



FISH FARMING AND FISHERIES RISK MANAGEMENT



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Running any business comes with risk attached to it. This risk is even more prevalent when your business is dependant upon livestock such as fish.

Traditionally business transfer risk in 2 ways:

- Risk mitigation or risk management the process of adapting your business to minimise or eradicate risk completely
- Risk transfer, commonly known as insurance – you buy a policy and transfer the risk to an insurers balance sheet.

The issue is that when it comes to fish that are a business’s main asset there are very few options available in the current insurance market.

Here at Environmental Enzymes we understand this and we combine our desire to protect the environment with solutions that also offer real business protection as well.

One of the main areas of risk to a business with its main assets being fish is the threat of algae blooms and the devastating consequences of fish kills that is associated with them.

So what are algae blooms?

Algae blooms are rapid increases in algae growth in water bodies such as lakes, rivers, reservoirs, and coastal waters. They happen when conditions strongly favour algae multiplying faster than normal.



What causes algae blooms?

Algae need light, warmth, and nutrients. Blooms usually occur when several of these come together:

- **Excess nutrients** – mainly phosphates and nitrates from:
 - Agricultural fertilisers and slurry runoff
 - Sewage or septic leaks
 - Urban stormwater
- **Warm water temperatures** – most blooms occur in late spring and summer
- **Still or slow-moving water** – allows algae to accumulate
- **Sunlight** – long daylight hours boost photosynthesis

Types of algae blooms

- **Green algae blooms** – often look like pea soup or green paint
- **Blue-green algae (cyanobacteria)** – technically bacteria, but commonly called algae
 - * These are the most concerning because they can produce toxins
- **Red or brown blooms** – more common in coastal or brackish waters

Why are algae blooms a problem?

- Produce toxins that can harm or kill:
 - Fish and wildlife
 - Livestock and pets
 - Humans (skin irritation, stomach illness, liver and nerve damage)

- Reduce oxygen levels when algae die and decompose, leading to fish kills
- Block sunlight, damaging aquatic plants
- Make water unsafe for swimming, fishing, and drinking

How long do blooms last?

- A few days to several weeks
- Some recur annually if nutrient levels remain high

Are algae blooms becoming more common?

Yes - especially in Europe and the UK - due to:

- Warmer summers (climate change)
- Increased nutrient runoff
- Lower river flows during dry periods

Nutrient	Chemical form	Main sources	Why it causes blooms	Importance
Phosphorus	Phosphate (PO ₄)	Fertilisers, sewage, septic tanks, detergents, soil runoff	Algae need very little phosphorus – small increases cause rapid growth	Most important
Nitrogen	Nitrate (NO ₃)	Fertilisers, slurry, manure, urban runoff	Fuels algae growth, especially in rivers and estuaries	High
Nitrogen	Ammonia (NH ₄ ⁺)	Animal waste, sewage, low-oxygen sediments, excess feed	Easily taken up by algae; favours toxic species	Medium–High

So, what the solution?

The use of enzymes and bio-technology are huge and rapidly growing sectors.

Being able to combine a natural biological solution without the use of chemicals to address these sorts of issues is where the future of environmental protection lies – using nature to redress the imbalance

Manage the cause not the symptoms

Activ Phos

Activ Phos contains an active natural mineral Lanthanum; that selectively binds with PO_4 and locks it up permanently as a harmless mineral that means it cannot be used by the algae to fuel an algae bloom. Treatment will be fully active within 3-5 days and will reduce the PO_4 by 95% thus avoid costly fish mortality.

Activ Nitr8

This enzyme will directly reduce the Ammonia (NH_4^+) levels in the water, even at a rate of 2PPM fish deaths will occur – at a rate of 4PPM then all fish will die. The level of Ammonia will reduce by 98% following treatment.

How does this happen?

Common nutrient sources like ammonia, nitrogen and phosphorus all of which are rapidly digested by the products microbes and converted into harmless nitrogen gas. This process happens naturally and is simply accelerated.

Managing the risk

Here is where active management is required – frequent testing of the water quality is an absolute must – waiting for dead fish to appear means that the opportunity has been missed and no matter how much enzyme is used it will be a waste of time.

With frequent testing of the water quality this will give the opportunity to reduce the levels of nutrients before they can feed a bloom and thus protect the highly valuable assets.

Application

Due to the super Enzymes contained within these products both Activ Phos and Activ Nitr8 are highly concentrated and as such a single KG of product is sufficient to treat 1 Million Litres of water – this application rate does depend on the levels of nutrients present in the water – so a high level will mean an increased amount of product. Application is simply and easily applied by a single person, simply add the product to water – leave for 20 minutes to activate and then apply evenly across the pond from a small boat.

Results will start to occur within 24 hours of application.

Why not get in touch to discuss your requirements and how we can assist in reducing the risk to your business's most valuable assets



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