

What is Vibrio Alginolyticus ?

Vibrio Alginolyticus is a species of bacteria from the Vibrio genus. Vibrios are a species of bacteria that tolerate salt water and are unable to survive in fresh water.

Is Vibrio Alginolyticus dangerous?

Like some other Vibrio species, Vibrio Alginolyticus can cause illness in humans. It would be wrong to describe it as dangerous but it is pathogenic ie it can make people ill.

What illnesses does Vibrio Alginolyticus cause?

The most common ailments are ear infections (otitis) and gastrointestinal infections (watery diarrhoea). It is also known to cause skin infections and occasionally eye infections. If left untreated it can, rarely, cause cellulitis.

How was Vibrio Alginolyticus detected?

Samples of water, sediments and shellfish were taken and cultured in the laboratory. Various tests enabled the species to be identified.

Why was the testing carried out?

Vibrio species had previously been identified in other sites along the south coast of England. However, it was previously believed that the sea temperature in the Teignmouth area was not conducive to the growth of Vibrio species. With record high temperatures in May and September this year, it was felt that a further test was warranted to determine if this hypothesis remained correct.

Where and when was the test carried out?

The test was conducted in the "swimming" pool just above Shaldon Bridge (adjacent to Shoreside.) The test was carried out in September 2023.

Who carried out the test?

The test was carried out by Dr Sariqa Wagley at the University of Exeter. (Stuart Reynolds and Stephen Barnes, two local anglers, assisted in the collection of the samples.)

Is Vibrio Alginolyticus present throughout the year?

Like other Vibrio species, Vibrio Alginolyticus requires a stable temperature above 18°C to multiply. However, it can enter a semi-dormant state, attached to seaweed or hard surfaces, re-emerging when water temperatures rise.

Does Vibrio Alginolyticus affect fish and shellfish?

Yes. Vibrio Alginolyticus is believed to cause disease in fish and shellfish, although the mechanisms by which this occurs is not well understood. Fish species known to be infected by Vibrio Alginolyticus include gilt head bream and horse mackerel (both of which are present in the River Teign at different times of the year.) Vibrio Alginolyticus has also been shown to affect Pacific Oysters and Mussels.

Is Vibrio Alginolyticus linked to other potential health risks?

Yes. Although the exact mechanism is not clear, there is some evidence that Vibrio Alginolyticus can cause the concentration of certain neurotoxins (TTX) to increase in shellfish. TTX is a highly toxic substance capable of causing paralysis and death. Whilst TTX has been detected in U.K. shellfish the levels are believed to be within the safe limit (based upon the consumption of large

quantities of shellfish.) It's unlikely that this risk is currently material although the EU has noted this is an emerging risk as the climate warms.

Is the presence of *Vibrio Alginolyticus* linked to sewage pollution?

Vibrio Alginolyticus is a naturally occurring species that can be spread by fish, crustaceans and shellfish movements. There is nothing to suggest a direct link between sewage pollution and the presence of *Vibrio Alginolyticus*.

There is however some (limited) research to suggest that the presence of sewage can cause mutations in certain *Vibrio* species that can potentially increase their virulence. It is also possible that adding sewage to estuary water can increase the number of *Vibrio* bacteria present. In one study, the addition of 1% sewage to estuarine water caused the density of a pure culture of *V. vulnificus* and a natural *V. vulnificus* population to increase significantly, by two to three orders of magnitude.

What precautions are necessary as a result of the presence of *Vibrio Alginolyticus*?

The most common illnesses caused by *Vibrio Alginolyticus* are ear infections (otitis.) If left untreated these can cause catastrophic hearing loss. Regular swimmers should wear a cap and ear plugs. Children who are susceptible to ear infections should avoid getting their head in the water, particularly in the summer months when water temperatures rise. Showering, and careful drying, especially of the ears, is important. Early medical attention should be sought by anyone who has an ear infection after swimming or bathing in the river.

Skin infections are also a potential hazard. People should avoid entering the water if they have cuts, grazes or ulcers. Sturdy footwear should be worn to prevent cuts to the feet from shells, rocks and other sharp objects in the water. Anglers should ideally wear gloves, especially when handling spiny species, such as bass. Again, early medical attention should be sought by anyone who has a wound that starts to weep or is slow to heal.

Gastrointestinal problems, usually stomach cramps and watery diarrhoea, are also possible. The most common causes are uncooked shellfish or fish. Shellfish should be professionally cleaned using UV filtration or thoroughly cooked. Fish should be thoroughly cooked until it is opaque.

Care should be taken that drippings from fish and shellfish do not contaminate other food products or surfaces.

Most gastrointestinal problems will be self-limiting but medical treatment should be sought if the condition lasts for more than 48 hours or if the individual is vulnerable.

Thorough hand washing should be practiced by anyone who is in contact with the river water, fish, shellfish or items gathered from the foreshore.

Are there other *Vibrio* species present in the river?

We do not know. As water temperatures rise it is possible that other species, including more pathogenic species, could be found.

Isn't this just scaremongering?

Vibrio is a leading cause of water borne disease worldwide. The diseases caused range from cholera to necrotising fasciitis. In the USA, vibriosis is listed by the Center for Disease Control as a notifiable disease. It is not currently a significant cause of ill health in the U.K. but as sea temperatures rise it is likely to become an increasing risk.

What can we do about the presence of *Vibrio* in the water?

Vibrio is naturally occurring and a worldwide phenomenon: it cannot be eradicated as long as conditions are favourable. As the climate changes, it is possible that the variety of Vibrio species and their prevalence will increase. Aside from taking sensible precautions against illness there is nothing we can do.

Why has no one said anything about this before?

This is a new threat arising out of changes to our climate, although it's possible that Vibrio Alginolyticus has been present for some time and we have not noticed. Equally, it is possible that this is a new phenomenon driven by high sea temperatures.