PROSECUTORIAL DISCRETION AND ENVIRONMENTAL CRIME

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Prosecutorial discretion exists throughout the criminal justice system but plays a particularly significant role for environmental crime. Congress made few distinctions under the environmental laws between acts that could result in criminal, civil, or administrative enforcement. As a result, there has been uncertainty about which environmental violations will result in criminal enforcement and persistent claims about the over-criminalization of environmental violations. To address these concerns — and to delineate an appropriate role for criminal enforcement in the environmental regulatory scheme — I have proposed that prosecutors should reserve criminal enforcement for violations that involve one or more of the following aggravating factors: (1) significant environmental harm or public health effects; (2) deceptive or misleading conduct; (3) operating outside the regulatory system; or (4) repetitive violations. By doing so, prosecutors can focus on violations that undermine pollution prevention efforts and avoid targeting defendants acting in good faith or those who commit technical violations of the law. This Article presents the results of an empirical study to determine how often those factors were present in cases investigated by EPA that resulted in criminal charges from 2005–2010. My empirical research demonstrates that prosecutors charged violations involving these aggravating factors for nearly every defendant prosecuted over a six-year period. Indeed, most defendants engaged in conduct that involved multiple aggravating factors. These findings suggest that prosecutors are exercising their discretion reasonably under the environmental laws and provide empirical evidence that should inform our understanding of the role of criminal enforcement and lessen concerns about over-criminalization.

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Introduction

In January 1991, just four weeks after joining the Justice Department's Environmental Crimes Section as an entry-level attorney, I traveled to New Orleans to attend an environmental enforcement conference. The conference was attended by hundreds of criminal prosecutors and civil attorneys from the Justice Department, as well as enforcement officials from the Environmental Protection Agency ("EPA"). It was a propitious time for environmental protection efforts in the United States. Less than two months earlier, President George H. W. Bush had signed the Clean Air Act Amendments of 1990,[1] culminating a remarkable twenty-year period that created the modern environmental law system in the United States.[2] My new office, although only three years old, was

[1] Clean Air Act Amendments of 1990, Pub. L. No. 101-549, § 401, 104 Stat. 2584, 2584–85 (codified as amended at 42 U.S.C. § 7651 (2006)).
[2] *See* Richard J. Lazarus, The Making of Environmental Law 69–73 (2004). The moment would prove fleeting: Congress has not enacted any major environmental laws since 1990. *See*

leading the prosecution of Exxon Corporation and Exxon Shipping for the *Exxon Valdez* oil spill,[3] which would result in the largest fines imposed for environmental crime until the criminal prosecutions of BP and Transocean for the Gulf oil spill during 2012 and 2013.[4]

Attorney General Richard "Dick" Thornburgh delivered the keynote address at the 1991 Environmental Law Conference,[5] which was an encouraging show of support for environmental enforcement efforts from the perspective of a newly minted environmental crimes prosecutor. The Attorney General heralded the Administration's commitment to environmental protection and decried environmental crime with sweeping rhetorical flourish, describing its perpetrators as:

> offenders who do some of the dirtiest work ever done to human health and the quality of life. They illicitly trade in sludge, refuse, waste, and other pollutants, and they pursue their noxious concealments only for the sake of gain. Everywhere — on our land, in our water, even in the air we breathe — they leave their touch of filth.[6]

In the Attorney General's formulation, environmental criminals were "dirty white-collar criminals" who scarred precious natural resources, lied about their misconduct, and did so for pecuniary gain. On this account, there could be little question about which environmental violations warranted criminal prosecution. These violations caused great harm ("some of the dirtiest work ever done to human health and the environment") and were committed by dishonest defendants motivated by greed ("they pursue their noxious concealments only for the sake of gain").

Later the same day, the conference featured a panel discussion entitled "What Makes An Environmental Case Criminal?" At the time, I thought this could not be a serious question when confronting the filth, deceit, and greed

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David M. Uhlmann, *The Quest for a Sustainable Future*, 1 MICH. J. ENVTL. & ADMIN. L. 1, 9 (2012).

[3] Superseding Indictment, United States v. Exxon Shipping Co., No. 90-CR-00015 (D. Alaska 1991).

[4] Exxon Shipping was sentenced to pay a fine of $125 million. Exxon Corporation was sentenced to pay a fine of $25 million, but $125 million of the total fine amount was remitted as restitution. Those fine amounts were not exceeded until the Justice Department entered plea agreements with BP in November 2012 (recommending a $4 billion criminal penalty) and Transocean in January 2013 (recommending a $400 million criminal penalty) for causing the Gulf oil spill. Clifford Krauss & John Schwartz, *BP Will Plead Guilty and Pay Over $4 Billion*, N.Y. TIMES (Nov. 15, 2012), *available at* http://perma.law.harvard.edu/0zc8TkxGmTg/; John Schwartz, *Rig Owner Will Settle With U.S. in Gulf Spill,* N.Y. TIMES (Jan. 3, 2013), http://perma.law.harvard.edu/0Wwz1QT1WLz/; *see generally* David M. Uhlmann, *After the Spill Is Gone: The Gulf of Mexico, Environmental Crime, and the Criminal Law,* 109 MICH. L. REV. 1413 (2011) (predicting that the Gulf oil spill would result in the largest criminal fines ever imposed under the environmental laws and would shape public perceptions of environmental crime despite the fact that environmental prosecutions based on negligence are anomalous and may raise questions about the role of environmental criminal enforcement).

[5] Richard Thornburgh, U.S. Att'y Gen., Keynote Address at the 1991 Environmental Law Enforcement Conference: Our Blue Planet, A Law Enforcement Challenge (Jan. 8, 1991), *available at* http://perma.cc/0zeAcJKtiru/.

[6] *Id.* at 11, 12.

excoriated by the country's top law enforcement official in his keynote address. If corporations and individuals were ravaging the Earth for monetary gain and hiding their dirty deeds with deceptive conduct like midnight dumping and doctored records, their violations would be criminal and should result in prosecution.

Yet, as I would learn at the 1991 conference and in the years to follow, the Attorney General was describing the easy cases, at least in terms of which violations should be prosecuted criminally. The environmental laws create a complex regulatory system affecting a wide range of economic activity in the United States.[7] The Resource Conservation and Recovery Act ("RCRA") establishes a cradle-to-grave regulatory scheme for hazardous wastes; the Clean Water Act ("CWA") regulates all discharges of pollutants into waters of the United States; and the Clean Air Act ("CAA") imposes limits on all air pollutants that could endanger public health and welfare.[8] As with any complex regulatory scheme, there are significant disparities in the seriousness of environmental violations. Some involve devastating pollution, evacuation of communities, or deliberate efforts to mislead regulators. Others may be de minimis violations or isolated events that occur notwithstanding a robust compliance program.

Given the wide range of potential environmental violations, it might have been preferable for Congress to specify which environmental violations could result in criminal prosecution.[9] Instead, as I have noted elsewhere, Congress made only limited distinctions between acts that could result in criminal, civil, or administrative enforcement.[10] Even the most technical violation of the environmental laws theoretically could result in criminal prosecution if the defendant acted with the mental state specified by the statute.[11] Mental state is not required for civil or administrative violations, but the additional proof required for criminal prosecution often does little to differentiate between criminal, civil, and administrative violations. In most cases, the government must show only that the defendant acted knowingly. In other words, the government must show defendants know they are engaging in the conduct that is a violation of the law; the government is not required to show that defendants know they are breaking the environmental laws.[12] Indeed, in some cases, the government is required to

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[7] *See* Richard J. Lazarus, *Assimilating Environmental Protection Into Legal Rules and the Problem with Environmental Crime,* 27 LOY. L.A. L. REV. 867 (1994).

[8] Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6992k (2012); Clean Water Act, 33 U.S.C. §§ 1251–1387 (2012); Clean Air Act, 42 U.S.C. §§ 7401–7671 (2012).

[9] *See* David M. Uhlmann, *Environmental Crime Comes of Age: The Evolution of Criminal Enforcement in the Environmental Regulatory Scheme,* 4 UTAH L. REV. 1223, 1228, 1242 (2009) (discussing the criminalization of environmental violations, the limited distinctions between criminal and civil environmental violations, and the role of prosecutorial discretion in delineating an appropriate role for criminal enforcement under the environmental laws).

[10] *Id.* at 1242.

[11] *Id.* at 1243.

[12] *See, e.g.*, United States v. Cooper, 482 F.3d 658, 665–68 (4th Cir. 2007) (CWA violations); United States v. Laughlin, 10 F.3d 961, 965, 967 (2d. Cir. 1993) (RCRA violations); United States v. Buckley, 934 F.2d 84, 88 (6th Cir. 1991) (CAA violations); Uhlmann, *supra* note 9, at 1235–39 (discussing the knowledge requirement).

prove only that the defendant acted negligently; in other cases, the government is not required to show any mental state at all.[13]

If the same violation often could give rise to criminal, civil, or administrative enforcement — and if mental state requirements only preclude criminal enforcement for a small subset of violations — what determines which environmental violations result in criminal prosecution? The answer is the exercise of prosecutorial discretion, which exists in all areas of the criminal law, but assumes a particularly critical role in environmental cases because so much conduct falls within the criminal provisions of the environmental laws. Critics of environmental criminal enforcement argue that Congress gave too much discretion to prosecutors or, even worse from their perspective, to EPA enforcement officials.[14] They note that whether a case is prosecuted criminally may be determined by nothing more substantive than whether the case originates with a criminal investigator or with one of their civil or administrative counterparts within the Agency.[15] Even supporters of criminal enforcement acknowledge that prosecutorial discretion is broad under the environmental laws.[16] But they insist that it is no greater than in other areas of economic or regulatory crime and that Congress properly relied on the good sense of prosecutors, the wisdom of judges, and the judgment of juries to determine when violators of the environmental laws should be convicted of criminal activity.[17]

I see no merit in debating whether prosecutorial discretion is broad under the environmental laws — it clearly is — and I concede that it may be disquieting in a nation predicated on the rule of law that we depend so much on individual prosecutors to determine what conduct should be criminally prosecuted. I also acknowledge that the extent of prosecutorial discretion under the environmental laws may raise uncertainty in the regulated community about which environmental violations will result in criminal prosecution. On the other hand, our criminal justice system always relies to some degree upon the exercise of prosecutorial discretion to determine which violations will be prosecuted crimi-

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[13] *See, e.g.*, 33 U.S.C. § 1319(c)(1) (2012) (misdemeanor violation of CWA for negligence); 16 U.S.C. § 707(a) (2012) (misdemeanor violation of the Migratory Bird Treaty Act based on strict liability).

[14] *See* Keith A. Onsdorff & James M. Mesnard, *The Responsible Corporate Officer Doctrine in RCRA Criminal Enforcement: What You Don't Know Can Hurt You,* 22 ENVTL. L. REP. 10099, 10104 (1992); *see also* John C. Coffee, Jr., *Does "Unlawful" Mean "Criminal"?: Reflections on the Disappearing Tort/Crime Distinction in American Law*, 71 B.U. L. REV. 193, 210–13 (1991) (objecting to the alleged "diminution of mens rea" by environmental statutes); *see also* Kevin A. Gaynor et al., *Environmental Criminal Prosecutions: Simple Fixes for a Flawed System,* 3 VILL. ENVTL. L.J. 1, 11–12 (1992).

[15] Judson W. Starr, *Turbulent Times at Justice and EPA: The Origins of Environmental Criminal Prosecutions and the Work that Remains,* 59 GEO. WASH. L. REV. 900, 913–14 (1991); Uhlmann, *supra* note 9, at 1243.

[16] *See, e.g.,* Kathleen F. Brickey, *The Rhetoric of Environmental Crime: Culpability, Discretion, and Structural Reform,* 84 IOWA L. REV. 115, 127 (1998).

[17] United States v. Dotterweich, 320 U.S. 277, 285 (1943) (relying on strict liability tethered to "the good sense of prosecutors, the wise guidance of trial judges, and the ultimate judgment of juries"); Brickey, *supra* note 16, at 127; Uhlmann, *supra* note 9, at 1244.

nally.[18] To evaluate whether prosecutors have too much discretion — and to address claims that the environmental laws criminalize too much conduct — we need to know more about the circumstances under which environmental prosecutors exercise their discretion to seek criminal charges for violations.

As a general matter, our understanding of prosecutorial discretion is limited, both because it is broad and unreviewable and also because prosecutors are never required to state publicly what factors prompted them to pursue criminal charges.[19] Of course, prosecutors should only bring charges if there is sufficient evidence to prove each element of the offense beyond a reasonable doubt. But the exercise of prosecutorial discretion, particularly in the federal system where most environmental crimes are prosecuted, involves more than a rote analysis of whether the law and the facts allow prosecution. Prosecutors have limited resources and want to reserve criminal prosecution for cases that have jury appeal and advance the prosecutor's obligation to do justice.[20] Whether a case has these attributes often depends upon the presence of aggravating factors beyond statutory elements.

For environmental crimes, I have written that prosecutors should exercise their discretion to reserve criminal enforcement for cases with one or more of the following aggravating factors: (1) significant environmental harm or public health effects; (2) deceptive or misleading conduct; (3) operating outside the regulatory system; or (4) repetitive violations.[21] Limiting criminal enforcement to cases with one or more of these aggravating factors would preclude prosecution for technical or de minimis violations and provide greater clarity about which environmental violations might result in criminal charges. The presence of one or more of these factors also would delineate an appropriate role for criminal prosecution in the environmental regulatory scheme by limiting criminal prosecution to cases involving substantial harm or risk of harm or to cases in which the conduct involves the type of deliberate misconduct we consider criminal in other contexts as well.[22]

My views about prosecutorial discretion for environmental crime draw on my experience serving for seventeen years as a federal environmental crimes prosecutor, including seven as Chief of the Environmental Crimes Section when I was responsible for approving all charging decisions in cases brought by my office. The factors track what EPA has identified as significant in its exercise of investigative discretion[23] and draw from the Principles of Federal

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[18] Brickey, *supra* note 16, at 126–27; *see also* David A. Barker, Note, *Environmental Crimes, Prosecutorial Discretion, and the Civil/Criminal Line,* 88 VA. L. REV. 1387, 1420–21 (2002) (stating that broad prosecutorial discretion is "quite typical of criminal law" and may be less objectionable in the context of environmental crimes, "where most defendants will be quite capably represented").

[19] *See generally* James Vorenberg, *Decent Restraint of Prosecutorial Power,* 94 HARV. L. REV. 1521 (1981).

[20] Uhlmann, *supra* note 9, at 1234, 1245.

[21] *Id.* at 1246–52.

[22] *Id.* at 1226–27, 1245–52.

[23] Memorandum from Earl E. Devaney, Dir., Office of Criminal Enforcement, EPA, to All EPA Employees Working in or in Support of the Criminal Enforcement Program 3–5 (Jan. 12, 1994) (finding that investigative discretion should be driven by (1) significant environmental harm and

Prosecution that govern all criminal cases brought by the Justice Department.[24] But my former office does not handle all cases prosecuted under the federal environmental laws[25] — the remainder are prosecuted by United States Attorneys — and the office does not require the presence of any specific aggravating factors to justify criminal charges. As a result, in my prior scholarship, I could not show the extent to which my normative model is descriptive as well.

I therefore created the Environmental Crimes Project to analyze the extent to which the aggravating factors I had identified as normatively desirable were present in recent prosecutions. Over a three-year period, with research assistance from 120 students at the University of Michigan Law School,[26] we reviewed all cases investigated by EPA from 2005–2010.[27] To ensure a representative dataset, we focused on defendants charged in federal court with pollution crime or related Title 18 offenses.[28] We conducted our review based on court documents for over 600 cases involving nearly 900 defendants.[29] In addition to analyzing the aggravating factors, we also compiled data regarding the types of defendants charged, the judicial districts and EPA regions involved, the statutes charged, and the outcomes of the cases. In the process, we developed a comprehensive database of information about pollution cases investigated by EPA from 2005–2010 that resulted in federal criminal charges.[30]

Based on our research, I have determined that one or more aggravating factors were present in 96% of environmental criminal prosecutions from 2005–2010. This finding supports at least two significant conclusions. First, in exercising their discretion to bring criminal charges, prosecutors almost always

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(2) culpable conduct, defined as, among other things, repeated violations, deliberate misconduct, concealment or falsification, and operating without a permit).

[24] U.S. DEP'T OF JUSTICE, U.S. ATTORNEYS' MANUAL § 9-27.000 (1997) [hereinafter USAM].

[25] *See id.* § 5-11.104 (updated in 2008) (describing the "Responsibility for Case Development and Prosecution" and when cases should be handled by U.S. Attorneys, the Environmental Crimes Section, and when jointly); Arnold W. Reitze, Jr., *Criminal Enforcement of Pollution Control Laws*, 9 ENVTL. LAW. 1, 12–13 (Sept. 2002).

[26] Most students who worked on the Project became eligible to receive a certificate upon graduation for completing the University of Michigan Law School's pro bono pledge; some worked on the Project during the summer and received a research stipend. I would like to thank all of the students who worked on the Environmental Crimes Project and made this effort possible. The names of the students are listed in Appendix A to this Article.

[27] The 2005–2010 time period provided several years of data and hundreds of defendants to ensure a representative dataset. I chose to begin with calendar year 2005 because that coincided with the year that EPA began using an internal data management system called CrimDoc, which Agency officials stated would provide EPA's most complete and accurate information about criminal prosecutions.

[28] We limited our review to federal cases involving pollution crime because those are the primary focus of EPA's criminal enforcement program. EPA special agents also provide investigative support for state criminal cases, but only in a subset of all state cases. Likewise, EPA sometimes works on cases involving wildlife crime, but most of those matters are investigated by the U.S. Fish and Wildlife Service. *See infra* Part II.

[29] Our database includes 664 cases as determined by district court case numbers, which may include multiple defendants charged together. EPA codes for related cases, since not all related defendants are charged together; that approach lowers the number to 506.

[30] EPA maintains a website of criminal cases handled by the Agency. *Summary of Criminal Prosecutions*, EPA, http://perma.law.harvard.edu/0N7SKfbn4rj/. The EPA website is a valuable resource but does not include case documents or the quantitative and qualitative analysis that we conducted in developing the Environmental Crimes Project.

focus on violations that include one or more of the aggravating factors I have identified. Second, violations that do not include one of those aggravating factors are not likely to be prosecuted criminally. I cannot say whether these aggravating factors will trigger criminal prosecution; declined cases are not public, so we do not have a control group of cases where prosecutors decided not to pursue criminal charges. Nor could we create a comparison group of civil matters, because civil cases involve notice pleading and most are resolved by consent decrees that do not identify whether there were aggravating factors. Indeed, I would expect that civil and administrative cases also involve at least significant harm and repetitive violations (deceptive or misleading conduct, in my experience, is likely to result in a referral for criminal enforcement). Nonetheless, my finding that criminal enforcement is reserved for cases involving at least one of the aggravating factors I have identified should provide greater clarity about the role of environmental criminal enforcement and reduce uncertainty in the regulated community about which environmental violations might lead to criminal charges.

Part I of this Article discusses in greater detail the issues that prompted the creation of the Environmental Crimes Project, namely the breadth of the statutory definition of environmental crime, the resulting vagaries of the criminal enforcement program, and our limited empirical understanding of prosecutorial discretion. Part II outlines the methodology that we used to create the Project, describes the types of information accumulated in the database, and explains how we analyzed the exercise of prosecutorial discretion. Part III presents quantitative data about the statutes charged and violations involved in environmental prosecutions. Part IV focuses on the presence or absence of the individual aggravating factors in each case. Part V analyzes how often multiple aggravating factors are present, explores the relationship between the statutes charged and the aggravating factors, and assesses defendants with no aggravating factors. Part VI concludes that criminal enforcement has been reserved for violations with the aggravating factors I have identified and, while noting areas for caution, suggests that prosecutors have exercised their discretion in ways that should ameliorate concerns about over-criminalization.

I. The Role of Criminal Enforcement in the Environmental Regulatory Scheme

When should violations of the environmental laws expose perpetrators to criminal sanctions, including possible jail time for individual defendants? It is easy to answer this question by providing specific examples, such as midnight dumping, bypassing pollution controls, tampering with monitoring equipment, and lying on reports to the government in order to conceal illegal pollution. Yet, because of the broad statutory definition of environmental crime and uncertainty about how prosecutorial discretion is exercised under the environmental laws, a clear understanding of the role of environmental criminal enforcement

has eluded scholars and practitioners since the enactment and amendment of our environmental laws during the 1970s and 1980s.

This Part begins with an explanation of why such a seemingly straightforward question would persist for three decades of criminal enforcement under the environmental laws. I then address how uncertainty about the role of criminal enforcement has affected the evolution of the environmental crimes program and identify distinctive qualities of environmental criminal enforcement that may be attributable, at least in part, to ambiguity about when criminal enforcement is appropriate. I also review prior empirical efforts analyzing environmental crime and the extent to which those scholarly efforts have helped create greater understanding of the field while leaving fundamental existential questions unanswered.

A. The Expansive Definition of Environmental Crime

Environmental crimes are no different than other crimes. They require proof that the defendant committed a prohibited act (the actus reus, or act requirement) and did so with the requisite intent (the mens rea, or mental state requirement).[31] Congress therefore has two ways to define criminal conduct under the environmental laws, just as it does for other areas of the law. First, Congress can specify the acts or types of violations that are egregious enough to warrant the moral and social opprobrium of criminal prosecution. Second, Congress can specify the mental state or level of intent that a defendant must possess to be held criminally responsible.

With regard to the act requirement, Congress identified some of the conduct that it viewed as criminal when it included criminal provisions in each of the major environmental laws. For example, Congress included language in the CWA, RCRA, and the CAA making it a crime to knowingly make false statements in documents required under the relevant law and any implementing regulations.[32] Congress included similar language that prohibited tampering with or rendering inaccurate required monitoring methods under the environmental laws.[33]

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[31] *See, e.g.*, JOHN KAPLAN ET AL., CRIMINAL LAW: CASES AND MATERIALS 103 (6th ed. 2008).

[32] 33 U.S.C. § 1319(c)(4) (2012) ("knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained [under the CWA]. . . ."); 42 U.S.C. § 6928(d)(3) (2012) ("knowingly omits material information or makes any false material statement or representation in any application, label, manifest, record, report, permit, or other document filed, maintained, or used for purposes of compliance [with RCRA]. . . ."); 42 U.S.C. § 7413(c)(2)(A) (2012) ("knowingly makes any false material statement, representation, or certification in, or omits material information from, or knowingly alters, conceals, or fails to file or maintain any notice, application, record, report, plan, or other document required [by the CWA] . . . .").

[33] 33 U.S.C. § 1319(c)(4) ("knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under [the CWA]. . . ."); 42 U.S.C. § 7413(c)(2)(C) ("knowingly . . . falsifies, tampers with, renders inaccurate, or fails to install any monitoring device or method required to be maintained or followed under [the CAA]. . . .").

Congress also made clear that failure to obtain permits for the disposal of hazardous waste, the discharge of pollutants into waters of the United States, and the construction of new stationary sources of air pollution could give rise to criminal liability, as could violations of permits issued pursuant to the environmental laws.[34] Congress provided enhanced penalties for environmental violations that placed others in imminent danger of death or serious bodily injury.[35] In each of these ways, Congress took meaningful steps to define which violations of the environmental laws are criminal.

In other ways, however, Congress did not distinguish criminal violations of the environmental laws from violations warranting only civil or administrative enforcement.[36] Congress allowed all permit violations to satisfy the act requirement for criminal prosecution.[37] As a result, Congress criminalized both substantive permit violations, such as discharging in excess of permit limits, and more technical permit infractions, such as failing to maintain documents for a specified period of time. Congress used similarly expansive language in the criminal provisions that apply to notification, recordkeeping, and filing requirements.[38] In the process, Congress made it possible for nearly any violation of the environmental laws to satisfy the act requirement, regardless of the seriousness of the violation.[39]

Perhaps Congress acted wisely when it broadly defined the environmental violations that could be criminal. After all, it is difficult for Congress to anticipate the myriad ways that violations might occur in complex regulatory schemes.[40] It may be better to provide broad enforcement tools to address violations and to rely upon the government to exercise its enforcement authorities in a reasonable way.[41] If the government abuses its discretion in a particular case, the judge may use her authority to limit the evidence or direct a verdict for the defendant; if overreaching occurs on a more systemic basis, Congress could restrict the government's discretion.

On the other hand, many environmental violations, at least at their inception, were *malum prohibitum* (a prohibited wrong) as opposed to *malum in se* (inherently wrongful).[42] Of course, Congress is not required to limit criminal

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[34] 42 U.S.C. §§ 6928(d)(1)–(2), (7) (disposal of hazardous waste); 33 U.S.C. §§ 1319(c)(1)–(2) (discharge of pollutants into waters of the United States); 42 U.S.C. §§ 7413(c)(1), (5) (preconstruction permits).

[35] 42 U.S.C. § 6928(e); 42 U.S.C. § 7413(c)(5); 33 U.S.C. § 1319(c)(3).

[36] Uhlmann, *supra* note 9, at 1242.

[37] *E.g.*, 33 U.S.C. §§ 1319(c)(1)–(2) (criminalizing the negligent or knowing violation of "any permit condition or limitation" under the CWA).

[38] *E.g.*, 42 U.S.C. § 6928(d)(3) (criminalizing knowing omissions of "material information" and the making of "any false material statement or representation in any application, label, manifest, record, report, permit, or other document filed, maintained, or used for purposes of compliance with regulations promulgated by the Administrator [pursuant to RCRA]").

[39] Uhlmann, *supra* note 9, at 1225; *see also* Richard J. Lazarus, *Meeting the Demand of Integration in the Evolution of Environmental Law: Reforming Environmental Criminal Law*, 83 GEO. L.J. 2407, 2453–55 (1995) (arguing that Congress failed to specify a state of mind that reflects heightened levels of culpability for environmental crime).

[40] Uhlmann, *supra* note 9, at 1233.

[41] Brickey, *supra* note 16, at 129–30; Uhlmann, *supra* note 9, at 1244.

[42] Uhlmann, *supra* note 9, at 1230.

provisions to *malum in se* conduct. Nonetheless, Congress might have mitigated concerns about over-criminalization under the environmental laws[43] if it had limited criminal prosecution to violations that already were or soon would become *malum in se*. Indeed, as noted above, Congress took exactly that approach when it focused on harmful pollution and deceptive conduct. But in many areas of the environmental enforcement regime, Congress abandoned a more rigorous definitional effort in favor of catch-all language that imposes few limits on the act requirement. As a result, the act requirement does little to limit the role of criminal enforcement under the environmental laws.

The mental state requirement goes further than the act requirement in distinguishing criminal from civil and administrative violations, at least as a matter of statutory construction. For most felony violations of the CWA, the CAA, and RCRA, the government must show that the defendant acted knowingly.[44] Criminal violations of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") also are limited to situations where the defendant acted knowingly.[45] Similarly, the misdemeanor provisions of the CWA apply only when the defendant acted negligently.[46] In contrast, civil and administrative violations of the environmental laws do not require the government to prove a culpable mental state; they are strict liability violations, so the government must prove only that the defendant committed the prohibited act.[47]

Mental state often is a significant issue during criminal trials because of the difficulty of proving what a defendant knew. Nonetheless, mental state requirements may not distinguish criminal, civil, and administrative violations as much as the additional proof requirements suggest.[48] Numerous appellate court decisions have construed "knowingly" under the environmental laws to require knowledge of the facts that make the charged conduct unlawful but not knowledge that the conduct was illegal.[49] Those decisions have drawn support from the Supreme Court's admonition in *United States v. International Minerals and Chemical Corp.* that "ignorance of the law is no defense" and "where obnoxious waste materials are involved, the probability of regulation is so great that anyone who is aware that he is in possession of them or dealing with them must be presumed to be aware of the regulation."[50] Moreover, the mental state requirements for environmental crimes mirror the knowledge requirements for most federal crimes.[51] As the Supreme Court explained in *Bryan v. United*

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[43] *See id.* at 1229 (citing Erik Luna, *The Overcriminalization Phenomenon*, 54 Am. U. L. Rev. 703, 709 (2005)).
[44] 33 U.S.C. § 1319(c); 42 U.S.C. § 6928(d) (2012); 42 U.S.C. § 7413(c) (2012).
[45] 42 U.S.C. § 9603(b) (2012).
[46] 33 U.S.C. § 1319(c).
[47] *See* 33 U.S.C. § 1319(b); 42 U.S.C. § 6928(c); 42 U.S.C. § 7413(b).
[48] *Compare* Susan F. Mandiberg, *What Does an Environmental Criminal Know?,* 23 Nat. Resources & Env't 24 (2009), *with* J.T. Morgan, *The Mythical Erosion of Mens Rea*, 23 Nat. Resources & Env't 29 (2009).
[49] *See, e.g.*, United States v. Hopkins, 53 F.3d. 533, 537–40 (2d Cir. 1995) (CWA); United States v. Buckley, 934 F.2d 84, 88 (6th Cir. 1991) (CAA); United States v. Laughlin, 10 F.3d 961, 965, 967 (2d. Cir. 1993) (RCRA).
[50] United States v. Int'l Minerals & Chem. Corp., 402 U.S. 558, 565 (1971).
[51] Uhlmann, *supra* note 9, at 1235.

States, "unless the language of the statute dictates a different result, the term 'knowingly' merely requires proof of knowledge of the facts that constitute the offense."[52]

As a result, the government must prove the defendant's knowledge of the discharges in a CWA case, but is not required to show that the defendant knew that the CWA requires permits for discharges.[53] In a RCRA disposal case, the government must prove that the defendant intentionally disposed of waste and knew the waste had the substantial potential to be harmful to human health or the environment, but it would not need to show that the defendant knew the waste was hazardous under RCRA or that a permit was required for its disposal.[54] In a CAA case, the government must show that the defendant knew the nature of the pollutant in question (i.e., the fact that it is asbestos), but it does not need to show that the defendant knew the pollutant was regulated under the Act or the scope or requirements of those regulations.[55]

Since most pollution involves intentional conduct, however, mental state requirements may not differentiate criminal enforcement from civil and administrative enforcement, other than foreclosing felony prosecution in cases of accidental pollution. Civil enforcement cases are not in our dataset,[56] but civil matters often involve conduct that would satisfy the "knowingly" requirement under the environmental laws. For example, a facility that does not have pollution controls required under the CAA almost certainly is acting knowingly in the sense that management knows that the facility does not have a "scrubber" or whatever pollution control device is required. Yet, the government typically seeks civil or administrative remedies in CAA cases involving the lack of pollution controls, particularly if the facilities involved are otherwise complying with the Act, because of uncertainty about the application of the underlying regulatory requirements.[57]

Of course, there are environmental violations that clearly occur unintentionally and would be beyond the reach of the criminal provisions of the environmental laws, at least for statutes that only allow prosecution for knowing conduct. For example, a facility that has a CWA permit would not commit a knowing violation of its permit if it experienced a mechanical failure or some other unforeseen circumstance that causes a permit exceedance. Such violations would likely be subject only to civil or administrative enforcement, unless the

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[52] Bryan v. United States, 524 U.S. 184, 193 (1998) (footnote omitted). The Court thus distinguished a "knowing" act from a "willful" act, holding that a willful violation required the government to "prove that the defendant acted with knowledge that his conduct was unlawful." *Id.* at 192 (citing Ratzlaf v. United States, 510 U.S. 135, 137 (1994)).

[53] *See, e.g.*, *Hopkins*, 53 F.3d at 541.

[54] *See, e.g.*, United States v. Self, 2 F.3d 1071, 1089–92 (10th Cir. 1993).

[55] *See, e.g.*, United States v. Buckley, 934 F.2d 84, 88 (6th Cir. 1991).

[56] As noted in the introductory section of this Article, *supra*, we do not have comparable information about civil enforcement, since those cases involve notice pleading and typically are resolved by consent decree, neither of which reveals the presence or absence of aggravating factors.

[57] *See, e.g.*, United States v. Duke Energy Corp., 278 F. Supp. 2d 619, 626, 630–32 (M.D.N.C. 2003) (government pursues civil enforcement action due in part to the lack of clarity of the CAA's New Source Review standards), *aff'd on other grounds*, 411 F.3d 539 (4th Cir. 2005), *vacated sub nom.* Envtl. Def. v. Duke Energy Corp., 549 U.S. 561 (2007).

company involved did not promptly and accurately report the resulting permit violations to EPA or the State.

But even where accidental pollution is involved, criminal prosecution still might be possible for CWA and CAA violations. Those statutes authorize prosecution for negligent discharges (CWA)[58] and negligent endangerment (CAA).[59] In addition, misdemeanor prosecutions under the Refuse Act[60] and the Migratory Bird Treaty Act[61] are strict-liability offenses that do not require proof of mental state.[62] Criminal violations of those statutes require the same proof as civil or administrative claims.

In sum, mental state requirements impose an additional burden of proof on criminal prosecutors that their civil counterparts are not required to meet. In addition, since mental state often is difficult to prove and must be shown circumstantially,[63] the additional burden may be significant in some cases (particularly since prosecutors must prove each element beyond a reasonable doubt rather than by a preponderance of the evidence). But it would be wrong to conclude that criminal cases are distinguished from civil cases by the presence or absence of knowing conduct. Polluters often act knowingly, so investigative and prosecutorial discretion frequently determines whether their knowing conduct will result in criminal, civil, or administrative enforcement, not limits imposed by Congress.

B. The Challenges of Murky Distinctions Between Criminal, Civil, and Administrative Violations

How prosecutors should exercise their discretion for environmental crime is not simply a theoretical question. In the first decade of the environmental crimes program, disagreement over which environmental violations should be prosecuted criminally produced dysfunctional relationships between the United States Attorneys' Offices, the Environmental Crimes Section, and EPA's Criminal Investigations Division.[64] The conflict focused on a relatively small subset of criminal enforcement cases where the political leadership of the Environment and Natural Resources Division (and at least some career attorneys in the Environmental Crimes Section) disagreed with United States Attorneys' Offices over whether particular cases were appropriate for criminal prosecution.[65] Three

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[58] *See* 33 U.S.C. § 1319(c)(1)(B) (2012).
[59] 42 U.S.C. § 7413(c)(4) (2012).
[60] 33 U.S.C. § 407 (2012).
[61] 16 U.S.C. § 703 (2012).
[62] *See* United States v. Apollo Energies Inc., 611 F.3d 679, 684–86 (10th Cir. 2010) (finding no mental state requirement for prosecution under the Migratory Bird Treaty Act); United States v. White Fuel Corp., 498 F.3d 619, 622 (1st Cir. 1974) (finding no mental state requirement for prosecution under the Refuse Act).
[63] *See* United States v. Williams, 195 F.3d 823, 826 (6th Cir. 1999).
[64] *See* William T. Hassler, *Congressional Oversight of Federal Environmental Prosecutions: The Trashing of Environmental Crimes*, 24 ENVTL. L. REP. 10074 (1994); Lazarus, *supra* note 7, at 868–75; Starr, *supra* note 15, at 902–12.
[65] Six cases became the fulcrum of the conflict, although there were broader systemic issues within the Justice Department as well. *See* WILLIAM J. CORCORAN ET AL., U.S. DEP'T OF JUSTICE,

Congressional investigations and at least two internal Justice Department reviews addressed whether there had been political interference with several high-profile environmental prosecutions.[66] To some degree, the environmental enforcement controversies of the 1990s were manifestations of a perennial power struggle within the Justice Department over who has the final say over charging decisions.[67] Such "turf battles" can be acute in regulatory enforcement and areas of new law where there is a perceived need for uniformity in how prosecutors exercise their discretion to charge cases criminally. In these contexts, there are often disputes among prosecutors and law enforcement personnel about whether particular cases are appropriate for criminal enforcement.

Disagreements may have been more contentious in the environmental crimes context, however, because the environmental laws do not make meaningful distinctions among criminal, civil, and administrative violations. It is not surprising that there would be strong dissenting views about whether particular cases warrant criminal prosecution in a law enforcement program where the role of criminal enforcement is ambiguous. Reasonable people may differ about the proper exercise of discretion in individual cases. But, in the early years of the environmental crimes program, those disputes were explosive because of broader uncertainty about when environmental violations should result in criminal enforcement.

The Justice Department and EPA have moved beyond the internal challenges that marred the first decade of the environmental crimes program. By 1994, United States Attorneys' Offices were no longer required to seek approval from officials in Washington before bringing criminal charges in environmental cases.[68] The removal of approval requirements facilitated a more collaborative working relationship between prosecutors in the Environmental Crimes Section and Assistant United States Attorneys. Over time, prosecutors and investigators developed a better sense of which cases warranted criminal enforcement.[69] With more experience working together, prosecutors and investigators also established the kind of trust that allows disagreements over individual cases without triggering the seismic battles that shook the criminal enforcement program in the 1990s. Even during the administration of George

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INTERNAL REVIEW OF THE DEPARTMENT OF JUSTICE ENVIRONMENTAL CRIMES PROGRAM (1994) [hereinafter JUSTICE INTERNAL REVIEW] (on file with author).

[66] *See Environmental Crimes Act of 1992, Hearing Before the Subcomm. on Crime and Criminal Justice of the H. Comm. on the Judiciary*, 102d Cong., 2d Sess. 126–30 (1993); *EPA's Criminal Enforcement Program, Hearing Before the Subcomm. On Oversight and Investigations of the H. Comm. On Energy and Commerce,* 102d Cong., 2d Sess. 2 (1992); *Environmental Crimes at the Rocky Flats Nuclear Weapons Facility, Hearings before the Subcomm. On Investigations and Oversight, of the H. Comm. On Science, Space, and Technology*, 102nd Cong., 2d Sess. Vols. 1-11 (1992); JUSTICE INTERNAL REVIEW, *supra* note 65; Memorandum from Mark H. Dubester, Acting Chief, Pub. Corruption and Gov't Fraud Section of the U.S. Attorney's Office of D.C., and Steven Bunnell, Assistant U.S. Attorney, U.S. Attorney's Office for D.C., to Webster L. Hubbell, Assoc. Attorney Gen. (Apr. 8, 1994) (on file with author).

[67] Starr, *supra* note 15, at 914 n.81 (noting the historical tension between Main Justice and the 93 U.S. Attorneys' Offices).

[68] *See* USAM, *supra* note 24, at § 5-11.00 (updated in 2008).

[69] Memorandum from Earl Devaney, *supra* note 23, at 4–5.

W. Bush, when many environmental efforts faltered, the environmental crimes program received strong support from senior Administration officials.[70]

Yet the environmental crimes program continues to wrestle with major issues that owe at least some of their roots to the lack of clarity about when environmental violations should be prosecuted criminally. Concerns about randomness persist in the environmental enforcement context. Practitioners continue to complain that criminal prosecution depends less upon the law and facts of the case and more on whether the violations are first brought to the attention of a civil regulator or a criminal investigator.[71] A related concern is that cases might begin as civil matters but could be later referred for criminal enforcement because the company involved has a contentious relationship with EPA or state regulatory personnel. Neither the fortuity of where a case begins nor the temperament of regulatory personnel should be determining factors in whether a case is prosecuted criminally. Yet in a regulatory system where the same acts can give rise to criminal, civil, or administrative enforcement, such considerations might make a difference.

In an effort to promote greater uniformity in how it exercises its investigative discretion, EPA has developed case screening protocols for each of its regions.[72] The case screening protocols address what types of information civil enforcement personnel are expected to share with criminal investigators. In theory, the case screening process should promote consistency in how investigative resources are utilized and in deciding which matters might be brought to the Justice Department for possible prosecution. At a minimum, the process should ensure that whether criminal or civil enforcement is pursued is not determined based on which office originates the investigation.

In practice, the effectiveness of case screening protocols depends upon how rigorously they are implemented in the different EPA regions. It is theoretically possible for ten EPA regions to take similar approaches to case screening. In reality, there is little similarity from region to region in much of what EPA (or any other federal regulatory agency) does. Some of those differences may reflect disparate regional priorities and demographic or geographic variations. But at least some may be attributable to different attitudes about the role of enforcement generally and criminal enforcement in particular. Moreover, criminal cases often originate in environmental crimes task forces and involve prosecutors from the earliest stages of the investigation.[73] If a task force has launched a particular investigation or if a prosecutor already is involved, it is unlikely that EPA case screening protocols will have much influence on whether criminal charges are pursued.

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[70] David M. Uhlmann, *Strange Bedfellows*, ENVTL. FORUM, May–June 2008, at 40, 40–44 (suggesting that criminal prosecution thrived because Administration officials wanted to appear tough on crime and to ensure a level playing field for companies that complied with the environmental laws — and perhaps to ensure at least some positive press about the Administration's environmental protection efforts).

[71] Starr, *supra* note 15, 913–14; Uhlmann, *supra* note 9, at 1242–43.

[72] Uhlmann, *supra* note 9, at 1243 n.102.

[73] *Criminal Environmental Crime Task Force Partners*, EPA, http://perma.law.harvard.edu/09w8Ufnyuwd/.

Another persistent concern about criminal enforcement under the environmental laws is that it focuses on particular sectors at the expense of a broader, comprehensive approach to environmental crime. The best example historically may be asbestos cases. Asbestos was widely used in the United States as building insulation and for its fire retardant qualities until it was discovered to be carcinogenic.[74] Asbestos is now a hazardous air pollutant under the CAA.[75] The Act imposes numerous regulatory requirements on building demolition and asbestos remediation to protect workers and the public from exposure.[76] Because safe asbestos removal is costly, many asbestos removal jobs are done illegally. These "rip and run" remediation projects have been the primary focus of criminal enforcement efforts under the CAA, yet are rarely the subject of civil enforcement. The question raised by the emphasis on asbestos cases is whether EPA should focus its limited enforcement resources on more toxic pollution from large stationary sources such as factories, refineries, and power plants, which may have more far-reaching health effects.

This critique of case selection leads to another complaint about environmental criminal enforcement: namely, that it reaches conduct that should not be prosecuted at all. Some of these arguments are merely theoretical, such as the oft-repeated rhetorical claim that throwing an apple core into the Potomac River would be a criminal violation of the CWA. Others involve controversial areas of enforcement such as wetlands violations.[77] Still others involve laments that criminal enforcement targets law-abiding small business people who become ensnared in a regulatory maze despite their best compliance efforts.[78] To assess these over-criminalization claims and related questions about how prosecutors exercise their broad discretion under the environmental laws, we need a better empirical understanding of environmental criminal cases.

Of course, it is not possible to address all of the concerns that have been raised about criminal enforcement in one article. I nonetheless mention these issues here because they are the kind of shortcomings and possible misperceptions that are possible when the role of criminal prosecution is ill-defined. Moreover, I would suggest that misperceptions persist because there has not been comprehensive empirical research about when charges are brought for environmental crime and the aggravating factors that are present in those cases.

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[74] *Asbestos*, American Cancer Society, http://perma.law.harvard.edu/0joEiXFnXwg/.
[75] 42 U.S.C. § 7412(b)(1) (2012).
[76] *Id.* § 7412(h).
[77] Rand Paul, *EPA Regulations Violate Constitutional Rights: Out-of-Control Agency Turns Everyday Life Into A Federal Crime,* Wash. Times (Aug. 31, 2011), http://perma.law.harvard.edu/0LEJpReYLyz (criticizing Clean Water prosecutions of John Poszgai and John Rapanos for illegally filling wetlands without a permit).
[78] Timothy Lynch, *Polluting Our Principles: Environmental Prosecutions and the Bill of Rights,* 15 Temp. Envtl. L. & Tech. J. 161, 168 (1996). The concern about over-criminalization persists and is not limited to environmental crime, as demonstrated by the creation of the House Judiciary Committee Bi-Partisan Task Force on Over-Criminalization. *See* Press Release, House Judiciary Comm., House Judiciary Committee Creates Bipartisan Task Force on Over-Criminalization (May 5, 2013), *available at* http://perma.cc/N5UC-FVBV ("Americans who make innocent mistakes should not be charged with criminal offenses.").

C. Prior Empirical Studies of Environmental Criminal Enforcement

Prior empirical studies have addressed the role of criminal enforcement in the environmental regulatory scheme. The study design that is most similar to my research is a 2001 study by Kathleen F. Brickey that focused on one statute, RCRA, to consider the exercise of prosecutorial discretion for environmental crimes and address claims that environmental prosecutors were abusing their discretion. Professor Brickey's study of RCRA hazardous waste cases prosecuted from 1983–1992 aimed to create "an empirical testing ground for speculative claims about special dangers inherent in criminal enforcement of environmental laws."[79]

Professor Brickey obtained data by analyzing an EPA database containing summaries of environmental criminal prosecutions. Professor Brickey focused on 140 RCRA criminal violations investigated by EPA that resulted in prosecution over a ten-year period.[80] Her project describes in detail the quantitative data surrounding each case, with thorough breakdowns of basic charging data, job titles, industries, information about the nature and quantity of the waste, and other characteristics.[81]

Based on her empirical analysis, Professor Brickey found that most RCRA violations involved multiple actors as co-defendants, inferring that multiparty violations are often "barometers of the nature and the scope of the underlying criminal activity."[82] She determined that most individual defendants have responsible positions in the organizational setting where the violation occurs and most are "knowledgeable economic actors who are in a position to prevent the violation from occurring."[83] She also analyzed the types of waste found, concluding that criminal charges frequently involved "flagrantly illegal" cases with "unmistakably hazardous" waste.[84]

Professor Brickey's analysis concluded that RCRA prosecutions targeted obviously illegal conduct: The "violations are often pervasive and almost always potentially harmful to human health and the environment."[85] Countering critics, Professor Brickey found that most hazardous waste prosecutions involved defendants engaged in highly regulated conduct without a permit: "[C]ontrary to the stereotyped example of isolated and unavoidable technical violations, most RCRA prosecutions are brought against businesses and business owners, officers and managers who operate outside the regulatory system and against those who are within the system but seek to undermine it by committing crimes of misrepresentation and concealment."[86] Professor Brickey also commended prosecutorial discretion: "In practice, prosecutors are highly selec-

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[79] Kathleen F. Brickey, *Charging Practices in Hazardous Waste Crime Prosecutions*, 62 Ohio St. L.J. 1077, 1079 (2001).
[80] *Id.* at 1077, 1095, 1097.
[81] *Id.* at 1097–98.
[82] *Id.* at 1084.
[83] *Id.* at 1085.
[84] *Id.*
[85] *Id.* at 1133–34.
[86] *Id.* at 1085.

tive in deciding what cases to pursue. They assign priority to prosecuting rogue operators who make no pretense of complying with regulatory requirements and to prosecuting permit holders who lie to conceal their noncompliance. That should hardly be cause for alarm."[87]

Professor Brickey's research was limited in scope to RCRA violations, but as noted above her study targeted issues and questions that are similar to those addressed by the Environmental Crimes Project. Her study operated within similar limitations, including the lack of a control group of declined cases or a comparison group of civil enforcement actions. At the same time, Professor Brickey's study differs from my work both because I have looked at all pollution control laws, rather than a single statute, and because I have based my analysis on court documents, as opposed to an internal EPA database of case summaries written by investigators. In addition, while Professor Brickey asked whether facilities were operating outside the regulatory system and/or engaging in deceptive conduct, I have analyzed cases for a wider range of aggravating factors that may influence discretion. Nonetheless, her findings regarding RCRA cases are consistent with my findings more than a decade later.[88]

In 2003, Professor Jeremy Firestone compared the frequency of criminal, civil, and administrative enforcement to shed light on forum choice and how EPA uses its enforcement tools.[89] Professor Firestone compiled information about EPA enforcement cases from 1990–97. He then analyzed a random sample of 325 CAA, CWA, and RCRA enforcement actions out of 411 criminal, 785 civil, and 3,465 administrative cases initiated during that timeframe.[90] Information on each case was collected from complaints, indictments, and plea agreements. Professor Firestone used statistical modeling to analyze how forum choice was influenced by (1) political factors, (2) environmental damage, and (3) prior noncompliance.[91]

Professor Firestone observed that discretion is broad under the environmental laws, perhaps even more so than is commonly understood. He stated that policymakers "may not fully appreciate the interplay among administrative, civil judicial, and criminal sanctions — that is, venue choice."[92] He nonetheless expressed confidence in how EPA exercised its discretion over forum choice:

> Overall, the evidence presented here is encouraging. In its choice of enforcement venue under the CAA, CWA, and RCRA, EPA appears to be motivated by a desire to minimize environmental harm and maximize social welfare. Conversely, there is little evidence that EPA is motivated by a desire to maximize political benefits.[93]

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[87] *Id.* at 1134.
[88] *See* Part III(d), *infra*.
[89] Jeremy Firestone, *Enforcement of Pollution Laws and Regulations: An Analysis of Forum Choice,* 27 HARV. ENVTL. L. REV. 105 (2003).
[90] *Id.* at 106, 145.
[91] *Id.* at 106.
[92] *Id.* at 105.
[93] *Id.* at 158.

At the same time, Professor Firestone voiced concern about the fact that EPA seemed more likely to pursue criminal enforcement against small companies than against Fortune 500 companies.[94]

Professor Firestone provides a framework for analyzing forum choice in criminal, civil, and administrative cases. How EPA makes the threshold determination about whether to seek administrative, civil, or criminal remedies is an important part of understanding the role of criminal enforcement. But it still leaves unaddressed the question of what aggravating factors are present in criminal prosecutions.

The Environmental Crimes Project provides current and comprehensive statutory, geographic, and outcome data about environmental criminal enforcement. The Project also sheds light on prosecutorial discretion in environmental criminal enforcement by determining what aggravating factors are present in the cases that are charged. The empirical data should help promote a better understanding of the exercise of prosecutorial discretion for environmental crime.[95]

II. Research Design and Methodology of the Environmental Crimes Project

The Environmental Crimes Project is an ongoing faculty-student collaborative research project launched in Fall 2010 at the University of Michigan Law School. Student researchers have obtained and examined charging documents, plea agreements, and judgments for all defendants charged with criminal violations of the environmental laws in cases that were investigated by EPA. The goals of the Project are twofold. First, we have gathered quantitative data, including geographical information, defendant types, statutes charged, sizes of criminal penalties, and percentage of defendants receiving jail time. No other empirical study of environmental crime has sought to collect data from such a broad range of cases. The database will be publicly available for scholars and practitioners. Second, we have developed empirical data regarding the aggravating factors present in cases charged under the environmental laws in order to better understand how prosecutorial discretion is exercised for environmental crime.

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[94] *Id.* at 148, 158.

[95] In addition to the Brickey and Firestone articles, three other empirical studies have produced quantitative data regarding environmental criminal enforcement. *See* Mark A. Cohen, *Environmental Crime and Punishment: Legal/Economic Theory and Empirical Evidence on Enforcement of Federal Environmental Statutes*, 82 J. Crim. L. & Criminology 1054 (1992) (analyzing environmental criminal enforcement and sentencing to determine whether trends in enforcement reflect legal and economic theories of criminal enforcement); John Scalia, U.S. Dep't of Justice, Bureau of Justice Statistics, Federal Enforcement of Environmental Laws, 1997 (1999) (comprehensive data on all environmental enforcement actions during 1997, including criminal, civil, and administrative cases); Rena Steinzor & Aimee Simpson, Going Too Easy? Maryland's Criminal Enforcement of Water Pollution Laws Protecting the Chesapeake Bay, Center for Progressive Reform White Paper No. 1212 (2012) (examining state and federal enforcement actions regarding water pollution violations in the Chesapeake Bay).

Since 2010, 120 Michigan Law students have participated in the Project,[96] obtaining and reviewing court documents for nearly 900 defendants. The Project has thus far focused on all defendants prosecuted under federal environmental statutes who were criminally charged from January 1, 2005 through December 31, 2010. This time range ensured that we would be able to obtain court documents from the electronic records system maintained by the Administrative Office of the United States Courts[97] and provided a manageable but representative number of cases and defendants. The data collected from these case documents have been aggregated and organized in a searchable database that will facilitate research and analysis of environmental criminal enforcement. We intend to update this database regularly to include new cases, beginning with all cases charged in 2011–2012.

EPA supplied the initial case documents for our analysis. These included indictments, informations, plea agreements, judgments, docket reports, and EPA and Justice Department press releases. For each case, we analyzed at minimum an initial charging document and final judgment; we examined other court documents if they were available. When necessary, researchers retrieved missing documents through the electronic filing system for the federal courts and by contacting individual courts and United States Attorneys' Offices.

From this large sample, we excluded several groups of cases. First, to keep the sample size manageable, we excluded cases that were charged outside of the period between 2005 and 2010. Second, we omitted state cases brought by state prosecutors, since most criminal cases are prosecuted in federal court, and EPA works on only a small percentage of the cases that are prosecuted in state court (the majority of which are investigated by state law enforcement personnel). Third, we focused on pollution crime and did not include cases involving only wildlife crime (the majority of which are investigated by the United States Fish and Wildlife Service), although cases that involve both pollution violations and wildlife crime were included in the study. For example, cases that were prosecuted under only the Migratory Bird Treaty Act were omitted, but cases involving both CWA charges and Migratory Bird Treaty Act charges were included. Finally, we excluded cases that, although investigated by EPA, did not have any connection to environmental protection,[98] as well as those for which researchers could not find court documents.

Researchers collected four categories of data for each defendant. First, researchers recorded basic case information, including case name, defendant name, city and state of violation, docket number, EPA region, federal judicial

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[96] *See* Appendix A, *infra*, for a list of the student participants.

[97] *Public Access to Court Electronic Records*, PACER, http://perma.law.harvard.edu/051cVaWwmwo.

[98] As discussed in Part III, *infra*, the statute charged most frequently in environmental cases is Title 18 of the United States Code. We included these cases but ensured that there was an environmental nexus, either based on the statute charged (i.e., one of the statutes that EPA is responsible for administering) or because the conduct involved raised environmental protection or public health concerns.

district, judge name, charging date, and statutes charged. These data will facilitate research regarding enforcement levels and any changes that occur from year to year, examination of any geographical disparities in the prosecution of environmental crime, and charging trends in terms of the statutes used most frequently.

Second, researchers recorded basic information about the specific defendant. The Project categorized each defendant as either an individual or corporation. For individual defendants, researchers noted the type of defendant: corporate officer, sole proprietor, manager, low-level employee, independent contractor, or environmental compliance person. For corporate defendants, researchers noted the defendant industry and whether the business was public or privately held.[99] These data will assist research about the types of defendants who are prosecuted for environmental crimes and the extent to which prosecutors pursue corporations or individuals.

Third, researchers recorded outcome information for each defendant. Researchers indicated the outcome of each charged violation — guilty plea, guilty verdict, acquittal, dismissal, or mistrial — and recorded the final judgment date. If the defendant ultimately pled guilty or was convicted, researchers recorded information about the outcome, including whether it was a felony or misdemeanor conviction; the length of jail and probation periods; the existence of cooperation agreements; the amounts of fines, restitution, remedial, and community service payments; and court-ordered environmental compliance plans. These data will facilitate consideration of conviction rates and the sentences imposed for environmental crime.

Fourth, researchers reviewed the court documents for each defendant to determine the presence of four aggravating factors: significant environmental harm or public health effects, deceptive or misleading conduct, operating outside the regulatory system, and repetitive violations. These are the aggravating factors that I have suggested should be considered by the government when exercising prosecutorial discretion.[100]

The first factor, significant environmental harm or public health effects, assumes actual harm. Researchers looked for evidence of actual harm to the environment or public health, not merely hypothetical harm or risk of harm, both of which are present in most (if not all) environmental cases.[101] Researchers looked for a variety of characteristics that are included in United States

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[99] We also attempted to gather publicly available information related to the size and financials of corporate defendants. Data availability, however, proved to be inconsistent. Most of the corporate defendants were privately held businesses with no public information available. Even where information was available, it was difficult to verify and often contradictory. We hope to expand on these data in the future, but for now corporate defendant data remain incomplete.

[100] Uhlmann, *supra* note 9, at 1245–52.

[101] Our focus on actual environmental harm or public health effects is a narrower inquiry than my prior writing suggested. In my earlier paper, I also considered risk of harm relevant. *Id.* at 1246. We revised this factor because nearly *all* environmental violations involve at least a risk of harm (otherwise, the act would not be prohibited). We therefore only coded for this factor where there was evidence of actual harm or charges of knowing or negligent endangerment.

Sentencing Commission guidelines for environmental crime,[102] including serious bodily injuries or deaths,[103] cleanup involving substantial expense (greater than $100,000),[104] and evacuation or urgent emergency response.[105] Each of these factors leads to enhanced sentences under the Sentencing Guidelines and therefore is a reasonable proxy for the harm determination. Researchers also coded for environmental harm when there was evidence of animal mortality or other indicia of ecological harm. There was one exception to the general exclusion of hypothetical harm: Researchers coded for this first factor where the defendant was charged with knowing or negligent endangerment under the environmental laws. The fact that the prosecutor brought an endangerment charge suggests that the defendant's willingness to place others in imminent danger of death or serious bodily injury played a role in the government's decision to bring criminal charges.

The second factor, deceptive or misleading conduct, covers evidence of dishonest behavior. Deceptive or misleading conduct can occur in the commission of an offense, or after the offense has already been committed in order to conceal violations or mislead authorities. Researchers looked for three sub-characteristics: commission (situations where the substantive offense involved deceptive conduct); false reporting or recordkeeping (such as falsification of discharge monitoring reports); and cover-up (efforts to hide information about wrongdoing either in contemplation of an investigation or when an investigation is ongoing).

The third factor, operating outside the regulatory system, focuses on companies and individuals that completely and deliberately avoid regulatory compliance, thereby gaining an unfair competitive advantage and undermining the effectiveness of the regulatory system. This factor does not include defendants that comply with most, but not all, environmental regulations. Researchers looked for evidence of several sub-characteristics, including failure to acquire or renew permits, failure to keep or maintain records, failure to monitor, and failure to report. Unlike the other prosecutorial discretion factors, researchers recorded evidence of any of these sub-characteristics even if they ultimately determined that the defendant was not operating outside the environmental regulatory system. Evidence that a defendant failed to monitor emissions or maintain records in some instances, for example, remain valuable data points. But the overall factor is aimed at those defendants who make no effort to comply with environmental protection requirements.

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[102] *See* U.S.S.G. §§ 2Q1.1–2Q1.6 (2012).
[103] U.S.S.G. §§ 2Q1.2(b)(2), 2Q1.3(b)(3) (substantial likelihood of death or serious bodily injury).
[104] U.S.S.G. §§ 2Q1.2(b)(3), 2Q1.3(b)(3) (substantial cost of cleanup); United States v. Bogas, 920 F. 2d 363, 369 (6th Cir. 1990) (defining substantial cost of cleanup as cleanups exceeding $100,000).
[105] U.S.S.G. §§ 2Q1.2(b)(3), 2Q1.3(b)(3) (evacuation or emergency response).

The fourth factor, repetitive violations, focuses on the duration of noncompliance.[106] Environmental violations can involve isolated events, but they are often a part of a longer pattern of violations. To code for repetitive violations, researchers calculated the duration of charged conduct contained in all substantive counts of the indictment. Substantive counts were defined as all charges brought under the environmental laws or Title 18, but exclusive of conspiracy. Researchers also recorded the duration of all violations alleged in the indictment that involved the same type of violations as the charged conduct. Where the duration for either of these two figures exceeded one day, the conduct was coded as repetitive. For cases where conspiracy was the only charge, the duration determinations were based on the substantive conduct that was the object of the conspiracy. Where conspiracy charges were combined with substantive charges, the basis for determining duration was the substantive charges.[107]

In addition to the four hypothesized factors, researchers also indicated the presence of any additional aggravating factors. This measure acknowledges the inherent judgment calls involved in any decision to prosecute criminal violations under the environmental statutes. If researchers found that an additional factor, such as risk of danger to children, seemed to be a driving force in the decision to press charges, they were directed to record the additional factor and its relevance.

In multi-defendant cases, researchers coded the same aggravating factors consistently for all defendants. This strategy is consistent with the Project's conception of prosecutorial discretion, as one defendant's actions can affect the prosecutor's decision to bring criminal charges against all defendants connected with the case. However, researchers made an exception for cases where a single or small number of defendants in a multi-defendant case engaged in conduct that appeared to be truly separate from the criminal activity driving the prose-

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[106] In contrast with significant environmental harm, where we used a narrower definition than what I described previously, *see supra* note 101, for repetitive violations, we used a broader definition. I had intended to limit the fourth factor to facilities that had not responded to civil or administrative enforcement but it often was unclear from the charging documents whether facilities had been the subject of prior enforcement efforts. In addition, repetitiveness is an aggravating factor regardless of whether there are previous enforcement efforts. Prosecutors are likely to view as more culpable conduct that occurs repeatedly, or single events that transpire over a period of days, weeks, months, or years. In Part IV(D), *infra*, I provide a breakdown of our data using these different categories of violation duration.

[107] To illustrate, an indictment charging nine knowing discharge counts under the CWA on nine consecutive days would be coded as repetitive, with nine days recorded for both the substantive count duration and all-violation duration. The same indictment with a conspiracy alleging a year of knowing violations to the NPDES permit prior to the nine charged discharges would yield the same substantive count duration; the additional twelve months would be added only to the duration calculation for all violations alleged that involved the same kind of conduct (summing to twelve months plus nine days). The same would be true absent a conspiracy charge, where the original indictment referred to twelve prior months of knowing discharges but actually charged only the nine consecutive days. For an indictment with a single, yearlong conspiracy charge to violate the CWA with overt acts spanning six months, we would record six months in both the substantive duration and all-violation duration categories.

cution. The most common example of this type of conduct is perjury that occurs after initial criminal charges have already been filed. In this case, a researcher would note "deceptive conduct" for only the defendant who committed perjury, and not for related defendants.

The Project's data collection and review processes were rigorous. I worked with the Project supervisors to develop a guide that explained how to collect quantitative data and how to code for the aggravating factors. The supervisors trained the student researchers in a series of small sessions. In collecting data, the Project required students to explain each of their qualitative, aggravating factor answers in a few brief sentences, with cites to the record. These explanations helped subsequent reviewers and supervisors ensure uniformity.

At least three students examined each defendant, entering data into an intranet content management system accessible to all researchers. Any qualitative disputes were resolved by the Project supervisors, with whom I met regularly to discuss issues that arose during the research. To ensure uniformity, the supervisors conducted two final reviews of each case, paying particular attention to each aggravating factor and the explanation given by the students.

As with any comprehensive undertaking, the Project faced limitations. First, as noted above, it is not clear whether it will be possible to develop a comparison group of civil cases. We will assess this possibility during Phase II of the Project. Second, while we made extensive efforts to analyze every case that was charged between 2005 and 2010, it was not possible to obtain information about every matter. EPA provided an initial set of court documents, and we obtained court documents for most remaining cases using the Public Access to Court Electronic Records ("PACER") system. Where documents were not available on PACER, we contacted the relevant clerk's office to obtain the document. In nearly every instance, we were able to acquire the necessary documents and conduct our analysis. In a small number of cases, however, no court documents (or not all required documents) were available; those cases were excluded.

Finally, prosecutorial discretion is by nature an inherently subjective process. The aggravating factors that I have identified admit to definitional challenges. What harm is significant harm? What deception qualifies as misleading conduct? When is noncompliance so extensive that a company should be viewed as operating outside the regulatory system? What qualifies as a repetitive violation? We developed criteria for answering these and other questions raised by the Project but our results are affected by those criteria and the choices they reflect. Nonetheless, our ability to provide rigorous analysis of a consistently applied set of factors provides empirical evidence of the aggravating factors present in environmental prosecutions.

III. Analysis of Statutes and Violations Most Frequently Charged as Environmental Crimes

The first step in developing a better understanding of how prosecutorial discretion has been exercised for environmental violations is to examine the statutes that are charged in environmental cases and the types of violations involved. Empirical data about what is charged, as opposed to characterizations based on individual "poster child" cases,[108] will enhance our knowledge about what conduct is prosecuted criminally. Such data also may help address questions about whether prosecutors are limiting criminal enforcement to the type of violations that are most deserving of prosecution.

It merits emphasis at the outset that criminal enforcement occurs less frequently than civil enforcement and far less frequently than administrative enforcement. In the six years covered by our study, there was an average of 144 defendants prosecuted in 111 cases each year.[109] In 2010, the last year covered by our study, the Justice Department filed 172 civil judicial enforcement cases on behalf of EPA, and EPA issued 1802 final administrative penalty orders.[110] Of course, the fact that the government pursues criminal charges less frequently does not resolve questions about how prosecutorial discretion is exercised. But the limited use of criminal enforcement provides relevant context: The government reserves criminal enforcement for a small subset of all violations of the environmental laws.

This Part will present empirical data regarding the statutes and conduct charged in environmental criminal prosecutions. As shown in Figure 1 below, the statutes that the government charged most frequently were Title 18 of the United States Code and the CWA, followed by the CAA, RCRA, and the Act to Prevent Pollution from Ships ("APPS"):

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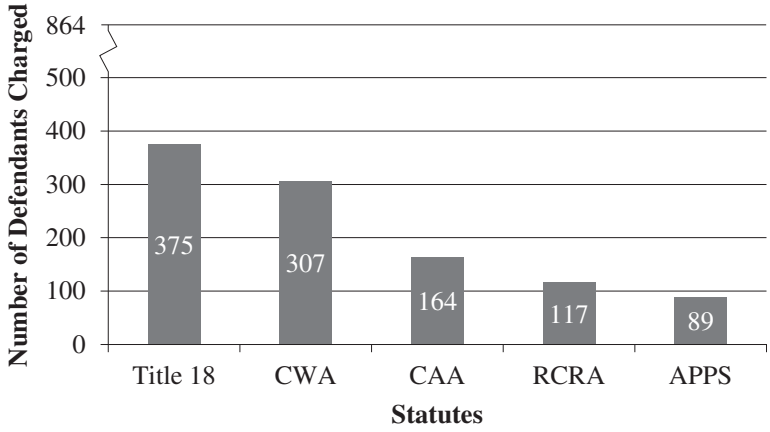
[108] Much of the controversy surrounding environmental criminal enforcement involves claims about the field that are based on isolated cases. *See, e.g.,* Paul, *supra* note 77 (offering a critique based on prosecutions of John Poszgai and John Rapanos for wetlands violations). The merits of those claims are debatable but none involve the comprehensive empirical analysis provided in this Article. In that regard, I note that Senator Paul has focused on wetlands cases, yet our six-year dataset identified only 16 defendants charged with wetlands violations (1.9% of all defendants).

[109] The number of criminal defendants charged varied from a low of 126 defendants during 2008 to a high of 157 defendants in 2010; the number of criminal cases ranged from a low of 95 during 2010 to a high of 123 in 2005. Multi-defendant cases explain why there are more defendants than cases each year.

[110] Fiscal Year 2010 EPA Enforcement and Compliance Annual Results (Dec. 2, 2010) at 17, 20, *available at* http://perma.law.harvard.edu/0CsfSQoYry9. In 2010, EPA conducted 21,000 inspections or evaluations at facilities in the United States. *Id.* at 23.

FIGURE 1. MOST FREQUENTLY CHARGED STATUTES FOR ENVIRONMENTAL CRIME (BY DEFENDANT)



I analyze the data regarding charges under each of these statutes in the Sections that follow.[111] In addition to providing charging data, I examine how prosecutors exercise their discretion in selecting which violations to charge, since the environmental laws criminalize a wide range of possible statutory violations.

A. Title 18 Charges

Title 18 is the heart of the federal criminal code and is used by all federal prosecutors, not just environmental prosecutors. Title 18 charges include conspiracy, false statements, fraud, obstruction of justice, and perjury.[112] The inclusion of Title 18 charges incorporates the traditional "badges of criminality" that prosecutors emphasize when exercising discretion.[113] It is easier to understand why a regulatory violation is criminal when the defendant is dishonest, conceals misconduct, or destroys evidence, all of which can be violations of Title 18. In addition, judges are more familiar with (and more receptive to) Title 18 charges.[114]

As illustrated by Figure 2, the overwhelming majority of Title 18 charges involved conspiracy (191 out of 375 defendants charged under Title 18) and false statements (170 out of 375 defendants), followed by obstruction of justice (72 out of 375 defendants).

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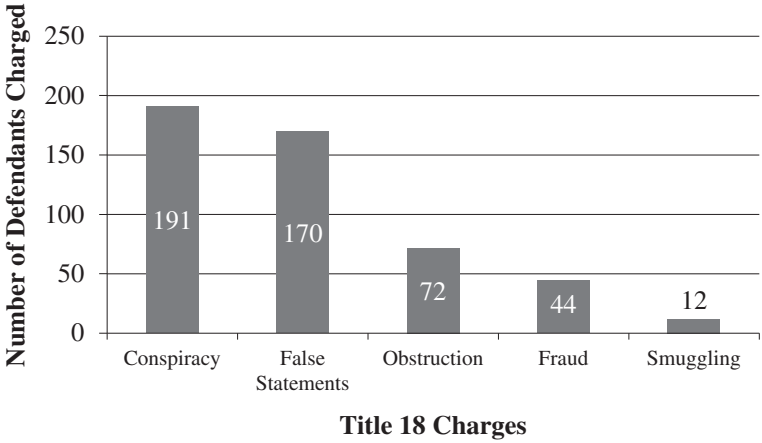
[111] The total number of charges reflected in Figure 1 and in the sections that follow is higher than the total number of defendants in our database because 50% of the defendants (434 out of 864) were charged in multi-count indictments. Where a defendant was charged under multiple statutes in a multi-count indictment, we coded for each statute charged against that defendant.
[112] *See* 18 U.S.C. §§ 371, 1001, 1341, 1501–1519, 1621, 1623 (2012) (conspiracy, false statements, fraud, obstruction of justice, and perjury, respectively).
[113] Uhlmann, *supra* note 9, at 1248.
[114] *Id.*

FIGURE 2. DEFENDANTS CHARGED UNDER TITLE 18



The use of conspiracy charges does not correlate automatically with the more sinister behavior associated with group criminal activity. Conspiracy charges can be brought any time more than one person is involved in the offense, a frequent occurrence in environmental cases so long as there is sufficient evidence to prove that the defendants agreed to engage in unlawful conduct. Conspiracy offers substantial benefits to prosecutors, including the ability to charge members of the conspiracy with substantive offenses committed in furtherance of the conspiracy,[115] as well as the ability to introduce co-conspirator statements at trial.[116] As a result, the object of the conspiracy often will be a substantive violation of the underlying environmental statute (i.e., a conspiracy to violate the CWA), so the overt acts may be limited to environmental violations that do not involve deception. In our dataset, 55 defendants (29% of all defendants charged with conspiracy) were in this category.

However, prosecutors often will charge conspiracies that include concealing or covering up the underlying environmental violations. In those cases, the inclusion of a conspiracy charge may reflect a more culpable mental state. Most of the conspiracies in our dataset involved deceptive or misleading conduct as an aggravating factor (92% or 176 defendants), and a large percentage also included false statements, concealment, or obstruction of justice as objects of the conspiracy (71% or 136 defendants). Included in those numbers were 14 defendants charged with conspiracy to defraud the United States based on the concerted efforts of co-conspirators to undermine the government's environ-

[115] Pinkerton v. United States, 328 U.S. 640, 646–48 (1946).
[116] FED. R. EVID. 801(d)(2)(E) (stating that co-conspirator statements made during and in furtherance of a conspiracy are not hearsay).

mental protection efforts.[117] Those cases also involve the kind of misleading conduct more typically associated with conspiracy charges.

False statement charges under Title 18, which were brought against 20% of the defendants included in our study (170 out of 864 defendants), often involve a choice to use Title 18 instead of the false statement provisions of the environmental laws. Prosecutors who elect to proceed under Title 18 for false statements may do so because those charges are more widely used in federal cases generally and/or because Title 18 provides a maximum sentence of five years imprisonment compared to two-year maximums under the environmental laws.[118] Whatever the reason, the frequent use of false statement charges, particularly when combined with the significant number of obstruction of justice charges, highlight the role of deceptive and misleading conduct in environmental criminal enforcement cases.[119]

B. Clean Water Act Charges

The CWA was the most frequently charged environmental statute in the six years covered by our study.[120] The CWA includes both felony and misdemeanor provisions, depending upon whether the violation occurred knowingly or negligently. Our study showed that 184 defendants were charged with knowing violations of the CWA, and 129 defendants were charged with negligent violations of the Act.[121] The number of defendants charged with negligence appeared high, particularly in light of the fact that the CWA authorizes criminal prosecution based on simple negligence, which has prompted concerns about over-criminalization under the CWA.[122] The large number of CWA negligence charges could be interpreted as evidence of prosecutorial over-reaching, so we analyzed the negligence defendants to determine whether (1) negligence was charged as part of a plea bargain for what could have been charged as knowing conduct; (2) significant harm or deceptive conduct were present; or (3) the violations involved only ordinary negligence.

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[117] *See* 18 U.S.C. § 371 (2012) (making it a crime "if two or more persons conspire . . . to defraud the United States"). Conspiracies to defraud the United States are often referred to as "Klein" conspiracies based on the seminal tax case, *United States v. Klein*. 247 F.2d 908 (2d Cir. 1957) (conspiracy to defraud the administration of federal tax laws); *see also* Uhlmann, *supra* note 9, at 1248–49.

[118] *Compare* 18 U.S.C. § 1001(a) (2012) (five-year maximum term of imprisonment) *with* 33 U.S.C. § 1319(c)(4) (2012) (two-year maximum).

[119] *See infra* Part IV, Section B.

[120] The number of defendants prosecuted under the CWA declined during the last three years of our study from an average of 57 defendants from 2005 to 2007 to an average of 45 defendants from 2008 to 2010. If this decline continues, it would be worthwhile to evaluate whether it is attributable to the Supreme Court's decision in *Rapanos v. United States*, 547 U.S. 715 (2006), which has restricted CWA jurisdiction.

[121] There are 6 defendants in the study who were charged with both knowing and negligent violations of the CWA.

[122] *See, e.g.,* Paul S. Rosenzweig, *The Over-Criminalization of Social and Economic Conduct*, The Heritage Foundation Legal Memorandum No. 7 (2003).

We determined that 62 defendants were charged with negligence even though their conduct was intentional, and that 15 defendants were charged with CWA negligence along with knowing conduct under the CWA or another statute. We identified 19 defendants who committed negligent violations that caused significant harm, and 21 defendants who engaged in deceptive conduct. As a result, only 12 defendants were prosecuted solely for negligence in the absence of knowing violations, significant harm, or deceptive conduct, a small percentage of all CWA defendants (3.9%).[123]

We then reviewed the court documents regarding those 12 defendants to determine whether their violations might have been more appropriate for civil or administrative enforcement. For 5 of the 12 defendants, the misconduct involved repetitive violations; 1 of the 5 defendants also engaged in misconduct that involved operating outside the regulatory system. For the remaining 7 defendants, it appeared that the charges involved ordinary negligence on a single day.[124] Of course, prosecutors often narrow charges to a single day for plea purposes, and the charges against these 7 defendants may have involved an appropriate exercise of prosecutorial discretion for other reasons. But prosecutors should be cautious about charging negligent violations with no aggravating factors present; non-criminal sanctions may be more appropriate in those cases.

Another major factor in assessing what type of conduct is prosecuted under the CWA is the nature of the violations involved. As Figure 3 shows, most CWA violations that are charged criminally involve illegal discharges:

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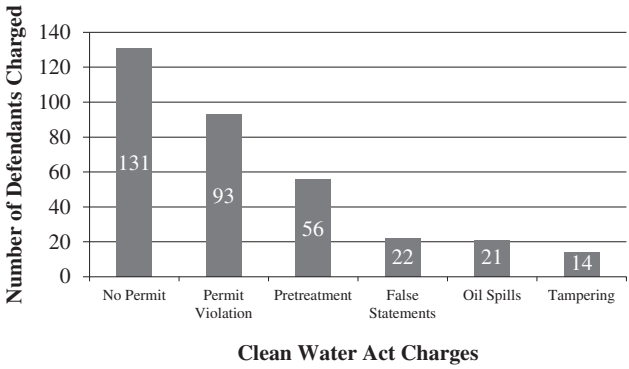
[123] A study of CWA negligence charges between 1987 and 1997 also concluded that most negligence charges involved knowing conduct pleaded down to negligence or were accompanied by false statements or other deceptive conduct. Steven P. Solow & Ronald A. Sarachan, *Criminal Negligence Prosecutions Under the Federal Clean Water Act: A Statistical Analysis and an Evaluation of the Impact of Hanousek and Hong,* 32 ENVTL. L. REP. 11153 (2002).

[124] Information, United States v. Lynn Plasma, Inc., No. 1:05-cr-00042-MHW (D. Idaho Mar. 3, 2005) (negligent storm water discharges); Information, United States v. Texas Petroleum Inv. Co., No. 2:08-CR-00215-KDE-DEK (E.D. La. Aug. 1, 2008) (discharge of brine into a wildlife refuge after pump failed); Information, United States v. Ohio Fresh Eggs, LLC, No. 3:09-mj-07047-VKA (N.D. Ohio Apr. 16, 2009) (2 defendants charged with the overnight discharge of egg wash waste water that exceeded permit limits); Information, United States v. Lindsey, No. 6:05-cr-60068-RTH-MEM (W.D. La. Oct. 13, 2005) (negligent discharge of oil caused by sump pump failure); Information, United States v. Allen Canning Co., No. 1:07-cr-10004-DDD-JDK (W.D. La. Mar. 16, 2007); Information, United States v. Confluence Consulting Inc., No. 2:10-cr-00019-JCL (D. Mont. Sep. 2, 2010).

FIGURE 3. TYPES OF CLEAN WATER ACT VIOLATIONS



In terms of conduct, the largest category of violations prosecuted under the CWA was the discharge of pollutants without a permit (131 defendants). The pollutants involved in such discharge violations may vary widely, because pollutants are defined broadly under the Act.[125] But the failure to obtain a permit cuts to the heart of the CWA regulatory scheme. EPA and the states determine how much pollution can be tolerated in a given waterway based on a waste-load allocation that takes into account all sources of pollution and determines how they must be limited to comply with state water quality standards.[126] It is not possible to make the necessary waste-load determinations if there are discharges that are not disclosed because they occur without a permit.

The next largest category of violations prosecuted under the CWA was discharge in violation of a permit (93 defendants). Again, the pollutants involved in permit violations could vary widely, but most criminal CWA permit violation cases involve exceedances that are not disclosed on required discharge monitoring reports. Permit violations therefore undermine the effectiveness of pollution regulation in much the same way as discharges without a permit: In both circumstances, water quality standards may not be met because the regulatory agency does not have complete information about the amount of pollution that is discharged into the water.

Taken together, CWA permit violations (both discharge without a permit and discharge in violation of a permit) constitute 73% of CWA criminal prosecutions (223 defendants out of 307 defendants). Moreover, illegal discharges under the CWA also include pretreatment violations (56 defendants) and oil spills (21 defendants). As a result, nearly every CWA defendant (289 out of 307 defendants) committed some sort of discharge violation — and at least some of

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[125] The CWA defines pollutants as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C. § 1362(6) (2012).

[126] *Overview of the Water Quality Standards-to-Permit Process*, EPA, http://perma.law.harvard.edu/0PA1k5xuS97.

them also made false statements (22 defendants) or tampered with monitoring methods (14 defendants) to conceal their illegal discharges.[127]

C. Clean Air Act Charges

The CAA was the second most frequently charged environmental statute, accounting for 19% of all defendants charged (164 out of 864 defendants). Historically, the majority of criminal prosecutions under the CAA have involved asbestos violations. Asbestos cases, as noted in Part II, *supra*, involve the removal of asbestos or the demolition of buildings containing asbestos without complying with CAA regulations developed to protect workers and the general public from exposure to asbestos.[128] The cases warrant criminal prosecution — they involve a failure to comply with the regulatory scheme in a way that creates public health risks — and therefore have not been the subject of over-criminalization claims. Nonetheless, EPA has attempted to shift its focus from asbestos cases to CAA prosecutions involving larger facilities, such as refineries and factories, which may have broader public health impacts.

Instead, the overall number of asbestos cases as a percentage of CAA charges was high across the six years that we analyzed, accounting for 65% of all CAA charges (106 out of 164 defendants). The number of CAA asbestos cases also was high as a percentage of all defendants charged, at just over 12% (106 out of 864 defendants). While there was a downward shift in the number of asbestos cases during the middle years of our study, as shown in Figure 4, by the last year the number of asbestos cases had surged.

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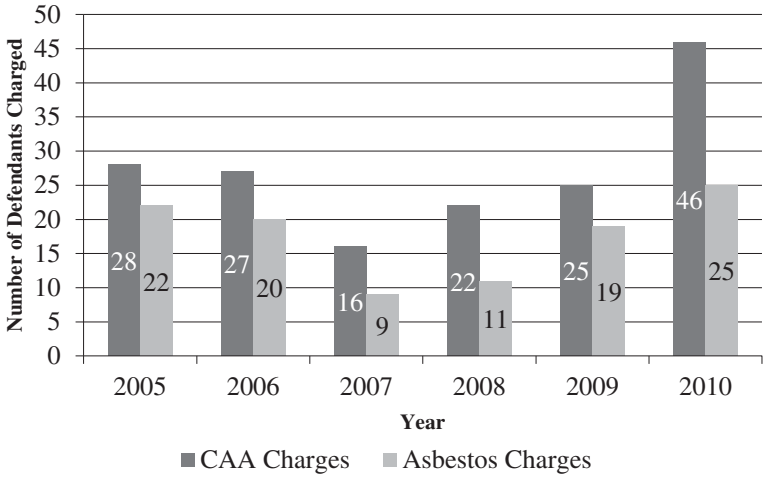
[127] The number of defendants referenced in this paragraph includes those charged with making false statements and tampering with monitoring methods under the CWA. A total of 51 defendants made false statements or engaged in obstruction in CWA cases when Title 18 charges are included.

[128] *See, e.g.*, United States v. Buckley, 934 F.2d 84, 88 (6th Cir. 1991); *see also* EPA, *supra* note 126.

FIGURE 4. DEFENDANTS CHARGED UNDER THE CLEAN AIR ACT: FREQUENCY OF ASBESTOS-RELATED CHARGES



Unless there has been an increase in renovation and demolition activity in buildings with asbestos, our data do not show a shift away from asbestos cases. There was a marked decrease in the number of defendants in one year (between 2006 and 2007), but that decrease corresponded with an overall decrease in CAA prosecutions that was reversed in the three subsequent years (each of which saw higher numbers of asbestos prosecutions). Indeed, it is difficult to see any significant difference in the number of asbestos cases when we compare the first two years of our study (an average of 21 asbestos defendants each year) with the last two years of our study (an average of 22 defendants per year).

Non-asbestos CAA charges increased between 2005 and 2010. The first three years of the study there were 6 or 7 defendants charged each year with non-asbestos CAA violations. During the last three years of the study, the number of non-asbestos CAA charges averaged nearly 13 defendants per year, with sharp increases during two of the three years in question. In the two years when there was a sharp increase in the number of non-asbestos charges, those defendants accounted for close to 50% of all CAA defendants (50% in 2008 and 46% in 2010).

Civil enforcement under the CAA long ago moved away from asbestos cases. The civil enforcement program under the CAA has been dominated for more than a decade by the power plants and refineries initiatives under the "new source review" provisions of the CAA, which have brought substantial reductions in air pollution and related health problems throughout the United States.[129] It is too soon to tell whether a similar shift is occurring for criminal

[129] *Benefits and Costs of the Clean Air Act*, EPA, http://perma.law.harvard.edu/0b3Y41qGGex.

enforcement cases, but it would be a significant development if more CAA charges were brought for pollution from refineries and factories.

D. Resource Conservation and Recovery Act Charges

The number of defendants charged with hazardous waste crimes under RCRA was relatively consistent in five of the six years covered by our study. Between 14 and 17 defendants were prosecuted for RCRA violations each year, with the exception of 2007, when the number surged to 36. Overall, RCRA violations accounted for nearly 1 in 7 defendants charged between 2005 and 2010.

Perhaps the most significant RCRA data from our study involve the type of violations that are the subject of criminal prosecution. As noted earlier, RCRA is a "cradle-to-grave" regulatory scheme, which imposes requirements on companies that generate, transport, treat, store, and dispose of hazardous waste.[130] Hazardous waste is defined broadly under RCRA,[131] and the regulations promulgated under RCRA impose a large number of requirements on industry, including recordkeeping requirements that enable the government to track hazardous waste from creation to its ultimate disposal. As a result, RCRA is frequently cited as an example of the arcane nature of environmental law (a "regulatory cuckoo land of definitions," according to a former top-ranking EPA hazardous waste official)[132] and the seeming overbreadth of the criminal provisions under the environmental laws.[133]

Yet, despite the breadth and complexity of RCRA's hazardous waste definition, the RCRA charges brought from 2005–2010 appeared to be focused on undeniably hazardous wastes. The nature of the hazardous waste was identified for 101 of the 117 RCRA defendants in our dataset. Of those 101 defendants, more than one-third (36 defendants) mishandled ignitable or corrosive hazardous waste. An additional 31 defendants mishandled heavy metals, such as lead and cadmium, and 26 defendants mishandled solvents, such as toluene and methyl ethyl ketone, or paint wastes. There were no RCRA charges brought for the mishandling of wastes where the defendants could have thought in good faith that the waste was not potentially harmful and therefore subject to regulation.

Although RCRA's criminal provisions reach the statute's myriad recordkeeping and labeling requirements,[134] the results of our study show that nearly all of the defendants charged with crimes under RCRA appeared to be committing substantive violations of the law. More than half of the defendants charged with RCRA violations were storing hazardous waste without a permit (65 out

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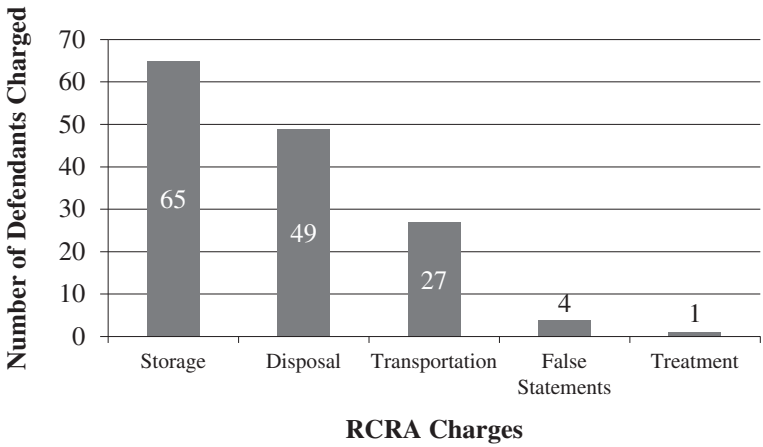
[130] Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6992k (2006).
[131] 42 U.S.C. § 6903(5) (2012).
[132] *See* United States v. White, 766 F. Supp. 873, 882 (E.D. Wash. 1991) (quoting former EPA Assistant Administrator of Office of Solid Waste and Emergency Response Don R. Clay, who also stated, "I believe we have five people in the Agency who know what 'hazardous waste' is").
[133] *See* Lazarus, *supra* note 39, at 2471–73.
[134] 42 U.S.C. § 6928(d) (2012).

of 117 defendants, or 56% of all RCRA defendants). More than one-third of the defendants charged with RCRA violations were disposing of hazardous waste without a permit (49 out of 117 defendants, or 42% of all RCRA defendants). Nearly one-quarter of all RCRA defendants were charged with illegal transportation of hazardous waste (27 out of 117 defendants charged with RCRA violations, or 23% of all RCRA defendants). As the preceding numbers suggest, some of those defendants were charged with multiple violations of RCRA's storage, disposal, and transportation requirements. Only 5 defendants in our study were charged with RCRA crimes other than unlawful storage, disposal, or transportation of hazardous waste. These results are shown in Figure 5.

FIGURE 5. RESOURCE CONSERVATION AND RECOVERY ACT CHARGES BY DEFENDANT



The RCRA data therefore may significantly undermine the claims that environmental crimes are prosecuted for technical violations in obscure areas of the law. The criminal provisions of RCRA apply broadly and do not distinguish between recordkeeping requirements and violations that involve directly exposing the public to dangerous waste management practices.[135] Yet investigators and prosecutors, at least during the six-year period covered by our study, limited criminal prosecution to cases where defendants stored hazardous waste without a permit, transported hazardous waste to facilities that were not authorized to receive it, and disposed of hazardous waste illegally and therefore unsafely.[136]

[135] *Id.*
[136] For previous studies with similar findings, see Brickey, *supra* note 79, at 1133–34.

E. Vessel Pollution Charges

Curbing vessel pollution has been a Justice Department priority for over a decade, beginning with a series of successful prosecutions of cruise ship companies in the 1990s and then moving to other sectors of the maritime industry.[137] Vessel pollution cases involve bypassing pollution control equipment and dumping waste, often oily bilge water, overboard. The United States does not have jurisdiction over vessel pollution, except when it occurs in American waters or involves ships flying under the American flag.[138] But the United States is the largest port country in the world, and ships that enter American ports must have operable pollution control equipment as well as accurate records of their waste management to comply with APPS, which implements the MARPOL convention.[139]

In the typical vessel pollution case, the Justice Department charges vessel companies and their captains and chief engineers with presenting false records to Coast Guard inspectors and bringing ships into United States ports without operable oily-water separators and other pollution controls in violation of APPS.[140] APPS charges accounted for more than 10% of all defendants prosecuted during the six years covered by our study (89 out of 864 defendants). The number of defendants charged under APPS was consistent across our data.[141]

For several years, EPA has expressed a desire to defer to the Coast Guard on routine vessel pollution cases, since the Coast Guard has primary jurisdiction and individual vessel pollution cases do not typically involve large amounts of pollution. EPA has expressed a willingness to remain involved in the larger vessel pollution cases, particularly when the cases involve more significant discharges or otherwise cause discernible environmental harm. Whether or not this occurs, however, vessel pollution will likely remain a priority for the Justice Department, and APPS violations will continue to be frequently charged environmental crimes.

IV. The Presence of Individual Aggravating Factors in Environmental Criminal Prosecutions

In this Part, I provide the results of our efforts to determine whether the individual aggravating factors I had identified were present in pollution prosecutions initiated from 2005–2010. We determined that 96% of the defendants (828 out of 864 defendants) engaged in conduct involving at least one of the four aggravating factors. The most prevalent aggravating factors were repetitive violations (78% or 679 defendants) and deceptive or misleading conduct (63%

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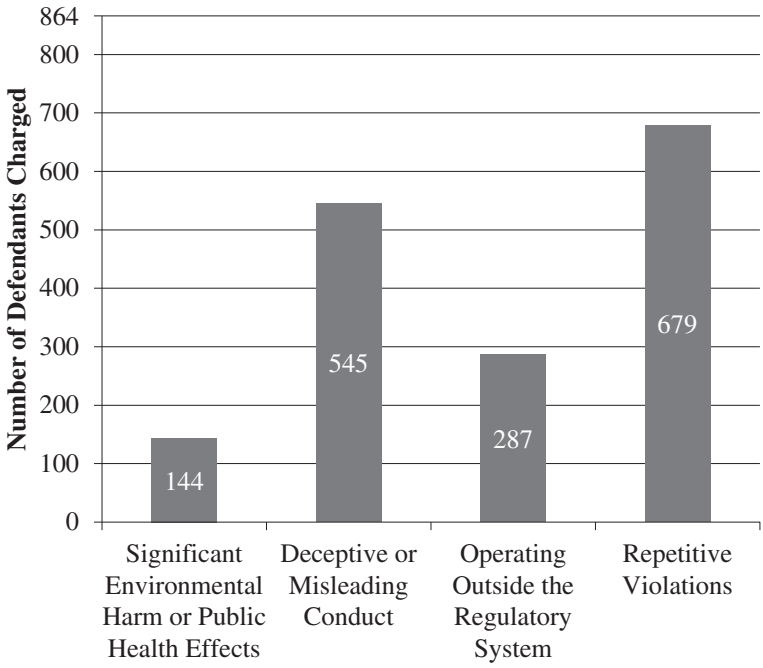
[137] *Vessel Pollution Enforcement,* U.S. Dep't of Justice, Env't & Natural Resources Div., http://perma.law.harvard.edu/0TyYpy7svPo/.
[138] 33 U.S.C. § 1902 (2012) ("Prevention of Pollution from Ships").
[139] *See, e.g.*, United States v. Jho, 534 F.3d 398 (5th Cir. 2008).
[140] *Id.*
[141] In addition, there were 9 defendants who engaged in similar misconduct (i.e., presenting false records to Coast Guard inspectors) charged solely under Title 18.

or 545 defendants). The third most common factor was operating outside the regulatory scheme (33% or 287 defendants), followed by defendants who caused significant harm (17% or 144 defendants). These findings are shown in Figure 6 below:

FIGURE 6. PROSECUTORIAL DISCRETION FACTORS



These results support two significant conclusions, both of which suggest that criminal enforcement was reserved for culpable conduct under the environmental laws from 2005–2010.

First, one or more aggravating factors are present for nearly all defendants prosecuted under the environmental laws. This is a significant finding in light of over-criminalization claims, since it suggests that criminal enforcement is reserved for conduct involving the aggravating factors that, under my normative model, might warrant criminal prosecution. It also may help address randomness claims about criminal enforcement, since it suggests that prosecutorial discretion may follow a distinctive pattern by focusing on defendants who engage in conduct involving one or more aggravating factors.

Second, it is unlikely that there will be a criminal prosecution if no aggravating factor is present. We identified only a small number of defendants (36) who engaged in conduct that did not involve one of the aggravating factors. This finding suggests that prosecutors are unlikely to pursue criminal charges for violations of the environmental laws that do not involve significant harm,

deceptive or misleading conduct, facilities operating outside the regulatory system, or repetitive violations. It also may help mitigate concerns that prosecutors are targeting technical violations and defendants who acted in good faith.

In the Sections that follow, I present data and analysis regarding each of the aggravating factors.[142]

A. Significant Environmental Harm/Public Health Effects

Cases involving significant environmental harm and public health effects often receive attention from investigators and prosecutors.[143] EPA emphasizes environmental harm and public health effects in its memorandum to investigators regarding the proper exercise of investigative discretion.[144] Prosecutors also focus on these cases for a practical reason — they are more compelling for judges and juries.[145] In white collar cases generally and environmental cases in particular, prosecutors worry that jury nullification may occur if they prove only the elements of the charged offenses without providing juries with a narrative that allows them to view the conduct as morally culpable.

I have suggested there is risk of prosecutorial overreaching in the context of significant harm: Outrage over pollution, serious injuries, or deaths can overwhelm the determination of whether the underlying conduct meets evidentiary burdens and whether the defendant acted with sufficient culpability to warrant criminal prosecution.[146] Indeed, far from ensuring that defendants are morally culpable, harm cases could be brought in circumstances where the conduct may not be intentional but is charged criminally because of the resulting harm. In addition, there may be some inconsistency in how the government presents harm cases, such as emphasizing harm to juries when significant harm is present, while moving to exclude evidence of no significant environmental harm when such harm is absent.

Another challenge when analyzing harm cases is the vast range of harms that may occur. In cases involving significant harm, such as the *Exxon Valdez* and Gulf oil spills, the role of harm as a trigger for prosecutorial discretion is readily apparent.[147] In more routine cases, however, harm exists on a wide continuum. For example, under the Oil Pollution Act, discharges of oil that caused harm and therefore are potentially criminal would include any discharge that creates a sheen on the water. This level of harm is a far cry from the slick the

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[142] We obtained the same results when we analyzed at the case level: nearly 96% of all cases (635 out of 664 cases) involved at least one of the aggravating factors. We also achieved nearly identical results when we analyzed the individual aggravating factors at the case level: 17% for significant harm; 59% for deceptive or misleading conduct; 33% for operating outside the regulatory system; and 76% for repetitive violations. We present results here and in Part V based on defendants.

[143] Uhlmann, *supra* note 9, at 1246–48.

[144] Memorandum from Earl E. Devaney, *supra* note 23, at 3–4.

[145] Uhlmann, *supra* note 9, at 1247.

[146] *Id.*

[147] *Id.* at 1246.

size of the State of South Carolina observed during the Gulf oil spill.[148] Harm to wildlife can range from the death of a single migratory bird to the thousands killed in the *Exxon Valdez* case.[149] A similar range of harms can be seen in the public health context, from the evacuation of a community due to a potential risk of harm to the serious injuries or deaths that have occurred in the most notorious environmental prosecutions.[150]

Our study focused on five types of harm: (1) serious bodily injury or death; (2) knowing or negligent endangerment; (3) animal deaths; (4) cleanup costs; and (5) evacuations and emergency responses.[151] At least one of these factors was present for 15% of the defendants in our study (131 of the 864 defendants). Significant environmental harm that did not fit into one of the five factors listed above was present for an additional 13 defendants. Overall, 17% of the defendants included in our study (144 of the 864 defendants) were charged with conduct involving significant environmental harm, a statistically significant percentage but the smallest of the four aggravating factors analyzed. These defendants can be further separated into two groups: those whose conduct caused environmental harm and those whose conduct caused public health effects. Environmental harm cases include those that caused animal deaths or cleanup costs over $100,000; public health cases are those that caused serious bodily injury or death, knowing or negligent endangerment, or evacuations or emergency response.

Nearly 60% of the defendants with this aggravating factor caused environmental harm (59% or 86 out of 144 defendants). Of those defendants, 39 engaged in conduct that caused animal mortality and 56 engaged in conduct resulting in cleanup costs of more than $100,000 (with 9 defendants causing both animal deaths and significant cleanup costs). Both categories included a wide spectrum of environmental harm. The animal death cases, for instance, included a number of incidents where thousands of birds or fish were killed, but also a number of violations where the deaths were in the single digits. Likewise, cleanup costs soared as high as $70 million for the San Francisco Bay oil spill,[152] yet our sample also involved numerous cases where cleanup costs were between $100,000 and $200,000. It might be possible in future research to distinguish between types of animal deaths and cleanup costs; for our initial analysis, however, we were constrained by the need to have clear data points that assured consistent results.

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[148] 40 C.F.R. § 110.3 (2012). By regulation, EPA and the Coast Guard have defined harmful quantities as discharges that cause a "sheen upon . . . the surface of the water or adjoining shorelines."

[149] *See* 16 U.S.C. §§ 703, 706 (2012).

[150] United States v. BP Prods. N. Am. Inc., 610 F. Supp. 2d 655, 660 (S.D. Tex. 2009) (finding defendant liable for CAA violations at a Texas refinery that resulted in fifteen deaths); United States v. S. Union Co., 630 F.3d 17, 24 (1st Cir. 2010) (in which apartment buildings were evacuated due to defendant's RCRA violations), *rev'd on other grounds*, 132 S. Ct. 2344.

[151] Each of these aggravating factors is a specific offense characteristic under the federal sentencing guidelines. U.S.S.G. §§ 2Q1.2(b), 2Q1.3(b) (2012).

[152] Judgment in a Criminal Case at 3, United States v. Fleet Management Ltd., No. 3:08-cr-00160 (N.D. Cal. Feb. 23, 2010) (imposing fine of $8 million and community service of $2 million).

A little more than one-third of the defendants with this aggravating factor caused public health effects (38% or 54 out of 144 defendants). Approximately one-ninth of the defendants committed acts or omissions that caused serious bodily injuries or deaths (12% or 17 out of 144 defendants). More defendants were charged with knowing or negligent endangerment (15% or 21 out of 144 defendants). A similar number of defendants in this subcategory caused evacuations or emergency responses (15% or 22 out of 144 defendants).

While environmental harm or public health effects factored into the conduct of 1 out of every 6 defendants,[153] it is noteworthy that no single subcategory of environmental harm or public health effects accounted for even 7% of all defendants in the overall study. The largest subcategory was substantial cleanup costs, which included more than 6.5% of all defendants in the study (56 defendants out of 864). The next largest subcategory was animal deaths, which involved 4.5% of all defendants (39 defendants out of 864). The smallest subcategories were serious bodily injuries or deaths, which were caused by just under 2% of all defendants (17 defendants out of 864), and knowing or negligent endangerment, which was committed by just 2.4% of all defendants (21 defendants out of 864).

On the other hand, while our data suggest that significant harm was caused by only one-sixth of the criminal defendants, it merits emphasis that we focused on conduct where harm appeared to be a distinctive "plus" factor in criminal cases. Most pollution crime involves risk of environmental harm or public health effects, since those factors are present whenever pollutants and hazardous wastes are improperly stored, disposed, discharged, or released into the environment. If we had included all potential contamination cases — for example, every CWA discharge case, every RCRA storage and disposal case, and all of the CAA asbestos cases — the harm numbers would have been three times higher, involving 73% of all defendants (484 out of 664 defendants). Stated differently, harm or the potential for harm is present in most environmental cases or they would not be violations at all. Our challenge in examining prosecutorial discretion factors was to identify cases where harm was aggravated and therefore might be a reason the case was criminally prosecuted. It is in this narrower understanding of harm that the number of cases may be limited, not in a broader conceptualization.

B. Deceptive or Misleading Conduct

Deceptive or misleading conduct undermines the effectiveness of environmental protection in at least three ways. First, deceptive conduct, such as the use of bypass lines or midnight dumping, can allow illegal pollution to go undetected. Second, the environmental laws largely involve an honor system

[153] Other harm was noted by our researchers for 14 defendants out of the 144 defendants who committed violations that resulted in significant harm. The harms classified as other harms included environmental harms (e.g., destruction of habitat and wetlands) and public health effects (e.g., lead poisoning) that did not fall within one of the enumerated categories.

where companies must seek permits or other authorization for pollution activities and then must monitor and self-report their compliance.[154] When companies do not conduct required monitoring or honestly report their pollution activity, they undermine the self-policing required under the environmental laws. Third, misleading conduct deprives regulators of accurate information about overall levels of pollution, which they need to make informed decisions about what pollution to permit.

I have suggested that lying is the most significant factor in making a criminal case out of what otherwise might be a civil or administrative violation.[155] If this premise is true and a high percentage of criminal cases involve deceptive or misleading conduct, it could address concerns that law-abiding individuals are being unfairly targeted with criminal prosecution. I would argue that individuals who misrepresent facts regarding their compliance with legal requirements are not acting in good faith. Moreover, all corporations and individuals are expected to be honest in their statements and submissions to the government. False statements, concealment, and obstruction of justice are therefore criminal under both the environmental laws and Title 18 of the United States Code.[156]

Over 60% of the defendants included in our study committed violations involving deceptive or misleading conduct (63%, or 544 of 864 defendants). This finding is significant because it suggests that the majority of those charged as environmental criminals engage in conduct that is viewed as culpable in other areas of the criminal law as well. To better understand this factor, we analyzed deceptive or misleading conduct based on whether it occurred during (1) the commission of the underlying offense (e.g., by using a bypass line to circumvent pollution control equipment), (2) reporting or recordkeeping (e.g., falsifying documents to conceal pollution control activity), or (3) a cover-up after the violations occurred (e.g., lying to investigators and destroying evidence of a crime).

More than 36% of the defendants in our study (313 of 864 defendants) engaged in deceptive or misleading conduct in the commission of their violations. Nearly 39% of the defendants in our study (336 of 864 defendants) engaged in deceptive or misleading conduct when submitting required reports of pollution activity or in maintaining required compliance records. More than 24% of the defendants (209 of 864 defendants) engaged in some type of after-the-fact effort to conceal violations from regulators.

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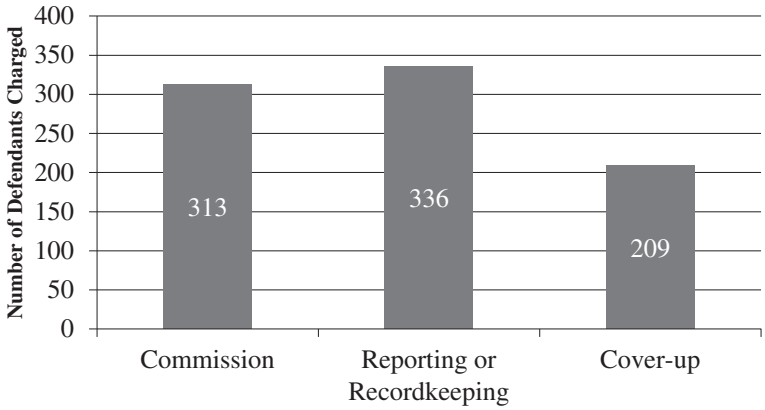
[154] *See, e.g.*, 33 U.S.C. § 1318(a)(1)(A) (2012).
[155] Uhlmann, *supra* note 9, at 1249.
[156] 18 U.S.C. § 1001 (2012) (false statements); *id.* §§ 1503, 1505, 1512, 1515, 1519 (obstruction of justice).

FIGURE 7. DECEPTIVE OR MISLEADING CONDUCT: SUBCATEGORIES



Perhaps as significantly, nearly half of the defendants engaging in deceptive or misleading conduct did so in multiple ways. Of the 544 defendants who engaged in deceptive or misleading conduct, 106 defendants were involved solely in deception during the commission of the offense, 123 defendants were involved in deception solely during reporting or recordkeeping, and 80 defendants were engaged in deceptive conduct solely during cover-up activity. The remaining 236 defendants, or 43%, were engaged in two or more types of deceptive activity.

The presence of multiple forms of deceptive or misleading conduct is even more striking when each of the subcategories is examined separately. Of the 313 defendants who engaged in misleading or deceptive conduct during the commission of the offense, 66% also engaged in reporting/recordkeeping violations, cover-up activity, or both. Similarly, of the 336 defendants who engaged in reporting or recordkeeping violations, 63% also committed deceptive or misleading conduct during the commission of the offense, during the cover-up, or during both. Of the 209 defendants who engaged in some sort of cover-up activity, 62% also engaged in other forms of deceptive or misleading conduct.

Given the highly technical nature of environmental compliance, prosecutors should focus on conduct that involves the intent to mislead or deceive, and not merely confusion or mistake. Our analysis is based on charging documents prepared by the government, but it is significant that over 60% of the defendants in our study engaged in misleading or deceptive conduct — and that most of those defendants were dishonest in multiple ways, which tends to undermine claims that their deception was isolated or overstated by the government.

Deceptive or misleading conduct inculpates both for its own sake — both law and ethics demand that we be truthful — and because of what it reveals about the mental state of the majority of criminal defendants in environmental cases. It has long been argued that the complexity of the environmental laws lays a trap for the uninformed, and that reduced mental state requirements com-

pound the problem by criminalizing conduct that defendants had no idea was unlawful, let alone criminal. Our study's findings concerning the prevalence of deceptive or misleading conduct do not mean that the environmental laws are not complex, or that their criminal provisions are not far reaching. The fact that so many of the defendants charged as environmental criminals engaged in deceptive or misleading conduct, however, may undercut the argument that the government is prosecuting individuals who make good faith efforts to comply and do not engage in any culpable behavior.

C. Operating Outside the Regulatory System

The third factor that I have argued may warrant criminal enforcement involves companies that operate outside the regulatory scheme.[157] Like many modern statutory schemes, the environmental laws impose substantial regulatory requirements on facilities across the United States. It is no longer credible for companies to claim ignorance of the fact that their conduct may be regulated. Companies that participate in the regulatory system do so at substantial cost and should not be at a competitive disadvantage when compared to companies that fail to meet their legal obligations. In addition, as noted earlier, the government depends upon complete and accurate information about pollution activity in order to operate an effective permitting system. When companies fail to participate in the regulatory system, the government has no mechanism for taking into account their pollution activity, leading to a lack of information that could undermine environmental protection efforts.

Whether such behavior warrants criminal enforcement, of course, is a separate question from whether the government must take enforcement action to promote compliance efforts. In some instances, criminal enforcement may be appropriate.[158] If a company transports hazardous waste to facilities that are not permitted to receive it, for example, there is a significant potential that the waste will be stored unsafely or disposed of illegally. Likewise, if a company stores or disposes of hazardous waste without a permit, there is a correspondingly significant risk that the public may be exposed to harmful hazardous waste and that toxic pollutants will contaminate the environment. Conversely, civil or administrative enforcement may be more appropriate when the failure to operate within the regulatory system involves notification or recordkeeping requirements or if there is evidence that a defendant failed to comply with permitting requirements because of a good-faith misunderstanding about whether its activities were regulated.[159]

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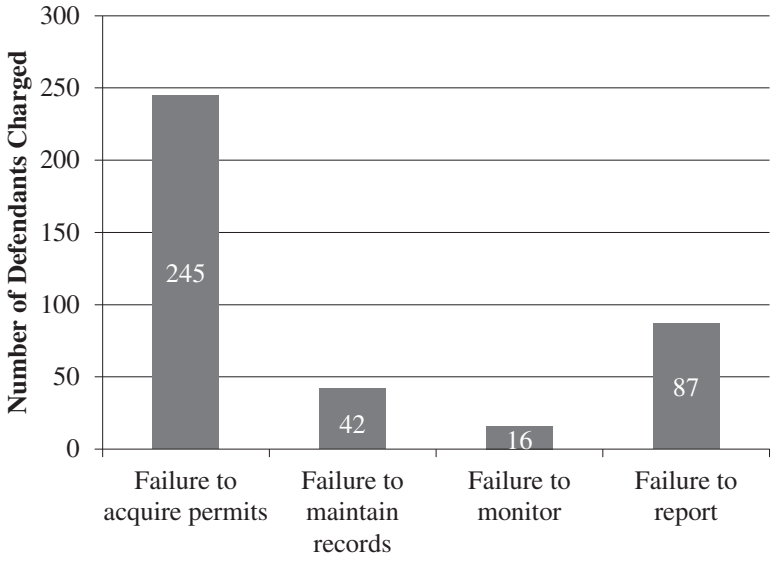
[157] Uhlmann, *supra* note 9, at 1249–50.
[158] *Id.* at 1249.
[159] As noted in Part I, *supra*, the government is not required to show that defendants in environmental cases know their conduct is unlawful; mistake of law is not a defense. It is possible, however, that a company might in good faith mistakenly believe that its conduct is not regulated. How the government exercises its prosecutorial discretion in those circumstances will depend upon a range of factors, including the complexity of the underlying regulatory requirements, the size and sophistication of the company involved, and the extent to which the company has made a

Nearly one-third of the defendants charged with environmental crimes operated outside the regulatory system (33% or 287 out of 864 defendants). Of those 287 defendants, 85% failed to obtain permits required under the environmental laws or transported hazardous wastes to facilities that were not permitted to receive hazardous waste. Slightly less than 15% of defendants who operated outside the regulatory system failed to maintain required records; 5.6% of those defendants failed to monitor for pollution activity, and 30% failed to report pollution.

FIGURE 8. OPERATING OUTSIDE THE REGULATORY SYSTEM: SUBCATEGORIES



Significantly, most defendants charged with failure to maintain records, failure to monitor, or failure to report also committed another subcategory of violation. Only one defendant over the six-year period covered by the study was charged solely with recordkeeping violations, and only three defendants were charged solely with failure to monitor violations. The numbers were higher for failure to report pollution activity, including 18 defendants or approximately 2% of all defendants charged with environmental crime. In contrast, there were 184 defendants charged solely with either failure to obtain a permit or permit violations, accounting for 21% of all defendants.

The overwhelming number of defendants charged with permit violations — both alone and in combination with other acts properly characterized as

good-faith effort to meet its legal obligations and has been forthright with regulatory officials. The government may choose not to prosecute criminally when the defendants are unsophisticated mom-and-pop companies that do not normally engage in regulated activity. The government has not fared well in Supreme Court cases involving less sophisticated defendants. *See, e.g.*, Sackett v. EPA, 132 S. Ct. 1367 (2012) (administrative enforcement).

operating outside the regulatory system — suggests that prosecutors have exercised their discretion to focus on the type of actions that most undermine the regulatory system and generally do not prosecute when the violations are more technical. These results are consistent with the analysis of RCRA charges provided in Part III, *supra*, where the overwhelming majority of RCRA charges involved transportation, storage, and disposal violations, which create the greatest public health and environmental risk.

D. Repetitive Violations

The fourth category of cases that I have asserted might be appropriate for criminal prosecution is repetitive violations. On a number of occasions during my time at the Justice Department, we considered for criminal prosecution facilities that had failed to comply with the law notwithstanding years of efforts by regulators to promote compliance — and, at least in some cases, prior administrative or civil enforcement actions.[160] I reasoned that "when violations persist despite the efforts of the regulatory agency to ensure compliance, repetitive violators may become appropriate targets for enforcement, including criminal prosecution."[161] Based on my experience, I thought this would be a small but significant subset of criminal prosecutions.

In fact, it was difficult to identify facilities that had been the subject of prior enforcement action in our research. Indictments and information only rarely reference prior violations. Evidence of such "prior bad acts" is admitted only under limited circumstances (e.g., where necessary to prove intent, lack of mistake, or common plan and scheme).[162]

We therefore focused on the duration of the charged misconduct and of any other relevant conduct to identify the extent to which criminal charges were based on repetitive violations. We reasoned that repetitive violations would be viewed differently by prosecutors than isolated occurrences of misconduct, particularly those that took place on a single day. We considered two types of repetitive violations to be potentially aggravating: first, single violations that were egregious enough that they continued for multiple days, weeks, months, or years; and, second, multiple violations that occurred over a period of days, weeks, months, or years.

More than three-quarters of the defendants in our database committed violations that lasted more than one day (79% or 679 out of 864 defendants). We then sorted to determine how many of those defendants committed violations that either lasted more than one week, more than one month, or more than one year or that had harmful effects over a comparable period of time. We found

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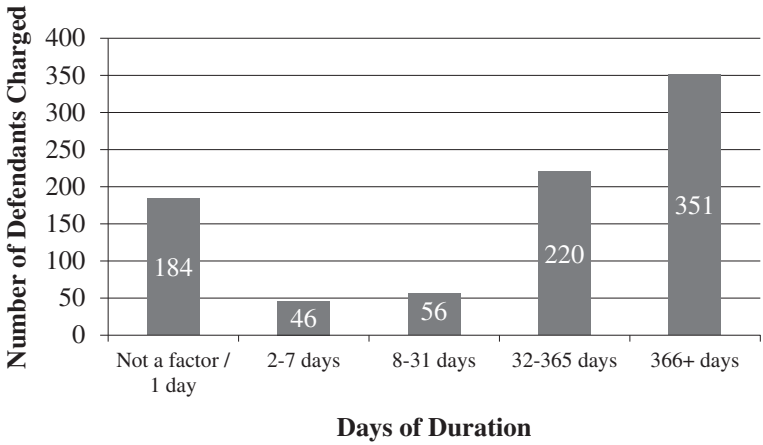
[160] *See, e.g.*, United States v. Cent. Indus., Inc., No. 3:99-cv-00540 (S.D. Miss. 2000); *United States v. Central Industries, Inc. (S.D. Miss.)*, DEP'T OF JUSTICE, http://perma.law.harvard.edu/0uorDgBoVB1 (from April through July 1995, the company committed approximately 1114 permit violations, exceeding the pollutant limitations set forth in the company's permit by hundreds of percentage points and its permitted flow rate by millions of gallons).

[161] Uhlmann, *supra* note 9, at 1250 n.137 (citation omitted).

[162] FED. R. EVID. 404(b).

that the largest number of defendants who engaged in repetitive conduct committed violations that lasted more than one year (41% or 351 defendants who engaged in repetitive violations). The results for duration of violations are summarized in Figure 9 below:

FIGURE 9. REPETITIVE VIOLATIONS BY DURATION



These findings admit to competing interpretations about the significance of repetitive violations. On the one hand, as noted above, more than three-quarters of the defendants committed violations that lasted more than one day. Of that group, 84% committed violations that lasted more than one month and 52% committed violations that lasted more than one year. Those findings suggest that duration is often an aggravating factor in environmental criminal prosecutions — and that most defendants commit violations over a period of months or years.

On the other hand, more than a fifth of defendants (21%) committed violations that occurred on a single day. Indeed, just over one-quarter of all defendants (27%) committed violations that did not last more than one week. Those findings suggest that, while environmental criminal cases most often involve violations lasting a month or longer, a significant percentage of cases involve violations of relatively limited duration.

We examined the single-day defendants more closely to determine whether factors were present that might explain why isolated misconduct resulted in criminal charges. We determined that 80% of the defendants engaged in misconduct that involved at least one of the other aggravating factors, with 50% of the defendants engaged in deceptive or misleading conduct. The presence of those aggravating factors might be sufficient to justify criminal prosecution. Moreover, the fact that charges are focused on a single day does not mean that the misconduct was limited to a single day: Prosecutors may have agreed to charge a single day of violation as part of a plea agreement. Nonethe-

less, cases involving isolated misconduct merit caution: An isolated violation should be more egregious to warrant criminal enforcement.[163]

V. Analysis of the Relationship Between Aggravating Factors and Prosecutorial Discretion

In this Part, I analyze the data regarding the presence of aggravating factors in environmental prosecutions from three perspectives. First, I analyze how often multiple aggravating factors were present in the dataset and whether there appears to be any relationships among the factors. Second, I consider whether particular factors are present more or less often depending upon the charges selected by the prosecutor. Third, I examine cases with no aggravating factors to determine whether they reveal marginal cases.

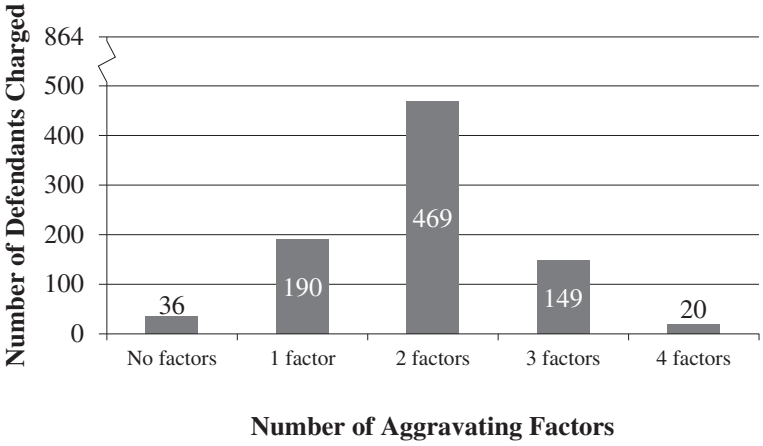
A. Multiple Aggravating Factors and the Relationships Between Aggravating Factors

As Part IV explained, aggravating factors were present for 96% of the defendants in our six-year dataset (828 out of 864 defendants). To better understand the role of these aggravating factors, I also analyzed how often multiple factors were present and considered the relationship between factors.[164] Two or more aggravating factors were present for 74% of the defendants (638 out of 864 defendants). The fact that such a high percentage of defendants had multiple aggravating factors suggests a higher level of egregiousness than would be present if most defendants had only a single aggravating factor. Our data regarding the number of aggravating factors are presented in Figure 10:

[163] There were 36 defendants who did not commit repetitive violations who also did not engage in conduct involving any of the other aggravating factors. The charges for these defendants fall outside my normative model. I analyze them in Part V, Section C *infra*, to determine whether or not they appear to be marginal cases for criminal prosecution.

[164] I concluded that the analysis provided in this Part could be presented effectively without the inclusion of more sophisticated statistical models, such as regression and correlation analysis. When we analyzed our data using regression and correlation models, we obtained similar results but the outcomes did not enhance our understanding of the relationships between the aggravating factors.

FIGURE 10. DEFENDANTS CHARGED BY NUMBER OF AGGRAVATING FACTORS



An analysis of these data supports three additional findings regarding the aggravating factors in environmental crimes.

First, one of the first three factors (all factors other than repetitiveness) was present for 88% of the defendants (761 out of 864 defendants). In other words, most defendants were charged for violations that involved harm, deceptive or misleading conduct, or operating outside the regulatory scheme. These findings may suggest a further refinement of my overall conclusions from Part IV, *supra*: (1) In most instances, prosecutors reserve criminal prosecution for defendants with one of the first three aggravating factors; and (2) defendants who engage in conduct that does not involve one of the first three factors are unlikely to face criminal charges.

Second, repetitiveness often is present when criminal charges are brought but rarely is the sole aggravating factor. Repetitiveness was the most prevalent of the four factors, accounting for 79% of the defendants (679 out of 864 defendants). Repetitiveness was the sole aggravating factor, however, for only 10% of the defendants who committed repetitive violations (67 out of 679 defendants), which is the lowest for any aggravating factor.[165] Stated differently, 90% of the defendants who committed repetitive violations (612 out of 679 defendants) also had at least one other aggravating factor. These findings suggest that, while prosecutors may prefer to charge repetitive violations, repetitiveness alone may not be driving charging decisions.

Third, more than 71% of defendants (612 out of 864 defendants) engaged in conduct that involved one of the first three factors (significant harm, deceptive conduct, operating outside the regulatory system) and repetitiveness. Since

[165] Operating outside the regulatory system is the sole aggravating factor in only 11% of the cases where it is present (30 out of 281 defendants). In contrast, deceptive or misleading conduct is the sole aggravating factor for 36% of the defendants who engaged in deceptive or misleading conduct (136 out of 547 defendants).

most environmental crimes involve one of the first three aggravating factors (88% of all defendants) and most environmental crimes involve repetitive violations (79% of all defendants), we would expect to see one of the first three factors present along with repetitiveness in a high percentage of cases. But the relationship was even stronger when we looked at multi-factor defendants. Repetitiveness was present for 96% of the defendants with two or more aggravating factors (612 out of 638 defendants).[166] For defendants with two factors, repetitiveness was present for 94% of the defendants (443 out of 469 defendants).[167] The pairing of repetitiveness with one or more of the other aggravating factors was the most dominant multi-factor relationship when calculated as a percentage of all defendants (71% of all defendants).[168] This finding suggests that prosecutors often reserve criminal prosecution for violations that involve both one of the first three factors and repetitiveness and are less likely to bring criminal charges if that relationship is absent.

We found evidence of other relationships among the aggravating factors. Deceptive or misleading conduct occurred least frequently in combination with the factors of significant harm and operating outside the regulatory system. We found 545 defendants who engaged in deceptive or misleading conduct; only 11% of those defendants (58 defendants) engaged in conduct that resulted in significant harm. In other words, significant harm was present as a percentage of defendants involved in deceptive or misleading conduct less frequently than in our dataset as a whole (17% of all defendants). More of the defendants who engaged in deceptive or misleading conduct were operating outside the regulatory system (21% or 117 defendants) but a relatively modest amount overall and, as with harm, less often than in our dataset as a whole (where it was present for 33% of all defendants).

Deceptive or misleading conduct was present as the sole aggravating factor more often than it was paired with significant harm. Deceptive or misleading conduct was the sole aggravating factor for 14% of the defendants who engaged in deceptive or misleading conduct (78 out of 545 defendants). For defendants who had only one aggravating factor, deceptive or misleading conduct appeared more often than any other aggravating factor both in raw numbers (the next largest category was repetitive violations, which was the sole aggravating factor for 67 defendants) and as a percentage of defendants possessing that factor (the next largest category was significant harm at 11% of all significant harm defendants). As with other aggravating factors, most defendants who engaged in deceptive or misleading conduct also committed repetitive

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[166] The results are even higher when calculated by case: Repetitiveness is present in 93% of cases with more than one factor (396 out of 424).

[167] Of course, most defendants in our dataset committed repetitive violations, so I would expect to see a significant overlap between repetitive violations and other factors. Still, it is revealing that the other three factors were present so often and that repetitiveness appeared by itself so infrequently.

[168] The combination of one of the first three factors and repetitiveness also is the most dominant relationship as a percentage of all cases, accounting for 68% of all cases in the dataset (450 out of 664 cases).

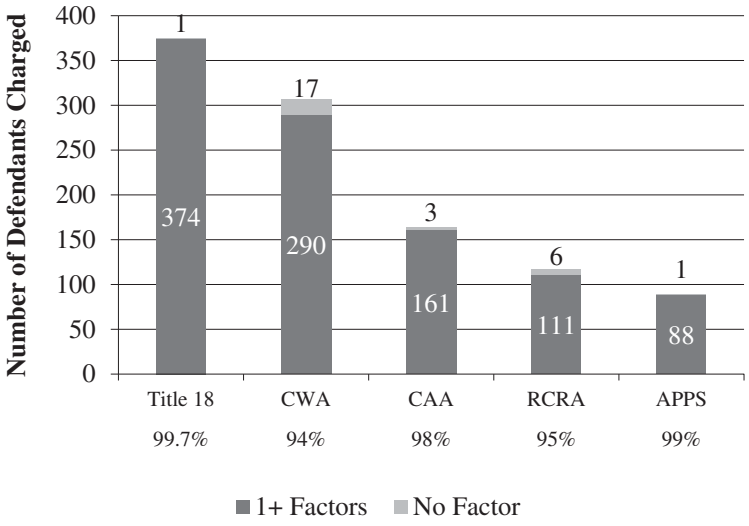
violations (83% or 452 out of 545 defendants), which suggests that deceptive or misleading conduct is charged most often when it occurs more than once. It merits emphasis, though, that deceptive and misleading conduct was charged most often as a standalone factor — and appeared the most often of the first three aggravating factors. As noted previously, in my experience, deceptive or misleading conduct is the most significant factor in the exercise of prosecutorial discretion.

Conversely, we found at least some positive relationship between significant harm and operating outside the regulatory system. There were 60 defendants who engaged in conduct that involved both significant harm and operating outside the regulatory system. As a result, 41% of all significant harm defendants were also operating outside the regulatory system, which is a higher percentage than in the dataset as a whole (33% of all defendants were operating outside the regulatory system). Similarly, 21% of defendants operating outside the regulatory system also caused significant harm, which is a higher percentage than in the dataset as a whole (17% of all defendants caused significant harm). The correlation may not be particularly strong but even a modest correlation between significant harm and operating outside the regulatory system would be noteworthy, since a primary purpose of the regulatory system is to protect public health and the environment from harm (or the risk of harm).

B. Aggravating Factors Based on Statute Charged

We also analyzed the extent to which the presence of aggravating factors appeared to vary based on the statutes charged. Here, again, the overwhelming majority of charges brought were for conduct involving one or more of the aggravating factors. As discussed in Part III, *supra,* environmental crime is charged most often under Title 18, CWA, CAA, RCRA, and APPS. For violations charged under those statutes, aggravating factors were present for between 94% and 99.7% of all defendants, compared to the national mean of 96% of all defendants. These findings are summarized in Figure 11 below:

FIGURE 11. FREQUENCY OF FACTORS BY ENVIRONMENTAL STATUTE CHARGED



Aggravating factors were present most often, as a percentage of all defendants, for violations charged under Title 18 (99.7% of all defendants charged under the statute). In fact, we identified only one prosecution under Title 18 that did not involve the presence of one aggravating factor, even though Title 18 charges were brought against 376 defendants, the largest number of defendants in the six-year period covered by my research. The only case brought under Title 18 that did not involve at least one aggravating factor was a prosecution under 18 U.S.C. § 1361 for the destruction of government property.[169] These findings demonstrate that Title 18 charges for environmental crime are virtually certain to include one or more of the aggravating factors analyzed in our study.

Aggravating factors were present least often as a percentage of defendants charged for violations under the CWA but still constituted 94% of all defendants charged under the Act. There were only 17 defendants charged with CWA violations where none of our aggravating factors were present. Of those 17 defendants, 11 engaged in negligent violations of the CWA, while 6 engaged in knowing violations of the Act. The number of defendants charged with negligent violations in the absence of any aggravating factors underscores the need for caution in charging negligence cases.[170] Nonetheless, 91% of all defendants charged with negligent violations of the CWA, which are misdemeanors, engaged in conduct that involved an aggravating factor. For the more serious

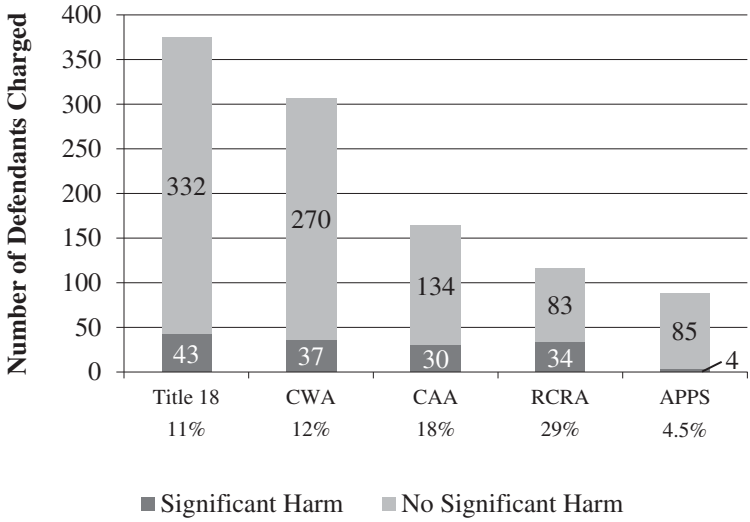
[169] Information, United States v. Billings, No. 3:05-cr-01136-JAH (S.D. Cal. July 1, 2005).
[170] *See supra* notes 123–24 and accompanying text.

knowing (and felony) violations of the Act, 97% of defendants charged engaged in conduct that involved an aggravating factor, exceeding the mean for all defendants.

We also analyzed the individual aggravating factors to determine whether there was any relationship between the statutes charged and the presence of particular aggravating factors. We saw all aggravating factors present for each of the statutes but there were variances from the mean for all defendants when we analyzed by statute. As discussed below, the greatest variations involved the percentage of defendants by statute who engaged in deceptive or misleading conduct and the percentage of defendants by statute that were operating outside the regulatory system.

For significant environmental harm or public health effects, the results ranged from a low of 4.5% for defendants charged under APPS to a high of 29% for defendants charged under RCRA. The results are summarized in Figure 12:

FIGURE 12. FREQUENCY OF SIGNIFICANT ENVIRONMENTAL HARM OR PUBLIC HEALTH EFFECTS BY STATUTE CHARGED

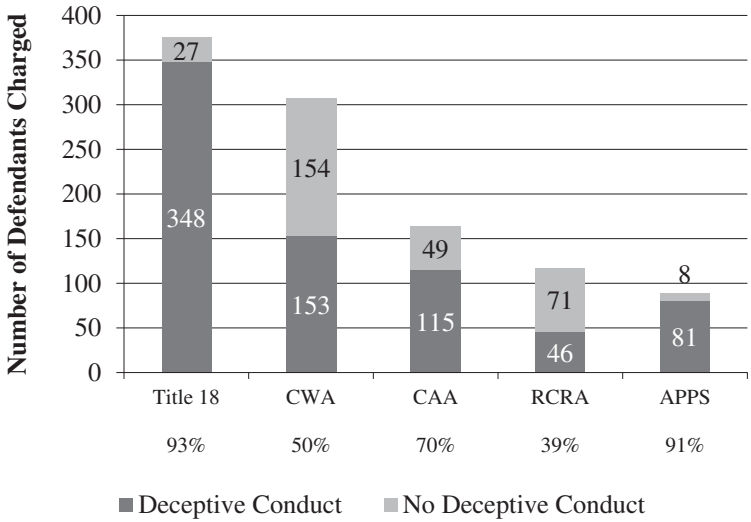


These results were predictable for two reasons. First, most APPS violations involve the failure to maintain an accurate oil record book that documents the proper management of oily waste generated by ships. The resulting pollution may cause substantial environmental harm in the aggregate. But, with the exception of oil spill cases (typically prosecuted under the CWA), the environmental impact of individual vessel cases typically is not known. Second, RCRA cases involve the failure to properly manage hazardous wastes, which creates significant risk of harm. Congress defined hazardous waste as solid waste that

causes increased mortality, irreversible or incapacitating illness, or poses a "substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. . . ."[171] As noted in Part III, *supra*, the majority of RCRA cases occur when a company stores or disposes of hazardous waste improperly (e.g., without a permit).

For deceptive or misleading conduct, statutory analysis produced the greatest variance for any of the aggravating factors. The results ranged from a low of 39% for defendants charged under RCRA to 91% for defendants charged under APPS and 93% for defendants charged under Title 18. The national mean for deceptive or misleading conduct is 63%. These results are summarized below:

FIGURE 13. FREQUENCY OF DECEPTIVE OR MISLEADING CONDUCT BY STATUTE CHARGED



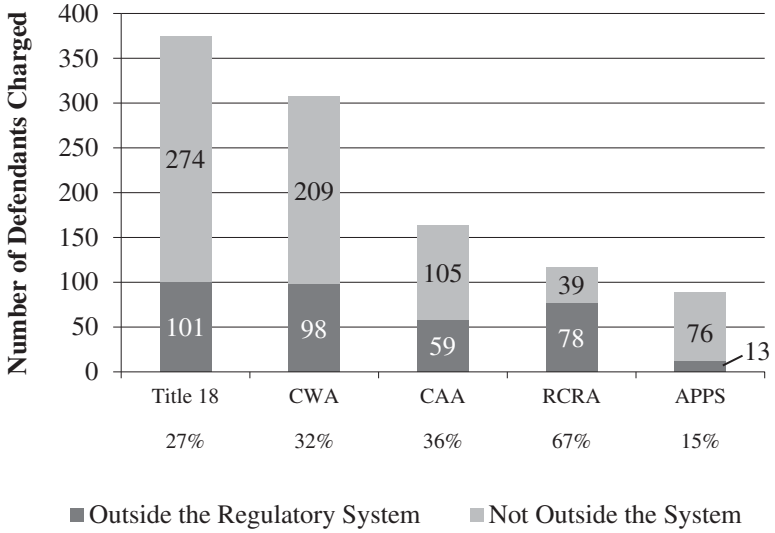
Title 18 violations typically involve deceptive or misleading conduct, because the Title 18 violations charged in environmental cases — with the exception of conspiracy — include statutory elements that involve deceptive or misleading conduct.[172] Given the frequency of conspiracy charges in environmental crimes, however, which do not include deceptive or misleading conduct as an element, the percentage of Title 18 defendants with this aggravating factor (93%) is higher than might be expected (present for all but 27 of the Title 18 defendants). This finding suggests that prosecutors may be emphasizing deceptive or misleading conduct in Title 18 matters.

[171] 42 U.S.C. § 6903(5).
[172] *See, e.g.*, 18 U.S.C. § 1001 (2012) (criminalizing false statements).

The result for RCRA defendants is not surprising by itself: RCRA cases, as noted above, typically involve the failure to obtain required permits but not necessarily deceptive or misleading conduct. In other words, it is possible to violate RCRA without engaging in deceptive or misleading conduct. Yet the same is true about CWA and CAA violations, which involved deceptive or misleading conduct more frequently. Perhaps the disparity reflects the fact that RCRA violations involve the improper management of hazardous waste, which could pose more significant public-health and environmental risks than CWA violations. In addition, the cradle-to-grave regulatory scheme of RCRA may lend itself to criminal enforcement more readily than the CAA regulatory system, which is subject to conflicting interpretations about its requirements. These issues may warrant further study.

Operating outside the regulatory system also produced a wide range of variations when analyzed by statute. The results showed a low of 15% for APPS and a high of 73% for RCRA, with all other statutes close to the national mean of 33%. Figure 14 summarizes the results:

FIGURE 14. FREQUENCY OF OPERATING OUTSIDE THE REGULATORY SYSTEM BY STATUTE CHARGED

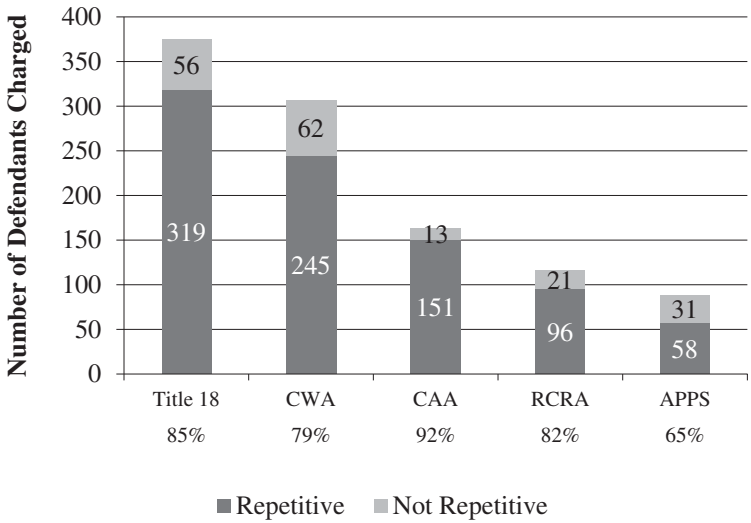


The high percentage of RCRA cases — more than twice the mean — makes sense given the percentage of RCRA cases that involve the failure to obtain permits to store or dispose of hazardous waste. It is unusual for RCRA cases to involve permit violations — in other words, misconduct by facilities that are otherwise participating in the regulatory system. Unlike other permit violation cases, which require knowledge only of the underlying conduct, RCRA permit violation cases require knowledge that the conduct is unlawful

under the permit. Perhaps as a result, there are few RCRA permit violation cases. It also is logical that APPS violations generally do not involve operating outside the regulatory system, because most vessel pollution (and resulting APPS violations) occurs on the high seas, where few ships sail under the flag of the United States.

The results for repetitive violations showed less variation by statute than deceptive or misleading conduct and operating outside the regulatory system. The outcomes ranged from 65% of defendants charged with APPS violations to 92% of defendants charged under the CAA, with a national mean of 79%. The results are summarized in Figure 15:

FIGURE 15. FREQUENCY OF REPETITIVE VIOLATIONS BY STATUTE CHARGED



It may be significant that repetitive violations were present least often in APPS prosecutions, the same pattern that our data showed for significant harm and operating outside the regulatory system. Of course, APPS cases focus on deceptive or misleading conduct (the failure to maintain accurate oil record books on vessels), but the data suggest that prosecutors may be more willing to bring charges for a single incident in the APPS context than for other statutes. Perhaps this willingness reflects a view that APPS cases conceal multiple acts of unlawful pollution activity in violation of MARPOL. Or it may reflect a more hard-line approach to vessel cases, although since nearly two-thirds of the vessel cases involve multiple port visits with inaccurate oil record books, there is a limit to how much these data reveal.

C. Defendants with No Aggravating Factors Present

For 36 of the defendants in our dataset, we determined that none of the four aggravating factors was present. We examined each case individually to determine whether, based on the conduct described in the court documents, any involved questionable exercise of prosecutorial discretion.

Of the 36 defendants with no aggravating factors, 17 defendants committed violations that, while insufficient to code as "operating outside the regulatory system," nonetheless involved core subcategory violations such as failing to obtain a permit. For example, in nearly all of the RCRA cases in the database, the defendants engaged in conduct that at least involved failing to acquire the requisite permit, which is a subset of culpability under operating outside the regulatory system. However, not all of those defendants were coded as operating outside the regulatory system because they might have been partially operating within the regulatory system.

Perhaps there might be circumstances where the failure to obtain a permit reflected good-faith misunderstanding of the permitting requirement or, in the RCRA context, the definition of hazardous waste. In those circumstances, prosecutors might choose to exercise their discretion to decline prosecution in favor of civil or administrative enforcement. By itself, however, there is nothing about prosecution for failure to obtain regulatory permits that signals prosecutorial overreaching. The obligation to acquire and maintain valid permits for pollution activity or to store and dispose of hazardous waste is not an arcane or obscure regulatory requirement.

Only 19 defendants engaged in conduct that was not captured by any category or subcategory. We analyzed each of these cases and found that researchers had noted explanatory "additional aggravating factors" that may have influenced prosecutors for 6 defendants. For example, one prosecution involved safety violations occurring in schools, which may have prompted the prosecutor to pursue criminal charges.[173] Another prosecution involved conduct that appeared to blatantly disregard the law but was not captured by one of the aggravating factors.[174]

As a result, most prosecutions with no aggravating factors involved either a subcategory of operating outside the regulatory system or an additional aggravating factor. Only 13 defendants engaged in conduct where prosecution could not be justified by a subcategory or additional aggravating factor. Of that number, 9 defendants were charged in an indictment or information that merely recited the elements of the offense. It is far easier to identify aggravating fac-

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[173] *See* Information at 1, United States v. Lazic, No. 2:07-cr-00324-JS (E.D. Pa. June 6, 2007) (concerning an asbestos remediation in an elementary school).

[174] In *United States v. Carman Chemicals*, a chemical manufacturer, among its 68 violations, was found selling products that had been illegal for nearly two decades. Information at 1-2, 2-3, 7-9, United States v. Carman Chem., Inc., No. 4:06-cr-00683-FRB (E.D. Mo. Nov. 13, 2006). Additional aggravating factors for the remaining defendants included harmful contact with humans, pollution in pristine environments or protected habitats, and knowing violations by environmental professionals.

tors in so-called speaking indictments, where prosecutors provided additional details about the misconduct, including the type of evidence that fit within the aggravating factor analysis.

Under the Federal Rules of Criminal Procedure, however, only the elements of the offense must be included in an indictment,[175] and pleading practices vary from district to district. In the absence of speaking indictments, we looked to other documents to determine whether aggravating factors were present (e.g., plea agreements, factual basis statements, sentencing memoranda, and judgments) but those documents sometimes did not exist or did not provide additional information beyond the charges.[176] Perhaps some of the 9 defendants who were charged in "bare-bones" indictments or informations did not engage in conduct that involved any aggravating factors. If so, those could be marginal criminal cases; we cannot tell from the court documents. Other than those 9 defendants, however, there are only 4 defendants for whom we could not discern a rationale for the prosecution despite the availability of court documents that provided details about their misconduct.[177] Those 4 defendants were charged with negligence on a single day, which I previously noted may involve conduct where civil charges may be more appropriate.[178] Nonetheless, 4 defendants is an extremely small percentage of the 864 defendants in our database.

Conclusion

More than three decades after EPA hired its first criminal investigators, the prosecution of environmental crime remains the source of persistent claims about over-criminalization and lingering questions about the role of criminal enforcement under the environmental laws. Given the broad discretion that prosecutors have under the environmental laws — and the erosion of bi-partisan support for environmental protection — those expressions of concern are not surprising. But they point to the need for a stronger normative framework and a better empirical understanding of criminal enforcement.

I previously offered a normative model positing that criminal prosecution would be most appropriate when one or more aggravating factors was present: significant environmental harm or public health effects, deceptive or misleading conduct, operating outside the regulatory system, and repetitive violations. My empirical research now strongly suggests that criminal enforcement has been limited in most instances to violations involving one or more of those

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[175] Fed. R. Crim. P. 7(c)(1).

[176] *See, e.g.*, Information at 1, United States v. Pitts, 4:10-mj-01014-DAS (N.D. Miss. June 21, 2010) (information three lines long, containing date, district, statute violation, and an assertion of knowledge).

[177] *See* Bill of Information, United States v. Allen Canning Co., 1:07-cr-10004-DDD-JDK (W.D. La. Mar. 16, 2007) (prosecution against a company for a single incident of discharging vegetable peel wastewater that included pollutants above permit levels).

[178] *See supra* note 124. The other 3 defendants identified in note 124 were coded for a sub-factor of operating outside the regulatory system or for an additional aggravating factor.

aggravating factors. In 96% of the environmental prosecutions from 2005–2010, at least one aggravating factor was present. In more than 88% of those environmental prosecutions, the defendants caused significant harm, engaged in deceptive or misleading conduct, or operated outside the regulatory system that protects the environment and public health. In nearly three-quarters of the cases, two or more aggravating factors were present, with repetitiveness most often the additional aggravating factor. These findings suggest that prosecutors have reserved criminal enforcement for egregious misconduct.

Moreover, the extent to which environmental criminals engage in deceptive and misleading conduct — more than 63% of those prosecuted from 2005–2010 — may undermine claims that environmental defendants are well-intentioned individuals inadvertently snared by complex regulations and a criminal enforcement scheme with reduced mental state requirements. The environmental regulatory system depends upon honest self-reporting; those who lie to conceal violations are engaging in culpable behavior that cripples efforts to protect the environment and the public from the risks associated with unlawful pollution. These findings take on added significance because one-third of the defendants in our study were operating entirely outside the regulatory scheme, making no effort to comply with the law. Criminal enforcement is appropriate for defendants who deceive or seek to operate outside the law, particularly when their conduct risks or causes significant harm to the environment and public health.

There were some cautionary notes revealed by our study: 4% of the defendants engaged in conduct that involved no aggravating factors, and a number of those defendants were charged in what appear to be pure negligence cases. Cases without aggravating factors and those involving pure negligence should receive extra scrutiny from prosecutors to ensure that criminal prosecution is appropriate. In addition, approximately one-fifth of all defendants engaged in conduct that occurred on a single day. Of course, a violation on a single day could be egregious enough to warrant criminal prosecution; in most single-day matters, an aggravating factor other than repetitiveness was present. Nonetheless, the most compelling prosecutions typically involve repeated misconduct, which compounds the wrongdoing and limits any doubt about the defendant's intent.

Overall, my research should reduce uncertainty about which environmental violations may result in criminal prosecution and quiet concerns about overcriminalization. Prosecutors appear to be focusing on conduct that involves the aggravating factors that I have identified: When those factors are absent, criminal prosecution is unlikely to occur. Prosecutors thus have reserved criminal prosecution for culpable conduct and avoided charges based on technical violations or when defendants acted in good faith. Perhaps most importantly, the empirical evidence suggests that prosecutors have properly exercised their broad discretion under the environmental laws and assured an appropriate role for criminal enforcement in our environmental protection system.

Appendix A: Participating Michigan Law Students, Fall 2010 – Winter 2013

Kyle Aarons, Kate Abbott, Ethan Anderson, John Aycock, Steven Barnett, Kenny Black, Katie Blair, Nathaniel Boesch, Kelsey Breck, Monet Brewerton, John Broderick, Jerusha Burnett, Colleen Burns, Elizabeth Calcutt, Amaris Carlson, Dorothy Chang, Stuart Chipman, Aliza Cohen, Kaley Connelly, Matthew Conrad, Jack Dafoe, Elizabeth Daligga, Ben Davis, Zach Dembo, Mai Denawa, Johanna Dennehy, Peter Drake, Sarah Duffy, Christopher Eaton, Samantha Ellingson, Scott Elliott, Christine Ernst, Brittany Finlayson, Matthew Frank, Nate Gambill, Elizabeth Gary, Emily Gilman, Stephen Gilson, Shira Gordon, Rachel Granneman, Joseph Halso, Nick Hambley, Corina Helfenstein, Kelsey Helland, Emerson Hilton, Nick Hirst, Jeff Ho, Brian Holbrook, Nate Hopkin, Zhijin Huang, Brianna Iddings, Jeff Jay, Helen Ji, Stephanie Jordan, Ray Kim, Annie Kruger, Peter Krzywicki, Julianne Landsvik, Ryan Leclerc, Dana Lovisolo, Christopher Lowther, Tad Macfarlan, Anna Martin, Maria Martinez, Lesley McGregor, Colin Michel, Lucas Middleton, Marguerite Moeller, Julia Muhlnickel, Sindhoori Nackeeran, Elise Neveau, Colleen Nicholson, Bryson Nitta, Helen No, Regan Nunez, Elizabeth Och, Kelly O'Donnell, Kimberly Parks, Christopher Perras, Kevin Petersen, Savera Qazi, Charles Ramsey, Katherine Rasmussen, Lauren Reid, Elissa Reidy, Joseph Reiter, Scott Robinson, Callie Sand, Ariel Schepers, Edward Schexnayder, John Schnitter, Helen Schweitz, Maya Sequeira, James Sharp, Lauren Shosfy, Susie Shutts, Daniel Sirdofsky, Levi Smith, Brian Straw, Anisha Sud, Gabe Tabak, Lyman Thai, Kit Tholen, Carlos Torres, Jamen Tyler, Ignacio Urbina, Claire Vallin, Kevan Ventura, Jessica Wall, Katherine Warren, Jennifer Wertheimer, Sarah Wightman, Megan Williams, Camran Wilson, Laura Wolff, Adam Wollstein, Jamie Woolard, Jessica Zachauski, and Caitlin Zittkowski.