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# **Cents and Sensibility: Economic Valuation and the Nature of “Nature”<sup>1</sup>**

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How do we attribute a monetary value to intangible things? This article offers a general sociological approach to this question, using the economic value of nature as a paradigmatic case, and oil spills litigations in France and the United States as real world empirical illustrations. It suggests that a full-blown sociology of economic valuation must solve three problems: the “why,” which refers to the general place of money as a metric for worth; the “how,” which refers to the specific techniques and arguments laymen and experts deploy to elicit monetary translations; and the “then what” or the feedback loop from monetary values to social practices and representations.

How do we measure what things are worth? Economists offer two simple answers: first, money is a good enough metric for the “utility” we get from commodities; second, consumer behavior, for example, what people are willing to pay, is a good enough indicator of the value of things (Samuelson 1938). For economic theory, then, commodities are basically worth their

<sup>1</sup> Earlier versions of this research were presented at the 2004 annual conference of the Society for the Advancement of Socio-Economics, the 2004 miniconference of the theory section of the American Sociological Association, the 2009 annual meeting of the American Sociological Association, the Center for the Study of Law and Society and the Energy and Resources Group at the University of California, Berkeley, the departments of sociology at Harvard University, the University of Arizona, Northwestern University, Cornell University, Columbia University, the University of Michigan, Brown University, the University of California, San Diego, the Center for Advanced Studies in the Social and Behavioral Sciences, the Warwick Business School, the Centre de Sociologie Européenne, the STS group at the University of Michigan, the 2009 conference Valuation and Price Formation on Markets at the Villa Vigoni, the 2009 conference Innovation, Organizations and Society at the Chicago Booth School of Business, the 2010 workshop Paradigms of Risk Assessment at the University of California, San Diego, and the 2010 History of Recent Economics

market price. This may be fine for apples or computers, but what about goods that we keep outside of the sphere of economic exchange either because they cannot be physically alienated or because we have moral issues with the exchange process itself? What about, for instance, “peculiar goods” such as bodily organs or animals living in the wild? What about emotions (Berezin 2005) such as love, aesthetic beauty, fairness, personal happiness, or a family’s honor? Do they have monetary value in and of themselves, and if so, how do we assess it?

#### PECULIAR GOODS

One common approach, exemplified in the philosophical critique of commodification from Karl Marx ([1844] 2007) to Margaret Radin (1996), is to deny the legitimacy of monetization for nonmarket goods on the grounds that the application of a pecuniary logic will pollute emotions, erase unique and ineffable qualities, and debase moral sentiments. In what Zelizer (2000) describes as the “hostile worlds” view, certain things might be better kept separate from money and apprehended through alternative metrics of “worth” and rational justification altogether (Boltanski and Thévenot 2006).

Such a position does not hold much water in our modern society, however: the fact is that we do routinely commensurate “peculiar goods” with money. We do it informally in our everyday lives (Zelizer 1994, 2005), and we do it more formally through the intervention of organizations (e.g., Zelizer 1979; Healy 2006; and Almeling 2007). The scope and targets of our monetary entanglements are variable over time and space, of course. For instance, the buying and selling of people has largely disappeared as an institution. Paying money in exchange for the labor of a child has become repugnant. Yet in most countries it is perfectly acceptable to spend money to compensate an organization in exchange for the “service” of

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obtaining a baby (Zelizer 1985). Similarly, offering monetary compensation for murder will not get the perpetrator off the hook anymore. Like slavery, blood money as an institution is on the wane. But one may find it easy to buy, on a well-established marketplace in Chicago or London, a permit to release into the air a controlled amount of toxic gases.

These examples further suggest that the valuation of peculiar goods was transformed over time from a process dominated by “custom and law” (Simmel [1907] 1978, pp. 358–59) into a highly rationalized and impersonal one handled by specialized intermediaries and technologies. Treading carefully around the ethical qualms of the societies they serve, modern social institutions spend considerable time and effort measuring what seems unmeasurable and valuing what seems beyond valuation in the service of enhancing their own capacities for calculation, crafting new opportunities for profit, or expanding their jurisdictional authority. Thus, legal actions have generated settlements compensating states for the tobacco-related diseases of their Medicare patients, which are based on calculations about the value of the human lives shortened or wasted in illness and treatment. Government and international aid agencies run surveys to evaluate the material and subjective costs and benefits of flooding a canyon to erect a new dam (Espeland 1998). Corporations make complex computations to calculate the performance of their employees and connect these evaluations to a system of monetary and occupational rewards. Finally, measurement and valuation technologies form the backbone of normative regulations of all kinds, from the promotion of biodiversity to that of fair labor practices or green production processes (Bartley 2007).

Recent methods (they are barely 50 years old), falling mostly under the practical mantle of accounting and economics, form the core of the technical apparatus modern institutions deploy to carry out these valuations. To the untrained eye, the methods may seem convoluted, odd, and arbitrary: not only is their history laced with technical and philosophical controversy but their authority is highly contingent upon the social context in which they get mobilized, if at all. So how were these economic valuation technologies imagined in the first place? How did they get established? And what are their effects?

#### THE PROBLEM: CENTS AND SENSIBILITY

This article brings to light the sociohistorical conditions and processes through which something that stands normally outside market exchange comes to be attributed an economic (monetary) value. The difficulty—but also the real theoretical payoff—of the exercise comes from this seem-

ingly benign qualification: sociohistorical. It suggests that economic valuation processes are eminently contingent—on local politics, time period, or social context. Still, as I will show, these processes are contingent in ways that are socially patterned and therefore intelligible through sustained analysis.

Temporal and cultural-institutional variations in the sociological underpinnings of economic value motivate this article's research design, which was chosen not only to get a practical grasp on the theoretical issues involved but also to gain analytical leverage through the systematic use of comparison. The analysis presented below relies on an in-depth investigation of three prominent nonmarket valuation episodes that took place in two countries over a 30-year period, from the late 1970s to the late 2000s (this article includes further references to similar episodes before and after this time period). Concretely, the cases examined here all focus on how ordinary citizens and their expert voices sought to make sense of, and calculate, the monetary value of the noncommercial losses associated with large-scale maritime oil spills in France and the United States. How did people in these different social contexts frame the need for monetary compensation for the polluted landscape, oiled seabirds, or the death of the smaller organisms that make up the marine ecosystem? How did they try to establish these values in practice through the legal process? And why, indeed, did the actual economic measure of "nature" vary so much across these cases in the end?

The empirical analysis that follows shows that economic valuation processes are deeply bound up with other aspects of social organization—notably the law, politics, economic expertise, and environmental knowledge. The point is not simply to show that the methods used for putting a price on nature are socially (i.e., historically and geographically) constructed, however. As Hacking (1999) points out, what interests us when we talk about social construction are particular sociohistorical products (in this case, monetary values) and particular sociohistorical processes (economic valuation). What we strive to understand here is a comprehensive empirical cycle: what goes into valuation methods, what comes out—what, substantively, gets "constructed"—and what the consequences of these constructions are.

Through this broad, encompassing approach this article speaks to several important theoretical debates at the intersection of economic and cultural sociology. First, it offers a nuanced critique of the concept of "performativity" of economics—or the capacity of economic models and technologies to remake the world in their own image (Callon 1998; MacKenzie 2006). In particular, I show that the mere availability of certain economic technologies does not guarantee their performative effects for the simple reasons that these technologies may not muster enough insti-

tutional and political support or that they may not resonate enough with the cultural claims they are supposed to represent. In fact, economic methods for the valuation of nature come in very different shapes and imply very different forms of calculability. Neither of these are incidental, of course; rather, both the methods themselves and the calculability they embody are the product of very specific social processes that are of great relevance to the “performed” outcome itself.

The present research also draws insights from the literature on “commensuration,” or the process of transforming “different qualities into a common metric” (Espeland and Stevens 1998, p. 314). Like ranking systems (Espeland and Sauder 2007), money has the power to flatten, abstract, and homogenize qualitatively different things. Thus, in the same way that for Marx ([1887] 1990, pp. 163–77), the money value of “abstract labor” masked a wide range of sociohistorical conditions, the price of an abstracted nature actually stands for a broad variety of sociohistorical experiences with particular natural sites, landscapes, or wildlife. Furthermore, if the outcome of monetary commensuration looks flat—each oil spill disaster is different, but they can all be summarized by a money amount—the process obviously is not. In fact, if money is one, monetary commensuration (or economic valuation) techniques are numerous and varied. The production, selection, and application of these techniques is thus extraordinarily contingent and deeply political, raising questions about the scientific “trials of strength” and the processes of “translation” and “allies enrollment” (Latour 1987) that stand behind them. As I will show, comparative analysis across both time and space affords us precious analytical leverage in this task and reveals patterns that are not visible otherwise.

This leads us into a third debate—the “economies of worth” approach popularized by Luc Boltanski and Laurent Thévenot (2006). As pointed out earlier, money represents just one axis by which we commonly assess what things are “worth”—and this is plainly apparent in the cases analyzed here. People and organizations frequently invoke alternative (and sometimes incompatible) principles to think about the value of what we call “the natural environment” (Thévenot, Moody, and Lafaye 2000; Godard 2004). For instance, engineers and public officials might stress the economic development of a region or the efficient use of natural “resources”; Native Americans will defend the collective history and identity embedded in certain physical locations (Espeland 1998); philosophical critics (e.g., Ackerman and Heinzerling 2004; Sagoff 2004; Satz 2004) and environmental movements will call upon the public to recognize the right of nonhuman species, our moral duty to future generations, the valuable goal of enhancing biodiversity, or the beauty of untouched landscapes.

Rather than brushing political, environmental, or ethical justifications

for nature aside as simply “incommensurable” with the measuring rod of money, and thus irrelevant to the problem of economic valuation, we should analyze how—in an era of alert environmental consciousness—they come to influence and get incorporated into the economic valuation techniques applied to nature. Indeed, the question is not so much to find out whether nature can (or should) be monetized or not, as the debate is often framed. In all the cases I discuss below, it was: oiled birds and beaches were worth something that people tried to express in monetary terms. Thus, the more interesting analytical problem has to do with how, and by which fantastic but very concrete operations, people came to collapse different economies of worth applying to nature—our natural sensibilities is another way to put it—into dollars and cents: not only into absolute money amounts but also into specific techniques by which to generate such amounts. This article, in short, demonstrates how economic valuation techniques, and the social formations that carry them, relate to ordinary categories of judgment and experience—and indeed incorporate, translate, and reproduce them in various ways. It moves the debate over “economies of worth” from the analysis of discourse and “justification” to that of practices and institutions and their material consequences in terms of economic values.

#### INTRODUCING THE CASES

The cases are, perhaps, well known. Maritime oil spills are rare events, but when they occur they are unlikely to go unnoticed. As I was writing these lines in the spring of 2010, a broken pipe from the defunct oil platform Deepwater Horizon was spewing an unchecked torrent of oil into the Gulf of Mexico, causing one of the worst man-made ecological catastrophes ever witnessed in the United States and a major economic tragedy for the adjacent communities in Louisiana, Alabama, Texas, and Florida. The accident is now feeding a legal smorgasbord of epic proportions, which focuses on one single question: how much should British Petroleum (and associated companies) pay for this mess?

In many ways, the Deepwater Horizon disaster looks like a dramatic replay of earlier episodes elsewhere. Similar spills have occurred in many places around the world, a result (mostly) of oil platform and oil tanker accidents. Certain regions are especially vulnerable to such events by virtue of their geographical location: the Persian Gulf, the North Sea, the English Channel, and the Gulf of Mexico. Both France and the United States, for instance, have thousands of miles of shoreline exposed to heavy maritime traffic; unsurprisingly, both have experienced devastating ecological disasters in the form of large-scale oil spills.

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Particularly notable for their ecological and political impacts were the sinking of the Amoco Cadiz and the Erika ships off the coast of Brittany, France (the first one in the northern district in 1978, and the second one in the southern district in 1999), and the grounding of the Exxon Valdez in the Prince William Sound (Alaska) in 1989. Looking closely at how political authorities, scientific and economic experts, and courts handled these events reveals a number of puzzling differences in the meaning of and rights to nature across these cases, in the techniques of damage evaluation, in the monetary outcomes of the compensation processes, and in the ecological restoration carried out. Victims were conceptualized differently in the two countries: in France it was the local users of the shoreline; in the United States, it was the American “public” as a whole. Methods used to support claims to compensation were radically different, too: economic experts working to estimate ecological damage in the Exxon Valdez oil spill calculated the subjective value to individuals of the environment spoiled in the spill, following a method known as “contingent valuation.” French experts working on similar disasters in France relied on different methods, from estimating the actual price of the biomass destroyed in these spills to calculating the cost of a putative restoration of the environment. Finally, “nature” turned out to be worth a lot more in America than in France. Is it that the environment is just more precious on this side of the Atlantic than on the other side? Or that money is playing a different role in the two societies? Or that certain valuation techniques are more effective than others? Or is it perhaps the case that all of these hypotheses are true and that they are all connected somehow?

### THE ARGUMENT: A SOCIOLOGY OF ECONOMIC VALUATION

A full-blown sociology of economic valuation must solve three analytical puzzles. The first puzzle I will call the “why” of monetary valuation. This refers to the general place of money as a metric for other forms of worth. As I suggested at the onset of this article, there is nothing natural about turning things into monetary equivalents. Rather, whether and to what extent money may be used as a yardstick for measuring worth is a social phenomenon that must be studied in reference to other social phenomena—institutions, culture, and social structure. In the examples I allude to above, French “victims” of oil pollution were, from the onset, somewhat more ambivalent toward the monetization of the natural environment than their American counterparts. Why?

The second puzzle I will call the “how”: this refers to the specific techniques and arguments laymen and experts might use in order to elicit monetary value where value is hard to produce. David Stark puts this



puzzle succinctly: “What counts? . . . What is valuable, and by what measures?” and also “Who counts?” (Stark 2009, pp. 6, 25; also see Bruszt and Stark 2003). Accounting techniques are social constructs, too: they emerge and gain authority in particular social contexts and only make sense in relation to the systems of expertise, social relations, and cultural narratives prevalent in these contexts. It is also at this stage that local politics becomes important to understanding outcomes—it influences which methods were developed, which were selected and endowed with authority, and which were pushed aside or discarded. In the case of oil spills, French and American “victims” (a socially constructed category, too; more on this later) called upon different methods and different types of experts to establish their claims to ecological damage compensation—and, by extension, to assess the value of their natural environment. Thus, another key challenge of this research is to understand why people in these two Western, developed societies ended up promoting different types of valuation technologies.

The final puzzle I call the “then what?” Here I focus on the social consequences of the economic valuation process once it has been carried out—or the feedback loop from monetary valuation to social representations and practices. For instance, how do economic valuations of the natural world, and the technologies that sustain them, affect the way we experience and interact with the nonhuman environment? As Simmel points out, the relationship between subjective and objectified value is not unidirectional but dialectical. This is because the conditions of purchase and monetary sacrifice involved in acquiring an object turn the exchange process into something highly personal and therefore magnify the value we attach to this object: “We invest economic objects with a quantity of value as if it were an inherent quality, and then hand them over to the process of exchange, to a mechanism determined by those quantities, to an impersonal confrontation between values, *from which they return multiplied and more enjoyable to the final purpose*, which was also their point of origin: subjective experience” ([1907] 1978, p. 78, emphasis added). In other words, people may derive subjective enjoyment and status from knowing and showing that some good they own fetches a high price—sentiments like these may be, for instance, one of the prime reasons for the very existence of the arts market (Velthuis 2003; Beckert 2010; Karpik 2010). As for nature or life, is it possible that the process of economic valuation itself is a cause of their increased “pricelessness”? Put another way, do dollars and cents magnify our ecological sensibility?

This article is organized as follows. The first section offers a general theoretical discussion of what I called earlier the “why” of valuation: it presents the broader cultural and institutional conditions under which different societies may be more or less likely to monetize what I called

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conceptualized as “peculiar goods”; this section also considers the cultural specificities of nature as an object of value. The second section focuses on variations in the organization of monetary valuation through an empirical study of the compensation for environmental damage in three major oil spills in France and the United States. The third section closes the analytical loop by considering the consequences of the different economic valuations of nature obtained in these cases. Finally, I conclude on the centrality of valuation processes to the production and reproduction of culture as a whole.

### THE WHY: GENERAL CONDITIONS OF ECONOMIC VALUATION

#### Cultural Acceptability of Money as a Yardstick of Value

Where does the acceptability of money as a yardstick of value come from? Drawing on classical works in the sociological literature, we may venture three interrelated answers: political culture, religion, and institutions. Thus, Tocqueville remarked in *Democracy in America* ([1835/1840] 2000) that “democratic societies” (which celebrate ordinary individuals and regard inborn status distinctions as repulsive) tend to promote an especially favorable view of money. In the United States, for instance, money is appreciated as a great agent of social equalization, the means by which those born into poverty might raise themselves to attain the same social standing as the wealthy. Veblen’s ([1899] 1994, p. 33) sarcastic account of the American leisure class depicts, after all, the morally comfortable and nearly universal lust for pecuniary emulation in his country, whose citizens are moved by the competitive desire to achieve a “favorable comparison with other men.” Cooley and Mitchell went further, celebrating money as a great “rationalizing agent” (described in Zelizer 1994, pp. 8–10) that oils the wheels of the capitalist engine and holds the promise of social mobility.

This kind of equalization, Tocqueville reminds us, is less likely to occur in “aristocratic societies” like France or England because there pecuniary achievements will never completely succeed in effacing inborn privileges and the mental legacies of the feudal social order. People in the Old World might thus place a high value on symbolic detachment from material pursuits (including the capitalist enterprise), either because they are rich and “possess [money] without trouble” or because they are poor and “despair of acquiring it or are not familiar enough with it to desire it” ([1835/1840], 2000, p. 507). Hence, the greater moral ambivalence toward money, a “frightful leveler” (Zelizer 1994), which not only challenges the social order but also threatens to collapse unique qualities and personal creativity into one single-minded metric of worth.

According to this line of analysis, then, national differences in attitudes

toward money are rooted in political culture and its relationship to social structure. But we may name other likely sources of variation. Religious heritage is another important variable to consider when analyzing cross-societal differences in attitudes toward money. Max Weber ([1930] 2002) suggested long ago that involvement in mundane affairs was legitimated differently in different religious doctrines and inspired different economic practices and different attitudes toward *auri sacra fames*, or the striving for money. Thus the spiritual legacy of Calvinism sustained a rational, systematic approach to wealth acquisition, later secularized into an imperious drive toward material pursuits for “every individual who is born into this mechanism” (Weber 2002, p. 120). Echoing Weber, John Tropicman argues that the Protestant ethic sustains a transformational view of money, in which money becomes a reflection of the person’s character. Catholicism, by contrast, promotes a more instrumental view of money, which is fraught with moral apprehension: “The Catholic ethic view of money is ambivalent to suspicious. Money is good, as a lot of things are good. [But] having it does not make you good, better, or best; not having it does not make you bad, or worse, or worst” (Tropicman 2002, p. 50).

For the cultural reasons outlined above (predominantly Catholic country with feudal legacies), we would suspect symbolic boundaries against “money talk” and monetization to be more rigid in modern France than in today’s United States. Current empirical assessments about French-American cultural difference suggest that much. In the 2005 wave of the World Values Survey, for instance, respondents were asked whether they saw themselves as similar to someone for whom it is important “to be rich, to have a lot of money and expensive things.” A whopping 42% of the French respondents expressed the strongest possible distance from this person (“not at all like me”), and another 33% still emphasized their dissimilarity (“not like me”). By contrast, the corresponding percentages for American respondents were, respectively, 23% and 39%: thus, while a majority of people in both countries expressed their social distance, the “symbolic boundary” was delineated much more sharply in the French case. Qualitative research by Michèle Lamont, who coined the concept, further echoes this basic quantitative difference. In two successive books (1992, 2002), Lamont documents the rhetorical salience of detachment from pecuniary motives, as well as a principled emphasis on personal integrity over material success among the French working- and middle-class men she interviewed. In the United States, by contrast, she found that her respondents were much more comfortable with the topic of money, connected it to merit and effort, and saw it as a promise of control, freedom, equality and respect (Lamont 1992, p. 66; 2002, p. 75), as well as a yardstick of success. Finally, several contributors in a volume Lamont coedited with Laurent Thévenot (Thévenot et al. 2000) reached similar

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conclusions in their comparative investigations of the publishing world, the environmental movement, business elites, and the arts public on both sides of the Atlantic: in all these settings, they found that French interviewees routinely talked about the polluting effect of wealth and money on personal ethics and aesthetic judgment, whereas their U.S.-based counterparts exhibited much less antipathy.<sup>2</sup>

### Institutional Acceptability of Money as a Yardstick of Value

What the above suggests is that the best standpoint from which to study the place of money in society may not be some presocial individual desires, as economics posits, but collective representations and practices. The use of money as a yardstick of value is fully a social institution that encapsulates various aspects of a society’s organization: its politics, dominant religious orientations, and social structure. Moving now to the meso level, we can articulate how institutional arrangements concretely frame and channel social demands for monetary valuation.

We know that organizations—courts, public agencies, hospitals, corporations—play a pivotal role in shaping the conditions under which “peculiar goods” may (or not) give rise to economic transactions (Healy 2006). The reason is that such institutions routinely find themselves budgeting, compensating for, and pricing these goods as a result of their institutional missions. For instance, whether or not the natural environment may be monetized, and how the process of valuation will be carried out, emanates by and large from the offices and conference rooms of public agencies and from behind the judge’s bench. As we reflect on why and how societies formulate demands for valuation, we must look into those special organizations whose function it is to elicit economic value where value is hard to come by—and which, thereby, shape the legitimacy and practice of valuation for the society at large. I discuss below two such institutions, public administration and the court system, and evaluate how they may carry out their function of valuation differently in different times and places.

<sup>2</sup> See, in particular, the chapters by Thévenot et al., Camus-Vigné, Weber, and Heinich in Lamont and Thévenot (2000). In fact, the only instance in the book where the relationship between money and “value” was reported as problematic in the United States was when certain publicly-funded cultural works were perceived to abuse taxpayers by being morally offensive. In those cases, described by Nathalie Heinich (2000), it was the (public) money that was being corrupted by the art, not the reverse.

*Political Legitimacy and the Rise of Cost-Benefit Analysis*

All states seek to quantify their actions to some degree. According to Theodore Porter (1995), modern societies have a characteristic “trust in numbers”—a historical consequence of political centralization, the progress of a commercialized economy, mass education, and democratic legitimation processes (also see Cohen 1982; Kula 1986). The systematic use of quantification in public policy decision making presupposes a particular form of political rule, one rooted in the authority of rational expertise rather than custom or personal leadership. As Amartya Sen (2000, p. 935), echoing Max Weber, puts it, “[the demand for explicit valuation] is a forceful demand for fuller articulation, which involves the rejection of a commonly adopted position hallowed by tradition, to wit, that we may know what is right without knowing why it is right. At the risk of oversimplification, explicit valuation is part of an insistence on a rationalistic approach, which demands full explication of the reasons for taking a decision, rather than relying on an unreasoned conviction or an implicitly derived conclusion.”

Porter (1995) gives a more historicized, but not altogether different, version of this argument, when he interprets the striking rise of market-centered valuation approaches (or cost-benefit analysis; henceforth CBA) in the United States since the 1930s as a consequence of the evolution of American political institutions. With their powers expanding rapidly in the first half of the 20th century, Porter argues, U.S. public officials found themselves needing not only to assuage widespread public distrust of state action but also to assert federal and executive authority against the rush of contradictory political claims coming out of Congress and the states. The conflicts of the Progressive period established that mobilizing expertise was the only way professional bureaucracies could rise above the political fray. By the 1930s, cost efficiency was how U.S. public officials managed to justify the increasingly proactive role of government (e.g., in flood control). In the United States, the move to CBA was thus sustained by a “distrust of unarticulated expert knowledge” and a “suspicion of arbitrariness and discretion,” both of which were profoundly ingrained in a political culture leery of governmental power (1995, p. 199). As we will see below, it is under this political regime that economic methods for the valuation of the “hard to value” have flourished in this country: for instance, public investment projects (like the Orme dam controversy in *The Struggle for Water* [Espeland 1998]) have increasingly come to take the natural environment into account in their CBAs.

Cass Sunstein offers a similar interpretation, though he embraces cost-benefit methods more explicitly as a normative instrument of democratic governance and celebrates their diffusion as a great achievement of Amer-

ican government that has led to increased efficiency and political legitimacy. Against those critiques who view cost balancing as an undemocratic vehicle of technocratic opacity, Sunstein argues that the widespread use of the method does instead “protect democratic processes by exposing an account of consequences to public view” (2002, p. 9) and by helping settle controversial court-mediated exchanges between regulated actors, public interest groups, and regulatory agencies. Cost-benefit analysis thus promises to solve not only economic problems of resource allocation but political ones as well. It is for these reasons that the executive branch has, since the 1970s, gradually expanded the place of CBA in all regulatory agencies, effectively turning the U.S. government into a “cost-benefit state.”

Although cost-benefit valuation might be viewed as a corollary of the expansion of bureaucratic-legal rule in a democratic state, this does not mean that all societies will justify the practice in the same way or implement it to the same extent. For instance, Porter suggests that the French administrative world followed a different trajectory into quantification than the United States. The “trust in numbers” there took a distinctive, more theoretical, form that was shaped by a powerful administrative tradition rooted in high-level mathematical training (also see Desrosières 1999; Fourcade 2009). Although the French state has engaged in major public investment projects since the time of the absolute monarchy—and French public engineers are indeed arguably among the most distinguished forerunners of modern microeconomics (Ekelund and Hébert 1999)—the greater independence and higher status of the French technocracy, as well as the lesser political scrutiny of its activities, have allowed individual technocrats’ and political leaders’ best judgment to retain much more authority in decision-making processes. As a result, the practice of CBA (and its many offshoots, such as public policy evaluation) has been much less expansive there; it has also—if we follow Sunstein’s line of analysis—been more isolated from “democratic” contention by organized groups.

#### *Legal Intentions and the “Measuring Rod of Money”*

The law is another key setting to consider when analyzing the institutional mechanisms through which societies produce values for “invaluable” things such as life, health, love, or nature. The fact that much legal activity, through the central function of damage compensation, is directed at providing rationales for such values makes the legal system particularly interesting from the point of view of a sociology of valuation. For instance, one of the social functions of pollution trials and legal settlements is to elicit a value for the environment, albeit a posteriori, by attributing a monetary value to the ecological damage due to pollution.

There is no self-evident reason why compensation for injury, to an individual or to “society,” should be monetary. It could be physical (e.g., the death penalty or cutting off a thief’s hand), social (e.g., imprisoning someone or forcing the perpetrator of a rape to marry his victim), or psychological (e.g., requiring the display of atonement in court or inflicting a public humiliation). Yet it is a fact that both in highly formalized and less formalized legal systems, money has always been considered a privileged instrument for what Durkheim calls “restitutory law,” that is, a type of sanction whose purpose is to reconstitute the status quo ante by “putting back the clock so as to restore the past, so far as possible, to its normal state” (including by making the losing party bear the cost of the administration of justice [1893] 1984, p. 68). Nonetheless, widespread cultural-institutional differences persist concerning the acceptable reach of money as a compensation instrument across sociolegal contexts (Saguy 2000; Kagan 2001). In the United States, for instance, money is widely used both in a restitutive and in a repressive or dissuasive manner, notably in the form of punitive damages, whose intention is not to repair a prejudice but rather to punish the perpetrator of a violation. Sunstein et al. (2002) have argued that this is due to the central role of popular juries in the United States: because jurors are (and this characterization has been the subject of some controversy) “intuitive retributionists” driven primarily by moral considerations, they tend to award large and arbitrary punitive damages. By contrast, punitive damages do not exist in many countries (e.g., France or Japan), and compensation often focuses on the sole economic prejudice (the compensation of moral prejudice being reduced to the payment of a single “symbolic franc” or euro or a public apology).<sup>3</sup>

What makes the place of money in the U.S. legal system unique, however, is not simply its extensive reach as a compensatory instrument but the fact that compensatory processes have increasingly taken a rationalized form, relying on specialized expertise to produce economic value rather than on—for instance—tradition or the commonsense of judges and juries. This is a well-established pattern in common law systems, where the culture of “discovery” and expert evidence generally favors the incorporation of all forms of outside knowledge in a competitive effort to present “facts” under a particular light (Jasanoff 1995; Golan 2004). Experts in statistics, economics, and accounting thus enter the legal realm as providers of quantifiable standards of decision making, supplying—as we will see in the Exxon Valdez case—the legal system with sophisticated technologies for establishing value where value is hard to identify or calculate. This is so not only because these disciplines are uniquely po-

<sup>3</sup> For a mitigating view, however, see Feldman (2000).

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sitioned to carry out this valuation work—indeed, Ronald Coase recognized that what gives economists a great advantage over other disciplines and professions is that they are able to use “the measuring rod of money” (1994, p. 44)—but also because the analytical logic of neoclassical microeconomics offers an individualist language to translate feelings about worth (“utilities,” in the disciplinary jargon) in a way that makes cultural sense in the American political context. As I will show later, by the end of the 20th century this analytical logic could be used to give economic status to the “idea” of nature.

### CULTURAL SPECIFICITIES OF “NATURE” AS AN OBJECT OF MONETARY VALUATION

But what does such an idea even consist of? In the above two sections, I have presumed that analyzing how different social systems ascribe a monetary value to intangible goods such as “nature” requires a broader reflection on the overall meaning and place of money and monetary valuation technologies in these social systems. However, it is also indispensable to look at the valuation of intangible goods as being dependent on the cultural meaning of the goods to be evaluated themselves. For instance, is the more extensive monetary valuation of nature in America (compared to France) about “money” in America or about “nature” in America? In other words, we need to take into account the specificities of nature as a cultural formation, or a social assemblage, and understand the specific ways it is bound up with different “economies of worth”—or the different principles people appeal to when they want to claim justice (to use a conceptualization popularized by Boltanski and Thévenot [2006]). Just like money, nature “is a profoundly human construction. This is not to say that the nonhuman world is somehow unreal or a figment of our imagination—far from it. But the way we describe and understand that world is so entangled with our own values and cultural assumptions that the two can never be fully separated. What we mean when we say the word ‘nature’ says as much about ourselves as about the things we label with that word” (Cronon 1995*a*, p. 25).

### The United States: Nature between Wilderness and Commodity

The idea of wild, untouched nature is no exception to this sociological reductionism, of course: wilderness, too, is “a cultural invention” (Cronon 1995*b*, p. 79). The concept emerges at a particular time—the end of the 19th century—and finds its most remarkable development in one particular society—the United States. Certainly European romantics wrote



about untamed nature, and specifically about untamed nature in the New World (witness Chateaubriand and Byron), with great lyricism. But for the same reason—there was no counterpart in the Old World—in America the idea of vast “virgin”<sup>4</sup> lands became deeply entangled with the founding political myths of the nation: the frontier, individualism, liberty. As such, this idea bore an emotional character not found elsewhere. “Wilderness” was how urban, educated, upper middle class East Coast Americans, who rarely, if ever, confronted the harsh reality of “living in the wild” in their everyday lives, reinterpreted the experience of the frontier as a primordial national experience to be cherished and preserved. As Thoreau put it, wilderness was what kept “the New World new” (cited in Nash [2001], p. 102). It also kept the New World morally pure: the persistence of pastoral fictions of a largely unspoiled American countryside similarly served to obscure the transformative capitalist processes that were drawing together cities and hinterlands (Cronon 1991).

The federal government played an essential role in turning this cultural inclination to separate “man” from “nature” into a political and legal reality. By setting aside huge tracts of land under the national parks policy in the 19th and early 20th centuries and assuming responsibility for their preservation, the federal government legitimated the conceptualization of wilderness as an inalienable public interest good (Runte 1997). Of course, it was in a unique position to do so: from its very inception the government of the United States was a landowner in a way that had no parallel even in absolutist France or for that matter anywhere else in the world. By far the largest portion of the country’s current territory—including, importantly, Alaska—was purchased from foreign powers (France, Spain, Mexico, Denmark, etc.), or gained in exchange of forfeiting debts or military victory. The government of the United States also obtained land from state cessions and treaties with Native populations. “At one time or another in the past two hundred years, the federal government held title to about four-fifths of the land in America” (Wolf 1981, p. 449). U.S. federal agencies today manage 13% of the country’s territory (including huge chunks of the Western states) plus the quasi-totality of the submerged landmass.

The counterpart of this voracious acquisition policy was the no less vigorous disposition of huge chunks of acreage to the states and localities (e.g., for public purposes such as education), to individuals through cash sales and homesteading, and finally to companies (railroad, oil, natural gas, mining, and timber) through lucrative grants and leases. Active on both sides of the land trade, the United States looked like a giant real

<sup>4</sup> Of course, these lands were only “virgin” and “uninhabited” once the native populations were removed—by war, disease, or forced displacement.

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estate broker and developer, doing business with private agents both on-shore and off-shore (think exploration and drilling rights on the seabed). As the government’s developmental role expanded in the 20th century, natural spaces, for example, land and rivers, also became the site of reclamation claims (for irrigation, electric power generation, or military uses).

Nowhere, of course, was the cultural tension between the “useful” and the “beautiful,” the “commercial” and the “inalienable,” better expressed than in Alaska. Alaska was the ultimate commodity: the largest land purchase by far and the largest state in the country, with well over three times the acreage of the second largest, Texas. Since the discovery of oil in Prudoe Bay in 1968, however, Alaska has also become the site of the largest oil field in North America and likely holds the most significant natural gas reserves, yielding billions of dollars in corporate profits and tax windfalls and royalties each year.

So Alaska turned into a paradox: on the one hand, a great economic boon, which experienced an unparalleled oil rush in the 1970s; on the other hand, the ultimate “wilderness mecca” (Nash 2001, p. 275), the last American frontier. Alaska was a true no man’s land, completely pristine, safe for the presence of Native Americans, iconic representatives of an enchanted connection to nature (Gibson 2009). If the concept of wilderness had a special place in American culture, then Alaska, with its remote and rugged landscape, was its most symbolic incarnation, and indeed the battle to preserve it that way after the 1959 statehood act involved the single greatest conservationist mobilization in American history. This led to the decision, in 1980, to protect close to 100 million acres of Alaskan federal land (an area larger than California) from development, which resulted in more than doubling the size of the National Parks System. From the cheapest commodity in 1867—the entire Alaskan purchase was made for the equivalent of about 108 million U.S. dollars—the same land has become so priceless that the bulk of it cannot be sold or leased. This historical fluctuation of Alaska between (mainly) the “green” and the “market” economies of worth (to use Boltanski and Thévenot’s phrase [2006; Thévenot et al. 2000]) could not fail to influence the way the Exxon Valdez incident would be perceived and dealt with.

### France: Nature between Culture and Agriculture

France, of course, does not have Alaska or anything remotely close to the Alaskan (or, for that matter, Western) experience and its cultural significance. Rather, the effect of man on the landscape is palpable everywhere there: the territory that constitutes modern France has been thoroughly settled for centuries, blurring a putative conceptual boundary between the realm of nature and the realm of man. France was a populous country

and also a country of small landowners well before 1789 (Tocqueville [1856] 1998, p. 283; Beckert 2007). In contrast to England or Prussia, increasingly impoverished French nobles had sold much of their land to commoners over the centuries preceding the French Revolution, so the revolution only accelerated a process of land fragmentation that was already well under way. Some scholars (e.g., Barraqué 1985, p. 24) even argue that the ubiquitous political reality of a dense structure of small, private agricultural properties may have been the greatest impediment to the assertion of a “wilderness” current in French culture, thought, politics, and even science. In this cosmology, it is not nature but rather rural civilization that had to be defended against the encroachments of industrial capitalism and the grand designs of state engineers and administrators.

The dominion of the state over the physical environment, in particular, was pervasive in France. As Chandra Mukerji (1997, 2007, 2009) has shown, the absolute monarchy was an intensely territorial regime that mobilized the natural world in an extraordinary effort to display military and political strength vis-à-vis both foreign visitors and local power holders. From the gardens of Versailles to the canal du Midi, the monarchy—and indeed subsequent regimes, too—brought land and nature under its political control—planning and reshaping the landscape at the same time that it was disciplining the social world living in it, sometimes provoking great resentment.<sup>5</sup>

In their struggle to inscribe their political power onto the physical environment, French rulers granted public engineers unique positions, honors, and prerogatives. The regimes did not survive, but public engineers did, carrying out the continuity of French institutions until the present day. Engineers still dominate French technical administration, relentlessly organizing the country’s modernization through the rational management of space—hence, the continued importance of public infrastructure projects to the state’s “radiance” and political legitimacy (see, e.g., Hecht 1998; Pritchard 2004). The technological harnessing of natural forces to serve the country’s economic needs has been closely tied to the construc-

<sup>5</sup> To be sure, the United States, too, has a great tradition of public works sponsored by state and federal governments, from the Erie Canal to the Tennessee Valley Authority or the interstate highway system. Characteristically, however, the history of these projects is littered with political controversy, and the public enterprises managing these systems have been pressured to operate like (and often compete with) private corporations (Dobbin 1994).

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tion of French national identity, indeed, often shaping the construction of local identities, too.<sup>6</sup>

So what is the place of “nature” in this world? To be sure, environmental language and ideas settled in France, too. But they did so in a quite different way. Partly because the experience of nature was so bound up with rural life, which Parisian and even provincial elites (in an unmistakable expression of symbolic violence) looked down upon, moral appeals to defend the purity and virginity of nature are much less ubiquitous in 19th century French writings than they are in American writings of the same period. France’s first national park, the Parc National de la Vanoise, was only established in 1963—well after its counterpart in the United States (Yellowstone, in 1872) and some three decades after a 1930 law allowed for such a possibility by protecting “national monuments and sites with an artistic, historical, scientific, legendary or picturesque interest.”<sup>7</sup> Furthermore, the process was only completed after a series of arduous compromises with local communities. Perhaps even more revealing, until the creation of the Ministry of the Environment in 1971, the French policy framework for the protection of natural spaces (understood primarily as *paysages*, or landscapes) was derived from the postrevolutionary framework for the conservation of notable built spaces and monuments—the *politique du patrimoine*. As such, the protection of nature fell largely under the responsibility of cultural authorities, alongside museums and castles.<sup>8</sup>

Indeed a cultural understanding of nature as a *lieu de vie*, a lived-in practical reality where man occupies de facto a central place, dominates the political projects of French ecologists—in sharp contrast with the more radical approaches to conservation found in the United States, where untouched nature is afforded a special moral ground. France, Michael Bess (2003) has argued, is a “light-green” society, where the natural, the social, and the technological intermingle. Born in a thoroughly man-made nature, French green theorists “tend to study how conceptions of nature and human identity intertwine . . . rather than feel bound to situate their

<sup>6</sup> The decentralization reforms are a good example of the extensive penetration of this political logic at the local level. Far from keeping the voluntarist impulse to act on the landscape at bay, these reforms have often turned mayors into grand architects for their towns and its immediate surroundings. Also see Hecht (1997) on how French state technocrats managed to enroll local politicians in their modernist projects.

<sup>7</sup> The choice of words is telling: the term “picturesque” (*pittoresque* in French) referred originally to the artistic (graphic) representation of landscape, particularly human-made landscape.

<sup>8</sup> The same weak distinctions between the “human” and “nonhuman” world can also be observed in the long-lasting convergence between the protection of wildlife and that of domesticated animals in French law.

views in relation to some theory of the ultimate ground of environmental values" (Whiteside 2002, p. 3). Thus, postwar French environmental concerns were articulated less around the specificity of nature as a political object and the rights of nonhuman species than from the point of view of a broader critique of modern society, for instance, against capitalism as a mode of production (see, e.g., Gorz 1983), against scientific progress and in defense of tradition, against political centralization and in defense of local identities and *terroirs*. In all of these political cosmologies, trying to determine the value of nonhuman life and spaces "as such"—as the issue surfaced in the Amoco Cadiz and Erika oil spills—is an exceedingly odd problem. So how does this particular form of natural sensibility—this conflicted intertwining of (primarily, though not exclusively) the "industrial" and the "domestic" polities (in Boltanski and Thévenot's [2006] conceptualization)<sup>9</sup> in French experiences of the natural world—affect the way the process of valuation was framed in these cases? And how did the latter differ from the process carried out after the Exxon Valdez incident?

#### THE HOW: VALUING DISASTER IN THE AMOCO-CADIZ AND EXXON VALDEZ OIL SPILLS

I have suggested so far that cultural assumptions about the place of money in social relations, institutional legacies about the legitimate forms of expertise that may be brought to bear on the valuation process, and, finally, cultural constructions of the natural world as an object of value may shape not only whether money is acceptable as a yardstick for valuing nature but also how the monetary valuation of nature may be carried out in concrete cases. If the previous sections were concerned with the general conditions of monetary valuation, including those pertaining to the monetary valuation of nature, then this section is concerned with the nuts and bolts of economic valuation itself. What follows is an empirical demonstration of the significance of economic technologies to monetary outcomes, using the valuation of environmental damage in two different social settings as an illustration. I collected material on the Amoco Cadiz and Exxon Valdez oil spills during trips I made to Brittany (in 2002 and 2003), Alaska (in 2006), and Chicago (in 2009). In France, I surveyed several dozen boxes of minutes from the meetings of the Syndicat Mixte de Protection et de Conservation du Littoral du Nord-Ouest de la Bretagne (the principal organization involved in claiming ecological damage in the Amoco Cadiz oil spill), legal briefs and correspondence, expert

<sup>9</sup> The domestic *cit * (or discursive justification) refers to the defense of a local patrimony.

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reports, and press coverage (Archives du Syndicat Mixte, Pleumeur-Bo-dou). In Chicago, I obtained transcripts of court depositions and testimonies from the Amoco Cadiz oil spill trial. I also carried out nine in-depth interviews with plaintiffs, experts, and attorneys familiar with the Amoco Cadiz case in France (plus two in the United States). In Alaska I carried out 11 in-depth interviews with individuals (local citizens, ecologists, attorneys, and experts) involved in the Exxon Valdez case, plus conducted a review of press coverage, expert reports, and legal documents filed with the court. In addition, I had significant, but more informal, conversations with many more local actors in the two countries. Finally, I reviewed the relevant literature in environmental economics and environmental law, as well as some literature in ecological science. My research was guided by the desire to understand how the spills’ noncommercial effects were understood and dealt with and how valuation methods were crafted to formulate a monetary account of the “injuries” suffered by the landscape and the wildlife. I will now turn to the empirical core of this analysis—the black tides of 1978 and 1989.

On March 16, 1978, the supertanker Amoco-Cadiz, with 227,000 tons (68,668,000 gallons) of crude oil in its flanks, ran aground the Portsall Rocks, three miles off the coast of Brittany, France, after experiencing a failure of the steering mechanism in heavy weather. On March 17, the vessel sank and broke in two. On March 24, it broke in three. By the beginning of April, the oil spill extended over 125 miles across Brittany’s coast, oiling the beaches of 72 towns and several estuarine tidal rivers.

The clean up of the region, undertaken and coordinated entirely by the French state, lasted months. Ten thousand soldiers and thousands of volunteers flocked to the area to help with the worst ecological disaster in French memory. Fishing boats were grounded for over two months. Oyster beds were destroyed and would not recover for several years. Summer tourism, which provides a sizable share of Brittany’s yearly income, was seriously affected. At the time, the incident also resulted in the largest loss of marine life ever recorded from an oil spill: millions of dead mollusks, sea urchins, and other bottom-dwelling organisms washed ashore, and some 22,000 birds were estimated lost. It would take years for the natural milieu to recover, and some species (such as puffins or seals) were irreparably lost. For some communes, this was the second major spill in barely over 10 years.<sup>10</sup> People were angry.

<sup>10</sup> In 1967, the supertanker Torrey Canyon broke off the Coast of Wales, spilling heavy oil. Part of the spill (30,000 tons) crossed the channel and landed in the Côtes d’Armor. As one actor describes it: “The atmosphere was . . . you see, it was first time around. So even though it was a disaster, there was some excitement because it was the first time, so we had the excitement of finding methods to clean up, of fighting this thing and getting organized. Of course, we had to struggle against this excitement of discovery. But we never

To this day, the Amoco Cadiz remains the largest maritime oil spill from a tanker to ever reach shore. But it is far from the only one. The International Oil Spill database maintained by the ITOPF records 1,720 spills from vessels of at least 10,000 gallons between 1960 and 1995, including 43 spills of over 10 millions gallons (ITOPF 2011). If the annual volume spilled from tankers has sharply decreased since the height of the 1970s, the era of large-scale oil spills is by no means over, as the 2002 sinking of the *Prestige* off the coast of Spain and the 2010 blowup of the Deep Horizon platform in the Gulf of Mexico remind us.<sup>11</sup> Figure 1 provides a representation of the most dramatic spills from vessels since the late 1960s, divided into two categories: on-shore and off-shore. Many oil spills indeed take place far from land or over long periods of time,<sup>12</sup> and therefore they are less noticeable. For instance, one of the largest tanker-originated spills ever, that of the *Atlantic Empress*, dispersed at sea. Much of the 252,000 tons of oil from the *Castillo de Bellver* tanker burned on the ship, which was cruising off the coast of South Africa. Finally, whether a spill gets much public notice, whether it will be cleaned, or compensated for, also depends dramatically on its location—reflecting worldwide power inequalities. Indeed, steady spills from rusty and ruptured pipelines in the Niger delta have failed to attract any international attention in spite of the desperate mobilization of the local populations whose livelihood is being threatened (Vidal 2010).

By contrast, the spectacular soiling of an Alaska fjord in 1989 elicited a dramatic public and private response, and it still holds a special place in American memory as one of the events that crystallized ecological sentiments in the country and beyond. The Chenegon Indians call it the “day the sea died.” On March 24, 1989, the supertanker *Exxon Valdez*, after a failed maneuver by the pilot unsupervised by his drunken captain, ran aground on Bligh Reef in the Prince William Sound near Valdez, Alaska, spilling 30,000 tons (or nearly 11 million gallons) of crude oil. In a region known for its natural beauty and ecological diversity, the devastation was enormous. By August, the oil extended over 1,000 miles of shoreline, resulting in the death of thousands of birds and marine mammals, as well as billions of salmon and herring eggs. The U.S. Fish and Wildlife Service estimates mortalities directly related to the spill to be in

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really asked why, why it happened. . . . The response remained very limited, not well coordinated. There was no movement. . . . So the Amoco Cadiz came as a remake. A remake is never the same thing as an original” (Interview no. F3, June 20, 2002).

<sup>11</sup> The *Prestige* spilled 60,000 tons of heavy oil in Galicia, Spain, in November 2002.

<sup>12</sup> The Guadalupe Dunes oil spill, which originated in continuous leakages from pipes, remained undetected for over 38 years, in spite of having leaked, over the whole period, probably the largest amount of oil and diluents ever spilled by one single source on U.S. soil (Beamish 2002).

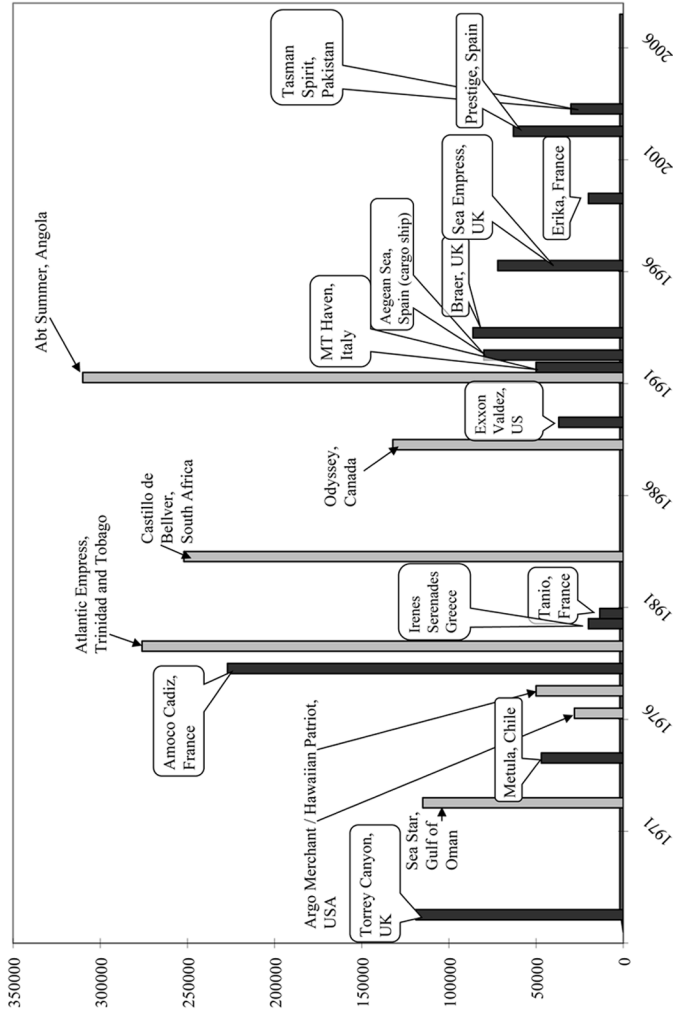


FIG. 1.—Selected notable individual incidents (1967–2007), in tons of oil spilled (spills from vessels only). Data are from the International Tankers Owners Pollution Federation. Incidents where the oil spill reached the shore (and thus caused much more visible environmental damage) are indicated with the darker bars and a call-out.



the range of 350,000 individuals for birds and 3,500 for sea otters (these are lower-bound estimates, as reported on the NOAA website). Fisheries were dramatically affected the year of the spill—some businesses would indeed not recover (McCammon 2003).

The Amoco Cadiz and Exxon Valdez oil spills were key turning points in the development of environmental consciousness in each country. The sinking of the Amoco Cadiz still ranks sixth worldwide in terms of the magnitude of the spill it caused, and it retains a traumatic quality that makes it the yardstick whereby other pollution cases in France continue to be evaluated. The Exxon Valdez, on the other hand, was not the worst oil spill disaster suffered by the United States in terms of tonnage, but its location—in a pristine Alaskan sound—gave it a symbolic and ecological dimension that similar events earlier had not achieved.

While the two incidents are separated by a time lag of slightly over 10 years, they both gave rise to legal actions that were initiated and carried out in the United States (Amoco being an American company, the Amoco Cadiz case was tried in Chicago). The out-of-court settlement between the Exxon Corporation and the state and federal governments was reached in 1991, and the Amoco Cadiz final verdict was delivered in 1992, which allows for a nice comparative design. Table 1 below provides a summary of the main facts regarding the two litigations.

The most obvious differences have to do, first, with the price tag of the disasters and, second, with their political impact. In much the same way that the Santa Barbara oil spill from an offshore drilling platform in 1968 had led to an outpouring of environmental concern and legislation (Molotch and Lester 1975), the Exxon Valdez spill precipitated a dramatic revision of the U.S. Oil Pollution Act in 1990 (Public Law 101-280, 101st Congress, August 18, 1990). The incident was also sanctioned by a rapid and large out-of-court settlement of \$1.025 billion with the Exxon Corporation for the sole compensation of environmental damage (or “damages to the public’s natural resources”).<sup>13</sup> In addition, Exxon spent more than \$2 billion to clean up the area,<sup>14</sup> paid \$300 million in compensatory (economic) damages, and was asked to disburse \$500 million in punitive damages.<sup>15</sup> In contrast, the earlier Amoco Cadiz disaster, which spilled

<sup>13</sup> After the failure of a plea bargain with the U.S. Justice Department, a federal grand jury in Anchorage indicted the Exxon Corporation and its shipping subsidiary on five criminal counts (two felony charges under the 1972 Ports and Waterways Safety Act and the Dangerous Cargo Act and three misdemeanors under the Clean Water Act, the Refuse Act, and the Migratory Bird Act) on February 27, 1990 (Keeble 1999), p. 269).

<sup>14</sup> This is about 100 times the cost of the Amoco Cadiz clean up: about \$50,000 per ton of oil against \$545.

<sup>15</sup> The U.S. Supreme Court returned the final verdict on the case on June 26, 2008.

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more than six times the tonnage, ended with a much more modest total compensation of \$61 million (\$200 million with interest) after a protracted and hugely expensive international legal battle. Although it was at the time the largest environmental pollution award ever granted by a court of law, it paled in comparison with the various Exxon Valdez settlements, negotiated just a year earlier. The fact that the price of Amoco stock rose after the first damage award decision suggests that “Amoco got away cheap,” as one legal observer remarked at the time (*Chicago Sun-Times*, January 12, 1988). The political repercussions of the Amoco Cadiz disaster in France were also less dramatic: navigation routes around the Brittany peninsula were changed to improve safety, and the framework of international insurance rules was expanded to accommodate larger future spills (which have proven wholly inadequate since then on several occasions).

Certainly, greater ecological awareness and mobilization in the late 1980s partly accounts for the difference in outcomes between the two cases. As Andrew Hoffman (2001, p. 163) put it, oil spills occurring at different periods are viewed “depending on the standards of the time. . . . Executives at Amoco acknowledge that the Cadiz spill in 1978 was handled largely as a maritime issue. The context of 1969 and 1978 allowed such conceptions. The context of 1989 would not allow Exxon the same.” Second, it remains unclear how much the fact that the Amoco Cadiz plaintiffs were foreign affected the outcome.<sup>16</sup> Finally, the rules under which the cases were to be evaluated differed. In a nutshell, the legal procedure for the Amoco Cadiz case was American tort litigation, but the case was judged according to French law. However, Judge MacGarr (the federal district court judge in charge of the case) acknowledged in his 1984 ruling on liability that French and American law did not differ markedly in this matter.<sup>17</sup> If anything, the unique legal context of the Amoco Cadiz case makes it especially interesting for our purpose because the procedure of American discovery forced the French parties to spell

<sup>16</sup> In his dissertation on the Amoco Cadiz case, Odriozola finds that U.S. courts were generally very deferential to French claims and that “the outcome of the litigation was very favorable to the French” (1993, p. 99). On the other hand, the U.S. Court of Appeals, Seventh Circuit (Chicago), which rendered the final decision on the case in 1992, found the starkly less favorable Amoco Cadiz’s compensation award somewhat embarrassing in light of the Exxon Valdez’s massive settlement. The award did not, for instance, even completely cover the clean-up costs incurred by the French government and the municipalities affected by the spill: the judge ruled that the French state had been “wasteful” and “careless” in its clean up operations, mistakes he thought Amoco should not be held liable for.

<sup>17</sup> The main legal difference is that French law precludes punitive damages; this article, however, is not focused on punitive damages at all, which are a separate issue from the compensation for environmental damage, and so I am not discussing the class action lawsuit in the Exxon Valdez case.

TABLE 1  
A COMPARISON OF THE ECONOMIC AND POLITICAL CONSEQUENCES OF TWO OIL POLLUTIONS

	Amoco Cadiz	Exxon Valdez
When and where Oil spilled	1978, France 227,000 tons	1989, Alaska, United States 30,000 tons
Main legal actions	Final judgment (U.S. Court of Appeals, Seventh Circuit, Chicago, January 1992)	• Settlement between the State of Alaska, the federal government, and Exxon Cor- poration (October 9, 1991) • Class action lawsuit
Clean-up costs	Paid by French government and local municipalities	• + \$2 billion + delayed interests: clean up paid in part by insurance and in part (\$1.2 billion) by the Exxon corporation • + \$1 billion settlement with federal and state governments for "damages to the public's natural resources": •• Criminal fine: \$25 million •• Criminal restitution for the injuries caused to the fish, wildlife and lands: \$100 million •• Civil settlement: \$900 million (1991 dollars) paid to a trust fund over 10 years. (+ provision allowing the state and federal governments to claim an ad- ditional \$100 million for natural re- sources restoration)
Criminal and civil charges	None	

Private lawsuits, actual damages	<p>\$61 million (i.e., about \$200 million with delayed interest payments) to all plaintiffs: compensation includes clean-up costs; shared between the French state (about 86% of the total), local governments, and private claimants (14%). N.B.: claimants' demands for the compensation of "moral prejudice" were not recognized</p> <p>None</p>	<ul style="list-style-type: none"> <li>• Jury award to commercial fishermen: \$287 million (August 1994)</li> <li>• Settlement with Alaska natives: \$20 million (August 1994)</li> <li>• Various other legal actions</li> </ul>
Punitive damages	None	\$500 million (U.S. Supreme Court, June 25, 2008)
Policy changes immediately attributable to the spill	Rail d'Ouessant (changed maritime navigation route); IOPCF (international oil pollution compensation funds)	Oil Pollution Act (1990)

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NOTE.—All figures are without interest payments except where indicated.

out an explicit rationale to justify their demands regarding the economic value of noncommercial wildlife, which might not have occurred in a French court.

Thus, more interesting, perhaps, than the final outcomes of both trials (but nonetheless closely connected to them) is the large discrepancy in the way plaintiffs from the two regions built their cases—relying on very different forms of political organization, different understandings of “nature,” and different forms of expertise and scientific tools to value damage. In the Amoco Cadiz case, there was considerable discomfort about even formulating a claim about “nature” as such. The victims themselves, though opportunists, were skeptical about the very legitimacy of the ecological claim, and the French state, which was also a plaintiff, proved remarkably unsupportive. Consequently, when the money compensating the Amoco plaintiffs was finally disbursed in 1994, very little was set aside to benefit the natural environment. For the most part, it served to build new municipal buildings, schools, harbor facilities, and roads. By contrast, the quasi-totality of the Exxon ecological damage settlement has gone to finance ecological protection, prevention, and monitoring efforts. Understanding these differences in relation to the analytical framework laid out earlier is the purpose of the next section.

#### Nature into Law

The Amoco Cadiz and the Exxon Valdez oil spills are probably the two most high-profile oil spill cases in history if we except the recent spill in the Gulf, whose conclusion is still unknown. Both caused a considerable number of separate legal actions to be initiated on behalf of a wide range of claimants (no less than 330 civil law suits were filed after the Exxon Valdez incident). Grounds for legal claims in such events are diverse and complex. Local populations lose in many different ways. Anyone who gets their livelihood directly or indirectly off the sea or shore stands to get hurt economically when a “black tide” compromises their use of this most valuable natural resource, as do the broader communities they are a part of, through multiplier effects. Local residents must also forfeit temporarily recreational uses and, in some cases (e.g., Alaskan Natives), an entire way of life dependent on the sea. All of this may be a source of considerable psychological and social stress (Picou, Cohen, and Gill 1999). In the Exxon Valdez class action lawsuit, for instance, lawyers sought unsuccessfully to bring claims for widespread emotional and social damages among the local populations. Moral damage was argued in the Amoco Cadiz case, too, but characteristically it took a different, much less individualized, form. Drawing on the strength of local identities in France, as well as perhaps longstanding institutional practices that protect the unique char-

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acter of geographical locations (indeed, often offering them formal recognition in the form of local trademarks), Brittany’s towns argued they had suffered “image label losses” (*perte d’image de marque*).<sup>18</sup>

In an oil spill “nature” loses on its own terms, too, and very visibly: animals—birds, fish, plankton, crustaceans, shellfish, algae, and marine mammals—die from contact with the oil, and as a result others down the food chain (including some land animals) get affected, too. Immediate effects are very dramatic; long-term effects are more complex to evaluate. Wildlife does not make legal claims on its own behalf, however. So who should do it? Before courts may rule or supervise settlements that put a value on damages to natural resources, they must thus solve a politico-legal problem: what is nature and who owns it? In other words, what, about nature, has been damaged, and who has legal standing to claim reparation for it?

### *United States: The Public Trust Doctrine*

What shapes the legal relationship of American government to nature, and especially to those tidelands and submerged lands whose “natural resources” are damaged in the case of an oil spill, is the legal tradition of the “public trust.” To understand this concept we must, once again, go back to the peculiar history of the United States as a settler economy. Unlike their European counterparts, which had to establish themselves against—or alongside—well-entrenched feudal estates, U.S. governments faced very few conflicting personal claims on land (the claims of the Natives having been violently dismissed early on). The assertion of a “public” dominion was thus natural. In France, by contrast, land was much more tied up with long-established property rights and local identities: hence, both the notion of government ownership and the monetary commensuration of territorial areas that bore a highly distinctive historical character appeared more threatening.<sup>19</sup>

In practice, the notion of a public trust has been invoked throughout American history to support a wide array of government uses of public waterways and lands, from the promotion of economic growth (e.g., rights of passage to railroads) to the preservation of rivers, streams, or marshlands—indeed any end deemed to serve the public, whether commercial or not (Selvin 1987). Major environmental legislations, such as the Rivers and Harbors Act of 1899 (55th Congress, March 3), the Migratory Bird Treaty Act of 1918 (5th Congress, Sess. II, July 13), the 1977 amendment

<sup>18</sup> This claim, compensable under French law, was rejected by the U.S. judge.

<sup>19</sup> I am indebted to an anonymous reviewer for an extremely helpful comment on this point.

to the Clean Water Act (95th Congress, Sess. I, P.L. 95–217, December 28), and the Oil Pollution Act of 1990, all reflect the conceptualization that governments (mostly states and, in some cases, the federal government) own wildlife stocks “in trust” on behalf of society (Lueck 1989; Hanemann, n.d.). Governments thus assume sole ownership of “natural resources,” though individuals have secondary claims as citizens (and therefore might challenge governments in court for failing in their public mission).

The doctrine of the “public trust” means that the demarcation between the private and public injured parties is quite sharp in the case of a maritime pollution. Certainly this legal presumption caused tremendous bitterness among ecologists and the local Alaskan populations, who faulted both the State of Alaska and the U.S. Coast Guard for not keeping the sound safe, for their poor management of the clean up, and for their secretive handling of research data—in short, for breaching their “public trust” mandate. These sentiments, however, did not entitle them to directly sue Exxon over natural resources damages.

*France: The Tragedy of the Anticommons?*

In French law, the sea is *res communis*: it belongs to the community, indeed to everyone, and it cannot be privately appropriated. Unprotected animal species (e.g., fish and shellfish), on the other hand, have been traditionally considered *res nullius*: they belong to no one in particular, yet they can be privately appropriated. Finally, the state has a right to regulate the usage of both *res nullius* and *res communis*. In 1976, a law was passed in France to enhance the protection of the environment that spelled out new civic rules of conduct among the citizenry: the law made every individual, as well as every private or public organization, responsible for the quality and safeguarding of the natural environment. There was, however, a downside to this expansive definition. First, since everyone was responsible, no one was responsible in the last resort. Second, the law in effect “privatized” nature: it entitled any individual or organization to formulate a claim to stand as an advocate for “nature” in a court of law (Huglo 1990, p. 147; de Raulin 1993, p. 67, n. 81). This created a situation analogous to that described by Heller (1998) as “the tragedy of the anticommons”: because everyone competes to protect and especially to act as the representative of nature, no one may be able to do so effectively, both for reasons of legal standing and for financial reasons.

We find this chaotic logic at work in the Amoco Cadiz trial. After the incident, resentment against the government ran high among the populations who lived in the spill area. By 1978 the French state had failed

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not only to prevent four tanker accidents in the region but also in three of the four cases to engage in legal pursuits against responsible parties.<sup>20</sup> The advent of another oil spill in the *Département des Côtes du Nord* in 1980 (Tanio, 26,000 tons) triggered a series of strikes and angry street demonstrations, which political authorities met with irritation and aloofness (see Ouest-France 1980). Certainly, this conflict had strong political overtones: the *département* at the time was politically on the left while the national government was on the right. Hostility toward the central state was further intensified by the regionalist conflict, which had begun in the 1960s and had spearheaded a pugnacious cultural revival of Breton identity.

The outcome of this antagonism is that the communes made a decisive move to assert their political autonomy from the national government. Seventy-two of them, as well as two *départements*, banded together to form a “vigilantes’ committee” and later a “syndicate” aimed at supporting the region’s legal actions to protect and defend the interests of the local residents (and make sure that any compensation would be redistributed locally, as opposed to centrally appropriated).

The French socialist party won the presidency and a majority in the chamber of deputies by a landslide in 1981, setting off an opportunity for better cooperation between the government and Brittany’s elected officials. The question of “whose nature” the Amoco Cadiz spill had polluted was finally settled by written agreement in the spring of 1983, when the French government abandoned the tidelands portion of the claim to ecological damage to local populations. In exchange, the communes dropped all administrative pursuits against state authorities for negligence in supervising maritime traffic (Vigipol 1983).<sup>21</sup> According to the terms of the agreement, Brittany’s towns obtained those parts of the “ecological damage” that involved the recovery of (a) those shoreline and tidelands restoration costs engaged or planned by them; (b) local residents’ amenity losses; and (c) the “pretium doloris” (literally the “price of sorrow” in French law), or the moral injury suffered by the local population. Finally, environmental associations were entitled to recover those damages suf-

<sup>20</sup> Torrey Canyon, March 18, 1967, 123,000 tons; Olympic Bravery, January 24, 1976, 800 tons; Bohlen, October 15, 1976, 2,000 tons; Amoco Cadiz, March 16, 1978, 227,000 tons.

<sup>21</sup> The agreement was known confidentially as the “accords de Matignon.” On this point, also see Arzel (2004, p. 85), who provides a first-hand account of the relationships between the communes/syndicate and the French government. Later, the communes would also put their qualms in the Tanio oil spill case (1980) to rest by accepting a monetary settlement from the International Oil Pollution Compensation Fund in exchange for a loan by the French government to help finance the increasingly exorbitant legal costs related to the Amoco Cadiz procedure.



ferred by nonproductive biotopes and birds. In effect, two such organizations, the League for the Protection of Birds (LPO) and the Society for the Study and Protection of Nature in Brittany (SENPB), ended up seeking compensation for their work in the treatment and rehabilitation of birds while the communes sought damages for injuries to all other non-commercial biotopes. In contrast to the Exxon Valdez case, where the governments were able to assert an exclusive claim over all injured or lost wildlife, in the Amoco Cadiz case, wildlife was divided up among competing interests.

#### Law into Economics

Once the distribution of legal rights was established, however, the various claims had to be demonstrated using numbers, figures, and legitimate methods. But how were the victims to go about this process? How did the damages suffered by nature translate into damages suffered by people? There are, broadly, three categories of losses to consider: (a) direct economic losses, measurable in reference to normal market mechanisms (e.g., the income losses experienced by fishermen, oyster growers and the tourism industry); (b) nonmarket, active-use losses (e.g., the recreational losses of sports fishermen or those of residents who cannot use beaches for months); and (c) nonmarket, nonuse losses that concern nature as such (e.g., damages to noncommercial wildlife). It is the latter category that concerns us here.

#### *Amoco Cadiz: The Production Cost of Nature*

Although they pale by comparison with the volume of scientific work carried out at the time of the Exxon Valdez oil spill, the research efforts surrounding the Amoco Cadiz grounding seemed truly momentous at the time. In fact they far outpaced any effort previously engaged in for a similar event, such as the wrecking of the Torrey Canyon in England, which had caused the beaches of Cornwall and Brittany to be coated with 100,000 tons of oil in 1967. As soon as the Amoco Cadiz's oil reached land, "the entire spill zone became a living outdoor laboratory" (NOAA 1983, p. 132). Teams of biologists combed the beaches and rocks not yet reached by the spill to establish a baseline, and they documented ecological losses where the oil had settled. Various clean-up techniques were tried, helping break new ground in oil spill knowledge. Surveys were conducted among the local population to estimate economic losses and measure changes in recreational patterns.

Importantly, these studies involved actors on both sides of the Atlantic. Standard Oil of Indiana (owner of Amoco) sponsored a large amount of

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natural science research, though its grants were administered primarily by U.S. federal agencies and awarded in both France and the United States. The same federal agencies also spent 1.5 million French francs (1978 value) of their own money to fund economic research related to the Amoco Cadiz oil spill—more than twice the amount expended by French government offices for a similar purpose (see table 2).

The measurement of nonmarket damages proceeded in several directions. One part used the loss of enjoyment of the area by residents and tourists as a proxy for what was claimed as the “reputational losses” (*pertes d’image de marque*) suffered by coastal towns, villages, and businesses. Damages to natural resources, in contrast, were estimated in two ways: first, by aggregating the actual and future expenses deemed necessary to restore coastal habitats and rehabilitate damaged species (with birds and seals separated from the rest of the nonproductive biotopes) and, second, through a quantification of the loss of productive potential of the marine environment.

Claude Chassé, a specialist of the local marine environment and then a research director at the University of Brest’s Marine Biology Laboratory produced the first study used by the French parties to claim ecological damage (Chassé 1978). Drawing on a careful inventory of how various species had fared during the disaster, he calculated the overall volume of “biomass” (or the mass of organisms living in the affected zone) lost in the spill. That volume could then be valued in several different ways, but the point of the exercise amounted essentially to measuring the ecosystem’s diminished capability to serve man’s economic and noneconomic needs as a result of the oil spill.<sup>22</sup>

To complete the ecological evaluation, Chassé compared biomass levels between affected and nonaffected areas. He assumed a uniform impact of the oil spill on all affected areas and used the survival rate of marine species of medium vulnerability (the “bigorneau” and “gibbula” snails) as a benchmark for modeling the behavior of the entire ecosystem during the oil spill. All told, the process yielded an approximate total ecological loss of 220,000 tons of wet biomass, which he then scaled to obtain the putative share of natural resource damage (*préjudice écologique*) suffered by each individual town (Chassé 1978). The final and most critical step involved calculating a monetary equivalent for the lost biomass. For that part of the process, Chassé provided an inventory of the various species that made up the ecosystem (shrimps, fish, snails, urchins, etc.) and as-

<sup>22</sup> It is worth noting that this method has been used several times in French courts since the Amoco Cadiz disaster. See, e.g., two court cases (Rouen, January 30, 1984, and TGI Bastiat, July 4, 1985) mentioned by Huglo (1990, p. 152) and de Raulin (1993, p. 78, n. 122).

TABLE 2  
RESEARCH COSTS ASSOCIATED WITH THE AMOCO CADIZ OIL SPILL BY SOURCE OF  
FUNDING AND TYPE OF RESEARCH

Source of Funding and Type of Research	Amount (Millions of 1978 Francs)
United States:	
Natural science research:	
Standard Oil of Indiana (Amoco) .....	8.4
NOAA and Environmental Protection Agency ...	.3
Economic research:	
NOAA and Environmental Protection Agency ...	1.5
United States subtotal .....	10.2
France and all others (non-United States):	
Natural science research:	
French Ministry of the Environment and Quality of Life and National Center for Exploitation of the Oceans .....	4.6
Economic research:	
European Economic Community .....	.2
INRA (research department of the French Minis- try of Agriculture) .....	.6
France subtotal .....	5.4
Total .....	15.6

SOURCE.—National Oceanic and Atmospheric Administration (NOAA 1983, p. 133).

NOTE.—The table includes research costs that could be accounted for up to the spring of 1980.

cribed each species a monetary value, using the average market price of their closest commercialized relative.<sup>23</sup> For instance, different species of snails could be valued using the average market price of the “bigorneau” snail, a cheap snail that is an object of popular local consumption; similarly, the value of all lost shrimp could be calculated by averaging across the market prices of two comestible shrimp species. Once tallied through this method, the value of a ton of wet biomass was estimated to be about 4,000 French francs (1978 value).<sup>24</sup>

The biomass method amounted to determining the cost of producing a certain stock of natural resources. In other words, by using various species as inputs, it reconstructed the value of nature along a cost curve. Economic experts, however, rapidly pointed out that the approach was

<sup>23</sup> A similar method was used in the United States after the Zoe Colocotroni oil spill in Puerto Rico (1973). An important difference was that price estimates for the different species came from various catalogs of biological supply houses rather than spot markets (Brans 2001, p. 110).

<sup>24</sup> The biomass method also served to estimate the volume of the commercial fishing crop lost in 1978 and subsequent years. This method used the known relationship between benthic biomass and the production of commercial fish.

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flawed: since the prices of commercial species are the result of market mechanisms, one cannot assume the price of biomass without taking into account what happens along the demand curve (Assaf, Kroetch, and Mathur 1986; Bonnieux and Rainelli 2002, p. 174). For instance, if 220,000 tons of snails, fish, and shrimp had been dumped on the market on the eve of the spill, they would not have been absorbed at the said market price of March 15, 1978. Instead, prices would have fallen sharply, perhaps all the way down to zero, causing a large portion of the biomass to be effectively discarded. Visibly troubled by the enrollment of biologists to produce monetary estimates of the ecological damage, the plaintiffs’ own economic expert stated flatly in his deposition that “valuing non-commercial species of fish, which also have no recreational, no direct recreational impact, is something that is outside the realm of economic expertise.”<sup>25</sup>

The court sided with the skeptics, and in its 1988 judgment seriously questioned the validity of these damage estimates, writing that “the biomass valuation was complex, attenuated, speculative and reached conclusions based on a chain of assumptions, a deficiency in any one of which would dramatically affect the final result” (U.S. District Court for the Northern District of Illinois, Eastern Division 1988, p. 23).

Anticipating the looming disaster, the plaintiffs themselves had abandoned this line of argument halfway through the discovery process and had hastily put together a new cost evaluation based on several ambitious programs of future ecological implantation (SETAME 1982). However, the judge rejected that, too, mainly on the grounds that (1) the marine environment had naturally recovered from the spill 10 years after the disaster and (2) the proposed plan was, in fact, an attempt at improving—not simply restoring—nature. And indeed the idea of repopulating the ocean with lobsters and abalones seemed to serve more the convenience of local fishermen than it did try to return the environment to its previous state, as the Chicago press reporting the trial cynically remarked (Drell 1986).<sup>26</sup>

A more serious problem had to do with the lack of clear ownership or trusteeship rights on the biomass that lives off Brittany’s shores. As seen by an American judge, the convoluted political negotiation between the French state, the towns, and the environmental associations around eco-

<sup>25</sup> U.S. District Court for the Northern District of Illinois, Eastern Division. “In Re: Oil Spill by the “Amoco Cadiz” off the Coast of France on March 16, 1978.” MDL Docket no. 376. Deposition of Lewis J. Perl, May 6, 1985, p. 507.

<sup>26</sup> The judge, however, did acknowledge the legitimacy of actual (i.e., already executed) rehabilitation costs incurred by a few private parties, such as the expenses incurred by those voluntary associations that ran bird clinics during the spill. But these compensations totaled very small amounts of money—“peanuts,” as one interviewee said.

logical damage claims was not convincing. The formulation of moral claims on the “biomass” by local townships (beyond their own expenditures and the commercial losses of the individuals who lived in these towns) appeared especially problematic. As the judge put it in a ruling, “The court need not grapple, however, with this damage question because of its conclusion that this claimed damage is subject to the principle of *res nullius* and is not compensable for lack of standing of any person or entity to claim therefore. . . . The court agrees that the right to claim for damage to the state’s interest in preserving the ecosystem was transferred by the state to the communes by written agreement (Côtes du Nord Ex. 9660), but neither the state nor the communes has standing to assert claims for damage to the ecosystem in the maritime public domain” (McGarr 1988, p. 23).

*The Erika Spill: The Local and Collective Logics Confirmed*

This grey area was partially clarified by a recent French ruling on the Erika oil spill, this time tried in the French legal system (Tribunal de Grande Instance de Paris 2008). The most serious tanker incident to occur in France since 1980, the sinking of the Erika in December 1999 released some 20,000 tons of oil into the Bay of Biscay in southern Brittany.<sup>27</sup> Although a much smaller spill than the Amoco Cadiz in volume, the Erika incident was remarkably destructive due both to its location (near a natural reserve) and to the heaviness and toxicity of the oil. The bird population in particular was decimated, with some species losing up to 80% of their members.

As in the Amoco Cadiz case, the French state and its various ministries declined to formulate an ecological claim for the Erika oil spill and focused instead on obtaining compensation for the expenses in personnel and materiel incurred during the clean up.<sup>28</sup> Once again, the coastal localities—municipalities, departments, and regions—argued that they ought to be compensated for image label losses. Environmental associations, such as Greenpeace and the League for the Protection of Birds, argued for damage to noncommercial life, but due to the League’s specialization only the birds were seriously considered. Each party, in short, brought forward different claims on the environment, which they justified using different methods. The union of cities, departments, and regions sponsored an

<sup>27</sup> A further 11,000 tons were pumped from the wreckage. Between 100,000 and 150,000 birds were estimated lost in the Erika accident.

<sup>28</sup> Before the Erika spill, the contingency plan, which the government activates in case of a major disaster—*Plan POLMAR*—did not include any specific provisions related to the natural environment.

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economic study that relied on various economic methods to estimate the noncommercial damages suffered by users of the coastal areas, based on a survey of shellfish collectors.<sup>29</sup> The claimants then divided up the claims (€370 million) among themselves using relatively arbitrary numbers (€30 million for a region, €20 million for a department, €10 million for a town). The League for the Protection of Birds simply multiplied the number of birds that died in its clinics by the price commonly used in French courts to calculate compensation in hunting violation cases. Finally, the department of the Morbihan based its demands on a program of shoreline restoration (Hay 2007).

The French judge’s decision in the Erika case suggested that only claimants who could demonstrate an actual custodial role in environmental matters were entitled to recover this damage category. He thus awarded a monetary compensation to the *département* of the Morbihan on account that it manages a natural preserve and to the League for the Protection of Birds on account of the destruction of those protected species the association claims to protect. The logic used by the judge for calculating these awards relied strictly on fiscal accounting, however. In the case of the League for the Protection of Birds, compensation was offered for actual counts of lost birds, using value estimates of replacement costs provided by the National Office for Hunting (*Office national de la chasse*): €75 per dead bird.<sup>30</sup> In the case of the *département* of the Morbihan, the judge based his calculation of the ecological compensation on the tax that the department levies annually in order to manage its 3,000 hectares (about 7,400 acres) of natural preserve. Only 662 hectares of the natural preserve were oiled, so the judge calculated the compensation quite simply as the amount of the annual tax (€2,300,000) × affected surface (662 of 3,000 hectares) × two years of recovery time, or about €1 million (\$1.47 million [2008 value])—a very small amount compared to the Exxon Valdez settlement). This judgment was confirmed in appeal (March 30, 2010) and was further expanded by the recognition of the unique claims of regions and towns, which were awarded compensations for “damages to their natural patrimony” totaling several dozen million euros—by far the largest noneconomic award.

Although some French ecologists had (and continue to have) a strong principled position against the monetization of nature, there is no question

<sup>29</sup> Two-thirds of these claims (or about €237 million) were for recovery of lost activities of sports fishing and strolling along the coast (recreational uses), while about one-third (or about €137 million) were independent of any usage (see Bonnieux 2006; Direction des Études Économiques et de l’Évaluation Environnementale 2008).

<sup>30</sup> The organization was ultimately awarded €680,000, which also included the compensation for its costs and expenditures during the rescue operations.

that the plaintiffs from Brittany who presented the ecological damage claims to the Chicago court in the 1980s saw the potential material and symbolic benefits of this strategy, as did those who mobilized in France after the Erika catastrophe.<sup>31</sup> At the same time, it is not unreasonable to conclude that the political conflict with the French government over the very legitimacy of this claim had momentous consequences for the ultimate outcome of both litigations. The overlapping and nonexclusive legal rights of individual citizens, civic associations, and four administrative levels (towns, *départements*, *régions*, and national state) in speaking in the name of wildlife and landscape posed an obvious challenge. But even supposing the question of legal standing could be set aside, the “scientific” demonstration and valuation of environmental damage are both highly expensive propositions, requiring a level of financial commitment rarely attained by private parties and small collective actors like municipalities and environmental associations (Lascoumes 1994). A “technical democracy” (Callon, Lascoumes, and Barthe 2009) is of necessity a financially stratified democracy: ordinary citizens seeking to enter a political debate dominated by technical considerations are confronted with high costs and barriers of entry. This was an especially sore point in the Amoco Cadiz litigation: with the trial taking place in the United States, the victims of the Amoco Cadiz oil spill faced an especially tough threshold of demonstrability against the Amoco corporation, which had enormous financial consequences for them and perhaps for the outcome as well. The legal and expertise costs incurred during the trial were so enormous, for instance, that the syndicate of communes found itself several times on the brink of bankruptcy. In one particularly challenging episode, the French government bailed out the penniless syndicate; in exchange, the syndicate agreed to abandon the ecological damage claim during the appeal.<sup>32</sup>

<sup>31</sup> See the ecological assessment chapter of the main French study of the economic impact of the Amoco Cadiz oil spill, which concludes: “We live in a commercial society, which despises and holds for nothing everything that is not evaluated, where conflicting interests only have their financial weight to speak for them. This is why we must translate all the aspects of a catastrophe in monetary terms, even though the insult of contempt, the aesthetic wrongs, the disgust, the moral and ecological disarray felt by the local populations go well beyond money. We must push back the limits of economics in order to deter and prevent” (Bonnieux, Daucé, and Rainelli 1980, p. 91; my translation).

<sup>32</sup> However, the federal appeals court, in its final (1992, post-Exxon Valdez) judgment, lamented that move, suggesting that the ecological damage claim might have been, in fact, compensable. See *re Oil Spill by the Amoco Cadiz*, 954 F.2d 1279, 1331 (7th Cir. 1992). On the question of how social and political inequalities between parties get translated into litigation inequalities, see Fourcade and Livne (2010).

*Exxon Valdez: Nature as Utility*

Such political tensions are not unique to France, of course. There was certainly no lost love either between the Prince William Sound populations and government authorities after the Exxon Valdez incident. The former incriminated state officials’ and U.S. coast guards’ coziness with the oil industry and doubted their resolve in the legal proceedings against Exxon. What happened, however, quickly belied these expectations. Partly because public outrage was so high, the state legislature immediately appropriated about \$35 million for the State of Alaska Department of Law to litigate and investigate with, giving it a leading role in the prosecution of ecological claims. By the end of the process, the office had spent close to \$67 million on research documenting the various types of damages (economic, ecological, and social) caused by the spill, and it had negotiated a \$1.025 billion settlement with the Exxon Corporation for the sole compensation of “damages to the public’s natural resources.”

There was nothing straightforward about this number, however. By and large it was the outcome of a very idiosyncratic process of political “muddling through”—negotiations between the Exxon Corporation and the then governor of Alaska against a background of scientific evaluation of the economic worth of the “natural resources” lost or injured in the spill. Early consultations with natural resource specialists had revealed that “passive use” or “lost use” valuation methods, otherwise known as “contingent valuation,” had the potential to yield the high level of monetary compensation public officials were looking for—a compensation that would properly deter future potentially harmful behavior by Exxon and “make the public whole.” The legislature had appropriated vast sums of money for the litigation, so the District Attorney’s Office commissioned some of the most eminent researchers in the field of environmental economics to undertake an assessment of the nonuse damages caused by the spill immediately after the incident (this study was later published as Carson et al. 1992). Nonuse damage valuation methods were contentious, however, and environmental economics was then in a highly dominated position relative to the mainstream of economics. To circumvent this problem and lend further credibility to the whole enterprise, the state hired high-profile advisers from the disciplinary core, including economics Nobel-Prize winner Robert Solow. By then Exxon had already done the same and hired its own economics Nobel Prize winner as a scientific consultant (Kenneth Arrow). In an effort to mount a critique of the method, the company also sponsored a high-profile symposium on contingent valuation (Cambridge Economics, Inc. 1992) and a book (Hausman 1993).<sup>33</sup>

<sup>33</sup> Exxon may have lost the particular battle of Exxon Valdez, but its involvement did



A Brief History of Contingent Valuation

Contingent valuation is a specific technique of natural resources valuation, which harks back to the development of CBA in the context of large-scale public investment projects in the United States. Conventional histories go back to the Great Depression to find the origins of this line of work. Entrusted under the provisions of the Flood Control Act of 1936 (74th Congress, Sess. II, P.L. 74-738, June 20) with the mission to offer flood protection when the benefits of federal water projects exceeded their costs, the U.S. Army Corps of Engineers encouraged a methodological reflection that helped justify its interventions by counting nonmarket values as benefits (Hanemann n.d.; Porter 1995). In 1947, a natural resource economist at the University of California, Berkeley, Ciriacy-Wantrup, proposed to ask individuals, in a survey, how much they would be willing to pay for additional quantities of a collective extra-market good—a method that would permit the construction of a demand function. In 1967, John Krutilla (another economist and founder of the ecological economics think tank Resources for the Future) suggested that individuals may attach value not only to enjoying certain nonmarket goods but also to merely knowing that “rare and diverse species, unique natural environments, or other ‘goods’ exist, even if these individuals do not contemplate ever making active use of or benefiting in a more direct way from them” (e.g., the value, or utility, of the Grand Canyon to me even if I have no intention of ever going there or the utility I derive from knowing that giant pandas exist; quote from Portney 1994, pp. 4–5; see also Krutilla 1967).

Practically, the approach consists in determining the dollar amount the public would be “willing to pay” to avoid (WTP) or the compensation it would need to receive to be “willing to accept” (WTA) well-specified degradations in private or public goods or services. These “existence values” are determined by asking people directly, in a survey, to state their preferences through the medium of money. According to Carson et al., “The contingent valuation method circumvents the absence of markets for services provided by natural resources by presenting consumers with hypothetical markets in which they have the opportunity to buy or sell the services in question. Because the elicited values are contingent upon the particular hypothetical market described to the respondent, this approach

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play a role in the subsequent evolution of the contingent valuation debate. A NOAA “Blue-Ribbon” panel cochaired by Robert Solow and Kenneth Arrow (Arrow et al. 1993) followed the Exxon-sponsored publications. Although it endorsed the reliability of the contingent valuation method for measuring nonuse value in damage assessment cases, it subjected it to draconian methodological requirements that made it very expensive and impractical to use except in very large disasters (Bateman and Willis 1999; Smith 2004).

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came to be called the contingent valuation method” (Carson et al. 1992, pp. 11–12).

In the 1970s the creation of the Environmental Protection Agency and the passage of major environmental protections further intensified the intellectual efforts surrounding nonmarket valuation. By 1979 the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation were required to use both travel cost valuation and so-called contingent (survey-based) valuation methods to “value recreation benefits at projects with high visitation levels” (Loomis 2000, p. 340). In 1980, in the aftermath of the Love Canal ecological disaster, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 96th Congress, Sess. II, P.L. 96-510, December 11), which, among other things, adopted the two methods for “valuing the loss in existence and recreation value from toxic sites and hazardous materials spills” (Loomis 2000, p. 340). This law, however, did not provide guidelines for assessing the value of natural resources, a responsibility that was delegated to the Department of the Interior in 1982. The Department of the Interior produced a restrictive interpretation of the law: contingent valuation estimates could only be used if they were less than the restoration cost of the natural resource and if use values could not be determined. Under these circumstances, it did not take long for legal challenges to emerge from the states, which understood the restoration cost of a natural resource as a floor rather than a ceiling for assessing value, and from the industry, which saw CERCLA as an open door for the overvaluation of environmental damages. In 1986 a milestone judicial decision (*Ohio v. United States Department of Interior*) gave the method formal recognition by specifying that nonuse damages to natural resources could be compensated using the contingent valuation method when use values were not measurable, a decision that was later upheld and extended on appeal (Hanemann n.d.; Ofiara 2002; Thompson 2002).

The first major contingent valuation study—the Glen Canyon Dam project—was undertaken by the Bureau of Reclamation in the mid-1980s. By then federal agencies had started to require special training in contingent valuation methods from their researchers, and the Environmental Protection Agency had convened a symposium on the subject (Hanemann 1994). However, it is really with the Exxon Valdez incident in 1989 that the method started receiving comprehensive scientific attention.

From the point of view of economics, contingent valuation relies on the same underlying logic as revealed preferences: by asking individuals to provide a monetary equivalent of their utility loss and then aggregating the values obtained in this way, it essentially reconstructs a demand curve where there is none. It builds a hypothetical market where none exists. The real, fundamental “value” of the environment is defined not according

to some universal notion or ethical standard but as an aggregation of individual preferences—the utility people derive from knowing some unique natural spot exists that they could some day visit (but more likely will not). However, compared with the standard economic methodology of “revealed preferences” (Samuelson 1938), whereby individual preferences are inferred from the actual functioning of markets, the passage to “stated preferences” represents a significant conceptual step—some would say a huge leap of faith—that has been highly controversial in economics and psychology, for obvious reasons.<sup>34</sup> As a survey-based method, it is also expensive, and it has been made increasingly so by the much more stringent scientific guidelines that have been attached to the method since the Exxon Valdez episode (Arrow et al. 1993; Smith 2004, p. 16). So revealed preference methods (based on the changing value of home sales, local variations in tourism, and forms of “averting behavior” such as the nonuse of polluted beaches) continue to be much more commonly used in minor pollution cases (Chapman and Hanemann 2001).

#### Pricing the Prince William Sound

According to the economic team working for the State of Alaska, the lost “passive use values” of the American public in the Exxon Valdez oil spill amounted to \$2.8 billion dollars. This number, it is important to note, went far and above treatment and replacement costs for injured animals, most of which were already covered by Exxon anyways.<sup>35</sup> So how was it derived? Consistent with the approach outlined above, the contingent valuation study treated environmental losses from the perspective of the passive, noneconomic consumption of the Prince William Sound by people who did not have a productive or recreational stake in it. To obtain conservative estimates that limited possible biases, social scientists determined that the study should measure neither the lost use values of the Prince William Sound coastal communities nor those of the Alaskan population but instead those of the American nation in its entirety (these lost use values were therefore almost entirely passive).<sup>36</sup> The ecologists had, in fact, made the

<sup>34</sup> See Hausman (1993) and Diamond and Hausman (1994) for reviews of the main criticisms.

<sup>35</sup> For instance, the cost of replacing animals lost in the spill was ultimately valued at \$22,000 each for bald eagles, \$11,500 each for sea otters, and \$50,000 each for killer whales (Brown 1992).

<sup>36</sup> These losses were “passive” because practically none of the survey respondents had any chance of actively using the area—whether for recreational or other purposes (Carson et al. 1992). There was also some discussion about whether to include populations outside of the United States at the onset. However, this consideration was eliminated for three reasons: “(1) Practically speaking it eliminated the costs of mul-

same argument: “The National Wildlife Federation’s lawyers contend that those injured include even citizens who have no plans to ever visit Alaska because simply knowing that an unsullied region is there for future generations has a value, known as the bequest value, that a jury can estimate when presented with economic studies” (Feder 1989).

In sharp contrast with the production-oriented, locally-driven approach of the French, the survey did not include anyone from Alaska but was instead carried out in a number of representative locations in the lower 48 States. Each interviewee was presented with information about the known environmental injuries caused by the Exxon Valdez oil spill, told that such injuries would most likely repeat themselves if the current situation remained unchanged, and then asked to reveal how much he or she would be willing to pay “for a realistic program that would prevent with certainty future injuries” to the area under consideration (Carson et al. 1992, p. 8).

The study revealed that the median American household had a willingness to pay of \$31 for such a program. The figure of \$31 per household, when multiplied by 91 million American households, gave a total willingness to pay (or utility loss) for the U.S. nation of \$2.8 billion (this was ultimately settled for \$900 million, plus a possible additional \$100 million if unforeseen long-term damages emerged after a period of time, which they did).<sup>37</sup> The discrepancy with the Amoco Cadiz litigation, which was still ongoing at the time, was striking. The point indeed was not lost on the governments in their memorandum justifying the Exxon Valdez settlement to the public: “Although the Exxon Valdez oil spill was one-sixth the size of the world’s largest, involving the Amoco Cadiz, Exxon is paying over six times the amount awarded to the French plaintiffs after 12 years of litigation, for the environmental harm caused by the Amoco Cadiz oil spill—and payment of the Amoco Cadiz award is still being held up by appeals. The proposed settlement is thus advantageous not only because of its size, but also because it has been achieved promptly, avoids litigation risks that the government believes are substantial, and provides adequate funding for the environment at the time it is needed” (U.S. District Court, District of Alaska 1991, pp. 4–5).

A few months later, the U.S. Court of Appeals for the Seventh Circuit acknowledged the same discrepancy in its final judgment on the Amoco

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tinational survey work, (2) the plaintiffs were trustees suing on behalf of Americans, and (3) this conformed to our [the contingent valuation researchers’] conservative principle of ‘when in doubt choose the course of action likely to produce a smaller value’” (e-mail exchange with Stanley Presser, November 29, 2004).

<sup>37</sup> This is known as the “reopener clause” of the settlement. See Rodgers et al. (2005) for a passionate defense of the need to enforce the reopener. In 2006, the governments presented a \$92 million reopener bill for long-term damages that were not foreseen in 1991. At the time of this writing, this claim was still being considered by the U.S. District Court in Anchorage.

Cadiz case: “Amoco has little reason to shed crocodile tears. Exxon reportedly spent \$2 billion to clean up the oil the Exxon Valdez spilled off Alaska; it has agreed to pay another \$1 billion as damages [to the public’s natural resources] and to pay a criminal fine of \$125 million. Amoco will be called on to pay only \$61 million plus interest to redress a spill that not only was larger but also occurred in a more densely populated area. Calling the \$61 million the result of inflated or fraudulent claims [as Amoco did during the trial] taxes credulity” (U.S. Court of Appeals for the Seventh Circuit 1992).

#### THE “THEN WHAT”: ECONOMICS AND LAW BACK INTO NATURE

The Exxon Valdez case provides a powerful illustration of the unique role played by economists in the legal system—and specifically in the American legal system at the end of the 20th century—and the consequences of this role on the social construction of value. Economists describe their methods and intervention as morally neutral: the purpose of the method, they argue, is to design clear-cut criteria for decision making when valuation needs arise in government and in the courts—not to engage in some philosophical debate about intangible worth. But such a separation between the practical and the philosophical is highly artificial, of course. The present study has suggested that political histories and moral philosophies are always written all over economic methods. It also implies—and this is a point I develop at length below—that economic valuation methods are not neutral in their effects: they are, indeed, performative (Callon 1998, MacKenzie 2006) of certain moral positions and social arrangements. Thus, by treating the value of the “natural patrimony” of Brittany as a property of its towns, regions, departments, and environmental associations, and designing valuation instruments and compensation schemes accordingly, French institutions were embedding ecological claims into a political cosmology, inherited from a history of repressed feudalism, where local and “corporate” ties—“collective individualisms,” as Tocqueville ([1856] 1998, p. 163) argued— are granted symbolic recognition but not much else. Similarly, by representing the value of the Prince William Sound as an aggregation of individual utilities, the contingent valuation method relied heavily on the idea of a putative “public” made up of individual citizens and on the conceptualization of nature as an abstract idea, as opposed to a lived reality (indeed, a separate claim by Native tribes of Alaska to claim injury to their special, collective way of life was rejected in court). The use of a survey to represent these citizens’ state of mind in the face of the spill symbolically performed this democratic cosmology, and it was, of course, very much in line with a long tradition of using public opinion to justify public decisions (Igo 2007). Finally, the

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adoption of this method served to justify an unprecedented settlement, which, by the sheer amount of resources it liberated for ecological monitoring and restoration, had a dramatic impact on both the local setting and environmental science and politics in general.

Where did the money go? A trustee council, the Exxon Valdez Oil Spill Trustee Council, is now handling the \$900 million compensation received on behalf of the public by the state and federal governments. The organization, whose mission is to oversee the restoration and future protection of the injured ecosystem, also started financing large-scale “ecosystem” studies after 1993. As of September 2008, 18% of the funds disbursed by the council, or \$178 million, was for scientific research and restoration purposes (Exxon Valdez Oil Spill Trustee Council 2009).<sup>38</sup> As a result, the Prince William Sound and adjacent areas have been among the most studied and monitored ecosystems in the world, and they are certainly among the best understood. Another 37.7% of the money was used to buy out parcels of lands, mainly from Native American tribes, and set them aside for “habitat protection.”<sup>39</sup>

The sheer magnitude of the ecological studies sponsored by the trustee council (especially during the Clinton years) helped shift ecological scientists’ analytical focus from the acute mortalities of single species at the time of the disaster to the delayed and indirect effects of oil on the complete ecosystem by studying entire trophic chains over long periods of time.<sup>40</sup> The fact that many studies were able to document such long-term effects has so dramatically altered scientific methods to investigate oil ecotoxicity, and subsequently scientific understandings of the phenomenon, that some see these post-oil spill studies as evidence of a paradigmatic shift in ecological science (see Peterson et al. 2003; Ott 2005; Exxon Valdez Oil Spill Trustee Council 2009; Hunt 2009). The Exxon Valdez money—and the way it was expended—has thus sustained a new scientific constituency, which, through its work, has arguably made “natural resources” even more fragile, complex, and worthy of protection than before the accident.

<sup>38</sup> Note that this is in addition to the research done for the purpose of the trial, as well as the considerable resources already devoted to these issues by federal agencies (e.g., NOAA) and state agencies (e.g. Department of Fish and Game).

<sup>39</sup> This policy, however, has been highly controversial among Native Americans in Alaska. Fieldwork I conducted in Alaska revealed a sometimes very tense relationship between Native groups and environmentalists.

<sup>40</sup> The Exxon Valdez Oil Spill Trustee Council sponsored four major ecosystem studies. The most critical of these may have been the \$6.5 million Nearshore Vertebrate Predator (NVP) project, which demonstrated that the recovery of key species (particularly those feeding on invertebrates) was still compromised eight years after the oil spill (see Ott [2005], pp. 295–316, for a summary). Indeed the latest assessment by the Exxon Valdez Oil Spill Trustee Council (2009) stated that a number of species had not yet achieved recovery.

We can speculate that this new scientific consensus will have a major impact on the way environmental damages in the 2010 Gulf oil spill will be understood. As a result of increased scrutiny, new sources of vulnerability will emerge there, too: witness, for instance, the intense media coverage of the harmful effects of lingering undersea “plumes” of oil far out in the ocean (e.g., Gillis 2010), an even more remote, invisible, abstract “nature.” It is entirely reasonable to imagine that these newly documented effects could enter future valuation exercises and perhaps push the price of “injuries to the public’s natural resources” up further.

In line with the dominant cultural understanding of “nature as wilderness,” the economic method devised by American economists to calculate the monetary value of the natural environment in the Exxon Valdez case relied on a strictly subjective concept—the idea of wild, unspoiled nature, absent of any active personal use. The outcome of the valuation process, as expressed in the trustee council’s actions, helped strengthen the material reality this conception stemmed from in the first place. Pricing the Prince William Sound did not debase it; to the contrary. Instead, it sacralized it further in the true Durkheimian sense of making it into a thing that is “set apart and surrounded by prohibitions.”<sup>41</sup> The increased knowledge of the local marine ecosystem gave the area more personality, a more special character; land buyout policies did something similar for the surrounding lands, removing them further from human intervention—except for the designs of ecologists, the high priests of nature. Thus, the contingent valuation method accomplished for nature what insurance premiums had done for the meaning of responsible parenthood at the end of the 19th century (Zelizer 1979). Instead of profaning nature through monetization, the valuation of lost “passive uses” performed a new, if rationalized, type of “celebration ritual” by which nature’s trustees (in this case, the governments) signaled the public’s particular relationship and responsibility toward the nonhuman world; in doing so it also performed this relationship by emphasizing the subjective “utility” of nature as an idea and by allowing such a conception to become better embedded in policy, the law, and ecological science. Through this institutionalization process, it is not impossible that a new set of “individual preferences” were actually made endogenous to the techniques supposed to reveal them (Willinger 1996).

This cultural process contrasts markedly not only with the outcome of the Amoco Cadiz litigation but more generally with the approach still advocated today by the French state and the International Oil Pollution

<sup>41</sup> It might be worthwhile here recalling Durkheim’s full definition of religion as a “unified system of beliefs and practices relative to sacred things, that is to say, things set apart and surrounded by prohibitions—beliefs and practices that unite its adherents in a single moral community called a church” (2001, p. 46).

Compensation Funds that France is a member of, both of which have set strong limits on the notion of ecological damage. In fact, if anything, the constrained compensation scheme in the recent Prestige and Erika incidents shows that the monetary valuation of the environment continues to be contested in France, and in continental Europe more generally. If the recent verdict (January 16, 2008; confirmed on appeal) on the Erika oil spill broke new legal ground in France by acknowledging the legality of ecological damage claims for the destruction of protected species (*préjudice écologique*), the amount of the award remained very low. The most significant ecological compensation—that for the Morbihan natural preserve—was determined using a recovery time of two years only; it is perhaps not coincidental that two years was precisely the amount of time that economic experts had identified in another testimony as necessary not for nature to recover but for local people to resume their normal leisure activities such as fishing and collecting shellfish.

The fact is that the expertise marshaled by French victims was dependent upon an altogether different relationship to nature, as well as to money. Economic methods of valuation still raise considerable suspicion in France, particularly among ecologists and state officials. This wariness was brought home to me by many of the interviews I conducted in Brittany. One economic expert repeatedly lamented the ecologists’ disparagement of monetization and what he saw as a visceral anti-economics bias as the main reasons for the ill-fated move to biomass evaluations in the Amoco Cadiz case. Another interviewee, a local organizer who was in charge of coordinating the Amoco Cadiz trial in Chicago, voiced his repugnance for the alienating judicial and financial spiral the Breton plaintiffs had found themselves drawn into as a result of the litigation, echoing Jasanoff’s (2007) findings about the momentous asymmetries of power between the American and Indian cultures of knowledge and justice in the Bhopal case. For Jean-Baptiste Henry, and indeed all the Bretons I met, the Amoco Cadiz trial first ought to be talked about in political terms. In October 1992, shortly after the Federal Appeals Court rendered its final verdict on the case, Henry gave a speech (1992) to celebrate the “beautiful struggle” waged by the David of Brittany, “a structure of small family firms . . . which are not perfectly integrated into the capitalist economy,” against the Goliath of the Amoco Corporation, “the most powerful oligopoly in the world economy.” He also left no ambiguity about his sentiments regarding the financial demands of justice and the application of a monetary logic to nature:

Will I dare suggest that we would have experienced new problems if our financial demands had all been met? I, for one, firmly believe that putting a price on something that has no price, and I think specifically of ecological damage, is by nature debasing. Let us not fall back on the same terrain as



those people whose grave faults we seek to punish: let us not forget that it is the same thirst for money that caused the catastrophe in the first place.

In truth, the values we have defended throughout these 14 years of struggle are elsewhere. I say and I repeat that it was a "struggle," rather than a "trial." The trial was only the weapon, or rather the site, of our struggle. The means we have used to defend our environment are the true evidence of the value we attach to it (and indeed might we not say more simply our land?). And these means are not only financial. Will we ever be able to quantify the sum of energies, good wills, competences, dedication, that were expended during the last 14 years by all of us who are here today?" (Henry 1992, my translation)

For Henry, the priceless nature of Brittany's shoreline meant that its living natural resources should perhaps not have been priced at all. There are two reasons for this. The first reason has to do with the incommensurability of the environment: in his cultural-political universe, "to be saleable . . . is to be common—the opposite of being uncommon, incomparable, unique, singular and therefore not exchangeable for anything else" (Kopytoff 1986, p. 69). The second reason has to do with the polluting effect of money—the view here builds on a long-established critique of money (see, e.g., Marx [1844] 2007) as a medium that belittles all real essences by corrupting people's motives and all social relations.

It is important to note, of course, that money brings this kind of "moral baggage" everywhere (Carruthers and Espeland 1998, p. 1395). Similar sentiments were not absent from the Alaskan context either, for instance. In the small, closely-knit communities living on the Prince William Sound, personal relations were sometimes gravely poisoned by individual differences in financial remunerations obtained during the clean up and in estimates of punitive damage awards. Yet, under these different sociological conditions, there was a dominant (though not universal) feeling that more, not less, money would be needed to "make people whole." The "pricelessness" of nature had a completely different meaning there. When I spoke to a prominent environmental activist in Alaska in 2006, she suggested that the \$1 billion settlement might have been much too low, indeed cheapening the real injuries caused by Exxon to the nonhuman world and probably not harming the company enough to amend behavior. In that social context, it was the highest price possible, rather than the absence of price, that was the true mark of pricelessness. The "then what" of the valuation process had a very different outcome in each social setting.

#### MONEY AND THE CULTURAL (RE)PRODUCTION OF NATURAL SENSIBILITIES

It is perhaps not coincidental that the single most important comparative and historical study of how social systems come to acquire cultural coher-

ence, Richard Biernacki’s masterful *Fabrication of Labor* (1995) begins with a monetary valuation problem: how did 18-century German and British employers solve the problem of pricing labor in their textile factories? As it turns out, simple differences in embedded valuation practices, for example labor paid by the number of weaver shots (Germany) or by the finished piece or fabric length (Britain), were extraordinarily consequential in launching each country on a different path with respect to its dynamics of accumulation, the calculation of productivity and profit, the articulation of grievances by workers, the organization of the labor movement, and even the discourse of political economy. Biernacki traces the original difference in wage-setting practices back to each country’s point of entry into capitalism and the organization of factories on the ground.

The present study makes a similar point. Economic valuation is so revealing precisely because it is so much more than a process of monetary commensuration: it is, much more powerfully, a process of “definition” or social construction in a substantive sense (Smith 2007), which incorporates all kinds of assumptions about social order and socially structured imaginaries about worth. Economic valuation, in other words, does not stand outside of society: it incorporates in its very making evaluative frames and judgments that can all be traced back to specific politico-institutional configurations and conflicts. The difference between the value-claiming processes in France and the United States did not simply revolve around what the price for a putatively equivalent “nature” out there should be and how that object ought to be commensurated monetarily. In each case, people—local populations, attorneys, court officials, state agents—had to contend with who the “injured” victims were and what that particular intangible item itself “was”—a collective, aesthetic, and productive patrimony for the locals, or wildlife to be left wild and mostly imagined.<sup>42</sup> But through the valuation process, they also changed that, too. In other words, the cultural category of nature is also dependent on the methods—legal, economic, and ecological—that were mobilized to account for it.

The uses, technologies, and discourses surrounding money always encapsulate whole systems of social relations, indeed, offering a penetrating lens into social organization itself. What is true of the wage-setting practices studied by Biernacki is also true of the tax system (e.g., Schumpeter [1918] 1954) or of monetary awards in the judicial system. Thus, the question of the monetization of “natural resources” in France and America opened up a huge can of worms: it reminded us that nature is never “nature” but an assemblage of relations involving humans and nonhumans (Latour 1994), defined and performed jointly in state policies, legal rules, political com-

<sup>42</sup> I am deeply indebted to an anonymous reviewer for pushing me to clarify this point. Also see Beckert (2010).

TABLE 3  
SUMMARY OF THE ARGUMENT

Factor	Exxon Valdez	Amoco Cadiz/Erika
Experience of/relationship to nature	Open, “natural” reality: wilderness	Lived in, politico-cultural reality
Who speaks in the name of nature?	The state and federal governments, speaking in the name of the individuals that make up the U.S. public	Organizations with a specific custodian role: local populations, “collectives” (e.g., regions, towns, associations)
Goal of natural damage action	“Make the public whole”	Recovery of economic costs
Valuation process	Subjective utility of passive use	Repair and custodial costs, collective reputational losses
Assessments of harm	<i>Nature</i> takes a long time to recover: still going after 20 years	<i>People</i> recover quickly: 2 years in Erika case
Monetary awards	Large	Small
Award uses	Habitat protection and ecological science	Small and dispersed ecological uses
Nature	Priceless—highest price; nature as a subjective concept and a reality to be set apart and sacralized	Priceless—no or low price; nature as “patrimony” for people with strong emotional attachments

mitments, economic technologies, and ecological theories, in the strolls taken along the coastline, the shellfish collected for dinner, the ways of life of fishermen and the sand walked on by visitors, in the claims of scientists and the policies of public officials, and in the ideas and emotions that landscapes we may never have seen evoke in the presumed “public”—us.

Certainly the three accidents I have discussed are all associated with important legal, economic, and scientific changes, such as the institutionalization of the contingent valuation method in the United States, the official naming of the *préjudice écologique* in France, and ecosystem science. The new techniques did “reassemble the social” all right in ways that were not foreseeable (Latour 2005). Yet ultimately the outcome does resemble the point of departure: the natural sensibility performed in each country remains, by and large, historically consistent, as the summarized argument in table 3 suggests. Legal, economic, and scientific institutions, each following their own logic, still managed to hold together while changing at the same time, doing this in a manner that was neither planned nor a priori determined (indeed the process seen from up close is amazingly chaotic) but still coherent enough that the reproduction of natural sensibilities in each case appears to have been overdetermined from every side. Maybe it is this ineffable sense of coherence and overdetermination that we call “culture.”

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