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# Profile of the illegal abalone fishery (*Haliotis midae*) in the Eastern Cape Province, South Africa: Organised pillage and management failure

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ABSTRACT

Since 1997 the Eastern Cape of South Africa has become a major source of supply for the illicit abalone trade as illegal fishers have located a substantial abalone (*Haliotis midae*) resource. We determined illegal fishing effort and yield in the Port Elizabeth-based abalone fishery, and used biological indices to determine the impact of fishing on the abalone stock. The failure of the state to issue fishing rights and conduct effective sea-based compliance, combined with the incentives to fish abalone (high price, low cost, ease of access) created the conditions for a full scale illegal fishery to emerge very rapidly. By 2005, the scale of the fishery was remarkable: a fleet of 30 purpose built vessels existed, harvesting 1000–2000 tons of abalone with an export value of 35–70 million USD per year. The uncontrolled fishing effort had a dramatic effect on the stock: the average size of abalone decreased significantly, densities declined in the sampling areas, but recruitment of young abalone was still observed at the heavily fished Cape Recife site. It is concluded that the illegal fishing operations and the resultant ecological effects on the abalone resource, reflect deficiencies in South Africa's current abalone fisheries management and compliance paradigm.



## 1. Introduction

Illegal, unreported and unregulated (IUU) fishing has been identified as a major contributing factor to the worldwide collapse of fish stocks (Le Gallic and Cox, 2006; Pitcher et al., 2002). Several abalone fisheries around the world have collapsed or are facing collapse due to unsustainable levels of legal harvesting, and increasing levels of IUU fishing for this high-valued commodity. Fisheries departments and management authorities have sought to implement rights-based approaches in the hope of curbing this trend (Vega et al., 2006; Wyner et al., 1977), but with limited success (Mitchell and Baba, 2006). Total Allowable Catches (TACs) have gradually been decreased in almost every abalone fishery (Heasman, 2006; Huchette and Clavier, 2004; Roberts et al., 2007; Shepherd and Rodda, 2001; Uchino et al., 2004) and some countries with major abalone fisheries have closed their fishery entirely (Daniels and Floren, 1998; Dowling et al., 2004; Karpov et al., 2000; Lessard and Campbell, 2007; Rogers-Bennett et al., 2004). South Africa's abalone (*Haliotis midae*) resource, locally known as 'perlemoen', is under particularly severe pressure from highly organised illegal fishing which has boomed since the 1990s (Hauck and Sweijd, 1999; Tarr, 2000).

For many years, South Africa's abalone commercial and recreational fishery in the Western Cape Province (Fig. 1) was very stable (Tarr, 2000), but since the mid-1990s traditional management measures to sustain a rights-based fishery have been rendered increasingly ineffective by rampant illegal fishing. Authors such as Tarr (2000) and Steinberg (2005) ascribed the spectacular rise of the illicit abalone trade in the 1990s to numerous factors, including the abolition of restrictive Apartheid laws in the early 1990s and the transition to democracy in 1994, which saw the concurrent transformation of state structures including the South African Police Service (SAPS) and Marine and Coastal Management (MCM; the authority responsible for managing fisheries). Moreover, the weakening South African Rand (ZAR) against the U.S. dollar (USD) in the same period, made the export price of abalone attractive. Contributing to this, weak border control systems allowed illegal product to be exported with ease. Finally, the presence of an established and highly efficient Chinese organised crime network in South Africa, promoted the bartering of drugs for abalone.

The growing illegal harvest led to measures to reduce legal fishing effort, including the closure of the recreational fishery in 2003 (DEAT, 2003), the progressive reduction of the commercial TAC, and the closure of the commercial fishery in 2008 (DEAT, 2007). The introduction of a Territorial User Rights Fishery (TURF) model in 2003 failed to draw the 302 rights holders into participation in protecting abalone stocks. Furthermore, illegal fishing by members of the local coastal communities where the rights holders reside, continued to rise. Various state-led compliance efforts failed to halt the

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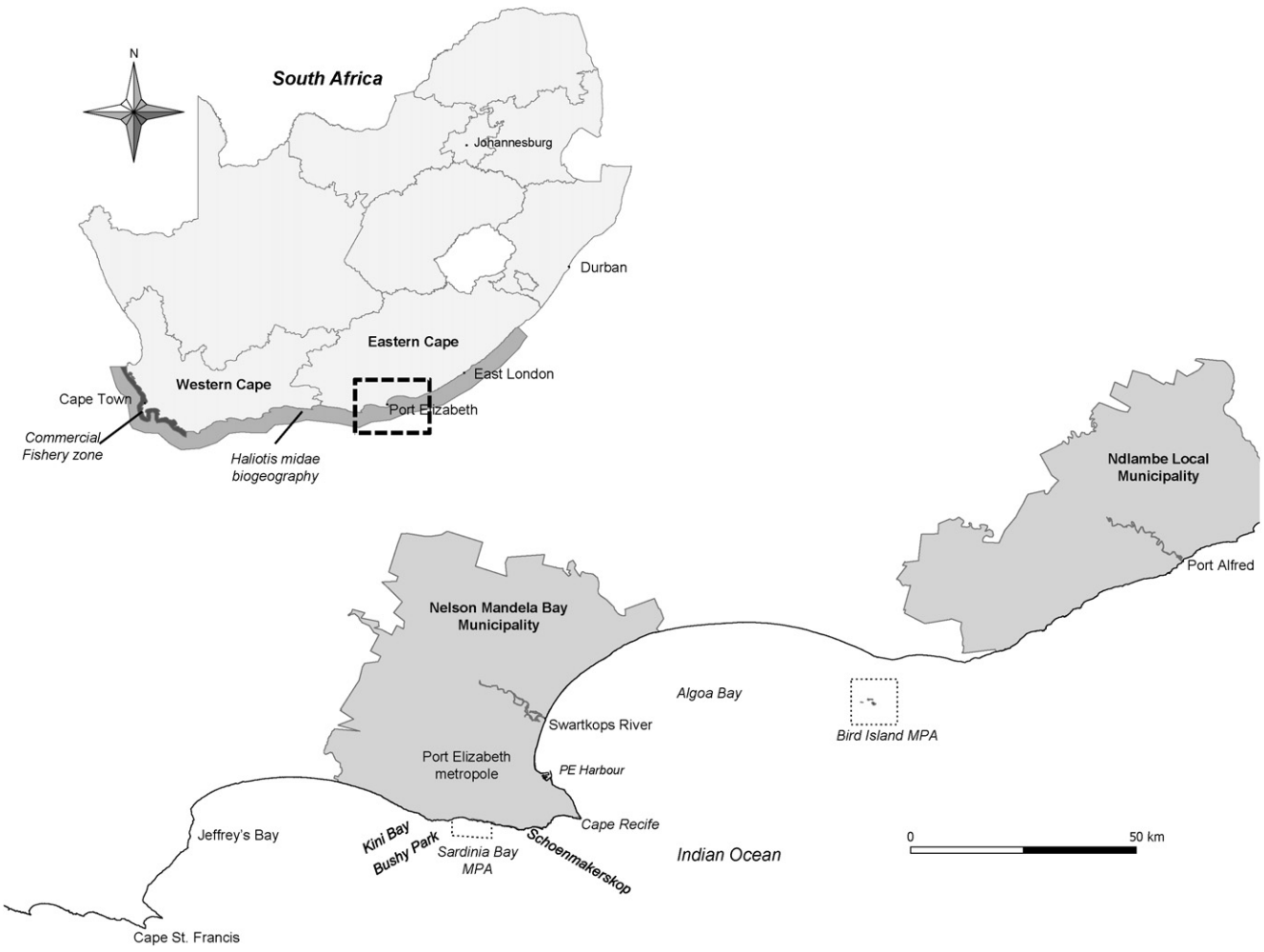


**Fig. 1.** Map of South Africa, showing the biogeographical region of *H. midae*, the commercial fishery zone in the Western Cape, and the Port Elizabeth city with its surroundings, from which organised illegal fishing in the Eastern Cape has developed.

rise of illegal abalone fishing (Hauck and Kroese, 2006; Herbig and Joubert, 2002; Steinberg, 2005). By 2007, almost the entire South African abalone catch, estimated to be well over 2000 tons of whole mass (Bürgener, TRAFFIC, pers. comm.), was caught illegally: save for the TAC of 75 tons.

In the Eastern Cape Province (Fig. 1), illegal abalone fishing has followed a similar trend to the Western Cape Province. However, a large-scale commercial fishery was never established as marine resource managers historically believed that the distribution pattern and abundance of the species in the Eastern Cape was too discontinuous and patchy to justify commercial exploitation (Tarr, 2000). A shore-based recreational fishery with daily bag limits did exist and was well established near the urban centres. An initiative in 1998 to allocate experimental commercial quotas in the Eastern Cape coast was halted due to the rising illegal fishing phenomenon. In 2002, a proposed TURF-based management plan was implemented briefly in rural areas where subsistence fishers were targeting abalone. This plan was later terminated due to declining catch rates. As in the Western Cape, recreational harvesting was halted in 2003. Since 1997 the Eastern Cape has become a major source of supply for the illicit abalone industry as illegal divers have located a substantial abalone resource.

A large illegal and highly organised network developed from the urban centre of Port Elizabeth (the third largest city along the coast of South Africa; Fig. 1), and systematically targeted the species across the entire Eastern Cape for transport inland and export to the Far East. The high Asian demand for abalone fuels this exceptionally lucrative trade, believed to be run by Chinese triads, as well as other national and international organised criminal enterprises (Gastrow, 2001; Steinberg, 2005; Willock et al., 2004).

Information on the scale and dynamics of South Africa's illegal abalone fishery is essential to understanding the problem and formulating appropriate management options. In this paper we present research undertaken to develop a profile of the illegal abalone fishery based in Port Elizabeth, Eastern Cape, as well as its effect on the resource. Our study approach combined both social and biological research methods. The demographic and socio-economic characteristics of the offenders were profiled, followed by an estimate of illegal fishing effort and description of fisher behaviour in this effectively 'open access' – free-for-all – fishery. The effect of illegal fishing on the resource is illustrated by means of fishery dependent and independent data. We show that the illegal fishery is of a larger scale and is more sophisticated than previously acknowledged, and discuss how the lack of appropriate management interventions has allowed abalone fishing to rapidly boom into a full scale, highly organised industry run by several syndicates. It is concluded that the illegal operations and the resultant ecological effects on the abalone resource reflect deficiencies in South Africa's current abalone fisheries compliance and management paradigm.