

Biosecurity for boat users

(version 4 17/05/11, updated 02-12-11)

Interim guidance – avoiding the spread of the invasive shrimp *Dikerogammarus villosus* on the clothes and equipment of boat, canoe and kayak users.

This guidance sets out simple instructions for disinfection measures to prevent the accidental transfer of *Dikerogammarus villosus* from sites that have either been identified as containing the invasive shrimp or have a high risk of doing so.

This guidance should be adopted by all users of water craft, which are generically referred to as 'boats' within this guidance.

Principles

- Boat users should familiarise themselves with [what the shrimp looks like](#) and how they can avoid spreading it.
- There is no evidence that boat users have spread the shrimp in England and Wales, but there is a real risk that careless behaviour may do so, harming the environment and potentially damaging the reputation of the sport.
- Submerged artificial surfaces, particularly ropes and rubber surfaces, are very attractive to the shrimp and pose a particular risk of contamination.

Actions

- Adequate signage or guidance should be in place, making all boat users aware of the risk, and providing advice on recognising the shrimp and how to prevent its spread.
- Ideally, all cleaning and inspection operations should be supervised by a volunteer or member of staff.
- Biofouling must be thoroughly removed from all hulls and other submerged surfaces before transfer to another site. This is particularly important if the biofouling includes zebra mussels, which are another damaging non-native species and also harbour the shrimp.
- Ideally, access and egress for boats should be limited, preferably to a single point at the site. Boat users should log in and out, confirming that they have cleaned and inspected their equipment.
- There are diseases and other invasive species (including plants) that can be spread by contaminated clothes and equipment, so good

biosecurity when visiting a site (even if it already has the *Dikerogammarus* shrimp) is important, too.

- If you are visiting a site where an invasive non-native species is known to be present, you must ensure you don't spread it. Failure to do so risks prosecution under the Wildlife & Countryside Act, 1981.
- The risk can be reduced by reducing the contact time in which equipment is exposed to the water. This is particularly important for items such as trailers, which have cavities that may retain water and be hard to inspect. If possible, trailers and launching trolleys should be provided at the site and used in preference to personal equipment.
- Areas around hard substrates, such as concrete are particularly likely to support abundant shrimp populations.
- Any water that collects in bilges or inside kayaks and canoes must be completely emptied before leaving the site.
- Water-cooled engines must be washed through with tap water to ensure the system does not harbour shrimp.

Disinfecting equipment: interim advice

- If facilities allow, equipment can be hosed down or pressure-washed to remove shrimps. The washings should be contained and not allowed to enter any watercourse or drainage system currently free from *Dikerogammarus villosus*.
- The current best method for preventing spread is to thoroughly dry clothing and equipment. Wetsuits and boots should be hung-up to dry. Equipment should be dry for 48 hours before it is used elsewhere. The shrimp can survive up to 15 days in damp conditions and up to 2 days in dry conditions, so the drying process must be thorough.
- Particular attention must be paid to areas that retain water, remain damp or are hard to inspect. Trampolines also require careful cleaning and inspection. All biofouling must be completely removed and disposed of without contaminating watercourses.
- We are working to fully ascertain how effective disinfectants are and how they can be best used for biosecurity purposes. While we are currently uncertain about the effectiveness of dipping equipment in disinfectants to kill the shrimp, it is, in any case, good practice for biosecurity. All disinfectants must be used and disposed of following the manufacturer's instructions particularly those regarding Health and Safety.

Updated (02-12-11): interim guidance for outboard motors

The following advice specifically relates to outboard engines as shrimps may work their way into crevices if engines are left in the water for extended periods of time. More information about the shrimp is available at: www.nonnativespecies.org/alerts/killershrimp

- The risk of shrimps entering crevices on an outboard engine can be minimised by reducing the amount of time the engine is in the water. When not in use and stationary for a period of time, the engine should be raised so it is completely out of the water (see photograph).
- Before the boat and engine are removed from the water it is recommended that the engine is run for 5 minutes at above three quarters throttle, as this assists in clearing any shrimp from within the exhaust system.
- When washing down the engine particular attention should be paid to the water intake, propeller and any crevices. If facilities are present to flush the engine, this should further reduce the risk. (NB please be aware that we do not know how effective flushing is in removing any shrimps in the engine although we are planning to test this).
- The RYA already recommends protecting the exposed blades of an outboard motor to reduce the risk of causing danger. The use of a propeller bag would not only protect the blades, but also capture any shrimps which may fall from the outboard whilst the boat is out of the water and being transported.
- When out of the water:
 - the boat and engine should be stored in a location where they will not drain into a water body (e.g. a drain, gully, river, etc.) and the engine should be returned to its vertical (down) position to drain,
 - if the propeller bag is left on the engine, it should be checked regularly for shrimp,
 - if the propeller bag is not left on the engine, the bag should be turned inside out and checked for shrimp and dried for 48 hours. A bucket should then be placed under the engine to catch any shrimps.



If shrimp are found (alive or dead):

- please advise us immediately by email to alert_nonnative@ceh.ac.uk to help us in our efforts to contain the killer shrimp.
- let us know how many shrimp you found and where, this will help us keep track of shrimp movements.
- including a high quality photograph will help us confirm identification.
- if possible, flush the engine with water to remove any additional shrimp you can.
- wrap the shrimp in plastic and put them in a refuse bin. Do not pour them down a drain or put them into a water body.

Work is ongoing to assess further biosecurity measures and additional guidance may follow.

Useful links

For general information on recognising and managing *Dikerogammarus villosus* and other invasive non-native species, see the Non-Native Species Secretariat website

<https://secure.fera.defra.gov.uk/nonnativespecies/alerts/index.cfm?id=3>

For specific news and advice for boat users see the Royal Yachting Association website <http://www.rya.org.uk/Pages/Home.aspx>

If you believe you have found a record for *Dikerogammarus villosus* at a new site, send an image to alert_nonnative@ceh.ac.uk

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For further information please contact Trevor Renals, Conservation & Ecology Technical Services. Tel: 01208 265033, trevor.renals@environment-agency.gov.uk