

ACIDIFIED SHELL FISH: A DISTORTED VIEW

by Dennis Ambler



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by Dennis Ambler | April 27, 2010

SUMMARY FOR POLICY MAKERS

Ocean acidification is the new climate scare and is being used as part of the “Climate Change” drive to force emissions legislation.

Presentations to the hearing on The Environmental and Economic Impacts of Ocean Acidification are claiming ocean acidification is “real” and that seawater is “corrosive” to shell fish larvae. This appears a deliberate distortion.

IPCC AR4 WGI states that the mean pH of surface waters ranges between 7.9 and 8.3 in the open ocean, so **the ocean remains alkaline**. It is dishonest to present to a lay audience that any perceived reduction in alkalinity means the oceans are turning to acid.

The oft-repeated claim that ocean “acidification” has increased by 30% since the Industrial Revolution is based on an average of a calculation, from an estimate of anthropogenic CO₂ uptake by the oceans, from 1750 to 1994. It shows a decrease in alkalinity of 0.1pH unit, well within the range of current ocean pH quoted by IPCC AR4 WG1.

Prominent scientists have claimed that high mortality rates in Oyster hatcheries operated in the North West Pacific, are due to “acid seawater” resulting from upwelling of the deep ocean. There is no acid seawater. As stated in AR4 WGI, the oceans are alkaline, not acid.

Those same scientists stated that bacterial contamination of seawater was not to blame for the high oyster larvae mortality rates.

Contrary to their false claims, the problem of early oyster mortality has been found to be **directly** caused by a faecal organism, *Vibrio tubiashii*. Research programs are currently underway to investigate the extent and resolution of the problem.

This research is being conducted by the Pacific Shellfish Institute and was known at the time of the acid seawater claims.

The fact that this was not considered or was even ignored, when the claims of “acid seas damage” were made, is at worst, mischievous and at best, very un-scientific.

THE SHOCKUMENTARY

In August last year, the National Resources Defense Council released a film “documentary” claiming that CO₂ is turning the oceans to acid: It was funded by the Entertainment Industry Foundation, and has the title, “*Acid Test: The Global Challenge of Ocean Acidification*”. See SPPI, [Acid Seas, Back to Basic](#).¹

The narration is by “Alien” actress Sigourney Weaver, with supporting roles by two Stanford scientists, a fisherman and a couple of NRDC staff. The movie was designed to pressure legislators for action to control CO₂ emissions to “stop the Seas from becoming acid”.

Just as you thought it was safe to go back in the water

As the warming theory starts to fall apart they have to have a Plan B. Ocean Acidification is it. Driving the campaign is Lisa Suatoni of NRDC, a “Senior Scientist” within the organisation. She has a PhD in Ecology and Evolutionary Biology from Yale University and a Masters from the Yale School of Forestry and Environmental Studies, where Dr Rajendra Pachauri, chairman of IPCC, is currently Head of the Climate and Energy Institute (YCEI).

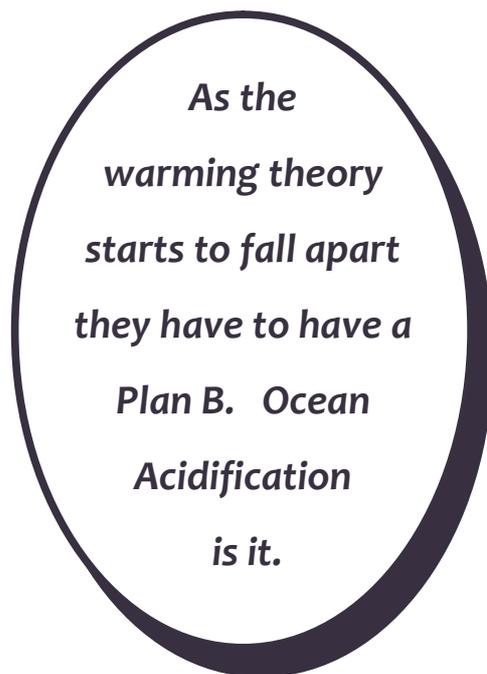
This is what it’s all about

S.173 - [Federal Ocean Acidification Research](#)² And Monitoring Act of 2009

A bill to establish an inter-agency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program, (sic) within NOAA.

[Jane Lubchenco](#)³, NOAA Administrator, is keen to expand her role, get more funding and enlarge her organisation. She sees “Acid Seas” as a suitable vehicle and has given interviews claiming that the oceans are becoming more acidic and “threatening much of the life in the oceans.” Someone coined the phrase “Ocean Acidification, Global Warming’s Evil Twin”, which she uses to push the claim. Such legislation would be EPA’s Evil Twin and would be used to reinforce the whole administration’s efforts on energy controls and the bureaucratic control of our atmosphere and now our oceans.

The legislation as written, implicitly accepts a false conclusion that the oceans are acidifying as a result of anthropogenic CO₂ emissions and promotes research into the cause of a non-problem. This is typical of so much research these days. They start with a conclusion and then fit the data around it, as with the IPCC and AGW.



Move forward now to the [current hearing](#)⁴, by the Oceans, Atmosphere, Fisheries and Coast Guard Sub-Committee of the Committee on Commerce, Science and Transportation, (SCCST). Note that the conclusion is already in the title: **Hearing on the Environmental and Economic Impacts of Ocean Acidification.**

THE FILM STAR

NRDC have produced their film stars as witnesses and Chief Scientist for the Entertainment Industry, [Sigourney Weaver](#)⁵, called for climate legislation that would limit carbon emissions.

“She made her pitch on the same day that a report from the National Research Council found that ocean chemistry is changing faster than it has in hundreds of thousands of years because of the carbon dioxide being absorbed from the atmosphere. The resulting increased acidity of the oceans poses a serious threat to shellfish and other marine life.”

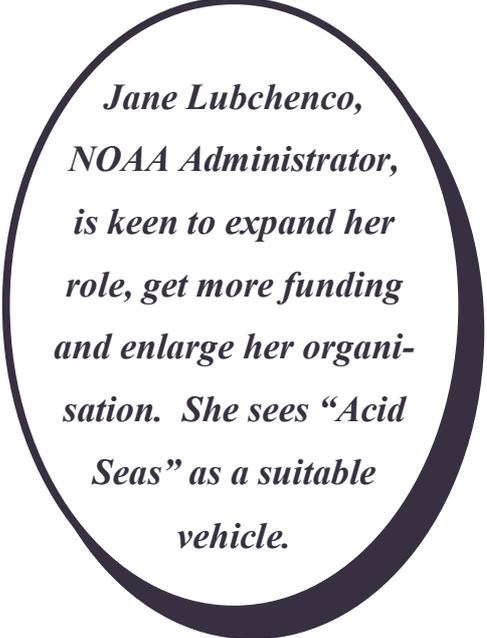
THE SCIENTISTS

This is all part of a well-established process and the current hearing was “pre-seeded” on May 27, 2008 when the SCCST held a hearing entitled, “Effects of Climate Change on Marine and Coastal Ecosystems in Washington” at the Seattle Aquarium, to examine the impacts of climate change on marine ecosystems in the state of Washington. NOAA scientists were called as expert witnesses and a scientific report was presented:

“A related May 22 Science study says the absorption of atmospheric CO₂ into the ocean lowers the pH of the waters. The report, [“Evidence for Upwelling of Corrosive ‘Acidified’ Water onto the Continental Shelf,”](#)⁶ warns that ocean acidification could have important consequences for marine ecosystems. The researchers say the acidic seawater is moving closer to shallow waters containing the bulk of marine life.”

“Richard Feely of NOAA said, “This means that ocean acidification **may be** seriously impacting marine life on our continental shelf right now.”

The researchers included **Richard A. Feely** and Christopher L. Sabine from the NOAA Pacific Marine Environmental Laboratory, and **Burke Hales**, from the College of Oceanic and Atmospheric Sciences, Oregon State University. Their report colleague, Professor **Jorge E. Corredor**, of the Department of Marine Sciences, University of Puerto Rico, is a member of the “Committee on Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment”, a title strangely similar to that of S.173.



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Feely is a strong proponent of emissions controls and has advocated for cuts in emissions of 80%. He was a [contributor](#)⁷ to IPCC AR4 WG1 and also a [reviewer](#)⁸ for AR4 WG1, presumably reviewing his own contributions.

THE FISHERMAN

Move now to the second star of the NRDC film, [fisherman Donald Waters](#).⁹ I have no problems with Mr Waters, he is obviously a hard working commercial fisherman trying to earn a living and he has been told by scientific voices that his living is under threat from carbon dioxide produced by humans. In no way am I attempting to ridicule him; who wouldn't lobby their politicians to save their occupation if it is perceived to be at risk?

In his testimony he speaks of “the science he has learned”:

- **Measurements show** that the open ocean, on average, is about **30% more acidic today than it was before the Industrial Revolution**. In some places, like the West coast, local factors compound that change in seawater. With upwelling or the kind of conditions that produce nutrient-driven hypoxia like we get in the Gulf of Mexico, **seawater can become corrosive** to some of the fish and shellfish and to the species they eat.

This is quite silly but they are of course, not his own words and his “scientific assessment” bears the imprimatur of the NRDC. The idea that a pH value of 8.1 is corrosive takes scientific distortion to new levels, but this is the idea promulgated by senior scientists at Stanford and at NOAA, and incorporated into IPCC AR4.

It is technically correct to say that pH 8.1 is “more acidic” than pH 8.2. It is technically correct to say that 8.1 is 30% nearer to acidity, than 8.2, (neutral is pH 7, acid is below pH7), but it does **not** indicate that the oceans are turning to acid.

The decrease of 0.1 from the “pre-industrial” figure is **an average of a calculation from an estimate**, as quoted in [AR4 WG1](#):¹⁰

“A decrease in surface pH of 0.1 over the global ocean was calculated from the estimated uptake of anthropogenic carbon between 1750 and 1994 (Sabine et al., 2004b; Raven et al., 2005)”

“The mean pH of surface waters **ranges between 7.9 and 8.3** in the open ocean, so **the ocean remains alkaline (pH > 7)** even after these decreases.”

The range of ocean pH is greater than the estimated decrease, yet the figure of 0.1 is used persistently, to claim that **“the oceans are 30% more acidic than in pre-industrial times.”** This is “the Science” of Ocean Acidification and is the basis for attempts to seek NOAA regulation of the seas, along the same lines that EPA seek control of the air we breathe

SHELL FISH MORTALITY

Mr Waters claims that shell fish hatcheries are being damaged by “acid” seawater, reporting on a meeting he had with oyster growers, who were experiencing high mortality in their hatcheries:

“One of the shellfish growers I met was Mark **Wiegardt** from the Whiskey Creek Shellfish Hatchery in Netarts, Oregon. Three or four years ago, **for no apparent reason**, the oyster larvae that Mark grows for a living started dying in the first few days of their lives. **The usual culprits, like marine bacterial infections, turned out to be innocent this time.**”

“After a few years of major larvae die-offs and barely staying in business, **scientists working with Mark and his partners correlated the die-offs with upwelling deep water that is acidified by high concentrations of CO₂.** For juvenile oysters, the water was corrosive, and larvae simply couldn’t survive in it.”

Just who were those scientists? This is the April 22nd story from ABC’s [Good Morning America](#),¹¹ carrying NRDC undersea images and timed to coincide with the opening of the Ocean Acidification hearing and to influence panel members.

SCIENTISTS ON ACID

Ocean Acidification Hits Northwest Oyster Farms

Scientists Say Carbon Dioxide in Oceans Could Mean Curtains for Shellfish.

April 22, 2010

"It first started in 2007. We had a situation here when all of a sudden, our larvae started dying," said **Wiegardt**. "At first we started wondering, what is wrong? Bacterial problems? What are we doing wrong?" Cudd said.

Desperate, Wiegardt and Cudd turned to expert oceanographer **Burke Hales** and his team **from Oregon State University** to study the new and alarming enigma. **They**

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learned that the Pacific waters piped into their hatchery from nearby Netarts Bay **were the cause of the dying larvae.**

The scientists went to work and learned that **something was making the oceans too acidic and preventing the oyster larvae from growing shells.** No shells means certain death. When winds blew the ocean's deep carbon-rich waters onto the surface, (*upwelling?*), hatcheries up and down the Northwest Pacific Coast began to suffer the same fate as Whiskey Creek.

"The chemistry is very simple. It is 101. Carbon dioxide makes the water more acidic, that is irrefutable," said Burke Hales, Oregon State University professor of oceanography.

What is a poor fisherman to believe when a scientist tells him this. There is a strong similarity between Hales' comments and those of Donald Waters.

NOAA scientist **Richard Feely** confirmed the conclusions:

"While the effects are just beginning to be seen in our hatcheries, the oceans are now changing faster than they have ever changed over the last 200 million years," said Richard Feely of the National Oceanic and Atmospheric Administration, who has been studying ocean acidification for 20 years."

One such study he was involved with, was in 2006, called the [Repeat Hydrography](#)¹² project. It got [repeat publication](#)¹³ in January 2010, no doubt to amplify the background noise on the issue, prior to the up-coming hearing that was scheduled for April 22nd. The researchers found that upper-ocean pH had, over the preceding one-and-a-half decades, (*doesn't that sound so much more dramatic than 15 years?*), decreased by approximately 0.026 units, equivalent to an average annual pH change of -0.0017, over a large section of the north-eastern Pacific. (*note "approximately" to three decimal places!*)

"The pH decrease is **direct evidence for ocean acidification** of a large portion of the North Pacific Ocean," said Richard Feely. **"These dramatic changes** can be attributed, in most part, to anthropogenic CO₂ uptake by the ocean over a 15-year period."

So a change of -0.0017 pH per annum over 15 years is "dramatic" and direct evidence for ocean acidification of a large portion of the North Pacific Ocean and can mostly be attributed to anthropogenic CO₂. This is a very un-scientific statement for a scientist to make.

Were the Oyster larvae really dying from "acid seawater"?

The straight answer is **no**. It turns out that the problem may well be due to human activity, but absolutely nothing to do with ocean pH. It was in fact due to sewage contamination, and an organism called *Vibrio tubiashii*. Why did the acid-seeking scientists know nothing of [this](#)

report,¹⁴ from two years ago, about the very same fisheries that they had concluded were global warming victims.

Northwest Shellfish Industry in Panic over Die-off of Oysters

By Ron Morris June 08, 2008

An invisible microbe that thrives in warm ocean water has undermined the Northwest's prized oyster supply, killing billions of young larvae that mature into the succulent shellfish known across the world.

The bacterium, **Vibrio tubiashii**, is related to another species that can sicken people who eat raw shellfish. This one doesn't bother people - **it kills shellfish in their larval stage**, before they latch onto rocks to grow.

An explosion of the microbe late last summer shut down an Oregon shellfish hatchery that is one of the largest on the West Coast, supplying larvae to about 70 oyster growers the way seed companies provide crop seed to farmers.

The microbe also is the likely culprit in the disappearance of recent generations of wild oysters from usually prolific estuaries such as Willapa Bay on the southern Washington coast.

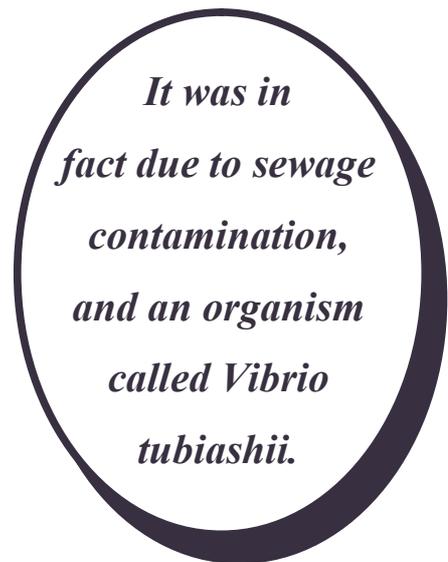
"We're in a state of panic," said Robin Downey, executive director of the Pacific Coast Shellfish Growers Association, based in Olympia. "There is no other word for it."

I wonder why Mark Weigart and his colleagues knew nothing of the concerns of their own West Coast growers association about this bacterial contamination that was deemed "**not the culprit on this occasion**", by the Oregon scientists? It is something that has concerned them for some years and they even have a [research program](#),¹⁵ which includes *Vibrio tubiashii*:

West Coast Shellfish Research and Education 2015 – Goals and Priorities

Pacific Shellfish Institute Olympia, Washington May 2009

2.1.2 (H) Determine prevention and management methods for hatchery and **nursery bacterial pathogens** including *Vibrio tubiashii* and other important pathogens that cause **morbidity and mortality in shellfish larvae** and seed. The goal is to determine what infectious pathogen factors cause unexplained mortalities of shellfish seed.



NOAA themselves, in another life, know all about faecal and nutrient contamination in the Gulf of Mexico, Donald Water's home fishing ground:

[HYPOXIA IN THE GULF OF MEXICO](#)¹⁶

Progress towards the completion of an Integrated Assessment

Scientific investigations in the Gulf of Mexico have documented a large area of the Louisiana continental shelf with seasonally-depleted oxygen levels (< 2mg/l). Most aquatic species cannot survive at such low oxygen levels. The oxygen depletion, referred to as hypoxia, begins in late spring, reaches a maximum in midsummer, and disappears in the fall. After the Mississippi River flood of 1993, the spatial extent of this zone more than doubled in size, to over 18,000 km², and has remained about that size each year through midsummer 1997. The hypoxic zone forms in the middle of the most important commercial and recreational fisheries in the coterminous United States and could threaten the economy of this region of the Gulf.

Instead of funding going towards a real and solvable problem, it is being diverted yet again to the shibboleth of anthropogenic global warming. How much longer can scientists employed from the public purse continue to deceive politicians and the public in order to further their own agenda? Will they be successful in promoting and getting this legislation onto the statute book? You can bet your life on it.

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