

## **Chasing Dreams, Near Far – Wherever They Are... *Renata Rojas and Her Quest for Her Titanic!***

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Renata Rojas is the former president of NYC's venerable scuba dive club The New York City Sea Gypsies™, and banking executive, as well as member of NYC's Explorers Club. She is also one of the mission specialists aboard submersible research vessel *Titan*, which will be diving on and documenting *RMS Titanic* in July 2018. *Titan* was built by Oceangate, a company based in Everett, Washington. Oceangate builds submersibles for undersea industrial, scientific, environmental, military and historical/exploration missions. Oceangate's objective in diving their submersible to *Titanic* is to create an accurate and immensely-detailed 2018 baseline engineering model of the current structure of *Titanic*, using state-of-the-art photogrammetry and laser beam measurement capabilities. *Titanic* has been on the bottom in 12,500 feet since it sank in April 1912, about 300 miles southeast of Newfoundland.

### ***RMS Titanic Today***

The wreck was located in 1985 by a joint American–French Expedition led by oceanographers Dr. Bob Ballard (Woods Hole Oceanographic Institute) and Jean-Louis Michel (L'Institut Français de Recherche pour l'Exploitation de la Mer) in collaboration with the US Navy. The wreck has been inspected and photographed many times by personnel aboard submersibles and by remote-operated vehicles (ROV's) since the wreck's location. There is damage on the wreck, resulting from submersible landings on it. Artifacts have been removed from the site. The structure is degrading due to corrosion and biological processes, which are deteriorating the ship's iron. *Titanic* split in two during the sinking. The stern section broke apart and is collapsed into a massive debris field on the bottom. The bow section is some distance away and is still largely integral. However, it will at some point - in the eternal darkness and under the unimaginable crushing depth - implode, presumably with a massive subsurface plume of rust dust and particles. That will be a sad occurrence; and there is nothing that can avert that biomechanical inevitability.

Oceangate's photogrammetry mission involves combining many thousands of high definition photographic images. This creates a virtual geo-spatial map of the structure which can be used as input to an engineering model. Having such a model will serve as a baseline (point-in-time) and provides the capability to accurately detect changes (that is, degradation) to the structure over time. Combining a geospatial model with metallurgical (specifically, metal decay) estimates, and using blueprints of *Titanic's* internal structure and ROV-based internal photogrammetry can help predict the timing and characteristics of the inevitable collapse. Having the capability to predict structure collapse has immense commercial, environmental, military and scientific applications. For example, at some point in the future *USS Arizona* in Pearl Harbor – containing 500,000 gallons of bunker fuel – is going to collapse. Similarly, for British battleship *HMS Royal Oak* off the town of Kirkwall at Scapa Flow in Scotland's Orkney Islands. And for thousands of warships sunk during WWI and WWII worldwide (...and for many of Russia's decaying nuclear submarines, abandoned and left to rot at various Russian navy bases).

### ***Why Bother Mapping the RMS Titanic Wreck? What is the Point?***

Industrial, environmental, scientific and military benefits of understanding multi-dimensional engineering performance of submerged structures under stress are incalculable; NOAA states that 95% of the Earth's sea beds are unexplored. Oceangate's CEO Stockton Rush rightly asserts that we know more about the

Earth's moon's surface than about the Earth's subsurface topography! Clearly, we are still in the infancy of undersea exploration and understanding. In our lifetime and in next generations, humans will be spending a lot more time (and investing a lot of money) under the sea, to explore and discover the inner universe, and mine the Earth's sea beds. Which reveals Oceangate's underlying business model – it is decidedly *not* mere tourism at *RMS Titanic* (which was apparently the driver for the predecessor Russian *Mir* submersible “tours” of *Titanic*). For Oceangate, mapping *Titanic* is a high-profile, marketing-driven exercise (“the sizzle sells the steak”). The mission to *Titanic* in a broader sense is a skill-building entry point to future commercial, scientific, environmental and military missions based on *Titan* submersible architecture (and Oceangate's follow on submersible technologies) – for missions which are far larger in scope, reach, range, financial return and consequence for humanity – indeed, for all life on Earth.

*Titan* will have a pilot, a content specialist, and three mission specialists aboard. The descent from the surface to *Titanic* will take approximately 1.5 hours. The craft will be on station for approximately three hours, and the mission specialists will be using the complex instrumentation, telemetry, multi-dimensional sonars, multiple redundant safety systems with real-time monitoring, and laser scanners as well as operating the articulating arms for taking water samples from around the wreck. It is also unknown which section of *Titanic* particular mission specialists will deploy on (due to changing circumstances during the dives), so all mission specialists must prepare for all contingencies. The International Space Station has nothing over *Titan*! Then, 1.5 hours back up to the surface.

### ***Renata's Titanic and Her Journey There***

Renata's mission to *Titanic* has been in the making for a very long time. *Titanic* has been on her mind for many years, even as a girl growing up in Mexico. Renata glows when speaking about diving in her native Mexico and has always had a special affinity for wrecks. (Now we clearly see the connection --what could be a more monumental wreck than *Titanic*!). She is a technical diver and has been diving since the age of twelve. She provided surface support for the 2016 mission to *Titanic's* sister ship *Brittanic*, which sits on the bottom at 400' off the coast of Greece. During that time, she also had the opportunity to be inside the submersible, beholding the spectacle of the almost 1,000' ship lying on her side. Renata also participated in the 2016 Oceangate mission to the *Andrea Doria*, where she was mission specialist aboard a submersible. She has also dived on mixed gasses to the *Andrea Doria* which lies on the bottom at 250'. All aspects of her diving life have been combining, flowing like a river in the direction of her being a mission specialist aboard submersible *Titan*, bound for *Titanic* 12,500' under the North Atlantic surface. There was thus a growing assurance to her being selected over her competition as mission specialist!

Renata recently concluded a very successful two-year term as President of The New York City Sea Gypsies™ club, the largest dive club (one of the leading scuba diving clubs) in the northeast. Sea Gypsies members include a great many highly-experienced divers, as well as a growing number of those learning and enjoying diving in the northeast and worldwide. All of the shining stars in the constellation of scuba diving have intersected at one point or other with Sea Gypsies; Sea Gypsy presenters at last week's Beneath the Sea Expo dominated the lineup. Renata's objective as President was not only to advance the sport of scuba diving and for members to enjoy each other's company while doing a lot of diving, but also to increase outreach to the community - both as a Club and also via affiliation with Manhattan's venerable Explorers Club. Renata is also a leader of the *Sedna Epic Expedition*, a team of women from a professionally diverse group whose vision is to snorkel the Northwest Passage. The *Sedna Epic* team has multiple objectives: to bring awareness to the realities of global climate change, and most importantly, engaging with girls and women of the traditional Inuit communities along the way, encouraging and empowering them to fulfill

their dreams and to not let anyone or anything block their progress to achieving their personal best - in whatever their chosen field of endeavor!

*Dive News Network* asked Renata what she liked to do for vacation. The response was unequivocal – she dives, here, there and everywhere! Diving is thus cooked into her DNA. We also asked her whom she must greatly admire. Renata quickly named her mentor and teacher, Jill Heinerth, who is Explorer in Residence at the Royal Canadian Geographical Society, educator, environmental activist -- and the *BTS 2018 Diver of the Year for Education*! Taken together Renata's persistent progress, dedication and intensity of spirit undoubtedly all contributed to her selection for the *Titan* team.

Renata's training for the *Titanic* mission has been intense. It has included not only training for her own mission-specific tasks, but also building relationships with Oceangate staff and *Titan* crew members and learning about their tasks. Characteristically intrepid, Renata wants to interlock with them during the mission and be able to provide assistance and 'pinch hit' for them during the mission if such should be needed. She has gained significant experience in submersible operations to date due to her prior expeditions and is therefore in excellent position to provide depth of support. Her preparation and training has also included the use of cold water immersion survival suits (affectionately known as 'Gumby' suits). To save transportation time and maximize time on station over *Titanic*, mission specialists will be flown by helicopter out to the support ship in the immediate vicinity of the wreck. (Anyone who has flown in a helicopter knows that helicopters are characteristically unstable and perpetually in a 'controlled crash' compared to fixed-wing aircraft). Thus the necessity of training for escape from a downed helicopter in the ocean, wearing those bulky gumby suits! (... Just imagine being in a heavy swell, in 45F water, at night pitch black, being inside an overturned helicopter, which is starting to sink fast and being jostled by heavy swells - and once outside the sinking craft trying to figure out which way the surface is! That is what Renata's helicopter escape training prepares her for).

### ***Far Across the Distance, and Spaces...***

Renata admits to an obsession with *Titanic*. She is not alone. The film *Titanic* was one of the world's all-time highest grossing films, ever. There is a pull and draw to the human side of this tragedy that transcends time and space and engulfs all humans, touching all cultures and peoples. In Boy Scout and Girl Scout camps, The Titanic Song is sung around campfires. If you attended summer camp in the US, you too sang the song about how "It was sad when the great ship went down, to the bottom of the.. Husbands and Wives, little children lost their lives...". This song was authored reportedly in 1915 by an African American songwriter somewhere in rural Alabama, and the songwriter's name is long-lost to time. (Ironically, this Black songwriter would never have even been allowed to board *Titanic*, owing to his race...).

When asked what is next for her after *Titanic*, she wistfully and tentatively offers... a return to *Titanic*. And yet, as human beings, can there ever really be a return? There is a first time for everything under the sun, but by definition, it is singular. Is it not the human condition that "you can't go home again"? Then again, Renata has transcended so many barriers that there is little doubt that her direct involvement with *Titanic* will continue, grow and expand in future missions! Her "heart will go on"! *Titan* mission control will plan for on-scene submersible mapping operations and wreck orientation/familiarization time to build experience; and the first dives will also include a margin for 'emotional encounter' personal observation for the crew. Subsequent dives will be more task-oriented, taking advantage of the crew's earlier dive which built a base of both wreck familiarity and fluency with mission tasks.

Renata is a banking executive with a major European bank. Fortunately for her, her responsibilities in the lead up to and during the *Titanic* expedition will be assumed by co-workers and management while she is on her mission; her management is very understanding. But will that/can that continue? And, will her drive to professional excellence in banking - which has propelled Renata high into the stratosphere of that world – over time begin to supersede her *Titanic* preoccupation? And, what about being “in the moment” near *Titanic*? The three hours that Renata will be over *Titanic* are very likely going to vanish in the blink of an eye because she will have a long list of mission specialist responsibilities preoccupying her. But at some point during the three hours, she will make the opportunity for personal reflection on the lives lost – and she will feel the human connection across time and space – and imbue the spirit of the all-too-real human victims of the hubris of *Titanic*'s captain and in particular, the White Star Line leadership... Will Renata fulfill her *Titanic* obsession obligation? We shall find out in a post-dive interview, because Renata has graciously agreed to sit with *Dive News Network* again -- after her mission to *Titanic*-- to review these considerations...

In the meantime, *DNN*, The New York City Sea Gypsies™, and the entire dive community earnestly and warmly wish Renata and Oceangate *bon chance* for the final preparations for the mission to *Titanic*, extend every wish for full success on the mission, and wish a safe return to family, friends and community. This will be an auspicious launch of Oceangate's submersible technology, which is destined to improve the lives of all humans and other inhabitants of Planet Earth!