## ARTICLE IN PRESS

Environmental Development ■ (■■■) ■■■-■■■



Contents lists available at ScienceDirect

# **Environmental Development**

journal homepage: www.elsevier.com/locate/envdev



# Conceptualizing maritime environmental and natural resources law enforcement – The case of illegal fishing<sup>☆</sup>

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#### ARTICLE INFO

Keywords:
Fisheries
Illegal fishing
Oceans
Environmental crime
Law enforcement

#### ABSTRACT

Environmental and natural resource crime (ENRC) is a growing criminal enterprise with significant adverse effects on ecosystems, livelihoods, and the global economy. While the theoretical knowledge and understanding of ENRC has advanced well for terrestrial ecosystems, leading to the application of a portfolio of successful response mechanisms, parallel knowledge and application in the context of aquatic resources is only poorly developed. Given the importance of ENRC for the world's oceans, this paper uses the example of illegal fishing to analyze the dimensions of ENRC, describe the magnitude of the problem, and discuss appropriate response mechanisms. The paper translates recent theoretical advances in analyzing and systematizing ENRC to help inform policy design and investment decisions. Bridging the gap between academia and practitioners, it introduces a conceptual framework of Environmental and Natural Resources Law Enforcement (ENRLE) developed for terrestrial ecosystems and illustrates its applicability for illegal fishing. The paper shows that the structured approach of crime Prevention, Detection, Suppression, and Recovery (PDSR) is important for developing efficient and effective responses to ENRC in the context of illegal fishing in a real-world scenario. Building on

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Please cite this article as: Sander, K., et al., Conceptualizing maritime environmental and natural resources law enforcement – The case of illegal fishing. Environmental Development (2013), http://dx.doi.org/10.1016/j.envdev.2013.08.002

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first-hand project experience, it demonstrates how the conceptual framework of PDSR can serve as a tool for mapping out institutions and actors for identifying investment and reform needs, rather than randomly mixing and matching upstream and downstream interventions. The paper concludes by proposing to further integrate the concept of ENRLE into policy design and implementation in the context of illegal fishing and identifies areas of additional research.

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#### 1. Introduction

Environmental and natural resource crime (ENRC) – defined here to encompass poaching, illegal logging, and illegal fishing – is a growing criminal enterprise estimated to be worth some \$72.5 billion annually, placing it among the largest illegitimate businesses in the world (Havocscope, 2012). Beyond its obvious threat to ecosystem health and species survival, ENRC poses a challenge to sustainable development: its destructive effect on natural resources undermines the livelihoods and economic foundation of people and countries, often the poorest and most vulnerable; it deprives governments of often sorely needed revenues in the form of royalties and tax receipts; where legal markets exist, it depresses prices of legitimate goods; it promotes corruption and undermines good governance; and at the extreme it even fuels instability and promotes conflict.

In recent years, these dimensions of ENRC have received increased attention by academics and practitioners alike. Especially in the context of terrestrial natural resources and ecosystems such as forests (see, for example Christy et al., 2007; Colchester et al., 2006; Goncalves et al., 2012; Lawson and MacFaul, 2010; Magrath, 2007; Oksanen et al., 2006) this has led to an advanced understanding of the impacts of ENRC on poverty and economic development. Research involving an interdisciplinary community of practice allowed the conceptualization of Environmental and Natural Resource Law Enforcement (ENRLE), providing a conceptual framework that has guided the discussion and supported the development and implementation of improved response mechanisms at national and international levels. For terrestrial ecosystems, this approach has led to an improved understanding of the dimensions and impact of ENRC and enabled the effective and efficient design and application of appropriate response mechanisms. In contrast, the international community is only beginning to analyze and understand the dimensions of ENRC and its impacts on international development in the context of aquatic natural resources and ecosystems.

Using the specific case of illegal fishing, this paper analyzes ENRC in the maritime context and introduces an analytical framework to combat it. Much has been written about strategies to deal with illegal fishing (High Seas Task Force, 2006; OECD, 2004, 2005), including analyses of how to change its economic drivers (Charles et al., 1999; Gallic and Cox, 2006; Sumaila et al., 2006; World Bank, FAO, 2009). This paper argues that illegal fishing is not simply a regulatory and economic problem, but also a problem in need of investments in the efficient and effective application of law and order. In support of our analysis, we first provide a brief review of the magnitude of illegal fishing and its impact on poverty and development. While we acknowledge the existing literature about crime and illegal fishing in particular, especially the economic literature (Becker, 1968; Bergh and Davies, 2004; Charles et al., 1999; Gallic and Cox, 2006; Kuperan and Sutinen, 1998; Sumaila et al., 2006; Sutinen and Kuperan, 1999; Tyler, 1990), we find that the discussion often stops short of explicitly treating law enforcement. Therefore, we analyze and define the criminal dimensions of illegal fishing to then lay the foundation for a conceptual framework of ENRLE in the context of illegal fishing, drawing on the environmental, economic, and criminological literature. We conclude by providing recommendations for how the application of this framework can be used to strengthen ENRLE in the case of illegal fishing, and for how this approach may also be extended to other areas of maritime ENRC. We consider the contribution of this paper to the literature in the development of the ENRLE framework of illegal fishing, leaving others to continue to invent and deploy solutions to nudge the drivers.

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