Taming Treacherous Data: Day 2, Morning

Ethical Visualization

Sea Level Rise Viewer

WATER LEVEL

- Sea Level Rise
- Local Scenarios
- Mapping Confidence
- Marsh Migration
- **Vulnerability**
- High Tide Flooding

10ft

9ft

8ft

7ft

6ft

5ft

4ft

3ft

2ft

1ft

Clearwater
Tampa
Lakeland
Melbourne
Palm Bay
St Petersburg
Sarasota
Port St Lucie
Port Charlotte
Lake Okeechobee
West Palm Beach
Cape Coral
Immokalee
Boca Raton
Coral Springs
Pompano Beach
Naples
Pembroke Pines
Hollywood
Miami
Homestead
Freeport
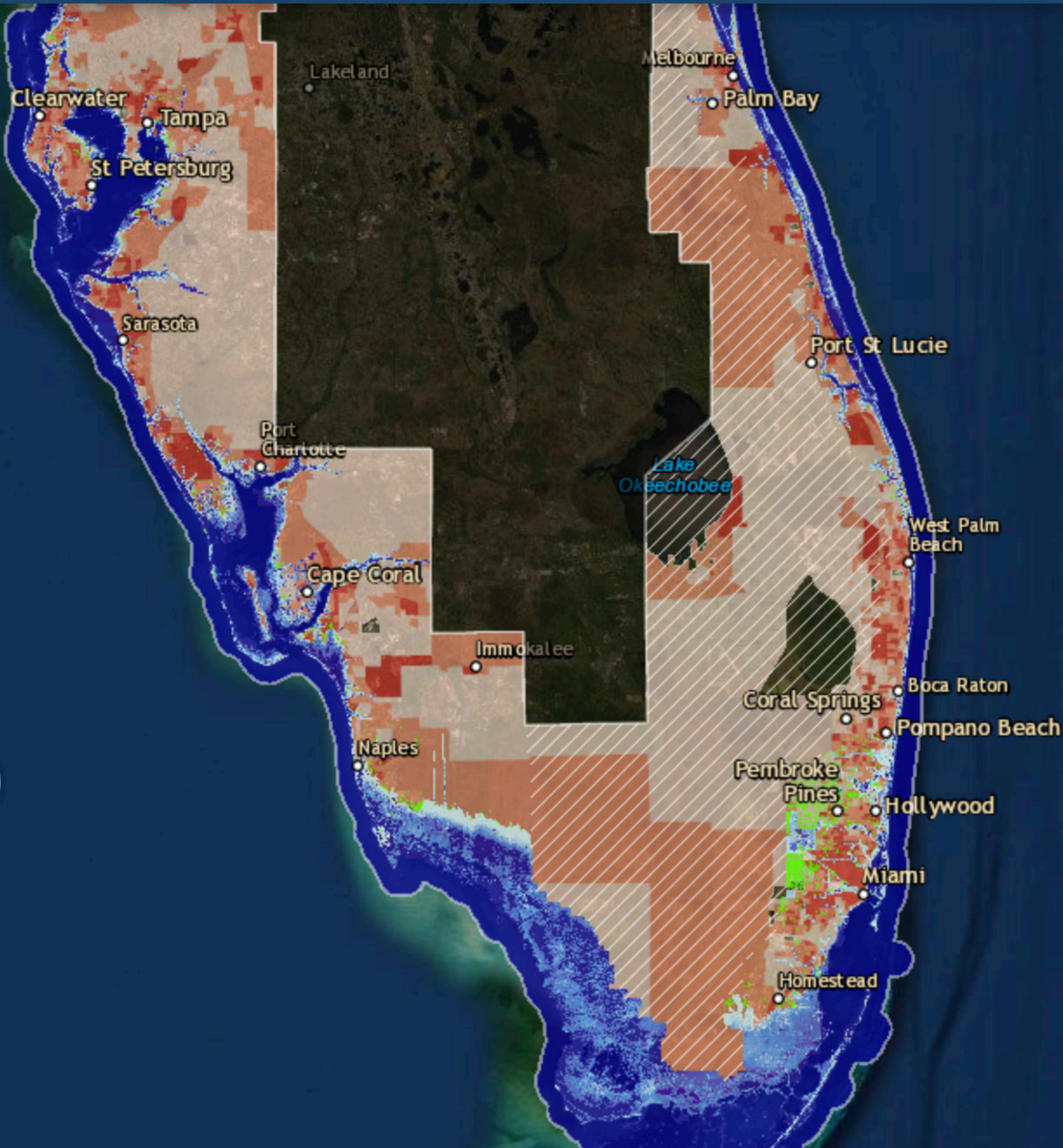
"Practice two things in your dealings with disease:

either help or do not harm the patient."

— Epidemics, Book 1

Practice two things in your dealings with visualizations:

either help or do not harm the user.

— Suggested oath for ethical visualizers

Practice two things in your dealings with visualizations:

either help or do not harm the user.

— Suggested oath for ethical visualizers

Do no harm to

» **viewers/users**

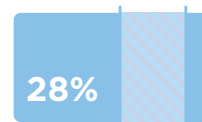## Sleep Stages

Learn more

| Saturday | 30 Day Avg | Benchmark |

Ranges for women your age

◼ Saturday   ◻ Typical Range
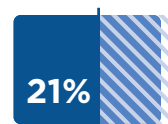
13% Awake
5-20%

28% REM
15-25%

38% Light
40-60%

21% Deep
12-23%

Sleep Schedule

Set Schedule

9:50 PM

6:02 AM

Do no harm to

» **viewers/users**

» **represented subjects**

Global Heatmap

+

−

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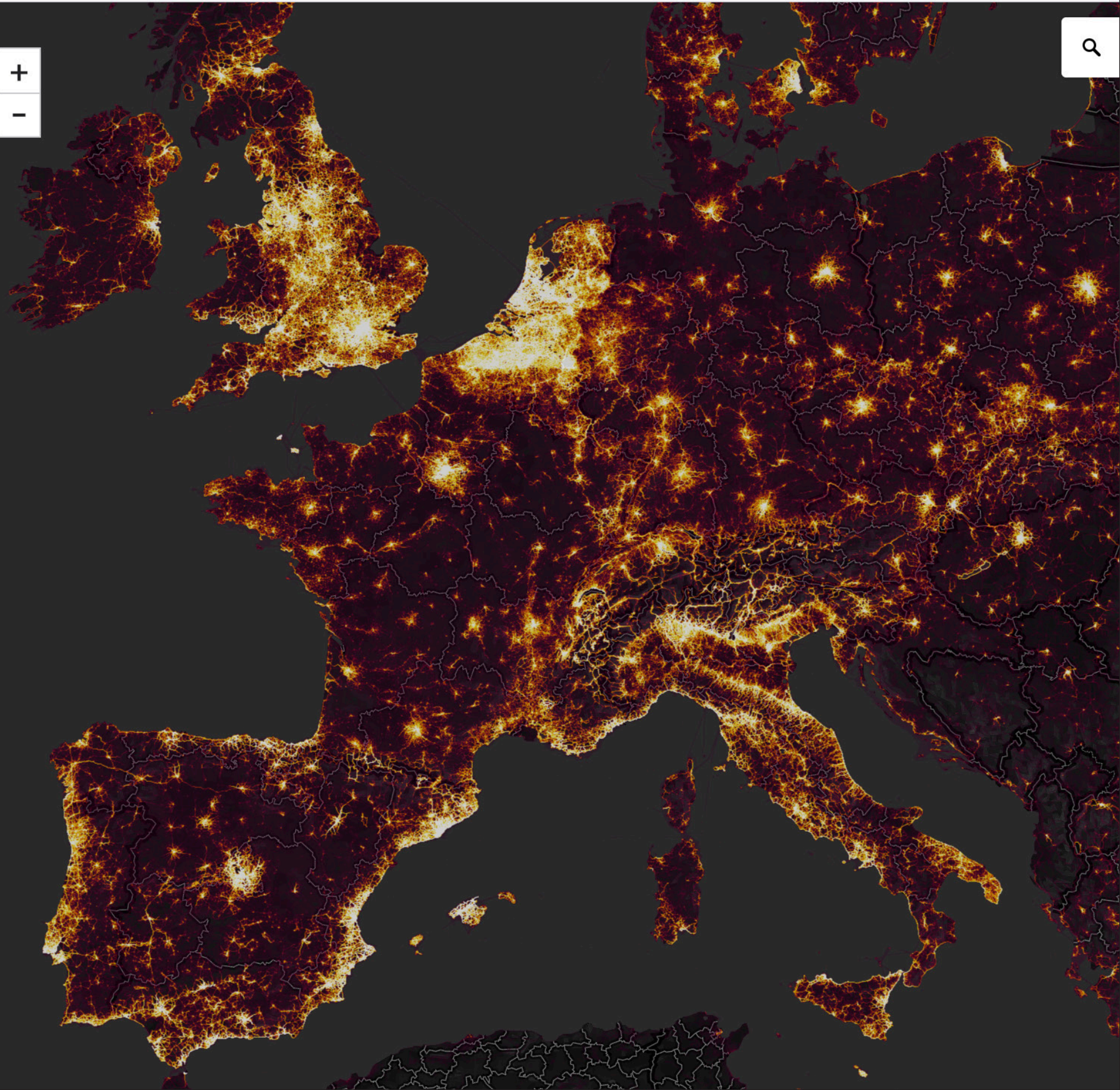
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Technology

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🕐 29 January 2018

STRAVA

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Do no harm to

» **viewers/users**

» **represented subjects**

» **subjects impacted by the representation**

Sea Level Rise Viewer

Enter an address or city

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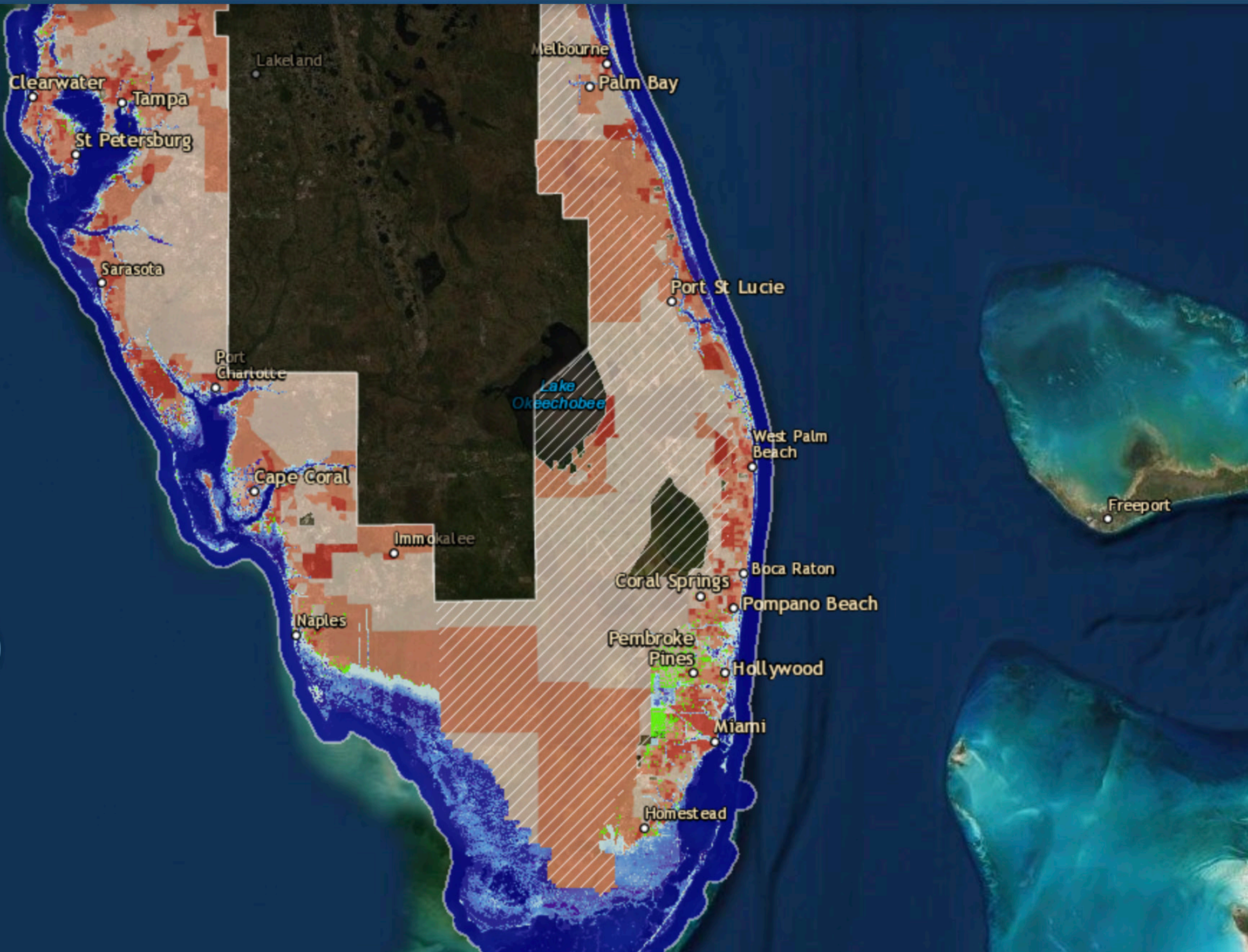Pompano Beach
Naples
Pembroke Pines
Hollywood
Miami
Homestead
Freeport

**Practice two things
in your dealings
with visualizations:**

**either help
or do not harm the user.**

— Suggested oath for ethical visualizers

Ethical visualization practices

Ethical visualization practices

» **Targeting & personalizing**

TARGETING & PERSONALIZING

Identify specific audience(s) who will see/use your visualization. Personalize the data to speak to them specifically.

Ethical visualization practices

» **Targeting**

» **Storytelling**

STORYTELLING

When all argument elements work together, the visualization becomes a compelling narrative. Make it relevant to your audience.

Ethical visualization practices

» **Targeting**

» **Storytelling**

» **Annotating**

ANNOTATING

Guide the user with context-specific, argument-building annotations. Generally, the more annotations, the better.

Ethical visualization practices

» **Targeting**

» **Storytelling**

» **Annotating**

» **Humanizing the data**

HUMANIZING

Give human context/implications wherever possible. Be explicit about how the data relates to people.

Ethical visualization practices

» **Targeting**

» **Storytelling**

» **Annotating**

» **Humanizing the data**

» **Linking**

LINKING

Link to as many external sources as possible to increase trustworthiness of the visualization.

Ethical visualization practices

» **Targeting**

» **Storytelling**

» **Annotating**

» **Humanizing the data**

» **Linking**

» **User testing and iterating**

TESTING & ITERATING

Find out how your audience sees or uses your visualization. The results are often suprising! Adjust to accommodate results and re-test.

Ethical Visualization Workflow

SCOPE THE VISUALIZATION

**STAGE 1
SCOPE THE VISUALIZATION**

1a Identify goal

**STAGE 1
SCOPE THE VISUALIZATION**

1a Identify goal

1b Define argument

**STAGE 1
SCOPE THE VISUALIZATION**

1a Identify goal

1b Define argument

1c Review materials

PREPARE THE DATASET

**STAGE 2
PREPARE THE DATASET**

2a Combine sources

**STAGE 2
PREPARE THE DATASET**

2a Combine sources

2b Improve veracity

STAGE 2
PREPARE THE DATASET

2a Combine sources

2b Improve veracity

2c Describe data

VISUALIZE THE DATA

STAGE 3
VISUALIZE THE DATA

3a Review ethics

**STAGE 3
VISUALIZE THE DATA**

3a Review ethics

3b Refine argument

**STAGE 3
VISUALIZE THE DATA**

3a Review ethics

3b Refine argument

3c Design visualization

**STAGE 3
VISUALIZE THE DATA**

3a Review ethics

3b Refine argument

3c Design visualization

3d Publish visualization

ETHICAL VISUALIZATION

SCOPE THE VISUALIZATION

IDENTIFY GOAL
What will the goal of your visualization be?
Identify who the visualization is primarily for, and what attitude or action you want it to foster.

DEFINE ARGUMENT
Which argument best achieves this goal?
Define an argument on a specific subject that meets your goal, by resonating with the audience.

REVIEW MATERIALS
What does the literature say on this argument?
Find and learn from recent academic and commercial publications on this subject.

What's the best way to treat and share my data?

PREPARE THE DATASET

COMBINE SOURCES
What sources will you draw from?
Combine reputable datasets and/or documents to create a preliminary, aggregated dataset.

IMPROVE VERACITY
Will the data hold up under scrutiny?
Clean, normalize, and refine the aggregated dataset, remove questionable data points.

DESCRIBE DATA
Is your dataset intelligible and navigable?
Create a working dataset by adding necessary structure, and descriptions in metadata.

VISUALIZE THE DATA

REVIEW ETHICS
What are the latest ethical recommendations?
Find and review the latest ethical visualization literature to learn about best practices.

REFINE ARGUMENT
How will your visualization show the argument?
Choose the media, format, and functionality to best communicate your visualization's argument.

DESIGN VISUALIZATION
What design communicates the argument best?
Design a prototype visualization, test it with your audience, reflect on feedback, and improve it.

Remember:
Your design choices are just as important as the data for visualizing ethically.