Macrosystems EDDIE:
Getting Started + Troubleshooting Tips

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Macrosystems EDDIE: Using Ecological Forecasts to Guide Decision Making
Macrosystems EDDIE Module 8, Version 2.
https://serc.carleton.edu/eddie/macrosystems/module8.
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Macrosystems EDDIE
Environmental Data-Driven Inquiry & Exploration in Macrosystems Ecology

NSF | neon Operated by Battelle

SERC the Science Education Resource Center at Carleton College

R Shiny Applications

- Statistical environment

- Interactive web app built using R.
  - Allows users to interact with data
  - Conduct their own analysis

Check-in:

- Can you access the Shiny app or this module?
  - Copy and paste this link into your browser: https://macrosystemseddie.shinyapps.io/module5/
  - If this is not working contact us at MacrosystemsEDDIE@gmail.com and we will help you resolve this issue.

Landing Page of the Shiny App

Module 8: Using Ecological Forecasts to Guide Decision Making | Module Overview | Presentation | Introduction | Activity A: Explore | Activity B: Decide | Activity C: Customize

eddie
environmental data-driven inquiry & exploration

Using Ecological Forecasts to Guide Decision Making

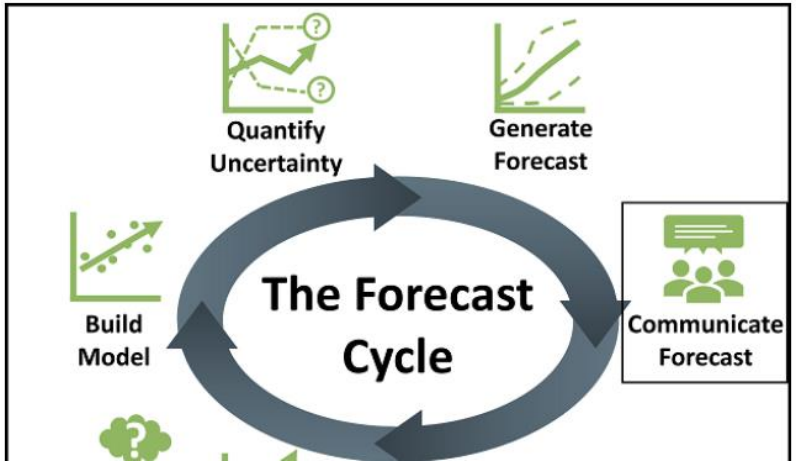
Today's focal question:

How can ecological forecasts and their visualizations aid in decision making?

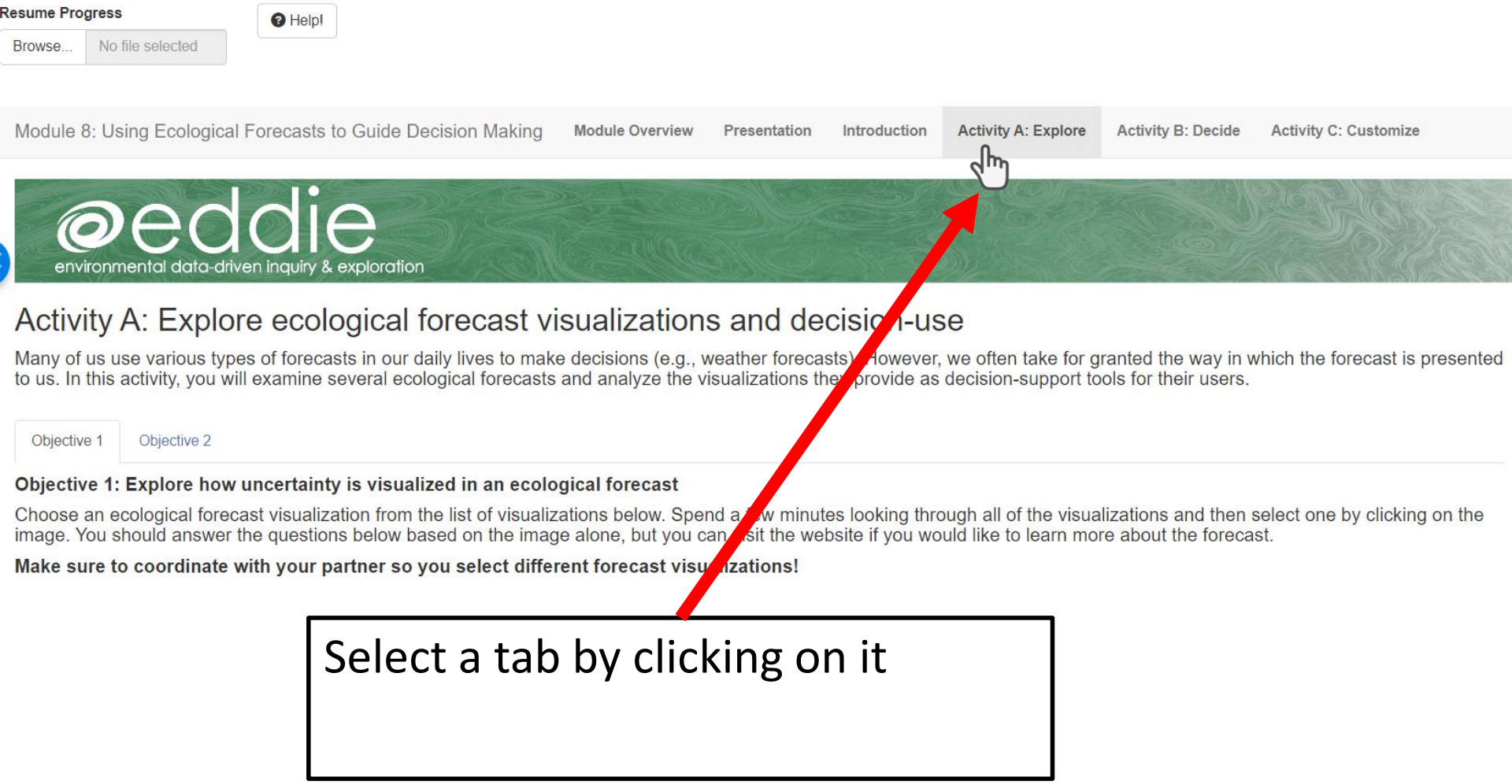
To answer this question, you will complete three activities:

- Activity A - Explore ecological forecast visualizations
  - Identify different ways to visualize a forecast
  - Recognize how uncertainty is represented (or not!) in forecast visualizations
  - Pair forecast visualizations with a forecast user decision
- Activity B - Make decisions using an ecological forecast
  - Match PrOACT components with a decision-making scenario
  - Make decisions using a forecast and balance multiple decision trade-offs
  - Discuss the implications of forecast visualizations on decision-making
- Activity C - Create a customized visualization for a specific forecast user
  - Explore forecast output which includes uncertainty

Ecological Forecasting Cycle

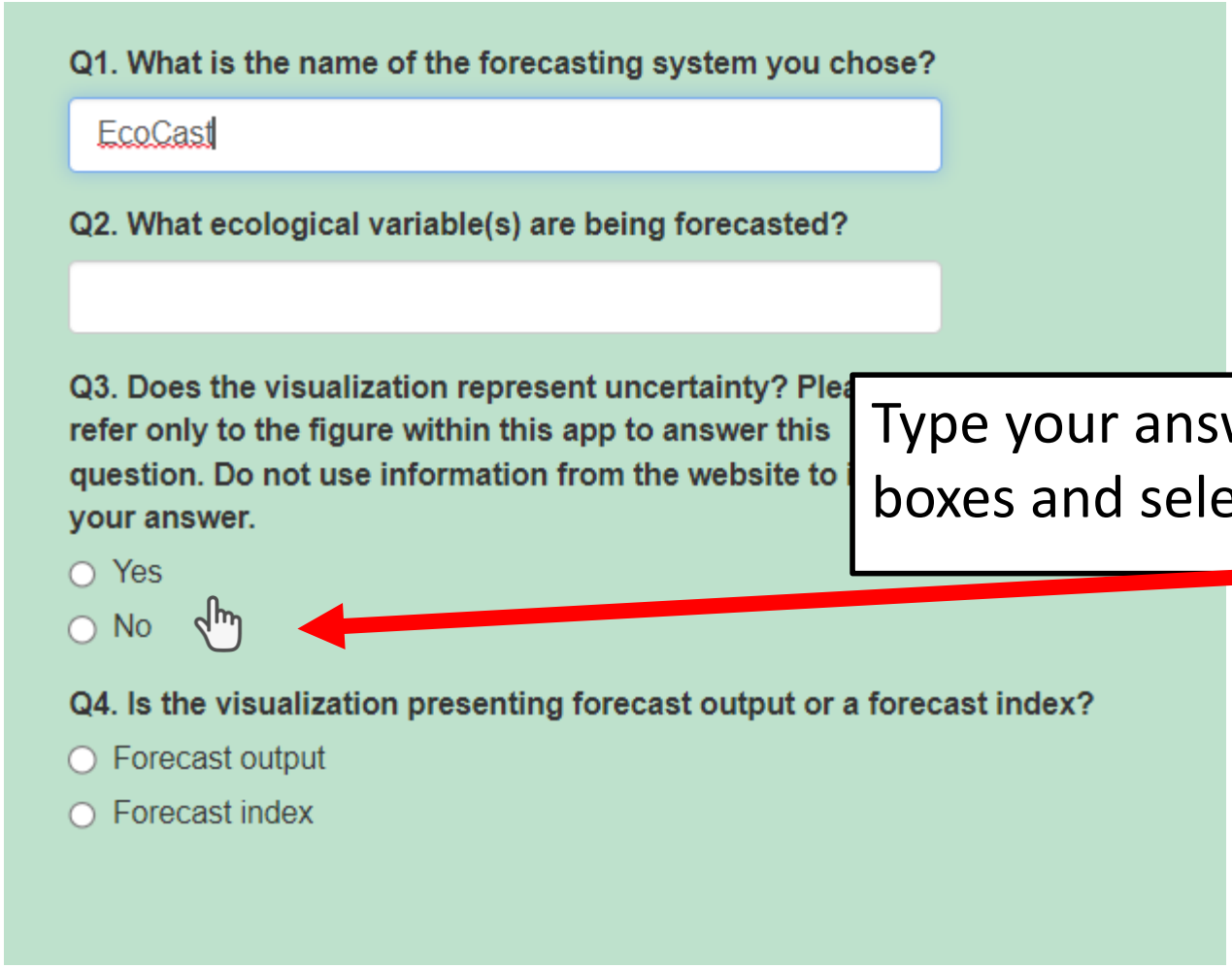


Navigating the Shiny App



Select a tab by clicking on it

Answer questions



Type your answers into the text boxes and select answers

Navigate slides

Advance slides by clicking on the arrows

The presentation accompanying this module covers an introduction to ecological forecasting, forecast user decision support, and uncertainty visualization.

What is a forecast?

- A forecast is a prediction of future conditions with uncertainty.

How can we include uncertainty in a forecast?

- Forecast uncertainty is calculated by running many different forecasts with slightly different conditions.

Who uses a forecast?

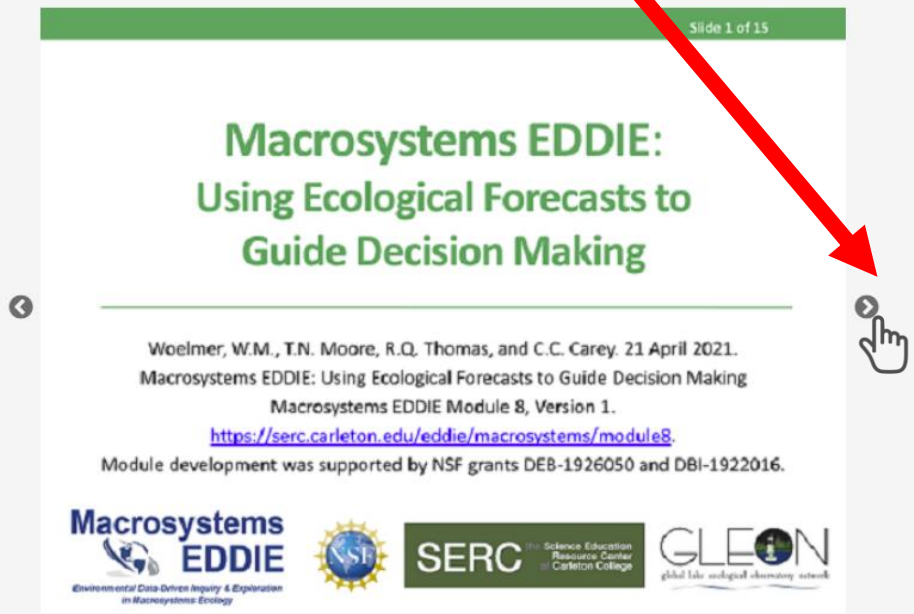
- A forecast user is anyone who can interact with a forecast to gain understanding or to make a decision.

How can we communicate uncertainty in a forecast?

- Forecasts can be communicated using forecast model output or translated into an index.
- Forecast results can be communicated using words, numbers, icons, or figures.

Click through the slides to recap some of the main points from the lecture.

Key Slides



Interact with app

First, let's explore the forecast output.

Use the 'Select Calculation' button to calculate various statistics for one day of the forecast and input them into Q24-25.

Show 10 entries

Search:

	date	sd	ens_1	ens_2	ens_3	ens_4	ens_5	ens_6	ens_7	ens_8	ens_9	ens_10	ens_11	ens_12
2	2021-05-24	1.67	30.68	31.55	33.11	30.32	31.61	34.74	31	28.3	31.93	29.83	31.39	29.87
3	2021-05-25	2.11	25.12	24.31	23.04	22.51	25.11	29.16	29.08	27.15	24.21	25.65	25.49	28.69
4	2021-05-26	3.51	20.07	23.52	21.93	22.2	17.95	23.32	22	21.98	23.71	26.19	17.48	19.03
5	2021-05-27	4.25	35.62	26.21	24.84	32.66	37.85	32.49	31.71	28.59	35.93	34.59	26.5	25.34
6	2021-05-28	4.54	28.54	26.51	24.94	17.84	31.09	19.59	32.48	25.63	18.56	33.39	27.85	28.44
7	2021-05-29	6.59	33.84	33.27	29.92	31.6	40.38	35.79	33.68	41.23	18.08	29.69	35.19	23.84
8	2021-05-30	6.36	27.23	37.13	29.46	42.13	32.11	49.84	23.63	33.52	24.16	34.8	26.15	36.46
9	2021-05-31	7.65	47.12	46.58	47.63	38.14	23.39	45.27	51.48	39.51	49.84	37.26	35.33	42.43
10	2021-06-01	9.02	37.47	47.19	37.19	40.59	28.88	31.48	29.49	33.39	37.67	51.61	45.29	24.2
11	2021-06-02	7.54	29.43	20.12	31.63	42.96	28.39	31.12	41.06	25.83	26.29	40.85	24.41	32.05

Showing 1 to 10 of 14 entries

Calculate statistics

Select a date

2021-05-24

Select calculation:

Pick a summary statistic

You have selected: 2021-05-24

Choose one day and answer the fol

Q24. What is the mean concentration of all the forecas

Enter answer here

Q25. What is the minimum concentration of all the for

Enter answer here

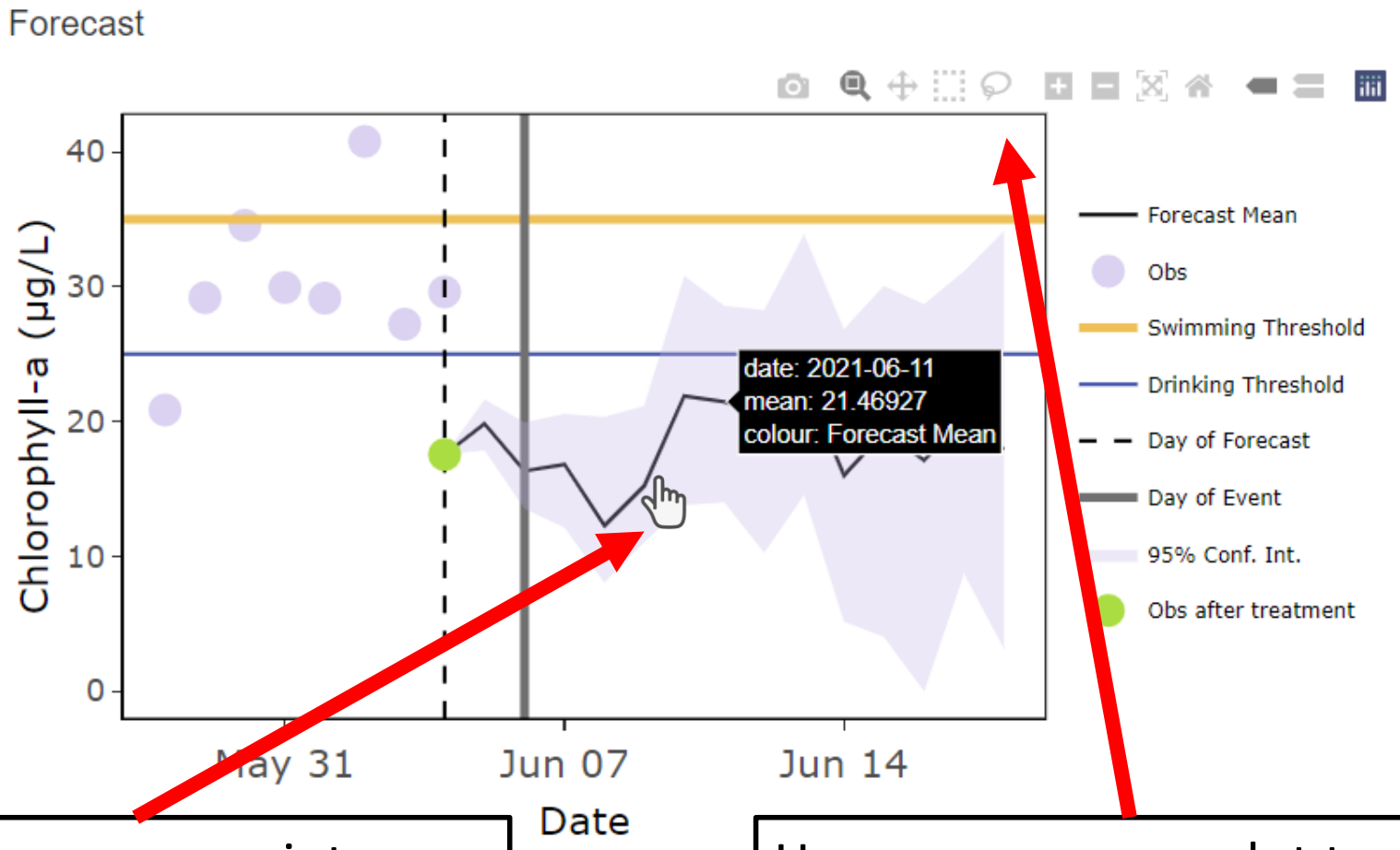
Q26. What is the maximum concentration of all the for

Enter answer here

Q27. What is one reason why there is uncertainty amo
are there so many different estimates here?)

Select data table rows and click buttons

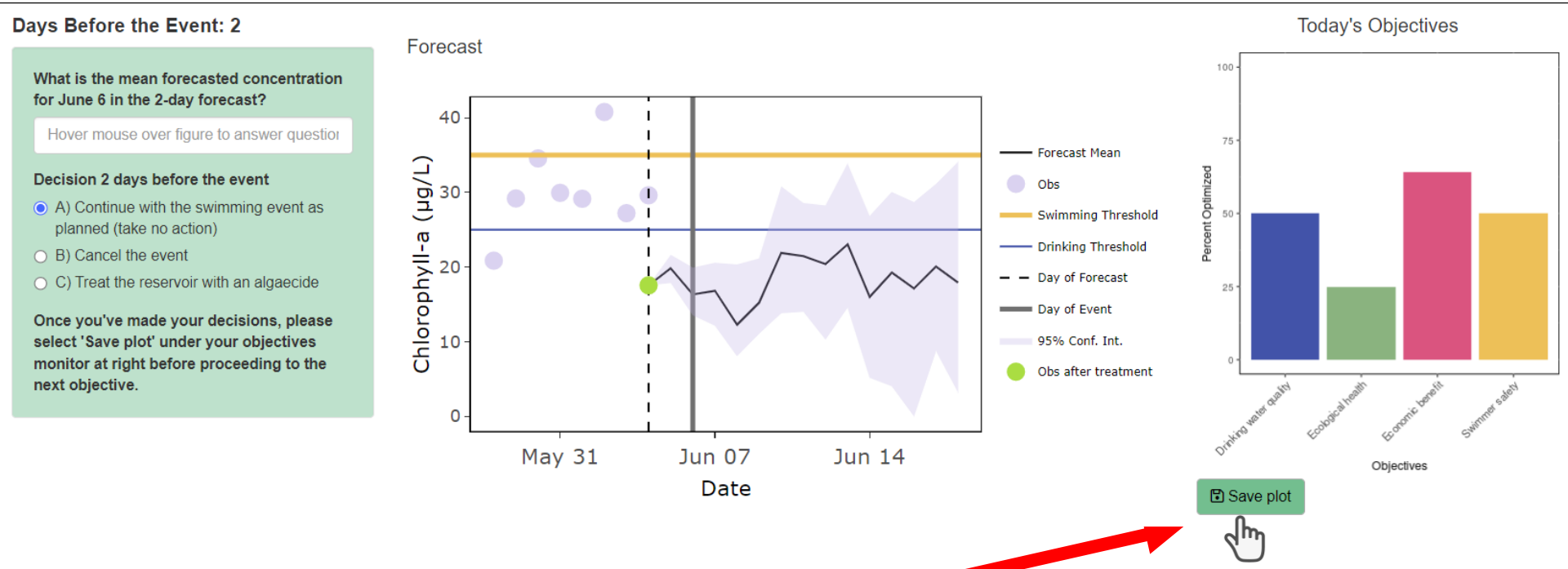
Interact with plots



Hover cursor over points or click and drag to zoom in

Hover cursor over plot to bring up options

Saving plots

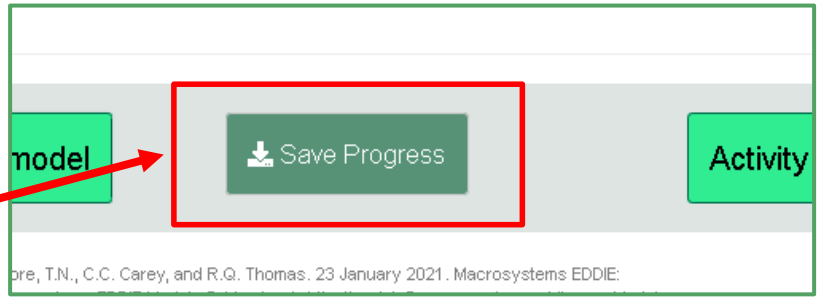


Save plots for downloading with your final report

Saving & Resuming Progress

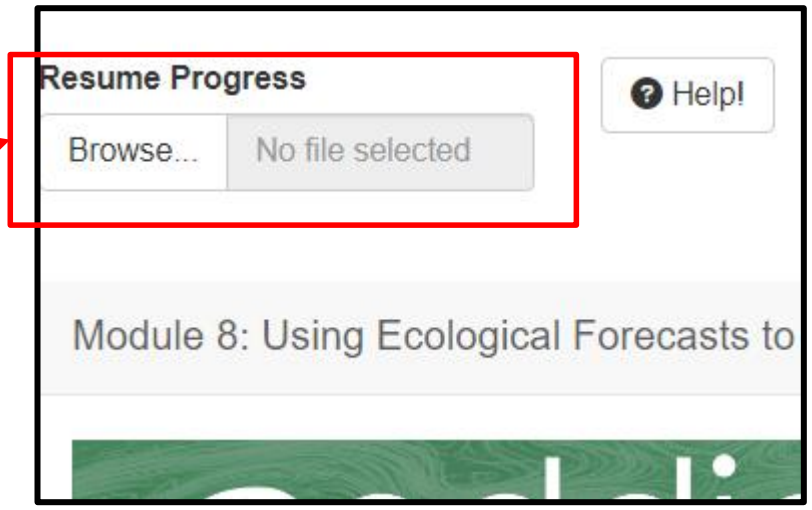
Saving Progress

1. Scroll to bottom of the page
2. Click on the “Save Progress” button. An ‘.eddie’ file will download. Your computer might prompt you to open this in R. This will not work, it only works for uploading to the Shiny app
3. Store this file somewhere safe on your computer



Resuming progress

1. Scroll to the top of the page
2. Upload the ‘.eddie’ file
3. This will populate your saved text answers and saved parameters



Downloading the Report

1. Navigate to the “Introduction” tab
2. Scroll down to “Save your progress” section
3. Click on the “Generate Report (.docx)” button.
4. Then the “Download Report” button will appear. Click this to download the report with answer and plots embedded within a Word document.