

**CENTS AND SENSIBILITY:
ECONOMIC VALUATION AND THE NATURE OF 'NATURE'
IN FRANCE AND AMERICA**

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Cents and Sensibility

Economic Valuation and The Nature of 'Nature'

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Abstract

How do we attribute a monetary value to invaluable things? This paper offers a general sociological approach to this question, using the value of nature as a paradigmatic case. I first propose a theoretical analysis of the cultural and institutional conditions through which the relationship between subjective value and objective (monetary) value gets constructed in society. I argue that a full-blown sociology of valuation must solve three problems: the “why,” which refers to the general place of money as a metric for subjective value in society; the “how,” which refers to the specific techniques and arguments laymen and experts might use in order to elicit monetary value where value is hard to produce; and the “then, what” or the feedback loop from monetary valuation to social practices and representations including, of course, subjective value. I use the case of nature to demonstrate how this sequence works empirically. I rely on an empirical investigation of three major environmental pollution legal cases –the maritime oil spills caused by the tankers Amoco Cadiz and Erika in Brittany (France) in 1978 and 1999 respectively, and by the Exxon Valdez in Alaska in 1989– to study how French and American plaintiffs and institutions understood the damage done to nature and sought to turn it into monetary value. I then show how these processes of monetary valuation ended up, by and large, reproducing the very conceptions of nature that had motivated them in the first place. I conclude on the role of economic value in drawing institutional systems together.

Keywords: culture, nature, money, valuation, France, America, economics, law and society, comparative sociology

How do we attribute economic value to things around us? Neoclassical economics provides an answer: after a long and complicated debate over the sources of value in the nineteenth century, economists finally came to hold that the economic value of commodities is not intrinsic but dependent on human desires –the “utility” of goods to each individual. But how do you work with such a vague concept in practice? To put it differently, how do you *measure* utilities? After another lengthy debate, economists suggested that the strength of human desires is best appreciated through the process of exchange (Marshall 1890): we can study what people are willing to part with to acquire a certain quantity of a desired good—be it another good (e.g. an apple against an orange), a certain amount of money or time. Money, in fact, may serve to standardize everything else: if I am willing to pay \$1 for a lollipop, then \$1 is the monetary equivalent of the additional utility I would derive from eating that lollipop. Building on this insight, later neo-classicals argued that people’s preferences are “revealed” by their behavior as consumers –for instance by what they *actually* decide to pay for lollipops (Samuelson 1938).

There were immediately two problems with this theory. First, it relied on the notion that desires (or “preferences”) are *sui generis*, exogenous. They need not be explained—“*de gustibus non est disputandum*,” in Becker and Stigler’s (1977) extreme formulation. But as sociologists had pointed out long ago, and as behavioral economists have argued since then, this is a hard assumption to make. Human desires are eminently intersubjective. So is the process of eliciting value in exchange: “In exchange, value becomes supra-subjective, supra-individual, yet without becoming an objective quality and reality of the things themselves.” (Simmel 1978, 78) In other words, it is the social character of the exchange process itself, which validates it in the eyes of those involved. Thus how much I am willing to pay for that lollipop may be dependent on how much I believe others would be willing to pay if they were in my shoes at that particular moment. It also depends on my general orientation to the exchange situation itself, which is backed by a

certain set of social expectations and conventions regarding, for instance, the use of money, the validity of this particular currency, the fairness of the interaction, the quality of the good, etc...

The second problem was that many of the things we seem to care about exist, in fact, outside of the sphere of economic exchange: the natural environment, the duration of life, bodily integrity, aesthetic beauty, fairness, personal happiness or a family's honor. Do intangible "goods" such as these have economic value –and if so, what is it? One possible (and not unlikely, see for instance the commodification literature) answer is simply to deny the legitimacy of economic valuation altogether: will monetization not debase emotions, unique and ineffable qualities, or moral sentiments? Do these things not come under a different notion of "worth" and rational justification altogether that makes them incommensurable with the single-minded and reductive metric of money (Boltanski and Thévenot 2006; Karpik 2007; Stark 2009)?

Perhaps. But the fact is that we *do* commensurate these peculiar "goods" with money, all the time. We do it informally in our everyday lives (Zelizer 1985, 1994, 2005) and we do it more formally through the intervention of institutions (e.g. Zelizer 1979, 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 helping one obtain 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, a permit to release into the air a controlled amount of toxic gases.

Over time, the valuation of intangible goods and ideas was also transformed from a process dominated by "custom and law" (Simmel 1978, 358-9) into a highly rationalized and impersonal one handled by specialized intermediaries and technologies. Modern forms of monetization are often implicit, hidden from view, shrouded by a technical apparatus that seeks to

put sentimental and ethical dimensions at a distance while at the same capitalizing on them (Zelizer 1979, Quinn 2008). Contrary to physical commodities, much of the valuation of intangibles takes place outside of economic markets –in courts, public administrations, or firms. Treading carefully around the ethical qualms of the societies they serve, modern social institutions do in fact spend considerable time and effort measuring what seems immeasurable and valuing what seems invaluable, 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.

New methods, mostly coming out of the toolkit of economics, form the core of the scientific apparatus professionals deploy to –for instance– estimate the value of human life or the cost of pollution. To the untrained eye, these 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. In this paper, for instance, we show that the methods to put a monetary value on the natural environment have received much greater technical, legal, scientific and political elaboration in the United States than in France, and produced vastly different estimates about the monetary “worth” of the non-human world in the two countries.

Why these differences? The answer is complicated. Money represents just *one* axis by which we commonly assess what things are “worth.” People and organizations, in fact, will frequently invoke alternative principles to justify a desired relationship to –in this case– the

natural world (Boltanski and Thévenot 2006; Thévenot, Moody and Lafaye 2001; Godard 2004): for instance, engineers and public officials might stress the economic development of a region or the efficient use of natural resources; while philosophical critics (e.g. Ackerman and Heinzerling 2004; Sagoff 2004; Satz 2010) and ecological movements will call upon the public to recognize the right of non-human species, our moral duty to future generations, the valuable goal of enhancing biodiversity, or the beauty of untouched landscapes. But how do these alternative forms of justification interact with “the measuring rod of money”?² Furthermore, can we identify and explain meaningful social variations in the economic value attributed to intangible things?

This article draws on in-depth investigations of a series of dramatic ecological catastrophes –namely, three massive maritime oil spills in France and the United States– to study the techniques used to by ordinary people and their expert “voices” in the two countries to make monetary claims about the economic values to be recovered. In the process, I also seek understand how these techniques, and the social formations that carry them, relate to non-monetary forms of worth – and indeed translate and reproduce them in various ways. Thus the question is not simply to find out whether nature can (or should) be monetized or not –as the debate is often framed. In all the cases studied here, it was: oiled birds and beaches were worth *something* that could be expressed in monetary terms. No, the more interesting question has to do with how, and *by which fantastic but very concrete operations, the economies of worth applying to nature* –our natural sensibilities is another way to put it– *got collapsed into dollars and cents*: not only into absolute money *amounts*, but also into the *specific techniques* that helped generate these amounts.

The cases are, perhaps, well-known. Maritime oil spills are rare events, but when they occur they are unlikely to go unnoticed. Both France and the United States share the privilege of having thousands of miles of exposed shoreline. Dozens of supertankers full of oil and chemicals

cross the Mediterranean Sea or go through the English Channel daily, on their way to, respectively, Southern France or Northern Europe; and similarly loaded ships leave Alaskan ports or travel the Gulf of Mexico every day to bring their cargo to refineries throughout the world. It is perhaps no wonder, then, that both countries have experienced devastating ecological disasters in the form of large-scale spills caused by tanker accidents.

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 cross-national differences in the meaning of and rights to nature; the techniques of damage evaluation; the monetary outcomes of the compensation processes; and the ecological restoration carried out. Thus the definition of who was victimized when nature was soiled differed dramatically between 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 than on the other side of the Atlantic? 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 that all of these hypotheses are true, and connected somehow?

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 suggest at the onset of this paper, 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 nature 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. As David Stark (2009: 6) succinctly put it: what counts? By what measures? And also: Who is doing the accounting? In whose name? 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” 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 different 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 look at and interact with our environment? As Simmel points out, the relationship between subjective and objective value is not unidirectional, but dialectical. This is because the conditions of purchase and monetary sacrifice involved in acquiring an object magnify the personal character of the experience of exchange, and therefore the subjective 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*” (1978, 78, emphasis mine). 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). As for nature or life, is it possible that the process of economic valuation itself be a cause of their increased “pricelessness”? Put another way, do dollars and cents magnify our ecological sensibility?

This paper 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” non-tradable things; this section also considers the cultural specificities of nature as an object of value. The second section looks only at social contexts that formulate a valuation need and focuses on cross-national *variations in the organization of monetary valuation*. As suggested above, this section relies on empirical case studies of the compensation for environmental damage in major oil spills in France and the United States. I dwell extensively on a close examination of the Amoco Cadiz (1978, France) and Exxon Valdez cases (1989, United States), with further references to the more recent Erika oil spill (1999, France). 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.

GENERAL CONDITIONS OF VALUATION –THE WHY

CULTURAL ACCEPTABILITY OF MONEY AS A YARDSTICK OF VALUE

Monetary valuation represents a particular case of what Espeland and Stevens call “commensuration” –or the “process of turning qualities into quantities according to a common metric” (1998). As such, money is the most perfect vehicle of calculability –the great equalizer that converts all qualities into quantities. Tocqueville noticed that this is precisely what may confer money its unique legitimacy and public approval in democratic societies like the United States (that is, in societies whose political ideology (though not necessarily political practices) celebrates ordinary individuals). By contrast, Tocqueville argued, people in societies with an aristocratic tradition –and he certainly placed nineteenth France in that category– value detachment from material well-being, 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” (2000:507). Moreover, in such societies inborn privilege establishes exclusive social distinctions that cannot be easily effaced through pecuniary means. Contrast this with Veblen’s depiction of the much more comfortable relationship of the American leisure class to money, in which the competitive desire to achieve a “favorable comparison with other men” drives the universal tendency for pecuniary emulation (Veblen 1899).

For Tocqueville, then, national differences in attitudes toward money are rooted in political culture (and its relationship to social structure). Money might be especially suspect in societies with strong class- and status-based collective formations, by denying the relevance of these differences, and by guilt of association with capitalist exploitation (from that point of view, money may be seen just as deceitful in a society with a democratic socialist tradition, as it was in

a feudal one.)³ In this kind of social structure, money is the “frightful leveler,” disparaged by both Marx and Simmel, which threatens to collapse all personal, unique qualities into one, and also challenge any form of order based on status or descent. However, seen under a more positive light and from a society with a different political-cultural make-up, the same features make money the great “rationalizing agent” celebrated by Cooley and Mitchell, which oils the wheels of the capitalist engine and holds the promise of social mobility (Zelizer 1994, 8-9).

Religious heritage is another important variable to consider when analyzing cross-societal differences in attitudes toward money. Max Weber (2002) demonstrated 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” (2002, 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, fraught with moral apprehension: “The Catholic ethic view of money is ambivalent to suspicious. Money is good, as a lot of things are good. Having it does not make you good, better or best; not having it does not make you bad, or worse, or worst” (2002, 50).

For the cultural reasons outlined above (predominantly Catholic country, with feudal legacies and important working-class based political movements), 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 most recent 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.” 38% of American respondents described

themselves as similar in some fashion while only 25% of French respondents did. Furthermore, qualitative research echoes this basic difference. Michèle Lamont has documented 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 two successive books (1992, 2002). In the United States, by contrast, she found that her respondents were much more comfortable with the topic of money, and saw it a product of merit and effort, an essential means to control, freedom, equality and respect (1992, 66; 2002, 75), as well as a yardstick of success. Finally, several contributors in a volume Lamont co-edited with Laurent Thévenot (2000) reached similar conclusions in their comparative investigations of the publishing world, the ecological movement, business elites and the arts public on both sides of the Atlantic: French actors in these settings, they found, 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 ambivalence.⁴

INSTITUTIONAL ACCEPTABILITY OF MONEY AS A YARDSTICK OF VALUE

What the above suggests is that 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. Consequently, the best standpoint from which to study the place of money in society may not be simply individual representations and practices, as mentioned above, but also collective ones. We should, in particular, seek to understand how social institutions frame and channel social demands for monetary valuation in different social contexts.

We know that organizations –courts, public agencies, hospitals, corporations– play a pivotal role in shaping the conditions under which special “goods” such as nature, children, human blood or organs may (or not) give rise to economic transactions (Zelizer 1985; Healy 2006). The reason is that such organizations routinely find themselves budgeting, compensating

for, and pricing human lives or natural resources as part of implementing 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 desk of judges. 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 broader 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 societies.

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 consequence of political centralization, the progress of a commercialized economy, mass education, and the need for democratic legitimation.⁵ The systematic use of quantification in public policy decision-making presupposes a particular form of political rule, rooted in the authority of rational expertise rather than custom or personal leadership. As Sen (2000, 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 twentieth 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 deference to experts was the only way that state elites 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 (in flood control for instance). In the United States, the move to cost-benefit analysis 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 weary of governmental power.⁶ 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 Wendy Espeland studied in *The Struggle for Water* (1998)) have increasingly come to take the natural environment into account in their cost-benefit analyses.

Cass Sunstein (2002) offers a similar interpretation, though he embraces cost-benefit methods more explicitly as an instrument of democratic governance and celebrates their diffusion as a great achievement of American government, which has led to increased efficiency and political legitimacy. Against those critiques who view cost-benefit analysis 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, 9) and by helping settle controversial court-mediated exchanges between regulated actors, public interest groups and regulatory agencies. CBA 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 cost-benefit analysis 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 sophisticated mathematical knowledge (also see Desrosières 1999; Fourcade 2009a). Though 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 microeconomics⁷– 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 cost-benefit analysis has been much less expansive, and –if we follow Sunstein’s line of analysis–has also offered fewer opportunities for democratic contention.

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 damages 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 –the death penalty, or cutting a thief’s hand–; social –imprisoning someone, or forcing the perpetrator of a rape to marry his victim–; or

psychological –requiring the display 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) (1984:68). Nonetheless, widespread cultural-institutional differences persist concerning the acceptable reach of money as a compensation instrument across socio-legal 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. In addition, the centrality of popular juries in the American legal context tends to amplify the effects of legal rules and to allow monetary awards to be particularly large and arbitrary (Sunstein et al. 2003). By contrast, punitive damages do not exist in many countries (for instance 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).⁸

What makes the place of money in the US legal system unique, however, is not simply its extensive reach as a compensatory instrument, but also 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. 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). Economic professionals, like other professionals, 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 economics is uniquely placed to carry out this valuation work—indeed Ronald Coase recognized long ago that what gives economists a great advantage over other disciplines and professions is that they are able to use “the measuring rod of money” (1994:44); but also because the analytical logic of neoclassical micro-economics connects monetary value directly to subjective value, or “utility.” As I will show later, by the end of the twentieth 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” (to use a vocabulary 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 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 1995a, 25). So how have landscape and non-human life been experienced and conceptualized throughout French and American history?

THE UNITED STATES: NATURE BETWEEN WILDERNESS AND COMMODITY

Almost by definition, the notion of “wilderness”—nature untamed and untouched by humans—seems to escape William Cronon’s form of sociological reductionism, however. Yet even the wild, whether as an idea or as a material reality, does not really exist *outside* of human association. In Cronon’s words, again, “wilderness is a cultural invention” (1995b, 79). The concept emerges at a particular time—the end of the nineteenth 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”⁹ lands became deeply entangled with the founding political myths of the nation: the frontier, individualism, liberty. As such, it 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, 102).¹⁰

The federal government played an essential role in turning this cultural impulse into a political and legal reality. By setting aside huge tracks of land under the national parks policy in the nineteenth and early twentieth century, 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...), 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 1986, 449). U.S. federal agencies today still manage or lease close to 30% of the country’s territory.

The counterpart of this voracious acquisition policy was the no less vigorous disposition of huge chunks of acreage to the states (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 estate broker and developer, both on and offshore (think exploration on the seabed and oil-drilling leases). Land is a commodity everywhere, but the extent of governmental involvement in the land business in America is simply unmatched.

Nowhere was this cultural conflict over the character of land in America 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, Alaska is also the site of the largest oil field in North America and likely holds the biggest natural gas reserves, yielding billions of dollars in corporate profits and tax windfalls each year.

So Alaska turned into a paradox: a great economic boon, which experienced an unparalleled oil rush in the 1970s; but also the ultimate “wilderness mecca” (Nash 2001, 275) – the last American frontier, a true, pure no man’s land. 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, leading to the decision, in 1980, to protect close to 100 million acres of Alaskan federal land (an area larger than California) from development, which implied more than doubling the size of the National Parks System. From the cheapest commodity in 1867—the entire Alaskan purchase is worth

about \$108 million in 2008 dollars—the same land has become so priceless that the bulk of it cannot be sold or leased. This historical vacillating of Alaska between (mainly) the “inspired” and the “market” economies of worth 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 (of, for that matter, Western) experience and 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, 42; Beckert 2007). In contrast to England or Prussia, increasingly impoverished French nobles had sold much 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, 24) even argue that the ubiquitous political reality of a dense network 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 has 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, which 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.

In their struggle to inscribe their political reality on 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 political legitimacy (e.g. See Hecht 1998). As Pritchard (2004) argues in her study of postwar water management projects on the Rhône River, nature and technology have been closely interrelated in the construction of French national identity, indeed often in the construction of local identities, too.¹¹

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 nineteenth century French writings as they are in American writings of the same period. France's first national park was only created 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.”¹² 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 post-revolutionary framework for the conservation of notable *built* spaces and monuments —the “*politique du patrimoine*.” As such, it fell largely under the responsibility of cultural authorities —that is, alongside museums and castles.¹³

And 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 nature is afforded a special moral ground. 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 views in relation to some theory of the ultimate ground of environmental values” (Whiteside 2002, 3). Thus post-war French ecological concerns were articulated not around the specificity of nature as a political object, but rather from within a broader critique of modern society, for instance against capitalism as a mode of production (e.g. see 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 nature “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 (*cités*, in Boltanski and Thévenot’s (2006) conceptualization) 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?

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

The above discussion has sought to elaborate the ways in which we may think of valuation as a profoundly social process. In short, I have suggested 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* monetary valuation may be carried out. The present

section will be devoted to an empirical demonstration of this proposition, using the valuation of environmental damage in two different social settings as an illustration. Much of the material that follows was collected during trips I made to Brittany (in 2002 and 2003), Alaska (in 2006) to do research on the Amoco Cadiz and Exxon Valdez oil spills. 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, legal briefs and correspondence, expert reports, transcripts of court depositions and testimonies, and press coverage. I also carried out 9 in-depth interviews with plaintiffs, experts and attorneys familiar with the Amoco Cadiz case in France (plus 2 in the United States); and 11 in-depth interviews with individuals (local citizens, ecologists, attorneys, experts) involved in the Exxon Valdez case, plus a review of press coverage, expert reports, and legal documents filed with the court. In addition, I had informal conversations with about a dozen more people in the two countries. In both cases, my research was guided by the desire to understand how the concept of natural resource damage was framed, and how valuation methods were crafted to account for these damages monetarily.

On March 16, 1978, the supertanker Amoco-Cadiz, with 227,000 tons (68,668,000 gallons) of crude oil in its flanks¹⁴ 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 map below (Figure 1) provides a sense of the magnitude of the spill.

—Figure 1 about here—

Here is how a witness describes the scene in Portsall on the morning of March 17:

“It was the vision of a disaster. It’s almost impossible to describe. The smell of fuel was just overwhelming... Everywhere you went, this incredible, horrible stench. So that you knew, well before you had reached the shore. And then you looked at the sea... And it looked like chocolate mousse. The fuel and water had formed an emulsion under the action of the waves.” (Interview # F2, Pleumeur-Bodou, June 18, 2002)

The clean-up of the region, undertaken and coordinated entirely by the French state, lasted months. 10,000 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. The summer season, which provides a sizeable 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.¹⁵ People were angry.

To this day, the Amoco Cadiz remains the largest maritime oil spill from a tanker to ever reach land. But it is far from the only one: the International Oil Spill database maintained by the ITOPF records 1720 spills from vessels of at least 10,000 gallons between 1960 and 1995, including 43 spills over 10 millions gallons (Oil Spill Intelligence Report 2004). 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 recent (2002) sinking of the Prestige¹⁶ off the coast Spain reminds us (see Figure 2a for a summary of trends since the late 1960s, and Figure 2b for a representation of the most dramatic spills). Many oil spills take place far from land, or over long periods of time,¹⁷ and are therefore less noticeable. For instance, the largest tanker-originated spill ever, the Atlantic Empress’, dissolved entirely in the sea. Much of the 252,000 tons of oil from the Castillo de Bellver tanker burnt on the ship, which was cruising off the coast of South Africa. As a result, these events were hardly noticed. By contrast, the spectacular soiling of an Alaska

fjord in 1989 elicited a dramatic public and private response, and still holds a special place in American memory as one of the events that crystallized ecological sentiments in the country, and beyond.

—Figures 2a and 2b about here—

The Chenegana 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 (see Figure 3 below), 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 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).

—Figure 3 about here—

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 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,¹⁸ 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. 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.

—Table 1 about here—

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 the passage of the US Oil Pollution Act in 1990. The incident was also sanctioned by a rapid and large out-of-court settlement of \$1.025 billion with the Exxon co. for the *sole compensation* of environmental damage (or “damages to the public’s natural resources”).¹⁹ In addition, Exxon spent more than \$2 billions to clean up the area,²⁰ paid \$500 million in compensatory (economic) damages, and was asked to disburse the same amount in punitive damages.²¹ In contrast, the earlier Amoco Cadiz disaster, which spilled more than six times the tonnage, ended with a much more modest total compensation of \$61 millions (\$200 millions 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 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*, Tuesday, 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 (2001:163) 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 litigation.²² Finally, the rules under which the cases were to be evaluated differed slightly. In a nutshell, the legal procedure for the Amoco Cadiz case was American litigation, but the case was judged according to French law. However, Judge MacGarr acknowledged in his 1984 ruling on liability that French and American laws did not differ markedly in this matter.²³ 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 out* an approach to the valuation of nature, which might not have occurred in a French court.

Thus more interesting, perhaps, than the final outcome of both trials (but nonetheless closely connected to it) is the large discrepancy in the way plaintiffs from the two regions *built their cases* –relying on very different understanding of “damage,” and different forms of expertise and scientific tools to value it. While using the same legal system, the French and American victims relied on very different styles of argumentation about damage compensation. In the Amoco Cadiz case, there was considerable discomfort about even formulating a claim about “nature” as such. The victims themselves were skeptical about the very legitimacy of the 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 cultural framework laid out earlier is the purpose of the next section.

CULTURE INTO LAW

The Amoco Cadiz and the Exxon Valdez oil spills are probably the two most high profile oil spill cases in history. Both caused a considerable number of separate legal actions to be initiated on behalf of a wide range of claimants. 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, which may cause considerable psychological and social stress (Picou, Cohen and Gill 1999). In the Exxon Valdez class action lawsuit, lawyers also sought to bring claims for widespread emotional and social damages among the local populations (those were ultimately thrown out as non-compensable under maritime law, but have been since then allowed under the U.S. Oil Pollution Act). Moral damage was argued in the Amoco Cadiz case, too, but characteristically it took a different form. Drawing on the strength of local identities in France as well as, perhaps, longstanding institutional practices that protect the unique character and benefits of place (indeed enshrines them through that unique French notion of *terroir*), Brittany’s towns argued they had suffered “image label losses” [*perte d’image de marque*].²⁴

“Nature” loses on its own terms, too, and very visibly: animals die from contact with the oil—birds, fish, plankton, crustaceans, shellfish, algae, marine mammals; and as a result, others down the food chain (including many land animals) get affected, too. Immediate effects are very dramatic; long-term effects are more complex to evaluate. Furthermore, nature does not make legal claims on its own behalf. 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

One notable element in shaping 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 tradition of the “public trust.” Embedded in American federal as well as in most state legislations is the notion that governments own these lands “in trust” for the public. 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 (Selvin 1987). Major environmental legislations, such as the Rivers and Harbors Act, the Migratory Bird Treaty Act, the 1977 amendment to the Clean Water Act, and the Oil Pollution Act (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 ND).

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. As a lawyer prominently involved in the class action lawsuit for the local populations injured in the Exxon Valdez oil spill, put it to me in an interview: “We were not allowed to make any claims for any monetary damages

or even use a good deal of the evidence involved for the natural resources losses. Those were not ours to recover. Those belonged to the governments. We could only recover the economic losses caused to our people by the destruction of those natural resources because of their dependency on them for their livelihoods” (Interview # US2, May 24, 2006). Certainly this legal presumption caused tremendous bitterness among both 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 ANTI-COMMONS?

In French law, marine wildlife (as all wildlife) is *res communis*: it belongs to the community, indeed everyone.²⁵ In 1976, a law was passed to enhance the protection of the environment that spelled out new civic rules of conduct among the citizenry: the law made every individual in France, 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 really was. Second, the law in effect entitled any individual or organization to formulate a claim to stand as an advocate for “nature” in a court of law (Huglo 1990, 147; De Raulin 1993, 67, footnote 81). This created a situation analogous to that described by Heller (1998) as “the tragedy of the anti-commons”: because everyone competes to protect and especially to act as the representative of nature, no one may be able to do so effectively, for both reasons of legal standing and financial reasons.

We find this unfortunate 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 not only to prevent four²⁶ tanker accidents in the region, but also –in three of the four cases– to engage legal pursuits against responsible parties. 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*, April 3, 1980). Certainly, this conflict had strong political overtones: the *département* at the time was politically on the left while the government was right-wing; also, it was the height of the regionalist struggle and people identified with Brittany's historical legacy of strong cultural identity, wary of central power.

The outcome of this antagonism is that the communes made a decisive move to assert their political autonomy from the government. 72 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, following long established customary practices of local oversight of the immediate shoreline, 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, Archives du Syndicat mixte).²⁷ 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. Importantly, however, each individual town or department would claim only a *portion* of the ecological damage (which, in this case, was calculated in relation to the size of each commune's tidal area).

Finally, ecological associations were entitled to recover those damages suffered by non-productive biotopes and birds.²⁸

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 damage to nature translate into a damage to 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) non-market, active use losses (e.g., the recreational losses of residents who cannot use beaches for months); c) non-market, non-use losses, that concern nature as such (e.g., damages to non-productive wildlife). It is the latter category that preoccupies 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 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, 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. The Standard Oil of Indiana (owner of Amoco) sponsored a large amount of 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 spend FF1.5 million (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).

—Table 2 about here—

The measurement of non-market damages proceeded in several directions. One part used the loss of enjoyment of the area by residents and tourists as a proxy for the reputational losses suffered by coastal towns, villages, and businesses. Damages to natural resources, on the other hand, were estimated in two ways: first, by aggregating the actual and future expenses deemed necessary to restore coastal habitats and rehabilitate damaged species (only birds and seals were considered); 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 needs as a result of the oil spill.²⁹ As a lawyer in the case put it, “the claims were discussed in terms of the damage to the economic crop, if you understand what I mean, rather than general damage to the environment.” (US #7, October 6, 2009)

To complete the ecological evaluation, Chassé compared biomass levels between affected and non-affected 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 260.000 tons of wet biomass (26.000 tons dry), which he then scaled to obtain the putative share of natural resource damage (*préjudice écologique*, in French) 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 ascribed each species a monetary value, using the average market price of their closest commercialized relative.³⁰ 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 consumption; similarly, the value of all lost shrimps could be calculated by averaging across the market prices of two comestible shrimp species. Once tallied through this method, the combined losses amounted to a steep FF1,5 billion (1978 value).³¹

The biomass method amounted to determining the cost of producing a certain stock of natural resources –in a manner similar to Marx’s calculation of the value of labor in reference to the cost of reproduction of labor power in *Capital*. In other words, by using various species as inputs, it consisted in reconstructing nature along a cost curve. Mainstream economic experts, however, rapidly pointed out that the approach was 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, 174). For instance, if 26.000 tons of snails, fish and shrimps 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, perhaps all the way down to zero, causing a large portion of the biomass to be effectively discarded. 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."³²

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" (United States District Court for the Northern District of Illinois, Eastern Division, 1988, p23).

The plaintiffs themselves had abandoned this line of argument half-way through the discovery process, and 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, ten years after the disaster, and 2) that 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 Chicagoan press following the trial cynically noticed (Drell 1986).³³

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. Seen by an American judge, the convoluted political negotiation between the French state and the towns around ecological damage was not convincing. In particular, he regarded as illegitimate the formulation of claims by local townships beyond the already compensated commercial losses of the individuals who populated these towns. As he 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 (Cotes 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” (Opinion of Judge Frank McGarr, United States District Court for the Northern District of Illinois, Eastern Division, 11 January 1988, p23).

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 heavy toxic oil into the Bay of Biscay in southern Brittany.³⁴ Though 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.³⁵ Once again, the coastal localities—municipalities, departments, and regions—, as well as a host of environmental associations, such as Greenpeace and the League for the Protection of Birds, sought to argue that they ought to be compensated for “natural resources damages.” Each party, however, defined ecological damage in different ways and justified their claim using different methods. The union of cities, departments and regions sponsored an economic study that relied on various economic methods to estimate the non-commercial damages suffered by users of the coastal areas, based on a survey of shellfish collectors.³⁶ The claimants then divided up the claims (370 millions) among themselves using arbitrary numbers (30 millions for a region, 20 millions for a department, 10 millions 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 (confirmed in appeal on March 30, 2010), however, suggests that for claimants to obtain compensation for ecological damage, they had to demonstrate an actual custodial role in environmental matters. Consequently, he excluded the ecological claims of towns and regions on the grounds that they had no special competencies with respect to the protection of the environment, but upheld those of departments and some environmental associations. He awarded a monetary compensation to the Department 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.³⁷ In the case of the department 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 Euros) x affected surface (662:3,000 hectares) x two years of recovery time, or about one million Euros (\$1.47 million (2008 value)).

Though some French ecologists had (and continue to have) a strong principled position against the monetization of nature, there is no question that the plaintiffs from Brittany who presented the ecological damage claims to the Chicago court in the 1980s saw the potential organizational and symbolic benefits of this strategy, as did those who mobilized in France after the Erika catastrophe. 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 unsettled character of the legal standing of nature remains an obvious barrier. But even supposing the question of 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 face high costs and barriers of entry. The victims of the Amoco Cadiz oil spill thus faced an especially tough threshold of demonstrability, which had enormous financial consequences for them. 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.³⁸

EXXON VALDEZ: NATURE AS UTILITY

Such 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 District Attorney to litigate and investigate with,³⁹ giving it a leading role in the prosecution of ecological claims. By the end of the process, the state of Alaska had spent close to \$67 million on research documenting the various types of damages (economic, ecological, social) caused by the spill;⁴⁰ and, on the basis of

an economic evaluation, 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 political negotiations between Exxon and the then governor of Alaska, against a background of scientific evaluation of the economic worth of the Prince William Sound. Early consultations between public officials involved in the litigation and natural resource specialists had revealed that “passive use” or “lost use” valuation methods [otherwise known as contingent valuation] had the potential to yield a high level of monetary compensation. The legislature had appropriated vast sums of money, so Alaskan public officials decided to commission some of the most eminent researchers in the field of environmental economics to undertake an assessment of the non-use damages caused by the spill immediately after the incident (later published as Carson et al. 1992). Non-use 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 1992) and a book (Hausman 1993).⁴¹

A Brief History of Contingent Valuation

Contingent valuation is a specific technique of natural resources valuation, which harks back to the development of cost-benefit analysis 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 (1936) with the mission to offer flood protection when the benefits of federal water projects exceeded their

costs, the US Army Corps of Engineers encouraged a methodological reflection that would help it justify its involvement by counting non-market values as benefits (Hanemann unpublished; Porter 1995). In 1947, a UC Berkeley natural resource economist named 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.⁴² The suggestion, however, was not carried out empirically until the 1960s. In 1967, John Krutilla (another economist and founder of the ecological think tank Resources for the Future) suggested that individuals may attach value not only to enjoying certain non-market 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) (Krutilla 1967; Portney 1994).

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. As Carson et al. say,

“The contingent valuation method circumvents the absence of markets for services provided by natural resources by *presenting* consumer *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 came to be called the contingent valuation method.” (1992:11-12; my emphasis)

Compared with the standard economic methodology of “revealed preferences” (Samuelson 1954), 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— which has been highly controversial in economics and psychology, for

obvious reasons.⁴³ In fact, many economists (including in France) prefer to stick to revealed preferences to measure use as well as non-use values, by estimating people's willingness to pay to avoid degradations through, for instance, the changing value of home sales, local variations in tourism, and forms of “averting behavior” such as the non-use of polluted beaches.⁴⁴ Still, 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 these values, 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, which they could, some day, visit (but more likely will not).

In the 1970s the creation of the Environmental Protection Agency and the passage of major environmental protections further intensified the intellectual efforts surrounding non-market valuation. By 1979 the US Army Corps of Engineers and the US Bureau of Reclamation⁴⁵ were required to use both travel cost valuation and contingent valuation methods to “value recreation benefits at projects with high visitation levels” (Loomis 2000:340). In 1980, in the aftermath of the Love Canal ecological disaster, Congress passed *The Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA), 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 2000:340). CERCLA, however, did not provide guidelines for assessing the value of natural resources, a responsibility that was delegated to the Department of Interior in 1982. The DOI 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 non-use 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 in appeal (Hanemann unpublished; 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.

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.⁴⁶ So how was it arrived at? Consistent with the approach outlined above, the contingent valuation study treated environmental losses from the perspective of the passive, non-economic consumption of nature of people who did not have a productive or even 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 those of the American nation in its entirety (these lost use values were therefore almost entirely passive).⁴⁷ The ecologists had, in fact, made the 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 in *New York Times*, November 19, 1989).

In sharp contrast with the production-oriented, highly localized approach of the French, the survey did not include anyone from Alaska. The contingent valuation survey, carried out in a number of representative locations across the United States, presented each interviewee with information about the known environmental injuries caused by the Exxon Valdez oil spill, told her that such injuries would most likely repeat themselves if the current situation remained unchanged, and then asked her to reveal how much 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, p8).

The study revealed that the median American household had a willingness to pay of \$31 for the preservation of the Prince William Sound. The figure of \$31 per household, when multiplied by 91 millions American households, gave a total willingness to pay (or utility loss) for the U.S. nation of \$2.8 billion (ultimately settled for \$900 million, plus a possible additional \$100 million if the first amount was deemed insufficient after a period of time, which it did).⁴⁸ 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” (Governments’ memorandum in support of settlement and consent decree, October 8, 1991).

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 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 954 F.2d 1279).

ECONOMICS AND LAW BACK INTO CULTURE –THE THEN, WHAT

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 twentieth century– and the consequences of this role on the social construction of value. Economists describe their methods and intervention as morally neutral: the methods’ purpose, they argue, is to design clear-cut criteria for decision-making when valuation needs arise in government and in the courts –not to engage some philosophical debate about the absolute, subjective value of nature.⁴⁹ But such a separation between the practical and the philosophical is highly artificial, of course. The present study has suggested that moral philosophies are always written all over economic methods. It also implies –and this is a point I develop at length below– that the methods are not neutral in their effects: they are, indeed, performative (Callon 1998, McKenzie 2006) of certain moral positions. Thus by representing the value of the Prince William Sound as an aggregation of individual utilities, the contingent valuation method relied heavily on the conceptualization of nature as an *idea*, as opposed to a *lived* reality (indeed a separate claim by Native tribes to assert their special way of life was rejected in court). Further, the 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 2007, 22% of the funds disbursed by the council, or \$178 millions, were for scientific research and restoration purposes (Exxon Valdez Oil Spill Trustee Council 2007).⁵⁰ As a result, the Prince William Sound has become one of the most studied and monitored ecosystems in the world, and certainly one of 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.”⁵¹

The sheer magnitude of the ecological studies sponsored by the trust council (especially during the Clinton years) helped shift ecological scientists’ analytical focus from the acute mortality of single species at the time of disaster to the delayed and indirect effects of oil on the entire ecosystem by studying entire trophic chains over long periods of time—in a manner not unlike Chassé’s original method.⁵² The fact that many studies were able to document such effects has so dramatically altered scientific methods to investigate oil eco-toxicity, and subsequently scientific understandings of the phenomenon, that some see these post-oil spill studies as a prime vehicle for what they describe as a paradigmatic shift in ecological science (see EVOS Trustee Council 2009; Peterson et al. 2003; Ott 2005). The Exxon Valdez money—and the way it was expended—has thus sustained a new scientific constituency, which, through its work, has contributed to making the Prince William Sound even more fragile, complex, and worthy of protection than arguably before the accident.

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 trust 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.”⁵³ The increased knowledge of the local marine ecosystem gave the area more personality, a more special character; land buy-out 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 skyrocketing insurance premiums and adoption fees had done for children at the turn of the century (Zelizer 1985): it signaled a particular relationship to the non-human world, but also “performed” the subjective “utility” of nature “as such”, and allowed it to become better embedded in policy, the law, and ecological science. Through this institutionalization process, “individual preferences” may be 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 Compensation Funds 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 environmental prejudice continues to be contested in France, and in continental Europe more generally. If the recent verdict (1/16/2008) 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, given to the League for the Protection of Birds as the organization with a public mission to care for non-human wildlife, was more symbolic than anything else. The most significant ecological *compensation* award –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 what economic experts had identified, in their testimony, as the amount of time necessary *not for nature to recover, but for people to resume their normal leisure activities*, such as fishing and shellfish collecting.

The reason is that the expertise marshaled by French victims was dependent upon a 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 anti-economics bias as the main reasons for the ill-fated move to biomass evaluations in the Amoco Cadiz case; yet when I inquired about why the methods used in the Amoco and Erika case seemed uninterested in injured birds, his reply was: "birds represent peanuts. Oh sure you can make crowds cry by showing oiled birds. But economically they don't count. 5 euros, that's nothing" (Interview # F7, Feb 26, 2009). 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 Britton 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 Brittons 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 to celebrate the "beautiful struggle" waged by David—Brittany, "a structure of small family firms...which are not perfectly integrated into the capitalist economy"—against Goliath—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 will, competences, dedication, that were expended during the last 14 years by all of us who are here today?” (Henry 1992, my emphasis)

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, 69). The second reason has to do with the polluting effect of money –the view here builds on a long established critique of money (e.g. see Marx 1844) as a medium that belittles all real essences by corrupting people’s motives and relations. In an interview with me, for instance, Henry recalled his (and many others’, including the judge’s) disgust at the rapacious attitude of oysters-growers during the trial.

It is important to note, of course, that money brings this kind of “moral baggage” everywhere (Carruthers and Espeland 1998, 1395). Similar sentiments were not absent from the Alaskan context either, for instance. In these small, closely-knit communities, people complained about personal relations being poisoned by individual differences in financial remunerations during the cleanup, or in monetary compensation estimates. 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 ecological activist in Alaska in 2006, she suggested that the \$1 billion settlement might be too low, indeed cheapening the real injuries caused by

Exxon to the non-human 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 country.

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 coherence, Richard Biernacki’s masterful *Fabrication of Labor* (1995), begins with a monetary valuation problem: how did eighteenth 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 –e.g. labor paid by the number of weaver shots (Germany) 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 and the organization of the labor movement, 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.

What this suggests is that economic valuation cannot be simply equated with a process of “commensuration” in the sense meant by Espeland and Stevens (1997). 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 to commensurate it monetarily. In each case they had to contend with what the item itself “was.”⁵⁴ But in the process, they also changed that, too. In other words, the cultural category of nature is also dependent on the methods –legal, economic, ecological– 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. This

is true of wage-setting practices, as it is of the tax system (e.g. Schumpeter 1918) 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,” like Pasteur’s microbes (Latour 1993), is never “nature” but an assemblage of relations involving humans and non-humans, defined and performed jointly in state policies, legal rules, political commitments, 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, or ecosystem science. The new techniques did “reassemble the social” all right (Latour 2005). Yet ultimately the outcome does not look all that different from the point of departure: the natural sensibility performed in each country remains, by and large, historically consistent, as the summarized argument in figure 4 suggests. Legal, economic and scientific institutions –each following their own logic– still managed to hold together while changing at the same time, in a way that was not 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 over-determined from every side.

May be it is this sense of over-determination that we call “culture.”

--Figure 4 about here--

Figure 1. Map of the Amoco Cadiz oil spill



Source: Rapport de la Commission d'enquête du Sénat (Colin, Girault, Chauty, Noé and Marzin). Rapport No 486, enregistré le 29 juin 1978.

Figure 2a. Annual quantity of oil spilled from tankers (1970-2007), number of tons spilled.

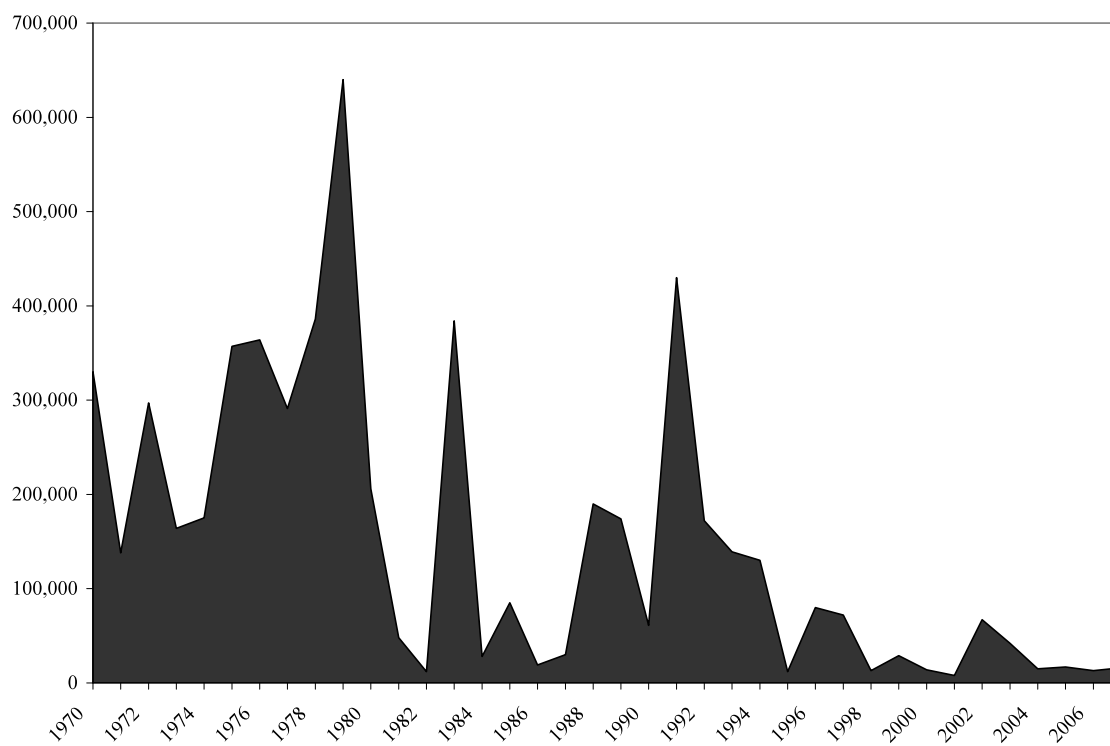
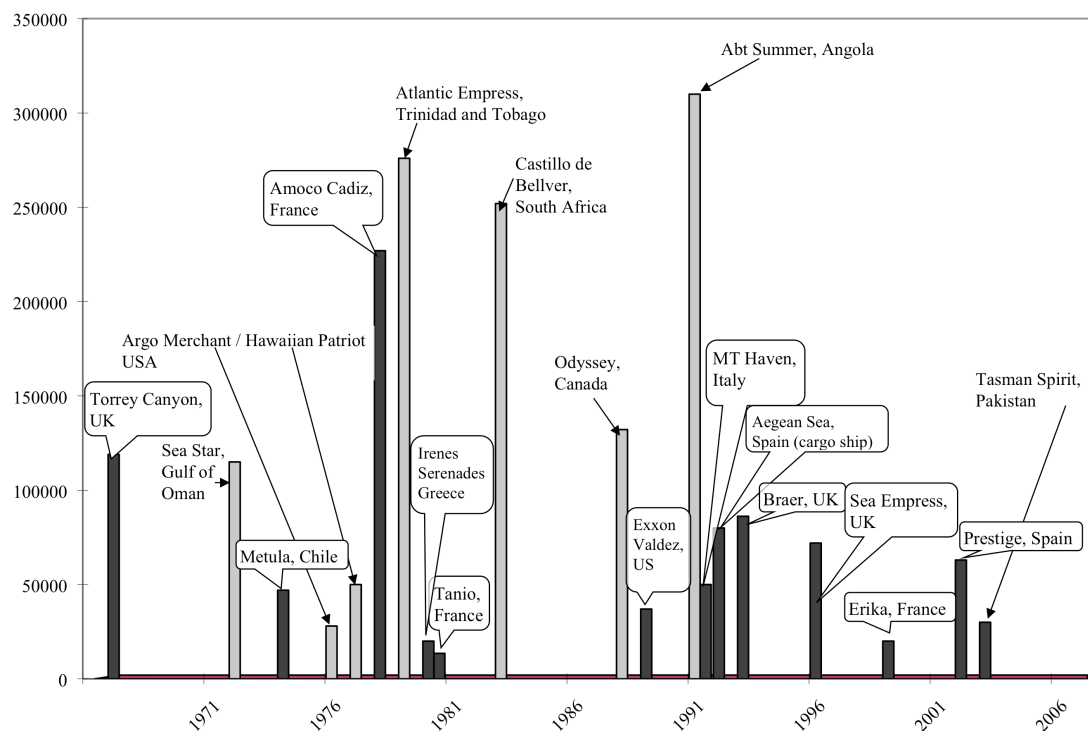
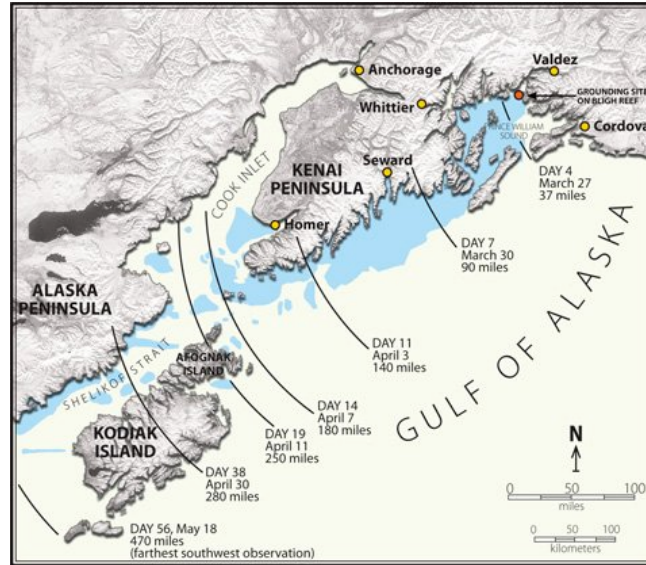


Figure 2b. Selected notable individual incidents (1967-2007), in tons of oil spilled.



Source: International Tankers Owners Pollution Federation. Incidents where the oil spill reached the shore (and thus caused much greater environmental damage) are indicated with the darker bars and a call-out.

Figure 3. Map of the Exxon Valdez oil spill



Source: Exxon Valdez Oil Spill Trustee Council website.

Table 1.
A Comparison of the Economic and Political Consequences of Two Oil Pollutions
(all figures are without interest payments except where indicated)

<i>Incident</i>	<i>Amoco Cadiz</i>	<i>Exxon Valdez</i>
<i>When and where</i>	1978, France	1989, Alaska, United States
<i>Oil spilled</i>	227,000 tons	30,000 tons
<i>Main legal actions</i>	-Final judgment (Federal Appeals Court, Chicago): 1/1992	-Settlement between the State of Alaska, the federal government, and Exxon Corporation: October 9, 1991 -Class action lawsuit
<i>Clean-up costs</i>	Paid by French government and local municipalities.	>\$2 billion + delayed interests (clean-up paid in part by insurance and in part (\$1.2bn) by the Exxon corporation)
<i>Criminal and Civil Charges</i>	None.	> \$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 additional \$100 million for natural resources restoration)
<i>Private Lawsuits Actual Damages</i>	\$61 million (i.e. about \$200 million with delayed interest payments) to <i>all</i> 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” not recognized.	-Jury award to commercial fishermen: \$287 million (8/1994) -Settlement with Alaska natives: \$20 million (8/1994) -Various other legal actions
<i>Punitive damages</i>	None.	\$500 million (Supreme Court Decision, June 25, 2008)

<i>Incident</i>	<i>Amoco Cadiz</i>	<i>Exxon Valdez</i>
<i>Policy changes immediately attributable to the spill</i>	Rail d'Ouessant (changed maritime navigation route) IOPCF (international oil pollution compensation funds)	Oil Pollution Act (1990)

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	
<i>Natural science research</i>	
Standard Oil of Indiana (Amoco)	8.4
NOAA and EPA	0.3
<i>Economic Research</i>	
NOAA and EPA	1.5
Subtotal	10.2
France and all others (non-U.S.)	
<i>Natural Science Research</i>	
French Ministry of the environment and quality of life and National Center for Exploitation of the Oceans	4.6
<i>Economic Research</i>	
European Economic Community	0.2
INRA (research arm of the French Ministry of Agriculture)	0.6
Subtotal	5.4
Total	15.6

Source: from NOAA 1983, 133. The table includes research costs *that could be accounted for* up to the spring of 1980.

Figure 4. Summary of the argument.

EXXON VALDEZ	EXPERIENCE OF/ RELATIONSHIP TO NATURE	AMOCO CADIZ/ERIKA
Open, “natural” reality: Wilderness		Lived in, politico-cultural reality.
The U.S. public’s, in government trust	WHOSE NATURE?	The public’s, that is, mostly the local populations’
“Make the public whole”	GOAL OF NATURAL DAMAGE ACTION	Recovery of economic costs
Subjective utility	VALUATION PROCESS	Cost of production: Repair and custodial costs
<i>Nature</i> takes a long time to recover: 20 years, still going	ASSESSMENTS OF HARM	<i>People</i> recover quickly: 2 years in Erika case
Very large	MONETARY AWARDS	Small
Habitat protection Ecological science	AWARD USES	Small and dispersed ecological uses
Priceless –highest price. Nature as a subjective concept and a reality to be set apart and sacralized.	NATURE	Priceless –no, or low price. Nature as a productive resource used by people with strong emotional attachments.

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Endnotes

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² The term is from Coase, 1994: 44.

³ Indeed if we believe Sombart’s famous thesis (1906), feudalism and socialism are intimately connected.

⁴ See in particular chapters by Thévenot, Moody and Lafaye; 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.

⁵ Also see Kula 1986 and Cohen 1982.

⁶ Also see O’Connor (2002), who describes the progressive quantification and formal rationalization of the management of poverty in the United States.

⁷ See, e.g. Ekelund and Hebert 1999 on this point.

⁸ For a mitigating view, however, see Feldman (2000).

⁹ Of course these lands were only “virgin” and “uninhabited” once the native populations were removed –by war, disease, or forced displacement.

¹⁰ Ironically, this conversion happened at just about the time when the *reality* of the frontier vanished in practice (Cronon 1995b, Nash 2001).

¹¹ 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.

¹² 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.

¹³ The same weak distinctions between the ‘human’ and ‘non-human’ world can also be observed in the long-lasting convergence between the protection of wildlife and that of domesticated animals in French law.

¹⁴ By comparison, the Exxon Valdez (1989) spilled about 30,000 tons of crude oil (10,800,000 gallons).

¹⁵ 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 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 # F3, June 20, 2002)

¹⁶ Galicia (Spain), November 2002, over 60,000 tons of heavy oil spilled.

¹⁷ 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 US soil (Beamish 2002).

¹⁸ It ranks “only” fifty-three worldwide. (*International Oil Spill Statistics*)

¹⁹ 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 1999:269)

²⁰ This is about 100 times the cost of the Amoco Cadiz clean-up: about \$50,000 per ton of oil against \$545.

²¹ The U.S. Supreme Court returned the final verdict on the case on June 26, 2008.

²² 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, 99). On the other hand, the Federal Appeals Court, 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 cleanup operations, mistakes Amoco should not be held liable for.

²³ The main legal difference is that French law precludes punitive damages; this paper, 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.

²⁴ This claim, although compensable under French law, was rejected by the U.S. judge.

²⁵ This is excepting for wildlife beyond the high-water mark, which is *res nullius* and belongs to nobody. On the legal status of the environment in France, see in particular Kiss 1989. Ost 2003.

²⁶ Torrey Canyon, March 18, 1967, 123,000 tons; Olympic Bravery, January 24, 1976, 800 tons; Bohlen, October 15, 1976, 2,000 tons.

²⁷ Later, the communes would also put their qualms in the Tanio case to rest by accepting a monetary settlement from the International Oil Pollution Compensation Fund, in exchange of a loan by the French government to help finance the increasingly exorbitant legal costs related to the Amoco Cadiz’ procedure. See Arzel 2004 for a first-hand account of the relationships between the communes/syndicate and the French government.

²⁸ The agreement was known confidentially as the “accords de Matignon.” See Arzel 2004, 85.

²⁹ 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, 30 janvier 1984 and TGI Bastiat, 4 juillet 1985) mentioned by Huglo 1990, 152 and de Raulin, 1993, p78 note 122.

³⁰ 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, 110).

³¹ Another method of valuation involved relying on the known relationship between biomass and the production of commercial fish to estimate the volume of the commercial crop lost in 1978 and subsequent years. This method, however, was problematic because it overlapped with the separate demands of fishermen.

³² United States 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, p507.

³³ 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.

³⁴ A further 11,000 tons were pumped from the wreckage. Between 100,000 and 150,000 birds were estimated lost in the Erika accident.

³⁵ 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.

³⁶ Two-thirds of these claims (or about 237 million euros) were for recovery of lost activities of sports fishing and strolling along the coast (recreational uses), while about one-third (or about 137 million euros) were independent of any usage (See Bonnieux 2006; Direction des Études Économiques et de l'Évaluation Environnementale 2008).

³⁷ The organization ultimately received €680 000, which also includes the compensation for its costs and expenditures during the rescue operation.

³⁸ 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. Source: interviews / archival research.

³⁹ Ultimately the state wound up spending about \$67 million just to finance research for the case

⁴⁰ Source: Interviews.

⁴¹ A NOAA “Blue-Ribbon” panel co-chaired by Robert Solow and Kenneth Arrow later endorsed the reliability of the contingent valuation method for measuring non-use value in damage assessment cases. (Arrow et al. 1993) See Bateman and Willis (1999) for a survey.

⁴² The fact that a survey instrument is involved is also important from the point of view of the method’s legitimacy in relation to the political culture. In the United States, public opinion polls have historically played an important role in guiding (and justifying) the actions of governments or the courts in a way that has no parallel in France.

⁴³ The fact that the contingent valuation method is based on asking people subjective questions, as opposed to observing their actual market behavior, is the source of enormous controversy in the economics community. See Hausman 1993, Diamond and Hausman 1994 for a review of the main criticisms.

⁴⁴ See for instance Chapman and Hanemann (2001)

⁴⁵ The Bureau of Reclamation is the largest wholesaler of water in the United States and the second largest producer of hydroelectric power. Started in 1902, it is responsible for the building of canals, power plants and dams in the 17 Western states. See Espeland 1998 for an analysis of the struggle between the Old and New Guards in the Bureau of Reclamation.

⁴⁶ 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)

⁴⁷ 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 multinational 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.”” (Email exchange with Stanley Presser, 11/29/04)

⁴⁸ 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.

⁴⁹ On this point, see the debate in *Regulation and Governance* (2009) between Viscusi, Carruthers, Fourcade and Robinson.

⁵⁰ Note that this is in addition to the research done for the purpose of the trial, and the considerable resources already devoted to these issues by federal agencies (e.g. NOAA) and state agencies (e.g. Department of Fish and Game).

⁵¹ This policy, however, has been highly controversial among Alaskan Natives. Fieldwork I conducted in Alaska revealed a sometimes very tensed relationship between Natives and ecologists.

⁵² The EVOSTC 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 8 years after the oil spill (See Ott (2005, 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.

⁵³ It might be worth 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” (2001:46).

⁵⁴ I am deeply indebted to an anonymous reviewer for pushing me to clarify this point.