Blue Oceans Green Seas:

The 1% Solutions

Part II

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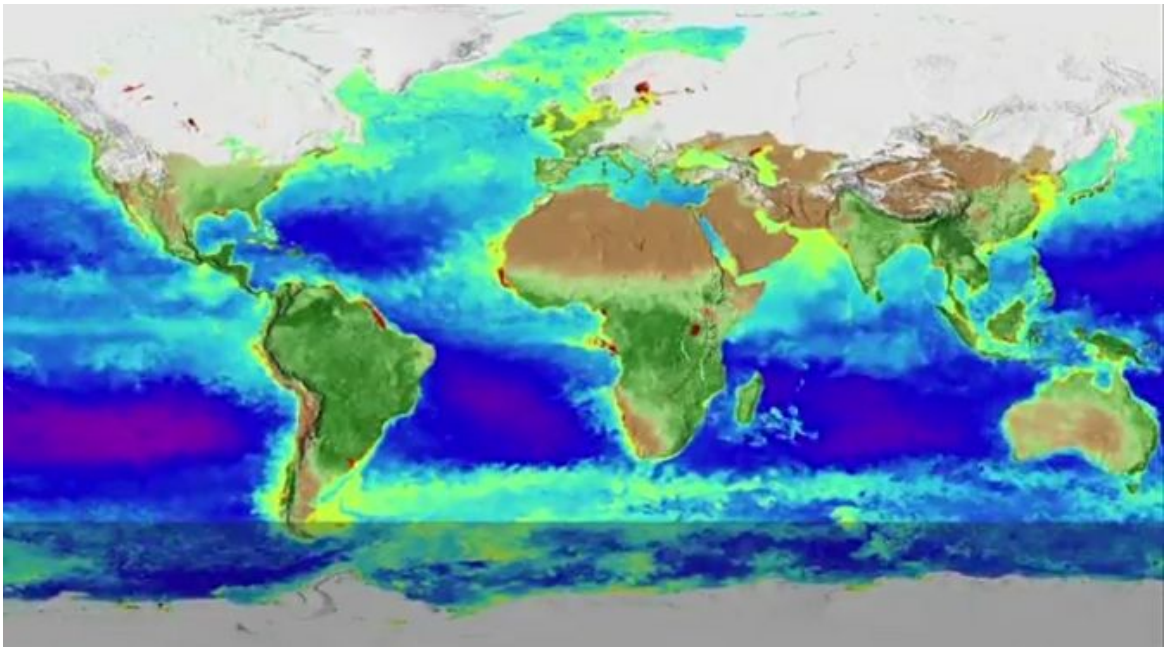

Let a 100 Maritime Operational Multiple Modulated Systems (MOMMS) Bloom!

County Specific Shoreline Carbon Sequestration.

INTRODUCTION: GREENING THE OCEANS

An earlier article argued that the "Iron Hypothesis" consisting of the appropriate Iron filtrate must now be developed and deployed on a massive scale in the Earth's oceans. This could help create huge plankton blooms in the Earth's oceans and pull CO2 out of the atmosphere. As an initial phase in this effort, this article will argue for country-specific shoreline sequestration methods using systematic buoy systems or farms, each buoyed loaded with titrated iron filtrate, to enrich and vastly extend already existing oceanic plankton streams. Many such plankton streams already seem to originate within the territorial waters of liminal states, such as Iceland, Norway, Angola, Gabon, Costa Rica, Ecuador, Peru—where the trans Pacific plankton blooms seems to begin—or Argentina, where the globe spanning Antarctica plankton blooms seem to originate. Enriching these existing plankton blooms with systemic doses of iron filtrate within the territorial waters of specific liminal states could vastly extend the size and scope of each respective plankton bloom, helping to capture CO2 from the atmosphere. As such, this is

only one small suggested step in the search for an effective Maritime Operational Multiple Modulated Systems (MMOMS) -- employing networks of specialized buoys, titrated iron filtrate and negative emissions -- that are now needed to help stop and reverse climate change.

In view of the alarming fall 2018 IPCC report, we have from five to twelve years to make a decisive impact against growing climate change unless such negative emissions are used. Undoubtedly, many other mitigation methods will have to be used as well since are simply running out of time.

Criticism of any contemplated action against climate change are cheap and overly abundant while concrete, effective action, especially in regards to climate change, seems exceedingly rare. So, this article suggests a 1% strategy in which scientists, policy makers and citizens initiate a variety of mitigation methods that each take at least 1% of the total CO2 out of the global atmosphere. The MOMMS method here of carbon sequestration is one such strategic approach. With 20 more similar methods, we could reduce CO2 in the Global Atmosphere to a level below 400 ppm permanently, making our survival more certain in a very problematic future due to climate change. The decisive and desperate need is to employ what the great Gandhi called a mindset of "Experiments with Truth," and **actually implement--despite the uncertainty factors-- a series of 1% solutions immediately**--such as reforestation, carbon farming, carbon sequestration and carbon cuts -- or face alone the coming and unabated inferno of climate change.

GLOBAL GREEN? NASA EARTH PHOTOS

So,let's begin. As the NASA photos of global plankton blooms reveal (Fig 1), very large oceanic plankton blooms seem to begin on or near the coastal shoreline of liminal states. This is consistent with the "Iron Hypothesis" of Dr. John Martin who speculated two decades ago that much of the world's deep oceans were a mineral dessert and thus incapable of sustaining plankton which, in turn, is a basic food and building block for larger aquatic life forms. (For an overview of the Iron Hypothesis see:https://earthobservatory.nasa.gov/features/Martin/martin_4.php)

Yet, the constant wave action against shorelines presumably draws rich minerals back into the ocean which, in turn, can support the birth and growth of plankton blooms along the coast line, of a liminal state, and even stretch far out to sea. A liminal state is in this context an area on or with a coastline touching a sea or open ocean.

Furthermore, the photos reveal that the shorelines of several such liminal states seem to produce significant transoceanic plankton blooms, as well as significantly enrich existing ones. This is true on the coastlines of: a) Ecuador and Peru where the transpacific plankton bloom begins; b) Argentina where the truly mammoth Antarctica plankton blooms at least partially originate; c) Gabon and Angola where a very large trans-Atlantic plankton bloom begins; d)

Norway, the United Kingdom and the northern coastline of Iceland that all seem to enrich the existing North Atlantic plankton blooms; e) the Eastern Coastline of the Southern Island of New Zealand, which feeds the trans-Antarctica bloom. (The bloom off the coastline of New Zealand has the potential of linking up with the bloom that originates off the coast of Argentina.)

EXPERIMENTS WITH TRUTH: ANCHORED BUOY FARMS:

When confronted with a new challenge, the great Gandhi engaged in what he described as "Experiments with Truth." An extraordinary experimental mindset that Gandhi possessed and embodied is exactly what we need today. We must constantly experiment and be effective if we want to survive the great challenge facing us in our time—the onrushing onslaught and acceleration of global climate change. Such "experiments with Truth" is precisely what the MOMMS and specifically the country-specific shoreline sequestration method calls for and requires. To be effective, the creation of vast plankton blooms needs to be sustained by periodic doses of iron filtrate provided by buoy farms anchored close to shore or, experimentally, further out to sea, which ever proves to be more effective. There is a tremendous business in the selling of new or used buoys, so we also need to experiment with the most effective configurations interacting with currents or existing blooms to maximize their effectiveness.

TIME TO CREATE AND DEPLOY: LET A HUNDRED MOMMS BLOOM!

Some critics still object to carbon sequestration using plankton. Their argument is based on the purely hypothetical and untested hypothesis or fear that it "might" possibly cause toxic bacteria blooms. However, such deadly toxic blooms are ALREADY being caused today by accelerating climate change. Furthermore, these toxic blooms are already killing off sea mammals and other species at a record rate (See, for example, :https://www.climate.gov/news-features/event-tracker/scientists-link-toxic-algal-blooms-along-us-west-coast-warm-waters. As one world famous oceanographic and climate scientist recently said, "Unchecked climate change will likely have consequences for the oceans that.... [simply] dwarf the environmental concerns of iron addition."

In view of this great and growing danger of accelerating climate change, we need to develop *a whole mosaic or portfolio of effective methods to cut, curtail or capture CO2 in the global atmosphere.* The key criteria must now be on the actual testing, experimentation and effectiveness of each method, such as planting trees and new forests, carbon farming, cutting out recreational jet travel, etc. until *all of these add up to a successful grand strategy of carbon cuts, curtailment, capture and cuts.* The deployment of a system of plankton buoys is simply one small step in preventing the increase of carbon in our atmosphere.

This must be part of a much greater effort to go green. Even if, with the proper testing and long term deployment methods, we are successful by using MOMMs carbon sequestration in

removing 1% of carbon from the global atmosphere, that would be a significant result and contribution to becoming a carbon free world.

We know we are running out of time to make a decisive difference before runaway climate change occurs. This is why it is absolutely necessary at this late date for a *Multidimensional Mosaic of Methods approach. The MOMMS approach* must animate discussion, experimentation and deployment of any means that promises to effectively cut, curtail or capture carbon in the global atmosphere.

CONCLUSION: NOW OR NEVER….

We can and must make the decisive difference in the global struggle against climate change, RIGHT NOW. Criticisms are cheap; **what counts now is creativity, innovation, commitment and resources to arrest and reverse accelerating climate change. If critics don't like this proposal, I challenge them, or you, *to work tirelessly to develop test and deploy a much better method that can actually cut, capture or curtail the CO2 and other greenhouse gases in the global atmosphere by at least 1%.* If we develop 100 effective methods by one hundred individuals (or groups) of actually removing 1% of the CO2 in the global atmosphere, we will be largely out of danger from extreme climate change.** Developing 20 such methods, as an immediate imperative of governments,scientists and citizens, will get CO2 below 400 ppm, which still should be possible. This is admittedly a simplistic yet very tempting summation of the beckoning potential of carbon sequestration's potential. To realize this potential will require innovation, determination, experimentation and long term deployment. So, get busy. Let a 100 MMOMs bloom!

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