



Didymo vs FME: When things get snotty

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What is didymo?

- Type of algae
- Also known as 'rock snot'
- Invasive freshwater pest that damages our lakes and rivers
- Has been around since 2004
- Only found in the South Island
- Has a negative impact on water quality and biodiversity



Background

- ESR (Institute of Environmental Science and Research) used to look after the didymo sampling data for Biosecurity
- Data on the presence of didymo in the waterways
- Stored in a SQL database and shown in a public facing website
- Fields such as site status, organisation, watercourse name, lab results and visual results were collected
- Biosecurity approached our team to bring it in-house which is now providing annual savings for MPI

Database migration using FME

- SQL Server backup sent to us as a file
- Had to restore the database first on our UAT SQL server
- Data stored in lots of different tables
- FME was crucial for all the data wrangling
- Data tidied up and converted to a geodatabase
- Next step to host the data in ArcGIS Online



New solution in ArcGIS Online

- Sampling site points and a visits related table (1-to-many relationship)
- New sites and visits now created in ArcGIS Experience/Survey123 (browser)
- Views of the master layer to restrict access to certain groups
- Dashboards for visualisation
- FME Server webhook automation

Create new site

1. Zoom into the area for sample collection.
2. Click on the river or lake that is closest to the location you sampled, so that it is linked to the correct river.
3. In the pop-up that opens, click "Create a new sampling site on this lake/section of river" which will open a Didymo sampling site creation form in a new window.
4. Complete the form and click submit.
5. Close the form and refresh the map page, so the new site becomes visible.

Print didymo site visit form

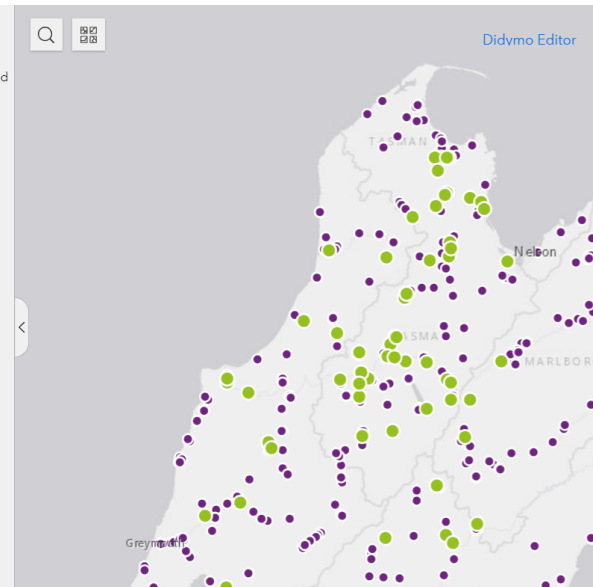
Record visit at existing site

1. Navigate to the sampling site by zooming into its location, or typing the site ID into the search bar at the top of the page.
2. Click on the site.
3. In the pop-up that opens, click "Record a new visit at this site" which will open a Didymo site visit form in a new window.
4. Complete the form and click submit.

Recording a visit should be done after you receive the lab results

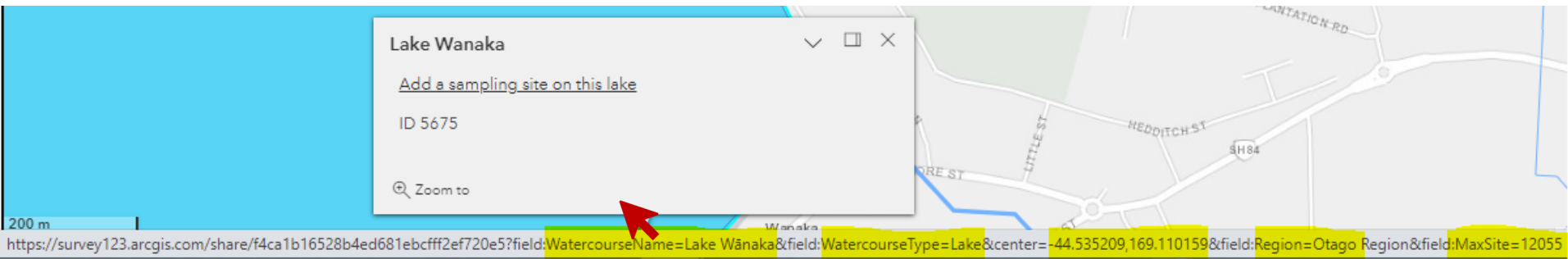
View sampling results dashboard

Database administration



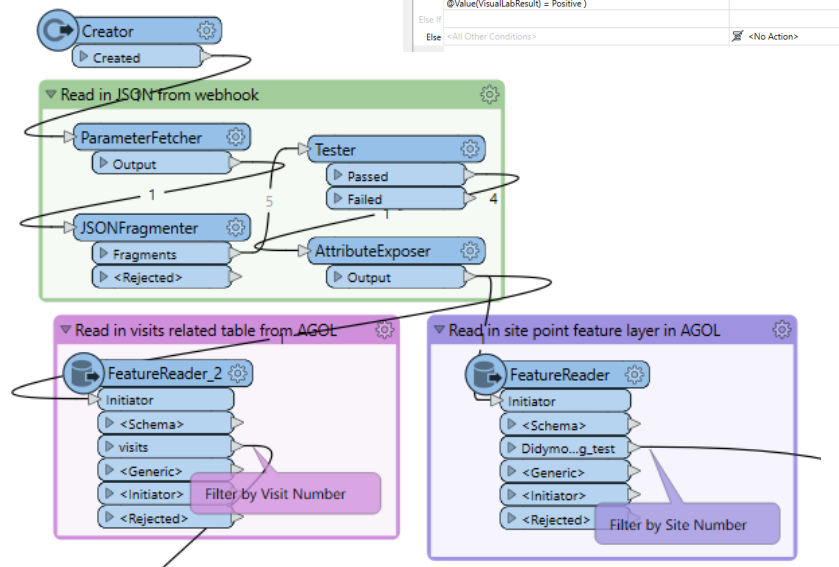
Survey123 custom URL hyperlinks

- Arcade expressions in the web map calculate values for selected feature
E.g. lake/river coordinates, region, # of visits/sites
- Hyperlink in the pop-up passes these values via the URL to prepopulate survey questions
- XLS form uses answers to calculate site/visit number



Updating Site Status with FME

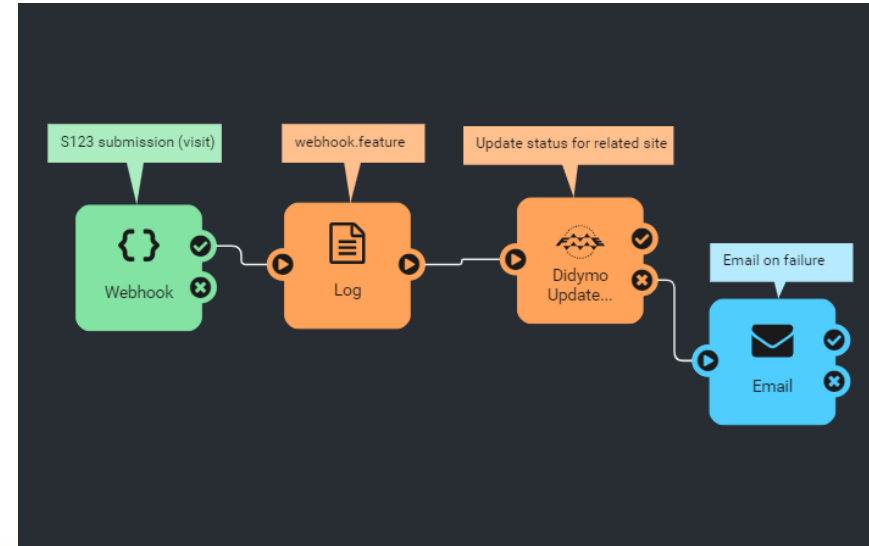
- Site status value/symbology needed to be driven by values in the related table
- Product owner requested complicated criteria to determine a site's status
- FME's usability makes it ideal for colleagues to understand easily
- S123 XLS form too clunky for the site status conditional statement logic
- Emails if North Island has positive site



FME Server webhook automation

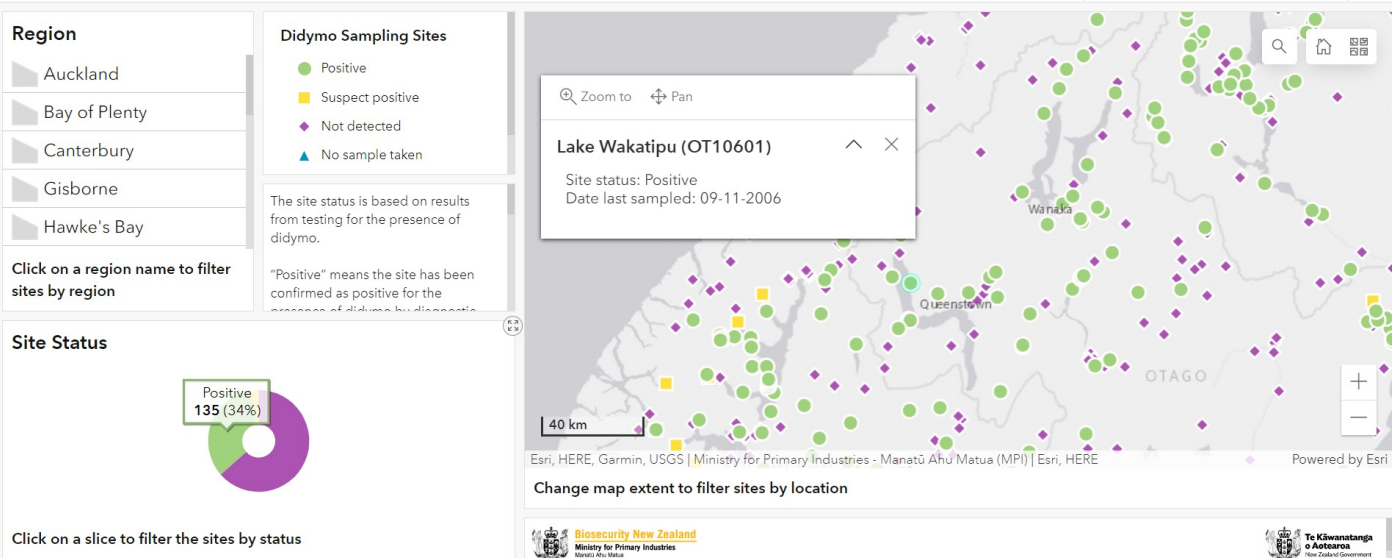
- FME Server updates site status values if new visits are submitted
- Originally a daily automation that updated the site status for all sites
- Replaced with a webhook trigger
- Runs when new visits are submitted
- Modified to only read in the related site, using attributes from the JSON
- 16 seconds to run (down from 1 min)

Average Elapsed Time
00:01:01.05
00:00:16.76

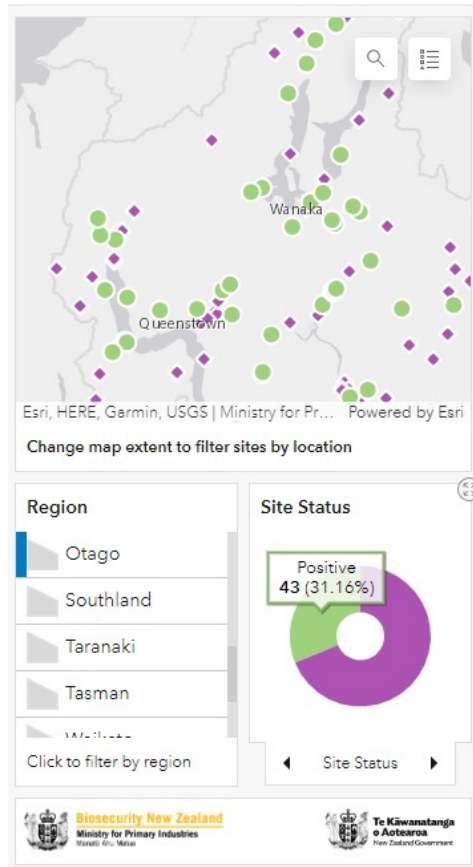


Didymo Samples Hub Public Dashboard (UAT)

Didymo Samples Hub



Didymo Samples Hub



Biosecurity New Zealand

Tiakitanga Pūtaiao Aotearoa

Ministry for Primary Industries
Manatū Ahu Matua

