

BLUETOPIA

How an ambitious plan to build artificial island nations could create a laboratory for ecology, technology and experimental forms of government.

The view is unbeatable. To the right, steep volcanic mountains, draped in green, rise up from a beachside coconut grove. To the left, the Pacific Ocean glitters turquoise under the midday sun. It is here in this Tahitian lagoon that a group of entrepreneurs plans to build an artificial island — three-quarters of a hectare of floating housing and research space, made up of linked platforms. If the team is successful, the vision could become reality by 2020. But it would be just the first step, says self-described “seavangelist” Joe Quirk. The ultimate goal is to build whole sovereign nations on the open seas, composed of modular floating units.

“French Polynesia has all the stepping stones: lagoons, atolls, shallow waters right next to deeper waters,” Quirk says.

Quirk, one of five managing directors for the company behind the project, and his colleagues propose that artificial islands could serve as laboratories for testing out new technologies and exploring different social structures, or act as life rafts for coastal peoples displaced by sea-level rise.

The non-profit Seasteading Institute was founded by former Google engineer Patri Friedman in 2008, and it has garnered support from influential people in the linked worlds of Silicon Valley, libertarian politics and the anything-goes desert festival, Burning Man. Most media reports have been sceptical, however. The project has been characterized as the dream of “two guys with a blog and a love of Ayn Rand”¹ and “a hacker’s approach to government with a *Waterworld*-esque conception of Manifest Destiny”².

But the Seasteading Institute and the new for-profit spin-off, Blue Frontiers, have racked up some real-world achievements in the past year. They signed a memorandum of understanding with the government of French Polynesia in January that lays the groundwork for the construction of their prototype. And they gained momentum from a conference of interested parties in Tahiti in May, which hundreds of people attended. The project’s focus has shifted from building a libertarian oasis to hosting experiments in governance styles and showcasing a smorgasbord of sustainable technologies for, among other things, desalination, renewable energy and floating food-production. The shift has brought some gravitas to the undertaking, and some ecologists have taken interest in the possibilities of full-time floating laboratories.

But the project still faces some formidable challenges. The team must

BY EMMA MARRIS

convince the people of French Polynesia that the synthetic islands will benefit them; it must raise enough money to actually build the prototype, which it estimates will cost up to US\$60 million; and once it is built, the group must convince the world that artificial floating islands are more than just a gimmick. Producing solid science and broadly useful technology would go a long way towards making that case.

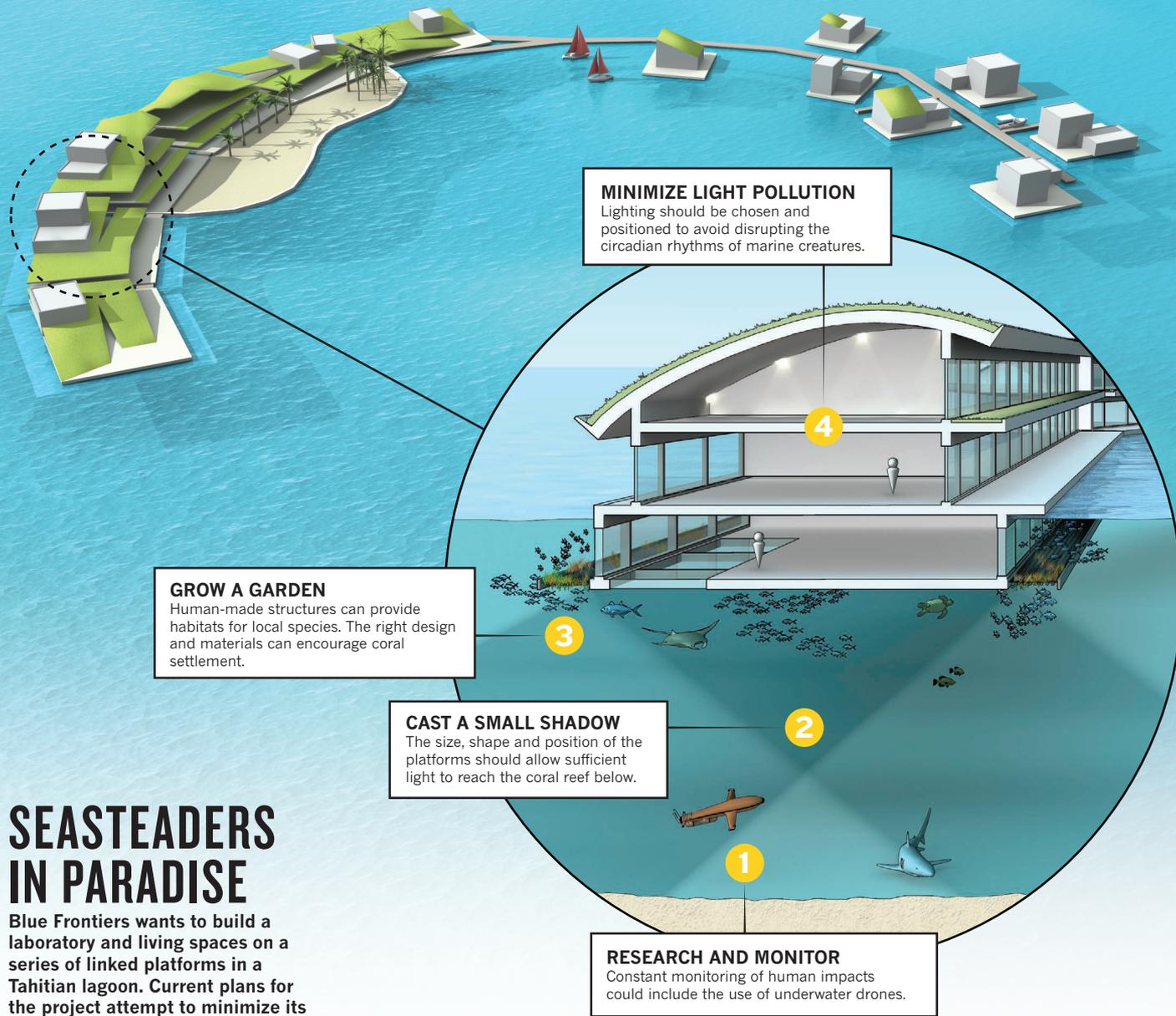
“What we are dreaming is that this structure will be a scientific laboratory,” says Winiki Sage, head of the Economic, Social, and Cultural Council of French Polynesia in Tahiti, who has been concerned about brain drain from his country.

AESTHETIC APPEAL

Designs are surfacing for the prototype island, and its look is a key part of Blue Frontiers’s public-relations strategy. The company’s current plans don’t entirely align with the concept art on the Seasteading Institute’s website, which swings from tiki bar to Tomorrowland in various iterations. Bart Roeffen, a ‘water pioneer’ at the Dutch design firm Blue21 in Delft, has been drawing up new plans that fit with the landscape and culture.

“We are working together with Tahitian designers to make something that is not like an alien invasion,” Roeffen says. In particular, he plans to take cues from Polynesian shipbuilding. The elegant outrigger canoes, or *va’a*, used by islanders are stable and light; oceangoing versions are the type of boat rowed by the Tahitian voyagers who discovered Hawaii and New Zealand around AD 1100. Linked platforms would be arranged to ensure that no coral below is completely shaded and killed. The goal is to actually expand the habitat for reef species (see ‘Seasteading in paradise’).

The team would not provide direct information about funding. Paypal founder and one-time Donald Trump enthusiast Peter Thiel provided a reported \$1.7 million to the Seasteading Institute, but he last contributed to the project in 2014, and any recent investors are keeping a low profile. Quirk says that they have “a nice amount” of seed money and are preparing for what is called an initial coin offering — an investment mechanism that uses digital cryptocurrency. Looking ahead, the company hopes to generate revenue by renting out space on the island and acting as consultants for other would-be island builders. Along with hiring Quirk and the other four managing directors, Blue Frontiers has recruited ten staff members and commissioned environmental, legal and economic studies on the impacts of



MINIMIZE LIGHT POLLUTION

Lighting should be chosen and positioned to avoid disrupting the circadian rhythms of marine creatures.

GROW A GARDEN

Human-made structures can provide habitats for local species. The right design and materials can encourage coral settlement.

CAST A SMALL SHADOW

The size, shape and position of the platforms should allow sufficient light to reach the coral reef below.

RESEARCH AND MONITOR

Constant monitoring of human impacts could include the use of underwater drones.

SEASTEADERS IN PARADISE

Blue Frontiers wants to build a laboratory and living spaces on a series of linked platforms in a Tahitian lagoon. Current plans for the project attempt to minimize its ecological impacts in several ways.

the project for investors and the government.

The “why?” — everyone’s first question about seasteading — is answered differently by everyone involved. Some are captivated by the project because it is an excuse to push sustainable design to the next level. For people on low-lying islands, it looks like a life raft. Félix Tokoragi, mayor of Makemo, an atoll in the Tuamotu archipelago in French Polynesia, told Blue Frontiers that he’s interested. The Tuamotus have experienced widespread flooding, and Tokoragi is worried that his people will become climate-change refugees. “We are attached to our atoll; we are attached to our culture,” he says. “We are not against this idea, since the technology can respond to the problems that we face.”

For others, the pull of the project comes down to autonomy and self-reliance, particularly with respect to governance: anyone who decides their island’s political style is not for them can detach and depart for another system that they like better.

For at least one scientist advising the project, Neil Davies, executive director of a field station of the University of California, Berkeley, on the neighbouring island of Moorea, the island’s appeal is as a base for research that would “fill the gap between oceanographic-research vessels and coastal marine labs”. Ships are on the water, but they are “phenomenally expensive”, he says, and they don’t stay put. Coastal labs can gather long time-series of data in one place, but don’t provide access to deeper

water. Davies dreams about floating “sea stations” that would allow low-cost, long-term access to the ocean for research, especially for students in tropical countries “where natural systems are among the most sensitive to human activities”, he says. Experiments could include modifying pH or temperature on small sections of a reef to simulate future environmental conditions, and ‘planting’ different corals to investigate which will thrive best in the future. Data could be gathered using semi-permanent sensors and cameras, along with regular biological-sample collection.

Some scientists not involved in the project see value in the concept, as well. “If you have a floating island and you want long-term study, that is a perfect way to do it,” says Ross Barnes, marine-operations superintendent at the University of Hawaii Marine Center in Honolulu, who oversees two large research vessels and on-shore labs. The university has been conducting research at a spot in the ocean that it calls Station ALOHA, which scientists have visited nearly 300 times by boat since 1988. A floating platform, he says, would mean that scientists could leave behind some instruments — and that some of them could stay as well — allowing for continuous measurement. “It’s a good idea,” Barnes says.

Currently, Davies is advising the seasteaders on site selection and environmentally positive design choices. He also plans to help them to document the installation’s performance using sensors that measure things such as energy expenditure and waste generation on the platforms,

ILLUSTRATION BY EMILY COOPER

as well as water temperature and quality. And he sees it as a great teaching opportunity for the many students who visit his station. “Seasteading raises many social, legal, ethical, environmental issues, even if it never gets anywhere,” he says.

Whether the seasteading project depends on whether the project is embraced by French Polynesia, a largely autonomous ‘overseas collectivity’ of France with a population of 287,000 on 67 islands spread out across an area nearly the size of Europe. At one level, a grand floating project could appeal to a nation of voyagers and boat builders. But French Polynesia has been burnt by big-science and technology projects before. From 1966 to 1996, France conducted 193 nuclear tests in its Polynesian possessions, many in the atmosphere. In February 2016, then-president of France François Hollande admitted that the testing had harmed the environment and human health. And the place is littered with defunct projects and closed hotels.

“We have a history of being taken for fools,” says Pauline Sillinger, a sustainable-development specialist at Te Ora Naho, a federation of environmental groups in French Polynesia, who took a job with Blue Frontiers this year, and also teaches Tahitian dance. “Nuclear testing, big hotels, nice, smiling, white, intelligent people telling us it’ll be good for us.”

But their wariness vies against their desperation for new revenue streams, Sage says. After winding down nuclear testing, France began paying French Polynesia more than US\$100 million per year in compensation for lost income from military activity. But in 2016, that amount was reduced. Meanwhile, tourism revenues have never recovered from the 2008 recession. Thanks to increased political stability and other factors, things have improved since 2014, when the collectivity was so broke that it risked not being able to pay its civil servants, according to Sage. But it is still dangerously reliant on a small number of income sources — tourism, pearls, coconut oil. Unemployment stands at nearly 18%. “We are looking for new ideas,” Sage says. “We are really open to any ideas, any investors.”

If Sage is sceptical but willing to give it a shot, there are others who have had enough of grandiose project ideas. Among them is a religious leader in Tahiti, Frère Maxime Chan, who heads Association 193, which advocates on behalf of those harmed by nuclear testing. Chan is also vice-president of Te Ora Naho. (Sage, incidentally, is the organization’s president.) Chan says that his old friend Sage and the rest of the government are “dazzled” by the flash and money of the Seasteaders. He talks about recent projects — including a tourist resort, an aquaculture scheme and an eco-resort — that were all announced with fanfare and optimistic job projections, only to be cancelled, scaled back or put on indefinite hold. Chan wishes the government would admit that the standard of living for the average Tahitian has been artificially inflated by nuclear-test payments and must come down. This can be done without suffering, Chan contends, by gracefully returning to a version of the pre-1960s subsistence economy. “Small is beautiful,” he says.

Convincing French Polynesia to support the project will fall mainly to Marc Collins, another managing director of Blue Frontiers. Collins is Tahitian and lives there now, but in the early 1990s he lived in Silicon Valley, and fell in love with its fast-paced culture of big ideas and endless possibility. Ever since, he’s kept his toe in those waters in part by maintaining a subscription to *Wired* magazine. In May 2015, the digital lifestyle glossy ran a story³ about how the seasteading movement planned to scale back its grand, high-seas concept, reorienting towards safer, shallower waters and looking for “cost-reducing solutions within the territorial waters of a host nation.”

Collins, a serial entrepreneur who has dabbled in every major French

Polynesian industry, from hotels to black pearls and telecommunications, saw an opportunity to, as he puts it, “bring some of the DNA of Silicon Valley to Tahiti”. Tahiti joined the world of high-speed Internet in 2010, with the completion of an undersea fibre-optic cable linking it to Hawaii. It has calm lagoons aplenty and daily flights from Los Angeles, California, and, as a minor bonus, is widely regarded as paradise on Earth. Collins fired off a LinkedIn request to the Seasteading Institute’s executive director, Randolph Hencken.

The Seasteaders were interested in Collins’s pitch, but they wanted a more official gesture of support. So Collins, who served as French Polynesia’s minister of tourism in 2007 and 2008, began working his government contacts. By August, the president of French Polynesia, Édouard Fritch, signed a letter formally inviting the Seasteaders to present their ideas. A delegation of nine took him up on the offer the next month, and by January, a memorandum of understanding with pledges of cooperation was signed.

The next step in making the island a reality will be the passage of a law defining the ‘special economic zone’ that will cover the synthetic island. Blue Frontiers isn’t asking French Polynesia for any subsidies to build the island, but it is asking for a 0% tax rate, among other regulatory exceptions. It has hired French firm GB2A, based in Paris, to prepare legal research and a set of requests, which Blue Frontiers presented to the government at the end of September. The team hopes to see a bill emerge before the end of the year.

In the meantime, the Seasteading Institute is building excitement and courting potential investors with a series of gatherings. In May, it held talks, networking events and tours in Tahiti. Speakers included Fritch; Tony Hsieh,

chief executive of online retailer Zappos in Las Vegas, Nevada; Tua Pittman, a master canoe navigator from the Cook Islands; and engineers, nanotechnologists and a ‘blockchain strategist’, a specialist in the distributed information systems behind cryptocurrencies. The seasteaders hope to use such systems to handle their financials, as well as any scientific data that they generate. But the event wasn’t all work. An announcement for a party on outrigger canoes cheerfully suggested: “Do not wear heels. Bring a swimsuit for an optional moonlight swim.”

On 22–29 October, Blue Frontiers will hold an Insiders Access Week for supporters and potential investors, a mix of tours, discussion and morning yoga with Hencken. Always ambitious, the team hopes to have draft legislation from the Polynesian government by then, and some detailed architectural plans. The goal is to break ground — or rather, sea — in 2018.

While all this work goes on behind the scenes, the lagoon remains fairly quiet. On a day in July, locals compete in a stand-up paddle-board race while families play on the shore and young women drink beer with their feet in the waves. By the roadside, freshly caught tuna are for sale. On one level, it is hard to imagine this place being improved upon.

Time will tell whether the Seasteaders’ island becomes a refuge for Polynesians facing rising seas and an incubator for Polynesian science and business, or merely a playground for wealthy foreigners who want to dodge bothersome regulations. That is, if it materializes at all. ■

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