



## PSA-041-Carbon Capture- World's Oceans

[Join us to save coral reefs](#)

Vic Ferguson

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7/29/16

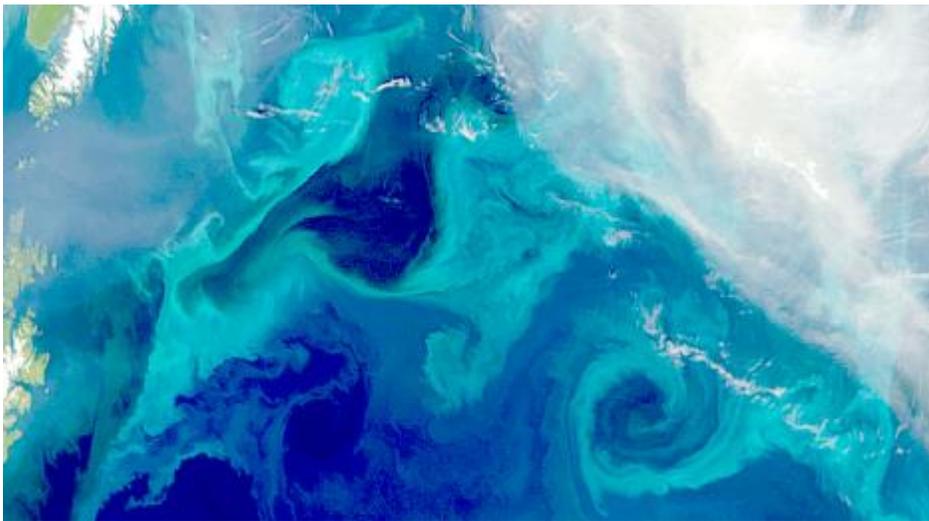
# RUSS GEORGE

Hope for the world, I restore trees and seas!

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## [HUGE OCEAN CARBON BIOLOGIC CAPTURE AND STORAGE CONFIRMED](#)

[Russ George](#) / [July 25, 2016](#) / [Leave a comment](#) / [Good News For The Planet](#)



Plants are Nature's way of managing CO2 on her blue planet

They take in CO2 to make more of themselves as those plants die some small part is buried.

New PNAS paper reports the phytoplankton of the ocean sinks to the seabed 15%-25% of the carbon it takes in.



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How much CO<sub>2</sub> is managed by ocean phytoplankton? In present day conditions nearly 100 billion tonnes per year is buried in the seabed! And this in a time when ocean phytoplankton has been decimated having lost ~50% of the global stocks in the past 50 years!

By restoring ocean pasture plankton we can rest assured that far more CO<sub>2</sub> than humanities 10 billion tonne per year problem can be effectively buried for eons of time and in the bargain the ocean life will be restored to historic abundance.

This new scientific blockbuster report of research on ocean carbon funded by the Gordon and Betty Moore Foundation, prepared by a large team of scientists, and edited by the world's top oceanographer Dr. Dave Karl is proof positive that ocean phytoplankton are the most powerful force of Nature!

Vampire squid that inhabit abysmal depths live in a constant blizzard of marine snow, the sinking remains of plankton.

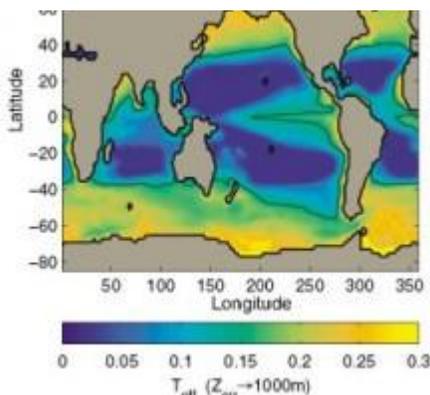


About the same amount of atmospheric carbon that goes into creating plants on land goes into the bodies of tiny marine plants known as plankton.

When these plants die and sink, bacteria feed on their sinking corpses and return their carbon to the seawater. When plankton sink deep enough before being eaten, that carbon becomes part of the seabed where it stays for geologic time.

Just a couple years back [another research project](#) funded by the Moore Foundation published in the Journal Nature noted that the uptake of carbon by plants on land was confirmed to be 175 gigatonnes per year. This report acknowledges the carbon being taken up by ocean phytoplankton as at least a similar same amount.

A [study published this week](#) (July 25) in the Proceedings of the National Academy of Sciences(PNAS) reports on the variability of different ocean basins in growing plankton. The colder polar seas export organic carbon to the deep sea most, as much as five times more efficiently as in other parts of the ocean. The amount of CO<sub>2</sub> managed by the ocean plankton is truly staggering and dwarfs the emissions of humanity.



***“The high latitudes are much more efficient at transferring carbon into the deep ocean,”*** said Thomas Weber of the University of Rochester in New York. ***“Understanding how this happens will certainly allow a more complete prediction of ocean responses to climate change.”***

Graphic shows increasing marine snow-fall closer to the poles

This ‘carbon sink’ is a literal and perfect one.

Carbon-rich plankton detritus clumps together to form marine snow that drifts down through the water. Some is eaten by deeper-dwelling organisms on the way down. This



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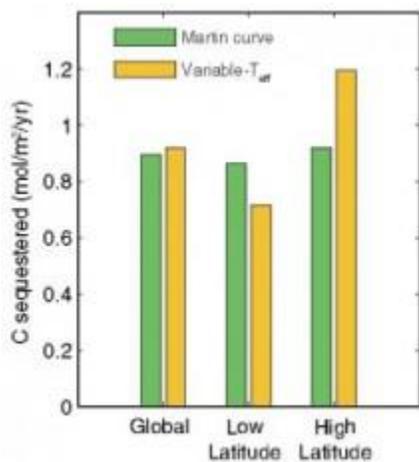
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constant snowfall of organic carbon particles from the surface to the deep sea is Nature's way of balancing her climate and keeping the Earth in a perfect Goldilocks Zone.

The sinking rate of ocean carbon had been thought by many to operate at similar strengths throughout the oceans, but the new study finds a strong regional patterns that coincide with the highest regions of ocean productivity.

The authors found that about 25 percent of organic particles sinking from the surface in the super abundant polar oceans reach at least 1 kilometer (0.6 miles) — the depth required for long-term storage in deep waters or the seafloor. A much smaller amount as low as 5% sinks in poorly productive regions in warmer latitudes. The rich tropics have an intermediate value of about 15 percent.



Ocean Carbon Sequestration Green bars are older numbers by the [late great John Martin](#), Yellow bars reflect this new reports data

They found that, overall, about 15 percent of the carbon in ocean plankton makes it to long-term storage in the deep ocean. This is triple the level that many ocean carbon skeptics and nare do wells have suggested. The regional pattern that suggests the ocean has a range growing environments ranging from blue deserts to lush pastures offers no surprise. This picture conforms well to long established ocean ecology and productivity ideas and with the clearly observed and worsening collapse of ocean pasture productivity in many regions of the world's oceans.

## Why more marine snow falls in colder regions.

The authors puzzled over why more ocean carbon blankets the bottom of cold polar seas. Temperature was perhaps a factor, since cold water, cold air will promote the growth of snowflakes. But the temperature difference and how that might lead to agglomeration of particles of marine snow did not fully explain the results.

They found that the size of the phytoplankton organisms that form marine snow was a better fit with the specimens and data. Many warmer and nutrient-poor seas are called "marine or blue deserts" where what life is there is made up of tiny picoplankton. Nutrient-rich polar oceans, and to a lesser degree the equatorial seas, can support larger life-forms, such as hard-shelled diatoms, that sink fast very much like a proverbial stone.



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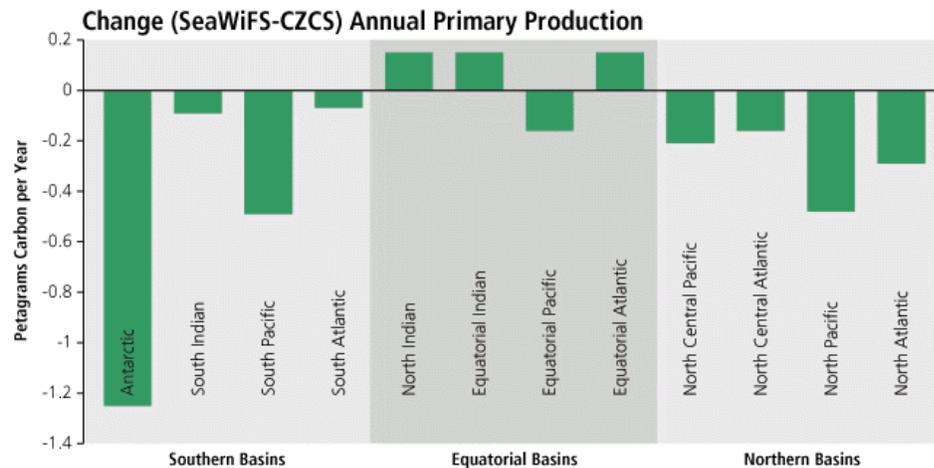
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*“Simply because they sink faster, these large phytoplankton are more likely to reach the deep ocean before being consumed,”* Weber said.

## Not all ocean carbon counted

Keep in mind that in this paper the researchers discount entirely the amount of carbon stored in the living standing biomass of ocean plant life. In the official world of carbon capture and storage as regulated by the Kyoto and now Paris Accord and every national carbon management program the ‘standing biomass’ of terrestrial plants is always added into the volume of carbon effectively managed and accounted for by those ecosystems — think tree planting. So this report is truly a least case scenario with regard to the effectiveness and power of ocean phytoplankton in managing the world's CO2.

## Global ocean productivity has been in a long and worsening decline

Since the launching of the first ocean observing satellites in the early 1980's the world's oceans have been observed to be suffering a cataclysmic decline in ocean pasture plankton plant life. The collapse has been taking place at a [rate of 1% per year](#) with most experts attributing that rate of decline back 50 years or more. As such the world's phytoplankton and its vital CO2 sinking role has been diminished by 50%!



Ocean plant life is seen to be in decline in most of the world's ocean basins as measured by SeaWifs satellite. Note only the ocean basins that fall heavily under the influence of dusting from the Sahara and Arabian deserts remain productive.

The study makes note of the double whammy effect of collapsing plankton which is in lock step with ocean warming. The evidence is clear that ocean plankton are and have always been the most powerful force of Nature managing global CO2 and in turn limiting ocean warming and climate via their cloud forming plankton cooling effect.

*“Even though this study is not directly about climate change, it provides us with a new way of thinking to apply to climate-change scenarios,”* Weber said.



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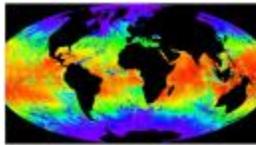
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"As those regions dominated by smaller plankton tend to expand, it's likely that the ocean will become less efficient at locking carbon away from the atmosphere."

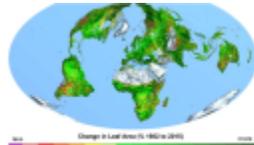
## What does this new research teach us

The quoted comment above is as far as the authors of this paper dare go in addressing how the world might make use of their superb research. Clearly the work leads to and confirms several vital observations about ocean pasture ecology and its role in being the most powerful force of nature on this ocean planet.



OCEAN WARMING DUE TO PLANKTON COLLAPSE

**PLANKTON COOLING –**  
Ocean pasture plankton the power to manage the world's CO2 problem!



MORE GRASS GROWING MEANS LESS DUST BLOWING

**PLANKTON ARE CONTROLLED BY DUST –** Bring back the dust, plankton, all ocean life.



WORLD'S FIRST COMMERCIAL SCALE OCEAN PASTURE RESTORATION A PHENOMENAL SUCCESS – IT WON'T BE THE LAST

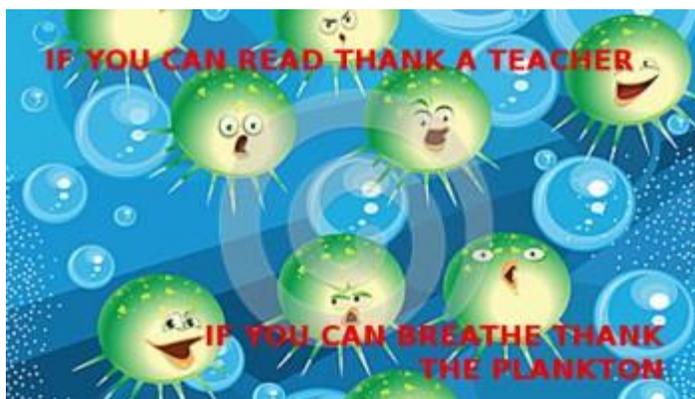
**PROVEN TECHNOLOGY**  
-Restoring Ocean Pastures to bring back the fish – IT JUST WORKS

## This much we know for certain.

1. Ocean pasture plankton has the power to manage the world's CO2 problem!
2. The ocean plankton is in deep trouble!
3. Restoration of ocean pastures and plankton can and will immediately manage the lions share of humanities CO2 crisis!

We can and must act as soon as possible to restore ocean pastures and their plant life the phytoplankton. The means to do so has been actively researched by academia and private research organizations for decades at a cost in public spending of at least a quarter of a billion dollars.

Technologies and methodologies to restore ocean pastures are now proven to work incredibly well. They are simply the better, faster, cheaper and incredibly vital means to restore our oceans to historic levels of health and abundance, provide billions of additional fish to feed the world, and manage humanities CO2 crisis.



Your "Likes" encourage, your "Shares" are true and meaningful help!

[Spring Blooms Convert Vast Amounts of CO2 Into Ocean Life And Oxygen](#)

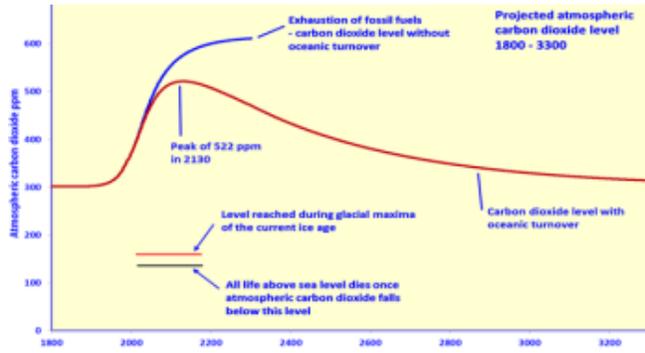


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In "Get Your Geek On"



[Yesterday's CO2 vs. Tomorrow's CO2](#)

In "Geoengineering ?"

[Collapsing Ocean Pastures Lose \\$10 Billion per yr In Fish and \\$10 Billion per yr In CO2 Value](#)

In "Bad News For The Planet"



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*The only thing necessary for the triumph of evil is that good men do nothing"....Edmund Burke*