



The Barbados Offshore Petroleum Programme

Licensing Opportunities



Presented by
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Ministry of Energy and Water Resources - **Government of Barbados**

AAPG 2019
San Antonio, Texas



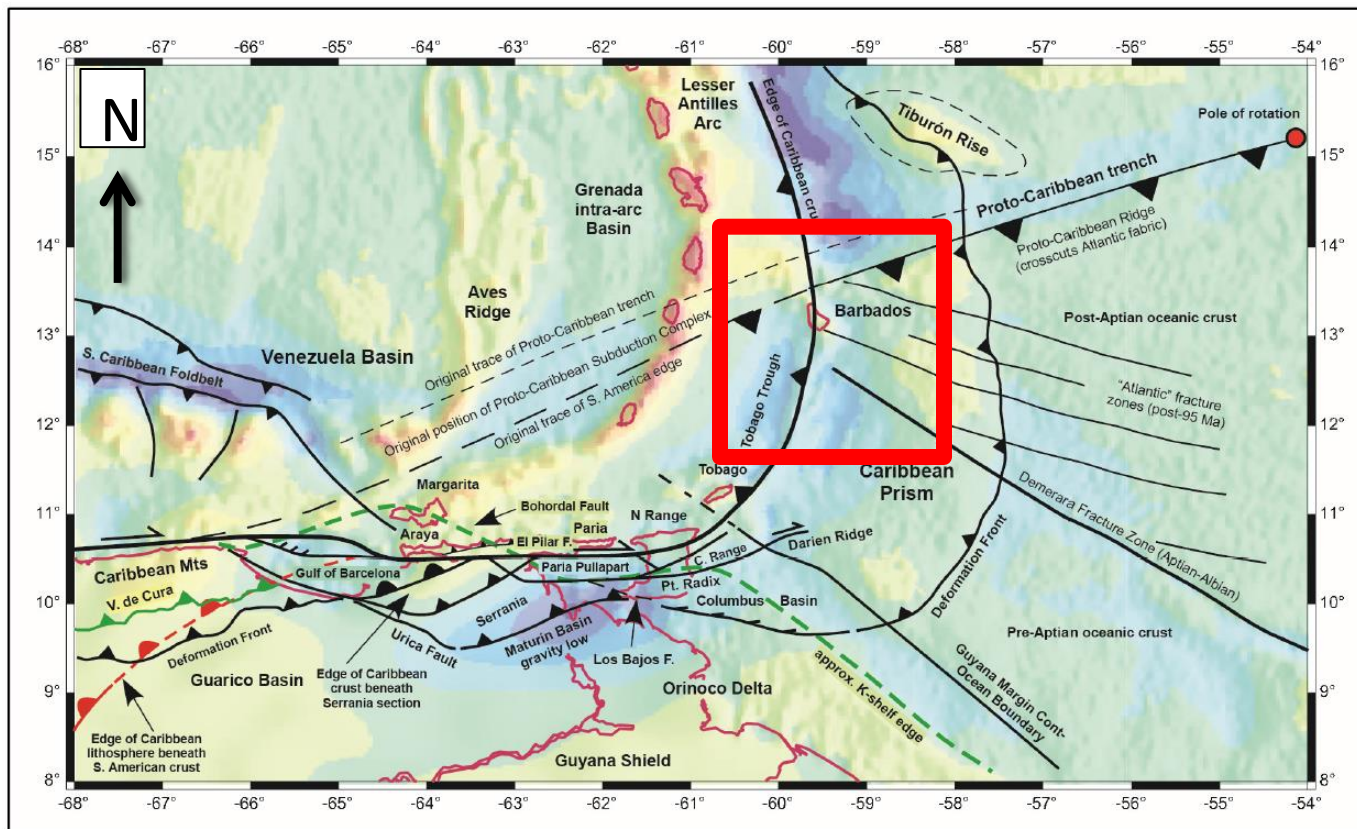
Presentation Outline

- 1. Tectonic and Geologic Setting**
- 2. History of Onshore & Offshore Exploration**
- 3. Barbados Offshore Petroleum Programme**
 - 2007 Licensing Round
 - 2015 Licensing Round
- 4. Important Updates & Recent Developments**
- 5. 2019 Offshore Licensing Opportunities**

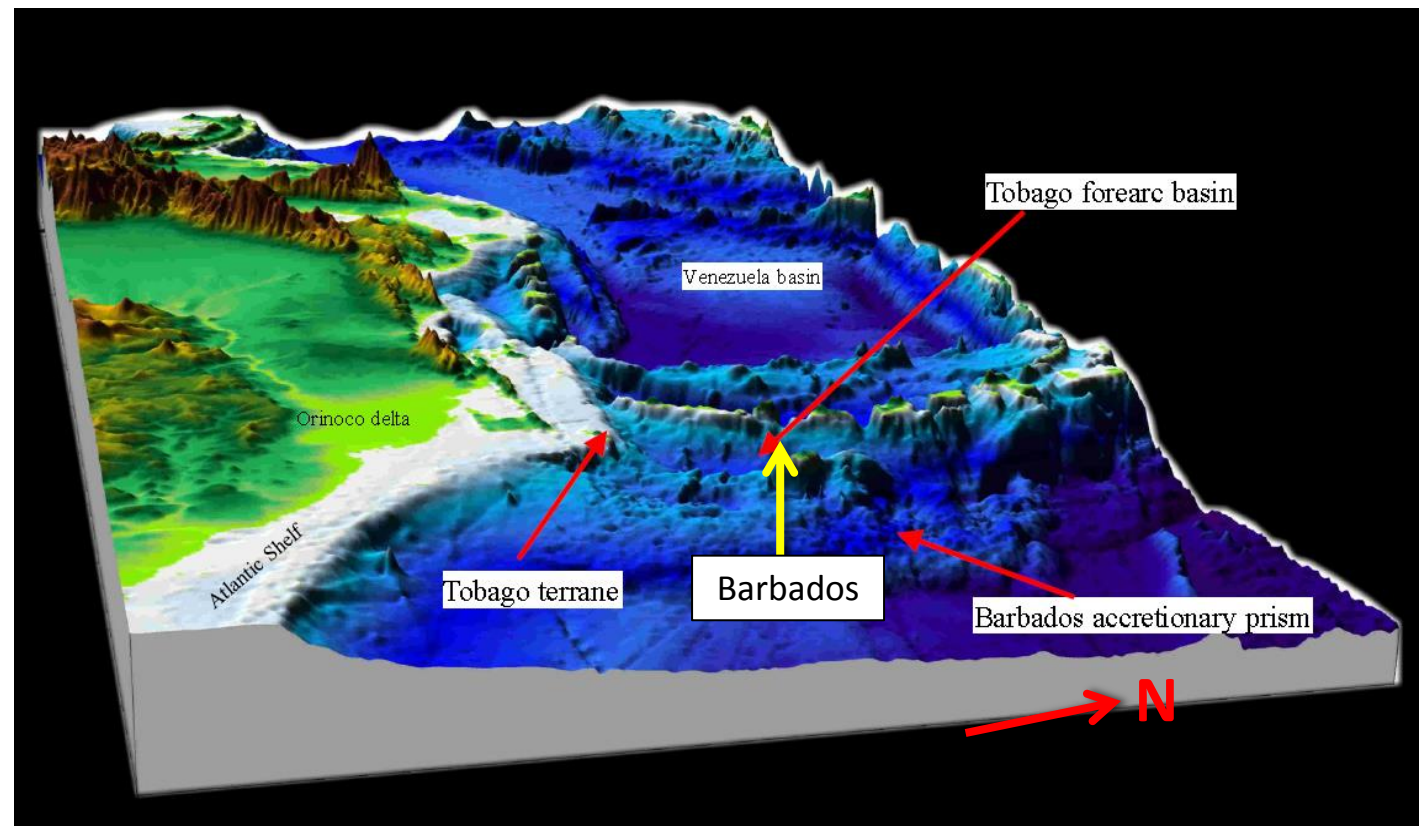
Tectonic and Geologic Setting



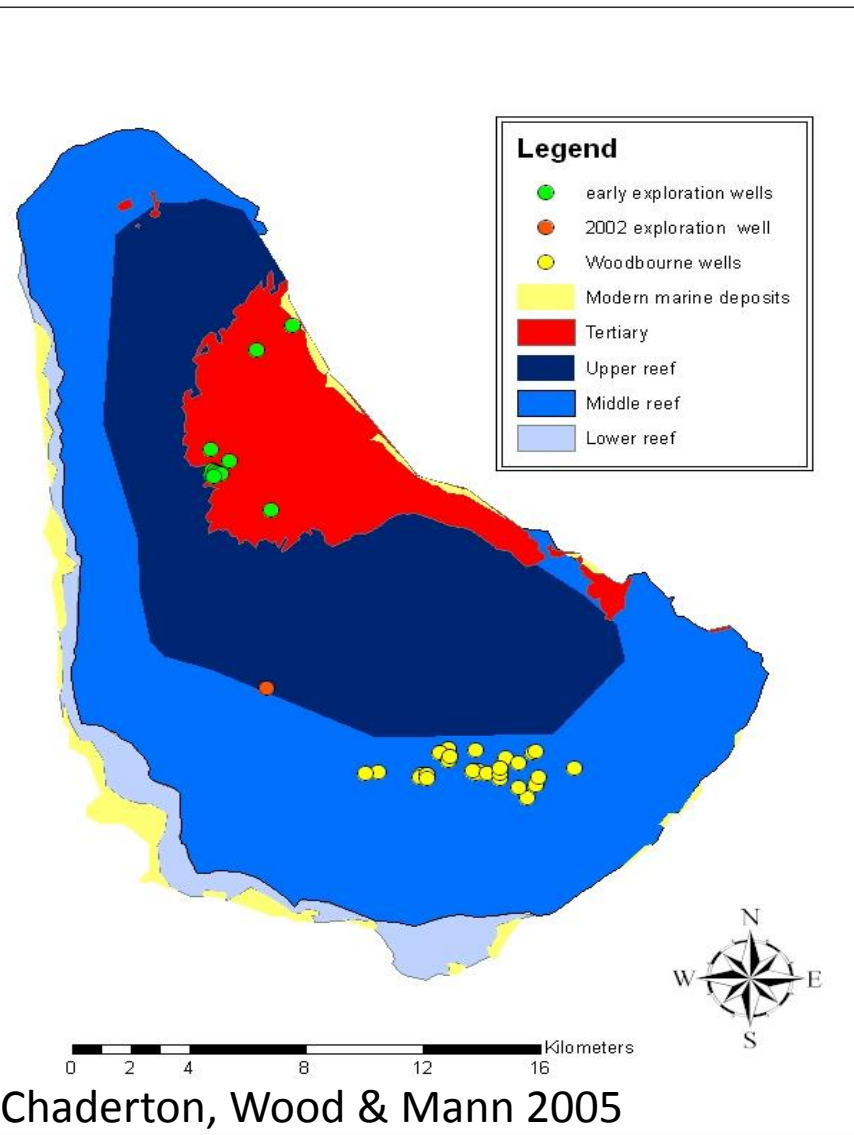
- Barbados is the most easterly island within the Lesser Antilles.
- 166 square miles or 432 square km.
- Convergent margin setting where the South American Plate is subducting beneath the Caribbean Plate.



- The island forms the only sub-aerially exposed section of the Barbados Accretionary Prism which is a 300km wide by 20km thick wedge of sediment.
- The Prism was formed via the off-scraping and accretion of sediment during subduction.



Early Onshore Exploration



- Commercial hydrocarbon exploration and production began in Barbados during the late 1800's with the mining of a solid bituminous hydrocarbon known locally as 'manjak'.
- 'Manjak' was excavated from shallow (30 ft – 100 ft) hand-dug pits in the exposed Eocene turbidite reservoir units of the Scotland Formation.
- In the early 1900s exploration activities expanded outside of the Scotland District as companies such as West India Petroleum, British Union Oil and Gulf Oil drilled new wells in search of hydrocarbons.
- These efforts led to the discovery of the island's first commercial oil field, Woodbourne, in the south east of the island.



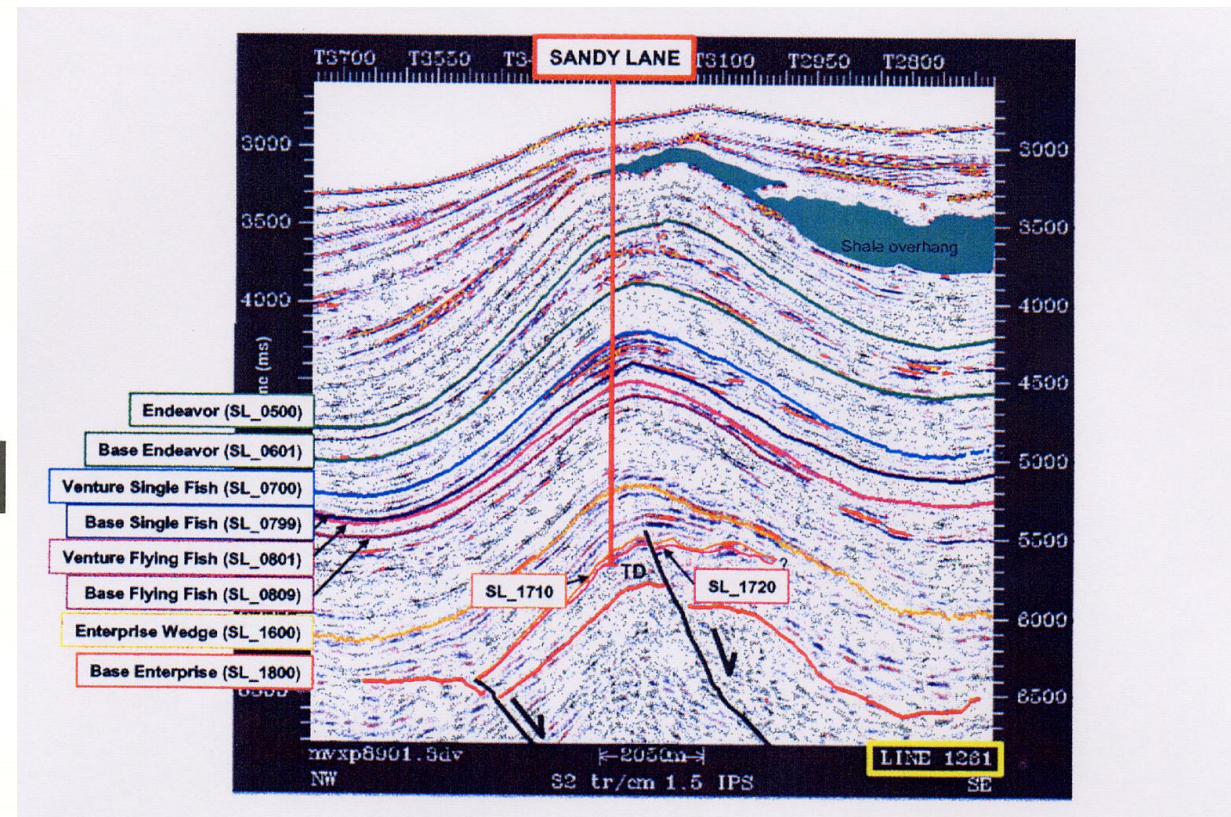
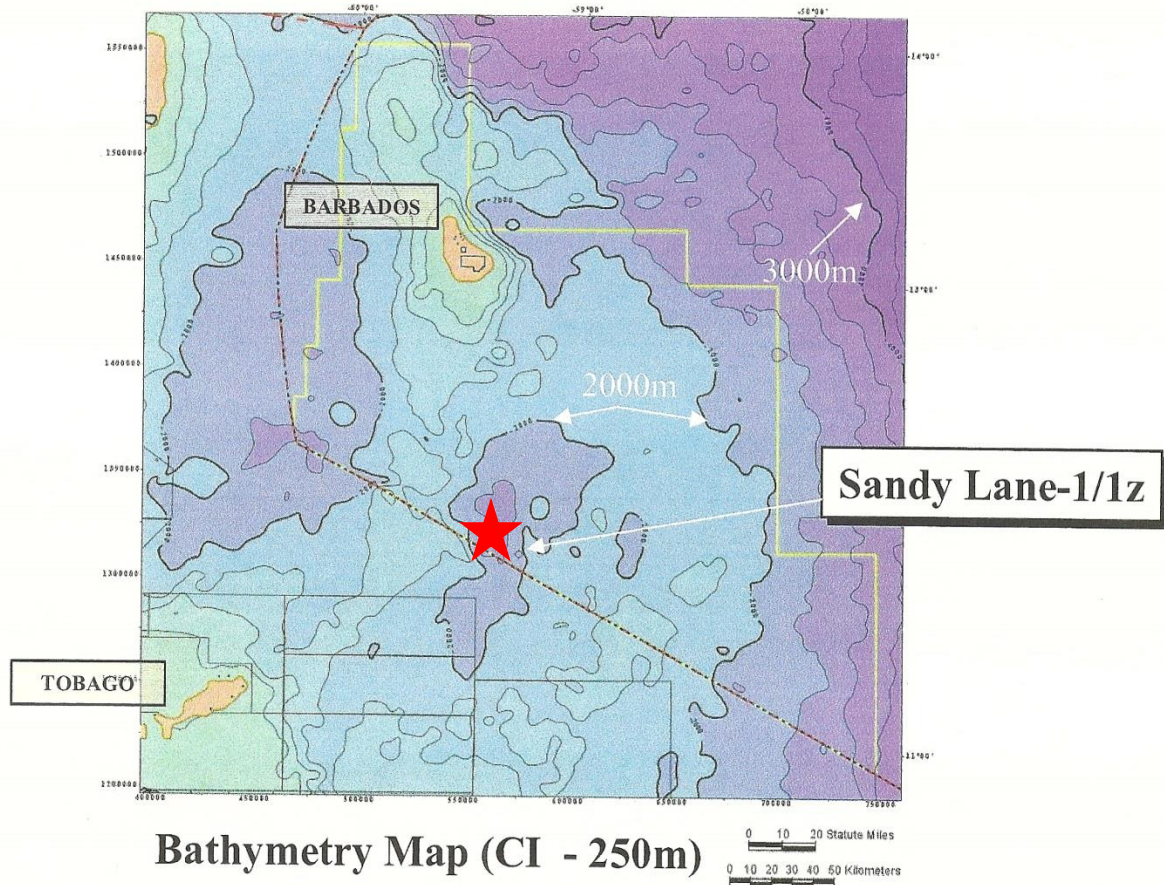
History of Onshore Exploration

Woodbourne Oil Field



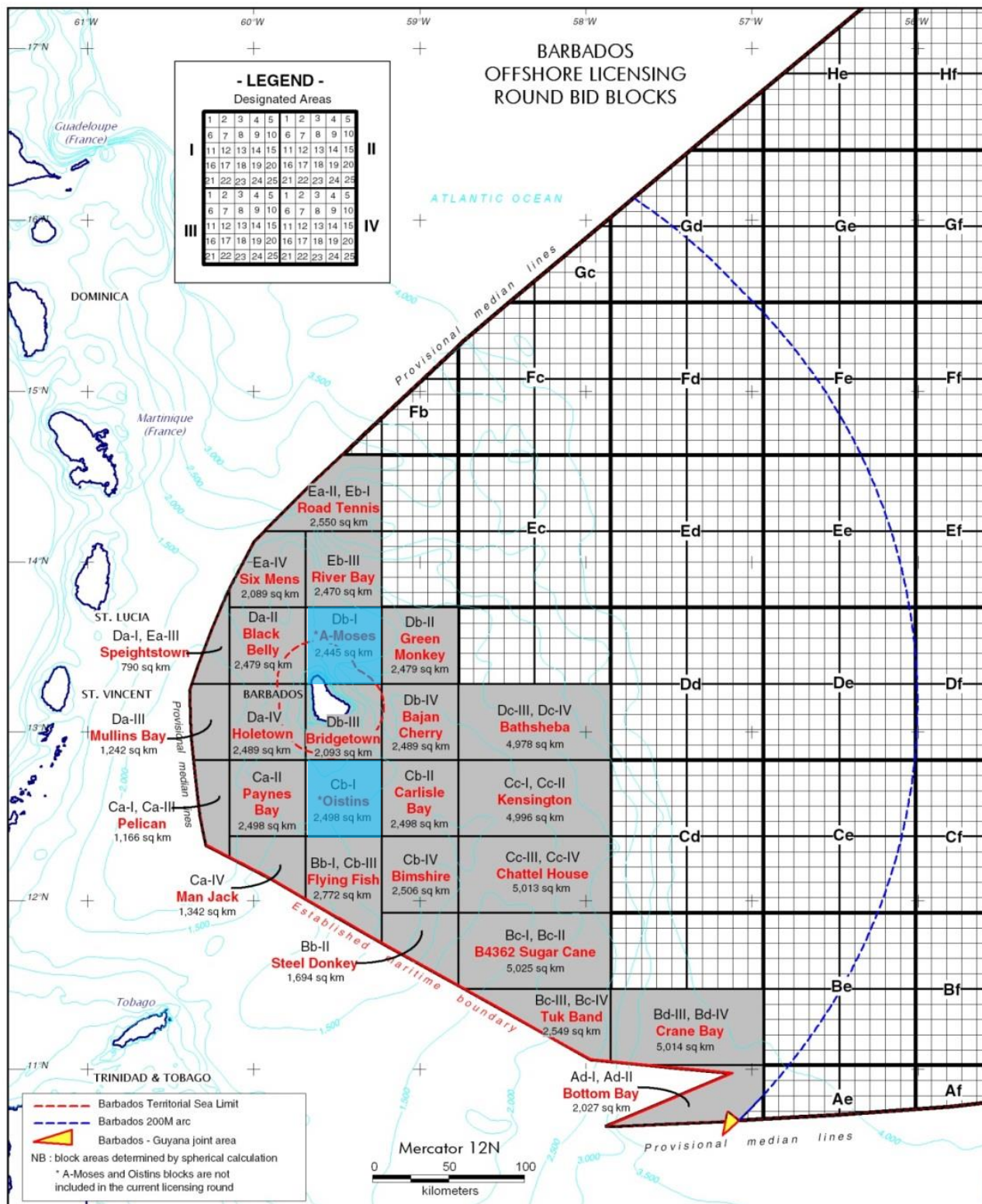
- Discovered by General Crude in the 1960's.
- Over 250 wells drilled to date. Eocene turbidite reservoir targets.
- Average oil production ~ 600 bbls per day .
- Average gas production ~ 1.9 million cubic feet of associated gas per day.
- Over 10 million bbls of oil and 22.8 billion cubic feet of gas produced.
- To date, no source rock intervals have been penetrated by onshore wells.

Early Offshore Exploration - Conoco



- Conoco granted an offshore oil & gas concession licence in 1996.
- Conducted extensive geological and geophysical studies offshore Barbados.
- Upper Cretaceous Marine Type II Kerogen.
- Sandy Lane 1/1Z well drilled in 2002, 130 km south of Barbados.
- 6,975 ft water; 15,074 ft total well depth.
- Neogene turbidite reservoir targets in a 3-way dip closure with lateral fault seal. Dry well with thermogenic gas shows.
- Trap breached by faulting and diapirism.
- Proved the presence of good quality reservoir rock.
- Conoco relinquished the acreage in 2004.

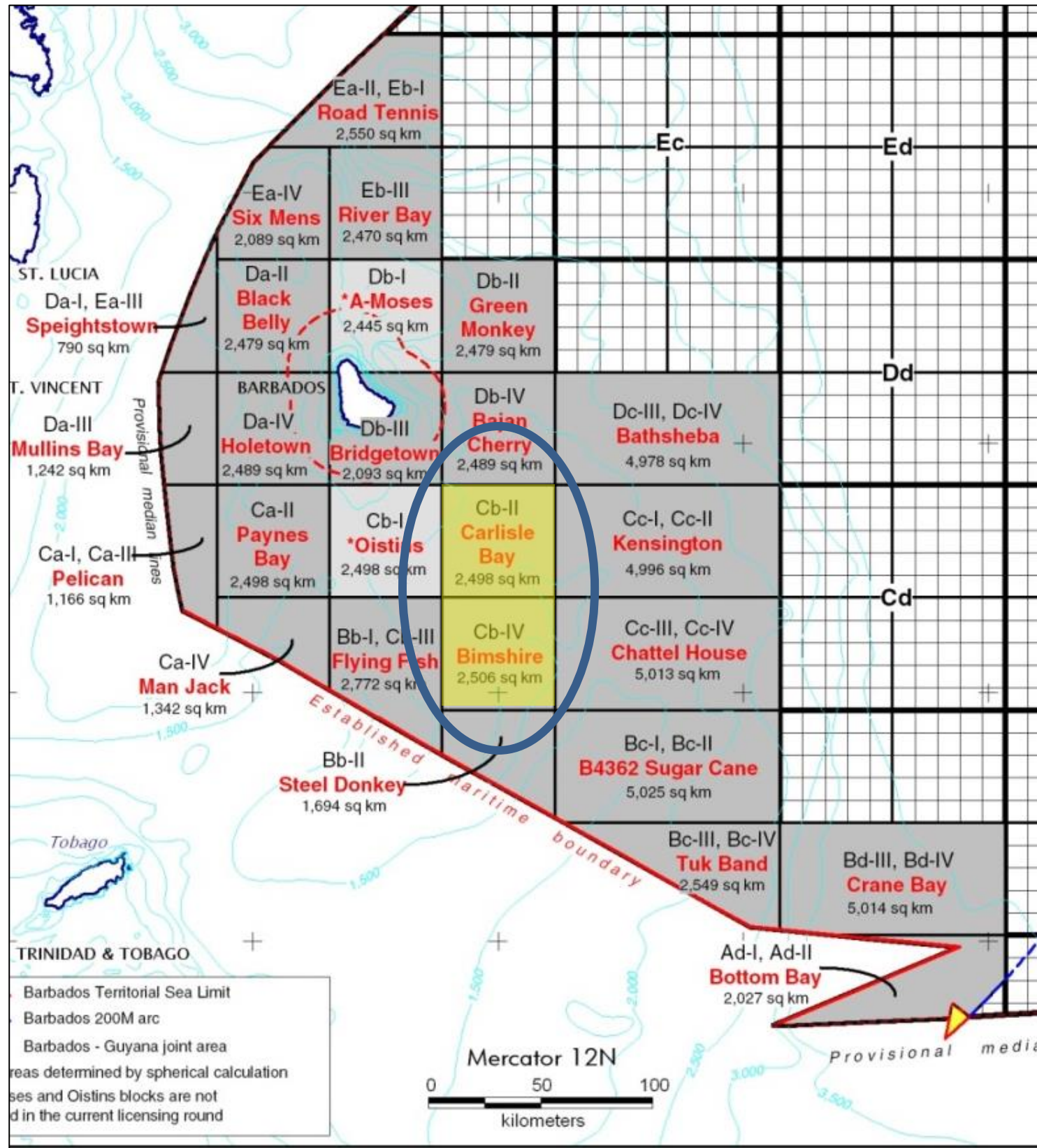
Barbados Offshore Petroleum Programme 2007 Licensing Round



- Conoco's work led to the establishment of the Barbados Offshore Petroleum Programme
 - Officially launched in 2007.
 - Offshore acreage subdivided into 26 blocks.
 - 24 blocks offered for bidding.
 - Offshore Petroleum Legislation drafted.
 - Total acreage: 70,191 km²
 - Average block size: 2,700 km²
- 2 reserved blocks (Oistins and A-Moses)**

2007 Licensing Round


BHP Billiton Blocks





- BHP Billiton awarded the Carlisle Bay and Bimshire blocks.
- Block Size:
Carlisle Bay: 2,498 km²
Bimshire: 2,506 km²
- Located within the Barbados Trough.
- Water Depth: 1200m - 2000m.
- Good prospectivity and good seismic coverage.



Barbados Offshore Petroleum Programme 2015 Licensing Round




Government of Barbados
Division of Energy
and Telecommunications



BARBADOS 2015
PETROLEUM LICENSING CAMPAIGN

Barbados
Bridgetown


Period for Submission of Proposals from
Pre-qualified Companies
June 30th 2015 - December 30th 2015



The Government of Barbados invites interested oil and gas companies to participate in its upcoming 2015 Offshore Petroleum Licensing Campaign, which will include seven (7) blocks located on the shelf and in deep-water areas in the Northeast Caribbean Deformed Belt.

The Campaign will be governed by the Offshore Petroleum Act Cap. 282 A, Offshore Petroleum (Taxation) Act Cap. 80, Offshore Petroleum (Amendment) Act 2012, Offshore Petroleum (Taxation) (Amendment) Act 2012 and the Offshore Petroleum Regulations 2013

For more information: energy.gov.bb/2015Licensing
Email: barbadosoffshore@energy.gov.bb

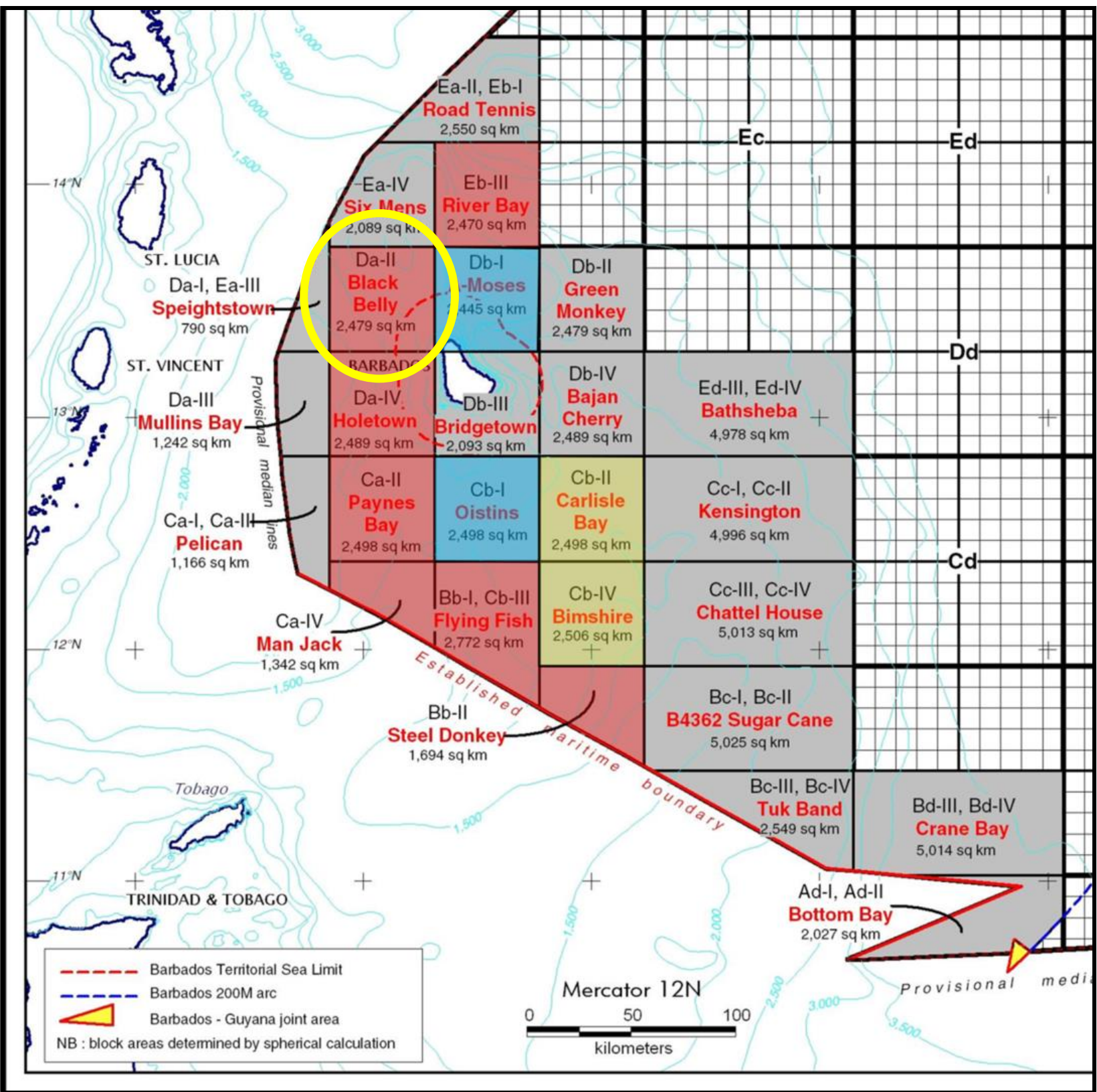


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- New Offshore Petroleum Licensing Campaign launched in March 2015.
- Interested companies invited to pre-qualify and submit licence proposals.
- Seven (7) offshore blocks on offer.
- Hybrid model of direct negotiations.



2015 Licensing Round - Repsol Block Award



- Black Belly block awarded to Repsol in 2016.
- Block Size: 2,479 km²
- 5 km NW of Barbados.
- Straddles the Tobago Trough and the Barbados Ridge.
- Water Depth: 1000m - 2000m.
- Good prospectivity and good seismic coverage.



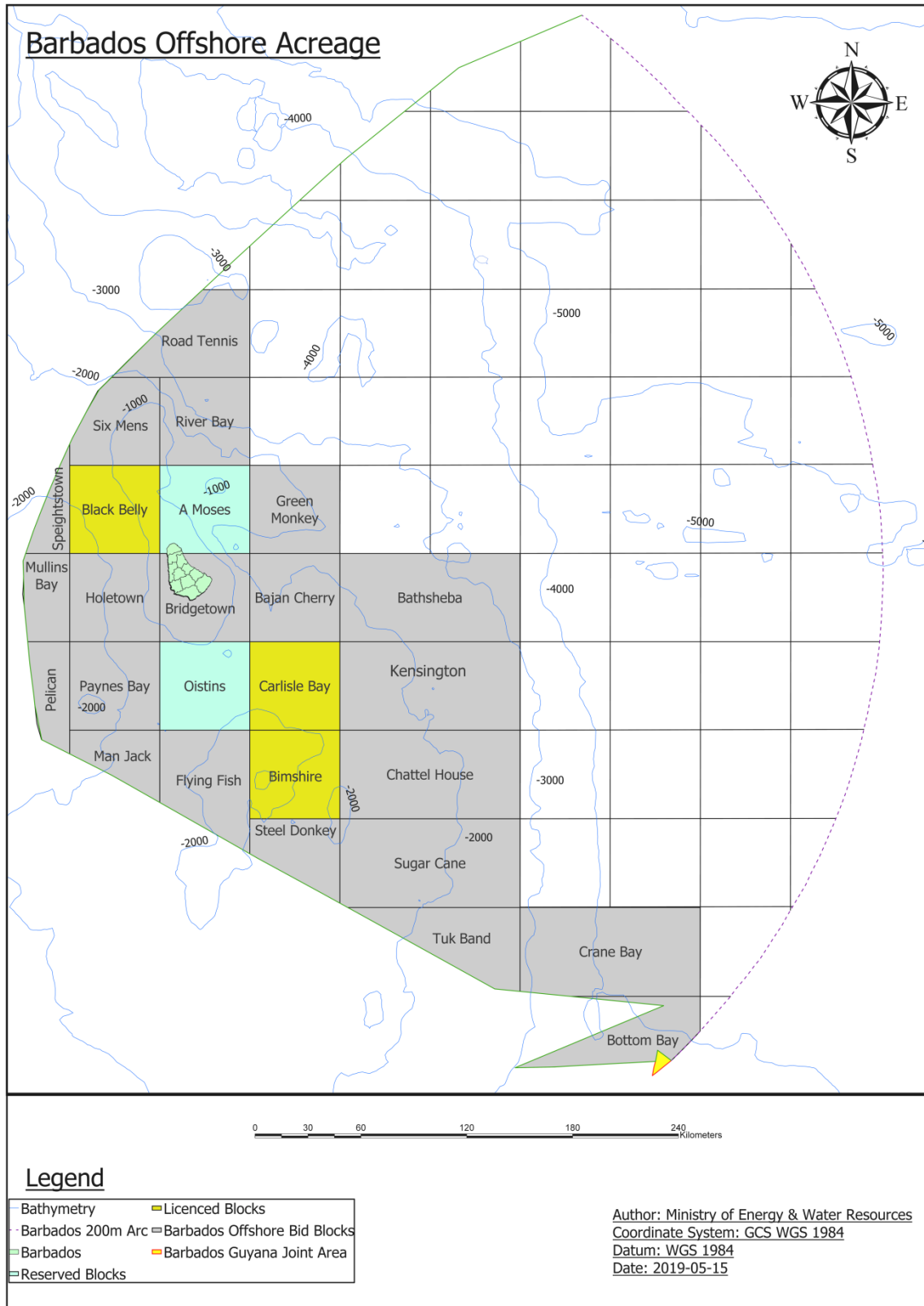
REPSOL

Important Updates & Recent Developments



- **July 2017** - Maritime boundaries officially established with St. Lucia and St. Vincent and the Grenadines.
- **August 2017** - Barbados amended the Offshore Legislation.
 - Reduction in relinquishment percentage from 50% to 25%.
 - Increase in EIA submission period from 90 days to 9 months;
 - Introduction of clauses to facilitate change of control of licences.
- **December 2018** – MCG acquired new regional 2D seismic dataset.
- **April 2019** – Government of Barbados and BHP Billiton's held final consultations for the approval of the company's offshore EIAs. BHP set to commence offshore exploration in **Q4 2019**.
- **May 2019** - Barbados and Repsol completed the third round of negotiations for the finalisation of the exploration licence and EIA for the Black Belly block.
- **May 2019** - Government to conclude Seismic Interpretation Project with a view to establishing new ultra-deep water blocks to the East , along with separate UDW fiscal and licensing terms.

2019 Offshore Licensing Plans



- New Offshore Licensing Campaign to be launched in Q4 2019.
- Licensing guidelines and schedule will be published in advance.
- Upgraded website with easier access to key information.
- Block nomination process with 21 blocks available for selection.
- 8 year Exploration Licences (3 phases - Mandatory 1st phase, Optional 2nd and 3rd phases).
- Virtual Data Room with new seismic and geological data available.
- Hybrid model of direct negotiations.

Hybrid Model of Direct Negotiations



- 1. Prequalification** – Public invitation to prequalify (operator or participant) based on published legal, technical, financial, environmental and local content criteria.
- 2. Successful Qualification** - Companies meeting the qualification criteria (operator) will be eligible to submit applications for offshore blocks.
- 3. Licence Application** - On receipt of a licence application for a particular block, a *“Request for Competitive Proposals”* will be published, granting other qualified companies a maximum period of 90 days to submit competing applications. (Only the name of the block will be published)
- 4. Evaluation** - At the end of the 90-day period, all applications received for the block will be assessed based on published evaluation criteria.
- 5. Award** - The applicant receiving the highest marks (2 or more applicants) and meeting the licensing criteria will be awarded the block and be invited to negotiate an exploration licence on an exclusive basis.

Bid Evaluation Criteria



- **Financial Commitment**
 - Cumulative financial commitment;
 - Signature bonus;
 - Fees for training and Coastal and Marine Environmental Research
- **Work Programme Commitment**
 - Local Content Provisions;
 - Geological and Geophysical assessment;
 - Work Programme Commitments (2D and 3D seismic, wells, sampling, coring etc.);
 - Health, Safety and Environment Plan.



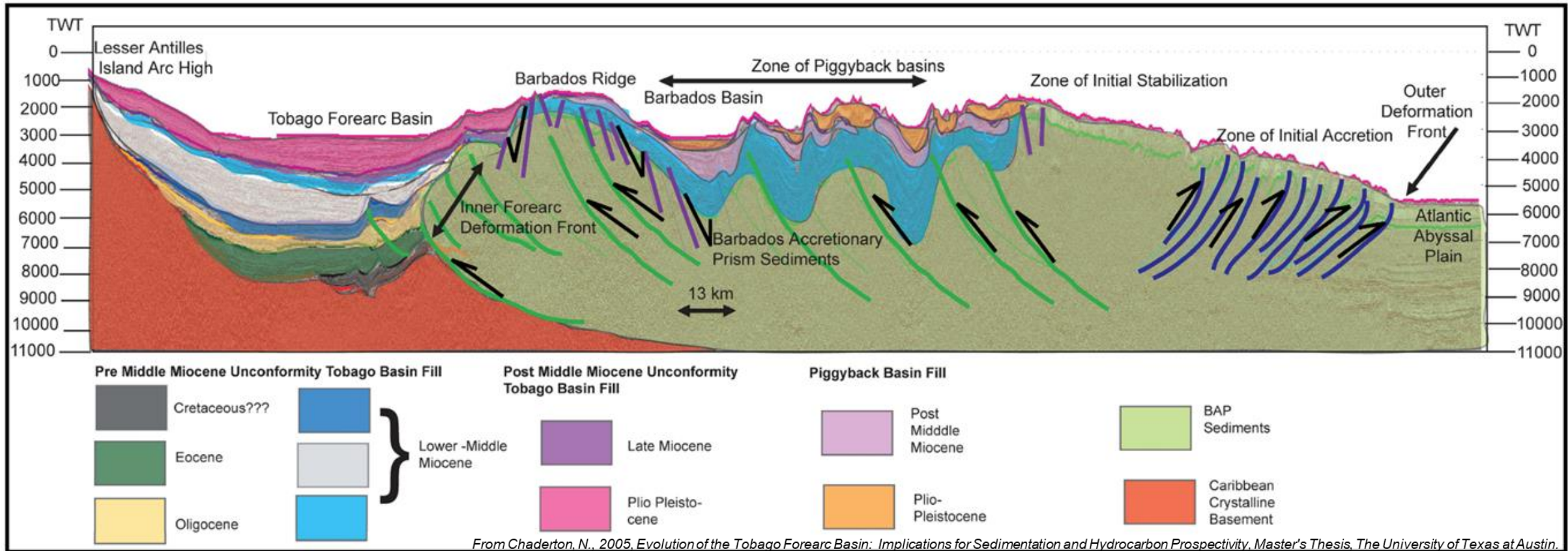
2019 Licensing - Fiscal Terms



- Royalty Tax System: 3% royalty.
- Income Tax: 25% of taxable income in any income year.
- Additional Profit Tax: 30%.
- Fiscal Stabilisation Clauses.
- Biddable Signature Bonus.
- Exemption from Customs Duties.
- State Participation (10% - 20%).
- The property in petroleum passes to the licensee at the well head.
- Allowable deductions on exploration expenditure, interest and royalties paid, insurance premiums and other fees.
- Ring Fence around Production Licence.

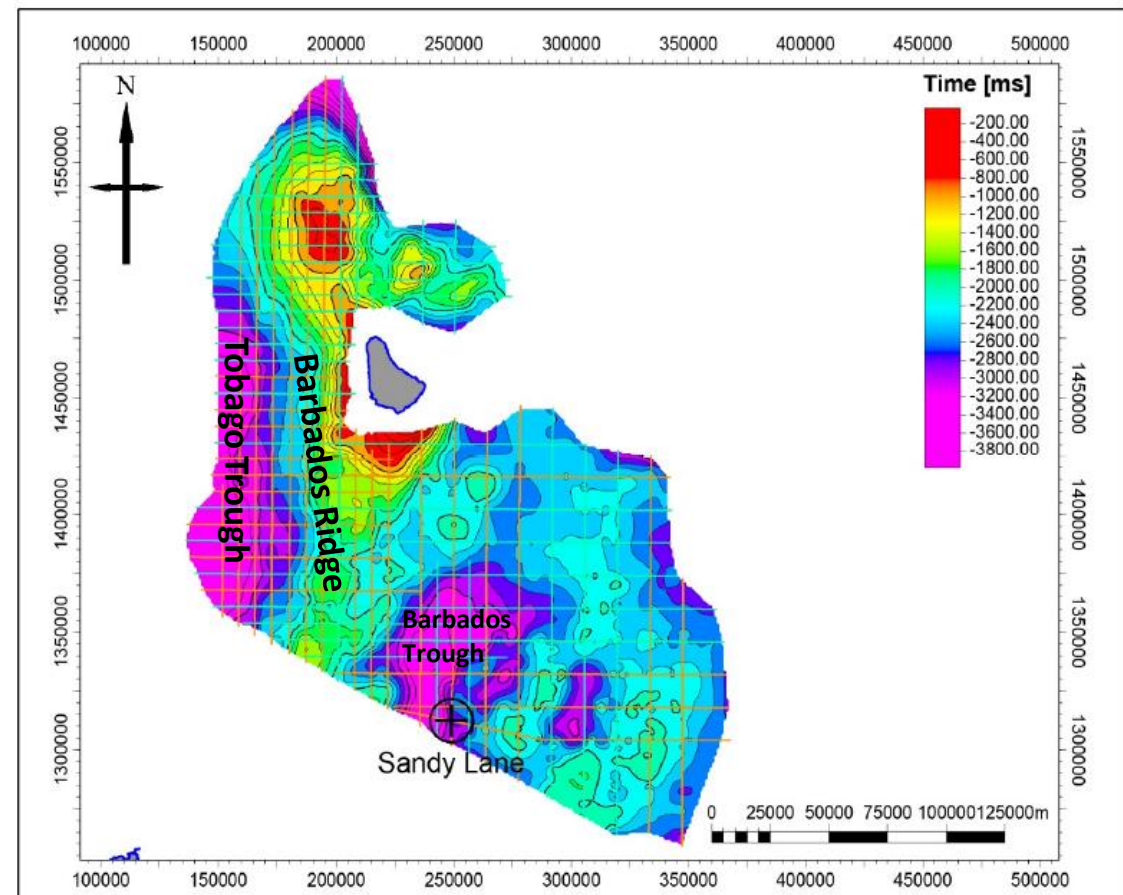


Prospective Regions

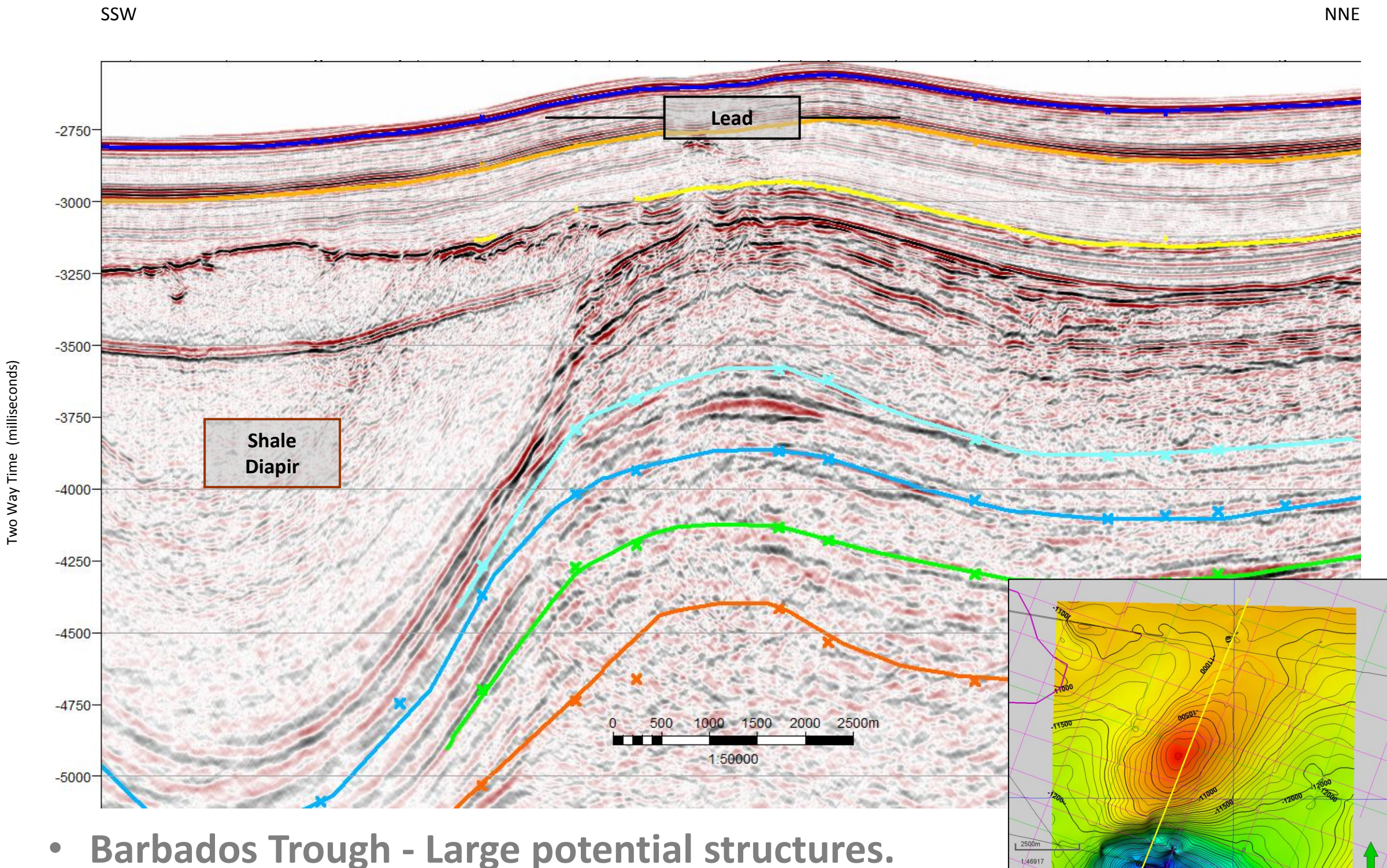


• Offshore Barbados consists of three main prospective physiographic regions:

- ❖ Tobago Trough.
- ❖ Barbados Ridge.
- ❖ Barbados Trough.

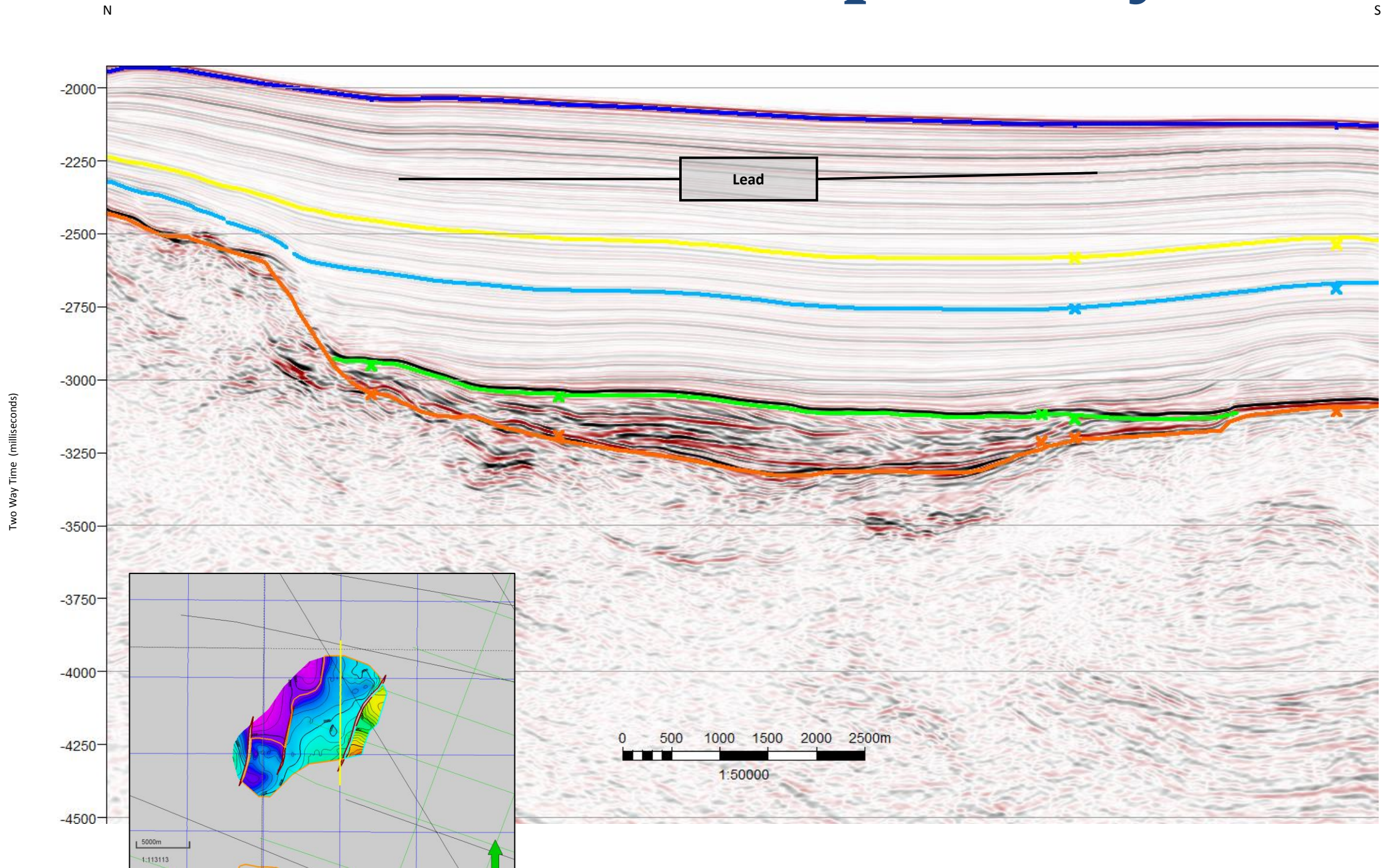


Offshore Prospectivity



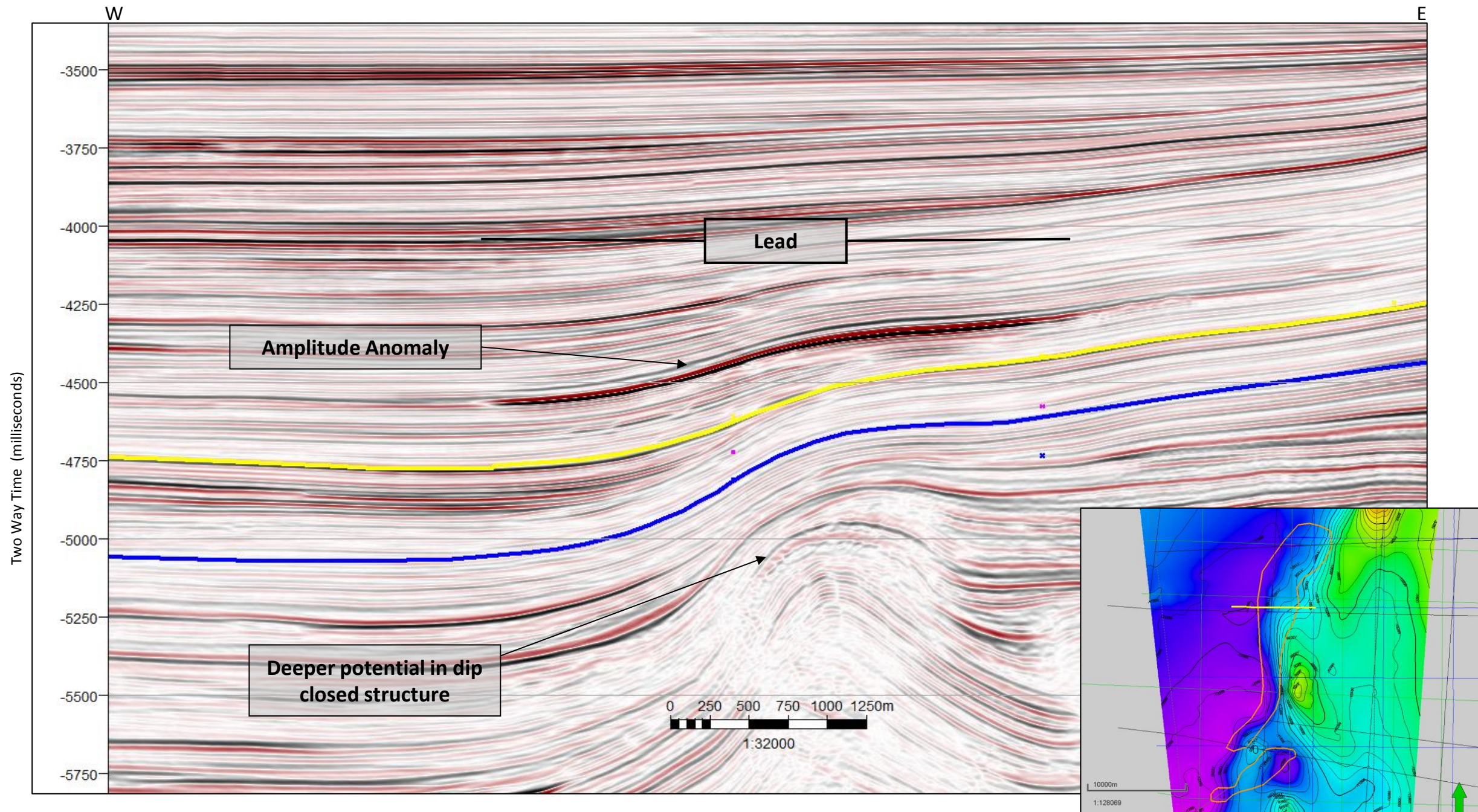
- Barbados Trough - Large potential structures.
- Stacked targets with DHI support.
- 4 way dip closures.

Offshore Prospectivity



- Barbados Trough/Barbados Ridge - Stratigraphic traps.
- Basin Floor Fans.
- Mini-Basin Plays.
- Amplitude anomalies.

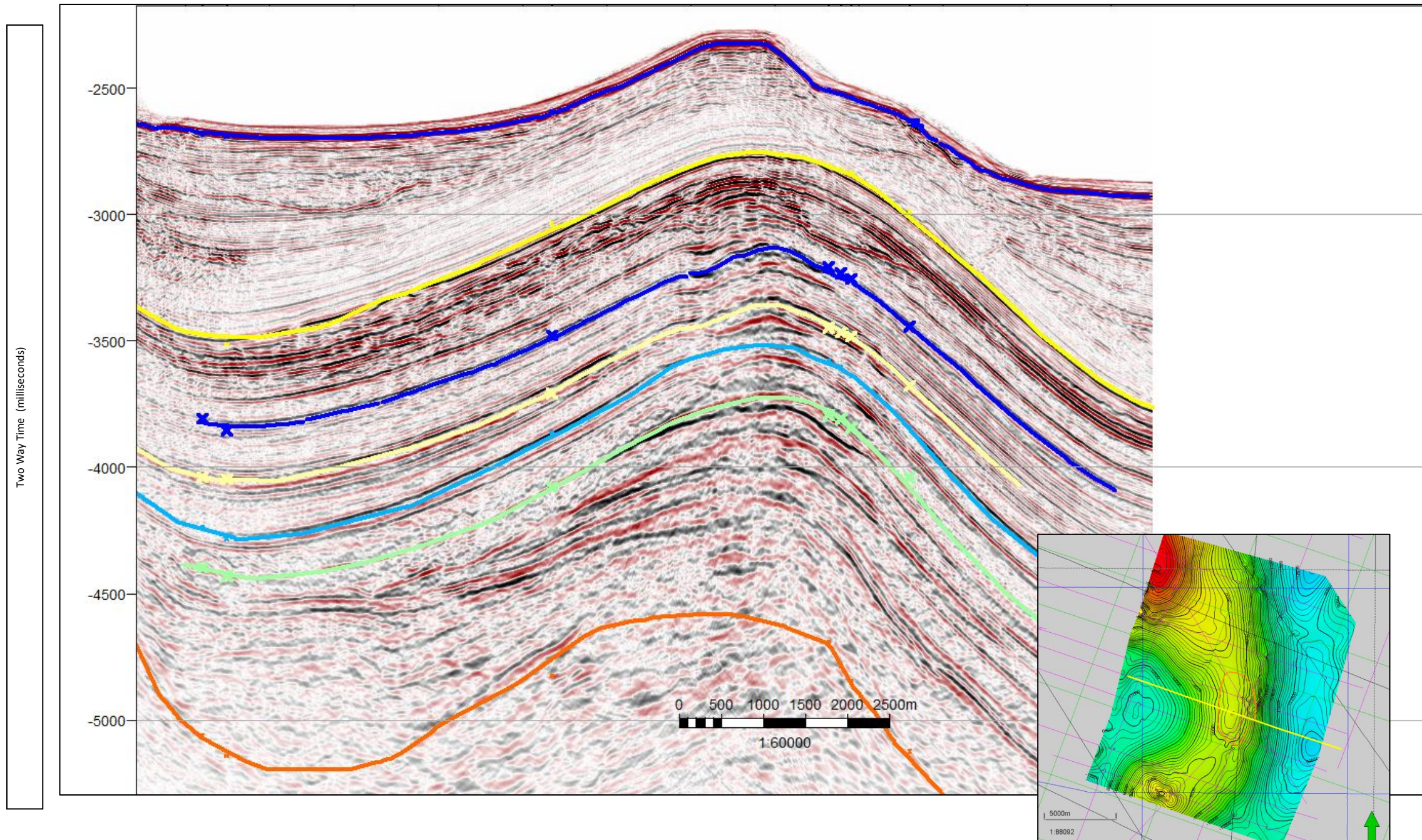
Offshore Prospectivity



- Tobago Trough - Stratigraphic and structural traps.
- Large potential structures.
- Amplitude anomalies.
- Multiple targets at different stratigraphic levels

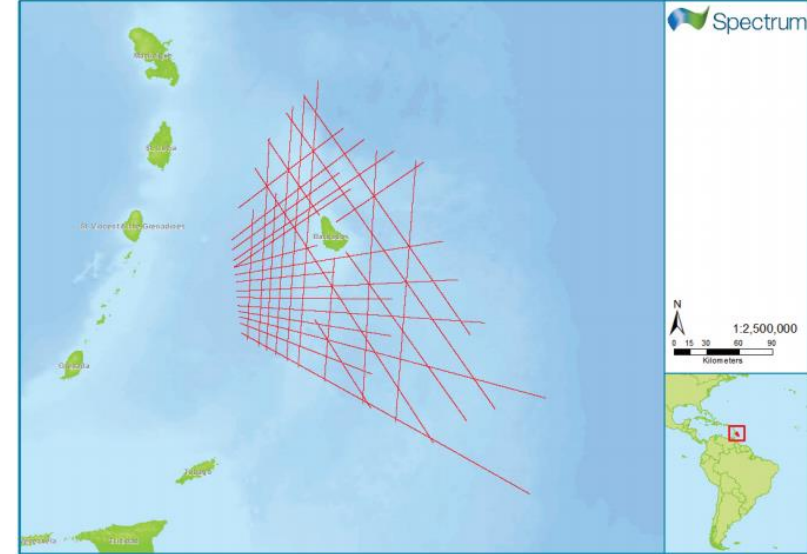
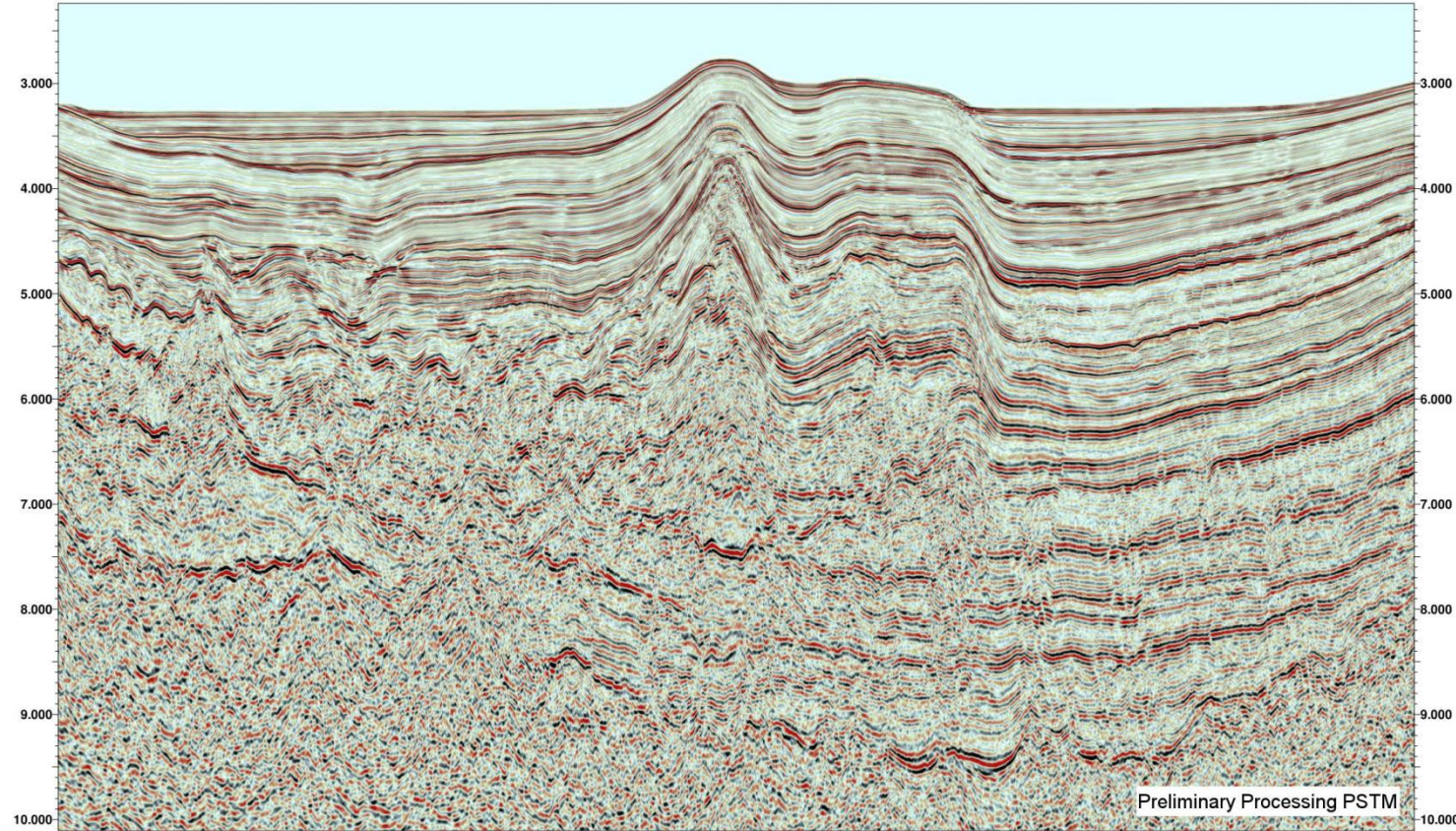
BNOCL / NRD / NSAI

Offshore Prospectivity

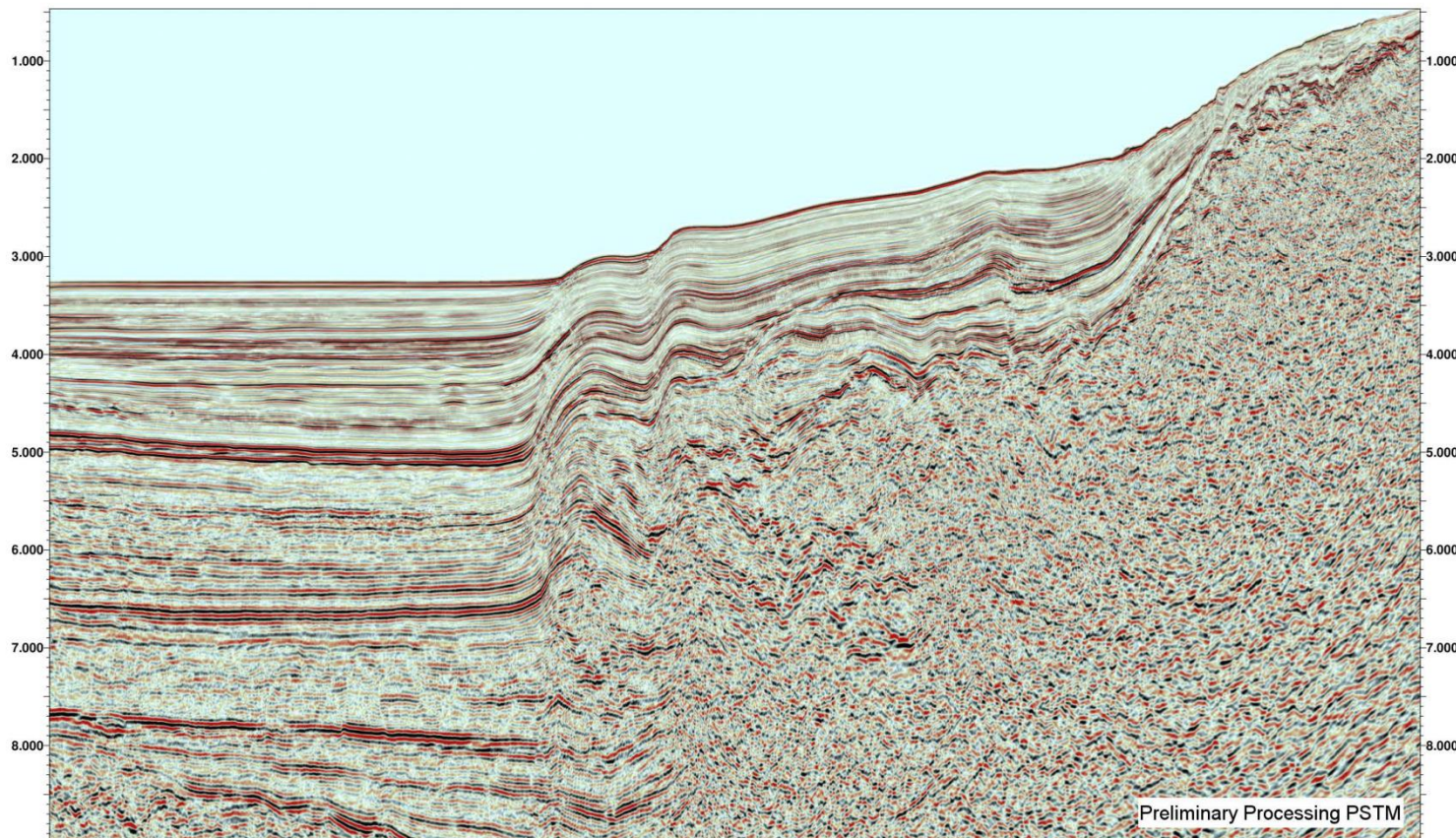


- Barbados Trough - Structural traps.
- Large potential structures.
- Stacked targets with DHI support.
- 4 way dip closure.

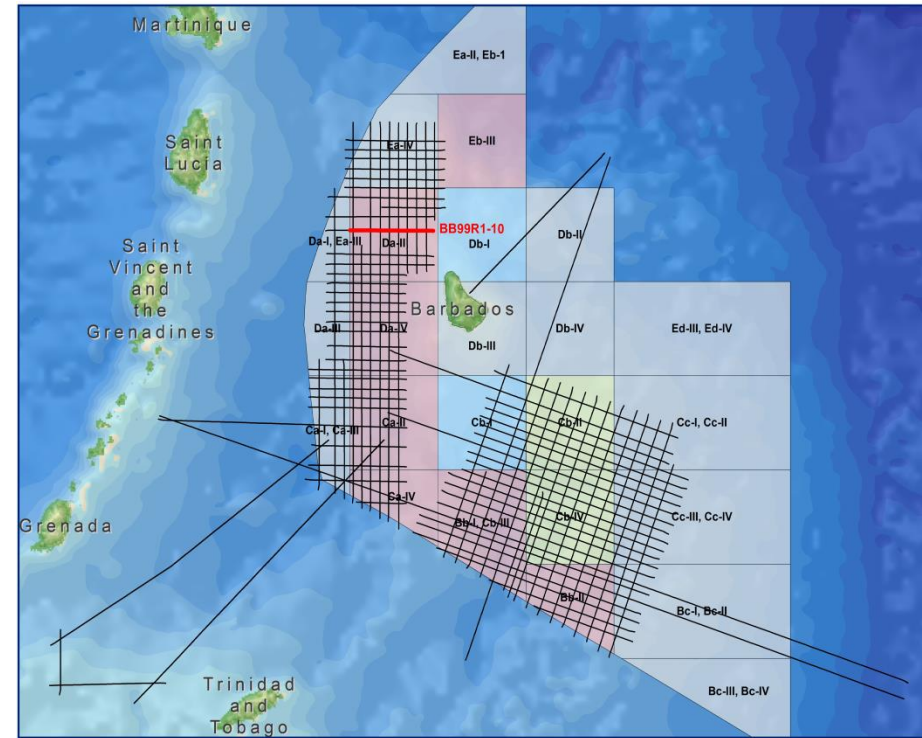
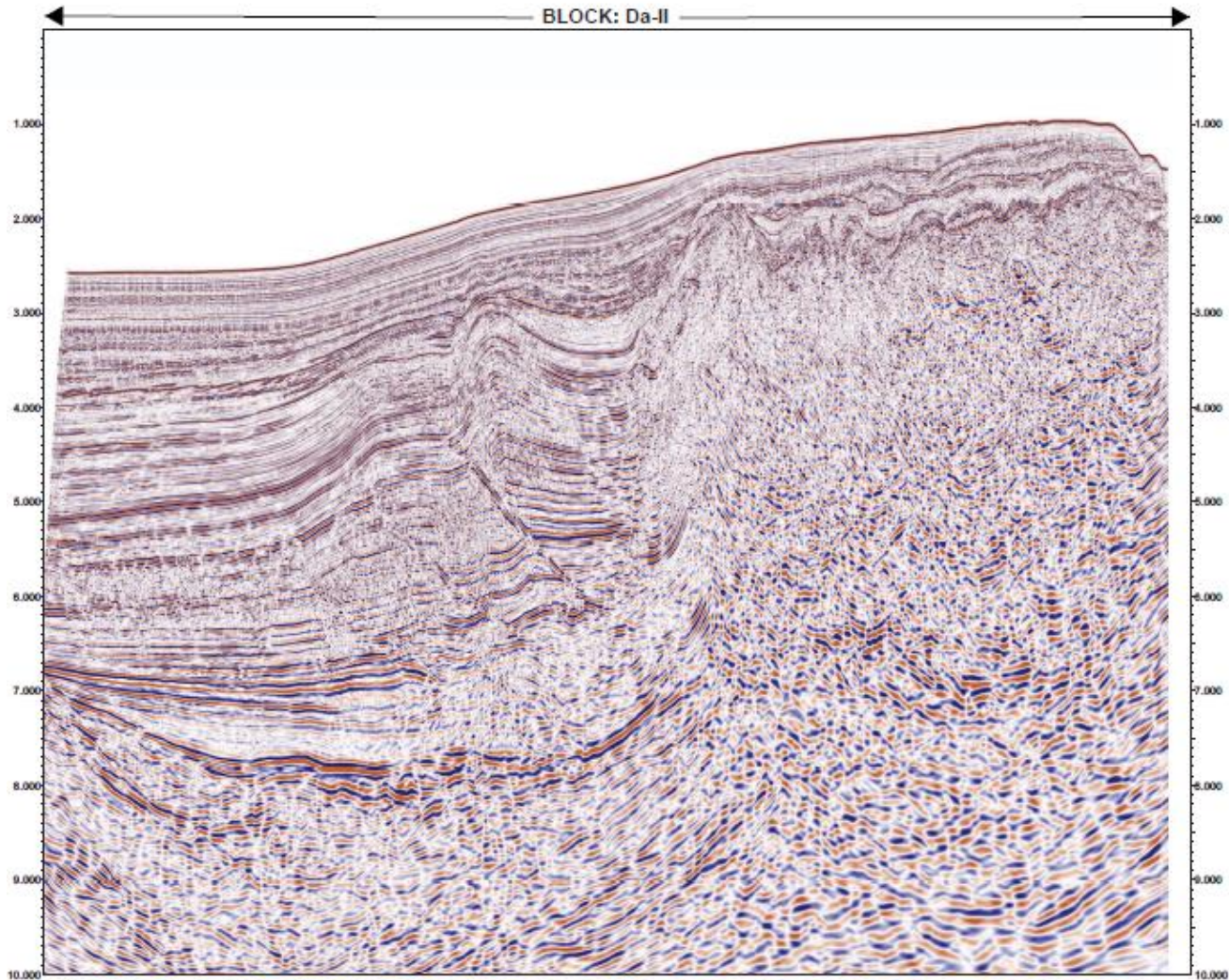
Available Data – Spectrum 2D Seismic



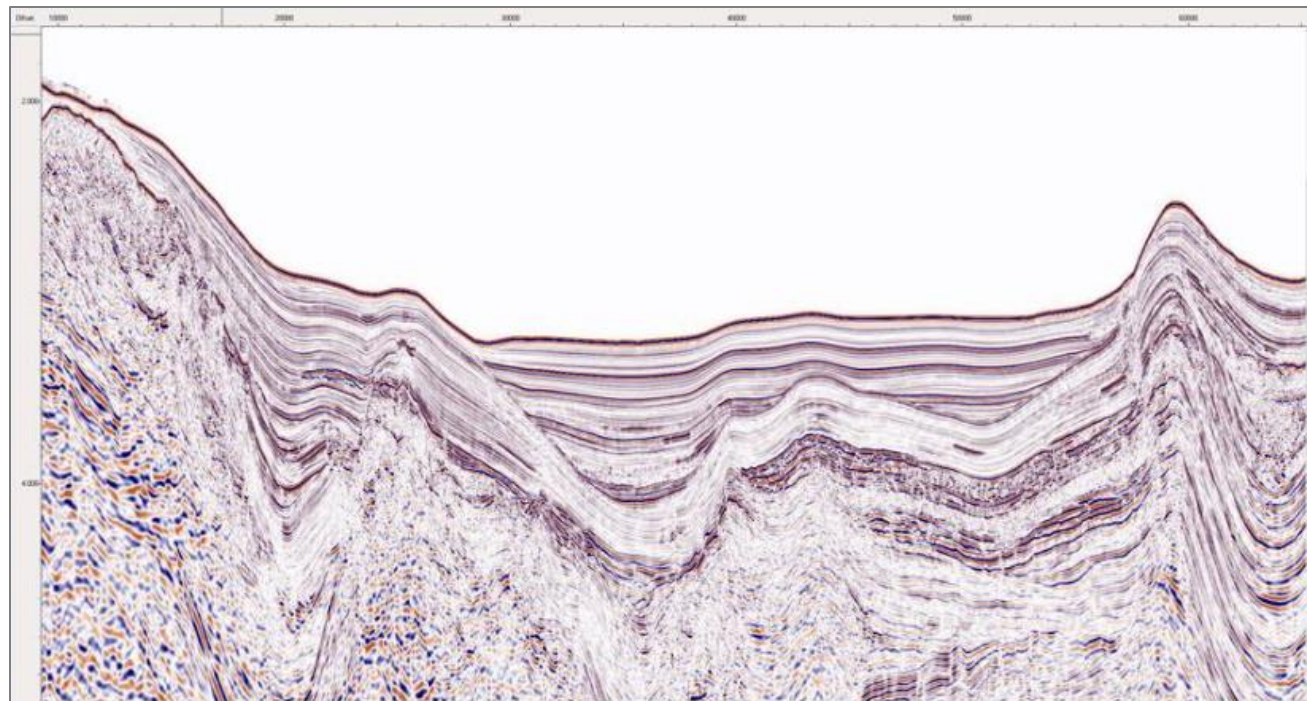
- Over 8,000 km of re-processed long offset 2D seismic data.
- PSTM and PSDM data available.
- Good coverage over the available blocks.
- Potential for comprehensive prospect and play analysis.



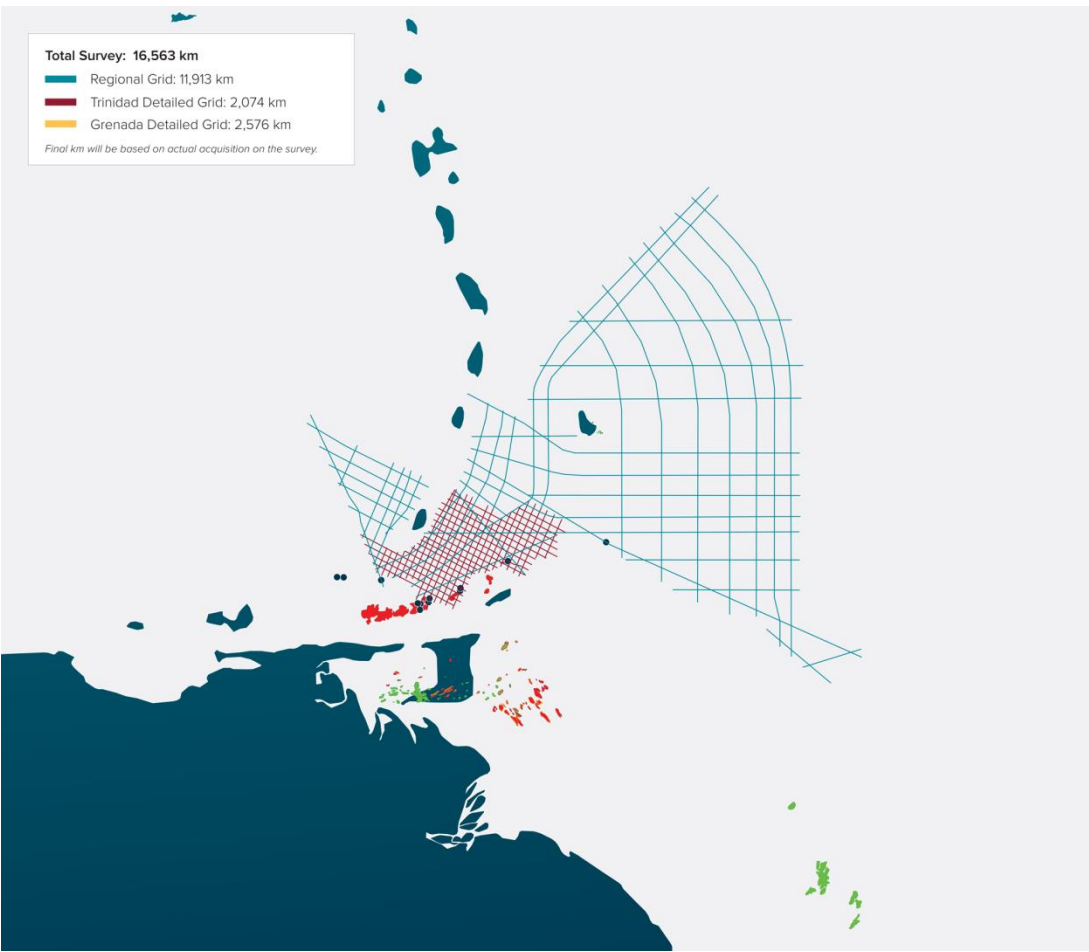
Available Data – ION 2D Seismic



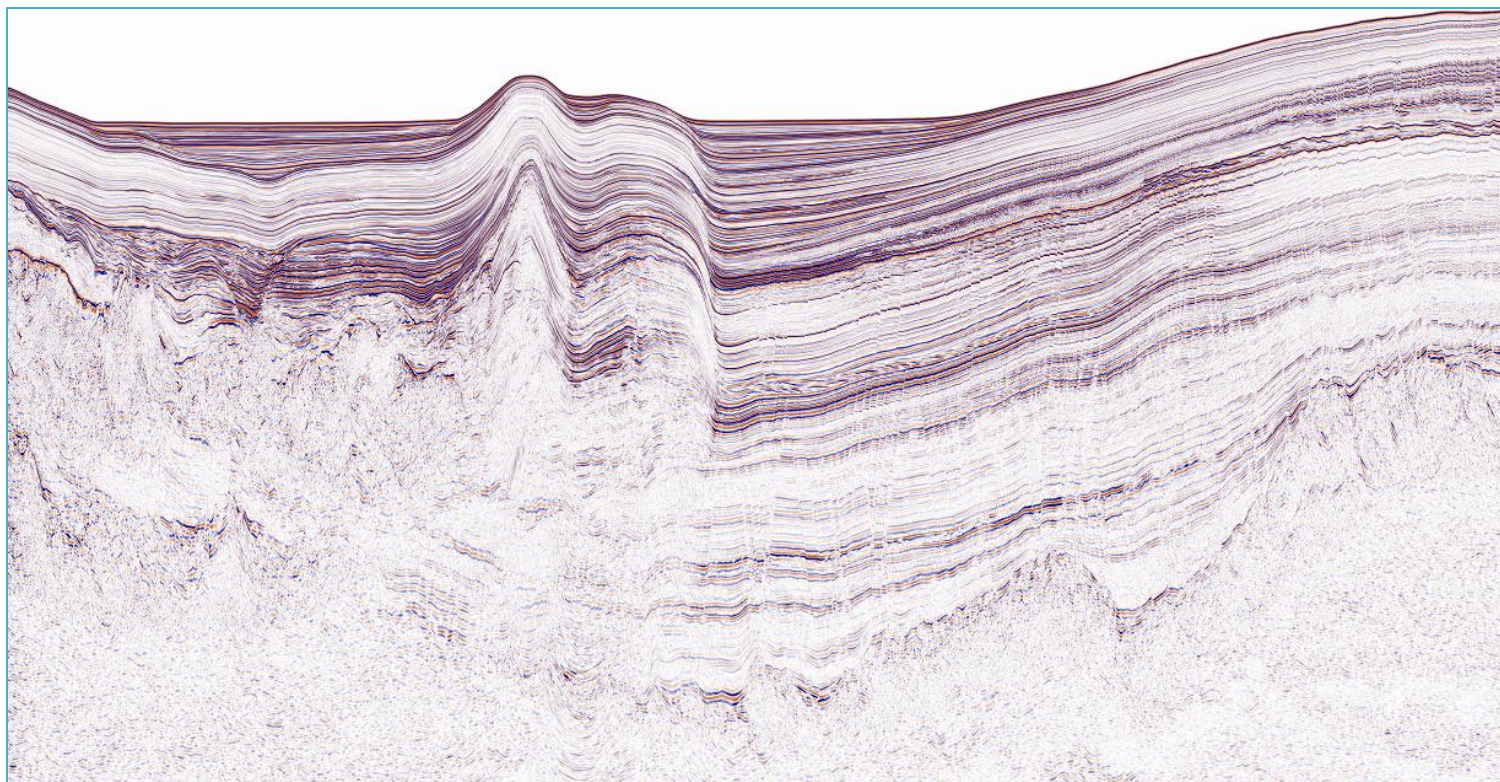
- Over 9,000 km of re-processed legacy Conoco 2D seismic data.
- PSTM and PSDM data available.
- Explore possible deep sediments and new play ideas.
- Improved resolution at depth.



Available Data – MultiClient Geophysical 2D



- MCG acquired the Caribbean Atlantic Margin Deep Imaging (CAMDI) seismic survey.
- 16,563 km of 2D seismic data.
- Pre-stack time, pre-stack depth, gravity and magnetic data available in 2019.
- Regional evaluation and prospect mapping.



**MULTICLIENT
GEOPHYSICAL**

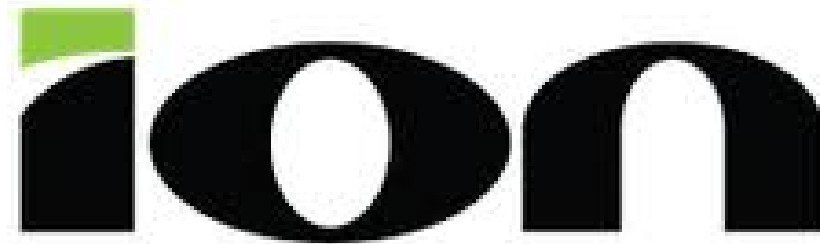
Why Barbados?



- ✓ Underexplored acreage.
- ✓ Untapped Potential.
- ✓ Good Prospectivity.
- ✓ Large potential structures with stacked targets and DHI support.
- ✓ Good data coverage.
- ✓ Proven onshore petroleum system.
- ✓ Stable government.
- ✓ Strong legal, fiscal and regulatory framework.
- ✓ Great place to live and work.



Special Thanks





Contact Information

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THANK YOU!

