

Part – 5

The Macondo Well Blowout:

“The Deep Horizon” Disaster and Oil Leak

The Gulf of Mexico

Louisiana, USA, 2010

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The BP Macondo Well Blowout: The Gulf of Mexico, Louisiana, USA, 2010

Geography of the Gulf of Mexico

The geography of the Gulf of Mexico is covered in the previous section and is not repeated here.

The Macondo Well Blowout and Oil Leak

On 20th April 2010 a catastrophic explosion on the Deepwater Horizon oil drilling rig killed 11 men and set the rig on fire. Within days the oil rig sank, but the real problem was that the blowout resulted in a massive oil leak into the Gulf of Mexico. This leak soon became the largest offshore spill in the USA and possibly the second largest manmade leak in history. The leak stemmed from a high pressure, sea-floor leak as a result of the Blowout Preventer (BOP) on the wellhead failing to stop the leak. On 15th July the leak was substantially slowed by capping the wellhead, with the final cap successfully completing the job on the 29th July 2010. Relief wells pumping heavy 'mud' and cement into the drill hole is likely to permanently close the Macondo Well by the end of August 2010.



The Deepwater Horizon Oil Slick – 24th May 2010

The quasi-official Flow Rate Technical Group estimated the oil well was leaking 1,500,000 US gallons (35,000 barrels) of crude oil every day. This is approximately equal to an Exxon Valdez leak every week. The exact flow rate is uncertain as there were no measuring devices that remained operative the broken well. It should be noted that at the other end of the scale BP estimated that the well was losing no more than one-third of that volume. By the best estimates the well leaked an estimated 4.5 million barrels of crude between the 20th April explosion aboard the Deepwater Horizon drilling rig until the well was capped on 15th July 2010. Fox News broadcast that the 'agreed median figure' was 172,000,000 gallons, making it the second largest leak in history. In fact, this figure is at the higher end of estimates, but it is important because it will be used to determine penalties and fines.

The resulting oil slick covered at least 2,500 square miles (6,500km²), fluctuating daily depending on weather conditions. There were also underwater plumes not visible at the surface.

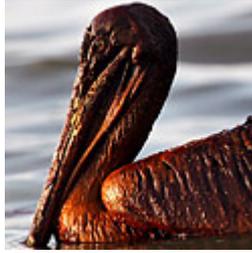
The leak caused damage to marine and wetland habitats (but to a far lesser extent than the virtually unreported annual draining and reclamation work that has been going on for decades). Of more significance from a political point of view was the effect on the Gulf's fishing and tourism industries. Crews worked to protect hundreds of miles of beaches, wetlands and estuaries along the northern Gulf coast, using skimmer ships, floating booms, anchored barriers, and sand-filled barricades along shorelines. The U.S. Government has named BP as the responsible party, and officials have committed to holding the company accountable for all cleanup costs and other damage. Less than a week after the well was capped BP stopped skimming for oil operations because it was having trouble finding any crude oil on the surface. Doug Suttles, chief operating officer for exploration and production at BP said that about **74% of the oil that flowed from Macondo evaporated, dissolved, biodegraded, or was burned, skimmed or captured. The government agreed that the oil was no longer a problem by as early as 4th August, just five days after the leak was plugged!**¹

The Environmental Damage to the Gulf of Mexico

In April and May the environmental damage *as usual* was forecast to be catastrophic– *and once more it was not*. Clearly Nature adapts very quickly. Despite this having been described by President Obama as the "*worst environmental disaster America has ever faced*", (see YouTube and CNN, etc) and despite environmental groups once more hyping the leak with phrases like the "dark shadows of oil" and the "black hand of tar" that would bring disaster to the Gulf of Mexico little oil could be found almost as soon as the well was capped. How curious is it that in less than a week after the flow was stopped the government declared the oil was no longer a problem? Surely after such an apparently huge environmental 'disaster' decades of damage should have resulted? The President and senators on Capitol Hill demanded explanations from BP – referring to it, persistently and anachronistically, as "British Petroleum" – and in an interesting management style reminiscent of the 1930's, both the President and Congress promised to '*keep their boots on the necks of its (BP's) management*'. Given the media and political hysteria that had saturated the news a great many bloggers were already concerned that the prophecies of doom may have been overstated. Here is a typical one:

"Harold Cormier: Anyone who has worked in the oil industry would agree with this story. There were millions of gallons of liquid and gas coming out of the well. Besides oil there was water, sand and other material coming out, it was not refined oil as you would get in a storage tanker or from a pipeline. That's why you didn't see it in globs like the Alaska spill or the one recently in China. There was a lot of exaggeration on this spill because our president and other ambulance chasers found a way to extort money from BP. The disaster in this whole (episode) is the eleven lives lost and the stupidity of the BP man in charge for causing these lives to be lost. Everything else is money and politics."

The usual suspects claimed that the spill threatened environmental disaster due to oil toxicity, oxygen depletion and the use of the Corexit dispersant (demanded by the U,S, government to save the coastline). More than 400 species living in the Gulf islands and marshlands were declared 'at risk'. As at 29th July, 3,613 dead animals had been collected, including 3,054 birds, 494 sea turtles, 64 dolphins and other mammals, and a single reptile. According to the U.S. Fish and Wildlife Service the cause of death had not been determined yet claims were made that starving dolphins have been seen which were "acting drunk" apparently (and without any evidence) attributable to the spill. A reporter kayaking in the area of Grand Isle reported seeing about 60 dolphins blowing oil through their blow holes as they swam through oil-slick waters. *What a pity he did not take a sample as the allegation is fantastic as the oil leaking from Macondo has the consistency of a sticky molasses.*



Oil Soaked Pelican on the Louisiana Coast: July 2010

It appears that everyone had their preferred 'horror scenario', but the only thing lacking was enough dead creatures to support their preferred apocalypse. Here are some of the more prominent ones:

Larry Crowder, a marine biologist said turtles on Carolina beaches **could** swim out into contaminated waters. *So far no evidence has been found that they were stupid enough to do so, but they could have.*

Ninety percent of North Carolina's commercially valuable sea life spawn off the Louisiana coast and **could** be contaminated if oil reaches the area. *Some spawn have been found to contain oil residue, but the effect it will have is unknown. If IXTOC-I and other warm water spills are any indication, the answer is probably very little.*

Douglas Rader, a scientist for the Environmental Defense Fund, said prey **could** be negatively affected as well. *So far no evidence has been found that they have been, but they could have been.*

Steve Ross of the University of North Carolina said coral reefs **could** be smothered. *So far no evidence has been found that any have been, but they could have if we ignore what happened in the Persian Gulf twice and after IXTOC-I.*

In early June Harry Roberts, a professor of Coastal Studies at Louisiana State University, stated that the 4 million barrels (170,000,000 US gallons) of oil **would be** enough to "wipe out marine life deep at sea near the leak and elsewhere in the Gulf" as well as "along hundreds of miles of coastline." *So far no evidence has been found that they there is any serious damage. As an ethical man let's hope Professor Roberts will hand back his degree if his predictions are catastrophically wrong as this would clearly demonstrate that he lacked the necessary expertise in his chosen field.*

Mak Saito, an Associate Scientist at Woods Hole Oceanographic Institution in Massachusetts indicated that such an amount of oil "**may** alter the chemistry of the sea, with unforeseeable results." *Mak, please recalculate the spill as a proportion of the volume of water in the Gulf and repeat your statement with a straight face.*

Samantha Joye of the University of Georgia indicated that the oil **could** harm fish directly, and microbes used to consume the oil **would** also reduce oxygen levels in the water. According to Joye, the ecosystem **could require years or even decades to recover**, as previous spills have done. *Lots of alarms rolled into her 15 minutes of fame, but fortunately she has left enough doubt with her 'could' to back out when none of her predictions comes true. Pity about the 'would', because that is a 'commitment word' and as her prediction certainly will prove groundless surely this statement proves she knows nothing about chemistry, nature, microbes and oil - unless we totally ignore the result in the Persian Gulf in 1992 and every other spill since*

Oceanographer John Kessler estimates that the crude gushing from the well contains approximately 40% methane, compared to about 5% found in typical oil deposits. Methane **could** potentially suffocate marine life and create dead zones where oxygen is depleted. *So far no evidence has been found that it has. I suppose it could have, but it did not – and even the government has declared the threat from the leak is over after less than a week.*

Oceanographer Dr. Ian MacDonald at Florida State University **believes** that the natural gas dissolving below the surface has **the potential** to reduce the Gulf oxygen levels and emit benzene and other toxic compounds. *I suppose it could have, but it did not. Interestingly, “Believes” is a word that has a touch of the religious rather than the scientific about it. And why only a weasly ‘potential’ and not a positive statement of conviction with the word ‘will’? So far no evidence has been found that oxygen depletion is an issue at present and as time goes by it is a threat of diminishing ‘potential’...*

Damage to the ocean floor is as yet unknown.² *True, but that is a statement that has as much substance as gossip and rumour. Where is the scientific sampling to find out what the facts are before raising the alarm? What is most disturbing is the use of emotive, non-scientific terms by these ‘scientists’ as what they are expounding is opinionated political activism, not science.*

The Cleanup and Recovery

Some oil on the Louisiana beaches was bulldozed under, but long stretches of beach were left alone. Generally the three basic strategies for addressing spilled oil are to;

1. contain it on the surface, away from the most sensitive areas,
2. dilute and disperse it in less sensitive areas, and
3. remove it from the water.

The Macondo response employed all three strategies, using a variety of techniques. While most of the oil drilled off Louisiana is a light crude, the leaking oil from the deepwater Thunderhorse Oilfield was of a heavier blend which contained bitumen-like substances. This type of oil emulsifies well. Once it becomes emulsified, it no longer evaporates as quickly as regular oil, does not rinse off as easily, cannot be devoured easily by microbes and does not burn as well. *“That type of mixture essentially removes all the best oil clean-up weapons”,* said Doug Overton of the federal hazard response teams.³

By 29th April 2010, at least 69 vessels including skimmers, tugs, barges and recovery vessels were active in cleanup activities. On 4th May the US Coast Guard estimated that 170 vessels and nearly 7,500 personnel were participating in the cleanup with an additional 2,000 volunteers assisting. On 6th May, BP began documenting the daily response efforts on its web site.

The response included deploying many miles of containment booms, whose purpose is to either corral the oil, or to block it from a marsh, mangrove, shrimp/crab/oyster ranch or other sensitive areas. Booms are effective only in relatively calm and slow-moving waters.



An oil containment boom surrounds New Harbor Island, Louisiana.

Running counter to the media, ‘green’ and political hysteria, marine scientist Ivor van Heerden, another former LSU professor, now working for a spill-response contractor, said, "*There's just no data to suggest this is an environmental disaster. I have no interest in making BP look good, in fact I think they lied about the size of the spill, but we're not seeing catastrophic impacts.*" Van Heerden, like just about everyone else working in the Gulf these days, is being paid from BP's spill-response funds. "*There's a lot of hype, but no evidence to justify it.*" His comments resulted in a wave of condemnation, though no facts refuting his statement were added to support the vitriolic personal attacks. Science, facts and logic are not the core issue to the hysterical.

The more rational scientists (*perhaps those who have read history?*) cite four basic reasons why the initial eco-panic seems disproportionate. These reasons are:

1. the Deepwater oil is light and degradable, which is why the slick in the Gulf is dissolving surprisingly rapidly now that the gusher has been capped,
2. the Gulf of Mexico, unlike Alaska's Prince William Sound, is very warm, which has helped bacteria break down the oil,
3. heavy flows of Mississippi River water have helped keep the oil away from the coast, where it can do much more damage, and
4. Mother Nature is incredibly resilient.

Van Heerden's assessment team has already identified new shoots of *Spartina* grasses sprouting in oiled marshes and new leaves were growing on the first black mangroves around Casse-tete Island in Timbalier Bay. "*It comes back fast, doesn't it?*" van Heerden said.

Van Heerden is controversial in Louisiana, though it is apparently not the first time he has opposed the conventional wisdom as wrong. Van Heerden's views made him powerful enemies at LSU, to such an extent that he lost his faculty job and is now suing the university. Meanwhile, he has been trashed locally as a BP shill ever since he downplayed the spill in a video that showed in an objective report that "*so far, wildlife-response teams have collected only three visibly oiled carcasses of mammals.*"⁴

However, for every positive blog comment there are a huge number histrionically claiming extensive damage. Here is a sample (which is not referenced as there are plenty more where these came from):

“So a serial liar used as evidence that the disaster stories are exaggerated.” *Personal denigration always beats rational argument and facts.*

“ .. the government is giving BP control of the deepwater crime scene.” *Presumption of guilt?*

David Gregg: “And don't eat the seafood....Millions of gallons of oil did not just disappear and was not eaten by hungry bacteria” *So where is it?*

1MeanBean: BP has been trying to buy off the best scientists and academics in the area to help it contest litigation and to silence any critics. Don't buy into this corporate propaganda. How many times must they lie until people see the truth? *And the evidence is ...? There just has to be a conspiracy in here somewhere.*

“You really think all that crude is gone?” *Umm, well ‘yes’, if you really want to know.*

And finally:-

Jimmy: “I have watched with annoyance the news coverage of the spill. The only images of oil have been the small amount on the surface. Come on folks, **there were many millions of gallons of crude spilled** into the Gulf. Those little sheens on the surface by the boom ships hardly accounts for a very small amount of that oil. The rest of **that sludge is somewhere** and it ain't doing the fauna and flora any good, **wherever it is.** ... As far as long-term effects of the spill, **I have a friend in Alaska that says you can** walk along the seashore where the Valdez accident occurred, lift a rock and **still find an oil sheen....**”⁵ *What a confused puppy as the highlighted parts show. Maybe aliens stole it or it evaporated or it sank or ...*

It is tempting to add another hundred as some are actually quite interesting, but they do not change the facts or the reality that the effects of this spill are not unusual, nor will be the long term results.

Long Term Effects

Andrew Bolt was the first Australian reporter to pick up on the van Heerden story published in Time magazine. In short he repeated their predictions on his blog that:

“Within a month of the huge oil spill in the Gulf of Mexico, I warned that the damage done by spills tended to be wildly exaggerated and that this one seemed to be no exception. ... *Perhaps the most important cause of the oil's disappearance, some researchers suspect, is that the oil has been devoured by microbes.* ... *Dr Simon Boxall, an expert in marine pollution and dispersion at the National Oceanography Centre, University of Southampton, explains that there was panic at the estimated size of the spill, between 140 and 200 million gallons – the equivalent of about four supertankers of oil... The combination of the fact that it was light, or “sweet”, crude oil and that the disaster happened in warm waters so far out to sea always meant, he says, that it would be dispersed very quickly. The Gulf, which has a lot of natural seepage into its waters, has, he explains, developed microbes that break down the oil. ... When (BP's) Tony Hayward said it was a drop in the ocean, it might have been the wrong thing to say at the time, but it was the truth. This spill is the equivalent of less than a drop in an Olympic-sized swimming pool. For all but a tiny bit of the Gulf, it will be back to normal within a year... Professor Geoffrey Maitland, an energy engineer at Imperial College, agrees that the Gulf is well adapted to oil spills because tens of millions of gallons naturally seep into it every year. “Many people do not realise that oil is a naturally occurring substance and nature has a way of dealing with it,” he says. It doesn't need to be scooped off, burnt or dispersed with chemicals. “In fact, it is often best to let it just evaporate and biodegrade naturally. ... “With all the clean-up work, natural evaporation and biodegradation, I reckon 50 per cent of the oil has already gone and the rest will follow shortly. There is talk of a lot of oil below the surface, but I am a bit sceptical, as oil is less dense than water and so it floats.”*⁶

I could go on, but the arguments are now becoming repetitive, though there are those with their own agenda who refuse to see

At a cost of billions, an armada of nearly 7,000 boats and 43,000 workers laid three million metres of containment barriers, applied 1.8 million gallons of highly toxic dispersant, skimmed and burnt millions of gallons of oil, and cleaned up beaches and wildlife. But the real catastrophe was political and emotional. When Tony Hayward correctly described the leak as a “tiny amount” in a “very big ocean”, he inflamed American opinion. Yet when he succumbed and agreed that it was an “environmental catastrophe”, he saw his company's share price tumble by £100 billion, wiping out 50% of its total value.

One of the usual suspects. Greenpeace got in on the act by blockading 50 petrol stations in London in protest at BP's policies. Nobody seemed to notice in the shrill hysteria that camera crews could not find oiled animals to film and the clean-up crews could not find anything to clean. The immense patches of surface oil that once covered thousands of square miles of the Gulf have gone. The beaches are already open and only a small area is off limits to fishing. It will take somewhat longer for shellfish to regain their flavour, but they are edible.

Although much smaller, the Exxon Valdez was much more serious environmentally because of climatic factors discussed. The reaction to be seen to be doing something made the damage worse than it needed to be.

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In short, the Gulf of Mexico deals with natural leaks of this size every year, so this was just an extra course of dessert. There are not, nor will there be, any long term environmental effects, but the political cost is incalculable.

Endnotes for Part - 5

¹ <http://www.bloomberg.com/news/2010-08-09/bp-plans-to-intercept-base-of-macondo-well-this-week-before-permanent-seal.html>

² http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill#Ecology

³ http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill#cite_note-143#cite_note-143

⁴ <http://www.deepwaterhorizonresponse.com/go/doctype/2931/55963>

⁵ <http://www.time.com/time/nation/article/0,8599,2007202,00.html#ixzz0vXwrVHGA>

⁶ http://blogs.news.com.au/heraldsun/andrewbolt/index.php/heraldsun/comments/the_good_oil_on_the_worst_environmental_disaster_america_has_ever_faced/

⁷ <http://www.telegraph.co.uk/news/worldnews/northamerica/usa/7918000/BP-oil-spill-Was-Tony-Hayward-right-after-all.html>