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EMPTY SHELLS

An assessment of abalone poaching and trade from southern Africa

Nicola Okes, Markus Bürgener, Sade Moneron, Julian Rademeyer



TRAFFIC REPORT

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Shells discarded by poachers in an abalone "graveyard" off the South African coast



CONTENTS

INTRODUCTION

Overview and recommendations	iv
Executive summary	1
Context and background	3
Trade in <i>H. midae</i> from Namibia	7
Events and policy interventions timeline	8
Methods	11

FINDINGS AND RESULTS

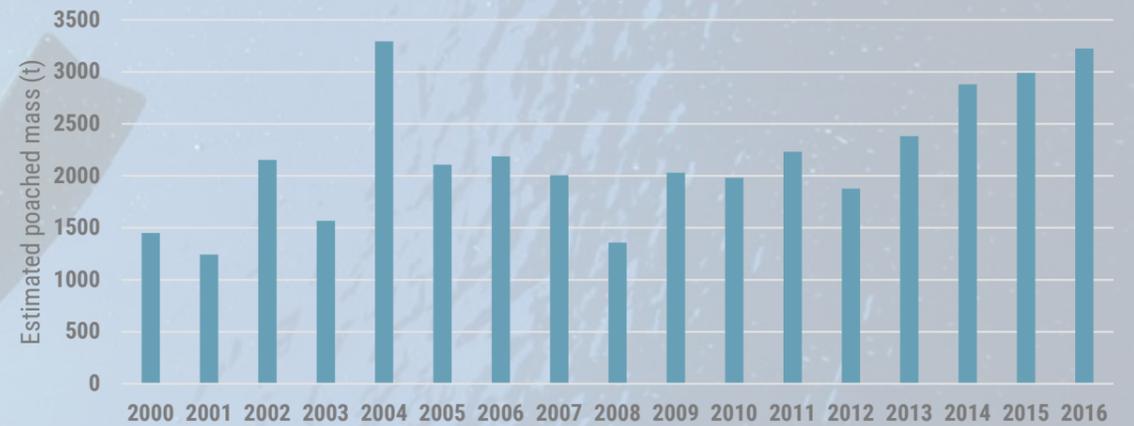
Legal production and illegal harvest	15
Trade routes	18
Hong Kong trade dynamics	21
Economic value of illegal trade	23
Analysis of abalone seizures as reported in the media	26
A poacher's tale	30
A typical abalone processing facility	32
Seizures of abalone involving other wildlife	34

CONCLUSIONS AND RECOMMENDATIONS 39

Acknowledgements and Appendix 1	42
References and credits	43

OVERVIEW AND RECOMMENDATIONS

despite numerous diverse interventions over the last 17 years, trade in illegally harvested abalone has **continued unabated**



an estimate of poached abalone, 2000–2016



96 MILLION

total number of individual abalone poached, 2006–2016



90%

of exports are destined for Hong Kong SAR



ZAR628,000,000

annual average value of poached abalone



2,174 TONNES

the average mass of abalone poached per year, 2000–2016

on average, at least **one abalone seizure occurred per day** between 2000–2016

43%

of illegal harvest being exported through sub-Saharan nations



98%

of all dried abalone reached Hong Kong SAR by air



RECOMMENDATIONS SUMMARY



NATIONAL COLLABORATION

Local, multi-agency collaboration across social, economic, and environmental agencies to address complex factors influencing poaching and trade



TRADE REGULATIONS

International trade controls in the form of a CITES listing

TRACEABILITY SYSTEMS

Legal abalone traders are encouraged to develop a robust traceability system for all abalone products exported from South Africa



REGIONAL COLLABORATION

Within sub-Saharan Africa to reduce exports of illegal harvest through South Africa's sub-Saharan states



EXECUTIVE SUMMARY

EMPTY SHELLS

South African Abalone *Haliotis midae* is a highly sought-after endemic marine mollusc harvested both legally and illegally in South Africa, with almost all of the catch being exported to predominantly Asian markets where it is consumed as a high-value delicacy.

- Over 17 years (2000–2016), world **imports of *H. midae* from sub-Saharan Africa show an overall increasing trend**. From 2009 to 2016, imports of *H. midae* have increased by an average of 8% per annum, with 2016 showing imports of over 5,065 t. During the same time period, legal production from the wild-caught fishery declined from an annual quota of 545 t in 2000 to the current quota of 96 t. Despite this, overall legal production has increased due to the growth of the aquaculture industry.
- **World imports of *H. midae* outweigh legal production levels** with the total mass of imports of *H. midae* from 2000–2016 being 55,863 t, while only 18,905 t was legally produced over the same period. *H. midae* illegally harvested between 2000 and 2016 is accordingly estimated to total 36,958 t, representing an average of 2,174 t per annum and equating to a total of over 96 million individual abalone poached since 2000.
- The rampant **illegal harvesting of abalone has resulted in the loss of a valuable commodity** worth approximately ZAR628 million per annum, should the resource have been legally harvested and traded.
- In addition, an analysis of trade routes suggests that up to **43% of the illegally harvested abalone was traded through a number of non-abalone-producing sub-Saharan African** countries to Hong Kong¹ between 2000 and 2016.
- In-transit and market states do not have legal provisions requiring traders to demonstrate that abalone products have their provenance in legal fisheries or aquaculture operations.
- The increase in trade of dried South African abalone combined with the high value of the product and the presence of organised crime syndicates suggest that **interventions and collaboration at international level are required** in order to address the trade in illegally harvested abalone.
- Local initiatives required to stem the poaching of abalone include increased multi-agency collaboration between different government departments to encourage solutions that address the combined effects of **social, political, and economic conditions surrounding the illegal fishery**.
- **Regional collaboration within sub-Saharan Africa is required** to ensure that countries through which poached abalone is traded have the necessary resources and legal framework to thwart attempts to route abalone through their ports.
- **International trade regulation in the form of a Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix listing is highly recommended**. As most of the illegally harvested abalone is traded in dried form, usually by air to Hong Kong, a focused and collaborative effort is required to ensure the effective administering and implementation of the CITES documentation.

¹ Hong Kong Special Administrative Region of the People's Republic of China

CONTEXT AND BACKGROUND

THE BACKGROUND

Abalone, a marine mollusc, is a highly sought-after seafood delicacy, produced and harvested worldwide for predominantly East Asian markets.

A total of 56 species of abalone are recognized globally (Geiger, 2000), but only approximately 10 to 14 species support commercial fisheries in the main harvesting areas of Australia, Japan, New Zealand, South Africa, Mexico and the United States (Wood, 1999; Fishtech, 1999, Cook & Gordon, 2010). In recent years, many commercial abalone fisheries have either declined or been closed due to the vulnerability of abalone to overfishing and a growing demand in East Asia (Bürgener, 2010). Historically, there has been a serial depletion of abalone across all major supply countries which have shown similar trends in the rapid increases in landings followed by steady declines due to overexploitation of the stocks (Cook & Gordon, 2010). However, despite the decline in the abundance of abalone worldwide, the supply now exceeds the peak levels of its “heyday” in the 1970s, due to the more recent development of abalone farming as well as high levels of illegal harvesting (Cook & Gordon, 2010; Raemaekers *et al.*, 2011).

Historically, South Africa was considered one of the world's major abalone-producing countries (Cook & Gordon, 2010), but has suffered severe declines over the last 20 years, mostly due to illegal harvesting co-ordinated largely through complex criminal syndicates. South Africa is home to five abalone species, but only one, *Haliotis midae* (a species endemic to the country) is harvested commercially. This is the only species in East and Southern Africa for which there is known commercial demand. Thus, from here on, all mention of abalone refers to *H. midae* only.

The commercial abalone fishery began in 1945 as an open-access fishery, operating out of the Western Cape province of South Africa. After years of largely unregulated fishing, unsustainable harvesting (with peak catches of 2,800 t in 1965) led to a decline in landings to the point that quota restrictions were implemented first in 1968 with further reductions resulting in a Total Allowable Catch (TAC) of 615 t in 1995. As South Africa's apartheid-era isolation came to an end in the 1990s and borders opened, the fishery went through a politically complex reform process whereby rights were being reallocated. This process began in the mid-1990's and followed a policy decision to redistribute the existing rights in the Western Cape from a few corporately owned companies, to individual boat-based divers and marginalized traditional fishers from the local communities (Raemaekers *et al.* 2011). This process was complex: despite management of allocations being continuously adapted as challenges emerged, increasing the number of people with access to the fishery while the resource was in decline due



ABALONE

is a slow-growing marine mollusc, consumed in Asia as a seafood delicacy

FIVE SPECIES

of abalone exist in South Africa, but only *Haliotis midae* is harvested commercially

SOUTH AFRICAN

abalone populations have suffered severe declines mostly due to organised poaching

to growing illegal catches meant fewer rights available for allocation as well as reductions in the TAC (Raemaekers *et al.* 2011). Tensions between fishing authorities and traditional fishers who felt they had a historical entitlement to the resource ultimately resulted in distrust in the process and disregard for regulations implemented (Raemaekers *et al.* 2011). Thus, many of those whose livelihoods depended on abalone fishing but were now excluded, continued to fish and sell their catch (Raemaekers *et al.* 2011).

As demand for South African abalone grew, prices increased radically and opportunities for trade between South Africa and Hong Kong expanded (Raemaekers *et al.*, 2011). A culmination of factors, including the high prices on offer as well as the socio-political climate and attitudes around the rights and legalities of abalone fishing, fostered an environment for the illegal fishery to grow (De Greef & Raemaekers, 2014; Warchol & Harrington, 2016). The traditional informal abalone fishery grew into a highly organised illegal fishery facilitated by international syndicates exporting product to Hong Kong (Gastrow, 2001; Raemaekers *et al.*, 2011). From the early 1990s, abalone aquaculture facilities were being developed in South Africa, and as the industry expanded, farming of abalone was also initiated in Namibia – the only sub-Saharan African country outside of South Africa to produce abalone for the export market (Box 1).

During this same time period, a recreational fishery was operating out of a similar area and was subject to increasing regulation due to the decline in stock. However, despite the implementation of closed seasons, size restrictions and reduced bag limits, the recreational fishery had to be suspended in 2003 due to difficulties experienced in controlling the high levels of illegal fishing. The commercial fishery followed a similar route and faced increasing regulations and eventual closure for one season in 2008-9. Despite sound scientific research and informed management of the resource, it was suggested that the resource-focused fishery management system did not have the capacity to incorporate the complex social, political and economic conditions at play (Raemaekers *et al.*, 2011).

The socio-economic conditions experienced within the fishery, together with the presence of established sophisticated criminal syndicates, added complexity to the fight against abalone poaching outside the realm of fisheries management

Chinese criminal networks have been known to be operating in South Africa since the 1970s (Gastrow, 2001), initially trading in shark fins and evolving to include a range of other illicit activities, including abalone poaching as well as the recreational drug trade (De Greef & Raemaekers, 2014). It is widely known that East Asian criminal groups have bartered precursor ingredients for first Mandrax and later



fresh abalone seized during a police raid on a processing facility near Pretoria, South Africa

methamphetamines for abalone, forging cash-free trade relationships with Cape gangs that control the local drug market (Steinberg, 2005; De Greef & Raemaekers, 2014).

Apart from these challenges, the key elements thought to be contributing to abalone poaching and associated criminal activities were the high value of the resource, the low risk of detection and weak deterrence due to low penalties, as well as poor conviction rates (Snijman, 2005; Warchol & Harrington, 2016). As such, numerous interventions were attempted at various stages of the supply chain to curb illegal fishing and regulate trade. These included fishery closures; enforcement operations in response to increasingly organised illegal fishing networks (e.g. Operation Trident and Operation Neptune—operations through collaborations between the military, police and local anti-poaching initiatives, Figure 1); the establishment of environmental courts specifically focused on abalone poaching (Steinberg, 2005); and the listing by South Africa of its species of abalone (*H. midae*) within Appendix III of CITES in 2007 (Figure 1). Each intervention was, however, relatively short-lived and resulted in little long-term impact. For example, the environmental courts that were opened in 2003 and showed considerable success, increasing the conviction rates of not only poachers, but also buyers and processors, were closed in 2005 due to a lack of government funding (Snijman, 2005).

Similarly, the commercial fishery was closed in 2008, yet reopened in 2010 despite increased levels of poaching and little recovery of the stock (DAFF, 2014). Furthermore, abalone was listed on Appendix III of CITES in 2007 only to be delisted in 2010 due to administrative and compliance capacity challenges experienced by South Africa in implementing the listing (Bürgener, 2010). At the market end, the Chinese austerity campaign implemented in 2013 had potential to impact the import of abalone, but it is not known for certain what impact this had on imports by Hong Kong.



A suspect arrested for alleged involvement in the illegal abalone trade during a police raid on a processing facility north of Pretoria. (See inside cover "Notice")

ENVIRONMENTAL COURTS
opened in 2003 increased conviction rates of poachers, buyers, and processors but were closed due to a lack of government funding

CITES LISTING IN 2007
in Appendix III was short-lived, and abalone was de-listed in 2010 due to administrative and compliance capacity challenges



Despite these numerous and diverse interventions, imports of South African abalone continued to climb. Today South Africa legally produces approximately 1,800 t of abalone in live, dried, frozen or canned form from a combination of the growing aquaculture industry, and a wild-caught fishery which has had an annual Total Allowable Catch (TAC) of 96 t since 2013. Apart from the legal production of abalone for the export market, confiscations of illegally harvested abalone have, until May 2018, also entered the market via a legal route.

This was made possible through an arrangement whereby the Department of Agriculture, Fisheries and Forestry (DAFF) supplied the confiscated abalone to a local processing facility where it was prepared for export. There is almost no domestic market for abalone, and over 95% of production is exported (Anonymous industry representative *pers. comm.* to M. Bürgener, 2018; Anon, 2017a). As there are no international or national trade regulations applicable to South African abalone in transit or destination countries/territories, illegally harvested abalone that leaves South Africa can be legally imported by market states.

Continued illegal harvesting and associated trade will have devastating impacts on abalone stocks and far-reaching negative socio-economic consequences for coastal communities whose economies, to a greater or lesser extent, are dependent on the proceeds of abalone poaching and trade.

The long-term involvement of so many individuals in this illicit economy and their exposure to other related crimes such as drug smuggling, money laundering and tax evasion makes them highly vulnerable to a collapse in this economy, leaving them without the skills, relationships and networks to secure legal employment. Depletion of the stocks not only has long-lasting impacts on the resource and the ecosystem, but also robs the economy of potential revenue that could be gained through a sustainable abalone fishery.

As South African abalone is an important and valuable source of dried abalone products for the Hong Kong markets (Lau, 2018), and since aquaculture on its own is unlikely to meet import demand, importing countries/territories also stand to lose once the abalone resource has been exhausted. In this report, we describe the dynamics of the illicit trade in South African abalone, its economic value and the smuggling routes being used.

We focus on the challenges in combating the illegal fishery and highlight the potential interventions at the level of the international market.

1,800 TONNES
of live, dried, frozen or
canned abalone was
produced on average by
South Africa each year

96 TONNES
is the current annual Total
Allowable Catch limit on wild
abalone

OVER 95%
of production is exported
internationally

BOX 1

TRADE IN *H. MIDAE* FROM NAMIBIA

4 TONNES

of abalone products were exported
per year on average, 2012–2016

96%

of these were exported in
frozen/dried form

59%

of all exports were destined
for South Africa

Outside of South Africa, the only other legal producer of *H. midae* is the aquaculture industry in Namibia. However, an analysis of Hong Kong imports strongly suggests that illegally harvested abalone from South Africa is being laundered through Namibia.

In 2003, the first abalone farm was established in Namibia, situated in the coastal town of Lüderitz where a number of aquaculture facilities for other species including mussels and oysters are thriving. Using an initial stock of wild-caught juvenile abalone imported from South Africa, the farm grew from an annual production of 5 t of live abalone to a maximum of 10 t in 2013.

Over the last five years (2012–2016), Namibia exported an average of four tonnes of abalone products (a combination of live, fresh, frozen and dried) per annum (excluding 2013, when no exports were recorded). The reason for the recent decline in production is not clear in this study. The bulk (96%) of the export product was in frozen and/or dried form. No exports of canned abalone were recorded. The main importing countries/territories in this time period were South Africa (accounting for 59% of all Namibia's exports), Hong Kong (20%), China (18%) and Angola (3%). However, import figures from Hong Kong alone exceed both Namibia's production and export figures, suggesting that poached abalone from South Africa is potentially being exported from/launched via Namibia.

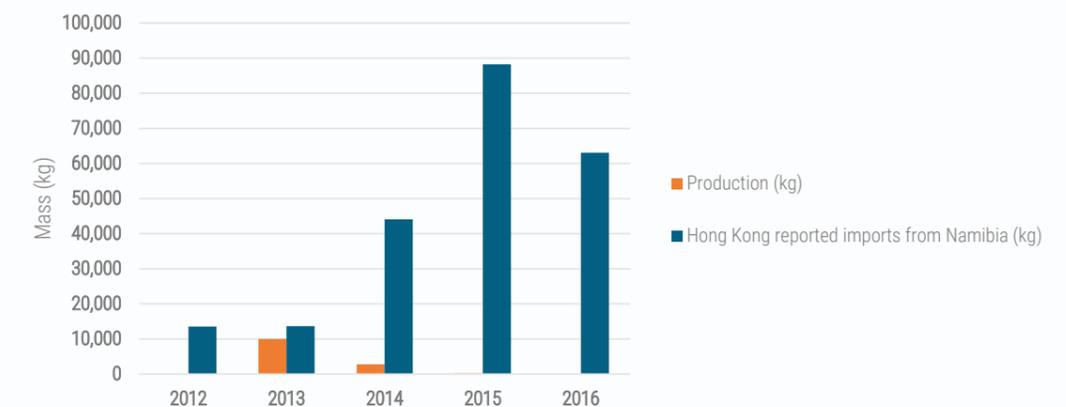


Figure 1
Total mass of abalone produced (kg) and reported by Hong Kong as imported (kg) from Namibia 2012–2016.

Source: Hong Kong Census and Statistics Department; Namibia's Ministry of Fisheries and Marine Resources (NMFMR).

EVENTS AND POLICY INTERVENTIONS TIMELINE

potentially impacting on the trade in abalone, 1970–present



1945

commercial abalone fishery opens



1985

recreational abalone fishery institutes closed season

1998

Operation Neptune instituted

a multi-agency operation with the intention of combating illegal abalone catch and trade



2004

Operation Trident

Operation Neptune is closed and replaced by Operation Trident, a three-pronged initiative for combating illegal fishing



2007

abalone listed in Appendix III of CITES, issued by the Department of Environmental Affairs and Tourism (DEAT)

2010

commercial abalone fishery reopens

Abalone Recovery Strategy is implemented to help protect wild abalone populations



2013

Chinese anti-corruption campaign

President of China implements the Chinese Anti-Corruption Campaign, aimed at eliminating corruption and excessive spending by government officials on luxury goods

1968

catch restrictions in the form of a Total Allowable Catch (TAC) implemented

1990

increase in illegal catch within the recreational fishery combined with an increase in illegal abalone catch

2003

recreational fishery suspended

recreational abalone fishing suspended due to difficulties in controlling and monitoring poaching as well as sustainability concerns

2005

environmental court closes

environmental court closes due to lack of government funding

2008

global financial crisis begins



2010

abalone delisted from Appendix III of CITES

South African government withdraws CITES Appendix III listing

1983

recreational abalone fishery opens; limits on bag size apply



first environmental court established

South Africa establishes its first environmental court in Hermanus, Western Cape



commercial abalone fishery closes

in an attempt to protect the remaining resource and ensure future stock protection

2011

global financial crisis ends



METHODS

OUR METHODOLOGY

In order to understand the volumes of illegally harvested abalone being traded, estimate its value and understand smuggling routes being used, data on the legal production and trade was analysed. The difference between world imports of abalone and legal production of South African abalone was used as a measure of illegal harvest of abalone, and customs trade data used to map major trade routes.

Data sources and calculations are outlined below, with aspects of the methods described in Figure 2.

data sources

Data on the legal production of abalone over the period 2000–2016 were collected from the following sources:

- **The Total Allowable Catch (TAC)** of the wild-caught abalone fishery in South Africa (Department of Agriculture, Forestry and Fisheries (DAFF), 2000–2016)
- **The annual production from aquaculture facilities in South Africa** (DAFF, 2000–2016)
- **The annual production from aquaculture facilities in Namibia** (Namibia's Ministry of Fisheries and Marine Resources (NMFMR), 2012–2016)

The commercial TAC is spread over two calendar years (e.g. 2003–2004) in accordance with the fishing season. For the purpose of this analysis, the commercial TAC has been reflected as a calendar year based on the “second” year of each TAC. For example, the 2003–2004 TAC has been reflected as a 2004 TAC figure. This process was followed as TACs are normally issued late in the year of allocation, with actual harvest often only beginning even later in that year or early in the second year. Given that some of the harvested abalone is processed prior to export, it is highly likely that the vast majority of trade linked to a TAC takes place in the “second” year of the TAC. Due to the fishery being closed for the period March 2008 until May 2010, the TAC figure used for 2009 was “0” t.

Data on the trade of abalone (import and export mass in kilogrammes and values in USD) were sourced from the customs and/or statistics departments of abalone importing countries/territories using the Harmonised System (HS) trade codes to specify abalone products. The HS is administered by the World Customs Organization and used globally to standardise the representation of commodities in trade. The system consists of approximately 5,300 commodity codes describing products grouped into chapters and sections based on taxonomic similarities, e.g. Chapter 3 for “Fish and crustaceans, molluscs and other aquatic invertebrates” and Chapter 6 for “Live trees and other plants”. The codes are harmonised internationally at a detailed six-digit (HS-6) level with the allowance for countries to use additional digits to narrow commodity classifications even further according to specific tariff and statistical requirements they may decide to introduce unilaterally. Given that a broad range of commodities can be produced from a single species (e.g. South African hake is traded in fresh or frozen form with different HS codes), and similarly that a broad range of species can contribute to a single commodity (e.g. wood-sawn or chipped), HS codes are not always specific to a taxon (Gerson *et al.* 2008).

In South Africa, the customs categories did not provide HS codes for trade in any abalone until 2012 and only in 2017 did they include four specific codes² differentiating between live, dried, frozen and canned products. However, key abalone importing countries/territories do provide detailed eight-digit (HS-8) codes³ to describe and differentiate between live, canned, dried and frozen abalone products. The comparatively detailed import trade records of the importers were therefore used to collect data on the mass and value of imports of all abalone from the sub-Saharan Africa region for the period 2000-2016.

The category descriptions used by importers do not specify trade in South African abalone, *H. midae*, but use the word “abalone”. However, *H. midae* is endemic to South Africa, and this commercially traded abalone species is not found in any other sub-Saharan African country, apart from one relatively small aquaculture facility in Namibia. Although other abalone species occur in the coastal waters of Africa, no other species is commercially harvested, processed or traded therefore the assumption is that any trade in “abalone” from non *H. midae* producing countries, is of illegally imported *H. midae* from South Africa. It is important to note that import data are only for consignments declared as abalone at the time of import. The data therefore do not reflect abalone that has been imported but which has been purposefully misdeclared by the importer, for example abalone imports declared as another product.

data manipulation

In order to compare the production of abalone to numbers of abalone in trade, conversion ratios were used to convert traded mass (provided in kilogrammes of dried, frozen or canned product) to live mass. The reported imported mass was therefore converted to live mass based on conversion factors for each traded form provided by DAFF (A. MacKenzie, *pers comm* to M. Bürgener, 2017) and confirmed with industry sources (Anonymous industry representative *pers comm* to M. Bürgener, 2018). Dried abalone was converted to live mass by multiplying the traded mass by 10, frozen abalone was multiplied by three and canned abalone by four.

estimating the mass of illegally harvested trade

Given that there is very little domestic consumption of abalone, and that 95% of abalone produced in South Africa is exported, an estimate of illegal abalone production was determined by subtracting legal production (aquaculture production plus the annual commercial TAC) from total world imports of abalone from South Africa for each year. The legal production of abalone from the farm in Namibia is not included in this estimate as the production data are only available for 2012–2016. However, even if Namibia’s production was included, at a maximum production of 10 t live weight per year (Box 1. Figure 1), it would not make a significant difference to the estimate of illegally harvested abalone (maximum of 10 t less per year, equivalent to a variation of 0.3–0.5% throughout the study period).

The estimated mass of poached abalone was then converted to the number of individual animals poached by dividing the total mass by the average mass of one abalone for each year. The average mass of one animal is provided by DAFF for each year as it varies due to the impact of poaching on the size distribution of the population.

A separate source of data on poached abalone was also collected: the mass of abalone confiscated by South African law enforcement agencies and provided by DAFF. For the purposes of this report and to distinguish these data from the estimated mass of poached abalone, these are referred to as confiscations.

² In 2012, the codes used by UN Comtrade for trade in dried abalone, under the harmonised system (HS), were 030781 (live, fresh or chilled abalone), 030789 (frozen, dried, salted, smoked or cooked) and 160557 (prepared or preserved). These were refined in 2017 and 030789 has been replaced with 030783 (frozen) and 030787 (dried).

³ Codes used by the Hong Kong Census and Statistics Department for dried abalone, under the harmonised system (HS), were: 03079920 (2000–2011), 03078990 (2012–2015). For live abalone, the HS codes used were 03079110 (2000–2004), 03079120 (2005–2011), 03078110 (2012–2015). For frozen abalone, the HS codes used were 03079910 (2000–2011), 03078910 (2012–2015). For prepared and preserved abalone, the HS codes used were 16059010 (2000–2011), 16055700 (2012–2015)

estimating the value of the illegal abalone trade

As the majority of illegally harvested abalone is traded in dried form (De Greef & Raemaekers, 2014) and since the main destination for abalone from South Africa is Hong Kong (Lau, 2018), a USD/kg value for imports of dried abalone reported by the Hong Kong Census and Statistics Department was calculated. This value was then applied to the estimated mass of illegal abalone to provide an estimate of the value of poached abalone between 2000 and 2016.

To contextualise the magnitude of the total value of the illegal trade and the potential loss in revenue, the total world import value of commodities from each of South Africa’s top export fisheries was calculated for comparison to the estimated value of poached abalone in 2016. The import values used in these analyses are the cost, insurance and freight (CIF⁴) values provided by the importing country’s customs departments to the United Nations Comtrade.

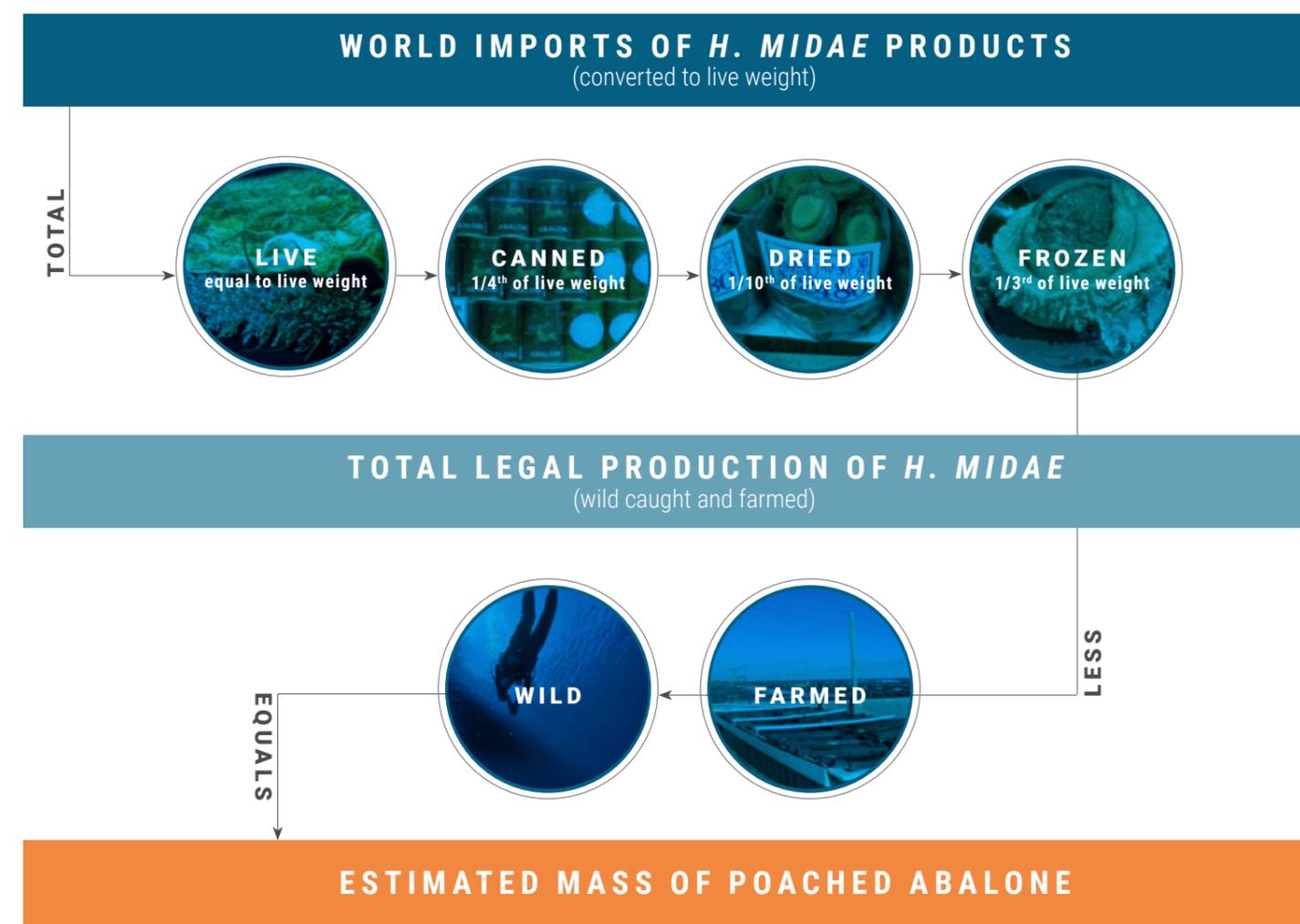


Figure 2
A graphical representation of the methodology used to estimate the illegal abalone harvest.

⁴ CIF values include the transaction value of the goods, the value of services performed to deliver goods to the border of the exporting country and the value of the services performed to deliver the goods from the border of the exporting country to the border of the importing country.

FINDINGS AND RESULTS



OUR RESULTS

legal production and illegal harvest

Between 2000 and 2016, the legal production of abalone (from aquaculture operations and the legal wild capture fishery) increased from 726 t in 2000 to 1,841 t in 2016 (Figure 3).

Legal production of abalone between 2000 and 2009 increased by 3% on average per annum. From 2010 onwards, production increased by an average of 11% per annum to reach 1,841 t in 2016. However, the legal wildcaught allowable catch steadily declined over the same period, from 545 t in 2000 to the current TAC of 96 t, which has been in place since 2013.

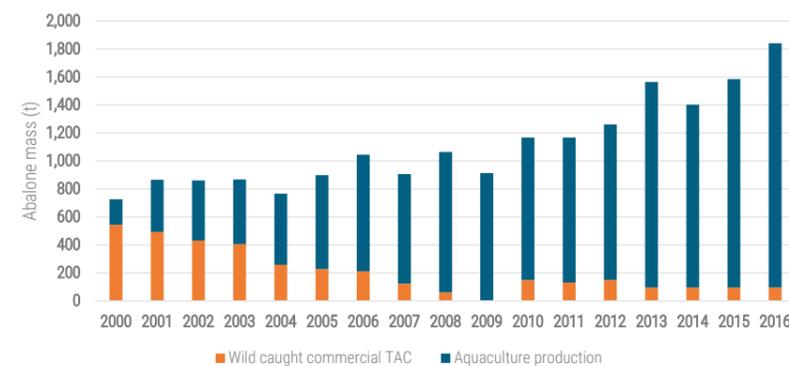


Figure 3
The legal production of *H. midae* in South Africa, from aquaculture and the wild caught commercial fishery, 2000–2016.

Source: South Africa's Department of Agriculture, Forestry and Fisheries (DAFF)

World imports of *H. midae* fluctuated between 2000 and 2007, peaking at approximately 4,060 t in 2004 and declining again to 2,424 t in 2008 (Figure 4). From 2009 to 2016, imports of *H. midae* increased by an average of 8% per annum, with 2016 imports of over 5,065 t.

Despite the increase in legal production over the period, total imports of *H. midae* still greatly outweigh production levels. The total mass of imports of *H. midae* from 2000–2016 was 55,863 t, while only 18,905 t was legally produced over the same period. Illegally harvested *H. midae* between 2000 and 2016 is accordingly estimated to be 36,958 t, representing an average of 2,174 t per annum (Figure 5).



55,863 TONNES
of abalone were imported globally between 2000–2016

18,905 TONNES
were legally produced over the same period

39,958 TONNES
of abalone estimated to have been illegally harvested between 2000–2016

Estimated traded volumes of illegally harvested *H. midae* have steadily grown since 2008, nearing the peak levels of 2004 (Figure 4 and Figure 5).

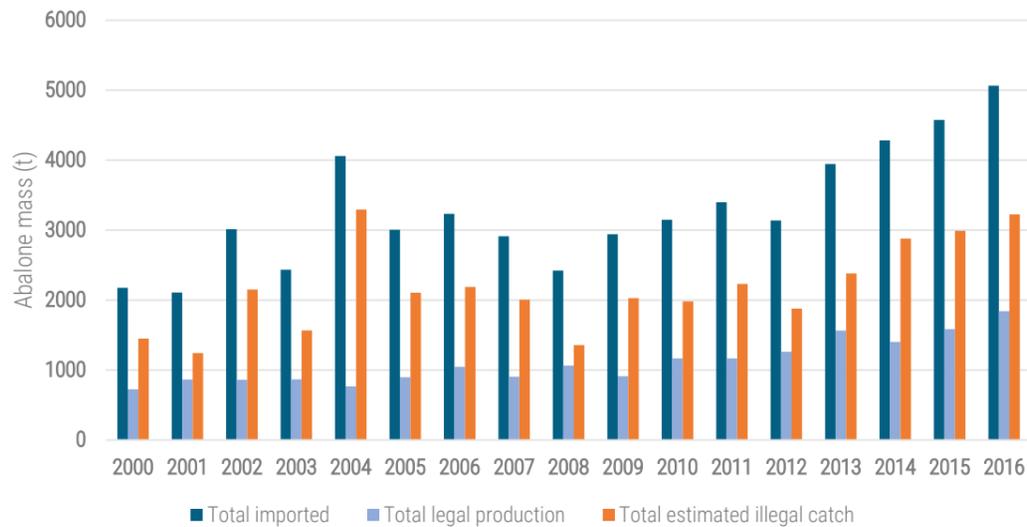


Figure 4
World imports of *H. midae*, legal production and, estimated illegal harvest, 2000–2016. Source: South Africa's Department of Agriculture, Forestry and Fisheries (DAFF) and the customs departments of all importing countries/territories.

In 2016, the estimated mass of illegally harvested abalone reached 3,224 t, contributing 64% of the total imports for that year. Based on the average mass of individual abalones in each year provided by DAFF, this equates to over 9.5 million animals poached in 2016—the highest annual figure for the 2000–2016 period (Figure 5). The total number of animals poached since 2000 is estimated to be over 96 million.

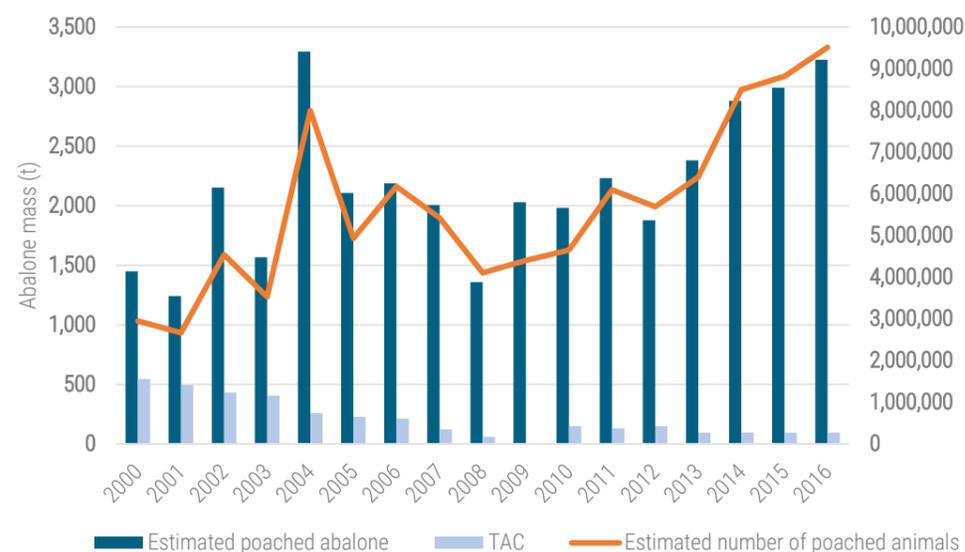


Figure 5
The legal TAC and the estimated total number and mass of illegally harvested *H. midae*, 2000–2016. Source: South Africa's Department of Agriculture, Forestry and Fisheries (DAFF) and the customs departments of all importing countries/territories.



Not all illegally harvested *H. midae* is traded illegally. Through the tender process managed by DAFF, seizures of illegally harvested abalone are legally exported.

The total mass of abalone confiscated by DAFF and other law enforcement agencies each year has fluctuated over the 2000–2016 period (Figure 6) and was at its lowest in the six-year period post-2007. However, since 2014 the total mass confiscated has increased again to a peak of over 488 t in 2016. In total, from 2000–2016, at least 5,063 t of illegally harvested *H. midae* has been confiscated by South African law enforcement agencies, which constitutes only 14% of the estimated illegally harvested abalone. The percentage of confiscated abalone as a percentage of total poached abalone declined considerably over the period 2007–2013 to a low of 7% in 2013 (Figure 6). Over this period, however, the proportion of imports originating from countries outside of abalone-producing countries (i.e. outside of South Africa and Namibia) was at its highest (see Trade routes, Figure 7).

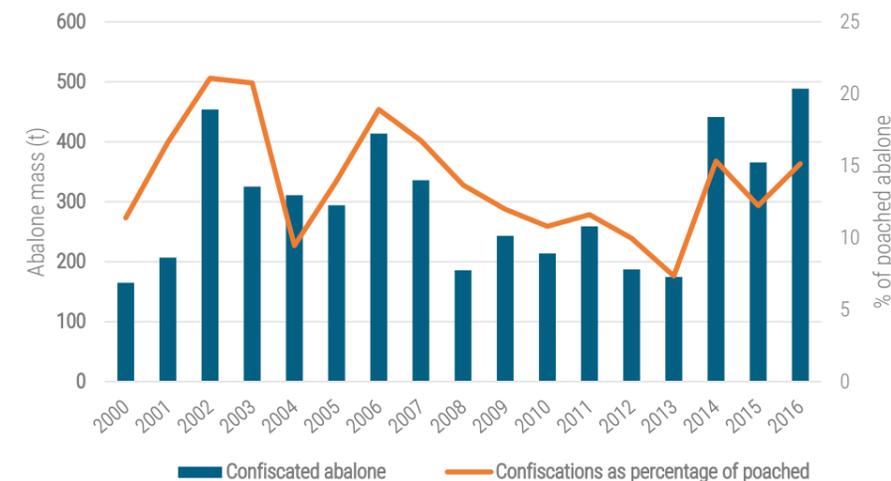


Figure 6
The mass of abalone confiscated, and as a percentage of estimated poached abalone, 2000–2016. Source: South Africa's Department of Agriculture, Forestry and Fisheries (DAFF).

9.5 MILLION
individual abalone were poached in 2016 alone—the highest number of animals poached in the last 17 years`

96 MILLION
are estimated to have been poached since 2000

POACHING
levels have more than doubled since 2008

488 TONNES
were confiscated by law enforcement in 2016

ONLY 14%
of the estimated illegally harvested abalone was seized by law enforcement between 2000–2016



trade routes

Between 2000 and 2016, the main importers of all *H. midae* products were Hong Kong SAR (90%), Japan (3%), Singapore (2%), Taiwan (2%), Macau SAR⁵ (1%), China, Malaysia, USA and Canada (combined 2%) (Figure 7). Countries of export included South Africa, Namibia, Angola, Republic of Congo, Democratic Republic of the Congo, Zambia, Zimbabwe, Mozambique and Swaziland, recently renamed the Kingdom of eSwatini.

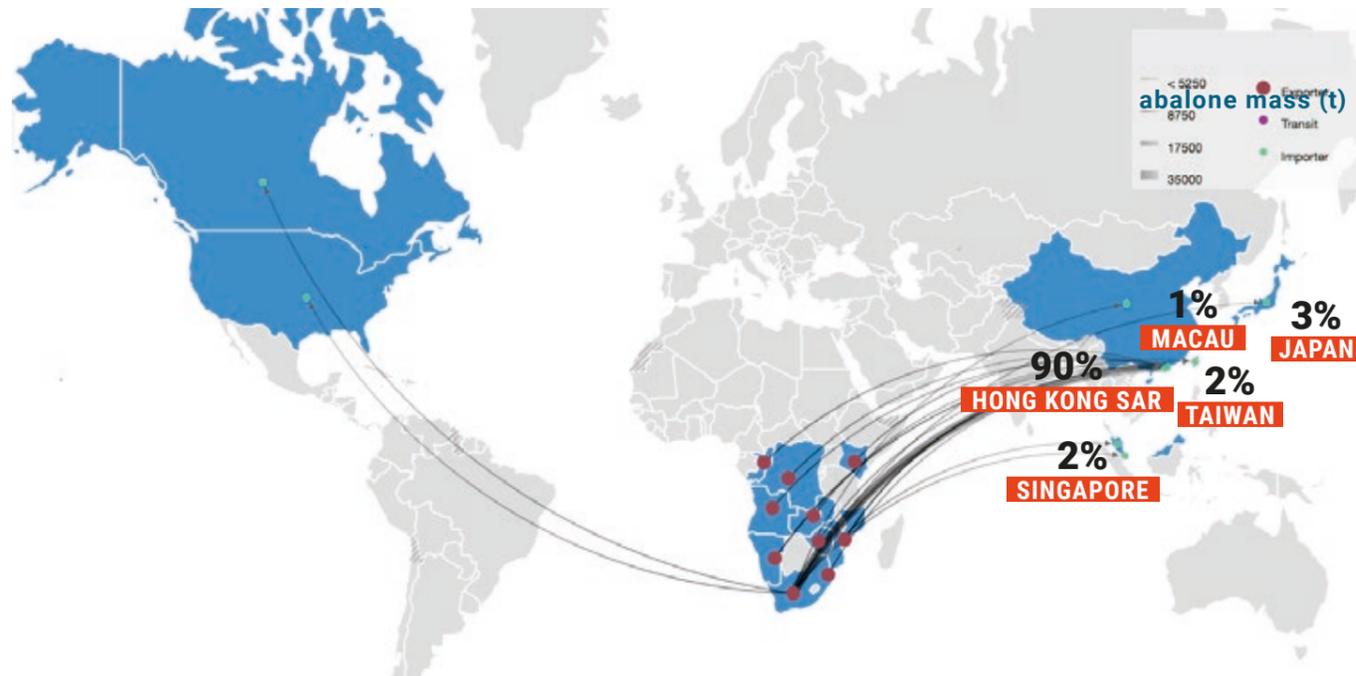


Figure 7
Imports of all forms of *H. midae* from sub-Saharan Africa as reported by all importing countries/territories, 2000–2016.
Source: Customs departments of each importing country/territories (Appendix 1).

The trade in *H. midae* products through non-abalone-producing countries in sub-Saharan Africa is a concerning and growing trend over the 17 years examined (Figures 7, 8 and 9).

The number of non-abalone-producing countries in sub-Saharan Africa reported by importers as the country of origin is reflected in Figure 8, and the proportion of imports originating from these countries is presented in Figure 9.

Prior to 2007, abalone was imported from a maximum of three non-abalone-producing countries in each year, namely eSwatini (formerly Swaziland), Zimbabwe and Mozambique exporting exclusively to Hong Kong and Macau SARs (Figure 8, 9 and 10). In 2012 these imports constituted 42% of Hong Kong's total imports of *H. midae*, but they declined significantly in the years 2004–2007. Between 2008 and 2013 an average of 35% of total *H. midae* imports was imported from eight non-abalone-producing countries (Figures 8 and 9).

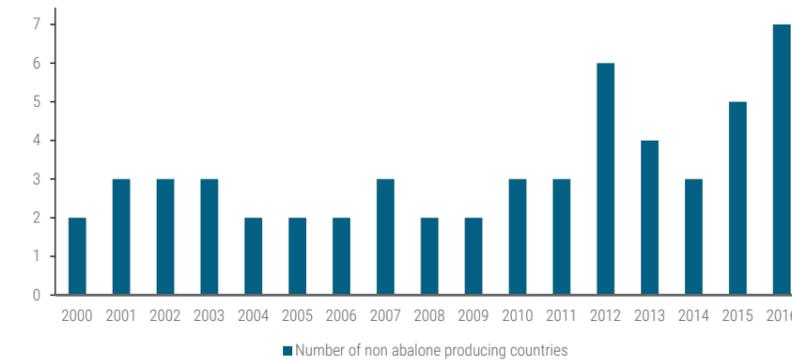


Figure 8
The number of sub-Saharan African countries without *H. midae* aquaculture or wild stocks (i.e. not Namibia or South Africa) from which abalone imports were recorded, 2000–2016, as reported by all importing countries/territories.
Source: Customs departments of each importing country/territory (Appendix 1).

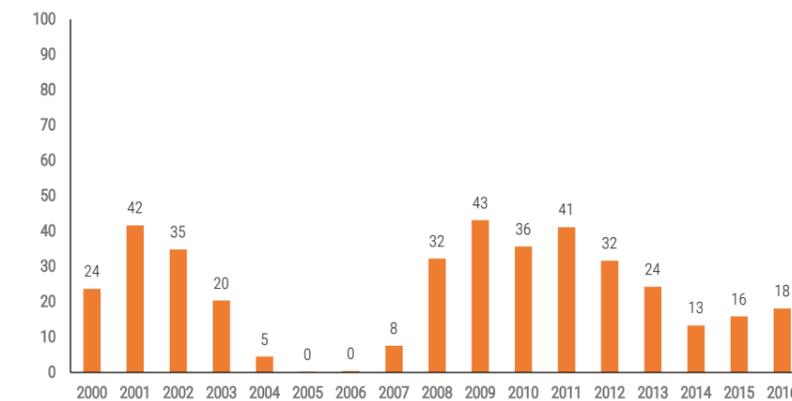
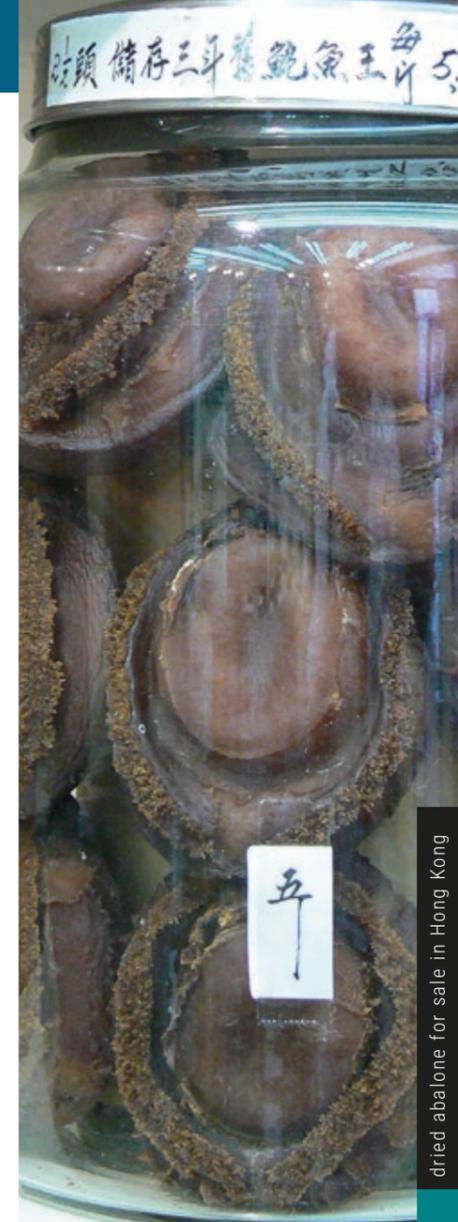


Figure 9
The proportion of all imports of abalone from sub-Saharan Africa originating from countries without *H. midae* aquaculture or wild stocks, 2000–2016, as reported by all importing countries/territories.
Source: Customs departments of each importing country/territory (Appendix 1).



90% OF IMPORTS
of abalone between 2000–2016 were by Hong Kong

43%
of Hong Kong's abalone imports in 2009 were from non-abalone-producing countries

In 2016 abalone was imported from seven non-abalone-producing countries (Zimbabwe, Mozambique, Kenya, Zambia, Republic of Congo, Democratic Republic of the Congo, Angola), accounting for 18% of world *H. midae* imports (Figures 8 and 9). The importers of abalone from these countries are Hong Kong and Macau SARs (Figure 10). Between 2000 and 2016, all imports of abalone from non-abalone-producing countries was in dried form



dried abalone for sale in Hong Kong

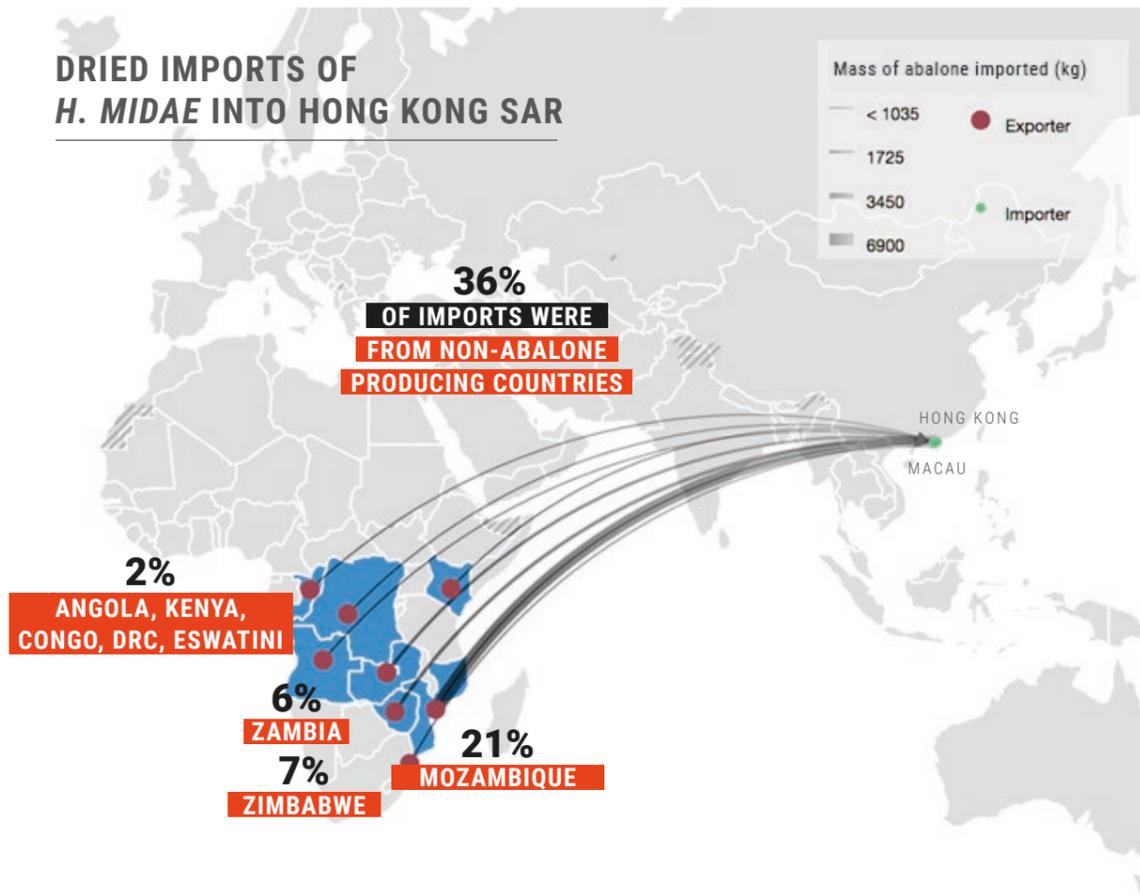


Figure 10
Imports of dried *H. midae* from sub-Saharan Africa as reported by all importing countries/territories, i.e. Hong Kong and Macau, 2000–2016.
Source: Customs departments of each importing country/territory (Appendix 1).



40%

of imports of dried abalone between 2000–2016 were *H. midae*



98%

of dried abalone entered Hong Kong by air

Hong Kong trade dynamics

As Hong Kong is the largest and most consistent importer of *H. midae*, trade dynamics for Hong Kong abalone trade are examined in more detail below.

In comparison to Hong Kong's imports of other abalone species, *H. midae* accounted for 12% of abalone imports over the period from 2000 to 2016—some of which was imported from African countries that are not abalone-producing. As abalone is not legally processed in or transhipped through any East or southern African countries other than South Africa or Namibia, imports from these countries are assumed to be illegally harvested. When considering only dried abalone, the importance of *H. midae* is even more pronounced (Figure 11). *H. midae* imports account for 98% of Hong Kong's dried abalone imports over the same period, of which at least 36% originated from non-abalone-producing countries.



canned abalone for sale in Hong Kong

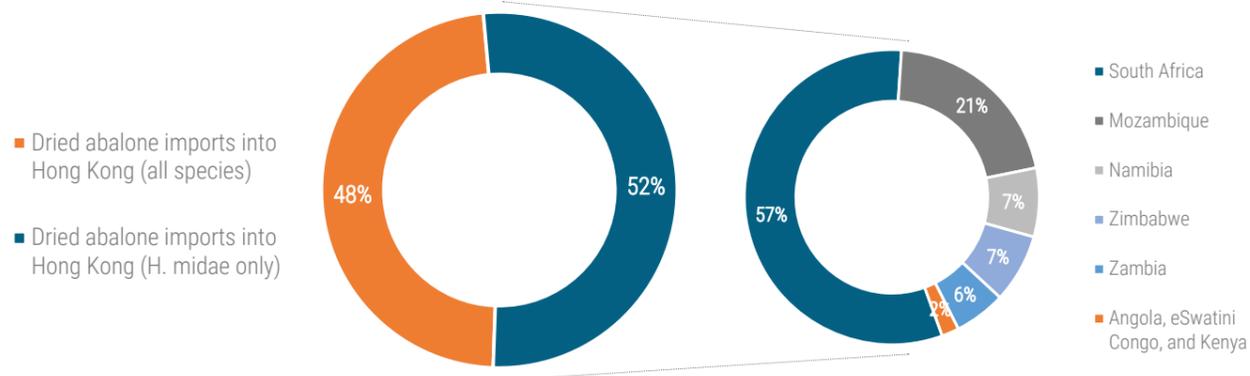


Figure 11
The proportion of Hong Kong imports of dried *Haliotis* spp. compared to imports of dried *H. midae*, combined and countries of origin for imports, 2000–2016.
Source: Source: Hong Kong Census and Statistics Department.

Data on the modes of transport for dried abalone imported into Hong Kong was analysed for the period 2005–2015.

The mode of transport for imports of all dried abalone from sub-Saharan Africa shows that approximately 98% of abalone entered Hong Kong by air in this time period, while approximately 2% was transported by sea (Figure 12).

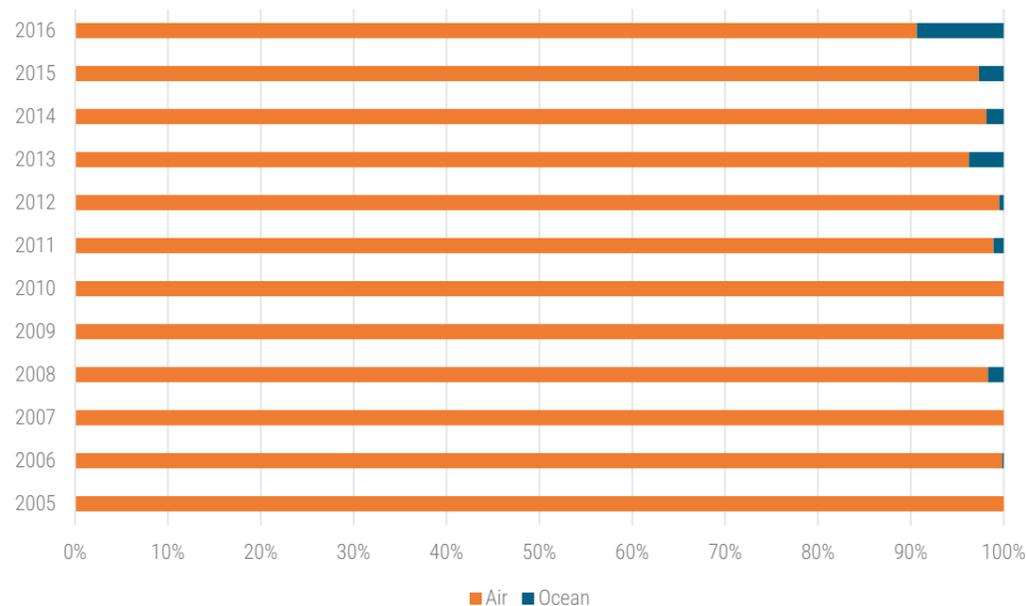


Figure 12
Mode of transport for imports of dried abalone from sub-Saharan Africa (*H. midae*), as reported by Hong Kong, 2005–2016.
Source: Source: Hong Kong Census and Statistics Department.



police raid an illegal abalone processing facility in Soshanguve, north of Pretoria

economic value of illegal trade

The economic value of dried abalone imports, measured as the USD value per kg and adjusted for inflation to 2016 value, increased steadily from 2001, reaching a high of USD353/kg in 2007.

In 2007 and 2008, however, the value declined by 30% before recovering briefly in 2010 to reach a peak of USD377/kg in 2011. Since 2011, the value per kilogram of dried abalone has steadily declined and in 2016 it reached USD178—the third lowest value in the last 17 years (Figure 13).

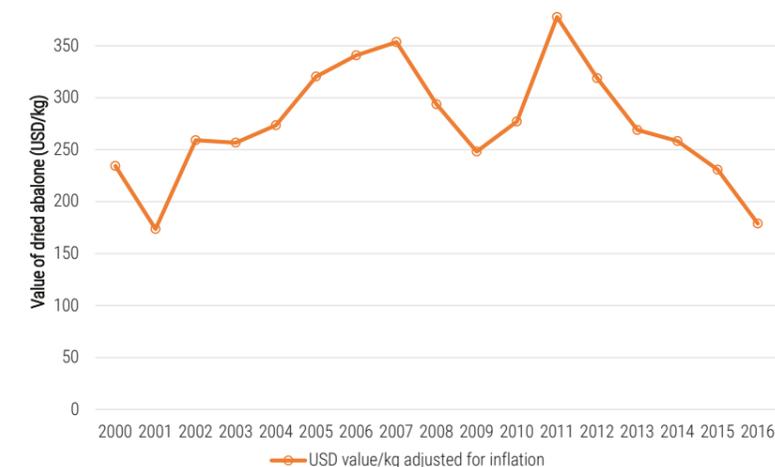


Figure 13
Fluctuation in the USD value per kilogram and value adjusted for inflation to 2016 value of dried *H. midae*, 2000–2016. Source: Source: Hong Kong Census and Statistics Department.

Despite the declining import value of abalone between 2011 and 2016, the total value of the abalone remained high due to the increasing quantities being imported. Assuming that the illegally harvested abalone is being traded in dry form with the bulk being exported to Hong Kong (Figure 10), the 3,244 t of poached abalone in 2016 equates to an estimated import value of approximately USD57 million (Figure 14). In recent years, 2014–2016, the estimated total import value of poached

USD 377/KG
peak monetary value of abalone, reached in 2011

2016
saw its 3rd lowest value in 17 years—USD 178/KG

USD 57 MILLION
estimated value of poached abalone in 2016

USD 891 MILLION
total estimated value of poached abalone over the 17 years studied

abalone is decreasing for the first time in 17 years despite an increase in the quantity imported. Looking at the entire time frame, from 2000 to 2016, the estimated value of the total illegal harvest of abalone over the last 17 years was USD891 million (over ZAR10 billion, an annual average ZAR628 million per annum). In the context of South Africa's fishing industry, the value of the illegal abalone fishery is on a par with two of the country's most valuable export fisheries: squid and rock lobster (Figure 15).

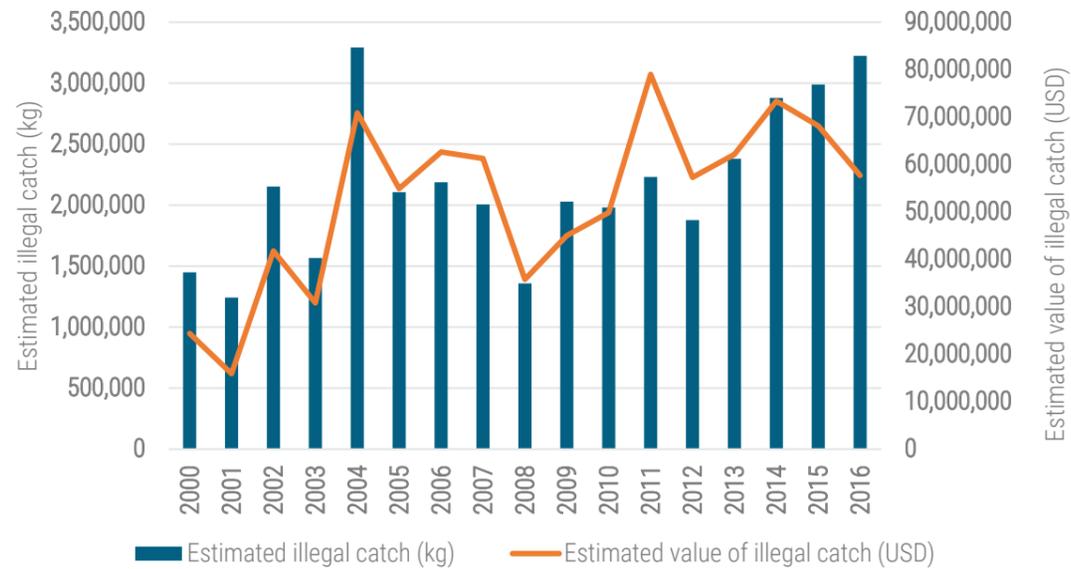


Figure 14
The estimated mass of poached abalone and its estimated value, 2000–2016.

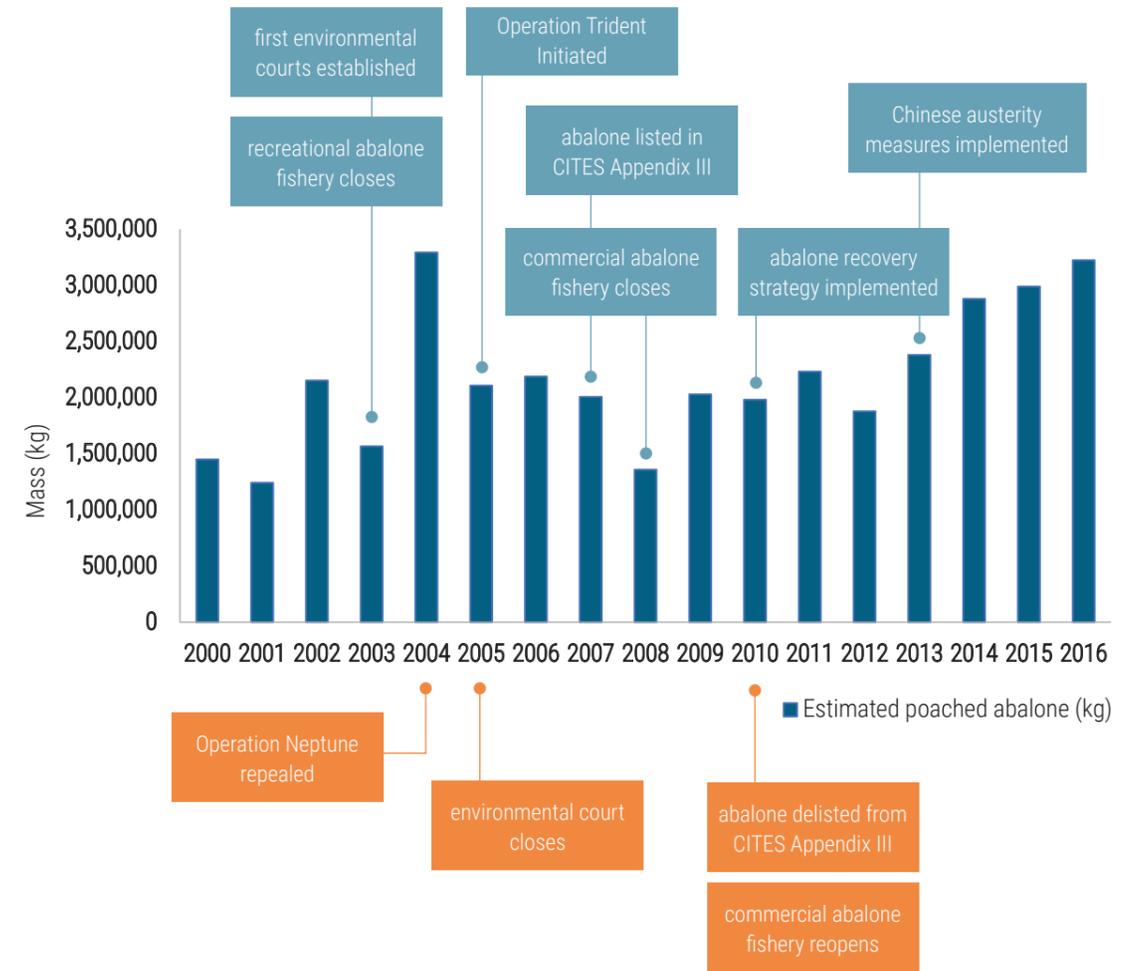


Figure 16
The estimate of poached abalone quantities over the period 2000–2016, and interventions aimed at reducing illegal harvesting and regulating trade during this time.



Figure 15
The estimated import value of illegally harvested abalone compared to the import value of products from South Africa's top legal export fisheries, in 2016. Source: UN Comtrade.





processing paraphernalia seized by police during a raid on an illegal abalone processing operation in August 2018



illegal abalone processing equipment and diving canisters seized by police

analysis of abalone seizures as reported in the media

Over the 17 year study period, ongoing enforcement operations have led to a number of abalone seizures—many of which have been captured in the media and provide insight into the modus operandi of the criminal syndicates involved.

As such, reports of abalone seizures reported in the media were collected by searching online police and news reports between 2016 and February 2018 to shed light on methods of concealment, transport routes and connections to other wildlife crimes. A total of 133 media reports were found, describing incidents of poaching and confiscations that occurred between 2014 and February 2018. The majority of seizures occurred in South Africa (129 out of the 133; Figure 17), and, where information on detection was reported, were often the result of intelligence (45), routine inspections (17) or a specific operation (15).

A number of operations involving collaboration between law enforcement agencies have resulted in arrests over the time period. Operations have involved raids based on tip-offs or information, as well as static roadblocks and vehicle inspection points implemented as part of broader crime prevention initiatives. For example, in October 2016, 1,308 individual abalone were confiscated along with cars, a boat and diving equipment through a joint operation between provincial detectives, the Sea Border Unit, the Abalone Task Force and the National Intervention Unit (Anon, 2016). In February 2017, an integrated team comprising the Hawks, SAPS K9 and DAFF units together conducted raids as part of ongoing operations to address abalone-related crime (Anon, 2017b). As a result, in just one week in February 2017, twelve people were arrested and a total of 52,000 individual abalone worth an estimated R12 million (approximately USD1 million, Anon 2017b) were confiscated.

Abalone was often found either in a vehicle transporting the product (37 incidents), or in domestic or business premises where the product was being processed or stored (33). Trade routes reported in the media suggest that most of the seizures occurred in the Western Cape, made while poachers were en route to some of the major land and sea ports in South Africa, including Durban, Port Elizabeth, and Johannesburg (Figure 17).

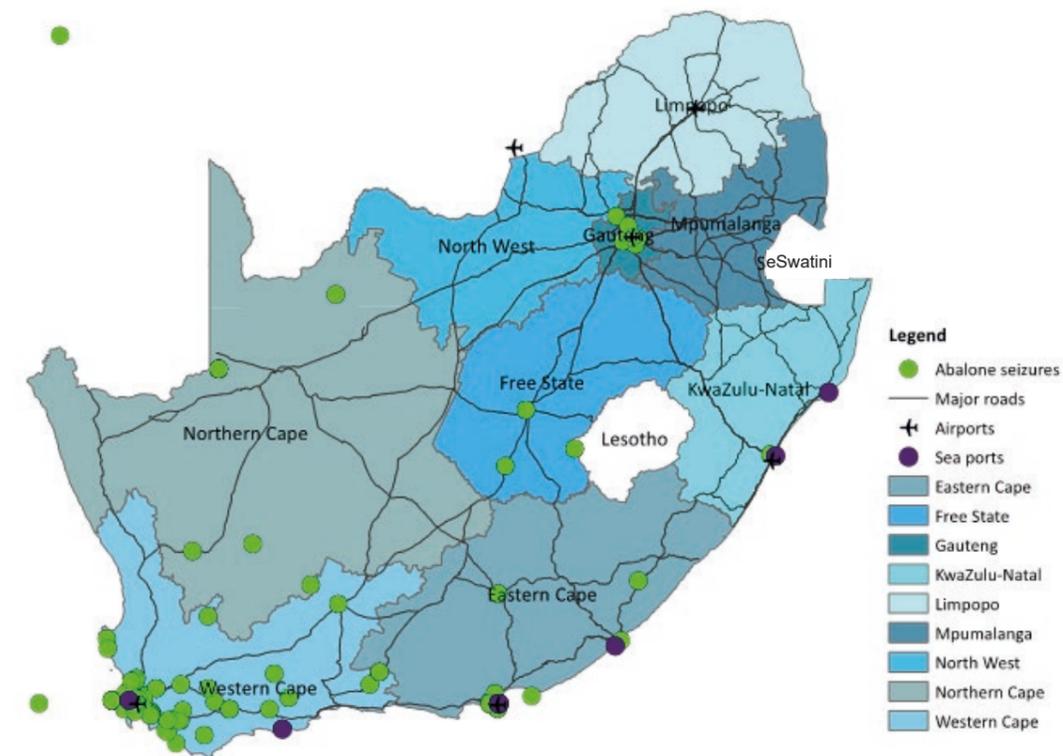


Figure 17
Map of where seizures took place in South Africa (2014 - February 2018), highlighting major highways and ports within the country that are being used to transport or store abalone.

133 MEDIA
reports were found on
abalone seizures between
2014–Feb 2018

129 REPORTS
concerned seizures made
in South Africa

52,000
individual abalones were
seized in February 2017
with 12 people arrested

USD1 MILLION
worth of abalone was
seized in February 2017
as a result of action
by a co-ordinated law
enforcement team

Interestingly, our analysis of Hong Kong import data suggests that, in 2016, the proportion of dried *H. midae* reaching Hong Kong by sea had increased compared to previous years (Figure 12). Seizure records show that in 2016 and 2017, two comparatively large seizures involved abalone being exported out of Table Bay harbour (Cape Town)—involving consignments of abalone valued at ZAR30 and ZAR20 million respectively, one of which was known to be destined for Hong Kong.

Although the vast majority of abalone seizures occur within South Africa, a few seizures have occurred in transit through Mozambique and Zimbabwe. In 2010, Mozambique customs officials seized over 2 t of abalone, smuggled in from South Africa. The abalone was hidden amongst a consignment of maize and potatoes and was seized along the South Africa-Maputo highway, before the importer could ship the abalone to East Asia as planned (Anon, 2010). Similarly, in May 2012, a truck driver was arrested for smuggling abalone worth almost USD4 million into Zimbabwe. The abalone was concealed under a consignment of charcoal, apparently also destined for East Asia (Anon, 2012a). In May 2012, a consignment of 1 t of abalone was seized at Maputo International Airport in Mozambique. The authorities believe it was smuggled into Mozambique from South Africa and was destined for Hong Kong via Mozambique and Kenya (Anon, 2012b).

Seizures of abalone often involved seizures of other contraband, commonly cash, cars or drugs. A number of seizures have included other high-value wildlife products, suggesting that the syndicates involved are not only focusing on the trade in poached abalone. In one example from 2014, a Chinese national was arrested in Cape Town, South Africa, and sentenced to ten years in jail and a ZAR5 million (USD417,500) fine for the possession of ZAR21 million (USD1.7 million) worth of African Elephant *Loxodonta africana* ivory items. In addition, it was revealed that the accused was also in possession of 116.5 kg of abalone. He was sentenced to a further two years in jail for contravention of the Marine Living Resources Act Fund. The court heard that he was likely to be part of a syndicate, working as a courier and an exporter. In another case in 2015, a Chinese national was arrested for the possession of 150 abalone and released on bail. Three days later he was arrested at Cape Town International Airport, en route to China with luggage containing two pieces of rhino horns, 4 g of rhino horn powder, three Lion *Panthera leo* claws and 2.9kg of Nile Crocodile *Crocodylus niloticus* meat. The court case further revealed that the accused had a previous abalone conviction from March 2010 in which he was fined ZAR30,000 (USD2,500) with a six-month sentence suspended for five years. Similar incidences have occurred in 2016 and 2017, where abalone was seized along with shark fin, ivory products and rhino horn destined for Hong Kong (Figure 18).

Until May 2018, abalone that was confiscated through these seizures would still enter the legal export market. Through a tender process, DAFF would sell seized abalone to a processing facility in South Africa from where it was then exported. Income generated from these sales would go to a fund (the Marine Living Resources Fund) managed by DAFF to aid in the research, management and conservation of all marine resources in the country, as stipulated by the Marine Living Resources Act (MLRA, 2008). However, following attacks on the storage facility in May 2018, the Minister of Agriculture, Forestry and Fisheries announced that DAFF would no longer store or sell confiscated fish (Anon, 2018). The number of confiscations of abalone by DAFF and other law enforcement agencies have fluctuated between 135 and 1,081 confiscations per year for the last 17 years (Figure 19), averaging 496 per year or 1.5 confiscations per day.



Seizures of abalone often involved seizures of other contraband, commonly cash, cars or drugs. A number of seizures have included other high-value wildlife products, suggesting that the syndicates involved are not only focusing on the trade in poached abalone





three suspects arrested during a police raid on an abalone processing facility. (See inside cover "Notice")

a poacher's tale

Adapted from "Poacher: Confessions from the abalone underworld" by Kimon de Greef and Shuhood Abader

The fishing community of Hangberg overlooks one of Cape Town's wealthiest suburbs, but jobs are scarce, and few residents have legal permits to fish. Since the early 2000s, the settlement has become a major abalone poaching hub, with hundreds of people earning an income from the trade.

Local poaching crews with large semi-inflatable vessels, known as "superducks", target reefs of abalone as far away as Robben Island, where Nelson Mandela was jailed during apartheid. The biggest boats are ten metres long, fitted with twin 250 hp engines, and can carry more than 15 poachers at a time.

Hangberg's poaching economy evolved in a context of poverty and exclusion from marine resources and has withstood all attempts by the authorities to shut it down.

A traditional fishing community since the 19th century, Hangberg lies below the Sentinel Mountain, in the crook of the natural harbour of Hout Bay. Its residents have for generations derived livelihoods from catching linefish and lobster or working for the harbour's commercial fishing sector, either as crew or in fish factories.

With the emergence of a lucrative export market for lobster – known locally as kreef - in the 1920s, the authorities imposed prohibitive restrictions on local fishers, proclaiming a no-catch zone in Hangberg's traditional fishing grounds. As documented by the historian Lance van Sittert, this favoured white-owned commercial fishing companies at the expense of Hangberg's then-termed "colored" residents (a term, later formalised during apartheid, for people of mixed race or indigenous Khoisan descent).

In response, fishers continued catching kreef, illegally supplying restaurants, caterers and private buyers. Decades later, when South Africa's illicit abalone trade began taking hold, Hangberg already had a model to emulate.

When Chinese buyers arrived in the early 2000s, offering up to ZAR500 per kg of abalone, a local poacher, now in his fifties, said, local fishers went "berserk".

When I was a kid my dad used to go out at night, like his father before him. They sold paraffin cans of kreef for 50 cents a kilo. In the day they'd go for legal kreef, working commercial. Illegal was at night", the local poacher added

"Our people were stupid," said another man, an abalone diver with a long record of arrests. "We thought crayfish was the diamond."

It had taken comparatively long for abalone poaching to reach Hangberg. Fishing communities on the Overberg coast, such as Hawston and Gansbaai, had already been supplying the blackmarket for nearly a decade. This is largely because a commercial abalone fishery had been operating there since the end of World War II, and fishers were accustomed to diving.

In Hangberg, would-be poachers had to learn a new craft.

Divers learned to use scuba in the harbour or in swimming pools belonging to the local kingpins— many of them former kreef smugglers—who began running the trade. As abalone poaching snowballed, and law enforcement grew tighter, many divers began working at night.

"It was terrifying," said one man of his first night dive. "You're alone. When you put on the torch, you can only see what's in front of you. Your heart is thumping. You want it to be over. You must get over the shock. You have to get that fear out of your mind."

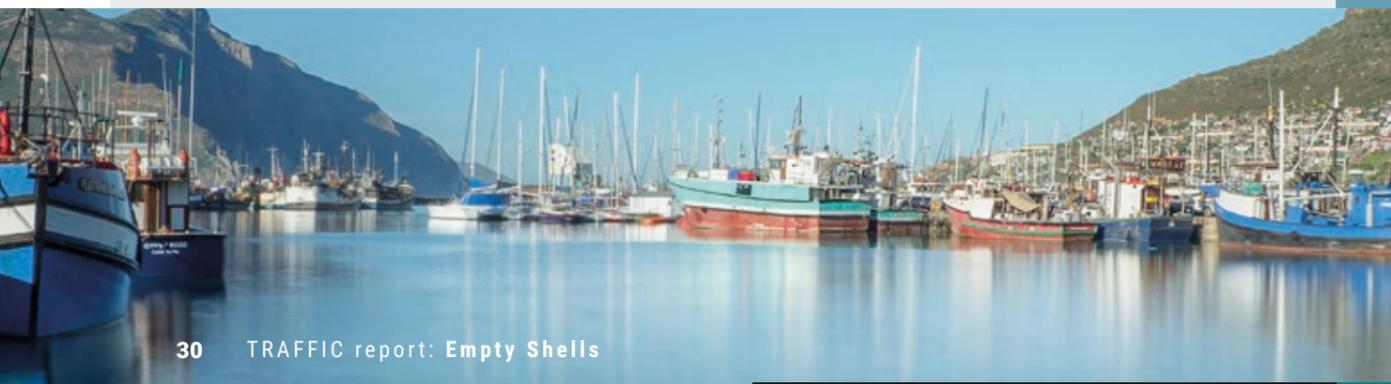
Though apartheid had ended, Hangberg remained marginalised, with dwindling options for legal work. The commercial fishing sector had shrunk due to resource depletion, and many factories in the harbour had closed their doors.

"Both my grandfathers were fishermen. I actually grew up surviving out of the fishing industry," said a man who at age 17 began working as a carrier, running bags of poached abalone into Hangberg at night. "The situation will stay the same, and it will produce more poachers ... they will never look into the fact of the injustices of the past."

With the abalone trade so firmly entrenched in Hangberg, residents generally defend poachers against law enforcement agencies, even though criminal syndicates and drug merchants have become more powerful in the community as a consequence of poaching.

In the most recent clashes, in August 2018, protestors set fire to several buildings in the harbour and petrol bombed the home of a local fisheries official after a local kreef fisherman went missing during an anti-poaching operation. In pursuit of his boat, police had shot out the engines, and residents believed that he had been killed. South Africa's police watchdog opened attempted murder charges against the officials afterwards.

We don't go to sea to kill you guys, so why do you shoot us?" one man yelled at a police van during the protest. "He went out to feed his family and you killed him!"



the affluent Hout Bay near Hangberg in Cape Town

A TYPICAL ILLEGAL DRIED ABALONE PROCESSING FACILITY

1 wet shucked abalone is delivered to premises



abalone has been known to be transported by road in containers, coffins and cooler boxes. The premises used could be a house, storage unit, or business

3 washed and rinsed

abalone may be washed/rinsed several times using large buckets of water



5 abalone is dried in racks



the cooked abalone is placed into drying racks in a gas heated room that is ventilated using electric fans

7 sorting and packaging

abalone is graded according to size and quality and then packaged for export. A variety of concealment methods may be used including a misdeclaration of goods, hidden in potato bags, and others



2 weighed and stored

the abalone is weighed and stored according to size and quality



4 cooked/boiled in large pots with salt/chemical preservative

with the use of gas the abalone may be boiled for several hours in large pots. The abalone may also be boiled more than once and also weighed again after cooking



6 5-20 days drying time



it takes anywhere from 5-20 days for the abalone to dry completely

EQUIPMENT

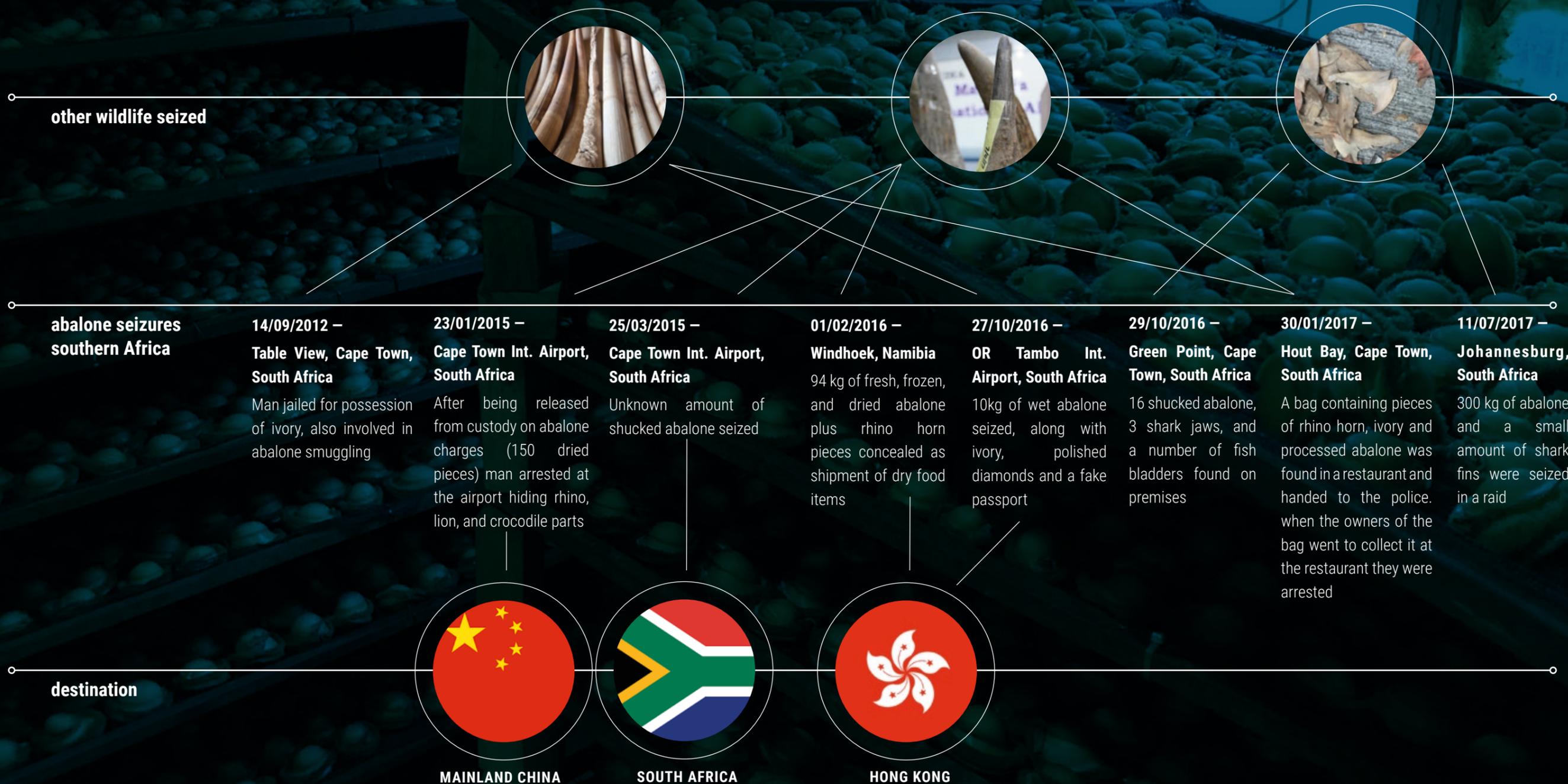
an abalone processing facility may consist of the following:

- large quantities of salt
- chemical preservative
- buckets/containers
- large cooking pots
- gas cylinders, burners, and hoses
- electric fans
- sheeting for covering up windows
- water hoses/access to water
- scales (industrial and/or domestic)
- temperature gauges
- shelving/racks for drying
- packaging (depending on modus operandi)

FIGURE 18

SEIZURES OF ABALONE

involving other high value wildlife commodities including ivory, rhino horn, shark fins, jaws, and fish maws, (2012–2017)



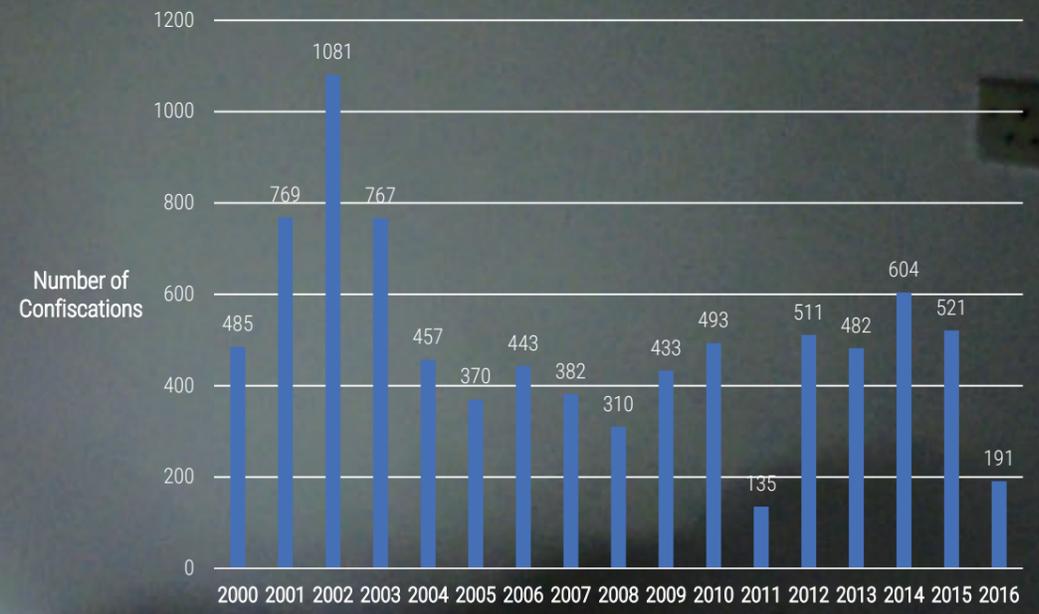


Figure 19
The number of confiscations of abalone by DAFF and other law enforcement agencies, 2000–April 2016.

Source: Department of Agriculture, Forestry and Fisheries (DAFF).



CONCLUSION AND RECOMMENDATIONS

a poacher shucking abalone under water off the Western Cape coast

OUR CONCLUSION



The trade in illegally harvested abalone has continued unabated over the period 2000–2016 despite numerous diverse law enforcement, management and trade interventions

To date, this has resulted in the loss of at least 96 million individual abalone (36,958 t) worth approximately USD891 million (ZAR10 billion).

In terms of value, the illegal abalone harvest is on a par with the legal South African squid and rock lobster fisheries—the two largest export fisheries in the country after hake. This situation poses significant challenges for the country as, despite the illicit nature of abalone poaching and related trade, it plays a role in supporting coastal economies and contributes to the livelihoods of many people. A rapid reduction in poaching would accordingly have detrimental repercussions on these stakeholders, but the failure to reduce current poaching levels will have significant long-term negative socio-economic impacts, which will be amplified once the resource is completely exhausted.

The high number of abalone seizures (on average a minimum of one incident per day since 2010) in South Africa and the increasingly high mass of abalone being imported into East Asia suggest that, despite sound fisheries management and the implementation of a number of law enforcement initiatives over the last 17 years, national interventions have had little impact on illegal fishing for abalone in South Africa.

Evidence from seizure data suggests that local joint law enforcement operations do result in seizures, and that the provision of information to authorities has led to a number of high-value seizures over the last ten years. However, confiscations as a percentage of the estimated poached mass are fairly low as much of the product (up to 43% in some years) is going through neighbouring countries where there are no trade regulations for abalone, and thus are not necessarily a reflection of enforcement efforts. Current exporting countries that are not abalone producers run the risk of being guilty of declaration violations in terms of their country's customs regulations by misreporting or misdeclaring export products, since there are no records of abalone traded through their ports apart from the importers' records.

The increasing imports of dried South African abalone combined with the high value of the product and the presence of organised crime syndicates suggest that interventions and collaborations at the international level are required in order to address the trade in illegally harvested abalone.



96 MILLION
individual abalones lost



USD891 MILLION
worth of revenue lost



A SEIZURE A DAY
involving abalone since 2000

OUR RECOMMENDATIONS



TRACEABILITY SYSTEMS

Legal abalone traders are encouraged to develop a robust traceability system for all abalone products exported from South Africa. Such a system would allow abalone buyers in market states to distinguish between illegally and legally sourced abalone.



DOMESTIC ECONOMICS

Although this study provides an understanding of the value of the illegal fishery from the perspective of international trade, it is a blunt analysis with a narrow focus on import values only. A better understanding of the overall domestic economics of the illegal fishery and associated trade is required, taking into account the value of the supply chain for harvesters, transporters, middlemen, buyers, exporters and other role players.

INCREASED INSPECTIONS



Increased inspections of and focus on key ports within South Africa, as well as continued collaboration between law enforcement and stakeholders in the transport sector (e.g. shipping companies and freight forwarders), are recommended to counter a recent apparent increase (albeit minor) in the transport of poached abalone by sea.



MULTI-AGENCY TASK FORCE

The development of a multi-agency task force is recommended to assist intelligence gathering and enforcement activities that target the criminal syndicates at the level of the middleman. The greater involvement of the South African Revenue Service and other agencies such as the Financial Intelligence Centre, could assist DAFF and the South African Police Service in gathering information on criminal networks through tracing financial records to identify the key traders buying illegally harvested product locally from poachers. Regional collaboration could be enhanced through the sharing of relevant information within the Asset Recovery Inter-Agency network of Southern Africa (ARINSA).

REGIONAL COLLABORATION

Regional collaboration within sub-Saharan Africa is required to ensure that neighbouring countries have the necessary information, resources and legal frameworks to appropriately restrict attempts to export abalone through their ports. This could be facilitated through the use of a regional wildlife trade information sharing platform (known as a "TWIX"—Trade in Wildlife Information Exchange) which is currently being developed by TRAFFIC for all Southern African Development Community (SADC) Member States.



SOCIO-ECONOMIC INITIATIVES

Comprehensive State driven socio-economic initiatives are required to stem the poaching of abalone. These should include increased multi-agency collaboration across all spheres of government (including but not limited to DAFF, SAPS, South African Revenue Service, National Planning Commission, Department of Economic Development, Department of Justice, South African National Parks, CapeNature and relevant municipalities), and incorporating the private sector, to explore policies and actions that address the combined effects of social, political and economic conditions surrounding and, in many cases, driving the illegal fishery and associated trade. Such initiatives would need to be informed by both a comprehensive assessment of the nature and extent to which abalone poaching and related trade supports coastal economies, as well as a risk assessment of the possible socio-economic and security risks that would arise from a future collapse of the abalone resource or a significant reduction in poaching. This information is critically important in planning for appropriate and meaningful job creation initiatives along areas of the coast currently affected by poaching. Although this study provides an understanding of the value of the illegal fishery from the perspective of international trade, it is a blunt analysis with a narrow focus on import values only. A better understanding of the overall domestic economics and socio-economic drivers of the illegal fishery and associated trade is required, taking into account the value of the supply chain for harvesters, transporters, middlemen, buyers, exporters and other role players.

INTERNATIONAL TRADE RESTRICTIONS

International trade regulation in the form of a CITES listing is highly recommended. As abalone is not traded domestically, and illegally harvested product is being traded through non-abalone-producing states, primarily to Hong Kong, the listing of abalone in one of the CITES Appendices would provide a legal framework for the regulation of abalone for in-transit and market states. If abalone were to be relisted on CITES, the involvement of the abalone industry and management is vital. A CITES listing of abalone could benefit the abalone aquaculture industry through opportunities to provide legal exports of abalone to the market. These efforts should be coordinated with work done in Hong Kong on market measures to increase awareness of and access to legally sourced abalone (Lau, 2018).



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APPENDIX 1

List of customs departments of each country/territory where data on abalone imports from Africa were collected:

China: China Customs, Statistical Information Service;
http://www.eiahk.com/consult_e.html

Hong Kong, SAR: Hong Kong Trade Development Council (HKTDC);
http://bso.hktdc.com/bso/jsp/bso_home.jsp

Japan: Japan Customs, Ministry of Finance;
www.customs.go.jp/toukei/info/index_e.htm

Macau, SAR: Macau external merchandise trade statistics database;
<http://www.dsec.gov.mo/NCEM.aspx?lang=en-US>

Malaysia: Department of Statistics Malaysia;
<http://www.statistics.gov.my>

Singapore: International Enterprise Singapore;
<http://www.singstat.gov.sg/statistics/browse-by-theme/trade>

Taiwan, ROC: Bureau of Foreign Trade – Trade Statistics;
<http://eweb.trade.gov.tw>

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IMAGE CREDITS

PAGE

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

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