

LIVING THE DREAM

OF A MARINE SCIENTIST, AQUANAUT & ULTRAMARATHON RUNNER

FEATURE **LLOYD GODSON** PHOTOGRAPHY **CAROLINA SARASITI & LLOYD GODSON**

Photo by Jason Edwards – Australian Geographic



When I was a boy, my dad told me one thing every night, "If you dream it, you can do it". One of my favourite dreams was to live underwater...

In 2005, as a young 27 year old, I won the Australian Geographic Society's "Live Your Dream", Wildest Adventure Competition. With my AUD 50,000 sponsorship prize, I began working on The BioSUB Project. My idea was to create the world's first underwater habitat incorporating a plant-based life support system (see the Bio-coil Project boxed text on page 42). In just eighteen months, I independently built an underwater habitat from recycled steel, lowered it into an Australian lake and lived self-sufficiently inside it for twelve days in what was a crazy scientific experiment.

More than 1,000 primary and secondary school students logged on via the Internet to participate in my virtual, underwater classroom sessions. Hundreds of E-mails

flooded in from children and adults from all over the world and the international media found the story irresistibly quirky. By the time I emerged from my underwater habitat, it was clear I had achieved far more than a personal goal of living underwater:

The popularity of The BioSUB Project with young people led my wife, Carolina Sarasiti, and I to write a semi-educational children's book titled, "The Little Aquanaut" based on my adventure. Art imitated life as the "polka dot design" studio in Athens, Greece, illustrated the main characters of Tik and his fishy friend Bubbles. The concept behind the book was to provide young people with the message to follow your dreams, no matter how crazy they may seem.

My next project, "Life Amphibious", was an adventurous 15 nautical mile human-powered submarine expedition between the Greek islands of Kefalonia and Ithaca.

The aim of the project was threefold: to get young people excited about science and engineering; to inspire environmental awareness; to provide university students with an educational experience that translated their theoretical knowledge into reality. Omer 6 was the chosen subsea vehicle as it featured a biologically inspired propulsion system design which mimics the efficient swimming style of penguins. It was designed and built by university students at the École de Technologie Supérieure (ÉTS) in Montreal, Canada and holds the world's speed record of 4.916 knots in the one-seater / non-propeller category of the human-powered submarine. Together with an assistant professor and four young engineers from ÉTS, we delivered daily presentations to schools, social groups and individuals along the Ionian Islands' coastline throughout the expedition and organized an educational exhibition at the Goulandris Natural History Museum on the projects conclusion.

Most recently, I launched the LEGOLAND Year of Records 2010 by living in an underwater house measuring just four square meters in the LEGOLAND ATLANTIS by SEA LIFE Aquarium, LEGOLAND Deutschland®, Günzburg, Germany. I entered on the 30th of March and surfaced again 14 days later having achieved a new Guinness World Record™ for the most electricity generated by human power underwater (2,502 watt hours). Riding a bicycle for an average of six hours a day at a room temperature of around 27 degrees and with 50 percent humidity, the record attempt was a strenuous undertaking right from the outset. It was a globally unique experiment with over 100,000 children and parents visiting me on location in LEGOLAND Deutschland and via the web site. The project featured on National Geographic Channel's Naked Science, 'City Under the Sea' documentary and was awarded a silver medal at the Econ Awards in Germany in the category, "PR-Activity".

Today I am a Marine Scientist, Aquanaut (I have lived a total of 624 hours underwater) and an avid Ultramarathon Runner living my dream. I want to pass this important message onto as many children as I can and contribute to making the next generation the most active, curious and creative one so far.

So, what's next, I hear you ask?

My original dream to live underwater has matured. I now plan to establish a permanent and low-cost underwater research, education and outreach facility in the Vinkeveense Plassen, a freshwater lake area in The Netherlands. The facility will serve as the international headquarters for the real-life underwater superhero, Tik (The Little Aquanaut), and his fishy friend, Bubbles. Together, Tik and Bubbles will encourage young people to discover, explore and protect our planet's freshwater and marine ecosystems. They will inspire young people to change the world through action and to follow their dreams.

Tik will use the underwater station for the following research and education activities:

- An underwater robotics R&D Programme
- Renewable and alternative energy projects
- R&D of advanced diving equipment and emerging technologies such as the revolutionary Like-A-Fish air supply systems that are able to extract air from water, for both the leisure and the professional scuba diving industries, as well as for submarines and underwater habitats
- A R&D Programme dedicated to extreme-cold subjects
- Limnology and freshwater ecology research
- A long-term, self-sufficient underwater human habitation experiment (including psychological, physiological, environmental, life support systems and operational facilities monitoring)

A robust and exciting on-line educational

outreach programme will also be developed, allowing school children from around the world to participate virtually in all stages of Tik's various activities.

A long-term goal of the project is for the Underwater Superhero Headquarters to become an environmentally friendly and completely autonomous unit in terms of energy. This goal will be achieved by using off-grid renewable and alternative energy systems.

The Underwater Superhero Headquarters, which is a partnership between Cees den Toom of Scuba Academie (<http://scuba-academie.nl/>) in The Netherlands and myself, will empower our next generation to become philanthropic, proactive and compassionate stewards of our blue planet. Now there's something to dream about!



FEATURES



Tik and Bubbles illustrations by Polka Dot Design, Athens, Greece

THE BIO-COIL PROJECT: A plant-based life support system designed and built by Cascade High School's Advanced Biology Class.

"In 2005, the Bio-coil students were contacted by Lloyd Godson, a scientist from Australia who was interested in the project, but not for wastewater treatment. As a photosynthetic bioreactor, the bio-coil removes nutrients from waste streams using chlorella algae, in the process sequestering CO₂ and producing oxygen. Godson asked if the bio-coil design could be adapted to function as a life support apparatus in a self-sustained underwater habitat. With renewed excitement, the students began raising funds to take the bio-coil in a new direction. They raised USD 30,000 in grants and donations to work with Godson in the creation of a new bio-coil to produce oxygen in his underwater BioSUB. For a year, students built and tested several designs in the classroom to determine the best possible model for Godson's project.

In March 2006, six students traveled to Australia and spent three weeks building a bio-coil to be installed in the BioSUB. While in Australia, the students participated in live webcasts with students and classes from across the world – Australia, Japan, the United States and Argentina, to name a few – to discuss the Bio-coil and inspire others to take on environmental projects. Godson spent twelve days underwater in his BioSUB with a portion of his oxygen provided by the Bio-coil. The students learned a tremendous amount about the Bio-coil's capacity and potential, and returned home determined to increase its efficiency. They met with Teacher in Space Astronaut, Barbara Morgan and presented her with their plans and designs in the hope that she could connect them with members from NASA to continue exploring the Bio-coil as a life support system."

Clinton Kennedy, science educator and facilitator of The Bio-coil Project.

The Bio-coil students went on to win USD 10,000 from the Nature Conservancy at the Sea World / Busch Gardens Environmental Excellence Awards in 2009 while their teacher, Clinton Kennedy, was awarded USD 1,000 as the National Science Teachers Association Outstanding Environmental Educator:

The Bio-coil project is a community-based science project that will serve as a model for real-world education in the Underwater Superhero Headquarters. The students are responsible for connecting with mentors, gathering community support, securing funding and actually implementing the project. Teachers can guide this process, but the onus remains on the students to choose the direction of their project and see it through to completion. Successes and challenges motivate students in their work. Students want to be a part of such projects because they realize the value in their education and leave a legacy for others to follow.

Photo by LEGOLAND Deutschland

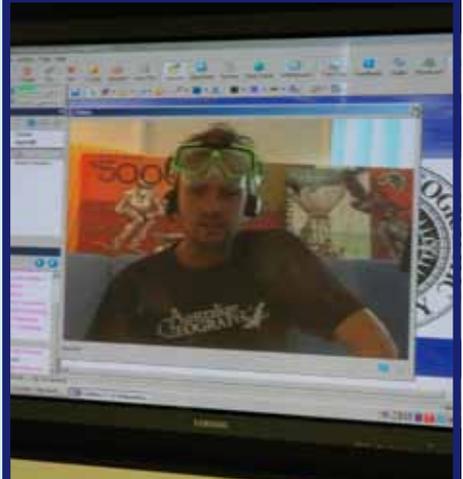


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