April 20, marks the anniversary of the largest accidental oil spill in history – the Macondo Blowout, also known as the Deepwater Horizon or BP Spill. The initial explosion and fire cost the lives of 11 workers and initiated an unprecedented eruption of crude oil from the floor of the Gulf of Mexico some 5,000 feet beneath the surface. Before it was brought under control on July 15, 2010, more than 4.9 million barrels of oil escaped into the ocean environment and threatened the entire northern Gulf ecosystem.

As the world watched oil erupting in a seemingly unending volcano from the bottom of the ocean, the potential of this massive spill to significantly harm the Gulf ecosystem became more evident and the economic disaster became a reality. Speculation from the media, based on worst case scenarios espoused by scientists from around the world, riveted our attention on this unfolding drama. First the coasts of Louisiana, Mississippi and Alabama were threatened, then Florida. Concern spread with the Gulfstream around the Florida Keys and up the east coast, even to Europe. Underwater plumes of oil were discovered, denied, confirmed and their effects debated. One year later, the question is – are we now in a position to put this massive insult to the Gulf into perspective? What was the damage? Has the Gulf recovered and if not, when?

The answers are not as definitive as we would hope. There remains significant debate in the scientific community, not only about the ecological effects of the spill but even about the fate of the oil, itself. Some investigations indicate that it is mostly gone and others indicate a lot of oil remains in the environment. When the experts seem to contradict one another, it is easy to understand why the public is confused and frustrated.

Perhaps the best explanation can be found in the old story of the blind men asked to describe an elephant. One blind man who grasped the tail described the elephant as rope-like. One who felt its leg thought it was like a tree. Another, who grabbed the trunk, thought it was like a hose and yet another, feeling its ear, thought it was a giant leaf. All were correct and all were wrong. The elephant was just too big for any one of them to appreciate the whole until they could compare notes and understand how all the parts fit. We are at that initial stage in our understanding and as we piece together the parts, we will eventually put the elephant together. It is not the answer most of us want to hear but it is the reality of science and where we started – with a relatively poor knowledge of significant parts of the Gulf ecosystem.

After a year we can now say something about the effects of the spill. By summer we will know far more as shrimp, crab and fish spawn and begin their estuarine lifecycles. Based on our own assessments here at the Harte Research Institute at Texas A&M University-Corpus Christi we can offer the following observations about the effect of the spill.
No better example of how important a healthy ecosystem is to the economy of adjacent coastal areas, exists than what happened as a result of this spill. We may have to speculate on the long term ecological effects of the oil spill but there is no need to speculate on the economic effects. They were immediate, far-reaching and continue to this day. Recently, the mayor of Orange Beach, Ala. complained about the tar balls continuing to wash up on their beach after a storm, and the prospect that this would continue. He stated that BP needed to clean it up as soon as possible. It is a familiar story. Texas had to deal with similar issues after Ixtoc and did so for many years.

This type of issue is an interesting juxtaposition of economics and ecology that we often see after such incidents. Cleaning up the tar mats in the shallow offshore waters, just like cleaning up oiled marshes, will likely cause far more ecological harm than leaving it to time and nature. That is not an answer a local tourist bureau wants to hear. These are questions and debates that will continue for some years to come as we recover from the spill.

The most graphic depictions of ecological effects of the spill were pictures of oiled pelicans and coastal wetlands. The wetlands of the northern gulf are so productive and economically valuable; they were the understandable focus of much concern and the subject of most of the response efforts to protect them. All the indicators that are available at this time would indicate that the species we most often connect with a healthy and productive gulf – shrimp, crabs, redfish, etc. will see production this year within the range of normal variations. In other words, we will see no apparent spill effects. Some scientists have even suggested above average productivity. This is not unexpected as these species can reproduce in large numbers and are so widely distributed in the Gulf that areas not affected by the spill will likely compensate for affected areas. Some scientists have likened these species to weeds that can take advantage of almost any condition to flourish. That seems an apt analogy, except these animals are good to eat and economically prized! There is a cautionary note; we may yet see adverse effects of the spill.

We cannot confidently assess the possible long-term effects of oil that may have mixed with sediments on the shallow continental shelf margins of the coast. Chronic, rather than acute affects, may be a long time in manifesting themselves in the marine populations we have good data on, such as commercial species. In the Exxon Valdez spill, some effects did not manifest themselves for four or five years. The ecosystem was simply consuming itself over the short term. It is a possibility here as well. We cannot yet report on the possible impacts to other species of little commercial value that contribute to biodiversity of these shallow ecosystems or contribute in other significant ways we do not understand. We simply have never studied these relationships and connections because of the chronic underfunding of research in the Gulf.

We certainly cannot yet ascertain the effects of the spill on the open ocean ecosystem of the Gulf of Mexico. Our first hints will likely come this spring and in subsequent years because what data we have is generally confined to adults of these species and our knowledge of early life stages are too limited to provide comparative information.
More and more it is appearing that the real effects of this spill will be on the unseen and poorly known deep benthos – the bottom community’s around, and to significant distances, out from the spill. Much of this area appears to still have oil present. Other researchers have reported oiling of communities of the solitary coral communities on adjacent continental slopes and canyons. This is disturbing as according to recent studies, some of these corals can be several thousand years old. What can we possibly do to restore them?

What these impacts to the open ocean, deep bottoms and perhaps the shallow continental shelf portions of the gulf ecosystem, we just do not know. Again, we pay the price of failing to invest in science and building our knowledge of the Gulf of Mexico.

Regardless, of what we eventually learn about and from this oil spill, we must move forward in assuring a healthy Gulf of Mexico for the future. Everyone is entitled to an opinion about drilling in the deep waters of the Gulf of Mexico. However, we are not entitled to our own facts. Unless we make dramatic changes in our energy use, changes we have never before been willing to make, we will continue to need oil and gas for the foreseeable future. That source is predominately the deep waters of the Gulf. Considering recent and ongoing issues with nuclear power because of the tsunami in Japan, that need for oil and gas is even more an imperative. The reality is we must find a way to balance economic and environmental concerns in the Gulf of Mexico.

Toward that end the Harte Research Institute will be hosting a State of the Gulf Summit December 4-8 in Houston, Texas. The goal of that summit will be to define what a healthy gulf should be, chart a course to that end and prescribe the means to assess progress to that goal. If you have similar interests please join us in Houston. We can have our cake and eat it as well, but it will take us all working together to accomplish such an ambitious vision for the future. Go to the following Web site for more information about the summit: www.sgmsummit.org or www.stateofthegulf.org