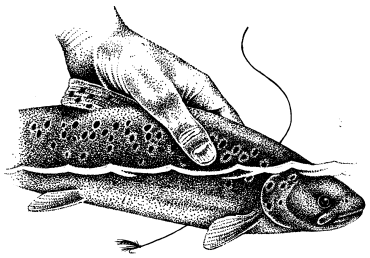
Dr Nick Giles & Associates,
50 Lake Road,
Verwood,
Dorset,
BH31 6BX.

Telephone 01202 824245
Fax 01202 828056
email nickgiles@cix.co.UK



Consultants : Freshwater Fisheries, Conservation & Wetland Ecology

Mr M. Lloyd
Brookside
Oaklands Lane
West Lavington
Midhurst
West Sussex
GU29 0EL

Draft report on one day visit to Costers Brook, R. Rother

Report sponsored by

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Introduction

This visit was requested by Mr Mike Lloyd who lives on the banks of the Costers Brook in West Lavington. The Costers Brook is a spring-fed tributary of the River Rother running from the South Downs above Cocking to meet the Rother around a kilometer East of Midhurst. Overall, the brook is around 4-5km long and is accessed each autumn by sea trout returning to spawn. Prior to November 2000 the brook was a clear watered, gravel-bedded, weedy stream with a population of young wild trout. The ecological quality of this spring-fed stream was excellent.

Current condition of the Brook

At the time of my visit (April 12th,2002) the bed of the Brook at West Lavington and for some distance downstream was completely blanketed with a thick layer of white sand. In places there were accumulations of more than 50cm, generally the sand was of 10-20cm depth. The sand has clearly had the following dire environmental effects:

1. The appearance of the stream has changed radically from a pleasing gravel-bedded, weedy brook with diverse and abundant invertebrate and fish stocks of high ecological quality to a barren, inhospitable bed of shifting sand.
2. Aquatic plant life has been wiped out under the sand although some root stocks may have survived.
3. Aquatic invertebrates have been very badly depleted due to loss of suitable habitat.
4. Sea trout running the brook to spawn have lost their usual gravel-bedded spawning sites and are forced either to spawn pure sand or to dig into a bed where sand has completely clogged the underlying gravels. Salmonid eggs and fry are very unlikely to survive in any appreciable numbers under these conditions.

Photo - Costers Brook before November 2000

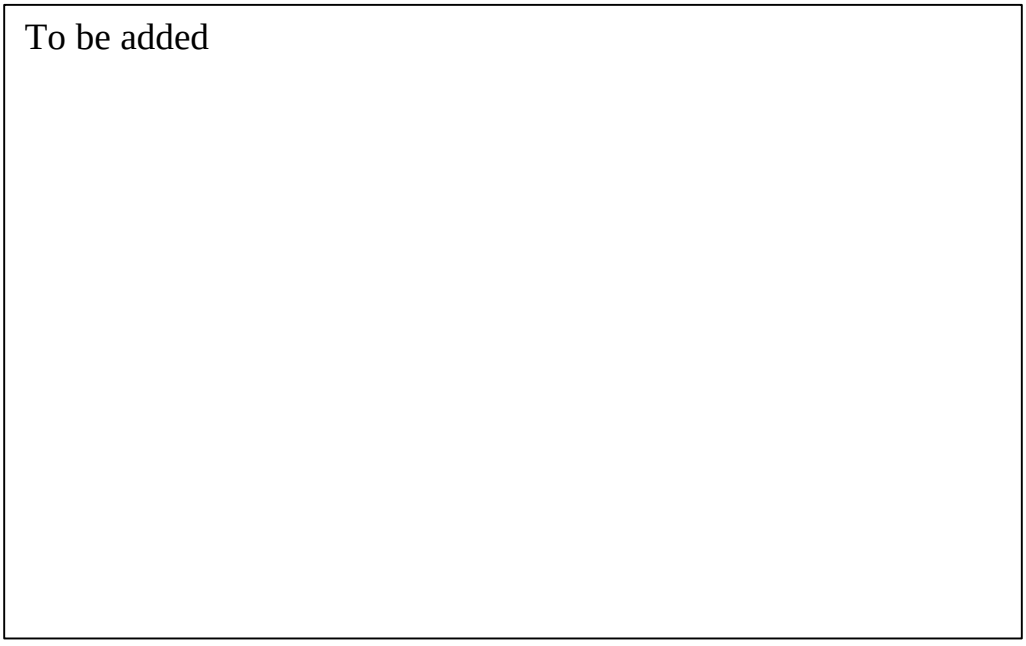
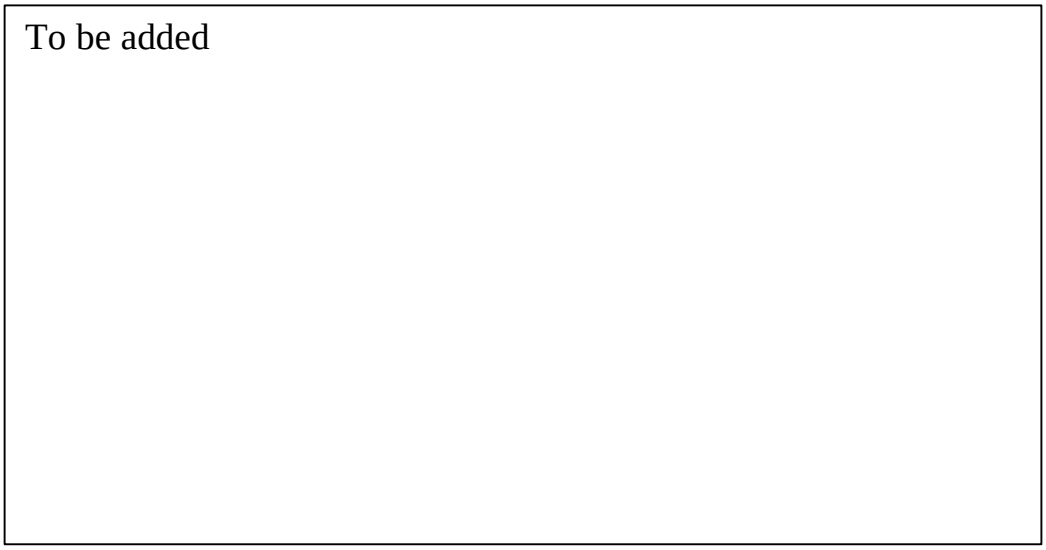


Photo Costers Brook after November 2000



Examination of the photographs above shows clearly the visual impact of this sediment pollution of the brook.

Origin of the sand

The Rother system is prone to sand inputs from the naturally sandy friable soils, this is particularly the case where autumn ploughing exposes bare soil to heavy rainfall. Additionally, around Midhurst, there are natural deposits of sand which are worked commercially for extraction for building and other uses. Such a sand pit is operating adjacent to Costers Brook upstream of West Lavington. Some sand may enter the brook from this site, especially during heavy rain and some sand also enters from ditches and tiny side streams. A stream such as the Costers Brook is able to purge itself of moderate quantities of sediment through natural transport processes, especially during spates when stream energy levels are high. However, there is no doubt that the sediment pollution which entered the stream in November 2000 completely overloaded its capacity, filling much of the channel and leaving a residue which will take some time for the stream to move naturally. In fact, it may be very difficult for the stream to naturally cleanse itself without intervention.

The origin of the November 2000 sand pollution is known - it came from a severe erosion gulley formed after heavy rain drained from a field on Lord Cowdrey's land below Oatscroft. The field had been cultivated for arable agriculture, exposing the soils to sheet erosion. Rain running off the field carried some sediment but the bulk of the sand came from a gulley which formed as drainage water cut into the sand substrate of an existing ditch. Commendably, the Estate recognised the problem and have taken steps to reduce further sand inputs to the brook by re-grassing the field, building timber dams in the gulley to try and hold back further sand movements and excavating with a mechanical digger some accumulations of sand from the stream bed around West Lavington.

Recommendations

The Environment Agency leaflet - Ditching advisory guide; damaged environments and ditching provides valuable information and advice on this topic. Copies of the leaflet are available from The Environment Agency, South West Region, Manley House, Kestrel Way, Exeter, EX2 7LQ, tel 01392 444000.

The leaflet explains how sandy soils can liberate many tonnes of sediment and sand after rain storms and how this form of pollution can impact stream ecology for a long subsequent period. The November 2000 episode on Costers Brook falls exactly into this category. The leaflet explains that, where migratory salmonid fish (salmon and/or sea trout) breed, such sand and sediment damages fish eggs and fry and could constitute a legal offence under the Salmon & Freshwater Fisheries Act 1975.

The following actions are recommended to redress the damage done to the Costers Brook:

- The works carried out by the Estate to reduce the likelihood of further sand pollution of the stream should be reviewed and improved, if deemed necessary.
- Further work should be carried out to remove sand from the brook where access by machinery is feasible without undue damage to banks or wildlife. The sand excavated should be disposed of in areas where it will do no further harm. Advice and, if necessary, consent should be obtained from the Environment agency to allow this river dredging work.
- The sand-removal should be done periodically over the next year or two until sand which is still moving down the system is mostly removed from areas where it is causing damage to sea trout spawning beds or to residents properties.
- Flood risk assessments should be carried out by the Environment agency as the volume of sand involved may have increased and may still be affecting the risk of flooding of streamside land and properties.
- Finally, a Costers Brook habitat restoration program should be carried out to return the Brook to its former condition, with healthy trout, invertebrate and aquatic plant populations. Dr Nick Giles & Associates would be keen to help produce and implement such a programme.

Reference

Environment Agency (2001) Ditching advisory guide; damaged environments and ditching.

Draft report April 13th 2002 Nick Giles