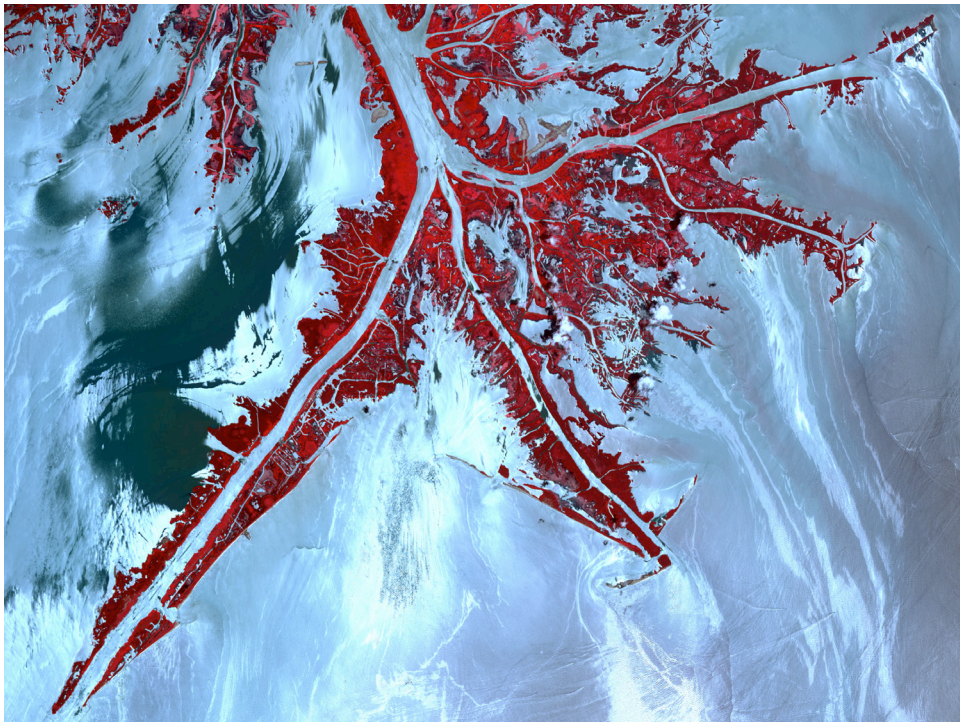


Department of Social Anthropology
University of Zurich
Andreasstrasse 15
8050 Zurich

Lizentianden-, Doktoranden-
und Masterkolloquium
Prof. Shalini Randeria
Lizenziatsarbeit

Dispersed Destinies

Bio-politics after Deepwater Horizon



Source: http://www.allmystery.de/dateien/gw62405,1274905396,gulf_ast_2010144_lrg.jpg [9.7.2012]

Author:

Simon Meier

Langmauerstrasse 58

8006 Zurich

Marticulation number: 05-717-996

«Lizenziatsarbeit der Philosophischen Fakultät der Universität Zürich»

Major: Social Anthropology

1. Minor: Film studies

2. Minor: Art history of the middle and modern ages

Filling date: 18.04.2012

To the resilient people of South-East Louisiana

Special thanks to Karine Landgren for proofreading

Content

1. Introduction	p. 4
2. Petro-state politics	
2.1 Shrimp and petroleum: An ambiguous relationship	p. 13
2.2 Petro-state citizens	p. 20
2.3 The deregulation of industry practices	p. 27
3. Creating dispersed destinies	
3.1 An illegitimate illness	p. 34
3.2 Bio-politics between pastoral power and neoliberal governmentality	p. 48
3.3 Public portrayal and personal impacts	p. 58
3.4 Biological citizenship and the human right to health	p. 65
4. Conclusions	p. 83
Bibliography	p. 86

1. Introduction

As it turns out corporations are always obliged to themselves to get large and profitable. In doing, it tends to be more profitable to the extent it can make the other people pay the bills for its impacts on society. There's a terrible word economists use for this called "externalities".

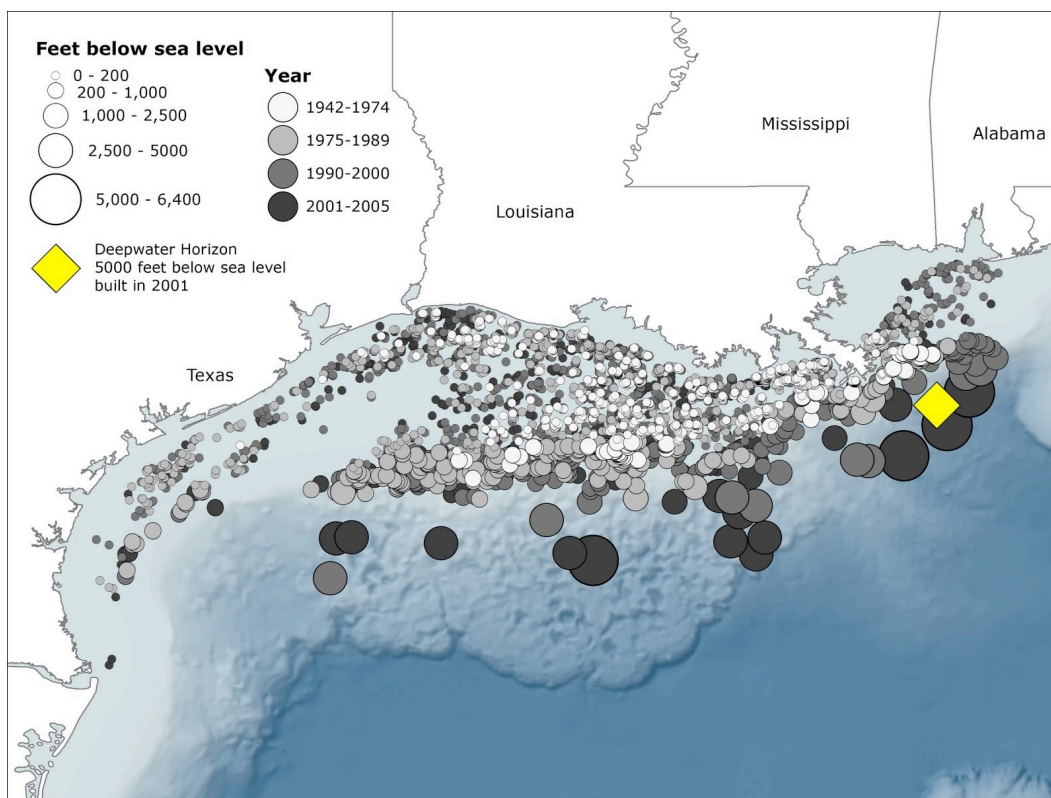
Robert Monks, Corporate governance advisor (Achbar/Abbott 2003)

Until environmental conditions become commodities themselves which are being traded, we are not having anything to do with that.

Carton Brown, Investment banker (Achbar/Abbott 2003)

When the burning oil platform, 'Deep Water Horizon', sunk into the Gulf of Mexico on April 21st, 2010, and the pouring of massive amounts of oil were announced, media coverage was immense. Media coverage continued during the efforts to plug the well, and throughout the clean up efforts, which were mainly run and supervised by the perpetrator of the spill, British Petroleum (BP). Around 4.9 million barrels of crude oil (774 million litres) spilt into the Gulf until its was successfully plugged (Bourne 2010). However, the flow rate itself has become contested among scientists. Some argue that a multiple of the official number flowed into the Gulf, and BP purposely manipulated video footage, which was required to assess the outpour, because the company would be fined on the amount collected (Kluger 2010, Project Gulf Impact 2011).

Similar to previous oil catastrophes, the emphasis of the media was on polluted beaches and the large scale suffering of sea creatures such as turtles, dolphins and seabirds. What was forgotten were the hidden impacts; the massive amounts of oil that never reached the shorelines, which was dispersed offshore and subsurface at the site of the leak. As a result of the use of chemical dispersants to break up the oil and the burning of surfaced oil, people started to get sick. Activist Cherri Foytlin – who handed out health surveys for LEAN (Louisiana Environmental Action Network) – speaks of 2,400 confirmed cases of chemical poisoning (Foytlin 2012).



The different sized circles display oil rigs with varying ages and depths of operation. There are around four thousand active oil platforms in the Gulf of Mexico, excluding numerous abandoned ones. – Source: <http://thes.files.wordpress.com/2010/06/gulfmap1.jpg> [17.4.2012]

Dr. Mike Robichaux estimates tens of thousands, including the thousands of people who worked in the clean up, and the thousands of coastal residents who were potentially exposed. For every 93 gallons of oil that was spilled, about one gallon of dispersant was applied (Subra 2011). On August 4th, 2010, only two weeks after the plugging of the leak, the white house declared that 75% of the oil had been cleaned up. For many Gulf coast residents, on the contrary, the impacts were just about to begin. The aftermath of the spill is – amongst other hardships – one of the denial of chemical exposure, and an ongoing health crisis.

Catastrophes like the one in the Gulf of Mexico – despite all their negative consequences – have the side effect of opening to us the view onto structures of power, interconnections and work processes, which normally are black boxed to the public. The radiographic image of structures of responsibility and power enable us to critically asses what is usually perceived as normal and functioning, and therefore not to be questioned. Crises therefore offer the opportunity to view the normal from a

new perspective, to de-familiarize the common and acquire a new viewpoint onto it. This insight comes from the fact that ‘crisis’ in Greek not only means a turning point in a difficult situation, but also opportunity. Crisis also denotes a situation of change, a point where time is short and action has to be taken immediately. This fracture point between past and present, as well as present and future implies a highly reflexive situation. Information about crises get channelled and rearranged by public and independent media, affecting the way we perceive it and producing a public response. There’s a dialectic relationship between crises and the experts who represent them. They claim to speak truth about facts, which are assessed and reinterpreted by them. Truth becomes a matter of a dialectics of discourses, which work upon each other, producing different versions of the impacts of a crisis. Which of these versions becomes the public one, strongly corresponds with the efficiency of a discourse. How do experts representing crises formulate the problems related to them? What terminology do they use? How do crises become standardized and normalized by the reports representing them? Knowledge and theories structure phenomena according to certain logics inherent to them. What are the norms, the standards, of speaking about a certain topic?

My approach was to use the case of the health crisis in the aftermath of the incident as a lens through which to investigate the economic-political and biomedical context of the issue. I was influenced by Adrian Petryna’s investigation of the impacts of the Chernobyl incident, which showed the intertwining of post-soviet politics and medical practices in the Ukraine (Petryna 2002). I tried to get an idea of what the lack of attention paid to the residents’ chemical exposure had to do with Louisiana’s political economy. Many of the interviewees mentioned economic-political factors as strongly contributing to lack of attention paid to the crisis.

Initially, I had planned to spend my three-month stay in Louisiana as close as possible to the incident site. I wanted to stay in lower Plaquemine Parish, which was closest to the sunken platform, and get to know local fishermen in order to get an idea of how their lives had been affected by the spill. How did people react to the uncertainties produced by the spill? How did they cope with health issues as a result of the millions of gallons of dispersants sprayed to break up the oil? How did different actors produce medical expertise about the consequences? Already at home, I started

doubting this approach, since lower Plaquemine is only accessible by car and offers very little affordable accommodation. I concluded that it would be best to have an open approach at the beginning, travel to the site and see with whom I might make acquaintance. As the semester holidays began, I booked a flight and arrived in New Orleans mid-June, 2011, fourteen months after the spill had started.

In the first phase, I worked with the contacts that Al-Jazeera journalist Dahr Jamail had given me, after sending him the papers I had written in preparation for the research. In that way, I got to know some of the key players in the ongoing health crisis along the Gulf. They included Dr. Mike Robichaux, which is one of the few doctors who is treating people for chemical exposure; Cherri Foytlin, who had walked to Washington with a documentary crew in order to raise awareness of the crisis; and Marlee Orr from the Louisiana Environmental Action Network, who from an early start had fought for the health of clean up workers and residents.

After this first phase of focusing on interviews with affected and involved residents, I succeeded in making contact with a group of concerned New Orleans citizens, who had founded the group 'Emergency Committee to Stop the Gulf Oil Disaster'. The members of the group organized various forums and actions in order to inform affected people and give them an opportunity to speak. It was at one of their activities, at which they tried to confronted a local politician for his vote against the prohibition of oil dispersants, where I got to know civil lawyer Christine Breault, a middle-aged New Orleans resident. After an interview with her, she showed interest in joining me in my efforts to understand the processes and contradictions behind the health crisis. Through the collaborative work with Christine, I came to share her bias in the search for scientific and legal expertise about the incident. We enacted a fictive pre-court legal investigation, with Christine covering the lawyer, and I, the socio-cultural perspective. She collected evidence with her video camera, which she thought to use for a documentary and possible legal purposes. Through her influence, I realized the value of scientific expertise, which could be juxtaposed with the subjective experiences of fishermen and Gulf coast locals. Aside from conducting interviews, I attended various meetings related to the topic, joined rallies and received invitations by interviewees to get an idea of their everyday lives.

My work with Christine offered me the possibility to get valuable local insights into cultural and historical processes, which I might otherwise not have noticed. Through her work as a civil lawyer, which had included litigation for a Native American tribe's land claim, she had built up various contacts in the multi-ethnic Louisiana area. Her interest in collecting legal evidence about the case provided a fruitful contrast to my anthropological approach. Together we re-enacted a kind of Hegelian dialectic between my outsider, socio-cultural viewpoints, and her local, activist-legal perspectives, with occasional new synthetic insights. She emphasized the credibility of certain interviewees due to their certified expertise and tried to deconstruct how they argued. I tried to show the value of local, subjective knowledge against objectified, outside expertise.

After having spoken to, and accompanied, several people for a while, it became evident that there was a certain level of mistrust between some of them. Questions over who was supposed to receive money from the claims fund, who was a native local, or a 'opportunistic' outsider, a democrat, communist or republican supporter, exacerbated an already tense atmosphere, and prohibited people from joining forces. Sociology professor Steve Picou, who I had lunch with at Gulf Shores Alabama, had experienced similar effects in the aftermath of the Exxon Valdez catastrophe. He termed it a 'corrosive community', in that it wasn't able to overcome an outside threat because it had affected and altered the inner structure of the community itself (Picou 2009). Several interviewees termed other people – who I had mentioned I had spoken with, or was intending to – as profiteering or untrustworthy.

Nonetheless there were joint efforts on the part of activist groups and concerned citizens (many didn't like to call themselves activists) to raise awareness about the ongoing health and socio-economic crisis in the Gulf. That's how I got to know the work of the Gulf Coast Fund, who joined forces with community people in order to raise public consciousness and induce change. Thanks to their daily newsletter about activities related to Gulf restoration along the coast, they succeeded in bringing individual people together. I joined several of their co-organized activities, among them a rally against the one-year announcement of the federal government that 75% of the oil had gone. That's how I got to know more people taking action.

The longer I stayed in Louisiana, the more I became aware of the impact of Hurricane Katrina that was still affecting local people. Several people had explained to me that Katrina had been used as an opportunity to get rid of the low-income residents of mostly African American people. Since New Orleans had to be evacuated, the eviction was used to close public housing that was pulling down real estate values. Through unexpected insights like this, I started to understand that the value and strength of ethnographic research lies in being open to discovering those things one didn't originally intent to find. The unexpected enriches and challenges one's research in a creative way.

While helping Christine sort out the photos of a recently deceased friend, a social figure in the local African American community, I experienced the strange feeling of getting to know somebody unreachable. I got an idea of who he was, through the stories that Christine and her friends told me about him. It was an approach to somebody beyond reach. Nonetheless, his actions could still be felt. I also experienced this feeling with my research. The story of the oil spill and its aftermath was strongly characterized by invisible, or difficult to trace, impacts. People had been exposed while working in the clean up, while swimming in the Gulf, or by just being in the area, where contaminated air, water or seafood harmed them. Just because it wasn't visible anymore as a massive contamination with beaches covered in oil, striking one's eyes or nose, didn't mean there was no ongoing exposure, as chemist Wilma Subra explained to me. Residual oil in the water, and on the beaches in the sand and vegetation, continued to expose people. Not unlike radioactive radiation, the dispersed oil had become a hidden but ongoing threat to human health. This ambiguity was a challenge for ethnographic research. It meant considering how the ambiguous could be interpreted and approached by different people, according to the interests, emotions and methods used to assess them.

Another approach I initially tried was to build up relationships with local social anthropologists. Surely, I thought, some of them must have had the same, or a similar, idea as I did. However, besides sociologist Steve Picou, and folklorist Carolyn Ware, establishing local contacts proved to be rather difficult. Scientists were either bound to research contracts that didn't allow them to participate with outside scholars, or they just simply didn't reply to my request. Persistence turned out to be an important

method to building up contacts with local people, regardless if they were scientists, fishermen or activists. Besides asking my initial contacts for further people I could talk to, I also used Facebook, newsletters, emails, forums and telephone calls as a contact method. The diversity of this approach proved valuable in getting to know people with differing viewpoints and backgrounds.

To summarize the focus of this paper: I would like to understand/show how people handle the suffering and uncertainty of chemical exposure in the aftermath of the Deep Water Horizon oil spill. How do they perceive state and corporate power? Why is their suffering not treated properly? How do they themselves use their resources to contest power structures and gain recognition and help for their suffering? Why is the human right to health not complied with?

In the first chapter *Shrimp and petroleum: An ambiguous relationship*, I want to show how Louisiana has a unique relationship between two seemingly contradictory industries. Even though the oil industry pollutes the land and contributes to the erosion of the wetland and its culture, it is an integral part of the local social make up and is defended by local people, even fishermen. How can this relationship be understood? What kind of subtleties characterizes the relationship? How do subjects constitute themselves in this apparent disparity?

In the next section – *Petro-state citizens* – I want to understand the features of what Terry L. Karl terms a ‘petro-state’. High economic values of natural resources are juxtaposed with low levels of education, infrastructure and health services. This ‘resource curse’ gives an introductory explanation for the vulnerability of the population and the lack of opposition to the oil industry. I want to comprehend how subjects are constituted (and constitute themselves) in this socio-economic structure. Why does the government of petro-states not recognize that its actual value lies in the people and not the resources?

In the chapter, *The deregulation of industry practices*, I investigate the inappropriate measurement methods and laws in favour of the oil industry. Oil waste, which gets declared as non-hazardous, and beaches, which only close down when they’re contaminated with fecal coliform bacteria, but not oil or dispersants, show the strong pervasion of the local politics and jurisdiction with petroleum economics. Already

existing health problems related to the oil industry before the spill extend and complicate the issue. They show that ailments related to the petrochemical industry are not a new phenomenon. How can these lax environmental regulations be understood? What role do the grey areas of knowledge play, which get black boxed to the public?

In the section, *An illegitimate illness*, I want to show how illnesses related to the spill are characterized by ambiguous symptoms (flu-like symptoms, subjectively reported aches as headaches, abdominal pains, memory loss), which lack objectified, medical categories, and are subject to differing diagnoses by different physicians. Missing treatment protocols, and grey areas of knowledge, allow for the ignorance of chemical exposure as a diagnosis. What makes matters more complicated are chronic (long-term) and acute (instant) health impacts, which are difficult to link to the spill. The gathered information raises the question of how non-knowledge and ambiguous phenomena get interpreted and handled by different actors. There is political and scientific knowledge, which is intertwined (hybrid) and gets treated as either one of those.

The chapter, *Bio-politics between pastoral power and neoliberal governmentality*, offers information about notions of governmentality and responsibility in situations of crisis. The lack of response in the aftermath of Hurricane Katrina, and the oil spill, shook many Gulf coast residents confidence in the federal government. The notion of the government as a 'shepherd' taking care of its people was strongly contested. The oil spill and its response confirmed for many people, that disaster response was biased and people had to rely on themselves. Whereas some people in the wetlands were used to helping themselves – even favouring non-involvement – others relied on and demanded a strong state response. Questions raised parallel debates of state involvement or non-involvement and a 'new pastoral mode'. I want to understand what role the perception of the state, and the state's ruling, played in the aftermath of the spill. Several people stated that they went swimming in the Gulf, and ate seafood because the government said it was safe to do so, and even encouraged them. The ten-year study to monitor the health of clean up workers (without any treatment being implemented) reflects a bio-political attitude of the government to first statistically

assess a phenomenon, before action is taken. What insights can be gained by critically juxtaposing the concepts of ‘bio-politics’ and ‘neoliberal governmentality’?

The section entitled, *Public portrayal and personal impacts: creating alienated people* shows how the public perception of the situation influences the reality of the people affected. The story goes that everything is back to normal. British Petroleum quite successfully ran a big media campaign assuring the recovery of the situation and its impacts. This leads to great despair among the affected. Some start to feel that they’re crazy. How do subjects constitute themselves in this disparity between public account and personal experience? How does the discourse of recovery manifest and influence the reality it describes?

The last chapter, *Biological citizenship and the human right to health*, discusses the ongoing fight for environmental and health-justice along the Gulf coast. After going to doctors and being treated with rounds of antibiotics (and being dismissed when mentioning oil or dispersants), people started having themselves independently tested for chemicals in their blood. The ‘Metamatrix’ test, which many interview partners mentioned to me, or showed me, is not taken seriously by most physicians, because it’s not established in the medical community. Some physicians argue that the VOCs (Volatile Organic Compounds) found by these tests are not related to the spill, since they degrade in the body very quickly. The affected people were contesting medical expertise, which made no connection to the incident, by forming partnerships with the few experts who took them seriously. American ethics of self-responsibility were being juxtaposed with the human right to health, based on the own status of a biological damaged integrity.

2. Petro-state politics

2.1 Shrimp and petroleum: An ambiguous relationship

We're a very mixed, intertwined community between the fishing and the oil field industry here in Plaquemine's. Not a lot of other places, but in Louisiana it is. Half of our friends and family is in the oil industry and half of our friends and family is in the commercial or recreational charter fishing industry. [...] Most of our guys work seven and seven [days]. If say their dad is in his sixties, seventies, eighties, working on a boat and his son works seven, seven, then maybe he will work the seven offshore and then when he comes in he gets his dad and they go on the boat and work seven on the water. – Kindra Arnesen

Marlyee Orr, founder of the Louisiana Environmental Action Network (LEAN), invited me for an interview at her office in Baton Rouge. I had seen her on videos displayed on their website, advocating for the rights of exposed clean up workers and residents. People affected through the spill contacted her, and eventually she started to get specialists, like chemist Wilma Subra and Dr. Mike Robichaux, involved. When I arrived at her office, she also brought her two sons Paul and Michel Orr as additional experts. They also worked for LEAN. One of the topics discussed extensively was Louisiana's unique relationship between the fishing and the oil and gas industry. Michael Orr found a very compelling explanation for the relationship between these seemingly incompatible industries. He explained:

If you don't grow up here, you don't like to see the way everything is so intertwined. It's almost impossible. If you were to explain to somebody on paper in words, it does sound crazy. I went to high school where the most popular kids are family of somebody who runs an industry or make a bunch of money out of industry. I go to a college that is mostly funded by state and industry. People don't realize that it's everywhere. It's kind of like if you had a dad, who did something you didn't agree with, but they were still providing for you. Maybe he's going to beat you, maybe he's going to do whatever, maybe you will hate him, but you will never cut ties and say... You'll always have to rely on them.

When talking with the French-German teacher Robert Sullivan, who has lived in Louisiana all of his life, and who had taught many Cajun people¹, he told me of the romantic depiction Acadians as he had of early life in the Bayou (the lower Mississippi-River wetland). The life ‘down the Bayou’, as locals liked to say, was as unique as its setting. In early times, it was characterized as a state of nature. Hard subsistence work of fishing, shrimping, crabbing and farming characterized their way of life, which was repaid by an unusually fertile land. The nutrients of the Mississippi river – which had been washed down hundreds of miles – had created riches and a diversity of flora and fauna that were unprecedented. (Until the spill, Louisiana produced half of the shrimp consumed in the US.) In this idyllic environment, some Acadians had settled in the mid 17th century, after being exiled from Canada during the French-British war. During that time, Louisiana was ruled by the Spanish, who had purchased Louisiana from France in 1763. Prior to the French and Spanish colonizers, the coastal areas of Louisiana had been inhabited by Native Americans, who were pushed to the edges of the marsh as settlers arrived. After the civil war, freed African Americans also settled in various locations along the coast. As the turmoil of ethnic conflict was diminishing, a new kind of colonizer started to began to take interest in coastal Louisiana: the oil industry.

Mr. Sullivan told me of the black and white movie, ‘Louisiana story’ (US 1948, R: Robert Flaherty), which I had watched prior to my departure to Louisiana. It depicts life in the Bayou before and during the arrival of the oil industry. He thought that the film was uncritical of the oil industry, and was a form of early propaganda. The film portrays life in the Bayou from the viewpoint of a young boy, who is shown having fun with fishing, teasing alligators and playing with his frog. When the first drillers arrive, he and his family approach them with curiosity and friendliness. They show them an alligator skin while driving past the rig one day, as proof of their allegiance with the environment. The relationship is depicted as respectful and harmonious. However, the dispossession and displacement of subsistence groups due to the encroachment of the oil companies isn’t addressed at all.

¹ Cajuns are an ethnic group mainly living in the U.S. state of Louisiana, consisting of the descendants of Acadian exiles.

Toady's relationship between fishing and oil is characterized by an intertwining of the two industries. Every year, the weekend before Labour Day, Morgan City celebrates the 'Shrimp and Petroleum festival'. It's a celebration of their two major employers. Both operations are characterized by the 'extraction of natural resources'. The two industries are not perceived as opposing each other, but as complementing lifestyles, that both are dependent upon a natural functioning environment. People working in the oil and gas industry, along with fishers and shrimpers, work alongside each other as friends in southern Louisiana: it's not uncommon for some people of one family, or even individuals, to work in both industries. However, among many who grew up in the Bayou, there seems to be a preference for the fishing industry over oil work. Several people told me of oil workers abandoning the rigs during shrimping season.

What did the introduction of the oil industry mean for the work ethic of people living in the Bayou? It not only meant a new relationship with an industry, but also a challenge to a life ethic. Before the arrival of the oil industry, most Cajuns led a subsistence life. With the industrial oil economy, issues like wage work, efficiency and notions of property were challenging an un-commercialized work ethic of subsistence living. How did this change take place? One of the explanations lies in the need of oil companies to own the land on which they are drilling (or have the approval to do so). Native American, Clarice Friloux, told me how her ancestors had been deprived of their land in the 1930s, because of its oil wealth, and were pushed to the peaks of the bird foot delta. Civil and environmental lawyer, Joel Waltzer, explained to me how notions of possession had been a very grey area for the Native Americans living in the marsh from the very start. Only when the first oil companies arrived was their right to the land questioned on the basis of lacking written documentation that would prove their ownership going back to 1805. The practice of private investors to file land claim lawsuits in downtown New Orleans against the Native Americans – who often didn't have any knowledge of these claims – depicts the absurdity of different notions of rights and ethics opposing each other.

Subsequently, the groups of subsistence living fishermen were forced to adapt to the logic of political economy. Fish and shrimp are still caught for personal consumption,

however; the need to pay for school fees, medical bills and other services and comforts of an industrialized society, make the trade for money a necessity.

Christina Peterson, researcher at the Centre for Hazard Assessment at the University of New Orleans, invited me to a presentation on the impacts of Hurricane Katrina for geography undergraduate students. The first lecture was held by geographer Richard Campanella on the causes and effects of the flooding of New Orleans. He explained how the building of levees after the great flood of 1927 caused the settling of sediment of the Mississippi river to stop. The sediment played an elementary role in the functioning of the marshland, which delivered the necessary foundation for the creation of the Bayou's fauna. By stopping the Mississippi from flooding the marsh, the vegetation was made vulnerable for the intrusion of salt-water. Another important role was played by the oil and gas industry: Campanella showed a map with all the service-canal that were built for the oil and gas industry, permeating the marshland like a tight metro system. These canals allowed salt water – which enters the Bayou via the coastal line – to intrude much more quickly and effectively than an intact marsh had allowed. The salt water destroys the reed's flora and fauna and leads to an erosion of the soil, which gets stabilized through the reed plants. As a result of this, wetland the size of a football field would vanish into the sea every half an hour. With the erosion, not only do the marshes' fauna and flora face extinction, but also the culture and people living off the land. AC Cooper, vice president of the Louisiana Shrimping Association, explained to me on his shrimp boat:

The worst part is: we're fixing to lose our heritage, we're fixing to lose our culture, we're fixing to lose something I can't teach my kids to do or they can teach their kids to. We're going to lose something in that country that you can't just bring back over night. This is hundreds of years it took to get to this point. Everything works and revolves around what your ancestors knew and brought down the chain. Now the turn is on us, and it's on us in order to do what's right. I feel this is the breaking point. Right now, we're at a breaking point. Either we're going to survive or we're going to go under.

Tidwell (2003/2010) describes the erosion as something of an oversized scope, in that the people living off land were actually grasping its dimension. Even though they

were witnessing how cemeteries, telephone posts, and parcels of land were vanishing into the water before their eyes, many couldn't attribute it to a massive change in the wetland's ecosystem. How could nature's system, which had provided for them for centuries, turn against them?

The oil catastrophe was another knife in the back of an already crippled ecosystem. Biologist Linda Hooper-Bui showed me oiled spots of marsh, when taking me out on excursion into the wetland. The oil was depriving the plants of their capacity to perform osmosis and photosynthesis. She took a section of the oily marsh and showed me how unstable the soil had become, decaying in her hands. The next time she would come here, she pointed out, the front part of the marsh will have vanished into the sea.

What was needed was to allow the Mississippi and its sediments to re-flood the marsh and enable the fauna to build up again. However, the diversion projects presented at the 'Getting the water and the jobs right' forum, were not falling on sympathetic ears for many locals. In particular, oystermen were opposing the projects, since the water diversion threatened the functioning of their oyster farms. The oysters required brackish water – a specific mixture of salt- and fresh water. The water diversion would shift that balance to unfavourable conditions. They argued against the project, stating that they felt their opinion and local knowledge was not included by the outside engineers: "What if I went to your backyard?" was a phrase heard numerous times, expressing the despair and anger against outside expertise and projects being imposed on local communities without including them.

People were reporting an increase in domestic violence since the spill. The disruption of the subsistence lifestyle in the marsh because of the moratorium, which had destroyed the 2010 fishing season, had led to an increase in drug abuse and domestic violence. Unjust payments of the claims fund were dividing communities and producing new hardships for the already challenged fishing communities, which were suffering from cheaply imported seafood, which was pushing prices and incomes down. The symbiotic relationship, between the fishing and oil and gas industry, began to reveal a power imbalance between them. One woman explained how one of her best friends, who she had known since childhood, had stopped talking to her since she had begun to speak up against the oil industry. Another talked about her feeling of

divisiveness she felt since the spill. Living off seafood bargaining, she no longer felt comfortable with her job, since she felt that the food she was selling was contaminated. Never before in her career, she said, fishermen had to sign a disclaimer proving the cleanness of their seafood, without the possibility of testing it.

Different from Sawyer's (2004) study about the impacts of a transnational oil company on indigenous culture in Ecuador, in Louisiana, the oil industry didn't take the role of an outside perpetrator, intruding into the politics and culture of the people. It had already been in the communities for approximately ninety years, making up an integral part of the social environment. Sawyer describes the oil company, Texaco, as deliberately fostering division among indigenous communities in order to weaken opposition against their drilling projects in native territory. The oil company ARCO (Atlantic Richfield Company) is described as being able to define land grants for itself together with state authorities. In Louisiana, most people – even if negatively impacted by the industry – defended the oil operations as one of the major employees of the state. The six-month moratorium for deep water drilling, which president Obama implemented after the accident, evoked great resistance among Louisiana oil workers and their families. One compelling short film by the Offshore Marine Services Association (OSMA 2011), which operates transportation, services and maintenance for oil companies, portrays the Gulf drilling moratorium as the second man made disaster in addition to the spill. Since new deep water drilling permits are very hard to get and application periods were extended, OSMA sees the moratorium – which was issued for six months – as *de facto continuing*. According to its depiction, oil companies specialized in deep water drilling changed location to places like Brazil, and with it the jobs created by the industry. Around 13 percent of Louisiana residents are employed by the oil industry. That is around 330'000 people (Buchanan/Gordon/Singerman 2011: 13). Thousands of them gathered in the Cajundome of Lafayette on June 21st 2010, at the 'Rally for Economic Survival'. At the gathering, oil representatives and politicians spoke up against the moratorium, condemning the unemployment caused by it. They argued in line with judge Martin L. C. Feldman, who had invalidated the moratorium with a controversial decision at the Louisiana United States District Court on June 22. Feldman had stated that the blanket moratorium applied a biased expertise in declaring all rigs drilling at a depth

of more than 500 feet an imminent danger, acting disproportionate in relation to the nearly 4,000 active oil rigs in the Gulf. The White House immediately appealed the court decision. It reissued the suspension on July 12th (Savage 2010).

For the people attending the gathering, an attitude of pro-oil and pro-environment didn't seem to exclude each other. Cherri Foytlin – who I will tell more about in chapter 3.4 – gave an arousing speech about her family's hardships since her husband had stopped working on the oil rigs because of the moratorium. She also spoke up for the hardships of a subsistence lifestyle at danger and an ecosystem crippled by the spill. For her and many others, the fishing and oil industries seemed to be siblings rather than rivals (Credeur 2012). However, not everybody was sharing the opinion that oil and water do mix in Louisiana. Kindra Arnesen had been living in Plaquemine's Parish all of her life. She was in her mid-thirties, was married to a commercial fisherman and had two children. Even though she agreed that people working in both industries were an intertwined community, especially in Plaquemine's Parish, she disagreed what job opportunities concerned. She explained:

It's really hard to get on with the oil industry if you're actually living here at the age of thirty. Very, very, very difficult. There's such a thing called hot sheet. They would rather bring someone in from Alabama and Tennessee and Missouri and Michigan and people from all over the country come here and work in the oil industry. Our own young men that are here in our parish cannot get a job in the oil industry. Most of our people here that do work in the oil industry, have been working since [being] seventeen years old with a work release. Most of the people that are working out here in the Gulf are not from here. [...]

Some of it I can understand from the perspective of a business owner. Say you hire ten people from here. Say two of them want to really work in the oil industry. You've got those two but you spent the money to train the ten. When shrimp season rolls around, eight of them leaves and go shrimping. That's the main reason why they don't hire young men from here. [...] You have to think about it from their perspective too. Still in all, we do have young men here, that want to pursue a career in the oil industry and they can't get a job.

2.2 Petro-state citizens

The pump does not know when midnight comes.
Days are the same to it. Each day, every day, it
brings us another 24 hours of progress. Building
our nation. Guarding its security. Assuring the
future of America.

Oil commercial (Gelpke, McCormack 2006)

Karl (1999) describes the political economy of countries strongly dependent on oil production and exploration as a modern version of the Midas myth. The story depicts the fate of a King who wishes that everything he touches turned into gold. Subsequently, he is no longer able to survive, because he can't even drink and eat. One of the major characteristics of a petro-state is "the over-reliance on oil revenues as a mainstay of virtually all economic activity, which tends to put the needs of the oil industry above everything else" (Karl 1999: 34). The access to easy revenue lowers traditional work ethics and diminishes incentives for a sound entrepreneurship. Importantly, the focus on immediate resource extraction subverts the incentives for taxation. Strong reliance on resource extraction coincides in some states with modern state building. This often leads to strong mutual dependence of private and public actors. The dependence on the revenues of the oil industry for all economic activity tends to put their needs above everything else. Karl (1999: 37) characterizes economic power and political authority as strongly dependent on extraction rents and the distribution of these rents internally. This leads to a strong linkage of economic and political power. She states: "revenues pouring into a highly-concentrated structure of power leads to further concentration and they encourage rentier networks between politicians and capitalists" (Karl 1999: 37).

Even though Louisiana only gains 0.00002 percent of its gross state product from oil revenues, and there officially doesn't qualify as a petro-state, I argue that it non-the-less displays some of the characteristics described as the 'resource curse'. I base this statement on the fact that Louisiana employs 13.4 percent of its citizenry in the oil and gas industry (Buchanan/Gordon/Singerman 2011: 13).



Oil refinery along the Mississippi river between the Port of New Orleans and the river mouth. Source: <http://james-brandon.com/tag/oil-refinery/> [17.4.2012]

What kind of citizens/subjects do such state structures help to shape? How do people constitute themselves? How is the relationship between what I will call ‘petro-state citizens’ and the state characterized? What attributes are in play with each other in this relationship?

When attending the ‘Rising Tide VI’ forum in New Orleans, I witnessed a panel on the present and future impacts of the oil spill on Louisiana and its people. Journalist Bob Marshall – seated behind a long table with four other experts on the spill – expressed his cynical feelings towards the role the oil industry played in Louisiana, and how it was connected with local people and their attitudes. From his viewpoint, the accident and its impacts were not only the result of lax regulations, and an oil industry, which ruled great parts of local politics. More importantly, the people of Louisiana elected the representatives who worked in favour of the oil industry. He called it “a dysfunction of this society, of people who live in this state” that for some reason, people seemed to work against their own best interest: “a key question whether the coast gets fixed, whether the oil industry is ever made responsible, is if

there is a conservative who can say ‘I can be pro gun, pro life, pro bible, and pro environment’” (Berry 2011).

This practice of disconnecting politics from citizen’s election habits is characteristic of what Callon/Latour (1981) call “macro structuring of reality”. According to their model, macro actors like governments and multinational corporations are not really more sophisticated than micro actors. They merely succeed in conveying that depiction. Callon/Latour (1981) argue that governments and multinationals build part of people themselves, from which a majority agrees upon the acting of the macro actor. Through social contracts and the use of notions produced by macro actors, which are not questioned, a macro actor is created. These pre-givens, like “conservation is bad for the economy and jobs” or “free markets make it better for everybody” allow macro actors to convey information as sound truth, even though they construct and black box it themselves. This practice allows macro actors to become *leviathans*, which do indeed acquire and possess more power than micro actors. Environmental scientist, Paul Templet, explained the ability of macro actors to gather and direct opinions and behaviours of micro-actors with the analogy of ‘they drink each others bath water’, or as ‘Drinking the Kool-Aid’. According to this notion a corporate mindset influences the micro actors behaviour. Templet explained:

They develop a mindset and that mind set characterizes ‘They’re drinking each others bath water’ [Drinking the Kool-Aid]. They’re telling each other things all the time, that reinforce the idea ‘you’ve got to be loyal to the corporation’. That’s the way corporations turn out. Somebody once said: It’s very hard to get a man except something that will threaten his job. To accept information that might threaten his job. They’re not going to believe me if I say there’s chemicals in the water that people are affected by. Oh, he’s just one of these environmentalists. They build these barriers around their heads and it’s hard for anything to get in. That’s why people in the US don’t believe in climate change.

Louisiana has all the characteristics that are typical of a state suffering of the so-called ‘resource curse’. Despite high economic values in resources like oil and gas, Louisiana is one of the poorest states in the country. Public infrastructures and services are rated at the bottom. Public schooling is of low quality, as I personally

witnessed on a press conference in downtown New Orleans, where Vietnamese and African American high-school students expressed their despair about low teaching quality, missing infrastructure and high crime rates (VAYLA-NO 2011). Louisiana also had a “historical burden of health disparities”, as Dr. Maureen Lichtveld of Tulane University’s Environmental Health Sciences Institute explained to me. “We – whether it is Mississippi or Louisiana – we rank last on most of the health indicators. You can look at infant mortality, you can look at diabetes, or hypertension, we rank last or next to last. That’s a health status burden that you have.” This burden was not simply linked to the shortcomings of a petro-state, which doesn’t recognize its people as the wealth it should invest in. Louisiana and the other states of the Gulf’s south had a long history of inequality and economic abuse. Leland (2009) describes the relationship between the northern- and southern United States as one of core and periphery, according to Wallersteins ‘world system theory’. The periphery is caught in a dependence network with the centre, delivering it raw materials (like oil and seafood in case of Louisiana). The dependence network keeps the periphery purposively ‘under-developed’, assuring through it subjugation the supply of cheap resources.

The correlation between economic incentives made for corporations in petro-states, and the increase in poverty, has been shown by numerous studies. Paul Templet – head of the Department of Environmental Quality (DEQ) of Louisiana from 1988 until 1992, investigated the correlation between the externalization of production costs – in the form of environmental pollution – and the effects this externalization practice produced on public welfare. Contradicting the expertise of politicians and industry, which argue that pollution control will lead to a decrease in available jobs, he shows that industry practices that respect environmental needs actually produce new job opportunities. Subsidies paid to industries in order to give them local incentives enable them to “appropriate de facto property rights to natural capital” (Templet 2001: 16). He continues to explain the negative impacts industry subsidies and the possibility to externalize pollution have on local populations:

Communities may be left with a “company town” syndrome. They grow poorer, more polluted, more subject to boom- and-bust cycles, and more dependent on the

industries that are reaping the benefits. As concentrated wealth fosters concentrated power, public policy embraces subsidies even more. The result is a spiral of public and ultimately private decline. Although corporations can eventually pick up and go elsewhere, the public as a whole cannot (Templet 2011: 16).

This insight highlights one of the central problems of petro-state politics and their influence on people's lives. The main focus of interest lies on the extraction of resources and the resulting incomes. The extraction time is usually limited and with it the incentives to spend on local infrastructure and the education of local people. The population itself is not seen as the power and wealth of the state, but natural resources are. Because of this attitude, the government doesn't see the necessity to invest in the education and welfare of its population. The few specialists necessary for the operation of the technical facilities are usually imported from the outside. While some people recognize the hardships produced by this logic, others attribute the resulting poverty to the lack of a will to work and be 'entrepreneurs of the self'.

Subjects are constituted in a structure that offers little opportunities for them to acquire higher qualifications. Low levels of education facilitate the implementation of policies and practices with positive industry profits, and negative impacts for the public, without much counter-action taken. The 'petro-state citizen' is one who has to make great effort him-/herself to secure basic necessities, without state institutions looking for equality for the financially less well-off. Put figuratively, the petro-state citizen is the tool, which enables the existing wealth to be processed. The individual isn't seen as constituting the wealth itself. The American notion of the 'entrepreneur of the self' doesn't recognize unequal exit criteria for different people. Despite well-established facts about unequal education possibilities and medical care in different social strata, the story goes that everybody has the same possibilities for self-fulfilment. These conditions produce subjects with high levels of frustration, because their personal aspirations can often not be fulfilled in the real-world possibilities they encounter.

This tension between personal desires and actual possibilities to perform one's self are well portrayed by what Paul Farmer (1997) calls *structural violence*. Structural violence designates injustices, which are exercised upon individuals through established and institutionalized structures of power and suppression. The suppressed

are not able to perform their aspirations in any meaningful way. The concept is closely linked to the notion of agency, which emanates from subjects, who are conditioned in the way they act, or perform an action. The idea that “the things they do are in some sense determined by the ways in which their identity has been constructed” (Ashcroft/Griffiths/Tiffin (2007: 6) refers to a form of *internalized oppression*, as a result of structural violence. This means that oppressions like the inability to acquire any higher education because of a lack of financial means, or health care for ailments, can lead to an established form of self-questioning of the affected. The causes for the problems and shortcomings are not looked for in the societal context but in the behaviour of the affected person. Injustice gets attributed to the own imperfection and lack of skills. The inability to live up to the expectations produced by notions like the American Dream are seen as entirely self-inflicted.

Dr. Robichaux explained lack of opposition to the injustices produced by a free market economy, and corporate rule as a successful propaganda of liberal ideologies: “They’ve been propagandized so successfully that they fight against their own best interest. Taking up for the oil and gas industry isn’t helping anybody here. It’s hurting them.”

As I was on my way back to New Orleans from a meeting with Dr. Robichaux and two of his patients, I took a wrong turn and found myself – as I realized later – on Louisiana highway one, driving north instead of northeast. The sun was setting down and I drove through the dark forest countryside. I started to feel more and more lost. I asked some people at a gas station for directions, and they told me to drive right, over a bridge, and then right again. After driving over a bridge, which raised up high over the underlying wetland, I saw a cluster of lights in the distance, which looked like the skyline of a big city. I thought I had finally made it back to New Orleans. It took me some more minutes of driving, with the lights coming closer, and the objects taking clearer shape, to realize that what had looked like the lights of a city skyline was in fact a gigantic oil refinery, with its lightened processing towers rising up into the sky like skyscrapers. A chill overcame me when realizing that instead of the thousands of people in a big city – despite some surveillance personnel – there would be no one in this big industrial giant.

The symbol of the deserted oil refinery at night illustrates the ambiguous relationship of petro-states towards their citizens. Even though the state acknowledges the work force of citizens in the harnessing and processing facilities of the oil industry, it doesn't seem to perceive the population as the actual wealth of its territory. This is the opposite of what Foucault describes as the aim of Mercantilist economic policy:

[...] for the mercantilists [...] the population was no longer simply a positive feature that allowed it to appear in the emblems of the sovereign's power, but appeared within a dynamic, or rather, not within, but as the very source of a dynamic, and of the dynamic of the strength of the state and sovereign. The population is a fundamental element, that is to say one that conditions all the others. [...] In short, it requires an apparatus that will ensure that the population, which is seen as the source and the root, as it were, of the state's power and wealth, will work properly, in the right place, and on the right objects. In other words, mercantilism was concerned with the population as a productive force, in the strict sense of the term (Foucault 1978/2007: 96-97).

The economic policy of the petro-state seems to be preoccupied with the welfare of the resource industry itself, which – despite bringing wealth to some of its population – leaves vital parts of the populace abandoned. The awareness that a well-educated and skilled citizenry brings economic, social and political advantages to the state as a whole, is not realised. Cherri Foytlin, who has rallied for social and environmental justice since the spill had affected her family, realized this fact resignedly, when stating: “It's going to take people understanding that they're the natural resource being exploited here. We're what's being lost. That's what people don't understand.”

2.3 The deregulation of industry practices

As the petrochemical area grew and grew, warning signs emerged that some of these chemicals could pose hazards. The data initially were trivial, anecdotal, but gradually, a body of data started accumulating, to the extent that we now know that the synthetic chemicals which have permeated our workplace, our consumer products, our air, our water, produce cancer and also birth defects and some other toxic effects. – *Samuel Epstein* (Achbar/Abbott 2003)

How does the state present nature in its representations? What intentions lie beneath the way state knowledge is produced and subsequently its intervention into society? How are regulations defined? What processes of knowledge production lie underneath the official account of phenomenon?

Scott (1998) describes the state bureaucracies depiction of nature as strongly simplifying and abstracting. Complexities and the processual nature of phenomena are downplayed, enabling easier manipulation and intervention. Scott argues:

Certain forms of knowledge and control require a narrowing of vision. The great advantage of such tunnel vision is that it brings into sharp focus certain limited aspects of an otherwise far more complex and unwieldy reality. This very simplification, in return, makes the phenomenon at the centre of field of vision more legible and hence more susceptible to careful measurement and calculation. Combined with similar observations, an overall, aggregate and synoptic view of reality is achieved, making possible a high degree of schematic knowledge, control, and manipulation (Scott 1998: 11).

Scott (1998), therefore, builds on Thomas Hobbes' notion of a strong intertwining of knowledge and power for a government and its interventions into society. The simplification of complex realities builds and depends upon the internalization of the rationalities through individual actors. When the individual citizen internalizes these rationalities, they become definitions, which manifest the reality they describe. The

'chaos' and illegibility of nature is made governable and understandable through its pre-interpretation. The actual understanding and handling of a problem is complicated through the simplification process, since complexities are downplayed and denied. The public presentation of a phenomenon responds and transforms the actual problem, because it's approached according to its represented pattern. The state bureaucracies do generally not perceive local knowledge and expertise.

I was talking to Paul Templet, professor emeritus of environmental sciences and former head of the Department of Environmental Quality (DEQ), in the student union building of Louisiana State University. Early on in the conversation, he turned out to be a real expert on petroleum politics in Louisiana. Templet occasionally figured as an environmental expert in court cases, taking the position of citizens/institutions that were affected by industrial induced exposure. He explained to me how pollution measurement thresholds – set by the Department of Natural Resources – were so high that no effect could be traced from testing results. The approved exposure levels for oil waste were determined on the acute effects on plants, which were excessively higher than those for animals. That's how categories like Non-hazardous Oilfield Waste (NOW) could be established (Robichaux 1998). Louisiana had one of highest cancer rates in the country. The belt along the Mississippi river between New Orleans and Baton Rouge, where several oil manufacturing facilities are located, is informally termed the *cancer alley*. Templet explained these inadequate regulations with the power of the oil industry, a poorly educated, mostly inactive citizenry and agencies, which implemented non-alarmist policies towards environmental issues. He added that the oil industry did *client capture* of state and federal agencies that were supposed to regulate them through campaign distributions and lobbyists. He ascribed the regulatory agencies a logic of clear separation between humans and nature, denying any perception of people as part of nature. This conception corresponds to what Latour (1998) explains as a notion of nature, which gets constructed through the methods of experts, presenting it as uncontested, objective truths, despite its constructivist nature. The power of expertise in this context derives from the claim to have unrestricted access to a nature perceived as unbiased by expert interpretation, and the methods and models applied to interpret it. The clear separation between

humans (culture) and nature led to the black boxing of any health impacts of the oil industry operations on humans. Templet explained:

They [the Department of Natural Resources] have a set of regulations, it's called 29B. But it's written by the oil industry, you have memos in the oil industry saying that and it's based on the effect on plants. The standard is set on the acute effect on a plant. [...] In environmental rules we base our standards on cancer. Generally cancer is the impact. You do the calculation and come up with a standard based on toxicological data. It's for chronic cancer. Environmental standards tend to be fairly restrictive. But if you base your standards on the acute effects on plants, imagine how much barium you have to put on a plant to kill it; it's an enormous amount. It's either 20'000 or 40'000 parts per million, if you're in a lowland or upper environment. The health-based standard is 550. There's an enormous difference. That's one of the reasons why the oil and gas industry gets away with murder in Louisiana. They put the regulations in and the control the agency, the DNR [Department of Natural Resources], which is supposed to regulate them.

Environmental lawyers, Monique Harden and Natalie Walker, from 'Advocates for Environmental Human Rights' explained that the regulations for the oil industry were based on their existing operations. The incentives for the industry went so far as to enable oil companies to actually make the population they decided to operate in pay for their facility and equipment. This was done through a provision of local governments, who provided these favourable conditions because of lobbying. Another incentive was the relief to pay property taxes for ten years, if a capital investment into the facility or company was made. This practice was going back to the 1920s and 1930s, when the oil companies were seen as a desired boom to the local economy. Walker explained:

These environmental laws that these industries complain are so repressive and so in their way, what they are really saying is: we want to operate like we do in Nigeria. That's what they're really saying. [...] Their regulation is based on their existing operations. Our environmental laws do nothing but codify what they already do and exempt oil field waste from being treated like a hazardous waste. [...] When you're looking at lobbying power in the constitution of the state of Louisiana, there's a

provision that allows a local government like a city [...] or parish government to go into debt to buy equipment or the facility for an industrial company.

Connecting Harden's insights with Scott's (1998), one can see the logics of simplification and abstraction rendering environmental impacts invisible. By equating existing industry practices with state regulations, environmental impacts of petrochemical plants were reduced to an oversimplified logic of non-existent impact. Ann Rolfes, founder and president of the Louisiana Bucket Brigade (LBB), agreed on an interview in her office in New Orleans. Ann had been raised in Lafayette, Louisiana, where the oil industry played an important part in local politics and the economy. But it wasn't until Ann worked as a Peace Corps volunteer in Togo that she started to realize the scales of destruction produced by oil extraction and refining. After spending six years working on Nigerian issues related to oil, she returned to Louisiana to found the Louisiana Bucket Brigade in 2000. Rolfes is focusing on the hardships of so-called *fenceline communities*, that is: people "that live next to a dump, refinery or chemical plant in the state for more than 10 years" (LBB 2012). When confronting her with the idea of strong deregulation – regarding jurisdiction and economic incentives – of the oil industry, she objected:

It's not exactly deregulation; there has been no regulation. If you look at – apart from the health subject – the rules of operations of refineries and oil rigs: they weren't adhering to a lot of things they were supposed to be adhering to in a permit. It's not about deregulation; they're not enforcing the laws that are on the books now. Regarding emissions and accidents, the laws are not being enforced.

Fortun/Fortun (2005) explain that of the 85,000 chemicals authorized for use in the US, only a small fraction have been evaluated for toxicity. The common practice is that something has to be declared as hazardous in order to become regulated. As long as substances aren't proven hazardous, they aren't regarded as potentially dangerous to health. Therefore, it is a common practice to expose people to chemicals whose effects aren't fully known. An additional problem is that the regulatory agencies such as the FDA (Food and Drug Administration) receive their data about the chemical compounds from the manufacturers themselves, which hold trade secrets over their

products. That's why independent testing isn't common practice. The reliance upon the chemical industry to regulate itself, because of a lack of knowledge on the government side, constitutes a politics of non-knowledge.

Chemist Wilma Subra was a pivotal figure in the contestation of industry practices in Louisiana. She worked together with Marylee Orr from LEAN, and had taken the side of the communities affected by chemical industries numerous times, using her scientific expertise. Subra saw the outcome of the spill as connected to industry favouring jurisdiction, which declared oil and gas waste (and consequently oil spills) as non-hazardous. She explained to me:

At the national level, oil and gas waste are regulated as non-hazardous. If you analyze a sample, forty to seventy percent of it analyzes as hazardous. But at the national level, down to the state level, it's regulated as non-hazardous. When you start looking at the oil and gas industries and the impacts it's having on the environment and human health in all the states, it's having a huge negative environmental and human health impact. The BP spill demonstrates how you don't have control and you just lose control when you've a spill of this magnitude.

How can oil and gas waste be declared non-hazardous at a national level? Brickman/Jasanoff/Ilgen (1985) did a cross-national comparison between regulatory policies in European countries and the United States. They open their book with the insightful remark that industries confronted with expensive legal obligations tried to diminish the level of state intervention by strengthening their efforts in influencing public authorities: "In little more than a decade, these activities changed the face of regulatory policy and politics in every industrialized country" (Brickman/Jasanoff/Ilgen 1985: 19). In their study, they compared state structure, legal tradition and the functioning of scientific institutions. Concerning American regulatory policies, they see a tradition of pluralist policy with the tendency to a *laissez-faire* method of industry involvement in policy making.

Their study also devalues the role of science in regulatory procedures. Because of massive unknowns regarding chemical risks, the power of science as a harmonizing force is diminished in favour of "political manipulation of the objectives and results of scientific research" (Brickman/Jasanoff/Ilgen 1985: 25). They claim there was a

paradigm shift in the presumption of safety to the proof of non-hazardousness in regulatory practices. However, this new habit of proving the safety of substances before their approval for commercial use seems to be highly ambiguous. The authors state that except in England, governmental agencies were responsible for both identifying hazards and formulating control measures. This practice appears to have several disadvantages. First of all, there is the sheer amount of synthetic chemicals in use. With the implementation of the Federal Environmental Pesticide Control Act in 1972, the EPA (Environmental Protection Agency) was supposed to reevaluate 35'000 pesticide already on the market. Second, there are economic impacts, which are supposed to be considered when enforcing regulation. With the passage of the 1976 Toxic Substance Control Act the EPA was supposed to consider impacts of regulations on the economy, small business, and technical progress. Third, the laws vary whether the hazardousness of substances has to be demonstrated scientifically, or if it is sufficient to show that it is reasonably probable that these substances cause human health impacts.

Concerning the Deep Water Horizon incident, the federal Mineral Management Services (MMS) was accused of corrupt alignment with the oil companies, which allowed them to *de facto* undergo environmental and safety regulations. It was renamed the 'Bureau of Ocean Energy Management, Regulation and Enforcement' (BOEMRE), to break ties with its unfavourable past (Environmental News Service 2010).

Native American Clarice Friloux had lived in Grand Bois in Southern Louisiana for many years. There was an oil waste site facility next to her village since 1985. In 1994, Exxon started to dump excessive amounts of chemicals into the facility, 81 truckloads in one year, into the uncovered pits. Nearly everybody in the community got sick, suffering of headaches, nausea, sore throats, skin rashes and nose bleeds. The same symptoms people started experiencing after the spill had happened. The community started demonstrating in front of the Baton Rouge capital, demanding the governor to shut down the facility. With the help of local leaders the community challenged the company in trial, demanding adequate protection from the facility and redress for the people sickened. When tested by a toxicologist, three out of four Grand Bois residents showed damaged red blood cells, caused by heavy metal

poisoning. However, the evidence presented by the toxicologist was termed 'incomplete' by the court. Because of bad prospects to win the trial, they settled out of court, with the company promising to build protective walls around the site and cover it. To this day, nothing has happened. All of the efforts of Dr. Robichaux – then senator of Louisiana – to fight the waste site were turned down. At least, they could accomplish that no new waste was being dumped, since companies took notice of the litigation going on (Ray 2002).

Clarice explained the relationship to the oil industry as one of dependence, without any option of choice:

We need them, even if they may cause our death. We need them. Everything we do depends on the oil and gas industry. Even when we took them to court, one of the biggest things was: Well, Clarice, do you pump gas? – Yes, I do. – Well, you know there's benzene in the gas. – Yes, of course, but that's my choice. I only put the sixteen gallons of gas for a short period of time but living in my community, that's 24/7. I don't have a choice.

3. Creating dispersed destinies

3.1 An illegitimate illness

Who is going to continue treatment? Who can? Who knows what to do? If you don't know anything that is in Corexit [the chemical oil dispersant], how are you going to fix that problem, if you are exposed to it? You've to know what they're exposed to in order to help them with their medicals. It's a big cover up. It has always been. It's going to be that way for a long time to come. Unless some laws are changed in Louisiana, that's how we are going to be treated. Like I said, getting the laws changed is very difficult here. You have the 'good old boys' system, which is people saying hold on. It's Louisiana, Texas at its finest. – Clarice Friloux

How does a society recognize something as legitimate? How does it treat the ambiguous, the grey area, the illegitimate? The story about the health impacts of the Deep Water Horizon oil spill is strongly influenced by factors, which are not clearly defined. Towards the end of my stay in Louisiana, I was invited by Dr. Robichaux to join him and some of his patients during an interview session at his house, just on the other side of the road from his practice. Dr. Robichaux explained to the interviewer – a Canadian documentary film-maker – in detail, how the illness of people along the Gulf corresponded with symptoms soldiers had experienced after the Gulf war. Even more importantly, he exposed how the interpretation of these symptoms, and the application of treatment protocols, followed a very similar pattern of differing, often contradictory diagnoses, with negligence of patients personal experiences. These personal experiences of patient's medical histories produced contradictory expertise against what most doctors diagnosed and treated them with. Dr. Robichaux explained:

One thing that is unique about our problem is that the people who have been ill don't have any objective evidence of what caused their problems. If we have people with abdominal cramps, we don't have anything that shows up on the evidence base. And yet we have people that have severe abdominal cramps. Something that nobody is making up, it's nothing that you would typically come up with. We have people with horrible memory problems and headaches. It's an overwhelming thing. We have

people with pronounced episodes where they found themselves in lala land, they can't move, they can't talk, but they remember everything. Something that has never been described – to my knowledge – in the literature.

People I spoke with repeated again and again that their claim to be suffering because of exposure related to the Deep Water Horizon oil spill was not recognized by the doctors they visited. Dr. Robichaux was one of the few doctors who did treat people for chemical exposure. To understand why doctors neglected any connection to the spill, I have to give some background information about the relevant medical science, and the symptoms people experienced.

On February 18th 2011, dozens of people gathered in the Unitarian Church of New Orleans, where chemist Dr. Wilma Subra was about to give a presentation about the diverse health impacts related to the spill. The meeting was named 'Truth out the Gulf Forum', and was initiated by Robert Sullivan, and other concerned citizens of New Orleans, who I got to know later. Subra gave a short outline of the unknown facts of the spill: for every 93 gallons of oil that were spilled, around one gallon of dispersant was applied. Clean up workers were denied the use of respirators, and were exposed to crude oil and dispersants during the clean up operations. Wind and wave action of the sea made the crude oil aerosol and move towards the coast, where residents and tourists were also exposed. Exposure paths were inhalation, ingestion (through seafood) and skin contact. Even though environmental laws prohibited the spraying of dispersant within three miles of the shore, Subra was getting continuous phone calls of Corexit (the chemical oil dispersant) being sprayed near shore. Clean up workers were threatened with dismissal, and didn't speak out for the most part about their health issues, and the lack of protective equipment. – Many clean up workers were fishermen, who were strongly dependent on the money they got from the work in the clean up operations. Since they couldn't fish, their livelihood would be questioned without any income. That's why people argued over getting a job in the clean up operations. – Subra differentiated between symptoms related to the exposure to oil and to exposure to dispersants. Both chemical groups evoke a series of similar symptoms, ranging from headaches, nausea, diarrhoea, diverse respiratory problems and eye, nose, throat and skin irritations, to kidney and liver damage, blood disorders, neurotoxic effects and immune system depletion. Chemicals found in people who are

ill included volatile organic compounds (VOCs) like benzene, ethylbenzene, m,p-Xylene, hexane, 2-Methylpentane, 3-Methylpentane and isooctane. The concentration found in their blood was over the 95th percentile established by the National Health and Nutrition Examination Survey (NHANES). Subra concluded that the health impacts were a long-term issue, that oil remained in the ecosystem of the Gulf and with it the exposure, which was ongoing (Subra 2011).

After the presentation, people queued up to ask Dr. Subra questions concerning their personal cases. They spoke of their despair in being left alone with their ailment and hardships: a clean up worker losing his vision after being slapped with oil boom, a mother talking of her daughter having a miscarriage, a woman evacuating her two children from the spraying of Corexit, a young man being paralyzed and having seizures – initially having headaches and internal bleedings – after swimming in the Gulf (Floxrostrum 2011/I, Bridge the Gulf Project 2011). At the end of the meeting, Elizabeth Cook from the activist group ‘Emergency Committee to stop Gulf oil disaster’ asked people to acknowledge that the events they were experiencing was a health crisis, which required political action to be taken. She asked them to sign the petition they were about to put up together and phone the local poison control centre, so that the agencies would get at least some statistical information about how many people were affected.

The science about the health impacts of oil and dispersants is characterized by a lot of unknowns. Dr. Solomon of the Natural Resource Defence Council (NRDC) determinately questioned the testing for volatile organic compounds. She stated that they were very short-lived in the body and left it again after only a few days. Tests run to detect chemicals would only show the VOCs in someone who was exposed to them one or two days prior. Therefore, there was no correlation to exposure during the oil spill itself. She specified that the VOCs made up less than one third of the chemicals found in oil and dispersants. The remaining compounds were not known to show up in any bio-monitoring test. Dr. Solomon also criticized some of the offered detox-programs, which were not medically certified. Some of these programs used toxic pesticides in their treatment protocol. The article evoked very critical and emotional reactions. Despite her good intentions, she was heavily criticized for not acknowledging the hardships of Gulf coast residents. Lisa Marie Jacobs, assistant to

the toxicologist, Riki Ott, corrected her saying that the volatile organic compounds could accumulate in the vital organs, despite leaving the blood stream again after only a short period of time (Solomon 2011).

Toxicologist Dr. William Sawyer did assessment concerning the health impacts for diverse law firms working on the impacts of the spill. In his documentation, he distinguishes between acute and chronic health effects evoked through exposure to crude oil. Acute health effects include sore, itchy and water eyes, sore, scratchy and sore throats, coughing, respiratory issues, skin irritations, headaches, nausea, vomiting, dizziness and general symptoms such as fever, diarrhea and chest pains. The chronic effects he identifies as chronic respiratory problems, potential lung and skin cancer, reproductive and developmental toxic effects as well as chronic depression, post-traumatic stress and anxiety disorders. As biomarkers indicating the exposure to crude petroleum hydrocarbons he names elevated 8-isoprostane levels, elevated levels of vascular endothelial and basic fibroblast growth factors, as well as structural chromosomal alterations (Sawyer 2011/I/II). I mention these medical details because environmental lawyers, Monique Harden and Nathalie Walker, assured me that it was not possible to scientifically prove that people were sick because of exposure to oil and dispersant *from* the spill. The administrator of the BP claims fund Kenneth Feinberg required *scientific causation* that claimants were sick from chemicals from the spill. Demonstrating an association or correlation was not sufficient. This made it nearly impossible for sick people to recover. Monique Harden explained:

The kind of work Wilma [Subra] has done is correlating: there are folks who have these symptoms, diagnosed by a doctor, and correlating those symptoms, those health effects, with the general knowledge of the toxic effects of the chemicals and the dispersants, the toxins and the crude oil. Then making the link. Exposure to those kind of substances can have the health effect of respiratory ailments. Here are people with respiratory ailments. That's not saying that a specific or group of chemicals caused that respiratory ailment. [...] Science is inconclusive. The general nature of science is inconclusive. That's why you can have so many communities like Mossville around the country where people are suffering from toxic exposure and

there's no relief. Because the way that the standard is set up is that they require this 'causation.' Showing correlation, showing association is not enough.

The biomarkers Dr. Sawyer identified seemed not to be sufficient to *prove* that people were sick from hydrocarbons from of the spill. They – as industry-favoring actors argued – could also have been exposed to hydrocarbons when pumping gas, smoking, or on other occasions. What made matters even more complicated was that some of the symptoms correlated with common illnesses such as the flue or a cold. One story vividly exemplifies this ambiguity related to chemical exposure: Christina Tillman had a two year old son and was living together with her husband in Biloxi, Mississippi, right at the Gulf of Mexico. Mid-September, 2010, her son started to get sick. He was suffering from fever, watery eyes, a running nose and a wet cough. At the appointment with the doctor, he was diagnosed with an upper respiratory and sinus infection and was prescribed a round of antibiotics. Despite the antibiotics, the symptoms didn't clear up. After a week and one round of antibiotics, he was prescribed another round. Luckily, symptoms started to decline. However, after only a short period of time without any signs, the fever started to come back again. This time the local nurse recommended transferring him to an Emergency Room, since being sick despite two rounds of antibiotics was an indicator that something was not right. The medical staff did x-rays and blood tests on Christina's son and diagnosed him with a severe respiratory and sinus infection. He was prescribed with new antibiotics. He started to get better, and until shortly before the two-week check up appointment, everything seemed to be fine. Unfortunately, the symptoms started to come back again as soon as the antibiotic was discontinued. This pattern happened several times with the difference that the symptoms were getting worse each time the medication was dropped. She summarized:

Within about 15 weeks he was diagnosed with five upper respiratory infections, five ear infections, he has been diagnosed with sinusitis four times, leukocytosis three times, and tonsillitis. He has experienced symptoms such as fever, vomiting, diarrhea, chronic cough, headaches, severe runny nose, sore throat, rashes, and wheezing. He's had moments in the middle of the night where he has had trouble breathing, abnormal breathing, or literally started choking from all the thick junk in his sinuses. In four

months, he was on antibiotics for 71 days out of 136 from the nine different antibiotics he had been prescribed.

During a renewed hospital visit, Christina's mother-in-law suggested to have her son tested for chemicals related to the BP oil spill. Her mother-in-law, Shirley Tillman, had worked together with her husband in the clean up program. Christina and her husband, being desperate that their son was not getting better, tried to find a doctor who did the test for volatile organic compounds. Since only the Metamatrix lab was doing this kind of test, it proved difficult to find a doctor who was willing to do the testing. After finally finding one over 100 miles away, the test came back positive, showing elevated levels of VOCs. Christina concluded that her son must have inhaled some of the burning oil that was coming onshore during the clean up operations. They didn't make any correlation to the spill the whole time, since they were told everything was fine. Christina expressed her disbelief of how doctors addressed the problem. She talked about how her son had first been diagnosed with the flu, which turned out negative when they tested for it. The same happened with strep (streptococcal) sore throat and allergies, which also turned out negative after testing: "everything they would say, they would test for it and it wasn't that." She criticized the medical community for not being able to handle a problem that required thinking outside established categories and known phenomena:

He has been to nearly thirteen different doctors and... I mean I work in an OR [Operating Room], I work in the medical field, so I know you need to have a certain level of intelligence. I'm not bashing their intelligence at all. It's just: I've noticed the same pattern with every doctor. It's like: they only know what they know and it's in this small bubble of spectrum. There's no broad spectrum in there. There's no trying to burst out of that bubble.

The non-existence of chemical exposure and its consequences as a medical category led to the black boxing of people's real ailments, the cause behind it. What was happening was the fighting of symptoms with extensive amounts medication, but no real assessment of the underlying problem. Christina explained the dangers that could occur when treating people with unusual amounts of antibiotics:

The antibiotics are hurting people more than helping them. [...] These illnesses are being mistreated because these illnesses may not be caused from a bacterial infection or viral infection. It might be something directly linked and rooted to the chemicals that are in their body that are causing this. That kind in itself depletes their immune system and they keep adding these antibiotics in every time that a kid or person comes to the doctor and then that further damages them. It's almost like a whole community is being damaged by things that should be helping them. The doctors don't know what to do and are making it worse.

Dr. Robichaux, who was one of the few physicians acknowledging the issue of chemical exposure, was also not able to do much more than treat people's symptoms. Even though he had some background knowledge concerning chemical exposure – since he had fought a toxic waste dump next to a Native American village in his community – he was not able to immediately fill the existing knowledge gap that existed in the medical field. What was needed was a way to remove the toxins from people's bodies. This treatment protocol was not available at the time. It had not been established. Dr. Robichaux – surrounded by two of his patients, me and a Canadian documentary film-maker at his house – explained what kind of knowledge he had gathered so far, which could help them identify and hopefully solve the problem. He had stumbled upon reports that covered the illnesses of Gulf war veterans, who had served in the Gulf War of 1991. These soldiers experienced very similar symptoms to those of the people in the Gulf region. They also suffered from memory problems, chronic headaches, wide spread pain, unexplained fatigue, mood changes, consistent diarrhoea, respiratory problems and skin rashes. The source of the soldier's illnesses was not clearly known. When they were searched for existing illnesses with clinical diagnostic tests, most of the time no positive result showed up. From the medical viewpoint, the illnesses soldiers were suffering from were self-reported, apart from a few physical detectable signs. Robichaux went on to explain that he had been in contact with Dr. Claudia Miller, who had given a testimony before congress, explaining how it could be that Gulf War veterans were diagnosed with different illnesses by a variety of medical specialists, even though they had the same, persistent symptoms. Dr. Miller had stated:

Even when doctors apply monikers [names or titles] to these patients' illnesses, like depression, migraine headaches, asthma, irritable bowel, or fibromyalgia, these monikers do not explain why these veterans are sick. Most have symptoms involving several organ systems simultaneously. For them there is no unifying diagnosis offered, no etiology specified, and no disease process clarified. In truth, all of these veterans are undiagnosed because what we are dealing with is an entirely new mechanism of disease not covered by standard medical diagnoses one which presents itself symptomatically as different conditions to different specialists. The rheumatologist observing diffuse muscle pain diagnoses myalgias. The neurologist hearing head pain and nausea diagnoses migraine headaches. The pulmonologist finding airway reactivity diagnoses asthma. The psychiatrist seeing chronic malaise diagnoses depression. The gastroenterologist noting GI complaints diagnoses irritable bowel syndrome (Miller 1999).

Dr. Robichaux contextualised Dr. Miller's statement to the case of the oil spill by explaining that most of his colleagues refused to acknowledge any connection of people's symptoms to the oil spill. If this refusal was due to a lack of knowledge, an inability to think outside established categories, or fear to be caught up in litigation with British Petroleum, remained unclear. However, it revealed that non-knowledge played a crucial part in how the hardships of Gulf coast residents and clean up workers were addressed. Since medical professionals persisted on their expertise in biomedical knowledge, the personal expertise of affected people was not acknowledged. One story of the denial of personal experience was the one of Chuck Brady and his four-year-old son. I got to know Chuck at the 'Rising Tide VI' forum in New Orleans, where people discussed the ongoing hardships of the area since hurricane Katrina six years prior. Chuck's son went to Orange Beach, Alabama, with his grandmother a month after the spill had started. They didn't go into the water, but they stayed in the swimming pool close to the shore and went walking along the beach. They stayed there for five days. When they came back to Baton Rouge, things seemed to be normal. But three weeks later, when Chuck's son went to the bathroom one day, he passed out during urinating, first screaming in pain. When his father found him, he was lying in a pool of urine and was hot to the touch. In the toilet lay a little kidney stone. They rushed to the hospital, where his son was diagnosed with

massive kidney failure and a urinary track infection. He stayed in hospital for five days and was put on antibiotics, with extreme diarrhoea, vomiting and unable to urinate. When he left, he was on a very strong antibiotic to be taken for fifteen days. When the medicine was discontinued, his son had severe breathing problems the following night. The mother looked after the child and found him with additional high fever. They readmitted him to the hospital, where he was diagnosed with a lung infection. He was put on antibiotics again. Chuck asked the medical staff to do a blood test for oil and dispersants. He was suspicious, since his son had started getting sick after being close to the incident site of the spill. His request was refused, telling him that the insurance wouldn't pay for it, and that they wouldn't know how to read it anyway. Assuring him that it didn't have anything to do with the oil spill, they were given an appointment with a specialist in paediatric urology. The appointment required a long waiting period. During the wait, his son had another breathing attack and was admitted to the hospital again. He also suffered from continuous pain attacks when needing to urinate and experienced stabbing pains in his right kidney. Chuck did further research on volatile organic compounds and found the symptoms to fall in line with the described signs. When they finally could see the urology specialist, his son was examined for malformed kidneys, which turned out negative. The doctor suggested putting him on antibiotics for fifteen months and wait for further indicators of what ailment it could be. When Chuck asked again to do a blood test on him, he was turned down again. He was denied to have any expertise about the illness of his son. Someone put him in touch with the Louisiana Environmental Action Network (LEAN), which offered to pay for the blood test. After a failed attempt to do the test with a local lab, they found a doctor who agreed to do the blood test. When the results came back, they showed highly elevated levels of methylpentane, hexane and other volatile organic compounds. They were many times over the threshold established by the Occupational Safety and Health Administration. Since conventional doctors had denied treating Chuck's son, they decided to rely on natural medicine. He was put on milk thistle tincture, cranberry extract, fish oil and different types of salts. Additionally, they administered him on heavy doses of vitamin C, E and A. After this treatment, his health improved, but Chuck was still very worried about future health impacts like cancer, which could set in years or decades later.

The practice of denying non-knowledge, or grey areas of knowledge, and attributing them to already existing, established categories of knowledge, has been investigated by the anthropologists Bruno Latour and Mary Douglas. Latour (1993) argues that our knowledge is hybrid and ambiguous. It only appears to the outside as clearly distinguishable into categories of political and scientific knowledge. Because we deny this hybrid character of our realms of knowledge, we favour the dissemination of more hybrids. This is done through the processes of 'purification' and 'translation'. Translation refers to the creation of hybrids through the merging of nature and culture in processes of political knowledge production about subjects. 'Purification' points to processes, which divide phenomena into human (culture, subjects) and non-human categories (nature, objects), such as is done by natural scientists. Knowledge about objects and nature rely, referring to the methods of natural scientist Robert Boyle, on detailed, empirical experiments. Knowledge about subjects and culture on the other hand, referring to the teachings of Thomas Hobbes, depend on the merging of power and knowledge. The sovereign is assigned the power of definition through the social contract of society and statistical, political-science methods. The science experiment subverts the definition of monopoly of politics, and with it separates power and knowledge. Politics, on the other hand, intrudes into science through its dispersed, multifarious power relations and subverts purely objective science. Latour states: "As we come to recognize the conventional and artifactual status of our forms of knowing, we put ourselves in a position to realize that it is knowing and not reality that is responsible for what we know. Knowledge, as much as the state, is the result of human action" (Latour 2003: 26).

Latour (1987/2003) explains the topic of non-knowledge with the term 'black boxing'. Uncertainty is the characteristic of open, uncovered scientific controversies, 'Science in the Making'. Certainty and clearness are markers of black boxed, purified scientific evidence, 'Ready Made Science'. Collins/Pinch (1993: 141-151) argue that science in its public appearance is displayed as presenting evidence and not representing constructed knowledge, which gets formed through experiment and learning. They claim that all scientific evidence can be deconstructed. Scientific facts are produced through agreement between discursive groups of experts. The agreement is preceded by processes of disagreement and contestation among the

scholars themselves. Only to the outside, scientific facts are presented as fixed and stable. This statement is – I argue – of vital importance to understanding the handling of non-knowledge or grey areas of knowledge in science. An existing scientific paradigm normally doesn't recognize the ambiguous or unknown as a constitutional part of its own. It gets black boxed, re-categorized into already existing categories. Doctors diagnosed people who were seeing themselves as victims of chemical exposure with flus, sinus infections, respiratory problems, allergies and other established medical classifications. Chemical exposure didn't seem to build part of their biomedical and methodological expertise. I argue that workings of society, which function according to the logic of the known and established, not the absent and uncategorised, are reflected in the case of chemical exposure with its ambiguous characteristics.

Douglas (1966) approaches the topic of non-knowledge and uncertainty through the way western societies address pollution and anomalous phenomena. Even though Douglas' concept is preoccupied with society as a whole and doesn't seem appropriate to investigate in issues in medical anthropology, I argue that the case study of chemical exposure unifies on a small scale the workings of society as a whole. Put differently, I see the rules and workings of society reflected in the treatment room.

The anomalous (in this case ambiguous chemical exposures) subverts an existing order and isn't easily definable because of its hybrid character. By hybrid I mean the varying, sometimes contradictory expertise physicians apply to patients seeking relief for chemical exposure, and importantly, the contested nature of chemical exposure itself, which isn't recognized by various scientists to the same extent. Whereas people affected didn't doubt at all that what they were experiencing was a real health epidemic in the Gulf, many scientists denied, downplayed or re-categorized the health impacts.

Douglas describes practices of purity as an attempt to re-establish an ordered view of the surrounding world, which corresponds to cultural notions of norms and structures. The subversion of these notions equals the subversion of societal rules and norms. Abnormal phenomena are seen as destroying established structures of society and endangering its function. Notions of order and hygiene are, therefore, part of power

structures, which play the role of stabilizing political order, power relations and cultural moral beliefs (Douglas 1966: 94-113). Cultures have a variety of practices to deal with phenomena perceived as anomalous or ambiguous, in order to restore order. First, the ambiguous can be assigned to one of the several classifications that seem appropriate, and can be dealt with accordingly. Second, the ambiguous can be dealt with physically – hence, it can be destroyed. Third, the ambiguous is subjected to rules of avoidance, thereby reaffirming the system of categorisation it challenged. Fourth, the ambiguous is branded as dangerous and thereby taken out of dispute (Douglas 1966: 39).

One person who experienced denial towards his hardships was Andrew Gaines, who I also got to know at the ‘Rising Tide VI’ forum in New Orleans, introduced through Cherri Foytlin. Andrew had worked as a supervisor during the clean up efforts in Mississippi, and had fallen ill after working. During the interview, he told of feeling dizzy, having nausea and a headache. He had skin rashes at his neck and feet. He revealed his despair of not getting taken seriously by the medical staff that was examining him once or twice a month, often after passing out. He explained:

No one can tell me what’s wrong. They don’t know what’s wrong. They start to piss me off. Everybody says, there’s nothing wrong. Everybody is trying to tell me that I’m making this shit up. No, I’m not making up anything. Why would I want making up being sick? Who wants to make up being sick? Is that a joke? That’s not a joke to me, because as I said, my life was good before that oil spill, it was great before that oil spill. And now my life is shit because of that oil spill. Excuse my language, but that’s the way it is.

He also didn’t see any immediate possibility of becoming healthy again, since a scientist at the Office of Health, Safety and Security (OHSS) had assured him that the chemicals in his blood could not be de-toxed. Andrew had worked along the beaches of Mississippi, but couldn’t recall having much contact with oil. He could remember being exposed to dispersants, which were sprayed close to shore, and then came in on the wind.

Adriana Petryna (2002) investigated the intertwining of social, political, economic and medical issues in the aftermath of the Chernobyl incident in Ukraine. She

explains how Ukrainian physicians and politicians differentiated between ‘deterministic’ and ‘stochastic effects’ of radiation exposure. In the case of the ‘deterministic effect’, the amount of exposure is so high that a connection between acute exposure and resulting illnesses is doubtlessly made. In the ‘stochastic effect’, however, exposure rates are below a determined threshold and an immediate connection to the exposure in the concerning situation is not made. The resulting symptoms are declared ambiguous and mostly ascribed to mental problems and post-traumatic stress. This psychological interpretation was strongly supported by the Soviet government, who wanted to reduce its responsibility in the aftermath of the incident. Through this practice, biomedical knowledge became a factor of power and politics. Petryna emphasizes that biomedical measurements taken to identify people’s exposure to radiation were formable due to unclear thresholds applied. She states: “Nonknowledge became crucial to the deployment of authoritative bioscientific knowledge” (Petryna 2002: 44). These unknowns were also used by one of the physicians in charge with assessing the health impacts of the incident. The doctor raised the threshold of permitted exposure from one rem (roentgen equivalent man) prior to the incident to 250 rem after Chernobyl had happened. A similar practice could be witnessed with the threshold of seafood contamination in the Gulf. The EPA (Environmental Protection Agency) raised the level of approved seafood contamination and allowable consumption rates after the spill happened (Subra 2011). Chemist Wilma Subra also explained to me that there didn’t exist any regulation to close beaches in case of contamination with dispersed oil. She explained:

The regulations were established for beaches where people went out and recreated and you had sewage being discharged from the communities, the municipalities into the waters that also serve the beaches. That’s why it was established. You will find beaches closed because of *fecal coliform bacteria* in the water. You could have all the toxic chemicals on the beaches and they won’t be closed. They will just be closed when there are *fecal coliform bacteria* in the water above a certain level. That’s the regulatory authority.

Subra deployed an argumentation, which illustrates the role non-knowledge plays in situations of uncertainty like the oil spill. The dispersed oil was presented as non-

problematic for human health by the official authorities, re-categorizing it into a logic of clear, unambiguous phenomena. Most people trusted into the official account offered about the spill, subjecting themselves to the logic of expert simplification.

The report of the industry independent toxicological consulting service 'Toxipedia' emphasizes in its report on the hazardousness of dispersants the "extent of our current lack of knowledge about dispersants and their impacts" (Toxipedia 2011: 3). It further states that "the current understanding of key processes and mechanisms [in dispersant use] is inadequate to confidently support a decision to apply dispersants" (Toxipedia 2011: 4).

I argue that non-knowledge plays a crucial part in how ailments of Gulf coast residents and clean up workers were addressed. Knowledge gaps were filled with seemingly appropriate categories, thereby rendering the uncertain invisible. Hazards as dispersed oil and chemical dispersants were depicted as non-dangerous by official agencies, building on the absent knowledge about proven impacts of the substances. Unknown impacts were re-categorised as not dangerous. The case study illustrates the argument of Latour (1993), arguing that our society still doesn't recognize the intertwining of political and natural-science knowledge. I argue that it is not an intertwining on a major basis: the laws of chemistry won't be changed because of representational debates. Rather, the political enters the representation of natural science on the level of the un-established, the knowledge which falls outside any official discourse. Through the re-categorising of the unclear, the major paradigms get stabilized. Put differently, our realms of not knowing function as indicators of how our knowledge about nature is constituted. With ascribing natural phenomena names and taxonomies, with putting them into biological pedigrees, we think we have grasped their nature of being. However, sometimes the absence of a name for a phenomenon reminds us that it is the embedding of an object into a bigger nexus that shows us its true nature and not the ability to categorise it per se. It is the embedding of a phenomenon into networks of society, science and politics that shows us its actual characteristics, not the unclear associations embedded into its taxonomy.

The things we don't understand or don't fully understand yet, the illegitimate, tell us much more about how our ways of knowing function than our established realms of knowledge.

3.2 Bio-politics between pastoral power and neoliberal governmentality

You need to understand, there're like three things right now, it's changing. The ground moves in this spill. It moved after Katrina. In emergency, the ground moves, the whole rulebook changes, like weekly. It's slowing down a little bit. But in the beginning, it was just insane. There were so many changes on the ground. It was like: one week BP was in charge, then the government was in charge. Just to give you an example. Then it was spilling one thousand barrels a day, then it was five thousand, then it was twenty five thousand, then it was sixty thousand. First it's little impact, then it's huge impact. Then it's no impact. It's covered over. You're always just reacting; really it's what you're doing. – Joel Waltzer, civil lawyer

One of the central topics raised when talking to, and accompanying, people affected by the spill, was the question of trust of the government and its role as a 'shepherd' in taking care of the American people. My informants expressed feelings of abandonment and mistrust, since the state had not lived up to their expectation of taking care of the hardships produced by the spill. Issues raised centred around the question of state/national and individual responsibility in situations of crisis. Most informants took the opinion that it was the task of the state to look over the welfare and health of its people in situations of crisis. This debate parallels the discussion that Michel Foucault has investigated under the terms of 'pastoral power' and 'neoliberal governmental practices'. It also raises the question of governmental perception of the needs of individuals versus the need of the population as a whole. How does the individual and the population get constituted and defined as part of 'bio-political' practices? How do individual needs, and the needs of the population interact in the sense of discourses working upon each other?

'Bio-politics' describes how a government constructs, evaluates and regulates a population regarding characteristics of demography such as number of citizens, health, birth- and death rates, fertility et cetera: "propagation, births and morality, the level of health, life-expectancy and longevity, with all the conditions that can cause these to vary. Their supervision was affected by entire series of interventions and regulatory controls, a bio-politics of the population" (Foucault 1976/1990: 139).

These gathered and statistically evaluated data produce notions of normalized citizens, with average attributes and needs. Governmental practices that intervene and regulate the conduct of the population emanate from these normalized, assessed citizens. Hence, individuals get subjected to the logic of the norm. In the following section I will try to show how 'pastoral power' and 'neoliberal governmental practices' can be understood through the concept of bio-politics.

The term 'pastoral power' describes the ruling of people according to the notion of a shepherd taking care of his flock. People, in this concept, are seen as dispersed individuals, that are held together and actually constituted as a group, by the shepherd's (ruler's) presence: "the shepherds immediate presence and direct action cause the flock to exist" (Foucault 1979/2000: 302). The shepherd's (ruler's) role is to look after the well being of his flock (people) and to keep watch over them. The focus of the ruler is not only the well being of the people as a whole – as a population – but individual welfare. Only when the needs of the individual are considered, the well being of the flock as a whole can be guaranteed. When the oil spill happened, affected people criticized that the state didn't live up to their expectation as a 'shepherd'. What made matters more complicated was that state officials had even encouraged people to go to the beaches and eat Gulf seafood – building on their trust in the government as a shepherd – denying any health impacts. Foucault (1979/2000: 306) offers a differentiated logic of the government and governmental responsibility by explaining the dispersion of power between the flock (the people) itself: people provide other people with supplies, specialists take care of peoples health, individuals act on behalf of a comprehensive power. Does this mean that the responsibility for the well being of the individual is also dispersed among these different specialist-shepherds? In Christian literature, the shepherd metaphor also means that the flocks' shortcomings are the shortcomings of the ruler. He has to give account at the end of his task, thereby connecting his own destiny with that of his people. If he wants to succeed in assuring the welfare and health of his people, he must "run the risk of losing himself for others" (Foucault 1979/2000: 308). The complexity in this shepherd-flock relationship lies in the sophisticated morality inherent in the relationship: the single sheep subordinates itself to the logic of the shepherd, trusting in his guidance, offering him individualized knowledge through self-examination and

confession, or seen critically, through institutionalized, sophisticated control. I argue that in modern state societies like the US, this individual bond with the ruler has been replaced by a statistical perception of the population through the state. Individual needs are constructed through statistical knowledge assessed and occasionally through public rallies. This insight was verified at the Gulf Coast Ecosystem Restoration Taskforce Meeting in Beloxi, Mississippi, where sick people were told by state officials that they had to report to their local poison control centre. Without a sufficient number of cases reported to this agency, the federal state would not be able to act. The demand had to come up from the state to the federal level. A statistical object of the 'flock' had to be constituted for the government in order to enable any form of perception and reaction.

In order to understand the working of pastoral power – presuming that it still is an objective for contemporary governments – one needs to consider the perception and conception of the individual and the population. The population gets pertinent as the main focus of governmental economic-political action, termed 'bio-politics'. As a population, Foucault defines a body of people, which can be directed, shaped and importantly, *normalized* by apparatuses of security and disciplinary mechanisms (Foucault 1978/2007: 51-71). Disciplinary mechanisms define how an individual should behave. They define a space, focused and enclosed, in which power can be exercised; things can be regulated and directed. Events are prevented from happening. The permitted is defined, and with it the right conduct of a person. Apparatuses of security, on the other hand, have the tendency to expand, to 'let things happen', to restrict, to abolish the factors that work in reality itself. Foucault specifies: "The mechanisms of security work on the basis of [...] reality by trying to use it as a support and make it function, make its components function in relation to each other" (Foucault 1978/2007: 69). In order to ensure the security of a population in terms of health and welfare, detailed knowledge of a body of people has to be assessed and evaluated. The population, therefore, is something that arises out of statistical knowledge produced and evaluated, constructing a normalized figure of the individual citizen. The population is the body of people, which behaves according to the rules of the disciplinary mechanisms and can be governed corresponding to economic-political action. The individual destiny is not relevant from the viewpoint

of apparatuses of security, but the population as a whole. In opposition to the term 'population' Foucault defines 'the people' as the part of the population who refuses to behave according to the logic of societal-management. They conduct themselves as if they were not part of the collective subject-object of the population; oppose the logic of the normative population. The logic of 'laissez faire' of the apparatuses of security produces and enables this counter-conduct. The main objective of the apparatuses of security is the welfare and health of the majority of the population. In order to accomplish this, the 'people' that can't function according to logic of the 'laissez faire' get sacrificed in order to prevent hardship to the majority. Foucault states: "The population is pertinent as the objective, and individuals, the series of individuals, are no longer pertinent as the objective, but simply as the instrument, relay, or condition for obtaining something at the level of the population" (Foucault 1978/2007: 65). One can depict this notion with a chessboard. The chess player disposes over his figures with an objective. Single figures get sacrificed in order to accomplish the objective. The player disposes over all the figures in reaction to the figures of the other player, looking for a balance in the destiny of all figures opposite to the individual destiny and the objective of the game.

The logic of the apparatuses of security contradicts the notion of the pastoral mode that has the objective of the welfare and health of each individual person. The figure of the population, which gets created by statistical analysis, and 'black boxing' of individual needs, creates dispersed destinies which contradict the depiction of the normalised population. In the case of the Deep Water Horizon oil spill, and the victims it produced, people expressed feelings of abandonment and despair. *Their suffering, which didn't correspond to any established categories of the management of populations, got lost in a machinery of care, which functions according to the logic of a normalized population and normalized response plans.* The objective of the 'new pastoral mode', the well being of people in the here and now, was not complied with. One issue corresponding to this problem was the employment of fishermen during the clean up efforts. A.C. Cooper – vice president of the Louisiana Shrimp Association – explained to me the dilemma over who got employed in the clean up crews. Fishermen, who couldn't fish during the spill, were dependent on an alternative income. Many of them deploy a lifestyle close to subsistence living. Cooper fought

for the favouring of local fishermen over others in the employment of the clean up crews. The consequent debate arose over the question of how a fisherman gets defined. He explained:

How do you define a fisherman? Do just go up and commercialize it, then you're a commercial fisherman? No, that's not it. Four or five years ago we passed legislation through a legislator that fifty percent of income has to come from commercial fishing. After Katrina [hurricane Katrina of 2005] money came down from Washington; they wanted to give it everybody that had a licence. We fought that and we lost because it wasn't defined. We had a representative put a bill in to pass that 50 percent of income has to come from fishing in order to be a certified commercial fisherman. This was in place. I told this BP numeral times; all you have to do is take the list that you have – we give it to you, everybody put down an application to work – and see who is who, and hire the ones that make more than fifty percent of income. They didn't listen, they did what they want to do, just a big bowl of wax they choose to pick out of.

The governing of people – as this case shows well – depends on the depiction of individual people by the government, or an actor, and the consequent response to it. The pastoral mode of care gets complicated through this interim stage of analysis and evaluation, or its subsequent lack thereof.

The 'neoliberal governmental practices' emanate from a different model of personal conduct and pastoral power. It sees the individual as an entrepreneur of the self, which entirely takes care of his/her own destiny, investing in his own 'human capital' (skills, health, social network), which makes it attractive for the market. It doesn't depend on any pastoral care. Neoliberal governmentality sees the subject not conditioned by power applied to it, but as a distinctive individual that applies micro-technologies of power by which it governs itself in relation to power exerted around him. In this model, the individual doesn't demand any pastoral care from public institutions, but helps himself by investing in his own possibilities (Binkley 2009). The notion of population becomes obsolete to a big extent, since it's the task of the regulatory institutions to ensure that each individual has the necessary freedoms to enact his own will. However, the possibility to perform this individuality requires

resources, which are not accessible to everyone to the same extent. This uneven distribution of possibilities to invest in one's own human capital – contested by the advocates of neoliberal policies as dependant on personal willingness to take risk and hard work – renders ethics of responsibility highly ambiguous and unjust. People affected by the Deep Water Horizon oil spill often didn't dispose of the necessary resources to overcome the status quo of insufficient health treatment for their ailments. Neoliberal power structures of contemporary nation states produce vacuums of power, in which apparatuses of security and disciplinary mechanisms are absent. Through what Ferguson/Gupta call *transnational governmentality*, the power of the state gets dispersed among non-governmental actors, which increasingly take the role in “zones the state has ceded or abandoned” (Ticktin 2011: 8). I argue that notions of vertical encompassment, which the state disseminates to legitimate its power, are increasingly replaced by notions of dependence networks. The dependence networks structure power relations according to economic incentives and influence. So far I have ignored the responsibility of private agents to act as shepherds for affected people. This might have to do with the fact that social responsibilities of private companies are not clearly defined. Laws, which restrict and oblige companies to provide certain services in the case of the violation of these laws, differ from country to country. It is not clearly defined how much responsibility British Petroleum carries regarding the health effect it caused with its operations. Whereas some people see the company as the only responsible party, demanding financial and medical redress from it, others see the state, as the perceived overarching power, as responsible for the companies' actions as well.

Both notions of ‘pastoral power’ and ‘neoliberal governmental practices’ have to be viewed within the context of the American idea of the tasks and responsibilities of the government. The following notions of what characteristics constitute the American state have to be seen as discursive bodies of knowledge. Since there is no single true explanation of what the tasks and responsibilities of the state and government should be, the answers lies in understanding how these different notions are produced, maintained, and interact with each other, and what the effects of these *politics of truth* are.

Foucault (1979/2008) sees liberalism as the founding principle of the American state, which took formation during French and American wars for independence. He terms it the ontological and mental mode of existence, which encompasses all realms of society. The notion of the modern American state lies for Foucault in its opposition to the welfare state of Roosevelt and Keynes, which encompassed social and economic programmes and strong state bureaucracy. He states: “liberalism played a [major] role in America during the period of War of Independence [...] liberalism was appealed to as the founding and legitimizing principle of the state. The demand for liberalism founds the state rather than the state legitimizing itself through liberalism” (Foucault 2010/1979: 217). According to this logic of liberalism and personal freedom as the founding principles of American society, Foucault sees the entrepreneur of the self, who invests in his/her skills and takes risks in order to increase ones personal wealth, as the model subject of American liberalism. The entrepreneur of the self relies on well-established rules and the enforcement of the rule of law, which enables him/her to perform his individuality unrestricted.

The American neoliberal state – according to David Harvey (2005: 64-86) – is characterized by what it enables to function rather than by what it actually does through intervention. It’s supposed to create strong incentives for privatization, deregulation, and the opening up of the domestic market for international finance, as well as competition and individual property rights. Its prime task is seen as ensuring the freedom of action and choice, with free trade and free markets as fundamental goods. According to this notion, private enterprise is the best solution for wealth creation and innovation. The ‘invisible hand’ of the market is seen as improving the livelihoods of all participants in the economy. Additionally, with the strong reduction of state intervention, individuals rely on well-functioning courts and the enforcement of laws that ensure the possibilities of neoliberal freedoms. A further important characteristic is the *de facto* privatization of social security. People who fail to achieve their economic goals and livelihoods are seen as having invested wrongly in their own human capital: “Individual success or failure are interpreted in terms of entrepreneurial virtues or personal failings (such as not investing significantly enough in ones own human capital through education) rather than being attributed to any systemic property (such as class exclusions)” (Harvey 2005:65-66).

Both Harvey's ideas about the 'American neoliberal state', and Foucault's notions of American liberalism emanate from a state which is closely linked to liberal economic practices, and the individual it conceives. This is the liberal notion of the American state, which has mainly a regulatory function, but doesn't intervene through institutionalized bureaucracies and dirigisme. Intervention takes place on the side of the executive and legislative organs, which must guarantee the freedom of individual conduct by any means necessary. This liberal notion of the American state collides with ideas of strong, interventionist governments, usually labelled as 'welfare states'. The 'welfare state' can be defined as a mode of government "in which the state plays a key role in the protection and promotion of the economic and social well-being of its citizens" (Encyclopædia Britannica 2012). The government promotes equality through the regulated distribution of wealth, and the creation of institutions like social insurance, which are financed through compulsory contributions of the public and financial sector. Most welfare states also promote basic education, health services, and housing. The Encyclopædia Britannica sees a major difference in this practice between Western Europe and the United States. It explains: "In these respects [the promotion of basic education, health services, and housing] the welfare state is considerably more extensive in western European countries than in the United States, featuring in many cases comprehensive health coverage and provision of state-subsidized tertiary education" (Encyclopædia Britannica 2012).

In connecting the concept of the welfare state with the idea of pastoral power, one can argue that an enlarged welfare state also requires bigger surveillance and guidance, and voluntary commitment to state affairs, since public services require individuals to return state favours in times of abundance through state contributions. Pandian (2008) criticizes this with respect to the conception and conduct of pastoral power. To him, pastoral power sometimes applies techniques of subordination and degradation of people to surveillance apparatuses and excessive control, diminishing and questioning people's ability to regulate and take care of themselves. People get *animalized* in situations like the evacuation of New Orleans after hurricane Katrina, denying them individual agency. In other words, according to Pandian, it matters how living beings are imagined by practices of bio-politics, in order to understand how these bio-political practices are conducted. Are people seen as capable of taking care of

themselves in situations of crisis, or do they demand/require pastoral care? How do they cope with the uncertainties and non-knowledge produced by incidents like the Deep Water Horizon oil spill? I argue that the population imagined by governments depends on the analysis of statistical information, combined with the assessment of individual situations in crises and catastrophes. Standardized response plans collide with individual needs, which can only be considered to a small extent. Non-established categories like chemical exposure are not perceived by these standardized response plans.

The juxtaposition of the concepts of ‘pastoral power’ and ‘neoliberal governmental practices’ respectively with those of the ‘neoliberal state’ and the ‘welfare state’ begs the question as to what kind of subjects these notions require and produce. How strong is the individual agency of a person? What kind of micro-technologies of power can a person apply? How strongly are we influenced by institutionalized structures, which exert power over us? These two perspectives emanate from different levels of agency individual persons possess. Especially in situations of uncertainty and ambiguity, which characterizes the situation of chemical exposure in the aftermath of the Deepwater Horizon oil spill, unknowns and scarce resources diminish the individual agency of subjects severely, making them dependent on pastoral care by responsible actors. This statement should not be understood as a simple, non-constructive critique on neoliberal power structures as criticized by Ferguson (2009), which sees people as passive subjects at the mercy of higher forces. Rather, I want to understand what forces are at play in producing these “zones the state has ceded or abandoned” (Ticktin 2011: 8). A deconstruction and presentation of the forces at work should be understood as something more than a mere critique. I argue that standardized ways of intervention combined with unknowns, which evade easy assessment, along with structural violence – as explained in the chapter ‘petro-state citizens’ – produce vacuums of power, where individual agency is not sufficient to acquire redress and recognition for injustice produced. How affected people try to remedy their suffering despite these injustices will be looked at closer in the chapter “Biological citizenship and the human right to health”.

Elizabeth Cook from the ‘Committee to stop Gulf oil disaster’ took the opinion that the US coast guard, who was charged with overseeing the clean up, had occupied an

ambiguous position since it was moved under the head of homeland security after 9/11. She explained:

The coast guard was moved under homeland security right after 9/11. So was FEMA (Federal Emergency Management Agency). Our respondent to natural disasters. They both were moved under homeland security and I think that was terrible mistake. [...] By moving the coast guard under homeland security, the coast guard gets charged with protecting the political liability of the administration, rather than actually protecting the coastline. I think that's why their mission during the BP clean up became very corrupted.

When terming the role of the coast guard corrupted, Cook is referring to the unclear role the agency took during the clear up. Officially charged with overseeing the clean up, the agency was criticized for assisting British Petroleum – which held the technical expertise for the operations – rather than directing it. “Here you have the company that is responsible for the accident leading the response to the crisis. There is a problem here, and the consequence is clear”, Tyson Slocum, director of Public Citizen’s Energy Program stated (Robertson/Lipton 2010). The government had the option to federalize the response, conducting the clean up without the BP and then billing them for it. Critics saw the clean up as a perfect example of the privatization of responsibility. Elizabeth Cook explained:

The US government is supposed to oversee the clean up effort and be in control at every level. I think they purposively misinterpreted the law, so BP would be left in charge. What does this do essentially? It privatizes the response. What happens when you privatize? The services are reduced at the expense of profit, far less money is spent to deliver less service. [...] What we essentially saw is the privatization of the oil spill response that resulted in vast poisoning of people, habitat and wildlife.

3.3 Public portrayal and personal impacts

We were at this expo and it rained. I noticed when I went outside. I smelled oil from the rain. All of this gets into the rain cycle: the Corexit, the oil. It has to come down somewhere. If you dump chemicals into the Gulf, it's going to evaporate and come down somewhere. We had a rainstorm, I smelled the oil and I became ill. It wasn't until I went home, went inside and closed my door that I started to feel better. I think we were all exposed. There is this woman who developed a chemical stroke. [...]
These people are the canaries in the coalmine. – Elizabeth Cook

According to the official report of the governmental oil spill commission the human impacts of the spill were mainly of psychological nature. BP succeeded in conveying that they had 'made it right', with stylish commercials showing fishermen, tourist workers and restaurant owners expressing their gratitude to the clean up efforts. For many people I talked to, this was an insult to their destinies, denying their struggles with health and economic hardships. They expressed a feeling of abandonment towards the authorities and medical institutions, which were not acknowledging their suffering. They felt they hadn't been warned about the dangers of exposure and were part of 'a big experiment going on'.

The public denial of their hardships started to create a feeling of alienation amongst them. This feeling of alienation was nourished by public media reports, physicians, and the BP commercials, depicting the situation as back to normal, or not related to the spill. The despair culminated at one of the Gulf Coast Ecosystem restoration meetings, where affected people expressed their feeling of powerlessness towards the response. They criticized a National Institute of Health initiative, which planned to monitor the health of 50'000 clean up workers over the following ten years. The study would only encompass the monitoring of health, but no implementing of treatment. John Gooding, from Mississippi, expressed his despair when stating: "Right now, a lot of us feel that we are going to perish and our families feel that way. Our friends are losing their homes and jobs, because they are too sick to work. We need immediate help. A ten-year study is a great thing, but unfortunately, ten years from now, 8% from the folks in here that are sick aren't going to be here anymore,

we're are going to be dead.” John had worked as cabinetmaker in Mississippi all of his life. He was 49 years old, and had helped rebuild houses in his neighbourhood after Katrina. Shortly after the oil spill happened, he began experiencing flu-like symptoms, which would not clear up. He then developed respiratory problems and blisters. Things got worse when he started having seizures and passing out.

Nearly impossible was the connection of acute physiological experiences (flu-like symptoms, abdominal pains, nausea, respiratory illnesses, skin rashes, blisters, bleedings, memory problems, etc.) and chronic conditions (cancers, neurological damages, birth defects, genetic damage) to chemical exposure to the oil and dispersants used in the clean up efforts. The diversity of symptoms made their interpretation open for differing and contradictory analyses. Many people expressed concern about developing cancer in the future due to exposure from the oil spill, which would be difficult to assess. ‘We’re all laboratory rats’, was a phrase expressed repeatedly. This fear was based on reports of human suffering after the Exxon Valdez oil spill in Alaska in 1989. According to Marlyee Orr, the lifespan of people exposed during that spill averaged around 52 years (McNeill 2010).

By not taking the fears of the people seriously, authorities created traumatized, alienated people, who had lost trust in the authorities. Since one of the persisting health impacts was declined memory capacity, people had, in a literal sense, adapted to the media strategy of ‘out of site, out of mind’. Adding insult to injury was the fact that the claims facility did not recognize chemical exposure, and resulting illnesses, as legitimate ground for claims. What was required was actual biochemical proof, supported by biomarkers that the illnesses were caused by oil or dispersants from the incident site. As chemist Wilma Subra, and environmental lawyer Monique Harden, explained to me, it was not possible to directly link the chemicals in a person’s blood to their illness. They could only provide a *correlation* or *association*. Harden summarized: “The reality is that science can not answer the question. We have got a standard that is unreachable, untenable for so many people that basically says ‘you don’t have [the possibility of] recovery’. It’s very much related to the situation we have after Katrina and the situation we have with environmental injustice in the country, where it’s set up so that a community or a person is not able to recover from the harm.”

Tracy Kuhns from Barataria, Louisiana, who worked for the Louisiana Bayou Keeper and the Gulf Fish Coalition, expressed her feelings of despair and stagnation with the ongoing health crisis. At the Gulf Coast Ecosystem Restoration meeting in Biloxi, she explained to a crowd of indignant people:

The one thing that is common among all these environmental exposure situations in this country is that people come and do studies, agencies do studies, people can't find doctors who know anything about environmental exposure. They're starting to feel like they are crazy. Doctors and other folks start to convince them that they're crazy. And they go without medical care for years on end, 'til it comes to a point where they die or they are just so chronically ill that they are no longer functional.

Referring to Warner's (2002) concept of *mass public* and *mass subject*, in which he states that public discourses are entangled with the need to neglect oneself as an author of a discourse and subordinate oneself to shared values of reason in order to become a public subject; the public portrayal and response to the impacts from the oil spill can be heavily criticized. The public discourse spread by BP, and the dedicated mass media coverage can be seen as heavily biased, focusing on people positively affected by the efforts to clean up the spill. The portrayal does not acknowledge people getting sick from the dispersants sprayed, nor fishermen anxious due to the uncertainty they now face.

Warner (2002) conducts a discourse analysis of the concept/term 'public'. He deals with the reception and conception of the public in society. How is a public constituted? What is the reference point of the public? A discourse can be produced without a body when it is published as a text without an author. Someone can read a text as a subject, or as a public person, and reflect upon the view of the public. The production of public discourses in newspapers is aimed at persons without clear subjectivities, at normative audiences. However, the public and its viewpoint can influence the self-conception of a person, and contribute to a feeling of alienation. It can produce a public subject that does not coincide with the experiences of real people. Public expectations are determined normatively by the norms and values of the public. The 'bourgeois public sphere' is based on a disembodied discourse in which there is no authority that determines public opinion. The 'bourgeois public

sphere' is directed against the state, designed as a contrast to it. From this perspective, everyone can participate in a public discourse. The state does not hold any monopoly on public opinion. In the Western political thinking, *rationality* is a characteristic shared by everyone. This idea derives from a disembodied, neutral subject, the 'disembodied public subject'. The 'disembodied public subject' signifies the notion that you give away a part of yourself in order to be part of the public. This position represents an ideal model. One emanates from a public that has its own body, a transcendent body with its own dynamics. In reality, access to the public (the ability to negate oneself to a public, rational discourse) is limited. It is an utopian ideal that everyone has access to the public sphere. The public refers to a public subject that is normative. The subaltern falls out of this public. The normal is the plain. The abnormal is the marked. The abnormal has to justify why it negates itself, makes itself public.

A public discourse can appeal to a 'mass public', which has no clear features. There is a tension between the universal and the particular. The public produces generality. In this universality, the things not mentioned – the particular – are always implicitly included through their negative form in the general. Only through reference to the public, a connection with the subject can be established. The structure of the public has the inherent contradiction that the particular must be generalized in order to become public, but nonetheless remains particular. The individual identifies himself/herself with, but at the same time distances himself from the 'public body'.

From an empirical point of view there is no such thing as a public, it's an imagination that arises in juxtaposition to the individual. Warner states that there is no such thing as a singular public discourse, but only plural, context-dependent receptions (mediations) that can be perceived differently, depending on situations and subjects. The imaginary reference point of the public is the media. Media outlets attempt to give their audiences a sense of the public perception around actual events. The relationship of a reader to the public sphere is ambiguous and the recipient is prosthetic, because the recipient is not an explicit embodiment of the discourse. The creation of a public discourse through an anonymous entity creates a disembodied discourse, not because of, but despite the subject, which emanates from it. Public

discourses have their own dynamics and are disembodied texts, independent of location.

The interest of the media in disasters lies in the fact that they visualize mass subjectivity. In Warner's words: "mass subjectivity offers a reconciliation between embodiment and self-abstraction" (Warner 2002: 181). This reconciliation is done through a blurring of one's own experiences and those of the mass subject (the victim of a disaster). Warner (2002: 179) calls this 'mass-imaginary transitivity'; the lack of differentiation between one's own experiences and those of others.

People affected by the spill can't identify with the mass, normative subject produced by the public discourse. According to public opinion, everything is back to normal. Mass transitivity doesn't take place, since the majority of the US public seems unaware of the ongoing hardships on the Gulf coast.

Karen Mayer Hopkins created a website called *Grand Isle – BP's Ground Zero*. I found her website by chance while surfing the Internet one day. I then tried to contact her and finally succeeded in finding her account on Facebook. I explained her who I was, and what I was doing in Louisiana. She agreed to an interview at her house in Grand Isle, where she worked for Dean Blanchard seafood. Travelling from New Orleans to Grand Isle is a two and a half hour drive. I was driving with Christine Breault, the civil lawyer and documentarian, who accompanied me on most of the interviews I did. During the drive, we passed long miles of natural and artificial canals, where shrimping boats line up behind each other. When approaching Grand Isle, the scenery changes to beautiful Marsh grass. The horizon starts to match with the sea and the shapes of oilrigs pop up all along the sight. Before the coast of Grand Isle, hundreds of active and abandoned rigs pile up to form a kind of industrial city sitting upon the ocean. Karen – a middle-aged woman with gentle features and short, red hair – greeted me upon our arrival in the late afternoon. Her house was right at the beach, separated only by a levee some feet high, which blocked the view of the waterline.

After some small talk, we went outside to begin the interview. She began telling me how she had moved there years ago, because she liked fishing and was in love with the sea. She and her boyfriend had rebuilt the house they lived in completely, after

hurricane Katrina had shattered it to pieces. When asking her about the impacts of the spill on her, she explained:

I did know early on that something was wrong with my health. I was confused a lot. I was very irritable. I was angry all the time. I would try to find a word, and the word wouldn't come to my mind. And I'm not one who is usually lost for words. I decided that I needed to see a doctor. Because I would cry and then I would be angry. You know it was classical symptoms of depression and anxiety. So I made an appointment to see a doctor and he referred me to a psychiatrist. And my psychiatrist said it's post-traumatic stress, it's basically what it is. When something happens, and it changes your whole way of life and it changes your expectation of life and what you hope for your future. And it changes you right now, your present. [...] I know that I am not physically, emotionally and mentally the same person I was before this happened. I feel it. I see it. Other people see it. People who love me see it. I don't care how much of it [oil compounds and dispersants] is in my system or my organs. At this point I really don't care, because it's done. Once it's done, from the level I understand it, it can't be undone. I just want to continue to live the life I have planned for myself and it can't be here. I'm going to have to leave here. We're moving. This is supposed to be the house of my dreams. Who wouldn't want a house like this on the beach? Every reason I came here is gone. I don't feel safe in the water anymore. I don't feel safe eating the seafood. I feel like a hypocrite because I'm in the seafood business.

Karen did not agree at all with what official reports about seafood safety and health impacts were saying. She had witnessed shrimp with oil in their gills, which squeezed out when pushing the head. When they sent in some of the shrimp to the Louisiana Wildlife and Fisheries, the agency stated that the animals had black gill disease. "My boss, he raised a very good question when he said: if the oil was blue, would it be blue gill disease? Because it was oil. No question about it. But we were told, buy the shrimp, it's safe. It's just black gill disease." What also worried her was that never before did fishermen have to sign a claim saying their catch was safe and uncontaminated. She exclaimed: "So how does a fisherman make the leap from a fisherman to a scientist? And why should he have to? And why now?" Fishermen were not provided with any chemical instruments in assessing contamination of

seafood. Responsibility, in the case there should be any contamination discovered, was shifted to the fishermen.

3.4 Biological citizenship and the human right to health

I've nosebleeds; I've bloody diarrhoea all the time, every time I eat. It's not getting any better at all. My goal is to try to find someone, somewhere that can try to help me medically. That's the only thing I'm really concerned about. [...] What is if I'm dead within this ten years [of the governmental health study]? I'm just going to be another statistic? Daisy Seal – Mississippi resident

People were starting to fight for their human right to health. After going to doctors and being treated with rounds of antibiotics (and being dismissed when mentioning oil or dispersants), people started having themselves independently tested for oil and dispersant related chemicals in their blood. The 'Metamatrix' test, which many interview partners mentioned or showed me, is not taken seriously by most physicians, because it's not established in the medical community. Some physicians argue that the VOCs (Volatile Organic Compounds) found by these tests are not related to the spill, since they degrade in the body very quickly. The affected people were contesting medical expertise, which made no connection to the incident, by bonding with the few experts who took them seriously. American ethics of self-responsibility were being juxtaposed with the human right to health, based on their own status as biological damaged integrities.

Cherri Foytlin – a journalist, mother of six and wife of an oil worker in Rayne, Louisiana – had been visiting the Mississippi coast in September 2010, to prove there was still oil on the bottom of the Gulf. When she got back, she fell seriously ill, suffering of severe bronchitis and headaches. Already back in mid July 2010, she had appeared on a CNN news program, asking president Obama desperately to take the hardships of Gulf Coast residents seriously. People were also suffering from economic hardships, since the spill not only put thousands of fishermen, but also thousands of oil workers, out of work. President Obama had implemented a six-month moratorium on offshore oil drilling as a result of the disaster. When I got to know Cherri at a green energy event in New Orleans, she poignantly told me of her experiences since the spill had started. Cherri is of Native American decent and – unlike most other people – moved to South-Louisiana after Hurricane Katharina left

big parts of the coast in ruins. Unlike long-term residents, she hadn't experienced the lack of state and national response to disaster and emergency situations. As a result of the spill, she experienced great disillusionment of social responsibility of the government towards its citizens. She decided that action had to be taken. After trying to encourage other people to stand up and fight for their rights at local gatherings, she decided to walk to Washington, to raise further awareness about the ongoing hardships of Gulf Coast residents. She started her walk on the 13th of March 2011, walking along the Mississippi and Alabama coast up through Georgia, South and North Carolina and Virginia to Washington D.C. During the one-month journey, she bonded with people fighting environmental issues in their communities. She explained:

I went through one town and they were fighting against this toxic waste dump and they were losing. It's Conoco Woods. Go up another 100 miles or so, and there was a community that had just won that battle. So I asked them 'how did you win?' Well, we voted people in that were like-minded, like us. When they went in, they were able to get rid of it. That's why it's so important that young people and activists that care actually get up and go out and run for office. The point is, I was able to connect that community back to the other community.

When she arrived in Washington D.C. in mid April, she spoke to thousands of young environmental activists from the 'Power Shift' coalition in Lafayette Square, explaining about the ongoing health and economic hardships of Gulf Coast residents. These hardships were black boxed to the major part of the public, leaving them desperate about their future.

The struggle for recognition regarding the impact on human health is theoretically described in what Adriana Petryna (2002) terms 'biological citizenship'. Biological citizens are people who are forced to use their "illness as a [...] political cleavage, as an identity through which [they] frame their political demands and challenge authorities for forms of redress" (Orsini 2006: 2). One of the central questions of biological citizenship circles is around the topic of subject formation through power/definitions/structures exerted on them by governments, scientific and medical authorities and the reverse, their own subject formation through contestation of these

truth claims and demand for medical and social redress. The concept has to be seen in the context of problematic medical and societal categories, which do not or only very poorly, recognize the hardships of affected people. Petryna (2002) investigated the struggles of Chernobyl victims in Ukraine, who were/are confronted with a changing political-economic system that only selectively recognizes radiation exposure as a legitimate illness claim. She explains biological citizenship as “a massive demand for, but selective access to, a form of social welfare based on medical, scientific and legal criteria that both acknowledge biological injury and compensate for it [...] the damaged biology of a population has become the grounds for social membership and the basis for staking citizenship claims” (Petryna 2002: 5, 6). The claim for medical and financial redress is therefore linked to biomedical expertise about the human body and its reactions to exposure. Knowledge about the impacts of exposure on the human body is often inconclusive, shaped by a lot of unknowns and individual reactions. Individual reactions to exposure contradict the biomedical notion of objectified, standardized symptoms, which can clearly determine one’s personal syndrome and reconstruct his/her medical history. Petryna sees a shift in biomedical research from laboratory attempts to correlate different levels of exposure and its resulting biological effects, to a generalized inventory of symptoms shown by exposure patients. This shift of focus acknowledges the importance of “irregularity, uncertainty, and exception” (Petryna 2002: 118) as equally relevant for a balanced assessment of the outcomes of exposure events. Within this blind spot of biomedical expertise, affected citizens build their foundations of counter-expertise, trying to claim truthfulness for their, often denied, hardships. Petryna shows how exposure victims used the knowledge of personal injury, self-taught scientific understanding and bureaucratic influence to negotiate state pastoral care and redress in the form of financial pensions.

McClintock (2010) calls the exposure to dispersants ‘slow violence’, which is slow, invisible and therefore difficult to put into context. She states:

Death by dispersants is slow and invisible. Death by dispersants wreaks its havoc over generations. Dispersants are what Rob Nixon has called “slow violence”. We often think of violence as immediate and spectacular, bounded by space and time. Nixon recalls us to violence of a different kind: the “attritional devastation” that takes

place gradually over time and space. Slow violence may be less visible, less media-sensational but enacts a toll no less lethal and lasting for being slow and out of sight' (McClintock 2010).

This insight of chemical exposure working as an unrecognized Grim Reaper is contrary to established categories of knowledge, which emanate from mainly psychological impacts as a result of the spill. The official governmental report covering the aftermath of the incident speaks of the eleven workers killed in the explosion and the fire on the oil platform. It also warns of massive mental health problems resulting in an increase in domestic violence and disruption of family structures that were recorded in communities that experienced oil spills before (National commission on the BP Deep Water Horizon oil spill 2011/I: 191-95). However, it doesn't speak of the possibly thousands of people suffering from chemical exposure through contact with oil compounds or the dispersants sprayed. It acknowledges the lack and bias of medical expertise around dispersants, since the EPA (Environmental Protection Agency) receives the toxicity data from the manufacturer, which – in addition – holds property rights on the formula of the dispersants, and is, therefore, not required to make them public. The report states:

Some toxicologists have questioned the reliability and comparability of the testing by manufacturers. Moreover, the required testing is limited to acute (short term) toxicity studies on one fish species and one shrimp species; it doesn't consider issues such as persistence and long term-effects (National commission on the BP Deep Water Horizon oil spill 2011/I: 144)

Interestingly, the manufacturer of the dispersant 'Corexit', NALCO (National Aluminate Corporation), published a document on its website, in which it states the dispersants consist of "safe ingredients that biodegrade, do not bioaccumulate and are commonly found in popular household products" (Nalco 2010) ranging from beverage mixtures, to hand cream, tooth paste and dish soap. How is it possible that people report severe health impacts after contact with the dispersants, when it's claimed safe by the manufacturer?

Chemist Wilma Subra explained to me that these everyday products do indeed contain small quantities of surfactants (which keep oily and aqueous substances from separating) that are not toxic in small concentrations. The dispersants applied, to her knowledge, did contain large quantities of toxic surfactants, which were not comparable to the ones used in everyday products. Even more importantly, she explained:

In the United States we've a mechanism of pre-approving dispersants as part of a national contingency plan that allows specific dispersants to be used in oil spills. We also have a process by which chemicals are evaluated for their toxicity both to human health and the environment. This is a very slow process; the majority of the chemicals that are in use in the United States today have not been tested. So that information is lacking.

People affected by the BP oil spill tried to contest expertise about the impacts of chemical exposure – which was denied by most physicians and officials – by using the existing knowledge gaps and filling them with expertise in favour of their interests. One major method was the ordering of blood tests, which looked for Volatile Organic Compounds, as explained in the chapter “An illegitimate illness”. Since most physicians did not recognize these tests, people had to produce more counter-expertise, which was a challenging, time consuming, task. Only a few experts bonded with them, producing scientific evidence to corroborate their health claims. William Rea, founder of the Centre for Environmental Health in Dallas, successfully treated people suffering from chemical exposure in the aftermath of the Exxon Valdez oil spill, and was now also treating people affected by the Deepwater Horizon oil spill. He explained how reactions of the human body to exposure were very individual: whereas some people responded with asthma, and other respiratory ailments, others did with brain dysfunctions like short-term memory loss and chronic fatigue; still others again reacted with diarrhoea, or numbness and tingling. He explained a simple test that could be done to determine if one was suffering from chemical exposure: many people were no longer able to walk in a straight line and stay on one foot without falling over (Fox 2010).

The diversity of reactions to chemical exposure made a connection to particular chemicals and exposure events even more difficult. Maureen Lichtveld, who was conducting a study on the impacts of the spill on pregnant women, explained to me that the mixture of crude oil and dispersants made it impossible to predict what combination of impacts they could have on people. She also emphasized the intersection of physical, societal and psychosocial effects of the spill. In her opinion, there was no simple answer to what the impacts of the spill on human health would be. The historical burden of health disparities along the Gulf Coast, caused by what I explained in the chapter “Petro state citizens” as structural violence, intersected with the shortcomings of a disaster prone area and the physical and psychosocial effects caused by the spill.

Since the studies implemented were supposed to monitor the health of the people over the following years, but not direct any treatment, people affected continued to question authorities, and their methods of addressing the impacts. One scientist, who was acknowledged the value of local, personal knowledge, was biologist Linda Hooper Bui. Linda was conducting research on the impacts of the spill on insects living in the marsh. Doing this, she also relied on information of residents about the past condition of the environment. She did research by placing crickets in oil-contaminated areas, and those free from oil, and then comparing them. Despite the ongoing nature of the experiment, she emphasized that there was a very high plausibility that the oil and dispersants had health impacts on the insects, and that this finding would also give credibility to human health impacts. Linda was so generous to invite me on a boat trip into the marsh where she was conducting the experiment. I had to get up in the middle of the night to drive to the small port where the research vessel was departing. Some of the marsh had been heavily oiled and proved nearly impossible to clean, because of its organic nature. On the trip, she explained that she usually got sick during and after doing the sampling for the experiment. She had to get off the boat and wade through the marsh to get to the boxes where she had placed the insects. After excluding diverse factors as sea sickness, bad food, drinking and others, she was quite sure that her nausea during and after the trips was caused by oil. However, this uncertainty of correlation between ailments and the spill was also prevalent with local residents she spoke with. Despite an unusual increase in

respiratory ailments and infections since the spill, most residents were not making any connection to oil or dispersant toxins.

The exposure to oil compounds made the crickets analysed appear older than they would actually be, because the depleted carbon accumulated in their tissue. Linda explained:

What happens is, in the insects: if they either consumed something that has incorporated the carbon from the oil or they've ingested the oil themselves and incorporated it in their tissues; they're not going to be up here, as the same age as me, even though they're modern insects, they're going to appear old in this analysis [C14 method]. Because they digested depleted carbon. It doesn't age them; it makes them appear old. If we collected them in areas where they had atomic testing, they are going to look like insects from the future, because they've actually a little bit more of this carbon.

This apparent anachronism illustrates the uncertainties associated with chemical exposure and its impacts, especially concerning future long-term effects. Marine toxicologist Susan Shaw presented some of her findings about the impacts of the spill on the TEDx Mid Atlantic meeting 2010, six months after the spill. As an expert in toxicology, she was assuring long-term impacts related to the exposure, which would lead to chronic human health effects over decades, especially affecting vulnerable populations (TEDxTalks 2010). In the summer of 2010, marine biologist professor Samantha Joy was accompanied on a research trip, assessing the impacts of the spill. One telling statement she made was that according to her expertise, it was much too early to declare everything safe and back to normal. Scientific assessment of the impacts was still ongoing, accompanied by a lot of unknowns, since research on the impacts of oil spills of this magnitude was not well established (University of Georgia 2010).

Scientific proof and official acknowledgment of the ailments caused by the spill are still pending. One telling story is the one from Mississippi shrimper James 'Catfish' Miller. Catfish put up a video diary of his hospital visits. He had worked in the Vessels of Opportunity (VOO) program in Mississippi and reports having been sprayed with dispersants numerous times during the clean up. After three weeks

working in the clean up efforts, he started to feel nauseous, began throwing up, having diarrhoea, being dehydrated and having problems breathing. He admitted himself to hospital and was diagnosed with anxiety attacks. He continued working in the clean up for seventy days, being dependant on the income. He was readmitted to hospital in November, after passing out in the shower. They put him on steroids and pain relievers. He was diagnosed with the flu and acid reflux (Rednour 2010/2011). In mid February 2011, he had to go back to hospital again, throwing up, being extremely nauseous and foaming at the mouth. On his third entry to hospital, he commented:

The hospital staff continued to rehydrate and treat me as if there was nothing truly wrong other than I continued to vomit, was horribly dehydrated and still suffered vertigo as well as pain and total muscle fatigue. I had to be kept on demerol for the pain. They ran gastrointestinal tests including upper and lower GI looking for possible intestinal cancer because my platelets were so out of balance. I had to consume an egg sandwich containing radioactive dye for the tests and in the middle of the tests I started again to get sick. It took in excess of 7 hours to control the nausea yet again (Rednour 2011/II).

Affected people like James Miller lacked the scientific expertise with which to contest established medical knowledge, which didn't recognize chemical exposure. He expressed his disbelief that no physician acknowledged his ailment. He ordered a blood test for volatile organic compounds (VOCs), which also wasn't recognized. On a gathering at Dr. Robichaux's place in April 2011, marine-toxicologist Dr. Riki Ott explained her opinion about the blood tests and the ongoing health crisis. In her opinion, the tests didn't reflect accurately enough what was actually in people's bodies. She thought that oil compounds and other toxins gathered in people's fat tissue, not necessarily showing up when drawing blood. When people exercised, chemical compounds were set free into the blood stream (Blackbird Media 2011/I). These uncertainties and difficulties to scientifically prove chemical exposure made efforts to get medical and financial redress even more difficult.

Beck (1998/1986: 155-182) elaborates on scientific truth by commenting on the ‘disenchantment of science’ through what he calls ‘reflexive scientization’. He explains:

At first, science is applied to a ‘given’ world of nature, people and society. In the reflexive phase, the sciences are confronted with their own products, defects, and secondary problems, that is to say, they encounter a *second creation in civilization*. [...] The second phase is based on a *complete* scientization, which also extends scientific scepticism to the inherent foundations and external consequences of science itself. In that way, both its *claim to truth* and its *claim to enlightenment*, are *demythified* (Beck 1998/1986: 155).

Additional to the ‘disenchantment of science’ and the application of scientific criticism and methodologies on science itself, Beck states a tendency of modern science to produce taboos of immutability. These claims to immutability are a reaction to the de-monopolisation of scientific knowledge claims. They try to stabilize knowledge, present it as fixed and inevitable: “What is subject to challenging questions and internal scepticism is *dogmatized* externally” (Beck 1998/1986: 163-164). The knowledge monopole of science is contested by a protest, which uses scientific expertise to legitimize its actions. Beck terms this the ‘scientization of protest against science’. He claims that science has lost its claim to truth: “Thus ‘facts’ – the former centrepieces of reality – are nothing but answers to questions that could just as well have been asked differently, products of rules of gathering and omitting. A different computer, a different specialist, a different institute – a different ‘reality’” (Beck 1998/1986: 166).

Chemists, like Wilma Subra, and physicians like Mike Robichaux, contested established paradigms on the non-existence of chemical exposure. Their counter-expertise was persistent, but not able to force an immediate paradigm change. Since toxicology, and especially exposure of oil and dispersants on humans, remains a blind spot in scientific research, with only very limited studies and data available, claims to truth and new perspectives are characterized by a difficult and long path of negotiations. Methodologies and instruments like the Metamatrix tests for volatile organic compounds (VOCs) in the blood of exposed people enabled a contestation of

scientific claims, which denied any impact of chemicals on human health. Questions were raised as to whether it was mere ignorance, or the lack of knowledge in this highly specialized field of chemistry and human biology, that led to the misinterpretation and black boxing of chemical exposure. On the other hand, there was the possibility of a deliberate denial of any impact. Beck (1998/1986: 163f.) explains this uncertainty and ambivalence with the tendency of science to present its findings and facts to the outside as compulsory and axiomatic, whereas on the inside, scientific truths are constantly questioned and revised.

When juxtaposing Beck's insights with Luhmann's ideas about ecological communication, one gets an idea why the suffering and ailments of sickened people are not recognized. Subjects like chemical exposure are lacking in established research, making them vulnerable to misinterpretation and ignorance. The lack of acknowledgement of non-knowledge renders us still in the first phase of Beck's three steps of rationality and knowledge foundations. The first modernity is characterized by closed discourses, which disallow any phenomena outside of the defined boundaries. The reflexive modernity is depicted by the acknowledgement of ambiguity, non-knowledge and the plurality of boundaries in our understanding. The postmodern condition is the expansion and consolidation of the processes started in the reflexive modernity (Beck/Bonns 2001: 41).

Luhmann (2004/1986: 11-12) perceives ecological dangers and problems as discourses, which are coped with by society through communication. The classical social sciences clearly distinguished between nature and culture and ignored problems induced by a nature-culture bond, or hybrid. In Luhmann's model, the different subsystems of society, consisting of the scientific, the economic, the legal system etc., communicate between themselves in a simplistic, binary way. The economic subsystem communicates with the dualism paying or not paying, the scientific system with the dichotomy true or false, the legal system with the dualism of guilty or not guilty. This simplistic logic is seen as the result of a strong alignment to the specific task of one subsystem. The consequence of these different modes of communication is that resonance between the subsystems is small. If we include now one of Luhmann's central statements, that ecological hazards only exist when there is communication about them, one starts to understand the importance of the lacking

resonance between the subsystems. This lack of communication can also be seen as the result of diverging economical and political interests of the subsystems. Only little information can be the focus of attention at once. People suffering from chemical exposure with an unclear cause and effect relationship – exceed easy perception and classification, therefore subverting the societal modes of communication. Luhmann concludes: “Fish may die or human beings, swimming in lakes and rivers may cause illnesses, no more oil may come from the pumps, and the average temperatures may rise or fall, as long as this is not communicated it does not have any effect on society” (Luhmann 1989).

On August 4th 2011, a group of several dozen people gathered in front of the BP building in New Orleans, protesting against the declaration of the White House one-year prior that 75% of the oil had gone. They declared: “the oil is still here and so are we”. Among the protesters was Cherri Foytlin, who was previously discussed. She was one of the leading figures in the movement for environmental, health related and social justice along the Gulf coast. During the day, Cherri, Dr. Robichaux and several people from environmental organizations had spoken in the Unitarian church, accusing the government of ignoring the ongoing hardships of people affected by the spill, and demanding a critical assessment of the oil industry. Dr. Robichaux had elaborated on the problems his patients faced, emphasizing that many didn’t realize that they were sick because of the spill, and that chemical exposure as a medical category, didn’t exist.

Even though independent, or small media stations, addressed the issue, the problems were still ignored by the majority of the public. At the health forum in Biloxi, one government representative had expressed his astonishment that after dozens of meetings of the Gulf Coast Ecosystem Restoration Taskforce, many officials still did not realise that *humans build part of the ecosystem* and also needed ‘restoration’. Various scholars have criticized the ongoing notion that there exists a nature outside of human reach and action (Castree/Braun 1998).

Veena Das (1995) uses the ‘Agent Orange case’ in the aftermath of the Vietnam War to show that the illnesses that accrued as a result of the use of the chemicals were constructed and explained in very different ways by the involved actors. Whereas the victims “were formulating a theodicy in which they had suffered because of the

willful actions of giant profit-making corporations, which callously exposed human beings to health risks for financial gain” (Das 1995: 149), the chemical companies worked with a view of ‘risk society’, in which a developed society had to take risks in order to prosper and what was needed was ‘risk regulation’ (Das 1995: 149). Victims had to learn how to transform their suffering into the language of medical science in order to be legally recognized. If they couldn’t prove a plausible connection between their subjectively experienced “illness” and medically, classifiable “disease”, their suffering wasn’t recognized.

On April 9th 2011, Dr. Robichaux had invited some of his patients, journalists and Marlee Orr from LEAN to speak in front of his house and give testimonials about their ongoing suffering because of the oil spill. Louis Bayhi had worked in the VOO program and had trusted the official statements that it was safe to work without respirators, and to continue to use the beaches. BP didn’t pay his expenses, forcing him to sell his house and cars and move in with his relatives. After spending time on the beach swimming and fishing at Grand Isle, his two girls became sick. When tested, they showed high levels of VOCs in their blood. Bayhi blamed himself for not questioning the official statements, letting his girls swim in the water, despite knowing that the clean up was still ongoing (Blackbird Media 2011/II).

Many more testimonials were given from people working in the VOO program, who had been sprayed with Corexit, or had gone swimming in the Gulf and fell ill as a result. Dr. Robichaux contextualized the testimonials by saying that nobody was taken seriously when expressing their suspicions – that they might have fallen ill because of exposure to the oil or dispersants – to medical personal. One of the affected, Paul Doom, was accused of faking his seizures. All of these things happened one year after the spill had started. Another patient was splashed with oil and became blind, unable to recover. When he asked for proof that he had lost his vision due to oil exposure, he was denied any causality. Additionally, many of Dr. Robichaux’s patients were experiencing short-term memory problems, making them appear confused and un-focused (Blackbird Media 2011/III).

Based on testimonials of people I spoke with, there is a clear need for a paradigm shift in biomedicine regarding chemical exposure. The black boxing of people’s ailments leaves them desperate and alienated. Thanks only to the efforts of a few

doctors like Dr. Robichaux – who had previously worked with people exposed at an oil waste site facility in his district – were people informed and networked, and starting to get treatment. Dr. Robichaux had written a report to the Louisiana state committee in 1998, explaining the massive shortcomings of environmental protection in the Native American village of Grand Bois. In the report, he elaborated on the industries exemptions regarding waste disposal of petroleum products. Oil waste disposed of in the Native American village was officially labelled Nonhazardous Oilfield Waste (NOW), deriving from the EPA Resource Conservation and Recovery Act (RCRA) of 1988. These exemptions were based on lax regulations, and from Robichaux's viewpoint, the clear outcome of an unreasonable interference of the industry into public law and policy. Because of these lax regulations, environmental contamination and human health impacts were rendered invisible (Robichaux 1998). People were trying to contest the non-existence of chemical exposure by producing counter-expertise – with the already mentioned Metrametrix blood test – doing independent seafood and water sampling, and forging relationships with scientists who took their concerns and ailments seriously.

Epstein (1996) investigated the workings of scientific knowledge production and how biomedical certainty is achieved, constructed and contested. He focused on the case study of the AIDS epidemic. He assessed the topic by looking at the different actors involved in the processes of scientific fact production and the linkage of power, knowledge and order. Epstein challenges established notions about the workings of biomedical knowledge production, through focusing on laypeople and their agency. He summarizes the topic under the discourse 'politics of expertise'. For the study, he united approaches of the social studies of science with the sociology of medicine and the sociology of social movements. He states that through the AIDS discourse, research was politicized and irretrievably intertwined with social issues. Patient self-help groups challenged expert biomedical knowledge and offered alternative expertise. They questioned methodological approaches and production of facts, and shed light on the relevance of power relations involved in the distribution of knowledge. Lay people are usually dependent upon physicians, and their credibility. This fact shows that even within bioscience, and amidst its practitioners, faith and credibility play pivotal roles within the discipline. Research and new expertise would

not be possible if the workings of other scientists could not be trusted. Epstein therefore focuses on how knowledge production and credibility struggles are intertwined. He sees new scientific knowledge emerging out of credibility struggles, as already stated by Thomas S. Kuhn (1996) in his famous study on the *The Structure of Scientific Revolutions*. Credibility can arise from different actors, from classical scientific expertise, over media support to the social embeddedness of an actor. The case study of the emergence of biomedical knowledge around AIDS exemplifies the fact that science is no longer a procedure that works within the confines of an ivory tower, but is exposed to political, economical and cultural influences.

Epstein (1996) emphasizes the constituting character of biomedicine and social movements. Lay activists, with no scientific expertise in biomedical research around AIDS, succeeded in establishing themselves as ‘obligatory passage points’ concerning medical trial protocols. They did this by acquiring the vocabulary and basic conceptual schemes of biomedical research. Activists were also able to recognize cleavages between biomedical researchers, and becoming allies with those corresponding with their own interests. Through this practice, they established new ways of achieving credibility, leading to a transformation of how biomedical knowledge gets produced. Epstein emphasizes that the negotiation of credibility is an important aspect in the resolution of scientific uncertainty. Scientists negotiate what counts as evidence; scientific facts are – despite their seemingly pure objectivity – negotiated. Closure of ambiguity is achieved through actors establishing themselves as credible representatives. Still, traditional credentials are the simplest way to establish and maintain credibility in biomedicine. However, different actors such as the media play important roles in allocating public and societal expertise. They are able to construct hierarchies of importance. As a result of these different practices exerted, lay activists were able to extend their influence in the construction of biomedical knowledge through ‘advisory jurisdiction’: they brought about a shift in the power-balance between competing biomedical opinions and achieved the acceleration of clinical trials and the facilitation of access to AIDS medication. Interestingly, in the politics of knowledge, positivism increased in the minds of activists cooperating with researchers, who were perceived as losing their bonding to the affected, emotion-driven activists.

Coming back to the case study of this paper – chemical exposure in the aftermath of the Deepwater horizon oil spill – I want to see what kind of efforts activists made to challenge biomedical knowledge about the impacts of oil and dispersants on the human body. Despite having had their blood tested, people affected regularly attended public gatherings addressing the environmental restoration of the Gulf, and accused the authorities of not taking their health problems seriously. They denied the sufficiency of the ten-year study of the National Institute of Health to monitor the health of clean up workers and Gulf coast residents. What they demanded was immediate, free health treatment, and no mere monitoring of the ongoing ‘experiment’. Already in the beginning of 2011, Louisiana residents had heavily criticized the report of the governmental oil spill commission for not mentioning any physical health impacts. They expressed their feelings of being deceived by the government and its collaboration with BP (National commission on the BP Deep Water Horizon oil spill 2011/II).

Charles Taylor had been living in Bay St. Louise, Mississippi for sixteen years. He did refrigerator and air-conditioning work. Charles loved eating seafood. He did eat extensive amounts of seafood and continued doing so during the spill. Official reports stated that everything was fine. Then he started getting sick. In June 2010, he began having chronic bloody diarrhea for 45 days. Going to the hospital, they diagnosed him with Crohn's disease, which he had suffered from twenty years previously, but hadn't had any problems with since. They ran diagnostics on him and saw polyps and inflammation. After getting treatment, he felt better. But around Christmas, he developed bronchitis, and in January, pneumonia. The pneumonia was recurrent, making him unable to continue working. The memory loss made things appear less severe, since his wife had to recall all that he had gone through.

The official agencies NOAA (National Oceanic and Atmospheric Administration) and FDA (Food and Drug Administration) state that Gulf Coast seafood is safe to eat (NOAA 2011/I, FDA 2011). The first procedure of the authorities in determining seafood safety is that NOAA records the location of oil slicks and closes affected areas of federal waters. The NOAA report does not state however, what is done to handle dispersed, difficult to detect oil. On the level of the seafood itself, the agencies run ‘sensory smell tests’ and ‘chemical analysis’. Therefore, samples are taken at

specific places and then run through these standardized tests. For the 'sensory analysis', a minimum of six, one-pound samples of fish is collected. The fish is then filleted, and "a panel of 10 expert assessors will smell each of the raw samples and record the odor. The samples are then cooked and the process is repeated so that the experts may smell and taste the fish in its cooked state" (NOAA 2011/II). If the samples pass the sensory analysis (five out of seven NOAA and FDA sensory experts must find no detectable taint), a 200-gram mixture from each sampling location is sent to a NOAA laboratory. There, the tissue is searched for compounds of 'polycyclic aromatic hydrocarbons' (PAHs) with chemical analysis (FDA 2010).

Biello (2011) reports that the FDA tests only edible portions of shrimp for PAHs, which is, in their point of view, the muscle tissue. According to different expertise, polycyclic aromatic hydrocarbons do concentrate in the gut and in the fat tissue of the shrimp. Biello argues that "at least in Louisiana, if not elsewhere, people most often eat the shrimp gut and all—and they eat a lot more than four shrimp in a serving" (Biello 2011). FDA and NOAA testing emanates from an exposure level to PAHs that will not result in more than one cancer in 100'000 people exposed over a lifetime period. This threshold is determined based on an individual weighing 80 kilograms and eating four jumbo shrimp four times a month (Biello 2011). Subra (2011) also criticizes that the consumption rates established by the FDA fail to consider eating habits of coastal communities and vulnerable populations. She adds that "the levels of concern are elevated above the normal FDA levels for seafood" (Subra 2011).

The 'sensory analysis' method did not succeed in establishing confidence in many Gulf Coast locals. Too many questions went unanswered: "Where were the samples taken? How were sample locations determined? Are samples being tested for dispersant and heavy metals?" (Kinner 2011). Locals started to do their own testing, with the support of independent scientists. These test results were dismissed by the FDA, who termed it junk science". One can explain this statement with the construction of scientific expertise, which finds its credibility in 'boundary maintenance' in opposition to non-scientific knowledge.

The Lower Mississippi River-keeper environmental network did some independent testing of seafood and found high traces of 'total petroleum hydrocarbons' (TPHs) – mixtures of hydrocarbons that are found in crude oil – and PAHs. Paul Orr from the

network stated: “some of the organisms we tested came from waters that were open for fishing, and the samples all looked beautiful. They smelled good, and there was nothing that made me think that they might be contaminated with oil” (Buchanan 2011). When tested by commercial labs, they showed contamination levels that could cause concern. The Louisiana Bucket Brigade criticizes FDA and NOAA testing methods stating:

NOAA and FDA continue to make decisions affecting consumers based on too few samples, not sampling for all the toxins, not testing for all the metals and not listening to what scientists, fishermen and nonprofit groups are saying. They have shown the same woefully inadequate protocol in every fishery reopening since the well was capped (Buchanan 2011).

This statement points to the problem of ambiguity in scientific findings. When NOAA and FDA stated that seafood was safe to eat, they didn't mention that it was safe concerning the testing for specific toxins they had looked for, including a threshold of concern they had created themselves. Scientific procedures were black boxed to the public. I argue that the restrictions of NOAA's and FDA's seafood testing were black boxed because ambiguity doesn't correspond to the necessity of simplistic knowledge dissemination in governmental communication.

At the end of August a group of affected Gulf citizens, including Cherri Foytlin, John Gooding, Andrew Gaines, Chuck Brady and others travelled to Washington DC. They had an appointment with representatives of the National Institute of Health, the Gulf Coast Ecosystem Restoration Taskforce and other agencies active in the Gulf region. The National Institute of Health will run a ten-year study, monitoring the health of 50'000 clean up workers and residents. According to Fritzi Presley, who was part of the group, the meetings with the representatives gave them the feeling that they were being heard by the government. The different agencies took notice of their hardships, despite not being able to implement any immediate action. The agency representatives elaborated that appeals had to go from the state to the federal level. Without this bottom-up request, the federal government was not able to take any major action.

Lacking environmental regulation of oil companies operations paired with structural violence, denied people's human right to health. Louisiana has a history of environmental abuse, caused by its ambiguous relationship to the oil industry. According to environmental lawyers Monique Harden and Nathalie Walker, the entire US had very lax regulations when it came to the enforcement of environmental laws and the human right to health. As explained in the chapter 'The deregulation of industry practices' oil industry operations were based on 'presumptively protective' guidelines. These directives rendered human health impacts from environmental contamination invisible.

The health crisis in the Gulf of Mexico was not recognized as one because of its lack of official status as a violation of the human right to health. As explained in detail in the chapter "An illegitimate illness", hardships of people affected by the spill were regularly misdiagnosed. Because most physicians and politicians did not recognize the lack of knowledge in chemical exposure, officially there was no health crisis.

Ticktin (2011) explains in her case study of immigrants in France that medical institutions, despite their apparent apolitical character, take a highly political role in determining what are legitimate and illegitimate suffering bodies. They produce a truth of the legitimate suffering body, based upon apparent purely objective medical categories. "This truth both designates and produces certain people as Other, as beyond and outside reason" (Ticktin 2011: 15). Whereas Ticktin criticises that other forms of suffering – like unofficial violence, oppression and persecution in one's home country – are not recognized as legitimate causes of a suffering body, the case study of the Deepwater Horizon oil spill raises the pivotal question of diseased bodies that are not recognized as such because of lacking medical categories verifying them. The pursuit to claim redress based on a biological damaged integrity was therefore not possible. They hadn't reached the status of what Petyrna (2002) terms 'biological citizens', because of the impossibility to prove any connection between their ailment and the spill. As long as the National Institute of Health's ten-year study remains ongoing, there are no legitimate suffering bodies.

Conclusions

The story about the impacts of the Deepwater Horizons oil spill is one of ongoing health problems that will likely continue into the future. The fast dispersion of oil at the spill site is juxtaposed with the long-term health impacts caused by chemical exposure. People affected continue to fight for redress, demanding free treatment facilities and financial compensation. They build their claims on a damaged biological integrity, contesting notions of state and corporate responsibility. Worries about future chronic epidemics in the form of cancer are widespread. Posttraumatic stress shouldn't be neglected in this case, but neither should physical health problems. The impacts of the Exxon Valdez oil spill, which had tremendous outcomes on the people who worked in the clean up, is an example of how physical health impacts are an issue that need to be taken seriously. Thousands of the clean up workers suffered from chronic health problems and minimized life expectancy (Ott 2004).

The BP trial on the impacts of the spill and the company's responsibilities and fines began on February 27th, 2012 in New Orleans. Concerned citizens and activists continue to rally for a critical assessment of the company's behaviour in the clean up and the impacts it caused. On the activists' schedule is to advocate for a fair response to the environmental and health related problems caused by the spill, but also redress for the despair that – despite extensive efforts – still remains unheard (Foytlin 2012). From this perspective, one has to agree with Latour's (1993) insight that our societal functioning and perception is still based on easy, dualist conceptions, which don't recognize anything that fails easy classification, as is the case with chemical exposure.

Diagnostically, the illness doesn't exist as an established medical category and with it the suffering of people affected. Officially, they are no legitimate suffering bodies. People along the coast reported an unusual increase in health problems, which were treated with excessive amounts of antibiotics. The cause of this increase in illnesses was officially unknown. The denial of people's hardships creates alienated persons, feeling misunderstood and abandoned. While some took political action to gain social and medical justice, others faced severe depression and feelings of hopelessness.

There is a clear need for a paradigm shift in biomedicine regarding chemical exposure.

As elaborated by Beck (1998/1986), questions in modern 'risk societies' circle around problems of risk-distribution between societal actors, the allocation of responsibility and the production of knowledge about these risks. Since science still lacks the vocabulary to address all of the different kinds of risks produced by a modern civilization, it renders various threats and ailments of people invisible: "a large group of the population faces devastation and destruction today, for which language and the powers of our imagination fail us, for which we lack any moral or medical category" (Beck 1998/1986: 52). Ironically, the dispersant that BP applied to disperse the oil also functions as a vehicle to 'disenchant' the lack of scientific foundations around the chemical itself and the effects it caused. Wanting to make the oil disappear from the site, the company and its employees also opened a 'Pandora's box' of uncontrollable consequences, which it fails to address now. The effects of dispersants on human health are not properly researched, and are characterized by a lot of unknowns (Toxipedia 2011). These unknowns reflect the problematic of state response to situations of crisis. The suffering of people affected, which didn't correspond with any established categories of the management of populations, got lost in a machinery of care, which functions according to the logic of a normalized population and normalized response plans. Individual needs were rendered invisible. Dependence on the oil industry in states like Louisiana, weaken environmental regulation and even jurisdiction. The economic policy is preoccupied with the welfare of the resource industry itself, which – despite bringing wealth to some of its population – leaves vital parts of the populace abandoned. The awareness that a well-educated and skilled citizenry brings economic, social and political advantages to the state as a whole is not realised. Nonetheless, the oil industry is defended by many locals, even fishermen. After the spill occurred, Louisiana – despite being closest to the incident site – was amongst the first states to rally for the removal of the drilling moratorium that was implemented. People in states like Louisiana – where 13 percent of residents are employed in the oil industry, around 330'000 people (Buchanan/Gordon/Singerman (2011: 13) – seem too dependent on the industry to

rally against its shortcomings. Informants described the relationship to the oil industry as one of dependence, not reciprocity.

The hardships of the oil spill intersected with the southern Gulf's historical burden of social injustice, the lasting impacts of Hurricane Katharina and the erosion of Louisiana's wetland.

Catastrophes, such as the oil spill in the Gulf of Mexico, build up situations in which normality is contested, uncertainty prevails and affected people need to renegotiate their position in a changing environment. From a structural viewpoint, conditions of emergency offer the opportunity to see coherences, which normally do not prevail, but which can help us understand the interrelationship of the global economy, national politics and local communities. From this perspective, the spill is a perfect example for unclear allocations of power and responsibility between a national government and a transnational corporation. "Who is in charge?" was a phrase heard regularly during the clean up, and also continued to be an issue during my field research, one year after the spill had happened. It is telling that there is no clear answer to this question. When it comes to the issue of technical expertise, the federal government had to give almost total credit to the company (Dickinson 2010). For many of my informants, this meant that the perpetrator was allowed to clean up its own 'crime scene', enabling it to shape and display matters as favourable to its own demands as possible. On the other hand, the company had to comply with American federal laws, forcing it to pay and restore the created damage, with the Coast Guard overseeing the clean up operations. Structures of responsibility and control in areas or zones the state has increasingly abandoned remain unclear. As does the substance of discourses emanated. The impacts of the Deepwater Horizon oil spill remain a politics of contested truth.

Bibliography

- Achbar, Mark / Abbott, Jennifer (2003) *The Corporation*. In: <http://www.youtube.com/watch?v=Pin8fbdGV9Y> (31.1.2012)
- Ashcroft, Bill/Griffiths, Gareth/Tiffin, Helen (2007) *Post-colonial studies. The key concepts*. London/New York: Routledge Publisher.
- Beck, Ulrich (1998/1986) *Risk Society: towards a new modernity*. London: Sage Publisher.
- Beck, Ulrich/Bonss, Wolfgang (2001) *Die Modernisierung der Moderne*. Frankfurt am Main: Suhrkamp Verlag.
- Berry, Jason (2011) *Rising Tide 6 - "Re-capping the Well" Panel Discussion*. In: <http://vimeo.com/28288304> (23.2.2012)
- Biello, David (2011) *Gulf Seafood Officially Safe, But Questions and Oil Linger*. In: <http://www.scientificamerican.com/article.cfm?id=did-bp-oil-spill-ruin-gulf-seafood> (11.5.2011)
- Binkley, Sam (2009) The Work of Neoliberal Governmentality: Temporality and Ethical Substance in the Tale of Two Dads. In: *Foucault Studies*, No. 6, pp. 60-78.
- Blackbird Media (2011/I) *Capt. Louis Bayhi - Charter boat captain and BP clean up worker experiencing severe health problems*. In: <http://vimeo.com/22273765> (15.2.2012)
- Blackbird Media (2011/II) *Riki Ott*. In: <http://vimeo.com/22353872> (7.2.2012)
- Blackbird Media (2011/III) *Dr. Michael Robichaux 1*. In: <http://vimeo.com/22353225> (15.2.2012)
- Bourne, Joel K. (2010) The Deep Dilemma. In: National Geographic Society (Ed.) *National Geographic Magazine*, vol. 218(4): 43.
- Brickman, Ronald/Jasanoff, Sheila/Ilggen, Thomas (1985) *Controlling Chemicals. The Politics of Regulation in Europe and the United States*. Ithaca, London: Cornell University Press.
- Bridge the Gulf Project (2011) *Paul Doom*. In: http://www.youtube.com/watch?v=DHCenSO_58E (20.12.2011)

- Buchanan, Jeffrey/Gordon, Kate/Singerman, Phillip (2011) *Beyond Recovery. Moving the Gulf Coast towards a sustainable future*. Washington: Oxfam America/Centre for American Progress.
- Buchanan, Susan (2011) *Private Seafood Tests Uncover Toxins Missed By Feds*. In: http://www.huffingtonpost.com/susan-buchanan/private-seafood-tests-unc_b_820002.html (11.5.2011)
- Callon, Michel/Latour, Bruno (1981) Unscrewing the big Leviathan: how actors macro- structure reality and how sociologists help them to do so. In: Knorr-Cetina K./Cicourel, A.V. (eds.) *Advances in social theory and methodology*. Boston: Routledge and Kegan Paul, pp. 277–303.
- Castree, Noel/Braun, Bruce (1998) The Construction of Nature and the Nature of Construction: Analytical and Political Tools for Building Survivable Futures, In: *Remaking Reality: Nature at the Millenium*. London, New York: Routledge, pp. 3-42.
- Collins, Harry M./Pinch, Trevor J. (1993) *The golem. What everyone should know about science*. Cambridge: Cambridge University Press.
- Credeur, Eric (2010) *Rally for Economic Survival: Cherri Foytlin*. In: <http://www.rallyforeconomicsurvival.com> (19.1.2012)
- Das, Veena (1995) Suffering, Legitimacy and Healing: The Bhopal Case. In: Das, Veena (ed.) *Critical Events. Anthropological Perspectives on contemporary India*. Dehli: Oxford University Press, pp. 137-174.
- Dickinson, Tim (2010) The Spill, the Scandal, and the President. In: *Rolling Stone*, issue 1107: 54-63.
- Douglas, Mary (1966) *Purity and Danger. An Analysis of the Concepts of Pollution and Taboo*. London: Routledge and Kegan Paul.
- Encyclopædia Britannica (2012) *Welfare State*. In: <http://www.britannica.com/EBchecked/topic/639266/welfarestate?sections=639266main&view=print> (30.1.2012)
- Environmental News Service (2010) *Tough New Rules Replace Bush Laxity at Renamed Bureau of Ocean Energy*. In: <http://www.ens-newswire.com/ens/jun2010/2010-06-21-092.html> (13.10.2011)
- Epstein, Steven (1996) *Impure Science. AIDS, Activism, and the Politics of Knowledge*. Berkley: University of California Press.

- Farmer, Paul (1997) On Suffering and Structural Violence: A View from Below. In: Kleinman, Arthur (ed.) *Social suffering*. Berkeley: University of California, pp. 261-283.
- Ferguson, James/Gupta, Akhil (2002) Spatializing states: towards an ethnography of neoliberal governmentality. In: *American Ethnologist*, 29(4), p. 981-1002.
- FDA (2010) *Protocol for Interpretation and Use of Sensory Testing and Analytical Chemistry Results for Re-Opening Oil-Impacted Areas Closed to Seafood Harvesting Due to The Deepwater Horizon Oil Spill*. In:
<http://www.fda.gov/Food/ucm217601.htm> (11.5.2011)
- FDA (2011) *Consumers Can Be Confident in the Safety of Gulf Seafood*. In:
<http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/ucm251969.htm> (11.5.2011)
- Ferguson, James (2009) The Uses of Neoliberalism, *Antipode* 41/S1: 166-84.
- FluxRostrum (2011/I) *Truth Out for the Gulf Forum – Q & A*. In:
<http://www.youtube.com/watch?v=1boys5WChGg> (20.12.2011)
- Fortun, Kim/Fortun, Mike (2005) Scientific Imaginaries and Ethical Plateaus in Contemporary U.S. Toxicology. In: *American Anthropologist*, vol. (107)1: 43-54.
- Foucault, Michel (1976/1990) *The History of Sexuality. An Introduction*. New York: Vintage Books.
- Foucault, Michel (1978/2007) *Security, Territory, Population. Lectures at the Collège de France, 1977-78*. Palgrave Macmillan. In:
<http://www.mediafire.com/?fbcgy5dylqo> (28.11.2011)
- Foucault, Michel (1979/2000) "'Omnes et Singulatim": Toward a Critique of Political Reason'. In: James D. Faubion (ed.) *Power. Essential Works of Foucault 1954-1984*. New York: The New Press, pp. 298-325.
- Foucault, Michel (1979/2008) *The Birth of Biopolitics. Lectures at the Collège de France, 1978-79*. Houndmills: Palgrave Macmillan.
- Foytlin, Cherri (2012) *A short up-to-date guide for citizen activists and other heroes who love the Gulf of Mexico*. In: <http://bridgethegulfproject.org/node/552> (31.1.2012)
- Foytlin, Cherri (2012) *The Eleventh Hour - Why we must not allow BP to settle out of court*. In: <http://bridgethegulfproject.org/node/563> (16.2.2012)

- Fox, James (2010) *Dr Rea (CEO The Environmental Health Center Dallas, Texas)*.
In: <http://www.youtube.com/watch?v=WC4AiZVXJ1o> (22.7.2010)
- Gelpke, Basil/McCormack, Raymond (2006) *A Crude Awakening: The Oil Crash*.
In: <http://www.youtube.com/watch?v=5sMF1n9EgzU> (15.2.2012)
- Harvey, David (2005) *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Jasanoff, Sheila (2005) *Designs on nature. Science and democracy in Europe and the United States*. Princeton: Princeton University Press.
- Karl, Terry Lynn (1999) The Perils of the Petro-State: Reflections on the Paradox of Plenty. In: *Journal of International Affairs* 1999(53): 1.
- Kinner, Bill (2011) *The campaign against independent seafood testing*. In:
<http://labucketbrigade.wordpress.com/2011/02/16/the-campaign-against-independent-seafood-testing/> (11.5.2011)
- Kluger, Jeffrey (2010) *BP's Leaky Fix: Can More Oil Be Recovered?* In:
<http://www.time.com/time/printout/0,8816,1994859,00.html> (28.2.2012)
- Kuhn, Thomas S. (1996) *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- LABB (2012) *History of the Louisiana Bucket Brigade*. In:
<http://labucketbrigade.org/article.php?list=type&type=137> (25.1.2012)
- Latour, Bruno (1993) *We Have Never Been Modern*. Cambridge: Harvard University Press.
- Latour, Bruno (1998) To Modernize or Ecologize? That is the Question. In: Castree N./Willems-Braun B. (eds.) *Remaking Reality: Nature at the Millenium*. London/New York: Routledge, pp. 221-242.
- Leland, Jacob (2009) This is America: New Orleans Post-Katrina, Post-urban, Post-national. *Safundi: The Journal of South African and American Studies* Vol. 10, No. 2, April 2009, pp. 121–131.
- Luhmann, Niklas (1989) *Ecological communication*. Cambridge: Polity Press.
- McClintock, Anne (2010) *Slow Violence and the BP Coverup*. In:
<http://www.counterpunch.org/mcclintock08232010.html> (11.5.2011)
- McNeill, Sophie (2010) *Toxic Legacy*. In: <http://www.youtube.com/watch?v=NBOWoSBCyYQ> (1.2.2012)

- Miller, Claudia (1999) *Testimony to Committee on Veterans' Affairs*. In: http://drclaudiamiller.com/Articles/1999_Testimony_VA_Subcommittee.pdf (22.12.2011)
- Nalco (2010) *Nalco Releases Additional Technical Information About COREXIT*. In: <http://www.nalco.com/news-and-events/4279.htm> (11.5.2011)
- National commission on the BP Deep Water Horizon oil spill (2011/I) *Deep Water. The Gulf Oil Disaster and the Future of Offshore Drilling*. In: <http://www.oilspillcommission.gov> (11.5.2011)
- National commission on the BP Deep Water Horizon oil spill (2011/II) *Stakeholder's Forum - January 12, 2011 (New Orleans, LA)*. In: <http://www.oilspillcommission.gov/forum> (20.2.2012)
- NOAA (2011/I) *Keeping Seafood Safe*. In: http://www.noaa.gov/100days/Keeping_Seafood_Safe.html (11.5.2011)
- NOAA (2011/II) *Passing the 'Sniff Test'. In Assessing Gulf Coast Seafood, the Nose Knows*. In: http://www.noaa.gov/features/03_protecting/sniff_test.html (11.5.2011)
- Offshore Marine Services Association (2011) *End the De Facto Gulf Drilling Moratorium Now*. In: <http://www.youtube.com/watch?v=2xE2YVK6rKU> (17.1.2011)
- Orsini, Michael (2006) *Illness Identities and Biological Citizenship: Reading the Illness Narratives of Hepatitis C Patients*. In: <http://www.cpsa-acsp.ca/papers-2006/Orsini.pdf> (17.1.2011).
- Ott, Ricki (2004) *Sound Truth and Corporate Myth\$. The Legacy of the Exxon Valdez Oil Spill*. Cordova: Dragonfly Sisters Press.
- Pandian, Anand (2008) Pastoral Power in the Postcolony. On the Biopolitics of the Criminal Animal in South India, *Cultural Anthropology* 23/1: 85-117.
- Petryna, Adriana (2002) *Life Exposed: Biological Citizens after Chernobyl*. New Jersey: Princeton University Press.
- Picou, J. Steven (2009) When the Solution Becomes the Problem: The Impacts of Adversarial Litigation on Survivors of the Exxon Valdez Oil Spill. *University of St. Thomas Law Journal* (7)1: 68-94.
- Project Gulf Impact (2011) *Exclusive Flow Rate Scientist, How Much Oil Is Really Out There*. In: <http://www.youtube.com/watch?v=zsHl3kn63ZA> (6.6.2011)

- Ray, Janisse (2002) *Guardian of Grand Bois: Clarice Friloux—homemaker, arm wrestler, sludge fighter*. In: http://findarticles.com/p/articles/mi_m1525/is_3_87/ai_85281773/?tag=content;coll (23.2.2012)
- Rednour, Denise (2010) *An Interview With Catfish Miller - Shrimper Who Is Hospitalized from Gulf Toxins*. In: <http://www.youtube.com/watch?v=M8RCHCxoAI8> (7.2.2012)
- Rednour, Denise (2011) *Biloxi Resident James Catfish Miller at Truth Out Forum Speaks of Illness*. In: <http://www.youtube.com/watch?v=SEb92P9MSyA> (7.2.2012)
- Rednour, Denise (2011/II) *3rd Day Catfish still in the Hospital - Still No Diagnosis*. In: <http://www.youtube.com/user/deniseIngbch#p/u/31/NFu4VbeIKfA> (7.2.2012)
- Robertson, Campell/Lipton, Eric (2010) *BP Is Criticized Over Oil Spill, but U.S. Missed Chances to Act*. In: <http://www.nytimes.com/2010/05/01/us/01gulf.html?pagewanted=print> (21.2.2012)
- Robichaux, Mike (1998) *Report of State Senator Mike Robichaux to the State Committee on Oilfield Waste*. In: <http://senate.legis.state.la.us/senators/Archives/1999/Robichaux/topics/oilfield.pdf> (15.2.2012)
- Solomon, Gina (2011) *Health Advisory: Environmental Detox Programs Can be Dangerous and What You Need to Know About Blood Testing for VOCs*. In: http://switchboard.nrdc.org/blogs/gsolomon/health_advisory_voc_detox_prog.html (21.12.2011)
- Savage, Charlie (2010) *Drilling Ban Blocked; U.S. Will Issue New Order*. In: <http://www.nytimes.com/2010/06/23/us/23drill.html?pagewanted=print>
- Sawyer, Suzana (2004) *Crude Chronicles. Indigeous Politics, Multinational Oil and Neoliberalism in Ecuador*. Durham/London: Duke University Press.
- Sawyer, William (2011/I) *Acute Symptoms as Documented in Human Studies Resulting from Exposure to Crude Petroleum Hydrocarbons*. In: http://leanweb.org/images/stories/bpspill/BP_Acute_Health_effects-crude_petroleum_hydrocarbons.pdf
- Sawyer, William (2011/II) *Long-term adverse health effects from exposure to crude petroleum hydrocarbons*. In: http://leanweb.org/images/stories/bpspill/BP_Longterm_effects-crude_petroleum_hydrocarbons.pdf (3.9.2011)

- Scott, James C. (1998) Nature and Space. In: *Seeing Like a State. How Certain Schemes to Improve the Human Condition Have Failed* (pp. 11-52). New Haven: Yale University Press.
- Subra, Wilma (2011) *Making the Connection – 2011. Human Health and Ecological Effects of the BP Deep Water Horizon Crude Oil Disaster*. In: <http://leanweb.org/news/latest/making-the-connection-2011.html> (11.5.2011)
- TEDxTalks (2010) *TEDxMidAtlantic 2010 - Susan Shaw - Six Months After Oil Spill, Where Are We?* In: <http://www.youtube.com/watch?v=ZodPx-bZPuI> (1.2.2012)
- Templet, Paul H. (2001) *Defending the Public Domain: Pollution, Subsidies, and Poverty*. In: http://www.peri.umass.edu/fileadmin/pdf/working_papers/working_papers_1-50/WP12.pdf (12.1.2012)
- Ticktin, Miriam (2011) *Casualties of Care. Immigration and the Politics of Humanitarianism in France*. Berkeley: University of California Press.
- Tidwell, Mike (2010/2003) *Bayou Farewell. The Rich Life and Tragic Death of Louisiana's Cajun Coast*. New York: Vintage Books.
- Toxipedia (2011) *The Chaos of Clean-up. Anaysis of Potential Health and Environmental Impacts of Chemicals in Dispersant Products*. In: <http://www.toxipedia.org/download/attachments/6/Oil+Dispersants+Report.pdf?version=1&modificationDate=1314200108000> (20.2.2012)
- University of Georgia (2010) *Black & Blue: Beneath the Gulf Oil Disaster*. In: <http://uga.edu/gm/ee/index.php?/single/2010/09/959/> (20.2.2012)
- Vietnamese American Young Leaders Association of New Orleans (VAYLA-NO) (2011) *Raise your Hand Campaign. Six public high schools, six years after the storm*. In: <http://www.coweninstitute.com/wp-content/uploads/2011/11/vayla-report.pdf> (12.1.2012)
- Warner, M. (2002) The Mass Public and the Mass Subject. In: *Publics and Counterpublics* New York: Zone Books, pp. 159-186.

Curriculum vitae of the author

Simon Meier was born in Zurich in 1986. He attended grammar school at 'Kantonsschule Stadelhofen' from 2000 till 2004, specialising in music. After studying English in New Zealand for six months, he started his study in social anthropology, film studies and art history at University of Zurich in 2005. He speaks German, English and French.