

# Geography Policy Standard Area Measurements (SAM)

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2023

National Records of Scotland (NRS)

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## Background

Standard Area Measurements (SAM) are sets of area measurement, created using standard methodologies for key geographies in the UK for which statistics are produced. The land measurement figures are defined by topographic boundaries (coastline and inland water) where available.

Pillar 5 of the [Government Statistical Service \(GSS\) Geography Policy](#) advises that all national statistics that publish or use area measurements should use the agreed GSS standard methodology and published figures. The Eurostat recommended approach is to use the 'land area' measurement to compile population density figures.

## Who produces SAM

The Office of National Statistics (ONS) produce SAM using Ordnance Survey (OS) data.

Measurements are derived from an ONS corrected version of Ordnance Survey's 1:10,000 scale digital Boundary-Line™ product. The shapefiles used in the calculation of Standard Area Measurements are in British National Grid projection.

Ordnance Survey have a programme of constant improvement to Boundary-Line™ and so SAM measurements may be subject to change for areas whose boundaries have not physically changed.

## Types of measurement

The options for SAM figures for use in UK statistical outputs vary and no single type of measurement meets all requirements.

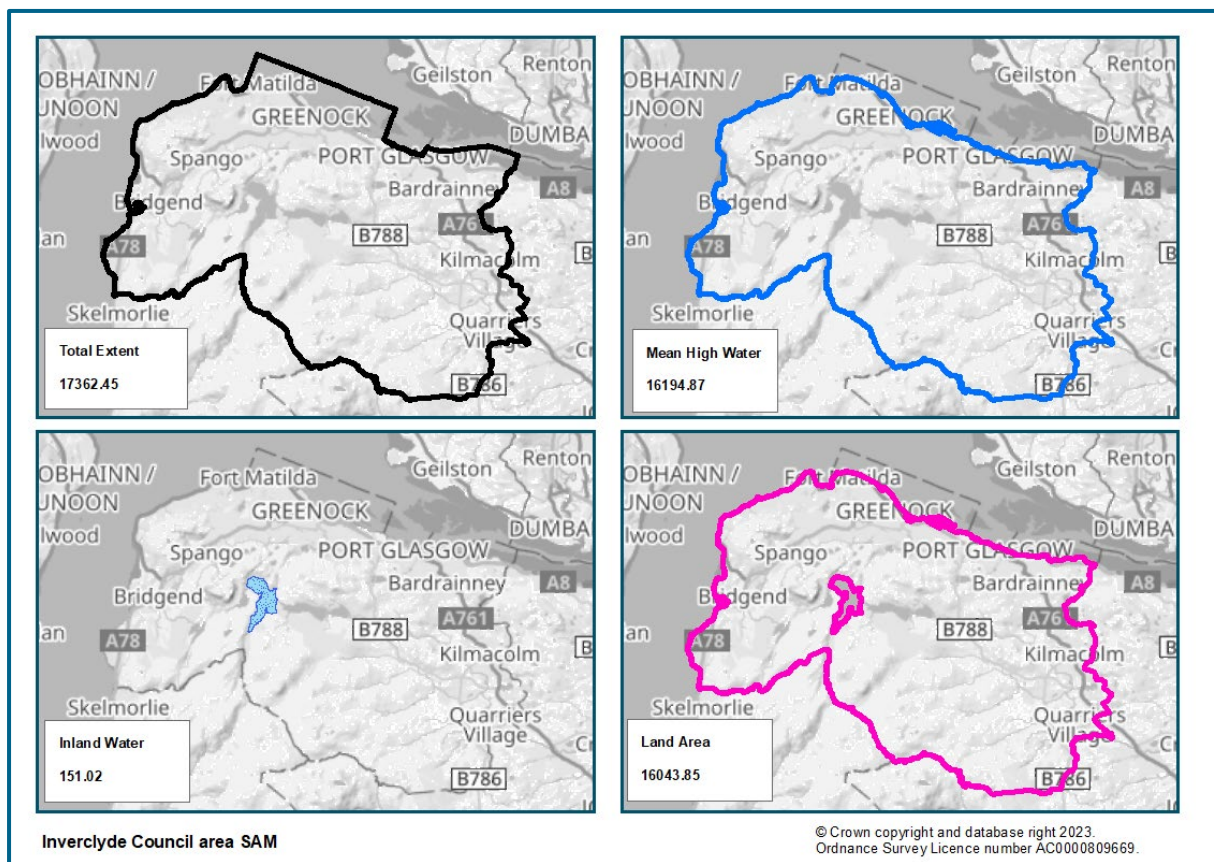
Four key measurements are available:

- Total Extent (area to Extent of the Realm)  
For Great Britain, this is the area of the statutory extent of an area. Such areas bounded by coastal water are measured to the 'Extent of the Realm' boundary. 'Total Extent' measurements include all tracts of inland water.
- Area to Mean High Water (MHW)
  - aka clipped to the coastlineThis is the total hectare measurement of an area clipped to the coastline and includes all tracts of inland water.

For all inland (i.e., non-coastal) areas, the measurements respect the statutory boundaries and so the area measurements are the same as those available for the 'Total Extent'.

- Area of Inland water  
This is the surface area of inland water areas within each area. Only those tracts of inland water with a surface area measurement of 1km<sup>2</sup> or more have been included.
- Land area which is derived from the above  
This area measurement is the difference between the ‘Area to Mean High Water’ and ‘Area of Inland Water’ where such a measurement is available. This area may be loosely defined as the ‘Land Area’

An example of these measurements is shown below for Inverclyde Council area (as at 2022 SAM).



## Areas for which measurements are available

Measurements are given in hectares (10,000 square metres) to 2 decimal places.

ONS produce SAM for the following geographies on a yearly basis:

- Administrative areas in the United Kingdom are derived from aggregated ward level SAM measurements.
- Electoral areas in Great Britain are derived from aggregated Westminster Parliamentary Constituency level SAM measurements.

- NHS health areas in England are derived from aggregated Sub integrated Care Board Locations level SAM measurements.
  - For Scottish Health Board areas, we amalgamate the Council area data.
- And any area derived from amalgams of any of the above areas.

ONS produce SAM for the following geographies when change occurs:

- Local Enterprise Partnerships.
- National Parks.
- Local Health Boards.
- International Territorial Levels: ITL 3, ITL 2 and ITL 1.

Census geographies are produced every 10 years:

- ONS produce SAM for all Lower Layer Super Output Areas (LSOA) and Middle Layer Super Output Areas (MSOA) in England and Wales are derived from aggregated Output Area (OA) level SAM measurements.
- NRS produce SAM for Scottish Output Areas.
- SG produce SAM for Data Zones and Intermediate Zones.

## Differences over time

Where SAM measurements for electoral and administrative areas are being used and there are differences with area measurements made available previously the following explanatory footnote should be provided:

“The area measurements are a definitive set derived from boundaries maintained by Ordnance Survey and Ordnance Survey of Northern Ireland. The current measurements may differ from those published previously in tables, publications, or other statistical outputs, even allowing for boundary changes or changes to the physical structure of the land because of improvements to the source of the data.”

## Further guidance

Further information is available in the [UK Standard Area Measurements \(SAM\)](#) section on the ONS Geography Portal.

The zip files provided on the ONS Geography Portal set out the principles for using geographic information to produce and disseminate statistics which includes best practice guideline covering the use of SAM and conditions of use.