

Using GIS to cut down on fatbergs and flooding in the Thames Valley

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning



Thames Water used geospatial analysis to identify likely sources of the that waste fats accrue in London's sewers and form large blockages known as 'fatbergs'. They were then able to target prevention and enforcement measures to tackle the problem.

Challenge

Fat, oil and grease (FOG) create the most of the [75,000 blockages every year](#) in the Thames Water-managed network of pipes and sewers. These blockages - composed mainly of wet wipes, fats and other detritus - can cause significant flooding and damage. Physically breaking down fatbergs [costs an estimated million pounds](#) each month in London alone; oil and fat block [72 pipes each day](#) in the Thames Water network.

A major source of waste fats in sewers is the disposal of cooking fats and oils by restaurants in London and the Thames Valley. Thames Water wanted to launch "a proactive programme of education" for food businesses, using geospatial analysis for effective targeting.

Solution

Thames Water's Network Protection Programme team analysed the locations of fatbergs and flooding incidents to identify hotspots where education efforts, reminding local businesses of their legal obligations regarding FOG disposal, might be especially effective.

Using ArcGIS, an integrated geographic information system, inspectors were able to identify hotspots and collect information from establishments on their current FOG management practices.

The ability to direct inspectors to particular areas of the network was especially important when blockages occurred, allowing problems in FOG disposal in local businesses to be more quickly resolved.

Benefits

Combining/visualising data

Using an integrated GIS platform with apps enabled Thames Water staff to monitor their network, record interventions and document changes to outcomes in real-time.

In particular, visualising blockages data on an interactive map allowed employees to more accurately identify problem areas. The overall project has provided a template for future analysis and monitoring projects to improve management and effectiveness of Thames Water resources.

Solving problems

Maintaining a geographic database of FOG disposal practices allows inspectors to track whether changes – such as installing grease traps - are made. In the pilot stage of the project, three investigators visited 1,000 food businesses. Around 90% of businesses surveyed disposed of fats and oils incorrectly.

This prompted Thames Water to expand the team, who then visited over 5000 premises in 2018. Their analysis using ArcGIS found that after being visited three times, half of food businesses swapped to more appropriate FOG disposal.

Further reading

ESRI's [case study on the Thames Water project](#)

Thames Water's explanation of the problem – [What is a fatberg?](#)