Florida Department of Agriculture and Consumer Services

Emergency Service Function #11 – GIS and Web-based Damage Protection Tool

Florida Department of Agriculture and Consumer Services (FDACS) is one of the largest state agencies in Florida. The Emergency Service Function (ESF) #11 relates to Food and Water and is activated by DHS/FEMA upon notification of a potential or actual incident/disaster that requires a coordinated Federal response and support to help ensure one or more of the following: the availability and delivery of food products; food safety; appropriate response to an animal, plant disease, or pest; the protection of natural and cultural resources and historic properties; and/or the safety and well-being of household pets.

FDACS selected EPIC to evaluate their current ESF #11 projection tool and implement an automated solution to project the food, water, and ice needs during the disasters. EPIC conducted requirements analysis and validation meetings with FDACS leadership and stakeholders and developed the application design and architecture for review and approval by FDACS. Subsequent to obtaining the consensus, EPIC designed, developed and deployed a powerful yet easy-to-use Geographic Information Systems (GIS) and web-based ESF #11 Damage Protection tool that automates projection needs and generates reports with a few clicks.

> ESF #11 Damage Protection Tool Features

The ESF #11 Damage Protection tool meets critical business goals of the FDACS organization. The tool allows authorized users access to a customized user interface, which provides a fluid workflow to perform the following analytical functions:

- Create and/or manage designated disasters
- Create and/or manage scenario estimations for a given disaster
- Create and/or manage inventory of distributable goods (food, water, ice, etc.)
- Designate areas of concern (AOC) within proximity of a disaster on a interactive GIS-based map
- Assign demographic thresholds per AOC for population analytics
- Project immediate and future needs for food, water, and Ice within each AOC
- Track projected vs actual distribution/ consumption of food, water, and ice
- Provide export tables, worksheets, and a variety of custom reports
- A well formatted report can be shared with users and/or exported as a PDF

Client:

> Florida Department of Agriculture and Consumer Services

Location:

> Tallahassee, FL

Domain:

> State and Local Governments

Services:

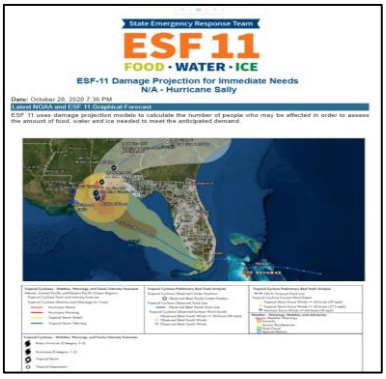
> Web Application Development
> Geographic Information Systems (GIS)
> Systems Integration

Technologies:

> Esri JS API and ArcGIS Online (AGOL) Feature Service
> HTML5, CSS3, JS, jQuery, and Bootstrap
> InstantAtlas Reports

URL: https://esf11.fdacs.gov

> Export/Print Reports



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> Workflow Automation

The ESF #11 Damage Protection Tool has a multi-step workflow UI, which provides a simplified user experience to functional mapping analysis. The ESF #11 Damage Protection Tool UI leverages pre-configured parameters enabling users to quickly create new evaluation scenarios. As users maintain the demographic threshold parameters appropriate for each disaster, they can focus on defining AOCs relative to real-time disaster updates. Another important time-saving feature is that immediate (Day 1) and multi-day needs are automatically calculated as the user updates each AOC. This workflow process enables disaster managers to quickly process updated scenarios and estimates so that responding agencies can mobilize necessary goods efficiently.

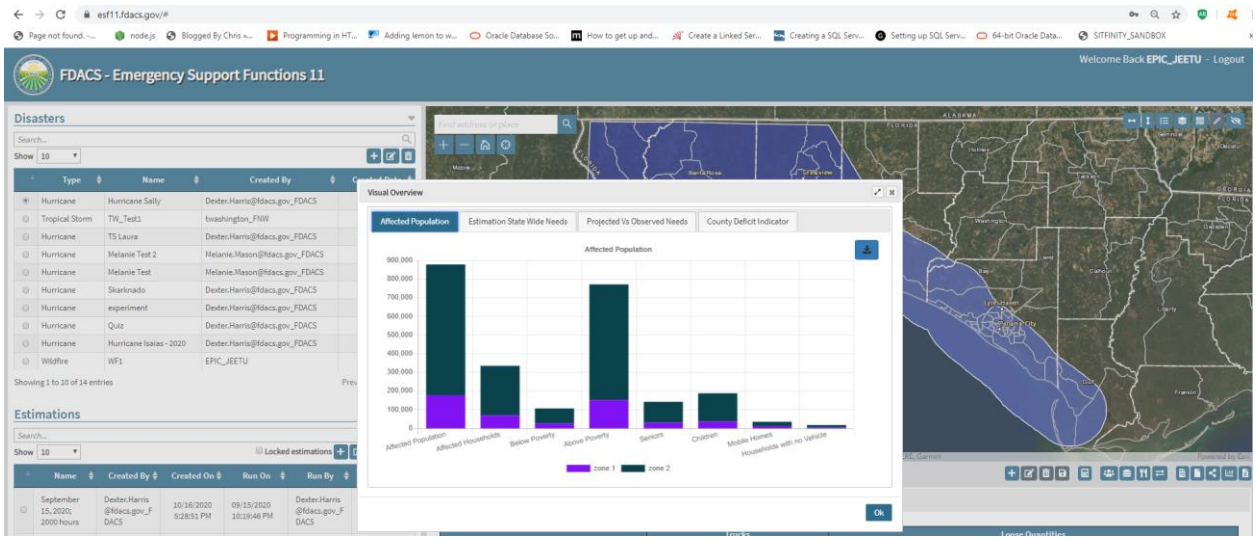
> Application Tools and UI

The ESF #11 Damage Protection Tool map and layer technology is architected with Esri JS API and an AGOL Hosted Feature Service. The UI Framework is built upon HTML5, CSS3, JS, jQuery, and Bootstrap. The application is designed to be flexible and responsive, but primarily web-based. Each dialog and table are dynamically responsive to user's custom parameter inputs and configuration options. Aside from the basic map interactive controls, the ESF #11 Damage Protection tool enables customized editing allowing users to draw/edit AOCs. Once an AOC is drawn and/or edited, demographic calculations are automatically processed, taking into account pre-configured thresholds, percentages, etc., returning value based inventory estimations for day-1 and projecting multi-day needs. Formatted reports are generated using InstantAtlas GIS reporting tool.

> Implementation

EPIC has successfully implemented the solution in 2020, and the FDACS successfully used ESF #11 Damage Protection tool in 2020 Hurricane season. By utilizing workflow analyses, automations, and reporting tools, FDACS has been able to more efficiently and effectively estimate and distribute critical goods to vulnerable communities in disaster impacted areas.

> Charts



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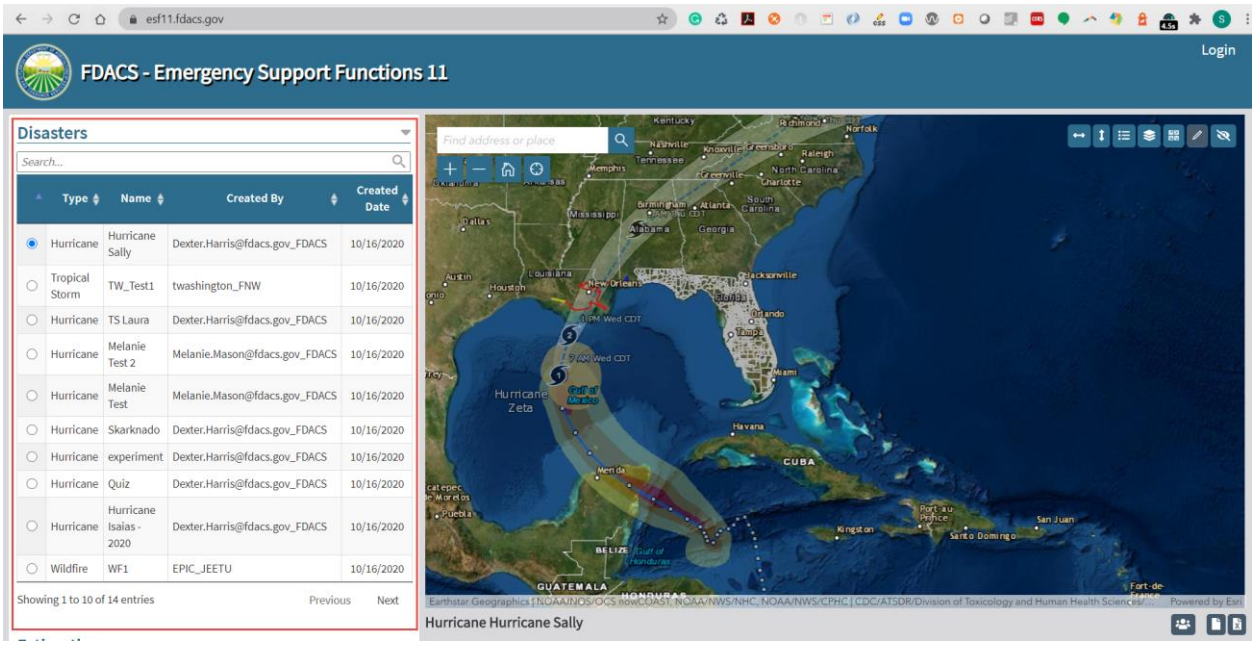
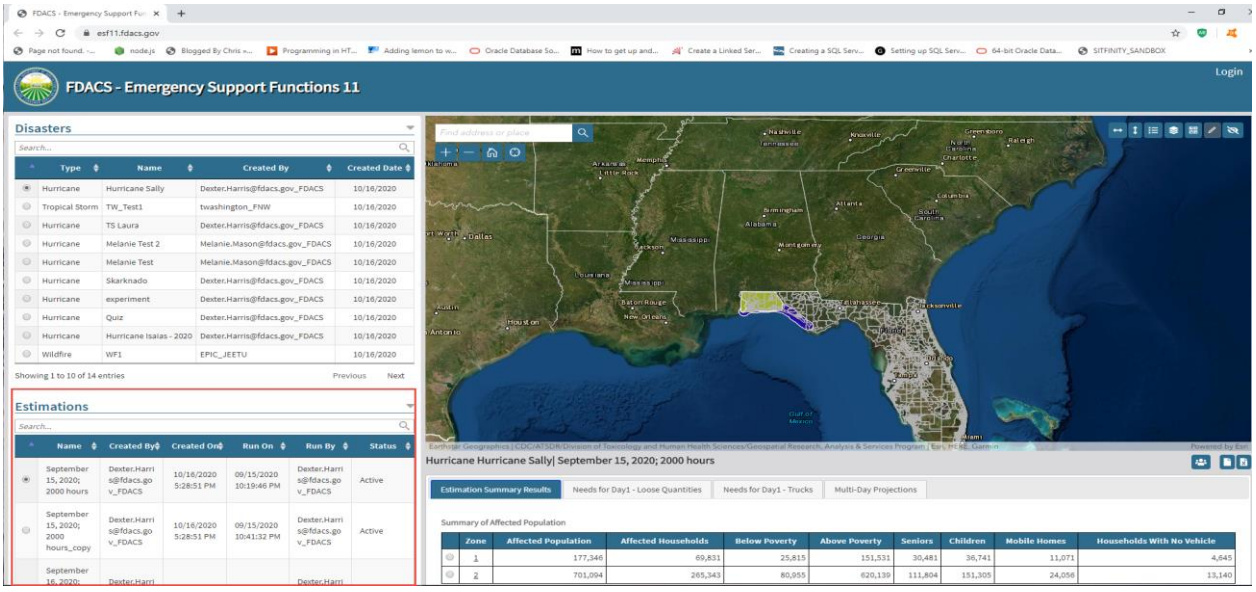
> Events Dashboard



> Estimations



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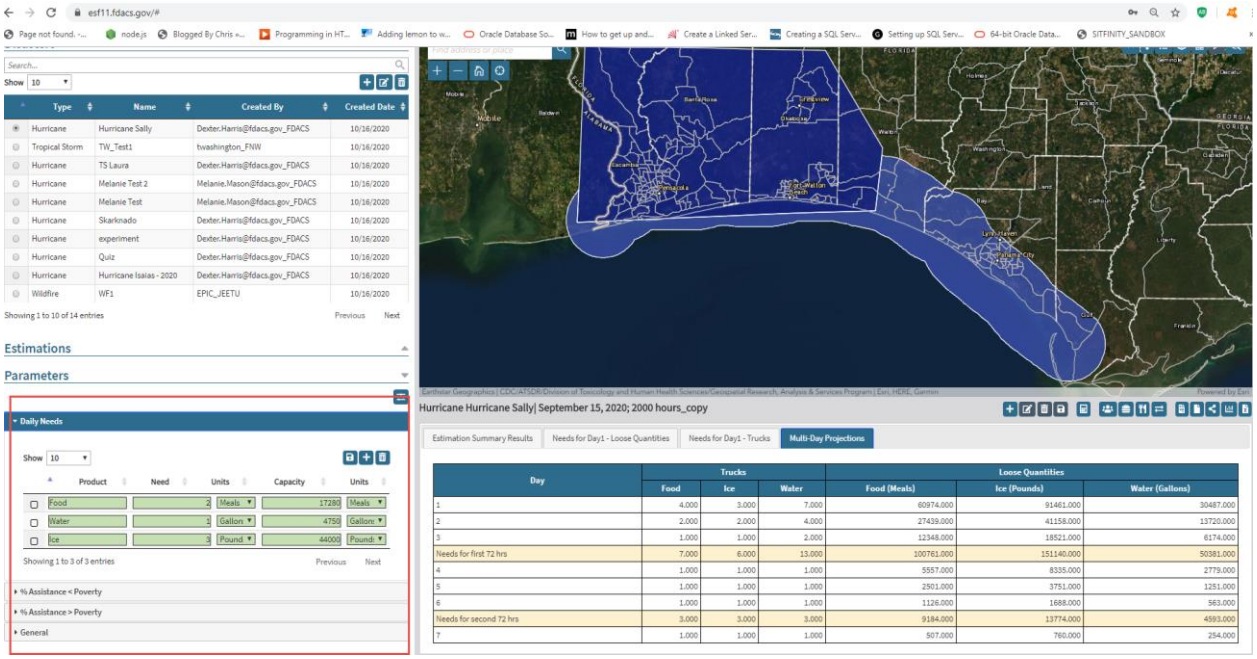
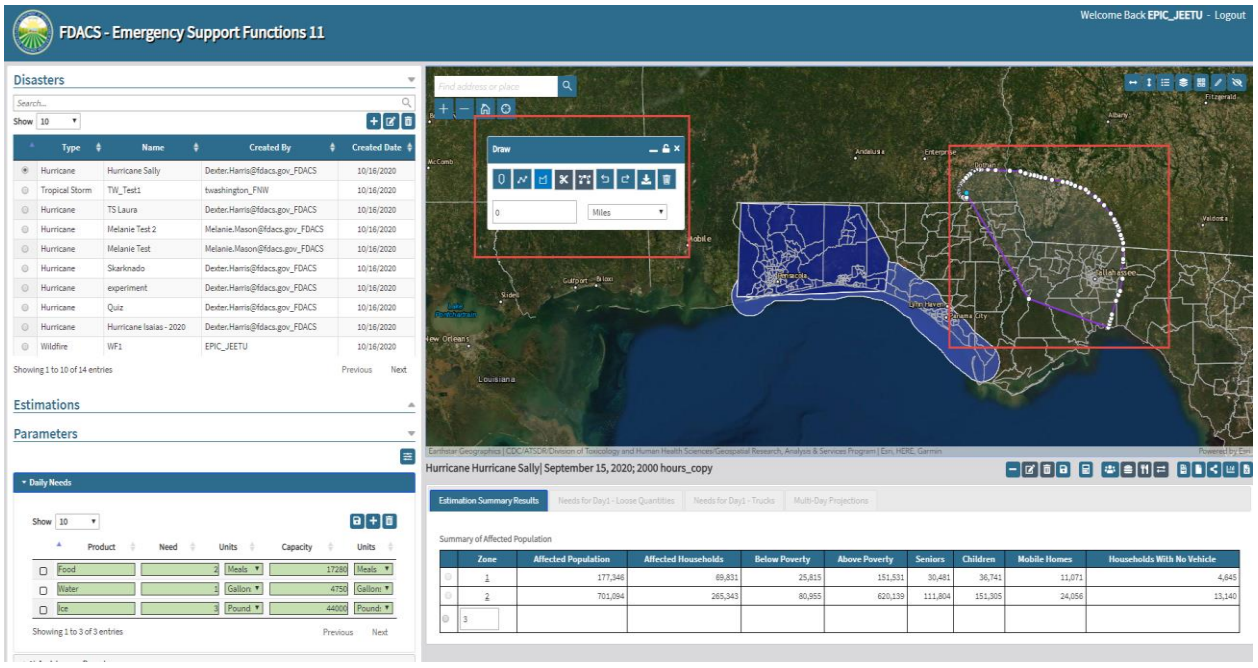
> Parameters



> Analysis and Draw Tools



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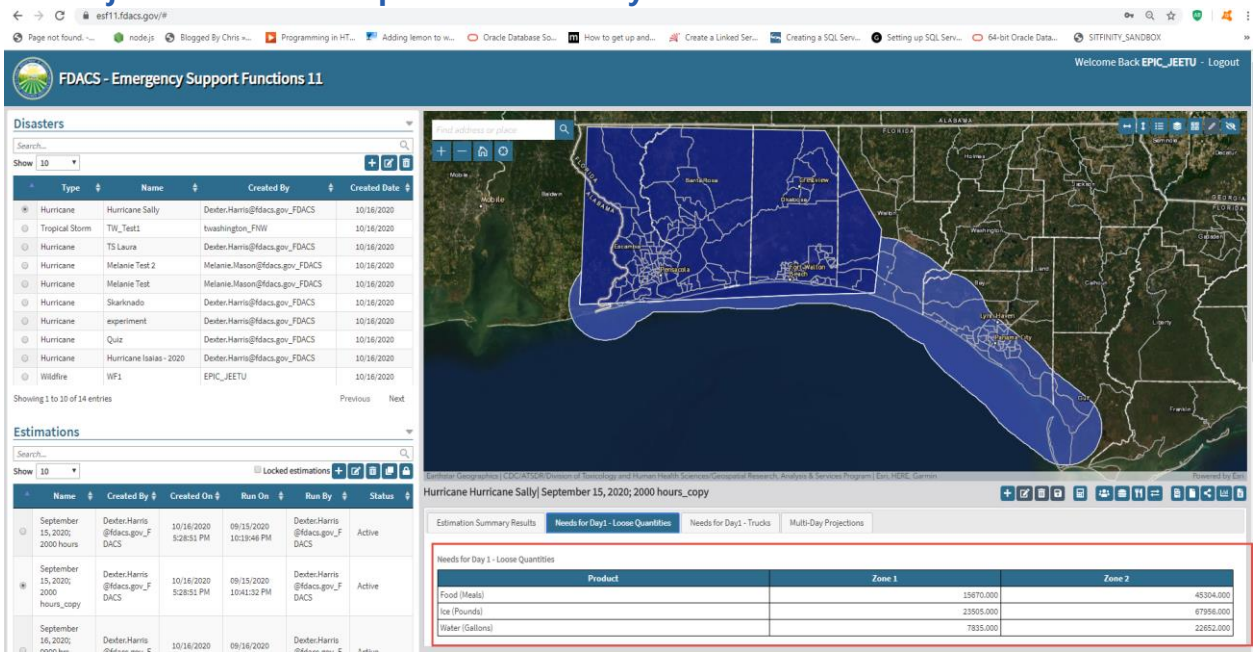
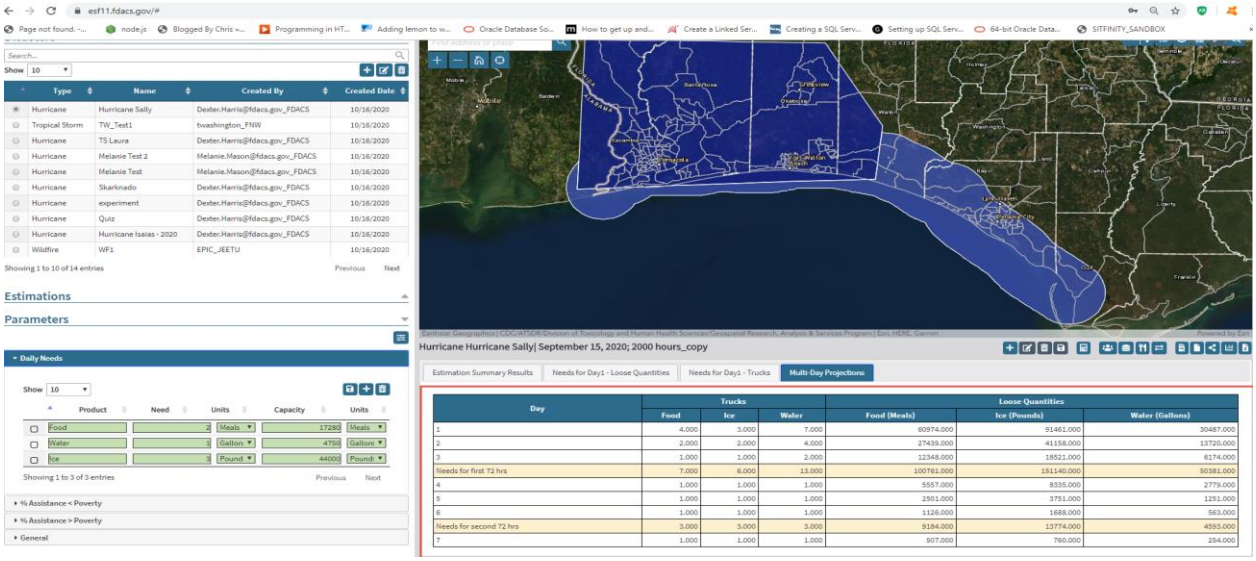
> Projected Needs for Impacted Zones - Day 1



> Projected Needs for Impacted Zones - Multi-Day



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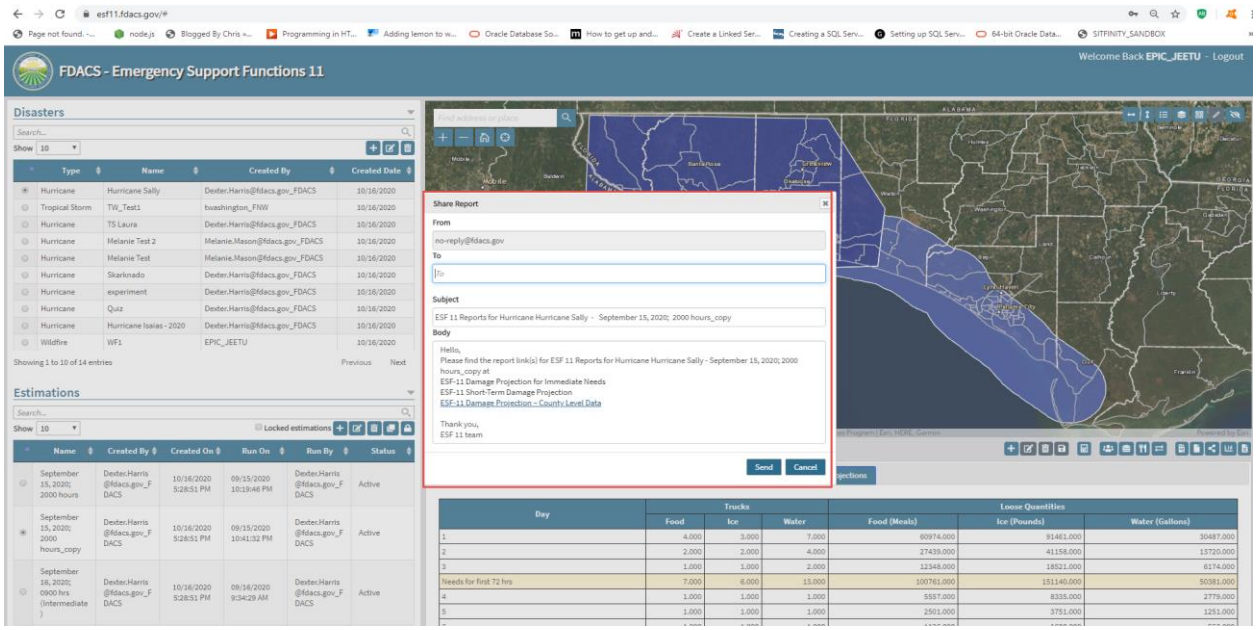
> Share Reports Feature