

An interactive mapping tool: overview of the Interactive Catchment Explorer

Ben Letcher

USGS, Leetown Science Center,
Conte Anadromous Fish Research Center,
Turners Falls, MA

- Ask: In early 2010's, the US Fish and Wildlife Service, Landscape Conservation Cooperative, requested interactive mapping tools
- Need: Explore spatial data, understand model results and model drivers
- Tool: Interactive catchment explorer
[ice.ecosheds.org]

Put data and models in the hands of the decision maker

Consistent regional data and results, shared platform

Explore, prioritize

Communication and learning made easi(er) and fast(er)

Reveal patterns, see data in a new way

Direct linking of data and model results

Our visualizations

ecosheds.org -> USGS cloud

1. Interactive Catchment Explorer
2. PIT tag study visualizations
3. Flow pictures explorer
4. Tagged animal movement explorer [beta]
5. Cumulative time-series explorer [beta]



Jeff Walker

Technology

Vue/vuex [vuejs.org]

D3, data-driven documents [d3js.org]

Leaflet [leaflet.com]

Cross-filter [square.github.io/crossfilter/]

Demo

ice.ecosheds.org

Spatial aggregation
Multivariate filtering

Effective visualizations can help deliver, explore, and understand science

Communication made easi(er) and fast(er)

Custom apps require excellent developers

Thinking about the visualization from the start can help focus project planning and implementation

Need to evaluate visualization use – need partners

In progress visualizations

Stream crossing explorer [sce.ecosheds.org]

MA DOT Scott Jackson, Jason Coombs et al.

Southeast US flow alteration []

Rodney Knight, Jeff Walker

Culvert Prioritization scenario tester []

Scott Jackson, Jeff Walker et al.

Benefits of data visualization for USGS science

Next-gen fact sheet

Enhanced communication

- Power
- Flexibility
- Efficiency

Amplifying science

- Rapid learning
- Interactive decision support
- Broader audience
- Increase visibility of USGS science

Contemporary look/feel

- Reach congressional staffers w/ preferred media experience
- Modern design

Timely and targeted information sharing

- Rapid development and deployment
- Connect w/ public on current water/eco events

New business model

- Viz products generate \$s
 - Integrated products
 - Manuscript add-on
- Recruitment and retention of high-quality personnel



