

Hunting Hydrocarbons Offshore Honduras

CaribX restarts exploration and appraisal activity after a 48-year pause
May 2021 | Emily Smith Linás

In the 1960s and '70s, many oil companies collectively drilled 50 wells in the Chortis plate, an arrow-shaped, large segment of continental crust projecting into the Western Caribbean from onshore Honduras and Nicaragua, 1,000 kilometers east toward Jamaica.

Three-quarters of the wells drilled recorded either source rocks or hydrocarbon shows, and four wells tested live hydrocarbon columns, including Union Oil's Main Cape discovery, drilled in 1973.

Civil unrest and a deteriorating investment climate in Central America halted offshore exploration in the early 1980s and the area remained largely unnoticed while companies focused on Mexico, Venezuela and Colombia.

Taking a New Look

Decades later, the Chortis plate caught the attention of Chris Matchette-Downes, a petroleum geochemist and entrepreneur with a history of finding commercial exploration opportunities in Europe, East Africa and, more recently, the Caribbean.

After founding and then selling a company focused on East Africa, Matchette-Downes met an official from the Petroleum Corporation of Jamaica and soon started working in Jamaica and surrounding areas. He found this new area both refreshing and exciting.

"The high entry price required in Africa at the time and fierce competition to secure acreage opportunities encouraged me to look elsewhere," he said. "It was clear that the Western Caribbean had all the geological ingredients for prolific petroleum systems and there was no one else there at the time."

"The Western Caribbean is bigger than it seems, and I am convinced it could hold the next oil major province, south of Mexico and north of Venezuela."

Focus on the Source Rock

Chris Matchette-Downes founded CaribX in 2009 with the mission to "Follow the oil seeps and source rocks." He worked in Jamaica, Haiti and the Dominican Republic before learning about the opportunities in Honduras.

"A geochemist friend gave me a business card from a conference, and just said, 'You will need this.' I rang the number and got through to the Honduras government agency tasked with managing Honduras' minerals, mines and hydrocarbons," he said.

"I had just launched CaribX with the intention of securing assets in the Caribbean, in shallow water and in stable countries with evidence of oil. The Union Oil Main Cape oil discovery offshore Honduras passed the screening test," he continued.

Matchette-Downes flew to Honduras and met with government representatives to discuss proposals, then made follow-up trips to collect data and oil samples from the 1973 discovery.

"To my mind, a robust source is key; everything else follows. Oil to the surface is of course a good sign, and I was able to get samples of the Main Cape tested oil early on," he said.

Need for Partnerships

Matchette-Downes said members of the government were very interested to hear about the work he'd done and the potential he saw for reviving exploration activity in Honduras. At the time, CaribX was just starting out.

"It's a typical problem – countries prefer to work with the majors," he said. "The majors in turn like to see prior groundwork in place, particularly in frontier areas. The way forward was to bring in the right partner early on, and this happened with the British Gas Group. Then after BG's merger with Shell and their subsequent withdrawal from Honduras as part of Shell's strategic portfolio reorganization, this allowed CaribX to grow into the leading Western Caribbean oil exploration company we are today."

Today CaribX is a 55-percent holder of the Main Cape license along with UK-based operator High Power Petroleum.

Staying Committed

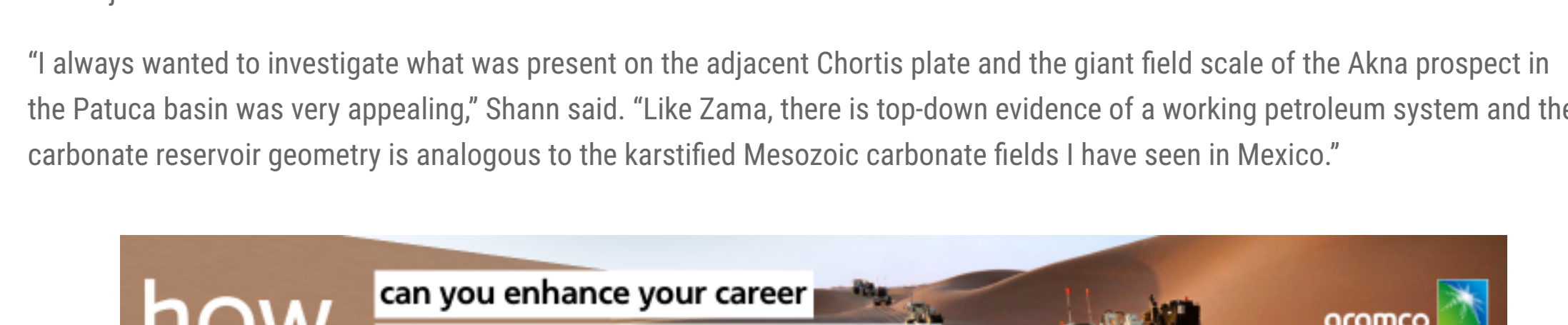
Throughout operator changes, the COVID crisis and the subsequent economic downturn, Matchette-Downes has remained committed to the pursuit of technical and commercial success offshore Honduras.

"We have not drilled yet, but we have established that the 1973 oil discovery in the shallow water was of material scale. We have also identified billion-barrel class prospects in the deepwater Cayman Trough borderland basins, and we have determined that there is both an Upper Cretaceous and Eocene source rock and charge systems active," he said.

In the past 10 years, CaribX has conducted an extensive review of the hydrocarbon potential of the 17,180-square kilometer Main Cape license area. The work was enhanced by bringing in experts like Mark Shann, former subsurface director of Sierra Oil and Gas and participant in the 670 mmb recoverable Zama oil discovery in the Southern Mexico's Sureste basin in 2017.

Shann joined CaribX as a technical adviser and investor in 2019.

"I always wanted to investigate what was present on the adjacent Chortis plate and the giant field scale of the Akna prospect in the Patuca basin was very appealing," Shann said. "Like Zama, there is top-down evidence of a working petroleum system and the carbonate reservoir geometry is analogous to the karstified Mesozoic carbonate fields I have seen in Mexico."



Exploring the Potential

Mark Shann has spent the last two years increasing his understanding of this Western Caribbean area included in CaribX's Main Cape license.

"Chortis has had an intriguing plate history," Shann said. "In the Mesozoic, it was located farther west adjacent to Mexico's Maya plate in the Yucatan, and as such was affected in the Late Cretaceous by Laramide 'Sierra Madre thrust and fold belt' folding. It then moved east into the Caribbean during the Cenozoic on a strike-slip plate boundary, hence the dominant structural fabric affecting Chortis is one of sinistral strike-slip."

Shann noted that the Main Cape license includes two primary play types.

"The northern section comprises the southern borderlands to the Cayman Trough transform margin, which are a series of strike-slip basins with a clear Miocene structural carbonate play. To the south, the block covers the northern part of the Eocene Mosquitia rift basin, which has proven prolific Eocene rift basin source rocks and their time-equivalent associated carbonate shoal reservoirs," he explained.

Shann works alongside Senior Geoscientist Joel Corcoran integrating reservoir/seal integration of the Main Cape 1 log data to seismic structural and facies mapping, they identified a fault-bounded 40-square kilometer structural high called "La Loma" located east of the original Main Cape 1 well drilled in the Mosquitia Basin. La Loma is an area of stacked Eocene nummulite-shoal reservoir potential, where up to five additional carbonate reservoir/seal pairs may be present, updip of proven oil at Main Cape 1.

"The La Loma subsurface work has really come together over the last year founded on revisiting old legacy data with a forensic approach, applying new ideas and taking advantage of modern software to integrate all the data we can," Corcoran said.

The CaribX team is leveraging new technology to prepare for their appraisal of Main Cape. In addition to seismic mapping, biostratigraphic analysis, basin modeling and drill stem test analysis, they are using virtual reality to integrate global outcrop analogues to Main Cape 1 well logs and seismic at the same scale.

Plans for 2021-22 include options for an appraisal well in the Main Cape La Loma structure and a deepwater play test of the Akna prospect in the Patuca Basin, part of the Cayman Trough borderland basins in the north.

Getting Down to Business

In addition to significantly expanding CaribX's technical profile with world-class experts, Matchette-Downes brought in team members to strengthen the company's financial and strategic position.

Rory Scott Russell, a Shell veteran with Caribbean experience, assumed his role as CEO in 2018. During his tenure, he has organized funding and developed a consortium of institutional and private investors to fund the company's work program obligations, business development and regional growth plans.

Under his leadership, the CaribX management team also gained two new members. Ivan Sandrea, former CEO and founder of Sierra Oil and Gas (acquired by Wintershall DEA in 2019) joined the advisory panel, as did former senior BP executive and PEMEX board member Octavio Pastrana.

A Small Team with Big Results

"We may be, relatively speaking, a small company, but we punch above our weight, particularly in our technical capabilities across all disciplines. We also know that patience, a forensic attention to detail and data, and of course an appetite for hard work is essential for success in all this new frontier work we do. For example, hunting down and acquiring all the 1970's data available from governments, public and private sources takes years to achieve," said Scott Russell. "All the patience, investment and hard work is now paying off."

Scott Russell noted that the project to appraise the Main Cape-1 discovery would involve drilling the first offshore well in Honduras in more than 40 years.

"Main Cape-2 will appraise an existing discovery of over 100 million barrels (mean oil recoverable), with the potential for a large exploration upside," he said.

He noted that evaluating the discovery and moving the field to commerciality, safely and in full and transparent consultation with all local stakeholders, will be significant for Honduras and for the neighboring countries that lack indigenous hydrocarbon sources.

"We believe strongly that a lack of access to cheap energy is a fundamental barrier to economic development in the region," he said.

Benefits for Honduras

Scott Russell said that discoveries in Honduras will provide significant social, economic and environmental benefits to Honduras and its people.

A 2020 study from the UNAM Renewable Energy Institute states that more than 70 percent of Honduras live in energy poverty, without reliable access to basic energy services, like clean cooking facilities. According to the U.S. Energy Information Administration, half of the country's total energy needs are met by burning biomass, mostly firewood, contributing to deforestation and habitat loss.

Scott Russell also noted that Honduras imports 90 percent of its total non-biomass energy supply. He cited an International Trade Centre report noting that in 2018 alone, the country imported more than 25 million barrels of oil and refined oil products, costing the economy \$1.6 billion, or 17 percent of the country's total imports.

"As a result of government-subsidized fuel prices, the state directly funds the difference between the cost of import and the retail price of fuel, making the Honduran economy particularly vulnerable to oil price volatility," he said.

"However, the country could hold, in the waters off its Caribbean coast, a highly material energy supply in the form of untapped oil and gas resources. The potential discovery and development of these resources, depending on project outcomes and drilling success, could produce direct government revenues of anything between US\$350 million and \$3.5 billion per year by the end of the decade," said Scott Russell.

He noted that developing an indigenous resource will help Honduras offset the burden of oil importation and vulnerability to oil shocks, provide energy security and help to alleviate energy poverty and reliance on biomass and firewood.

"An oil and gas export business would diversify the economy and provide an immediate to develop a skilled workforce in the high-technology science and engineering sectors," he said, noting that the CaribX team is committed helping the country develop its potential.

"The whole team takes this undertaking very seriously, including our commitments to all local stakeholders. We are honored to be part of such a historic project in Honduras, and we are impressed by the state's professional and transparent approach as we continue to make the project a success," he said.

Matchette-Downes echoed these sentiments and said he is grateful to all those who helped the company reach its current position: "I would like to thank to thank the cofounders of CaribX, all the consultants that helped found and build CaribX and the new CaribX members that have continued to manage and refine the offshore Honduras project."

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