

Oil spill: An ecological disaster

By Reese Halter

Saturday, June 12, 2010

I've been covering the Gulf oil spill for over a month. And recently, during a national television interview I said, "BP's Gulf oil spill is a global ecological disaster."

In order to understand this, consider the following:

A vast amount of oil one mile beneath the surface has bled since April 20 into the Gulf of Mexico. According to BP its about 200,000 gallons a day, researchers at Florida State University estimated about two weeks ago it was at least one million gallons a day, and even more recently engineers from Purdue University predicted it's probably closer to 2.5 million gallons a day.

The ominous plumes of oil venting from this pipe at the equivalent of 152 atmospheric pressures — one mile beneath the surface — are behaving unlike any other oil spill ever observed before. That is, oil is rising to the surface and in some cases sinking, just how deep, so far, remains unclear.

Allowing the plumes to naturally disperse has many consequences. Microbes that eat oil require oxygen and they suck it out of the sea, creating oxygen depletion zones. Crude that washes onshore is deleterious to all life, so thousands of miles of booms have been deployed to prevent it from landing.

In an attempt to break up these massive slicks of oil, BP has used more than 700,000 gallons of Corexit oil dispersant; more than 910,000 gallons has been deployed near the leak sites. Dispersant has never been tried so deep in the ocean before.

So what is a dispersant? They are molecules that look like a snake; the head likes water and the tail likes oil. Dispersant pulls the oil into the water in the form of tiny droplets. Essentially, the dispersant increases the surface area, spreading smaller droplets that contain more toxic components of oil throughout the marine ecosystem.

Oil contains a suite of toxic chemicals including known carcinogens called polycyclic aromatic hydrocarbons.

The dispersant increases the exposure to oil by creatures that live in surface water or feed at the surface, including algae, billions of fish eggs, jellyfish and whale sharks; or

on the sea floor, like sea squirts, shrimp, blue crabs, lobsters and oysters. The oil droplets look like food, the same size as algae to the filter feeders such as oysters. These droplets can also clog up fish gills.

There were a lot of lessons learned from the Exxon Valdez spill in Prince William Sound, Alaska, in 1989. One form of dispersant Corexit was used there, too. Nineteen months after that spill, the dispersant was not only evident in the marine ecosystem but mussels were still poisoned. And the effects of spreading the polycyclic aromatic hydrocarbons were far and wide as they caused developing hearts of Pacific herring and salmon to fail.

People exposed to Corexit suffered a number of long-term respiratory and other serious ailments. Research from Israel in 2007 clearly showed that the dispersant kills coral reefs and significantly retards regrowth.

Florida is the only state in continental United States to have extensive (about 6,000) shallow coral reefs near its coasts and most are in the Florida Keys.

These reefs range in age between 5,000 and 7,000 years old, and they are the third largest coral reef formation on Earth.

Surrounding the corals are extensive beds of sea grasses. In the reefs and the sea grasses are over 500 species of fish, spiny lobsters, snow crabs, Caribbean manatees, American crocodiles, leatherback, loggerhead, Kemp's ridley and green sea turtles.

Coral reefs have been likened to the Amazon rain forest because of the rich array of life-forms.

Potent medicines come from the coral reefs. Philippine cone snails are 100 times stronger than morphine — Prialt, the blockbuster drug, comes from them. Soft corals from northwest Australia are the most efficacious cancer compounds ever found. Caribbean sea squirt is used to treat melanoma and breast cancers. Sponges from Florida Keys have been used to treat leukemia since 1969. And research from sponges lead scientists to develop the blockbuster AIDS drug AZT.

Ocean-derived pharmaceuticals are so important that Merck, Lilly, Pfizer, Hoffman-Roche and Bristol-Myers Squibb have all established marine biology divisions.

Worldwide, coral reefs are our grandchildren's legacy.

Some of the dispersants and oil have entered the Loop Current, a powerful conveyor belt that carries the warm Gulf of Mexico water through the Straits of Florida. It contains 80 times the volume of water of all rivers combined on Earth.

It then joins the Gulf Stream, which barrels past Miami carrying 1 billion cubic feet of

water every second. As it passes Georgia and then South Carolina, it triples its volume and once it reaches Cape Hatteras, N.C., it heads out into the Atlantic toward the only open sea on the globe, the warm Saragasso Sea.

Eventually the Gulf Stream becomes the North Atlantic Current destined for Western Europe, where its fan-like tendrils become the Norwegian Current.

The moment the dispersant and/or oil enter the Atlantic, our oil spill becomes global.

The solution to pollution is not dilution. Each time we lose one species we impoverish our planet. Spreading cancer-causing poisons throughout a marine ecosystem from the Gulf of Mexico to the Atlantic Ocean is not acceptable, especially since these lessons were learned at the expense of Prince William Sound and the Pacific Ocean.

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