

## Part 3

- Create A Data Visualization Project

In this final section of the workshop, you will now be able to work alone or with a group to create a data visualization project. Here are some tips on how to best design a module and some examples from previous workshops.

Tips:

1. Projects that use a lot of data require that data to be interpreted and digested easily by readers. We can do this by creating visualizations using SimpleChartsRI or Infogram.
2. Create worksheets to accompany the module using the generated data visualization.
3. Suggest students to look for patterns on the graphs and to create their own summaries or explanations of what is being shown by the visualization.
4. Create a blank graph to accompany the fully created graph for make-your-own graph styled activities.
5. Most projects begin with an introductory section explaining the purpose of the activity to let the students know what they are about to work on and why it's important.

## Example 1: Narragansett Bay Animals

Topic: Marine Biology

### Project:

Students use a dataset about Narragansett Bay animals and are assigned an animal from the dataset. Students will then make an infographic using data and other background information about their assigned animal. They will be expected to perform independent research about the animal. The infographic should include a graph generated from the dataset, a picture of the animal, and background information of the animal.

### Lesson Flow:

1. Students will create an account with Piktochart
  - a. Other options: SimpleChartsRI, Infogram
2. Students will learn how to use Piktochart by using the site's provided tutorial
3. Students will create an infographic using the following datasets:
  - a. <https://web.uri.edu/fishtrawl/data>
  - b. <https://web.uri.edu/fishtrawl/>
  - c. [https://web.uri.edu/fishtrawl/files/GSO Fish trawl report 2017-2.pdf](https://web.uri.edu/fishtrawl/files/GSO_Fish_trawl_report_2017-2.pdf)
  - d. <https://drive.google.com/drive/folders/1EvogKsck7xEKfNisQWp2URt0BzWhXPC1>

Expected Results:



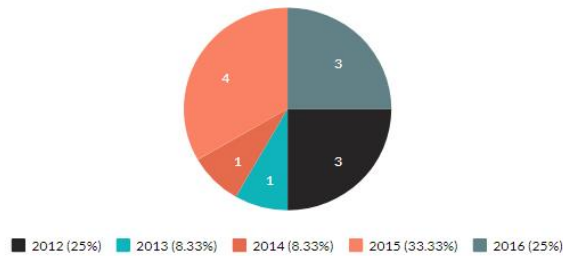
## The Lobster

So what is a lobster do you ask? A mammal, a fish or some primitive sea creature? Well, in case you don't know a lobster belongs to the category Invertebrata, one of the two categories making up the animal kingdom. Unlike us humans who belong to the other group, Vertebrata, invertebrates lack a vertebral column (a backbone).

## Catch Per Unit Effort (CPUE)

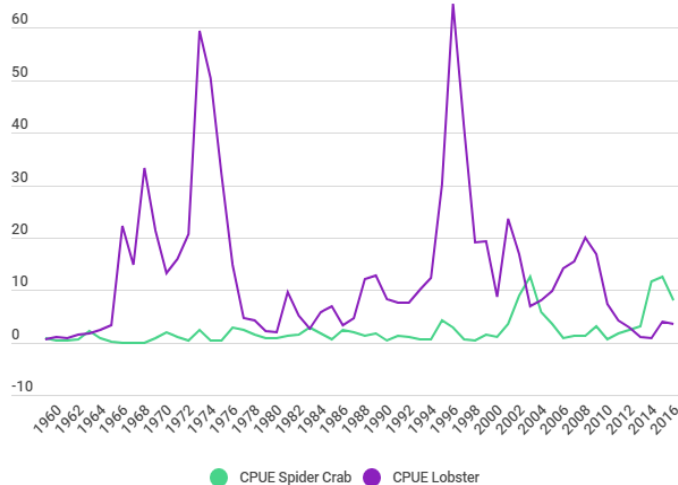
Seasonal and annual CPUE estimates are often used to index abundance and to track the depletion of the fished stock as fishing progresses through the season. The catch-per-unit effort (CPUE) method should be applied so that effort and harvest can be accurately recorded. Thus, controlled or regulated harvests are required to acquire the necessary data.

Lobster CPUE (2012-2016)



<https://www.sciencedirect.com/topics/earth-and-planetary-sciences/catch-per-unit-effort>  
<http://www.parl.nz.ca/lobster/overview.htm>  
<https://drive.google.com/drive/folders/1BvgKsck7zEKFNisQWp2UR08BwWkXPC1>

## Catch Per Unit Effort



## Example 2: COVID-19 Deaths by Sex and Age

Topic: Public Health, Epidemiology

### Project:

Students will analyze the given dataset about Provisional COVID-19 Deaths by Sex and Age. Students will be given a number of questions to answer using the CDC's COVID-19 dataset. These questions should be answered using information from utilizing data visualizations correctly.

### Lesson Flow:

1. Students will download the COVID-19 dataset from <https://data.cdc.gov/NCHS/Provisional-COVID-19-Deaths-by-Sex-and-Age/9bhg-hcku>
  - a. Select "Export" found on the right side of the screen.
  - b. Download as a CSV file.
2. The CSV file can be imported into SimpleChartsRI or Infogram. The visualizer on the CDC site can also be used for this module.  
<https://data.cdc.gov/d/9bhg-hcku/visualization>  
  
\*When imported into SimpleChartsRI becomes unresponsive. Dataset too large?
3. Students will answer questions related to the dataset by using data visualizations to help them understand the information and data.

### Sample Questions:

1. What age groups does the dataset represent? (This can be seen best using a bar chart, column chart, or pie chart.)
  - a. Under 1 year to 85 years and above.
2. Which state has the most deaths? Which state has the least amount of deaths?
  - a. Texas has the most deaths. Vermont has the least amount of deaths.
3. Select a specific state and state which age group has the highest rate of death.
  - a. Rhode Island data shows that those that were 85 years and older had the highest rate of death.
4. Compare the amount of COVID-19 deaths and pneumonia deaths. Are there any similarities or differences represented by the data?
  - a. The COVID-19 deaths and pneumonia deaths are very similar to each other numberwise. In a bar graph, the pneumonia death rows lag slightly behind the COVID-19 deaths.

### Example 3: World Population

#### Topic: Demography

#### Project:

Students will interpret data about one chosen country from the provided dataset. Organize the country's population information into a country profile. Students will fill out the provided country profile worksheet.

#### Lesson Flow:

1. Students will navigate to the dataset.
  - a. <https://interactives.prb.org/2021-wpds/>
2. Hand out the country profile worksheet and instruct students to fill out the profile of their chosen country.
3. After completing the profile, summarize the information into one or two paragraphs and explain findings.

#### Lesson Note:

- o The rate of natural increase is the rate at which a population is increasing (or decreasing) in a given year because of a surplus (or deficit) of births over deaths, expressed as a percentage of the base population. To calculate the rate, subtract death rates from birth rates, and then divide by 10. This rate does not include the effects of immigration or emigration.

#### Country Profile Worksheet:

**AGE**

Percent ages 65+

Percent less than age 15

**Country:** \_\_\_\_\_

**Population** Million

**Projected mid-2035** Million

**FERTILITY** → **MORTALITY**

**Birth Rate** \_\_\_\_\_ births per 1,000 pop.

**Total Fertility Rate** \_\_\_\_\_ children per woman

**Death Rate** \_\_\_\_\_ deaths per 1,000

**Infant Mortality Rate** \_\_\_\_\_ deaths per 1,000 live births

**Life Expectancy** \_\_\_\_\_ years at birth

$$\frac{\text{Birth Rate}}{10} - \frac{\text{Death Rate}}{10} = \text{Rate of Natural Increase}$$
 percent

**Comparing Fertility**

Country with lower

Country with same

Country with higher

\* Select the fertility indicator; include values.

**Comparing Rate of Natural Increase**

Country with lower

Country with same

Country with higher

**Comparing Mortality**

Country with lower

Country with same

Country with higher

\* Pick one of the mortality indicators; include values.