



OIL SPILL SCIENCE

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THE DEEPWATER HORIZON OIL SPILL'S IMPACT ON PEOPLE'S HEALTH: INCREASES IN STRESS AND ANXIETY

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The impacts of the Deepwater Horizon oil spill stretched beyond the Gulf of Mexico's waters, plants, animals, and habitats. It affected the mental health of some residents along the Gulf Coast. The impacts varied based on what kind of job a person had, how attached they were to the place they lived, and how many disasters they had lived through prior to the spill.



Scientists have found that the oil spill had an impact on the mental health of some coastal residents, cleanup workers, and those that relied on the Gulf for income. (NOAA)

The Deepwater Horizon oil rig exploded on April 20, 2010, killing 11 workers and injuring others. Oil flowed from the wellhead for 87 days before emergency responders could cap it. During this time, approximately 172 million gallons

of crude oil flowed into Gulf of Mexico waters.^{1,2,3}

The oil spill affected coastal communities of the Gulf of Mexico in many ways. Some people who relied on the Gulf for work lost income and business

opportunities during the oil spill. Other coastal residents and cleanup workers were directly exposed to oil and witnessed the impact it caused to the shoreline and Gulf waters.^{2,4,5,6}

After the oil spill, several studies examined the mental health impacts of the oil spill on people living along the Gulf Coast. Scientists documented short-term mental health impacts, but the long-term impacts have been harder to identify. Scientists are also developing new ways to determine how exposure to disasters, such as oil spills, impacts the physical and mental health of communities.⁷

COASTAL RESIDENTS FEEL THE EFFECTS OF THE OIL SPILL

Scientists start to document impacts

The oil spill affected the mental health of some residents living along the Gulf Coast.^{4,6,8-15} However, the level of impact varied across the spectrum. Negative mental health impacts were most common in people whose work, family, or leisure life was impacted by the spill. Residents reported feeling depressed,

anxious, and suffering from post-traumatic stress disorder.^{3,15,16,18,19}

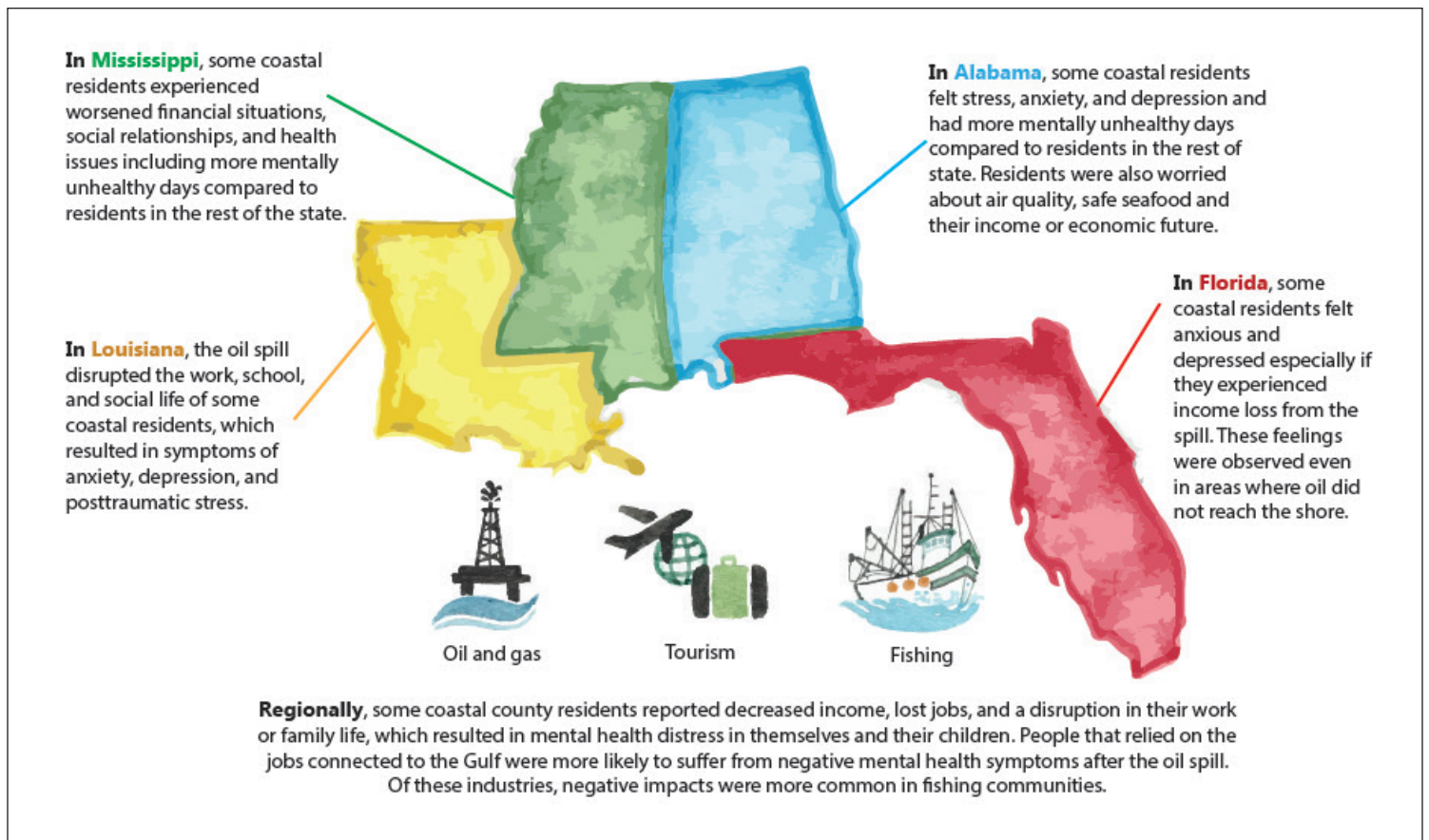
Impacts were strongest immediately after the spill and decreased over time.⁸ Levels of depression, mental illness, and stress that some residents experienced were above the national average even two years after the spill.⁹

Scientists saw that even some residents in oil-free Gulf communities were anxious or depressed. These residents worried about the oil spill's impact on the environment, human health, and seafood safety.^{10,16}

Loss of income results in stress and anxiety

The oil spill impacted the fishing and seafood, tourism, and oil and gas industries. Government agencies closed oiled waters to recreational and commercial fishing; visitors canceled their vacations; and the government stopped offshore drilling projects for six months.

Residents that relied on these industries for their source of income or had lost income because of the oil spill were more likely to feel anxious or depressed,



Residents of states surrounding the Gulf of Mexico reported various negative mental health impacts following the Deepwater Horizon oil spill. (Florida Sea Grant/Anna Hinkeldey)

drink more, or have more thoughts of suicide than other residents.^{5,6,8,10-13,16-22} Residents living below the poverty line were more likely to suffer from depression, anxiety, and stress than those with higher incomes.²⁰

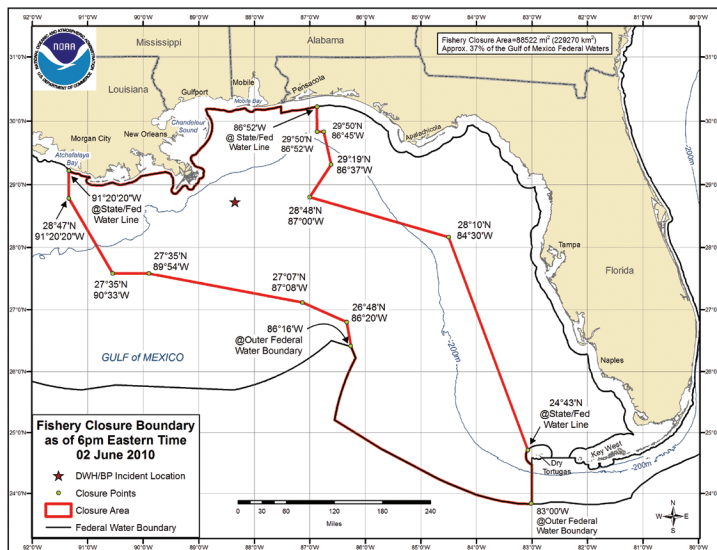
Mental health impacts from income loss were not limited to adults. Parents that had income loss due to the spill were 1.5 times more likely to report new physical or mental health problems in their children. When digging deeper, scientists found that these health problems were not only due to the oil spill. These families also faced economic pressures independent from the oil spill and lacked access to programs to help overcome adversity. Scientists believe that these factors may also have contributed to mental and physical health problems.¹⁷

The oil spill hits the fishing industry hard

“I’m not sure what to do right now... [In the past], things will always seem like they pop up But [this time]...I see it coming to an end really, really fast here. And...I’m just... really kind of scared. I mean, it costs a lot of money to live...” – Study participant, After the BP Deepwater Horizon oil spill: Financial and health concerns among coastal residents and commercial fishers.²²

People with ties to fishing were more likely to have higher levels of stress than others who also relied on the Gulf for a source of income.^{8,12,13,18,19,22} State and federal agencies closed fishing grounds while they monitored the spread of the oil slick and tested seafood samples to ensure safety. Many people who worked in the fishing and seafood industries were out of work during this time. Officials reopened all federal waters by April 19, 2011, based on visual, sensory, and chemical testing of seafood samples.²⁴ However, some heavily oiled areas in Barataria Bay in Louisiana state waters were not re-opened to fishing until June 2015 because of oil contamination.

The fishing industry also had other concerns in addition to the closure of fishing grounds. Members wondered about the long-term effects on fish populations and whether consumers would believe that seafood was safe to eat.^{8,22} A year after the spill, scientists saw that residents in counties with strong



During the Deepwater Horizon oil spill, agency staff closed Gulf waters to fishing because of the potential for oil contamination. The largest closure occurred on June 2, 2010, during which nearly 37 percent of the fishable waters under federal management in the Gulf of Mexico. (NOAA Fisheries)

ties to fishing were more stressed and more worried about their economic futures than people in counties with strong ties to tourism. The tourism industry appeared to be recovering after the spill whereas questions lingered about how long it would take the fishing industry to do the same.^{18,19}

CORROSIVE COMMUNITIES AND RESILIENT COMEBACKS

Competition leads to negative feelings

“There are people that are abusing the system and everybody coming out of the woodwork to try to get that money. They try to get their hands on that money, which is sickening really to the people that actually need it and aren’t getting what they deserve.” – Study participant, After the BP Deepwater Horizon oil spill: Financial and health concerns among coastal residents and commercial fishers.²²

The oil spill was not the first disaster to hit residents that lived along the Gulf Coast. These communities were hit hard by natural disasters, such as Hurricane Katrina and Hurricane Rita in 2005. The Deepwater Horizon oil spill was different. It was not a natural disaster but a technological, man-made disaster.

Natural disasters tend to create **therapeutic communities**. These types of disasters are typically deemed



Mississippi-Alabama Sea Grant Consortium Fisheries Technologist Peter Nguyen, right, speaks to a shrimper from Biloxi, Mississippi, on his shrimp boat that was used to deploy and retrieve boom during the oil spill. (Mississippi State University/Scott Corey)

“nobody’s fault” and people come together to support one another and rebuild.²⁵ Technological disasters, on the other hand, tend to lead to **corrosive communities** as victims try to fix blame. Victims can become suspicious and cynical toward those they feel are responsible for the disaster.²⁵

BP, the **responsible party**, implemented a claims process after the oil spill to help offset some economic losses.^{23,27} BP also created the **Vessels of Opportunity** program to hire fishing crews to assist with cleanup efforts. These programs were created to ease stress by reducing or eliminating economic concerns. However, in some cases, the effects of the compensation process led to corrosive communities.^{10,27}

Some residents were frustrated with the claims process and did not trust it. They felt that the amount of compensation people were given was determined at random, even with identical claim statements. Other residents felt as though the selection for the Vessels of Opportunity program was arbitrary and should hire fishing crews that were out of work. Many residents complained about “spillionaires,” who they felt unfairly profited from payment. These inequalities

led to conflict, jealousy, and competition between members of some communities.^{10,25}

Community attachment can help and harm

Community attachment, or how close community members feel to one another and the place where they live, can play into the amount of time that it takes a community to recover after a disaster. Community attachment can be a good thing because it implies that a strong and caring network is in place that can help people recovery from disaster. A group of scientists talked with residents who had a strong attachment to their communities. A year after the spill, they found that these residents were recovering more quickly than other residents that were not as attached to their communities.⁸

However, community attachment can also cause strain. Scientists saw that residents more attached to their community and part of the fishing and seafood industries had a harder time recovering after the spill. They felt angry, worried, anxious, depressed, sad, nervous, and afraid even a year after the spill.⁸ This may be because residents tied to the fishing industry were still facing hardships. The attachment to their community also may have

made them less likely to want to leave their home, even when the oil spill was threatening their way of life. Additionally, their social network was probably made up of others that felt the same way. This could have contributed to a cycle of negative outlooks and stress.¹²

Gulf of Mexico communities overcome diverse disasters

A person's ability to "bounce back" after a hard time, also known as resilience, can lead to quicker recovery after a disaster. The personal impact of a disaster will depend on several factors. These factors include how exposed people are to a disaster, the ways they cope with adverse situations, and the type of community they live in.⁶ Many studies have described the impact that the oil spill had on people who lived through other disasters, such as Hurricane Katrina.^{14,28-30} Scien-

tists are also examining how biological factors, such as the brain, play into the impact on and recovery of a person exposed to a disaster.²⁶

Individuals with low income or less social support were more likely to experience negative impacts in the years after both natural and man-made disasters. The same was true for those who practiced their religion daily, either alone or with others in prayer groups. Those who worshipped daily were nine times more likely to suffer from post-traumatic stress symptoms than those in their community who did not practice religion. These people were not necessarily suffering because they were lonely or isolated. Instead, scientists believe they may have begun practicing religion after the disaster for comfort, a sense of meaning, and perhaps in an effort to heal. Informal religious activities may be common after a disaster, especially if wind or water has destroyed church buildings.³⁰



The fishing industry suffered much damage from Hurricane Katrina in 2005. (NOAA)



A vessel of opportunity skims oil spilled after the Deepwater Horizon oil spill in the Gulf of Mexico in April 2010. (NOAA)

“With Katrina, we knew what to do. We needed to rebuild. With the oil spill, we don’t know how long the recovery will take or if we will be able to recover.” – Study participant, Deepwater Horizon oil spill: Mental health effects on residents in heavily affected areas.¹⁵

Scientists interviewed residents in southeastern Louisiana that were impacted by the Deepwater Horizon oil spill and also lived through Hurricane Katrina and other traumatic experiences. People that suffered from anxiety, depression, or post-traumatic stress during Katrina were more likely to experience the same feelings after the oil spill. However, residents that experienced multiple disasters were able to rebound faster and had better mental health outcomes in the long run. Scientists suggest that past disasters have taught these residents to adapt and cope with hard times.¹⁴

Scientists asked Alabama residents if they thought they recovered from setbacks quickly and how well they adapted to change. Residents who did not view themselves as being able to overcome difficult times

had a harder time after the oil spill. They reported more symptoms related to depression and post-traumatic stress disorder.²⁸

Other factors can influence how well a resident recovers after a disaster. Feeling a sense of purpose or of meaning in life, or the belief that they are living their life in a way that stays true to their core values, can help people recover after disasters.²⁹ Residents that had higher levels of resilience and meaning in life had fewer negative mental health symptoms after the oil spill than residents with lower levels.²⁹

TAKING THE NEXT STEPS

The Gulf of Mexico Research Initiative (GoMRI), the National Institute of Environmental Health Sciences, the National Academy of Sciences, and other organizations continue fund research to look at the mental health impacts of the oil spill and how communities are recovering. Information about ongoing studies funded by GoMRI can be found at <http://gulfresearchinitiative.org>. Other publications focusing on the oil spill can be found on the Sea Grant Oil Spill Science Outreach website at: www.gulfseagrant.org/oilspilloutreach.

GLOSSARY

Corrosive communities — Communities in which individuals' lack of social connectedness due to fears, stress, anxiety, and conflict after a disaster impedes the communities' ability to recover.

Resilience — The ability for a community or individual to respond to, withstand, and recover from adverse situations.

Responsible party — The person, business, or entity that owns the vessel or facility that caused the spill and, therefore, is liable for the cost of removal and damage. The term does not imply criminal negligence.

Therapeutic communities — Communities in which individuals pull together in a coordinated and connected way after a disaster to restore their community to pre-disaster conditions.

Vessels of Opportunity — A program that was implemented by BP after the Deepwater Horizon oil spill to provide limited employment opportunities to those in the Gulf region that had lost income or were out of work due to the oil spill.



Workers decontaminate after cleaning oiled booms in Port Fourchon, Louisiana. (NOAA)

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