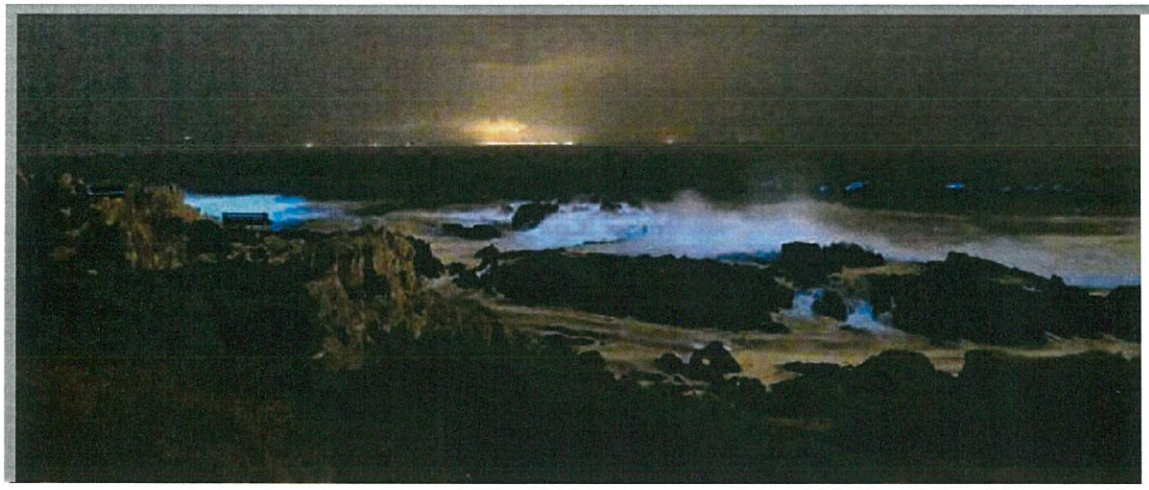
The village NEWS

31 January 2017 Cape Whale Coast FREE COPY

VLOGGER
Meet Adam Spires
PAGE 05

DESMOND TUTU
Our new resident
PAGE 17

INTERSCHOOLS
All the action
PAGE 28



THE BLUE BEAUTY OF THE BEAST

What the sea lacks in beauty in the daytime during the red tide, it makes up for at night with spectacular displays of phosphorescence in Walker Bay. According to resident Ronnie Hazell there have been beautiful displays in the breaking waves and spray along the Hermanus coastline.

PHOTO: Ronnie Hazell

Monsterous red tide is the largest ever

De Waal Steyn

This red tide is huge – this is definately mother nature at her most powerful and the sheer size of the algae bloom is astounding. A red tide of this magnitude has never been recorded in Hermanus before," says Tim Hedges, Managing Director of Abagold.

According to Tim, the algae bloom stretches at times well over 3 km into the ocean from the shoreline and can be viewed on satellite imagery from the West Coast past Cape Point up to Cape Agulhas – an area spanning some 500 km.

Residents and visitors were alerted to the red tide last week and urged to refrain from harvesting any shellfish, especially mussels, as this could lead to illness if eaten.

"We are lucky that the current red tide is not toxic and ingesting shellfish or sea water will probably only cause a mild upset stomach. The impact on marine life however, especially abalone, is unfortunately much more severe. Prolonged exposure to these conditions causes high levels of stress for these animals.

The dinoflagellate organisms clog the gills of abalone and they suffer stress from a lack of oxygen. This may lead to significant losses for abalone farms," adds Tim.

But, according to him, Abagold's employees have united in their efforts to manage this event and are currently working around the clock to ensure the well-being of their stock. "I cannot describe how proud I am of our Abagold team. We became aware of a build-up of nutrients in the water in early January, which is normal each year, but when the excessive volume of the bloom started on 16 January we were ready to put all our energy into combating the effects of the red tide.

"For the past two weeks our employees have been split up into groups that cover the farm 24-hours a day, 7 days a week. Our employees ensure that the animals receive enough water (leading to more dissolved and available oxygen) and they clean and flush out the tanks at least once a day. By reducing the number of animals in each tank and by diluting the infected water with as much clean water as possible (when we get natural breaks in the tide) we have been able to keep losses to a minimum. Abagold pumps close to 12 million litres of sea water per hour into our tanks. To date we have sustained losses of 3,5% of our stock equating to some 26 tons."

Continued on P 3

No end in sight for red tide

From P 1

"Currently we do not know when the red tide will come to an end, so we have extended our special operation procedures for another ten days at this time, but review the situation every six hours. Even though this means a lot of extra work for our 500 employees, we have not received one complaint or groan. We have the most dedicated and engaged teams and through great teamwork we are certain to win this war. All of us here realise the importance of keeping the animals happy and healthy for the benefit of all involved," says Tim.

According to Wilfred Chivel of Dyer Island Conservation Trust he has also never seen such a large bloom. "It is spread over a massive area and the water is very murky. This makes it difficult for shark cage divers to see clearly, but the effect on our business has been minimal."

According to local conservationist Sue Matthews the current bloom consists predominantly of the dinoflagellate species *Gonyaulax spinifera*, although *Lingulodinium polyedra*, responsible for the extensive blooms along the South Coast in 2014, is also thought to be present.

"Both of these dinoflagellate species produce *yessotoxins*, which are accumulated by filter-feeding shellfish such as mussels, oysters and clams. However, studies conducted to date have not revealed any toxic effects to humans resulting from consumption of *yessotoxin*-contaminated shellfish, and worldwide there have been no reported cases of human shellfish poisoning attributed to *yessotoxins*," she says.

Rock lobster and other seafood are not affected by the red tide, unless the high algal densities cause secondary effects such as suffocation due to oxygen depletion of the water column, or gill irritation and clogging.

According to Tim all export of live edible perlemoen, from Abagold, has been halted until the red tide clears up.

The spectacular nightly displays of phosphorescence in Walker Bay can be attributed to the red tide. According to local resident Ronnie Hazell they have been gob-smacked by the beautiful displays in the breaking waves and spray along the Hermanus coastline.

The red tide is clearly visible at Onrus beach. **PHOTO: Abagold**

"To stand in the dark and see this wonderful sight is a truly awesome experience and one we will never forget. What the sea lacks in beauty during the daytime, it makes up for at night.

"For some days now, the water has been very brown due to high micro-plankton volumes and levels of die-off of the algae, which, in turn, gives rise to phosphorescence at night, when disturbed. It can be seen in the choppy waters and in the waves, as well as on the beach, if one kicks up the wet sand," says Ronnie.

This beauty though causes much distress to a very important abalone cultivation industry here in our beautiful Hermanus, says Lou-Anne Lubbe, HR director at Abagold.

Red tides – What, why and how?

WHAT? Red tides, also called Harmful Algal Blooms (HABs), are caused most often by dinoflagellates. Dinoflagellates are microscopic algae that naturally form part of the phytoplankton communities of the ocean. Under normal environmental conditions, dinoflagellates are important components of the food web and ecosystem as zooplankton (microscopic animals and larvae) rely on them as a food source. Zooplankton in turn is food for bigger fish that people can again eat. As the 'plants' of the ocean, they are also responsible for taking up carbon dioxide from the water and converting it to oxygen through the process of photosynthesis. However, when environmental conditions change during upwelling events – the bringing up of cold bottom water high in nutrients (food) – extra nutrients and high light conditions result in these little microalgae growing and reproducing frequently, resulting in an increase in the number of cells per litre. Generally, dinoflagellates occur at 10 to 100 cells per litre, but during red tides this goes up to over 1 000 000 cells per litre. Some dinoflagellate species may also be toxic and can cause other organisms such as bivalves, abalone, larvae and fish to die.

WHY? When wind conditions cause strong frontal systems along our coastline, it can cause upwelling. During upwelling the bottom colder water, which is rich in nutrients, is pulled up to the surface. Here the sunlight is good for photosynthesis and the slightly warmer water ensures that the dinoflagellates reproduce very fast. Once all the nutrients have been used up by the dinoflagellates, they will start to die. As they die, bacteria move in to help decompose all the dead cells. This process uses lots of oxygen in the water and can result in anoxia – a condition where the oxygen levels in the water become too low for animals and they die.

HOW? Because environmental conditions have remained good for the dinoflagellates, we have seen this red tide being much bigger and staying much longer than normal red tides. As the red tide prolongs, there are changes in the dominant dinoflagellates species responsible for the red tide.

All these species produce toxins that are harmful to abalone. Routine test of for toxins indicate that levels are well below the levels that are considered harmful to people. Mussels and oysters, however, are filter-feeders and may have higher levels of toxins as they filter and feed on most of the dinoflagellates in the water. Consequently, people are advised not to take out these species, including crayfish, or eat these. – Dr Nuette Gordon

Credit: Woods Hole Oceanographic Institute/NOAAfrom: www.e-education.psu.edu/earth103/node/690