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In South Africa, abalone farming goes for gold

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Amid rampant poaching, an emerging industry is defying the odds



Aerial view of Aquinion farm in South Africa. The Romansbaai site spans 30 hectares and will reach an annual production capacity of 360 metric tons within the next two years. Photo courtesy of Aquinion.

Stories about abalone in South Africa frequently make the press, but it is not usually good news when it does.

A severe poaching crisis that has persisted for several decades has trapped some local communities in a web of organized crime. Many people who traditionally earned their livelihoods from the sea have faced overfishing, poverty and unemployment. Conditions became ripe for illicit trade to flourish.

The government can take a share of the blame, with its poor management of the country's abalone stocks and its **reported** (<https://www.news24.com/SouthAfrica/News/r1m-bribe-for-zuma-exposes-crisis-levels-of-abalone-poaching-da-20180325>) complicity in corruption. And while the issue may be an international one – wild abalone populations across the globe face similar threats – the local problem is acute.

“Every harvest of SA abalone could be its last,” the **headlines** (<https://www.iol.co.za/saturday-star/every-harvest-of-sa-abalone-could-be-its-last-13259602>) scream.

A TRAFFIC **report** (<https://www.traffic.org/publications/reports/empty-shells/>) released last month, “Empty Shells,” estimated that South Africa has lost approximately 96 million abalone to poaching in just under two decades. Poachers on average strip about two tons of abalone per year, resulting in annual losses of around R628 million (\$42.8 million).

In South Africa, abalone is more commonly known as *perlemoen*, a name that stems from the old Dutch word for the iridescent mother-of-pearl found inside the ear-shaped shell. These sea snails are endemic to the country's coastline, mainly along the southeastern and western coasts, and are usually found between nine and 14 meters offshore on shallow reefs, preferring a rocky substrate. They live in the shadows beneath kelp forests – their natural food source, along with algae.

Their very biology is a threat to their survival: Abalone are slow-growing mollusks of the *Haliotis* genus that belong to the same family as clams, mussels and sea slugs. It takes seven years for abalone to reach sexual maturity, and the current legal age for collection is between eight and 10 years. The harvesting of wild abalone is managed under a Total Allowable Catch (TAC) system, but poaching and overfishing have meant these gastropods usually don't have enough time to replenish their stocks.

But there is hope – good news, even – in the form of aquaculture. A burgeoning abalone farming industry may ensure that abalone may stay a part of South Africa's economy and culinary culture.

Commercial aquaculture ventures are putting abalone back on the menu, particularly the *Haliotis midae*, one of five local species. The environmental bona fides are sound: Farmed abalone has been given the green light by **SASSI** (<http://wwfsassi.co.za>), the Southern African Sustainable Seafood Initiative. The annual SASSI list grades different species using a color-code of red, orange and green, to create awareness and guide consumers in making responsible seafood choices. Wild abalone, unfortunately, bears the red “don't buy” designation, reserved for species harvested from unsustainable populations.



After three months, abalone spats become light sensitive. They are then moved into tanks with black “traffic cones” – small conical shade coverings where they hide during the day and come out to feed at night. At this stage, they are weaned off diatoms and start being fed *Ulva*. This new food source changes their colour, and their shells transform from maroon to aquamarine. Photo by Marie-Louise Antoni.

The abalone aquaculture industry in numbers

According to a [report \(http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/902597\)](http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/902597) from the Food and Agricultural Organization of the United Nations (FAO), annual global production of cultivated abalone was 150,000 metric tons (MT) in 2016. In the same year, South Africa produced 1,500 MT, or just 1 percent of the global supply. The local industry is therefore small,

but the country is nevertheless the **third-largest producer** (<https://www.businesslive.co.za/fm/features/2017-10-26-the-fascinating-price-of-abalone/>) worldwide, after China and South Korea.

It is however a high-value product in a niche market – and has been dubbed “white gold.” In South Africa, prices have averaged between \$30 and \$50 (U.S.) per kilogram for several years, with total annual legal production amounting to about \$45 million.

There is also potential for significant growth. In 2016, a Trade & Industrial Policy Strategies (TIPS) **report** (<http://www.tips.org.za/policy-briefs/item/3128-maximising-niche-markets-south-african-abalone>), commissioned by the Department of Trade and Industry, stated that aquaculture could potentially produce “6,800 tons per annum by 2025, representing a relative proportion of 4.5 percent” of global production.

The heart of South Africa’s abalone industry lies on the shores of Walker Bay in the town of Hermanus, where a cluster of aquaculture farms neighbor one another in the new harbor.

In the 1980s, a local veterinarian, Dr. Pierre Hugo, began studying abalone in his shower basin. Discussions with recreational divers made him concerned about the future of wild populations, and so he decided to experiment with breeding them in captivity for potential stock enhancement. His sons hauled buckets of seawater from the beach, while he borrowed his wife’s *Magimix* to grind up kelp for feed.

A small stone building bears testimony to his early pioneering efforts at the old harbor. Today it is used for shark research, but more than 30 years ago it was Hugo’s first abalone hatchery. His experiments were so successful that soon he could approach investors with plans for a financially viable business.

“That was the start of Abagold, and they haven’t looked back,” said Braelea Pope, a guide who conducts public tours of the company’s operations. “It’s been listed twice and it’s 100 percent South African owned.”

Werner Piek, marketing manager of Abagold, said many of the farms started in the late 1990s and began exporting in the early 2000s. It has been growing steadily since, he added.

Today Abagold is a multimillion-dollar venture, boasting a processing factory and feed manufacturing plant, with plans in the pipeline for further expansion. Pope works at Heart of Abalone, which is Abagold’s official tourism partner. She estimates there are now more than a dozen abalone farms dotted along the shoreline, including Aquunion and Viking.

Willem Briers is the sales manager for neighboring Aquunion, which also started up in the early to mid-1990s. He said a marine biologist “literally put up his caravan next to the coastline” to try and figure out the spawning cycle of abalone.

A few years later, the farm exported its first commercial production. The company now has two production farms: one in Hermanus (*Whale Rock*), and another in Gansbaai (*Romansbaai*).

“We’re actually in an expansion phase at the moment, so we’re not at full production,” said Briers. He however estimates the farms will soon reach production of about 440 to 460 MT.

“We are most probably anything between 20 percent and 25 percent of [the industry’s] total production,” said Briers. He added that Aquunion mainly produces live and canned abalone, but also does marketing for some of the other farms.

Viking started its operations in 2013 and now owns two abalone farms – one about 50 miles from Hermanus, and another in the Northern Cape. It is currently the third-largest venture. Operations manager Nick Loubser however said that by 2022, it would become the largest, once both farms have been completed. He added that Viking has also invested in other areas of aquaculture, including oysters, mussels and both fresh and sea water trout.

Abalone aquaculture is labor-intensive. Abagold employs around 500 staff, second only to the municipality in terms of job creation. Photo by Marie-Louise Antoni.

Premium product, niche markets

“The most important thing to remember with abalone is that it’s got nothing to do with the shell or the size,” said Pope. “It’s all about the quality of the meat. It’s the taste, the flavor and texture.”

South Africa’s *Haliotis midae* is highly regarded, particularly in eastern countries, because of the quality of its meat, relative price point and its similarity in taste to the Japanese *Haliotis discus hannai*. Other popular species include the Australian *Haliotis laevis*, which is used for live export because of its proximity to Asia, reducing the risk and cost of transportation. The New Zealand Paua (*Haliotis iris*) has a particularly striking shell for making buttons, jewellery and trinkets, while the California Red (*Haliotis rufescens*) gives a good yield.

“South Africa and our various individual brands are quite well recognized,” said Piek. “A large part sits in our brand value.”

Current production is mainly exported, as the domestic market is miniscule. Most South Africans cannot afford it, and they are somewhat resistant consumers.

“People used to take them out of the sea themselves in the past, but now it’s around R400 (US \$27) or more per kilogram,” he said.

However, in Asian markets – such as Hong Kong, Singapore and Taiwan for example – there is an “age-long culture of eating and consuming abalone and preparing high-end dishes,” said Piek. Therefore the industry’s target markets, he added, are those who are “willing to pay the premium.”

Piek compares the various abalone species to wines, and there is a sophisticated culinary market in Asia.

“It depends on the connoisseur. They appreciate the differences between the species and even the different recipes from the various factories,” he said.

“We don’t sell retail. We sell to high-end restaurants and hotels.” said Pope, adding that part of the Asian market still clings to the cultural belief that abalone is an aphrodisiac, and producers are constantly having to educate their clients.

She added that consumers are starting to realize that while wild and farmed abalone taste the same, farmed abalone is more consistent, more reliable, more legitimate and more hygienic.

Obstacles aplenty

Despite its achievements, abalone aquaculture has a fair amount of challenges. Early last year, a devastating red tide swept across the bay. Algal blooms are common, but in this event the wind refused to change, and it lasted for an annihilating 42 days. Some of the bigger farms lost between 30 to 50 percent of their stock. It was a hard lesson and expensive knock, but it made way for new advancements and contingency plans.

Other challenges include labor issues, energy costs and a tough regulatory system.

The daily feeding, cleaning of tanks and general maintenance along a corrosive shoreline means that abalone farming is labor-intensive.

The Hermanus farms were hard-hit by service delivery protests earlier this year. According to Piek, Abagold lost around 15 to 20 working days due to stay-away action and community unrest. And although the protests were not aimed at the farms, it is a nationwide issue that adds an extra layer of difficulties – particularly for operations that employ hundreds of staff members.

“One of our biggest challenges is that the cost of production of land-based aquaculture is very, very high,” said Piek. The farm pumps a lot of water – nearly 10,000 liters per hour – and that entails high energy costs.

Briers from Aquion concurs: “We have a lot of challenges with labor and the cost of labor,” he said. “Some of our top line costs are obviously, similar to many businesses, labor and electricity.”

The industry’s legal compliance framework is equally grueling. Numerous permits and approvals are required. There are also global trade restrictions, tariffs, stringent labelling requirements and a host of other hoops to jump through.

The regulations also make access into the domestic market even harder. While they are aimed at curbing poaching, it is impossible to distinguish between a farmed abalone or one taken out of the sea.

“Red tape, red tape, red tape,” said Loubser. He added there seems to be a level of unwillingness or incompetency among government officials to make a difference, or to promote and assist the industry.

“Sometimes it even appears as if government tries their best to prevent the establishment of new business and job creation,” he said.

In ancient times, the Japanese used dried abalone as currency. They carried it in their pockets and used to trade with it. Today it is still a delicacy and sign of wealth in Asian culture, and this association still exists. Photo by Marie-Louise Antoni.

Government initiatives

Relief and support may soon be on the way. Government has launched Operation Phakisa to “unlock the ocean economy,” including in the aquaculture sector. Opinions are however divided as to how effective these measures will be.

Piek believes its aim is to “make the regulatory environment a little more bearable.”

“From a government side, there is definitely a willingness to create more of a friendly environment for the development of this industry,” he said. He added that government may well have realized the sector’s employment and foreign income generation potential.

The abalone industry and the Department of Agriculture, Fisheries and Forestry (DAFF) do work closely together, but it has not been without its challenges because of the illicit trade.

As Briers commented: “We’ve got this legal product, but we’re sort of overshadowed by the whole illegal industry, and that makes it so much harder on a day-to-day basis.”

The department manages fishing rights and quotas. “DAFF’s typical approach is that of a sort of policing approach,” he said. “It’s not really pro-business. Companies have to reapply for licenses to operate, even if they have been running for 20 years.”

A new draft aquaculture bill may be a positive development. The Department is however said to be pushing for a blackownership and economic empowerment program, and this in the context of an industry that generates significant employment.

Investment opportunities

Because it is a developed and mature industry, Abagold's Piek believes the sub-sector presents good investment opportunities.

"There's a lot of [intellectual property], and a lot of understanding and intricate technical knowledge within this industry," he said. Investors could leverage this experience "to either expand the industry or develop ancillary industries or other aquaculture industries elsewhere, either in Africa or the world."

Briers said the industry has experienced good years, and some challenging ones as well. "Those good years have been due to the fact that we're mainly exporting, and we've got a deflating rand relative to the international currencies, so it's a great exchange rate hedger," he said.

Nigel Dorward of the Abalone Export Council – an association representing twelve of the country's farms – also believes there are good opportunities in the sector.

"There are geographic advantages like the local species being much sought after in the market, and there being good locations for the production of abalone along the coast," he said. "On the downside, the cost of capital is high and there is a long lead time from set up to positive cash-flow, but that is the same all over the world. Rand-based investors may find the fact that this is essentially a 100 percent export commodity a great rand hedge."

Abalone occurs worldwide in areas between 30 and 40 degrees north and south of the equator. Optimal water temperatures range between 12 and 20 degrees-C, and there are warm and cold water species. The latter grow faster. Photo by Marie-Louise Antoni.

Future prospects

Abagold is currently looking to expand its operations into Oman. The company wants to explore different species of abalone, and Piek believes the Omani species is of good quality at the right price point.

“It’s a different regulatory framework and it adds another product to our basket,” he said. Abagold intends adding abalone from across the world to its portfolio, with “some Chilean, some Omani, and maybe some Australian” species. The company would also like to experiment with different processes and see what kind of products it could still develop.

Aqunion plans to invest in property further up the coast, where it plans to put up another shore-based farm. The company is also involved with a ranching project in Hondeklip Bay, where it has experienced a number of challenges, including poaching, although early signs look promising.

Ranching involves the reseeding of abalone spat into the wild into a concession area. The process helps to replenish and enhance wild stock. It also offers another benefit in the form of a new “all natural” product to take to the market. “My personal view is that ranching is the future of abalone farming,” said Briers.

According to Loubser, Viking’s future plans include setting up wind turbines at both their production farms. The company will also be investing in seaweed production on a large scale, making it less reliant on kelp.

The Abalone Export Council has been monitoring growth and general trends in the industry. “The abalone market is a fairly tightly run affair, and whilst this has positives in terms of spikes and shocks, it can also be a daunting place to make an early impact,” said Dorward.

“We produce abalone in areas of little alternate economic activity, so we can make big impacts in fairly poor communities, but this also means we can stick out a bit,” he added.

He believes South Africa’s continued positioning of its abalone “at the top end of the premium table” has been one of the sub-sector’s key successes.

Thanks to the vision of early pioneers, the industry has a bright future. The farms produce millions of spat per month which, with careful planning, could be reintroduced into the wild using ranching programs to replenish the country’s natural stocks. Disaffected communities might one day even see their livelihoods decriminalized. With the right support and political will, it certainly seems possible.

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