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RESEARCH SERIES

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Fishing violations in New England could jeopardize fish population recovery.

NEW ENGLAND FISHERIES ENFORCEMENT

A SUMMARY OF NEW SCIENTIFIC ANALYSIS:

King, D. and Sutinen, J. 2009. Rational noncompliance and the liquidation of Northeast groundfish resources. *Marine Policy*.

IN NEW ENGLAND, government officials enforce fisheries regulations developed to prevent overfishing and allow recovery of depleted fish populations. However, the number of times that fishermen have violated regulations has doubled since the 1980s, and a substantial number of fishermen, managers, scientists and enforcement officials believe that noncompliance levels are high enough to jeopardize fisheries rebuilding programs and the health of the resources.

In a nationwide study, Drs. Dennis King and Jon Sutinen examined fisheries enforcement compliance rates and their associated financial implications. In a case study of the Northeast multispecies groundfish (NEGF) fishery, they found that given the conditions in the fishery and current levels of enforcement, there are high economic incentives for fishermen to violate regulations. They also found evidence that social factors that usually support voluntary compliance, including moral obligation and community pressure, are declining as the credibility of fisheries regulations among fishermen decreases and economic pressures increase. The authors call for a smart compliance program that focuses enforcement and penalties on frequent offenders, while strengthening the basis of moral obligations to comply. This *Lenfest Ocean Program Research Series* report is a summary of the scientists' findings.



ILLEGAL FISHING IS SIGNIFICANT

The authors examined noncompliance by analyzing enforcement records and surveying affected stakeholders such as fishermen, researchers, fisheries regulators and enforcement officials. Based on their survey results, the authors estimate that between 12 and 24 percent of the NEGF fishery catch is illegal. From enforcement data, they calculated that the financial gains from illegal fishing are five times greater than the expected penalty, taking into account 1) the likelihood of a violation being caught (Figure 1), 2) the percent of violations that are prosecuted and 3) the size of the typical penalty. For example, a captain on a mid-size trawler could expect to increase his profit on average by \$4,334 per trip, by fishing illegally.

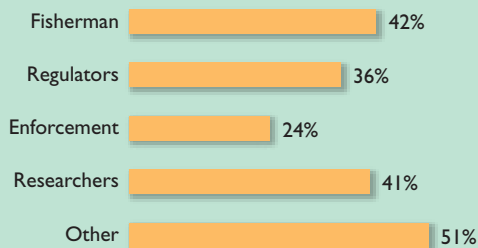
A substantial fraction of violations are accidental, rather than intentional (Figure 2). Chronic, intentional violators constitute a smaller number of fishermen (Figure 3). These chronic violators, who account for most of the illegal harvest, are motivated by the clear economic gain and low likelihood of being caught or penalized.

FISHING VIOLATIONS JEOPARDIZE FISHERY HEALTH

Significant percentages of survey respondents believe that illegal fishing currently undercuts the biological and economic health of the fishery. Large majorities of respondents believe that one or more of the possible types of violations are significantly harming the fishery. While there appears to be a near consensus on this matter, opinions about the relative impacts of specific types of violations are more varied (Figure 4).

At current levels of noncompliance, a large majority of enforcement agents and approximately a third of fishermen believe that illegal fishing reduces long-term economic gains for fishermen who follow the rules (Figure 5). Similarly, 68 percent of enforcement personnel and a third of fishermen believe that illegal fishing will prevent law-abiding fishermen from benefiting from population rebuilding programs.

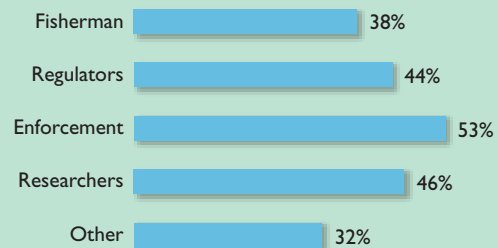
FIGURE 1: WHAT PERCENT OF VIOLATIONS OF U.S. FISHERY LAWS DO YOU THINK ARE DETECTED?



NOTE: RESPONSE ROUNDED IN MEAN PERCENTAGES

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FIGURE 2: WHAT PERCENT OF VIOLATIONS IN THE NEGF FISHERY ARE INTENTIONAL AS OPPOSED TO ACCIDENTAL?

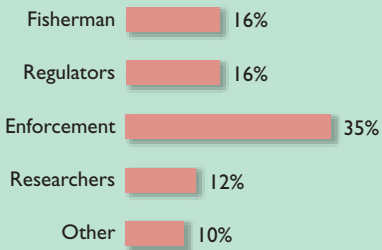


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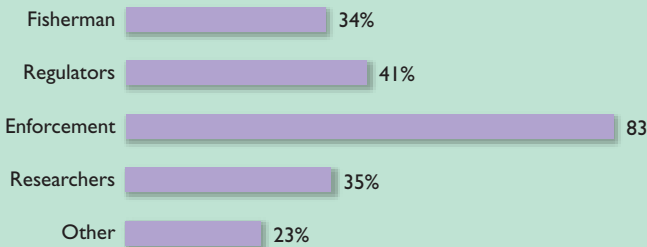


FIGURE 3: WHAT PERCENT OF COMMERCIAL FISHERMEN DO YOU THINK ROUTINELY VIOLATE FISHERY LAWS?



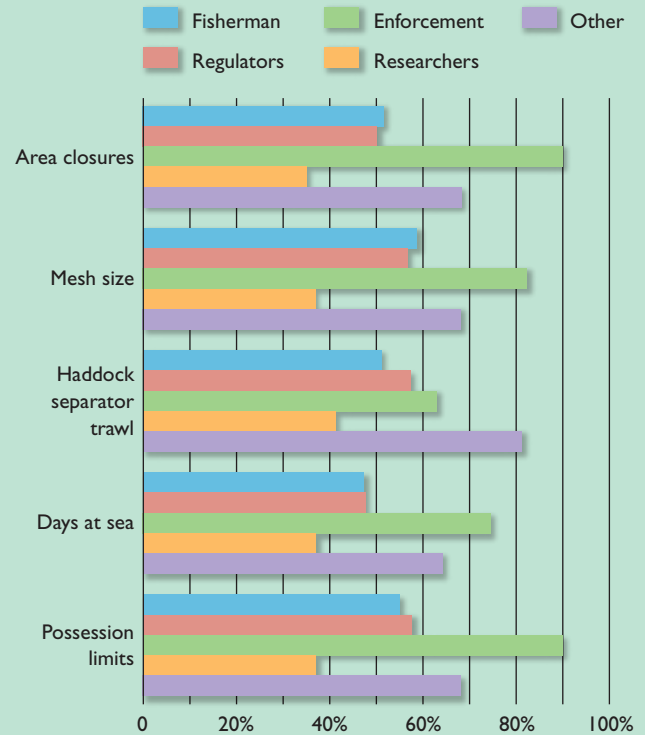
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FIGURE 5: AGREE OR STRONGLY AGREE THAT THE ADVERSE EFFECTS OF FISHING VIOLATIONS ON FISH STOCKS ARE SIGNIFICANT ENOUGH TO REDUCE LONG-TERM ECONOMIC RETURNS FROM FISHING



NOTE: RESPONSE ROUNDED IN MEAN PERCENTAGES LUCIDITY INFORMATION DESIGN, LLC

FIGURE 4: PERCENT OF GROUP RESPONDING THAT SPECIFIC TYPES OF VIOLATIONS HAVE A SIGNIFICANT, OR GREATER THAN SIGNIFICANT, ADVERSE IMPACT ON THE HEALTH AND MANAGEABILITY OF NE GROUND FISH RESOURCES



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Significant percentages of survey respondents believe that illegal fishing currently undercuts the biological and economic health of the fishery.

FUTURE ECONOMIC AND SOCIAL FACTORS WILL LIKELY ENCOURAGE INCREASED ILLEGAL FISHING

Other studies indicate that most fishermen comply with fishery regulations most or all of the time because of a sense of moral obligation and social pressure, despite economic incentives to do otherwise. Unfortunately, the influence of these factors is diminishing in the NEGF fishery. The U.S. Magnuson Stevens Act requires managers to end overfishing of all fish stocks and rebuild them over time. This will require tightening fishing restrictions which will increase economic pressure on fishermen and incentives not to comply. Moreover, illegal fishing undermines fishermen's trust in the legitimacy of fishery management decisions because fishermen know that illegal fishing makes it harder for populations to recover and that unreported catches make it harder for managers and scientists to get accurate data on catch levels. When fishermen disagree with a regulation or question the legitimacy of the management institutions, they are more inclined to violate fishing rules. As more individuals question the validity of rules in the NEGF fishery, the social norm may shift in favor of noncompliance.



IMPLEMENT SMART COMPLIANCE POLICIES

Stronger economic incentives to fish illegally, combined with weaker legitimacy of the management process in the eyes of fishermen, suggest that a smart compliance and enforcement process is needed to prevent further biological and economic decline in the NEGF fishery. A Smart Compliance program:

- **Targets frequent offenders with severe penalties that sufficiently deter violations.** Focusing enforcement more heavily on frequent offenders increases the chances that offenders will be caught and prosecuted. In addition, it can prevent other fishermen from concluding that violators are immune from punishment, and that the rules are not being applied fairly and will not have the intended effects on fish stocks.
- **Provides enough deterrence to discourage occasional offenders.** Uniformly severe penalties for all offenders can lead to questions about the legitimacy and fairness of management systems and reduce voluntary compliance. To avoid this, penalties for occasional offenders should be less than for chronic repeat offenders.
- **Strengthens the basis for voluntary compliance by improving how regulations are developed, implemented and enforced.**
- **Considers how changes in fishery management, including possible shifts to “rights based” fishing, such as dedicated access privileges, “individual fishermen quotas”, or “sector” quotas, will influence compliance and enforcement requirements.**

Focusing enforcement on frequent offenders increases the chances that offenders will be caught and prosecuted.

About the Authors

DENNIS M. KING is a Research Professor in the Center for Environmental Science, University of Maryland, PO Box 38, 1 Williams Street, Solomons Island, Maryland, 20688, USA.

JON G. SUTINEN is a Professor Emeritus, Department of Environmental and Natural Resource Economics, University of Rhode Island, 209 Seacliff Way, Point Richmond, California, 94801, USA.

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901 E Street NW, 10th Floor, Washington, DC 20004 • ph: 202.552.2179 • fx: 202.552.2299
email: info@lenfestocean.org • www.lenfestocean.org

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