

Worker Safety in Maine's Boatyards:

Improving OSHA Compliance Efforts

by Jeremy A. Pare

Abstract

According to the Occupational Safety and Health Administration (OSHA), Maine's boatyards are a high-hazard industry, given the many potential threats their employees face daily. Maine's boatyards struggle with OSHA regulations because OSHA's command-and-control rules leave little room for flexibility, and as evidenced by the boatyards' high workers' compensation costs and injury rates, implementation does not effectively protect boatyard workers. This article investigates whether changes to OSHA's 50-year-old punitive regulatory strategy can influence the way boatyards self-regulate and decrease hazards and minimize the risk of injury to workers. Through focus groups and interviews, the article provides evidence that changes within OSHA's regulatory strategy are necessary to decrease the hazards present in Maine boatyards. Suggested changes include site-specific injury and illness prevention programs and more frequent inspections with opportunities for boatyards to fix issues. These improvements should increase cooperative efforts between OSHA, the state of Maine, and Maine's boatyards and reduce the number of worker injuries.

INTRODUCTION

The primary goal of federal safety policy is to decrease the number of hazards facing American workers. The federal government spends millions of dollars every year to this end, yet Occupational Safety and Health Administration (OSHA), which regulates safety for the nation, essentially relies on standards that are not applicable to all sites and operates with fewer inspectors than optimal. Additionally, many businesses have not been visited by OSHA, do not fully understand how to deal with existing standards, and do not have the resources to fully implement all aspects of the standards. According to personal accounts and research from 2010 to 2019, a lack of regulatory certainty defines the general state of affairs at many of Maine's boat builders and repair shops (hereafter boatyards), so the number of hazards found at Maine boatyards remains high year after year.

This case study relied on interviews of federal and state regulators, a survey of Maine's marine trade organization members, and focus groups comprised of Maine boat builders to investigate more-effective and -equitable

strategies for regulating occupational health and safety at Maine boatyards. The current approach employed by OSHA is widely seen as ineffective at stimulating safe, hazard-free work environments. An examination of OSHA's inspection data for inspections of Maine's boatyards from 2000 to 2016 and Maine Department of Labor data for worker injuries at Maine boatyards during a similar period show that many safety hazards at boatyards are not being adequately addressed by employers. These hazards include lack of machine guarding for employees (possible severe lacerations or amputations), lack of electrical protections (possible severe burns or electrocution), open floor hatches (possible falls from great heights); and inadequate protections for hands, face, and respiratory functions (possible long-term health problems). Despite many efforts to address these issues at individual boatyards, the hazards continue to be problems for the industry as a whole, partly attributable to lack of safety knowledge or the cost associated with safety efforts. Additionally, few boatyards address uncoded safety issues such as ergonomic hazards, which may also lead to worker injury.

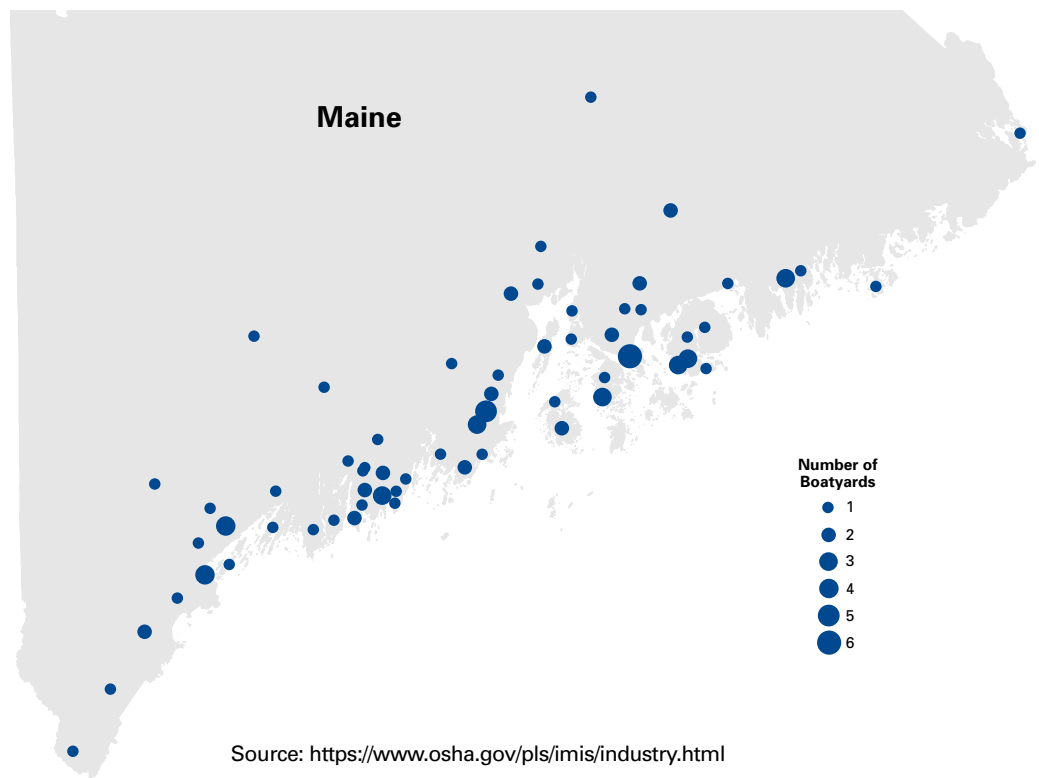
The theory that informs this case study is important because the various interests involved in safety regulation—economic, legal, or political—can lead to the implementation of differing regulatory strategies. As promulgated by the 1970 Occupational Safety and Health Act (OSH Act), OSHA's dominant regulatory strategy relies on a highly centralized and rule-bound model of social control over America's businesses and governmental entities. This strategy has been described by Nonet and Selznick (2001) as *autonomous law*, but is more widely known as command and control. Under such a strategy, decision makers regulate industries based

on rules that are fully vetted and formally codified under the administrative procedures of the federal government. These rules are enforced by agents who inspect facilities and have the authority to levy fines for noncompliance with the rules. Over the last three decades, *command and control* has become the way legal scholars talk about state-based regulation (Short [2012](#)).

Command and control is an important regulatory strategy for OSHA as the agency has approximately 2,100 inspectors who are responsible for the health and safety of more than 130 million workers in 8 million workplaces across the country: an average of one compliance officer for every 59,000 workers.¹ The agency uses the command-and-control strategy to deter firms from disregarding the rules it is charged with enforcing in high-hazard industries. The approach contrasts sharply with the cooperative partnership or federalism approach OSHA has used in the past; the authority for such a cooperative strategy specifically exists under the OSH Act.

OSHA recognizes that an enhanced focus on prevention would reduce workplace hazards (OSHA [2012](#)), and the agency has investigated proactive regulatory programs at the state level, within private industry, and at the international level to gain greater insight into what a more responsive regulatory strategy would mean for American workers. OSHA's focus on complex situational deterrence and liability enforcement over the years has not facilitated broad-based compliance with its rules, especially at small- and medium-sized enterprises. A new focus on cooperation may allow firms to more effectively internalize OSHA's

FIGURE 1: Location of Maine Boatyards



goals and maximize social welfare. Such a strategy is expected to decrease the number of hazards present in Maine boatyards. Given the policy-making role Congress contemplated for OSHA in its enabling statute, the agency is entitled to deference regarding its ability to make such a change in strategy. This deference has been upheld by the courts in a number of cases over the past few decades and was codified with the term “*Chevron* deference” by the US Supreme Court (*Chevron v. NRDC*, 467 U.S. 837 [1984]). In these terms, it is possible to understand the broader theoretical significance of the regulatory policies opportunities to be explored in this study.

WORKER SAFETY AT MAINE BOATYARDS

Data collected by the Maine Department of Labor since 2000 indicate that injuries caused by workplace hazards are ever present in Maine boatyards (see Figure 1 for location of Maine boatyards). These boatyards have been regulated by OSHA since 1970,

yet the data indicate that OSHA has not improved worker safety in boatyards to any great extent over time. OSHA's regulations and current punitive regulatory strategy ultimately determine boatyards' safety decisions, and multiple factors contribute to what level of effort boatyard owners choose to employ.

The first of these factors is a direct result of OSHA's individualized industry standards. Because of space limitations on the waterfront, boatyards often have inland buildings separate from their waterfront operations. Therefore, boatyards are regulated by multiple sets of OSHA regulations: general industry (OSHA Standard 1910) and maritime standards (OSHA Standard 1915). In addition, boatyards are subject to the specific regulations promulgated under direct industry standards as well as by standards that are adopted by OSHA indirectly under its *general duty clause*, which requires work sites to identify hazards and eliminate them to provide a universally safe workplace for their employees. These regulations apply differently to electricians, painters, hazardous waste operators, and administrators, among others, whose individual jobs call for expertise and imputed knowledge above and beyond employees without these special skills. Lastly, because OSHA has rarely randomly inspected boatyards over the last few decades—due to insufficient resources—boatyards have been lulled into a belief that the agency will not visit them. If a boatyard chooses to not comply with an OSHA standard, or if an aspect of a standard is not clear to the boatyard and thus not complied with, it may be fined by OSHA. This is a chance many boatyards are willing to take.

Due to high incident rates in 2001 and 2011, Maine boatyards have been the subject of OSHA local emphasis programs. This designation subjects the boatyards to planned OSHA inspections and allows boatyards to participate in cooperative programs (OSHA 2000, 2011). Employees in the private boatbuilding sector face many risks (Table 1), and OSHA consistently targets such facilities, so Maine's boatyards are under constant pressure to protect their employees from hazards. Many boatyards are responding to the call for action by starting or expanding safety programs and building safer facilities. Other boatyards are

largely ignoring the call for reducing hazards perhaps due to individual circumstances.

OSHA COMMAND AND CONTROL

In the four decades since the OSH Act was signed into law by Congress, workplace deaths and reported occupational injuries have dropped by more than 60 percent under its command-and-control regulatory strategy (OSHA 2012). However, the nation's workforce continues to face an unacceptable number of work-related deaths, injuries, and illnesses, most of them preventable. Over 4,000 people die on the job each year, and more than four million workers suffer serious job-related injuries due to unabated hazards (OSHA 2012). Boatyards have a total injury and illness incidence rate of 5.9 cases per 100 full-time workers (compared to the

TABLE 1: **Number of Injuries and Workers' Compensation Costs for Maine Boatyards from 2001 to 2016.**

Year	Number employed	Injury rate per 100 full time workers	Number OSHA recordable injuries (approximate)	Workers' Compensation costs
2001	1584	6.4	104	\$890,556.37
2002	1557	5.2	81	\$494,090.73
2003	1531	5.3	82	\$966,967.06
2004	1533	9.8	151	\$1,476,357.65
2005	1545	10.6	164	\$856,537.98
2006	1554	8.7	136	\$722,611.17
2007	1555	14.5	226	\$1,147,437.37
2008	1532	12.5	192	\$1,328,413.17
2009	1100	12.3	136	\$362,074.31
2010	1074	8.9	96	\$728,746.55
2011	1128	11.3	128	\$398,914.82
2012	1195	11.8	142	\$577,459.11
2013	1231	8.9	110	\$506,780.60
2014	1411	7.3	104	\$988,440.33
2015	1493	7.2	108	\$895,907.29
2016	1387	6.3	88	\$722,736.84

Source: Maine Department of Labor

national average for all private-sector industry of 2.8) and a days-away-from-work, restricted-and-transferred-activity (DART) rate of 3.8 cases per 100 full-time workers (compared to the national average for all private-sector industry of 1.6) (OSHA [2000](#)).

Health and safety standards that aim to reduce the number of injuries at Maine's boatyards are governed by institutions at both the state and federal levels. The US Department of Labor is empowered under the OSH Act to set *ex ante* safety standards in the workplace to reduce hazards and to enforce them through punitive inspections. Workers are formally protected at the state level by state-administered schemes allowing them *ex post* compensation for workplace injuries that have already occurred. The OSH Act allows the agency to issue standards governing workplace hazards and to enforce these standards through workplace inspections.

OSHA's bureaucratic structure has raised concerns about its ability to regulate a large, diverse, and far-flung constituency.

Inspections may actively deter firms from causing harm to workers through employer penalties or serve as an information source for identifying hazards. Gray and Mendeloff ([2005](#)) found a 22 percent decline in workplace injuries in the few years following an OSHA inspection in which penalties were imposed, but also found that this effect decays over time. Such specific deterrence is important, but the fact that a firm's attentiveness fades over time raises concerns about the ultimate effectiveness of this approach. Such concern is shared by OSHA. Its own inspectors have reported that alterations made following an inspection are often temporary fixes rather than systemic long-term reforms (Simon [1997](#)). This fading attentiveness has also been the case among Maine's boatyards. An analysis of Maine Department of Labor statistics (Table 1) indicates that OSHA's inspection programs in 2001 had an impact for a year or two following the inspection, but

this impact faded quickly and did not translate into a reduction in the incidence of injury and illness below the national average at any point in over a decade. The local emphasis program undergone in 2011 has seemingly had a greater impact on the number of recordable injuries to workers, yet the injury rate is still more than twice the private-sector industrial average.

OSHA's bureaucratic structure has raised concerns about its ability to regulate a large, diverse, and far-flung constituency. A specific concern is that an agency with authorities who are remote from the day-to-day operations will have trouble collecting the information they need to regulate effectively. This information gap forces the agency to enact uniform command-and-control standards that apply across the board, irrespective of individual circumstances. It also creates incentives for agency staff to apply these standards in a rigid, legalistic way (Short [2012](#)). A complaint of OSHA's enforcement policies is that the agency relies too heavily on punishment to induce compliance and often ignores cooperative enforcement policies (Shapiro and Rabinowitz [1997](#)). Ayres and Braithwaite ([1992](#)) argue that the more sanctions can be kept in the background and the more regulation can be transacted through moral suasion, the more effective regulation will be. The authors state that,

Going in with punishment as a strategy of first choice is counterproductive in a number of ways. First, punishment is expensive, persuasion is cheap. Second, punitive enforcement engenders a game of regulatory cat-and-mouse whereby firms defy the spirit of the law by exploiting loopholes, and the state writes more and more specific rules to cover the loopholes. (Ayres and Braithwaite [1992: 26](#))

The results, the authors suggest, can lead to, "rule making by accretion that gives no coherence to the rules as a package, and a barren legalism concentrating on specific, simple, visible violations to the neglect of underlying systemic problems" (Ayers and Braithwaite [1992: 26](#)). In fact, this neglectful state of affairs accurately describes the regulatory strategy of OSHA's inspection program over the past decade as can be seen by OSHA's online inspection data for boat builders (NAICS 336612).²

The command-and-control model is not the only method to achieve safety results. Most large companies with noteworthy safety and health achievements see

the use safety management systems, also known as injury and illness prevention programs, as the key to success. Convinced of the value, effectiveness, and feasibility of these collaborative programs, many countries around the world now also require employers to implement and maintain them, including Canada, Australia, the 27 European Union member states, Norway, Hong Kong, Japan, and Korea (OSHA [2012](#)). Injury and illness prevention programs are not new to the safety community in the United States either. OSHA itself has proposed such programs for a number of years and has defined their elements as, “a proactive process to help employers find and fix workplace hazards before workers are hurt” (OSHA [2012: 1](#)). In fact, OSHA acknowledges that many workplaces have already adopted such approaches and has even promoted the adoption of such plans as part of its strategic partnerships with shipbuilders in the state of Virginia. OSHA states, “not only do these employers experience dramatic decreases in workplace injuries, but they often report a transformed workplace culture that can lead to higher productivity and quality, reduced turnover, reduced costs, and greater employee satisfaction” (OSHA [2012: 1](#)). OSHA believes that injury and illness prevention programs are based on proven managerial concepts that have already been widely used in industry to bring about improvements in quality control and environmental performance such as total quality management and other lean manufacturing techniques.

According to OSHA ([2012](#)), the key elements common to successful prevention programs are

- management leadership
- worker participation
- hazard identification and assessment
- hazard prevention and control
- education and training
- program evaluation and improvement with procedures for investigating incidents and communicating results

Each element is important in ensuring the success of the overall program, and all of the elements are interdependent. As every business is different, employers who implement programs to prevent injury and illness will have to adapt these elements to meet the needs of their organizations, as would certainly be the case with Maine's boatyards.

Numerous studies have examined the effectiveness of injury and illness prevention programs. OSHA says the research demonstrates that such programs are effective in transforming workplace culture, leading to reductions in injuries, illnesses, and fatalities, and lowering workers' compensation and other costs. In a 2008 study, researchers examined the effectiveness of a Pennsylvania voluntary program that provides a 5 percent discount for workers' compensation premiums to employers that establish joint labor-management safety committees. Once created, these committees are then responsible for implementing several elements of injury and illness prevention programs, including hazard identification, workplace inspection, and adaptive management. The researchers found a strong association between improved injury and illness experience and the level of compliance with the program requirements (LaTourrette and Mendeloff [2008](#)).

At the end of 2012, 34 states required or encouraged employers to implement injury and illness prevention programs. Of these states, 15 require a written program for certain industries, mostly as a requirement for workers' compensation insurance coverage. Many of those states offer discounts on workers' compensation premiums of up to 5 percent for qualifying organizations that adopt and implement written safety and health programs. Some states require most workplaces to have a written plan regardless of workers' compensation coverage, whereas other states only require them for high-hazard industries such as industries doing a lot of electrical work or handling hazardous chemicals. Other states only require written plans for employers with workers' compensation rates above a threshold that indicates a high-hazard workplace: a standard that could be emulated by OSHA given the incidence rates in Maine boatyard. In the states that require formal safety plans, the rules also direct the regulatory agency or workers' compensation insurer to provide considerable assistance to employers to help them create and implement the plan (OSHA [2012](#)).

OSHA AND MAINE BOATYARDS

The cooperative regulatory model is not a new concept to government, OSHA, or even Maine. Implemented as a pilot initiative in the state of Maine, OSHA's Maine Top 200 program serves as

an example of the cooperative partnership approach. Begun in 1993, OSHA invited the 200 largest workplaces in Maine with the highest claims of lost time due to injury to participate in a cooperative program where they were given assistance in developing effective safety programs and low priority for inspection. All but two of the firms chose to participate in the Maine Top 200 program, and all showed great results as employers eliminated hazards at a rate 14 times greater than OSHA had in the previous eight years. Sixty percent of employers experienced a reduction in lost workdays (Lobel 2005). In addition, the resulting partnership was reported to have identified and abated upwards of 100,000 hazards without a fine being imposed (Lobel 2006).

The Maine Top 200 program achieved results as the focus of changed from measuring an inspector's effectiveness based on the number of violations found during an inspection to solving genuine safety problems in the workplace (Watson 1998). OSHA inspectors participating in the program often declined to issue citations when they believed the fines would not be useful. In lieu of citations, OSHA chose to educate the facilities and encouraged the sharing of information about how to deal with hazards. If one firm developed a new way to handle a problem, OSHA encouraged it to share its knowledge with other firms that might benefit (Mendeloff 1996). In addition to the changes within OSHA, substantial progress was made at the participating facilities. Management commitment to safety increased, worker participation was significant, and comprehensive safety and health plans were created that included abatement plans for hazards that could not be immediately corrected (Mendeloff 1996). The biggest percentage drop in injuries occurred among the 27 firms with fewer than 200 employees. Small businesses were not specifically analyzed at the time, yet the Top 200 program provides some insight as to how OSHA can be effective at regulating small firms. As OSHA ultimately ended plans to nationalize the Maine Top 200 program due to legal challenges and changes in governmental leadership, the state of Maine has stepped in to work with firms with workforces under 250 employees through a program called Safety Works. Although there is little published data available on Safety Works' success at reducing hazards, data obtained from fiscal years 2008 to 2012 indicate that the program's six consultants visited over 500 firms per

year and helped abate more than 3,000 hazards across the state.

Maine's Safety Works program is an outreach program of the Maine Department of Labor designed to reduce job-related injuries and illnesses through finding and abating hazards. As a voluntary program; Safety Works cannot issue citations or fines as OSHA can. The agency's services are available by request and are free for firms wishing to use the agency to train their workers, audit their operations to find compliance deficiencies, or improve their safety management programs that are required by OSHA. In addition, Safety Works has been delegated authority by OSHA to determine whether high-performing firms can gain entrance into an OSHA program called Safety and Health Achievement Recognition Program (SHARP), which provides a two-year exemption status from OSHA inspections. SHARP status also allows firms to fly physical flags publicly indicating that they are safe companies to work for, which may attract future employees and potential customers. Given that enforcement is not part of its mission statement, Safety Works helps firms to efficiently and effectively manage their safety programs without having to worry about fines for initial noncompliance. Results for the program, taken from a 2010 Safety Works comparative report based on OSHA's Safety and Health Program Assessment Worksheet (OSHA's Form 33), indicate that SHARP boatyards have higher safety and health program assessment scores in every facet of their safety program than do non-SHARP organizations. Safety Works also represents an alternative regulatory strategy that OSHA can use for guidance in its attempt to decrease hazards found at Maine's boatyards.

The Maine Marine Trades Association (MMTA) has been advocating for such cooperative safety efforts since 1966 and has provided boatyards with information from OSHA, annual forums with discussion on safety topics, and presentations from safety professionals on how to improve compliance programs. Perhaps limited by only having one staff member, MMTA has never formally worked with OSHA to educate its members about how OSHA will interact with the boatyards, unlike in Virginia where OSHA and the Virginia Ship Repair Association (VSRA) have worked together for six years to increase health and safety awareness and prevent injuries and illnesses through hazard reduction. The data from this collaboration indicate that the cooperative partnership between OSHA and VSRA has met these goals.

SUGGESTIONS FOR IMPROVEMENT

While OSHA has had an impact on how Maine's boatyards manage safety efforts, the evidence is clear that OSHA must change its regulatory strategy to effectively eliminate hazards in this industry. Four specific policy recommendations arise from this study and include site-specific injury and illness prevention programs, more frequent inspections of boatyards, a more flexible regulatory strategy, and increased collaboration between OSHA and Maine boatyards. These recommendations do not need to be implemented sequentially to reduce hazards in boatyards.

Site-Specific Prevention Programs

OSHA should require boatyards to create site-specific injury and illness prevention programs. Best management practices indicate that a written organization-wide program would reduce hazards at the boatyards. OSHA should specifically develop materials to help boatyards develop such programs. In addition, OSHA inspectors should be available to meet with participating boatyards each year to ensure that the plans are living, actionable documents. Based on this study, Maine's boatyards would be a willing partner in OSHA's endeavors to comprehensively implement injury and illness prevention programs. Participants indicated a strong preference for more involvement by OSHA as long as initial steps were nonpunitive and undeniably beneficial to the boatyards.

A handful of boatyards have already implemented such safety management programs, would be willing to share their plans with other boatyards, and would also be willing to discuss their efforts in person. One plan shared after the focus groups were completed mirrored OSHA's suggested scope by including management leadership, worker participation, hazard identification and assessment, hazard prevention and control, education and training, and program evaluation and improvement with procedures for investigating incidents and communicating results as basic elements of the plan. That particular boatyard had no injuries for one year after implementation of its plan. Further, as a result of its efforts, the boatyard earned a special designation as a SHARP facility. This designation was one of only three handed out to boatyards in the state of Maine over the past decade although more have since been awarded as a result of the threat of the 2011 punitive local emphasis program.

Three specific elements are important for ensuring effective engagement at the boatyards:

- Commitment and engagement of management—Without a clear commitment by top management, accompanied by involvement from other site leadership, boatyards can lose focus and not deliver on the plan. Management engagement should be assured by requiring management to sign off on the program annually and send certification to OSHA.
- Safety committees and coaching—Worker-based safety committees are a valuable tool for increasing employee engagement and serve as a way for all staff to be coached on safety topics and work together toward safety goals. These must be made mandatory to hear from representative stakeholders at the site.
- Continuous improvement—Making a program sustainable is much more difficult than initiating its development. Continuous improvement forces employer involvement, as the plan is not allowed to sit unused on a shelf. This requires continual coaching of staff and continuous review of the plan. Efforts at improvement and resultant safety gains must be reported to OSHA annually with management certification.

Although injury and illness prevention programs have proven effective, some focus group participants were skeptical about the enforcement possibilities triggered by a new management program. At a minimum, OSHA inspectors might second-guess whether the employers had satisfied the elements of a program as spelled out by OSHA. At a maximum, OSHA might issue two citations for one hazard: one for the hazard and one for the safety and health program that failed to flag it. There is also the possibility that OSHA's requirement that employers under these programs find and fix all hazards would mean that employers would be responsible for finding and fixing all toxic, thermal, or ergonomic hazards. These concerns are valid, and OSHA should make it clear to all boatyards that the current OSHA enforcement standard will apply to the boatyards only when risks are not abated in a reasonable time frame of perhaps 90 to 120 days.

In addition, OSHA must approach its regulatory programs in different ways for different industries. The participants noted that what is applicable to marinas, for

example, may have little in common with the needs of Maine's construction boatyards. Instead of focusing on the most common or serious risks across all industries, OSHA should allow the boatyards to focus on mitigating the greatest risks specific to their industry and workplace. OSHA should allow boatyard management to determine the most effective and efficient path forward for each company.

OSHA's current focus on punitive compliance fails to acknowledge the good-faith efforts of most safety managers....

Focus groups also raised concerns about the varying needs of different-sized companies when implementing OSHA regulatory programs. Often larger, high-risk-sector companies are best prepared and have the most sophisticated risk management systems already in place; whereas smaller institutions frequently require the most assistance. An injury and illness prevention program must address the needs of both types of firms, so OSHA must outline broad requirements so that small businesses such will clearly understand the requirements. Most Maine boatyards do not have seasoned safety and health professionals on staff. In addition, OSHA must recognize the opportunity cost of time spent developing a health and safety program. Costs associated with the program, including time for employee training, increased future orientation training, internal inspections, committee meetings, and documentation, will not be trivial to small boatyards. To this end, OSHA can adopt a program based on the safety management programs that are working at other Maine boatyards and solicit the advice of Safety Works, which has worked with these boatyards to help create the programs. Then OSHA's resources could focus on compliance assurance vs new and costly inspections.

For many Maine boatyards, establishing injury and illness prevention programs would be initially daunting. Any program based on formal structures can be difficult to establish in a small organization because of tight

budgets and other resource constrictions. Simple, low-cost approaches have been effective for other small businesses, such as reproducible templates and forms based on OSHA standards. Injury and illness prevention programs lend themselves to such low-cost approaches because they are highly flexible; the core elements can be implemented at a basic level suitable for the smallest business.

More Frequent Inspections and Communication

OSHA should inspect boatyards more frequently and recommend boatyards work with Safety Works through targeted communications that are not linked to an inspection program. Focus group participants would accept more frequent inspections if they were preceded by nonpunitive audits by either OSHA or Maine's Safety Works program. The nonpunitive audits are important as they would help sites feel more prepared for a formal inspection. Regular triannual inspections would provide a consistent regulatory atmosphere for the boatyards and would promote greater management accountability to hazard reduction within the boatyards. While triannual inspections should be the norm for Maine's boatyards, boatyards with injury rates consistently above the industry average should expect more frequent inspections. High-injury work sites must be held accountable for their lack of safety programming, and boatyards that invest in hazard reduction should be rewarded with fewer OSHA inspections. Boatyards in this high-injury category should be required to work with Maine's Safety Works program to reduce the hazards at their sites.

Maine's Safety Works program is important to this recommendation. The program would provide a nonpunitive review of safety practices so boatyards may incrementally reduce hazards in an efficient and effective fashion. In addition to building trust between the parties, Safety Works' increased presence would allow the program to share best practices and enable boatyards to further reduce hazards beyond mere compliance with OSHA standards.

OSHA's lack of staffing for targeted inspections will make it challenging to fully implement this recommendation. OSHA's nine Maine inspectors will be hard pressed to inspect all Maine boatyards every three years. OSHA's budget proposals over the past few years have put more emphasis on enforcement and compliance assistance, so it is possible that more resources for such an effort will be forthcoming. Everyone interviewed for

this study indicated that their goal is a safer work site, and this strategy will serve to further this goal.

More Flexible Regulatory Strategy

OSHA should look to adopt a regulatory strategy that is less rule-book oriented and more flexible. OSHA's current focus on punitive compliance fails to acknowledge the good-faith efforts of most safety managers and their safety programs. Participants told multiple stories of OSHA inspectors identifying a safety infraction and imposing a financial penalty when the issue could have been corrected on the spot had it been identified by the manager or other workers in the boatyard. When they impose fines that do not serve a useful purpose, OSHA inspectors spend a great amount of time documenting violations rather than working with boatyards on solutions to the problems. Such solutions will most often include improving conditional factors at the sites, such as poor housekeeping, but OSHA should also share information on behavioral changes necessary for reducing hazards, such as encouraging employees to wear proper protective equipment. Focus group participants acknowledged that OSHA is the expert, so such information sharing would increase employee protection immediately. It would also strengthen the boatyards' safety management systems by reducing information asymmetries between OSHA and the boatyards.

OSHA's Maine Top 200 program is an example of a more flexible, less rule-book-based approach, and Safety Works could serve as another flexible model for OSHA. OSHA already looks to Safety Works to provide collaborative services to small firms who voluntarily agree to have Safety Works inspect their facilities. Another avenue OSHA could explore is a partnership with workers' compensation firms to provide inspections as part of the boatyard's injury and illness prevention planning efforts. Inspections and any changes boatyards implement could serve as evidence that boatyards are taking their safety programs seriously. The inspections could also provide an incentive for boatyards to work with their workers' compensation carrier more frequently.

Changing its regulatory strategy will be challenging for OSHA as the agency has consistently employed a punitive strategy focused on ensuring compliance with its standards. During the period from 1993 to 1996 and Maine's Top 200 program, OSHA showed the potential

for more flexibility in its enforcement program, but recent local emphasis programs, as well as reports by almost all participants in this case study, indicate OSHA continues to focus on a punitive strategy.

Increased Collaboration

OSHA should create a more positive relationship with boatyards through increased collaboration. Interviewees and focus group participants believe that a more formal agreement between Maine's boatyards and OSHA would improve relations between the two groups. OSHA should enter into a written agreement with the MMTA that formalizes the hazard-reduction activities both parties will undertake over the next 10 years. Such a strategic partnership agreement would build trust among the parties. It would also open lines of communication for training and information sharing to the individual boatyards and potentially result in a decrease in the boatyards' DART rate.

Currently, the boatyards and OSHA have a relatively confrontational relationship. To overcome this, the parties must formally define their expectations of one another. OSHA and MMTA directors should meet to discuss their needs and come to a formal agreement on activities that will take place over the 10-year period. There should be a focus on the boatyards' top-five injury events, which currently include ergonomic injuries (over twisting, repetitive use of tools, and overexertion in lifting), stationary object strikes to the head and body, and falls to the floor. Falls are a particular problem for the boatyards as the shape of boat hulls leads to safety hazards that traditional scaffolding and ladders cannot solve. The partnership can then be introduced to the individual boatyards and ultimately signed at MMTA's annual meeting.

As discussed earlier, there is precedence for such cooperation: OSHA's a partnership with the Virginia Ship Repair Association. The Virginia program has increased the number of ship repair employers with comprehensive safety and health management systems and has kept the DART rate below the most recent national average for the industry. Given that Maine's boatyards generally do not have comprehensive safety and health management systems and have a DART rate that is higher than the national average, such goals would be appropriate in Maine.

OSHA should work with the MMTA and Safety Works to set up specialized trainings in the southern,

central, and northern Maine to increase contact between boatyards and the agency. Training topics could focus on specific needs of the region's boatyards and should provide consistent and practical information. Following the trainings, OSHA staff would continue to be available to answer questions and help with hurdles faced by the boatyards.

Along with training sessions, OSHA should also work with the MMTA and Safety Works to create a communication structure that ensures boatyards receive notices on compliance topics and educational opportunities. Electronic mailing lists or videoconferencing would serve this purpose quite well. Focus group participants felt that receiving such notices, in any format, would be beneficial and would open positive lines of communication between OSHA and the boatyards.

CONCLUSION

OSHA's traditional enforcement program does little to reduce hazards at inspected workplaces. Rather than rely on its current practice of using compliance officers to detect and abate hazards once every decade, OSHA must enlist firms in a frequent and cooperative effort to introduce or improve comprehensive safety and health programs. To do so, compliance officers must be able to exercise more discretion on when to inspect boatyards, on when to impose sanctions against employers, and on when nonpunitive evaluation and guidance would be the better way to reduce hazards.

A cooperative effort between OSHA and Maine boatyards would build trust, increase the amount of relevant information being provided to the boatyards, and allow boatyards to receive follow-up to problems they face. According to focus group participants, Maine boatyards would welcome such nonpunitive efforts as a way to improve worker safety. Ultimately, OSHA staff would need a high level of managerial and leadership skill to carry out a cooperative program, as staff would carry out both the punitive and nonpunitive aspects of the compliance program. But as efforts in other parts of the country show, such a program could be highly successful for both OSHA and Maine boatyards. 🐟

NOTES

1. "Commonly Used Statistic," US Department of Labor, OSHA, accessed February 20, 2020, <https://www.osha.gov/oshstats/commonstats.html>.

2. Searching on the NAICS 336612 for Maine at OSHA's "Inspections within Industry" page: <https://www.osha.gov/pls/imis/industry.html>.

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Jeremy Pare is an assistant professor of law and policy at Thomas College. He focuses on the areas of lean organizational behavior in business, state and local politics, and sustainability management. Pare was a past selectman in the Manchester, Maine, and served on the board

of directors for the Bread of Life and Children's Center in Augusta. He is also an adjunct at the University of New England in their Master of Public Health program.