



OFFSHORE OPPORTUNITY - 2012 LICENCE ROUND

CALL FOR BIDS NL12-02, FLEMISH PASS BASIN, OFFSHORE NEWFOUNDLAND

EXECUTIVE SUMMARY

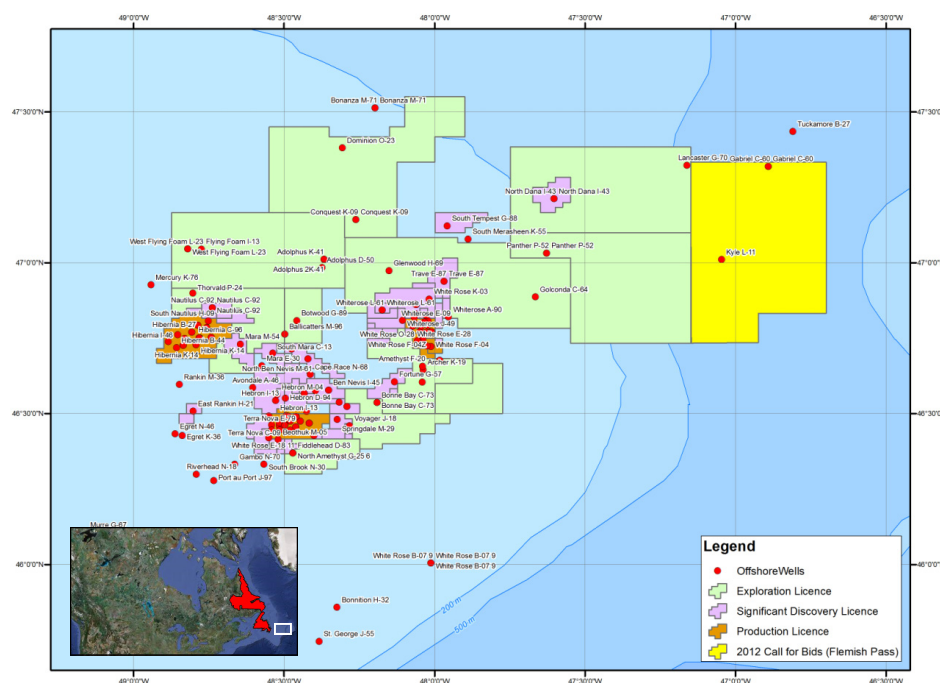
On April 5th 2012, the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) announced the 2012 Call for Bids which includes one parcel in the area of the Flemish Pass, off the east coast of the island of Newfoundland, Canada. This parcel is located mostly within the Flemish Pass Basin, where structural, stratigraphic and composite traps are seen on seismic data. The Flemish Pass Basin is a lightly explored basin that has only seven exploration wells and one delineation well. The most recent exploration well in the basin, Mizzen O-16, was a significant oil discovery, and represents the first significant oil discovery in the region outside the prolific oil-producing Jeanne d'Arc Basin. Bids are sought by November 1st, 2012 for this offshore opportunity with excellent oil and gas potential.

OVERVIEW

Located on Canada's East Coast, the Province of Newfoundland and Labrador has sustained significant levels of industry interest in its highly prospective offshore and onshore basins. Since first oil in November 1997, the province's four producing fields of Hibernia, Terra Nova, White Rose and North Amethyst have produced in excess of 1.3 billion barrels of oil.

Hebron, expected to be the province's fifth producing field, is being designed utilizing a Gravity Based Structure (GBS), with first oil expected in 2017.

With substantial undiscovered resources estimated at 6 billion barrels of oil and 60 trillion cubic feet of natural gas, the region holds great potential. Land available in the 2012 Call for Bids offers all explorers excellent opportunities for more significant discoveries.



FLEMISH PASS BASIN, OFFSHORE EASTERN NEWFOUNDLAND, CANADA

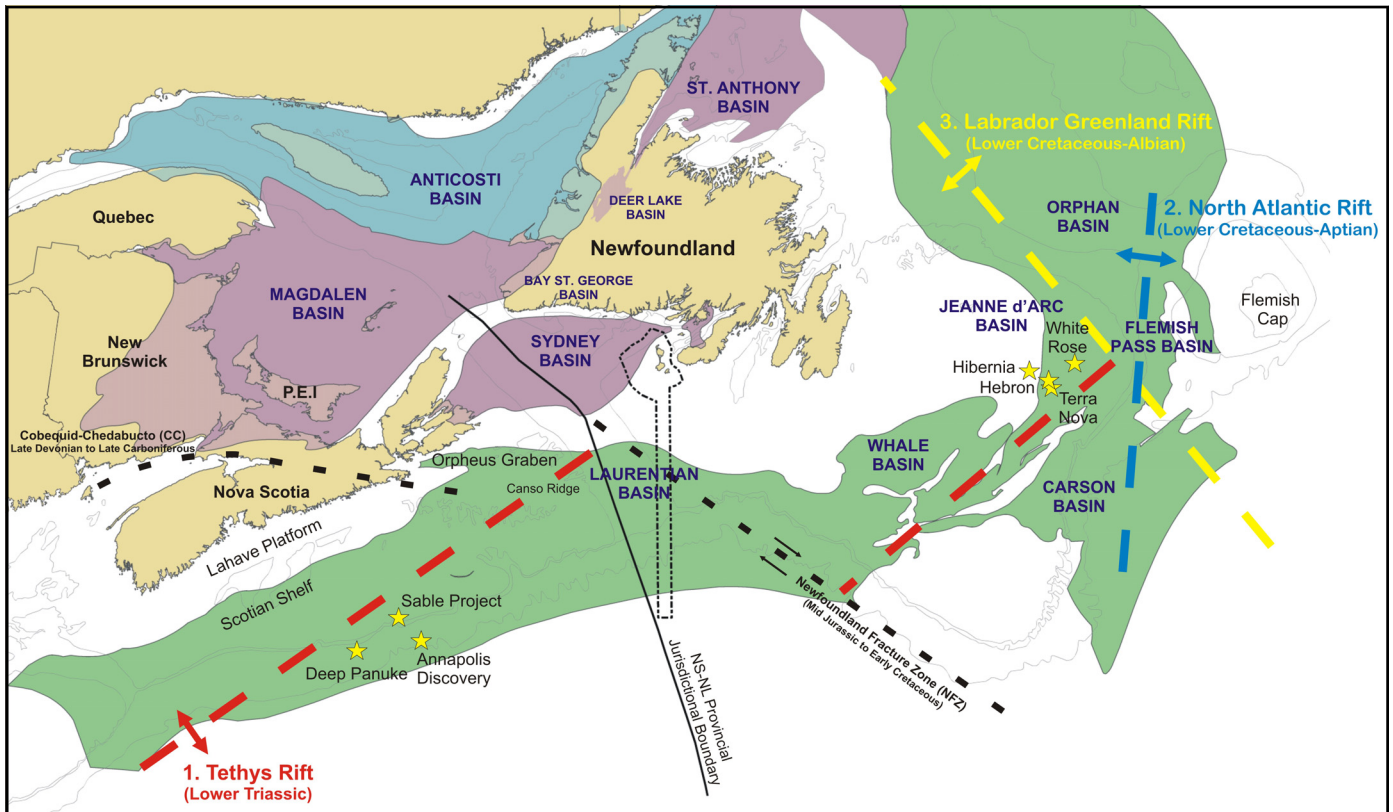
KEY ATTRIBUTES

- One large parcel totaling 208,899 hectares (516,201 acres or 2,089 km²).
- Located in intermediate to deep water of the Flemish Pass Basin, east of the island of Newfoundland, Canada. Water depth ranges from 390m to 1,200m (average depth 1,100m).
- Competitive fiscal regime with very low political risk.
- Proximity to both North American and European markets.
- Open and transparent land management and bid processing system.
- Winning bidder granted exploration rights on work commitment basis.
- Deadline for submission is 4PM NST, November 1st, 2012.
- For more information, see <http://www.cnlopb.nl.ca/news/nr20120404.shtml>.



ATLANTIC MARGIN BASINS REGIONAL GEOLOGY

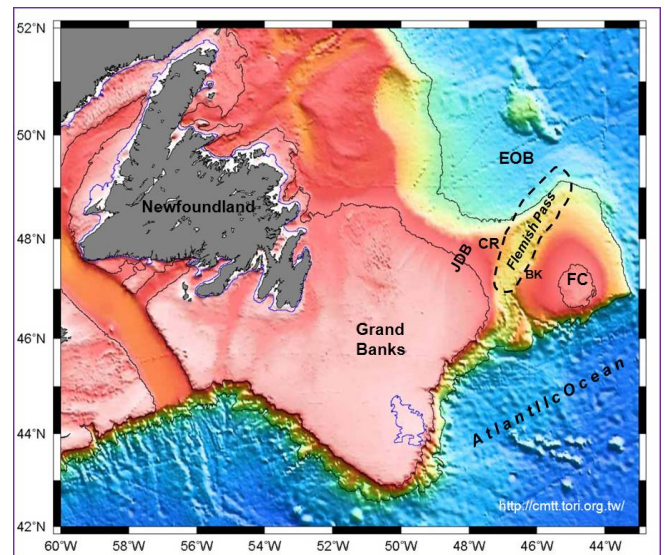
- The approximately 14,000km² Flemish Pass Basin is a Mesozoic-Tertiary extensional basin developed over stretched Precambrian and Paleozoic basement on the North American Atlantic Margin.
- Late Triassic to Early Jurassic rifting of Pangea created a chain of NE-SW oriented intracratonic basins extending from the Gulf of Mexico to the Barents Sea. Oblique and perpendicular rift branches (e.g. Bay of Fundy, Orpheus Graben, Aquitaine Basin, Viking Graben, Labrador Sea and others) were also formed during this series of tectonic events.
- In eastern Canada, the Tethys rift basin chain starts with the George's Bank Basin offshore New England and stretches through the Scotian shelf and slope basins and subbasins. The system continues NE with the shallow-water Grand Banks Basins before extending to the deep water Flemish Pass and Orphan basins, and likely branches into the Labrador Sea.
- Major rift bounding faults dissect the continental margin and were reactivated several times, forming confined basins such as the Horseshoe, Whale, Jeanne d'Arc, Flemish Pass and most of the Orphan Basin, as well as unconfined basins such as Laurentian, South Whale, Carson, and offshore Labrador basins.



REGIONAL GEOLOGY OF THE CANADIAN ATLANTIC MARGIN, SHOWING MAJOR TECTONIC ELEMENTS

FLEMISH PASS BASIN GEOLOGY

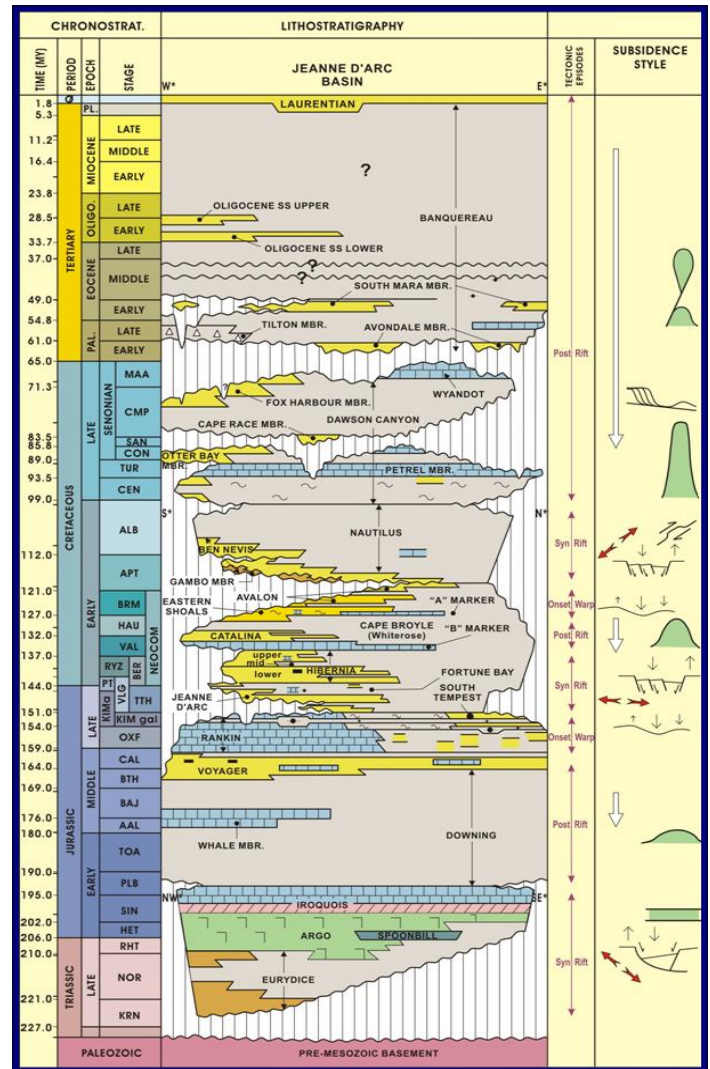
- The Flemish Pass Basin is a typical Mesozoic rift basin partially separated to the west from the Jeanne d'Arc Basin by the Central Ridge. Modern seismic data indicates that the Flemish Pass Basin is in structural continuity to the north with the stratigraphically deeper East Orphan Basin.
- Most of the basin lies in the Bathymetric low known as the Flemish Pass, located between the Grand Banks and the Flemish Cap.
- The Flemish Pass contains a Mesozoic to Tertiary basin that was intersected by a discovery well (Mizzen O-16) and another well (Mizzen L-11) with good oil shows. Several other wells in the basin have intersected good reservoir and/or source rocks.
- The basin was affected by four stages of rifting, two stages of transtension and one stage of inversion in the Late Cretaceous - Early Tertiary. A thinned continental crust underlies the basin. It is bounded by shallow basement highs to the west, east and south that are underlined by normally thick crust. No transitional or oceanic crust was emplaced within the basin.



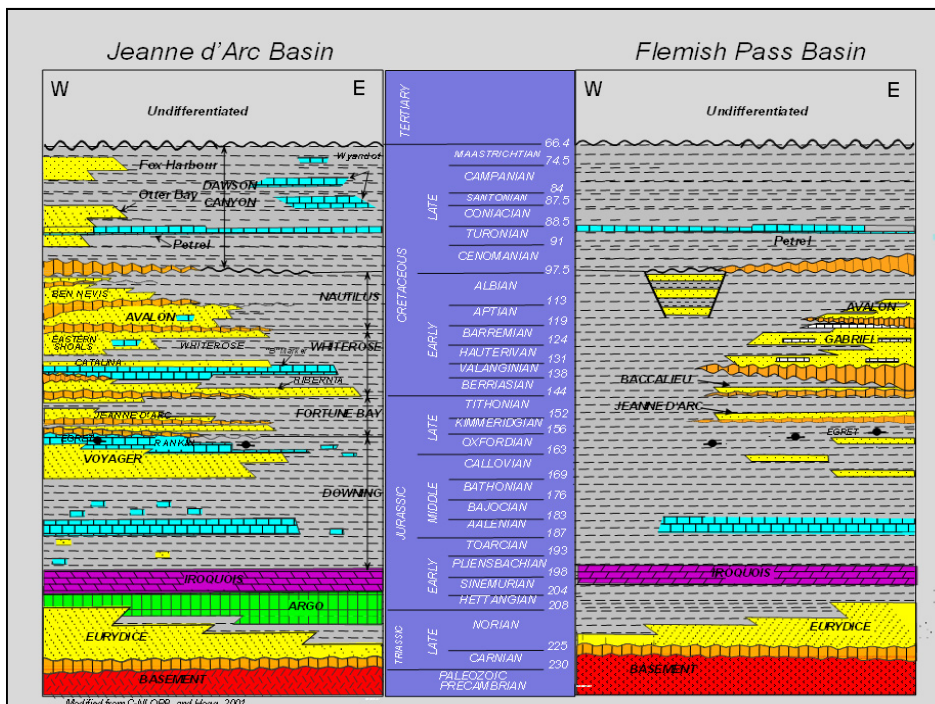
BATHYMETRY & PHYSIOGRAPHY OF THE FLEMISH PASS BASIN

FLEMISH PASS BASIN GEOLOGY

- The Flemish Pass Basin has been described as the oceanward member of a double failed rift system that includes the westerly Jeanne d'Arc Basin and the Central Ridge.
- Although compartmentalized by major basin detachment faults, the Jeanne d'Arc and Flemish Pass basins share a common evolutionary history and comparable stratigraphy.
- The tectono-structural evolution of the Flemish Pass Basin includes several synrift stages, each followed by thermal subsidence and accumulation of mainly clastic sediments with minor carbonates. Carbonate-rich successions in the Lower Jurassic remain below drilling depth in most of the basin.
- Although Argo salt has not been encountered in the basin, there are indications of salt in the southern area and south-west flank. Stratified salt may be more likely in the Flemish Pass rather than thick, diapiric salt typical of other Grand Banks Basins.
- Shown to the right is the lithostratigraphy, tectonics, subsidence and petroleum geology of the Jeanne d'Arc Basin. While this is often used for the genetically-related Flemish Pass Basin, local differences exist as to sand distribution and provenance, as well as source rock quality and distribution.
- On most structural highs drilled in the basin, the Late Cretaceous succession is either very thin or absent, having been eroded at the base Tertiary unconformity due to significant uplift and inversion of earlier structures.
- Local stratigraphic terms such as the Gabriel sandstone (equivalent to Eastern Shoals and Catalina sandstones) and Bacallieu sandstone (equivalent to Hibernia sandstone) are informally used by industry in the basin.
- The Bacallieu sandstone, that was found to have good reservoir properties in several wells, consists of stacked sandstone layers. The sandstone is described as being the equivalent of the Hibernia sandstone and as Berriasian in age, though some reports show it straddling the Berriasian-Tithonian boundary.



TYPICAL LITHOSTRATIGRAPHY OF THE GRAND BANK BASINS

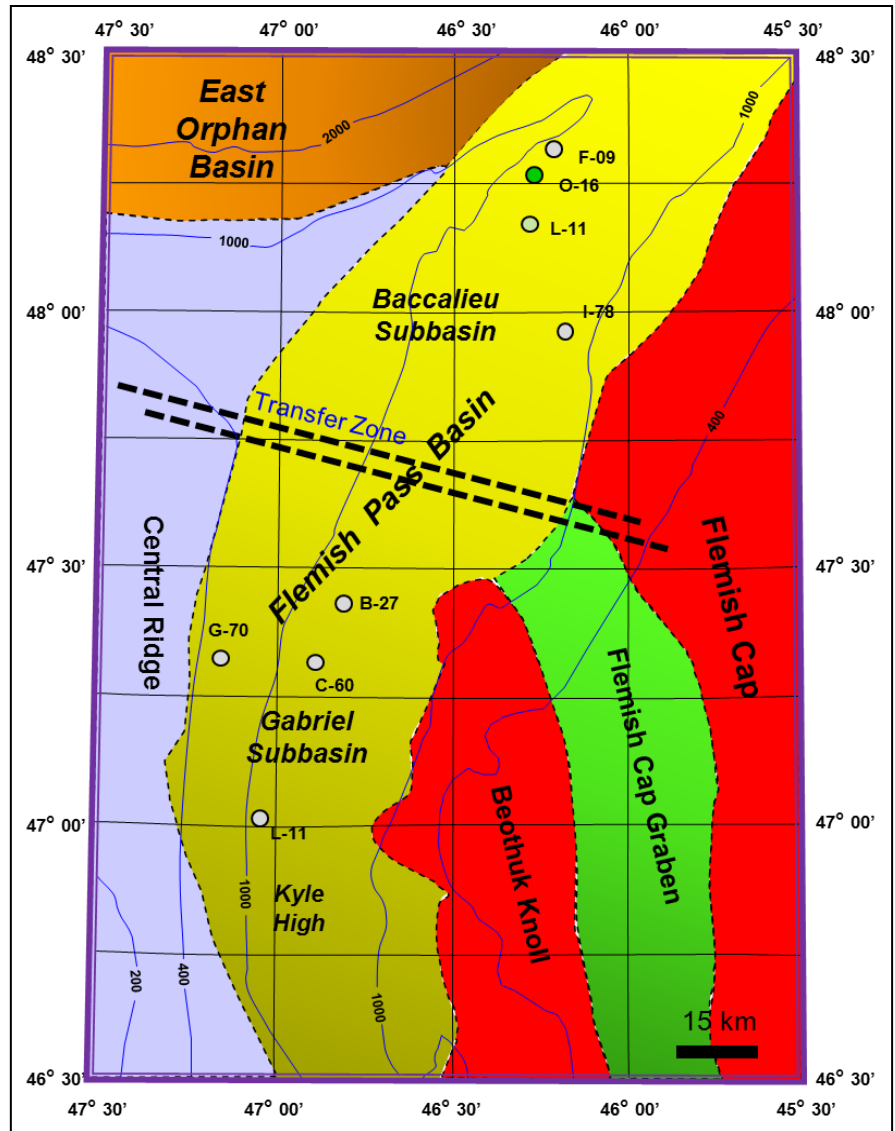


COMPARATIVE STRATIGRAPHY OF THE JEANNE D'ARC AND FLEMISH PASS BASINS

- Several Tithonian sandstone reservoirs were encountered in the three Mizzen wells that were drilled in the basin. These sandstones are time-equivalent to the Jeanne d'Arc sandstone but have a different provenance area, composition and reservoir properties.
- This suggests that Late Jurassic and Early Cretaceous sandstones encountered in the north Flemish Pass Basin wells are sourced from the Central Mobile Belt, Avalon Zone (both Appalachian terrains), Iberian peninsula and locally from granodiorites from the Flemish Cap.
- Most recent stratigraphic work in the basin has introduced the informal terms of Ti-0, Ti-1, Ti-2 and Ti-3 for four Tithonian sandstone intervals (equivalent to Jeanne d'Arc Formation sandstones) encountered in the Mizzen wells.

FLEMISH PASS BASIN STRUCTURE

- Based on structural, tectonic and stratigraphic differences, the Flemish Pass Basin can be divided into two sectors separated by a transfer fault and associated accommodation zone.
- Gabriel Subbasin:** This sector, trending approximately N-S, is located in the southern part of the basin. Four wells have been drilled here to date. Gabriel C-60 encountered a thick Late Valanginian/Hauterivian to mid-Barremian sandstone interval (1600m gross) that was informally named the Gabriel sandstone. Kyle L-11 was drilled on a southern basement high and encountered more than 150m of Hibernia equivalent sandstone but did not encounter any Jurassic rocks and terminated in Avalon metasediments. Lancaster G-70 was drilled on the western flank of the subbasin close to the Central Ridge and penetrated Tertiary shales before going directly into the late Jurassic Rankin Formation, intersecting a reservoir described as lower Tempest sandstone and Kimmeridgian source rocks. The most recent well, Tuckamore B-27, intersected over 350m of Gabriel sandstone reservoir and reached TD short of the Jurassic beds seen on seismic data.
- In this part of the basin, the Late Cretaceous sedimentary sequence is either too thin or absent due to erosion. However, the Early Cretaceous sequence is thick and contains excellent reservoirs. Seismic correlations to the above-mentioned wells point toward the existence of good Early Cretaceous and Late Jurassic reservoirs, as well as thick Late Jurassic source rocks, in the central part of the subbasin. Moreover, large Jurassic and Early Cretaceous structural prospects remain undrilled in this subbasin.

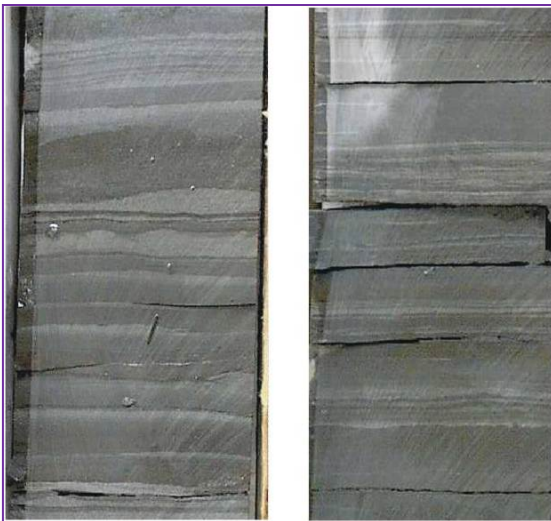


TECTONO-STRUCTURAL SUBUNITS OF THE FLEMISH PASS BASIN

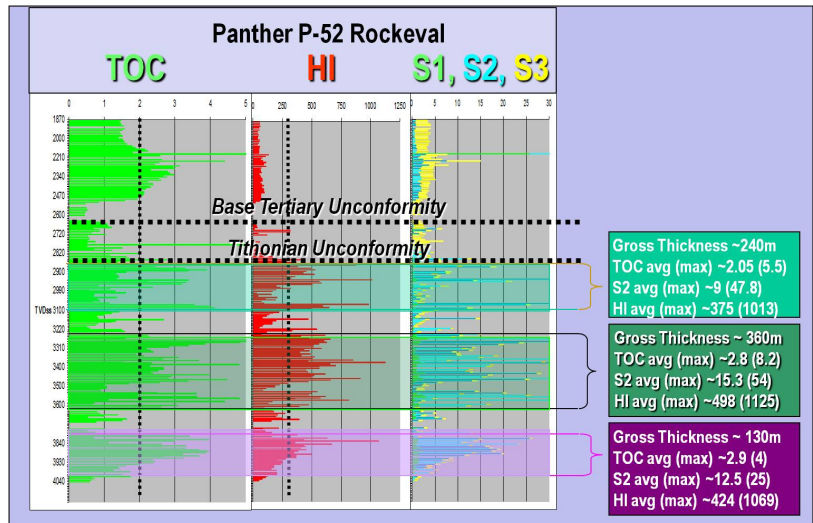
- Baccalieu Subbasin:** This subbasin, trending NNE-SSW is located in the northern part of the Flemish Pass Basin. This part of the basin was affected by significant extension and subsidence from Hauterivian to Barremian. There is no evidence of Gabriel sandstone being deposited during this time interval but a predominantly shaly-silty sequence is present. The Baccalieu Subbasin was drilled by two older wells, the Esso et al. Baccalieu I-78 well in 1985 and the Petro-Canada et al. Mizzen L-11 well in 2003. Both wells were located on basement cored faulted anticlines.
- The Baccalieu I-78 well intersected a predominantly shaly Early Cretaceous sequence interrupted only by approximately 40m of Avalon equivalent sandstone and about 80m of Early Berriasian sandstone. Standing just above the Top Jurassic (Tithonian) Unconformity, this Berriasian interval is informally known as the Baccalieu sandstone.
- The Mizzen L-11 well was located in the Baccalieu Subbasin based on a large 3D seismic program. The well encountered 5m of oil on logs, within what was reported to be the Baccalieu sandstone and is now re-evaluated to be a late Tithonian sandstone. This show was successfully delineated by the Mizzen O-16 well in 2009, which encountered 42m of Ti-3 reservoir. A follow up, Mizzen F-09 failed to extend the accumulation to the northward fault block in which it was drilled. This well is the northernmost drilling location in the subbasin and proved the presence of Late Jurassic source rock and stacked reservoir rocks at the border between the Flemish Pass and East Orphan basins.
- Large anticlines, rotated fault blocks and parts of the Mizzen structure, remain undrilled in this subbasin and adjacent East Orphan Basin. Two intersecting fault systems oriented NNE-SSW (major system) and NNW-SSE can be interpreted on seismic data.

PETROLEUM GEOLOGY: SOURCE ROCKS

- Geochemical research on organic shale intervals from wells in the basin and Central Ridge area indicates that the prolific Kimmeridgian Egret Member extends from the Jeanne d'Arc Basin across the ridge and into the Flemish Pass.
- The lithology of the Egret Member in the Jeanne d'Arc Basin is interbedded shales and carbonates with shales becoming dominant toward the NE.
- In the Jeanne d'Arc Basin, the Egret contains Type II oil-prone organic matter, ranges from 55m to >200m thick, and displays an average TOC content of 4.5%. The Egret beds in the Flemish Pass Basin average 130m thickness, an HI range of 197 to 586 (average 328) and TOC range of 1.9% to 13% (average 2.3%).
- A geochemical study performed on samples of the Mizzen L-11 oil collected at 3350m depth indicates that the oil at the discovery is not biodegraded, and was likely sourced from a mixture of mature Egret Member oil and a more immature source, likely Tithonian.
- The Egret Member source rock has been mapped in the Flemish Pass Basin. Results of this mapping indicates that there may be a large range of variation in maturity for this source rock interval, depending on position within the basin. The Tithonian sandstone sequence which contains the main oil accumulation at Mizzen contains interbedded Tithonian shales of 8% to 12% TOC.
- The nearest well to the offered parcel that logged Egret source rock is Lancaster G-70 which intersected an upper Kimmeridgian source interval between 3207m and 3761m and a lower Kimmeridgian source interval divided by a Lower Tempest sandstone between 4736m and 4856m.
- Several intervals of older Late Jurassic shales (Callovian and Oxfordian) have good petroleum source properties as indicated in the lower part of the Panther P-52 well, located approximately 50km west of Parcel NL12-02-01. Another possible source rock is the Albian shale (Nautilus Formation) that showed rich marine organic content when drilled by IODP leg 210, at a location just east of the Flemish Cap. This interval may be mature in the deeper troughs of the north Flemish Pass Basin/southeast Orphan Basin.



EGRET SOURCE ROCK CORE FROM BACCALIEU I-78



ROCK EVAL PARAMETERS FOR LATE JURASSIC INTERVAL IN PANTHER P-52

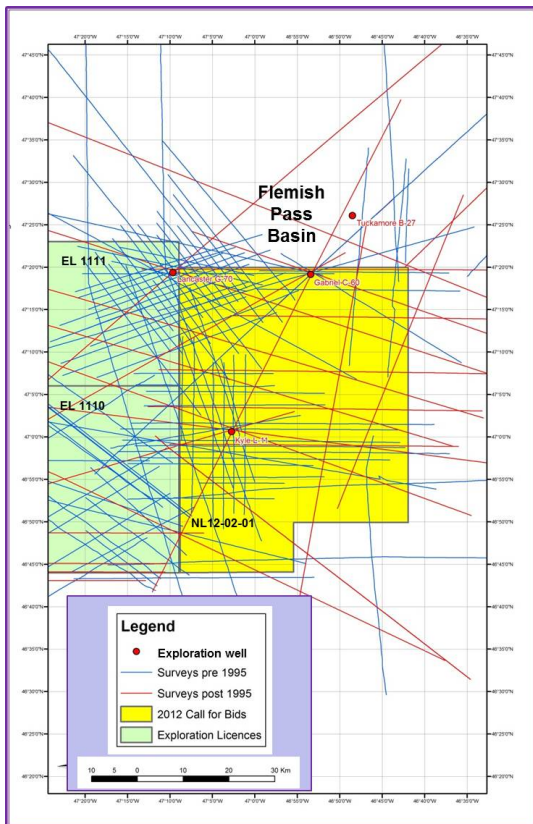
PETROLEUM GEOLOGY: RESERVOIRS, SEALS & TRAPS

- Reservoir rocks in the Flemish Pass Basin are high porosity-high permeability sandstones of Late Jurassic to Early Cretaceous age. No noteworthy Late Cretaceous or Early Tertiary sandstone intervals have been encountered to date in the basin.
- A positive test in the basin was obtained from Tithonian sandstones in the Mizzen O-16 well, which flowed 3800 bopd from the interval 3213m to 3224m. This reservoir is interpreted as a fine- to medium-grained sublitharenite of fluvio-marine origin. The Ti-3 sandstone was also encountered in Mizzen L-11 where it had oil pay and in F-09 where it had water with traces of oil.
- The Gabriel Sandstone was intersected in both the Gabriel C-60 and Tuckamore B-27 wells straddling the central axis of the Gabriel Subbasin. In the C-60 well the Gabriel Sandstone occurs in a Hibernia Formation equivalent section. Stacked sandstone had porosities between 10% and 20% and numerous oil shows. A core from the Gabriel Sandstone taken between 4436m and 4451m has been reported as bleeding oil along a sand/shale interface. On the western margin of the basin the Lancaster G-70 well intersected several beds of porous Tempest Sandstone. This sandstone has flowed hydrocarbons on adjacent wells located on the Central Ridge.
- Seals are not an anticipated exploration risk within the Flemish Pass Basin as the extensional and thermal subsidence stages contain several successions of very fine clastics. Marine shales of Berriasian-Valanginian age are the main sealing units of the Mizzen. The field's many normal faults are vertically sealed by the White Rose, Nautilus and Dawson Canyon shales.
- A variety of traps have been found to be successful in the Jeanne d'Arc Basin, Central Ridge and Flemish Pass Basin. The traps were typically created during the rift stage or subsequent intrusion and movement of salt bodies. In the Flemish Pass Basin, salt movements are suggested by seismic data in the southwestern part of the basin only. However, inversion due to transtension has also created structural traps. In the Jeanne d'Arc Basin, the largest petroleum accumulations were found in structural and combination traps.

PETROLEUM GEOLOGY: WELL DATA

Well	Location	Avalon ss	Gabriel ss	Baccalieu ss	Late Jurassic ss	Test	Producer	Source
Exploration		from-to m	from-to m	from-to m	from-to m			Rocks
Gabriel C-60	Flemish Pass Basin	No	2940-4553	No	No	Yes	No	No
Baccalieu I-78	Flemish Pass Basin	2030-2220	No	3195-3275	4 intervals 3274-4088	No	No	Yes, Egret, Tithonian?
Kyle L-11	Flemish Pass Basin	2368-2627	No	"Hibernia equiv"	No	No	No	No
Lancaster G-70	Flemish Pass Basin	No	No	No	Lower Tempest 3764-3789	No	No	Yes, Egret
Tuckamore B-27	Flemish Pass Basin	No	2511-2875	Not penetrated	Not penetrated	No	No	No
Mizzen L-11	Flemish Pass Basin	No	No	Poor intervals	3 intervals 3340-3775	No	5 m on logs	Yes, Egret, Tithonian?
Mizzen O-16	Flemish Pass Basin	No	No	Poor beds	4 intervals 3201-3664	Yes	1 interval	Yes, Tithonian?
Delineation								
Mizzen F-09	Flemish Pass Basin	No	No	No	4 intervals 3335-3672	No	No	Yes
Other signif. Wells								
South Tempest G-88	N. Central Ridge	No	No	No	Tempest ss 7 intervals 3468-4117	Yes	3 intervals	Yes, Egret
Trave E-87	N. Central Ridge	No	No	Hibernia 2139-2520	No	Yes	2 intervals	Yes, Egret
North Dana I-43	N. Central Ridge	No	No	No	Lower Tempest ss 4437-4548	Yes	1 interval	Yes, Egret
Panther P-52	N. Central Ridge	No	No	No	2 Tempest intervals 3580-3775	No	No	Yes, Egret

PETROLEUM GEOLOGY RESULTS OF WELLS IN THE FLEMISH PASS BASIN AND SURROUNDING AREAS

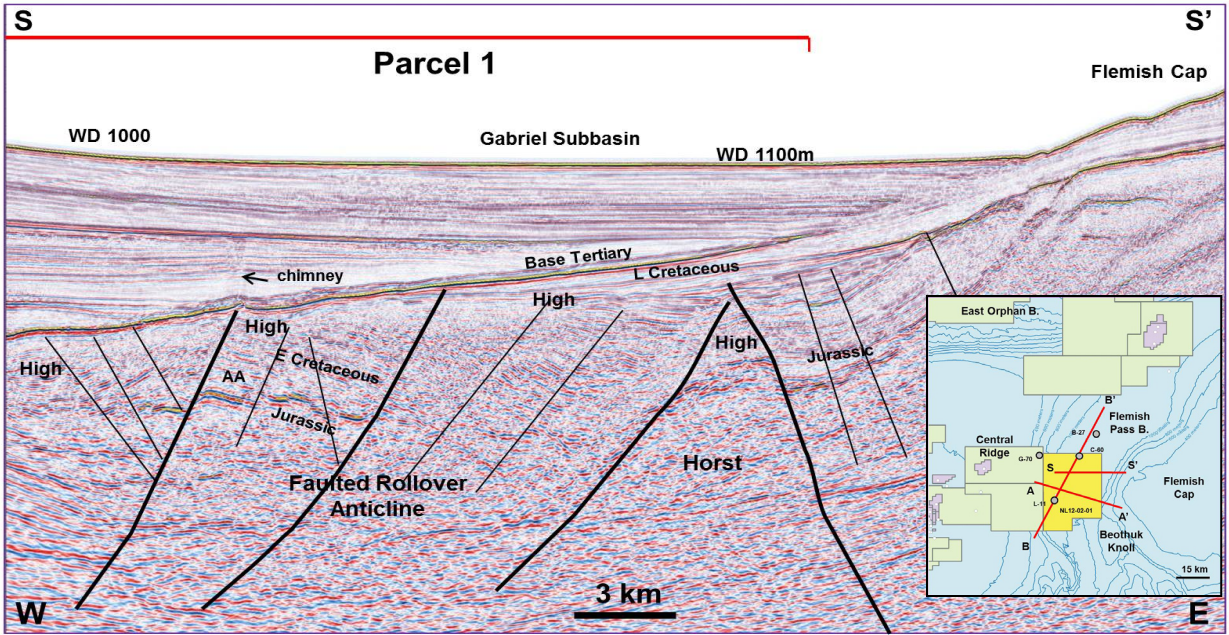


PUBLIC DOMAIN SEISMIC COVERAGE IN THE BLOCK

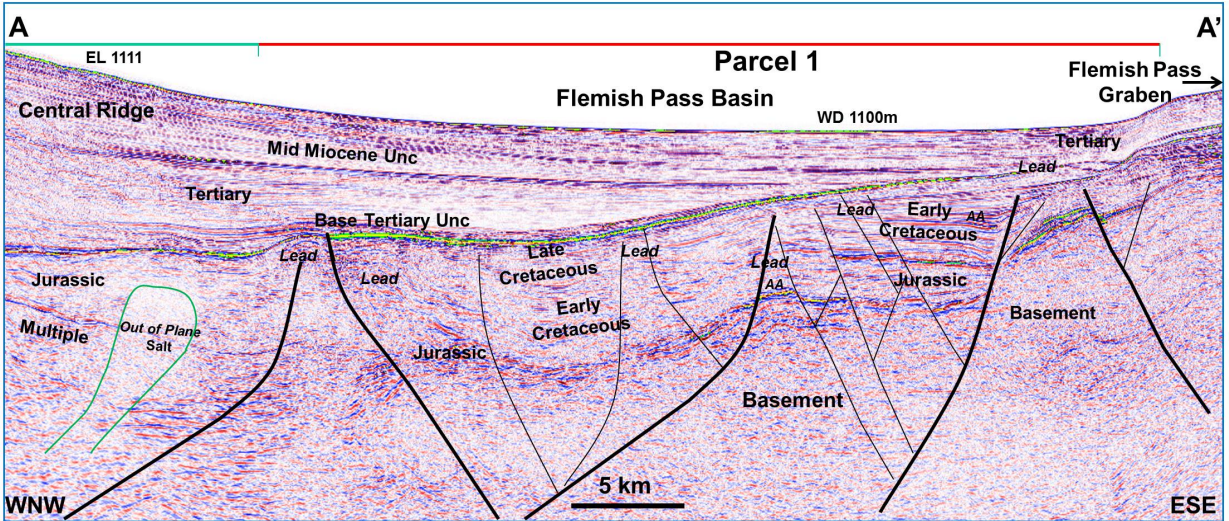
PETROLEUM GEOLOGY: SEISMIC DATA

- Available seismic data coverage in Parcel 1 can be divided into two sets: pre-1995 and post 1995, based on streamer length and use of modern migration algorithms.
- Aside from coverage shown in the adjacent map, additional seismic data may be available from oil companies and data vendors active in the area over the last decade.
- Seismic data coverage and quality is generally good to excellent. Post-1995 data were acquired by leading marine seismic contractors using long streamers (6 to 8 km). Older seismic data were acquired using shorter streamers (2.5 to 4km) and their quality is of lower quality.
- The seismic grid available in the public domain is uneven in places and is much denser on the western flank of the basin where the majority of exploration wells have been drilled.
- Seismic data quality is excellent in the Late Jurassic to Tertiary sequence but deteriorates in the Late Triassic to Mid Jurassic interval. Major and secondary faults are easily traceable. The prerift basement reflector is poorly resolved. Salt diapir walls/wells in the Central Ridge—West Gabriel Subbasin area are poorly imaged.
- The 2D seismic grid over the parcel allows for mapping of several unconformities, formation tops, carbonate intervals and sandstone markers, such as the Mid-Miocene Unconformity, Base Tertiary Unconformity, Wyandot (where present), Cenomanian Unconformity, Avalon Unconformity, Baccalieu sandstone, Top Jurassic (Tithonian Unconformity), Tempest sandstone, Middle Jurassic, Lower Jurassic, Argo Salt and basement (where imaged).
- The most continuous, high reflectivity markers are the Mid-Miocene, Base Tertiary, Avalon and Tithonian Unconformities. Several intra-Gabriel sandstone markers can also be mapped.

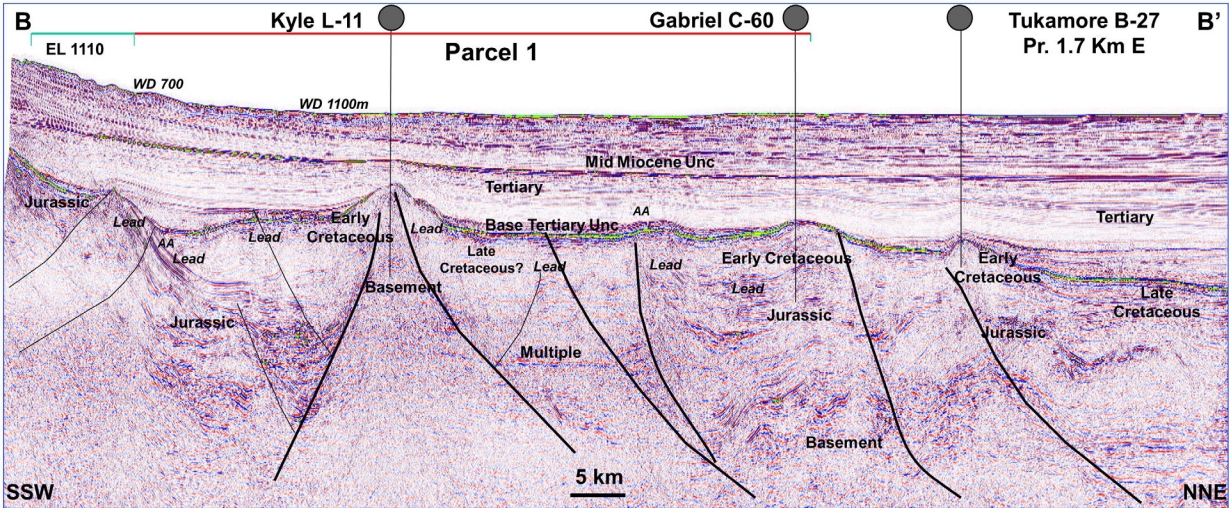
PETROLEUM GEOLOGY: SAMPLE SEISMIC DATA



REPRESENTATIVE DIP SEISMIC LINE S-S'. AA = AMPLITUDE ANOMALIES. COURTESY OF C-NLOPB



INTERPRETED DIP SEISMIC LINE A-A'. AA = AMPLITUDE ANOMALIES. COURTESY OF C-NLOPB



INTERPRETED STRIKE SEISMIC LINE B-B'. AA = AMPLITUDE ANOMALIES. COURTESY OF C-NLOPB

INFORMATION AND CONTACTS

For more information, the following contacts are:

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MANDATE AND ROLES

The C-NLOPB is mandated to apply the provisions of the Atlantic Accord and the Atlantic Accord Implementation Acts to all activities of operators in the Newfoundland and Labrador Offshore Area. Their role is to facilitate the exploration for and development of the hydrocarbon resources, including effective management of land tenure, in a manner that conforms to the statutory provisions set out in the Acts. As offshore regulator and administrator for the Call For Bids, the C-NLOPB are the primary contact for participation in this resource opportunity. They operate a registry to record exploration, significant discovery and production licences and information related to these interests for public review. They are also the curators of all geo-scientific data pertaining to the Newfoundland and Labrador Offshore Area. The C-NLOPB has no active role in promotion of the Province's hydrocarbon resources.

The Government of Newfoundland and Labrador, Department of Natural Resources, is responsible for providing marketing and promotional services to foster the exploration, development and production of the Province's hydrocarbon resources. It is also responsible for promoting the maximization of fiscal and industrial benefits through the negotiation, development, administration and monitoring of petroleum project agreements and legislation.

