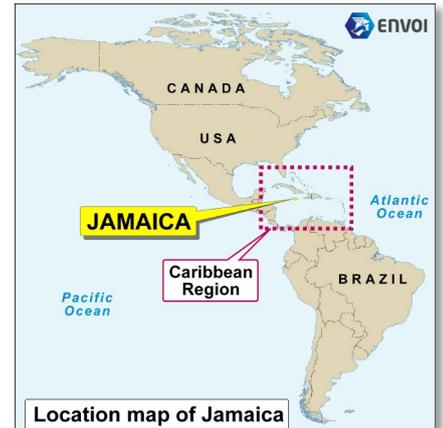


## Offshore Southern Jamaica

### Walton Basin & Morant Basin Licence

- Opportunity to participate in drilling of highly prospective unexplored Cretaceous & Eocene Plays with newly defined & fully supportable source evidence
- Over 2 Bbbls oil resource independently attributed by Gaffney Cline to just 11 of the 21 leads & prospects unlocked by new 3D & reprocessed seismic
- Primary Colibri Prospect with 406 MMBbls mean recoverable oil
- Favourable fiscal regime ensures attractive economics & low commercial thresholds



**Introduction:** Envoi has been engaged by London-listed (Dublin-based) United Oil & Gas Plc, to assist in their search for partners to help accelerate the exploration of their large, 22,400 km<sup>2</sup> 100% operated Walton Basin and Morant Basin Licence, located offshore southern Jamaica.

United initially farmed into the acreage for a 20% interest in 2017 by funding 3D seismic when Tullow Oil were the operator. Tullow exited the country in 2020 as part of a new corporate strategy and shift away from frontier exploration. Their 80% interest and operatorship were acquired by United due to the high potential and prospectivity unlocked by the new 3D seismic acquired following United's involvement in the block. The block straddles two sedimentary basins, the Walton and Morant basins, where water depths range from less than 50 metres to over 2,000 metres. United has so far mapped 21 leads and prospects on reprocessed and recently acquired (2016-2017) 2D, and also 3D seismic data acquired in the Walton Basin in 2018. Of these, just 11 of the high-graded prospects and leads defined in the Oligocene and Cretaceous plays in the Walton and Eocene play in the Morant Basins have been

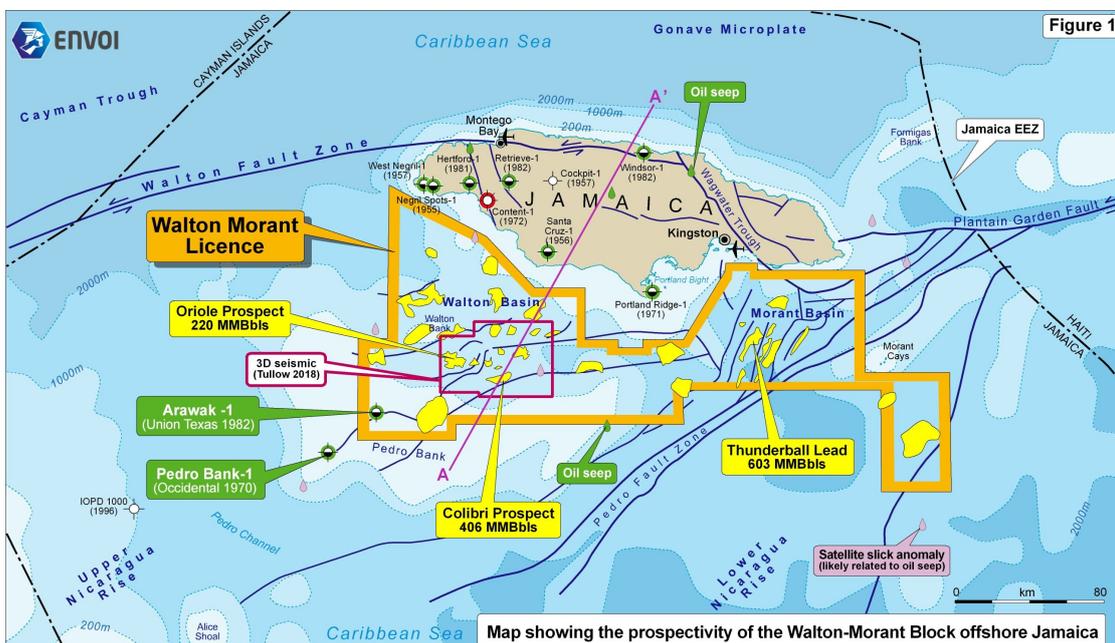
independently estimated by Gaffney Cline to be capable of containing a combined 'mean' resource potential of over 2.4+ Bbbls recoverable.

United's work has also included detailed basin modelling and palaeographic restoration that supports the presence of mature source rocks in both basin areas. This is further evidenced by documented live oil and gas seeps onshore and offshore, outcrop evidence, and abundant shows in the wells drilled to date.

United is now offering a material interest and potential operatorship in the licence in return for a commitment before January 2022 to funding the drilling of the potentially very large primary 3D-defined Colibri Cretaceous carbonate prospect in the Walton Basin (est. mean 406 MMBbls recoverable) by January 2024. A 2021 study by OPC estimates a cost of around US\$ 30 million for this exploration well, based on current rig rates.

**Exploration History:** Only 11 exploration wells have ever been drilled in the entire country (comprising an area of around 258,137 km<sup>2</sup> including all the offshore areas), all between 1955 and 1982. Of these, the majority (9 wells), are onshore with just 2 wells drilled offshore. Hydrocarbon shows were observed in all but one of these wells despite not having tested valid structures, as is evident on the latest data.

Exploration was initially concentrated onshore, beginning in the 1950s targeting the Cretaceous play, with the first six wells purely located by surface mapping without seismic control. In the



Map showing the prospectivity of the Walton-Morant Block offshore Jamaica

1970s the first onshore seismic was acquired. This data was limited both in coverage by restriction owing to the road network, and in data quality due to the presence of near-surface karstified and vuggy carbonates which limited energy penetration. These limitations resulted in sub-optimal well placing for the remaining three exploration wells, which were again primarily located from surface mapping. Additionally, eleven coreholes drilled onshore Jamaica at depths between 36 and 810 metres have been evaluated. Although shallow, these coreholes penetrated and recovered various Cretaceous and Eocene aged source rocks and Cretaceous to Oligocene clastic and carbonate reservoir-quality sequences. Seven of these coreholes had oil-staining on the recovered cores. These are significant, as the onshore geology, now uplifted due to Late Cenozoic inversion, would have originally been deposited in a similar if not identical environment to the present-day offshore basins which are targeted to the south. This therefore enables correlation of key onshore geology to the prospective play elements being targeted in the Walton and Morant basins today.

Between 1967 and 1969, 2D seismic was acquired offshore, mostly over the Pedro Bank. This led to the Pedro Bank-1 well in 1970 drilled by Occidental. Additional offshore seismic was acquired between 1978 and 1980 and Arawak-1 was drilled by the Union Texas/AGIP/Petroleum Corporation of Jamaica in 1982. The Pedro Bank-1 well is now thought to have been drilled off structure and outside of the three-way fault closed target. The Arawak-1 well was plugged and abandoned in Eocene-aged sediments having not reached its primary reservoir target in Cretaceous carbonates. Although oil and/or gas shows were recorded in the Lower Eocene to the Miocene in these two offshore wells, both are now interpreted to have penetrated these intervals outside of the main prospective play areas now identified by United in, and adjacent to, the main depocentres of the Walton and Morant basins to the north east of the Pedro Bank (See Regional Map, Figure 1.).

**Walton Morant Block History:** The Walton Morant Block was originally awarded to Tullow in 2014. The first task was to combine and reprocess the various vintages of pre-existing 2D seismic. In 2016 / 2017, 3,650 km of new infill 2D data was acquired immediately prior to United farming into the licence for a 20% interest. This new data helped further delineate and unlock the prospectivity of both the Walton Basin plays in the west, and the Morant Basin play in the east of the acreage. A new 2,250 km<sup>2</sup> 3D survey was subsequently acquired over a key play area and leads that had been identified in the Walton Basin 'sweet spot' as part of United's farm into the Licence in 2017. Marine gravity and magnetic surveys were acquired with the 2016 and 2017 seismic surveys. Other G&G work undertaken included detailed field studies and geochemical analysis of surface outcrops, and geochemical studies of core and cuttings samples from the existing wells and coreholes. Slick and seep data from offshore, together with

high resolution bathymetry, drop core and heat flow data was also evaluated and used in basin modelling studies.

The Initial Exploration Period work obligations were fulfilled by the reprocessing and new acquisition of the 2D and 3D seismic data, and the detailed G&G studies. United was granted an 18-month extension to the Initial Exploration Period to January 2022 after taking on the Tullow interest in August 2020 with a commitment to carry out additional G&G studies that have further technically de-risked the Licence and in particular, improved the understanding of the regional source potential. A 30% relinquishment of less prospective peripheral areas of the original licence area was made as part of the licence extension. The decision to enter the 2-year Second Exploration Phase in January 2022 would require commitment to drill one exploration well before January 2024.

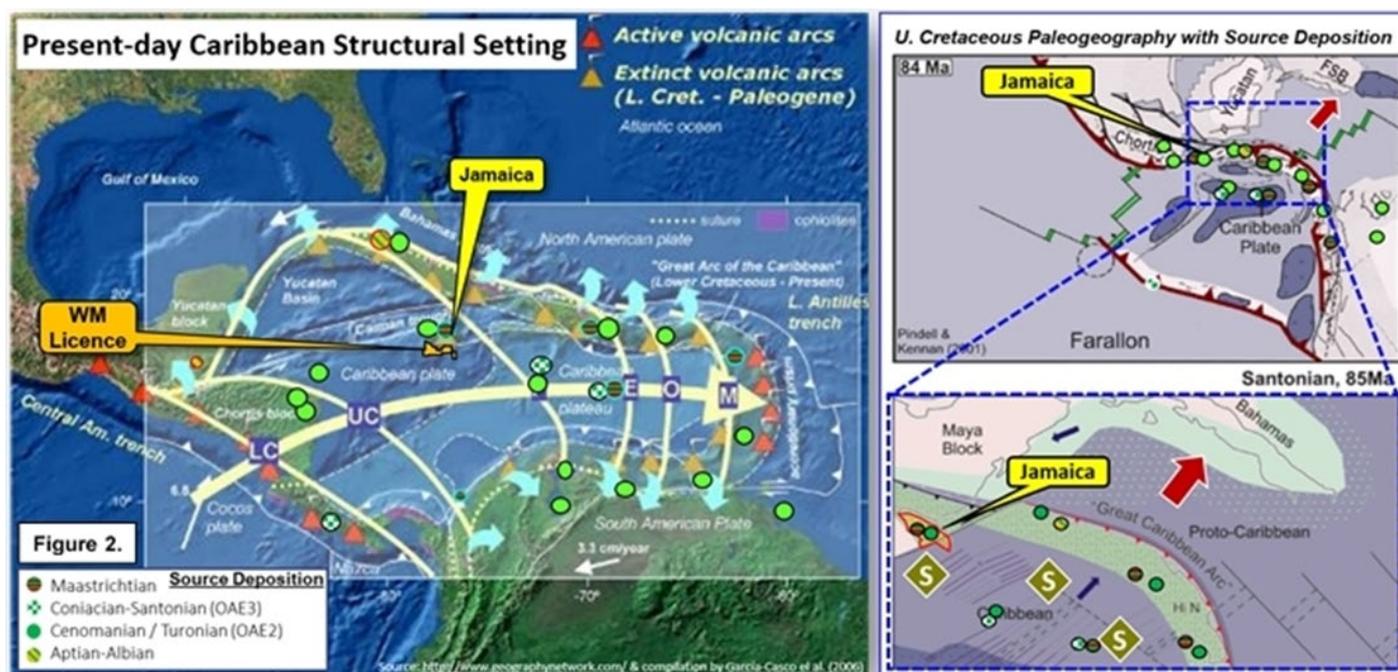
### Tectonic Setting & Stratigraphic Evolution:

Tectonic reconstructions (based on the preferred 'Pacific origin model') for the Caribbean region shows the formation of Jamaica's geology containing substantial and locally stacked Cretaceous and Cenozoic play deposition and all the key elements of its under-explored but highly prospective hydrocarbon systems in the Walton and Morant basins. Key to understanding this is the Caribbean Plate's tectonic evolution as it migrated progressively eastwards over time from the Lower Cretaceous to the present day.

The 5 key phases of the Caribbean evolution can be summarised:

- **Phase I (Lower Cretaceous - Island arc creation):** Development of an island arc complex began in the Valanginian as the Farallon Plate, an ancient oceanic plate, started to be subducted beneath the proto-Caribbean oceanic crust to the east. The volcanic arc included the future basis for the Nicaraguan Rise, Cuba, Jamaica and Hispaniola (modern-day Haiti and the Dominican Republic) and provides their present-day basement of granodiorite and volcanics.
- **Phase II (Mid-Upper Cretaceous - Arc migration):** Regionally, increased volcanism and oceanic circulation changes led to increased oxygen, boosting organic-rich material, which was deposited as marine shales & pelagic carbonates, similar to the La Luna Formation found across Venezuela. Within intra-arc basins, sandstone turbidites and reworked slope deposits from the Chortis Block to the northwest were deposited, interbedded with dark marine, potentially source rock, shales to form the Hannover Group.

The island arc migrated in a northeast direction, colliding obliquely with the continental material of the Chortis Block in the early Campanian. This lateral movement ceased in the Maastrichtian when collision with the Yucatan Peninsula and extensional tectonics began.



**Stratigraphy:** Regional shallowing is reflected in Jamaica by shallow marine and early syn-rift terrestrial clastics and carbonates of the Kellits Synthem which unconformably overlie the Hannover Group. Rudist-bearing limestones with vuggy porosity from the upper Hannover group and the Kellits Synthem are recorded in onshore wells and are a potential primary reservoir offshore, notably for the Colibri prospect. The Guinea Corn Formation is the onshore equivalent and has been sampled at outcrop, where it has been observed with hydrocarbon seeps.

- **Phase III (Early Paleogene - Arc rotation and extension):** Rotation around the Yucatan and a change from a compressional to an extensional regime occurred as the Caribbean Plate continued eastwards. This resulted in rifting and strike-slip reactivation both onshore and offshore Jamaica.

**Stratigraphy:** The graben of the Wagwater Trough in NE Jamaica was filled initially by alluvial fans sourced from localised volcanics. These volcanoclastics and conglomerates pass into finer, cleaner clastics, together forming the Early Paleogene Wagwater Group, deposited in the Trough as part of over 6,800 metres of clastic sediment there. A marine transgression followed, feeding sediments as turbidite and fan deposits from a marine shelf to the north of Jamaica across into the deeper offshore to the south.

From the Mid-Late Eocene, shallow marine and fluviodeltaic sediments, indicated by provenance data to be sourced from the Yucatan/Maya Mountains of the proximal North American plate, were deposited across Jamaica. These form the Yellow Limestone Group, which is recorded as shale-prone, with interbedded high net-to-gross sand units, and is overlain by carbonates. These

sands are the primary reservoir in the Morant Basin, while the shales provide local deltaic source potential and sealing strata.

- **Phase IV (Late Palaeogene - Cayman Trough opening & strike slip movement):** The opening of the Cayman Trough to the north triggered strike-slip movement of Jamaica away from the North American plate in the Mid-Late Eocene.

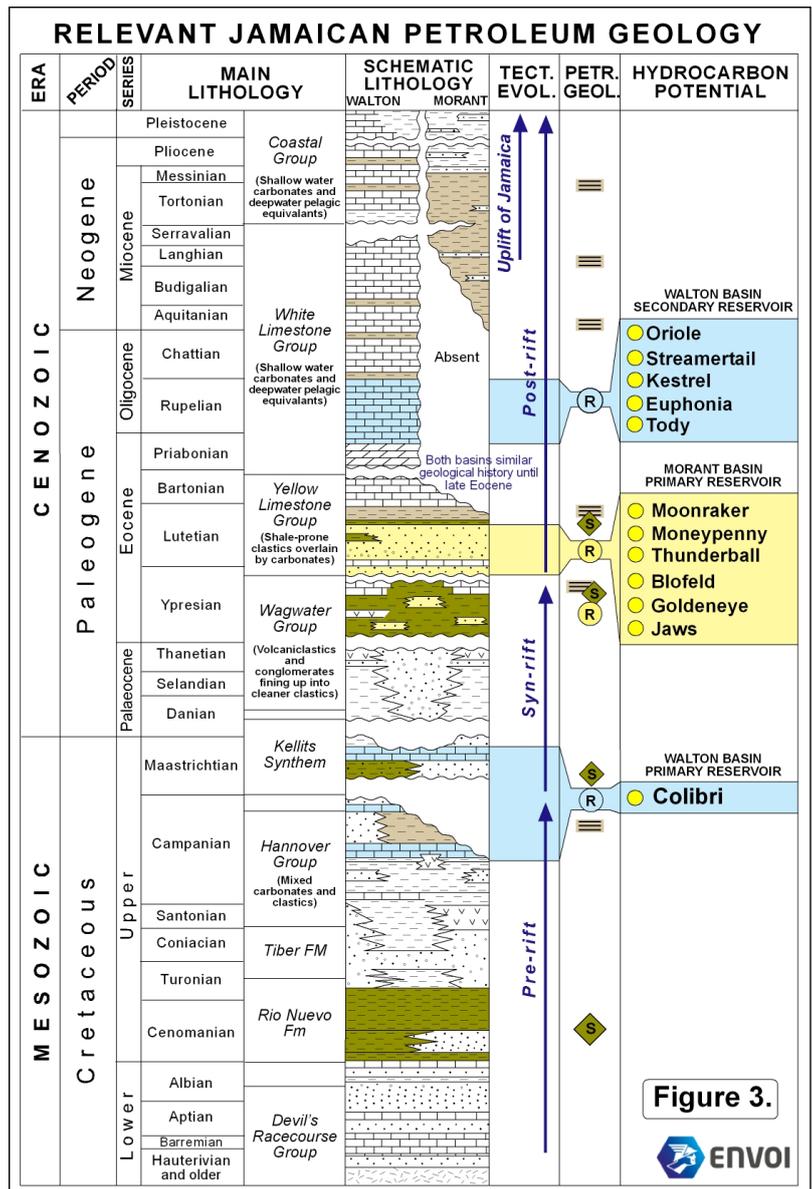
**Stratigraphy:** This movement away from the primary clastic sediment source, together with marine transgression resulted in carbonate platform build up on structural highs and marly limestones in the structural lows, mostly as part of the White Limestone Group. The Walton and Morant Basin structure and deposition start to diverge at the end of the Eocene. The shallow water carbonates, calci-turbidites and deep-water pelagic equivalents continue until the end of the Miocene in the Walton Basin.

- **Phase V (Neogene - Present - Island uplift & erosion):** The Miocene saw sinistral movement along the Pedro Bank Fault Zone which variably affected the offshore basins. The Morant Basin experienced significant trans-tensional pull-apart rifting at this time, setting up the tilted fault block structures which form the Morant Basin hydrocarbon traps present day. The Walton Basin experienced comparatively little trans-tensional modification during this time. From the Mid-Miocene, the island of Jamaica was uplifted on the restraining bend of the strike-slip EPG (Enriquillo-Plantain Garden) Fault Zone, exposing Cretaceous-aged source rocks and reservoirs in inliers. Oil seeps have been recorded at surface in these inliers.

**Petroleum Geology:** The prospectivity of United's acreage is best subdivided into respective basin potential:

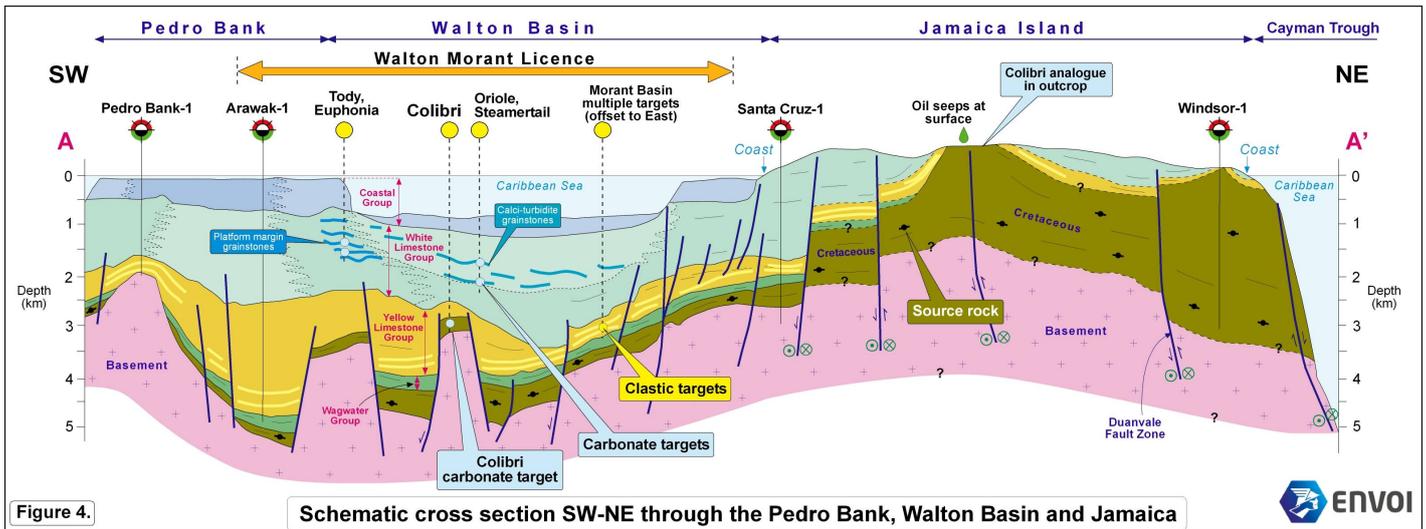
**Walton Basin Reservoir & Seal:** The Colibri Prospect is interpreted as a Late Cretaceous rudist-bearing limestone deposited on a horst. Seismic character suggests an inner to outer ramp succession with mounded intervals probably indicating rudist build-ups and high-energy grainstone deposition, with a likelihood of significant fracture development & karstification. The presence of high porosity carbonates at Colibri is supported by a prominent low-velocity anomaly. The Late Eocene - Oligocene saw widespread carbonate platform development, with reservoirs developed as grainstones both along the platform margin (Tody & Euphonia) and redeposited as fans in the deeper basin (Oriole, Streamertail). Seal in the Walton Basin is present as Upper Cretaceous shale (Colibri play) and Middle Eocene shales & argillaceous limestones (Oriole, Streamertail).

**Morant Basin Reservoir & Seal:** The Early-Middle Eocene Yellow Limestone Formation saw progradation of fluvio-deltaic & shallow marine clastics, being fed from the uplifted Maya / Chortis hinterland to the north. Deepwater channel & fan facies equivalent reservoirs are expected to be developed in the Morant Basin area at this time. High net-to-gross sandstone sequences of Guys Hill Formation with thickness >300m are observed in outcrop onshore (see image below) and have been encountered in offshore well Arawak-1. Reservoir potential also exists in the Paleocene Wagwater Group, which outcrops onshore as turbiditic sequences in the area of the Wagwater Trough. Seal in the



Morant Basin is primarily provided by upper Yellow Limestone pelagic carbonates, and by Miocene shale & argillaceous limestone facies that were deposited during rapid basin subsidence as trans-tensional pull apart progressed.

**Source Potential:** Tectonic plate reconstructions and present-day occurrences of Cretaceous source rocks across the Caribbean region suggest the presence of a Proto-Caribbean Upper Cretaceous source rock fairway. Along this fairway, conditions were such that oil-prone source rocks were developed wherever suitable basin settings existed. Along the Great Arc of the Caribbean, Upper Cretaceous source rocks were laid down in a series of front- and back-arc basins which extended as far south as present-day Venezuela (Figure 2). The back-arc basins which now comprise Jamaica and its offshore basins were located within this fairway at this time. This is evidenced by the presence of thick oil-prone Upper Cretaceous shale (Cenomanian-Turonian Rio Nuevo Formation) and carbonate (Maastrichtian Guinea Corn Formation) source rocks observed in wells & outcrop.



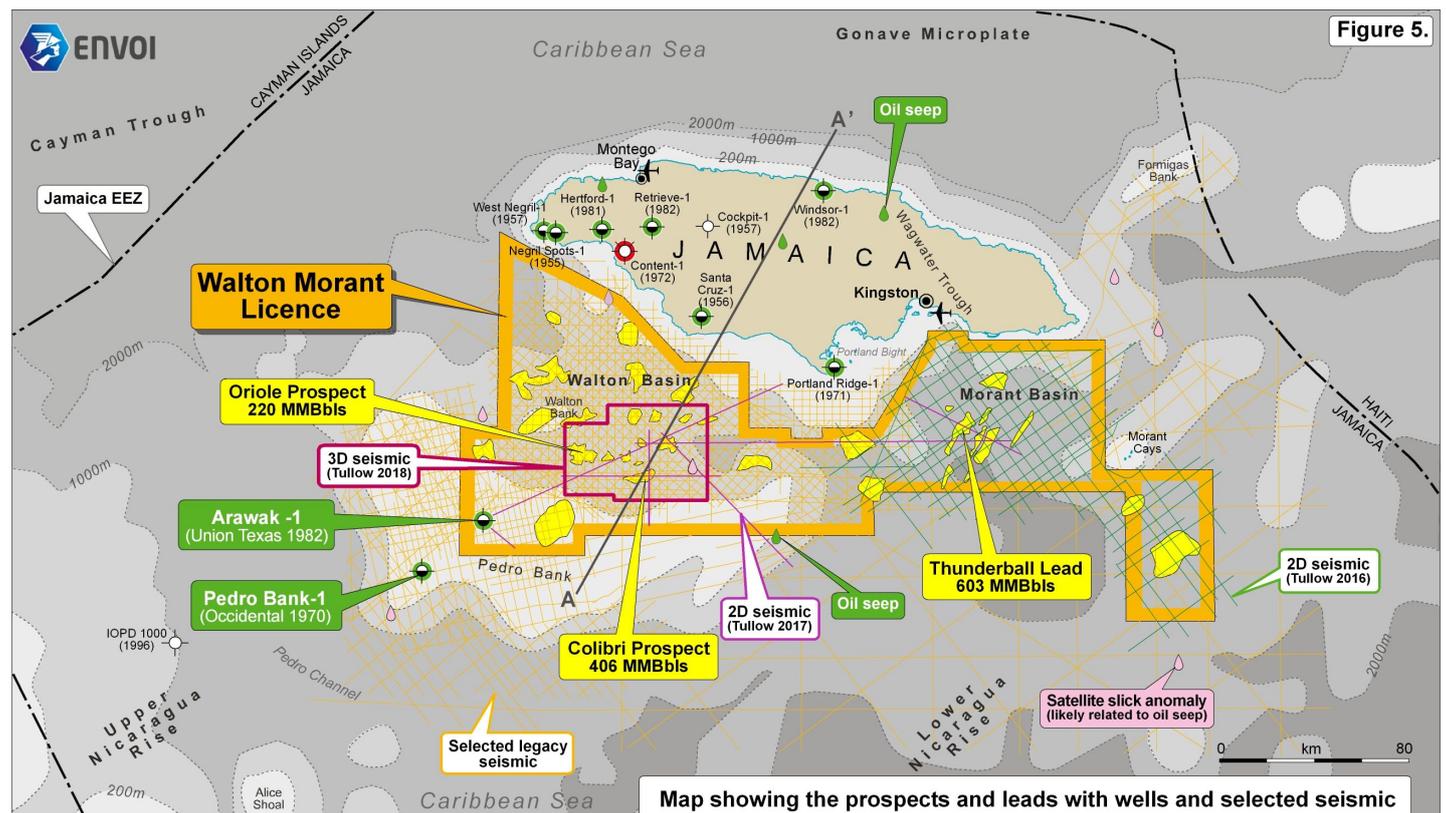
Rio Nuevo Formation organic shales exhibit TOCs of up to 8% (Windsor-1 well cuttings analysis), and petroleum systems modelling suggests that significant oil potential exists in mature Cretaceous source kitchens in both the Walton and Morant basins. Shallower Palaeogene shales with TOCs up to 15% could also locally be buried deep enough to be mature.

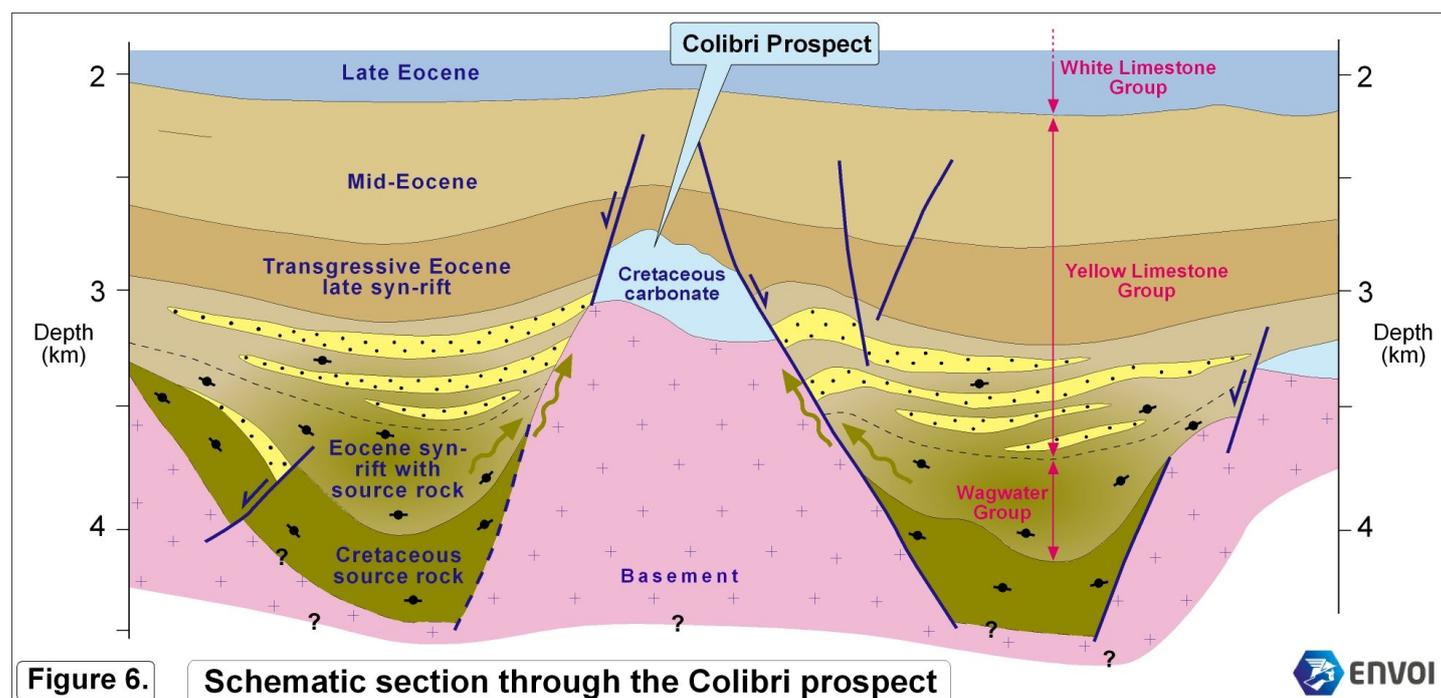
Extensive onshore fieldwork and seep analysis studies have confirmed mature Eocene, in addition to Cretaceous oil-prone source rock potential, with migrated oil identified in onshore wells and outcrop samples. Of the nine onshore wells, eight had oil shows.

Offshore, on the eastern side of the Pedro Bank, sampling of an intermittent seep has confirmed a thermogenic origin from a marine clastic source rock with Type II kerogen. Interpretation of satellite slick data indicates numerous

offshore slick anomalies, with demonstrated slick repetition shown in an area 15-20km east of the Colibri structure, which could be indicative of an active oil seep.

**Prospectivity:** The large **Colibri Prospect**, located in 750 m of water, is interpreted on 3D to contain karstified Cretaceous rudist and shoaling grainstone carbonates developed on a prominent palaeo-horst that forms a ridge in the syn-rift section. Gravity data is consistent with a carbonate reservoir with at least 20% porosity and there are good indications that it is laterally consistent. A prominent low velocity anomaly is observed on 3D PSDM seismic data at Colibri and is conformant with prospect structure. Sub-seismic fracture development combined with karstification and dissolution may indicate permeabilities of 10 to 1,000 mD and dissolution may indicate permeabilities of 10 to 1,000 mD.





**Figure 6.** Schematic section through the Colibri prospect

Analogue for this reservoir type are seen elsewhere in the Greater Caribbean region, for example in Mexico. Further afield, one analogue is the Mishraf Formation in Iraq, where it forms the giant Rumaila Field. Modelling suggests light oil in a normally pressured environment can be expected. Extensive shales, marls and tight limestones create effective top and lateral seals.

Amplitude supported prospects have also been defined on the new 3D in the Walton Basin, with Upper Eocene-Oligocene carbonates as the reservoir targets. Seismic mapping of the Walton Bank margin suggests tectonic instability and the potential for coarse platform material to collapse into the adjacent basin. The ***Oriole*** and ***Streamertail*** prospects, with an estimated 220 and 221 MMbbls mean prospective resource potential respectively are believed to be calci-turbidite grainstone deposits formed in this way.

Eocene clastic reservoirs include fluvio-deltaic and marine sandstones, eroded from the Maya-Chortis continental remnant in the north, southwards into the Licence area.

These are found across onshore Jamaica in outcrop with depositional modelling indicating their distribution offshore in both basins and encountered in both offshore wells to the west of the Walton Basin. Eocene targets identified include a series of tilted fault block closures mapped on the 2D in the Morant Basin.

The most prominent of these is ***Thunderball***, which is estimated to contain unrisks mean recoverable resources of 603 MMbbls.

An independent Prospective Resources Audit was completed by Gaffney Cline & Associates in December 2020, covering just 11 of the total 21 prospects & leads defined to date. Summing the estimated unrisks mean volumes for these 11 prospects & leads, provides combined total unrisks 'mean' prospective recoverable resources in excess of 2.4 Bbbls. Of this, 406 MMbbls unrisks mean prospective recoverable resources are attributable to the Colibri Prospect alone, with an upside of 966 MMbbls.

**Commercial Overview:** Scoping economics show that the base case resource potential of the Colibri Prospect alone (406 MMbbls mean recoverable resources) is attractive, generating an NPV10 of US\$ 2.5 Bn with an IRR >30% at a US\$60/bbl oil price. The economics are robust, with the breakeven oil price being <US\$30/bbl, and breakeven recoverable oil volumes of around 100 MMbbls.

The fiscal terms are very competitive, including a PSA with no state participation. The Initial Production Period would be 25 years, with a possible ten-year extension. Royalty paid on oil is adjusted according to water depth. A high level of cost recovery is available, and the Contractor share of Profit Oil is attractive at approximately 65%.

The substantial facilities and services available in the Gulf of Mexico, not far from Jamaica, would ensure drilling operations can be mobilised and supported relatively easily.

Development options include a standalone FPSO or via a tension leg development in 750m water with FSO storage. The option of a 21km tie-back to a platform in only 20 m of water on the Pedro Bank is also available.

**Work Programme & Obligations:** The Initial Exploration Period was extended in August 2020 for 18 months to 31<sup>st</sup> January 2022, in return for the recent and ongoing G&G work programme to further de-risk the acreage.

A drill or drop decision is required before the end of this year (2021) to progress to the Second Exploration Period, where one exploration well will be committed to be drilled before January 2024. United wish to target the primary Colibri Prospect which would fulfil the obligation. A successful discovery would significantly de-risk the many follow-on prospects and leads in the licence area.

A compulsory relinquishment of approx. 40% of the existing Licence area would be required at the start of the Second Exploration Period equal to around 9,574 km<sup>2</sup>, leaving a large prospective area of 12,826 km<sup>2</sup> incorporating all the key prospects in both the Walton and Morant Basins.

**The Opportunity:** United is offering parties a material interest plus operatorship in their 100% owned Licence in return for a commitment to drill a well to test the large Colibri Prospect in the Walton Basin. This well would be situated in 750 metres of water and is estimated likely to cost c. US\$ 30 million dry hole (OPC, 2021). A contribution to any incoming party's equity share of United's past costs (equal to US\$ 3.5 million) would form part of any negotiations. It is worth noting that these past costs are a small fraction of the US\$ 35 million previously spent by Tullow on the licence.

United would now like to attract an experienced offshore partner by the end of the current First Exploration Phase in January 2022 and ahead of the start of the 2-year Second Exploration Phase that would expire in January 2024. United are willing to offer operatorship to suitably qualified parties.

**Further Information:** Access to the key data on this opportunity can be made available online after execution of a Confidentiality Agreement (CA). Serious parties will be invited for a presentation followed by access to the full data set, including the workstation seismic. This can be done virtually whilst global travel restrictions remain in place, although thereafter any physical data rooms can be visited either in United's office in Dublin or at Envoi's office in London.

All expressions of interest and requests for more information, including a copy of the CA, should be made through Envoi.

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