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Prosecutorial Discretion and Environmental Crime Redux: Charging Trends, Aggravating Factors, And Individual Outcome Data For 2005-2014

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PROSECUTORIAL DISCRETION AND ENVIRONMENTAL CRIME REDUX: CHARGING TRENDS, AGGRAVATING FACTORS, AND INDIVIDUAL OUTCOME DATA FOR 2005-2014

David M. Uhlmann[*]

In a 2014 article entitled "Prosecutorial Discretion and Environmental Crime,"[1] *I presented empirical data developed by student researchers participating in the Environmental Crimes Project at the University of Michigan Law School. My 2014 article reported that 96 percent of defendants investigated by the United States Environmental Protection Agency and charged with federal environmental crimes from 2005 through 2010 engaged in conduct that involved at least one of the aggravating factors identified in my previous scholarship, namely significant harm, deceptive or misleading conduct, operating outside the regulatory system, and repetitive violations. On that basis, I concluded that prosecutors charged violations that included those aggravating factors in nearly every case over a six-year period—and that defendants who committed environmental violations that did not involve one of those aggravating factors were unlikely to face criminal charges.*

In this Article, I provide the latest data from the Environmental Crimes Project, which now includes defendants charged from 2005 through 2014. I again find that most defendants charged with federal environmental crimes committed violations that involved at least one of the four aggravating factors, with the levels even higher (98 percent of all defendants). I identify shifts in the data, the most notable of which are a dramatic drop in the number of cases and defendants charged during the last year of our data, a significant increase in the number of criminal charges brought under the Clean Air Act for non-asbestos abatement violations, and a nearly 40 percent increase in the percentage of defendants operating outside the regulatory system. I assess trends since Supreme Court

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* Jeffrey F. Liss Professor from Practice and Director of the Environmental Law and Policy Program at the University of Michigan Law School. Portions of this article are adapted from my October 2017 article, *Prosecutorial Discretion and Environmental Crimes: Updated Environmental Crimes Project Data* presented to the American Bar Association, Section of Environment, Fall Meeting in Baltimore Maryland. I would like to thank JJ Prescott for his comments regarding our statistical analysis. I am indebted to Parks Barroso, Drew Kramer, Allison Lasher, David Treadaway, and Emily Van Dam for their research assistance and to all of the students who have served as Environmental Crimes Project supervisors since 2010. I also am grateful to the more than 300 Michigan Law students who have participated in the Environmental Crimes Project over the last nine academic years. Appendix A to this article provides a list of all Michigan Law students who have participated in the Environmental Crimes Project.

1. David M. Uhlmann, *Prosecutorial Discretion and Environmental Crime*, 38 HARV. ENVTL. L. REV. 159 (2014).

decisions that restricted Clean Water Act jurisdiction[2] and made federal sentencing guidelines advisory,[3] and I analyze cases that fall outside my normative model and may pose questions about how prosecutors exercised their discretion.

In addition, for the first time, I provide outcome data regarding environmental crime, which demonstrates that overall conviction rates are higher for environmental crime than in the federal system generally and for regulatory crime in particular, but are not as robust at trial. I also provide incarceration data, which shows that fewer environmental defendants are incarcerated than other regulatory crime defendants. I analyze whether there is any correlation between incarceration and the statutes charged, the presence of aggravating factors, or whether defendants plead guilty or are convicted after trial. The incarceration data shows a statistically significant correlation between the number of aggravating factors and whether a defendant is incarcerated. The incarceration data also shows a strong correlation between conviction at trial and incarceration, with defendants who are convicted at trial more than twice as likely to be sentenced to a period of incarceration than defendants who pleaded guilty.

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INTRODUCTION

In January 2009, during my second year as a University of Michigan law professor, I participated in a symposium at the University of Utah Law School entitled "Environmental Criminal Prosecution: Essential Tool or Government Overreaching?"[4] As the title suggests, the conference brought together academics and practitioners with a wide range of views about the efficacy of the federal government's environmental crimes program. The symposium covered a range of topics, including the role of harm in environmental prosecutions and the sentences imposed for environmental crime.[5] Both are topics that I have considered in my subsequent research but, for the Utah conference, I was asked to address a contentious question that the environmental laws do not answer well: when is criminal prosecution appropriate for environmental violations?[6]

You might say I was not an unbiased commentator. Before becoming a law professor, I served for seventeen years as a prosecutor in the United States Department of Justice's Environmental Crimes Section (ECS), the last seven as ECS Chief. I had prosecuted dozens of cases in my ten years as a trial attorney and supervisor, including trials in Idaho, Missouri, South Dakota, Tennessee, and Wyoming. As ECS Chief, I approved all indictments and plea agreements in cases prosecuted by the Section, as well as major declinations. Yet, because of my Justice Department experience, I knew how much discretion prosecutors enjoy under the

4. The Utah Law Review published a symposium issue based on the proceedings. Symposium, *Environmental Criminal Prosecution: Essential Tool or Government Overreaching?*, 4 UTAH L. REV. 1097 (2009). In an article that I contributed to the symposium issue, I discussed for the first time the aggravating factors that I assert should be present in cases that are charged criminally under the federal environmental laws. David M. Uhlmann, *Environmental Crime Comes of Age: The Evolution of Criminal Enforcement in the Environmental Regulatory Scheme*, 4 UTAH L. REV. 1223 (2009).

5. *See, e.g.*, Susan F. Mandiberg, *Locating the Environmental Harm in Environmental Crimes*, 4 UTAH L. REV. 1177 (2009); Michael M. O'Hear, *Bark and Bite: The Environmental Sentencing Guidelines After* Booker, 4 UTAH L. REV. 1151 (2009).

6. University of Utah Law Professor Scott Matheson invited me to participate in the conference, and his colleague Bob Adler—then the associate dean for research and more recently dean—encouraged me to talk and write about what makes environmental violations criminal. I am grateful to both of them.

federal environmental laws and, as a result, how challenging it is for practitioners to advise their clients prospectively about when environmental violations might result in criminal prosecution.

Of course, prosecutors enjoy broad discretion throughout the criminal justice system; prosecutors and defense attorneys routinely argue about whether criminal prosecution is appropriate and, if so, what charges should be brought.[7] Yet historically, environmental criminal enforcement attracted more controversy than other areas of federal criminal law on the threshold question of what conduct should be criminalized.[8] Some of this controversy may be a function of the debate over the role of environmental regulation more generally. If we lack widespread agreement about how much we should regulate business activity in the environmental context—which clearly is the case—it should be no surprise that we also would lack consensus about which environmental violations should be criminalized.

But the controversy over environmental criminal enforcement is at least partially attributable to the fact that Congress did little to distinguish between criminal, civil, and administrative violations when it enacted the environmental laws.[9] As I have noted elsewhere, most environmental violations satisfy the act requirement under federal environmental laws.[10] Stated differently, nearly every violation of the environmental laws could result in criminal prosecution, civil penalties, administrative action, or no enforcement at all. Mental state requirements add an additional evidentiary burden for prosecutors. Yet most environmental violations easily meet the knowing mental state requirement that applies to the majority of felony violations in the federal system, because most environmental violations occur intentionally, not by mistake or accident.[11] As a result, overbreadth claims

7. *See, e.g.*, Kathleen F. Brickey, *The Rhetoric of Environmental Crime: Culpability, Discretion, and Structural Reform*, 84 IOWA L. REV. 115, 126-27 (1998); *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").

8. *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).

9. Uhlmann, *supra* note 1, at 162.

10. Uhlmann, *supra* note 4, at 1242 ("Stated differently, the act requirement is the same for criminal, civil, and administrative cases; the primary distinguishing feature of criminal enforcement is the mental state requirement."). For example, the EPA is empowered to stop a violator from discharging in violation of the Clean Water Act (Sections 309 and 404) through either administrative compliance orders, civil judicial enforcement actions, or criminal judicial enforcement actions. The EPA and the US Army Corps of Engineers generally have discretion in choosing when and what type of enforcement to pursue. *CWA Section 404 Enforcement Overview*, U.S. ENVTL. PROTECTION AGENCY (last updated Oct. 25, 2018), https://www.epa.gov/cwa-404/cwa-section-404-enforcement-overview.

11. Uhlmann, *supra* note 1, at 169-71.

about environmental criminal enforcement are not limited to the "usual suspects" (i.e. criminal defense attorneys or commentators who argue that environmental protections are too burdensome).[12] Indeed, even academics that are supportive of strong environmental protections have raised questions about whether the environmental laws delineated an appropriate role for criminal enforcement.[13]

At the conference in Salt Lake City, and in a subsequent article for the *Utah Law Review*, I argued that the exercise of prosecutorial discretion required more than a rote elements analysis of whether the defendant had committed an environmental violation and acted with the requisite mental state (knowingly for most felony violations and negligently for most misdemeanors).[14] I claimed that prosecutors would meet their obligation to do justice—and have a better chance of securing convictions in cases that went to trial—if they limited criminal enforcement to cases where aggravating factors were present that justified treating the violation as criminal.[15] Based on my experience at the Justice Department, I identified significant harm, deceptive or misleading conduct, operating outside the regulatory system, and repetitive violations as aggravating factors.[16]

During the Utah conference, there was general agreement that the presence of the aggravating factors I identified might justify criminal enforcement. That alone was a breakthrough of sorts. During my seventeen years at the Justice Department, there was little agreement on the theoretical question of what justified criminal charges, let alone whether the United States Environmental Protection Agency (EPA) and the Justice Department adhered to such norms. Where commentators disagreed in Utah was over the question of whether prosecutors were exercising their discretion in the ways that I argued they should. To answer that question, everyone relied to varying degrees on perceptions and individual cases or "horror stories" of prosecutorial discretion run amok, which I encountered in practice as well. In other words, the question clearly warranted empirical study. In part for that reason—and because there was insufficient data available about environmental criminal enforcement—I created the Environmental Crimes Project (ECP) during fall 2010.

Since 2010, I have worked with more than 300 Michigan Law students to analyze every pollution case investigated by the EPA that resulted in criminal charges since January 2005.[17] My students collect what I refer to as "quantitative" data, in-

12. *See* O'Hear, *supra* note 5, at 1165; *see also* Mandiberg, *supra* note 5, at 1178.

13. *See, e.g.*, 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).

14. Uhlmann, *supra* note 4, at 1245.

15. *Id.* at 1247-48, 1252.

16. *Id.* at 1245-52. These factors are discussed in detail *infra* Part I.

17. The Environmental Crimes Project does not analyze wildlife crime, although it is a growing area of prosecution activity, because most of those cases are investigated by the United States Fish and

cluding where the violations occurred and where charges were filed, whether the defendants were individuals or corporations, what statutes were charged, and what outcome resulted. My students also collect what I refer to as "qualitative" data, namely the presence or absence of the aggravating factors that I discussed at the Utah conference and in my scholarship.

In a 2014 *Harvard Environmental Law Review* article, I presented the results from the first six years (2005-2010) of cases analyzed by the Environmental Crimes Project.[18] From a quantitative standpoint, I reported that Title 18 of the United States Code, which makes it a crime to commit conspiracy, false statements, fraud, and obstruction of justice, was the most frequently charged statute for environmental crimes. Among environmental statutes, prosecutors charged violations of the Clean Water Act most frequently, followed by the Clean Air Act, the Resource Conservation and Recovery Act (hazardous waste violations), and the Act to Prevent Pollution from Ships.[19]

From a qualitative standpoint, I determined that 96 percent of the defendants charged with environmental crimes (828 out of 864 defendants) committed violations with one or more aggravating factors present. The most prevalent aggravating factors were repetitive violations (78 percent) and deceptive or misleading conduct (63 percent). These findings led me to conclude that one or more aggravating factors were present in nearly all environmental prosecutions and that violations that did not involve aggravating factors were unlikely to result in criminal charges.[20] I also determined that two or more of the aggravating factors were present in 74 percent of the cases, with the most dominant relationship one of the first three factors (harm, deceptive or misleading conduct, and operating outside the regulatory system) present alongside repetitiveness. In other words, 71 percent of the defendants engaged in repetitive misconduct—and either caused harm, utilized deceptive or misleading conduct, or operated outside the regulatory system.[21]

To some degree, the original publication of the Environmental Crimes Project data may have quieted the debate among environmental crimes practitioners. I suspect that there still are attorneys and companies who feel that EPA and the Justice Department act inappropriately in individual cases, but there seems to be less of a tendency to utilize those cases to make a broad-side attack on environmental criminal enforcement. To be clear, in my original article, I did not purport to demonstrate what makes environmental cases criminal. It is not clear to me that this is possible, and, at a minimum, it would require analyzing charged cases

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Wildlife Service, not EPA. Likewise, the Environmental Crimes Project does not include data from state cases, since most of those cases are investigated (and prosecuted) by state law enforcement personnel.

18. Uhlmann, *supra* note 1.

19. *Id.* at 183-93

20. *Id.* at 193-95.

21. *Id.* at 204-06.

against a control group of declined cases—which are not public—or at the very least a comparison group of civil cases. Civil cases involve notice pleading, and therefore do not lend themselves to the aggravating factor analysis we conduct for criminal cases.[22]

Yet, while the claims I make about environmental criminal enforcement may be modest, they nonetheless provide a sense of rationality about when criminal charges occur. My research also provides empirical support for the notion that criminal cases have defining characteristics—and therefore environmental violations without those characteristics are not likely to result in criminal charges. I would submit those are significant contributions in a field that seemed random, and where practitioners lamented that whether a case was criminal depended on where at EPA the matter originated.[23]

In this Article, I provide an update regarding the findings of the Environmental Crimes Project. I start by examining whether the charging trends we saw from 2005 through 2010 continued during the subsequent four years, notwithstanding a significant drop in the number of prosecutions during 2014. I note shifts in the charging data, including an increase in the number of prosecutions for non-asbestos abatement violations of the Clean Air Act, an increase in the use of endangerment charges in Clean Air Act cases, and a decrease in the number of hazardous waste prosecutions—but the core focus on Title 18 violations remains. I then determine whether the aggravating factor analysis that was the primary contribution of my 2014 article remains accurate. I identify a significant increase in the number of defendants who operated outside the regulatory scheme—but the core conclusions about the presence of aggravating factors remains accurate. I also seek to address new questions in this Article: (1) what is the conviction rate for environmental crime; (2) how often are convicted environmental criminals sent to jail; (3) what is the relationship, if any, between the statutes charged and whether individuals go to jail; and (4) are there other factors that may influence whether individuals go to jail for environmental crime. These are all questions that prior empirical research about environmental crime has not addressed.

Part I of this Article describes the revised methodology for the Environmental Crimes Project, including minor changes we have made in how we code for aggravating factors since publication of my 2014 article. Part II provides updated data regarding charging trends for environmental crime. Part III analyzes updated data regarding aggravating factors in environmental prosecutions. Part IV explores the relationship between aggravating factors, including an assessment of the cases where no aggravating factors were present. Part V presents outcome information regarding conviction and incarceration rates for environmental crime.

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22. *Id.* at 166.

23. 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).

I. REVISED ENVIRONMENTAL CRIMES PROJECT METHODOLOGY[24]

The Environmental Crimes Project (ECP) is a collaborative faculty-student research project at the University of Michigan Law School. I formed ECP in 2010 to collect data to assess the assertions I made at the Utah conference and in my subsequent scholarship regarding aggravating factors in environmental crimes, as well as to explore patterns in environmental criminal enforcement. Each year, I work with a small group of student supervisors who oversee student volunteers who obtain, examine, and analyze charging documents, plea agreements, judgments, and other court documents for all defendants charged with environmental crimes that EPA investigated. Students then upload the results of this data collection effort to a database for further analysis. Since ECP began nearly nine years ago, more than 300 Michigan Law students have participated, collecting data on nearly 1,500 defendants. In this Part, I describe the ECP methodology, including our quantitative and qualitative data analysis.

A. *Overview of ECP Methodology*

The goals of ECP remain to collect quantitative data and qualitative data regarding the prosecution of environmental crime. For purposes of this Article, the term "quantitative data" includes the location of the charged crimes, whether corporations or individuals were charged, the positions defendants held within a company, the size of the business entities involved, which statutes were charged, and the outcomes by defendant. The term "qualitative data" tracks the presence or absence of aggravating factors that I have argued should be present to justify criminal charges for environmental violations.

It merits re-emphasis that these aggravating factors may also be present in civil or administrative cases. I therefore do not suggest that the presence of aggravating factors makes a case criminal or is dispositive of whether the case will be charged criminally. Instead, my assertion is that one or more aggravating factors should be present in any case that is criminally charged—and that violations without one of more aggravating factors may not be appropriate for criminal prosecution. Properly understood, the presence or absence of aggravating factors should help practitioners better predict whether a case might result in criminal charges and should promote better understanding about how prosecutorial discretion is exercised for environmental criminal enforcement.

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24. The ECP methodology described in this Part is an updated version of what was detailed in Part II of my 2014 article published by the Harvard Environmental Law Review. Uhlmann, *supra* note 1, at 177-82. Where the methodology is unchanged, I present an abridged (or in some cases excerpted) description in this article. The original article included data about 864 defendants charged between 2005-2010; we now have data regarding 882 defendants from that time period, because we now have completed analysis of defendants whose cases remained pending in 2014. For consistency between my earlier publication and this article, I will reference the original 864 defendants when I reference the Harvard article but otherwise will reference the updated 2005-2010 data in this article.

Since 2010, EPA has provided ECP a biennial list of defendants investigated by EPA and charged by the Justice Department with environmental crimes. Students then obtain court documents and other public information for each case, upload those documents to our electronic database, review each case, and—after receiving training and a detailed analysis guide—complete an online form collecting both the quantitative and qualitative data discussed in this article. For each case, students analyze at a minimum the docket, indictment or information, and the final judgment. When available, students examine other court documents.[25] To collect corporate prosecution data, which we began doing in 2014, students rely on online business databases such as Mantis and Orbis, in addition to descriptions in court documents and government press releases.

We have completed analysis on all defendants prosecuted under the federal environmental statutes who were charged from January 1, 2005 through December 31, 2014. Students add new cases to the database as core documents become available, but these new cases are not analyzed as part of the dataset until multiple rounds of student and supervisor review takes place. The data collected from these case documents have been aggregated and organized in a searchable database that facilitates research and analysis of environmental criminal enforcement.

The ECP database continues to exclude several categories of defendants.[26] First, we exclude cases that were charged before 2005, since EPA switched case management systems in 2005 and is best able to ensure the completeness of its data starting in that year. Second, we omit state cases brought by state prosecutors, since 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 do not include cases involving only wildlife crime, even though wildlife crime is one of the largest areas of environmental prosecution,[27] since most

25. Occasionally, when available, government press releases are also consulted and are used to resolve issues that are not clear from the court documents.

26. As a result, the data that I present in this article may differ from information provided by EPA on its website. *See, e.g.*, *Summary of Criminal Prosecutions*, U.S. ENVTL. PROTECTION AGENCY, https://www.epa.gov/enforcement/summary-criminal-prosecutions (last visited Mar. 21, 2019).

27. ECS (along with its partners in the United States Attorneys' Offices) prosecutes many wildlife crimes, including wildlife smuggling, in addition to enforcing the nation's major environmental laws, such as the Clean Water Act, the Clean Air Act, and the Resource Conservation and Recovery Act. *See* U.S. DEP'T OF JUSTICE, ENV'T & NAT. RES. DIV., ENRD ACCOMPLISHMENTS REPORT FISCAL YEAR 2017, at 9-11, 28-30 (2017), https://www.justice.gov/enrd/page/file/1058046/download. The United Nations Office on Drugs & Crimes reports that wildlife crime is the fifth largest category of transnational crime (by amount of proceeds), after drugs, counterfeiting, human trafficking, and oil. It is estimated that proceeds from wildlife crimes is about $7.8-10 billion annually. *See* UNITED NATIONS OFFICE ON DRUGS AND CRIMES, ESTIMATING ILLICIT FINANCIAL FLOWS RESULTING FROM DRUG TRAFFICKING AND OTHER TRANSNATIONAL ORGANIZED CRIME 38 (2011), https://www.unodc.org/documents/data-and-analysis/Studies/Illicit-financial-flows_31Aug11.pdf. But because of the difficulty in placing a value on the illegal wildlife trade, the annual proceeds (and resulting ranking) may be even higher. UNITED NATIONS OFFICE ON DRUGS AND CRIMES, WORLD

wildlife crime is investigated by the United States Fish and Wildlife Service. We do include, however, cases that involve both pollution violations and wildlife crime.[28] Finally, we exclude cases that charge only non-environmental crimes, such as tax violations, even if those cases were investigated by EPA,[29] as well as those for which researchers could not find court documents.

Students collect four categories of data by defendant: (1) case information; (2) defendant information; (3) outcome information; and (4) aggravating factors. I briefly describe each category below and the applicable methodology and note any changes in methodology from my 2014 *Harvard Environmental Law Review* article. The first three categories are considered quantitative, while the fourth is considered qualitative.

B. *Quantitative Data Collection and Analysis*

For case information, researchers record the case name, defendant name, city and state of violation, docket number, EPA region, federal judicial district, judge name, charging date, and statutes charged. We use this data to identify changes in enforcement levels from year-to-year and to conduct analysis of charging trends. In the future, we hope to examine enforcement levels in different parts of the country and the extent to which there may be geographical disparities in the prosecution of environmental crime.

For defendant information, researchers categorize each defendant as either an individual, corporation, or governmental entity.[30] Researchers code each case based upon what types of defendants were charged: individuals affiliated with an organizational entity, organizational entities, both individuals and organizational entities, or people or government entities that were not affiliated with a business. For indi-

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WILDLIFE CRIME: TRAFFICKING IN PROTECTED SPECIES 20 (2016), https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf.

28. So, for example, we omit cases charging only violations of the Migratory Bird Treaty Act, but we retain cases involving Clean Air Act violations and Migratory Bird Treaty Act charges. In addition, while the misuse of pesticide may not be a classic form of pollution activity, we include charges brought under federal pesticide laws in our definition of pollution crime.

29. To determine if non-environmental charges should be treated as environmental crime, we looked for an environmental nexus to the crime. This requirement was not satisfied solely by the fact that a company does environmental work, if the criminal activity was unrelated to the environmental work. For example, cases where defendants filed false tax returns were excluded from our database, even though the tax violations were discovered during an EPA investigation into asbestos companies defrauding the Small Business Administration. On the other hand, we included in the database companies who committed fraud within the environmental services industry (e.g. asbestos abatement companies using undocumented workers to conduct illegal asbestos removal or companies engaging in fraudulent vehicle emissions testing).

30. We also note whether individuals are affiliated with an organization (e.g. employees of a corporation that was involved in the criminal acts) or whether they were unaffiliated with an organization.

vidual defendants, researchers note the type of defendant: public official, corporate officer, manager, environmental compliance person, low-level employee, owner/sole proprietor, or individual not associated with an organization. For cases involving businesses, researchers note the defendant industry, whether the business was publicly or privately held, and the approximate size of the business. For both individuals and businesses, researchers note whether the individual or business served as an independent contractor and the approximate size of the client company. I will examine this corporate data and how it varies based on business size in a future article regarding the prosecution of corporate environmental crime.

For outcome information, researchers record outcomes by defendant. They indicate the disposition for each charged crime—guilty plea, guilty verdict, acquittal, dismissal, or mistrial—and the final judgment date (or the date on which all charges were dismissed). If the defendant ultimately pled guilty or was convicted, researchers include whether it was a felony or misdemeanor conviction; the length of jail and probation periods (if any); the existence of cooperation agreements; the amounts of fines, restitution, remedial, and community service payments; and the existence of court-ordered environmental compliance plans. Part V of this Article will consider this data for individuals; I will address corporate data, as noted above, in a future article regarding corporate environmental crime.

C. *Qualitative Data Collection and Analysis*

For aggravating factors, researchers review the court documents for each defendant to determine the presence of the four aggravating factors that I have argued should be present in criminal cases: significant environmental harm or public health effects, deceptive or misleading conduct, operating outside the regulatory system, and repetitive violations.[31] Each factor warrants further explanation.

The first aggravating factor, significant environmental harm or public health effects, is limited to actual harm. I assume that risk of harm is present in most environmental cases, since nearly all environmental laws seek to prevent public health effects.[32] I therefore determined that we would code for harm only in cases that involved either animal mortality[33] or possessed the characteristics identified by the

31. To facilitate our analysis of cases with no aggravating factors, which I present *infra* Section IV.B, students also note the presence of other potential aggravating factors. For example, if researchers found that an additional factor, such as risk of danger to children or the presence of other criminal conduct (such as a pesticide infraction combined with a drug charge), seemed to be a driving force in the decision to press charges, they were directed to record the additional factor and its relevance. I do not utilize this information in my aggravating factor calculations, since it would distort our findings, but it is helpful in trying to understand why charges may have been brought in cases where my aggravating factors were absent.

32. *See* David M. Uhlmann, *The Quest for a Sustainable Future and the Dawn of a New Journal at Michigan Law*, 1 MICH. J. ENVTL. & ADMIN. L. 1, 6 (2012).

33. We considered whether we should distinguish between types of animal mortality based either on the number of animal deaths or the types of animals involved, since prosecutors presumably

United States Sentencing Commission as warranting enhanced sentences based on harm: (a) serious bodily injuries or deaths; (b) cleanup involving substantial expense (greater than $100,000); and (c) evacuation or urgent emergency response.[34] The one exception to the general exclusion of risk of harm is that researchers coded for harm when the defendant was charged with knowing or negligent endangerment under the environmental laws.[35]

The second aggravating factor, deceptive or misleading conduct, covers dishonest behavior. Deceptive or misleading conduct can occur during the commission of an offense or after the offense has been committed to conceal violations or mislead authorities. Researchers look 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 economic advantage over competitors and undermining the effectiveness of the regulatory system. We also code for four sub-characteristics: failure to acquire or renew permits, failure to keep or maintain records, failure to monitor, and failure to report.[36] In the past, this category included defendants who were only nominally participating in the regulatory system, on the theory that minimal participation was tantamount to non-participation. But with the benefit of hindsight, this seemed too subjective: what is nominal and at what point do defendants become non-participants in the regulatory system? We therefore re-coded all defendants so that only those who were evading regulation completely were considered operating outside the regulatory system.[37]

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would view a major fish kill involving thousands of deaths differently than an isolated death from misuse of a pesticide. We concluded, however, that there was not a principled basis for distinguishing between either the number of deaths or the species involved. We also decided that, if the deaths were significant enough to be mentioned in a charging document, we should treat them as significant too. We instead note both in our database, and code for harm when there are any animal deaths.

34. U.S. SENTENCING GUIDELINES MANUAL § 2Q1.2-4 (U.S. SENTENCING COMM'N 2018). We use $100,000 as the cut-off for cleanup involving substantial expense based on *United States v. Bogas*, 920 F.2d 363, 369 (6th Cir. 1990) ("[W]e are satisfied that the expenditure of tax dollars required for the cleanup came to a six-figure total. The finding that cleanup did not require a 'substantial' expenditure was clearly erroneous.").

35. The fact that the prosecutor brought an endangerment charge suggests that the risk of death or serious bodily injury played a role in the government's decision to bring criminal charges.

36. 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 regulations.

37. This caused a very slight decrease in the number of defendants who were coded as operating outside of the regulatory system. In my original article, I reported that 33.2% of defendants charged

The fourth factor, repetitive violations, focuses on the duration of non-compliance. This is a difficult factor to analyze, because prosecutors often allege a long period of misconduct without making clear how many violations occurred during that time period. My assertion is that, in most instances, there is a qualitative difference between isolated violations and those that are repeated over a long period of time. Researchers therefore calculated both the number of days of violations alleged in the indictment (when it was possible to do so), as well as the duration between the first and last day of violations charged in the indictment. The one exception was with Title 18 conspiracy charges: if either the first or the last date of the conduct only involved non-substantive acts, these dates were disregarded. In other words, merely planning to violate the environmental laws, without any attempt to actually do so, was not included in this analysis. Researchers also recorded the duration of all environmental criminal violations alleged in the indictment, even if entities were not charged with all of those violations. Researchers coded as repetitive any case involving either multiple days of violation or where the duration of the violations was more than 24 hours.

Here too, we have made some adjustments since the first article in how we code, since repetitiveness can be difficult to determine unless prosecutors allege specific days of violations. Most of the changes we made were largely for clarification to ensure more complete and consistent coding. We now include misconduct contained in a conspiracy charge in calculating the duration of the charged conduct, which previously we only included if conspiracy was the only charge in the case. This should not have changed how many cases were coded as repetitive, however, because we always included conspiracy in alleged misconduct, which drives the repetitiveness determination.[38] We also determined that we would not count as repetitive violations that occurred on two calendar days but for less than 24 hours. This too did not have a significant impact on our repetitiveness data but provided greater clarity. As with changes to the third factor, we re-coded all cases to ensure a consistent methodology.

In multi-defendant cases, researchers coded the same aggravating factors consistently for all defendants. This strategy reflects the view that prosecutors make a threshold determination of whether an underlying violation warrants criminal prosecution. In other words, the egregiousness of one defendant's actions can affect the prosecutor's decision to bring criminal charges against all defendants. However, researchers made a narrow exception for cases where a single or small number of defendants in a multi-defendant case engaged in conduct that appeared to be

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between 2005-2010 operated outside of the regulatory system; after all defendants had been re-coded, the percentage dropped slightly to 31.9% of all defendants for the same time period. Our dataset also has changed somewhat now that we have completed analysis of cases that were still pending in 2014. *See supra* note 24.

38. The number of defendants from 2005-2010 who engaged in repetitive misconduct increased from 78.5% in the original article to 81.2% in our current database. *See infra* note 98.

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

D. *Quality Assurance/Quality Control and Limiting Factors*

ECP's data collection and review processes are rigorous and undergo constant refinement. I worked with the ECP supervisors over the last five years to revise the analysis guide that we use to explain how to collect quantitative data and how to code for aggravating factors. In collecting data, students must explain each of their qualitative, aggravating factor answers in a few brief sentences, with cites to the record. These explanations helped reviewers and supervisors ensure uniformity.

At least three students examined each defendant and entered data into a protected online database accessible to all researchers. Any qualitative disputes were resolved by the ECP 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. When we decide that we needed to make a significant change in how we code data, we re-coded all cases to reflect that change.

As with any comprehensive undertaking, ECP faces limiting factors. First, as noted previously, it is not possible to develop a control group of declined cases, since those are not public. It also is not feasible to create a comparison group of civil cases, because those cases are based on notice pleading, without the type of information provided in charging documents that we use to conduct aggravating factor analysis.

Second, while we have made extensive efforts to analyze every case charged since 2005, it was not possible to obtain information about every matter. We obtained court documents for most cases using the Public Access to Court Electronic Records (PACER) system. Where documents were not available on PACER, we contacted the clerk's office to obtain the documents. In nearly every instance, we were successful and could conduct our analysis. In a small number of cases, however, no court documents (or not all required documents) were available; those cases were excluded from our dataset.

Third, information about the size of the company at the time of the charges was not always readily available. Researchers made every effort to determine the size of the company at the time it was charged, but sometimes information was conflicting or was absent, at which point researchers were instructed to use their best judgment and, if truly unable to determine company size, to omit that case from the corporate data analysis.

Finally, as I stated in my 2014 article, prosecutorial discretion is an inherently subjective process.[39] 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 have developed criteria for answering the questions raised by our research so that students code consistently, and we re-assess those instructions regularly. But our results are affected by our criteria and the choices they reflect.

II. PROSECUTION TRENDS AND FREQUENTLY CHARGED ENVIRONMENTAL CRIMES

As I noted in my 2014 article, the environmental crimes program should always be viewed in context: it involves fewer cases each year than EPA refers to the Justice Department for civil enforcement and far fewer than the agency addresses through administrative enforcement. In 2014, the last of the ten years covered in this article, the Justice Department prosecuted 107 defendants on criminal charges in 65 cases, while EPA initiated 2,268 civil judicial and administrative cases.[40] Moreover, while most environmental crimes are prosecuted in federal court, far more civil and administrative cases are filed by state enforcement and regulatory officials.[41]

In this part, I examine overall prosecution trends and the extent to which shifts may be occurring in the type of violations that are charged criminally.

A. *Overall Charging Data and EPA Agent Resources*

From 2005-2010, the Justice Department brought criminal charges against 882 defendants in 509 cases (based on EPA investigation numbers).[42] Our updated da-

39. Uhlmann, *supra* note 1, at 182.

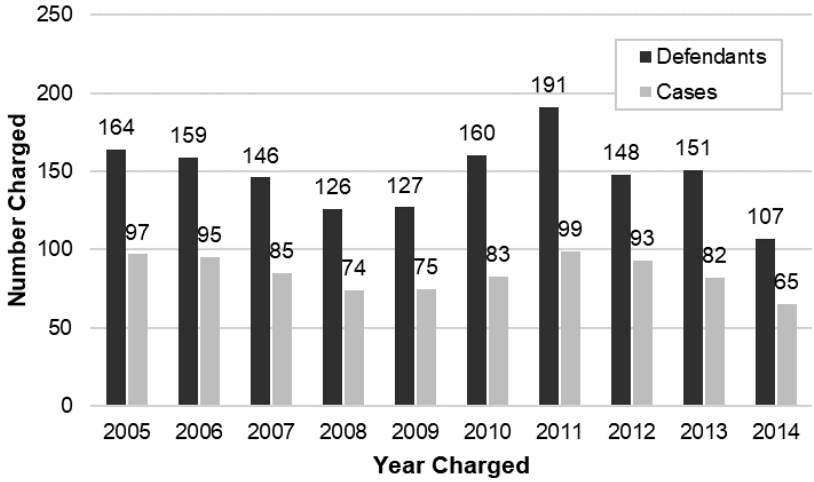
40. U.S. ENVTL. PROT. AGENCY, OFFICE OF ENF'T & COMPLIANCE ASSURANCE, FISCAL YEAR 2014 EPA ENFORCEMENT AND COMPLIANCE ANNUAL RESULTS 8 (2014), https://www.epa.gov/sites/production/files/2014-12/documents/fy-2014-enforcement-annual-results-charts-12-08-14.pdf.

41. *See* ENVTL. INTEGRITY PROJECT, ASSESSING STATE ENFORCEMENT: TOO MANY CLAIMS, TOO LITTLE DATA 36 (2002), https://www.environmentalintegrity.org/wp-content/uploads/2016/11/2003-04_Too_Many_Claims_Too_Little_Data1.pdf; Uhlmann, *supra* note 1, at 178 ("most [environmental] criminal cases are prosecuted in federal court"); *cf.* N.Y.U. SCH. OF LAW, INST. FOR POLICY INTEGRITY, IRREPLACEABLE: WHY STATES CAN'T AND WON'T MAKE UP FOR INADEQUATE FEDERAL ENFORCEMENT OF ENVIRONMENTAL LAWS 1-2 (2017), https://policyintegrity.org/files/media/EPA_Enforcement_June2017.pdf ("[S]tates bring about 90 percent of environmental enforcement actions each year.").

42. In my Harvard article, I reported a higher number of cases because I calculated case numbers based on federal district court docket numbers (which was the practice at ECS). Uhlmann, *supra* note 1, at 183. Upon further consideration, however, EPA investigation numbers are a better way of capturing related defendants, since all charges resulting from a particular investigation have the same

ta from 2005-2014 involves 1,479 defendants in 848 cases. The number of prosecutions per year ranges from a high of 191 defendants in 99 cases during 2011 and a low of 107 defendants in 65 cases during 2014, as shown in FIGURE 1 below.

Fig. 1: Trends in Criminal Enforcement Efforts: Prosecutions by Year



The average number of annual prosecutions across the ten years of our dataset is 148 defendants in 85 cases. Only 2005 and 2011 exceeded the average number of defendants prosecuted by more than 10 percent, while 2008, 2009, and 2014 fell more than 10 percent below the average number of defendants across the ten-year period. The high year (2011) clearly was an outlier, involving a nearly 20 percent increase in the number of defendants from the previous year and a more than 20 percent drop in the following year. The low year (2014) also was an outlier in the dataset, but it is noteworthy because it involved a nearly 30 percent drop in the number of defendants from the previous year and is 15 percent less than the next lowest year (2008). Moreover, while we have not completed our analysis of cases charged during 2015 and 2016, a preliminary review suggests that the downward trend that began in 2014 continued into 2015 and 2016.

Yearly variations in case numbers and defendants prosecuted are normal in a law enforcement program with comparatively few agent resources. As I have noted in my prior articles on this topic, EPA is required to employ 200 special agents nationwide, an extraordinarily modest number for a national law enforcement pro-

case number, where a single investigation will result in multiple federal district court case numbers if there are multiple indictments (or informations). In addition, as previously noted, the Harvard article referenced 864 defendants, but our database now includes 882 defendants from 2005-2010, as additional cases have been completed. *See supra* note 24.

gram that investigates sophisticated white collar crime.[43] For comparison, although it has much broader responsibilities, the FBI employs approximately 14,000 special agents nationwide.[44] With limited EPA agent resources and cases that vary in complexity, I would expect to see some year-to-year variations in environmental crimes data, even if agent resources were stable.

Normal variations in prosecution levels become accentuated when already limited agent resources are depleted by retirements and other departures, particularly if those occur during times when EPA is under a hiring freeze or otherwise unable to hire replacements. In recent years, EPA often has had far less than the mandatory 200 agents, which makes it even more difficult to maintain a robust law enforcement program and results in fewer investigations and prosecutions.[45] That problem may explain the drop-off in cases prosecuted during 2008-2009 and again during 2014. From 2005 to 2009, EPA had fewer than 200 agents each year.[46] Staffing levels rose just above 200 agents during 2010 and 2011, and then dropped precipitously in the years that followed to 191 agents in 2012, 177 agents in 2013, and 168 agents in 2014.[47] Given these staffing fluctuations, it is no surprise there were corresponding increases and decreases in defendants charged.[48]

Another observation about the overall case data is that political commentators might expect to see disparate numbers when comparing Republican and Democratic administrations. Indeed, the overall prosecution numbers suggest a drop-off in the final years of the George W. Bush administration and, perhaps as a result, the first year of Barack Obama's administration. But the Bush administration averaged 148.8 defendants per year in the four years of data available, while the Obama administration averaged 147.3 defendants per year. Those relatively similar numbers are more consistent with the proposition that environmental criminal enforcement

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43. Uhlmann, *supra* note 4, at 1236, n.59 (regarding Pollution Prevention Act requirement that EPA employ 200 criminal investigators).

44. U.S. DEP'T OF JUSTICE, FED. BUREAU OF INVESTIGATION, FY 2017 BUDGET REQUEST 1.

45. This problem may have worsened during the first two years of the Trump administration. *See* Press Release, Pub. Emps. for Envtl. Responsibility, Criminal Enforcement Collapse at EPA (Jan. 15, 2019), https://www.peer.org/news/press-releases/criminal-enforcement-collapse-at-epa.html (In April 2018, there were only 140 special agents, and that number reportedly dropped to only 130 by January 2019.)

46. ROBERT ESWORTHY, CONG. RESEARCH SERV., RL34384, FEDERAL POLLUTION CONTROL LAWS: HOW ARE THEY ENFORCED? 26 (2014), https://fas.org/sgp/crs/misc/RL34384.pdf.

47. *Id.* (regarding 2010-2013 data); *Agent Count—8/8/17*, PUB. EMPS. FOR ENVTL. RESPONSIBILITY, https://www.peer.org/assets/docs/8_24_17_CID_special_agent_numbers.pdf (last visited 3/1/2019) (for 2014 data).

48. When assessing the impact of reduced agent resources on prosecution levels, it is worth bearing in mind that there is a lag between when investigations begin and when prosecutors seek charges. During my tenure as Chief of the Environmental Crimes Section, our goal was to bring charges within 12 to 18 months. More complex cases can take 2 to 3 years to investigate. As a result, a decline in agent resources should produce a drop in prosecution levels 1-3 years later—and an increase in agent resources should produce an increase in prosecution levels 1-3 years later.

has been non-partisan and receives consistent support across presidential administrations.[49] In other words, even when administrations may differ about how much regulation is optimal, they want to be seen as tough on crime—and therefore support a robust criminal enforcement effort—although early reports suggest that the administration of Donald J. Trump may prove to be an exception to that pattern.[50]

What is far less clear is whether Congress wants a robust environmental crimes program. In 1991, Congress required EPA to increase its agent resources to 200 criminal investigators. Since that time, however, Congress rarely has provided enough annual appropriations for EPA to come close to those staffing levels. And, even on the rare occasions when EPA has deployed 200 criminal investigators, the agency has not had the resources it needs to address environmental violations in 50 states, each of which has a unique demographic profile and therefore different types of environmental violations. Based on my experience at the Justice Department, I would argue that a true commitment to strong criminal enforcement would require twice as many criminal investigators, if not more, so EPA could have a law enforcement presence in every state.

The most frequently charged statute in our updated study remains Title 18, which makes it a crime to commit conspiracy,[51] false statements, obstruction of jus-

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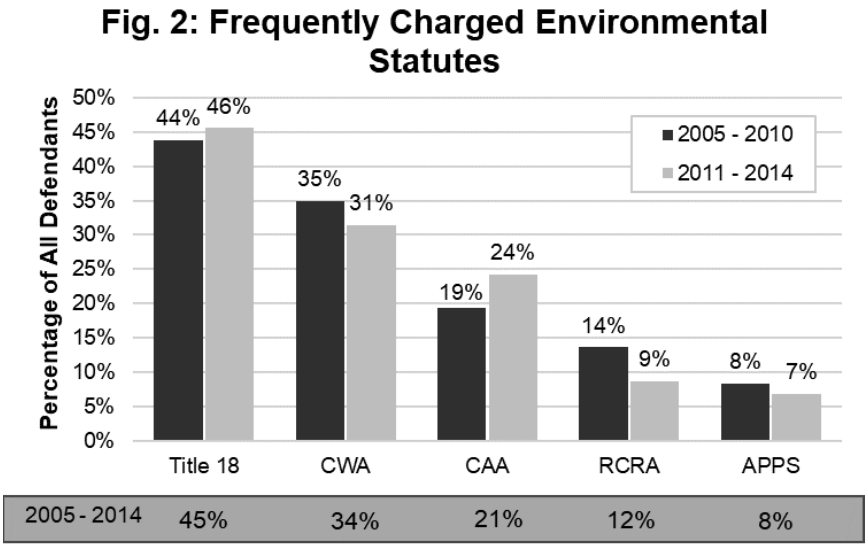
49. *See* David M. Uhlmann, Cover Story, *Strange Bedfellows*, 25 ENVTL. F. 40 (2008).

50. In February 2019, EPA provided us case information regarding criminal enforcement during the first two years of the Trump administration. We have not had the opportunity to conduct our multi-phased review of those cases, however, many of which are still pending matters. I am reluctant to place too much weight on early news articles suggesting a decline in criminal enforcement, although they may prove to be accurate. *See, e.g.*, Megan Guess, *EPA at a 30-year low for referring pollution cases for criminal prosecution*, ARS TECHNICA (Jan. 15, 2019), https://arstechnica.com/tech-policy/2019/01/epa-at-a-30-year-low-for-referring-pollution-cases-for-criminal-prosecution/. But the EPA criminal program has continued to struggle with decreased agent resources during the first two years of the Trump administration, a problem exacerbated by the use of criminal investigators to provide a security detail for EPA Administrator Scott Pruitt. *Id.*; *see, e.g.*, Umair Irfan, *EPA watchdog: turns out Scott Pruitt didn't need 20 Security Guards*, VOX (Sept. 5, 2018, 9:40 AM EDT) https://www.vox.com/2018/9/5/17819548/epa-scott-pruitt-inspector-security-detail; *see also* Dino Grandoni, *The Energy 202: EPA loses a tenth of its criminal investigators since Trump's election*, WASH. POST (June 21, 2018), https://www.washingtonpost.com/news/powerpost/paloma/the-energy-202/2018/06/21/the-energy-202-epa-loses-a-tenth-of-its-criminal-investigators-since-trump-s-election/5b2aa8ea30fb046c468e6f1a/?noredirect=on&utm_term=.dae5745b6e06 (stating that the number of CID agents fell from 157 in September 2016 to 140 in April 2018); *cf.* Juliet Eilperin & Brady Dennis, *Under Trump, EPA Inspections Fall to a 10-Year Low*, WASH. POST (Feb. 8, 2019, 5:36 PM), https://www.washingtonpost.com/climate-environment/2019/02/08/under-trump-epa-inspections-fall-year-low/?noredirect=on&utm_term=.43cb0e44ab44:

> Under President Trump, the Environmental Protection Agency inspected fewer industrial facilities during 2018 than at any time over the past decade . . . The sharp drop in inspections and evaluations last fiscal year . . . is only half the number the EPA conducted at its peak in 2010 . . . . Other enforcement activities at the agency experienced similar declines.

51. Nearly all conspiracy charges in our database involve 18 U.S.C. § 371 (the general conspiracy statute). A small number of defendants were charged under other Title 18 conspiracy statutes, for

tice, and fraud. The most frequently charged environmental statute remains the Clean Water Act. There is a potentially significant increase in the percentage of Clean Air Act defendants, and a modest increase in Title 18 defendants. At the same time, there are notable decreases in the percentage of Clean Water Act and the Resource Conservation and Recovery Act (RCRA) charges, and a modest decrease in Act to Prevent Pollution from Ships (APPS) charges. I discuss these shifts, which are shown in FIGURE 2 below,[52] in the following sections.



B. *Title 18 Cases*

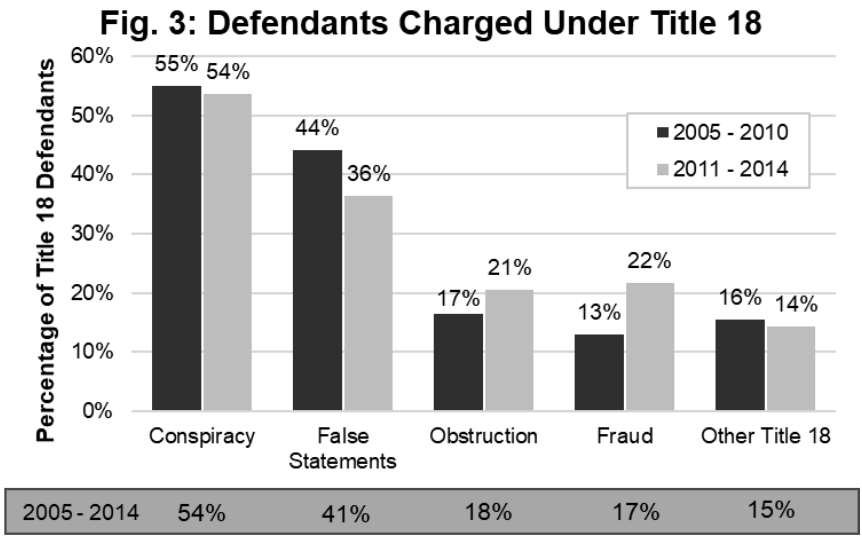
As noted above, there is a modest increase in the percentage of Title 18 defendants when we expand from 2005-2010 to 2005-2014 (43.9 percent vs. 45.6 percent). Interestingly, our Title 18 data demonstrates that the increase is not attributable to either conspiracy or false statement charges, which are the largest subsets of Title 18 charges for environmental violations. There is a 2 percent decrease in the percentage of defendants charged with conspiracy and a nearly 15 percent decrease in the percentage of defendants charged with false statements under

example 18 U.S.C. § 1512(k) (criminalizing conspiracy to obstruct justice). We group all Title 18 conspiracy charges together for data analysis purposes.

52. Figure 2 and most of the charts in this article will compare data from the first six years of the ECP, which was presented in my *Harvard Environmental Law Review* article, with data from the last four years for which our analysis is complete (2010-2014). Where the data suggests shifts that occur during different periods of time, for example between the first five years and the second five years, I analyze accordingly.

Title 18. Instead, the increased percentage of Title 18 charges appears to be attributable to significant increases in the percentage of obstruction of justice (18 percent increase) and fraud charges (69 percent increase).

The Title 18 data is presented in FIGURE 3 below, showing each type of violation as a percentage of all Title 18 defendants.



There may be an inverse relationship between the decrease in false statement charges and the increase in obstruction of justice charges. Prosecutors often prefer obstruction of justice charges to false statement charges because obstruction charges can result in longer sentences under the federal sentencing guidelines.[53] The inclusion of obstruction charges also may reflect the continued prevalence of vessel pollution cases, along with a heightened focus on cases where defendants are engaging in conduct that undermines regulatory efforts.

There also may be some relationship between the decrease of false statement charges and the increase in fraud charges, although the increase in fraud charges may be more attributable to a surge in fraud in the renewable fuels program, which emerged as an area of enforcement activity in the last few years. From 2005-2010, no defendants were prosecuted for Renewable Identification Numbers (RINs) violations; the number of defendants prosecuted for RINs violations increased to 16 defendants from 2011-2014. Another potential factor was an uptick in the number of defendants charged with other types of fraud under the Clean Air Act, with 8 defendants charged during 2012 and 2013 (although none charged any other year,

53. U.S. SENTENCING GUIDELINES MANUAL § 3C1.1 (U.S. SENTENCING COMM'N 2018).

including 2014).[54] Likewise, there was an increase in the number of defendants charged under Title 18 with violations involving Clean Air Act mobile source programs, from 2 defendants in 2005-2010 to 17 defendants in 2011-2014.

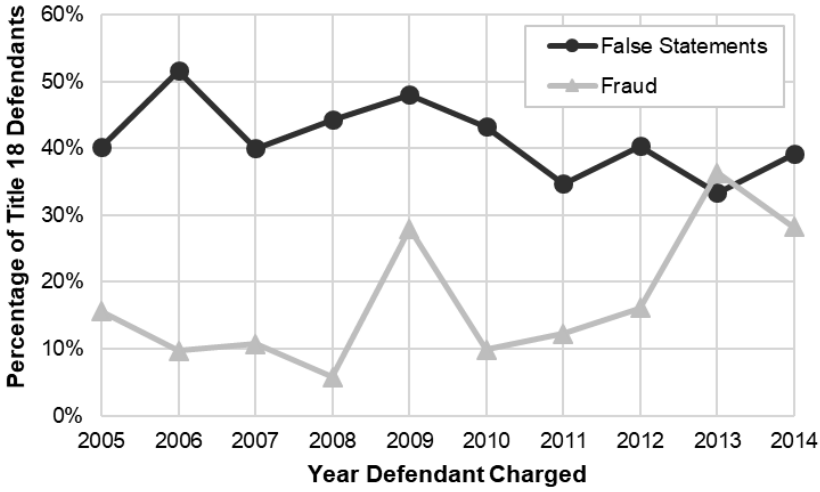
The shift away from Title 18 false statement charges may also reflect greater use of false statement charges under the substantive environmental statutes rather than under Title 18. Indeed, we see a small increase in the percentage of cases charging false statements under the Clean Water Act and the Clean Air Act, although not enough to account for the overall decrease in Title 18 false statement charges.[55] But it seems unlikely that prosecutors are focusing less on deceptive or misleading conduct, since that aggravating factor remains present for more than 62 percent of the defendants.

FIGURE 4 below shows the decrease in false statement charges by year and the accompanying increase in fraud charges as a percentage of Title 18 defendants, although it is not clear there is any relationship between the two (in some years fraud and false statement charges increase or decrease together; in other years they have an inverse relationship).

54. This data does not include charges brought against Volkswagen and Audi, as well as several of their employees, for the most notorious of the emissions fraud cases. The Justice Department first brought charges based on those violations in 2016.

55. Our data shows an increase in the number of defendants charged under the Clean Water Act's false statements provision. From 2005-2010, on average, 3.7 defendants were charged each year; from 2011-2014, the average number of defendants charged each year increased to 5.7. The data also shows an increase under the Clean Air Act's false statements provision, although it needs to be noted that our data does not discriminate between false statements and tampering with a monitoring device. Comparing the first six years of data to the last four, the average number of defendants charged increased from 8.3 defendants per year to 12.5 defendants per year. For RCRA violations there was actually a slight decrease in the amount of RCRA false statement charges, although this was such a small category as to be relatively insignificant (it went from an average of 1 defendant per year to 0.25 defendants per year).

Fig. 4: False Statements and Fraud



The raw data underscores the increased use of fraud charges. From 2005-2009, the first five years covered by our data, prosecutors charged 42 defendants (an average of 8.3 defendants per year) with fraud. From 2010-2014, the second five years covered by the data, the numbers increase by nearly 60 percent to 67 defendants (an average of 13.4 defendants per year). To some extent, FIGURE 4 masks the increase in the number of fraud defendants, because it compares percentages of Title 18 defendants, but the increase in raw numbers is noteworthy nonetheless.

We will continue to track the increased use of obstruction of justice and fraud charges—and the corresponding decrease in the use of Title 18 false statement charges. The increases may reflect increased reliance on the familiar terrain of Title 18 to highlight the classic criminal features of environmental crimes. Or they may reflect a shift in the type of cases selected for criminal enforcement, although if that were the case we would expect to see a corresponding increase in the percentage of cases involving deceptive or misleading conduct, which has not occurred.[56]

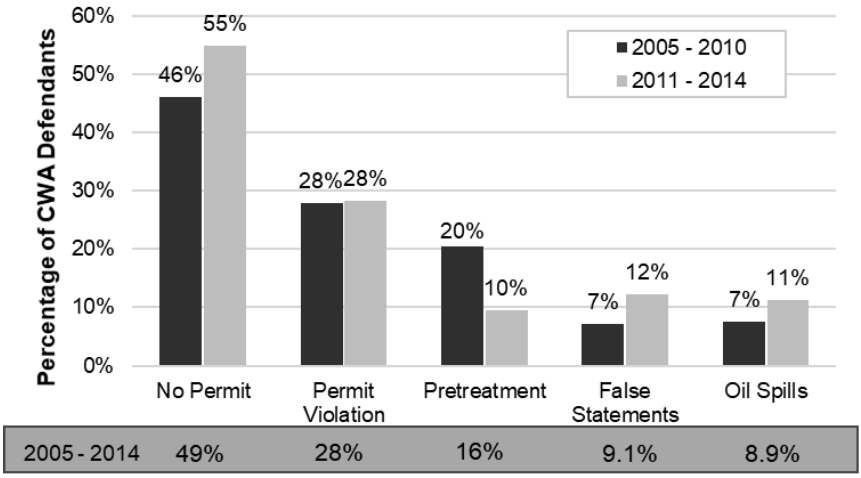
C. *Clean Water Act Cases*

The overall number of Clean Water Act defendants decreased by 1.4 percent when we expanded our study to 2005-2014, which corresponds to a 3.4 percent decrease during the last four years of the study (34.9 percent from 2005-2010 and 31.5 percent from 2011-2014). Despite this modest decrease, the Clean Water Act

56. *See infra* Section III.B.

remained the most frequently charged environmental statute, which may be attributable to the fact that the core requirements of the Clean Water Act are the most straightforward of the environmental laws. The Act states simply that "the discharge of any pollutant by any person shall be unlawful"[57] except when permitted by EPA or a state environmental regulatory agency.[58] Because it lacks the statutory and regulatory complexity of other environmental statutes, the Clean Water Act is best suited to the more rigorous proof requirements in criminal cases and does not typically raise questions about statutory or regulatory vagueness, which can give rise to due process and fair notice concerns. The Clean Water Act data is presented in FIGURE 5 below, showing each type of violation as a percentage of Clean Water Act defendants.

Fig. 5: Defendants Charged Under the Clean Water Act



The most significant legal issue facing Clean Water Act prosecutions—and one where due process/fair notice concerns could arise—involves the jurisdictional reach of the Clean Water Act. The enactment of the Clean Water Act in 1972 extended jurisdiction from "navigable waters" that were protected under the Rivers and Harbors Act[59] to include all "waters of the United States."[60] EPA and the Ar-

57. 33 U.S.C. § 1311(a) (2012).

58. *Id.* In most states, EPA has delegated day-to-day regulatory and permitting authority under the Clean Water Act to the relevant state environmental agency. *See NPDES Permits Around the Nation*, U.S. ENVTL. PROTECTION AGENCY, https://www.epa.gov/npdes-permits (last visited Mar. 1, 2019).

59. 33 U.S.C. § 403 (2012).

60. 33 U.S.C. § 1362(7) (2012) (defining the statutory term "navigable waters" to include "waters of the United States").

my Corps of Engineers subsequently promulgated regulations that defined waters of the United States to include the entire tributary system to navigable-in-fact waters, as well as adjacent wetlands.[61]

Over time, however, concerns arose over the jurisdictional reach of the Clean Water Act, principally with regard to wetlands, culminating in a fractured Supreme Court decision in *Rapanos v. United States* that has left the law a muddled mess.[62] *Rapanos*, which was decided in 2006, had no majority opinion but most appellate courts followed Justice Kennedy's concurring opinion, which limited the jurisdictional reach of the Clean Water Act to wetlands and smaller tributaries that possess a "significant nexus" to navigable-in-fact waters.[63] After the *Rapanos* decision, EPA and the Corps relied on guidance documents to determine their jurisdiction,[64] until the Agencies developed a new "waters of the United States" definition in 2015,[65] which immediately was challenged in court and is now the subject of a more restrictive rulemaking by the Trump administration.[66]

Given the lack of a majority opinion in *Rapanos* and the fact that the Agencies were operating under guidance documents (and contemplating a new rulemaking), it would not be surprising if prosecutors brought fewer cases under the Clean Water Act post-*Rapanos*. On the one hand, *Rapanos* involved wetlands violations, which are not frequently prosecuted criminally. From 2005-2014, there were 21 defendants charged with wetlands violations (1.5 percent of all defendants), compared with 384 defendants charged with violations involving the tributary system (26 percent of all defendants). On the other hand, the jurisdictional uncertainty created by *Rapanos* extended to the tributary system as well, which could have made prosecutors reluctant to bring tributary cases too.

For example, in a landmark pre-*Rapanos* prosecution involving discharge to a tributary system, a jury convicted the McWane corporation and four individuals of years of illegal discharges to a tributary of the Black Warrior River in violation of a permit issued by the Alabama Department of Environmental Management.[67] Yet

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61. Definition of Waters of the United States, 33 C.F.R. § 328 (2012).

62. *See, e.g.*, Rapanos v. United States, 547 U.S. 715 (2006) (discussing the jurisdictional limits of the Clean Water Act over the course of 60 pages, with no majority opinion and the Supreme Court disagreeing over the plain text of the statute, the meaning of the legislative history, and the Constitutional validity of various jurisdictional limits).

63. *Id*. at 767; Bradford C. Mank, *Implementing* Rapanos*-Will Justice Kennedy's Significant Nexus Test Provide A Workable Standard for Lower Courts, Regulators, and Developers?*, 40 IND. L. REV. 291, 294-96 (2007) (surveying the approaches taken among the lower circuits to the 4-1-4 split).

64. U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENG'RS, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN *RAPANOS V. UNITED STATES* & *CARABELL V. UNITED STATES* (Dec. 2, 2008), https://www.epa.gov/sites/production/files/2016-02/documents/cwa_jurisdiction_following_rapanos120208.pdf.

65. Clean Water Rule: Definition of "Waters of the United States", 80 Fed. Reg. 37,053 (June 29, 2015).

66. *See* Exec. Order No. 13,778, 82 Fed. Reg. 12,497 (Mar. 3, 2017).

67. United States v. Robison, 505 F.3d. 1208, 1211-12 (11th Cir. 2007).

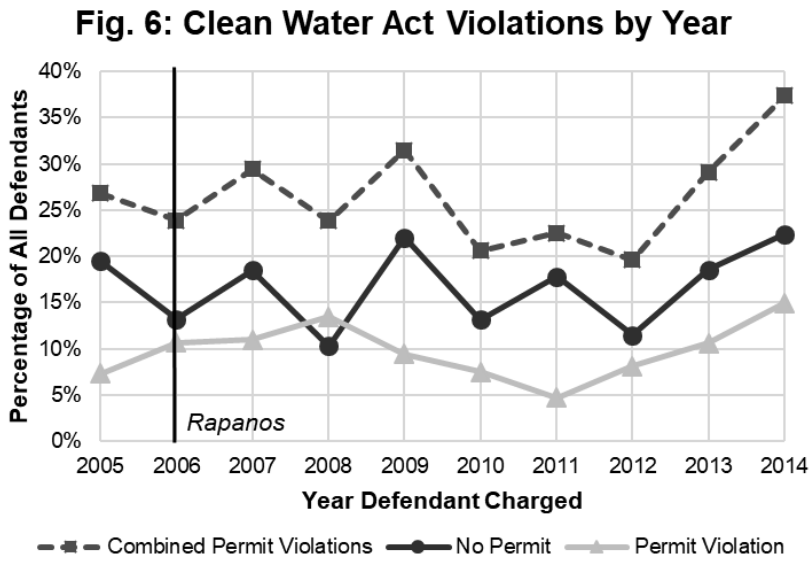
post-*Rapanos*, the Eleventh Circuit set aside the convictions because the jury did not find a significant nexus between the tributary and water quality in the Black Warrior River despite their connectivity.[68] Prosecutors might reasonably steer clear of cases involving distant tributaries if they must prove a significant nexus between the tributary and downstream water quality,[69] as that would lend itself to a "battle of the experts" about what constitutes a significant nexus that could raise reasonable doubts in the mind of jurors and mandate acquittals.

Yet our data from 2010-2014 shows a small increase in the number of defendants prosecuted for discharge without a Clean Water Act permit and only a small decrease in the number of defendants charged with discharge in violation of a Clean Water Act permit. From 2005-2010, there were 142 defendants prosecuted for discharge without a Clean Water Act permit, or an average of just under 24 defendants per year. From 2011-2014, there were 103 defendants prosecuted for discharge without a Clean Water Act permit, or an average of 25 defendants per year. Likewise, from 2005-2010, there were 86 defendants prosecuted for discharge in violation of a Clean Water Act permit, or an average of 14 defendants per year. From 2011-2014, there were 53 defendants prosecuted for discharge in violation of a Clean Water Act permit, or an average of just over 13 defendants per year. In fact, although there are year-to-year variations, the combined number of Clean Water Act no permit and discharge in violation of a permit defendants in 2005—before *Rapanos* was decided—is the same as it was in 2013 (44 defendants) and only one more than it was in 2007 and 2011 (43 defendants).

Nor does it appear there are fewer Clean Water Act charges post-*Rapanos* when we analyze the number of Clean Water Act no permit charges and discharge in violation of a permit charges as a percentage of all defendants charged (to account for yearly variations). Clean Water Act charges graphed as a percentage of all defendants charged are shown in FIGURE 6 below.

68. *Id.* at 1223.

69. The Obama administration proposed a new definition of "waters of the United States" that relied heavily on the significant nexus test but would have been relatively easy to enforce in the tributary context because it found that all tributaries connected to navigable-in-fact waters had a significant nexus to downstream water quality. *See* LAURA GATZ, CONG. RESEARCH SERV., R45424, "WATERS OF THE UNITED STATES" (WOTUS): CURRENT STATUS OF THE 2015 CLEAN WATER RULE 2, n.13 (2018), https://crsreports.congress.gov/product/pdf/R/R45424. The Trump administration has proposed a replacement rule that would eliminate the emphasis on the significant nexus test but still would protect permanent and intermittent tributaries, although it would remove protection for ephemeral tributaries. *See* STEPHEN P. MULLIGAN, CONG. RESEARCH SERV., LSB10236, WADING INTO THE "WATERS OF THE UNITED STATES" 2 (2018), https://fas.org/sgp/crs/misc/LSB10236.pdf.



We see significant year-to-year variations in the percentage of defendants charged with discharge without a Clean Water Act permit, as well as smaller year-to-year variations in the percentage of defendants charged with discharged in violation of a Clean Water Act permit. But over the course of the entire dataset, there is no indication that fewer charges were brought after *Rapanos.* In 2005, before the Supreme Court decided *Rapanos*, 27 percent of all defendants were charged with Clean Water Act no permit and discharge in violation of a permit, a number that dipped to 24 percent in 2006, the year the Supreme Court decided *Rapanos*. In subsequent years the percentages fluctuated—higher in 2007 and 2009, but lower in 2008 and 2010 to 2012—but in 2013 and 2014 the numbers were significantly higher (30 and 37 percent).

Further undermining the notion that prosecutors are pursing fewer Clean Water Act cases after *Rapanos* is the fact that discharges without a Clean Water Act permit increased as a percentage of all Clean Water Act charges (as shown in FIGURE 5). If prosecutors were reluctant to bring Clean Water Act cases post-*Rapanos*, we should see decreased percentages of defendants charged with discharge without a permit and in violation of a permit relative to other Clean Water Act charges. Instead, the percentage of Clean Water Act defendants who discharged without a permit increased (46.1 percent from 2005-2010 and 54.8 percent from 2011-2014), and there was no significant change in the percentage of defendants charged with discharge in violation of a permit (27.9 percent from 2005-2010 and 28.2 percent from 2011-2014).

In fact, the largest change we see in Clean Water Act cases is a substantial decrease in the percentage of defendants charged with pretreatment violations: 20.5 percent from 2005-2010 and 9.6 percent from 2011-2014. The large drop suggests a

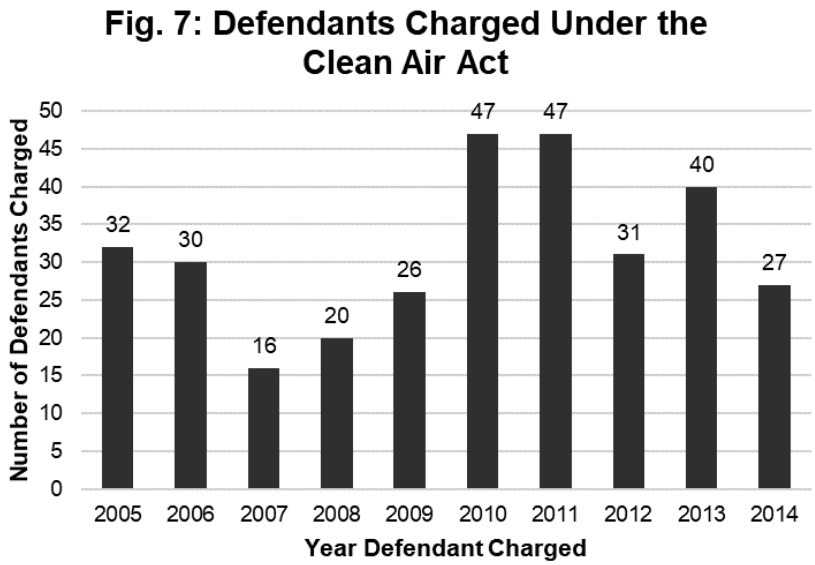
shift in charging emphasis away from pretreatment cases, which involve illegal discharges into publicly-owned treatment works (which in turn discharge treated wastewater into rivers and streams under Clean Water Act permits). But the decrease almost certainly does not implicate *Rapanos*, since most wastewater treatment plants discharge into navigable-in-fact rivers and streams and therefore do not involve the jurisdictional questions raised by tributary cases.

An intriguing question is what accounts for the 18.8 percent increase in the percentage of Clean Water Act cases involving discharge without a permit (relative to all Clean Water Act charges). The increase in "no permit" cases might be attributable to the fact that there are more defendants from 2011-2014 operating outside the regulatory system,[70] so we will continue to monitor that relationship. But the increase is difficult to square with the idea that prosecutors are less willing to bring Clean Water Act charges after *Rapanos*. As noted above, if *Rapanos* were influencing prosecutors, I would expect to see a decrease in cases involving discharge without a permit, because of the difficulty of proving jurisdiction beyond a reasonable doubt. Instead, our data shows an increase in those cases.

D. *Clean Air Act Charges*

The most significant increase in charges we see during 2011-2014 involves the Clean Air Act, which accounted for more than 19 percent of all defendants charged from 2005-2010, but more than 24 percent of all defendants prosecuted from 2011-2014. In the first six years of our data, 171 defendants (or 19.4 percent) were charged with Clean Air Act violations; in the last four years, 145 defendants (or 24.3 percent) were charged. This is an increase of 25.3 percent in the number of Clean Air Act defendants overall, as shown by year in FIGURE 7 below.

70. *See infra* Section III.C.



The shift is even more dramatic when we compare the first five years of our data (124 defendants charged from 2005-2009) to the last five years (192 defendants charged from 2010-2014). The data shows a 55 percent increase in the number of defendants charged with Clean Air Act violations. Some of that change could be attributable to the fact that there were more defendants charged overall during the last five years (722 defendants from 2005-2009 compared to 757 defendants from 2010-2014). Nonetheless, the data still shows a 48 percent increase when we look at Clean Air Act defendants as a percentage of all defendants (17.2 percent from 2005-2009 versus 25.4 percent from 2010-2014).

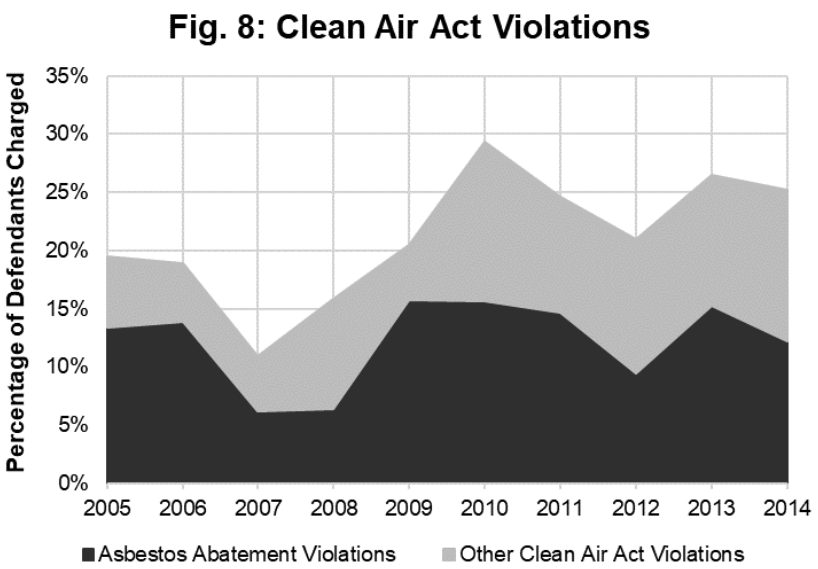
Historically, criminal prosecution under the Clean Air Act has involved illegal asbestos removal and/or demolition of buildings that contain asbestos.[71] That remained the case from 2005-2009, when 81 of the 124 defendants charged with Clean Air Act violations were involved in illegal asbestos abatement (an average of 16.2 defendants per year or 65.3 percent of all Clean Air Act defendants).[72] We saw an even larger number of defendants charged with asbestos abatement crimes from 2010-2014 (103 of the 192 defendants charged with Clean Air Act violations

71. Uhlmann, *supra* note 1, at 189.

72. The prosecution of W.R. Grace and its employees for knowingly endangering residents of Libby, Montana accounts for one quarter of the Clean Air Act defendants charged during 2005. Although asbestos was the hazardous air pollutant involved in the Grace prosecution, the case did not involve violation of the asbestos work practice standards that govern asbestos removal during renovation and demolition activity. We therefore do not include the Grace defendants when calculating asbestos abatement violations; instead, we treat Grace as a non-asbestos abatement case. *See generally* Superseding Indictment, United States v. W.R. Grace, No. 9:05-cr-00007-DWM (D. Mont. June 26, 2006).

or 20.6 defendants per year). But because there were so many more Clean Air Act defendants overall, the percentage of asbestos abatement defendants dropped from 65.3 percent of all Clean Air Act defendants from 2005-2009 to 53.6 percent of all Clean Air Act defendants from 2010-2014.

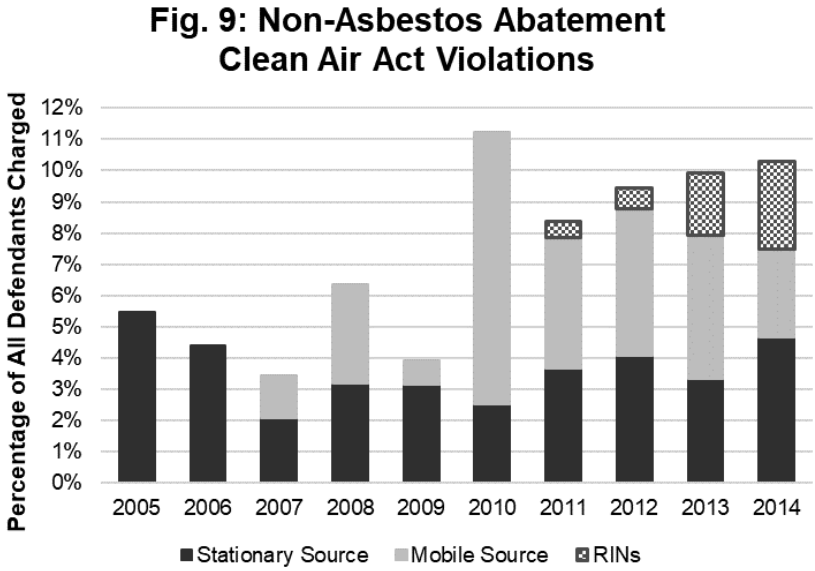
EPA and the Justice Department have sought to shift toward non-asbestos abatement cases for many years.[73] Our data suggests this shift in emphasis may be occurring and is largely responsible for the increased number of Clean Air Act prosecutions. FIGURE 8 shows the relationship between asbestos abatement and other violations of the Clean Air Act, graphed as a percentage of all defendants charged between 2005-2014.



Since the percentage of asbestos abatement charges is relatively consistent over time, despite year-to-year fluctuations, we looked more closely at other Clean Air Act crimes, which have increased significantly in the last five years as a percentage of all defendants. The increase in other Clean Air Act charges is not attributable to stationary source violations, which historically have been the focus of civil enforcement under the Clean Air Act. From 2005-2009, there were 27 defendants (3.7 percent of our database), charged with stationary source violations; from 2010-2014 there also were 27 defendants (3.6 percent of our database). There were two categories of Clean Air Act violations, however, that increased significantly over time: mobile source cases and cases related to renewable fuels ("Re-

73. Uhlmann, *supra* note 1, at 189.

newable Identification Number" or "RINs" cases). FIGURE 9 breaks down the non-asbestos abatement violations by category.



Significantly, there were no mobile source Clean Air Act charges during 2005-2006. From 2007-2014, however, there were a total of 46 mobile source cases, which is the second largest category of Clean Air Act charges during those eight years (after asbestos abatement violations). With the exception of five cases, all of the Clean Air Act mobile source cases involved falsifying emissions tests. The remaining cases involved negligently releasing hazardous air pollutants, falsely certifying that a trailer had been properly tested, failing to report the importation of two foreign vehicles, making fraudulent statements on gasoline certification, and providing motor vehicle air conditioning technician training without a permit. Notably, this increase in criminal charges for violations of mobile source requirements occurred before the diesel scandal involving Volkswagen and Audi was revealed in 2015, suggesting that this may be a new area of criminal enforcement activity that did not exist until the last several years.[74]

74. The criminal provisions of the Clean Air Act do not extend to emissions violations by mobile sources but do cover false statements and fraud in the mobile source context. *Compare* 42 U.S.C. § 7413(c)(1) (2012) (excluding mobile source violations) *with* 42 U.S.C. § 7413(c)(2) (covering any false statements in documents or certifications required by the Act).

An increase also occurred in Clean Air Act charges related to the Renewable Fuel Standard Program, which began in 2005 and was expanded in 2007.[75] Compliance with the program is measured by Renewable Identification Numbers (RINs). RINs are credits that are generated when a producer makes a gallon of renewable fuel and can be sold with renewable fuel or traded.[76] This program has led to an uptick in violations under the Clean Air Act when defendants create false RINs and/or sell false RINs when they have not actually created any renewable fuel. No RINS cases were filed prior to 2011 but there was one case each year from 2011-2014, with 8 defendants charged in those 4 cases.

It remains to be seen whether the increase in Clean Air Act prosecutions for crimes other than asbestos abatement violations will continue in future years. Nonetheless, this is a potentially significant shift that would better align the criminal enforcement program with the broader pollution prevention goals of the EPA—and the significant public health benefits that are attributable to the Clean Air Act, both in terms of saved lives and reduced health care costs.[77]

E. *RCRA Charges*

The most significant decrease in our dataset from 2011-2014 involved hazardous waste crimes charged under RCRA. In the first six years of our study, prosecutors charged 120 defendants with RCRA violations or an average of 20 defendants per year. As a result, RCRA charges were 14 percent of all charges from 2005-2010. During the last four years, however, prosecutors charged only 52 defendants with RCRA violations or an average of 13 defendants per year. This decline in the number of RCRA charges lowered RCRA charges to 9 percent of all charges from 2011-2014, a 36 percent drop.

The decrease in RCRA charges occurred across all categories of RCRA violations. The RCRA data, broken down into types of violations is shown in FIGURE

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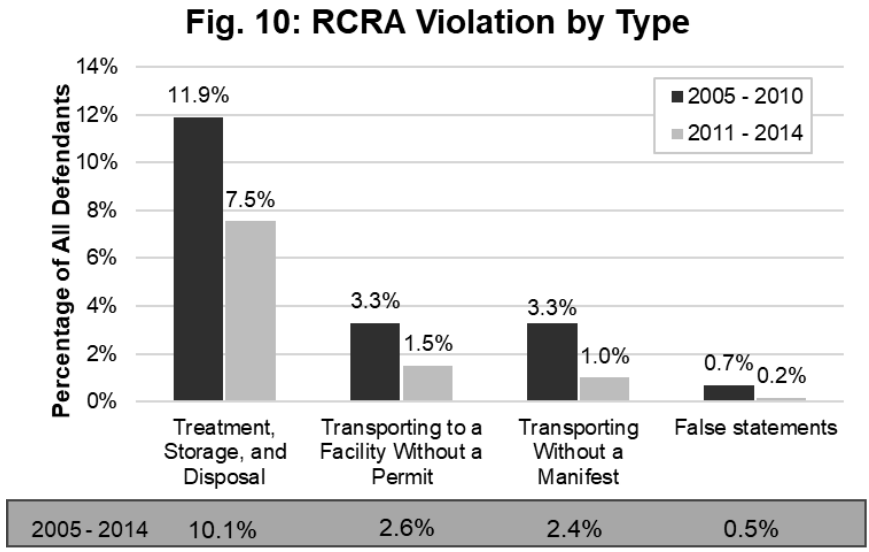
75. *Overview for Renewable Fuel Standard*, U.S. ENVTL. PROTECTION AGENCY, https://www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard (last visited Jan. 31, 2019).

76. *Id.*

77. *See* U.S. ENVTL. PROT. AGENCY, OFFICE OF AIR & RADIATION, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT FROM 1990 TO 2020, 27 (Mar. 2011), https://www.epa.gov/sites/production/files/2015-07/documents/summaryreport.pdf (The EPA study found that the direct benefits of the Clean Air Act "significantly" outweighed the direct costs. Among their more notable findings was that the 1990 amendments to the Clean Air Act would lead to air quality improvements that would have an economic value of almost $2 trillion in direct costs and prevent an estimated 230,000 deaths annually by the year 2020.); Alan H. Lockwood, *How the Clean Air Act Has Saved $22 Trillion in Health-Care Costs*, THE ATLANTIC (Sept. 7, 2012), https://www.theatlantic.com/health/archive/2012/09/how-the-clean-air-act-has-saved-22-trillion-in-health-care-costs/262071/ ("[T]he net direct benefits [of the Clean Air Act between 1970 and 1990] were between $5.1 and $48.9 trillion, with a central estimate of $21.7 trillion. The benefit-cost rations were 43.4:1 for the central estimate and 11:1 and 97.8:1 for the extreme estimates.").

10, which charts each category of RCRA violations as a percentage of all defendants charged from 2005-2014.



While there are significant decreases in all four categories of RCRA violations presented in FIGURE 10, it may be noteworthy that the decreases are smallest for the largest category, which is treatment, storage, and disposal violations (a 37 percent decrease). Larger decreases occurred for transporting to a facility without a permit (54 percent) and transporting without a manifest (69 percent). There were 29 defendants charged with transporting hazardous waste to a facility without a permit from 2005-2010 and just 9 charged from 2011-2014. Likewise, there were 29 defendants charged with transporting hazardous waste without a manifest from 2005-2010 and just 6 charged from 2011-2014.

I would expect to see downward trends overtime in the number of RCRA charges, because the rigorous cradle-to-grave regulatory scheme created by RCRA is now well integrated into most commercial activity.[78] Where in the early years of the environmental crimes program, illegal storage of hazardous waste and midnight

78. *See generally* U.S. ENVTL. PROT. AGENCY, RCRA'S CRITICAL MISSION & THE PATH FORWARD (June 2014), https://www.epa.gov/sites/production/files/2015-09/documents/rcras_critical_mission_and_the_path_forward.pdf ("Large and small business have responded [to RCRA] by investing capital, hiring top talent and building and developing the nation's materials handling and waste management infrastructure to be among the best in the world"); U.S. ENVTL. PROT. AGENCY, AUTHORIZATION STATUS OF ALL RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) AND HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA) RULES (last updated Sept. 30, 2018), https://www.epa.gov/sites/production/files/2018-12/documents/authorization_status_of_all_rules_september_2018.pdf (containing 339 pages of rules adopted and authorized by individual states).

dumping of hazardous waste remained common—after all, it had been lawful for decades until RCRA was enacted in 1976—we are long past the point where businesses that generate hazardous waste are unfamiliar with RCRA rigorous waste management requirements.[79]

That said, the decline in RCRA charges over the ten years covered by our dataset may not be as significant as initially appears to be the case. The six-year average of 20 defendants per year was significantly inflated by one outlier year when 37 defendants were charged with RCRA crimes (2007), more than twice the next highest amount (18 defendants in 2010). The average number of RCRA defendants during the other five years was nearly 17 defendants, still higher than the average of 13 defendants from 2011-2014 but not by anywhere near as large an amount. Moreover, the lower four-year average from 2011-2014 also reflects the impact of an outlier year in the other direction, when only 4 defendants were charged with RCRA crimes (2014), less than one third of the next lowest year (2013). The average number of RCRA defendants the other three years was 16 defendants, close to the average for 2005-2010 when 2007 is removed.

The net result is that RCRA defendants clearly declined over the 10 years covered by our study but that declined was magnified by two outlier years when far more RCRA violations were charged (2007) and when far fewer defendants were charged (2014). Outliers, of course, are part of any data and could be explained by other factors. For example, the low year in 2014, when only 4 RCRA defendants were charged, also involved by far the fewest charges overall of any of the 10 years covered by our study (107 defendants). But the numbers were still very low that year—less than 4 percent of all charges—and the next two lowest numbers of RCRA defendants also were in the last four years. In 2011, there were 14 RCRA defendants even though 191 defendants were charged with environmental crimes that year (7.3 percent of all defendants), and in 2013, there were only 13 RCRA defendants (8.6 percent of all defendants charged that year).

We will monitor the RCRA data as we analyze the 2015-2018 data that we have received from EPA to determine whether the decline that emerged over the last four years continues and makes RCRA charges less frequent than historically has been the case.

III. AGGRAVATING FACTORS IN ENVIRONMENTAL PROSECUTIONS

The central finding of our original study was that 96 percent of all defendants charged with environmental crime committed violations that involved at least one

79. EPA hosts Compliance Assistance Centers that offer "easy access to plain-language materials" to "help businesses . . . comply with environmental requirements." *Compliance Assistance Centers*, U.S. ENVTL. PROTECTION AGENCY, https://www.epa.gov/compliance/compliance-assistance-centers (last visited Apr. 10, 2019).

of the aggravating factors I had identified in my prior scholarship.[80] On that basis, I determined that prosecutors were exercising their discretion to limit criminal charges to conduct involving those aggravating factors—and that violations that did not involve aggravating factors were unlikely to result in criminal charges.[81] I suggested that these findings might help ameliorate over-criminalization concerns regarding environmental criminal enforcement, and similarly reduce claims that prosecutorial discretion was randomly exercised.[82]

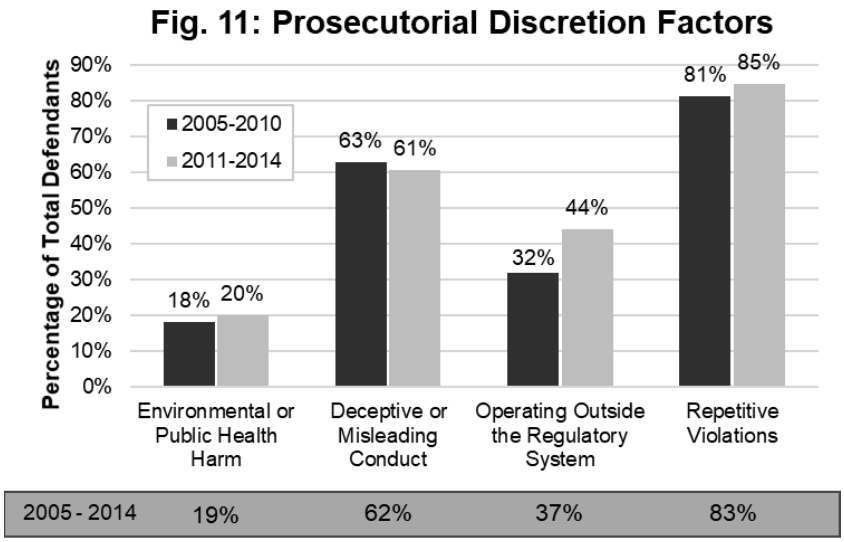
Our updated data produced even more compelling results on the core question of whether aggravating factors are present: 98.7 percent of all defendants charged between 2005 and 2014 committed violations that involved at least one aggravating factor. The biggest shift occurred in the percentage of defendants who operated outside the regulatory system, which was nearly 40 percent higher from 2011-2014. Repetitiveness and deceptive or misleading conduct remained the most prevalent aggravating factors, with the numbers higher for repetitiveness and somewhat lower for deceptive and misleading conduct. The percentage of defendants who committed violations that caused harm increased slightly. Overall, our updated data even more robustly supports the conclusion that prosecutors reserve criminal prosecution for violations that involve aggravating factors—and that defendants who commit violations that do not involve aggravating factors are unlikely to face criminal charges.

FIGURE 11 presents aggravating factor analysis for all defendants charged with environmental crimes between 2005-2014.

80. Uhlmann, *supra* note 1, at 165.

81. *Id.* at 194.

82. *Id.* at 194-95.



I will review shifts within each aggravating factor in the discussion that follows in this Part.

A. *Significant Environmental Harm/Public Health Effects*

Environmental harm and public health effects remains a critical aggravating factor in criminal prosecutions, accounting for slightly more than one in six defendants. The percentage of defendants who caused environmental harm increased over the last four years, from 19.9 percent for 2011-2014 compared to 17.9 percent from 2005-2010).[83]

As I have suggested previously, harm may be the most misunderstood—and most distorting—aggravating factor in criminal cases.[84] On the one hand, it is easiest to justify criminal prosecution in cases where harm occurs, since the impact of the violations is clear to judges and juries. During my seventeen years at the Justice Department, a criminal investigation ensued in every case involving significant environmental harm, particularly those where the harm was catastrophic (i.e. Exxon

83. Our updated data identifies more 2005-2010 defendants causing environmental harm or public health impacts than my original article. First, we added 21 new defendants to the database who were charged between 2005-2010, as pending cases were completed, several of whom committed violations involving harm. Second, we removed subjectivity about when we code for animal deaths/ecological harm. We now treat any animal deaths as environmental harm rather than making a subjective determination based on the amount of animal deaths or type of harm. For comparison, the original article reported 144 harm cases or 17 percent of defendants charged from 2005-2010; we now have 158 harm cases or 18 percent.

84. Uhlmann, *supra* note 4, at 1247.

Valdez, Olympic Pipeline, and BP Texas City)—and, in most instances criminal charges followed those criminal investigations. On the other hand, harm cases can result in opportunistic prosecution, with criminal charges brought because of the extent of the harm, not because of the egregiousness of the underlying misconduct.

To be clear, harm is a relevant consideration in determining whether a case that involves misconduct warrants federal prosecution. In the Principles of Federal Prosecution, the Justice Department identifies harm as one of the factors that determines the seriousness of a violation and whether federal prosecution resources should be used to address the violation.[85] But I remain concerned that, when significant harm occurs, the rigorous analysis we should demand from prosecutors—focused on legal elements, potential defenses, and the reasonable exercise of prosecutorial discretion—will yield to the passions of the moment in the community harmed. No one asks why criminal charges are brought when significant harm occurs; to the contrary, the public often demands criminal charges in those cases, even when the harm was purely accidental. In those circumstances, there is a risk that prosecutorial over-reaching will occur.

As I have noted previously, the Gulf oil spill provides a classic example of the challenge provided by harm cases.[86] Prosecutors charged BP with negligent violations of the Clean Water Act for the risky conduct that caused the catastrophic spill. Given the magnitude of the harm, the degree of BP's negligence, and the company's history of criminal violations of the environmental laws,[87] it was appropriate to hold BP accountable for its negligence and a corporate culture that devalued environmental compliance and worker safety.

But prosecutors may have over-reached when they also brought manslaughter and Clean Water Act negligence charges against the BP well-site leaders who were onboard the Deepwater Horizon when the Macondo blowout occurred, and eleven crew members died.[88] Those charges were an attempt to find individuals to blame in the absence of a compelling legal theory for manslaughter—and without sufficient evidence of individual negligence. The Justice Department dismissed the manslaughter charges after the Fifth Circuit ruled that they were required to prove

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85. *See* U.S. DEP'T OF JUSTICE, PRINCIPLES OF FED. PROSECUTION OF BUS. ORGS. § 9-28.200(B) (2015), https://www.justice.gov/jm/jm-9-28000-principles-federal-prosecution-business-organizations, *see also* U.S. SENTENCING GUIDELINES MANUAL § 2Q1.2 cmt. n.5 (U.S. SENTENCING COMM'N 2018), https://www.ussc.gov/sites/default/files/pdf/guidelines-manual/2018/GLMFull.pdf);

86. *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) (explaining why criminal prosecution of BP would be appropriate for the negligence that caused the Gulf oil spill).

87. *See BP Found 'Grossly Negligent' in 2010 Gulf Oil Spill*, BBC NEWS, (Sept. 4, 2014), https://www.bbc.com/news/business-29069184; Richard Mauer & Anna M. Tinsley, *Gulf Oil Spill: BP Has a Long Record of Legal, Ethical Violations*, THE HERALD, https://www.heraldonline.com/latest-news/article12253727.html (last updated Sept. 18, 2013, 05:58 PM).

88. *See* David M. Uhlmann, *The Pendulum Swings: Reconsidering Corporate Criminal Prosecution*, 49 U.C. DAVIS L. REV. 1235, 1277-78 (2016).

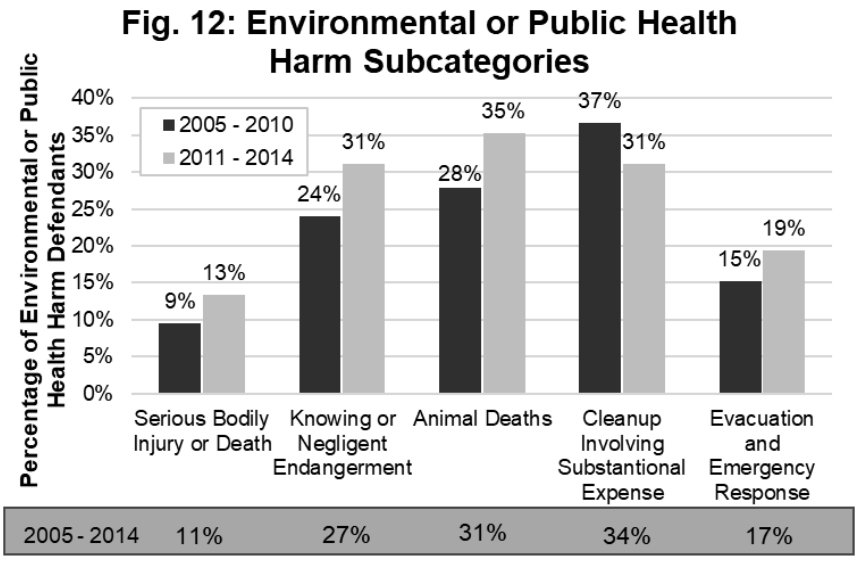
gross negligence to support manslaughter charges.[89] One of the well-site leaders pleaded guilty to Clean Water Act negligence (simple negligence) but the other went to trial and was acquitted in less than two hours.[90]

Perhaps the system worked in the Gulf oil spill case: corporate liability was imposed, and the jury was able to see past the harm and determine whether the individual defendants acted with negligence. In cases involving significant harm, prosecutors often suggest that the case should be charged so that a jury can decide whether to impose criminal liability. But the case demonstrates the danger of a reflexive prosecutorial response in harm cases. In cases involving individuals who cannot afford the cost of going to trial—or corporate defendants who cannot afford the uncertainty of protracted litigation—prosecutors may be successful in harm cases even though fairness demands a different course of action.

We see a more than 11 percent increase in harm data when we compare the last four years of our data (2011-2014) to the previous six years. There are notable increases in all categories, except significant cost of cleanup, which dropped by 15.3 percent. Taken together, these shifts account for the increase in the number of cases where harm was an aggravating factor. The harm data by category of harm is presented in FIGURE 12, showing each category of harm as a percentage of all defendants who caused environmental or public health harm.

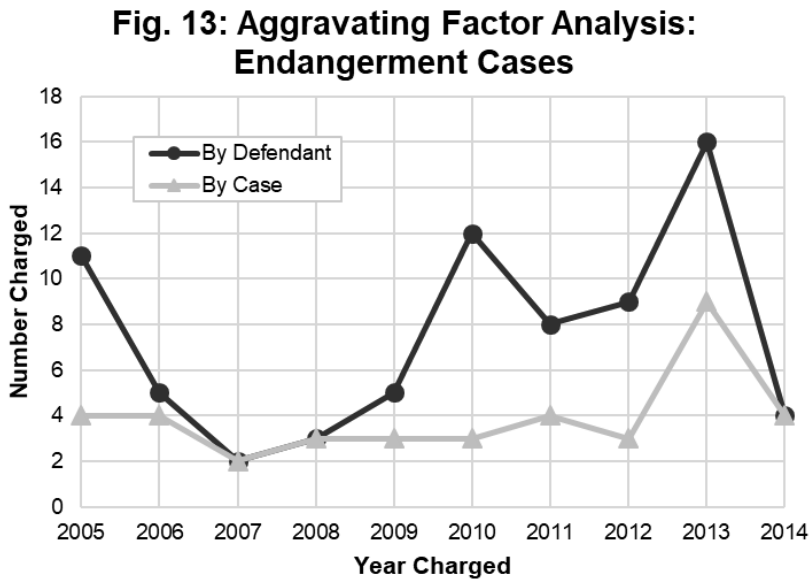
89. Ronald A. Sarachan & Tracy S. Combs, *Why Key Deepwater Horizon Criminal Charges Were Dismissed*, LAW360 (Dec. 13, 2013), https://www.law360.com/articles/495626/why-key-deepwater-horizon-criminal-charges-were-dismissed (explaining that a judge in U.S. District Court for the Eastern District of Louisiana dismissed the 11 counts of seaman's manslaughter charges against the defendants; the only remaining manslaughter charges were for involuntary manslaughter under 18 U.S.C. § 1112, which has a higher gross negligence standard); Letitia Stein, *BP Spill Manslaughter Charges Dropped, One Guilty of Environmental Crime*, REUTERS (Dec. 2, 2015), https://www.reuters.com/article/us-bp-spill-charges-idUSKBN0TL26L20151202 (stating that the District Court's opinion dismissing the seaman's manslaughter charges was upheld in the 5th Circuit and that federal prosecutors later dropped the charges of involuntary manslaughter).

90. *BP Engineer Is Not Guilty in Case From 2010 Gulf Oil Spill*, N.Y. TIMES (Feb. 25, 2016), https://www.nytimes.com/2016/02/26/business/energy-environment/bp-engineer-is-not-guilty-in-case-from-2010-gulf-oil-spill.html.



Prosecutors appear to be bringing charges more often in cases where serious bodily injury or death occurs (an increase of more than 40 percent over the last four years). But that increase is largely attributable to a surge during 2012 when 10 defendants were charged in cases involving death or serious bodily injury (compared to none during 2010-2011 and 4 from 2013-2014). The more significant development may be the increase in the number of defendants charged in cases where prosecutors charged at least one defendant with endangerment.[91] This increase is particularly dramatic when we compare the first five years of data with the second five years. Prosecutors charged 26 defendants in cases involving endangerment from 2005-2009, compared to 49 defendants from 2010-2014. The highest totals occurred in 2013 (16 defendants) and 2010 (12 defendants)—and the fourth and fifth highest totals were in 2011 and 2012 (8 and 9 respectively). The increase appears attributable, however, to the number of defendants charged in those cases; with the exception of 2013, the number of endangerment cases is relatively consistent. The number of endangerment cases/defendants are shown in FIGURE 13 below.

91. As explained in the methodology discussion *supra* Part I, we code for aggravating factors consistently for all defendants in each case, except where the conduct is wholly separate from the core misconduct (i.e. in a case where one defendant, acting alone, commits perjury). Therefore, if prosecutors charge any defendants in a case with endangerment, we coded all defendants in that case for endangerment. We do so because harm is an aggravating factor in cases where endangerment occurs regardless of whether all defendants are charged with endangerment. As a result, the number of defendants charged in cases where endangerment is an aggravating factor will exceed the number of defendants who prosecutors charged with knowing or negligent endangerment.



We examined the defendants charged with endangerment—a narrower category than all defendants charged in cases where endangerment was an aggravating factor—to assess what may have led to the increased presence of an endangerment as an aggravating factor. The number of defendants charged with endangerment also increases over the second five years of our dataset, although not quite as dramatically. From 2005-2009, prosecutors charged 22 defendants with endangerment; from 2010-2014, prosecutors charged 32 defendants with endangerment. Of course, the total number of defendants charged with endangerment (54 defendants) is a small percentage of all defendants (3.6 percent). But the increase in endangerment charges may be a noteworthy shift nonetheless. Nearly three quarters of the endangerment charges were brought under the Clean Air Act negligent endangerment provisions (40 out of 54 defendants). The Clean Air Act, the Clean Water Act, and RCRA all have knowing endangerment provisions, but only the Clean Air Act has a negligent endangerment provision.[92] Indeed, most endangerment charges are brought under the Clean Air Act: only 4 defendants were charged with endangerment under RCRA, and no defendants were charged with endangerment under the Clean Water Act.[93]

92. Arnold W. Reitze, Jr., *Criminal Enforcement of Pollution Control Laws*, 9 ENVTL. LAW. 1, 43 (2002); *see also* 42 U.S.C. § 7413(c)(4) (2012).

93. The lack of Clean Water Act charges is not surprising, because discharges into navigable waters and their tributaries are unlikely to endanger people. Moreover, in the sewer system context, there is caselaw holding (I think incorrectly) that knowing endangerment cannot be charged based on dangers that occur before the pollution reaches the publicly-owned treatment works, which effectively

B. *Deceptive or Misleading Conduct*

Deceptive or misleading conduct remains the heart of criminal enforcement under the environmental laws. The continued reliance on Title 18 in the charging of environmental violations, particularly to the extent that it involves false statements, obstruction of justice, and fraud, reflects a prosecutorial emphasis on charging crimes involving "lying, cheating, and stealing." Indeed, 62 percent of all defendants charged from 2005-2014 engaged in deceptive or misleading conduct, making this the most prevalent of the three aggravating factors that focus on the substantive nature of the underlying violation (in contrast to the duration of the violation).

We did see a small drop in the percentage of defendants engaged in deceptive or misleading conduct over the last four years. From 2005-2010, just under 63 percent of all defendants engaged in deceptive or misleading conduct; from 2011-2014, just under 61 percent of all defendants engaged in deceptive or misleading conduct. A two percent drop is small given the percentage of defendants engaging in deceptive or misleading conduct—but it would be more significant if it persisted over time.

We also coded for whether deceptive or misleading conduct occurs during the commission of the offense, reporting and/or recordkeeping, or during the investigation. The percentage of defendants engaging in deceptive or misleading conduct during the commission of the offense and for reporting/recordkeeping violations remained the same; the percentage decreased somewhat for cover-up activity, which appears to account for the overall decrease in deceptive or misleading conduct defendants.

The subcategories of deceptive or misleading conduct as a percentage of all defendants are shown in FIGURE 14.

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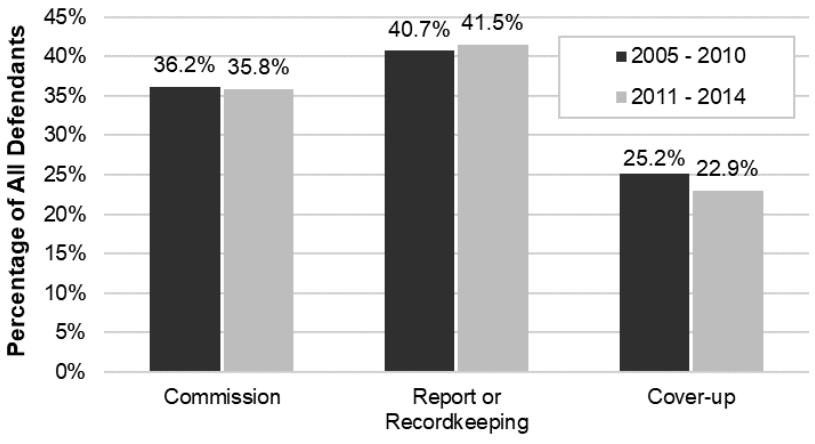
eliminates protections for employees of the company engaged in the illegal discharge. United States v. Borowski, 977 F.2d 27, 32 (1st Cir. 1992).

Fig. 14: Deceptive or Misleading Conduct Subcategories



2005 - 2014	36.0%	41.0%	24.3%

Interestingly, while the percentage of defendants who engaged in deceptive or misleading conduct is slightly lower from 2011-2014, the percentage who engaged in multiple forms of deceptive or misleading conduct is somewhat higher. During the first six years of our data, 46 percent engaged in multiple types of deceptive or misleading conduct; during the last four years, 52 percent of defendants engaged in multiple types of deceptive or misleading conduct, an increase of 12.4 percent. As was the case for the first six years, the most common relationship was commission and reporting or recordkeeping, which increased from 21.1 percent of all defendants to 22.7 percent of all defendants. Meanwhile, the percentage of defendants who engaged in conduct that involved all three subcategories dropped from 16.4 percent to 14.1 percent (15.5 percent for all ten years).

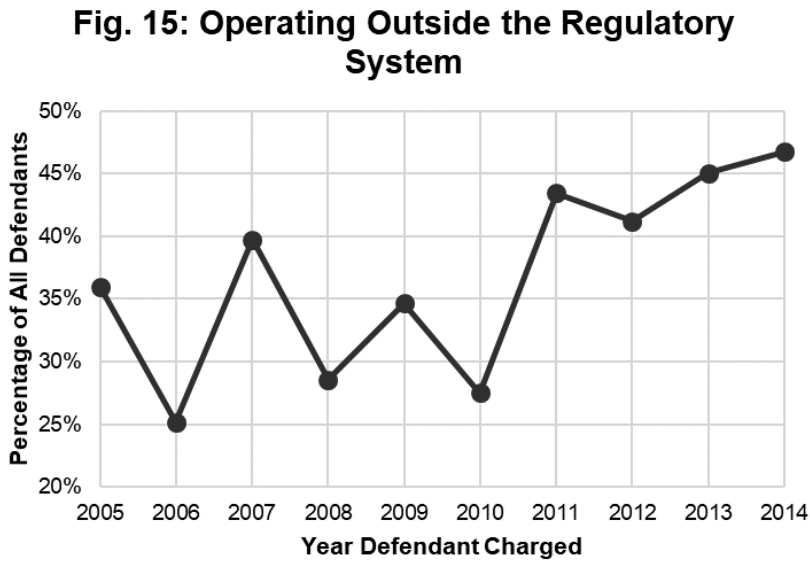
The environmental laws create an honor system whereby companies are expected to self-identify regarding their pollution activities and honestly report their compliance with environmental obligations. When companies mislead the government about their compliance efforts, regulatory officials make decisions about what pollution to allow with an inaccurate picture of what pollution is occurring, and the regulatory system, designed to protect public health and the environment, is compromised. For that reason, as I have argued previously, deceptive or misleading conduct inculpates both because of the harm it can cause to public health and the environment, and because all companies and their employees have an obligation to be truthful about compliance.[94] Other than repetitiveness, I would expect charges

94. Uhlmann, *supra* note 1, at 197-99.

involving deceptive or misleading conduct to continue to be the largest number of defendants in the future.

C. *Operating Outside the Regulatory System*

The modest downward shift in deceptive or misleading conduct between 2011-2014 was accompanied by a major upward shift in operating outside the regulatory system. From 2011-2014, 44 percent of all defendants engaged in conduct that involved operating outside the regulatory system, compared to 32 percent during the previous six years. This nearly 40 percent increase in defendants operating outside the regulatory system over the last four years covered by our data is the single biggest aggravating factor trend that the new data shows. Indeed, over the last four years of our dataset, there were almost as many defendants operating outside the regulatory system (262 defendants) as there were the first six years (281 defendants). Moreover, a higher percentage of defendants were charged with violations involving operating outside the regulatory system in each of the last four years than in any of the previous six years, as shown in FIGURE 15.

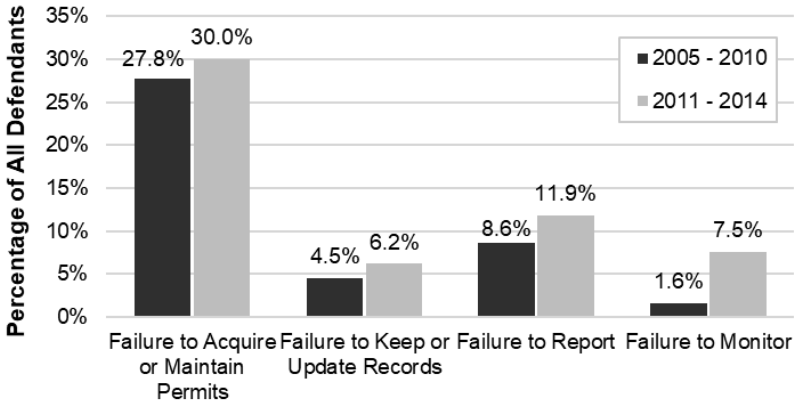


It is noteworthy that this shift occurred even though we became more restrictive about when we coded for operating outside the regulatory system.[95]

95. In my earlier article, I reported that 33 percent of all defendants were operating outside the regulatory system. *Id.* at 194. As noted in Part I, however, we modified how we coded for this aggravating factor so that we no longer treat as operating outside the regulatory system defendants who nominally participated in the regulatory system, as this introduced too much subjectivity. *See supra* Section

Our data shows an increase in each of the four subcategories of operating outside the regulatory system (failure to acquire permits, failure to monitor, failure to maintain records, and failure to report), which together account for the overall increase in defendants operating outside the regulatory system. FIGURE 16 provides the breakdown of our updated operating outside the regulatory system analysis, showing each subcategory of operating outside the regulatory system as a percentage of all defendants.

Fig. 16: Operating Outside the Regulatory System Subcategories



2005 - 2014	28.7%	5.2%	9.9%	4.0%

As in the past, by far the largest subcategory of operating outside the regulatory system remains failure to acquire or maintain permits, which increased by about 8 percent during the last four years of our dataset (from 27.8 percent to 30.0 percent). Far larger percentage increases occurred, however, in each of the other three subcategories. Failure to keep or maintain records increased by nearly 37 percent (from 4.5 percent to 6.2 percent). Failure to report increased by slightly more than 38 percent (from 8.6 percent to 11.9 percent). But the biggest increase of all was failure to monitor, which increase by almost 400 percent (from 1.6 percent to 7.5 percent).

I have argued that failure to keep or maintain records and failure to monitor is rarely conduct that by itself should result in criminal charges.[96] On that basis, I have some concern about the surge in failure to monitor charges against defendants who were operating outside of the regulatory system, from just 14 defendants be-

I.C. This modification lowered the percentage of defendants operating outside the regulatory system to 31.9 percent.

96. Uhlmann, *supra* note 1, at 200.

tween 2005 and 2010 (2.33 defendants per year over a six-year period), to 45 defendants between 2011 and 2014 (11.25 defendants per year over a four-year period). The shift may be tied to increased use of failure to monitor charges in asbestos and vessel pollution cases, where failure to monitor had not been emphasized previously and which may involve a reasonable exercise of prosecutorial discretion. As a general rule, however, recordkeeping or monitoring violations—without more—might be more appropriate for civil or administrative enforcement than criminal charges.

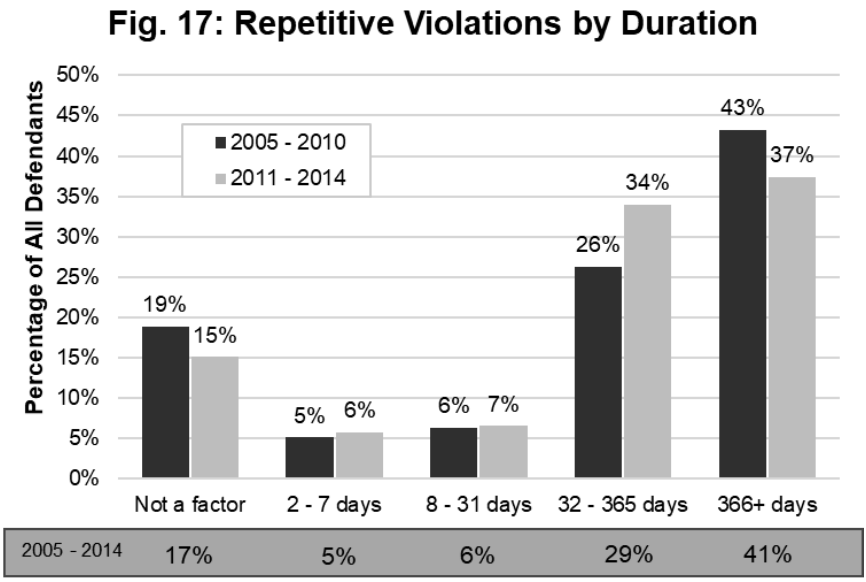
In future years, we will track whether the increase in defendants operating outside the regulatory system continues and whether the more modest decreases we see in defendants engaging in deceptive or misleading conduct also continues. If both occur, it is possible that there is an underlying behavioral shift emerging: rather than participating in the regulatory system, but failing to be honest about compliance, some companies may be trying to evade regulation altogether. At this point, our data does not indicate that there is an inverse relationship between deceptive and misleading conduct and operating outside the regulatory system.[97] Indeed, there are a large number of defendants (218) who engaged in misconduct involving both aggravating factors, which is a little under 15 percent of all defendants. But there may be some relationship, since each factor is present far more often independently than together. Viewed in this light, deceptive or misleading conduct and operating outside the regulatory system may involve different paths to the same result, inasmuch as both undermine effective public health and environmental protection.

D. *Repetitive Violations*

From 2005-2010, 81 percent of defendants engaged in misconduct that was repetitive, with most of that percentage violations that lasted more than one month.[98] From 2011-2014, the percentage increased to 85 percent. FIGURE 17 provides a breakdown of repetitive violations, as a percentage of all defendants, graphed by the number of days of the alleged misconduct.

97. To test this relationship, we ran a regression analysis that showed moderate correlation between these factors. The statistical significance of that correlation, however, was limited, and there was a great deal of variation in the data.

98. Here, too, a modification in how we coded for repetitive conduct shifted our data slightly. *See supra* Section I.C. In my earlier article, I found that 78.7 percent of all defendants engaged in repetitive conduct from 2005-10. Uhlmann, *supra* note 1, at 193. The changes in how we coded for repetitive conduct increased that figure to 81.2 percent.



The biggest shift we see in this data is an increase of 29 percent in the number of defendants who engaged in misconduct that lasted between one month and one year. At the same time, we see a 13 percent decrease in the number of defendants who engaged in conduct that lasted more than one year and a 20 percent decrease in single day violations.

I include repetitiveness as an aggravating factor because duration indicates greater culpability in two ways.[99] First, duration makes it more likely that the underlying conduct was intentional and not the result of mistake or accident (thus satisfying the "knowingly" mental state requirements for felony violations of the environmental laws). Second, duration increases the public health and environmental risk associated with a violation by lengthening the exposure period for violations of the environmental laws.

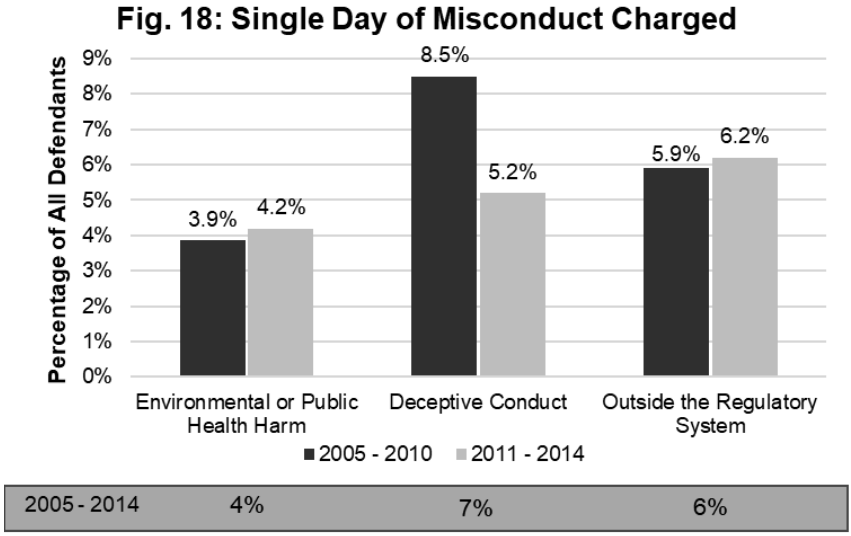
On the other hand, even isolated misconduct can be egregious if it involves other aggravating factors. A single day of environmental violations can cause considerable harm, such as when an explosion occurs because of a failure to maintain a safe working place in violation of the Clean Air Act. A false statement in an oil record book can conceal months or even years of illegal discharges from a foreign-flagged ship.[100]

99. Uhlmann, *supra* note 4, at 1250.

100. *See generally* Act to Prevent Pollution from Ships, Pub. L. No. 96-478, § 9(a)–(b), 94 Stat. 2301, 2301 (1980) (codified as amended at 33 U.S.C § 1908(a)–(b) (2018) (recognizing implicitly that a false statement in a foreign-flagged vessel's record book carries with it the potential to conceal months to years of illegal discharge, in requiring criminal penalties to be assessed by a U.S. Court, or, in cases assessing civil penalties, the Secretary of Homeland Security and EPA Administrator, with the under-

A closer look at the defendants who were not charged with repetitive misconduct reveals that the presence of other aggravating factors largely tracks their presence in the dataset as a whole. In other words, the largest category of defendants whose conduct was not repetitive are those who engaged in deceptive or misleading conduct, followed by operating outside the regulatory system, and then by environmental harm. Over the last four years, however, slightly more isolated misconduct defendants operated outside the regulatory system, moving it just barely ahead of deceptive or misleading conduct.

FIGURE 18 below shows single day of misconduct charges as percentages of all defendants, which captures the modest shifts that occurred over the last four years.



I have some concern about the increase in the number of defendants charged with a single day of misconduct where the aggravating factor is operating outside the regulatory system. Those could be cases that are appropriate for criminal prosecution. But the negative impact that is possible from a single day of harm or deceptive/misleading conduct may not be present from a single day of operating outside the regulatory system (in the absence of harm or deceptive/misleading conduct). Isolated incidents of misconduct involving operating outside the regulatory system, without more, may be better addressed by civil or administrative enforcement—and it is easier to justify criminal enforcement when misconduct occurs repeatedly,

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standing that "[e]ach day of a continuing violation shall constitute a separate violation," by "tak[ing] into account the nature, circumstances, extent, and gravity of the prohibited acts committed and, with respect to the violator, the degree of culpability, any history of prior offenses, ability to pay, and other matters as justice may require.").

particularly if the misconduct involves other aggravating factors in addition to operating outside the regulatory system.

IV. CASES WITH MULTIPLE AGGRAVATING FACTORS AND NO FACTORS

Another significant aspect of our original study involved the presence of multiple aggravating factors and the relationship between aggravating factors. Two or more aggravating factors were present for 74 percent of all defendants, suggesting a higher level of egregiousness than when one factor (or no factors) were present. When we analyzed that data further, we were able to make three additional findings.

First, 88 percent of the defendants committed violations involving one of the first three aggravating factors (i.e. significant harm, deceptive or misleading conduct, or operating outside the regulatory system). Second, while repetitiveness was the most prevalent aggravating factor (79 percent of all defendants), it was rarely the sole aggravating factor (10 percent of defendants engaged solely in repetitive violations). Third, 71 percent of the defendants committed violations that involved one of the first three aggravating factors *and* repetitiveness.[101]

Based on this data from the original study, I concluded that prosecutors were focusing on conduct involving one of the first three factors. I also concluded that, while prosecutors preferred to charge repetitive violations, repetitiveness alone might not be driving charging decisions. As a result, a high percentage of criminal charges involved both one of the first three aggravating factors and repetitiveness. The converse also was true: prosecutors rarely charged violations that did not involve one of the first three aggravating factors (only 12 percent of all defendants) and avoided criminal charges based on isolated violations (only 21 percent of all defendants).[102]

In this Part, I update our findings regarding the presence of multiple aggravating factors and analyze cases where no aggravating factors were present.

A. *Multiple Aggravating Factors*

We replicated the core findings from the first six years of data (2005-2010) when we expanded our study to include ten years of data (2005-2014). We found that 76.5 percent of defendants charged from 2005-2014 committed violations with two or more aggravating factors present (compared to 75.7 percent from 2005-2010).[103] The number of defendants who committed two aggravating factors

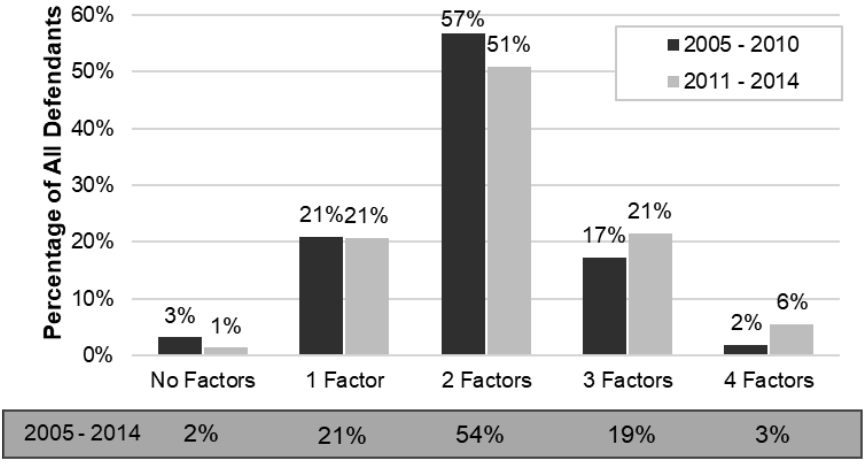
101. Uhlmann, *supra* note 1, at 205.

102. *Id.*

103. This percentage and those contained in the next paragraph differ slightly from what I reported in my original article because we continue to update our data to add newly-completed cases. *See supra* note 24.

dropped by 10 percent. But that decrease was more than offset by a more than 20 percent increase in the number of defendants with three or more aggravating factors and a nearly 200 percent increase in the number of defendants with all four aggravating factors. Our findings on the number of aggravating factors are presented in FIGURE 19 below.

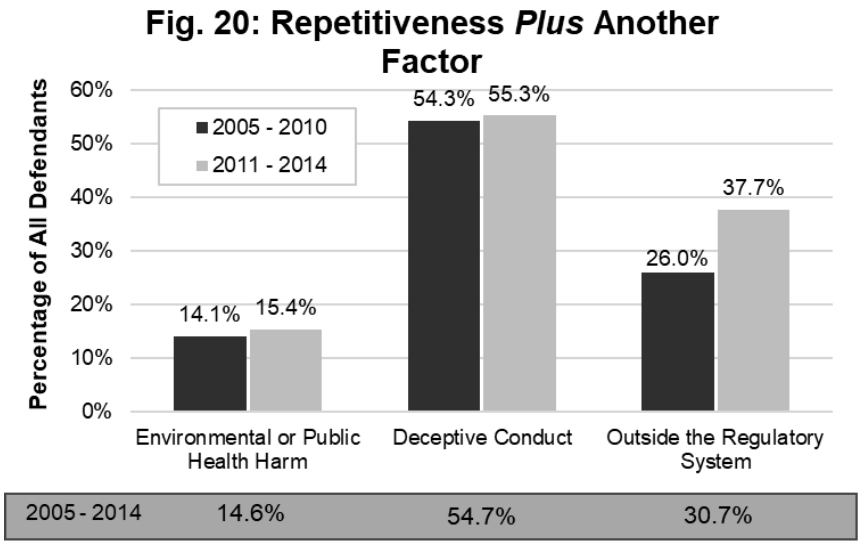
Fig. 19: Defendants Charged by Number of Aggravating Factors



As noted in Part III, our aggravating factor findings are even more robust than they were for the first six years of data in terms of how often at least one aggravating factor is present. But the data also is more robust in terms of how often three or four aggravating factors are present (27 percent of all defendants compared to 19 percent for 2005-2010). Moreover, the presence of multiple aggravating factors becomes more consistent over the last six years of our data (i.e. there is less year-to-year variability).

We also analyzed the relationship between aggravating factors. The data revealed that 89.0 percent of defendants charged from 2005-2014 committed violations involving one of the first three aggravating factors (compared to 90.1 percent for 2005-2010). The data showed that 74.4 percent of the defendants charged from 2005-2014 committed violations involving one of the first three factors and repetitiveness (compared to 73.4 percent from 2005-2010) and that repetitiveness was the sole aggravating factor only 8.1 percent of the time (compared to 7.8 percent from 2005-2010).

Our findings on the relationship between aggravating factors for multi-factor defendants are shown in FIGURE 20.



The relationship between harm and repetitiveness remains relatively consistent, as does the relationship between deceptive conduct and repetitiveness. The major new development is the surge in the percentage of defendants operating outside the regulatory system who engaged in repetitive misconduct, an increase of nearly 45 percent over the last four years of our study. This increase largely tracks the increase in the dataset as a whole with regard to operating outside the regulatory system, but it is a favorable one, particularly since isolated acts of operating outside the regulatory system might not be as egregious as isolated acts of harm or deceptive conduct.[104]

B. *No-Factor Cases*

In my 2014 article, I reported that none of the four aggravating factors was present for 36 defendants in our database.[105] In reviewing those charges since the publication of the 2014 article, we have determined that there were only 26 defendants charged between 2005-2010 (an average of 4.3 per year) whose conduct did not involve any of the aggravating factors. There were 8 defendants that were considered "no-factor" defendants that should have been coded as either operating outside the regulatory system or engaging in repetitive misconduct (or both). In addition, because of minor methodology changes, we identified at least one aggravating factor for 2 defendants previously coded as "no-factor" defendants, and we

104. *See supra* Section III.D.

105. Uhlmann, *supra* note 1, at 213.

removed one "no-factor" defendant from the dataset.[106] We also concluded that one defendant, who we should have coded as a "no-factor" defendant, was improperly coded as having an aggravating factor present.

We see slightly fewer no-factor defendants annually when we expand the dataset to include 2011-2014, with 8 additional no-factor defendants (an average of 2 per year) for a total of 34 across the entire dataset. As before, we have examined each no-factor defendant to determine whether, based on the conduct described in the court documents, any of the charges raise questions about how prosecutors exercised their discretion.

For the 34 defendants with no aggravating factors, 5 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 (4 defendants) and failure to report (1 defendant). This conduct still might be sufficiently egregious to warrant criminal prosecution, even if it does not involve operating outside the regulatory system. For example, one defendant owned and operated a septic pumping truck and was engaged in the septic waste disposal business. He was hired to haul waste including sludge, sewage, and chemicals to a permitted Publicly Owned Treatment Work for proper disposal, but instead discharged the waste directly into the sewer system without proper treatment.[107]

On the other hand, two other defendants obtained permits from state regulators allowing them to apply wastewater in approved amounts on land surfaces.[108] They were charged criminally with negligently exceeding those permit limits on one occasion. Perhaps the conduct resulted in harm that is not reflected in the pleadings. Or perhaps they pleaded only to a single instance of misconduct despite repetitive misconduct. But based on the information contained in the pleadings,

106. Because of the clarification in the methodology with respect to animal deaths, one defendant that was previously found to have no factors present is now coded as environmental or public health harm. *See supra* note 33. Further, with respect to asbestos removal cases, while being a licensed asbestos remover is not the same as acquiring a permit, we determined that obtaining a license or notifying a government agency can be a proxy for self-identification within a system that depends on self-identification. Therefore, when a defendant involved in improper asbestos removal is neither licensed nor provides proper notice to a government agency, the defendant is acting outside the regulatory system. As a result, 1 defendant that was previously considered "no-factor" is now coded as operating outside the regulatory system. Finally, 1 defendant that was included in the previous article has since been removed from the data set as the case involved harm to public lands. This type of case is typically investigated by the Bureau of Land Management law enforcement, not EPA. These cases are outside the scope of this project unless they are paired with pollution crimes.

107. Information at 1, United States v. Molina, No. 1:10-cr-20702-PCH (S.D. Fla. Sept. 22, 2010); *Summary of Criminal Prosecutions*, U.S. ENVTL. PROTECTION AGENCY, https://cfpub.epa.gov/compliance/criminal_prosecution/index.cfm?action=3&prosecution_summary_id=2127 (last visited Apr. 12, 2019).

108. Indictment at 2-5, United States v. Ohio Fresh Eggs, LLC, No. 3:09-mj-07047-VKA (N.D. Ohio Apr. 16, 2009).

these would appear to be cases that might have been more appropriate for civil or administrative enforcement.[109]

Of the remaining 29 defendants with no aggravating factors and no subcategories of operating outside the regulatory system, 7 defendants engaged in conduct that was egregious in other ways so that criminal charges may have been appropriate despite the absence of aggravating factors. For example, one defendant's negligence caused a school bus to be sprayed with pesticides; he was charged with criminal violations of FIFRA for misapplying pesticides. In another case, a defendant siphoned diesel from a railcar that resulted in the discharge of several thousand gallons of diesel fuel into a creek and required the removal of 80 tons of soil from the creek bed. Neither of these cases would have been coded as harm cases under the criteria we use in the Environmental Crimes Project, yet both involved significant risk and impacts that might warrant criminal charges.

Only 22 defendants engaged in conduct where prosecution could not be justified by a subcategory or additional aggravating factor. Of that number, 7 defendants were charged in an indictment or information that merely recited the elements of the offense. For those defendants, it is not possible to reach any conclusions based on the court documents about whether criminal charges were appropriate. Under the Federal Rules of Criminal Procedure, indictments that recite the elements of the offense are legally sufficient. It is far easier to identify aggravating factors in so-called speaking indictments, however, where prosecutors provide additional details about the misconduct, including the type of evidence that fits within the aggravating factor analysis. 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, judgments, and press releases), but those documents sometimes did not exist or did not provide additional information beyond the charges.

That leaves us with 15 defendants for whom we could not discern a rationale for the prosecution despite the availability of court documents that provided details about their misconduct. Five of those defendants were charged with FIFRA violations involving the use of pesticides in an unregistered manner. The underlying conduct was intentional and may have warranted criminal prosecution, but it is fair to question whether civil or administrative enforcement would have been sufficient in these misdemeanor cases.

Ten more defendants engaged in conduct on a single day according to the charging documents, without the presence of any aggravating factor that might make those cases egregious. In 9 of the 10 cases, the misconduct involved negli-

109. In my previous article, I also expressed concern about the fact that the Ohio Fresh Eggs prosecution appeared to involve negligent misconduct on a single day, while acknowledging (as I do here) that there may have been more misconduct than is reflected in available court documents. Uhlmann, *supra* note 1, at 187.

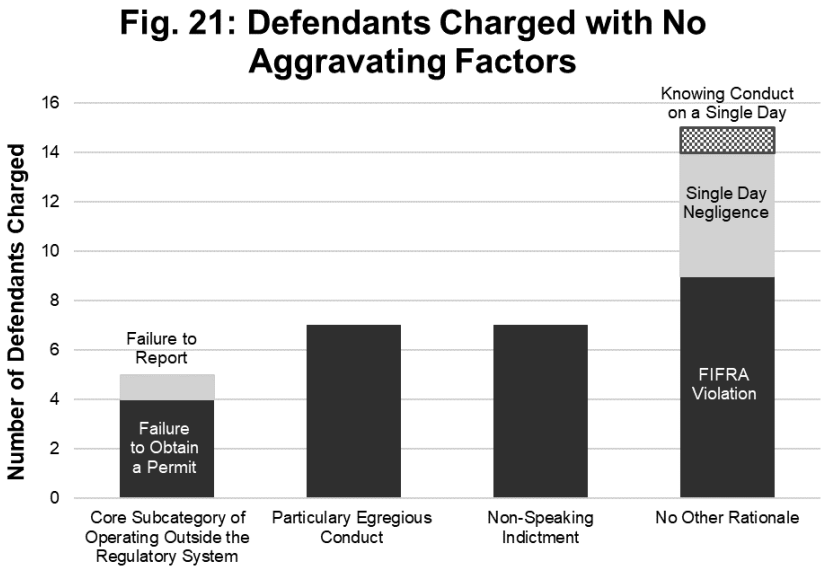
gence. These 10 defendants engaged in the following misconduct, none of which seems particularly egregious:[110]

- An employee negligently left a water hose running overnight near a neutralization pit, which overflowed into a nearby creek;
- After an accidental spill into a cement pit, the defendant attempted to treat the resulting waste material and dispose into the sewer system; he immediately stopped when notified by the POTW that his conduct was not permissible;
- A defendant drove a truck across a berm, resulting in the negligent release of contaminated wastewater from a fracking operation into a creek;
- A defendant negligently discharged contaminated wastewater into the Mississippi River without a permit on a single day;
- A defendant negligently discharged aluminum silicate into the Boise River on a single day;
- A sump pump was negligently maintained on an offshore oil production platform causing an oil discharge;
- A defendant negligently discharged pollutants into the East Gallatin River without a permit on a single day;
- 2 defendants negligently discharged treated wastewater in violation of their permit on a single day; and
- A defendant improperly disposed of sludge on agricultural land in violation of a permit.

While these cases may have been egregious in ways that are not clear from the court documents, in which case criminal charges may have been appropriate, these are cases that might have been appropriate for civil or administrative enforcement.

A summary of the no-factor cases is shown below in FIGURE 21.

110. Excel Document, David M. Uhlmann, Data Download from ECP Database (Spring 2019) (on file with the author).



As in the first six years of our study, the percentage of no-factor cases is low—now just three percent—so the conclusion still holds that prosecutors focus on conduct that involves aggravating factors in nearly every case. In addition, as the discussion above suggests, there may be cases that are egregious in ways that are not captured by my aggravating factors or where the court documents do not provide enough information to conduct aggravating factor analysis. But prosecutors should be mindful of cases that do not involve aggravating factors and ensure that there is a compelling rationale for criminal prosecution before charging those violations. While the percentage of no-factors cases may be small, any instance of prosecutorial overreaching is problematic—and far worse for the defendants who are charged simply because the environmental laws allow criminal prosecution even for violations that are not egregious.

V. Individual Outcome Data for Environmental Crime

In my prior articles about the Environmental Crimes Project data, I have focused on statutes charged and the presence of aggravating factors, as those reflect most directly on how prosecutors are exercising their discretion in the environmental context. Since prosecutorial discretion plays such a significant role in determining when environmental violations are criminal, data regarding what types of misconduct most often result in criminal charges as well as the extent to which aggravating factors are present help define what otherwise might present as a random or amorphous area of prosecution activity.

As the Supreme Court noted in *United States v. Dotterweich*,[111] however, prosecutors do no exercise discretion in a vacuum: judges and juries determine whether charged conduct will result in a conviction and, when a conviction occurs, whether incarcerated will result. In this Part, I consider data regarding conviction rates and incarceration rates for individuals charged with environmental crime.

A. *Conviction Rates for Environmental Crime*

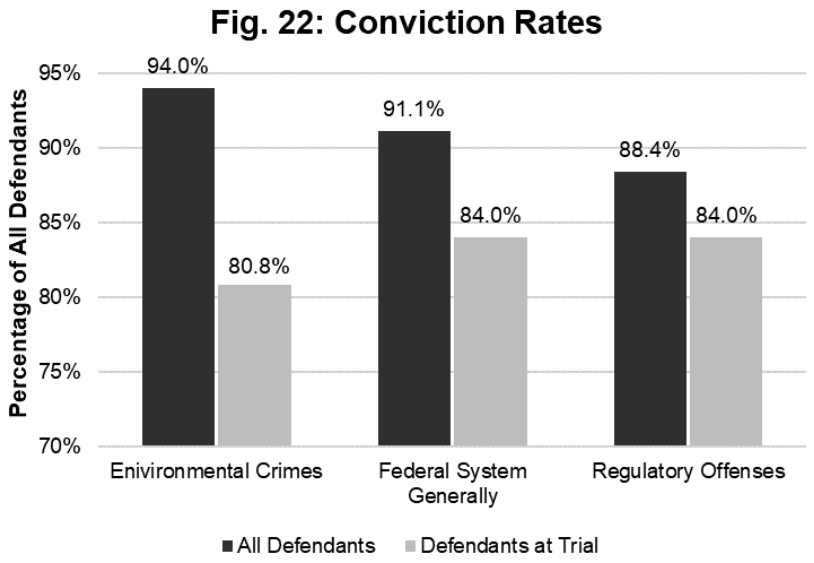
From 2005-2014, the Justice Department charged 1,060 individuals with environmental crime as we define the term for the Environmental Crimes Project. Of that number, we have outcome information for 1,050 (charges remain pending for 10 defendants). For the completed cases, 902 defendants pleaded guilty, and 85 defendants were found guilty at trial, resulting in 987 convictions and a conviction rate of 94.0 percent. Charges were dismissed against 45 defendants, yielding a dismissal rate of 4.06 percent; 20 individuals were acquitted, yielding an acquittal rate of 1.89 percent.

The 94.0 percent conviction rate for individuals charged with environmental crime exceeds the 91.1 percent conviction rate in the federal criminal justice system during 2014, the last year covered by our study.[112] The conviction rate for environmental crimes is also higher than the 88.4 percent conviction rate for regulatory offenses.[113] The higher conviction rates for individuals charged with environmental crime, however, did not always carry over to trial, as shown in FIGURE 22.

111. *See* United States v. Dotterweich, 320 U.S. 277, 279, 284 (1943).

112. MARK MOTIVANS, BUREAU OF JUSTICE STATISTICS, NCJ 250183, FEDERAL JUSTICE STATISTICS 2014, at 17 (Mar. 2017), http://www.bjs.gov/index.cfm?ty=pbdetail&iid=5873.

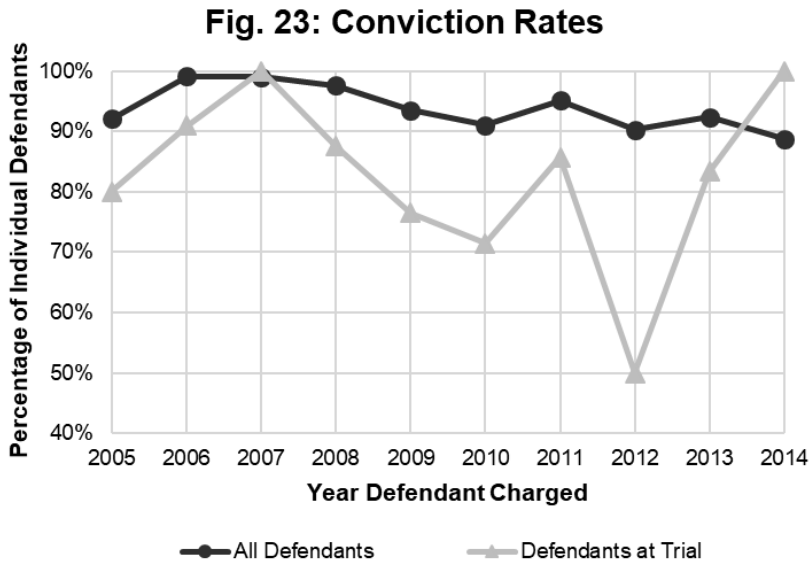
113. *Id.* The Bureau of Justice Statistics (BJS) defines regulatory offenses as "a violation of regulatory laws and regulations in agriculture, antitrust, labor law, food and drug, motor carrier, and other regulatory offenses that are not specifically listed in the category public order offenses, nonregulatory." *Id.* at 51. BJS lists environmental crimes separately and reports a 94.1 percent conviction rate but in a smaller number of cases (34 cases for FY 2014 compared to 65 cases in our dataset for calendar year 2014). *Id.* at 17. I suspect the difference reflects the fact that BJS uses a narrower definition of environmental violations that includes only cases charged under the environmental statutes.



The conviction rate was lower as a percentage of all individuals who went to trial—80.8 percent—with the acquittal rate for individuals who went to trial correspondingly higher—19.2 percent. That places the conviction rate at trial lower than what available data shows for the federal system generally (84.0 percent) and for regulatory offenses (83.1 percent).[114]

Overall individual conviction rates remained relatively consistent over the ten years of our dataset, ranging from a high of 99.1 percent and 99.0 percent for defendants charged in 2006 and 2007 to a low of 90.3 percent and 88.7 percent for defendants charged in 2012 and 2014. Conviction rates at trial varied more, peaking at 100 percent when all 11 individuals charged in 2007 were later convicted at trial. There were 37 defendants charged during 2005-2007 who went to trial, with all but four defendants (in two cases) found guilty, an 89.2 percent conviction rate. There were 67 defendants charged over the next seven years who went to trial and 51 were found guilty, a 76 percent conviction rate. The conviction rates were lowest for defendants charged during 2012, when only 4 of the 8 defendants who went to trial were convicted. Of course, a single year with 8 defendants going to trial does not provide a large enough sample to draw definitive conclusions—and in 2013 and 2014 the conviction rate was back up to 88 percent (7 out of 8 defendants charged during those years were convicted at trial). The relatively consistent overall conviction rate and the more uneven conviction rate at trial for individuals charged with environmental crime are shown graphically in FIGURE 23 below.

114. MOTIVANS, *supra* note 112, at 17. Note, however, that this data is for just 2014. If only environmental crimes data for 2014 were utilized, the conviction rate would be 100 percent because the only environmental crimes defendant charged in 2014 who went to trial was convicted.



We analyzed adverse trial outcomes to determine whether any patterns emerged. Based on the number of acquittals, the most frequent statute for acquittals was Title 18, with 15 acquittals. The next highest statute for acquittals was the Clean Water Act with 8 acquittals, 5 of which involved knowing (felony) violations of the Clean Water Act, and 3 of which involved negligent (misdemeanor) violations of the Clean Water Act. The third highest number of acquittals was 7 under the Clean Air Act; no other statute had more than 1 defendant acquitted. These results track the charging data, inasmuch as Title 18, the Clean Water Act, and the Clean Air Act violations are charged more frequently than other forms of environmental crime.

Conviction percentages by statute, as opposed to raw numbers, show that the Justice Department fares best in hazardous waste cases (RCRA and CERCLA) but not as well in Title 18, Clean Air Act, and Clean Water Act cases (in that order). For RCRA and CERCLA, there were 17 defendants who went to trial, and 16 were convicted, an impressive 94.1 percent conviction rate. Title 18 cases were the largest number of to go to trial, with 76 defendants and a conviction rate at trial of 80.3 percent. There were 31 defendants who went to trial in cases brought under the Clean Air Act, with 24 defendants convicted (a 77.4 percent conviction rate at trial). Under the Clean Water Act, 30 defendants went to trial and 22 were convicted, yielding a 73.3 conviction rate at trial. The lower Clean Water Act conviction rates at trial are somewhat surprising since the Clean Water Act has the most

straightforward statutory prohibition of the environmental laws.[115] On that basis, I would have expected greater success at trial, although multiple factors could be responsible for the lower conviction rates in Clean Water Act cases (to include the fact that the Clean Water Act regulates more pollutants, many of which are not hazardous).

My prior scholarship regarding aggravating factors included the assertion that the government would be more successful at trial if it focused on violations involving aggravating factors (in addition to the other salutary benefits of doing so).[116] None of the cases that went to trial involved no aggravating factor, so it is not possible to make any observations about the relationship between the absence of aggravating factors and trial outcomes. It also is difficult to determine whether there is any correlation between the presence of one aggravating factor and trial outcomes, because those sample sizes are small. There were only 2 defendants who went to trial in cases where only harm was a factor; 1 was convicted, and 1 was acquitted (a 50 percent conviction rate). When only deceptive or misleading conduct was present, there also were only 2 defendants who went to trial. Both were convicted (a 100 percent conviction rate), and the same was true for operating outside the regulatory system (2 defendants, both convicted at trial, yielding a 100 percent conviction rate). The most defendants (6) went to trial in cases involving only repetitiveness; 3 were convicted and 3 acquitted, also yielding a 50 percent conviction rate. In the aggregate then, the conviction rate for cases with one aggravating factors was 67 percent (8 of 12 defendants).

In cases with two or more aggravating factors, many of the sample sizes were larger. The largest number of defendants to go to trial were those engaging in repetitive deceptive or misleading conduct (49 defendants). Of that number, 42 were convicted at trial for an 86 percent conviction rate. The next largest category was defendants who engaged in repetitive deceptive or misleading conduct and operated outside the regulatory system; all 13 were convicted. The third largest category were 11 defendants who repeatedly operated outside the regulatory system, of which 9 were convicted at trial (an 82 percent conviction rate). The fourth largest category were defendants who repeatedly engaged in deceptive or misleading conduct and caused harm. Of those 9 defendants, 6 were convicted (a 67 percent conviction rate).

It is worth noting that 25 percent of the acquittals from 2005-2014 occurred in two high-profile cases: W.R. Grace (3 individuals acquitted at trial, along with the corporation) and the Gulf oil spill (2 individuals acquitted in separate trials, while 2 other individuals pleaded guilty as did the corporate defendants). W.R. Grace was an aggressive case, inasmuch as it sought to hold the company and its executives criminally responsible for the ongoing endangerment of the residents of Libby, Montana, based on conduct that began decades earlier. But it is hard to con-

115. *See supra* Section II.C.

116. Uhlmann, *supra* note 4, at 1245.

clude that it was not an appropriate case for prosecution given the extent of the harm and the strength of the evidence that corporate officials knew about the harm they were causing. Rather, I would fault the trial court judge, who was openly hostile to the prosecutors throughout the trial (apparently out of pique for their successful appeals of his pre-trial orders dismissing the most serious charges), and who improperly excluded significant inculpatory evidence.[117] On the other hand, I have commented already about my concerns about the prosecution of individuals in the Gulf Oil Spill case,[118] although I have no quarrel with the decision to prosecute the companies involved, and I would readily acknowledge that reasonable people might differ about the charges against individual BP officials.

Some acquittals may be the result of compromise verdicts in cases where both individual and corporate defendants were charged. Our data includes 11 cases where individuals were acquitted and corporations also were charged. In those cases, 5 corporate defendants were convicted, 2 pleaded guilty, and 4 were acquitted. In the 7 cases where corporate defendants were convicted, perhaps the acquittals can be explained by the fact that corporations were convicted instead. In other words, charges may have been warranted but the case was not egregious enough for the jury to find individual guilt. On the other hand, corporate guilt does not necessarily mean that the case was appropriate for prosecution. There can be social pressure on corporations to plead guilty, even in cases where the misconduct was not particularly egregious, in order to retain goodwill and reduce public visibility about the incident. Also, while juries are capable of parsing the evidence and acquitting some defendants while convicting others, corporations make less sympathetic defendants than individuals.

A more significant question is what happened in the four cases where juries acquitted all corporate and individual defendants—and whether those cases involved prosecutorial overreaching. As discussed above, one of those cases was W.R. Grace, where the government marshaled substantial evidence that the company knew it was exposing its workers to grievous harm and more than 200 people have died, but the trial court judge excluded much of the damaging testimony. The second case involved a company and its employees who raised chlorine levels in wastewater samples, the kind of deceptive conduct that appears appropriate for criminal prosecution.[119] In the third case, Defendants were issued a temporary emergency permit to dispose of fireworks without a RCRA permit. After the permit expired, defendants directed their employees to continue without a permit

117. Kirk Johnson, *Chemical Company is Acquitted in Asbestos Case*, N.Y. TIMES (May 8, 2009), https://www.nytimes.com/2009/05/09/us/09grace.html. Of the 8 total defendants in the W.R. Grace case, 4 were acquitted, 3 saw all charges dismissed, and one died while the case was pending. *Id.*

118. As I mentioned earlier, the acquittals in the Deepwater Horizon case arguably were attributable to prosecutorial overreach in bringing manslaughter and Clean Water Act negligence charges against the well-site leaders. *See supra* Section III.A.

119. United States v. United Water Envtl. Servs. Inc., No. 2:10-CR-217, 2011 WL 3751303 (N.D. Ind. Aug. 24, 2011).

(dismantling commercial grade fireworks by breaking them apart and soaking them in fuel). An explosion occurred that killed five employees, the kind of harm alongside intentional misconduct that also appears appropriate for criminal charges.[120] Only the last of these four cases, which involved wetlands charges that have historically been controversial, arguably might have been better suited to civil enforcement, although whether the case was appropriate for prosecution would depend on the egregiousness of the violations.[121]

Finally, our acquittal data indicates that acquittals typically occur in multi-defendant cases: 19 of the 20 individual defendants who were acquitted were charged in multi-defendant cases. Of course, other factors may explain why these acquittals occurred, but multi-defendant cases pose unique challenges for the government because of proof disparities and the "piling on" effect of multiple cross-examinations. Proof disparities are inevitable in multi-defendant cases, since some defendants inevitably are more responsible than others, which can lead to mixed verdicts or even across-the-board acquittals if the proof disparities are so great that the prosecution seems unfair. Moreover, even when proof disparities are limited, each defendant is entitled to cross-examine witnesses, presenting the defense two (or more) opportunities to challenge witness testimony. This dynamic could be further heightened if it were already a questionable case for prosecution.[122]

For the 43 individuals who saw all charges dismissed, the largest numbers were charged under Title 18 (25 defendants), followed by the Clean Water Act (14 defendants) and the Clean Air Act (12 defendants). No other statute had more than 3 defendants dismissed of all charges. In addition, only 10 individuals charged between 2005 and 2009 saw charges dismissed, compared to 33 defendants charged between 2010 and 2014, a rather dramatic increase in dismissals.[123]

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120. United States v. Donaldson Enterprises, Inc., No. 12-01034, 2016 WL 4445233 (D. Haw. Aug. 22, 2016). Another defendant, Carlton Finley, plead guilty to an Information charging him with violations related to storage and handling of explosives in return for dismissing the charges in this case.

121. United States v. Palm Beach Polo Holdings, Inc., No. 9:10-CR-80087-WJZ (S.D. Fla. June 22, 2010). Defendants charged with filling two parcels of land that the government claims were wetlands. Straub was president of Palm Beach Polo Holdings. *Id.*

122. We also looked at conviction rates at trial by the number of co-defendants, excluding data involving 7 or more co-defendants due to small samples sizes (only 3 or fewer defendants going to trial). We found that there was no statistically significant relationship between increasing the number of co-defendants and conviction rates in multi-defendant cases (with conviction rates fluctuating from a high of 87 percent with 6 co-defendants to a low of 70 percent conviction rate with 5 co-defendants). There was, however, a statistically significant difference between having only a single defendant, with a 95.7 percent conviction rate compared to the 76.8 percent conviction rate seen in multi-defendant cases. To make this determination, we used a significance level of 0.05, and found the chi-squared value to be 0.0422.

123. When charges were dismissed and refiled, we did not count this as a dismissal as the government still prosecuted the case. If the charges were subsequently dismissed again, that was counted as a dismissal.

There is some variation between whether aggravating factors are present for dismissed defendants compared to the dataset as a whole. Environmental harm was present in 27.9 percent of the cases where dismissal occurred, even though it was only present overall in 18.6 percent of the time with individuals. Likewise, deceptive and misleading conduct was present in 69.8 percent of dismissals, even though it was only present in 65.2 percent of all cases. There may be factors that explain why these dismissals occurred, unrelated to the presence of these aggravating factors. But as a general matter, I would have expected prosecutors to be less likely to dismiss where there was harm and/or deceptive or misleading conduct.

On the other hand, for operating outside the regulatory system and repetitive misconduct, the numbers were lower for dismissed defendants than for the dataset as a whole (25.6 percent for operating outside the regulatory system for dismissed defendants vs. 37.8 percent overall, and 76.7 for repetitive violations for dismissed defendants vs. 83.1 percent overall). Again, other factors may explain why there were fewer dismissals in these categories. But I would have expected this to be a higher category of dismissal, not lower, since operating outside the regulatory system and repetitiveness, without more, cause varying levels of actual harm.

We also examined dismissal cases individually to determine whether they might be examples of prosecutorial over-reaching. For this review, we expanded our analysis to include cases involving corporate defendants, bringing the total number of dismissals to 67 defendants. In 35 of the dismissals, there was at least one conviction amongst the other co-defendants, which suggests that there was a basis for the charges. Six individual defendants were dismissed after a corporation was found or pleaded guilty. Each of these corporations was small or very small, which may be a sign of declining to seek double punishment.[124] Six other defendants were dismissed after another individual in the case pleaded guilty, and 3 defendants were dismissed after both individual and corporate defendants pleaded guilty.

We also tried to determine why there was an increase in dismissals starting in 2010. One factor was that prosecutors allowed more defendants to enter into pre-trial diversion programs. Prior to 2010, only 1 defendant went through a pre-trial diversion program, whereas 7 defendants were permitted to do so after 2010. Charges against all 8 of those defendants eventually were dismissed. In addition, charges were dismissed against 2 defendants who died while their cases were pending, against a third corporate defendant that was controlled by one of the deceased defendants, and against a fourth defendant who was found incompetent to stand trial; only 1 defendant died during trial prior to 2010.

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124. Corporations and the individual owners have separate legal identities and therefore may both be charged without raising double jeopardy concerns. In my view, however, it is difficult to justify prosecuting both the corporation and its owner when the business is so small that the corporation and the owner are practically one and the same. Uhlmann, *supra* note 88, at 1274. It is in that sense that I reference double punishment, not based on double jeopardy concerns.

Once those reasonable dismissals are taken into account, only 19 dismissals remain. Two of those dismissals occurred because the defendant pleaded guilty in a separate criminal matter, 3 were dismissed because the defendant cooperated with the government, and 3 were dismissed in the W.R. Grace case after the acquittals at trial, leaving only 11 defendants whose dismissals may raise questions about the appropriateness of the charges. When we reviewed those 11 defendants, however, there were clear justifications for all but 2 of the dismissals.[125]

In sum, conviction rates for environmental crime are robust—more so than for the federal criminal justice system as a whole and for other white-collar crimes. The strong conviction rate may provide some additional support for the proposition that prosecutors exercise their discretion reasonably under the environmental laws. Conviction rates at trial, on the other hand, do not compare as favorably to the rest of the criminal justice system, which could be a cause for concern. To be sure, prosecutors should not bring only "easy" cases, so it is not necessary for the government to have perfect success at trial. In addition, acquittals sometimes happen for reasons beyond the control of prosecutors, to include how well witnesses testify, the effectiveness of defense counsel, the conduct of the trial judge, and the whims of jury decisions. But acquittals always should be examined with regard to whether there is something more fundamental involved in the unsuccessful outcome at trial, to include possible prosecutorial overreaching.[126]

B. *Incarceration Rates for Environmental Crime*[127]

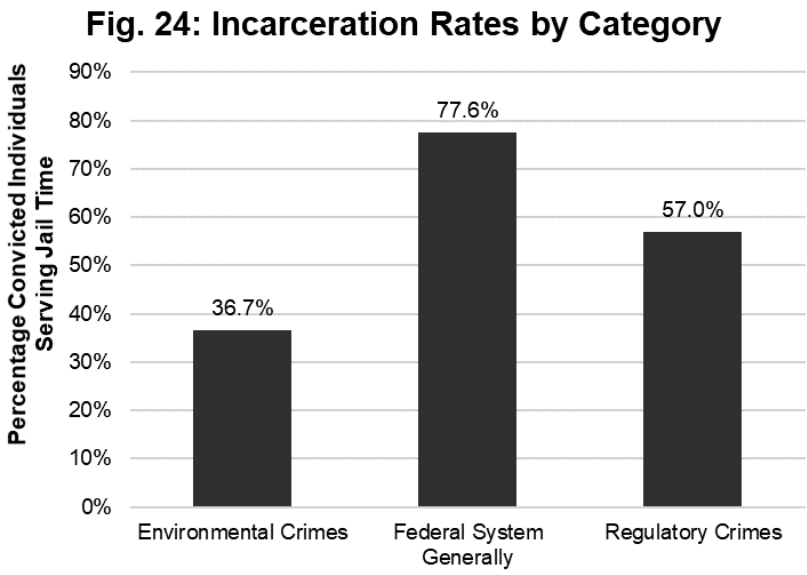
While conviction rates for environmental crime are robust, the same cannot be said about incarceration rates. From 2005-2014, the Justice Department secured 987 convictions of individual defendants for environmental crime. Of that number,

125. It would be fair to say that these 9 dismissed defendants involved the kind of dismissals that occur frequently in the criminal justice system: successful motions to suppress evidence, dismissal so the government could investigate further or proceed on different charges, defendants who had moved overseas and could not be extradited, and dismissal based on newly-discovered evidence that made continued prosecution inappropriate.

126. The same is true for dismissals.

127. At various points throughout this section we utilized statistical methods to determine whether our results were statistically significant. To test for significance, we performed a Pearson's chi-squared test on the variables and used a significance value, α, of 0.05 (which is a standard α value). In each of these cases, the null hypothesis (the hypothesis we were testing to prove false) was that there was no relationship between the variables. When this analysis yielded a p-value of less than 0.05 for a given set of variables, I have noted either in text or footnotes that the results were statistically significant, which means that the chances that the observed relationships between the variables can be attributed to chance is very small. Please note that these tests were performed on only a limited number of datasets for variables where the data was less clear. For more information on the Pearson's chi-squared test, please see, e.g., *Tutorial: Pearson's Chi-Squared Test for Independence*, U. PENN. (LING 300, FALL 2008), https://www.ling.upenn.edu/~clight/chisquared.html; *see also Using Chi-Squared Statistic in Research*, STATISTICS SOLUTIONS, https://www.statisticssolutions.com/using-chi-square-statistic-in-research/ (last accessed Apr. 23, 2019).

only 364 were sentenced to jail for an incarceration rate of 36.9 percent. This number pales in comparison to the incarceration rate in the federal system, which was 77.6 percent during fiscal year 2014 according to the Bureau of Justice Statistics.[128] Indeed, the incarceration rate for environmental crime also is lower than the rate for regulatory crimes (57 percent), as shown in FIGURE 24 below.[129]



The low overall incarceration rate for environmental crime is striking, particularly compared to other regulatory crime, and raises concerns about the deterrent effect of criminal prosecution.

The incarceration rate is lower still for defendants who pleaded guilty to environmental crime. During the ten years covered by our study, 902 individuals pleaded guilty, with 306 of those defendants sentenced to jail time, an incarceration rate of 33.9 percent. The percentage of defendants who were incarcerated after conviction at trial, however, was far higher. Of the 85 defendants who were found guilty at trial, 58 were sentenced to jail time, an incarceration rate of 68.2 percent. Defendants convicted at trial were more than twice as likely to go to jail as defendants who pleaded guilty.[130]

In some respects, the fact that a higher percentage of defendants who go to trial are sentenced to jail time is unsurprising. The federal sentencing guidelines lower the adjusted offense levels for defendants who accept responsibility, and the

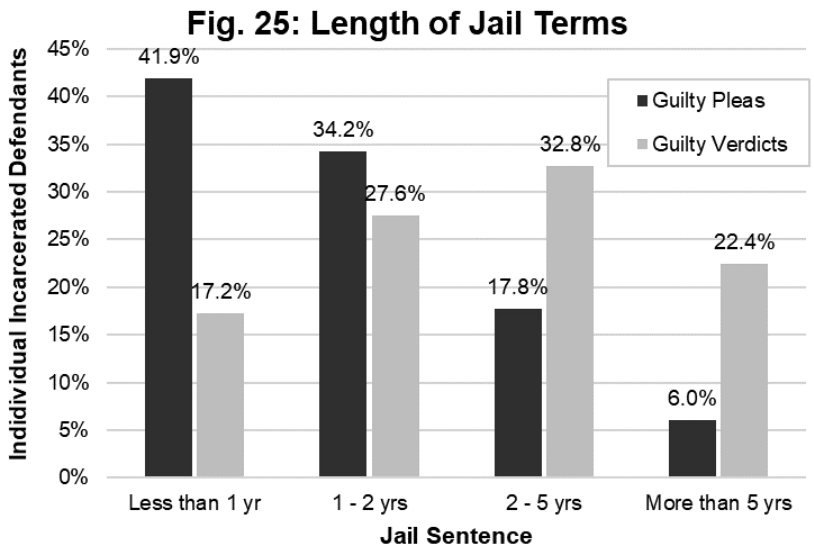
128. MOTIVANS, *supra* note 112, at 21.

129. *Id.*

130. This result was statistically significant. *See supra* note 127.

government often seeks reduced sentences for those who accept responsibility and plead guilty. Conversely, defendants who go to trial rarely receive credit under the guidelines for acceptance of responsibility, and the government nearly always seeks longer sentences after trial. This is true in all criminal cases.

Nonetheless, the extent of the "trial penalty" in environmental cases is substantial. Only a third of environmental defendants go to jail after pleading guilty, while more than two thirds of environmental defendants go to jail after asserting their rights to a trial. The length of the sentences that environmental defendants receive when they are convicted at trial and sentenced to jail also is noteworthy. Of the 58 defendants convicted at trial and sentenced to jail time, 48 defendants or 82.8 percent received sentences of 12 months or more imprisonment. In contrast, of the 306 defendants sentenced to jail time after pleading guilty, 173 defendants or 56.5 percent received sentences of 12 months or more imprisonment.[131] Stated differently, only 19.2 percent of defendants who pleaded guilty to environmental crime went to jail for a year or more, while 56.4 percent of defendants who were convicted at trial went to jail for a year or more. The sentences imposed for environmental defendants who plead guilty compared to those for defendants who are convicted at trial and sentenced to jail are shown in FIGURE 25 below.



We examined incarceration rates over time to determine whether there were any variations in how often defendants were incarcerated. Our database begins just

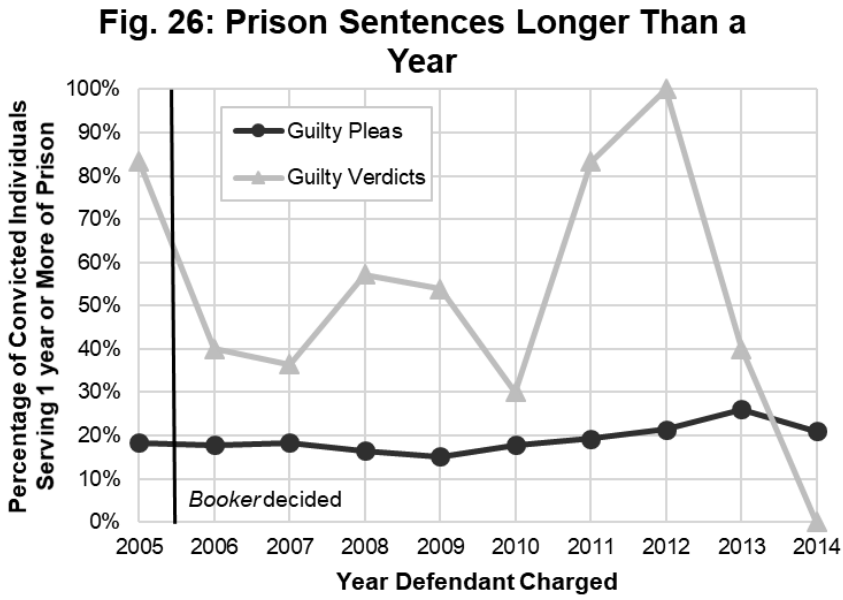
131. These percentages exclude the small number of defendants who were sentenced to time served. If those figures were included, incarceration rates would be somewhat lower.

when the Supreme Court decided *Booker v. United States*,[132] which rendered the federal sentencing guidelines advisory rather than mandatory. On that basis, I might have expected to see larger numbers of defendants incarcerated in the early years of our database, when judges were still conditioned to give weight to the sentencing guidelines calculations, and fewer defendants incarcerated in the later years as judges became more acclimated to a system where the federal sentencing guidelines, which required incarceration, had become advisory.

Initially, the data seems consistent with the assumption that judges were more likely to impose shorter sentences post-*Booker*. For cases charged during 2005, the year *Booker* was decided, 10 defendants convicted at trial were sentenced to more than a year in jail. For defendants charged from 2006-2010, however, just 21 defendants convicted at trial were sentenced to more than a year in jail, and never more than 6 defendants in a single year (2009). But then 10 defendants charged in 2011 were convicted at trial and sentenced to jail to more than a year in jail—and then only 6 defendants charged from 2012-2014 and convicted at trial were sentenced to more than a year in jail. In other words, the trial and incarceration data might support an inference that judges were imposing shorter sentences post-*Booker*, but only if we can disregard defendants charged in 2011.

Nor does our data indicate that judges were imposing shorter sentences after *Booker* when we focus on guilty pleas that resulted in jail sentences of more than a year in jail. For defendants charged in 2005 who pleaded guilty, 17 were sentenced to more than a year in jail, nearly identical to the number of defendants charged in 2006 (18) and 2007 (17). The numbers dipped the next two years, to 12 and 14 respectively, before climbing again in 2010 (18). For defendants charged in 2011 and 2013, the numbers climbed higher still—25 defendants sentenced to more than a year in jail each year—suggesting that the overall number of convicted defendants going to jail for more than a year has not decreased since the *Booker* decision. We see relatively similar trends when we analyze based on the percentage of defendants going to jail for a year or more, as shown in FIGURE 26 below.

132. United States v. Booker, 543 U.S. 220, 226-27 (2005).

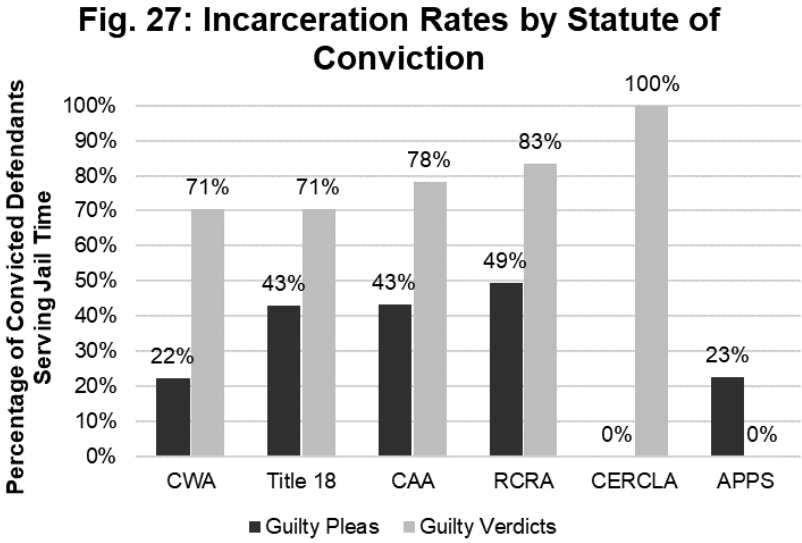


An alternative hypothesis is that judges continued to impose lengthy sentences post-*Booker* but that a larger number of defendants do not go to jail at all—or that more defendants receive short jail sentences. That would be consistent with the fear that environmental prosecutors expressed when the Supreme Court decided the case, namely that judges would not sentence environmental defendants to jail or to lengthy jail sentences if the federal sentencing guidelines were advisory instead of mandatory. But our data does not show more probationary sentences or an increased number of short jail sentences post-*Booker*. It might still be the case that *Booker* changed how judges approach sentencing but our data does not indicate that occurred.

We also analyzed incarceration rates by statute, which showed potentially significant disparities. Defendants convicted under APPS went to jail least often, only 19 percent of the time, followed by Clean Water Act defendants at 25 percent of the time. Title 18 and Clean Air Act defendants were more likely to go to jail—both 47 percent of the time—but the highest percentages of defendants going to jail were RCRA defendants (54 percent) and CERCLA defendants (67 percent).[133] It is difficult to determine based on the data why these disparities exist, but a potential explanation is that APPS and Clean Water Act violations often involve non-hazardous pollutants; the Clean Air Act, RCRA, and CERCLA all involve pollutants, waste, or substances that are hazardous. (Title 18 addresses both hazardous and non-hazardous activity.)

133. This was found to be statistically significant. *See supra* note 127.

The results are similar when we break down incarceration rates based on guilty pleas and guilty verdicts. For guilty pleas, the fewest defendants go to jail for convictions under the Clean Water Act (22 percent) and APPS (23 percent). Title 18 defendants and Clean Air Act defendants go to jail the same amount of time (43 percent) and RCRA defendants (49 percent) go to jail most often. For guilty verdicts, CERCLA (100 percent),[134] RCRA (83 percent) and Clean Air Act (78 percent) defendants go to jail most often, followed by the Clean Water Act and Title 18 (both 70 percent). Incarceration rates by statute are shown in FIGURE 27 below.

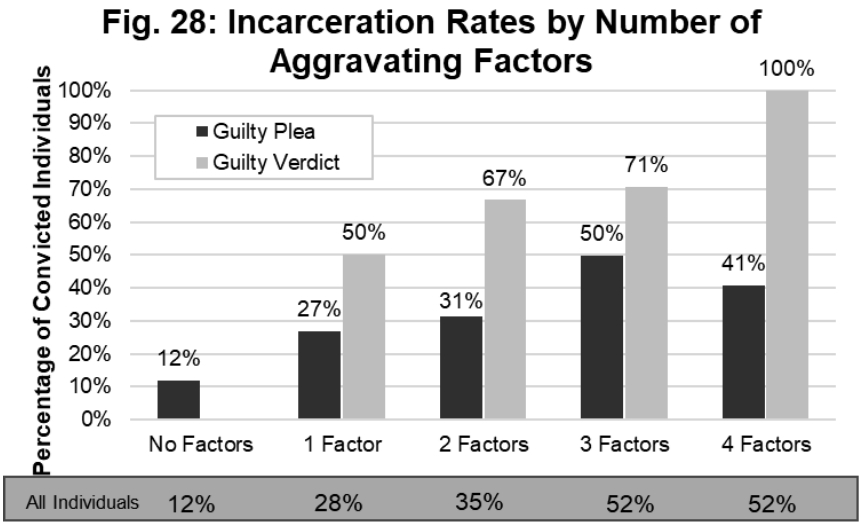


Finally, we also assessed the relationship between incarceration and aggravating factors. I would expect to see a correlation between the presence of multiple aggravating factors and incarceration, inasmuch as more egregious violations warrant greater sanction. For the most part that relationship is present: defendants with three or more aggravating factors went to jail just over half the time, while defendants with two aggravating factors went to jail 35 percent of the time, and defendants with one aggravating factor went to jail 28 percent of the time. Defendants with no aggravating factors went to jail least often, just 12 percent of the time.[135]

134. For CERCLA cases, however, it should be pointed out that our dataset was quite small – there were only 4 defendants facing CERCLA charges who went to trial from 2005-2014.

135. This data was also found to be statistically significant using a Chi-squared test and a significance level of 0.05. *See supra* note 127.

The relationship between incarceration and aggravating factors is shown in FIGURE 28, with the overall outcomes below the bar graphs and the breakdown for defendants who pleaded guilty and those who were convicted at trial demonstrated by the bar graphs.



The relationship between aggravating factos and incarceration is even more pronounced for defendants who were convicted at trial. Only half of the defendants who went to trial in cases with one aggravating factor present went to jail; all of the defendants who went to trial in cases with all four aggravating factors present went to jail.

Moreover, the relationship between incarceration and aggravating factors persists when we reviewed defendants who went to jail for a year or more. Defendants with three or more aggravating factors went to jail for a year or more 36.3 percent of the time, defendants with two aggravating factors went to jail for a year or more 24.7 percent of the time, and defendants with one aggravating factor went to jail 15 percent of the time. Defendants with no aggravating factors never went to jail for a year or more.

The one caveat to the correlation between incarceration and aggravating factors is that defendants with all four aggravating factors were not more likely to go to jail than defendants with three aggravating factors. Defendants with four aggravating factors went to jail 51.5 percent of the time, compared to 51.6 percent for defendants with three aggravating factors, a virtually identical result. This appears to be a function of defendants who pleaded guilty, who went to jail 50 percent of the time when three aggravating factors were present but only 41 percent of the time when four aggravating factors were present. Perhaps the similarity between defendants with three and four aggravating factors is a function of the small sample

size of four-factor defendants—less than 4 percent of our entire dataset—or there is an unknown mitigating factor present for our four-factor defendants. But it is possible that judges do not view violations with four aggravating factors as any more egregious than those with three aggravating factors, at least when they plead guilty.

CONCLUSION

The updated data from the Environmental Crimes Project continues to demonstrate that prosecutors are exercising their discretion to reserve criminal charges for conduct involving one or more of the aggravating factors I have identified in my scholarship—and that defendants who commit violations that do not involve those factors will not face criminal prosecution. Prosecutors continue to focus on violations that involve harm, deceptive or misleading conduct, or operating outside the regulatory system—and in most cases look for a combination of one or more of those factors plus repetitiveness. Relatively few cases involve isolated misconduct.

We see an increase in the number of defendants charged with Clean Air Act violations, particularly those that involve violations other than asbestos abatement, and we see an increase in endangerment charges under the Clean Air Act. Both are potentially significant shifts. At the same time, we see a moderate decrease in the number of Clean Water Act charges, but no indication that there are fewer Clean Water Act cases since the Supreme Court decision in *Rapanos*. We also see a significant decrease in RCRA hazardous waste charges. In terms of individual aggravating factors, our data is largely consistent, with one exception. We see a sizeable increase in the number of defendants operating outside the regulatory system, which is noteworthy because it occurred even though we have become more restrictive in the circumstances where we code defendants as operating outside the regulatory system.

We reported for the first time conviction rates and incarceration rates for environmental crime—the former more impressive than in the federal system generally, the latter much less so. We do not see consistent evidence of lower incarceration rates since the Supreme Court decision in *Booker*. We detect less impressive conviction rates in cases going to trial in recent years, which alongside lower prosecutions levels raises questions about the impact of declining EPA agent resources. The combination of declining case numbers, fewer convictions at trial, and lower than average incarceration rates does not bode well for the deterrent effects of environmental prosecution.

Overall, the latest data from the Environmental Crimes Project continues to show that prosecutors exercise their discretion reasonably, which is positive from a normative standpoint. Prosecutors also appear to be moving beyond traditional areas of criminal enforcement activity in ways that have been contemplated for years, also a positive development. But there are areas for concern going forward, particu-

larly with regard to agent resources, fewer prosecutions, and relatively weak incarceration rates.

APPENDIX A: PARTICIPATING MICHIGAN LAW STUDENTS
Fall 2010-Winter 2019

Kyle Aarons[+]
Kathryn Abbott
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Zachary Adorno
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Hanna Ali
Steven Alizio
Ethan Anderson
Colleen Anderson
Mallory Andrews
Eric Ashby
John Aycock
Katherine Bailey
Stephanie Balitzer
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Steven Barnett
Parks Barroso[+]
Michael Batten
Allyson Beasley
Anna Belkin
Odele Bet-Yonan
Matthew Binder
Turner Binkley
Morgan Birck
Kenny Black
Katie Blair
Michael Block
Hazel Blum
Nathaniel Boesch
Christina Bonanni
Benedicte Bourgeois
Thomas Bourneuf
Elizabeth Boyle
Kimberly Bozzo
Conor Bradley
Peter Bratton
Kelsey Breck
Breeanna Brewer
Money Brewerton
John Broderick[+]
Monica Browner
Seth Buchsbaum[+]
Madeline Buck[+]
Lucyanna Burke
Jacob Burkholder
Jerusha Burnett
Colleen Burns
Elizabeth Calcutt
Breanna Caldwell
Olivia Cares
Amaris Carlson
Tyler Carroll
Sarah Carter
Kamela Caschette
Dorothy Chang
Stuart Chipman
Szuwei Co
James Coatsworth
Aliza Cohen
Kaley Connelly
Matthew Conrad
Gregg Coughlin
Jonathan Coumes
Jack DaFoe
Elizabeth Daligga
Spencer Davenport
Ben Davis
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Caitlin Dean[+]
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+ Environmental Crimes Project Supervisor

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Sarah Duffy[+]
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Mariel Eben
Andrew Eberle
Samantha Ellingson
Scott Elliott
Marissa Embola
Troy Epstein
Christine Ernst
Matthew Evans
Brittany Finlayson
Andrea Frailey
Matthew Frank
Brett Frazer[+]
Nate Gambill
Timothy Garcia
Elizabeth Gary[+]
Ameya Gehi
Emily Gilman
Stephen Gilson
Angelika Glogowski
Emily Goldman
Michael Goodyear
Shira Gordon
Marlee Goska
Rachel Grannerman
Jacob Greenberg
Thaddaeus Gregory
Chelsea Grimaldi
Nash Hall
Aviv Halpern
Joseph Halso[+]
Nick Hambley
Blake Harrison
Amanda Hart
Calvin Hart
Junichi Hashimoto
Elizabeth Heise
Corina Helfenstein
Cleo Hernandez
Scott Hiers
Mason Hill
Emerson Hilton
Nick Hirst[+]
Jeff Ho
Brian Holbrook
Kelsey Holland
Nate Hopkin
Nell Hryshko
Jingye Huang
Zhijin Huang
Shinyoung Hwang
Brianna Iddings
Nwamaka Ikenze
David Imhoff
Jeff Jay
Jin Jeon
Helen Ji
Aaron Jones
Elizabeth Jones
Stephanie Jordan
Meredith Joseph
Emily Kan
Kade Katrak
Megan Kelly
Adam Kennedy
Amanda Kenner
Monika Khaltsev
Louis Khourey
Ray Kim
Kayla Kingston
Laura Kirtley
Andrew Kral
Drew Kramer
Annie Kruger
Peter Krzywicki[+]
Manas Kumar
Thomas La Voy
Sarah Ladin
Kate Lambert[+]
Julianne Landsvik

Dillon Lappe
Allison Lasher[+]
Ryan Leclerc
Hyun Lee
Loren Lee
Victoria Leung
Joseph Lindblad
Hallie Lipsey
Anree Little
Lawrence Little
Samuel Loney
Dana Lovisolo
Christopher Lowther
Abigail Lynch
Yanlin Lyu
Tad Macfarlan[+]
Lesley MacGregor
Anna Martin
Mackenzie Martin
Maria Martinez
Jeffrey May
Matthew McCarthy
Matthew McCurdy
Charlotte McEwen
Lesley McGregor
Jennifer Graham Meyer[+]
Matthew Meyerhuber
Colin Michel
Lucas Middleton
Lucas Minich
Marguerite Moeller
Ignacio Molfino
M Moore
Julia Muhlnickel
Emma Murray
Sindhoori Nackeeran
Caleb Nagel
Evan Neustater
Elise Neveau
Colleen Nicholson
Bryson Nitta
Helen No
Chiaki Nojiri
Regan Nunez
Elizabeth Och
Kelly O'Donnell
Kyle Olsen
Adam Osielski
Trevor Parkes
Kimberly Parks
Dhruti Patel
Christopher Perras[+]
Marissa Perry
Elizabeth Peterkort
Kevin Petersen
Kate Peterson
Lydia Pincsak
Jacob Podell
Sarah Podrygula
Brianna Potter
Jackson Powers
Simone Prince-Eichner
Savera Qazi
Mariel Radek
Dimitra Rallis
Charles Ramsey
Katherine Rasmussen
Lauren Reid
Elissa Reidy[+]
Joseph Reiter
Scott Robinson[+]
Chloe Roddy
Elizabeth Rodgers
Daniella Roseman[+]
Joshua Rothenberg
Marika Rothfeld
Patrick Ryan
Callie Sand
Brian Schaap
David Scheatzle
Ariel Schepers
Edward Schexnayder
Megan Schmenk
John Schnitter

William Schoof
Lauren Schusterman
Helen Schweitz
Kamden Segawa
Maya Sequeira
James Sharp
Lauren Shosfy
Susie Shutts
Daniel Sirdofsky
Jonathan Slack
Maria Smilde
Grace Smith
Levi Smith
Jonathan Snavely
Grant Snyder
Jae Myoung Sohn
Christopher Southcott
Lyman Spitzer
Megan Stamm
Hallam Stanton
Sara Stappert
Sarah Stellberg[+]
Richard Stepanovic
Gabrielle Stephens
Brian Straw[+]
Wen Su
Anisha Sud
Hailey Suggs
Gabe Tabak
Claire Taigman
Benjamin Taylor
Lyman Thai
Kit Tholen
Keith Thomas
Casey Thomson
Matthew Thornburg
Jonathan Tietz
Kevin Todd
Carlos Torres
David Treadaway[+]
Chen Chuan Tsai
Jamen Tyler[+]
Gavin Uitvlugt
Amanda Urban
Claire Vallin
Emily Van Dam[+]
Christopher Vandeusen
Kevan Ventura
Stephen Vnuk
Jason Vilaysanh
Emma Waitzman
Jessica Wall
Katherine Warren
Phillip Washburn
Michael Watts
Rebecca Weiant
Brittany Weir
Carolyn Weltman
Sarah Wightman
Ian Williams
Megan Williams[+]
Camran Wilson
Laura Wolff
Adam Wollstein
Jamie Woolard
Kaijie Wu
Yutong Wu
Gregory Young
Sarah Young
Jessica Zacharski
Han Zhu
Caitlin Zittkowski