August 2019

ON&T

Ocean News & Technology

www.oceannews.com

ESSENTIAL INTELLIGENCE

| FEATURE |

THE DISCOVERY OF THE CAPITANA SAN JOSE

By Garry Kozak / GK Consulting

The War of Spanish Succession (1701 – 1714) resulted in a period when no treasure from South America was sent to Spain, but on 10 February 1708, a fleet of 17 ships arrived at Portebelo, Panama to transport the enormous treasure that had been amassed. The *San José,* being the flagship, was loaded with the largest amount of this treasure. The fleet departed for Cartagena, Colombia.

In the afternoon of 8 June 1708, sailing close to the Islands off Barú, Colombia, and a only few hours from the Port of Cartagena, the Tierra Firme Armada sighted the English squadron under the command of Commodore Charles Wager. At sunset the Capitana *San José* confronted the *HMS Expedition*, Wager's flagship. Many exchanges of artillery fire followed and there was an explosion on the Capitana resulting in her disappearance. Of the 600 people onboard, only 11 survived. So the legend begins of what is estimated to be one of the largest single losses of Spanish treasure in the world. Estimates of its value are in the billions of dollars.

When an old colleague, Roger Dooley, told me he was going to look for the *San José* and asked if I would join his team, I knew there would be significant hurtles. How was he going to get Colombia to grant a permit for the search? How would he get financing? What technology was needed? That would be part of my contribution to the project, selecting the right search kit and overseeing the search strategy, as well as data processing and analysis.

I knew Roger from searches for other historically significant ship wrecks. He is a mesmerizing character, with a colorful background, having lived in Cuba under the Castro regime, where he became a historian and archeologist with a wealth of knowledge on Spanish shipwrecks, especially the *San José*.

To my surprise, Roger found financing and met with the President of Colombia, Juan Manuel Santos. This led to an agreement, which would allow the project to proceed. MAC (Maritime Archaeology Consultants) was formed with Roger as the Project Director. MAC would partner with the Colombian government to see if the elusive *San José* could be located.

» *Colombian Navy Ship Malpelo - Photo Credit: GK Consulting*

» *WHOI Remus 6000 AUV - Photo Credit: GK Consulting*

In February 2015, we had a meeting at WHOI (Woods Hole Oceanographic Institution). WHOI operates a REMUS 6000 AUV, which was a perfect search kit since it already had an EdgeTech 2200 side scan sonar operating at 100/400 kHz installed on it. Since it was unknown what would be left of the *San José* on the seafloor after all the years since its loss, we needed the absolute best sonar that would produce the highest resolution data. The EdgeTech systems have a proven deep-water track record and would be the perfect sonar for the project.

May 2015, WHOI arrives in Cartagena and mobilizes the AUV aboard the Colombian Navy ship, Malpelo. Roger and I set up an onshore headquarters (HQ) where mission planning would be done, as well as data processing and analysis. HQ also served as the central meeting place for Colombian government and Navy officials monitoring the search, and to give them daily project updates. From his research, Roger had defined the area he thought had the highest probability of where the wreck may be. The EdgeTech 2200 side scan would use the 100 kHz frequency set to a 350 meter range scale so we could cover a 700 meter swath per AUV pass. A staggered line spacing of 500 m x 225 m x 500m x 250m etc. was used to ensure the nadir region was fully covered. AUV start position, survey line pattern and spacing, AUV altitude, etc., were conveyed to the WHOI team to allow them to program the AUV to our specified area and search parameters.

The search began. The Mapelo steamed from Cartagena to the first search box and proceeded to deploy acoustic beacons for the AUV navigation. The AUV was launched and started "mowing the lawn". On mission completion, the sonar data was downloaded and transferred to the HQ for processing and analysis.

Search operations continued for 10 days, covering part of the area for which Colombia had given MAC a search permit. Disappointingly, no anomaly which could have been the *San José* was found. Since a modification to the Colombian search permit to expand the search area would take time, the decision was made to end operations, so the AUV was de-mobilized and the team departed Colombia.

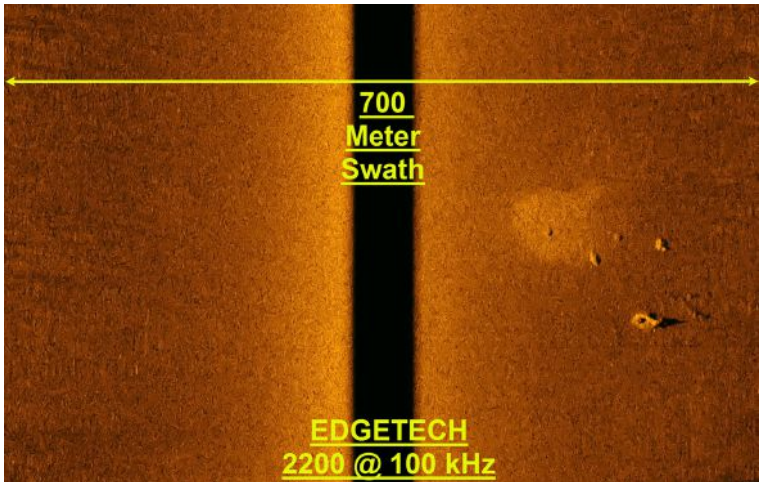
Roger was convinced that the *San José* had to be just outside the search permit area. For the next several months MAC negotiated with Colombia to issue a new search permit to allow expanding around the original permitted area. The permit was given and WHOI again contracted for the AUV services. In November 2015, the team arrived back in Cartagena, and the AUV was again mobilized onboard the Malpelo. The search was expanded seaward of the original area. On November 27, the first block of the new search area was completed, and the data processed and analyzed for targets. There it was, in the NW corner of the block, an anomaly that was almost surely the remains of an old shipwreck.

The sonar signature was so interesting that we decided to use the high frequency sonar to get high resolution images of the target and to also run the AUV at a low altitude to capture photographic images of the anomaly as the AUV survey lines crossed over it. Everyone waited impatiently. Roger and I were scanning through the mission data when high resolution sonar and photos of a shipwreck appeared showing wreckage and cannons scattered around. It was a moment of team jubilation and I watched Roger's reactions as it sunk in that the many decades of dreaming, research and careful planning had finally paid off.

New AUV missions were run in the following days with the focus to collect sufficient overlapping geo-referenced photographic images to create a complete photo-mosaic of the *San José* site. The photographic images showed how amazing and preserved the objects were sitting on the seafloor more than 2,000 feet down. The upper decking had decomposed but there were bronze cannons everywhere, intact ceramics and many glass bottles scattered around. The hull remains (sides) of the ship were clearly evident in the images with some cannons sticking out of what were once gun ports; probably last fired during the battle. Roger was analyzing each set of photographic images, measuring the cannons, looking at the construction, ceramic types, and so on. He wanted to be sure that there was no doubt that this was in fact the *San José*. The evidence grew quickly and it reinforced the initial conclusion that this was in fact 100% the long lost *San José*. Gold bars and coins were in plain view in some of the images. The photo mosaic is an impressive view clearly showing the magnificent state of the *San José* remains after 300+ years on the seafloor.

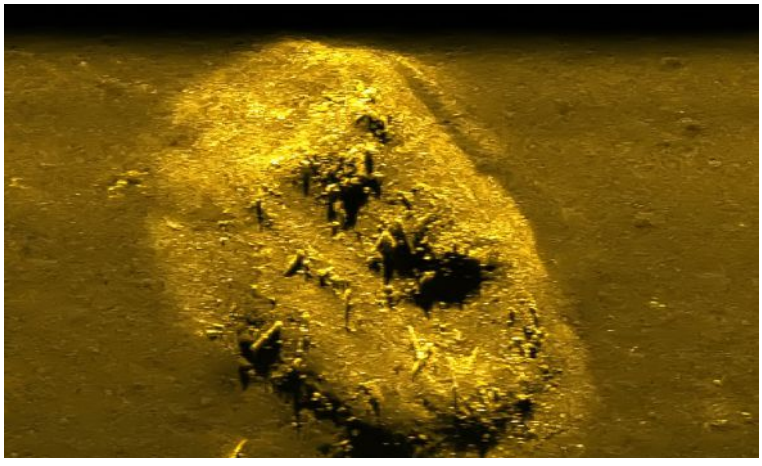
President Santos was notified and presented the evidence that the *San José* had been found. A press conference was scheduled and on December 5, 2015 he announced to the world the discovery of the San José. For Roger Dooley, it was a life time accomplishment that many believed was not possible.

The future of the *San José* is still in flux. Roger's vision is a complete excavation using remotely operated vehicles (ROVs) and adhering to strict archeological standards. The San José is a big part of Colombian heritage, so the future plan is to build a marine conservation lab and a new museum in Cartagena to house and display the recovered artifacts for the world to see. The wheels of government move slowly, so the timeline is in doubt, but I look forward to visiting Cartagena to see their display of the amazing *San José*.

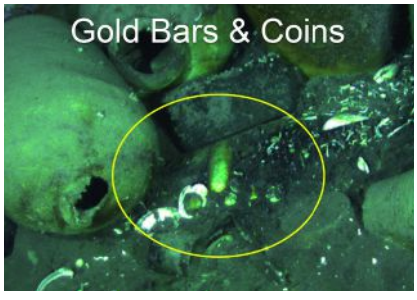


» *1st detection 100k @ 350m range scale San Jose - Photo Credit: Colombia*

» *Roger Dooley & Garry Kozak at moment of Discovery - Photo Credit: GK Consulting*



» *EdgeTech Hi-Resolution Side Scan Sonar Image of San Jose - Photo Credit: Colombia*



» *Photo Credit Colombia*