The Ocean is not a Sink for Atmospheric Carbon Dioxide

$$\text{Diffusion flux} = -D(dc/dx) \approx (-D(\Delta C/\Delta X))$$

Movement of carbon dioxide (not necessarily random) diffuses from high concentration to lower concentration. Example: diffusion of carbon dioxide is 2 cm/month toward the exosphere, not toward the ocean. The ocean is not a sink for carbon dioxide. Figure 12-1 shows carbon dioxide and all greenhouse gasses are well distributed by atmospheric winds. The D in the diffusion equation is the diffusion coefficient. A gas such as carbon dioxide is affected by pressure and temperature. The definition of pressure is 1 atmosphere at sea level. So, the pressure is not an effect worldwide. The temperature is warmer at the equator than the poles. Therefore, more diffusion flux would be present at the equator than the poles. Figure 15-2 is from the manuscript which triggered the junk science which said the ocean is a sink for atmospheric carbon dioxide. The recorded data do not reflect diffusion flux. Around 600 manuscripts claim that the ocean is a sink for carbon dioxide, but they only state that at the beginning of their manuscripts and never prove it.

Most scientists wrongly believe the ocean is a sink for carbon dioxide, which causes carbonic acid formation. Figure 12-3 shows that the only place on earth where ocean acidity is occuring is an area where human waste has been dumped by cruise ships since the 1950's. The decay of human waste consumes oxygen and produces carbon dioxide, which, in turn, changes to carbonic acid. Most news reports remove the Hawaii part of the graph. Figures 12-1, 12-4, and 12-5 show no acidity change.
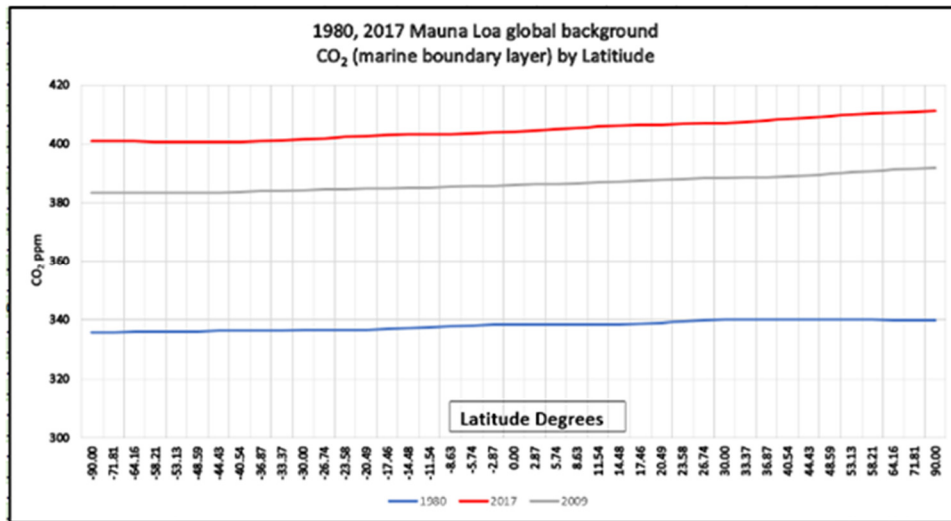
Figure 12-1 Almost equal distribution of greenhouse gases by latitude.

Mean rates of change in surface water pCO$_2$ and bulk water temperature of mixed layer (SST) estimated in six areas in the temperate South Pacific Ocean.

Locations	Lat.	Long.	Data period	Rate of change		No. of MOS.	Rate of change	
				pCO$_2$/ØSST (µatm y[1])	±σ (µatm y[1])		SST (°C y[1])	±σ (°C y[1])
Tahiti	15–20'S	135–145'W	11974–1997	2.00	0.39	16	0.033	0.034
Vanuata	20–25'S	165–175'E	1984–2006	1.30	0.27	35	−0.048	0.018
New Caledonia	25–30'S	170–180'W	1974–2005	1.05	0.09	17	−0.033	0.020
Tasmania	43–48'S	140–150'E	1984–2004	1.83	0.56	18	−0.051	0.062
New Zealand	45–50'S	170–180'E	1974–2006	1.42	0.30	37	0.001	0.027
S. of Tasmania	50–55'S	140–150'E	1984–2002	1.61	0.20	12	−0.044	0.064
Mean				1.5±0.3	0.30	–	−0.02±0.05	0.04

The rates are computed using mean monthly values. The temperatures are measured concurrently with pCO$_2$.

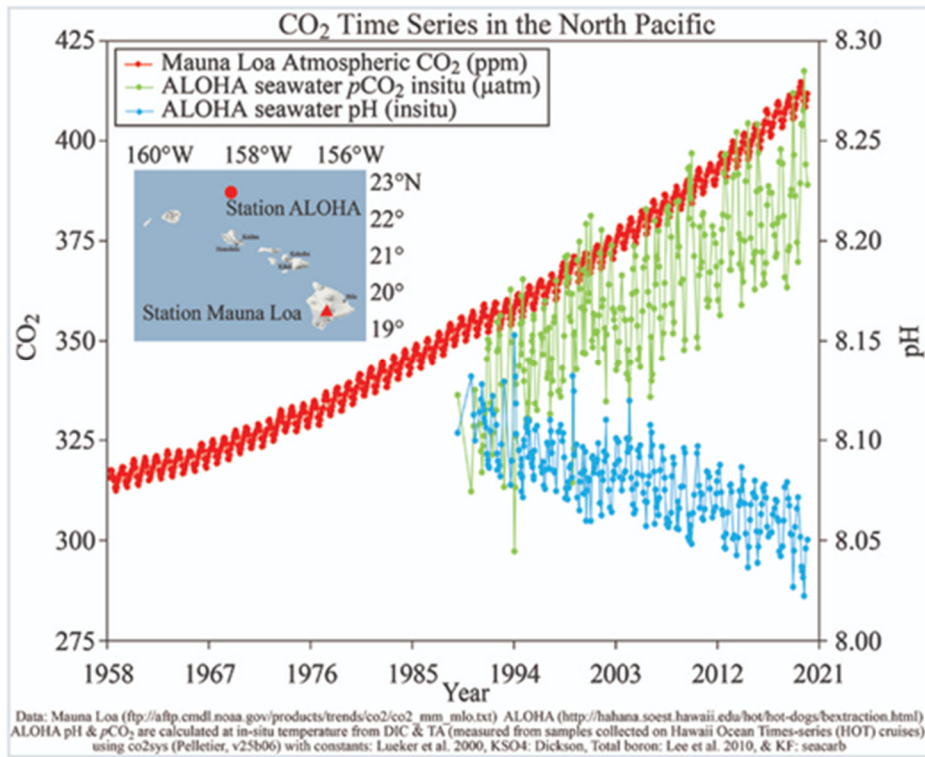Figure 12-2 Data from PMEL manuscript. Not diffusion flux.

Figure 12-3 Hawaii is the only place on earth which shows an acidity change.
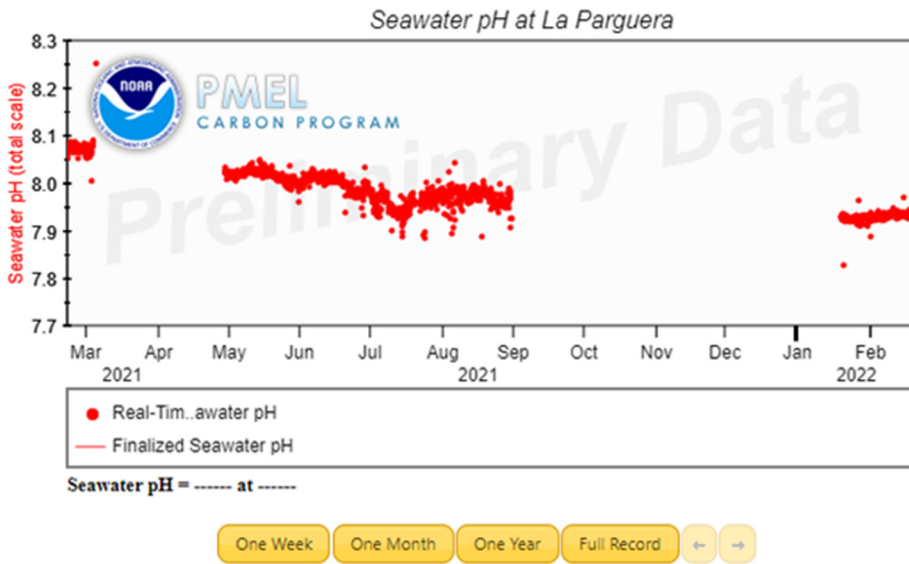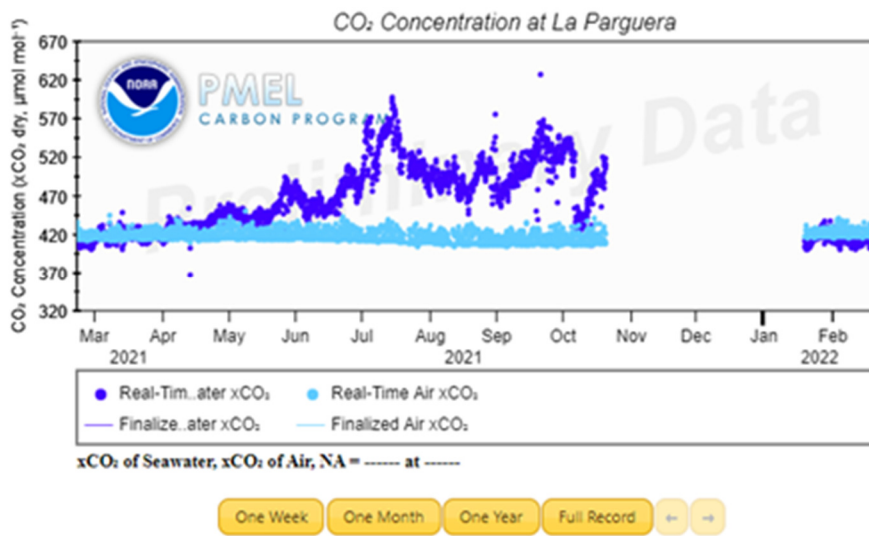
Figure 12-4

Figure 12-5

The spreadsheet has all data for the past 50 years. There exists no correlation between tropospheric carbon dioxide and ocean carbon dioxide. Rxy=0.65
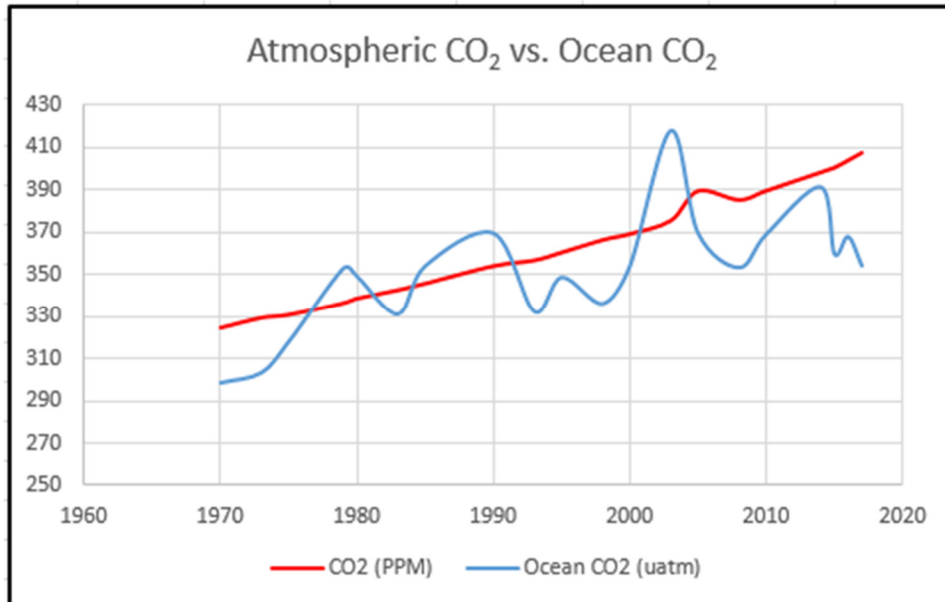

Figure 12-6 Atmospheric carbon dioxide vs. ocean carbon dioxide.

References:

12-1 La Parguera Mooring (17.95°N, 67.05°W) No change in CO2 or ph.

https://www.pmel.noaa.gov/co2/story/OA+Observations+and+Data

12-2 **Ocean Acidity**
Ocean acidity (or lack thereof. Tony Heller shows how the ocean acidity is the same as it's always been in this video. Ocean stupidifcation
https://www.youtube.com/watch?v=yIpDngGm5cQ

Tony Heller's slides.

Figure 12.8 is from Wikipedia's false definition of ocean acidification. Note the bolded words. Estimated is not a scientific word and no estimation without lots of data is ever correct. Earth System Models project. Any model which is not benchmarked with data is a false model. Could undermine is not a scientific statement.

*Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the uptake of carbon dioxide (CO 2) from the atmosphere.[2] Seawater is slightly basic (meaning pH > 7), and ocean acidification involves a shift towards pH-neutral conditions rather than a transition to acidic conditions (pH < 7).[3] An estimated 30–40% of the carbon dioxide from human activity released into the atmosphere dissolves into oceans, rivers and lakes.[4][5] To achieve chemical equilibrium, some of it reacts with the water to form carbonic acid. Some of the resulting carbonic acid molecules dissociate into a bicarbonate ion and a hydrogen ion, thus increasing ocean acidity (H+ ion concentration). Between 1751 and 1996, surface ocean pH is **estimated** to have decreased from approximately 8.25 to 8.14,[6] representing an increase of almost 30% in H+ ion concentration in the world's oceans.[7][8] **Earth System Models project** that, by around 2008, ocean acidity exceeded historical analogues[9] and, in combination with other ocean biogeochemical changes, **could** undermine the functioning of marine ecosystems and disrupt the provision of many goods and services associated with the ocean beginning as early as 2100.[10]*

Figure 12.8

Figure 12.9 is Actual measured data in Monterey Bay California shows the pH range from 7.7 to 8.1. The range is much larger than the change is the Wikipedia definition. This is nine years of daily data collection.

Monterey Bay Aquarium Incoming Seawater, 1995 - 2004
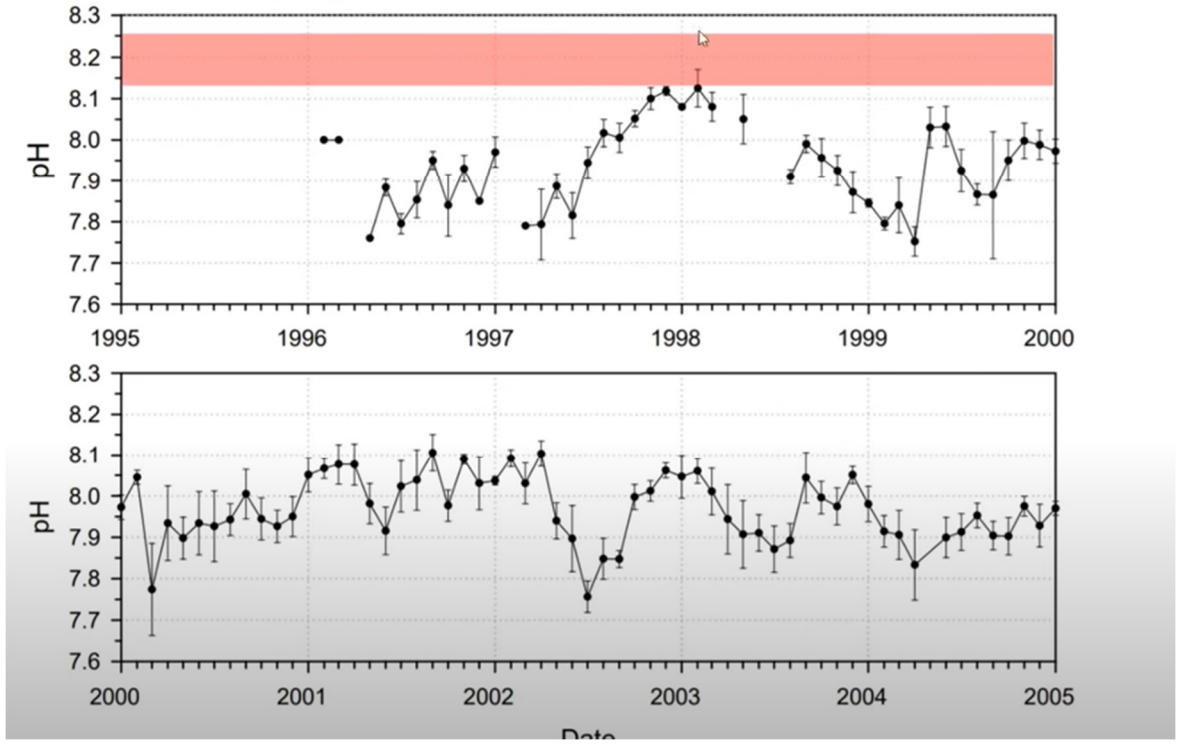pH Spot Measurements, Mean ± Standard Error

Figure 12.9

Figure 12.10.

Figure 12.10 is when life exploded on earth the carbon dioxide levels were twenty times more than they are now.
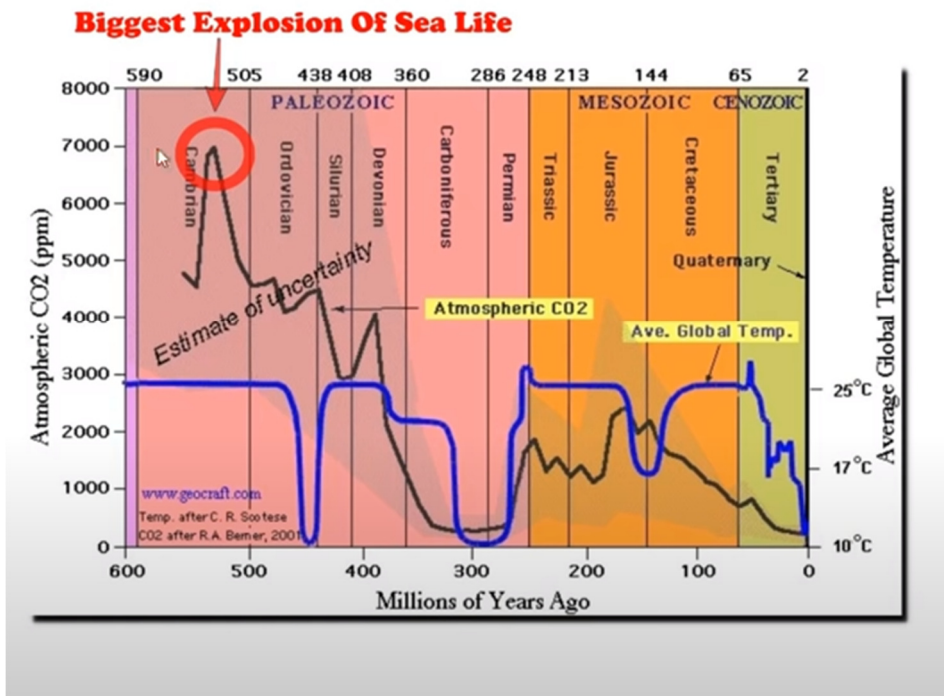
Figure 12.11

The ocean bottom is covered with Basalt rock from Volcanic eruptions. Basalt is very basic in ph. We could dump tons of acid into the oceans and the Basalt would neutralize it. The ph of the Oceans is controlled by the Basalt rock.
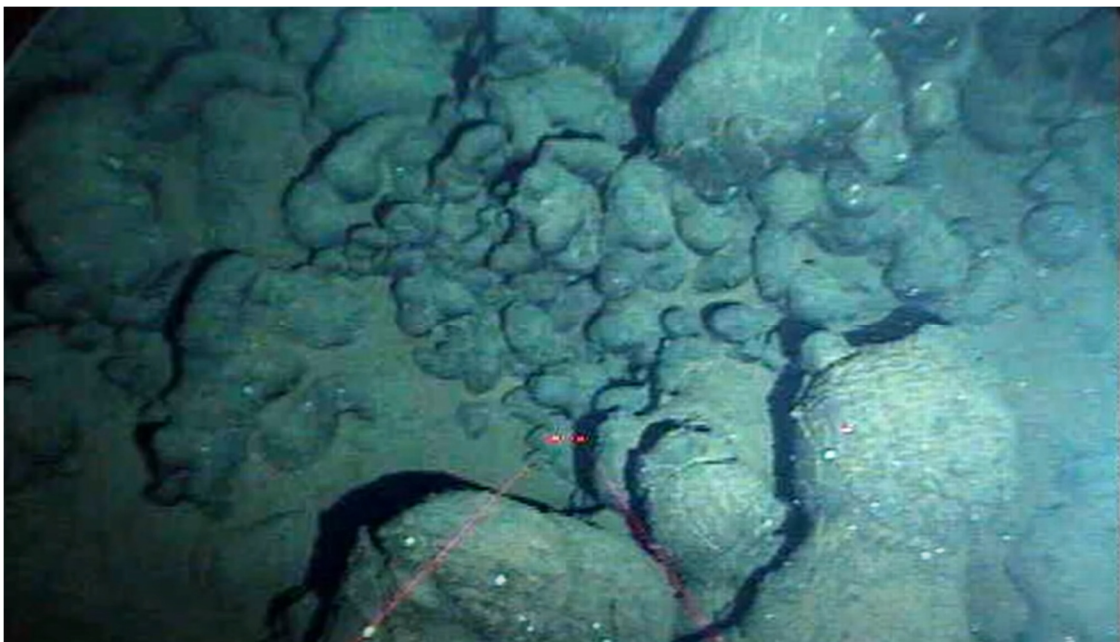

Figure 12.12

Akumal Mexico snorkeling.

Figure 12.13

Some of the reef looked like this. However, some areas a short distance away were dead. If Ocean Acidification we happening, then all areas would be dead.