

Final Project | Human Impacts on Biogeochemical Cycling

Poem by Laura Cutlip (CC '17)

I'm sure that by now, at the end of this block, I
have to tell no one climate change does not rock.
From carbon to phosphorus and us in the middle,
that we are causing this problem is no riddle.
While ecosystems near and far are not pleased, I
have decided to focus on coral reefs.

Now I'm sure many of you know the reefs may
disappear, but there are impacts much greater
than the loss of beauty I fear.
But let's start from the beginning, what's really
happening to the reefs? CO₂ from human outputs
makes the ocean pH decrease,
The corals use "calcification" to grow up real big,
and a low pH stops that from happening.

As CO₂ concentration grows higher and higher,
calcium carbonate levels become quite dire,
The CO₂ deposits link with H ions, to make
bicarbonate... and more H ions,
The extra H pluses steal CO₃²⁻, and calcium
alone does coral no kindness.

Now that is not the only way coral is dying, rising
temperatures send zooxanthellae flying
Zooxanthellae help the corals with eating, and
when they all leave it's called coral bleaching
Without their zoo buddies the corals all starve,
and fish then can't live there or else they'll get
carved. (By their predators)

When there are no fish people get desperate,
trawling and explosives leave reef beds desolate,
Along with carbon come phosphorus and sulfur,
when there's too much of them, reefs are done fir,
Nutrient buildup forms algae on reefs, and when
that happens the coral can't breathe.

And where does this excess of P and S come from?
Agricultural runoff cause people are real dumb.
Those same people vacation to see bright reefs
and be jolly, but unmindful divers are another
coral folly
So now that we know how our reefs are dying,
why do we care? Why are we trying?

There are environmental and economical reasons
alike, and social and political- this could take me
till night! (Just kidding I'll be done soon)
The reefs are a barrier between huge ocean waves
and shore, and without them there would be
tsunamis galore,
But not only from waves do the reefs protect you,
without them more sharks would come too close
and get you.

With a billion people already hungry and lives on
the fence, a lack of fish leads to more hunger and
makes countries real tense.
Over 200 million people worldwide are invested
in this industry, and without the reefs, down goes
the economy.
From jewelry to tourism to pets with no ears,
these reefs generate revenue of over \$30 billion
per year.

And when corals are left with nothing but their
skeletons, there's not even enough to take for new
cancer medicines
Even though most humans are having trouble
with complying, is there a way to turn back the
clock and stop corals from dying?
One species, the yellow finger, is showing
resilience, and scientists are trying to reproduce it
to the gazillions. (Not really that was a gross
overestimation)

They think this coral might be the answer if it can
evolve, unfortunately they don't know if it will if
pH continues to fall.
From the last hot house climate, few calcifying
organisms have been found, but they must have
fared ok if coral are still around.
So what can we do to help the sitch, and dig
ourselves out of this ditch?

Limit your car time, your water, and your trash;
plant a tree, spread the word, get in touch with
the man
Though we can't go back and gain what we've lost,
we should still make a change to lessen the cost.