

Mary Kate Bolger  
Dolphin Watch  
5 Cathedral Place  
Cobh  
Co. Cork  
P24XP63

**Date:** 11 February 2022

**Re:** Expansion of the Bauxite Disposal Area, extension to the existing Salt Cake Disposal Cell and extension of the permitted borrow pit at Aughinish Alumina Limited  
In the townlands of Aughinish East, Aughinish West, Island Mac Teige, Glenbane West, and Fawnamore at or adjacent to Aughinish Island, Askeaton, Co. Limerick

Dear Sir / Madam,

An Bord Pleanála has received your recent submission in relation to the above mentioned proposed development and will take it into consideration in its determination of the matter. A receipt for the fee lodged is enclosed.

The Board will revert to you in due course with regard to the matter.

Please be advised that copies of all submissions / observations received in relation to the application will be made available for public inspection at the offices of Limerick City and County Council and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: [www.pleanala.ie](http://www.pleanala.ie).

If you have any queries in the meantime please contact the undersigned officer of the Board. Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

  
Jennifer Sherry  
Executive Officer  
Direct Line: 01-8737266

PA04

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64 Sráid Maoilbhríde	64 Marlborough Street
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**Case Number:** 312146

**Proposed Development:** Expansion of the Bauxite Disposal Area, extension to the existing Salt Cake Disposal Cell and extension of the permitted borrow pit at Aughinish Alumina Limited

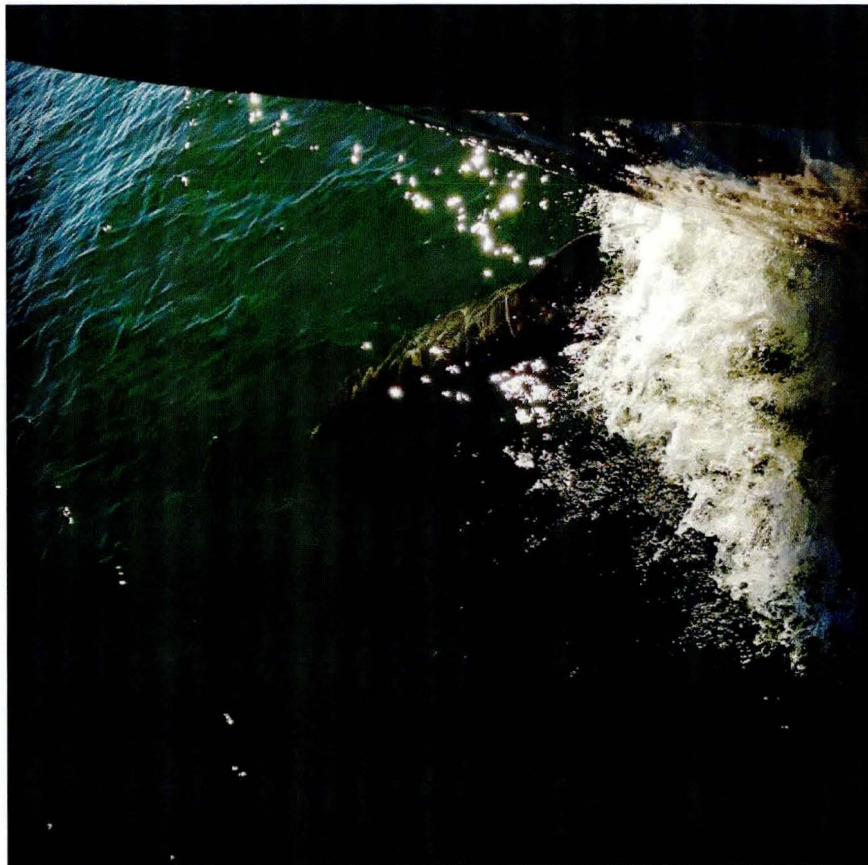
**Observation by:** Mary Kate Bolger

5 Cathedral Place, Cobh, Co. Cork

P24XP63



**The potential impact of the expansion of the Aughinish Alumina refinery, Co. Limerick, on a protected population of bottlenose dolphins in the Shannon Estuary**



## **Introduction**

The Shannon Estuary is a designated Special Area of Conservation (SAC) under Annex I of the EU Habitats Directive and is therefore considered a prime area for wildlife conservation on both an Irish and European level. There are a number of locations along the Estuary that qualify as Special Protection Areas (SPA) intended to protect vulnerable and rare species, migratory species, and also internationally important wetlands.

The Estuary is also home to a resident group of approximately 131-150 bottlenose dolphins (Baker *et al.* 2018), which are further protected under Annex II of the EU Habitats directive. Barring the occasional explorer, this population stay in the Shannon, with individuals having preferences for the inner and outer estuary (Berrow *et al.* 2012). These dolphins are extremely important for a number of reasons. For the estuary itself they play a vital role in the ecosystem by balancing populations of predatory fish and squid, so by protecting them, we protect their entire ecosystem, down to small winkles and even plankton. For us humans, these are a charismatic and intelligent species that is widely adored and respected. As I have often said on board, they have been here longer than the Guinness factory, and we are responsible for ensuring they are here when the lease runs out.

I have been a guide with Dolphinwatch Carrigaholt since 2016, and this year I am stepping up in the running of this business as well as taking on the skipper role. In addition to this I have a BSc in Zoology, and a MSc in Marine Biology, with both of my theses focussing on different aspects of bottlenose dolphin life; their vocal communication, and their identification markings, including skin lesions. In the latter study, I examined the Shannon population. I have also studied bottlenose dolphins in Galicia, Spain, and Shark Bay, Australia. I am, therefore, very familiar with this species, and know most of the Shannon population individually.

## ***Potential Impacts of the Bauxite Residue Disposal Area, aka "Red Mud"***

Long-term exposure to bauxite residue is well known to have toxic impacts on the internal organs of humans and animals, such as, kidneys, spleen, bones, liver, and even the brain (as read in Nganvongpanit *et al.* 2016). The dolphins in the Shannon Estuary are exposed to this residue both from the insufficient lining of the bauxite residue disposal area (BRDA) in Aughinish, as well as from dust blown from the surface of the red mud pond. The dolphins



are not only susceptible to the direct impacts of bauxite residue. They are top predators, and therefore rely on the fish and other wildlife in the Shannon to survive. Many locals have already noted a significant decline in wildlife in the area. Simply put, if the fish go, so will the dolphins.

It is widely accepted that bottlenose dolphins exhibit skin lesions in response to environmental stressors including pollutants, and these can often be an indicator of population health. My MSc thesis looked at this and found that the presence and severity of skin lesions has increased significantly since the beginning of data collection in 1990. My results found that a minimum of 28% of the individuals from the subset I examined had lesions on their dorsal fins. In reality, this number is likely much higher as I only examined one small part of their body, whereas lesions occur everywhere. While the exact cause of this is not known, it is clear that like the rest of the wildlife in the Shannon, the overall health of this population may be declining.

On the 4th October, 2010, a dam of a BDRA in the Ajka alumina plant in Hungary collapsed, releasing approximately one million cubic meters of red mud. This was a catastrophic event that led to the deaths of 10 people, and the injury of 406. The high alkalinity of the mud caused severe chemical burns in both humans and animals, and the spill resulted in massive wildlife mortality. Bottlenose dolphins are a long-living species, are slow to mature, and only reproduce every 3-5 years. The current average birth rate in the Shannon is 7 calves per year (Baker *et al.* 2018). Should a large proportion of this population be wiped out, it would be extremely unlikely that they could ever bounce back, which would cause the ecosystem itself to collapse.

### ***Potential Impacts of Noise Pollution from Rock-Blasting***

Another, likely underestimated threat from the expansion of Aughinish is the noise pollution from rock-blasting. Dolphins are primarily acoustic beings and rely heavily on echolocation (the use of clicks as sonar to “see”), as well as to communicate. They are extremely social and are cooperative hunters. Even a small vessel travelling at 5 knots within 50m can reduce the communication range of these dolphins by 26% (Jensen *et al.* 2009).

The dolphins are already exposed to noise from shipping and other marine traffic, although presently levels are lower than Dublin and Galway (O’Brien *et al.* 2016). Noise travels faster

in water and due to the bathymetry of the Shannon Estuary, sound will reverberate off the seabed and be amplified, causing extreme stress and even further physiological damage to their bodies/hearing. It would be similar to a gunshot in a car. Any damage caused to their hearing would be detrimental to their survival, reducing their ability to hunt, as well as their ability to participate in their society.

### ***The Economic Importance of Bottlenose Dolphins in the Shannon Estuary***

Nature tourism is one of the fastest growing industries in the world and is rapidly growing in popularity as we are recognising the value and delight that comes with encountering wildlife in the great outdoors. Dolphinwatch Carrigaholt has been operating since 1992 and in addition to providing a living for those of us who have the privilege of working there, we have attracted many international and Irish tourists, allowing tourism in the local area to thrive and creating a sustainable living for many people. In addition to this, the dolphins ensure ecosystem stability which safeguards the livelihoods of those who rely on the natural resources from the estuary, such as fishing.

### ***Conclusions***

In short, the Shannon dolphin population is heavily protected by law and extremely important to the area. Even without the expansion of the Aughinish Alumina refinery, there are likely already significant health and social problems for the dolphins resulting from its current status, and worst case scenario, we could lose the population which will have a huge economic toll and is, quite frankly, unacceptable. They are sentient and intelligent beings who deserve our respect and should not only be esteemed by their economic value.

When I started working for Dolphinwatch Carrigaholt, most of the questions I was asked were about whether we could swim with or cuddle the dolphins. In more recent years, the main question I am asked is "how can we help". It has been such a privilege to see, and in a small way contribute to this shift in attitude and as a marine guide I believe it is my responsibility to advocate and educate on behalf of these dolphins transparently, and to ensure that we return the favour and protect them from both a moral and economic standpoint.

## **References**

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