

# Managing marine and freshwater environments

## Loughs Agency

### The Challenge

- Upgrade and upscale GIS capabilities
- Accelerate the flow of data from the field

### The Benefits

- Real-time access to data
- Efficient management of resources
- 400% more data processed in half the time
- A positive user experience
- Active engagement with stakeholders

**A timely upgrade to ArcGIS Enterprise provided the catalyst for Loughs Agency to completely reimagine its field-based data capture and visualisation methods. Now, staff at this cross-border body can manage marine and freshwater environments more effectively, with real-time access to information, streamlined processes and new ways to engage with stakeholders.**

### The Challenge

Loughs Agency is a cross-border organisation responsible for sustainably managing, promoting and developing fisheries and marine resources in the Foyle and Carlingford areas. The organisation had been using ArcGIS Server technology for many years, but with growing numbers of users and ambitious plans for the future, it wanted to upgrade and upscale this core business system.

At the time, Loughs Agency was using hand-held GPS devices and third-party software to collect data in the field, an approach that required time-consuming data processing. One of the key goals of the upgrade project, therefore, was to shorten the time between collecting data in the field and being able to use it to inform operational and strategic decisions.

### The Solution

Loughs Agency migrated to Esri's ArcGIS Enterprise system, with support from Esri Ireland's Professional Services Group, and started to see the benefits of the newer technology straight away. "ArcGIS Enterprise ultimately supports the Lough Agency's mission in environmental management, conservation and regulation," says Rachel Scott, GIS Manager at Loughs Agency. "It provides us with more powerful tools, better data management, enhanced security and greater flexibility."

With access to additional ArcGIS user licences, the organisation started using ArcGIS Survey123 and ArcGIS Field Maps, in place of the GPS devices and third-party software, to improve the collection and use of data in the field. It recreated its fifteen existing surveys in ArcGIS Survey123 and then built new data capture forms, in response to staff requests.

Now, ArcGIS Survey123 and ArcGIS Field Maps are used by staff across all directorates of the agency, for everything from scientific marine surveys to outreach programmes with schools and corporate risk assessments. "Demand for ArcGIS apps in the field has increased exponentially!" remarks Scott. "The requests keep coming and now we have over 75 ArcGIS Survey123 forms... and counting!"

To display the data collected in the field, Loughs Agency built a series of map viewers with ArcGIS Enterprise that incorporate security controls to protect sensitive data. These map viewers are accessed via a central Map Portal and provide accurate insight into all aspects of the organisation's work, including licence inspections, illegal fishing seizures, water quality reports and habitat restoration projects.

In addition, Loughs Agency has built around twenty interactive dashboards with the ArcGIS Dashboards app that summarise real-time data and highlight trends. One key dashboard provides an overview of pollution incidents in real-time. Staff can see the category and severity of pollution events per catchment, understand the sources of pollution, and drill down by year or location to identify particular areas of concern.

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Demand for ArcGIS apps in the field has increased exponentially!

Rachel Scott, GIS Manager, Loughs Agency

## The Benefits

### Real-time access to data

Data captured in the field using ArcGIS Survey123 or ArcGIS Field Maps is now available immediately to staff via ArcGIS Enterprise map viewers and dashboards. Previously, survey results took many weeks to reach staff, and some data was not available until the end of the season, but now staff can be confident that they are making decisions based on the latest information. They have instant access to the data they need and can also share relevant, up-to-date information with stakeholders.

### Efficient management of resources

With ArcGIS Dashboards, staff have better oversight of survey projects while they are in progress and can consequently manage resources more efficiently. For instance, in the annual electrofishing survey, when juvenile salmon are counted at up to 500 locations, managers can monitor the progress of the five fishing crews and quickly reallocate crews to different locations, if necessary, to ensure all surveys are conducted in the correct time period.

### 400% more data processed in half the time

While the amount of data collected in the field has quadrupled, the time needed to process data has been cut in half. Scott notes that previously 40% of her time was consumed by the field data collection programme, and this has reduced to 20%, even though the number of surveys, map viewers and dashboards has increased. “ArcGIS has freed up my time to work on exciting new projects such as 2D and 3D drone imagery,” notes Scott.

### A positive user experience

The 70 members of staff who work at Loughs Agency are very positive about the changes that have been introduced since the migration to ArcGIS Enterprise. They find it easier to collect data in the field and faster to find information via the centralised Map Portal. A new app for checking if anglers have the correct fishing licences has been particularly well received by staff as it shows them straight away if anglers have a licence, even if they only bought the licence ten minutes before.

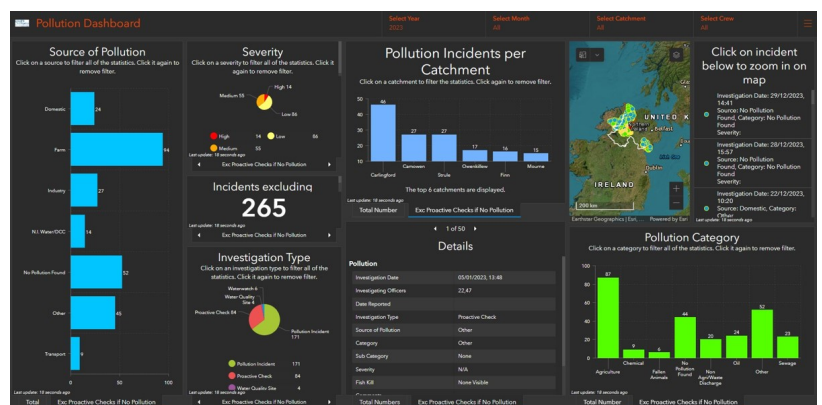
### Active engagement with stakeholders

Loughs Agency has been able to use ArcGIS Survey123 to initiate exciting new citizen science and outreach programmes that actively engage a range of stakeholders. An ArcGIS Survey123 app called Waterwatch, for example, allows members of the public to pinpoint the locations of illegal fishing or pollution incidents on a map, add photos and supply details. The agency’s fishery staff get notified straight away, allowing them to take fast, appropriate action to conserve precious marine and freshwater environments.

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Lough Agency's ArcGIS Dashboard for monitoring pollution