Supporting the UK's COVID-19 response – a collaborative approach by Ordnance Survey and the Office of National Statistics

Andrew Cooling (OS) and Robert Kaleta (ONS)

Office for National Statistics

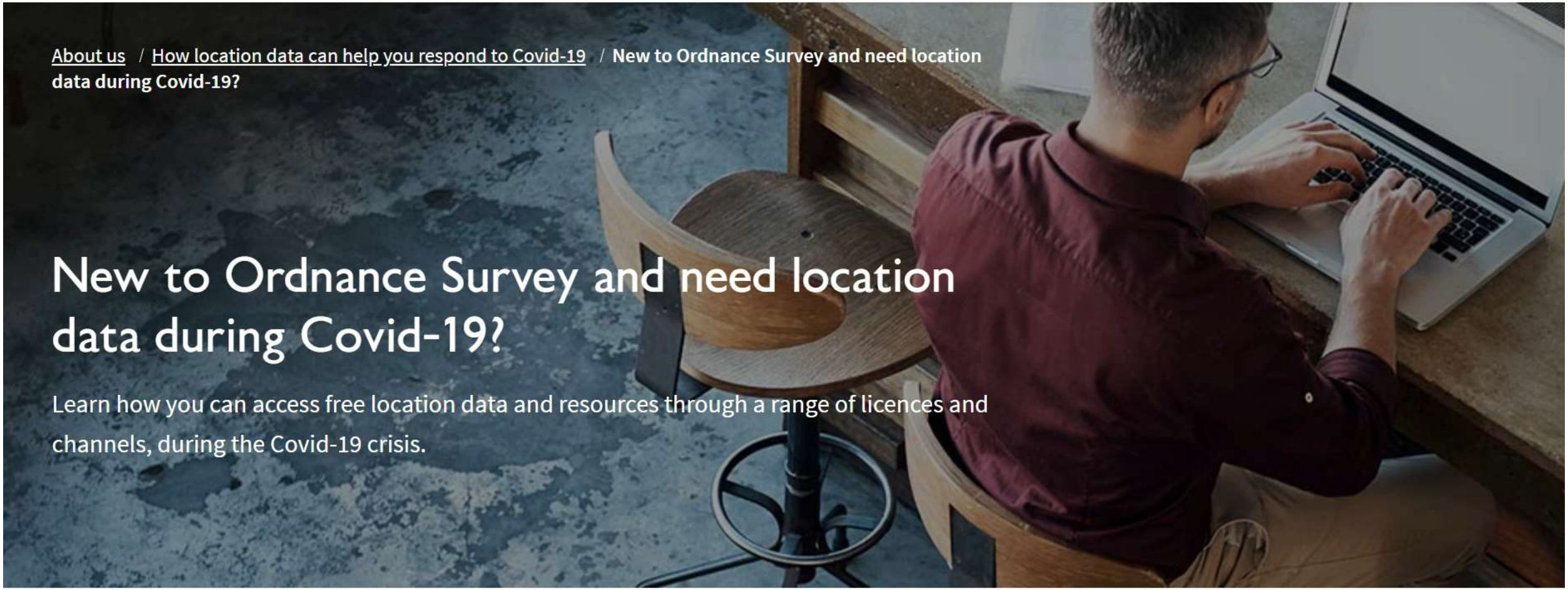
Ordnance Survey

Ordnance Survey supporting the UK's response to the COVID-19 pandemic

Office for National Statistics

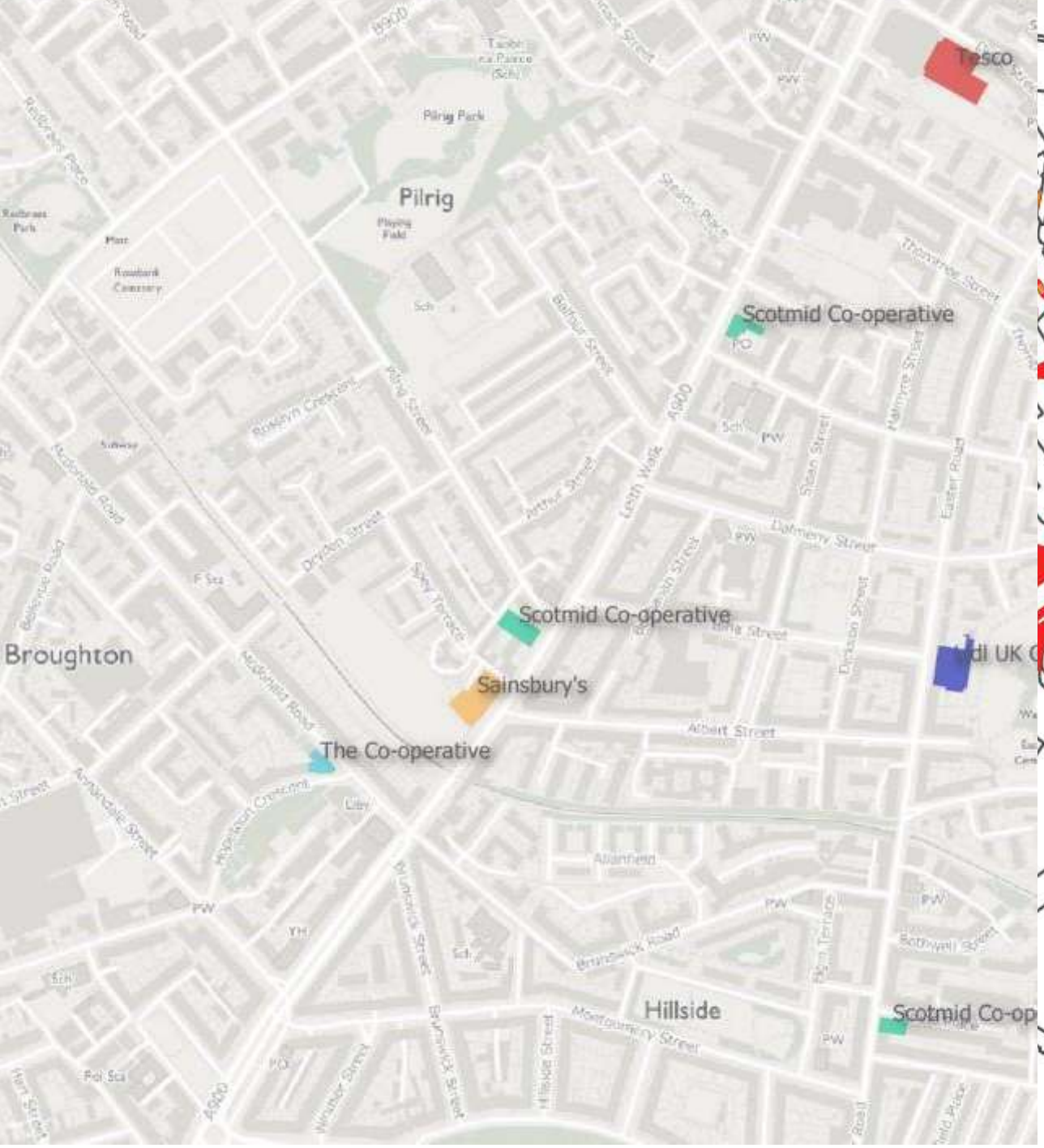
Ordnance Survey

Ordnance Survey

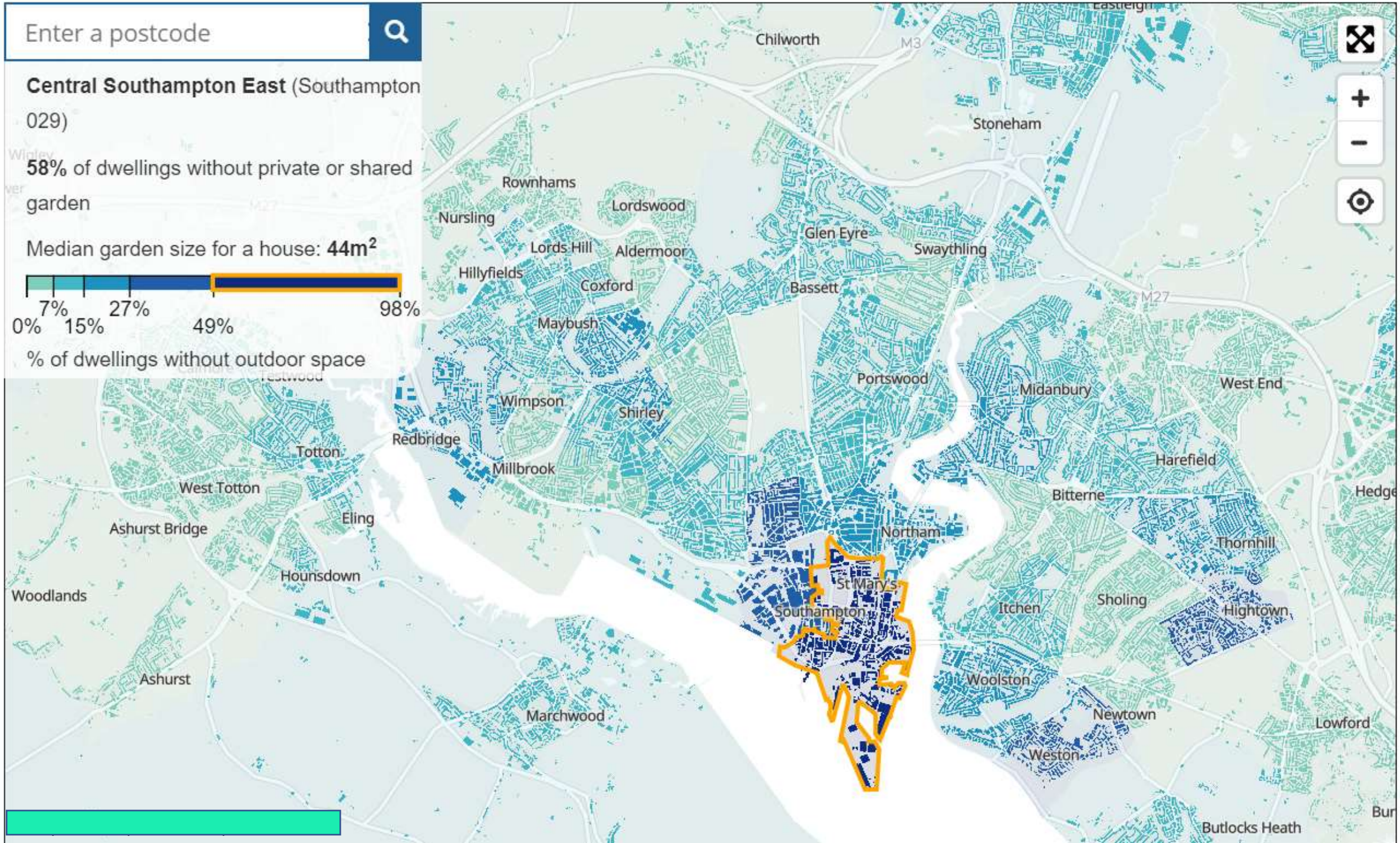


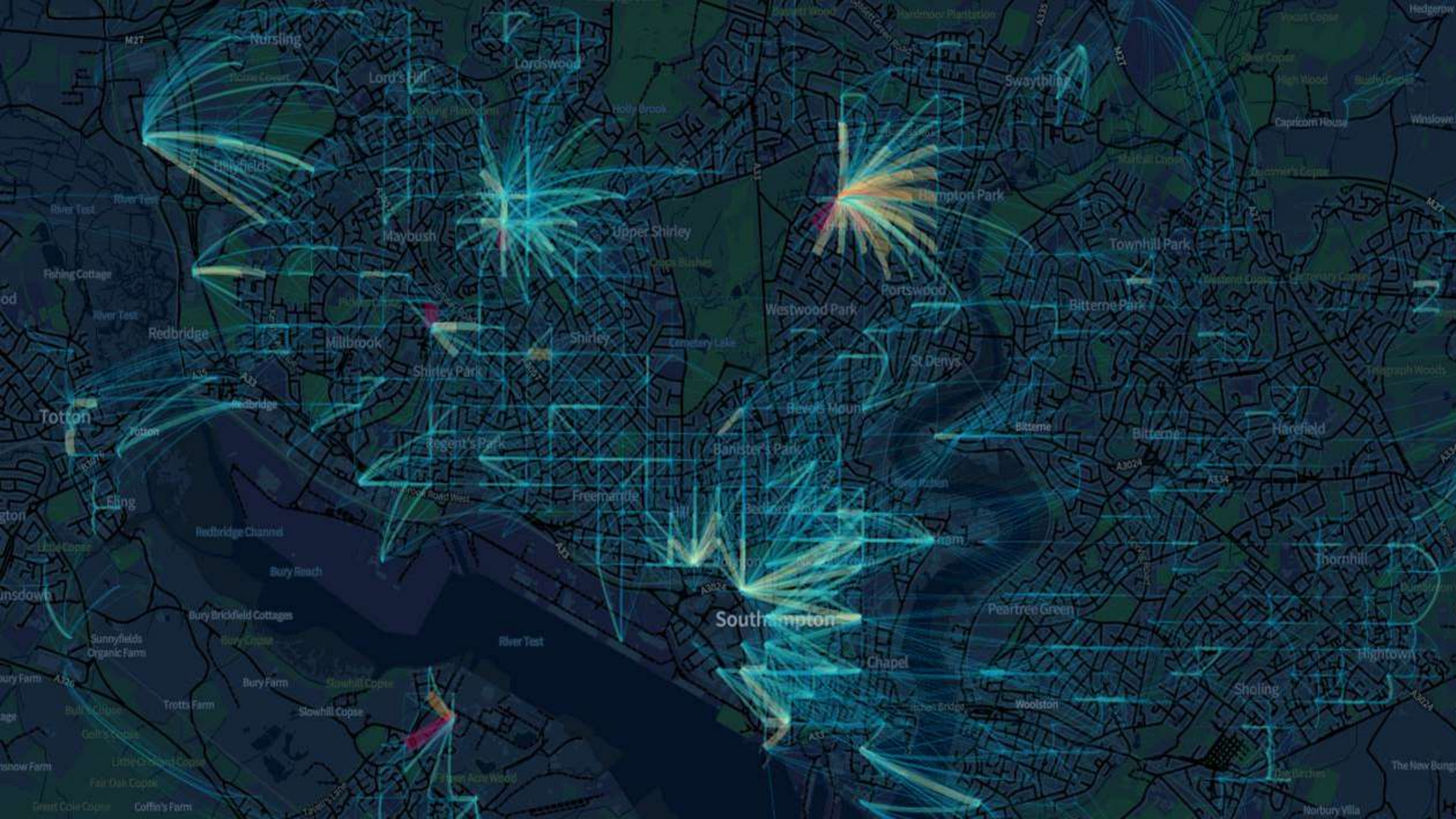
New to Ordnance Survey and need location data during Covid-19?

Learn how you can access free location data and resources through a range of licences and channels, during the Covid-19 crisis.


Tesco
Pilrig Park
Pilrig
Scotmid Co-operative
Scotmid Co-operative
Broughton
Sainsbury's
The Co-operative
Hillside
Scotmid Co-op


Neath
Treherbert
Ferndale
Treharris
Pontllanfraith
Rhondda
Abercynon
Ystrad Mynach
Cwmbrân
Croeserw
Pontrhydyfen
Dyffryn
Wattstown
Nant-y-moel
Ponthir
Cwmavon
Bryn
Maesteg
Pontycymer
Cwmfelinfach
Risca
Port Talbot
Porth
Pontypridd
Caerleon
Gilfach Goch
Pont Rhyd-y-cyff
Machen
Newport
Margam
Caerphilly
Coedhirwaun
Llantrisant
Thornhill
Broadstreet Co
Nash
Mawdlam
Pencoed
Llanedeyrn Village
Bridgend
Heath
Penyrlan
Porthcawl
Pontcanna
Adamsdown
Ogmore-by-Sea
Butetown
Broughton
Penarth
Marcross
Barry
Kewstoke


Enter a postcode
Central Southampton East (Southampton 029)
58% of dwellings without private or shared garden
Median garden size for a house: 44m²
0%
7%
15%
27%
49%
98%
% of dwellings without outdoor space
Chilworth
M3
Stoneham
Rownhams
Nursling
Lordswood
Lords Hill
Aldermoor
Hillyfields
Coxford
Glen Eyre
Swaythling
Bassett
M27
Maybush
Portswood
Midanbury
West End
Wimpson
Shirley
Redbridge
Totton
Millbrook
Harefield
West Totton
Bitterne
Eling
Ashurst Bridge
Northam
Thornhill
Hounsdown
St Mary's
Woodlands
Southampton
Itchen
Sholing
Hightown
Ashurst
Woolston
Marchwood
Newtown
Lowford
Weston
Butlocks Heath

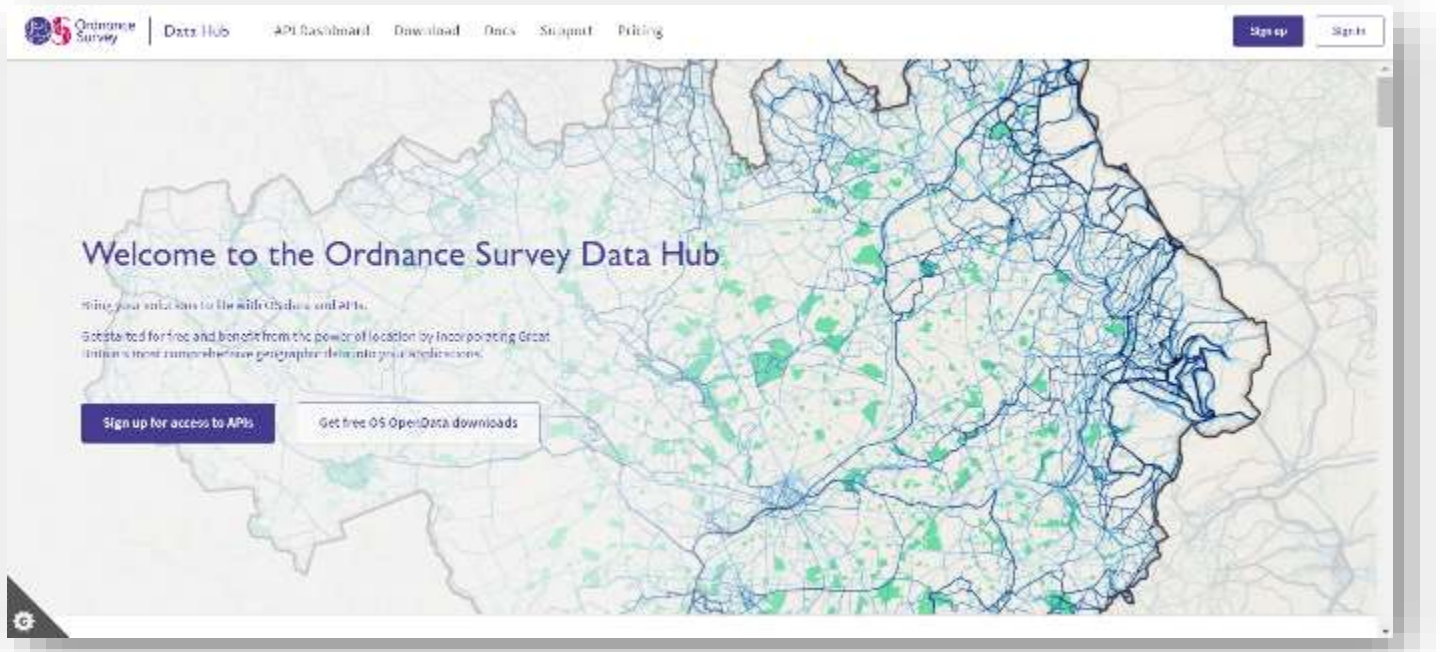


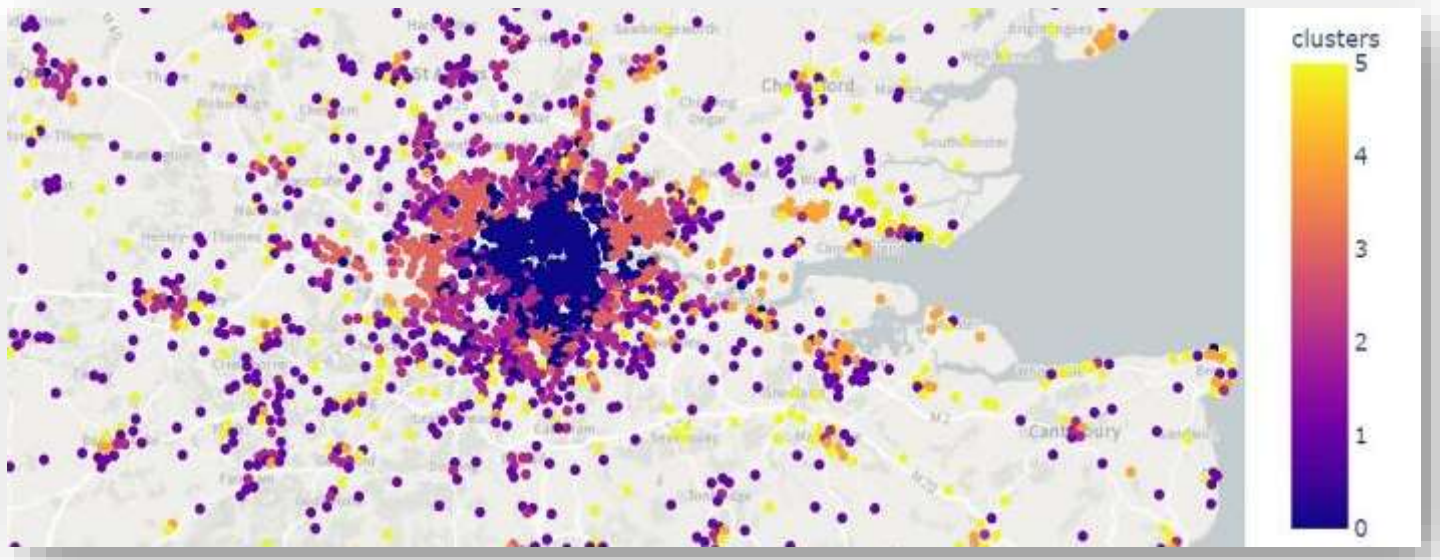
Nursling
M27
Lordswood
Lord's Hill
Holly Brook
Swaythling
Capricorn House
Winslowe
Lillyfields
River Test
Hampton Park
Maybush
Upper Shirley
Townhill Park
Fishing Cottage
Portswood
Westwood Park
Bitterne Park
Redbridge
Millbrook
Shirley
Cemetery Lake
St Denys
Shirley Park
Totton
Redbridge
Totton
Bevois Mount
Bitterne
Bitterne
Harefield
Regent's Park
Banister's Park
A3024
A334
Eling
Freemantle
Redbridge Channel
Thornhill
Bury Reach
Southampton
Peartree Green
Bury Brickfield Cottages
Sunnyfields
Organic Farm
River Test
Hightown
Chapel
Bury Farm
Trotts Farm
Slowhill Copse
Woolston
Sholing
Coffin's Farm
The New Bungalow
Norbury Villa

Department of Health & Social Care

Public Health England

Office for National Statistics





ONS Geospatial - EFGS 2020

Geography for COVID-19 analysis and response

Rob Kaleta – ONS Geospatial

Work of Chris Gale, Musa Chirikeni, Jordan Parker, Heather Porter, Alistair Calder etc.

Office for National Statistics

ONS role in Covid response

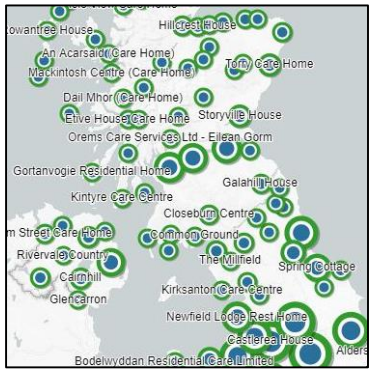
ONS Contribution to national response

- Monitoring deaths
- Running the Coronavirus Infection Survey (CIS)
- Analyzing cases and impact
- (looking forward) - Supporting economic impact and recovery

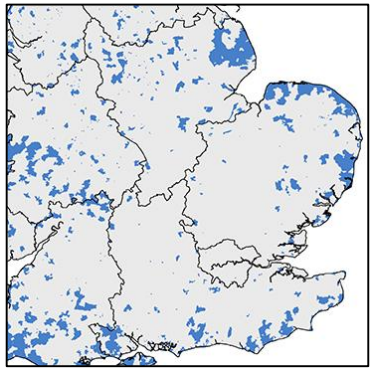
Role of Geospatial

- Sample frames for surveys
- Statistical base and denominators for analysis
- The frame for official Covid tracker app
- Analysis projects for the Joint Biosecurity Centre

  - High risk industries
  - Wastewater monitoring



LOCATION & DATA SOURCES
Sample sites
Cases
Location of risk



DENOMINATORS
Lockdown Population
Age
Ethnicity
etc

BOUNDARIES
Statistical and operational for analysis
& visualisation

ONS Geospatial

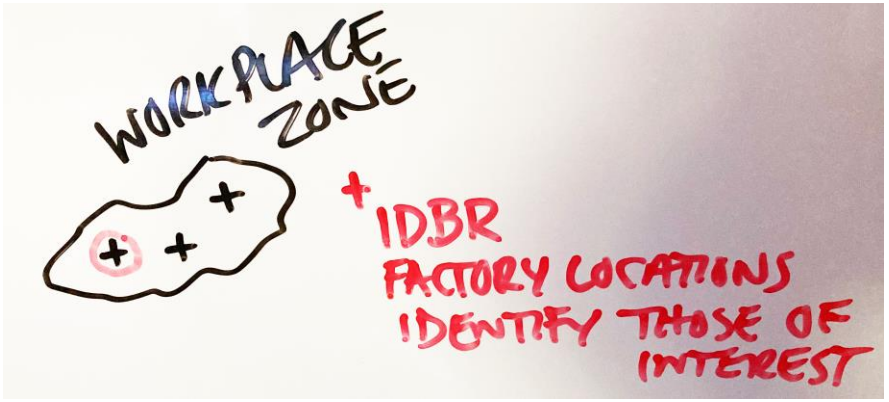
At-risk industries

Office for National Statistics

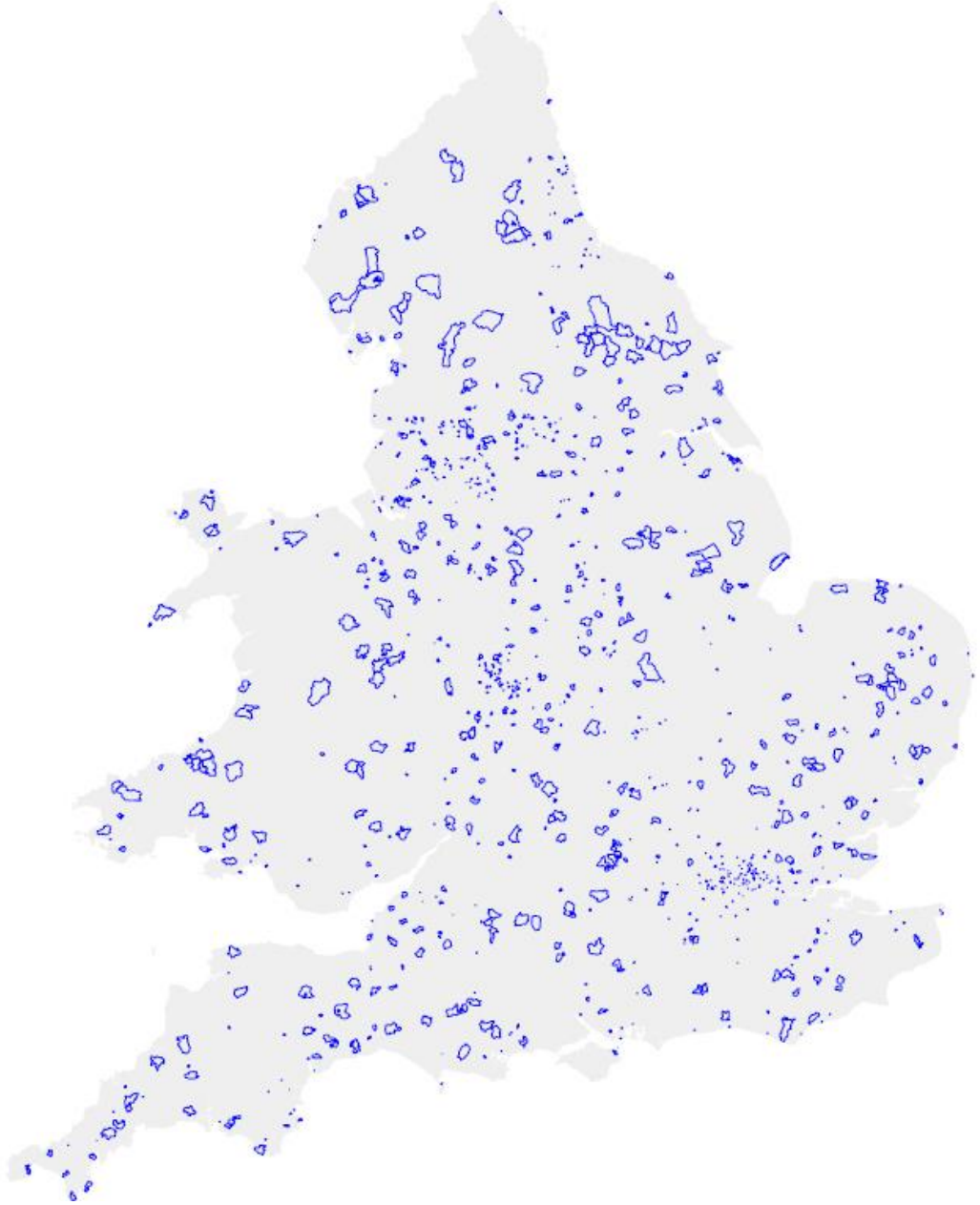
Aim : Investigating location of workers in industries potentially posing high risk of transmission

Method – Step 1

- Extract industry site locations from our Business Register (IDBR) – using Standard Industrial Classification (SIC) codes
- Initially for:
  - Meat, fish, and poultry processing plants
  - Textile related industries
  - Care homes, Logistics, some Agriculture



- These sites are allocated to ‘Workplace Zones’ – a small non-disclosive geography specifically designed for business statistics

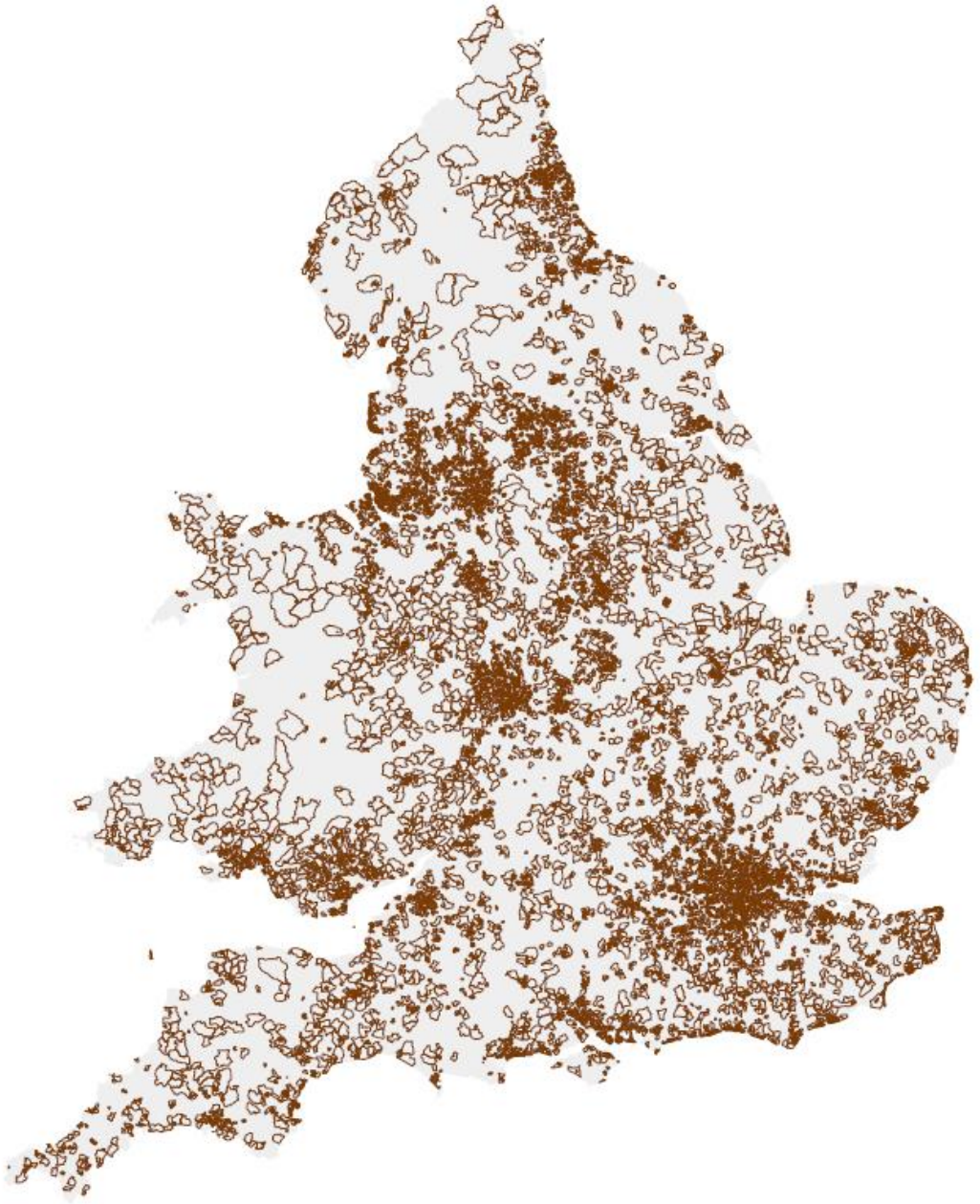


Meat, Fish and Poultry

Distributed across the country

But note sparsity in South East

A number of very large plants



Carehomes

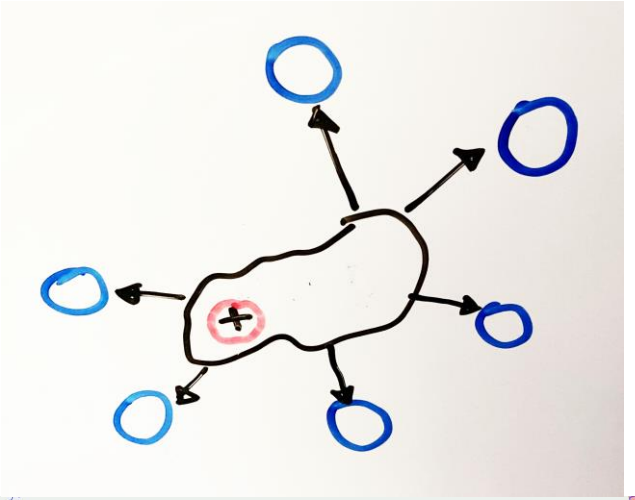
Distributed with population

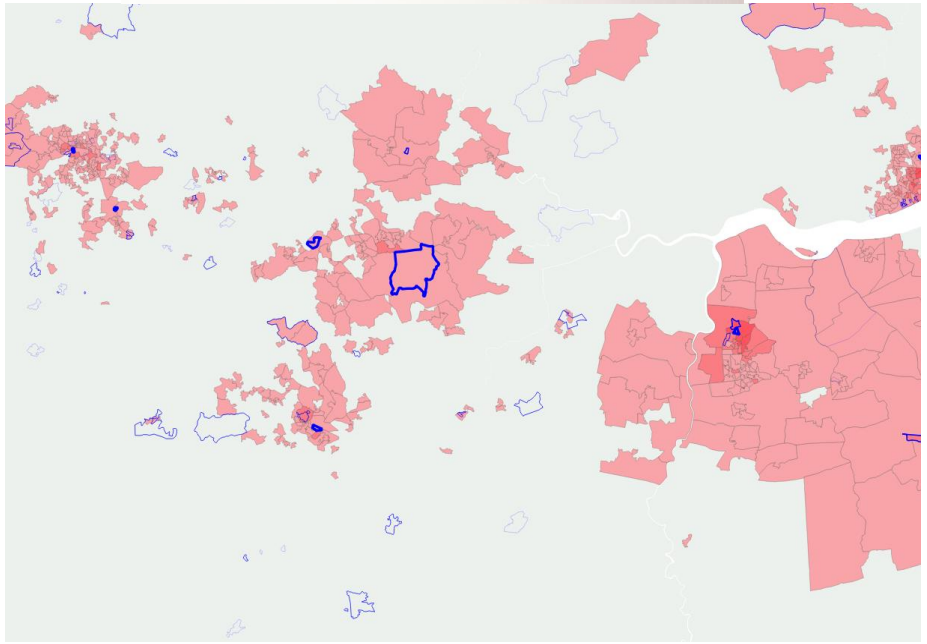
Large numbers of staff nationally – but widely spread across a large number of sites

Method – Step 2

- Business register provides number of employees at each site
- We use census travel-to-work flows to estimate workers' residence – **distributing the workforce out to surrounding areas**

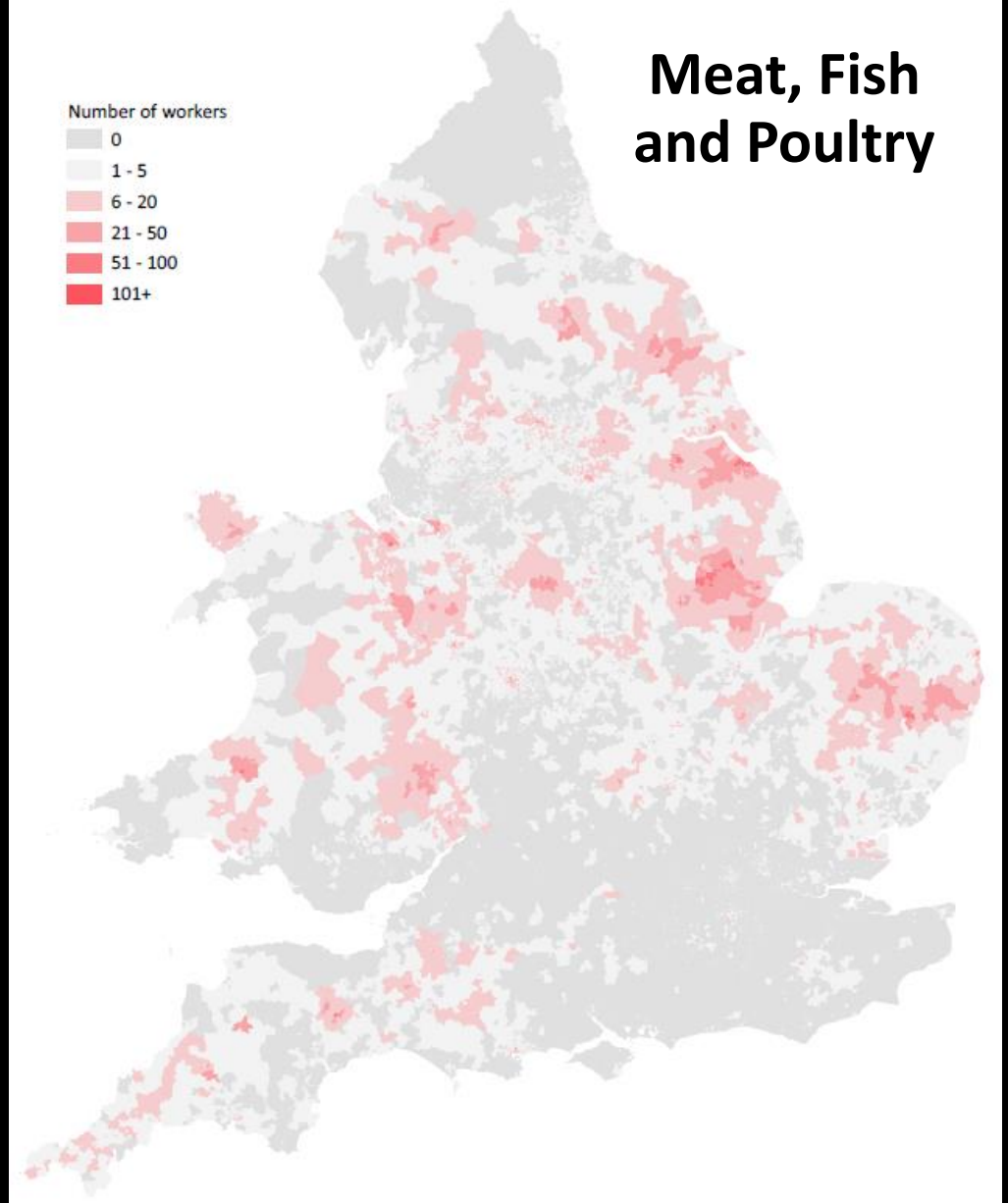
Limitation: Census 2011 data is now 9 years old – better mobility data may provide a better estimate





Meat, fish and poultry processing industries – Workers' place of residence
(Modelled - Lower Layer Super Output Areas - LSOAs)

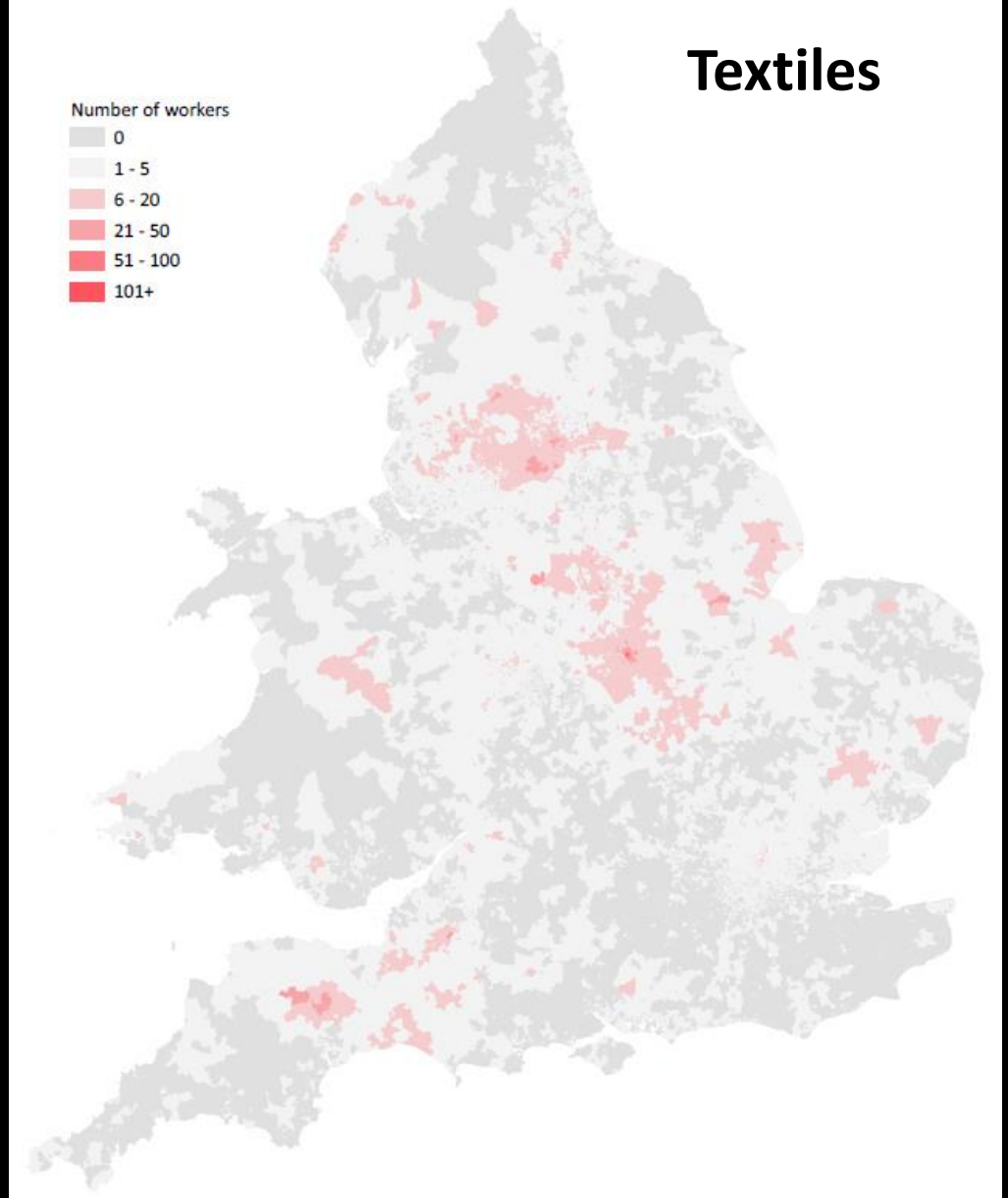
Meat, Fish and Poultry



Note that this data is modelled, only indicative and subject to further research. Titles and keys are indicative - for definitions and units used and caveats relating to the use of these data check documentation and associated metadata.

Textile industries – Workers' place of residence (Modelled - Lower Layer Super Output Areas - LSOAs)

Textiles



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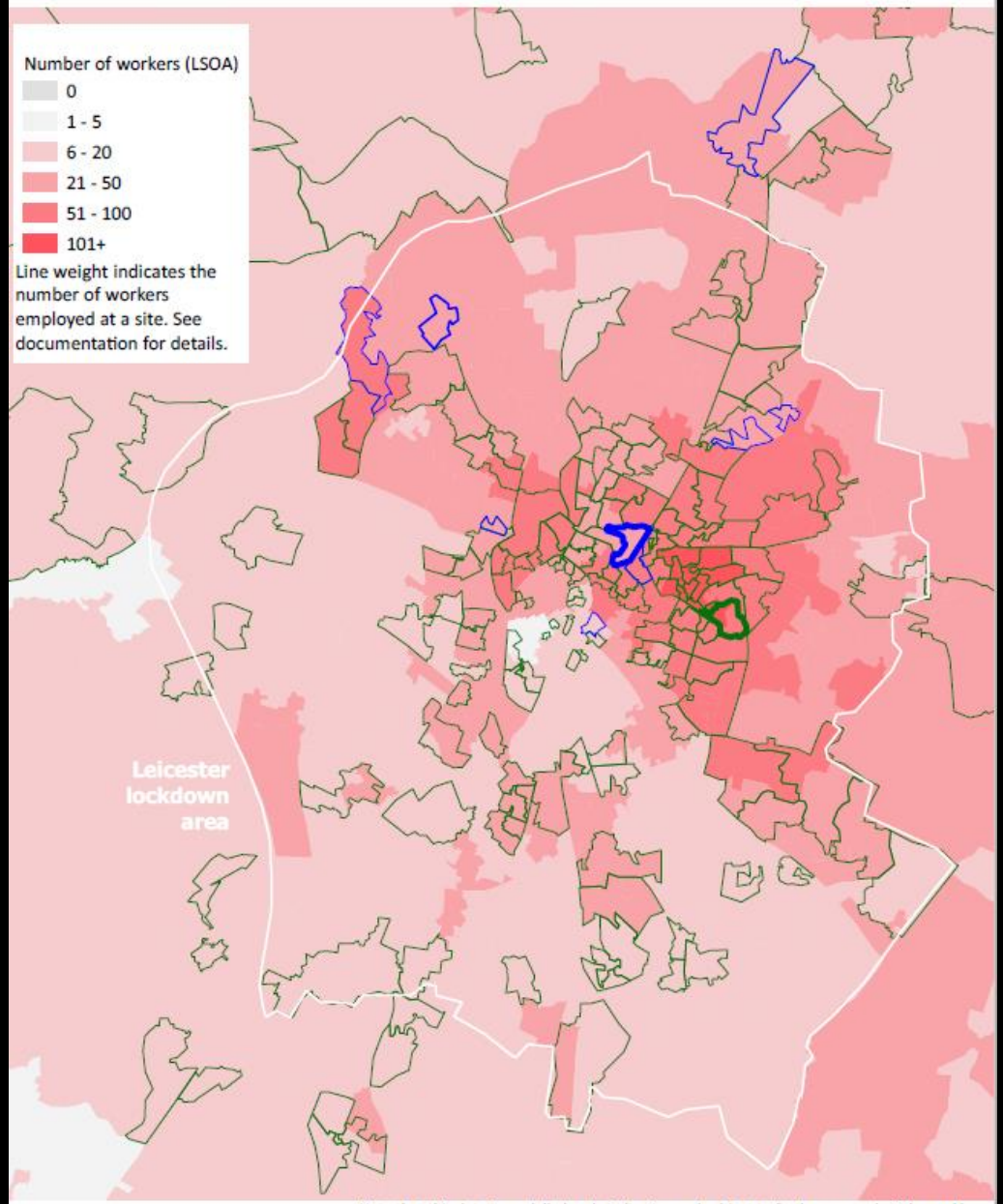
Leicester: Specified 'at risk' industries (Meat, Fish, Poultry, Textiles) – Workers' place of residence (Modelled - Lower Layer Super Output Areas - LSOAs)



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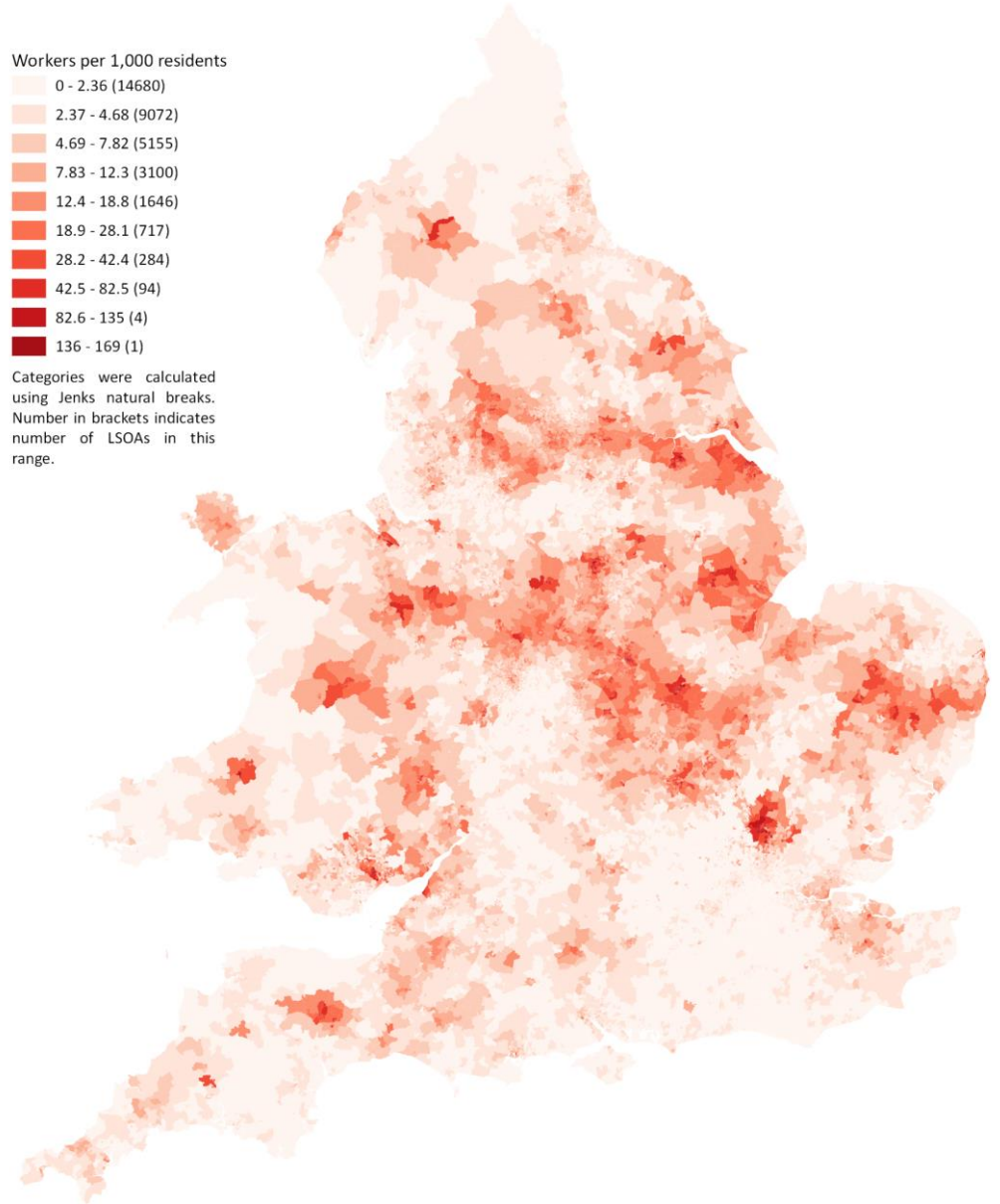
Blue = Meat factories

Green = Textiles

Thickness indicates number of employees

Specified ‘at risk’ industries (Meat, Fish, Poultry, Textiles, Distribution Centres) – Number of workers per 1,000 residents (Modelled - Lower Layer Super Output Areas - LSOAs)



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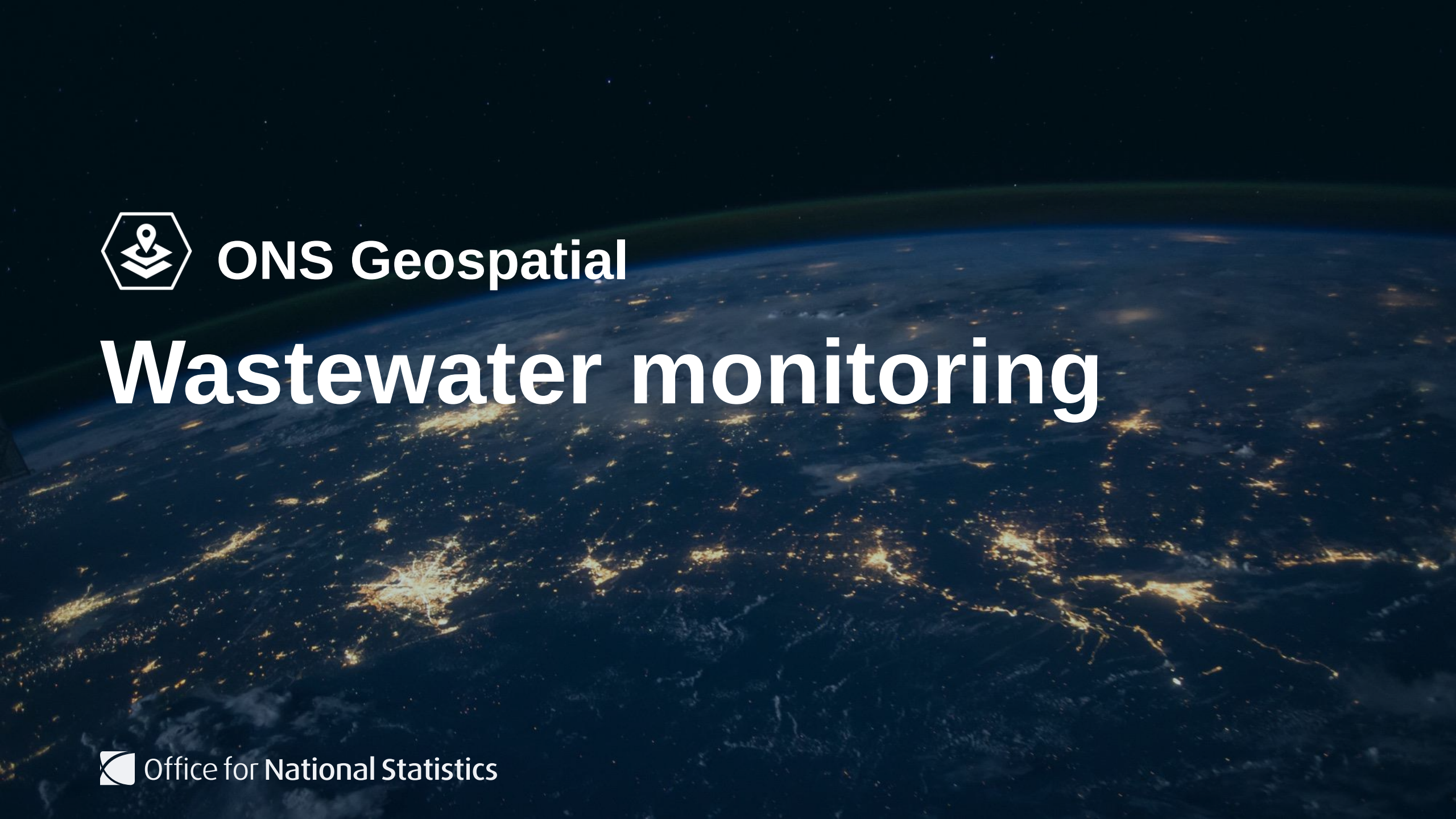
Caveats & further work

- Distribution is based on old data – and not calibrated
- Relative risk of individual industries is unclear
- Industry ≠ occupation ≠ risk

- Investigate better mobility data
- Investigate relative industry risks & relationship with occupation
- Test predictive power of these methods as part of a risk model

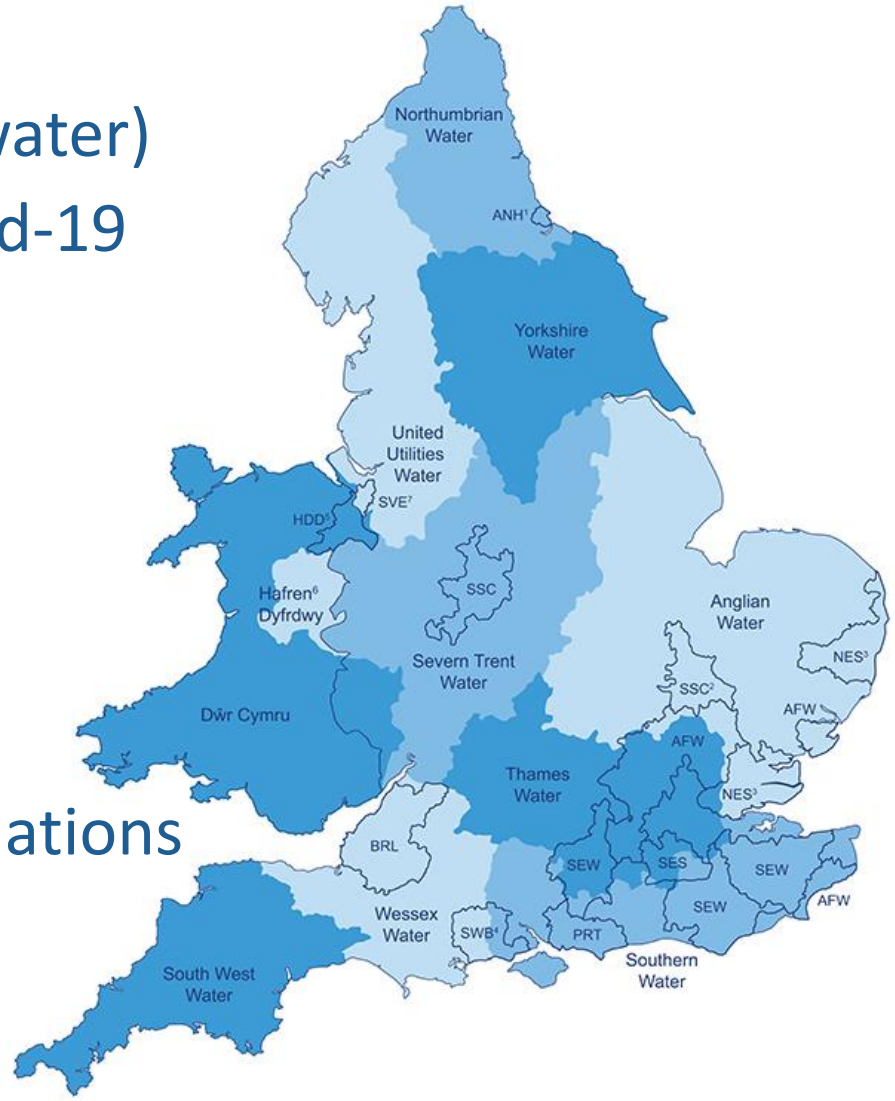

ONS Geospatial
Wastewater monitoring
Office for National Statistics

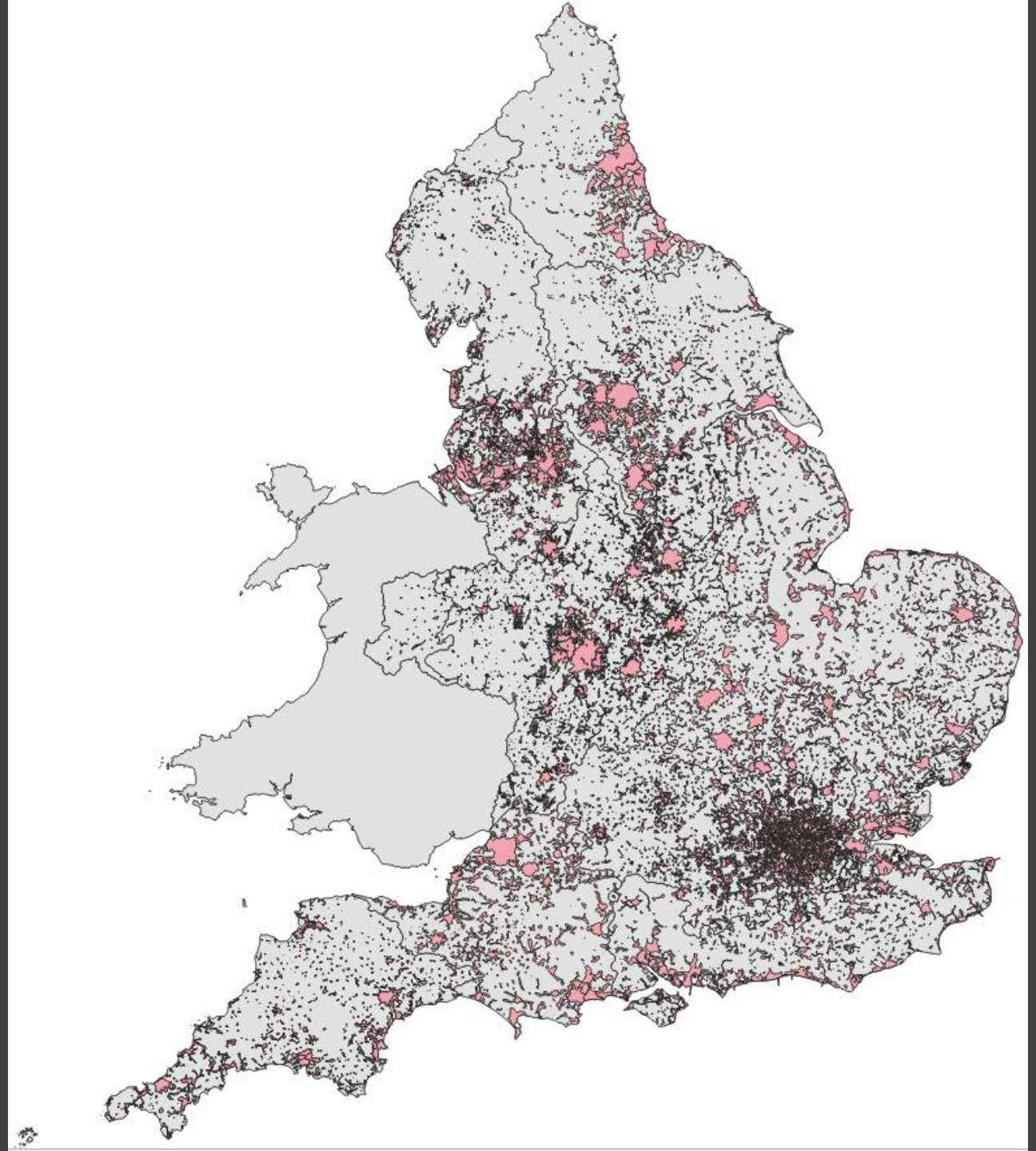
Wastewater monitoring

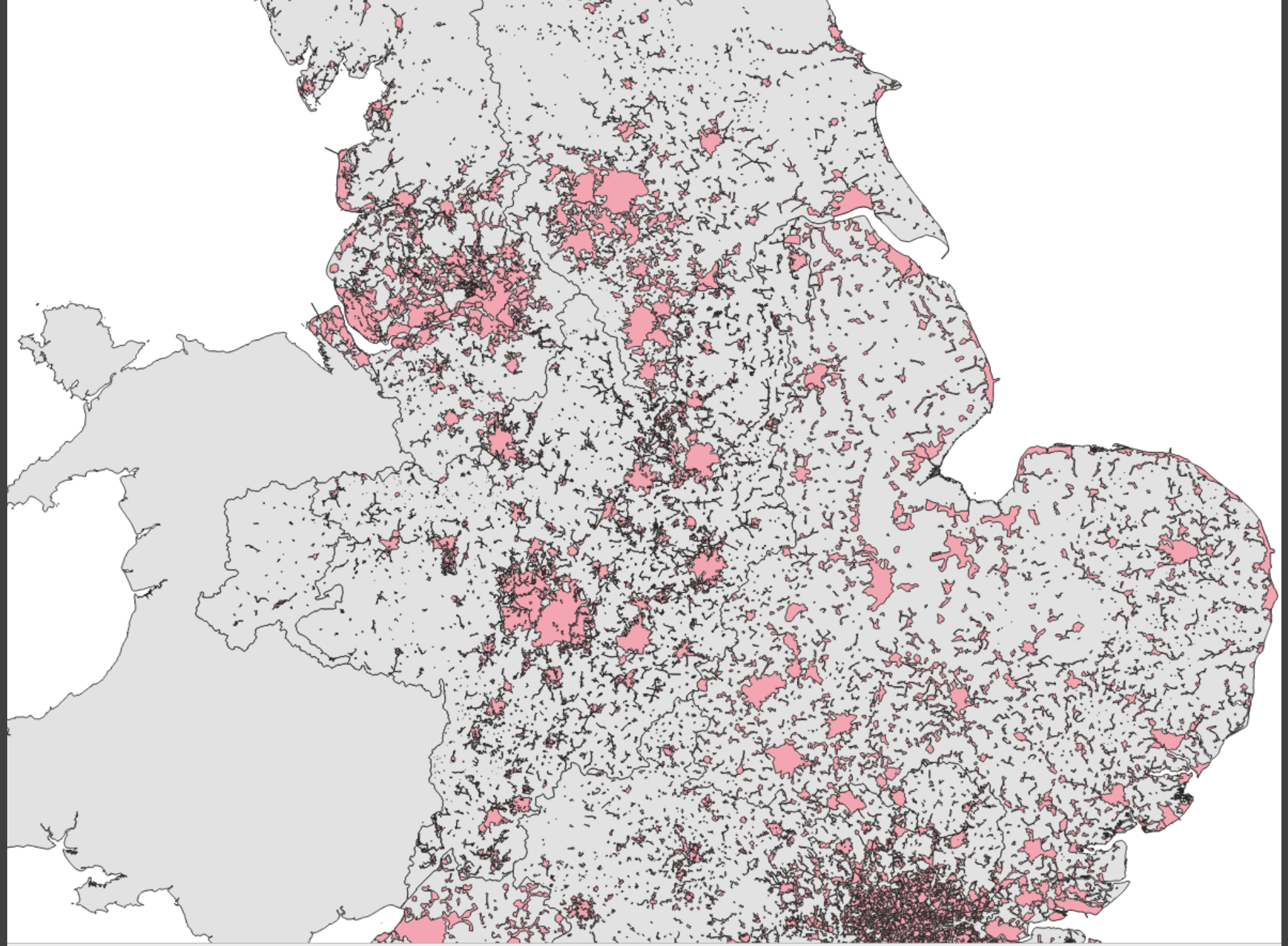
- Evidence that RNA (which we can sample in waste water) provides an early indicator of pre-symptomatic Covid-19 infection
- Sampling 50 sites in UK

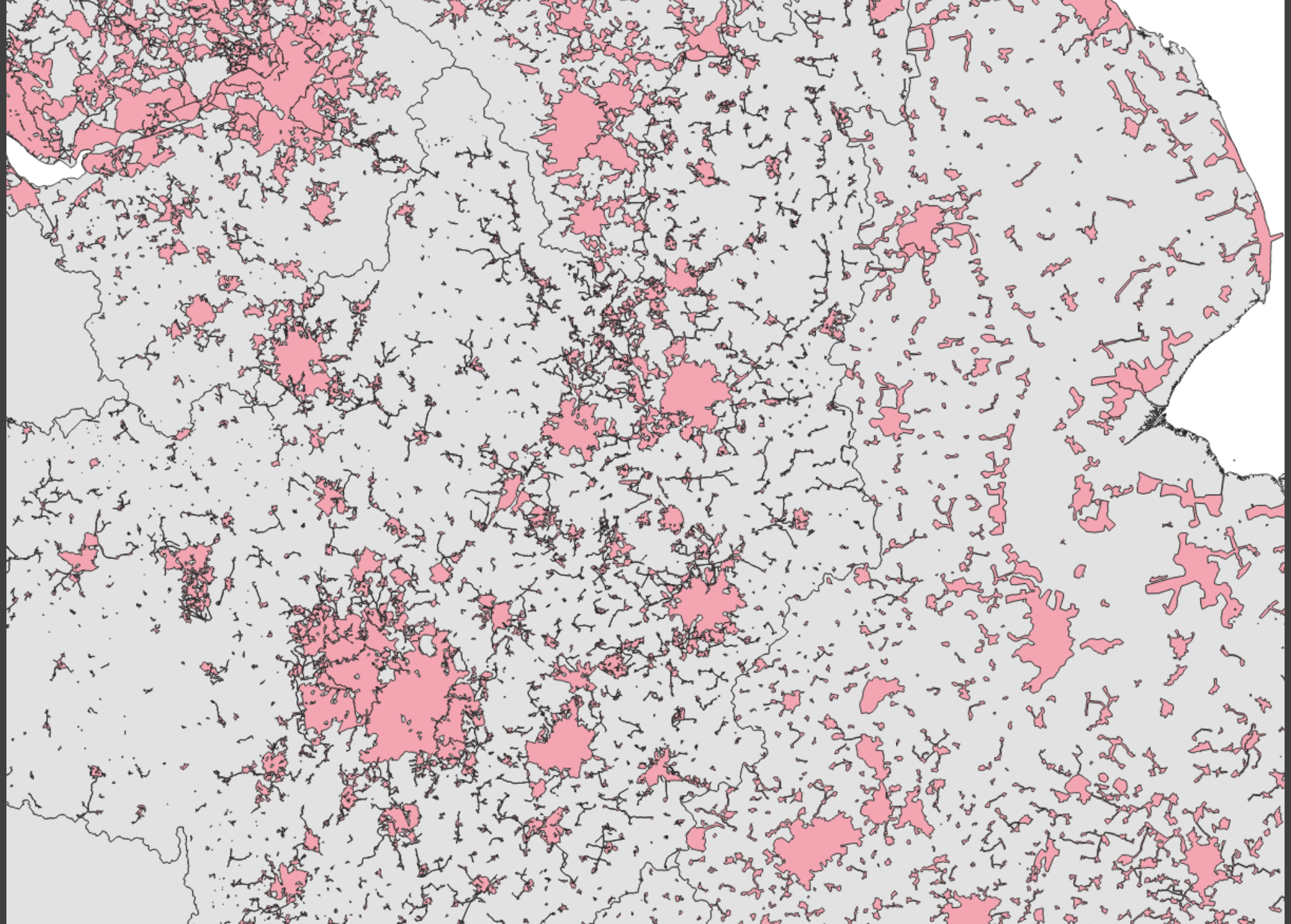
Our role :

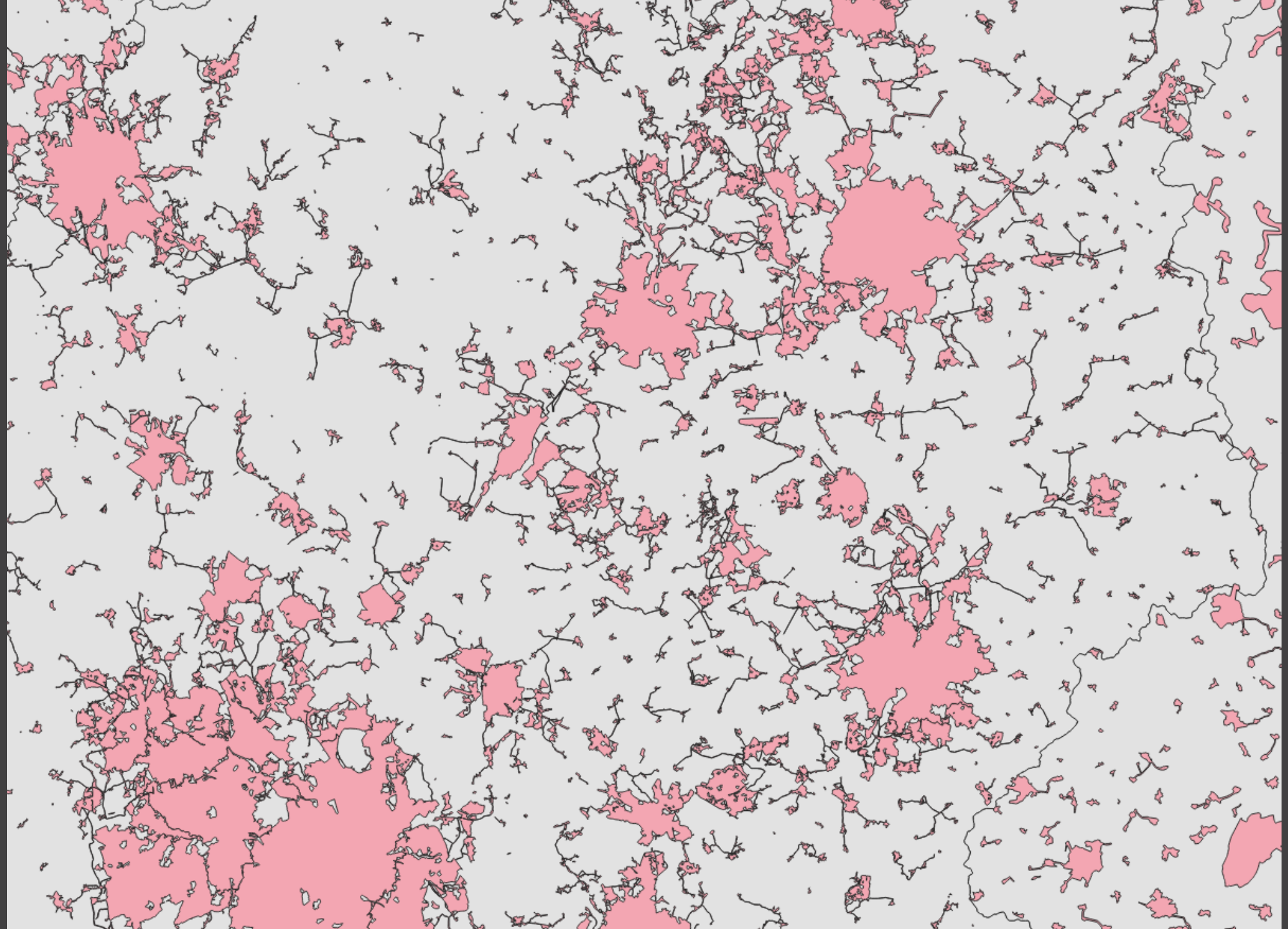
- Standardising and managing catchment data
- Creating denominators and characterising the populations of catchment areas
- Picking the right areas to sample

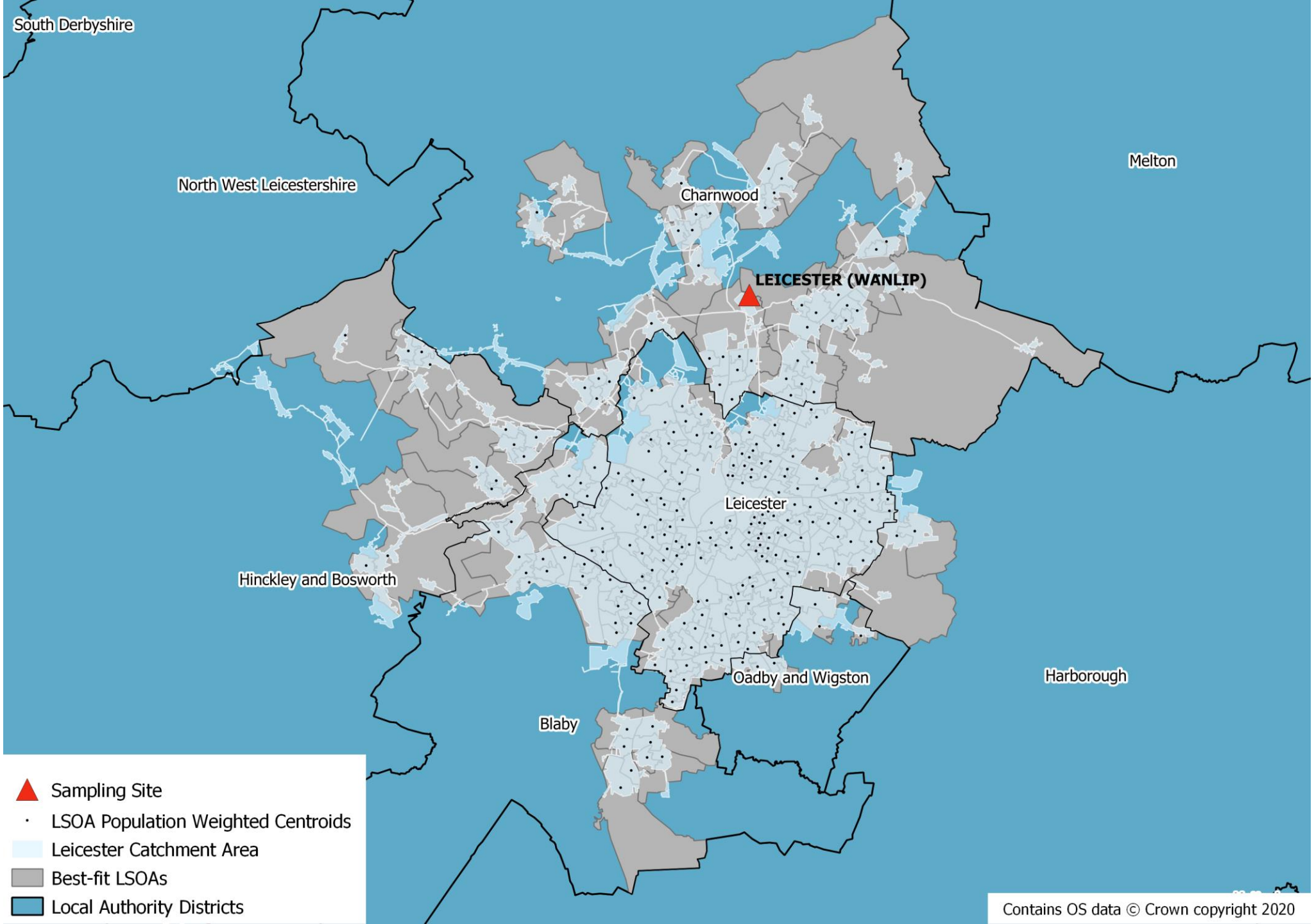






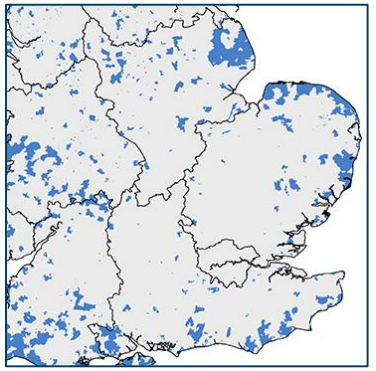


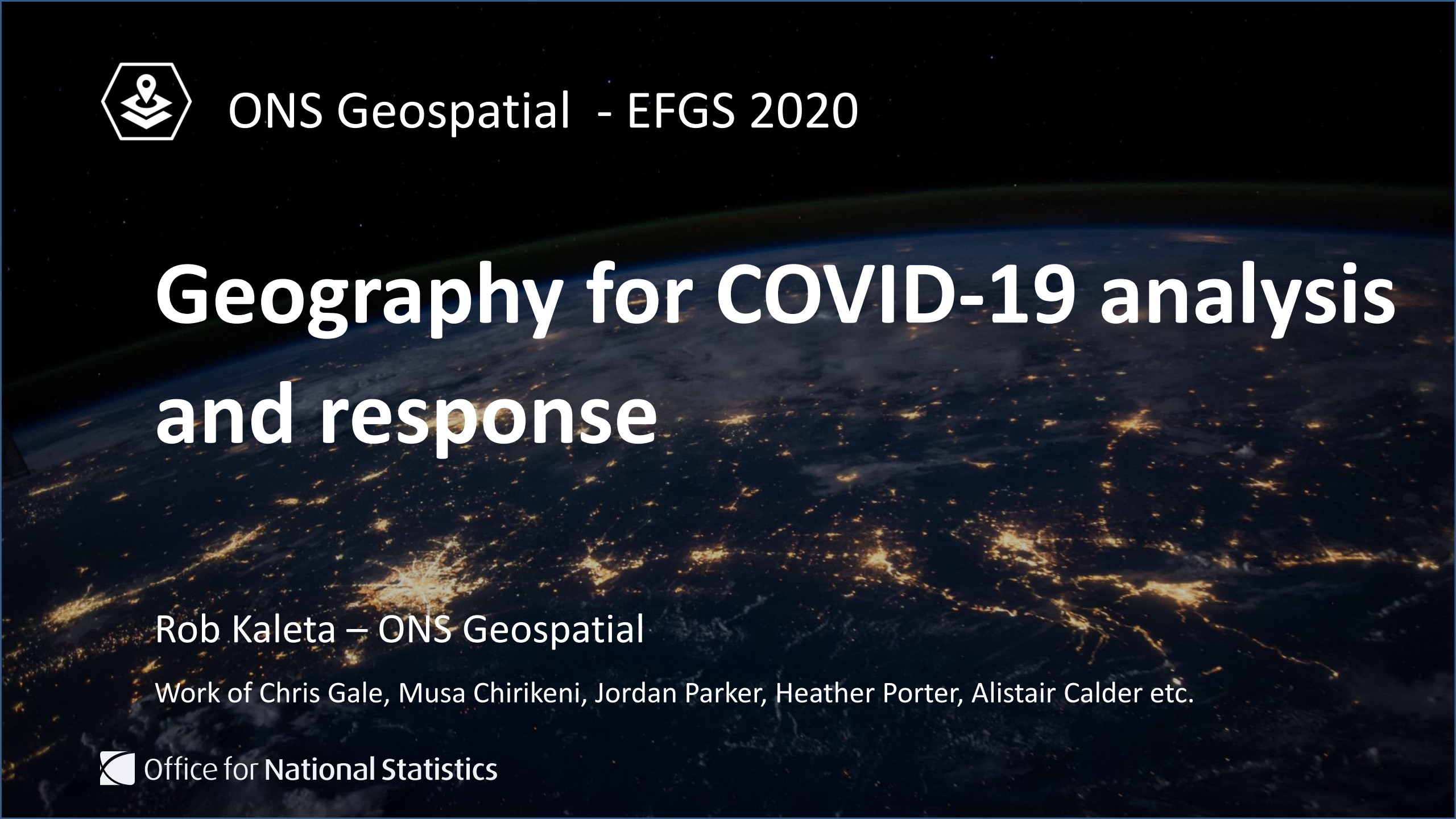



South Derbyshire
North West Leicestershire
Charnwood
Melton
LEICESTER (WANLIP)
Leicester
Hinckley and Bosworth
Oadby and Wigston
Harborough
Blaby
Sampling Site
LSOA Population Weighted Centroids
Leicester Catchment Area
Best-fit LSOAs
Local Authority Districts
Contains OS data © Crown copyright 2020

Observations / Conclusion

- Increasingly close working between mapping and statistical community
- COVID-19 has been the driver for open data sharing and rapid cooperation across government
- Highlighted the value of geography for integrating data across themes – and the importance of location for monitoring / analysis / response





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