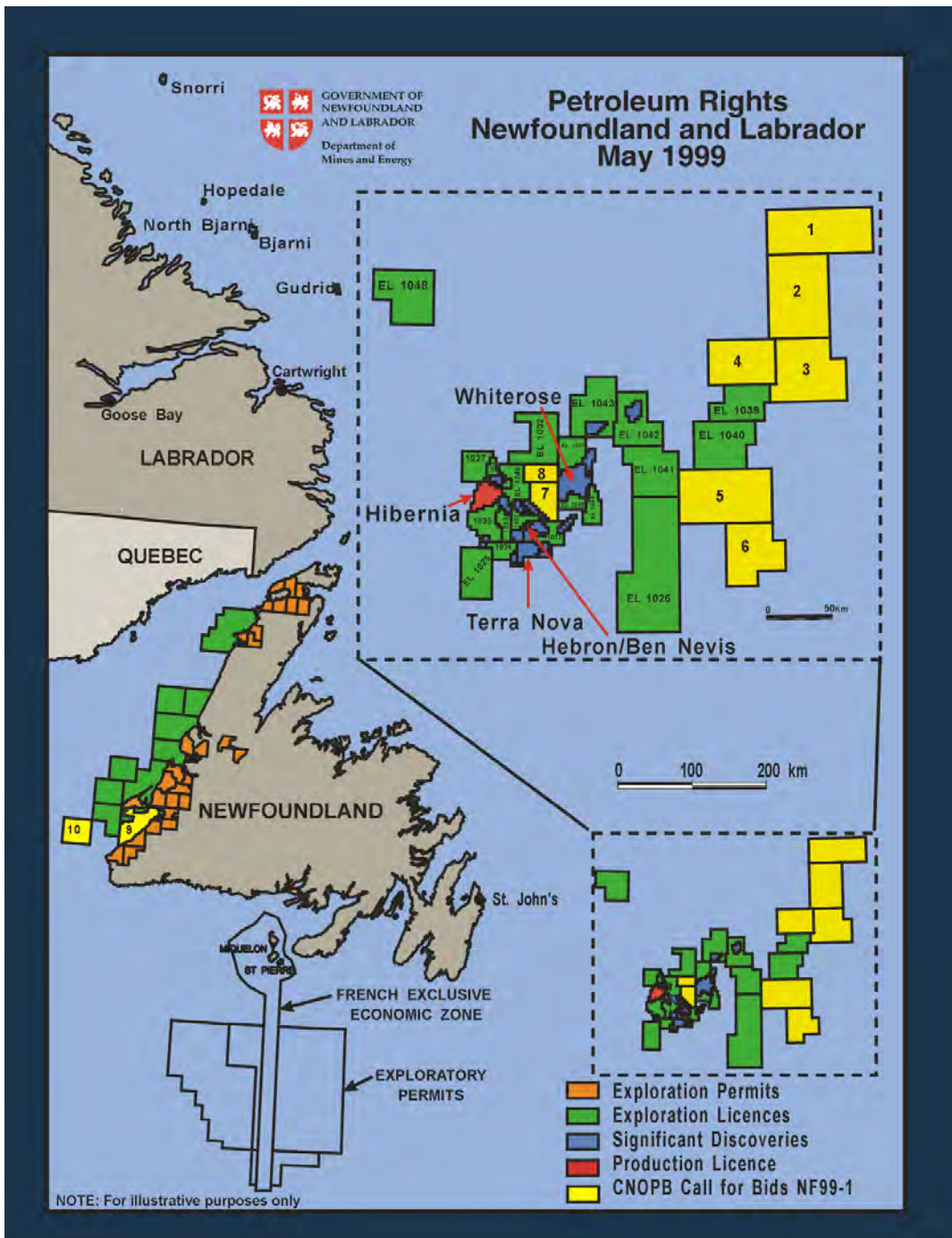
Atlantic environment, in a manner that allows for safe and profitable access to one of the great petroleum fron-

tiers on the planet. Finding costs for the Grand banks are less than US \$1.00 ¹ and extraction costs for the Terra Nova field are estimated at US\$ 7.50 based on a reserve of 370 million barrels ², although a more recent estimate by Husky Oil puts the Terra Nova reserve at 580 million barrels. More detail on the discovered resources and geological framework is given in Section 3.



Hibernia Production System Components

INTRODUCTION



Newfoundland Petroleum Rights

Ten parcels of land totaling 1.3 million hectares are offered in the Call for Bids NF 99-1 that closes November 17, 1999.

Section 1

Whatever your markets, you can easily access them from Newfoundland and Labrador. Our trading patterns with Europe and North America have developed modern and extensive air, land and water infrastructure.

STRATEGIC LOCATION

In its unique position as the easternmost land mass of the North American continent, the Province of Newfoundland has held a strategic position throughout its 500 year history of occupation by its predominantly English and Irish ancestored inhabitants. With its rich fishing grounds and location at the gateway to North America, the area was coveted by the European powers and ultimately became the first installment in the British Empire. The importance of Newfoundland and Labrador's location was recognized repeatedly in the twentieth century with the establishment of major American and Canadian military bases. Today, as a province of Canada, Newfoundland continues to capitalize on its location as it expands its economy beyond the traditional industries into the high tech world of offshore petroleum exploration and development.

Figure 1.1

Approximate flying times from Newfoundland

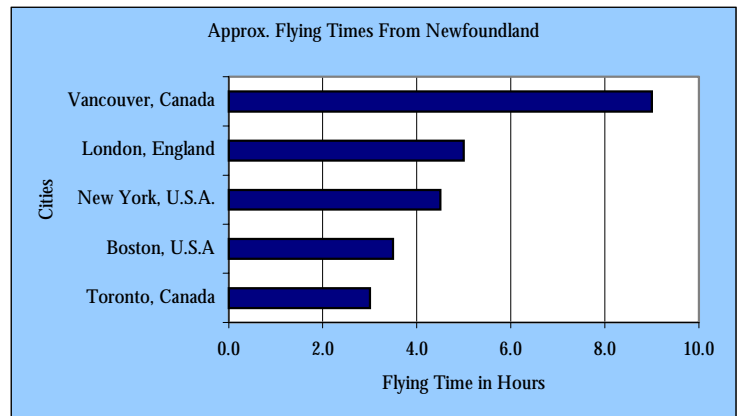


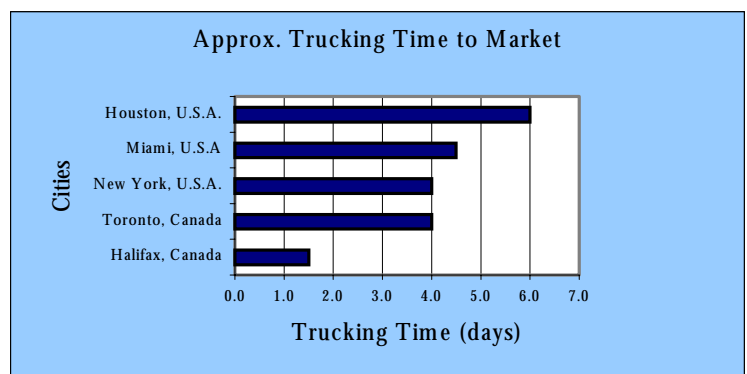
Figure 1.2

Approximate marine shipping days from Newfoundland



Figure 1.3

Approximate trucking days from Newfoundland



STRATEGIC LOCATION

Figure 1.4



WHY EXPLORE IN NEWFOUNDLAND?

- ⇒ Large undrilled structures in proven areas
- ⇒ Proximal to major markets
- ⇒ High production rates and recovery factors
- ⇒ High quality sweet crude
- ⇒ Stable political climate
- ⇒ Competitive royalty regime

The Hibernia discovery well was the sixtieth to be drilled offshore Newfoundland and Labrador. Since that discovery an average of 30 million barrels have been found per exploration well.

The finding costs for the Grand Banks are less than US \$1.00 per barrel.

Section 2

Newfoundland and Labrador continues to expand its industrial infrastructure to meet the needs of the petroleum industry.

INDUSTRIAL INFRASTRUCTURE A BRIEF INTRODUCTION

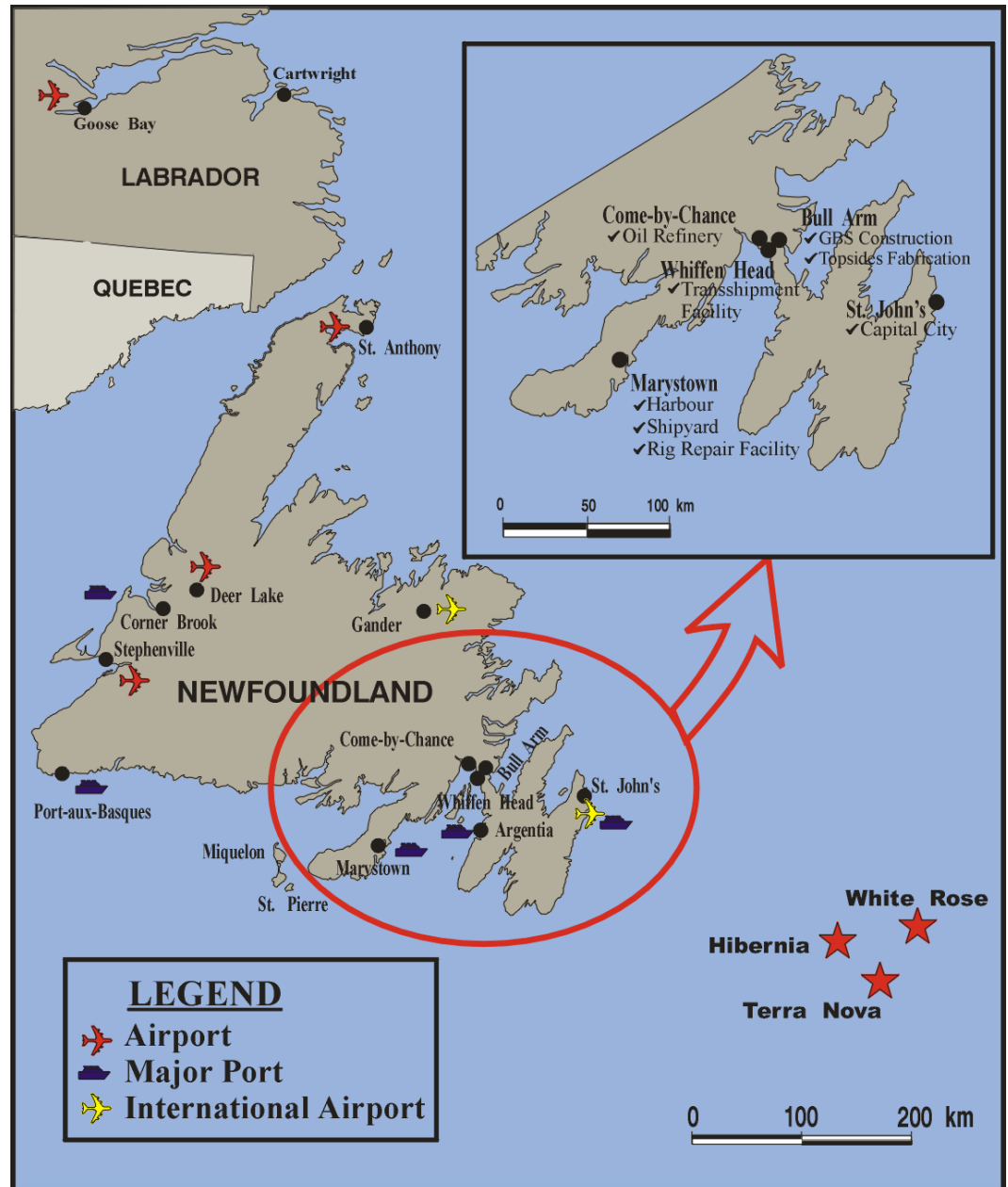


Figure 2.1
Industrial Infrastructure Map of Newfoundland and Labrador

INDUSTRIAL INFRASTRUCTURE A BRIEF INTRODUCTION

St. John's and Surrounding Areas

Figure 2.2
St. John's
Waterfront



According to a 1997 KPMG study, St. John's is the most cost-effective city to do business of 42 cities in 7 countries.

Population of 174,051 (1996 Census)

- Supply base for support services to the offshore oil and gas industry
- Helibase that provides passenger handling facilities, aviation fuel, pre-operational technical support, first response personnel and equipment, and airport terminal and maintenance/repair facilities.
- Subsea fabrication facilities for fabrication of subsea templates and manifold systems.
- Services such as directional drilling, cementing, well completion, electrical wireline, perforating and pumping, reservoir management and data acquisition companies.
- According to a 1997 KPMG study, St. John's is the most cost-effective city to do business of 42 cities in 7 countries.
- The St. John's metropolitan area offers a variety of cost-effective industrial and office space. Prime industrial space is located in fully serviced industrial parks and you'll find Class A office space in downtown towers.
- Major administrative, research and training facilities, including:
 - Memorial University
 - College of the North Atlantic
 - Centre for Cold Ocean Resources Engineering
 - Institute for Marine Dynamics
 - Marine Institute



Figure 2.3
Institute for Marine
Dynamics

INFRASTRUCTURE



Figure 2.4
Hibernia Rig tow out

Bull Arm

Figure 2.5
Bull Arm Construction Site



Bull Arm was the fabrication and construction site for the 1.2 million tonne offshore oil drilling and production platform for the Hibernia oil field. The \$470 million site is currently being used to fabricate topsides modules for the Terra Nova FPSO vessel.

From the Whiffen Head Storage facility Grand Banks crude has ready access to the North American Market

Whiffen Head

Figure 2.6
Newfoundland Transshipment Terminal Berth



The Newfoundland Transshipment Terminal facility has 3 tanks each with 500,000 barrels of storage capacity. It is currently constructing additional storage tanks for Terra Nova production and has the capacity to expand as offshore production levels increase.

INFRASTRUCTURE

Come-By-Chance

Figure 2.7
Come-By-Chance Oil Refinery



Located at the head of Placentia Bay, the Come-By-Chance refinery has a rated capacity of 105,000 barrels of oil per day and crude and product storage for over 7 million barrels. In addition, the deep-water facility is capable of receiving ultra large crude carriers in excess of 300,000 dwt directly at the dock.

Marystown

Figure 2.8
Friede Goldman Facility at Marystown



The Friede Goldman shipyard is capable of completing a wide variety of construction, fabrication and engineering requirements for offshore, shipbuilding, ship repair and general industrial work. The facility can also accommodate refitting, conversion, upgrading and maintenance as well as repairs to marine systems and oil rigs.

In cities, towns and communities across Newfoundland, numerous companies have been established to meet the needs of offshore projects. Access to ancillary support, education infrastructure and a diversified labour force make this province an attractive and competitive site for your business.

Section 3

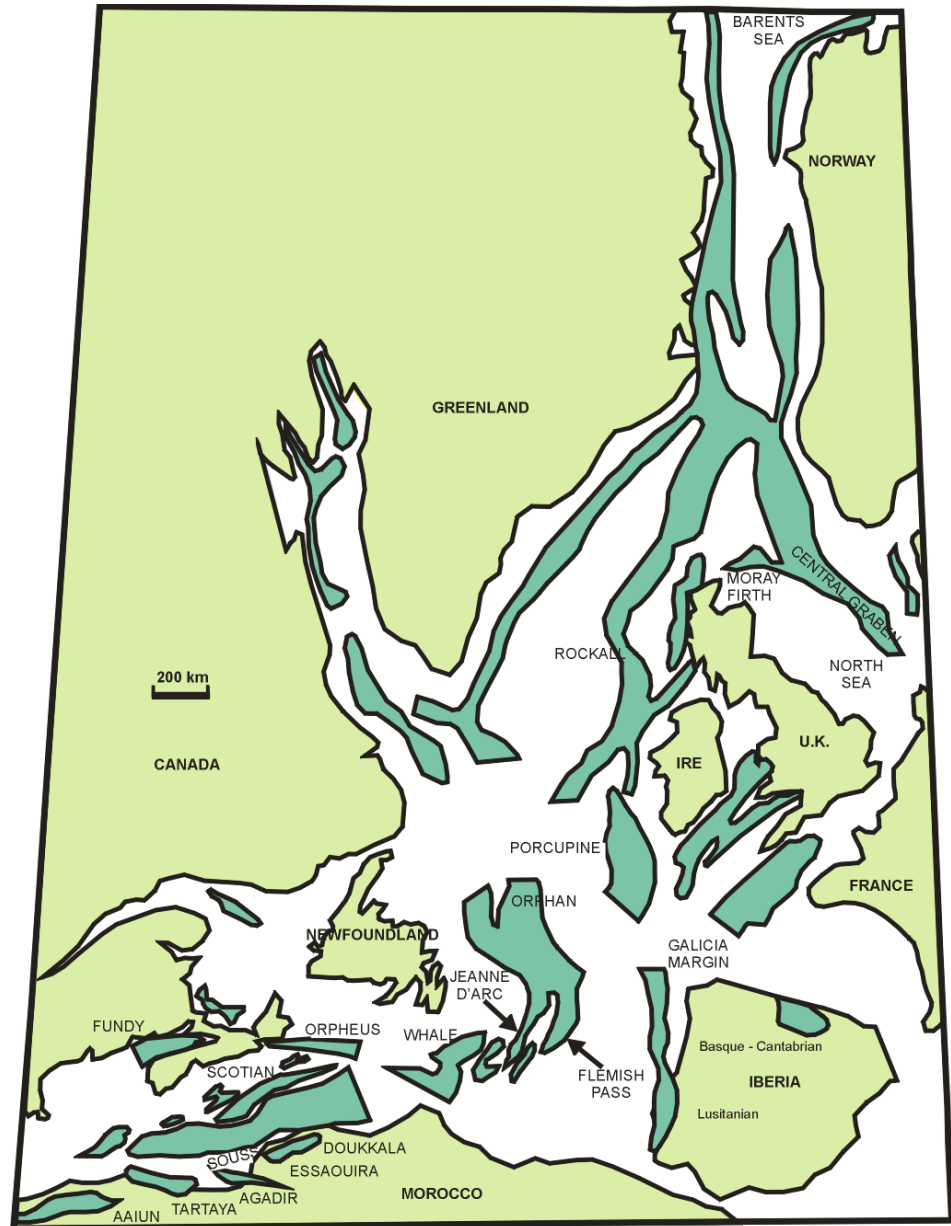
GEOLOGICAL FRAMEWORK

Mesozoic Basins of the North Atlantic

More than 26 billion barrels of oil and 63 tcf of natural gas have been produced from the Mesozoic basins of the North Atlantic. The primary producing reservoirs thus far have been the Lower Cretaceous, Jurassic and Tertiary aged sandstones of the British and Norwegian North Sea, but in recent months major production levels have been achieved from the Lower Cretaceous reservoirs on the west side of the Atlantic - at the Hibernia field. Although the distinction of first oil production in the Northwest Atlantic goes to the Cohasset/Panuke field offshore Nova Scotia, which has produced about 43 million barrels since it was brought on stream in 1992, Hibernia is the first giant field to be developed and is currently producing at 140,000 bopd from only 5 production wells.

Figure 3.1 illustrates the parallel ancestry of the North Sea and offshore Newfoundland and Labrador basins, both of which were formed by the separation of Europe and Northwest Africa from North America by the continental drift that started in the Triassic/Early Jurassic.

To date more than 2600 exploration wells have been drilled in the North Sea and have proven resources of more than 55 billion barrels of oil and 200 tcf of gas³. Only 125 exploration wells have been drilled Offshore Newfoundland and Labrador, by which some 2 billion barrels of liquids and 8 tcf of natural gas have been discovered⁴. Studies of undiscovered oil resources in the Newfoundland and Labrador offshore area have focused primarily on the Jeanne d'Arc and East Newfoundland basins and have resulted in estimates ranging from 6 to 12 billion barrels recoverable. One confidential industry source estimates an additional recoverable resource of 2 billion barrels in the Flemish Pass basin. The undiscovered gas resource for the offshore area is projected to be about 60 trillion cubic feet⁵.



Pre-drift rift basins of the North Atlantic margins.

After: A. J. Tankard

Figure 3.1

GEOLOGICAL FRAMEWORK



Figure 3.2

Exploration is occurring in the Mesozoic Basin of the Grand Banks and Scotian Shelf as well as in the Paleozoic Basins of Western Newfoundland and throughout Eastern Canada. Lands are being offered in the Mesozoic and Paleozoic Basins in Call for Bids NF 99-1.

GEOLOGICAL FRAMEWORK

Jeanne d' Arc Basin

Figures 3.3 and 3.4 illustrate the structural style and primary reservoirs of the Jeanne d'Arc and the Flemish Pass basins. To date the key reservoirs are the Lower Cretaceous Ben Nevis/Avalon and Hibernia sandstones and the Late Jurassic Jeanne d'Arc sandstones. As in the North Sea the source rock is a regional Kimmeridgian shale with total organic content in the neighbourhood of 4.5% and a hydrogen index in the range of five hundred to seven hundred, indicating a highly oil prone source rock ⁶.

The Jeanne d'Arc basin is home to all of the large oil fields discovered to date, including Hibernia, Terra Nova, Hebron and White Rose. Based on current developments (Hibernia and Terra Nova), this basin will be producing about 300,000 barrels per day by December of 2000, and if delineation success continues as expected at White Rose and Hebron, could be producing more than 500,000 bopd by 2004. In the meantime detailed seismic continues to refine the geologic picture and identify new targets, exploratory drilling continues, and recent land sales have recorded record bids. Two parcels in this years Request for Bids are located in the Jeanne d'Arc Basin (Figure 3.4).

The Hibernia B-16-1 well set a Canadian daily flow rate record in 1998 when it tested at 56,000 barrels of oil per day from the Hibernia Sandstone Reservoir.

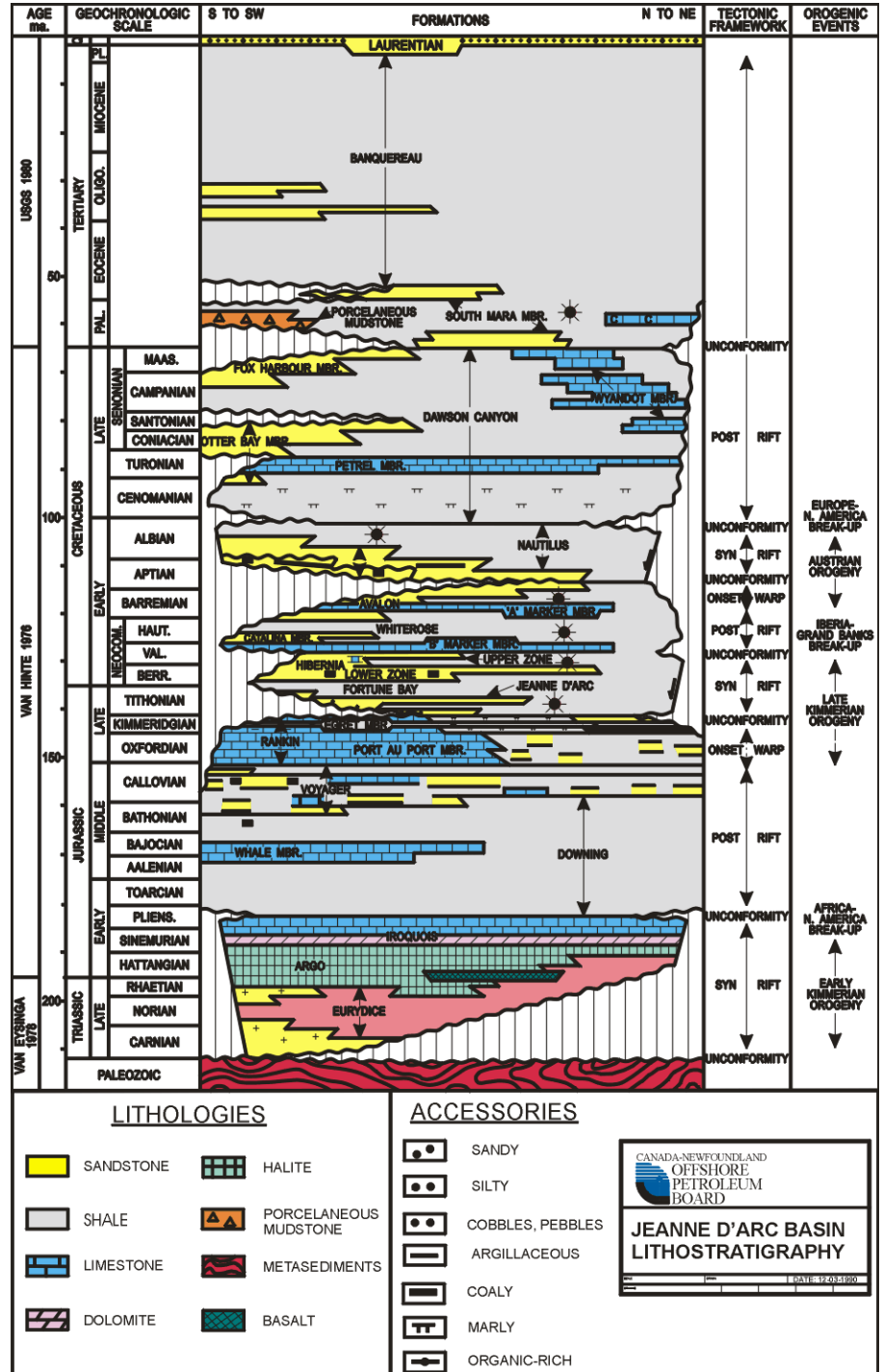


Figure 3.3

The primary reservoirs of the Jeanne d'Arc basin are the Lower Cretaceous Avalon/Ben Nevis and Hibernia Sands, and the Late Jurassic Jeanne d'Arc Sands. The key source rock is the Kimmeridgian aged Egret Member

GEOLOGICAL FRAMEWORK

Jeanne d' Arc Basin and Flemish Pass Basin

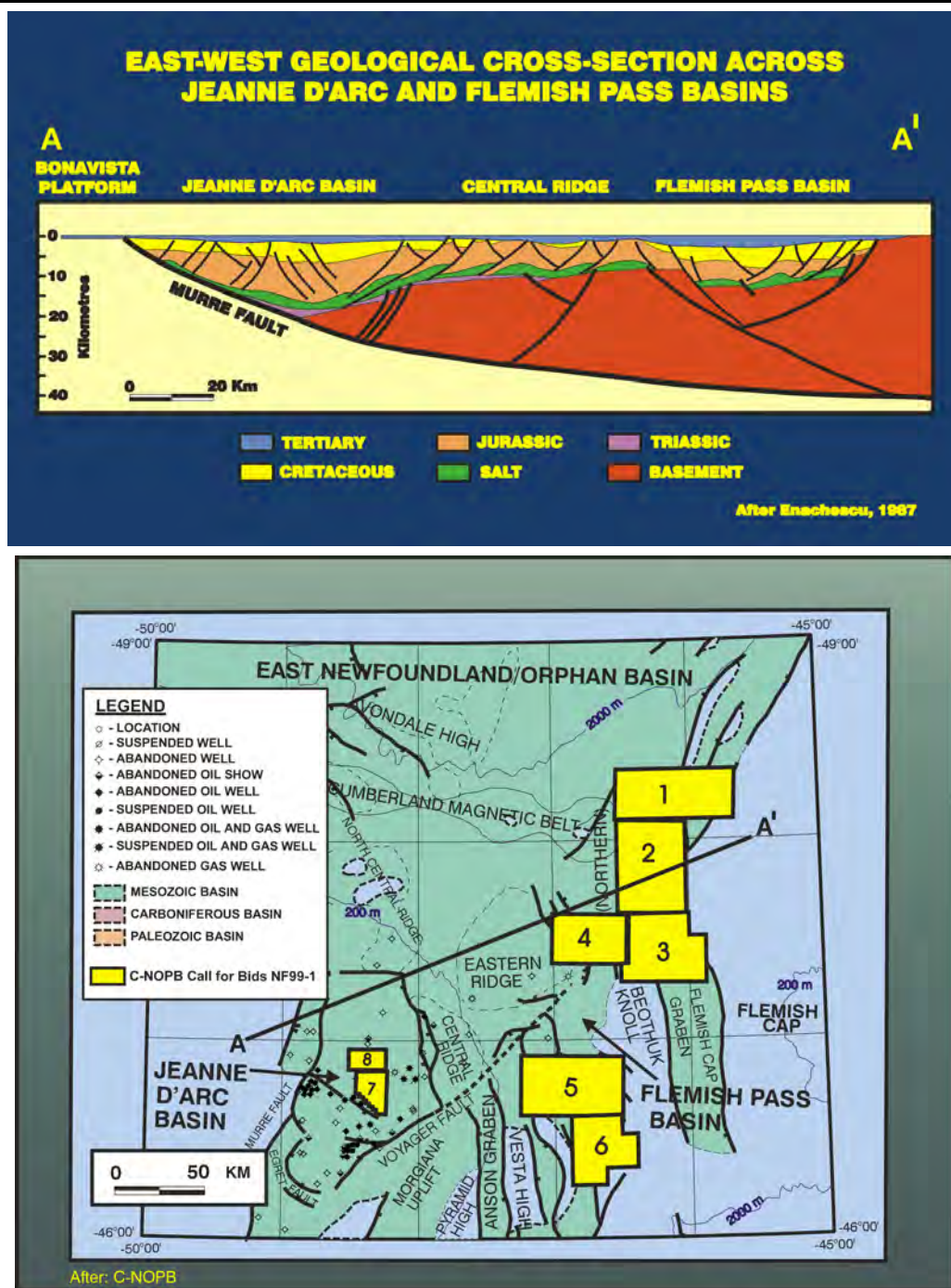


Figure 3.4

The Jeanne d'Arc Basin contains all of the large oil fields discovered to date. Only three wells have been drilled in the Flemish Pass Basin.

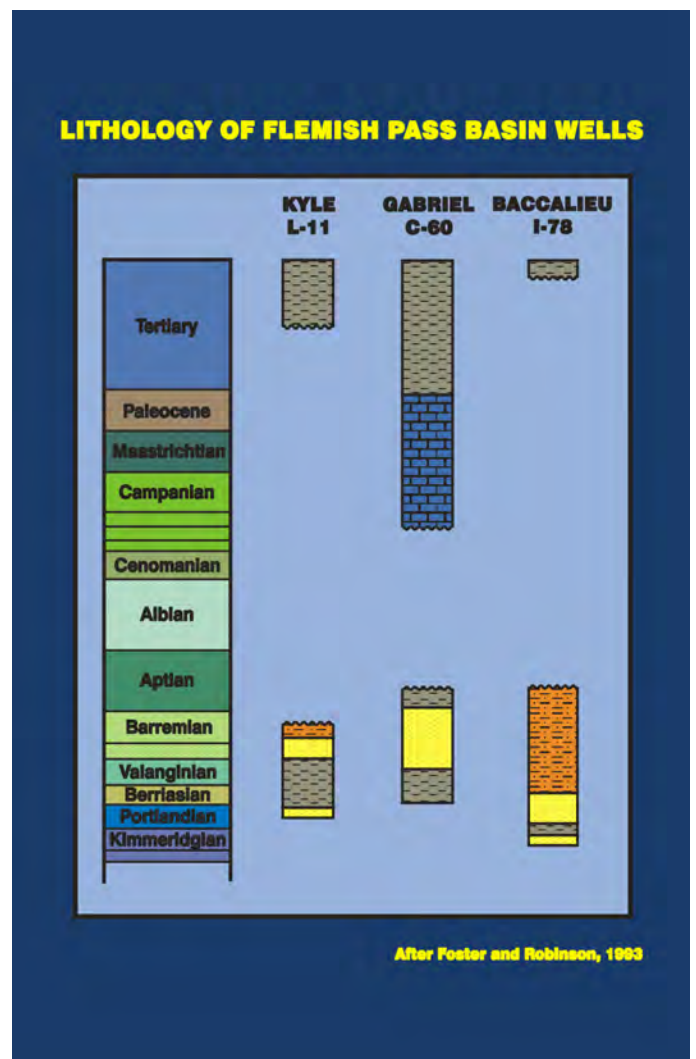
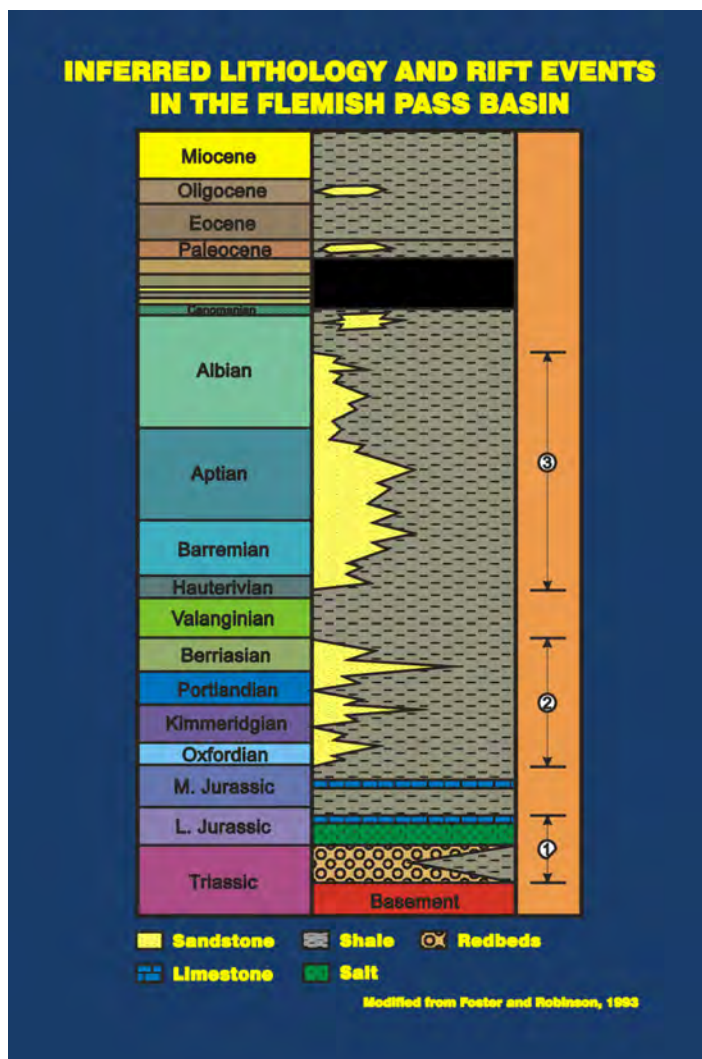
GEOLOGICAL FRAMEWORK

FLEMISH PASS BASIN

Although only three wells have been drilled in the Flemish Pass Basin and no commercial discovery has been made, the similarity in the basin's evolution to the Jeanne d'Arc has led industry experts to estimate the presence of 2 billion recoverable barrels of oil. Seismic data shows the same style of faulting as the Jeanne d'Arc and the presence of large undrilled features throughout the basin. The limited drilling has not yet penetrated the complete sediment package but has confirmed the presence of sandstone reservoirs, including reservoirs of equivalent age to the prolific Jeanne d'Arc and Hibernia sands of the Jeanne d'Arc basin, as well as the presence of the Kimmeridgian aged source rock that has endowed the Jeanne d'Arc and the North Sea basins. The primary reason for the paucity of drilling in the Flemish Pass is that water depths range from 300 to 1100 metres as compared to depths less than 100 metre throughout the Jeanne d'Arc. But as evidenced by the results of the most recent land sale such water depths are no longer considered a major impediment to modern drilling and development technologies. Indeed the 1998 Call for Bids saw a total of CAN\$ 127 million bid for 2 blocks in the Flemish Pass Basin.

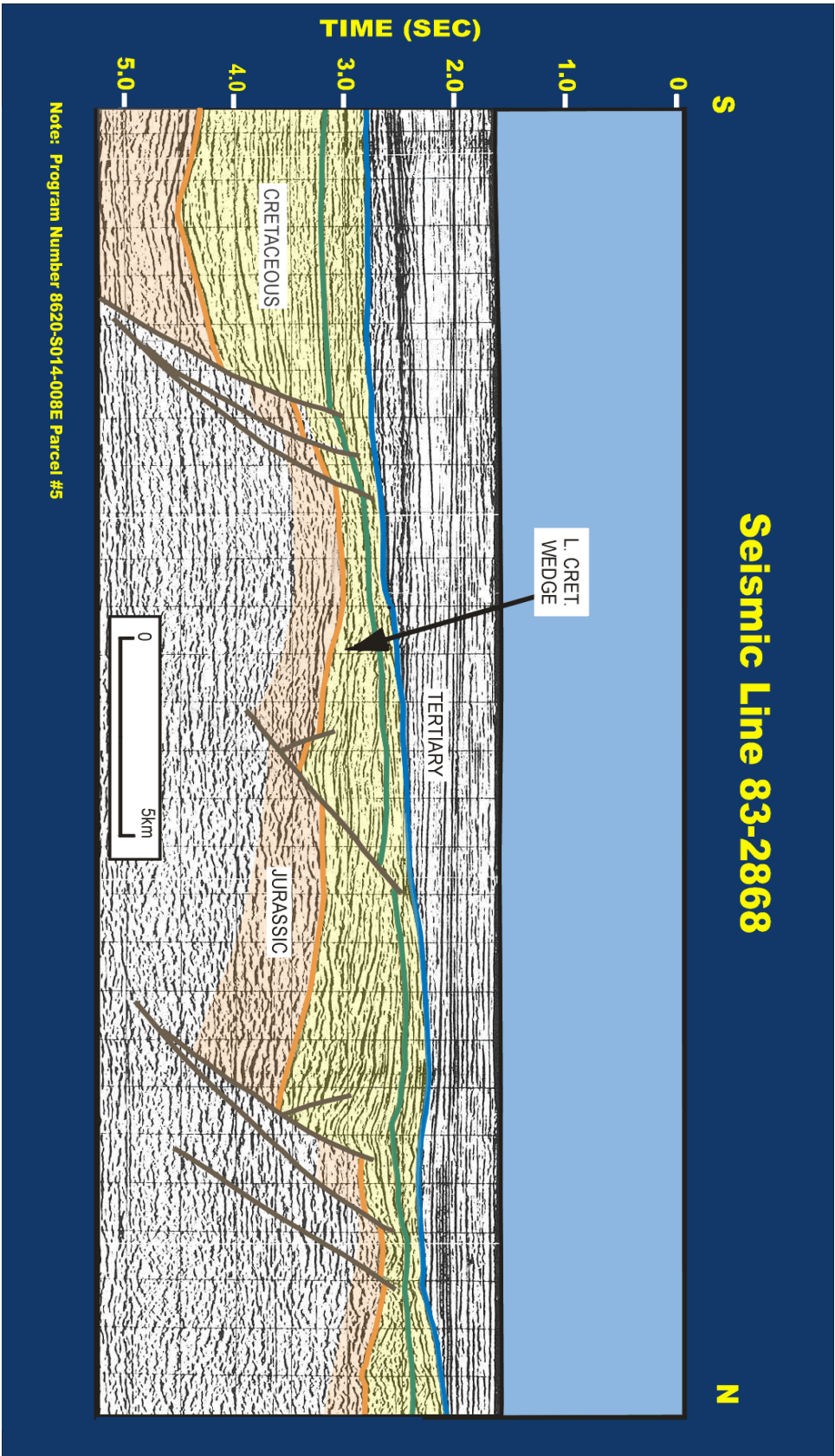
Figure 3.5

Figure 3.6



FLEMISH PASS BASIN

Figure 3.7



Seismic line 83-2868 in the southern part of the Flemish Pass Basin, shows a thick Mesozoic section and fault related trapping mechanisms similar to the Jeanne d'Arc Basin. The very limited drilling in the basin has also demonstrated the presence of reservoir and source rock.

GEOLOGICAL FRAMEWORK

Western Newfoundland

The presence of petroleum in Western Newfoundland has been recognized in surface seeps and shallow drilling since the late 1800's. The first modern exploration effort - using seismic to select a well location - occurred only in the past five years and resulted in the Hunt/Pan Canadian Port au Port #1 discovery well which encountered four zones of good reservoir quality in the Cambro-Ordovician platform. The two lower zones were wet, but , the upper two zones flowed oil at rates of 1528 and 1742 b/d respectively. Although follow up drilling at four other locations failed to make additional discoveries, the Port au Port #1 well proved the presence of a viable petroleum system in the area. Released seismic data show that large undrilled prospects remain to be tested throughout the offshore and on-shore areas of western Newfoundland.

Figure 3.8

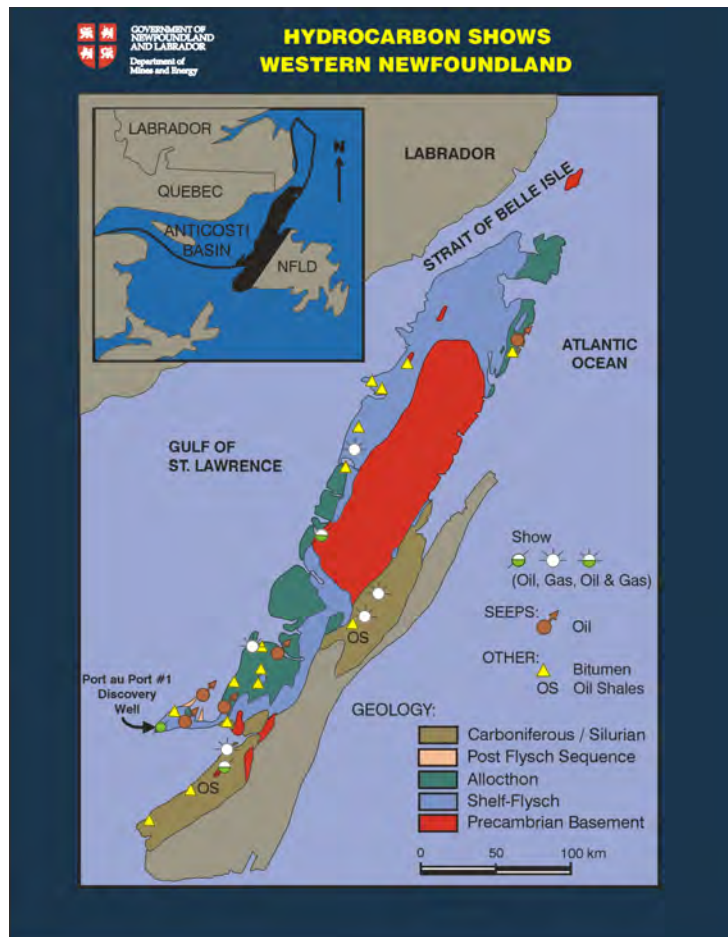
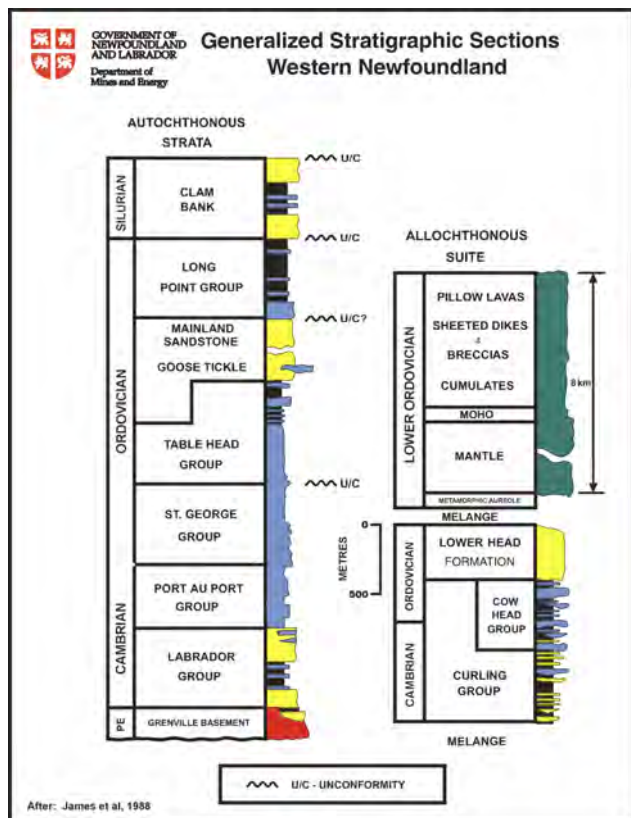


Figure 3.9

In Western Newfoundland and offshore in the Gulf of St. Lawrence, a Cambro-Ordovician age carbonate platform overlies Paleozoic clastic sediments of the Labrador Group and crystalline basement. The Ordovician carbonates and clastics are locally overlain by Carboniferous clastic and carbonate sediments. Reservoir quality rocks have been identified in both the Cambro-Ordovician and the Carboniferous. The tectonic history of the area is complex. In the late Ordovician subsidence reactivated faulting, initiated during a period of extension in the Cambrian, produced normal faults in the carbonate platform. Later, compression brought the onset of thrusting and reverse faulting of the carbonate platform and older formations. Strike slip faulting along the Cabot Fault Zone led to the creation of Carboniferous pull apart basins.

GEOLOGICAL FRAMEWORK

Western Newfoundland

Figure 3.10

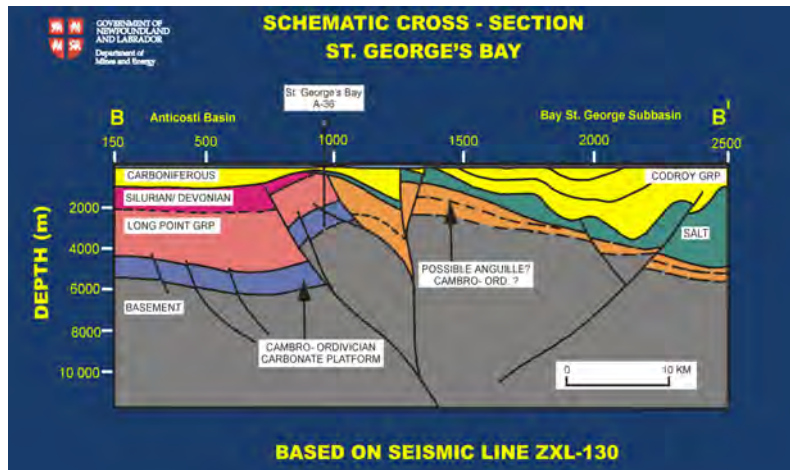


Figure 3.11

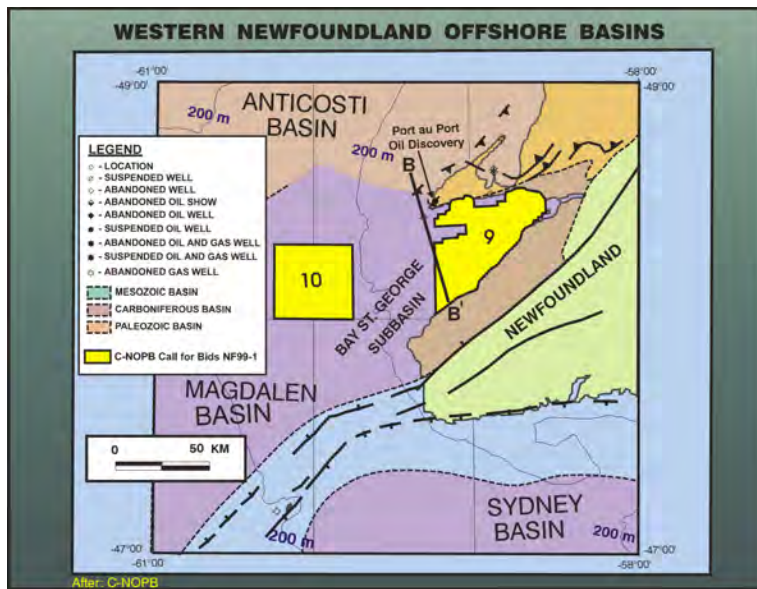
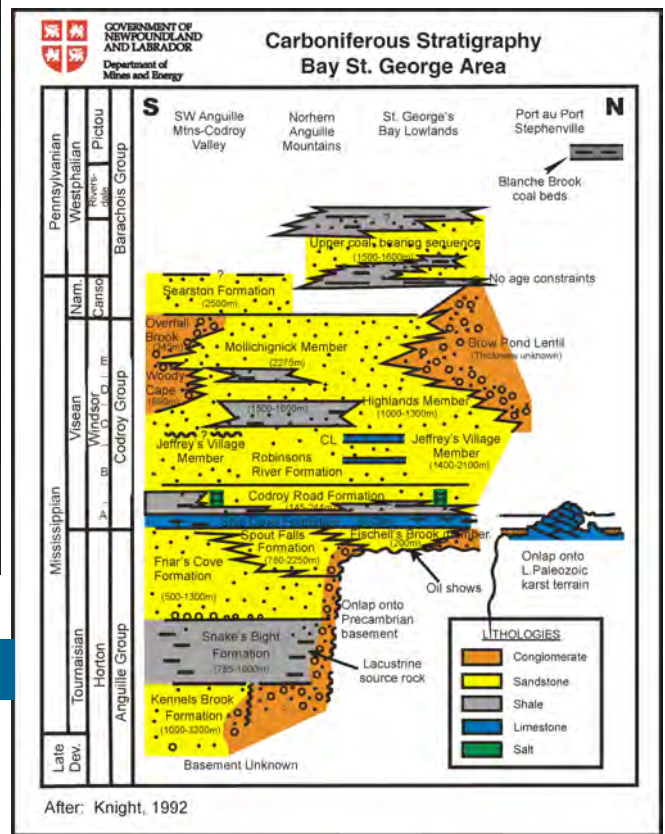


Figure 3.12



Cross section BB' illustrates the transition from the Bay St. George Carboniferous subbasin into the Anticosti Basin. It is unknown if the carbonate platform is preserved within the Bay St George sub-basin.

Section 4

REQUEST FOR BIDS PARCELS

This section provides a detailed description of each land sale parcel. The maps provided show the location of the land parcels and the released seismic data on those parcels. Hard copies and interpretive reports based on these data are available from the Canada-Newfoundland Offshore Petroleum Board for the cost of reproduction. For the purposes of this report representative seismic sections that show the general geology and recognizable play types have been selected. The seismic data quality varies with area and data vintage. Much of the released data in the Flemish Pass was shot between 1975 and 1985. Released data over parcel #10 off western Newfoundland, shot in the early to mid-seventies, are seriously degraded by multiples, and because the only available copies were on poor quality microfiche.

Interpretations in the Jeanne d’Arc Basin are based on high quality data with extensive well control and therefore reliable picks can be made on well known markers. The limited drilling in the Flemish Pass Basin dictates a less detailed interpretation but the basin’s similarity to the Jeanne d’ Arc (in structural style and depositional environment and history) permits one to effectively apply seismic data character and stratigraphic sequence interpretations. Following this approach the high amplitude package below the Base of Cretaceous has been interpreted as Jurassic throughout the basin.

A speculative seismic program is being recorded this summer over the Flemish Pass Basin parcels by Geophysical Services Incorporated. Speculative 3D seismic data is also available from GSI and Geco Prakla over the Jeanne d’Arc parcels.

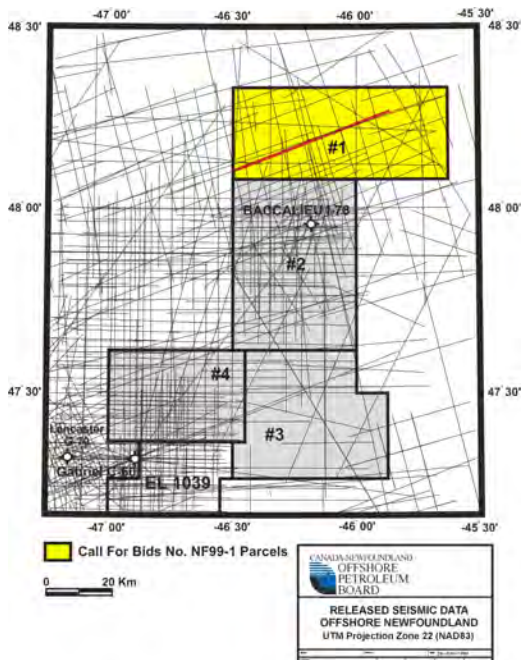
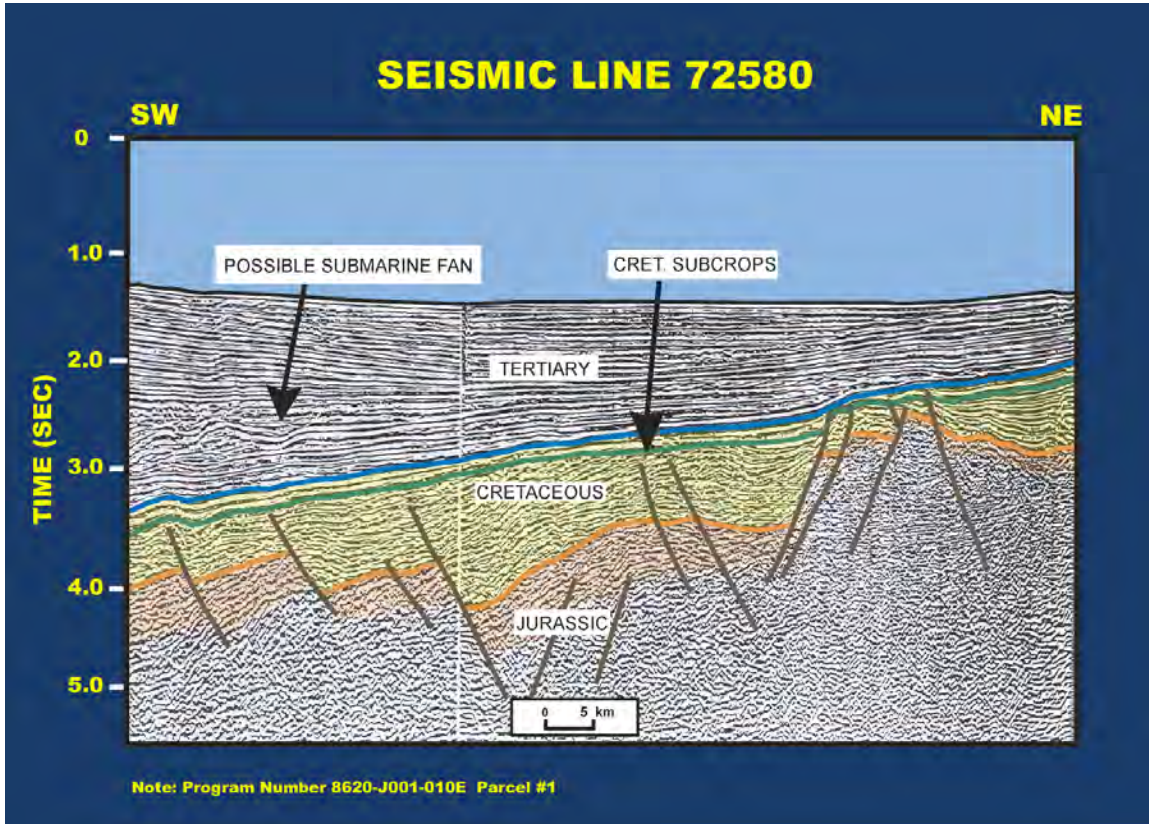
Table 3.1

Recent Landsale Results		
Year	Number of Parcels	Bids (\$Can Millions)
1995	1	95.8
1996	8	126.1
1997	7	97.0
1998	13	175.2

Conversion rate: \$CAN 1.00 ~ \$US .70

REQUEST FOR BIDS PARCELS

Parcel # 1



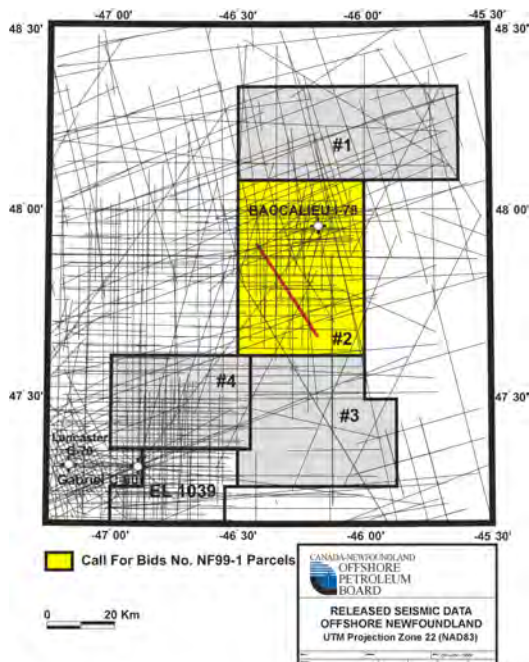
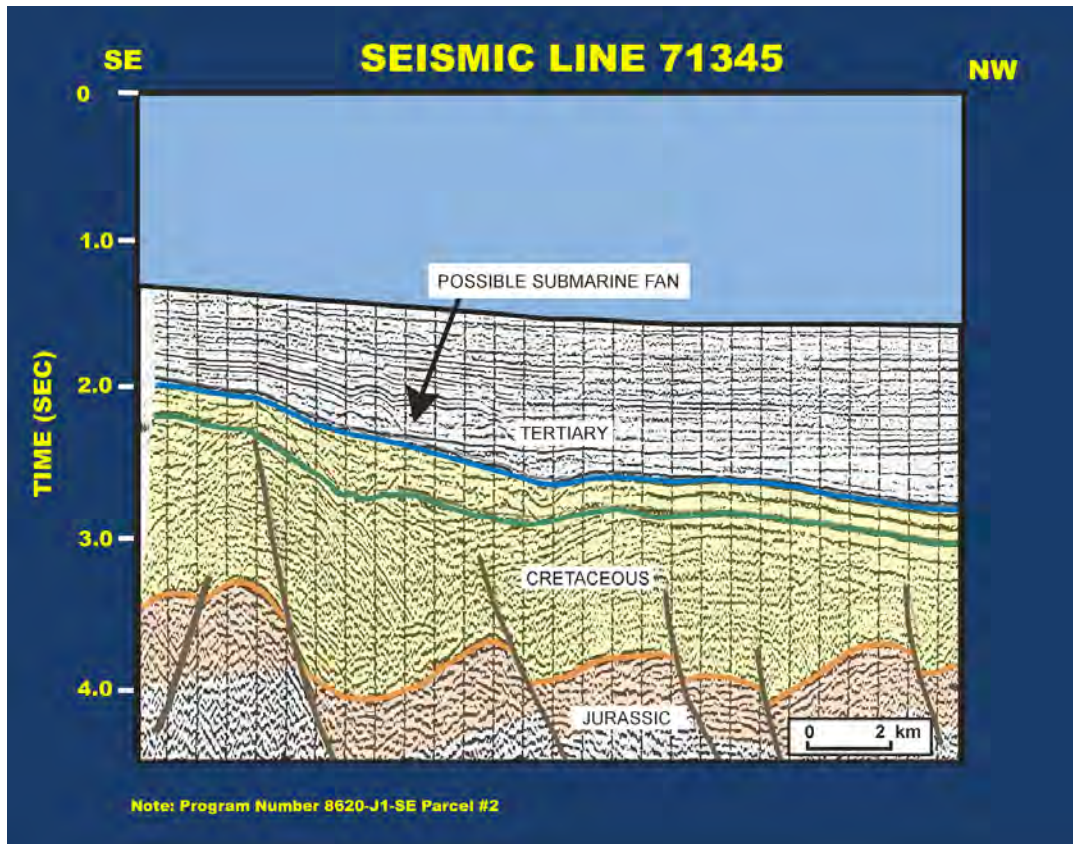
Location: Flemish Pass Basin
Parcel Area: 180,670 hectares
Water Depth: 600 - 1100 meters
Released Seismic Data: 1167 km
Data Vintages: 1971 - 1984
Note: A speculative seismic program was recently acquired over this parcel by GSI.

- Play Types:**
- tilted Cretaceous/Jurassic fault blocks and horst blocks
 - subcrop of Cretaceous sands
 - pinchouts within the Tertiary section
 - submarine fans in the lower Tertiary

The nearest well, Baccalieu I-78, encountered sandstones equivalent to the Jeanne D' Arc and Hibernia sands of the Jeanne d' Arc basin and Kimmeridgian age source rock and sandstones. The Kimmeridgian shale is the primary source rock found in the Jeanne d' Arc basin and in the North Sea. Seismic line 72580 shows a thick package of Cretaceous and Jurassic sediments with one very large anticline at the top of Jurassic. A possible submarine fan development in the lower Tertiary is also indicated.

REQUEST FOR BIDS PARCELS

Parcel # 2



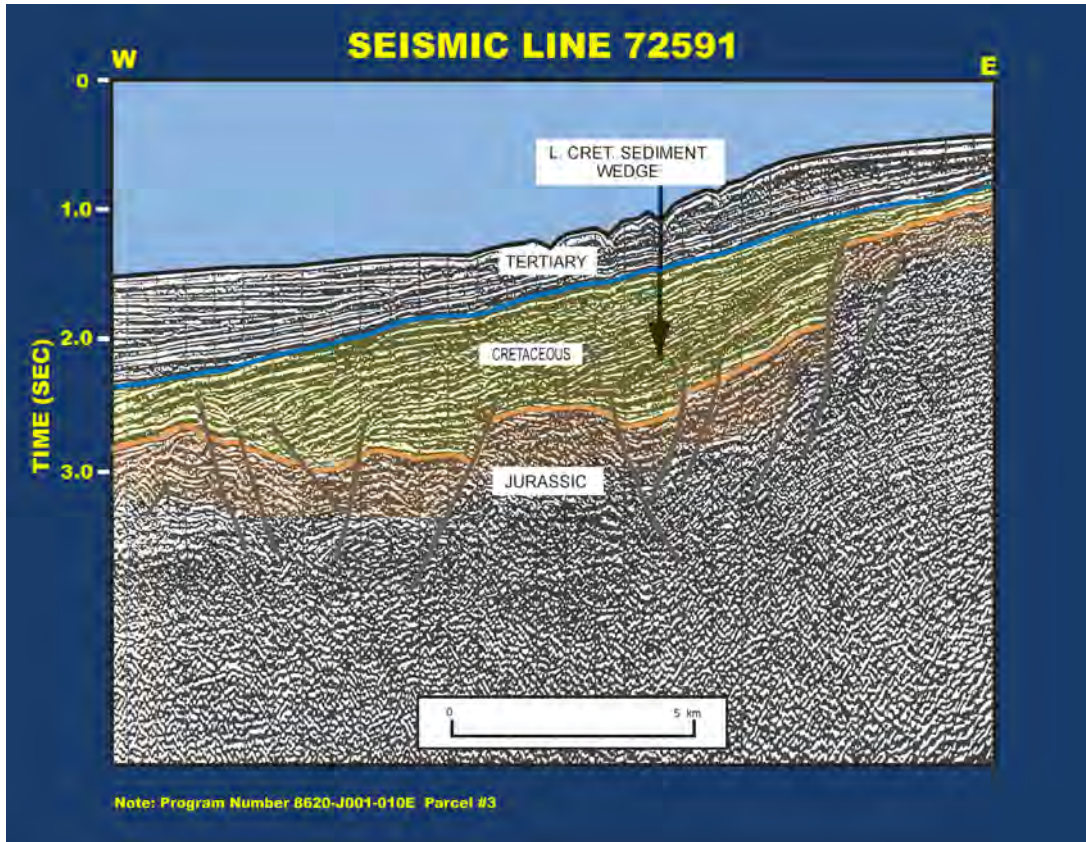
Location: Flemish Pass Basin
Parcel Area: 194,000 hectares
Water Depth: 600 - 1100 meters
Released Seismic Data: 2803 km
Data Vintages: 1970 -1985

- Play Types:**
- tilted Cretaceous/Jurassic fault blocks
 - Cretaceous subcrops
 - pinchouts at the base of the Tertiary
 - submarine fans at the base of Tertiary

The previously referenced Baccalieu I-78 well lies within the parcel boundary. Seismic line 71345 is an unmigrated, compressed section display. Despite poor data quality, large tilted fault blocks are evident at the Cretaceous and Jurassic levels as well as a possible submarine fan at the base of Tertiary.

REQUEST FOR BIDS PARCELS

Parcel # 3



Location: Flemish Pass Basin
Parcel Area: 160,623 hectares
Water Depth: 300 -1100 meters
Released Seismic Data: 997 km
Data Vintages: 1970 - 1985

Play Types:

- tilted Cretaceous/Jurassic fault blocks and horst blocks
- Cretaceous pinchouts and subcrops
- pinchouts at the base of Tertiary

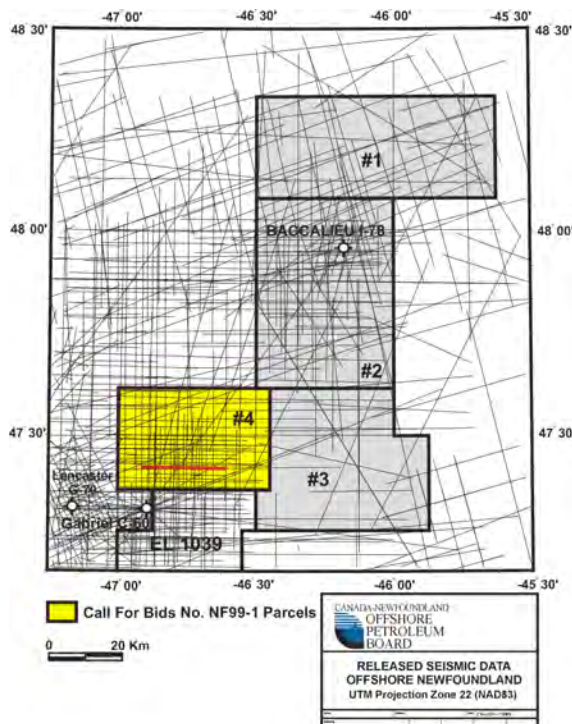
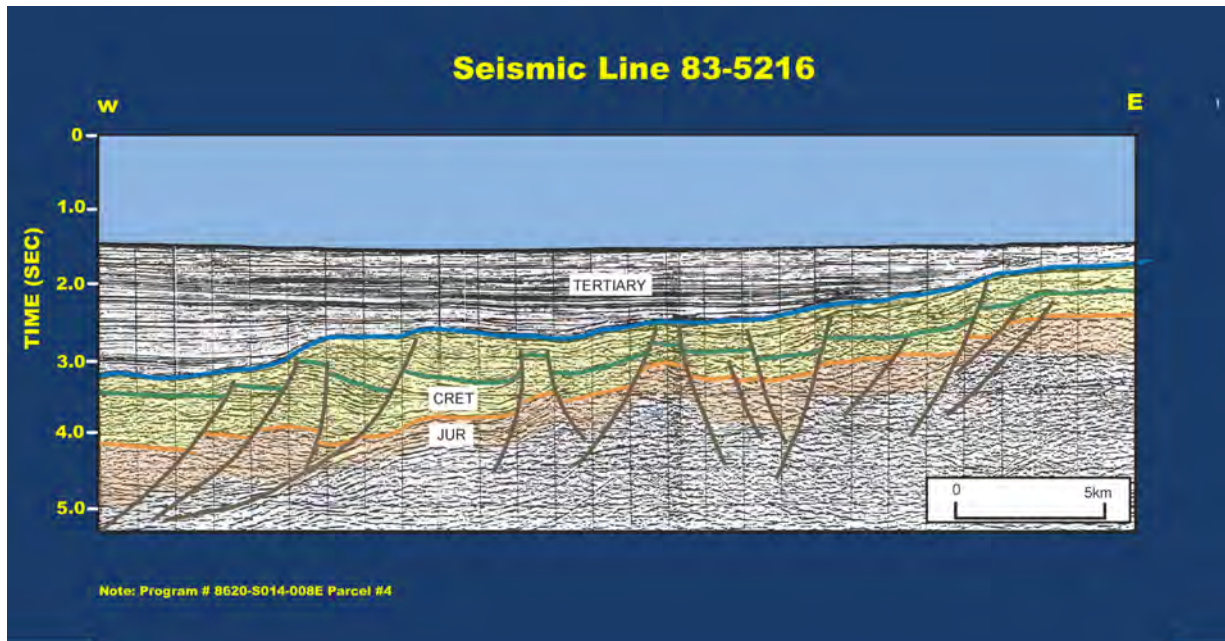
Seismic line 72591 is a compressed section display showing a number of prominent fault features including a central horst feature overlain by thick Cretaceous sequences. To the east of and partly overlying this horst block is a wedge of L. Cretaceous sediments that seem to indicate that the horst was a local high at the time of deposition, inviting the possibility of finding clean, reworked sand within the wedge.

Call for Bids No. NF99-1 Parcels



REQUEST FOR BIDS PARCELS

Parcel # 4



Location: *Flemish Pass Basin*
Parcel Area: *115,082 hectares*
Water Depth: *1000 - 1100 meters*
Released Seismic Data: *1865 km*
Data Vintages: *1970 - 1985*

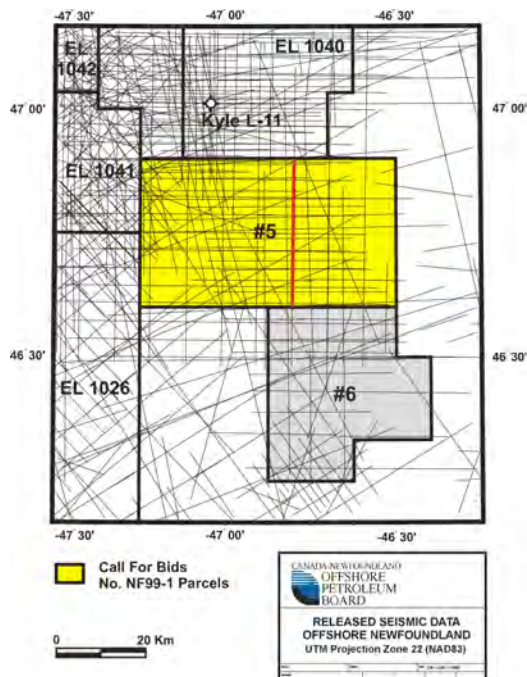
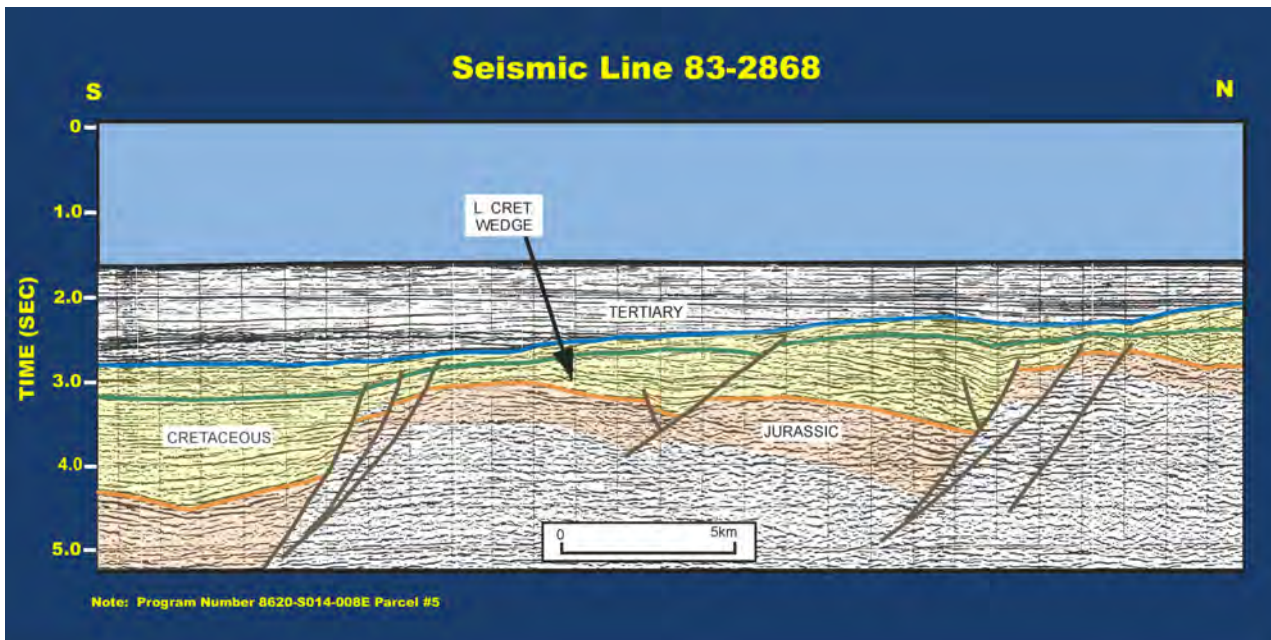
Play Types:

- *tilted Cretaceous/Jurassic fault blocks and horst blocks*
- *subcrops and pinchouts of L. Cretaceous sediment*
- *pinchouts at the base of Tertiary section*

The Gabriel C-60 well, which lies just south of the parcel boundary, encountered sands in the Lower Cretaceous that are Hibernia sandstone equivalents which were cored and bled oil. In the Lancaster G-70 well, the L. Cretaceous section is not present but the rich Kimmeridgian source rock was encountered. Seismic line 83-5216 shows a thick section of Cretaceous and Jurassic sediments preserved across the parcel with several potential fault and stratigraphic related traps.

REQUEST FOR BIDS PARCELS

Parcel # 5



Location: *Flemish Pass Basin*
Parcel Area: *190,980 hectares*
Water Depth: *500 - 1100 meters*
Released Seismic Data: *2310 km*
Data Vintages: *1970 - 1985*

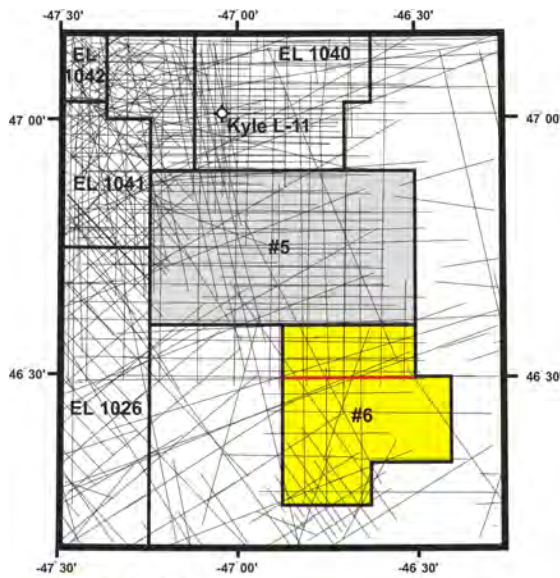
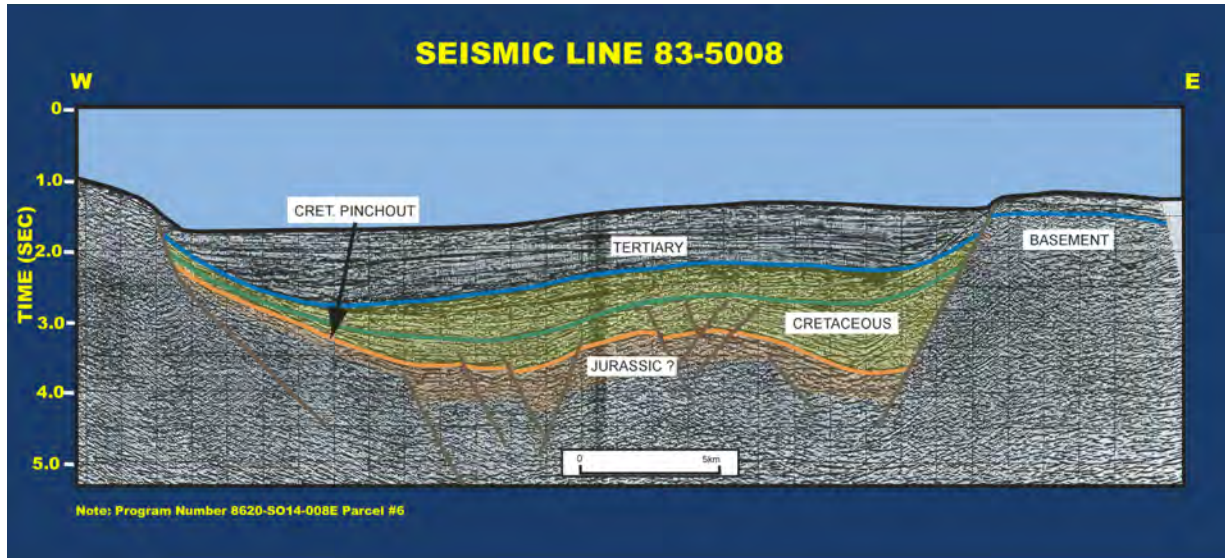
Play Types:

- *tilted Cretaceous/Jurassic fault blocks*
- *Cretaceous pinchouts and subcrops*
- *pinchouts at the base of Tertiary*

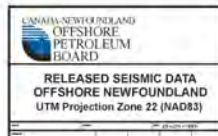
The Kyle L-11 well, just north of the parcel, encountered younger sandstones equivalent to those of Gabriel C-60 and older sands equivalent to those of Baccaieu I-78. Seismic line 83-2868 shows a broad local high at the base of Cretaceous with a thick wedge of Cretaceous sediments overlying the feature that thins to the south towards the crest of the old high, once again presenting the possibility of clean re-worked sands on the flanks of the structure.

REQUEST FOR BIDS PARCELS

Parcel # 6



Call For Bids
No. NF99-1 Parcels



Location: *Flemish Pass Basin*
Parcel Area: *117,392 hectares*
Water Depth: *900 - 1100 meters*
Released Seismic Data: *1131 km*
Data Vintages: *1970 - 1983*

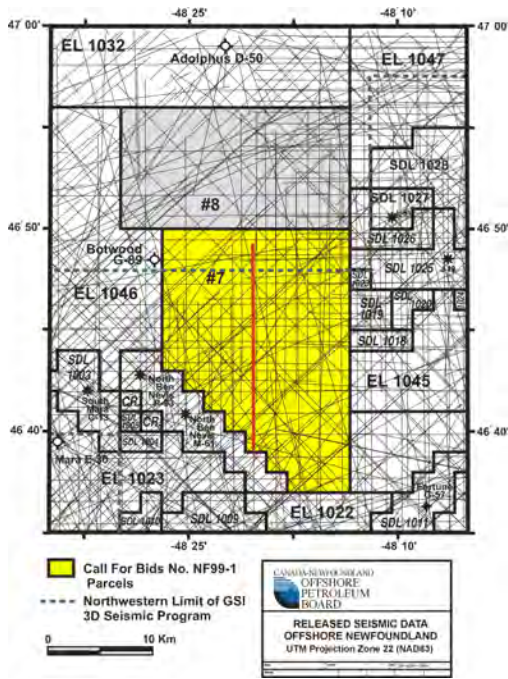
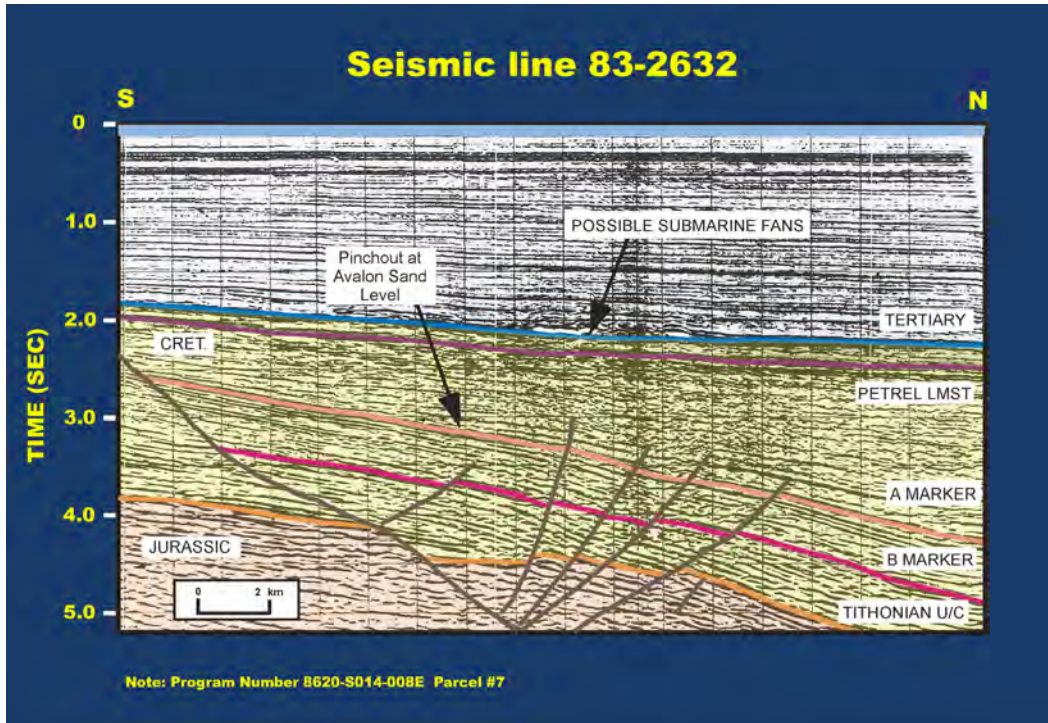
Play Types:

- *tilted Cretaceous/Jurassic fault blocks and horst blocks*
- *pinchouts in the Cretaceous*
- *pinchouts at the base of Tertiary*

Seismic line 83-5008 shows a broad local high at the base of the Cretaceous with drape at the base of Tertiary and, indeed, at the sea floor. A thick section of Cretaceous sediments are preserved on top of the old structure. To the west, Upper and Lower Cretaceous sediments pinch out against an old ramp feature that is the down thrown side of the Vesta high at the eastern boundary of the Ridge Complex.

REQUEST FOR BIDS PARCELS

Parcel # 7



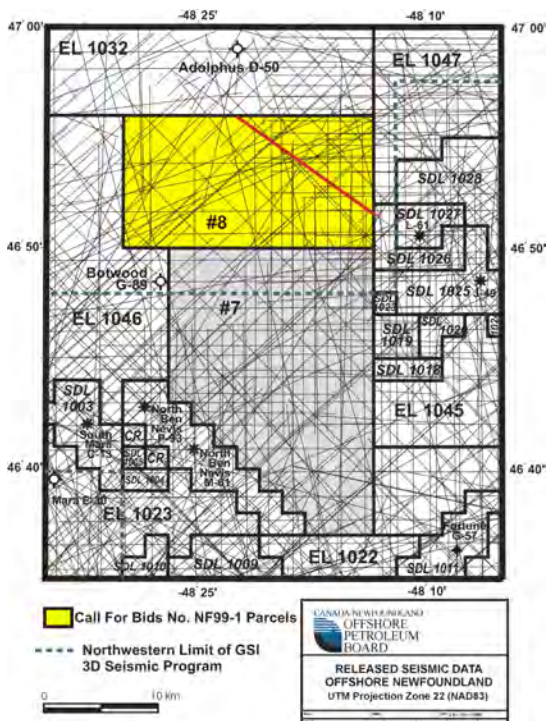
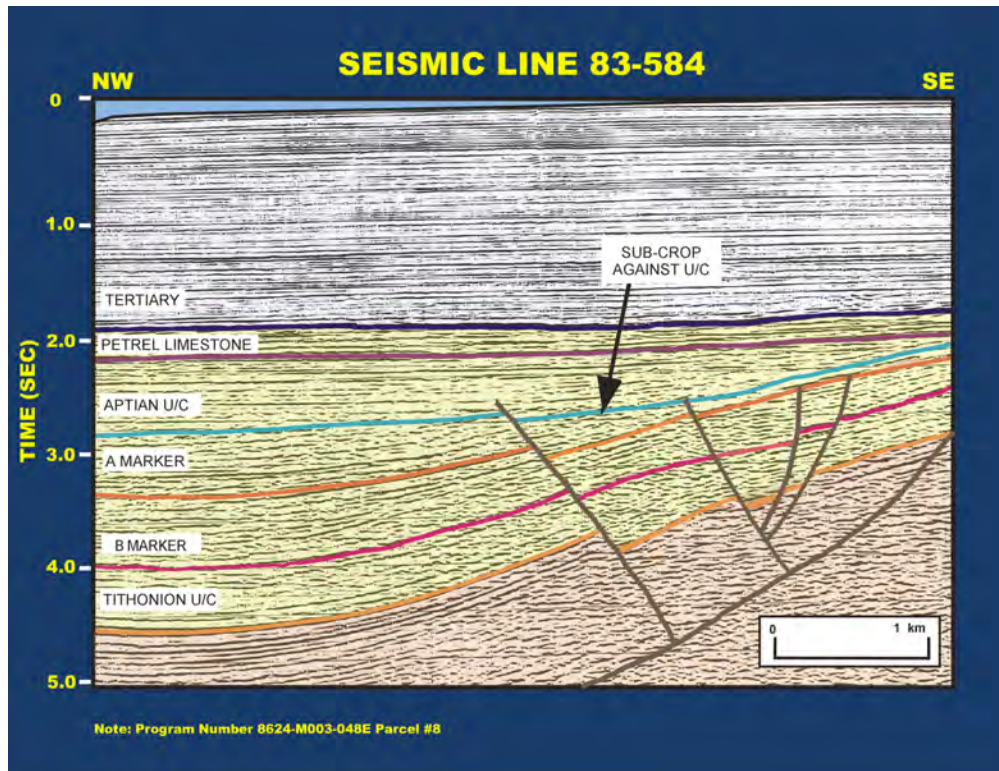
Location: Jeanne d'Arc Basin
Parcel Area: 33,957 hectares
Water Depth: 100 meters
Released Seismic Data: 1993 km
Data Vintages: 1966 - 1990
Note: Also available is the GSI 3D seismic program which covers approximately 75% of the parcel

- Play Types:**
- tilted Cretaceous/Jurassic fault blocks
 - Jurassic rollover feature
 - pinchouts at the Avalon sand level
 - pinchouts at the base of a Tertiary
 - possible submarine fans at the base of Tertiary

This parcel is adjacent to the North Ben Nevis field with total discovered resources of 18 million barrels of oil, 115 Bcf of gas and 4 million barrels of NGL in the Ben Nevis sands. Seismic line 83-2632 shows a thick L. Cretaceous section cut by a series of antithetic faults forming a number of fault blocks. At the top of the Jurassic, a rollover feature is clearly evident. Above the Base of Tertiary horizon, the seismic data exhibits a “hummocky” appearance that may be indicative of early Tertiary submarine fans. The discovery well, Mara M-54 in the Jeanne d'Arc basin, encountered just such a fan which tested 620 b/d.

REQUEST FOR BIDS PARCELS

Parcel # 8



Location: Jeanne d' Arc Basin
Parcel Area: 23,298 hectares
Water Depth: 100 meters
Released Seismic Data: 995 km
Data Vintages: 1967 - 1990
Note: Also available is a Geco Prakla 3D speculative survey that covers a portion of this parcel.

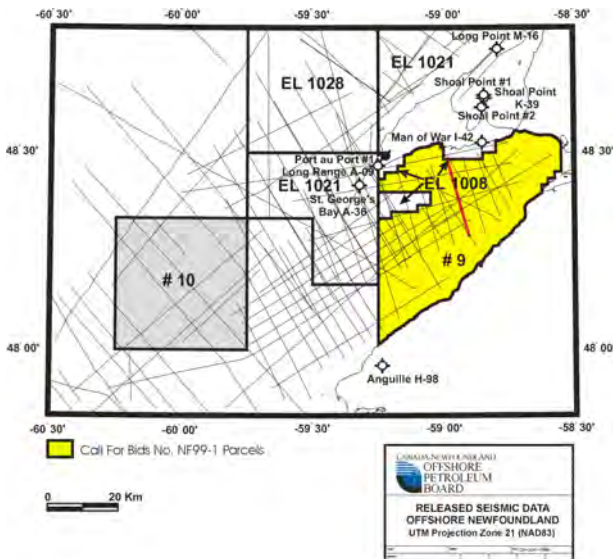
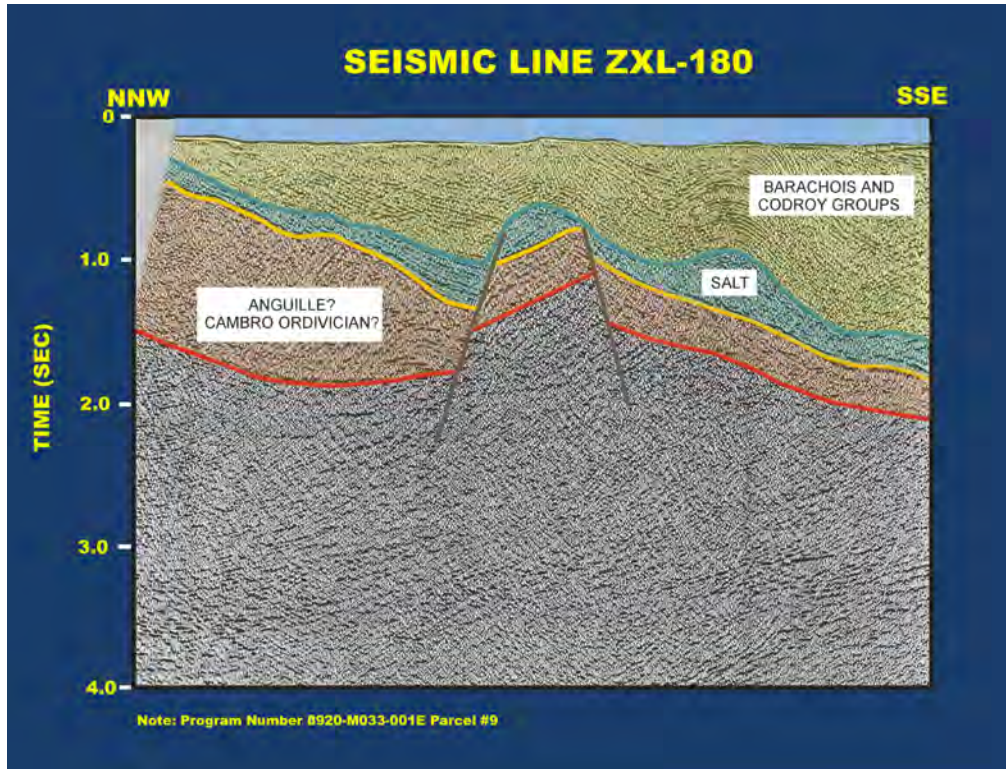
Play Types:

- tilted fault blocks at the Avalon and Hibernia sands levels
- Cretaceous pinchouts and subcrops

This parcel lies adjacent to the White Rose field with recoverable resources estimated at 178 to 250 million barrels of oil and 1.5 tcf of gas in the Ben Nevis sandstones. Seismic line 83-584 shows possible fault related traps at the Jurassic and Cretaceous levels rising to the southeast towards the Ridge Complex. Other possible plays include subcrops against the Aptian unconformity and pinchouts between the A marker and the Aptian unconformity. A Geco Prakla 3D speculative seismic survey covers a portion of this parcel.

REQUEST FOR BIDS PARCELS

Parcel # 9



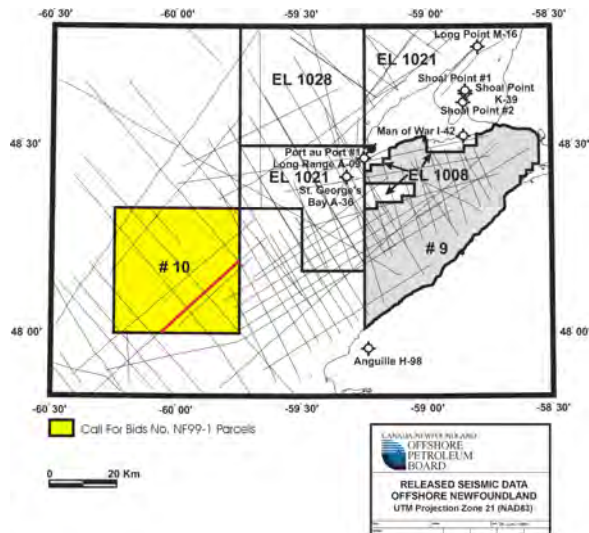
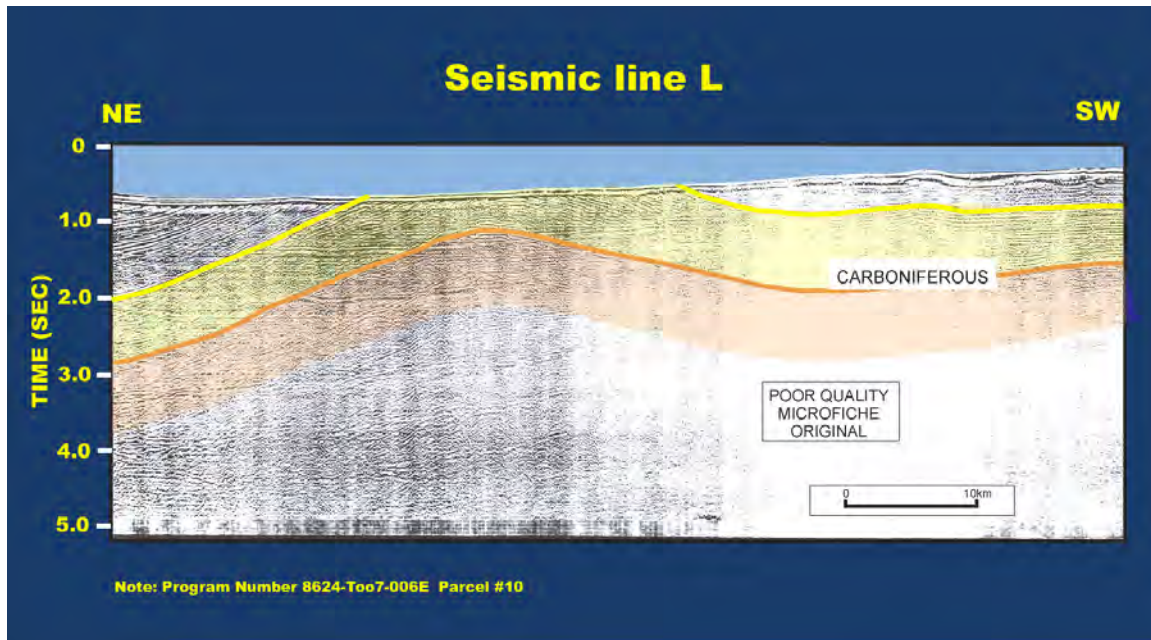
Location: Western Newfoundland - Bay St. George Subbasin
Parcel Area: 162,696 hectares
Water Depth: 0 - 150 meters
Released Seismic Data: 650 km
Data Vintages: 1970 - 1992

- Play Types:**
- horst block
 - drape over Carboniferous salt structures
 - pinchouts against salt domes
 - possible fault structures of the Cambro-Ordovician carbonate platform

Seismic line ZXL-180 shows a prominent horst feature in the centre of the section above which salt related structures are evident. The strong reflector (yellow) at the base of the salt is the Viséan unconformity. Although reflectors below this event are not well imaged, it is possible that a thick section of Anguille clastics and/or a section of the Cambro-Ordovician platform is preserved. Shallow, onshore drilling in the Flat Bay area - to the east - has encountered Anguille sourced oil shows. Possible reservoirs in this basin include sandstones and conglomerates of the Codroy and Anguille groups, algal laminates, dolomites and biohermal limestones of the Codroy group, Cambro-Ordovician carbonate platform and sandstones of the Labrador group.

REQUEST FOR BIDS PARCELS

Parcel # 10



Location: *Western Newfoundland - Magdalen Basin*
Parcel Area: *137,740 hectares*
Water Depth: *400 - 600 meters*
Released Seismic Data: *302 km*
Data Vintages: *1971-1978*

Play Types: *- Carboniferous sands over large salt cored anticline*

This parcel is located at the northeast corner of the Carboniferous aged, Magdalen basin. It is unclear from the poor quality seismic data whether the Cambro - Ordovician section is preserved at depth. The nearest well is St. Georges Bay A-36, at the boundary between the Anticosti Basin and Bay St. George Subbasin, which encountered a thin Carboniferous section overlying Ordovician clastics and the carbonate platform. Seismic line L shows a large salt cored anticline containing a thick sequence of Carboniferous clastics. Although the data quality is poor because of strong water bottom multiple interference and poor quality microfiche originals, internal reflections indicate the presence of a sedimentary package. The nearest Magdalen Basin well, Brion Island #1, ~100 km to the southwest, is reported to have encountered oil stained Westphalian B sands ⁷.

HOW TO MAKE A BID

Section 5

Administration

The Canada-Newfoundland Offshore Petroleum Board (C-NOPB) administers offshore petroleum exploration and development on behalf of the Government of Canada and the Government of Newfoundland and Labrador.

How to Make a Bid

The 1999 C-NOPB Call for Bids closes at 4:00 p.m. on November 17, 1999. There is only one basis for selecting successful bids: the total amount of money the bidder commits to spend on exploration of the respective parcel during the first five years of the licence. The minimum amount that can be bid on any parcel in the Jeanne d'Arc Basin and the Flemish Pass is CAN \$1 million *. The minimum amount that can be bid on any parcels on the West Coast of Newfoundland is CAN \$250 thousand. If a bid is successful, an exploration licence will be issued for a term of nine years. A well must be drilled during the first five years of a licence to qualify for extension into the final four years.

For further information, please contact:

H.H. (Hal) Stanley
Chairman and CEO
Tel: (709) 778-1456

or

D. Angus Taylor
Manager, Legal and Land
Tel: (709) 778-1458

Or visit the C-NOPB website

www.cnopb.nfnet.com

* \$1 CAN ~ \$.70 US

Section 6

FISCAL REGIMES AND TAXATION

Royalty Structure

Generic Offshore Royalty Regime

Basic Royalty

until earliest of:	
(i) 20% of reserves	
(ii) 50 million barrels (mmbls)	1%
(iii) Simple Payout	
(i) 100 mmbls cumulative production	2.5%
(ii) Simple Payout	
next 100 mmbls	5%
thereafter	7.5%

Net Royalty

Tier 1	
Rate	20%
Return Allowance	5% plus LTGBR*
Tier 2	
Rate	10%
Return Allowance	15% plus LTGBR*

* **LTGBR** - Long Term Government of Canada Bond Rate

The royalty is comprised of a basic royalty component and a net royalty component. The basic royalty component is an ad valorem type royalty applied to the value of petroleum production. The net royalty is profit-based and, consequently, is a progressive royalty.

This royalty system is sensitive to the costs, risks and challenges associated with exploration and development in the Newfoundland and Labrador offshore, and is competitive with other jurisdictions.

An independent consultant has advised that the regime is competitive on a worldwide basis, ranking in the top half when compared with other national and international regimes.

The Basic Royalty is payable from the very first barrel of oil produced from a petroleum project and is payable on each and every barrel produced thereafter. The Basic Royalty rate applicable is phased in as certain levels of production are achieved (see table). If the project achieves Simple Payout prior to 100 million barrels of production the Basic Royalty rate automatically increases to five percent.

Net Royalty commences to be payable upon the occurrence of Net Royalty Payout. When costs are recovered and the Tier 1 Return Allowance is achieved, the Tier 1 Net Royalty rate becomes applicable. The Basic Royalty paid is applied as a credit against any Tier 1 Net Royalty payable and, as a result, royalties payable for any particular period would be the greater of the Basic Royalty or the Tier 1 Net Royalty.

When the Tier 2 Return Allowance is achieved, the Tier 2 Net Royalty rate becomes applicable. The Tier 2 Royalty is in addition to any other royalties payable.

An independent consultant has advised that the regime is competitive on a worldwide basis, ranking in the top half when compared with other national and international regimes.

FISCAL REGIMES AND TAXATION

Taxation

Competitive Tax Environment

The federal and provincial governments tax companies operating in Newfoundland and Labrador on the basis of net income. Municipalities tax business property and/or asset value. Provincial tax relief is available to qualifying companies under the Economic Diversification and Growth Enterprises Program (EDGE). There are other business assistance programs and generous training partnerships that make Newfoundland and Labrador the right place for your new or expanding business.

The EDGE Program

Your new or expanding company may qualify for EDGE status should you choose to locate in Newfoundland and Labrador. EDGE is a program that includes attractive tax concessions (and other incentives) that are among some of the most generous being offered in North America.

If a company is making a minimum capital investment of \$300,000 or has incremental sales of \$500,000 and can create ten new local jobs, it may qualify for:

- A 10 full year tax holiday from provincial corporate income tax, health and post-secondary education tax, and municipal tax in participating municipalities.
- A further 5-year period, over which these taxes will be phased in at a rate of 20% of the basic rate annually.

The EDGE program offers attractive tax concessions that are among the most generous in North America.

Provincial Taxes and Premiums

In Canada, businesses pay corporate income tax at both the Federal and Provincial level, health and post-secondary education tax, and workers compensation premiums.

The Federal Corporate income tax rates are:

- 28% (large corporations)
- 21% (manufacturing corporations)
- 12% (small business rate)

Companies must also contribute to two employee benefit programs: Employment Insurance and the Canada Pension Plan. Employers must deduct premiums for each of these programs from their employees' pay and make employer contributions.

Harmonized Sales Tax (HST)

Newfoundland and Labrador's Provincial Sales Tax (PST) and Canada's national Goods and Services tax (GST) are combined to form the 15% Harmonized Sales Tax (HST). It is applied to the same goods and services as the GST. By allowing full input tax credits to businesses, goods and services (produced within this province) will be more competitive in both local and global markets. Harmonization of these taxes reduces the administrative burden of tax on business.

Municipal Taxes

Local governments provide a wide range of municipal services and form a tax base from one or both of property tax and business occupancy tax. While property tax rates vary across municipalities, rates are still well below national averages. In addition, the EDGE program allows municipal governments to grant qualifying companies a ten-year tax holiday from property tax followed by a 5-year phase-in.

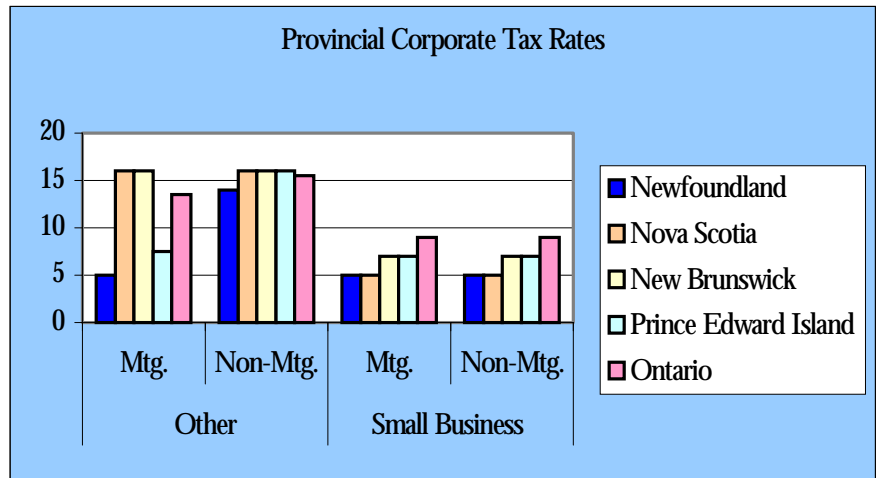


Figure 6.1
A comparison of Newfoundland's provincial corporate tax rates with other eastern Canadian provinces.

Section 7



Department of Mines and Energy

For further information, please contact

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The document is also accessible at the Department of Mines and Energy website - <http://www.gov.nf.ca/mines&en/>

RELATED WEB LINKS

Industrial Infrastructure

City of St. John's	www.city.st-johns.nf.ca
City of Corner Brook	www.city.corner-brook.nf.ca
City of Mt. Pearl	www.mtpearl.nf.ca
Capital Coast	www.entnet.nf.ca/capital-coast
Bull Arm Construction Site	www.bullarm.com/
Friede Goldman Facility at Marystown	www.enterprise.newcomm.net/fgn/

Fiscal Regimes and Taxation

Economic Diversification and Growth Enterprises Program (EDGE)	www.success.nfld.net/business/programs.html
Harmonized Sales Tax (HST)	www.gov.nf.ca/fin/hst/hstmain.htm
Worker's Compensation Commission	www.wcc.nf.ca
Employment Insurance	www.hrhc-drhc.gc.ca/ei/common/home.shtml
Human Resources Development Canada	www.hrhc-drhc.gc.ca

Education and Training

Memorial University	www.mun.ca
Marine Institute	www.ifmt.nf.ca
College of the North Atlantic	www.northatlantic.nf.ca
Centre for Cold Ocean Resources Engineering	www.mun.ca/research/publications/centres/ccore.html
Institute for Marine Dynamics	www.mun.ca/recruit/virtour/imd.html

Boards, Organizations and Companies

Canada Newfoundland Offshore Petroleum Board	www.cnopb.nfnet.com
Newfoundland Offshore Industries Association	www.noia.nf.ca
Terra Nova Project	www.terranovaproject.com
Hibernia Management Development Corp.	www.hibernia.ca

BIBLIOGRAPHY, ENDNOTES AND ACKNOWLEDGEMENTS

Section 8

Reports and Papers Utilized Preparing this Document

Canada-Newfoundland Offshore Petroleum Board. **Annual Report 1999-2000.**

Canada-Newfoundland Offshore Petroleum Board. **Schedule of Wells - Newfoundland Offshore Area.**

Canada-Newfoundland Offshore Petroleum Board **Released Geological and Geophysical Reports:**

Czarnecki, M. "Evaluation of Carson, Bonniton and South Flemish Pass Basins", 1994

McIntyre, J. and Sinclair, I. K. "Geophysical and Geological Assessment of the Ridge Complex", 1994

Sherwin, D. "Geology and Hydrocarbon Potential of the Southern Grand Banks", 1990

Sinclair, I. K. "Review of Western Newfoundland Geology", 1990

DeSilva, N. R. "Sedimentary Basins and Petroleum Systems Offshore Newfoundland and Labrador." **Petroleum Geology of North-west Europe: Proceedings of the 5th Conference**, 1999

DeSilva, N. R. "Submarine Fans on the Northeastern Grand Banks, Offshore Newfoundland", Submarine Fans and Turbidite Systems, The Fifteenth Annual Research Conference of the Society of Economic Paleontologists and Mineralogists Foundation, 1994

Harvey, P. J. and MacDonald, D. J. "Seismic Modelling of Porosity Within the Jurassic Aged Carbonate Bank", Canadian Journal of Exploration Geophysics, Vol. 26, Nos 1 & 2, Dec. 1990

Keen, M. J. and G. L. Williams, eds. **Geology of the Continental Margin of Eastern Canada.** Geological Survey of Canada, 1990.

Kerr and Associates, "Geology and Petroleum Potential of the Western and Eastern Grand Banks" (2 Parts), a special report to industry, 1985 (available at the C-NOPB Library, St. John's, NFLD.)

Endnotes

¹ Bruce, Gary C., Vice President Offshore Development and Operations, Petro-Canada, **Hibernia and Terra Nova: The Beginning of an Industry**, 1998

² Bruce, **Hibernia and Terra Nova.**

³ North Sea oil and gas reserves estimates were compiled from the following sources:

- The Oil & Gas Journal, International Petroleum Encyclopedia 1998, Pennwell Publishing

- The Norwegian Petroleum Directorate website, "The Petroleum Resources of the Norwegian Continental Shelf".

- The UK's Department of Trade and Industry, **The Brown Book**.

⁴ Reserve and Discovered Resource figures from Canada-Newfoundland Offshore Petroleum Board, **Annual Report**.

⁵ Undiscovered Resource figures were taken from the following sources:

- Proctor, **Geological Survey of Canada Report**, 1984

- Drummond, **East Coast Gas- The Big Picture**, 1998.

- Williamson et al., **A Hydrocarbon Charge Model of the Hibernia Drainage Area, Jeanne d'Arc Basin, Offshore Newfoundland**, 1999.

⁶ M. G. Fowler and K.D. McAlpine "Egret Member: A Prolific Kimmeridgian Source Rock from Offshore Eastern Canada", in B.J. Katz, (ed) **Petroleum Source Rocks**, (Berlin: Springer-Verlag, 1993).

⁷ Texaco Brion Island # 1 well; Corridor Resources Inc. website.

Acknowledgements

This report was prepared by the Petroleum Resource Development Division and the Petroleum Projects Monitoring Division of the Department of Mines and Energy. Seismic sections and several figures were provided by the Canada-Newfoundland Offshore Petroleum Board (C-NOPB). Seismic interpretations were performed by the C-NOPB and the Department of Mines and Energy. Photographs were provided by: Hibernia Management and Development Company (HMDC), Terra Nova Alliance, Memorial University of Newfoundland, the City of St. John's and the Department of Industry Trade and Technology. Thanks are also extended to: Judith McIntyre and Neil DeSilva of the CNOPB; Ian Sinclair, HMDC; Jim Keating of Norsk Hydro; Mark Williamson of the Atlantic Geoscience Centre; and the British Department of Trade and Industry.

APPENDIX A—RELEASED GEOLOGICAL AND GEOPHYSICAL REPORTS

Parcel 1

Program Number	Completion Date	Line Segment (km)
8624-M003-008E	08-JUL-1971	52.956
8620-C006-001E	29-OCT-1971	38.118
8620-G005-001P	05-NOV-1971	28.743
8620-J001-001E	14-OCT-1972	10.258
8620-J001-002E	09-NOV-1973	.527
8624-C006-001E	17-MAY-1975	115.358
8620-J001-005E	29-OCT-1975	39.342
8620-J001-006E	04-NOV-1976	79.879
8620-J001-007E	15-OCT-1977	2.522
8620-J001-009E	08-NOV-1979	47.361
8620-J001-010E	13-OCT-1980	386.835
8624-J001-002E	02-OCT-1981	56.645
8624-G005-002P	08-MAY-1982	189.883
8620-J008-006E	23-SEP-1982	91.221
8624-G005-009P	18-APR-1984	27.886
Total for Parcel #1		1167.534 km

Parcel # 2

Program Number	Completion Date	Line Segment (km)
8620-A004-007E		22.112
8624-D003-001E	02-JUL-1970	63.972
8624-A004-008E	09-JUN-1971	10.314
8620-V001-001E	24-AUG-1971	70.452
8620-C020-003E	28-OCT-1971	67.718
8620-G005-001P	05-NOV-1971	51.643
8620-S024-001P	30-OCT-1972	44.558
8620-G005-004P	02-DEC-1972	40.117
8620-A004-008E	18-JUL-1973	18.018
8620-G001-002E	30-NOV-1973	45.584
8624-C006-001E	17-MAY-1975	43.372
8624-M003-026E	22-JUL-1975	95.912
8620-J001-005E	29-OCT-1975	117.072
8620-J001-006E	04-NOV-1976	207.595
8620-J001-007E	15-OCT-1977	32.062
8620-J001-008E	18-OCT-1978	47.471
8620-J001-009E	08-NOV-1979	549.597
8620-J001-010E	13-OCT-1980	372.725
8620-G005-012P	17-APR-1981	38.093
8624-J001-002E	02-OCT-1981	163.87
8624-G005-002P	08-MAY-1982	124.343
8620-J008-003E	02-SEP-1982	102.515
8620-J008-006E	23-SEP-1982	49.183
8624-J001-004E	23-SEP-1984	399.627
8624-P028-083E	24-NOV-1985	26.022
Total for Parcel #2		2803.947 km

Parcel # 3

Program Number	Completion Date	Line Segment (km)
8620-A004-007E		78.85
8624-D003-001E	02-JUL-1970	68.06
8624-A004-008E	09-JUN-1971	34.791
8620-V001-001E	24-AUG-1971	37.081
8620-C020-003E	28-OCT-1971	39.888
8620-G005-001P	05-NOV-1971	39.235
8620-A004-008E	18-JUL-1973	79.653
8620-G001-002E	30-NOV-1973	256.758
8620-J001-006E	04-NOV-1976	49.972
8620-J001-007E	15-OCT-1977	2.443
8620-J001-008E	18-OCT-1978	7.747
8624-C004-005E	12-SEP-1980	56.395
8620-J001-010E	13-OCT-1980	94.542
8624-J001-002E	02-OCT-1981	69.815
8624-G005-002P	08-MAY-1982	6.419
8620-J008-003E	02-SEP-1982	17.78
8620-J008-006E	23-SEP-1982	2.177
8620-S014-008E	03-JUL-1983	26.222
8624-P028-083E	24-NOV-1985	29.402
Total for Parcel #3		997.23 km

Parcel # 4

Program Number	Completion Date	Line Segment (km)
8620-A004-007E		4.586
8624-D003-001E	02-JUL-1970	123.288
8620-G005-004P	02-DEC-1972	36.43
8620-G001-002E	30-NOV-1973	5.284
8620-J001-005E	29-OCT-1975	84.169
8620-J001-006E	04-NOV-1976	112.534
8620-J001-007E	15-OCT-1977	122.43
8620-J001-008E	18-OCT-1978	344.21
8620-J001-009E	08-NOV-1979	73.237
8620-G005-011P	15-MAY-1980	6.846
8624-C004-005E	12-SEP-1980	28.305
8620-J001-010E	13-OCT-1980	132.246
8620-G005-012P	17-APR-1981	7.853
8624-P028-020E	22-AUG-1981	3.083
8624-J001-002E	02-OCT-1981	97.137
8624-G005-002P	08-MAY-1982	23.38
8624-P028-038E	27-JUN-1982	2.047
8620-J008-003E	02-SEP-1982	45.963
8624-G005-009P	18-APR-1983	23.936
8620-S014-008E	03-JUL-1983	311.375
8624-J001-004E	23-SEP-1984	238.719
8624-P028-083E	24-NOV-1985	38.051
Total for Parcel #4		1865.109 km

Parcel # 5

Program Number	Completion Date	Line Segment (km)
8620-A004-007E		19.967
8624-D003-001E	02-JUL-1970	135.302
8624-M003-005E	22-SEP-1971	25.496
8620-G005-001P	05-NOV-1971	50.788
8620-A004-008E	09-JUN-1973	21.644
8620-M003-017E	28-JUL-1973	11.474
8620-G001-002E	30-NOV-1973	4.82
624-A004-016E	04-JUL-1974	3.756
8620-J001-005E	29-OCT-1975	176.467
8620-J001-006E	04-NOV-1976	92.534
8620-J001-007E	15-OCT-1977	121.771
8620-J001-008E	18-OCT-1978	151.201
8620-J001-010E	13-OCT-1980	259.239
8624-P028-005E	04-FEB-1981	27.472
8624-C004-008E	14-JUL-1981	39.899
8624-M003-038E	06-AUG-1981	.873
8624-J001-002E	02-OCT-1981	99.733
8624-G005-002P	08-MAY-1982	78.246
8624-P028-039E	04-JUL-1982	7.847
8620-J008-003E	02-SEP-1982	16.494
8620-S014-008E	03-JUL-1983	678.402
8624-M003-048E	26-AUG-1983	63.463
8624-G005-009P	18-APR-1984	114.759
8624-J001-004E	23-SEP-1984	49.252
8624-H006-006E	23-OCT-1984	20.096
8624-H006-009E	23-OCT-1984	19.492
8624-H006-011E	24-AUG-1985	20.328
Total for Parcel #5		2310.815 km

Parcel # 6

Program Number	Completion Date	Line Segment (km)
8624-D003-001E	02-JUL-1970	12.08
8624-A004-008E	09-JUN-1971	35.032
8620-G005-001P	05-NOV-1971	5.489
8620-G005-004P	02-DEC-1972	36.551
8624-M003-026E	22-JUL-1975	92.295
8620-J001-005E	29-OCT-1975	67.283
8620-J001-006E	04-NOV-1976	245.891
8620-J001-007E	15-OCT-1977	40.645
8620-J001-008E	18-OCT-1978	44.144
8620-J001-010E	13-OCT-1980	55.19
8624-P028-005E	04-FEB-1981	51.853
8624-P028-006E	04-FEB-1981	13.603
8620-G005-012P	17-APR-1981	5.324
8624-P028-021E	31-AUG-1981	32.084
8624-G005-002P	08-MAY-1982	32.937
8624-G005-001P	19-MAY-1982	34.347
8624-P028-039E	04-JUL-1982	90.246
8620-J008-003E	02-SEP-1982	29.103
8620-S014-008E	03-JUL-1983	136.125
8624-P028-061E	23-SEP-1983	71.652
Total for Parcel #6		1131.874 km

Parcel # 7

Program Number	Completion Date	Line Segment (km)
8620-M003-004E	15-SEP-1966	18.508
8620-M003-005E	25-SEP-1967	52.021
8624-M003-003E	09-OCT-1970	9.585
8624-M003-005E	22-SEP-1971	132.745
8620-G005-001P	05-NOV-1971	24.812
8624-M003-013E	30-AUG-1972	37.762
8620-M003-017E	28-JUL-1973	17.545
8624-M003-026E	22-JUL-1975	55.336
8624-M003-031E	10-OCT-1978	26.884
8624-M003-032E	30-AUG-1979	36.568
8624-M003-034E	29-NOV-1979	75.717
8620-G005-011P	15-MAY-1980	11.193
8624-M003-037E	15-DEC-1980	26.576
8624-M003-038E	06-AUG-1981	104.889
8624-M003-039E	14-OCT-1981	32.986
8624-G005-002P	08-MAY-1982	17.849
8624-G005-001P	19-MAY-1982	28.214
8624-H006-001E	29-JUN-1982	20.544
8620-J008-003E	02-SEP-1982	36.531
8624-M003-046E	06-SEP-1982	113.999
8624-C055-001E	17-SEP-1982	18.399
8620-S014-008E	03-JUL-1983	385.431
8624-M003-048E	26-AUG-1983	88.286
8624-H006-006E	23-OCT-1983	79.166
8620-C055-001E	07-DEC-1983	1.581
8624-G005-009P	18-APR-1984	55.672
8624-M003-050E	07-AUG-1984	88.584
8624-H006-009E	23-OCT-1984	50.936
8624-P028-081E	24-NOV-1985	12.076
8924-S006-001E	25-AUG-1990	332.743
Total For Parcel #7		1993.118 km

Parcel # 8

Program Number	Completion Date	Line Segment (km)
8620-M003-005E	25-SEP-1967	35.095
8620-M003-007E	24-SEP-1968	37.555
8624-M003-003E	09-OCT-1970	1.85
8624-M003-005E	22-SEP-1971	70.845
8620-G005-001P	05-NOV-1971	11.572
8624-M003-013E	30-AUG-1972	18.332
8620-J001-002E	09-NOV-1973	11.636
8624-S006-014E	01-OCT-1973	1.236
8620-M003-018E	13-DEC-1973	.531
8624-M003-026E	22-JUL-1975	10.939
8620-J001-009E	08-NOV-1979	35.76
8624-M003-034E	29-NOV-1979	.474
8620-G005-011P	15-MAY-1980	34.857
8624-C004-005E	12-SEP-1980	22.846
8620-J001-010E	13-OCT-1980	13.179
8624-M003-037E	15-DEC-1980	39.76
8620-G005-012P	17-APR-1981	20.844
8624-M003-038E	06-AUG-1981	12.974
8624-M003-039E	14-OCT-1981	19.302
8624-G005-001P	19-MAY-1982	1.408
8620-J008-003E	02-SEP-1982	40.939
8624-M003-046E	06-SEP-1982	40.439
8624-C055-001E	17-SEP-1982	7.39
8624-G005-009P	18-APR-1983	3.067
8620-S014-008E	03-JUL-1983	140.211
8624-M003-048E	26-AUG-1983	65.583
8624-H006-006E	23-OCT-1983	53.154
8620-C055-001E	07-DEC-1983	2.973
8624-M003-050E	07-AUG-1984	19.978
8624-P028-081E	25-NOV-1985	13.225
8924-S006-001E	25-AUG-1990	207.907

Total For Parcel #8 **995.861 km**

Parcel # 9

Program Number	Completion Date	Line Segment (km)
8624-T007-006E	14-OCT-1970	48.206
8624-M003-007E	22-NOV-1971	156.348
8624-M003-017E	02-JUL-1973	64.734
8620-G001-001E	23-NOV-1973	31.972
8620-G022-001E	10-OCT-1977	90.000
8924-H028-002E	21-SEP-1991	52.353
8924-H028-003E	09-AUG-1992	38.46
8920-M033-001E	13-AUG-1992	208.49

Total for Parcel #9 **690.563 km**

Parcel # 10

Program Number	Completion Date	Line Segment (km)
8624-C015-001P	14-OCT-1969	11.15
8624-T007-006E	14-OCT-1970	102.595
8620-T007-005E	29-JUL-1971	48.171
8624-M003-007E	22-NOV-1971	15.548
8624-M003-017E	02-JUL-1973	1.562
8620-T007-007E	22-AUG-1973	64.587
8624-T007-011E	26-NOV-1974	58.914

Total for Parcel #10 **302.527 km**

To order reports contact the Canada-Newfoundland Offshore Petroleum Board (C-NOPB)

**Tel: (709) 778-1400
Fax: (709) 778-1473**

SIGNIFICANT DISCOVERIES DISCOVERED RESOURCES

FIELD	OIL (MMSTB)	GAS (BSCF)	NGL'S (MMSTB)
GRAND BANKS			
HIBERNIA	666	1017	111
TERRA NOVA	406	269	14
HEBRON	195	-	-
WHITEROSE	178	1509	58
WEST BEN NEVIS	25	-	-
MARA	23	-	-
BEN NEVIS	19	229	30
NORTH BEN NEVIS	18	115	4
SPRINGDALE	14	236	-
NAUTILUS	13	-	-
KING'S COVE	10	-	-
SOUTH TEMPEST	8	-	-
EAST RANKIN	7	-	-
FORTUNE	6	144	8
SOUTH MARA	4	470	11
NORTH DANA	0	30	1
TRAVE	0	CONFIDENTIAL	CONFIDENTIAL
WEST BONNE BAY	CONFIDENTIAL	CONFIDENTIAL	CONFIDENTIAL
SUBTOTAL (GRAND BANKS)	1 592	4 019	237
LABRADOR			
NORTH BJARNI	0	2 235	82
GUDRID	0	920	6
BJARNI	0	859	31
HOPEDALE	0	105	2
SNORRI	0	105	2
SUBTOTAL (LABRADOR)	0	4 224	123
TOTAL	4 224	8 243	360

Source: 1998-99 C-NOPB Annual Report

These resource estimates are currently under review by the C-NOPB to reflect the results of recent drilling. Positive upgrades are anticipated.



Department of Mines and Energy
Government of Newfoundland and Labrador

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