

Saltburn Gill ironstone mines



East Cleveland was a major source of ore for the Teesside iron and steel industry. The Cleveland Ironstone band was worked from the 1850's until the early 1960's, resulting in a legacy of abandoned mine workings.

Saltburn Gill is a short coastal river, extending inland for about 8km from the North Sea coast in a steep sided valley on the North Yorkshire coastline, much of which forms the Saltburn Gill Nature Reserve. This reserve is a Site of Special Scientific Interest for its undisturbed areas of ancient deciduous woodland. It flows into the North Sea across Saltburn Beach, a designated bathing water beach within the Cleveland Heritage Coast, and one of the most popular surfing beaches on the east coast.

Overnight on 18 May 1999 the stream turned bright orange when a new discharge from the abandoned mineworkings started. Typical concentrations of iron in the stream rose from around 0.1 milligrammes per litre (mg/l) to in excess of 1200mg/l. Over 330kg of iron ochre is deposited on the stream bed every day, contributing to a discharge of over 100 tonnes of iron into the North Sea each year. The pollution reduces oxygen in the stream, stops sunlight and smothers the bed with a devastating effect on the ecology. A biological impact survey of the stream showed that the pollution had reduced the quality of the beck from grade b (good) to grade f (bad) in the 1.5 km stretch from the discharge to the sea.

Saltburn Gill Action Group (SGAG) was set up in 2005 as a community action group. Assistance was given by The Environment Agency, Teesside University, the local Wildlife Trust, the Parish Council and others to try to find a solution to this problem.

In 2009/10, in Partnership with the Coal Authority, with funding from Defra, we undertook a number of investigations to establish the feasibility of building a treatment plant for the minewater. We drilled three boreholes into the workings and ran a pumping test for three months to help us to design a treatment

plant. One of the first things we found was that the minewater level was 10m higher than the discharge point. This raised concerns that there was a risk of a significant outbreak, especially as the discharge is in an area of very shallow workings through unstable drift material on the edge of the river which is prone to landslip. The pumping test also showed us that the recharge area for the mine was much larger than expected and that there was a very large reservoir of minewater that would have to be drawn down to stop the minewater discharging. Laboratory and field scale tests have shown that up to 99% of the iron could be removed in a treatment plant.

We also investigated the economic benefits that could be accrued by treating the minewater and so raising the quality of the river and foreshore. That study has shown that over 25 years the local economy could benefit by as much as £10.5 million. A sum which outweighs the predicted lifetime cost of building and running a treatment plant.

In June 2008 Saltburn Gill Action Group won the 'Partnership Award' at the Redcar and Cleveland Voluntary Development Agency Awards. Acknowledging that; with the involvement of the Environment Agency, Coal Authority, University of Teeside, Entec, Newcastle University, Groundwork, Tees Valley Wildlife Trust and local residents; SGAG is an excellent example of partnership working.

Impact of the minewater discharge

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|---------------------------------------|------------|
| • Length of watercourse impacted | 2km |
| • Average iron concentration | 1200mg/l |
| • Average flow | 3 l/sec |
| • Tonnes of iron discharged per annum | 100 tonnes |
| • Water body ecological status | Poor |

Benefits of remediation

- The Saltburn Gill and Skelton Beck will no longer be heavily contaminated by ochre.
- The risk of a catastrophic breakout of minewater will be reduced
- The aesthetic value of the river will be improved over 1.5km
- The quality of the bathing water on Saltburn beach will be improved
- The quality of the Saltburn Gill nature reserve and SSSI will be improved
- The recreational value of the area will be improved. Saltburn relies on tourism and its beach It is used extensively for water sports and angling.
- Increased recreational use will bring additional income into businesses in the area.
- The local economy could benefit by as much as £10.5million over 25 years
- The fishery status of the river will improve
- The Water body will be better able to attain good ecological status.



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