

Seasteading and the Blue Green Revolution

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“The Floating City will serve as an incubation hub to develop wave energy generation technologies, floating solar, materials science, algae-based food and fuel, sea water air conditioning (SWAC), desalination, and marine education.”

---Joe Quirk, President of the Seasteading Institute

In *Seasteading* (2017), Seavane lists Joe Quirk and Patri Friedman say if 9 billion of us are to survive past 2050, we must commit to the following six (6) moral imperatives:

1. Feed the hungry,
2. Enrich the poor,
3. Cure the sick,
4. Restore the environment,
5. Power civilization sustainably, and
6. Live in peace.

Some startling revolutionary world-changing hypotheses Quirk and Friedman propose and prove in *Seasteading* include:

1. The way to decrease ocean pollution is to increase ocean population.
2. The way to decrease the number of wars is to increase the number of countries.
3. The way to discover political solutions is to empower your political enemies.
4. We won't need to fight when we can float.
5. It is easier to float than fly.
6. We built civilizations in the wrong place.
7. You could create your own micro-country at sea.

Seasteading presents six (6) aquapreneurs working to build floating nations on the seas known as seavilizations. Several of them independently believe 2050 is a “pinch point” for key commodities humans need for survival. Their stories of entrepreneurship and social conscience are inspiring and innovative. They are trailblazers on Planet Ocean.

Quirk and Friedman marshal the following facts to support their proposals in *Seasteading*:

1. Water: Growing Blue finds 52% of the world will face a severe water shortage by 2050. At this rate, \$63 trillion or 1.5 times the world economy will be at risk. Ocean water can be desalinated on seasteads. Use of seaweed, an alga, can reduce ocean acidification by removing carbon. Plus, it is highly nutritious and easy to grow. Aquaculture plus conservation equals environmental restoration and rebirth. Water is life.
2. Food: Even with a 50% increase in agricultural efficiency, we will need 22 million square km of land space about the size of North America in the coming decades. Algae-eating seaweed placed at the lowest trophic levels clean water, replenish shellfish and fish stocks, and can feed the poor. We need space and resources to grow food and oceans can provide these fertile grounds.
3. Oil: Peak oil reserves and maximum crude oil extraction rates may be reached by 2050. Some say these rates have already been reached as developing technology lowers prices. Clean biofuels like fish oil can replace our dependence on oil and wars for oil. Algae can become oilgae. Clean energy like wind and solar power can be used to power fish farms. Refitted oil rig platforms can be converted into floating cities.
4. Fish: At the current rate, the world will run out of wild-caught seafood by 2048 according to *Science* (2006). It is time to halt overfishing. Open water floating fish farms can increase food stock mass using anchovies on the lower trophic level which are then eaten by bigger predator fish. Fish oil is a highly useful and nutrition rich resource ripe for development with replenishment of food stocks.
5. Fertilizer: Soil to run out of phosphate needed for farming by 2050. Minerals and other nutrients can be mined with pipes extending into the nutrient rich seafloor. Floating cities can use these nutrients right from the seafloor.
6. Land: 80% of the world's megacities are sinking on a coast or river plain as seas continue to rise to dangerous levels due to climate change. By 2050, half the world population will live within 100 km of a sinking coast. Our cities are sinking and seasteading is a viable solution to this dilemma.

Science fiction can become science fact. We can choose to drown or float on seasteads in 2050. Humans halt Armageddon with creative problem solving argues Julian Simon in *The Ultimate Resource*. In the *Smart Things Future Report* commissioned by Samsung, leading space scientist Dr. Maggie Aderin-Pocock predicts sub-aquatic communities like Underwater City Britain will be common in the coming decades. Surrounding waters will be used to create breathable habitats while generating hydrogen fuel, clean water, and other vital sustainable resources.

Rapidly approaching technology will fuel the Blue Green Revolution. Echoing his father David and grandfather Milton Friedman's free market and machinery of freedom philosophies, Patri Friedman asserts the solution to political conflict is the radical decentralization of power to emphasize freedom and choice for millions of people. Google engineer Friedman does not believe consolidating power in the hands of the most virtuous government officials has proven effective. Effective governance comes from free societies with rules centered on liberation. Poverty is indeed created by ineffective institutions. Low taxes and tariffs increase commerce while borders are hubris according to Quirk and Friedman in *Seasteading*. Former Federal Reserve Chairman Alan Greenspan agrees.

The Blue Green Revolution rethinks society from the ground-up. We must recognize existing governments have claimed all land but not the oceans. Wealth and status for centuries came from control of land and cultivation. A new machinery of freedom is needed to allow citizens to choose their own governments and disempower the governmental monopoly of control over land. The new frontier is the ocean since it covers 2/3 of the Earth's surface and even historically the ancient Greek and medieval Italian city states created modern business practices and massive wealth thru control of strategic shipping routes. Free market post-modern mobile welfare states will be able to place themselves in the twenty-first century along different shipping routes at will and avoid hurricanes or typhoons while processing exports at a healthy profit.

On the fluid Planet Ocean, we could grant power to our political opponents. "Seavilization" could be disassembled and reassembled fluidly by choice of unit owners. Floating cities would feature waterways for roads like those of legendary Atlantis and historical Aztlan. Tyrants would face difficulties in this new seasteading environment since the best floating cities would expand while those that did not please their citizens would decline or disappear. Democracy would be upgraded so individuals and the smallest minorities could vote with their houses.

Ocean pioneers can experiment with new societies. Since they can detach and sail to another floating city, ocean governments will compete like companies for customers. The best and most progressive governance systems will be rewarded for peaceably solving the oldest social problems. Economic and moral arguments could become a technological experiment Friedman concludes in his blog *Let a Thousand Nations Bloom*. Ireland, for example, taxes the wealthy while Singapore without a minimum wage compensates its workers with universal health care. Seasteads with harbors will give pioneers lots of choices and the opportunity and freedom to choose.

Mega-industries know ocean colonization has begun. Japan kicked off the Aquatic Age with a thousand-meter airport floating in Tokyo Bay in 2000. Singapore's Float at Marina Bay hosted the 2010 Summer Youth Olympics. In South Korea in 2011, three (3) solar powered flower-shaped islands were inaugurated on the Han River. That year India installed a solar power plant on a 1.27 million square mile floating platform. In 2014, Japan built a same sized floating solar array. The Dutch Water Studio designed a floating stadium to host the Olympics. The Japanese Shimzu Corporation, which makes \$14 billion USD a year, is striving to build and float in Tokyo Bay by 2025 self-sufficient carbon negative botanical skyscrapers.

The first autonomous seastead with some political autonomy should be established by 2020. Seasteads plan to host profitable aquaculture farms, floating hospitals with cutting-edge health care and even spas and hot tubs at a low price, medical research islands, and sustainable energy powerhouses. We can build a civilization on pollution induced blue-green algae. Algae can then be turned into clean water and bio fuel using solar power. The goal is to maximize entrepreneurial freedom to create blue green jobs for the Next New World which Joe Quirk says will be on the oceans well before we establish residency on the surface of Mars.

The Seasteading Institute think tank takes a pragmatic and incremental approach to constructing permanent settlements on the seas. It envisions a vibrant start-up government sector with small group innovations serving citizens and inspiring change for governments worldwide. Improving government improves lives and unleashes human potential. Diverse experiments unlock progress when we try something new. Monopolies breed stagnation. Delta Sync's Seastead Implementation Plan, for example, will restore the environment thru political independence.

The Seasteading Institute researches the key areas of engineering, law, and business development. Structural designs are safe, affordable, comfortable, and modular. The Institute's law and policy program focuses on diplomatic relations with nations and industries. Blue Frontiers, led by Quirk, directs and manages the Floating City Project.

The Floating City Project, the world's first seastead, would meet and exceed specifications of potential residents within a host nation's protected territorial waters allowing for easier engineering, travel, and acquisition of goods and services from existing supply chains within the existing international legal structure.

The modular Floating City would sit on a reinforced concrete "seament" foundation high above even the largest waves. Once legislation is secured for political autonomy from a friendly nation such as French Polynesia, business and residents are invited. Potential residents can fill out the project survey specifying what they would like to see in their Floating City.

Like small towns, cruise ships already provide food, power, water, service staff, safety, doctors, and trash removal. There will be all kinds of fun selected amenities like concerts, and planetariums on these floating mini-cities. On a cruise ship, prices may drop and living standards may rise as you visit beautiful cities across the seas. Cruise ship profits are doubling every decade as prices scale downward. The larger the ship the more the revenue, so cruise ships ripe for refitting just keep on getting bigger.

If cruise ships were countries, they would be the fastest growing economies in the world. The Gross Oceanic Product (GOP) of the cruise ship industry has grown at twice the rate of America's Gross Domestic Product (GDP) between 1990-2010 and the cruise ship industry seems immune to economic bubbles and recessions.

Privately managed floating cities were the respite from mismanaged governments for 22 million people in just 2016. Wayne Gramlich and Patri Friedman founded the Seasteading Institute 501(c)3 non-profit in 2008 and it has since then attracted the attention of *The Economist*, *Business Insider*, and the *British Broadcasting Corporation* (BBC).

Peter Thiel, PayPal founder and Facebook's first donor, was also the first seed money and operations investor in the Seasteading project because he thinks it will be a sort of libertarian utopia in which new or over-regulated medicines and technologies can be tried by different floating city-states. Health care and living are expected to be more affordable on scaled floating cities.

In 2009, the Seasteading Institute patented a 200-person resort dumbbell buoy shaped seastead, ClubStead, from engineering designs by Marine Innovation and Technology. Thiel poignantly stated for posterity: "Between cyberspace and outer space lies the possibility of settling the oceans."

Technical challenges can be overcome with a compelling business model. In 2014, Dutch Shell oil and gas put out for the next twenty-five (25) years off the coast of Australia an offshore structure that can withstand Category 5 typhoons. This Prelude Floating Liquified Natural Gas Facility is longer than the Empire State building and is transitioning from temporary to permanent seastead.

Floating sea scrapers reaching into the seas and the sky can become floating cities with waterways. Larger hulls and deeper reach into ocean depths make stable sea scrapers. Ocean industries cooperate with international governmental bodies through a polycentric system of rules covering 45% of the planet's surface unclaimed by countries.

The United States is not one of the 167 signatory countries to the United Nations Convention of the Law of the Sea (UNCLOS). This customary international law states the first twelve (12) miles are national territorial waters. Vessels which break certain laws or threaten a coastal nation may be pursued through the twelve to fourteen (12-14) mile contiguous buffer zone. Each nation has the right to the natural resources, minerals, and oil below the ocean for 200 nautical miles along its continental shelf known as the Exclusive Economic Zone (EEZ). Land governments cannot assert jurisdiction beyond 200 nautical miles. Surface waters remain international. Therefore, states do not regulate vessels on the EEZ but regulate "artificial islands, installations, and structures." Special EEZs are part of a host of seasteading policy solutions. Quirk and the Institute are pursuing not just in French Polynesia.

Vessels on international waters claim jurisdiction by the flag they purchase to fly. Sovereign vessels sail through the EEZ's of claimed by other nations and there are sometimes competing claims of legal jurisdiction. The Seasteading Institute formed the Blue Frontiers Company to construct a seastead in a "semi-autonomous sea zone" off the coast of French Polynesia with its own legal and governance framework. Blue Frontiers began raising funds for the project using a Varyon cryptographic token (<https://varyon.io>). In late 2018, the intricate details for the project are still under highly amicable negotiation between Blue Frontiers and the government of French Polynesia.

The law of the seas is more fluid than the law of the land. Cruise ships incorporate in one nation, dock in another, and hire from anywhere. They are semi-independent pioneer transports choosing

national laws best suited to their industry. Passengers sign an onboard contract for security and hospital medical services.

Some legal scholars believe jurisdiction is based on the flag of the floating territory. Other legal scholars say the passenger's nationality determines jurisdiction wherever they travel. There is often more than one applicable jurisdiction. Millions of people on cruise ships have different legal statuses and contracts from different jurisdictions.

Cruise ships inconveniently drop off passengers at ports overnight, pick up supplies, and passengers and go back to sea. It is easier for permanent seasteads to ferry goods and people to the floating city than move it to land every few weeks for people and supplies. If seasteads profit, they could expand without limit and success leading to the proliferation of homesteads on the wide-open sea.

In the final analysis, Quirk and Friedman's *Seasteading* is so compelling a technical work of alchemical transformation because libertarians, socialists, anarchists, democrats, progressives, environmentalists, and capital conservatives from the left, middle, and right can envision and develop their own voluntary seasteading societies by applying the historical frontier paradigm and a multiplicity of cutting-edge clean technologies to solve critical problems. Welcome to the Blue Green Revolution. The future is now.

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