

# Using fishery biosecurity to stop the spread of diseases



Centre for Environment  
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Science

## Using biosecurity measures

There are many ways that diseases can enter your fishery, but they can be controlled through the implementation of good fishery management and adequate biosecurity measures.

Biosecurity measures are the steps you can take to reduce diseases or undesired species entering your site. Fishery managers have a range of measures available to reduce these risks. These include:

- sourcing approved and health checked fish
- supplying angling equipment for exclusive use on your site
- disinfecting angling equipment entering and leaving your site

## Why disinfect

As a fishery manager, it is important that you protect your business and comply with the conditions of fishery registration.

It's proven that diseases and non-native species can be spread by angling equipment. These have a negative impact on your fishery and lead to reduced growth and condition, increased mortality, poor recruitment, and less productive fishing.

By implementing adequate biosecurity measures you will reduce the risk of introducing diseases through contaminated angling equipment. This is vital, as once a disease gets into your fishery it can be hard or even impossible to remove.

## Fisheries with statutory controls

If your fishery is under Cefas statutory controls for a notifiable disease, you must:

- legally supply, maintain, and enforce biosecurity measures on your fishery
- ensure all angling equipment is disinfected on leaving the fishery. This includes landing nets, keep nets, weigh slings and unhooking mats
- ensure all disinfection points are maintained to the required standard, so use an easily monitored disinfectant

A Fish Health Inspector will work with you to identify locations for disinfection stations and provide signage. You may need multiple disinfectant points to maximise accessibility and use. This is in accordance with the Aquatic Animal Health (England and Wales) Regulations 2009.

## What to disinfect

It is not practical to disinfect every bit of angling equipment. Best practice is to thoroughly disinfect high risk equipment that comes into direct contact with fish or water. This includes:

- nets
- unhooking mats
- weigh slings
- waders

The 'gold standard' of fishery biosecurity procedures is when a fishery supplies anglers with its own high risk equipment which never leaves the site. If this is not possible, then disinfection stations should be constructed and policed by fishery managers.

## Locating your disinfection stations

Locate your net dips where they are going to be used and can be policed. Best practice areas include car parks, and entrances and exits to lakes.

Each station should have a sign encouraging anglers to use them, along with directions on how to use them correctly.

## Creating your disinfectant stations

Plastic containers make excellent net dips. These should have a lid or cover to prevent the disinfectant degrading through direct sunlight, dirt, rainfall, and evaporation. Use a lighter coloured container to reduce evaporation during warm periods.

The size of your disinfection containers depends on the type and size of your fishery:

- **match and commercial** – use containers large enough for numerous keep nets to be fully immersed during busy times and not lose too much solution when equipment is removed
- **lightly fished** – use a smaller container that is large enough to immerse equipment such as landing nets, unhooking mats, and weigh/retention slings

- **equipment** – rinse stations should never be used as they reduce contact time

## Maintaining disinfectants

Disinfectants deteriorate differently over time depending on their type, environmental factors, and how often they are used. Poorly maintained disinfectant solutions can be ineffective and increase disease transmission.

Some disinfectants are harder to monitor without specialist equipment and this should be considered when choosing which product to use. For example, Virkon produce test strips to ensure the concentration is adequate for disinfection purposes. Whilst others, such as Virasure and BioVX, can be monitored due to colour changes. When the solution's colour fades, the effectiveness is reduced and the required contact time increases.

Ensure you check your disinfectants regularly, especially before busy periods such as weekends or matches.

## Commonly available disinfectants Mixing disinfectants

You should use a clean water source to dilute the disinfectant. If this is not possible, lake water can be used but make sure you increase the disinfectant dose to maintain efficiency.

Then you should:

- work out the volume of the disinfectant container you will be using with the following equations:
  - » **square or rectangular container:** Length (cm) x Width (cm) x Depth (cm) = Volume (l)
  - » **round container:**  $3.14 \times \text{Radius}^2 \text{ (cm)} \times \text{Height (cm)} = \text{Volume (l)}$
- use the total volume of the container to calculate the amount of disinfectant needed using the information provided in the list of disinfectants.
  - » **disinfectant required:** Volume (l) x dose rate per Litre = total amount
- fully mix the disinfectant into the solution

Product	Information	Dose	Contact time
Aqua Des	Cefas listed disinfectant for bacterial and viral diseases. A Peracetic acid liquid disinfectant. It is environmentally friendly as once diluted it degrades in the environment into carbon dioxide, oxygen, and water. You must use protective equipment when handling concentrated solution.	0.5% concentration (5ml/l of water)	10 to 30 minutes
Virasure Aquatic	Cefas listed disinfectant for bacterial and viral diseases. A powder disinfectant that causes the solution to turn pink. The disinfectant is most effective when pink, once it turns pale or white the effectiveness is limited. This makes it easy to manage for disinfecting angling equipment. Its effectiveness is reduced by dirt and debris entering the solution.	1% concentration (10g/l of water)	2 to 10 minutes
Steri-7 Xtra	Cefas listed disinfectant for bacterial diseases, and independently tested for viral diseases. A clear liquid disinfectant developed as a surface disinfectant but effective when used as a bath disinfection. Multiple options available but Steri-7 Xtra concentrate is best suited for angling equipment disinfection.	5% concentration (5ml/l of water)	20 minutes
Vanoquat	Cefas listed disinfectant for bacterial diseases, and independently tested on viral diseases. A clear liquid ammonium disinfectant, developed as a surface disinfectant but effective when used as an immersion bath.	1-2% concentration (10-20ml/l of water)	10 to 15 minutes
Virkon Aquatic	A widely-recognized aquaculture disinfectant, independently proven to be highly effective against all significant fish pathogens. It is the highest rated disinfectant against all notifiable fish diseases. Efficacy test strips available to ensure correct concentration.	1% concentration (10g/l of water)	2 to 10 minutes
Virkon S	Like Virkon Aquatic but a pink coloured disinfectant. As the colour fades from pink to white, efficacy is reduced and contact time must be increased. Once the colour has faded the solution must be changed. Efficacy test strips available to ensure correct concentration.	1% concentration (10g/l of water)	2 to 10 minutes
Bio VX	Powder form disinfectant that causes the solution to turn pink in colour. The disinfectant is most effective when the solution is pink. Once the solution turns pale or white the effectiveness is limited.	1% concentration (10g/l of water)	15 to 30 minutes
FAM30	Acidic based Iodine disinfectant that is brown in colour. Becomes inactive in the presence of high organic loading and its effectiveness is reduced in high temperatures or in direct sunlight.	1% concentration (10ml/l of water)	15 to 30 minutes

## Contact the FHI

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