



Lessons in sustainability

Find out how GIS is being used by NatureScot to empower young people to build a more sustainable future

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Advances in carbon storage

Discover the role played by GIS in the first licensing round for carbon storage in the North Sea, off Scotland

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Collaboration in construction industry

Read how nine partner organisations are using GIS to share data in the biggest road infrastructure project in Wales

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Endless possibilities with GIS

“GIS technology today can be used in so many different ways, across so many different industry sectors, that the possibilities are almost endless,”

writes Peter Wilkinson, Esri UK’s Managing Director.

If, like me, you have ever been asked ‘what is GIS?’, you will know that this is not an easy question to answer.

It can be hard to succinctly articulate exactly what geographic information system–GIS–technology is, because it is incredibly versatile.

GIS can be used to analyse complex data, collect data more efficiently in the field, visualise patterns, share information, engage with different audiences, monitor change in real-time, support collaboration and much, much more. In truth, GIS technology today can be used in so many different ways, across so many different industry sectors, that the possibilities are almost endless.

The variety of GIS applications is clearly evident in this issue of ThinkGIS. As you flick through these pages, you will begin to build up a picture of the diverse and imaginative ways in which Esri UK’s customers are using ArcGIS, Esri’s GIS system. In our lead story on page 3, you will discover how NatureScot is using GIS to help educate young people on sustainability, while on page 5 you can read how the North Sea Transition Authority has used GIS to help advance carbon storage. There is also a fascinating story on page 5 about how the Royal Commission on the Ancient and Historic Monuments of Wales is using GIS to bring 400-year-old, hand-drawn historical maps back to life. These examples could not be more dissimilar–nor more intriguing.

This issue of ThinkGIS also demonstrates how extensively GIS is used across a wide range of industry sectors. I urge you to read how organisations in the construction sector are using GIS to improve collaboration in a major road improvement project in Wales (page 9). On page 11, you’ll find an article about how the Scottish Fire and Rescue Service is using GIS to help save lives, alongside an article explaining how the Scottish Fisheries Coordination Centre is using GIS to conserve endangered salmon populations. These three industry sectors – construction, emergency services and conservation – face such different challenges, yet all use GIS to work more intelligently.

Discovering the breadth of GIS applications in use across the UK, and around the world, is one of the things that I find most rewarding about my role at Esri UK. The fact that this technology can add value for such varied organisations as the walking, wheeling and cycling charity Sustrans (page 8), the University of Bradford (page 10) and East Renfrewshire Council (page 10) makes GIS interesting, compelling and exciting.

So, when people ask me about GIS, I don’t try to describe what GIS is; instead, I give as many examples as I can of what GIS does. In this way, I hope to convey the inspirational and broad uses of GIS and show people that there really are endless possibilities.



Peter Wilkinson
Managing Director, Esri UK



Make it an event to remember

Throughout the year, Esri UK organises in-person events and conferences, at which customers have the opportunity to learn from the experiences of other organisations, network with their peers and ask questions of GIS experts.

You may be reading this publication at the Esri UK Scottish Conference (24th September 2024) or the Esri UK Welsh Conference (13th November 2024). If this is the case, we hope that you will take advantage of all of the opportunities presented by the day.



Take the time to chat with the people around you, gain inspiration from the conference sessions and pick up technical tips that you can put into practice yourselves. Discover how you can optimise or extend your use of GIS to deliver clear business advantage and make this an event to truly remember.

NatureScot empowers children to build a sustainable future

In association with the Scottish Government, NatureScot has begun to roll out a toolkit of ArcGIS solutions that will connect school pupils with nature and empower them to play a more active role in improving biodiversity.

In primary, secondary and special schools in Scotland, pupils learn about biodiversity and sustainability through the 'Learning for Sustainability' curriculum. Soon, however, pupils in up to 2,500 Scottish schools will be able to apply their learning outside of the classroom and use digital tools to make a difference to nature in their school grounds and local communities.

Scotland's nature agency, NatureScot, has commenced the roll-out of a toolkit of ArcGIS-based solutions, in the academic year 2024-25, that will enable young people to record the habitats they have in and around their school grounds, engage in

discussions about improving biodiversity and monitor change over time. Named the Nature Discovery Map Scotland, this toolkit was developed for NatureScot by Esri UK's Professional Services team and includes six ArcGIS apps that have been specially designed to be fun and easy to use by pupils and teachers with different levels of ability.

Learning to value nature

Together, the ArcGIS apps aim to encourage young people to think about the nature that is all around them and appreciate its value. Pupils can use ArcGIS mobile apps to capture data outside on all kinds of habitats and sustainability features



including hedgerows, trees, long grass, bird boxes, solar panels and compost bins. This information can then be displayed on interactive ArcGIS dashboards and compared to other schools, stimulating classroom conversations about how school grounds can be improved for nature.

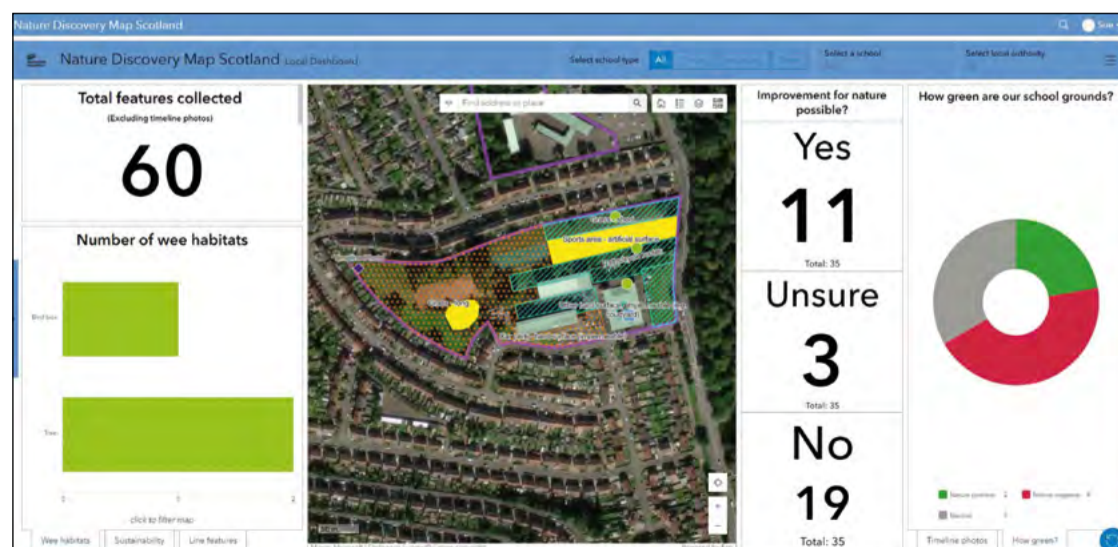
Taking action to improve biodiversity

Teachers and pupils can use ArcGIS web apps to plan activities, from creating wildflower meadows to installing bug hotels, and monitor the impact of these initiatives on the quality of nature in school grounds over time. They can also use the toolkit beyond their school boundaries to record schemes such as local

tree planting projects and better understand the role played by school grounds in creating thriving nature networks across Scotland.

Gaining digital skills for life

Through the use of the Nature Discovery Map Scotland toolkit, pupils across Scotland will gain experience of using industry-standard GIS apps, from field-based data capture tools to interactive web maps, at an early age. They will, therefore, be able to develop the confidence and skills they will need in the future to help Scotland, and indeed the whole world, to become more sustainable and resilient to climate change.



The Nature Discovery Map Scotland Local Dashboard, showing habitats within a school's grounds

“Scotland's children have the opportunity to be a part of the mission to tackle the nature crisis. NatureScot is bringing the ArcGIS Nature Discovery Map Scotland toolkit into schools to help equip young people with the knowledge, passion and skills to improve their local biodiversity, respond to the climate emergency and create a future that is more sustainable and nature rich.”

Sue Munro
Greenspace Officer, NatureScot

Creating a truly sustainable organisation

All kinds of organisations are increasingly turning to ArcGIS to help them become more sustainable - environmentally, socially and economically.

Organisations today are well aware of the importance—and indeed urgency—of improving their sustainability. However, operating sustainably doesn't just mean protecting natural resources. Alongside conserving the environment and enriching biodiversity, sustainable organisations also

have a responsibility to consider social and economic factors, such as reducing risks to public health, offsetting carbon emissions, ensuring transparency and traceability across global supply chains, delivering equitable access to services and reducing waste.



Environmental sustainability

Nature conservation organisations like Natural Resources Wales have long been using ArcGIS to monitor environmental changes and gain insight to inform new habitat restoration programmes. Now, however, corporate and public landowners, such as NHS Fife, are adopting ArcGIS to help them understand habitats across their estates and manage their land in a more sustainable way. With the introduction of new legislation on Biodiversity Net Gain, housing and infrastructure developers are also employing ArcGIS to understand the environmental impacts of their projects. Many of Esri UK's customers, including Anglian Water, already make effective use of ArcGIS visualisation tools to demonstrate biodiversity improvements over time. Meanwhile other customers are using ArcGIS to collaborate effectively with partners and not-for-profit organisations on joint carbon offsetting projects like tree planting and peat bog restoration.

Social sustainability

A wide variety of organisations are using ArcGIS to understand impacts on society, promote equity and help people live better, more sustainable lives. As Fera Science has demonstrated, ArcGIS can be used to help decision makers balance the needs of agriculture and the environment, so they can plan more effectively to protect food security. Equally, housing associations, such as Thirteen Group, use ArcGIS to better allocate their resources and help make their communities sustainable, safer and healthier. The City of London Corporation has used ArcGIS to model sea level rises along the Thames and better understand the risks for local communities and businesses. Whatever their sustainability story, organisations can use ArcGIS Story Maps, maps and dashboards to publicise their goals and achievements in an engaging way and promote the integrity of their brand.

Economic sustainability

Partly through legislation and partly through consumer pressure, organisations now face greater scrutiny and need to contribute to an economy that is prosperous but neither unfair nor harmful for the environment. Esri UK has many customers in the energy sector, like Statkraft UK, that are using ArcGIS to accelerate the transition to clean energy and facilitate the UK Government's net zero ambitions. Other organisations are reducing their carbon footprint. Doncaster City Council, for instance, has reduced unnecessary litter collection journeys with insight from ArcGIS. A critical part of sustainability is improving business resilience and insurers including Willis Towers Watson are using ArcGIS to share global threat intelligence with corporate clients so they can mitigate future risks to their business operations.

The ultimate goal is to drive a collective ambition for sustainable operations - a harmony of all three of these pillars of sustainability. Using ArcGIS in so many different ways, Esri UK's customers are moving towards this future and becoming truly sustainable organisations.

Welsh commission brings historic maps back to life

The Royal Commission on the Ancient and Historic Monuments of Wales has embarked on an ambitious journey to digitise, enrich and share maps showing 400 years of Welsh history.

In national archives, regional museums, stately homes and dusty corners all around the world, there exist hundreds, if not thousands, of paper maps showing estates, townships and parishes of Wales, as they looked in the 17th to 19th centuries. The Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) is now collating these invaluable historical resources, digitising and enriching them with ArcGIS, and making them accessible to everyone.

In the first phase of this highly ambitious project, RCAHMW focused on six parishes in North East Wales, bringing together the earliest Ordnance Survey maps from 1869-1874 with tithe survey maps, enclosure maps and hand-

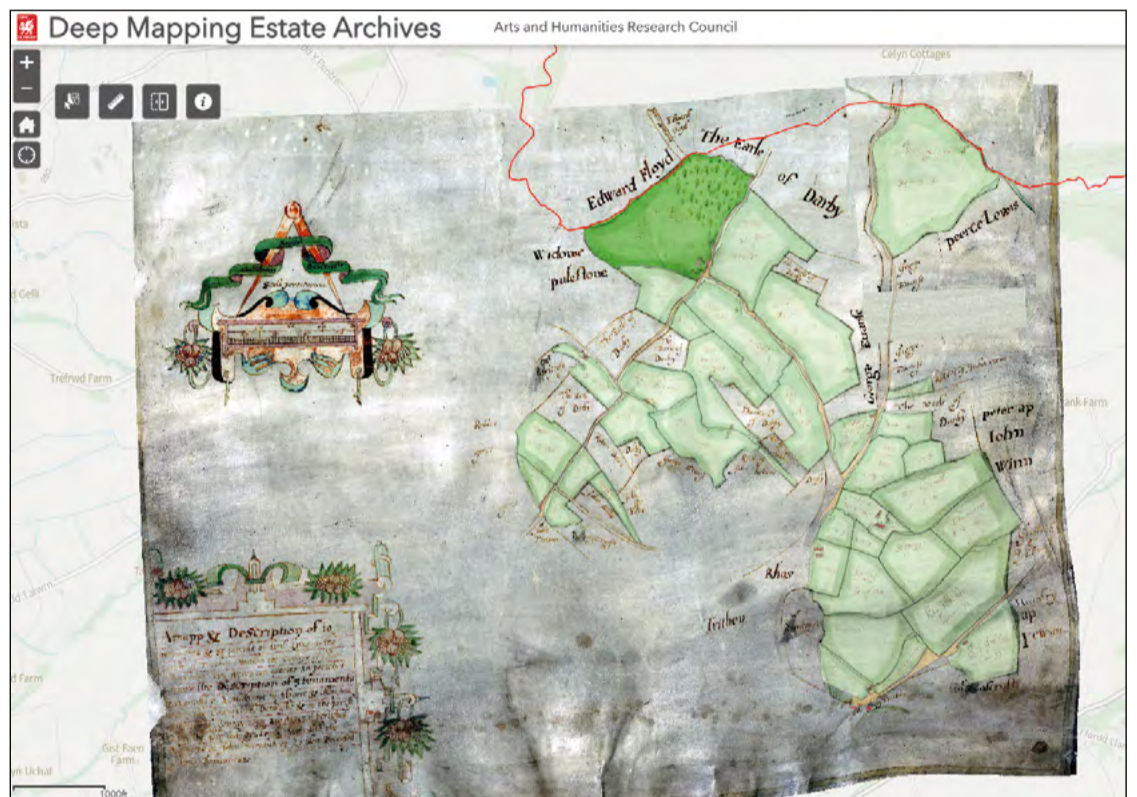
drawn estate maps going back to 1620. The organisation used ArcGIS Pro to geographically align the ancient maps with modern mapping, vectorise each individual polygon (such as fields) and capture supplementary information. It then created a 'Deep Mapping' web app with ArcGIS Online that allows users to click on any location to discover who the landowners were hundreds of years ago, how the adjacent stream has moved and what the early land uses were.

RCAHMW believes that its free-to-use app will prove invaluable for planners, environmentalists and historical researchers who can use it to better visualise and analyse how the landscape has changed over the course of 400 years.

Most importantly, the project is bringing almost-forgotten historical maps

back to life and making them relevant to today, so that more people can use

them to gain a deeper appreciation of their local areas.



An estate map from 1620 that has been vectorised using ArcGIS Pro

North Sea Transition Authority advances offshore carbon storage

The UK's first ever licensing round for carbon storage has been completed, using ArcGIS to share information with applicants and manage the bid process.

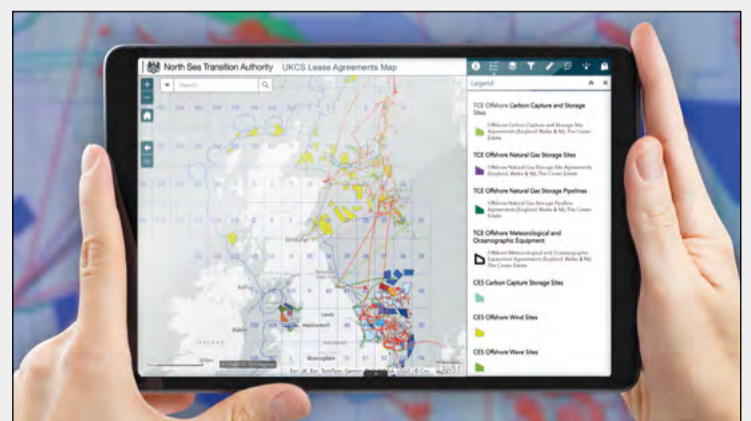
As the official regulator for the oil and gas, offshore hydrogen and carbon storage industries in the UK, the North Sea Transition Authority (NSTA) is playing a key role in helping the UK to achieve net zero. It has recently awarded 14 companies 21 licences to store carbon in depleted oil and gas reservoirs and saline aquifers. The bidding process was supported by an end-to-end ArcGIS solution and has paved the way for up to 30 million tonnes of carbon dioxide to be stored annually by 2030.

Any company interested in bidding for licences could access information about the marine sites via the NSTA's open data portal, built with ArcGIS Hub technology. Regardless of whether they were experienced or novice GIS users, applicants could visualise sites on interactive web apps, find pertinent data about the seabed and historic activity, and assess the potential of the licence areas. The ease at which data could be accessed, downloaded and used, helped to encourage a

broader range of applications and led to a successful bidding process.

NSTA also employed ArcGIS internally to help coordinate the licensing round and, in particular, manage the vast amount of data pertaining to 12,000 km² of seabed. Its streamlined, ArcGIS-driven process helped to avoid duplicated tasks and created efficiencies throughout the administration of this first-of-its-kind carbon storage bidding process. The organisation's innovative approach has earned it a

Special Achievement in GIS award, presented at the Esri User Conference 2024 in San Diego.



An ArcGIS web app displaying data about offshore licences and activities

The National Trust celebrates a decade of innovation

For ten years, Europe's largest conservation charity has been making extensive and creative use of ArcGIS to help it achieve its strategic priorities.



© National Trust Images/James Dobson

It was in 2014 that the National Trust decided to implement a single, enterprise-wide, GIS platform. This strategic decision proved to be the catalyst for innovation and, today, more than 2,150 employees, as well as partners and volunteers, use ArcGIS-based solutions to help protect historic properties and ancient monuments, as well as enrich natural environments. The charity has an array of creative web-based, mobile and desktop GIS solutions, which help it to achieve strategic priorities, including preparing for climate change and ensuring everyone feels welcome.

Taking action on climate change

Recognising the growing risks arising from climate change, the National Trust has created an ArcGIS Hazards Map of the UK. This enables individual property managers to understand the specific climate challenges that pertain to their properties – such as flooding, higher

temperatures or sea level rises – and mitigate risks. In another initiative, the National Trust has used ArcGIS together with remote sensing technology to help it protect its land and properties from the heightened threat of wildfires.

Many of Britain's river catchments have been adversely affected by climate change, as well as intensive farming and development. ArcGIS research is now helping the National Trust to plan its most ambitious river catchment regeneration project yet, to mitigate the impacts of climate change and create a more sustainable future for species that depend on stream and river environments. In Devon, for example, the organisation is working to reconnect streams with the floodplain, allowing the wider landscape to absorb the effects of flooding and creating better habitats for wildlife.

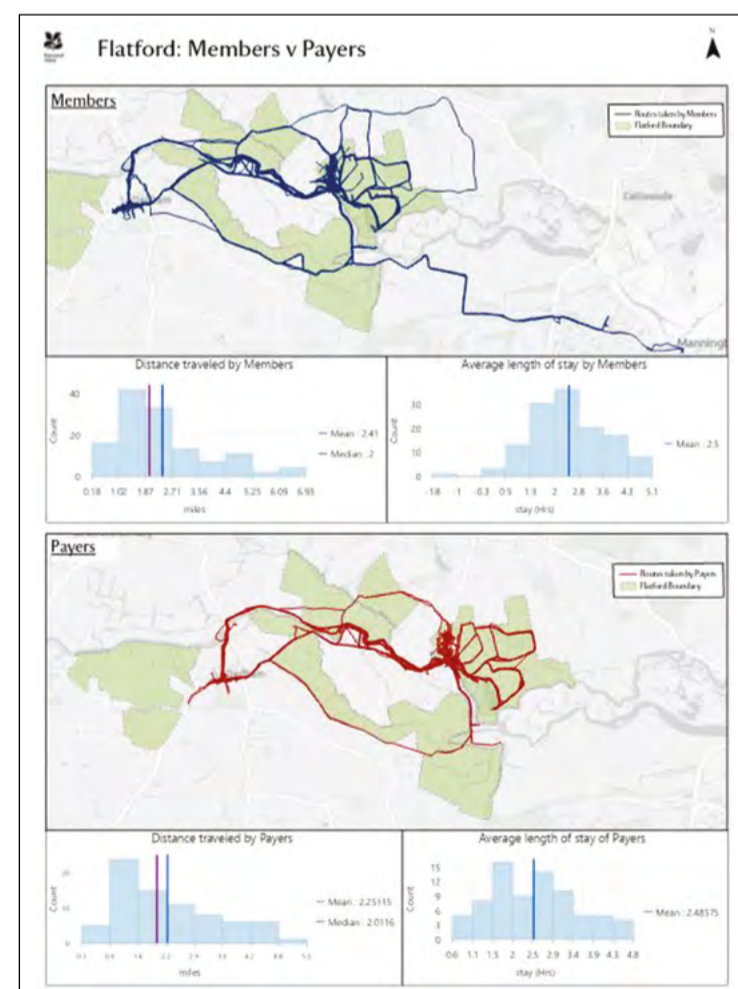
Making everyone welcome

The National Trust is increasingly using mobile ArcGIS apps and GPS data to gather information about what people enjoy doing, and it uses this insight to improve the visitor experience. For example, at Flatford in Suffolk, data from GPS devices was analysed in ArcGIS Pro to understand where visitors walk and spend most time. This information was then used in the 'experience design' process to help develop robust cases for future investments.

To widen access to its special places, the National Trust has undertaken ArcGIS-based studies to better understand the proximity of properties and green spaces to people living in urban areas and, in particular, areas of deprivation. The organisation has also used ArcGIS to engage more effectively with volunteers through crowd sourcing. In a pilot project in the Peak District, it has equipped

volunteers with ArcGIS mobile apps, enabling them to collect data on the condition of archaeological features on National Trust

land and have a very positive and rewarding experience volunteering for the Trust.



An analysis of visitor movements at Flatford in Suffolk, conducted with ArcGIS Pro to help enhance the visitor experience.

Celebrating the nation's GIS heroes

Esri UK is continuing to acknowledge the achievements of the UK's most innovative and inspiring GIS professionals.

In organisations all around the UK, there are some exceptional people who are using GIS to make a real difference to people's lives, restore our natural world and drive innovation in business and public service. Esri UK is shining a bright light on the work of these inspiring individuals through its ongoing 'GIS Heroes' programme.

The GIS Heroes section of the Esri UK website currently showcases the stories of fifteen GIS professionals, all of whom have used Esri's ArcGIS technology in creative ways or made a notable contribution to the GIS community. Working in not-for-profit organisations, police forces, commercial businesses, conservation groups and rescue services, they have demonstrated

their ability to apply their GIS skills to an array of industry, environmental and societal challenges.

The first GIS Heroes were acknowledged in 2020 for the many innovative ways in which they were using GIS to address the urgent and unprecedented challenges of the COVID pandemic. Early GIS Heroes included Stuart Hill from Scottish

Water, who developed a GIS approach to supporting vulnerable customers during lockdowns, and Stuart Lester from Transport for West Midlands, who used ArcGIS to analyse and identify essential transportation services for key workers. Today's GIS Heroes face different pressures, but are making an equally positive impact on the world.

James Coles

For nearly thirty years, engineer James Coles has been pulling on his boots day and night, in storms and blizzards, to search for people lost and injured in remote mountainous areas of Scotland. As the team leader for the Moffat Mountain Rescue Team near Lockerbie, he has used GIS to develop a unique planning system to support complex life-saving rescue operations.



Claire Wood

In a self-initiated project, Claire Wood, a scientist at the UK Centre for Ecology & Hydrology (UKCEH), has used GIS to digitise and enrich archived paper records from decades-old field studies. Consequently, data from the 1950s, 1960s and 1970s can now be easily compared with recent surveys to improve understanding of climate change and biodiversity loss over time.



Visit the Esri UK website to read James' and Claire's stories.

Find out more >

If you have a colleague or a partner who you believe is worthy of recognition, let us know!

Email your GIS Hero nomination to marketing@esriuk.com

Intelligent data for intelligent decisions

Every GIS application needs data. Whether it is the latest climate data, satellite imagery or newly published development plans, appropriate, up-to-date and intelligent data ultimately helps organisations to make intelligent decisions.

Esri UK offers a range of free and premium data services that make it easy for organisations to stream the data that they need directly into their ArcGIS systems. Customers can also avail themselves of Esri's Living

Atlas of the World, a vast online repository of geospatial data, or work with Esri UK's data partners to gain access to specialised data on everything from flood hazards to city transport.

One key partner is LANDCLAN, a UK-based organisation providing spatially-joined data on land and property ownership. Customers can import LANDCLAN data directly into their own ArcGIS

applications, access the data via their ArcGIS Online accounts or consume it using an ArcGIS API. With 500 attributes and 115 billion data points, the LANDCLAN data can be used to assess land for

acquisition, verify location data, identify property development needs and manage land and property portfolios.

Sustrans

Understanding land ownership risks

The charity Sustrans is the custodian of the National Cycle Network, comprising over 12,000 miles of signed paths and routes for walking, wheeling, cycling and exploring outdoors. It has built a Network Development Tool with ArcGIS Online that enables up to 150 members of staff to view and manage more than 15,000 improvement projects that are either planned or in progress across the whole

Network, from John O'Groats to Land's End.

Since 2022, Sustrans has been using LANDCLAN's land and property data to improve its understanding of land ownership, as 98.5% of the National Cycle Network crosses land not owned by the charity. The LANDCLAN content enables the charity to understand the legal status of land and identify potential risks and

constraints that might impact future network improvement projects. Sustrans also uses the data to analyse and evidence the improvements that it makes and share meaningful information with stakeholders. As far less time is spent looking for and managing data, Sustrans can make well-informed decisions, quickly and confidently.



Basildon Borough Council

Managing land and property assets

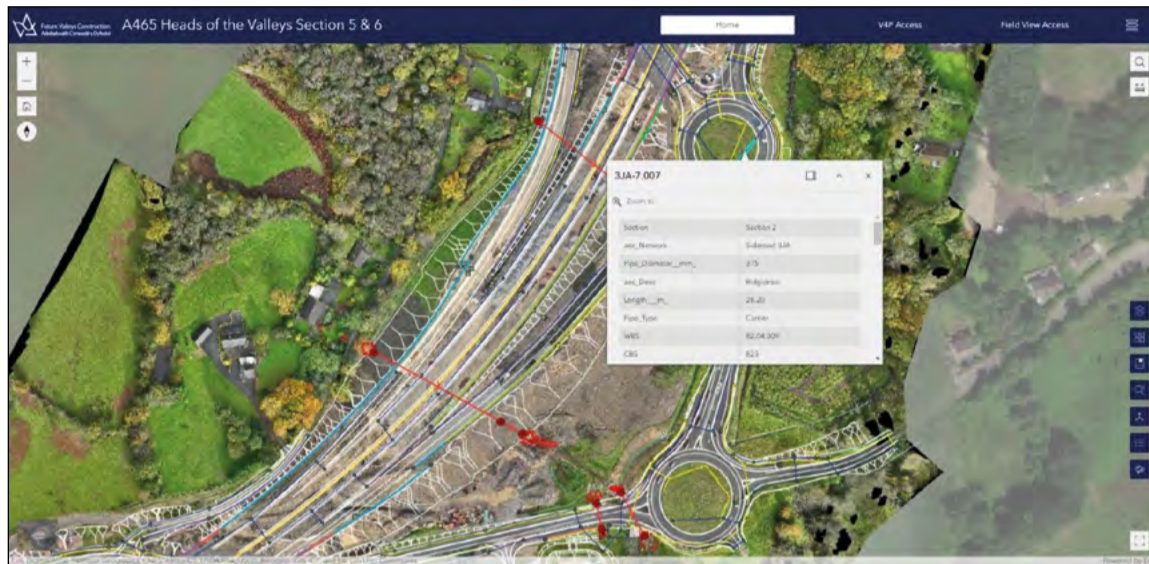
Basildon Borough Council has over 20,000 separate land parcels and properties spread out across an area of over 110 km² in Essex. It uses a LANDCLAN app, accessed via ArcGIS Online, to view and analyse all data pertaining to a site or building, such as a council office, from its size and location to its average electricity costs, forecasted income and maintenance records.

Using the app, council staff can identify similarities between properties quickly and plan more efficient, proactive maintenance. They can see what land is owned by partner organisations, such as Essex County Council, and discover opportunities to reduce costs by co-locating services. They can also explore options for new housing, gather data to support bids for government grants and compare the

redevelopment potential of multiple sites simultaneously. In these ways and others, Basildon Borough Council is not only managing its property more cost effectively, but also planning ahead strategically to ensure the long-term environmental and financial sustainability of its assets.

GIS drives collaboration in A465 road upgrade

In the biggest road infrastructure project ever commissioned by the Welsh Government, nine partner organisations are using ArcGIS to share data and make faster decisions.



An ArcGIS web app providing access to detailed engineering, construction and environmental data

Connecting South Wales to the Midlands, the A465 'Heads of the Valleys' road is a strategically important route, and a major construction project is currently underway to complete the final sections of its dualling, from Merthyr Tydfil to Hirwaun. The principal contractor for this section of the road, FCC Construcción, has developed an innovative solution using ArcGIS to share data and collaborate with its subcontractors, partners and stakeholders more effectively.

The organisation has created an A465 project portal that provides a single point of access to all available data relating to the construction of 30 road bridges, 3 footbridges and 28 retaining walls along a 17.7 km route. Built with ArcGIS Experience Builder, the portal contains around 20 ArcGIS web apps and dashboards that, together, present over 2,000 layers of data including BIM models, drone imagery, landscape plans and inspection reports.

Employees across nine partner organisations use the ArcGIS web apps and dashboards to find the information they need, whether they are inspecting one of 1,745 drainage chambers or supervising the

movement 2.2 million m³ of earth. In meetings, multi-organisational teams view ArcGIS web apps and dashboards to gain a shared understanding of complex groundworks and construction works and make faster decisions. Everyone can work more productively, which is accelerating processes and leading to substantial efficiencies across the five year project.

One key partner, the environmental consultancy TACP, oversees the implementation of the project's landscape design in ArcGIS and monitors ecological assets, such as the locations of ancient woodland, fungi, bat roosts and butterfly larvae using ArcGIS mobile apps. TACP established an Environmental Permit to Work system for the

project, integrating ArcGIS Survey123 and Microsoft SharePoint to manage permits and help ensure environmental control and compliance. Its data is shared in real time on the A465 project portal through a partnered collaboration, helping minimise construction impacts and enhance and create habitats for dormice, bats, great crested newts, marsh fritillary butterflies and other wildlife.

Managing this mammoth project, FCC Construcción uses the ArcGIS web apps and dashboards to share data and maps with its client, the Welsh Government, as well as local residents and road users. In this way, it can assure stakeholders confidently that the project is being carried out to the highest environmental standards.



Vegetation clearance plans available online in an ArcGIS Online Web App and in ArcGIS Field Maps

ArcGIS has transformed the way that we work with our subcontractors and partners and brought improved efficiency and accuracy to our project delivery."

Juan Ramón Mena
BIM Manager, FCC Construcción

Product in the SPOTLIGHT

ArcGIS Experience Builder

Esri's most flexible web app building solution, ArcGIS Experience Builder, allows organisations to create versatile, highly tailored web apps, without writing code.

The solution includes drag and drop tools and a whole library of design templates that simplify the entire process of building and publishing unique web apps. From apps with single or scrolling pages to complex layouts with multiple pages, organisations can build exactly what they envision and enhance their users' experience.

Use ArcGIS Experience Builder to:

- Kick start the web app building process by selecting a designer-made app template
- Position maps, tables and charts for 2D and 3D data, and configure them to work together
- Add widgets and actions to support interactive data exploration and geospatial analysis
- Enhance web apps with images, text, additional pages and organisational branding
- Optimise web apps for any screen size and publish to audiences with a click of a button

Explore Experience Builder

[Find out more >](#)

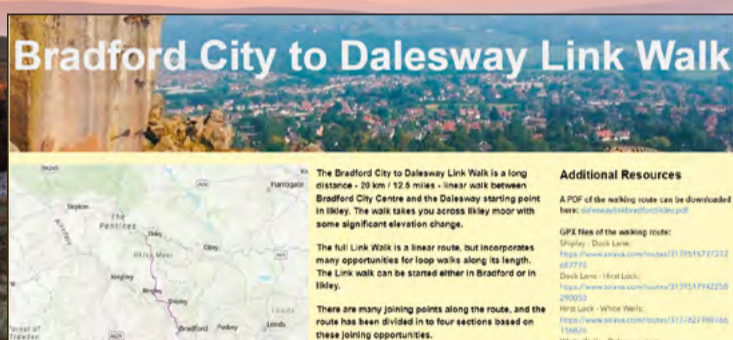
The Bradford district promotes walking and local heritage

In a highly collaborative and imaginative project, the University of Bradford and Bradford Council are inspiring people to walk the Dalesway Link path and discover local heritage along the way.

The Dalesway Link path stretches 12.5 miles through the Bradford district between Bradford city centre and the town of Ilkley. The route passes the UNESCO World Heritage Site of Saltaire, the Twelve Apostles Stone Circle, a rare up-and-over canal bridge as well as numerous other historical and archaeological features. To help encourage people to explore the path, academics from the School of Archaeological and Forensic Sciences at the University of Bradford joined forces with the Countryside and Rights of Way team and the Geospatial team at Bradford Council.

The two organisations compiled existing route maps, current and historic images, video clips, voice recordings of historians and other information pertaining to around twenty heritage features. They then used ArcGIS Experience Builder to create a web app and present these resources as a rich and informative website. Short sections of the route are highlighted on separate pages, to encourage people to use the path as part of their daily commute or for weekend strolls with family and friends.

The Dalesway Link web app will help to encourage the people of Bradford to spend more time outside exploring Bradford's heritage. Local residents will be able to improve their health and wellbeing by using the path and, at the same time, enrich their understanding of the history and nature around them. Providing a highly immersive, three-dimensional experience, the ArcGIS web apps will also enable people with disabilities to experience the sights of the walk virtually and deepen their connection to the city and its surrounding countryside.



The Dalesway Link Walk website, created with ArcGIS Experience Builder

East Renfrewshire Council extends in-house GIS skills

Taking advantage of Esri UK's Learning Services, East Renfrewshire Council is upskilling employees across multiple departments and expanding the value it gains from ArcGIS.

East Renfrewshire Council has long recognised the value of receiving specialist GIS training from Esri UK. It first engaged with Esri UK's Learning Services team in 2017 when it transitioned from legacy GIS systems to ArcGIS technology. Since then, GIS specialists within the council's business intelligence team, in the Environment Department, have regularly refreshed their skills by attending courses on everything from automating data with ArcGIS Model Builder to streamlining field data collection with ArcGIS Field Maps.

Now, the council is taking advantage of Esri UK's Learning Services to help it upskill employees across multiple departments and increase the use of GIS throughout the organisation. Most recently, it arranged two ArcGIS Pro training courses for twelve people, from departments including housing, education, roads, planning and neighbourhood services. As a result, more council teams are now empowered to use ArcGIS to update, interrogate, analyse and share their own data.

The training delivered by Esri UK's Learning Services team has undoubtedly stimulated greater use of ArcGIS within the council. In the roads department, for example, employees are now analysing the risks of trees falling on roads with ArcGIS and planning proactive tree maintenance. In the housing department, employees are improving the quality of their spatial data, while the strategy team is beginning to use the ArcGIS Story Maps app builder to make local planning information more accessible and engaging. Over time, the training will help the council to build

more end-to-end digital processes and make better use of information as an asset.



Toposcope at Blackwood Hill, Whitelee Windfarm, East Renfrewshire

Scottish firefighters identify high risk areas

The Scottish Fire and Rescue Service (SFRS) is using ArcGIS to better understand risks across Scotland and ensure the right resources are in the right places.

Firefighters in Scotland operate across a large, diverse and challenging terrain, serving homes and businesses in busy urban areas, as well as remote villages and dozens of inhabited islands. As risk varies enormously from location to location, SFRS, the world's fourth largest fire service, has used ArcGIS to calculate risk levels across more than 6,000 data zones in Scotland, each with a population ranging between 500 and 1,000 residents.

SFRS is now using this risk model to carry out targeted interventions as part of its prevention work, to keep communities safe from the risk of fire and other hazards. The organisation can use ArcGIS web apps and dashboards to provide insights and analyse a variety of individual risk factors such as historic incident occurrences, domestic socio-economics, flood data and building heights. Then, it can take early action in geographical zones that are showing as high risk, from installing fire

alarms and fire suppression systems, to raising awareness of accident blackspots.

SFRS's ArcGIS-based approach, which deploys machine learning algorithms to calculate the relative risk, will also be used to inform the deployment of both prevention and operational resources. SFRS can use ArcGIS to investigate alternative operational asset configurations, aligned with the geographical risk levels identified, and help make communities safer.



An ArcGIS dashboard displaying risk analysis across Scotland

Scottish Fisheries Coordination Centre supports salmon conservation

With wild Atlantic salmon now endangered, the Scottish Fisheries Coordination Centre (SFCC) has highlighted the nationwide interventions and investments needed to restore freshwater habitats.

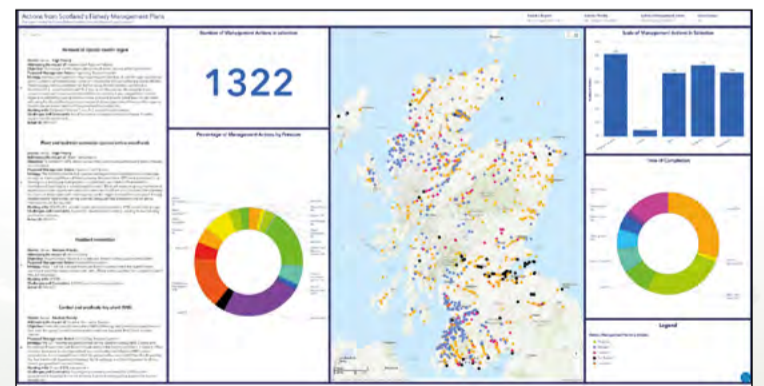
Populations of wild salmon have been in steady decline in Scotland for over 70 years. To understand what is needed to reverse this alarming trend, SFCC has used ArcGIS Pro to consolidate data from 44 fisheries districts and create the first national record of all interventions needed to improve conditions for wild salmon populations, across the whole of Scotland.

SFCC, its member organisations and other stakeholders now use ArcGIS Dashboards to view over 1,300 nationwide interventions that are either in progress, planned or not

possible for reasons such as land access restrictions. The dashboards display exactly where initiatives are needed, how long they are due to take, what the estimated costs are and whether they are financed. Consequently, it is now far easier for SFCC to understand and communicate the precise level of investment required to improve conditions for salmon populations, locally and nationally, and attract investment.

The fisheries management plans for the 44 fisheries districts have been transformed from lengthy, static pdf reports into

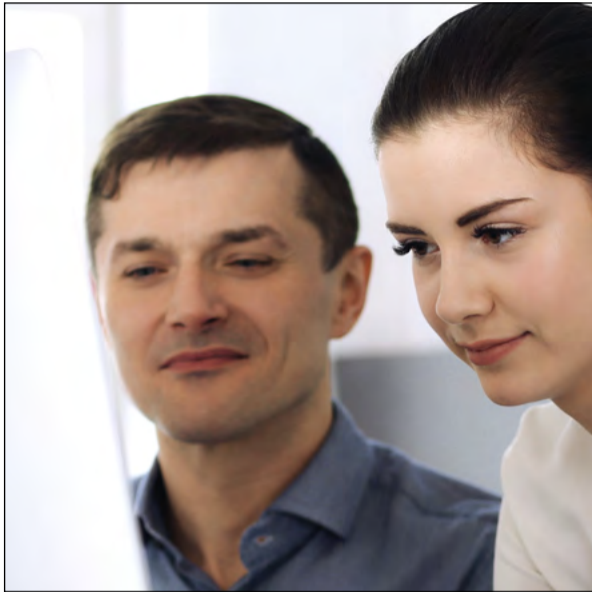
dynamic story maps, that present information about fish population health and planned interventions in a far more attractive and engaging way. The 44 story maps are all based on the same standard template, created by SFCC using the ArcGIS StoryMaps app builder, and all draw on the same national dataset of interventions. Together, they communicate a highly visual and compelling message about the challenges faced by endangered salmon populations and present a clear vision for how to make a positive impact on river habitats.



An ArcGIS Dashboard showing actions from Scotland's fishery management plans

Experts on your side

Whether you want to create an innovative GIS app, migrate to a fully managed cloud solution or brush up your GIS skills, Esri UK has experts available to help you.



Esri UK Professional Services

Esri UK has a large team of highly experienced consultants, software engineers, solution architects and project managers helping customers to optimise their use of ArcGIS and deliver solutions to their business problems. They work on the full range of Esri technologies, building solutions in the cloud, on premise and on mobile devices. They work across all scales of project from complex, enterprise-wide solutions to small requests for help and guidance.

At East Riding of Yorkshire Council, consultants from Esri UK's Professional Services group supported the migration to ArcGIS Pro, assisting the ICT team's planning, giving demonstrations of ArcGIS Pro features and providing advice on the most appropriate licence types. When completed, this strategic migration project delivered improved GIS capabilities for fifteen separate teams, provided a catalyst for innovative new council services and generated significant annual cost savings.

Esri UK Managed Services

A managed service from Esri UK removes much of the hassle and cost of setting up, maintaining and managing IT infrastructure in house and provides complete peace of mind. Esri UK helps organisations to get up and running quickly and continually monitors all cloud-based GIS solutions in line with a robust Service Level Agreement. Any issues are identified and proactively resolved before they impact users, so organisations no longer have to worry about service availability and performance.

National Highways selected Esri UK's Managed Cloud Service when it took the strategic decision to create a single 'Spatial Portal' for the whole organisation and replace its many existing, disparate departmental GIS applications. Now, geospatial data is used more extensively than ever before, and employees have the real-time insight, accurate network models and innovative tools to work efficiently right across the organisation.



Esri UK Learning Services

Whether organisations want to upskill entire departments or individuals want to learn new techniques, Esri UK offers training in almost all aspects of using ArcGIS, from getting started with ArcGIS Dashboards to developing web apps with the ArcGIS Maps SDK for JavaScript. The Esri UK Learning Services team offers a range of learning options including: online eLearning modules; live, instructor-led virtual training for individuals or groups; and private courses delivered in person at customer premises.

The Ordnance Survey of Northern Ireland (OSNI) invests annually in ArcGIS training from Esri UK & Ireland to ensure that its specialists have the advanced, up-to-date skills they need to advise government departments. It now opts to have all training delivered online, which is convenient and cost-effective. OSNI generally books dedicated courses, just for OSNI employees, to enable it to train large numbers of people at the same time and focus on OSNI-specific use cases. It can then fully realise the benefits to business areas and ensure value for money.