IS THERE A NEW NORMAL FOR NATURAL RESOURCE DAMAGE SETTLEMENTS SINCE THE *DEEPWATER HORIZON* SETTLEMENT?

by

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ABSTRACT

Recently, Dunford, et al. (2019) published a statistical model analyzing the variation in natural resource damage (NRD) settlement amounts for oil spills in the United States. One of the significant explanatory factors in the statistical model was the impact of the unprecedented magnitude of the NRD settlement in the *Deepwater Horizon* (DWH) oil spill. Specifically, while the settlement itself was excluded in the statistical analysis, NRD settlements for oil spills that were lodged after the DWH settlement were almost four times the amount of NRD settlements for oil spills that were lodged prior to DWH settlement, holding other factors equal. For simplicity, we refer to this phenomenon as the "DWH effect."

In our paper we examine three potential causes of the DWH effect. Since there were only five settlements between the DWH settlement in 2015 and the end of 2017 (the last year in the database), one potential cause is a small-sample effect. Specifically, the five spills that settled may have had particularly severe natural resource injuries, resulting in much greater NRD. This cause seemed unlikely based on our review of the five spills. Adding NRD settlements in the last three years for five more spills to the Dunford et al. (2019) database and re-running their model lowered the DWH effect multiplier to 2.4 from about four. Thus,

expanding the sample size with five recent settlements lowered the DWH effect, but it remains quite substantial.

A second cause of the DWH effect may be an anchoring effect. By its nature, measurement of NRD is imprecise, and in the absence of litigation, parties have been left to look to past settlements for benchmarks in settlement negotiations. The DWH settlement may have raised the expectations of natural resource Trustees in negotiating settlements in later NRD cases. At the same time, the magnitude of the DWH settlement may have made responsible parties more comfortable with higher settlement amounts. This cause seems likely.

A third potential contribution to the DWH effect may be associated with a shifting of other oil spill liabilities under the Oil Pollution Act (e.g., fines and penalties) into NRD liability. Supplemental Environmental Projects (SEPs), which are often used to reduce monetary fines for spills, may have played a smaller role in recent settlements, and are disfavored under the current U.S. Department of Justice. Both Trustees and parties responsible for oil spills may be willing to shift penalties or SEPs into NRD for different reasons, as discussed in our paper. However, we found little evidence to support this cause of the DWH effect.

A key question is whether the DWH effect is temporary or permanent. Our addition of five recent NRD settlements to the Dunford, et al. (2019) statistical analysis provides some support for a declining DWH effect over time. However, given the dynamics of the NRD negotiation process, we suspect that the DWH settlement has established a new plateau for future NRD settlements, leaving the DWH effect as the new normal.

BACKGROUND

A recently published statistical analysis of NRD settlements for oil spills in the United States (Dunford et al. 2019) found that settlements lodged after the NRD settlement for the *Deepwater Horizon* (DWH) spill were almost four times the amount of the settlements lodged prior to the DWH settlement, other things being equal. For simplicity, we refer to this finding as the "DWH effect."

In the next section of this paper, we summarize the statistical analysis of oil spill NRD settlements through 2017, emphasizing the DWH effect. Then we identify and evaluate three potential causes of the DWH effect. We present our conclusions in the last section of this paper.

STATISTICAL ANALYSIS OF NRD SETTLEMENTS

The Dunford et al. (2019) statistical analysis of NRD settlements included 78 oil spills, which was every oil spill NRD settlement from 1987 through 2017, excluding:

- Two mega-spills with extremely large NRD settlements (i.e., 1989 *Exxon Valdez* spill and 2010 *Deepwater Horizon* spill);
- One mega-spill with a $0 NRD settlement (i.e., 1990 *Mega Borg* spill);
- Five spills having no estimate of the amount of spilled oil;
- 13 spills where the NRD settlement included no dollar value because the responsible party implemented all of the compensatory restoration projects at an undisclosed cost;
- Small spills in Washington state, where NRD is determined using a formula; and
- Chronic spills occurring over many years or even decades.

To the extent the settlement documents allowed, assessment costs were excluded from NRD amounts in order to focus on damages, rather than transaction costs. The average NRD settlement for the 78 spills in October 2017 dollars was $5.8 million, with a median value of $1.8 million.

The explanatory variables in the Dunford et al. (2019) statistical analysis included:

- Volume of oil spilled;
- Natural resource injury factors, such as whether threatened or endangered species were injured, and whether recreation areas were closed;
- Temporal factors, such as the number of years between a spill and the NRD settlement, and whether the settlement occurred after the DWH settlement; and
- Geographic factors, such as whether the spill occurred in California, Texas, or Louisiana.

The explanatory variables in the statistical model accounted for about 60% of the variation in NRD settlement amounts for the 78 spills.

The coefficient on the explanatory variable for settlements that occurred after the DWH settlement indicated that the amount of those settlements was 3.9 times the amount of settlements for spills that settled prior to the DWH settlement, holding the other factors constant. In other words, NRD settlements after the DWH settlement were almost four times the value of NRD settlements for comparable spills before the DWH settlement. We explore potential causes of this DWH effect in the next section of our paper.

POTENTIAL CAUSES OF DWH EFFECT

We identified three potential causes of the DWH effect:

- Small-sample effect;
- Anchoring effect; and
- Shift toward NRD from other liability categories.

We evaluate each of these potential causes below.

Small-Sample Effect

Only five of the 78 oil spill NRD settlements occurred after the announcement of the DWH settlement in early 2015. Given the small sample size, it is possible that all or most of those spills were outliers in terms of some factor leading to higher settlements. The five spills, however, vary on the factors found in Dunford, et al. (2019) to account for 60% of the variation in settlement values. Thus, the five spills are not "extreme" with respect to the factors in the Dunford, et al. statistical model. It is also possible that the five spills had greater natural resource injuries than spills prior to the DWH settlement, resulting in the recent settlements being larger than the earlier settlements. In that situation, the significant coefficient on the DWH variable in the statistical model would be an artifact resulting from a small number of spills with higher natural resource injuries that just happened to settle after the DWH settlement. In that case, there would be no actual DWH effect – the coefficient on the DWH variable would be capturing greater than average injuries for the five spills.

The five spills in Dunford, et al. (2019) that had NRD settlements after the DWH settlement are:

- 1998 Marcelinas Creek spill in Texas,
- 2003 Buzzards Bay spill in Massachusetts,
- 2007 *Genmar Progress* spill in Puerto Rico,
- 2010 Enbridge spill in Michigan, and
- 2011 Yellowstone River spill in Montana.

With the exception of the Enbridge spill, the size of the spills is not exceptional. The average of the 78 spills was 215,000 gallons of oil. Four of the five spills that settled between 2015 and 2017 involved less than 100,000 gallons of oil, with the exception being the major Enbridge spill (840,000 gallons). The Enbridge spill had the highest NRD settlement in the database at $61

million dollars in October 2017 dollars, but the magnitude of that settlement alone did not produce the much higher NRD results for the five post-DWH spills. In addition, more than one-quarter of the older spills had a higher NRD settlement on a per-gallon-spilled basis than the $73 per gallon for the Enbridge spill. In contrast, the Buzzards Bay and Yellowstone River spills had very high NRD per gallon spilled ($136 and $191 per gallon spilled, respectively), but our review of available information on those spills revealed no extreme natural resource injuries. In conclusion, we did not find any characteristics of the five spills that settled after the DWH settlement that would explain much higher NRD settlements for these five spills compared to the 73 spills that settled prior to the DWH settlement.

To further explore the potential impact of the small-sample effect, we updated the Dunford et al. (2019) database to include five more NRD settlements that occurred in 2018 through July 2020.[1] Those spills are:

- 2004 Fortune Epoch fuel oil spill in Savannah, GA,
- 2011 Potomac River Substation mineral oil spill near Alexandria, VA,
- 2015 Refugio State Beach pipeline spill near Santa Barbara, CA,
- 2016 Virginia Liquids Terminal jet fuel spill near Chesapeake, VA, and
- 2016 Green Canyon Block 248 spill near Timbalier Island, Louisiana.

[1] We excluded a sixth NRD settlement for the 2005 Breton Sound Platform 51 spill. Only about 500 gallons of oil spilled from the platform, but the oil killed more than 450 endangered brown pelicans. The NRD settlement was $8.63 million, which was more than $17,000 per gallon spilled. That is more than 100 times the settlement per gallon spilled for almost all oil spills, so we excluded that spill from the updated analysis as an outlier.

Those spills ranged in size from 4,500 gallons to 123,000 gallons spilled. The NRD settlements ranged from $100,000 for the jet fuel spill to $22.3 million for the Refugio State Beach spill.

After adding the five recent NRD settlements to the Dunford et al. (2019) database and running the same statistical model, the DWH effect fell to a 2.4 multiplier from the 3.9 multiplier in Dunford et al. (2019). Thus, the previous 3.9 multiplier may have been partly a function of a small-sample effect. It is also possible that the smaller 2.4 multiplier may be evidence that the DWH effect will dissipate over time. We address that possibility later in this paper.

Anchoring Effect

The 2010 DWH oil spill was largest oil spill in the history of the United States with about 134 million gallons spilled over 87 days (NOAA 2013). Including expenditures by the Trustees and BP, the NRD assessment for the DWH spill over a 5-year period cost more than one billion dollars according to anecdotal sources, and it produced a massive number of studies of multiple impacts of oil on a variety of flora and fauna. The NRD settlement was about $8.8 billion to be paid over a 15-year period, including a one billion dollar "down payment" to fund early restoration projects (DOJ 2016). It is almost certain that the assessment costs and the damage settlement for the DWH spill exceed the assessment costs and damage settlements for all other U.S. oil spills in the last 30 years combined.

One potential cause of the DWH effect in the Dunford, et al. (2019) statistical model of oil spill NRD settlements is that the extraordinarily large NRD settlement for the DWH spill raised the expectations of Trustees for future NRD settlements. At the same time the DWH settlement may have convinced responsible parties that their NRD liability will be higher for oil spills that settle after 2015. This phenomenon is known in the behavioral economics literature as the

anchoring effect, whereby the outcome of a recent event influences the outcome of similar, but independent, subsequent events.

Tversky and Kahneman (1974) provided one of the simplest, and the most well-known, examples of the anchoring effect. A sample of high school students was divided into two groups. One group was given 5 seconds to estimate the following product: 1 x 2 x 3 x 4 x 5 x 6 x 7 x 8. The other group was also given 5 seconds to estimate the same product, but with the numbers reversed: 8 x 7 x 6 x 5 x 4 x 3 x 2 x 1. Given the very short duration of the experiment (i.e., 5 seconds), the students had to estimate the product instead of calculating it. The median estimate for the first group was 512, while the median estimate for the second group was 2,250. Thus, the group facing the sequence starting with the smallest numbers had the smallest estimate, and the group having the sequence starting with the largest numbers had the largest estimate. (The correct answer is 40,320.)

Applying that principle to NRD settlement negotiations, the starting point of negotiations, and the range within which the parties anticipate obtaining settlement can be affected by the expectations of both sides. As noted above, those expectations in litigation negotiations are typically based on prior outcomes. In the case of NRD claims, which have almost never been litigated to a conclusion, those prior outcomes represent the numbers parties have accepted in the past – subjective judgments incorporating the parties' views of the costs and risks of litigation. In that context, a singular event such as the DWH settlement, could produce a marked upward impact on how those costs and risks are viewed**.** Trustees have access to a large volume of completed studies assessing potential impacts on a whole suite of resources, which they can rely upon in assessing and understanding the impacts from even a much smaller spill. Responsible parties are faced with responding to a much broader claim, and also may simply be more comfortable with

paying more than in the past, especially when the higher settlement is insignificant compared to the DWH settlement.

That latter point may be supported by similar outcomes recently with respect to the magnitude of civil penalties. Prior to the DWH litigation, the highest Clean Water Act/Oil Pollution Act civil penalties had been in the $30 -$35 million range. The DWH spill resulted in unprecedented civil penalties of $6.73 billion for the major responsible parties, namely BP, Anadarko, Mitsui, and Transocean (DOJ 2016; Reuters 2015; Pelofsky 2012; EPA 2013). Over 80% of the civil penalty (i.e., $5.5 billion paid by BP) was announced in early 2015. Later in 2015, a U.S. District Court in Louisiana levied an $81 million civil penalty on Citgo for a 2006 oil spill, after EPA won an appeal of the court's earlier imposition of a $6 million penalty (McCue 2015). These unusually large civil penalties may have caused responsible parties to expect to pay more for most elements of liability for oil spills, including NRD.

Shift Toward NRD from Other Liability Categories

Under the Oil Pollution and Clean Water Acts, EPA and the Coast Guard, as well as state agencies recover response costs and usually impose monetary penalties on the parties that are responsible for oil spills in the United States. Historically, Supplemental Environmental Projects (SEPs) have been part of many oil spill settlements, as a partial offset to penalties, and were included in the civil penalty settlements for DWH. SEPs are often indistinguishable from projects included in NRD settlements, but as an offset to monetary penalties, the cost of a SEP is not tax deductible as a business expense. In addition, under the current Administration, the U.S. Department of Justice has expressed opposition to the use of SEPs to offset penalties in many situations, noting, *inter alia*, that penalties under the statute are intended to go to the U.S. Treasury, not to carry out environmentally beneficial projects. It is possible that parties have tried to move

projects intended to resolve other oil spill liabilities into the settlement of NRD claims in recent years. The Trustees are likely to favor such a shift, because they implement restoration projects using NRD funds, while fines/penalties go into the general treasury or the Oil Spill Liability Trust Fund (OSLTF) under the Oil Pollution Act. Similarly, SEPs often are implemented by third parties, not Trustees, so shifting the liability into NRD would allow more Trustee control of project selection. Responsible parties may favor such a shift, because NRD payments are tax deductible, but fines/penalties are not tax deductible. If the cost of SEPs does not change if they are shifted into NRD, then responsible parties are unlikely to oppose the shift. However, the Environmental Protection Agency (EPA) and the Coast Guard, which are the parties responsible for imposing penalties, would have to accept the shift by agreeing to a lower dollar penalty, either in fact, or in practice by forgoing a SEP offset. That, and the potential impact on the OSLTF, may be a public-relations opportunity that the other agencies are unwilling to forgo.

The dollar amounts for both penalties and for NRD are subjective, the result of the spill-specific facts and the negotiating skills of attorneys on both sides. An attempt to accomplish a substantial shift from penalties to NRD would likely meet resistance from both EPA and the Coast Guard, if not DOJ. It is possible that this shift might appear in the future, if DOJ opposition to SEPs increases settlement resistance, but such a shift is not yet apparent.

CONCLUSIONS AND IMPLICATIONS

Furnham and Boo (2011) provide a literature review on different models, explanations, and underlying mechanisms that explain anchoring effects. We believe that the anchoring effect is the most important cause of the DWH effect on oil spill NRD settlements. If so, then the next issue pertains to the potential duration of the anchoring effect. Three experiments conducted by Mussweiler (2001) found that anchoring effects were quite durable in the short run (i.e., one week).

However, we are not aware of any studies that have examined the duration of anchoring effects over several years or more.

Despite the lack of literature on the duration of anchoring effects over long periods of time, we suspect that the DWH effect will continue for many years for several reasons. First, much of the work on the DWH damage assessment is publicly available. It is likely that some (much?) of that work will be transferred to future oil spill assessments in lieu of spill-specific studies, which may produce higher damage claims than the assessment work for earlier spills. Second, the DWH settlement and subsequent NRD settlements are a matter of public record. Trustees may believe that future NRD settlements must be comparable on a per-unit basis to the DWH settlement in order to survive public review and be accepted by the court. Third, many of the Trustee staff and experts who worked on the DWH spill will also work on future spills, which may reinforce the anchoring effect of the DWH settlement. And finally, responsible parties want certainty in resolving spill claims. If they have concluded that it will take larger payments to resolve an NRD claim, they are more likely to pay more money rather than engage in expensive and uncertain litigation at the risk of obtaining an outcome similar to Citgo in its penalty litigation. In conclusion, we expect the DWH effect to continue for many years to come.

As explained above, adding the five post-2017 NRD settlements to the Dunford, et al. (2019) database lowered the DWH effect from a 3.9 multiplier to a 2.4 multiplier. This supports a conclusion that the DWH effect has declined in recent years. However, the 2020 NRD settlement for the 2015 pipeline spill near Refugio State Beach in California (hereafter, Refugio spill) is consistent with an ongoing DWH effect. Specifically, Plains All American Pipeline agreed to pay the state of California and the federal government $22.3 million for alleged NRD for the Refugio spill, which released about 123,000 gallons of oil (www.justice.gov/opa/pr/us-pipeline-company-

modify-its-national-operations-implement-safeguards-resulting-oil-spill). That represents $181 of NRD per gallon of spilled oil, which is far higher than the per-gallon damages from previous major spills.

It is highly likely that the DWH impact on NRD claims is real, and that it is permanent. As noted, the reality of NRD settlements, as in many other areas of the law, is that prior settlements set a benchmark for subsequent settlements. There is strong incentive on the government side to meet or exceed the prior settlements, where the facts are substantially the same. Once that benchmark has shifted upward due to exceptional events, it may take an equivalent extraordinary event to reduce that benchmark.

REFERENCES

Department of Justice. 2016. "Deepwater Horizon." (www.justice.gov/enrd/deepwater-horizon) (April 4)

Dunford, R.W., S. Gmur, M.K. Lynes, G.E. Challenger, and M.A. Dunford. 2019. "Natural Resource Damages from Oil Spills in the United States." *Environmental Claims Journal* 31(2): 176 – 190.

EPA. 2013. "Transocean Settlement." (www.epa.gov/enforcement/transocean-settlement) (January 3)

Furnham, Adrian and Hua Chu Boo. 2011. "A Literature Review of the Anchoring Effect." *Journal of Socio-Economics* 40(1): 35 – 42.

McCue, Dan. 2015. "Citgo Oil Spill Penalty Soars to $81 Million." (www.courthousenews.com/citgo-oil-spill-penalty-soars-to-81-million/) (December 23)

Mussweiler, Thomas. 2001. "The Durability of Anchoring Effects." *European Journal of Social Psychology* 31(4): 431 – 442.

NOAA. 2013. "Gulf Oil Spill." (www.noaa.gov/education/resource-collections/ocean-coasts-education-resources/gulf-oil-spill) (March)

Pelofsky, Jeremy. 2012. "Mitsui Unit to Pay $90 Million Over Gulf Oil Spill." (www.reuters.com/article/us-oilspill-moex-idUSTRE81G1WN20120217) (February 17)

Reuters. 2015. "Anadarko Petroleum Hit With $159M Fine for Deepwater Horizon Disaster." (www.nbcnews.com/business/business-news/anadarko-petroleum-hit-159m-fine-deepwater-horizon-disaster-n472046) (December 1)

Tversky, Amos and Daniel Kahneman. 1974. "Judgment Under Uncertainty: Heuristics and Biases." *Science* 185(4157): 1124 – 1131.