

No. 07-219

---

---

IN THE  
Supreme Court of the United States

---

Exxon Shipping Company et al.,  
*Petitioners,*

v.

Grant Baker et al.,  
*Respondents.*

---

On Writ of Certiorari  
to the United States Court of Appeals  
for the Ninth Circuit

---

**BRIEF AMICI CURIAE OF SOCIOLOGISTS,  
PSYCHOLOGISTS, AND LAW AND ECONOMICS  
SCHOLARS IN SUPPORT OF RESPONDENTS.**

---

Amy Howe  
*Counsel of Record*  
Kevin K. Russell  
HOWE & RUSSELL, P.C.  
7272 Wisconsin Ave.  
Bethesda, MD 20814  
(301) 941-1913

January 29, 2008

---

---

## TABLE OF CONTENTS

TABLE OF CONTENTS .....	i
TABLE OF AUTHORITIES.....	ii
INTEREST OF <i>AMICI CURIAE</i> .....	1
SUMMARY OF THE ARGUMENT .....	1
ARGUMENT .....	3
I.    The Respondents in This Case Suffered Substantial Uncompensated Harms. ....	3
II.   A Punitive Damages Award Is Appropriate in This Case to Ensure Adequate Deterrence. ....	18
CONCLUSION .....	26
APPENDIX.....	1a

## TABLE OF AUTHORITIES

### Cases

<i>Ace v. Aetna Life Ins. Co.</i> , 139 F.3d 1241 (9th Cir.), <i>cert. denied</i> , 525 U.S. 930 (1998).....	24
<i>BMW of North America, Inc. v. Gore</i> , 517 U.S. 559 (1996).....	20
<i>Ciraolo v. City of New York</i> , 216 F.3d 236 (2d Cir.), <i>cert. denied</i> , 531 U.S. 993 (2000).....	20, 22, 23
<i>Cooper Industries, Inc. v. Leatherman Tool Group, Inc.</i> , 532 U.S. 424 (2001).....	19, 20, 23
<i>EEOC v. Convergys Customer Mgmt. Group, Inc.</i> , 491 F.3d 790 (8th Cir. 2007).....	25
<i>ERA Aviation, Inc. v. Lindfors</i> , 17 P.3d 40 (Alaska 2000) .....	24
<i>Exxon Shipping Co. v. Airport Depot Diner, Inc.</i> , 120 F.3d 166 (9th Cir. 1997).....	3
<i>Forsyth v. City of Dallas, Tex.</i> , 91 F.3d 769 (5th Cir. 1996), <i>cert. denied</i> , 522 U.S. 816 (1997).....	25
<i>Kemezy v. Peters</i> , 79 F.3d 33 (7th Cir. 1996).....	20
<i>Robins Dry Dock &amp; Repair Co. v. Flint</i> , 275 U.S. 303 (1927).....	passim
<i>Sloane v. Equifax Info. Servs., LLC</i> , No. 06-2044, 2007 U.S. App. LEXIS 29805 (4th Cir. Dec. 27, 2007).....	24
<i>State Farm Mut. Auto. Ins. Co. v. Campbell</i> , 538 U.S. 408 (2003).....	3, 25
<i>Union Oil v. Oppen</i> , 501 F.2d 558 (9th Cir. 1974) .....	23

### Other Authorities

A. Mitchell Polinsky & Steven Shavell, <i>Punitive Damages: An Economic Analysis</i> , 111 Harv. L. Rev. 869 (1998) .....	21
Alan Zarembo, <i>Funding Studies to Suit Need</i> ,	

L.A. Times, Dec. 3. 2003, at A1 .....	14
Brent K. Marshall et al., <i>Technological Disasters, Litigation Stress, and the Use of Alternative Dispute Resolution Mechanisms</i> , 26 Law & Pol’y 289 (2004).....	9, 10, 16, 18
Catalina M. Arata et al., <i>Coping With Techological Disaster: An Application of the Conservation of Resources Model to the Exxon Valdez Oil Spill</i> , 13 J. Traumatic Stress 23 (2000) .....	passim
Charles H. Peterson et al., <i>Long-Term Ecosystem Response to the Exxon Valdez Oil Spill</i> , Science, Dec. 19, 2003, at 2082 .....	12
Charles Siebert, <i>After the Spill</i> , Men’s Journal, Apr. 1999 .....	5, 11
Daniel Sharp et al., Alaska Dep’t of Fish and Game: <i>Prince William Sound Management Area 1999 Annual Finfish Management Report (1999)</i> .....	7
David G. Owen, <i>A Punitive Damages Overview: Functions, Problems and Reform</i> , 39 Vill. L. Rev. 363 (1994) .....	21
Duane A. Gill, <i>Technological Disaster, Resource Loss and Long-Term Social Change in a Subarctic Community</i> (2007) .....	17, 18
Exxon Valdez Oil Spill Restoration Plan, <i>Update on Injured Resources and Services 2006</i> (Nov. 2006), <i>available at</i> <a href="http://www.evostc.state.ak.us/Publications/injuredresources.cfm">www.evostc.state.ak.us/ Publications/injuredresources.cfm</a> (visited Jan. 19, 2008).....	7
Impact Assessment, Inc., <i>Exxon Valdez Oil Spill, Cleanup and Litigation: A Collection of Social Impacts Information and Analysis</i> , <i>available at</i> <a href="http://www.mms.gov/alaska/reports/2001rpts/2001_058/volume3.pdf">http://www.mms.gov/alaska/reports/2001rpts/2001_0 58/volume3.pdf</a> (visited Jan. 29, 2008) .....	15
J. Steven Picou & Cecelia G. Martin, <i>Long-Term</i>	

- Community Impacts of the Exxon Valdez Oil Spill: Patterns of Social Disruption and Psychological Stress Seventeen Years After the Disaster* (2007).5, 12, 18
- J. Steven Picou & Duane A. Gill, *The Exxon Valdez Oil Spill and Chronic Psychological Stress*, 18 Am. Fisheries Soc’y Symposium 879 (1996)..... passim
- J. Steven Picou et al., *Disaster, Litigation, and the Corrosive Community*, 82 Social Forces 1493 (2004)..... passim
- J. Steven Picou et al., *Disruption and Stress in an Alaskan Fishing Community: Initial and Continuing Impacts of the Exxon Valdez Oil Spill*, 6 Indus. Crisis Q. 235 (1992) ..... passim
- Joanna Endter-Wada et al., Social Indicators Study of Alaskan Coastal Villages: IV. Postspill Key Informant Summaries: Schedule C Communities, Part I (Cordova, Tatitlek, Valdez) and Part 2 (Kenai, Tyonek, Seldovia, Kodiak City, Karluk, Old Harbor, Chignik) (1993), available at [http://www.mms.gov/alaska/reports/1990rpts/92\\_0052.pdf](http://www.mms.gov/alaska/reports/1990rpts/92_0052.pdf) (visited Jan. 28, 2008) ..... 4, 14, 15
- Journeyman Pictures, *USA – Alaska – Exxon Valdez*, available at [www.journeyman.tv/?lid=9672](http://www.journeyman.tv/?lid=9672) ..... 16
- Mari Rodin et al., *Community Impacts Resulting from the Exxon Valdez Oil Spill*, 6 Indus. Crisis Q. 219 (1992)..... 14
- Mark G. Carls et al., *Sensitivity of Fish Embryos to Weathered Crude Oil: Part I*, 18 Env’tl. Toxicology and Chemistry 481, 481 (1999) ..... 12
- Rachel D’Oro, *Exxon Valdez Oil Won’t Vanish Soon*, Associated Press, Feb. 1, 2007 ..... 13
- Richard E. Thorne & Gary L. Thomas, *Herring and the “Exxon Valdez” Oil Spill: An Investigation into*

<i>Historical Data Conflicts</i> , 65 ICES J. Marine Sci. 44 (2007).....	6
Robert D. Cooter, <i>Economic Analysis of Punitive Damages</i> , 56 S. Cal. L. Rev. 79 (1982) .....	19
Ron A. Heintz et al., <i>Sensitivity of Fish Embryos to Weathered Crude Oil: Part II</i> , 18 <i>Envtl. Toxicology and Chemistry</i> 494 (1999) .....	12
Thomas C. Galligan, Jr., <i>Augmented Awards: The Efficient Evolution of Punitive Damages</i> , 51 La. L. Rev. 3 (1990) .....	19, 21, 22
William R. Freudenburg & Timothy R. Jones, <i>Attitudes and Stress in the Presence of Technological Risk: A Test of the Supreme Court Hypothesis</i> , 69 <i>Soc. Forces</i> 1143 (1991).....	8

## **INTEREST OF AMICI CURIAE<sup>1</sup>**

*Amici* are scholars in the fields of sociology, psychology, and law and economics. *Amici* – several of whom have conducted extensive empirical research in the Prince William Sound for over a decade – have a professional interest in ensuring that the Court is fully informed regarding the full impact of the Exxon Valdez oil spill on the neighboring communities and on respondents in particular, as well as the appropriateness of an award of punitive damages in light of the extensive but uncompensated harms resulting from the spill.<sup>2</sup>

## **SUMMARY OF THE ARGUMENT**

In this case, a jury awarded respondents compensatory damages that included compensation for the economic harm suffered by commercial fishermen as a result of the Exxon Valdez oil spill. However, maritime law precluded respondents from recovering compensatory damages for some other economic harms that they suffered, such as losses in the value of fishing permits and fishing vessels, lost tax revenues, and damage to area tourism. Maritime law also precluded respondents from recovering any compensatory damages for their non-economic harms. Empirical research conducted over a seventeen-year

---

<sup>1</sup> No counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amici curiae* or their counsel made a monetary contribution to its preparation or submission. Letters reflecting the consent of the parties have been filed with the Clerk.

<sup>2</sup> More detailed information regarding each of the *amici* is provided in the appendix to this brief.

period by teams of sociologists and psychologists specializing in disaster research reveals that these non-economic harms were – and continue to be – profound. These impacts include high rates of anxiety, depression, and post-traumatic stress disorder among area residents exposed to the spill, and in particular among commercial fishermen.

It is common ground among legal scholars and economists that inefficient behavior will not be deterred unless actors are forced to internalize all of the costs associated with their activities. Although adequate deterrence may generally be achieved through an award of compensatory damages, an award of punitive damages may be necessary to achieve complete deterrence in cases in which compensatory damages fail to fully account for the costs of a tortfeasor's actions.

The case before the Court is precisely the kind of case in which an award of punitive damages is not only appropriate but also necessary to achieve adequate deterrence. Specifically, as a result of the restrictive conception of damages under maritime law, compensatory damages were available for only a subset of the actual economic harms inflicted by the spill, and for none of the non-economic harms. When this uncompensated harm is considered, it becomes clear that an award of punitive damages is not only appropriate but essential in this case to ensure that Exxon and others similarly situated are adequately deterred.



## ARGUMENT

### I. The Respondents in This Case Suffered Substantial Uncompensated Harms.

This Court has repeatedly indicated that in reviewing an award of punitive damages, courts should consider the totality of the harm to the plaintiffs. *See, e.g., State Farm Mut. Auto. Ins. Co. v. Campbell*, 538 U.S. 408, 424-26 (2003). During the second phase of the trial in this case, the jury awarded \$287 million in compensatory damages for economic harm to commercial fishermen in the major fisheries. Pet. App. 160a. Other settlements and payments increased the level of total compensated harm to just over \$500 million. Pet. App. 38a. However, maritime law prohibited the plaintiffs from recovering compensatory damages for a variety of other economic and non-economic harms, *see infra* at 23, including “emotional distress damages, price diminishment in fisheries that were not oiled, diminished value of limited entry fishing permits or fishing vessels absent a sale of the permit or vessel, . . . [and] diminution of market value owing to fear or stigma.” *Exxon Shipping Co. v. Airport Depot Diner, Inc.*, 120 F.3d 166, 167 n.3 (9th Cir. 1997).

These uncompensated harms generally fall into three categories: (1) economic harm arising from the spill for which compensation was precluded by *Robins Dry Dock & Repair Co. v. Flint*, 275 U.S. 303 (1927); (2) economic harm arising from the spill for which plaintiffs cannot recover under maritime law because the extent of the harm was unknown at the time of

trial in 1994; and (3) non-economic harm arising from the spill.

1. The first category of uncompensated harm is that of damages for economic harms for which compensation was precluded by *Robins Dry Dock*. See J.A. 118-48, 1368-81, 1384-90. This category includes, for example, the damages suffered by commercial fishermen who plied fisheries that were not oiled, but whose catches were devalued by the stigma associated with fish from Alaskan waters, see J.A. 1155-56. It also includes the damages suffered by area municipalities and myriad area residents who were not commercial fishermen, but whose livelihoods depended on fishing, such as those who repaired boats, manufactured fishing nets, and supplied other goods and services to commercial fishermen: the decrease in commercial fishing that resulted from the spill reduced demand for the latter's services and products and created millions of dollars in uncompensated damages. J.A. 132-40.

This category also includes the harms caused by the spill to the tourist industry, as concerns about the spill's effects discouraged other tourists from traveling to the region. Joanna Endter-Wada et al., *Social Indicators Study of Alaskan Coastal Villages: IV. Postspill Key Informant Summaries: Schedule C Communities, Part I (Cordova, Tatitlek, Valdez) and Part 2 (Kenai, Tyonek, Seldovia, Kodiak City, Karluk, Old Harbor, Chignik)*, at 66-67 (1993), available at [http://www.mms.gov/alaska/reports/1990rpts/92\\_0052.pdf](http://www.mms.gov/alaska/reports/1990rpts/92_0052.pdf) (visited Jan. 28, 2008). And local governments lost substantial tax revenues as a result of the fisheries' closure – for example, over twelve million dollars in

income and revenues were lost with the closure of the shrimp, sablefish, and herring fisheries. *Id.* at 150.

Among the most significant losses were the losses in value of fishing permits, which are limited in number and are “traded on the open market, their price determined strictly by demand.” Charles Siebert, *After the Spill*, Men’s Journal, Apr. 1999. In light of the contamination of the fishing grounds resulting from the spill and the uncertainty about its recovery, the fishing permits plummeted in value: when this case went to trial, per-permit losses reached as high as \$100,000 for Prince William Sound herring permits, *see* J.A. 1161, and nearly \$200,000 for Prince William Sound salmon permits, *see id.* 1162; *see also* J.A. 130 (“The court . . . does not doubt that the going price for limited entry permits and Alaskan fishing vessels dropped significantly when the full impact of the *Exxon Valdez* grounding was realized.”). Prices for the fishing permits have continued to fall in recent years, reaching per-permit losses as high as \$330,000 in 2004. *See* J. Steven Picou & Cecelia G. Martin, *Long-Term Community Impacts of the Exxon Valdez Oil Spill: Patterns of Social Disruption and Psychological Stress Seventeen Years After the Disaster* 14 (2007) [hereinafter Picou & Martin, *Long-Term Community Impacts*] (final report submitted to National Science Foundation). This decline in the value of fishing permits was especially catastrophic in Cordova, where the town’s fishermen hold forty-four percent of all herring permits and fifty-five percent of all salmon fishery permits in the region. J. Steven Picou & Duane A. Gill, *The Exxon Valdez Oil Spill and Chronic Psychological Stress*, 18 Am. Fisheries Soc’y

Symposium 879, 884 (1996) [hereinafter Picou & Gill, *Chronic Psychological Stress*].

The value of fishing vessels designed for use in the oiled waters similarly plunged as a result of the spill. CD7501, Oesting Dec., Exhs. 4-7 (expert reports submitted in district court). That value, which at bottom hinges on predictions regarding the availability of fish and the price of fish, dropped \$50,000 – from \$350,000 to \$300,000 – for a seine vessel used in Prince William Sound, while the value of commercial fishing vessels for use in Cook Inlet declined from \$72,000 to \$52,000. *Id.*

2. A second category of harm is that of damages for economic harms that were uncompensated because the extent of the harms were unknown at the time of trial in 1994. *See generally* Br. Amici Curiae of Natural and Social Scientists in Support of Respondents. One example is the harm to the Prince William Sound herring fishery, an important resource for subsistence and commercial harvests that collapsed in 1993. Given the four years that apparently elapsed between the spill and the fishery collapse, initial research dismissed any suggestion of a link between the two. Subsequent research has demonstrated, however, that “the herring population decline most likely began immediately after the [spill] rather than 4 years later.” Richard E. Thorne & Gary L. Thomas, *Herring and the “Exxon Valdez” Oil Spill: An Investigation into Historical Data Conflicts*, 65 ICES J. Marine Sci. 44 (2007); as of November 2006, the herring fishery had been closed for eleven of the seventeen years since the spill and was still not regarded as being fully recovered, *see* Exxon Valdez

Oil Spill Restoration Plan, *Update on Injured Resources and Services 2006*, at 35 (Nov. 2006), available at [www.evostc.state.ak.us/Publications/injuredresources.cfm](http://www.evostc.state.ak.us/Publications/injuredresources.cfm) (visited Jan. 19, 2008).<sup>3</sup> Significantly, the Exxon Valdez Oil Spill Trustee Council in 2006 described the commercial fishing generally as being “in the process of recovering from the effects of the oil spill,” but it warned that “full recovery has not been achieved.” *Id.* at 36 (emphasis omitted).

3. A third and substantial category of uncompensated harm is that of non-economic harm arising from the spill, including in particular damages for emotional distress relating to the spill, which disrupted family and community life and caused psychological stress and uncertainty regarding future well-being. Empirical research has consistently demonstrated that disasters, especially those caused by humans, can have long-lasting and deleterious effects on the mental health of the affected communities. This research has been repeatedly borne out in the communities in the Prince William Sound area, which were effectively shattered by the spill and its subsequent effect on the natural resources that

---

<sup>3</sup> During the five years that preceded the spill, the total value of the Prince William Sound herring harvest ranged from five to twelve million dollars per year. Between 1993 and 1999, the herring fishery was closed for three seasons, and the annual value of the herring harvest during the remaining open seasons ranged from approximately \$187,000 to \$2.8 million dollars. Daniel Sharp et al., Alaska *Dept of Fish and Game: Prince William Sound Management Area 1999 Annual Finfish Management Report* App. H.13 (1999).

form an integral part of those communities' livelihood and identity.

When disasters strike, they wreak havoc not only through their physical devastation of the affected communities, but also by creating disruption and stress, J. Steven Picou et al., *Disruption and Stress in an Alaskan Fishing Community: Initial and Continuing Impacts of the Exxon Valdez Oil Spill*, 6 Indus. Crisis Q. 235, 239 (1992) [hereinafter Picou et al., *Disruption and Stress*], that result in "significant impacts on mental health functioning." Catalina M. Arata et al., *Coping With Technological Disaster: An Application of the Conservation of Resources Model to the Exxon Valdez Oil Spill*, 13 J. Traumatic Stress 23, 23 (2000). These mental health effects can, and frequently do, include depression, anxiety, post-traumatic stress disorder, problems in relationships, and an upswing in visits to mental health and medical facilities. *Id.*

In the case of natural disasters, such as hurricanes, forest fires, earthquakes, and floods, these mental health effects generally subside within two years. Arata et al., *supra*, at 24. By contrast, technological disasters – that is, disasters that occur because of breakdowns by humans – consistently have social, cultural, and psychological effects that are both more severe and longer-lasting. *See, e.g.*, William R. Freudenburg & Timothy R. Jones, *Attitudes and Stress in the Presence of Technological Risk: A Test of the Supreme Court Hypothesis*, 69 Soc. Forces 1143, 1154-59 (1991); Picou & Gill, *Chronic Psychological Stress*, *supra*, at 879-80; Picou et al., *Disruption and Stress*, *supra*, at 239; Arata et al., *supra*, at 24; Brent K.

Marshall et al., *Technological Disasters, Litigation Stress, and the Use of Alternative Dispute Resolution Mechanisms*, 26 *Law & Pol'y* 289, 291-92 (2004); J. Steven Picou et al., *Disaster, Litigation, and the Corrosive Community*, 82 *Social Forces* 1493, 1495 (2004) [hereinafter Picou et al., *Disaster, Litigation*]. For example, research following the nuclear accident at Three Mile Island in 1979 found that although they were not exposed to radiation, members of the surrounding community experienced psychological stress for as long as six years. See Picou & Gill, *Disruption and Stress*, *supra*, at 238.

Technological disasters also frequently have “debilitating consequences” at the community level, Marshall et al., *supra*, at 292; Picou et al., *Disaster, Litigation, supra*, at 1496-98, as the chronic psychological stress experienced by individuals as a result of the disaster collectively undermines the community’s social structure, Marshall et al., *supra*, at 292. These effects are particularly acute when technological disasters strike renewable resource communities – communities within a defined area whose residents’ “primary cultural, social, and economic existences are based on the harvest and use of renewable natural resources.” In such cases, technological disasters can create a domino effect: they are likely to result in contamination of the environment and natural resources, Picou et al., *Disaster, Litigation, supra*, at 1496, which then disrupts subsistence or commercial harvests of those natural resources, Picou et al., *Disruption and Stress, supra*, at 239, which in turn creates perceptions of “uncertainty, ambiguity and continuing disruption [that] generate patterns of long-term community

stress,” *id.* And even after initial stress levels subside for the community as a whole, some groups may continue to experience chronically elevated stress levels based on their special relationship to the disaster – for example, because of a physical proximity to the contamination or “a unique relationship to the resources that have been contaminated, i.e., subsistence and/or commercial harvests.” *Id.*

Finally, the litigation that frequently follows a technological disaster itself tends to exacerbate, rather than assuage, the stress created by the disaster. The combination of the disaster and the subsequent disaster-related litigation constitutes a “double blow” for victims, who must first “endure the initial trauma of experiencing real or perceived toxic contamination from the disaster-event,” Marshall et al., *supra*, at 293, and then must navigate an “adversarial legal process” that serves as such “a source of chronic social disruption and psychological stress” as to effectively become a “‘secondary disaster’ that continues over time, preventing timely disaster recovery.” *Id.*

Non-economic harm caused by the Exxon Valdez spill must be understood in terms of the unique social character of community life in coastal Alaska. Unlike most small, rural communities in the lower forty-eight states, community life in the Prince William Sound area has a cultural, social, and economic base that is directly derived from seasonally available renewable natural resources. Picou et al., *Disruption and Stress*, *supra*, at 241-42; Picou & Gill, *Chronic Psychological Stress*, *supra*, at 881-82.



The Prince William Sound community of Cordova, for example, is the primary renewable resource community in the area. Its economy has long been heavily dependent on commercial fishing: nearly half of the community's labor force works either as fishermen or in jobs relating to fish processing, see Picou & Gill, *Chronic Psychological Stress, supra*, at 884, while still others work in other occupations that depend on commercial fishing, such as net mending and repairing boats and their electronics, *id.*; Siebert, *supra*; see also 3 U.S. Dep't of Interior, Final Env'tl. Impact Statement, Proposed Trans-Alaska Pipeline 370 (1972), reprinted in J.A. 1442 (noting, nearly four decades ago, that "[t]he economy of [the Prince William Sound] area depends almost entirely on commercial fishing, the processing of the catch, and related activities").

In addition to their commercial fishing activities, many Cordovans engage in a variety of subsistence activities – such as “[h]arvesting, receiving and giving away fish, moose, deer, berries, etc.” – that “provide[] the basis for maintaining social relationships,” Picou et al., *Disruption and Stress, supra*, at 241, and “are a part of how individuals define themselves and their quality of life,” Arata et al., *supra*, at 26.

With over eleven million gallons of oil released into Prince William Sound, the Exxon Valdez oil spill was the most devastating in North American history, Picou et al., *Disaster, Litigation, supra*, at 1499. The inadequate response of Exxon and the government only exacerbated the problem, and the spill ultimately resulted in an oil slick that covered over 3000 square

miles and affected over 1200 miles of shoreline. Picou et al., *Disruption and Stress*, *supra*, at 240.

The ecological effect was immediate and devastating, resulting in the widespread deaths of area birds and marine animals, Picou et al., *Disruption and Stress*, *supra*, at 240-41, as well as the closing of primary fishing areas. Picou & Gill, *Chronic Psychological Stress*, *supra*, at 884. These ecological effects have persisted to this day. In one of the most tangible examples of these effects, oil was found over a decade after the spill “in surprising amounts and in toxic forms” in Prince William Sound, Charles H. Peterson et al., *Long-Term Ecosystem Response to the Exxon Valdez Oil Spill*, *Science*, Dec. 19, 2003, at 2082; Picou et al., *Disaster, Litigation*, *supra*, at 1501. The continued presence of the oil has “had long-term impacts” on the area’s natural resources, Peterson et al., *supra*, at 2082; Picou et al., *Disaster, Litigation*, *supra*, at 1499, such as “severe declines in herring and pink salmon fisheries [that] appear to be related to chronic contamination of spawning areas in Prince William Sound,” *id.* at 1501; *see also* Mark G. Carls et al., *Sensitivity of Fish Embryos to Weathered Crude Oil: Part I*, 18 *Envtl. Toxicology and Chemistry* 481, 481 (1999); Ron A. Heintz et al., *Sensitivity of Fish Embryos to Weathered Crude Oil: Part II*, 18 *Envtl. Toxicology and Chemistry* 494, 494-95, 500 (1999). Indeed, by 2006, only a few species had recovered. Picou & Martin, *Long-Term Community Impacts*, *supra*, at 1 (only eight of twenty-two species had recovered). Moreover, the quantity and toxicity of oil still present in the Sound long after the spill suggests that the negative consequences for the Prince William Sound ecology and fisheries may persist well into the

future. *See id.* at 2; *see also* Rachel D’Oro, *Exxon Valdez Oil Won’t Vanish Soon*, Associated Press, Feb. 1, 2007 (reporting on recent study indicating that oil from spill “could persist for decades below the surface of some beaches,” thereby creating “a chronic source of low-level contamination”).

Although the communities in the Prince William Sound area were not directly oiled, the spill nonetheless resulted in serious disruption, conflict, and fragmentation for area residents. This cultural, social, and psychological damage from the spill has been empirically documented by social science research for over seventeen years.<sup>4</sup> As two *amici* have

---

<sup>4</sup> Although petitioners have dismissed the empirical research on which the district court relied, *see, e.g.*, Pet. App. 151a, as “articles by plaintiffs’ retained experts” and assert that, given the opportunity, they “would have shown that their conclusions were methodologically and statistically absurd,” BIO to Cross-Pet. 7 n.2 (No. 07-276), *amici* note that (1) the majority of the articles were written by independent researchers unaffiliated with respondents; (2) Exxon did not object to these studies when they were presented to the district court; and (3) much of the research on the social and psychological damage inflicted by the spill has been published in numerous peer-reviewed journals in the disciplines of sociology, psychology, and anthropology, including *Social Forces*, the *Journal of Traumatic Stress*, the *American Journal of Psychiatry*, and *Law and Policy*. Other research has been published in book chapters and social science reports prepared for the National Science Foundation, the Minerals Management Service, the Prince William Sound Regional Citizens’ Advisory Council, and the Alaska Conference of Mayors. *Amici* further note that although *amicus* Dr. J. Steven Picou was indeed retained as an expert by respondents in the district court, none of the research on which he relied (or on which this brief relies) was funded by respondents. In contrast with the independence of the social science research on which *amici* rely, Exxon’s subvention of – and later reliance on – legal and social

explained, the spill “threatened the essential economic, social, and cultural viability of [renewable resource communities] in the impact region.” Picou & Gill, *Chronic Psychological Stress, supra*, at 882.

During the months immediately following the spill, the small fishing communities throughout Prince William Sound were overwhelmed and substantially disrupted. Immediate impacts on the communities included rapid increases in local populations as a result of the clean-up efforts, increased demands for childcare, increased health care demands, and an increase in crime rates.<sup>5</sup> See, e.g., Mari Rodin et al., *Community Impacts Resulting from the Exxon Valdez Oil Spill*, 6 *Indus. Crisis Q.* 219, 223-26 (1992). The spill also placed severe strains generally on community resources, and the strains were subsequently exacerbated by the decreased tax revenues from the closing of fisheries. See Endter-Wada et al., *supra*, at 366-68, 384-87, 389-93.

And even to the extent that some businesses and commercial fishermen may have initially benefited economically from participating in the clean-up, the money that flowed to those businesses and residents created social conflicts in the form of divisions between those who had participated in the clean-up and those who had not. The divisions were both economic and moral in nature, as some members of the community

---

science research favorable to it has been well-documented. See, e.g., Alan Zarembo, *Funding Studies to Suit Need*, L.A. Times, Dec. 3. 2003, at A1.

<sup>5</sup> In Valdez, for example, arrests increased 124 percent, while the town experienced a 166-percent increase in accidents and a 71-percent increase in assaults. See Rodin et al., *supra*, at 225.

regarded the clean-up workers with disdain because they had accepted money from Exxon. Impact Assessment, Inc., *Exxon Valdez Oil Spill, Cleanup and Litigation: A Collection of Social Impacts Information and Analysis*, at 1.4 & 1.5 (2001), available at [http://www.mms.gov/alaska/reports/2001rpts/2001\\_058/volume3.pdf](http://www.mms.gov/alaska/reports/2001rpts/2001_058/volume3.pdf) (visited Jan. 29, 2008).

Empirical research conducted during the seventeen years following the spill consistently found that area residents experienced increased mental stress and spill-related disruptions to daily and family life. These problems manifested themselves in a variety of ways, including reports of chronic feelings of helplessness, betrayal, and anger. The spill's mental health effects extended even to the region's children, whose parents were sometimes absent for weeks at a time while working on the clean-up. See Endter-Wada et al., *supra*, at 366-68. Most importantly, the empirical research revealed high rates of anxiety, depression, and post-traumatic stress disorder among area residents exposed to the spill. See, e.g., L.A. Palinkas et al., *Community Patterns of Psychiatric Disorders After the Exxon Valdez Oil Spill*, 150 *Am. J. of Psychiatry* 1517-23 (1993), cited in Arata et al., *supra*, at 26 (survey conducted one year after the spill found that twenty percent of the individuals affected by the spill could be categorized as having a generalized anxiety disorder, nearly seventeen percent could be categorized as clinically depressed, and nine percent had post-traumatic stress disorder).<sup>6</sup>

---

<sup>6</sup> Such a relationship is directly reflected in the comments of at least one Cordova resident, who in 1993 explained that there was "a tremendous amount of bitterness" in the town after the spill

The mental health effects of the spill were particularly acute for commercial fishermen and the other area residents whose livelihoods were directly linked to commercial fishing and the fishing grounds that were contaminated by the spill. The contamination of the fishing grounds not only resulted in an “immediate threat to the fisheries,” but also “generated uncertainty regarding the long-term recovery of the resources” – uncertainty that, in turn, helped to generate chronic stress. Picou & Gill, *Chronic Psychological Stress, supra*, at 882; see also Pet. App. 123a (“[C]ommercial fishermen not only suffered economic losses but also the emotional distress that comes from having one’s means of making a living destroyed.”). For example, in one survey of commercial fishermen from Cordova conducted six years after the spill, twenty-three percent of men and thirteen percent of women were categorized as having “clinically significant levels of anxiety,” while thirty-nine percent of men and twenty percent of women had “clinically significant levels of depressive symptoms.” In the same survey, thirty-four percent of men and forty percent of women reported a “high number of PTSD-related symptoms.” Arata et al., *supra*, at 31.<sup>7</sup> The significance of these stress

---

and specifically compared the mental health effects of the spill to “the stress shock that a lot of combat troops felt. It’s just this slow attrition of people’s emotions. It didn’t happen all at once, but we’re all wound up tight.” See Journeyman Pictures, *USA – Alaska – Exxon Valdez*, available at [www.journeyman.tv/?lid=9672](http://www.journeyman.tv/?lid=9672).

<sup>7</sup> See also Picou & Gill, *Chronic Psychological Stress, supra*, at 888 (survey conducted in 1991 and 1992 revealed high stress levels among commercial fishermen); Marshall et al., *supra*, at 295-96 (survey finding increased stress levels from 1992 until

levels becomes even clearer when viewed in context: the average stress levels for commercial fishermen surveyed between 1989 and 2006 were comparable to those of children grieving the loss of a parent six months after the parent's death. Duane A. Gill, *Technological Disaster, Resource Loss and Long-Term Social Change in a Subarctic Community* 2, 44 (2007). Even in 2006, seventeen years after the spill, one study determined that depression "continues to be a serious mental health issue" for commercial fishermen from Cordova, while more than a third reported fragmented personal relationships. *Id.* at iv.

The stress experienced by commercial fishermen reverberated at the community level as well, as the social problems created by that stress further weakened the already fragile social structure in affected communities, see Picou et al., *Disaster, Litigation, supra*, at 1501. Moreover, the disruption that the spill caused for fishermen and those in fishing-related occupations "amplified and exacerbated basic distinctions between fishing and nonfishing occupations in Cordova's social structure." *Id.* at 1513. This fragmentation of the community in turn led to the development of a "corrosive community," which seriously impeded community recovery. Arata et al., *supra*, at 37.

Some negative mental health effects – those attributable to litigation regarding the spill – have continued to impede recovery from the spill, Marshall

---

1995 and attributing high stress levels to, among other things, "loss of resources from the spill, including herring and salmon fisheries [and] concerns about the contamination of Prince William Sound").

et al., *supra*, at 295-96; Picou et al., *Disaster, Litigation, supra*, at 1514-15. Some of the litigation-related stress “resulted from time spent with lawyers, trying to understand complex litigation issues, and recurrent unpleasant memories of the spill.” *Id.* at 1514. Other stress arose from the adversarial process and delay tactics to which litigants were exposed, which are stressful both in and of themselves and also because they delay resolution of the litigants’ damages claims, thereby causing the litigants economic stress. Marshall et al., *supra*, at 294-96; Picou et al., *Disaster, Litigation, supra*, at 1514.

Indeed, negative mental health effects attributable to the spill have been documented as recently as last year. Two recent reports to the National Science Foundation provide both qualitative and quantitative empirical evidence that significant levels of spill-related psychological stress, depression, hostility, and loss of trust in the judicial process characterize residents of Cordova seventeen years after the spill. See Gill, *supra*, at iii-vi; Picou & Martin, *Long-Term Community Impacts, supra*. This documentation of the chronic social and psychological damages produced by the Exxon Valdez spill is unparalleled in the disaster research literature.

## **II. A Punitive Damages Award Is Appropriate in This Case to Ensure Adequate Deterrence.**

In its brief on the merits, petitioner posits that “there is no role left for punitive damages” in a case, such as this one, in which respondents have purportedly already received “full compensation . . .



for their (purely economic) losses” and Exxon has been required to pay other clean-up costs, fines, and expenses. Pet. Br. 48-49. A punitive damages award would serve no deterrent effect, petitioner reasons, because the combined effect of these payments would be “enough to deter anyone from anything.” *Id.* 49. Nor, petitioner asserts, does the punitive damages award in this case serve as an appropriate punishment in light of the statutory penalties already prescribed by Congress in the Clean Water Act. *Id.*

Although this Court’s jurisprudence makes clear that review of a punitive damages award is not limited to whether such an award will deter future wrongdoing, *see, e.g., Cooper Industries, Inc. v. Leatherman Tool Group, Inc.*, 532 U.S. 424, 432, 439-40 (2001), Exxon’s assertion that punitive damages are not necessary in this case to achieve adequate deterrence nonetheless falls short under even a strict law-and-economics analysis, as only an award of punitive damages will ensure that Exxon bears the full cost of its conduct.

There is widespread agreement among legal scholars and economists that, generally, “inefficient behavior can be deterred by forcing actors to accurately take account of all the costs of their activities.”<sup>8</sup> Thomas C. Galligan, Jr., *Augmented Awards: The Efficient Evolution of Punitive Damages*, 51 La. L. Rev. 3, 7-8 (1990); *cf. BMW of North America, Inc. v. Gore*, 517 U.S. 559, 592-93 (1996) (Breyer, J.,

---

<sup>8</sup> To the extent that a defendant may gain illicit benefits from its behavior, these costs must also include the value of these benefits. *See* Robert D. Cooter, *Economic Analysis of Punitive Damages*, 56 S. Cal. L. Rev. 79, 79-80 (1982).

concurring) (“Some economists, for example, have argued for a standard that would deter illegal activity causing solely economic harm through the use of punitive damages that, as a whole, would take from a wrongdoer the total cost of the harm caused.”). In some cases, adequate deterrence can be achieved through an award of purely compensatory damages, which – as this Court explained in *Cooper Industries* – “are intended to redress the concrete loss that the plaintiff has suffered by reason of the defendant’s wrongful conduct,” 532 U.S. at 432 (citing Restatement (Second) of Torts § 903).

However, as Judge Calabresi and others have explained, in some categories of cases, an award of compensatory damages, standing alone, will “result in systematic underassessment of costs, and hence in systematic underdeterrence”; in these cases, an award of “[p]unitive damages can ensure that a wrongdoer bears all the costs of its actions, and is thus appropriately deterred from causing harm.” *Ciraolo v. City of New York*, 216 F.3d 236, 243 (2d Cir.) (Calabresi, J., concurring), *cert. denied*, 531 U.S. 993 (2000); *see also, e.g., Kemezy v. Peters*, 79 F.3d 33, 34 (7th Cir. 1996) (Posner, J.) (noting that “punitive damages are necessary . . . to make sure that tortious conduct is not underdeterred, as it might be if compensatory damages fell short of the actual injury inflicted by the tort”).<sup>9</sup> One such category of cases, as

---

<sup>9</sup> Indeed, even Professors Polinsky and Shavell, in work *supported by petitioner*, concede that “[i]n practice, . . . parties may escape having to pay for some of the harm” that they cause, and that the damages should be increased in such cases “to make up . . . for the chance of not having to pay for the full harm.” Moreover, they acknowledge, “[t]he most likely circumstance in which the

Galligan notes, is those in which a legal rule limits the available damage awards, such as those that permit “recovery of economic losses if the plaintiff suffered some accompanying damage to person or property,” but “prohibit[] the recovery of negligently inflicted economic losses absent personal injury or property damage.” See Galligan, *supra*, at 11, 44-46 (citing *Robins Dry Dock* rule as example of such a rule). Cf. David G. Owen, *A Punitive Damages Overview: Functions, Problems and Reform*, 39 Vill. L. Rev. 363, 377-79 (1994). In this and other categories of cases that fail to fully account for the costs to society in compensatory damages, Galligan posits, deterrence can be achieved by imposing an award that would “ideally equal total accident costs less compensatories

---

full harm would not be assessed against the defendant arises when a particular component of harm (say, some type of non-pecuniary loss) is excluded from compensatory damages.” A. Mitchell Polinsky & Steven Shavell, *Punitive Damages: An Economic Analysis*, 111 Harv. L. Rev. 869, 896 (1998). However, they dismiss this scenario, arguing unconvincingly that although the failure to include these harms as part of compensatory damages “does undesirably dilute deterrence,” “remedies for missing components of harm would be best pursued through revision of the rules used to calculate compensatory damages” because of the difficulties purportedly involved in estimating those harms. *Id.* at 939. They offer no reason, however, why the resulting underdeterrence is appropriate in cases, such as this one, in which the uncompensated harms have been catalogued at length, see Part I, *supra*. Nor does the article advert, in its discussion of this case, to the substantial uncompensated harms caused by the spill. Instead, the article posits only that “no punitive damages are needed, or appropriate, in the circumstances of this case because the injurer could not have escaped liability for compensatory damages.” Polinsky & Shavell, *supra*, at 903-04.

plus the ‘value’ of other applicable fines or penalties.” Galligan, *supra*, at 12-13.

The use of punitive damages will generally ensure adequate deterrence when compensatory damages do not fully account for all of the costs resulting from the defendant’s activity, Judge Calabresi explains, because a rational actor will act when – based on a cost-benefit analysis – it determines that the benefits of doing so outweigh the costs.<sup>10</sup> *Ciraolo*, 216 F.3d at 243. “Such an analysis cannot be even roughly accurate unless approximately all the costs of the activity are borne by the actor,” and it will “necessarily be distorted” if he will receive the benefits of the activity without being responsible for the costs. *Id.*<sup>11</sup>

---

<sup>10</sup> Judge Calabresi notes, however, that in some cases – such as those in which “the ‘benefit’ resulting from the defendant’s conduct is socially illicit” – “allowing a separate award of punitive damages could represent a societal judgment that, for certain conduct, a cost-benefit analysis is inappropriate.” 216 F.3d at 246 n.8 (Calabresi, J., concurring).

<sup>11</sup> Similarly, although *amicus* Washington Legal Foundation posits that “[i]t defies reason to suggest that accident costs of \$3.4 billion would not induce Exxon (or any similarly situated company) to implement corrective measures,” Br. *Amicus Curiae* of Washington Legal Foundation 18, that assertion rests – among other things – on the assumption that a business such as Exxon is a purely rational actor. Such an assumption is belied by Exxon’s actions in this case, Pet. App. 170a, as demonstrated by the fact that it did not take the economically sensible action of replacing Captain Hazelwood with a sober captain “with relatively small expense, when compared with the risk.” Pet. App. 233a. That the costs of taking the economically rational action were tiny when compared with the enormous risk suggests that the illicit benefits of maintaining an alcoholic culture and protecting a colleague

As this Court has acknowledged, “[u]ntil well into the 19th century, punitive damages frequently operated to compensate for intangible injuries, compensation which was not otherwise available under the narrow conception of compensatory damages prevalent at the time.” *Cooper Indus., Inc. v. Leatherman Tool Group, Inc.*, 532 U.S. 424, 437 n.11 (2001). Although compensatory damages are more broadly available now in many areas of the law, they continue to be more narrowly available under maritime law, which – as relevant here – prohibits plaintiffs from recovering for economic and emotional injuries unless those injuries are accompanied by physical harm. *Robins Dry Dock & Repair Co. v. Flint*, 275 U.S. 303 (1927). Courts have carved out a very limited exception to this general maritime prohibition, allowing commercial fishermen to recover economic damages even in the absence of physical harm. See *Union Oil v. Oppen*, 501 F.2d 558 (9th Cir. 1974); see also J.A. 122 (district court reiterating that when “pure economic loss is at issue – not connected with any injury to one’s body or property, and especially where that economic loss occurs in a marine setting – the reach of legal liability is quite limited except as to commercial fishermen”).

When the extensive but nonetheless uncompensated harms arising from the spill – as catalogued above – are considered, it becomes clear that a sizeable award of punitive damages is not only appropriate but indeed necessary to provide adequate deterrence, as the compensatory damages awarded in

---

trumped rational economic considerations, see *supra* note 10 (citing *Ciraolo*, 216 F.3d at 246 n.8 (Calabresi, J., concurring)).

this case do not fully account for the injuries actually inflicted by the spill and thus do not require Exxon to bear all of the costs of its actions.

First, class members suffered substantial damages in the form of uncompensated economic harm due to the district court's *Robins Dry Dock* rulings.

Second, and even more significantly, the compensatory damages awarded in this case do not include any compensation for the devastating social and psychological impact on the spill on area residents and the broader Prince William Sound communities, *see supra* at 15-18. Although no attempt has been made to assess the magnitude of these damages to date, even a relatively modest award of fifty to one hundred thousand dollars per plaintiff would not be inconsistent with other awards for emotional distress, both in Alaska and elsewhere around the country. *See, e.g., Ace v. Aetna Life Ins. Co.*, 139 F.3d 1241, 1243, 1249-50 (9th Cir.) (emotional distress award of \$100,000 for bad faith denial of insurance benefits), *cert. denied*, 525 U.S. 930 (1998); *ERA Aviation, Inc. v. Lindfors*, 17 P.3d 40, 42 (Alaska 2000) (\$50,000 emotional distress award for gender discrimination and retaliatory discharge); *Sloane v. Equifax Info. Servs., LLC*, No. 06-2044, 2007 U.S. App. LEXIS 29805 (4th Cir. Dec. 27, 2007) (award of \$150,000 for emotional distress arising from repeated violations, over two-year span, of Fair Credit Reporting Act); *Forsyth v. City of Dallas, Tex.*, 91 F.3d 769, 774 (5th Cir. 1996) (in Section 1983 retaliation case, upholding emotional distress award of \$100,000 to plaintiff who "testified that she suffered depression, weight loss, intestinal troubles, and marital problems, that she had

been sent home from work because of her depression, and that she had to consult a psychologist” and award of \$75,000 to plaintiff who testified “that he suffered depression, sleeplessness, and marital problems”), *cert. denied*, 522 U.S. 816 (1997); *EEOC v. Convergys Customer Mgmt. Group, Inc.*, 491 F.3d 790, 797 (8th Cir. 2007) (upholding \$100,000 emotional distress award for termination in violation of Americans With Disabilities Act and noting that “[t]he record evidence shows that [the employee] suffered significant emotional injuries as a result of his wrongful termination,” including “severe depression and anxiety,” which in turn caused him to become “isolated, ashamed, and gain[] a significant amount of weight”). Collectively, such awards on a per-plaintiff basis in this case would amount to between 1.6 and 3.2 billion dollars.

Moreover, a larger award would likely be appropriate for the subset of plaintiffs – such as commercial fishermen and others in towns such as Cordova whose livelihoods and identities are closely linked to the availability of natural resources – who were hardest hit by the spill and its aftermath. In *State Farm*, for example, the plaintiffs were awarded compensatory damages of \$500,000 for their emotional distress over the course of eighteen months regarding whether their insurance claim would be covered. *See* 538 U.S. at 419, 425. Here, by contrast, a large percentage of commercial fishermen experienced mental health effects from the spill that included anxiety, depression, and symptoms of post-traumatic stress disorder as many as six years after the spill. Even if the emotional distress claims of these plaintiffs are valued at the same level as the plaintiffs in *State*

*Farm*, the uncompensated harms stemming from the spill would increase even more, in all likelihood to the point at which they would in fact dwarf the punitive damages award of \$2.5 billion in this case.

**CONCLUSION**

For the foregoing reasons, the judgment of the court of appeals should be affirmed.

Respectfully submitted,

Amy Howe  
(Counsel of Record)  
Kevin K. Russell  
HOWE & RUSSELL, P.C.  
7272 Wisconsin Ave.  
Bethesda, MD 20814  
(301) 941-1913

January 29, 2008



**LIST OF AMICI CURIAE**

**J. Steven Picou** is Professor of Sociology and Chair of the Department of Sociology, Anthropology and Social Work at the University of South Alabama (Mobile). Dr. Picou's research interests include disasters, environmental sociology and applied sociology. He has published over 75 peer-reviewed articles, book chapters and four books in these and other areas of research. Dr. Picou's research has been supported by many agencies and foundations, including the National Science Foundation, U.S. Department of Education, U.S. Department of Labor, The Rockefeller Foundation and Alabama Department of Environmental Management. In 2001 he was the recipient of the American Sociological Association (Environment and Technology Section) "Distinguished Contribution Award" for his development and implementation of intervention programs to reduce the negative community impacts of the Exxon Valdez oil spill. Currently, he is directing research on long-term community recovery in Mississippi and Louisiana from Hurricane Katrina.

**Catalina M. Arata** is currently a psychologist in private practice. She previously served as an Associate Professor at the University of South Alabama. She has spent eighteen years conducting research on post-traumatic stress disorder and trauma, including research regarding the psychological effects of the Exxon Valdez oil spill, resulting in over twenty publications.

**Lee Clarke** is an Associate Professor of Sociology at Rutgers University, where he has also served as the

Co-Director of the Center for Social Research and Instruction. He has written extensively about risk communication, panic, civil defense, evacuation, community response to disaster, and organizational failure, and he frequently consults with corporations, government agencies, and research foundations. His most recent book, *Worst Cases: Terror & Catastrophe in the Popular Imagination*, was nominated for a Pulitzer Prize.

**Michael R. Edelstein** has worked in the field of environmental psychology for over three decades. He is a Professor in the Environmental Studies program at Ramapo College of New Jersey. Dr. Edelstein was one of the early researchers to study the psycho-social impacts of human-caused disaster, particularly those involving toxic exposure or environmental hazards. His work, *Contaminated Communities*, now in its second edition (Westview Press, 2004), a book of theory about the psycho-social impacts of such disaster, is considered to be a classic in the field. Dr. Edelstein served as a research consultant to Impact Assessment, Inc. and the “oiled mayors” study of the Exxon Valdez disaster.

**Duane Gill** is Associate Director for Research on Society and Environment and Research Professor at the Social Science Research Center (SSRC) and Professor of Sociology in the Department of Sociology, Anthropology and Social Work at Mississippi State University. He also serves as Coordinator of the Societal Risk Unit within the SSRC, where he pursues research interests in the sociology of disasters, environmental sociology, and community. Dr. Gill is part of a research team that has been investigating

human impacts of the 1989 Exxon Valdez Oil Spill in Alaska through a series of longitudinal studies funded by the National Science Foundation, the Earthwatch Center for Field Studies, and the Prince William Sound Regional Citizens' Advisory Council. Dr. Gill also collaborated on several studies of impacts of Hurricane Katrina. These include a needs assessment of Mississippi State University students and a survey of displaced students from three New Orleans universities. In addition, he organized and led a Katrina Summit that brought together several nationally and regionally recognized disaster scholars to discuss research needs and approaches to the disaster.

**Robert Gramling** is an environmental sociologist, a professor of sociology, and the director of the Center for Socioeconomic Research at the University of Louisiana at Lafayette. He is the author of two books and numerous journal articles. His research has focused on rural communities and natural resource development. He has served on National Research Council committees and scientific committees for state and federal agencies, including National Marine Fisheries Service, Northwest Power Planning Commission, and the states of Alaska and Louisiana. His research has been funded by a number of agencies, including the Environmental Protection Agency, Department of Interior, Department of Health and Human Services, and the Louisiana Department of natural resources.

**Steve Kroll-Smith** is professor of sociology at the University of North Carolina, Greensboro and Editor of *Sociological Inquiry*. His latest book (with Valerie Gunter) is *Volatile Places, A Sociology of Communities and Environmental Controversies* (2007). Steve has written and edited four additional books on communities, people and environmental troubles. His work on human-made hazards was recognized by the American Sociological Association's Distinguished Contribution Award for research on environments and technologies. He is currently working on two projects related to Hurricane Katrina: (1) a comparative study of the 1906 San Francisco earthquake and fire and the 2005 flooding of New Orleans and (2) a comparative neighborhood study of post-flood recovery in New Orleans.

**Brent K. Marshall** is an independent scholar employed by the University of Central Florida. His teaching and research interests include the following areas: disasters, environmental justice, and natural resource management. He has published thirteen articles in peer-reviewed journals in the last five years and has received extramural funding from a diverse set of sources that includes the United States Environmental Protection Agency, Heart of Florida United Way, Rockefeller Foundation, and Southwest Florida Water Management District. He is a research team member of the Task Force on Hurricane Katrina and Rebuilding the Gulf Coast, organized by the Social Science Research Council and American Sociological Association.

**Kathleen Tierney** is a professor in the Department of Sociology and the Institute of

Behavioral Science at the University of Colorado at Boulder. She also serves as director of the Natural Hazards Center, which since 1976 has served as the nation's clearinghouse for knowledge on the societal dimensions of hazards, disasters, and risk. An internationally recognized expert on the disasters and their impacts, Professor Tierney has written dozens of articles, book chapters, and research reports on the short- and long-term effects of disasters on individuals, households, businesses, and communities. She is senior author of the book *Facing the Unexpected: Disaster Preparedness and Response in the United States* (2001), which is considered to be one of the most authoritative sources of information on the human dimensions of disasters.

**Steve Calandrillo** is Professor of Law and Washington Law School Foundation Scholar at the University of Washington, where he teaches (inter alia) contract law and law and economics.

**Thomas Galligan** has worked in higher education since 1986 as a professor, dean, and college president. He was the Dale Bennett Professor of Law at the Paul M. Hebert Law Center at Louisiana State University, where he taught from 1986-1998. From 1998 until 2006, he served as Dean of the University of Tennessee College of Law from 1998-2006. He has extensively taught, written, and spoken about torts, punitive damages, and admiralty. His work has been cited and relied upon by the U.S. Supreme Court, lower federal courts, state courts, the Restatement of Torts, and commentators.

**Ugo Mattei** is the Alfred and Hanna Fromm Chair in International and Comparative Law at the University of California Hastings College of the Law, where he teaches (inter alia) law and economics. He is a member of the Editorial Board of the *International Review of Law and Economics* and the *New Palgrave: A Dictionary of Economics and Law*.

**Richard O. Zerbe, Jr.**, is the Associate Dean and the Daniel J. Evans Distinguished Professor of Public Affairs and an Adjunct Professor of Law at University of Washington. He teaches environmental ethics, microeconomics, government regulation, law and economics, and benefit-cost analysis. He has worked on the executive board of the Western Economic Association, and with the American Bar Foundation, was a founding board member of the American Law and Economics Association, and serves as editor of the *Research in Law and Economics* journal.