

Environment Agency Briefing

South Forty Foot Drain Flooding Model Review

Summary

We have published a review of the January 2025 flooding and the modelling of the South Forty Foot Drain system.

The review found that the flooding was caused by exceptional catchment conditions. Frozen and saturated ground meant rainfall could not soak into the land. Water entered rivers and drains quickly and in large volumes, causing water levels to rise to record levels.

The review found no single decision, asset failure or operational issue that caused the flooding.

The updated modelling findings were consistent with modelling undertaken in 2016. It confirmed that reinstating pumps at Black Sluice would have reduced water levels in and near Boston but would not have reduced flooding in upstream communities.

What the modelling tells us

Flooding was driven by catchment-wide conditions

The main cause of the flooding was the volume of water entering the system and the speed at which it arrived.

Frozen and saturated ground across the catchment meant rainfall ran off the land instead of soaking into it. This created exceptionally high flows throughout the system.

Reinstating pumps is not a catchment-wide solution

The modelling shows that pumps can influence water levels in locations around Boston.

However, they would have little impact on peak flood levels further upstream. The evidence does not support pump reinstatement as a catchment-wide solution to flooding.

Operational changes would have limited benefits

We tested a range of operational scenarios, including changes to sluice operation, starting water levels and Internal Drainage Board pumping arrangements.

The modelling shows these changes would have had a limited effect on peak flood levels.

What this means

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The evidence shows that we need to manage flood risk across the whole catchment.

There is no single measure that will prevent flooding during extreme events of this nature. Effective flood risk management requires a combination of actions that slow, store and manage water throughout the catchment.

Our priorities include:

- increasing opportunities for upstream water storage
- supporting natural flood management measures that slow the flow of water
- targeting engineering solutions where they provide the greatest benefit
- improving coordination between the Environment Agency, Internal Drainage Boards and other partners
- continuing to improve our understanding of catchment-wide flood risk through modelling and evidence.

What we are doing

We are already taking forward several actions including

- developing a funding bid for repairs to the Wyberton West Road embankment
- and reviewing our response to flooding during prolonged saturated and frozen ground conditions.

We are planning our resources to allow us to achieve more including

- work with local communities to improve flood resilience and support opportunities to slow the flow of water upstream.
- develop a funding bid for an updated catchment model
- work with Black Sluice Internal Drainage Board and Anglian Water to develop a shared catchment approach

Key message

The review confirms that the January 2025 flooding was caused by exceptional catchment conditions rather than a single operational decision or asset issue. The most effective way to reduce future flood risk is to manage water across the whole catchment, from source to sea, using a combination of storage, natural flood management, engineered defences and partnership working.