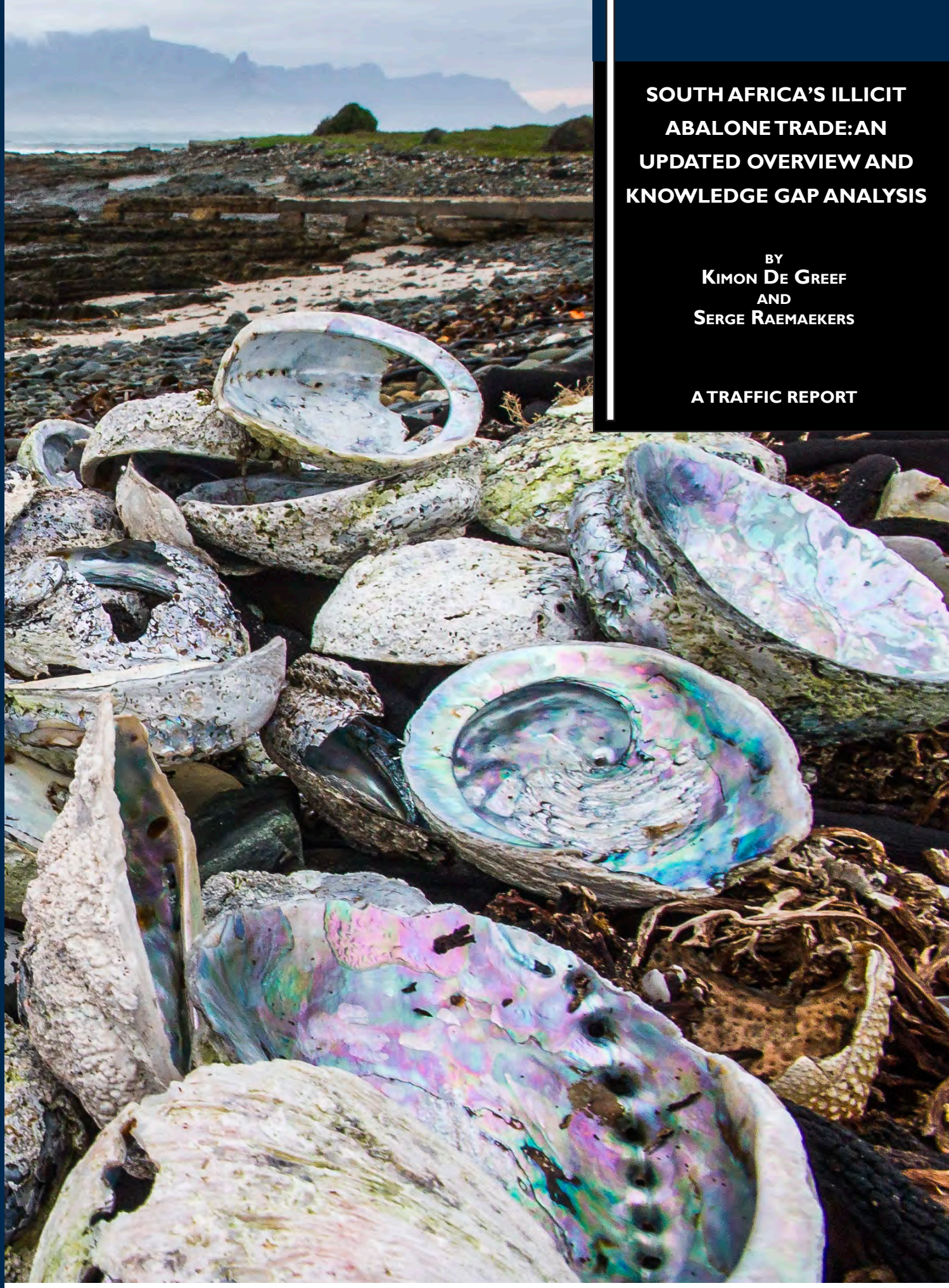

SOUTH AFRICA'S ILLICIT ABALONE TRADE: AN UPDATED OVERVIEW AND KNOWLEDGE GAP ANALYSIS

BY
KIMON DE GREEF
AND
SERGE RAEMAEKERS

A TRAFFIC REPORT

USAID FROM THE AMERICAN PEOPLE

TRAFFIC
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Environmental Evaluation Unit

IUCN

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Front cover photograph: Poached Abalone shells line the shoreline after being washed ashore on Robben Island, Robben Island, Western Cape, South Africa

Photograph credit: Peter Chadwick / WWF-Canon

Author background:

Kimon de Greef recently completed a Masters dissertation investigating abalone poaching in Hout Bay, a Cape Town fishing community. He currently works as a freelance researcher and journalist.

Dr Serge Raemaekers spent five years researching abalone poaching in South Africa and now works broadly within the field of fisheries governance. He is based at the University of Cape Town's Environmental Evaluation Unit, where he is completing a post-doctorate.

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South Africa's illicit abalone trade: An updated overview and knowledge gap analysis

A TRAFFIC
Report

Kimon de Greef & Serge Raemaekers

Dried abalone, for sale in Sheung Wan District, Hong Kong. © Jürgen Freund / WWF-Canon

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List of acronyms and abbreviations

AFCD	Hong Kong Department of Agriculture, Forestry, Conservation and Environment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DAFF	Department of Agriculture, Forestry and Fisheries
DEAT	Department of Environmental Affairs and Tourism
MARINEs	Management Action for Resources of Inshore and Nearshore Environments
MCM	Marine and Coastal Management
MCS	Monitoring, Control & Surveillance
MLRA	Marine Living Resources Act, 1998
MPA	Marine Protected Area
SANParks	South African National Parks
SAPS	South African Police Service
RILO	Regional Intelligence Office (of the World Customs Organization)
TAC	Total Allowable Catch
TURF	Territorial User Rights Fishery
WCO	World Customs Organization
WCRL	West Coast Rock Lobster

Executive Summary

More than two decades of unsustainable harvesting has had damaging, and potentially irreversible, consequences for South Africa's formerly abundant stocks of the endemic abalone, *Haliotis midae.* Efforts to combat the illegal trade, including listing the species in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix III in 2007, conducting government-led enforcement operations, establishing designated environmental courts to deal with abalone poachers, and developing more inclusive fisheries policies have been largely unsuccessful. This has been due to a lack of adequate resources and long standing socio-political grievances between small-scale fishermen and the post-apartheid government. In 2010, *H. midae* was delisted from CITES Appendix III, despite increased levels of illegal poaching, due to difficulties in implementation according to the South African government.

Organized criminal syndicates have taken advantage of this socio-political dynamic mentioned above to recruit poachers from local communities who feel disenfranchised by government policy and entitled to extract the easily harvested resource. Furthermore, evidence suggests that poachers are sometimes paid for service in illegal drugs, adding another complex layer of social challenges and addiction along the coast of South Africa.

Trade data analysis on abalone reveals a complex network that links poaching to syndicated trade through various countries, some of them landlocked, across southern Africa before eventually reaching Asian markets. Calls for radical governance reform have been made, but change is slow. Nevertheless, there is value in profiling the illegal trade as fully as possible, to draw lessons for dealing with poaching and other forms of wildlife crime more effectively in the future.

This briefing paper is a synthesis of current knowledge about South Africa's illegal abalone fishery, drawing on both available literature and unpublished research. The briefing paper is not exhaustive, but offers a comprehensive and up to date overview of the history, drivers, impacts and *modus operandi* of this country's illicit abalone trade. By profiling the current situation holistically, this briefing paper aims to inform stakeholders and stimulate discussion on recommended solutions and further areas of study as described in Section 4.

Recommendations include:

1) long-term systemic work is required on fisheries reform and local economic development alternatives in coastal communities in the Eastern and Western Cape;

2) further research is needed to understand the knowledge gap surrounding how the criminal syndicates operate outside of South Africa and their ties to other forms of illicit trade;

3) increased collaboration between national and regional enforcement agencies and more use of trade data analyses as part of an intelligence-led approach to disrupting patterns of trafficking;

4) stricter trade controls-, including consideration of reinstating abalone as a CITES-listed species, ideally in Appendix II.

Introduction

A large sea snail that lives close to shore, grazing on algae, is being illegally harvested to the point of commercial extinction. Powerful syndicates operate a lucrative and highly criminalized black-market to East Asia, where consumers pay hundreds of dollars per kilogramme for the snail. This document summarises current knowledge of the abalone trade by exploring the past 25 years of the industry and factors leading to the current poaching crisis

A conservative estimate of 1723 tons[1] of abalone—species name *Haliotis midae*—was poached in South Africa in 2012, more than 10 times the official Total Allowable Catch. In the last 10 years, it is estimated that more than 20 500 tons has been poached and illegally traded in total. Virtually all of this will have travelled to Hong Kong, the epicentre of the global abalone trade, before either being sold locally or re-exported (Burgener, 2013).

At the consumer end of the value chain it is prepared with great care and served at special occasions: to mark the conclusion of successful business deals, for example, or to celebrate weddings and other auspicious occasions.

The supply side of the illicit abalone trade, the distal limbs of which have spread right across the biogeographic range of the resource in South Africa, can be broadly characterized by violence, opportunism and plunder. Criminal organizations exploit a range of vulnerabilities (from community to State level and above) to operate an extraordinarily organized system of exports that has thus far defied all attempts to bring it under regulatory control.

That the illicit abalone trade has survived for so long points to, among other things, the persistence of the criminal black-market, which in itself speaks volumes about South African society. Crime operates in the shadows, and it is in shadow that some of the most revealing truths about a time or place can be found. Taking a criminological lens to this country's abalone poaching epidemic thus highlights a much deeper set of problems—entrenched structural inequality, weak governance, and widespread institutional failure—that allow this particular illicit trade, like many others, to continue to flourish.

Part of the reason for the resilience of the illegal abalone fishery, as this document demonstrates, is that poaching has filled a socio-economic void left behind by apartheid, offering historically disadvantaged small-scale fishers an unprecedented opportunity to earn good money from the sea. Another component of the overall picture is that South Africa and its neighbours have porous borders, enabling large volumes of contraband to be transported out without detection. In parallel with the southern African development context, sustained economic growth in East Asia has boosted demand for high-end goods in the past two decades. As a final piece to the puzzle, abalone, being a shallow-water snail, is incredibly easy to harvest.

In other words, abalone trade is a highly complex phenomenon. Sustained over-harvesting has pushed stocks to the brink of commercial extinction for legal operators: a fisheries management and conservation issue. The evolution of a potent criminal economy in coastal working class settlements has introduced gangsterism and drug abuse, among other social ills: a welfare issue. The ease with which shipments of poached abalone continue to leave the country, despite the illegal fishery having been identified as a priority concern more than two decades ago, points to glaring weaknesses in the systems that govern border control and international trade: a high-end governance issue.

The authors of this briefing paper strongly believe that abalone poaching cannot be understood, let alone tackled, without engaging with these different layers of complexity in a holistic fashion.

[1] "tons" in this briefing paper refers to metric tonnes. One ton is equivalent to 1000 kg.

History of the commercial abalone fishery in South Africa

Of the five abalone species found in South African waters, just one, the endemic *Haliotis midae*, is commercially exploited. A slow-moving grazing mollusc, *H. midae* reaches sexual maturity after seven years. It occupies shallow inshore waters from Cape Columbine on the country's west coast as far as Port St Johns in the Eastern Cape (**Figure 1**), with greatest densities occurring in waters less than 10 metres deep. Taken together, these two biological characteristics—slow growth and late sexual maturity—combined with relative ease of access render *H. midae* particularly vulnerable to over-exploitation, a threat compounded by the high value of abalone products in East Asian markets (de Greef 2013).

South Africa's commercial abalone fishery began near Gansbaai, on the south coast of the Western Cape, in the late 1940s. It was initially run on an open-access basis, with teams of divers working from small boats fitted with surface-air supply equipment. Shore-based harvesting also took place at low tide, as indeed it had for centuries throughout the biogeographic range of the abalone resource. Catch licences were required from 1954 onwards, but other than size limits of a minimum 14 cm shell length, no harvest restrictions applied. This lack of regulation, coupled with booming demand in key importer countries like Japan, allowed catches to rise to unsustainable levels, peaking at 2800 tons in 1965 before falling into rapid decline due to depleting stocks (Raemaekers *et al.* 2011).

Alarmed at the prospect of over-harvesting, fisheries managers imposed catch regulations for the first time in 1968 (**Table 1**). The total quota was steadily reduced until the early 1970s, when annual catches stabilized around 700 tons. In the early 1980s this figure decreased to approximately 615 tons, with no indications of significant long-term decline (**Figure 2**).

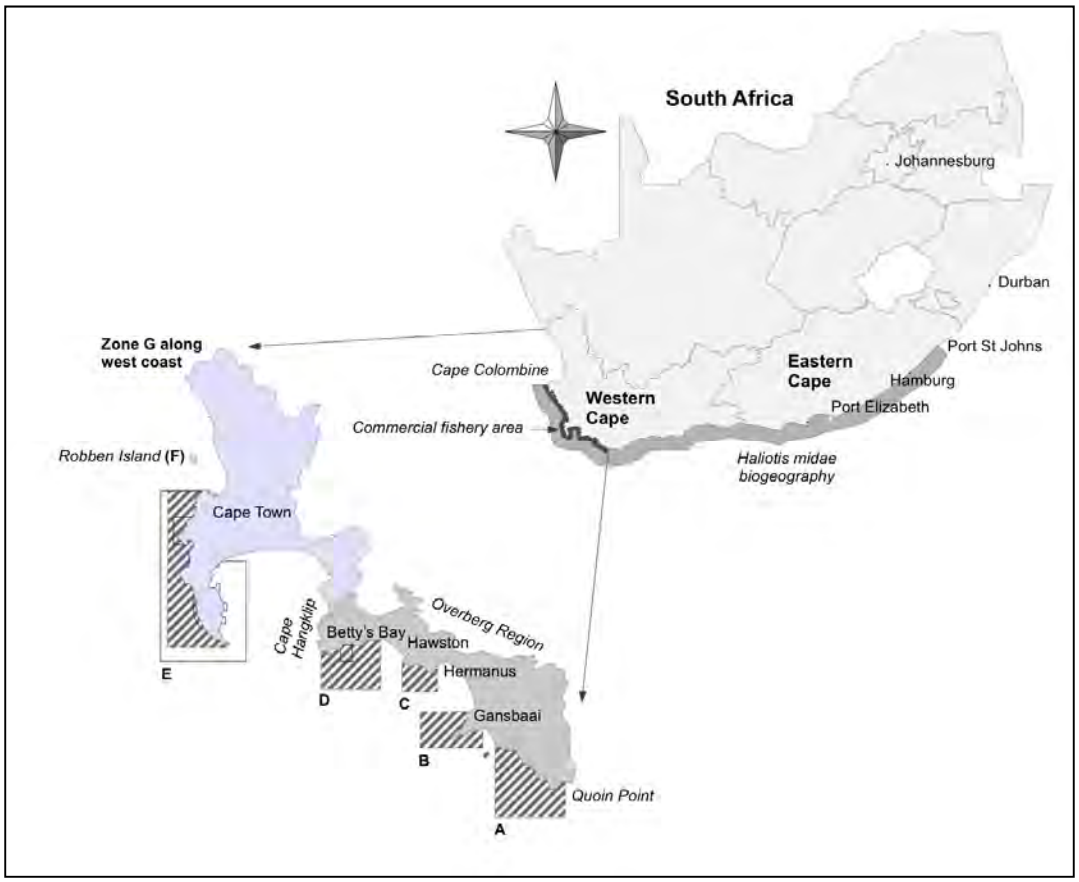

Figure 1 Map of South Africa and the Western Cape, showing the biogeographic range of abalone (*Haliotis midae*) and the spatial extent of the commercial abalone fishery. Since 1986 the commercial fishery has been managed in seven separate zones (A – G on map). Adapted from Raemaekers *et al.* (2011).

From 1986 onwards the commercial fishery was subdivided into seven fishing zones, with each allocated its own Total Allowable Catch (TAC) based on stock assessments and previous yields (see **Figure 1**). These remain in place today. A commercial fishery was never established in the Eastern Cape Province, despite the presence of a sizeable abalone population, as authorities deemed the resource too patchily distributed to be economically viable (Raemaekers & Britz 2009).

Until the early 1990s these management interventions appeared to be working well. Harvests were steady, divers were reporting improved catch-per-unit-effort, and the prospect of increased TACs in the future was attracting new entrants to the fishery. Co-operation between resource managers and rights holders, in other words, was seen to have put the abalone fishery back on track (Raemaekers *et al.* 2011).

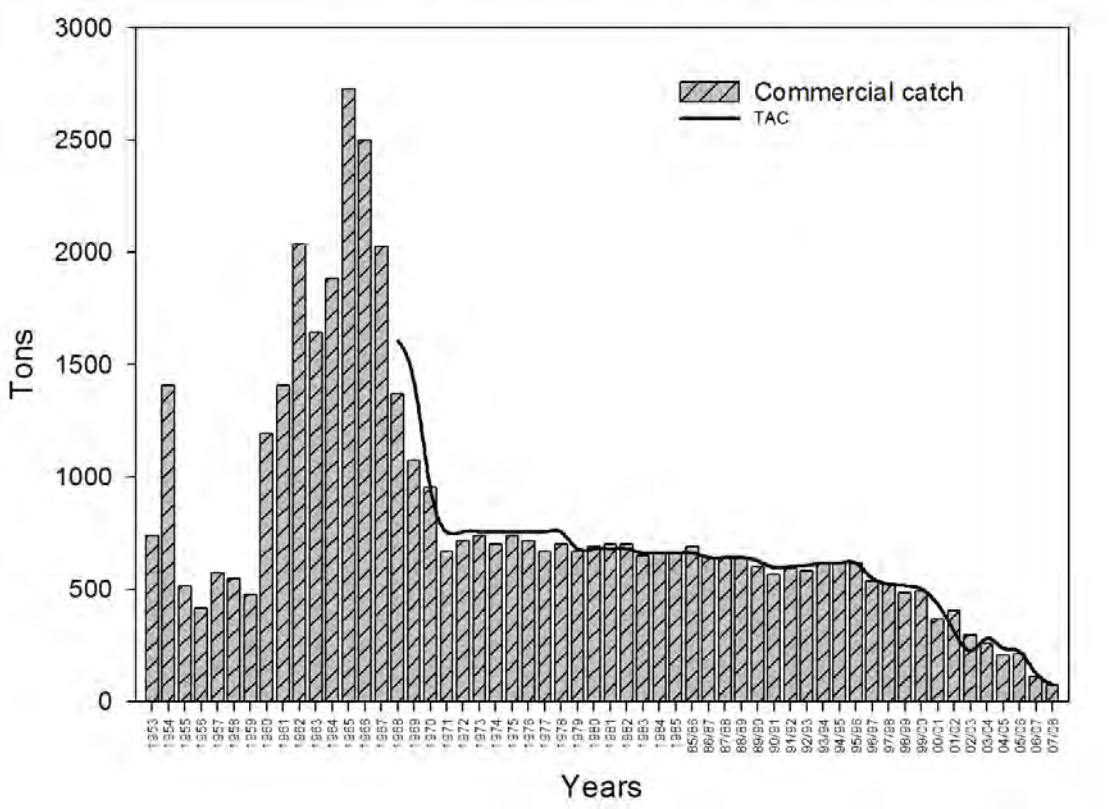

Figure 2 Commercial abalone fishery landings and evolution of the Total Allowable Catch (TAC). Adapted from Raemaekers *et al.* (2011).

Inequality and the transformation drive

Although tighter control brought a sense of optimism to the abalone fishery, its benefits were not shared equally. Like in the rest of the South African fisheries sector, commercial abalone rights were reserved for white individuals during apartheid, essentially reducing the role of non-whites to providing cheap labour. In the early 1990s five white-owned companies held abalone permits, with 52 divers—mostly coloured[2] individuals—employed on a seasonal basis (Saur *et*

[2] In South Africa, the term "coloured" refers to a diverse group of people—descended largely from slaves, indigenous Khoisan groups, and a wide range of other African peoples—who were assimilated into colonial society by the end of the nineteenth century. Being also partly descended from European settlers, coloureds are popularly regarded as being of 'mixed' race, and occupied an indeterminate status in the South African racial hierarchy during apartheid, distinct from the historically dominant 'white' or European minority, 'Indians', and the numerically predominant 'black' African population (adapted from van Sittert *et al.* 2006).

al. 2003). This systematic exclusion meant that residents of traditional fishing communities like Hawston and Gansbaai had minimal formal access to abalone, sowing the seeds for the rampant illegal harvesting that was to follow.

Table 1: Key events in the evolution of South Africa's legal and illegal abalone fisheries

	Date	Event
Early days	***1949****	Commercial abalone fishery begins near Hermanus
	1954	First commercial licences established; no catch limits
	1965	Annual commercial harvest peaks at 2800 tons
	1968	First commercial catch limits established
	1972	Annual commercial harvest stabilizes at 700 tons
	1983	Recreational licenses established
	1986	Commercial fishery zones (A - F) established
Abalone poaching takes off	**1990***	Southward migration of WCRL into Zones A & B; abalone recruitment failure
	1994	Annual recreational harvest peaks at 750 tons
	1994	Apartheid ends
	1994*	The 'Abalone Wars' begin on Overberg coast
	1998	Marine Living Resources Act adopted
		First subsistence quota allocated, representing 10% of TAC
Crisis management	**1999**	Start of Operation Neptune
	2001	Subsistence rights replaced with 'limited commercial' rights
	2003	Environmental Court established in Hermanus
		'Limited commercial' sector merged with commercial sector
		Long-term abalone commercial rights granted
		MARINES established by Overberg Municipality
		New *Abalone Policy* adopted
		Overberg Municipality takes over compliance responsibility from MCM
		Closure of recreational fishery
	2004	*Abalone Protection Plan* adopted
		Start of Operation Trident
		Table Mountain National Park proclaimed
	2005	Operation Neptune ends
		Operation Trident ends
	2006	Environmental Court closes
		MARINES disband
	2007	*H. midae* listed in CITES Appendix III
	2008	Commercial fishery closed in October; re-opened in November
	2010	*H. midae* withdrawn from CITES Appendix III

* ***Approximate dates***

Transformation of the abalone fishery began in 1998, when 236 traditional abalone fishers received subsistence quotas, representing 10% of the national TAC. This followed the formal recognition, for the first time, of the traditional rights of subsistence fishers by the new national Marine Living Resources Act. The high value of abalone made it an anomaly in the subsistence sector, however, which primarily consisted of low-value species. The inclusion of traditional abalone fishers into the quota system proved difficult to manage, and it was replaced by a system of limited commercial rights in 2001 (Raemaekers et al, 2011).

The new limited commercial regime was also plagued with challenges. Abalone poaching had already risen to crisis levels by the early 2000s, rapidly depleting stocks in the Overberg region and posing a serious threat to management efforts (see *Section 2*). An unusual ecological phenomenon exacerbated the problem. In response to changing oceanic circulation patterns, rock lobsters from the west coast had migrated southwards to the Betty's Bay area (commercial fishery Zones C and D) in large numbers during the previous decade, decimating local populations of sea urchins and removing vital refuge sites for juvenile abalone—which had formerly sheltered from predators between the urchins' spines—in the process (Hauck & Sweijd 1999). Coupled with increasingly unsustainable levels of illegal harvesting, the widespread recruitment failure that followed had dire implications for the abalone resource, forcing authorities to decrease the TAC substantially while simultaneously opening the fishery to new entrants.

The average size of a commercial abalone quota dropped from 120 tons to just 5.2 tons with the introduction of limited commercial rights in 2002 (Raemaekers *et al.* 2011). Shrinking quantities of abalone were being shared among increasing numbers of permit holders, adding pressure to an already fragile situation. Established rights holders, who were understandably dismayed, resisted further efforts to broaden access, causing tension between rights holders and eroding the relationship between rights holders and the State. Combating abalone poaching became a top priority for the Department of Environmental Affairs: Branch of Marine and Coastal Management. Despite this, however, the negative spiral continued.

By the early 2000s illegal harvesting comprised the bulk of South Africa's annual abalone catch, and was estimated at more than 2000 tons per year. To give this figure context, the total recorded legal catch in the 2003/2004 fishing season was less than 300 tonnes (Raemaekers *et al.* 2011).

By 2007 the size of an average quota allocation had dropped to less than 250 kg. The following year Marthinus van Schalkwyk, then Minister of Environmental Affairs and Tourism, controversially announced the total closure of the abalone fishery. The ensuing outcry—rights holders argued that they were being punished for the crimes of others—led to the ban being revoked the following season.

The commercial abalone fishery has remained open since with an annual TAC of 150 tons, a fraction of its former size. Harvesting is no longer permitted in Zones C and D, the former heart of the commercial abalone fishery.

The abalone market in Asia

Virtually all abalone harvested in South Africa—whether legally or illegally—is exported to East Asia, where abalone is considered a status symbol and a delicacy. Hong Kong is the epicentre of the international trade, importing shipments from South Africa, Australia, Indonesia, Japan and a handful of other countries to supply a booming local market, as well as secondary importers in markets like China, Taiwan and the United States (where presumably wealthy Asian expatriates constitute the bulk of the market).

Rapid economic growth in East Asia over the past two decades has led to increased demand for high-end products like abalone, which fetches street prices of up to USD 1000/kg. In Hong Kong, dried abalone can be purchased from food stores that also sell shark fin, sea horses and other speciality products (To *et al.* 2006). A wide variety of abalone "brands"—representing different species, sizes and treatment methods—are available; *Da wang bao*, the name given to South African abalone, is consistently among the most expensive.

The rise of the illegal abalone fishery

Key drivers

The long period of stability in the commercial abalone fishery came to an end in the early 1990s, when illegal harvesting began negatively impacting legal catches for the first time (Hauck & Sweijd 1999). Whilst abalone poaching was not a new phenomenon—it had been taking place, and at relatively low levels, since quotas were first put in place—the start of the decade witnessed its emergence on a far bigger scale than ever before. Following Steinberg's authoritative 2005 summary, this shift could be attributed to four main factors.

First, the South African rand (currency code: ZAR) depreciated in value, falling steadily from three units to the US dollar in 1992 to 13 units nine years later. This benefitted local abalone exporters—both legal and illegal—who were able to earn proportionally more for their product in ZAR terms. At the same time, rapid economic growth in East Asia boosted demand, causing prices for abalone and other high-end goods to rise. By the mid-1990s, abalone was reportedly fetching more than USD65/kg on the Hong Kong market, equivalent to approximately ZAR300/kg at the time. This made abalone an exceptionally valuable (as well as abundant and highly accessible) resource throughout its biogeographic range on the South African coast.

Secondly, a sophisticated network of ethnic Chinese criminal syndicates, with connections to mainland China, Hong Kong and Taiwan—collectively known as Triad gangs—had already been operating in South Africa for over a decade (Gastrow 2001). Engaging in a wide range of illicit activities, from drug smuggling to human trafficking, these groups played a key role in organizing the illegal trade when the value of abalone increased (Steinberg 2005). Links were forged with key actors in the Cape Town underworld, particularly the powerful Cape Flats gangs that controlled the recreational drug trade. In one important arrangement, Triads began bartering ingredients for the manufacture of Mandrax—an addictive barbiturate-like sedative more popular among poorer residents of the Western Cape than anywhere else in the world—in exchange for abalone, tightly entwining the booming illegal fishery with the broader criminal economy.

In later years this pattern would be repeated with the stimulant methamphetamine, known locally as '*tik*' and usage of which surged through the ghettos of Cape Town from the late 1990s onwards.

The third main factor driving the explosion of organized abalone poaching in South Africa was the lifting of economic sanctions after the end of the country's apartheid era. South Africa's re-insertion into the global economy, and the concomitant rise in legal cross-border trade, made it easier for transnational criminal groups to conduct their operations without being detected (Hübschle 2001). Slackened border controls also made it easier for poached abalone and other contraband to leave the country.

The final, crucial factor identified by Steinberg, building on existing work by fisheries social scientists and others, was the widespread frustration and disappointment at slow fisheries reform felt by residents of South African fishing communities. With the end of apartheid in 1994 came widespread optimism—encouraged by the new ruling party, the African National Congress, which took office spreading a message of social justice and societal change—that South African fisheries would reform for the benefit of the poor. But the transformation process that began shortly afterwards proved cumbersome, constrained by economic and environmental objectives and hamstrung by a lack of capacity in the national fisheries authority. As a consequence, the expectations of many formerly disadvantaged fishers were not met, leaving a void for criminal groups to exploit (Hauck 1997; Steinberg 2005).

The upshot of these developments was that by the end of the 1990s a landmark transition had taken place: abalone poaching had ceased to be an informal, opportunistic activity and had entered the realm of large-scale, highly organized transnational crime.

The response of the State

In hindsight, the early years of South Africa's illicit abalone trade industry must have been something of a honeymoon period for poachers and the syndicates they supplied. Stocks were still highly abundant—"abalone shells were packed together like the surface of a cobbled street," recalled a nostalgic former kingpin interviewed off-the-record in 2013—and co-ordinated anti-poaching strategies had not yet been put in place. Indeed, it took years for law enforcement officials to respond properly to the illegal harvesting that had started to flourish in the early 1990s, seriously setting back the State's attempts to curb the plunder. This section, adapted from de Greef (2013), will provide an overview of some key management interventions that followed, as well as evaluate their effectiveness (refer back to **Table 1** for a timeline).

In 1999 Marine and Coastal Management (MCM), the national fisheries authority at the time, established Operation Neptune, a joint venture with the South African Police Service (SAPS), on the Overberg coast. The main focus of Operation Neptune was preventing poachers from entering the water, with a secondary focus on arresting known offenders and bringing them to justice. Operation Neptune ran intermittently until 2005, when it was absorbed back into the institutional structures of MCM.

In 2003 the Overstrand Municipality took over responsibility for enforcing compliance in its waters—where abalone poaching was most serious—from MCM. Their first project was establishing a special task force called the MARINEs (Management Action for Resources of Inshore and Nearshore Environments) which among other activities conducted 24-hour patrols, monitored slipways, liaised with local schools and communities, and co-operated with other anti-poaching groups.

The recreational fishery

In parallel with the commercial abalone fishery, a recreational fishery began on an open-access basis with bag and size limits. From 1983 onwards, recreational fishers were required to purchase permits, with additional management measures gradually put in place as the status of the resource worsened. The recreational fishery was suspended in 2003 due to concerns in controlling the combined impact on abalone stocks from legal commercial and recreational fishing and it has not re-opened since.

The same year, a dedicated environmental court was set up in Hermanus to handle abalone poaching cases, which the mainstream justice system had struggled to deal with effectively. In its first 18 months of operation the court processed a long backlog of criminal cases resulting in a remarkable prosecution rate of 75%. By comparison, the prosecution rate in mainstream courts was estimated at 10%. Despite these successes the Department of Justice closed the environmental court in 2006, citing budgetary constraints.

A further attempt to strengthen law enforcement was the launch of Operation Trident in 2004, which formed part of a broader "Abalone Protection Plan" by MCM. Along with the MARINEs, Operation Trident was discontinued two years later.

A new policy

Besides policing the abalone resource, authorities also made efforts to address the root causes of poaching by drafting a new abalone policy, which they adopted in 2003 (DEAT 2003). This policy established parameters for allocating long-term fishing rights more equitably and proposed a fresh management plan for tackling illegal harvesting. One key intervention was

setting up co-management structures and establishing a so-called Territorial User Rights Fishery (TURF) system, which gave rights holders exclusive access to, and thus greater responsibility towards, abalone stocks in different demarcated harvesting areas. The recreational fishery was also suspended, in order to reserve abalone exclusively for the commercial sector.

Despite these progressive measures, the new policy proved difficult to implement. Problems included an ineffective TURF system, which allowed rights holders to fish in zones other than their own and thereby undermined their sense of resource custodianship; a flawed co-management process that only offered stakeholders limited opportunities to participate in decision making; and most notably the unilateral decision to close the commercial fishery in 2007, which completely alienated rights holders (Hauck 2009b).

The presence of legitimate abalone divers was also not a deterrent to armed poaching syndicates, who continued to act with impunity (Raemaekers *et al.* 2011). Individual quotas for rights holders remained unfeasibly small, prompting anger towards the government and a breakdown of trust. Finally, and perhaps most importantly, the underlying conditions of poverty and unemployment in coastal fishing communities had not been adequately addressed, and many traditional small-scale fishers had not yet been formally recognized, meaning strong economic incentives for poaching remained (Hauck & Sweijd 2006). What had been initially been lauded as a bold step towards tackling abalone poaching holistically thus resulted in little change, with little link-through between policy interventions at government level and compliance behaviour on the ground.

Abalone farming

With poaching heavily impacting commercial abalone harvests, and consumer demand remaining high, the aquaculture sector has become an increasingly important component of the legal abalone trade, currently producing some 1200 tons a year. Abalone is reared in land-based tanks on a mixture of synthetic feed and kelp. The sector, already the most valuable in the South African aquaculture industry, is expected to grow strongly in the next few years, though high capital outlay and a lack of expertise and technical capacity are still major obstacles to expansion.

Having met with little success in its war on abalone poaching, fisheries authorities made two final attempts to protect the resource. The first was establishing new Marine Protected Areas (MPAs) on the Cape Peninsula and on Bird Island in Port Elizabeth, where illegal harvesting was rampant. Dyer Island, a hotspot near Gansbaai, was also closed to commercial harvesting. Law enforcement in these areas remained poor, though, hampering the effectiveness of these measures (Raemaekers *et al.* 2011).

The second strategy was listing *H. midae* in Appendix III of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). This required all legal abalone exports leaving South Africa to be accompanied by a permit issued by the country's CITES Management Authority (Raemaekers *et al.* 2011). It was hoped that regulatory controls in importer countries, as well as in neighbouring southern African states through which abalone was known to be smuggled, would tighten as a result. This didn't happen, though: after encountering a series of logistical obstacles the CITES listing was withdrawn in May 2010 and never reinstated (Raemaekers *et al.* 2011).

Despite these discouraging events, however, there has been subsequent improvement in the management of South Africa's abalone poaching epidemic. The Department of Agriculture, Forestry & Fisheries (DAFF) has re-structured its Monitoring, Control and Surveillance (MCS)

wing, and as a result, co-operation with South African Police Services seems to have improved, with significant interdictions being made on a regular basis.

Socio-economic impacts

Abalone poaching has brought unprecedented wealth to impoverished fishing communities in the Western and Eastern Cape, though this has largely accrued in the hands of a small number of powerful kingpin figures. Nevertheless, abalone has had profound economic consequences throughout its biogeographic range, injecting large cash sums in places the formal economy has not yet been able to reach. While no systematic studies assessing the true magnitude of these impacts have been conducted, there is ample quantitative, qualitative and anecdotal evidence illustrating that they have been substantial. This section provides a brief summary.

Steinberg in 2005 (p. 6) wrote: "if one drives through Hawston, Kleinmond or Hermanus's coloured township today one sees garish double-storey face brick houses standing anomalously among the tiny matchbox houses of the coastal working class…Abalone money has quite literally changed the physical landscape." Visits to other coastal towns offer similarly glaring examples of the economic impacts of the abalone trade. In Hout Bay, on the Cape Peninsula, successful poachers cruise gleaming sports cars down the streets, passing decaying council flats and cramped backyard dwellings (de Greef 2013). In Buffeljagsbaai, a remote one-street fishing community on the south coast, one is confronted by the incongruous sight of rundown bungalows affixed with satellite dishes. These scenes are common wherever poverty and abalone overlap in South Africa.

The raw figures of the illicit abalone trade are astonishing, especially when considered against a backdrop of poverty. By 1995 divers in Hawston were earning USD50/kg for shucked abalone (the flesh that has been extracted from the shell), equating to USD2000 for a 40 kg bag. This quantity, which in good conditions could be harvested in less than two hours, represented more than four times the average monthly income in the community at the time, providing strong economic incentives to poach (Hauck 1997). Since then this price has fluctuated, with evidence supporting anecdotal reports of a long-term decline.

A wide range of accomplices and assistants draw an income from the illegal abalone fishery. From the money they earn supplying local buyers and middlemen, divers pay carriers and lookouts, as well as skippers and deck assistants in the case of boat-based poaching operations (Hauck 1997, de Greef 2013). Middlemen, in turn, employ drivers, packers and assorted other henchmen to process and transport their product to buyers further up the chain.

Surprising economic linkages have been discovered in poaching towns, revealing the depth to which the abalone black-market has become engrained: women refrigerating batches of contraband in their homes, for example, or gang members funding purchases of boats and equipment without taking part in any poaching operations themselves (de Greef 2013). The net effect is that many more people may be connected to poaching—and poaching money—than is immediately apparent.

Research in both Hawston (Hauck 1997) and Hout Bay (de Greef 2013) revealed that money from abalone poaching has contributed both to economic development and wasteful, extravagant expenditure.

"Some people were involved in poaching because it was a mechanism by which to feed their families and to survive a desperate situation," wrote Hauck & Sweijd of Hawston in 1999 (p. 1028), characterising a more general trend. "In addition, there was great consensus in the community that many people were involved in illegal exploitation because of the large amounts of money associated with poaching."

At the ground level, money from poaching is almost exclusively in cash form. Anecdotal reports by poachers indicate that it is fast and readily available, with high turnover rates: even assistants

can earn hundreds of USD from a single operation (de Greef 2013). On this basis, abalone poaching has attracted a wide cast of opportunists seeking easy money, and found partial expression in a culture of extravagant, material wealth.

Police and fisheries officials interviewed off-the-record in 2012 repeatedly spoke of the "party lifestyle" adopted by abalone poachers in Hout Bay, revolving mainly around drugs, alcohol, expensive clothes, jewellery, fast cars and women. Field observations confirmed that some poachers flaunted their wealth and that recreational drug use was common. At the same time, there were indications of less wasteful expenditure, including renovations, groceries, school fees, and Christmas presents (de Greef 2013).

Besides cash payments, another form of remuneration operates in the illegal abalone fishery, though its impacts have been less thoroughly investigated: drugs. Since the early 2000s it has been widely known that Asian criminal groups have bartered precursor ingredients for first mandrax and later methamphetamines for abalone, forging cash-free trade relationships with Cape gangs that control the local drug market (Steinberg 2005).

Similar exchanges reportedly take place at a community level, too, with buyers and middlemen paying divers and assistants in addictive substances—or, more commonly, fronting drugs to individuals and forcing them to work off the debt. The likely amplifying impacts of these transactions on abalone poaching has received little attention, although a bio-economic model of poaching effort developed by researchers at the University of Cape Town incorporated the inelastic nature of drug demand—addicts seldom adjust their consumption in response to changes in price—with troubling implications for abalone stocks (Brick *et al.* 2009).

Finally, middlemen in Hout Bay also allegedly secure labour through unsecured cash loans (de Greef 2013). The stark poverty in fishing communities throughout the country means that similar "loan shark" behaviour is likely elsewhere too.

Social impacts

Lucrative, unregulated and highly criminalized: South Africa's illegal abalone trade shares characteristics with the broader black-market, with similar threats to social cohesion and well-being. Shortly after syndicated abalone poaching took off in the mid-1990s, the gatekeepers of the Cape criminal economy moved in on the Overberg coast to claim their share of the booming trade. Steinberg, in *The Number*, his 2004 book on prison gangs, explains:

> "It was 1996. The Firm (a major Western Cape street gang) had just begun moving into the fishing villages east of False Bay. There was a thriving poaching industry along the abalone belt … it was too good an opportunity for The Firm to pass up. They built double-story face-bricks in the fishing villages' coloured townships, and sent dozens of soldiers (gang members), each armed to the teeth, to live in them. Their plan was to make the abalone belt their turf … by the late 1990s they were making a fortune."

This sudden infiltration of the criminal underworld had profound consequences for fishing communities, ranging from violent turf wars to sharp increases in gangsterism and drug abuse. In particular, the widespread uptake of methamphetamine, a highly addictive stimulant colloquially known as *tik*, has disrupted families and drawn growing numbers of youths into the poaching economy, which is now firmly entwined with the drug trade.

The illegal abalone fishery system

Illegal abalone divers and fishery

Profile

At the ground level, South Africa's abalone black-market is predominantly the domain of the unemployed and the working class. Poaching—loosely defined here as the physical act of

unauthorized removal of abalone from the seafloor and arranging for its onwards sale—has historically been most rampant in impoverished coloured fishing communities, although individuals from diverse other backgrounds have also joined the trade. A range of organized criminal groups operate higher up in the illicit abalone economy, forming a chain that ultimately links divers with consumers in East Asia, although identifying these groups and profiling their activities is more difficult, and will be dealt with later in this report. The following section briefly describes the main role players in South Africa's illegal abalone trade[3].

- **Traditional fishing communities**

Abalone poaching in the traditional fishing communities of the Western Cape—comprised almost exclusively of individuals of mixed race, classified "coloured" under apartheid, and a label that remains in wide use today—is largely a story of historical contingency. Denied rights to marine resources during apartheid, small-scale fishers awaited the onset of democracy in 1994 with high expectations, hoping for widespread access to the marine resources that underpinned their livelihoods. For a number of reasons, this did not quite happen (see *Section 2*). Angered by the State's inability to transform the fisheries sector, and under persistent strain from the inequality that still underpins South African society, a number of these fishers reacted quickly to the opportunity of supplying the abalone black-market in the early 1990s, which simultaneously offered lucrative sums of money for working at sea—which had never been possible before—and an opportunity to defy the government. Within a few years poaching groups had sprung up in fishing towns across the south coast abalone belt, boosting economic activity and dramatically redefining the terms of community life. Today, abalone poaching is still closely associated with small-scale fishing, and poaching groups continue to operate in fishing communities throughout the Western Cape. In some of these places, highly organized illegal fisheries have evolved, characterized by high-speed boats and large harvests; in others, poaching has remained ad-hoc and opportunistic.

- **White poachers in the Eastern Cape**

While abalone poaching has predominantly been associated with coloured fishermen, other groups have also joined the trade. In Port Elizabeth, for example, Raemaekers (2009) profiled the activities of working class white poachers, many of whom had formerly harvested abalone on a recreational basis. While these individuals had no links to the small-scale fishing sector, they shared with coloured poachers a deep mistrust of the South African government, and thus justified in transgressing its rules. Raemaekers identified two separate groups during his study: one comprising opportunistic and loosely organized individuals who harvested for quick money, often to support recreational drug habits, and one operating on a much grander scale, employing high-speed boats and sophisticated equipment to conduct exceedingly well-planned operations. Elsewhere, there is anecdotal evidence of white individuals collaborating with coloured poaching groups: in Hout Bay, de Greef (2013) found that white divers were regarded to be more highly skilled than local poachers. Preliminary, unpublished research among older poachers has also indicated that the first organized poaching groups in the Western Cape comprised predominantly of white divers.

[3] The use of race-based categories here is not done un-reflexively, but out of necessity: South Africa remains largely divided along racial lines, with strong links between race, class and cultural identity, two decades after the end of apartheid.

- **New black African entrants to the illegal abalone fishery**

Although little has been published on the topic, a great deal of anecdotal evidence indicates that black African individuals have started operating in South Africa's illegal abalone fishery, dramatically widening the pool of potential poachers in both the Western and Eastern Cape. Off-the-record interviews with law enforcement officials have revealed that well-organized groups, allegedly with military training, have evolved in the past decade, both collaborating with and working separately to established participants. On the Overberg coast, where syndicated poaching has declined due to resource depletion and tighter control, poachers have revealed that loosely organized black African individuals have filled the gap left by the retreating abalone fishery, harvesting from shore using cheap gear. In the Eastern Cape, meanwhile, Raemaekers (2009) reported that residents of Hamburg had joined the region's abalone gold rush of the late 1990s. An important distinction must be made between new entrants with no history of fishing entering the Western Cape illegal fishery, and black Africans from traditional fishing communities in the Eastern Cape linking up with abalone buyers in the early 2000s.

Table 2 Comparing key features of opportunistic, poorly organized abalone poaching activities with those conducted by organized groups. Note that individuals may operate in both categories simultaneously, for example diving on a part-time basis and working as an assistant for a larger group.

Opportunistic		**Highly organized**
Shore-based		Shore and boat-based
Small geographic range		Wide geographic range
Low capital investment	⟷	High capital investment
Low yield		High yield
Inexpensive gear (e.g. snorkels)		Expensive gear (e.g. SCUBA, GPS) and high-powered vessels
Minimal counter-intelligence		Sophisticated counter-intelligence (incl. corrupt relationships with law enforcement officials)

Modus operandi

To date, three separate studies have investigated the operations of poaching groups in detail, reporting on broadly similar procedures: Hauck (1997) in Hawston, Raemaekers (2009) in the Eastern Cape, and de Greef (2013) in Hout Bay. This section summarizes their key findings.

- **Organization and structure**

  Throughout the Western and Eastern Cape, abalone poaching appears to be structured according to the same basic format: buyers and middlemen pay divers, and divers pay their own assistants and service providers. These include carriers and spotters, and, in the case of boat-based operations, skippers, deck assistants, and boat owners (**Figure 3**). What happens higher up the value chain—beyond middlemen, in the realm of larger buyers, processors and exporters—is less clear, although anecdotal reports have shone light on certain aspects of these operations, which will be discussed in a later section.

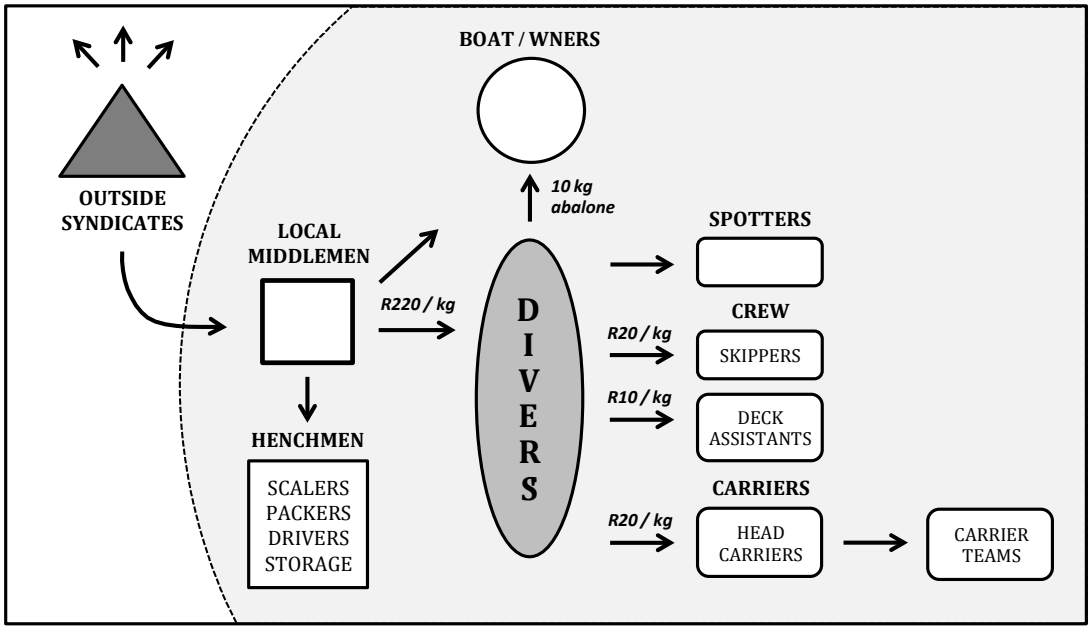

Figure 3 Example structure of an illegal abalone fishery (Hout Bay on the Cape Peninsula) with arrows indicating the flow of payments through the system. Approximate fees and prices have been included where known. The price of USD22/kg paid by middlemen to divers represents an average price for a mixed harvest comprising both medium (USD25/kg) and large-sized (USD20/kg) abalone (2012 prices). Adapted from de Greef (2013).

- **Poaching operations**

Abalone poaching can be split into two broad categories: shore-based and boat-based. Initially, most diving took place from shore, using either SCUBA or snorkel gear (Hauck 1997). While this has continued, it has been superseded in many places by boat-based operations that allow divers to access distant reefs, harvest larger quantities and escape patrols more easily. Poachers prefer semi-rigid inflatable vessels for their speed and manoeuvrability, their suitability for navigating shallow water, and their safety. These boats, which range from small vessels to purpose-built "superducks" measuring 14 metres, are fitted with high-powered outboard motors, often in pairs and rated up to 250 HP each (**Figure** 4; Raemaekers & Britz 2009). They are purchased new or second-hand, and in some cases allegedly acquired on the cheap from corrupt officials in charge of confiscated vessels (de Greef 2013).

Figure 4 An unmarked poaching vessel with twin 150 HP motors parked at an undisclosed location in the Western Cape (photograph by Kimon de Greef).

A typical poaching operation proceeds as follows. Using a system of paid informants (including corrupt officials) poachers monitor law enforcement activity and patrols, and then select a target dive location. Boats and dive cylinders are prepared, trailers hitched to towing vehicles, and lookouts positioned at strategic locations. In some cases, decoy launches are conducted to distract law enforcement officials. In Hout Bay, vessels depart from the harbour without divers or equipment on board, stopping to collect these at a secondary launch site some distance away.

Many operations take place at night. Upon reaching their destination, divers enter the sea and the skipper often retreats to deeper water for safety. Using powerful torches strapped to the sides of their dive masks or to their forearms, divers prise abalone from the rocks, collecting them in large waist bags. They inform the skipper when they are surfacing using cellphones double-wrapped in condoms for waterproofing, and deliver their harvest to the surface using buoyancy control (BC) devices. Some divers shuck their abalone underwater to reduce the weight; others leave the flesh in the shell as it allows them to work quicker.

On board, an assistant helps lift the bags from the water while the skipper controls the vessel. Larger boats, which carry more divers, usually have two assistants on deck. When the

boat is full, or at the first sign of danger, the skipper returns to shore. Occasionally divers are abandoned in the water and must wait for the skipper to return or a backup rescue vessel to arrive.

Shore-based operations take place slightly differently. Some involve careful planning, co-ordinated motor vehicle drop-offs and night-time pickups; others are more haphazard and simply entail, according to one interviewee in Cape Town, "groups of men walking amidst the rocks at low tide, scratching in shallow water for abalone". In the rural areas of the Eastern Cape, intertidal waders have been reported to use ropes attached to their waist, and connected to individuals on the shore (Raemaekers 2009).

- **Illegal fishing effort**

The clandestine nature of the illicit abalone trade makes it difficult to gauge poaching effort accurately or the true scale of poaching operations. Three main approaches have been used to date: analysing trade data from Hong Kong, modelling poaching effort as a function of abalone confiscations in the Western Cape, and using various proxies to estimate effort at ground level.

A recent synthesis by Raemaekers *et al.* (2011)—which combined harvesting effort estimates for the Western Cape and Eastern Cape provinces, and compared these with available abalone import data from Hong Kong—reveals that harvesting increased dramatically throughout the 1990s and 2000s, with the estimated illegal catch peaking at more than 3000 tons of abalone a year before decreasing slightly in 2007, when the period of analysis ended. Over the same period, as already discussed in Section 2, the commercial abalone fishery effectively collapsed, with legal harvests plummeting to less than 100 tons a year (**Figure 5**).

More recent trends suggest that poaching has remained high, with Customs data from Hong Kong alone—the main importing market—indicating that more than 2450 tons of abalone was imported in dried form from Southern and Eastern Africa between October 2012 and October 2013. With legal producers still favouring fresh, canned and frozen products, it is safe to assume that this figure mostly represents poached abalone (**Table 3**).

Table 3 Total abalone imports to Hong Kong from southern and eastern African countries between October 2012 and October 2013. All figures have been converted to whole mass (unshucked). Source: Hong Kong Customs and Statistics Bureau. Adapted from M. Burgener, TRAFFIC (unpublished).

Abalone product	Total imports (kg whole mass)
Live / fresh / chilled	488 343
Canned	784 664
Frozen	54 273
Dried	2 463 330
Total	**3 790 610**

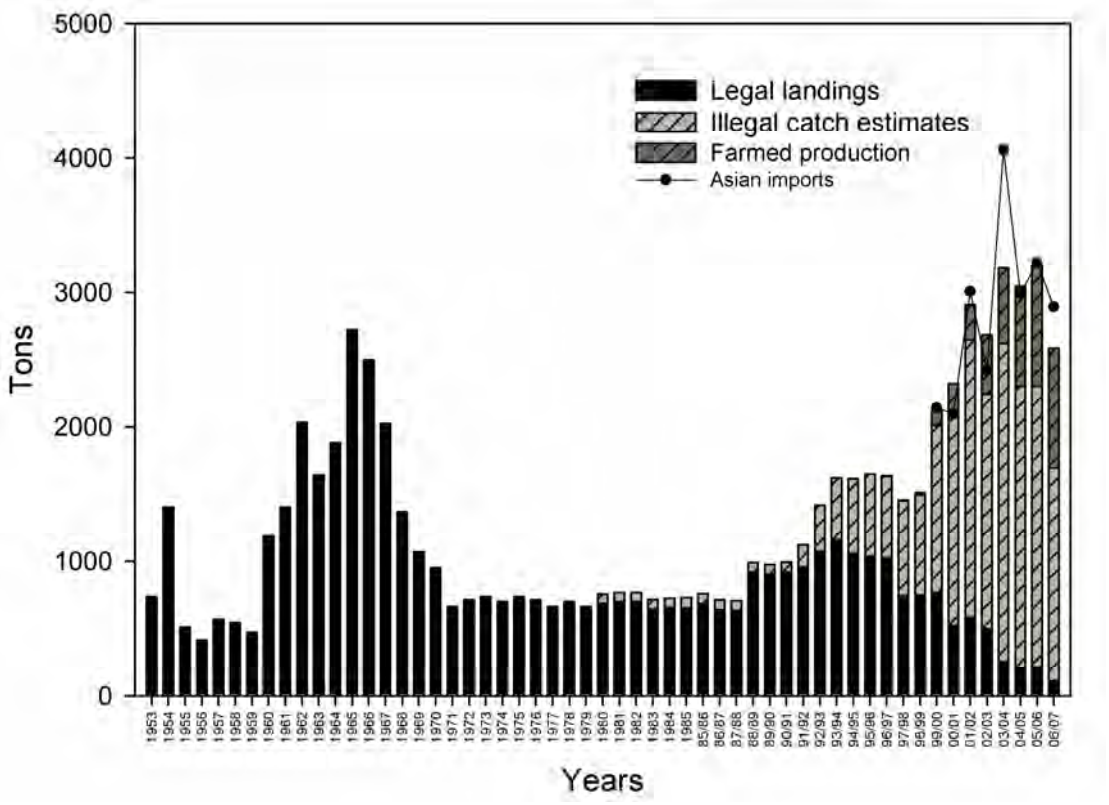

Figure 5 Legal and illegal abalone catches between 1953 and 2007, and farmed abalone production. Figures represent abalone whole mass. Adapted from Raemaekers *et al.* (2011).

- **Price structure**

There is evidence to suggest that the street price for abalone—i.e. what divers receive for their catch—has decreased over the past decade. In the mid-1990s divers in Hawston reported earning USD50/kg (Hauck 1997), in 2009 divers in Port Elizabeth earned USD40/kg (Raemaekers 2009), and in 2012 divers in Hout Bay earned approximately USD30/kg (de Greef 2013). Anecdotal reports support these observations, with poachers in Hout Bay and elsewhere complaining that the abalone market is no longer as lucrative as it once was.

Two sets of factors are known to influence the abalone price, although little dedicated research has been conducted on the topic. The first involves demand for abalone in the markets of East Asia, which rose sharply in tandem with economic growth through the 1990s and has remained insatiably high since. Two recent interventions may have moderated this demand somewhat: anti-corruption and austerity measures by the central Chinese government in 2013, whose official parties and functions were once reportedly a major destination for abalone products, and a new commitment by Chinese Customs officials to charge import duties on abalone entering the mainland from Hong Kong, a tax requirement that is alleged to have been waived in the past (Markus Burgener, TRAFFIC, *pers. com.*). Nevertheless, with average incomes still rising in China and elsewhere in the region, unyielding demand for abalone and other high-end products is likely to remain.

The second set of factors relates to the unreliability of the black-market. If a major illegal abalone exporter gets caught or an important trade route shuts down then downstream local supply chains grind to a halt. Equally, if a new player sets up shop or a new export strategy is developed then demand may quickly rise again. Poachers interviewed in Hout Bay in 2012, for example, claimed that a major syndicate bust had negatively impacted the market,

resulting in fewer buyers looking for product, and consequently a marked drop in price (de Greef 2013).

Similar dynamics occur lower down the supply chain too. Middlemen in Hout Bay have finite storage capacity and reportedly pay lower prices whenever this limit is approached. A range of obstacles—increased periods of police scrutiny, mistrust of assistants, sullied working relationships with bigger buyers—can delay these individuals from sending abalone out of Hout Bay, occasionally leading to periods of decreased poaching activity in the community (de Greef 2013).

Higher up the supply chain the value of poached abalone increases, with successive buyers and intermediaries each adding their own cut. It is possible that this has impacted the street price, as in the past divers sold directly to buyers from larger syndicates.

> "Poachers claim that buyers used to drive to Hout Bay and purchase abalone directly. The increased risk of being caught in transit, however, has begun to deter this 'travelling merchant' activity, and it is said that most buyers will now only pay upon having abalone delivered to their premises. Poachers interviewed in Hawston repeated a similar story, suggesting that this shift has taken place elsewhere in the Western Cape. This appears to have consolidated the position of local middlemen, who have become an indispensable link between divers and the larger syndicates…" (de Greef 2013).

Interviews in Hout Bay, Kleinmond and elsewhere have indicated that poachers, confronted with this elongated value chain, effectively face a choice: accept the increased risk of transporting abalone to distant buyers for extra money, or sell to local middlemen—who then take on the risk themselves—and settle for less.

Reports suggest that a large number of role players operate in the illicit abalone trade now, and that the supply chain consequently consists of myriad, branching channels, but to date almost no work has been published on the topic.

Medium versus large

An interesting recent finding is that abalone is priced according to size brackets, which was not the case in the past. In Hout Bay in 2012 divers reported earning USD5/kg extra for medium-sized abalone—weighing less than 115 g out the shell—than larger specimens, suggesting a consumer preference for smaller products in East Asian markets. Poachers in Hawston have also reported earning more for "mediums" (de Greef 2013).

- **New hotspots and the mobile poaching fleet**

Having evolved on the Overberg coast—the former heart of the commercial abalone fishery, where resources were most abundant—there is ample evidence that syndicated poaching activity has shifted away from the abalone belt in response to stock collapse and improved policing. One prominent example has been the emergence of Hangberg, a traditional fishing community in Hout Bay with no history of commercial abalone harvesting, as a major poaching hotspot since the early 2000s (de Greef 2013). Organized poaching groups evolved in the Eastern Cape at a similar time and quickly expanded their operations outwards from Port Elizabeth (Raemaekers 2009). Today, poaching groups are known to operate throughout the bio-geographic range of the abalone resource, although little is known about their activities in many places. There is also evidence that groups move between different poaching hotspots, in some cases collaborating with local poaching networks (de Greef 2013).

Players and pathways: Trade networks and routes in South Africa

Organized crime syndicates

Although it is widely known that international criminal groups, in particular so-called Triad gangs from East Asia, are heavily involved in the illicit South African abalone trade, relatively little has been written about their activities. Since Steinberg's 2005 review, which broadly outlined the links between these syndicates and local gangs, as well as the general drugs-for-abalone barter scheme that is still thought to underpin the abalone black-market, there have been no published updates, meaning that knowledge of the powerful syndicates that control abalone poaching in this country is nearly 10 years out of date.

According to Gastrow (2001), Triad groups from China and Taiwan have been operating in South Africa since at least the mid-1980s, dealing in a range of illicit activities including "fraud, drug trafficking, firearm smuggling, extortion, money laundering, prostitution, illegal gambling, the smuggling of illegal immigrants, tax evasion, and the large-scale importing of counterfeit goods" (p. 3). These criminal organizations trace their roots to 17th Century China and operate on a global scale today, although their structure and methods of operation have been disputed.

In the past, criminal researchers in South Africa have cast Triads in an almost reverential light, writing of their "secret forms of identification and communication", "obsessive" secrecy, and "highly ritualised initiation ceremonies" (Gastrow 2001, p. 3). Steinberg, however, dismisses this view as "almost entirely mythical", quoting international police experts and former gang members who describe modern Triads as criminal "fraternities", with limited top-down control or hierarchical structure. On this first point Gastrow agrees—"Triads tend not to be strictly controlled from the top … members frequently branch out into their own criminal enterprises" (p. 3)—highlighting instead the networking opportunities they offer criminals:

> "Triad membership is a valuable asset to the new international criminal. It facilitates criminal activities in a manner similar to the way membership in business associations facilitates the activities of a legitimate businessperson." (p. 3)

This has important implications for abalone poaching in South Africa. If Triad organizations lack clear vertical structure then removing their influence will be more difficult: as Steinberg (2005) has argued, it will take more than locating and shutting down a handful of "Mr Big" figures:

> "A successful investigation could close down the business of a Mr Big, draining it of its primary source of capital. But the networks, contacts and expertise Mr Big deploys would not collapse with him … while organised crime investigations could certainly destroy the businesses of individual abalone smugglers, it is unlikely that they could seriously impair the abalone smuggling market as a whole." (p. 10)

Moreover, according to Steinberg, "poaching, drying, transporting and shipping abalone is not a particularly capital intensive business," theoretically enabling many different players to operate syndicates at the same time, and making it more difficult to shut down the trade (2001; p. 10).

Besides Triads, other criminal groups are known to be involved in the illicit abalone economy. The role of Cape street gangs, who control large section of the drug trade in the Western Cape, has been discussed already. Unconfirmed reports by poachers in Hout Bay indicate that Pakistani nationals have started playing an important role in the trade, too.

Processing and export

Historically, South Africa's commercial abalone fishery has produced a range of different abalone products for export: canned, frozen, fresh/live, and dried. The illegal trade, by contrast and out of necessity, consists predominantly of dried abalone, which consumers rehydrate before cooking, much like dried mushrooms. Dried abalone can be stored for long periods without refrigeration, making it easier for syndicates to collect and export large batches at a time. It smells less pungent than fresh or frozen abalone and is thus more difficult to detect. It can be readily disguised as other products, for example dried fruit, to confuse law enforcement officials. Finally, dried abalone shrinks to a tenth of its original mass, making it possible to pack and transport large volumes efficiently and discretely (Steinberg 2005).

The drying process requires skill and expertise, and significantly influences the value of the final product: poorly treated abalone may fetch as little as a quarter of the price of sun-dried abalone, the traditional method in China (Steinberg 2005). In South Africa, illegally harvested abalone is treated with chemical preservatives and dried in low-temperature ovens. Covert treatment facilities have been discovered across the country, as well as in neighbouring States like Namibia and Swaziland, over the past two decades, stocked with an impressive array of vats, drying racks and packaging materials. Usually, East Asian nationals—drying specialists, presumably—are arrested on site, and large quantities of abalone confiscated.

Each year Customs data from Hong Kong, the tax-free epicentre of the global abalone market, reveal a strange quirk: large quantities of dried abalone imported from Mozambique, Lesotho, Swaziland and a host of other southern African countries that are either landlocked or confirmed as having no abalone stocks whatsoever. The only reasonable explanation is that poached abalone is surreptitiously transported to neighbouring countries with lax border controls, and then exported. Upon arrival in Hong Kong the importer dutifully declares the contents of the shipment, Customs officials dutifully record its origin and volume, and the poached abalone enters the general market stream, in which it instantly becomes indistinguishable from its legal equivalent.

In other words, by the time poached abalone lands in Hong Kong—as well as other import markets like Japan and Taiwan—it has been cleansed of its black-market shadow, emerging from the Customs process a legitimate product, available over-the-counter like any other legally traded product (**Figure 6**).

Figure 6 Dried abalone for sale in Hong Kong (Credit: Markus Burgener/TRAFFIC).

Seeking to secure the assistance of market and in-transit States, South Africa's Department of Environmental Affairs and Tourism listed *H. midae* in Appendix III of CITES in 2007. CITES, an international agreement between governments aimed at regulating the international wildlife trade, lists endangered species in one of three Appendices, depending on the level of protection required. Appendix III, to which *H. midae* was added, is the least stringent of these lists, requiring all exports to be accompanied by a CITES permit. Appendix III comprises species that a CITES Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation and as needing the co-operation of other Parties in the control of trade. Imports require a certificate of origin and, if the importation is from the State that has included the species in Appendix III, an export permit is required. This measure was taken by South Africa both in order to enlist the assistance of other countries in tracking South African abalone in international trade and also to strengthen regulatory controls in key importing markets such as Hong Kong, China, Taiwan and Japan.

The CITES listing also allowed neighbouring southern African States such as Mozambique, Zimbabwe and Swaziland—countries through which abalone is smuggled—to assist in regulating the international trade (Burgener, 2008). In theory, this should have closed the loop between abalone exporter and importer, preventing poached shipments from being cleared in Hong Kong. Unfortunately, the CITES listing did not have the desired impact with feedback from government and industry stakeholders indicating that it only restricted abalone poaching and related trade for a period of between two and four months. This was largely attributed to inadequate implementation of the listing in South Africa with the major shortcoming being the failure by South African officials to endorse CITES abalone export permits at ports of exit. This was primarily due to the challenges posed by the trade in live abalone which requires consignments to meet very tight flight deadlines to ensure the survival of the animals. The South African Customs agency and DAFF lacked the resources to ensure that all live abalone consignments could be checked and CITES permits endorsed within the tight window periods available (Burgener, 2010). It was not possible to exclude live abalone from CITES trade requirements as Appendix III does not allow for a listing to be annotated to only require specimens of the species in certain traded forms (e.g. dried and frozen) to be subject to CITES controls. This is possible, however, under CITES Appendix II.

Although the CITES Appendix III listing did not have the desired effect, the lack of a trade regulatory system such as CITES means that in-transit countries and Asian market States are severely limited in their ability to regulate the trade in poached abalone. The Hong Kong Department of Agriculture, Fisheries and Conservation Department (AFCD) has stated that following the removal of *H. midae* from CITES Appendix III, in the case where a consignment is openly declared as abalone by an importer, there is currently no legal basis on which to prevent the import, even though AFCD may be provided with comprehensive information from South African authorities that the abalone was illegally harvested (A. Wong, AFCD, pers. comm. to M. Burgener, 4 September 2012).

Notwithstanding the discouraging picture presented by Hong Kong's trade statistics, they offer valuable insight into the clandestine activities of South Africa's abalone syndicates, about which little has been published. Steinberg, the only author to have explored the topic fully, wrote in 2005 that "the majority of (poached abalone) is smuggled across land borders or on light aircraft," before being re-exported to Hong Kong. Import data analyses prepared by TRAFFIC suggest that this is still the case.

TRAFFIC's research shows that more than 181.5 tons of dried abalone—representing some 1 810 tons wet mass, more than 10 times the entire Total Allowable Catch for the 2012/2013 season—was imported to Hong Kong from Zimbabwe, Mozambique, Zambia, Namibia and Kenya between January 2012 and June 2013 (M. Burgener, unpublished data). By comparison, approximately 117.5 tons of dried abalone was imported from South Africa during the same period, a figure that includes legal exports. However, towards the end of this analysis, a new pattern emerges, with most imports being recorded as being from South Africa (**Figure 7**).

A monthly breakdown of these figures reveals an interesting pattern, with sharp spikes in imports from different southern African countries over short time periods. For example, recorded dried abalone imports from Zambia rose from nearly 1.3 tons in February 2013 to more than 17 tons two months later, before quickly plummeting again. Similar surges appear in import data from Zimbabwe and Mozambique, hinting at a possible underlying dynamic in South Africa's illicit abalone trade today.

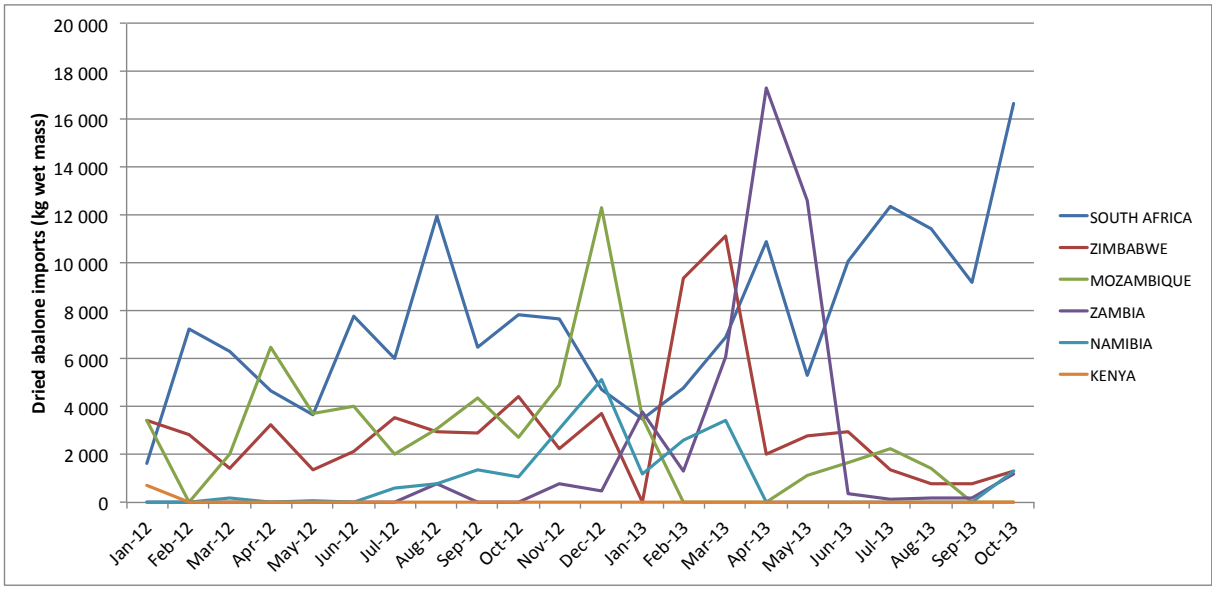

Figure 7 Recorded imports of dried abalone to Hong Kong from southern and eastern African countries between January 2012 and October 2013. Figures have been converted to whole mass. Source: Hong Kong Customs and Statistics Bureau. Adapted from M. Burgener (unpublished data).

Abalone syndicates, it is important to remember, move very large volumes of contraband out of South Africa each year: an estimated 1567 tons in 2012, for example, after a high of more than 3200 tons in 2004. A syndicate operating an illegal abalone trade route must thus find ways to transport large shipments out of South Africa safely and without detection. Over time it makes sense to employ flexible routes and tactics; perhaps this is the reason for erratic spikes in export activity from Zambia, Zimbabwe and the like. More research is needed to fully disaggregate these complex operational procedures.

Linkages with other wildlife trade

> "Contraband traders specialise in trade routes rather than commodities. A single trade route can host an infinite array of commodities over time, and several commodities at the same time." (Steinberg 2005; p. 4)

While the links between abalone poaching and other facets of South Africa's illegal wildlife trade have not been explored in detail, it is almost certain that they exist. Rhino and elephant poaching have received extensive coverage in recent years, catapulted to the front of the public conservation agenda by prominent press coverage and emotive campaigning by environmental groups, but a much wider range of local wildlife products—including cycads and rare succulents, lion bones, animal hides, live game, shark fins and sea cucumbers—is traded on the black-market (Hübschle 2011). The illicit nature of these products means it is likely that there is at least some overlap between the clandestine groups that deal in them.

According to one comprehensive report on the illegal rhino horn trade, there is "evidence to suggest that (rhino) trading networks have links with other highly lucrative natural resource product trades," including abalone (TRAFFIC 2012, p. 76). Details, however, are thin. Trans-national "Asian-run syndicates" reportedly control the trade, which operates predominantly out of Viet Nam. These syndicates are also "known to be involved in other high-risk criminal activities such as drug and diamond smuggling, vehicle theft, armed robberies and ATM bombings," the report claims, citing criminological research by Hübschle and others. Whether abalone syndicates are similarly prolific with their criminal activity is not known; against this backdrop, however, it seems likely.

Anecdotal reports from the Eastern Cape suggest a degree of overlap between abalone poaching and other wildlife crime, with known abalone syndicates reportedly involved in the illegal rhino, cycad and parrot trades as well (R. Fox *pers. com.*). In the Western Cape, meanwhile, stakeholders in the West Coast Rock Lobster industry have claimed that a Chinese national, whose name has been purposefully excluded from this report, is accused of running a major abalone syndicate, formerly operated a suspected illegal lobster export business, suggesting possible linkages between the illicit trade of these two species as well (C. Wentink, *pers. com.*).

Conclusions: Actions necessary to address the trade more effectively

This document has aimed to provide a comprehensive and updated overview of the illicit abalone trade in South Africa, in order to stimulate discussion and collaboration between stakeholders; as such it must be regarded as a working document. More than two decades of unrelenting illegal harvesting, in spite of dedicated anti-poaching efforts by various State agencies, point to the immense difficulty of curbing the trade. Nevertheless, a number of key interventions have been proposed over the years and are summarised below. Because the abalone resource is in such a poor state, with little realistic possibility of recovery in the short term, the proposed actions below focus on those that may be applicable to the broader illicit wildlife trade, using abalone as a case study to inform the development of more integrated anti-trafficking and market regulation strategies in the future.

It must be noted that the causes of the abalone fishery problem are now fairly well understood, and opportunities exist to reconfigure the governance and management arrangements within the fishery. While political will appears to exist to rebuild the abalone fishery for the benefit of coastal communities, the major challenge will be the creation of the required public sector developmental capacity to support the various implementation processes.

Integrated fisheries reform and local economic development

Abalone poaching is symptomatic of lasting inequalities in South African society. It cannot be understood or tackled in isolation from this broader context. The social and economic void left behind by apartheid, and the subsequent failure of fisheries transformation efforts and other official schemes to address it, has allowed the illicit trade to flourish in coastal settlements across the country, effectively offering small-scale fishers a functional alternative to the formal State fishery system. Addressing these root causes with integrated local economic development schemes will be essential for tackling illegal harvesting in the future.

One promising area of current fisheries policy development is the recent promulgation of the small-scale fisheries policy in June 2012. This policy aims to recognize traditional small-scale fishers along the South Africa coast, by allocating collective use rights to identified communities, and delineating specific areas for their preferential or exclusive use. The policy is centred on the need to establish co-management committees, whereby DAFF and fishers jointly make management decisions regarding harvesting levels, law enforcement and sanctions, and participatory research. While implementation will require improved capacity at both DAFF and local level, it is believed that devolved decision-making power will instil a greater sense of legitimacy for the fisheries governance framework, and with this an increased ownership of local marine resources. The abalone resource will most likely be aggregated with other identified resources available to relevant local communities. Assistance will nevertheless be required to develop local co-management plans with DAFF and the fisher entities holding ownership rights.

Another interesting development is the option for abalone stock enhancement and reseeding. Abalone farming technology has opened the possibility of rehabilitating overfished abalone stocks with hatchery-reared seed. This may be particularly important in the worst affected areas, where natural recruitment has been severely compromised.

Addressing knowledge gaps

It is clear from this document that numerous knowledge gaps still remain. For example, it is still unknown how large the illegal sector has become, what size the current poaching fleet is, and how the trade is linked to organized criminal groups who export abalone and other illegal products, and import products such as drugs. **Table 4** below presents the most glaring knowledge gaps and proposes methods to address them.

Table 4 Current knowledge gaps in South Africa's illicit abalone trade, and proposed methods to address them

Aspect of trade	Description	Proposed methods
Derive more accurate estimates of current poaching levels (in terms of *volume*: both mass and numbers).	*At present estimates of the volume of poached abalone are strongly dependent on thorough trade data analysis. This allows for a conservative estimate of poaching volume but has not been validated with proxies and indicators on the ground.*	• Obtain updated poaching effort estimates from Western Cape abalone fishery models • Obtain latest confiscation data, aquaculture production and legal fishery catch data from DAFF • *Activity A*: Interview key informants to build a credible estimate of current poaching trends • Validate the above data with trade statistics (e.g. such as analyses done by TRAFFIC)
Assess the size of the current illegal fishing fleet, and the spatial extent of the illegal fishery	*Due to unsustainable fishing pressure in previously well-known abalone hotspots, current effort has changed. In addition, continuous upgrading of equipment takes place, especially with regards to vessels.*	• Undertake coastal snapshot survey (linked to the above Activity A) • Interview key law enforcement officials
Detailed overview of historical origins of illegal abalone trade	*Little is known on who initiated and how the first trade routes and business transactions were established.*	• *Activity B*: Oral history research project with key informants

Aspect of trade	Description	Proposed methods
Understand and map out trade dynamics (incl. price structure and determination) and routes, especially the upper value chain	*Little is known about trade routes in South Africa, southern Africa and East Asia, including links with legal harvesting and exports.*	• *Activity C:* Conduct structured interviews with key informants involved in the illicit abalone trade, as well as law enforcement officials from the following institutions: SARS – Customs WCO- Regional Intelligence Liaison Offices (RILOs) INTERPOL- National Central Bureaus (NCBs) DAFF – Special Investigations Unit, Land-based Compliance Unit &

		Fishery Patrol Vessels NPA – National Ports Authority SAPS – Organised Crime Unit, Endangered Species Unit, Water Wing SANParks Municipal nature conservation / environmental patrol officers
Profile and updated list of all governmental stakeholders combatting the illegal abalone fishery	*Fragmentation and lack of intergovernmental collaboration is a major stumbling block in combating the illegal fishery. In addition, the enforcement capacity of these institutions is not well known.*	• Linked to Activity C, obtain an updated contact list for use towards promoting collaboration, knowledge exchange and joint strategy building programmes
Assess organized crime links as well as links with other illegal wildlife trade	*The last credible research on this topic dates from 2005 (Steinberg) and is in need of an update.*	• Linked to Activity C
Document institutional and policy gaps and provide a comprehensive review for discussion with mandated stakeholders and agencies	*Several policy gaps are known from a fishery perspective, yet a comprehensive review linked to trade and export has never been undertaken.*	• Appoint legal and fishery expert consultant to undertake this study and discuss findings with a broad range of stakeholders • Use relevant info from Activity C
Better understand consumer dynamics and awareness levels regarding illegal trade in the East Asia	*No published research exists on this topic. Information on consumer behaviour would be beneficial for developing consumer awareness materials and for training customs officials.*	• A study of this nature could be undertaken by a market research programme (e.g. in collaboration with Hong Kong University)

Increased collaboration

Collaborative programmes have taken place over the years, and various institutions such as DAFF and SAPS currently have joint operations in place in South Africa; however these special operations often cease after several months as funds dry out, or morale runs low. In many cases, for example, offenders only incur small fines as courts are under-capacitated to deal with environmental crimes. Addressing the knowledge gaps mentioned above could contribute to the development of more integrated and refined Monitoring, Control and Surveillance Programmes within and across different institutions, both within South Africa and internationally. Combating

the organized criminal elements driving the illicit trade, in particular, will require new forms of co-operation with international law enforcement and intelligence agencies.

TRAFFIC has worked with INTERPOL Project Scale staff during the course of 2013—providing updated analyses of trade data and providing information and training sessions on trade data analysis. This has spurred INTERPOL to initiate a global analysis of abalone trade data. Further collaboration between INTERPOL and TRAFFIC on trade data analysis is encouraged.

Information obtained through the abalone trade data analysis should be shared with national Customs agencies, INTERPOL and the World Customs Organization (including through WCO's Regional Intelligence Liaison Offices). The results of the analysis allow Customs and other enforcement officials in transit and market States to conduct focused investigations that could provide information on ports and airports through which illegal abalone is traded, specific container numbers, freight carriers, freight agents, companies and individuals that could greatly assist targeted law enforcement activities. Monthly trade updates by the Hong Kong Customs and Statistics Bureau allow for trade tracking with a time lag of less than two months.

Trade controls

While poached abalone is known to be transported through many African countries and imported and sold in a number of Asian markets, law enforcement efforts are currently restricted to South Africa. Apart from the development of national regulations in countries other than South Africa regarding *H. midae* trade and sale, which would be very challenging to achieve, the only available regulatory tools available are international trade controls. South Africa should accordingly be encouraged and supported in putting forward a CITES Appendix II listing proposal for *H. midae*.

A listing, if successful, would at the earliest only come into effect in 2016. Alternative regional policy options should therefore be simultaneously explored, for example those available though commitments contained in Southern African Development Community Agreements on fisheries and wildlife. It should also be determined whether bi-lateral agreements between South Africa and key market destinations on illegal abalone trade could be negotiated, and whether they would be of assistance.

Key references

Brick K, Muchapondwa E, Visser M (2009) *Abalone poaching, methamphetamine use, criminal activity in South Africa and the associated implications for resource management.* Draft paper, Environmental Economics Policy Research Unit, University of Cape Town.

Burgener, M. (2008). The illegal trade in South African abalone (Haliotis midae). In: *Stop Illegal Fishing in Southern Africa*. Stop Illegal Fishing, Gabarone, Botswana. 85 pp.

Burgener, M (2010) *Evaluation of the CITES Appendix III listing and delisting of South African abalone* Haliotis midae. TRAFFIC Bulletin 23: 42–49.

Burgener, M. (2013). An estimation of the international trade in illegally harvested *Haliotis midae*, 2000-2012. Unpublished report, prepared for South African Abalone Scientific Working Group of the Department of Agriculture, Forestry and Fisheries

Gastrow P (2001) *Triad societies and Chinese organised crime in South Africa.* Occasional Paper No. 48. Institute for Security Studies, South Africa.

Hauck M (1997) *Crime, conservation and community development: ecological criminology and the case study of abalone poaching.* Masters thesis, University of Cape Town, South Africa.

Hauck M, Sweijd NA (1999) *A case study of abalone poaching in South Africa and its impact on fisheries management.* ICES Journal of Marine Science 56: 1024–1032.

Hübschle A (2011) *Organised crime in Southern Africa: First annual review*. Institute for Security Studies, South Africa.

Isaacs M (2011) *Individual transferable quotas, poverty alleviation and challenges for small-country fisheries policy in South Africa*. MAST 10: 63–84.

Milliken T, Shaw J (2012) *The South Africa – Viet Nam rhino horn trade nexus.* TRAFFIC, Johannesburg, South Africa.

Raemaekers SJN (2009) *Rethinking South Africa's small-scale fisheries management paradigm and governance approach: Evidence from the Eastern Cape.* PhD thesis, Rhodes University, South Africa.

Raemaekers SJN, Britz PJ (2009) *Profile of the illegal abalone fishery (Haliotis midae) in the Eastern Cape Province, South Africa: Organised pillage and management failure.* Fisheries Research 97: 183–195.

Raemaekers SJN, Hauck M, Bürgener M, *et al.* (2011) *Review of the causes of the rise of the illegal South African abalone fishery and consequent closure of the rights-based fishery*. Ocean & Coastal Management 54: 433–445.

Sauer WH, Hecht T, Britz PJ, Mather D (2003) *An economic and sectoral study of the South African fishing industry, Volume 2: Fishery profiles*. Report prepared for Marine and Coastal Management by Rhodes University, South Africa.

Steinberg J (2005) *The illicit abalone trade in South Africa.* Occasional Paper No. 105. Institute for Security Studies, South Africa.

Steinberg J (2004) *The number: One man's search for identity in the Cape underworld and prison gangs.* Jonathan Ball Publishers: Cape Town.

To AWL, Hau BCH, Lee SKH (2006) *A study on the trade in dried abalones in Hong Kong*. TRAFFIC Bulletin 21: 25–34.

Van Sittert L, Branch G, Hauck M, Sowman M (2006) *Benchmarking the first decade of post-apartheid fisheries reform in South Africa*. Marine Policy 30: 96–110.

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:
TRAFFIC
Headquarters Office
219a Huntingdon Road
Cambridge CB3 0DL
UK
Telephone: (44) 1223 277427
Fax: (44) 1223 277237
Email: **traffic@traffic.org**
Website: **www.traffic.org**

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