



# Vessel Development Program Information for Prospective Partners

October 2018



## Overview – Coral Sea Foundation Mission

The Coral Sea Foundation is a [multi-skilled team](#) of ecotourism guides, marine scientists, business people, professional mariners and environmental engineers, committed to raising awareness of the ecological and social value the Coral Sea and Eastern Coral Triangle, and being proactive in its sustainable management. Combining an ethos of science, ecotourism, and sustainability, the Foundation works with traditional owners in Melanesia to develop marine reserves that enhance fisheries and ecotourism resources, while improving the basic quality of life of people in our partner villages.

The coral reefs of Eastern Papua New Guinea are amongst some of the most biodiverse marine ecosystems, and they largely escaped damage from the thermal bleaching events of recent years. This region now contains the largest tract of high quality, high-biodiversity coral reef left in the world, and taking steps to sustainably manage this area should be a global priority.



However, steadily rising human populations are placing increasing pressure on reef fisheries across Melanesia, and evidence of overfishing in populations of fishes, sharks, turtles, and giant clams is now evident near most villages and larger population centers. Research by our team in Australia shows conclusively that marine protected areas can enhance biodiversity and fish catches, however due to limited government funding and the remote nature of many of the islands, the number of functioning marine reserves in PNG is currently insufficient to produce robust conservation outcomes.

Many studies have found that for Melanesian reserves to be successful, they must be initiated, managed and supported by the local communities that have historic fishing rights to these reefs, and the landowners must see tangible benefit coming from their re-allocation of fishing effort away from the protected areas. Through our "[Sea Women of Melanesia](#)" program, we train young indigenous women in scuba diving and essential marine science techniques and empower them to take a lead role in raising awareness about the need for marine reserves in their home communities. The Coral Sea Foundation also helps landowners survey and register their marine reserve areas, and we provide humanitarian aid in the form of clean water, medical supplies, and educational materials, to encourage community participation in the reserve programs.



Our most recent 2018 expedition to Ferguson Island in the Milne Bay Province led to the creation of the [Nua Marine Reserve Network](#) in one of the most spectacular reef locations in the world, and a summary of this voyage can be found here in [Coral Sea News](#), with supporting video footage in this episode of [Coral Sea Visions](#).



Furthermore, the region has enormous and largely untapped maritime ecotourism potential for snorkel and diving operations, surf and kitesurf charters, superyacht visitation, and citizen science, and we firmly believe that developing a combination of marine protected areas and well managed ecotourism is vital to the success of conservation efforts across the islands and reefs in the northern arc of the Coral Sea. The multi-decade experience in our team in maritime operations throughout Melanesia gives us an unrivalled advantage in terms of connections to local communities and detailed knowledge of the quality of the reefs and other ecotourism assets across the region, and we are committed to leveraging that experience to advance our ecotourism development agenda in our areas of operation. Our coral community image database alone contains over 40,000 images collected from more than 160 sites, providing detailed records of reef quality and dive suitability across a vast area of New Guinea.



### **Coral Sea Foundation – Current Development Priorities**

Our maritime activities over the last decade have produced a target list of more than 20 high biodiversity, high conservation value reef and island systems throughout PNG that would deliver maximum benefit from marine reserve creation, humanitarian assistance, and ecotourism development. We aim to revisit these remote areas in order of priority, engage the local communities and assess their suitability and willingness to participate in marine resource conservation with the assistance of the Coral Sea Foundation. If the response is positive, we can then proceed with our package of reef assessments, training programs and village-level humanitarian support, and provide advice on appropriate ecotourism development opportunities in each location.

Our most recent expedition was a resounding success, and the creation of the Nua Marine Reserve Network was an important demonstration of the effectiveness of our overall approach. The pragmatic lessons learned from this expedition, and our ongoing support of the communities associated with the Nua reserve reefs, together provide a strong framework for expanding our activities into other high priority areas of the Eastern Coral Triangle.

### **Coral Sea Foundation Vessel – Operational Need and Development Plan**

A seaworthy vessel remains the only effective way of accessing the vast arc of Melanesian reefs and islands that make up our [Area of Operations](#) across the northern rim of the Coral Sea. Our team has a strong background in vessel operations of all types through this region, and we have the flexibility to operate using whichever vessels are available in each location. However, the efficiency and effectiveness of our mission would clearly be enhanced with a dedicated vessel that was designed by our team, specifically for our operations, drawing on our many decades of combined experience in maritime operations through this area. Furthermore, the operation of a visually compelling, cutting edge yacht that ran almost entirely on renewable energy would help raise awareness of the area and make an important statement about the values of the Coral Sea Foundation, its partners, and our commitment to addressing some of the issues that currently threaten coral reefs globally. A vessel of this type would provide a compelling platform for marine science, community support and eco-expedition cruising.

With these factors in mind, in late 2016 we commissioned [One2Three Naval Architects](#) to produce a design for a large sailing multihull yacht that would be in International LY3 survey for 16 passengers and 10 crew, capable of two-week voyages with 15-knot cruise speeds under sail, with an advanced hybrid power system drawing on sources from the wind, coconut biofuel, and solar radiation. The vessel is designed to be rugged, seaworthy, fast and comfortable in the moderate to strong trade wind conditions which prevail throughout the Coral Sea for much of the year and provide the main propulsive force for the vessel. Our experience in the area has shown that marine operations are only as effective as the tender system used to deliver personnel to the reef environment, and we designed the expedition vessel to wet-dock and lift twin 8m tenders, which would give us the ability to deploy all 16 personnel into dive or field operations simultaneously, along with support crew.

The One2Three consultancy produced a set of General Arrangement plans, a render of the 3D model, and a ROM (Rough Order of Magnitude) cost for the build in aluminium with [Echo Yachts](#) in Fremantle, Western Australia. The final iteration in the design process delivered a single masted catamaran platform 42m (138ft) in length with an 18m beam and 2.5m tunnel clearance, which is shown in a [3D animation here](#) and on [our website](#).



We have completed a provisional annual expedition cruising itinerary for this vessel and undertaken detailed financial modelling of the operating costs, and from an ecotourism perspective alone, the vessel operations could be profitable at a per-person price-point competitive with the few other companies offering expedition cruising in our area of operations. Given the remote-area capabilities of this vessel, we anticipate it would also attract Government and NGO funding to support the research and marine resource management aspects of the Foundation's mission.

The design process was advanced to a point relevant to the developmental stage of the Foundation, where we could complete our operational analysis and make reasonable estimates of the project outcomes that the vessel could deliver and have the broad outline of the concept understood by a potential partner. We do not consider the final design formalised, and there continue to be advances in materials and hybrid power systems that could be incorporated in the vessel prior to it moving to a build-phase.

In the interim, we are seeking to deploy a smaller, non-commercial sailing multihull in 2019 that would act as the precursor to the larger expedition yacht. This phase-1 vessel would facilitate the ongoing delivery of our marine reserve program and support the education, health and hygiene initiatives in the partner villages, as well as acting as a platform for our scientists and film-makers to continue the process of raising awareness of the Eastern Coral Triangle region and the work of the Foundation and its partners. A modern performance multihull around 16m LOA that can handle the Coral Sea conditions and comfortably accommodate 6-8 crew and dive operations would be ideal, and our analysis shows there are numerous suitable second-hand vessels on the market at present in the range A\$500-700K (USD \$380-530K) from respected design houses such as Crowther, Schionning, Catana, Looping50, and Neel.



While our operations would be optimised with a catamaran in this size and price range, the reality is that even a small sailing yacht would be preferable to relying on petrol- or diesel-powered motor vessels, as the wind regime is steady and reliable for much of the year, and fuel is scarce and expensive in the outlying islands of PNG. A simple and sturdy yacht that can carry 4 people and humanitarian supplies could be based in Alotau and immediately support our operations throughout the high priority Milne Bay province of PNG and into the Solomon Sea.

### Potential Partner Support & Contribution Options

The Coral Sea Foundation is currently supported by donation from our network of patrons and crowd-funding via our social media portals for the [Nua Reserve Network](#) and the [Sea Women of Melanesia](#) training program. We presently have grant applications lodged with the Great Barrier Reef Foundation through their *Out of the Blue Box* program, and with the Australian Government through their *Direct Assistance Program* (DAP) grant scheme for PNG. Both these grant applications are for approximately A\$30-40K with funds to be allocated to humanitarian aid for partner villages (water, education and medical assistance) and continued training of our Sea Women of Melanesia candidates if successful. Grants will be awarded later this year or early 2019, and we continue to pursue additional funding through a range of avenues with Government and NGO organisations.

At this stage of the development of the Foundation, basic financial support is an ongoing necessity. Our task-list of communities to engage, partner villages to support, and indigenous women to train, is many times larger than our currently available assets, so there is considerable scope for an immediate increase in the Foundation's activities as additional funding becomes available.

We feel that our vessel development program offers an important and highly visible platform to showcase the involvement and support of a partner whose ethics and vision align with those of the Coral Sea Foundation. A dedicated vessel also offers the most immediate means of improving the effectiveness of our operation and addressing our mission objectives. We envisage that partners could be participate in several ways, from direct financial assistance with vessel design and acquisition, to advice on our vessel development program, operations support, ecotourism destination development, and networking and marketing.

Potential partners should contact the Foundation CEO Dr Andy Lewis directly for further discussions.

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## Our Team



*Dr Andy Lewis* - one of the most widely-travelled marine biologists in the Indo-Pacific region, with a strong background in small ship adventure cruising. He has managed the ecotourism activities aboard the luxury vessel True North for the last decade, exploring and delivering outstanding guest experiences across a wide variety of tropical locations, from the Rowley Shoals to the Kimberley and Great Barrier Reef in Australia; Komodo, Raja Ampat, and West Papua in Indonesia; the Bismarck Sea and Louisiade Archipelago in PNG, and the Western Province of Solomon Islands. Andy has a PhD in coral reef ecology from James Cook University and has extensive experience in scuba diving and maritime operations in remote tropical locations. An award-winning underwater photographer and engaging public speaker, Andy's passion for the reefs, islands and people of the South-Pacific is tangible and drives the development of the Coral Sea Foundation as a platform for delivering his vision for sustainable reef management and ecotourism.



*Scott Lewis* - Born and raised a surfer and sailor in the Southern Ocean, Scott started out in small business in 1988. Scott went on to serve throughout the world as a senior executive, professional consultant and brand-builder in the global sports and action-sports markets. Specialising in international business development, distribution, sales and marketing, Scott brings to the Foundation a passion for business development, partnerships, branding and communications and an unrivalled knowledge of creating global brand awareness. Scott served as Managing Director of Oakley South Pacific, Director of International, Oakley Inc, Managing Director of Oakley Europe and President of Globe International Limited, among others.



*Captain Andi Ross* - Andi is a lifetime multihull sailor and professional mariner, holding a Master IV certification and bringing to the Foundation a broad experience in the maritime industry, from commercial catamaran ferries to traditional tall ships, crew training, deliveries and reef charters. He has raced Open 60 trimarans through the West Pacific and SE Asia, and is currently living aboard his third multihull, a 43ft aluminium catamaran. Andi has worked and sailed extensively through the Great Barrier reef and Coral Sea over the last 14 years and is committed to the concept of sustainable ecotourism and reef management through Melanesia.



*Dale Young* - Dale is an environmental engineer with a strong track record for delivering transformative community aid projects through Africa, South-East Asia, and Melanesia with a focus on clean water, sanitation and hygiene. He founded the non-profit organisation MSABI in Tanzania in 2008, and the organisation now employs 75 people and has administered over US\$3 million in aid grants. To date, MSABI projects have improved the lives of over half a million rural people in East Africa, and the organisation acts a business incubator, encouraging local communities to develop sustainable enterprises around clean water delivery systems. Dale has also worked extensively on water and hygiene projects in Solomon Islands, most recently with the United Nations Development Program, and has also participated in Surfaid International projects in the Mentawai Islands of Indonesia and the Vanimo region of Papua New Guinea. Dale is also a qualified marine biologist and keen surfer and SCUBA diver.

*Dr Daniela Ceccarelli* - Dani is a marine ecology consultant with extensive training and experience in surveying and monitoring tropical reef ecosystems. Her research has included studies on coral reef fish, invertebrates, seagrass beds and mangroves, and she has written important reviews for the federal government regarding the biological status of the Coral Sea and the importance of apex predators. She completed her PhD in coral reef ecology at James Cook University in 2004, and has worked widely through the Great Barrier Reef, Papua New Guinea, Coral Sea and Central and South Pacific. Dani continues to collaborate with colleagues in academic institutions to further her research interests on coral reefs, and she has authored over 30 papers in scientific journals of marine science. Dani is also an active yoga teacher and talented linguist, fluent in 6 languages.



*Dr David Williamson* - David is a marine scientist with expertise in coral reef ecology, fisheries biology and marine conservation research. David graduated with a Bachelor of Science from James Cook University (JCU) in 1996 and spent the next decade working on government, academic and industry sector research projects throughout the Great Barrier Reef, Papua New Guinea, Indonesia, Malaysia and the South Pacific. He later returned to JCU and spent several years researching the ecological effects of marine protected areas on coral reefs, before graduating with a PhD in 2009. Since completing his doctorate, David has worked as a Research Fellow at the ARC Centre of Excellence for Coral Reef Studies, where he has designed and coordinated research projects focused on marine reserves, biodiversity conservation, fisheries management and fish larval connectivity. David is a passionate advocate for holistic approaches to marine conservation management and fisheries sustainability. He has authored over 35 scientific publications and delivered presentations at numerous conferences in Australia and internationally. He is a highly experienced project manager, researcher, public speaker, vessel operator, diver and adventure guide.



*Dr Cristiana Damiano* - Cristiana is a marine biologist, photographer and film-maker with a deep passion for oceanic exploration. She is an experienced dive instructor and technical diver, and her knowledge encompasses coral reef ecology with a special interest in shark conservation. She has worked for many years as a guide for National Geographic Expeditions to remote locations whilst focusing her work as an advocate for marine protection. Cristiana's knowledge of the Coral Triangle region and the Great Barrier Reef is a vital asset in the Coral Sea Foundation team.

