

## Calculating your Eco Footprint

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# The **WHY**.....

Our Watershed Friendly Living programs aim to help homeowners to change practices and behavior to make a difference for themselves, their community and the health of the watershed.

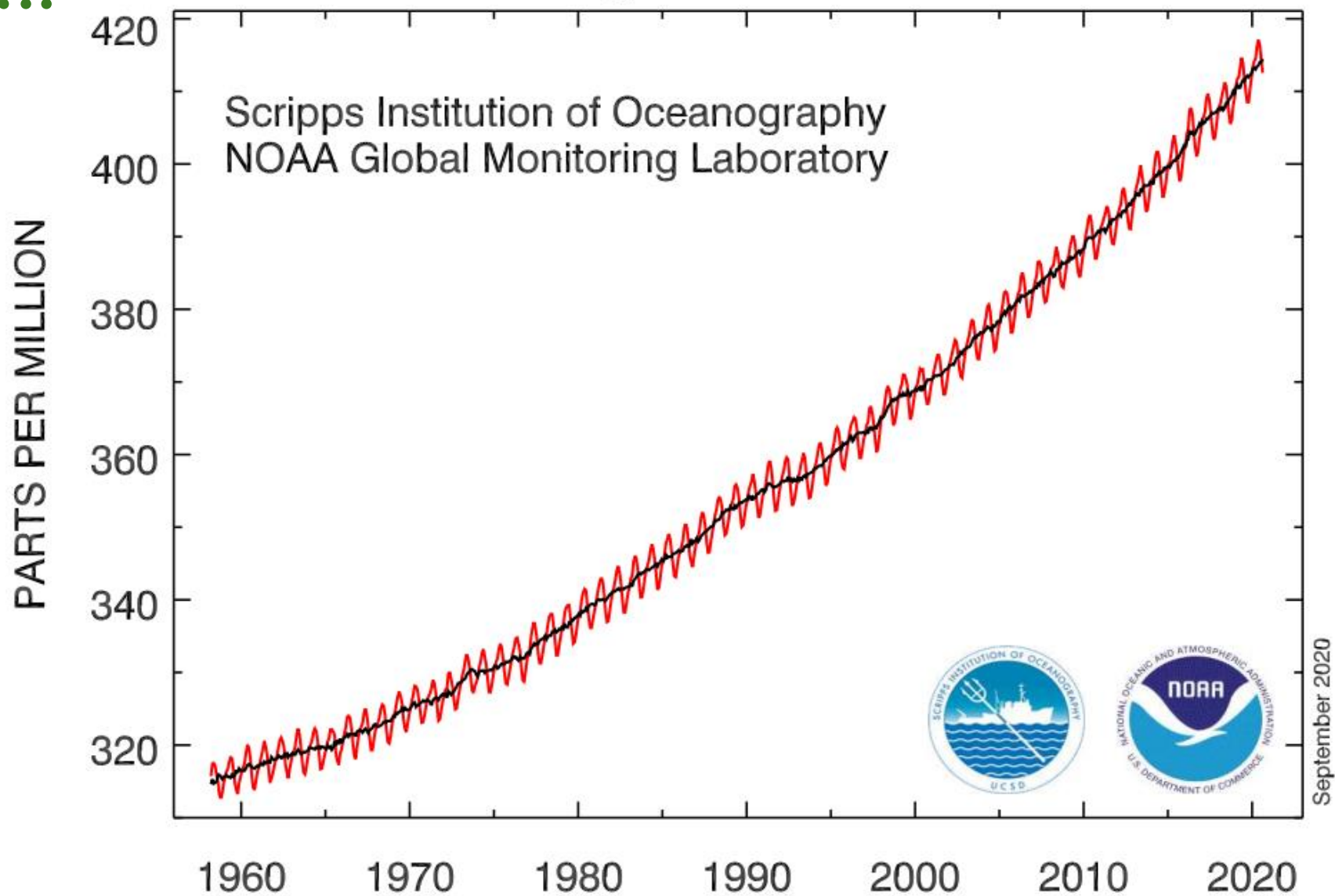
# GSWA's Watershed Friendly Living Program can offer more information and resources



<https://www.greatswamp.org/watershed-friendly-living/>

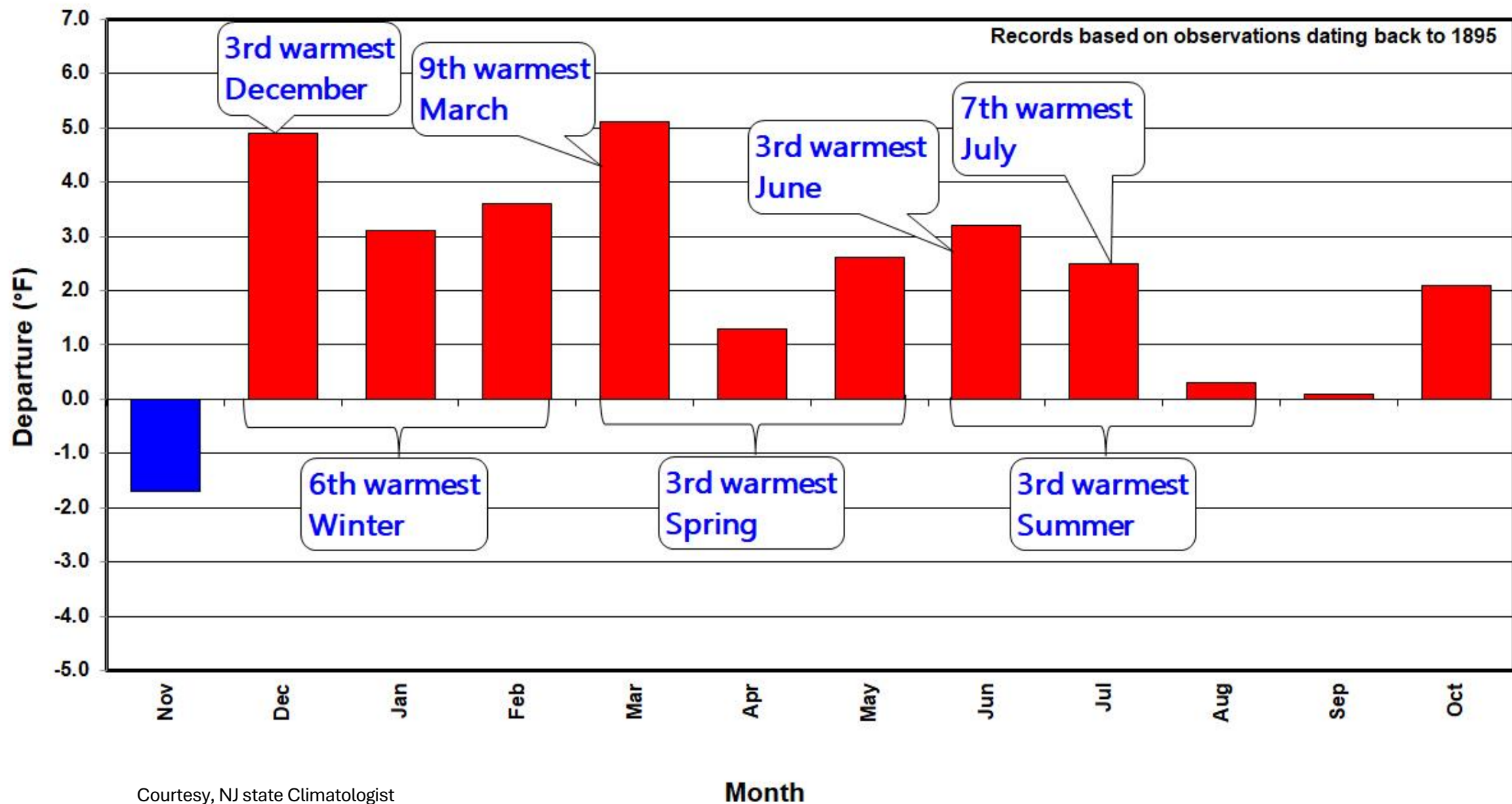
# Atmospheric carbon dioxide: 1958-present

The WHY.....



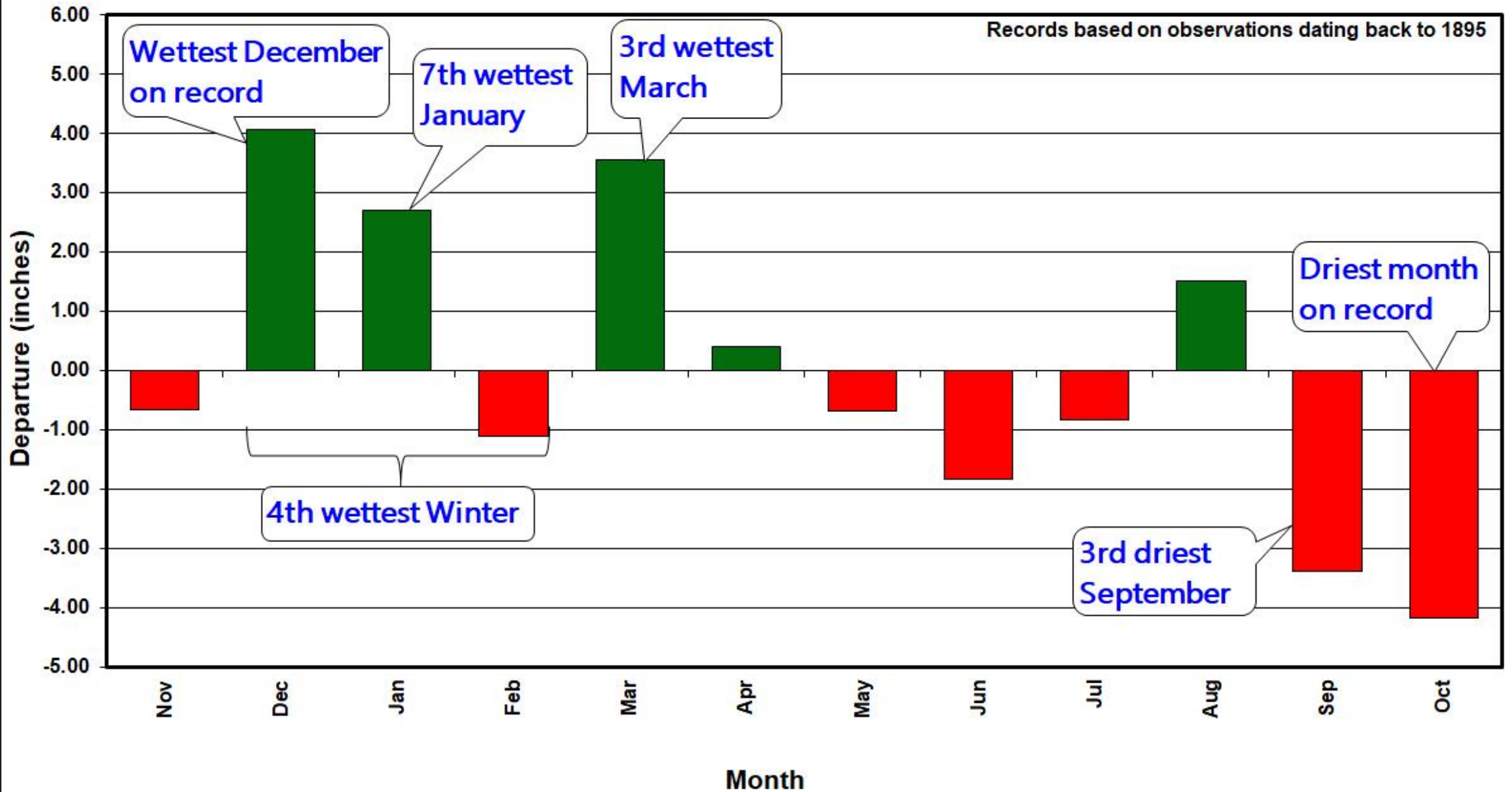
# NJ Monthly Temperature Departures (November 2023 – October 2024)

Departures calculated from differences between observed monthly temperatures and 1991–2020 monthly averages



# NJ Monthly Precipitation Departures (November 2023 – October 2024)

Departures calculated from differences between observed monthly precipitation and 1991–2020 monthly averages



# What to expect in NJ's changing climate future

- Hotter Hots
- Wetter Wets
- Windier Winds
- Warmer colds
- More frequently... and likely more frequently intense
- Amplitude of events and frequency of bad things happening will increase
- Rising temperatures & Steady or increasing precipitation
- Increasing variability and extremes – more... storms, flood, drought, heat





Look at some specific online tools and resources that you can use to audit your own/ household and cumulative ecological footprint.

- Focus on:
  - Trash/Waste Management
  - Water usage
  - Energy Use
  - Carbon Footprint
  - Reduction Strategies
  - Resources for further study



# Household Trash

Quiz:  
How much  
trash does  
the Average  
American  
produce  
Daily?

---

1.7 lb/day

---

2.2lb/day

---

4.4lb/day

---

7.1 lb/day

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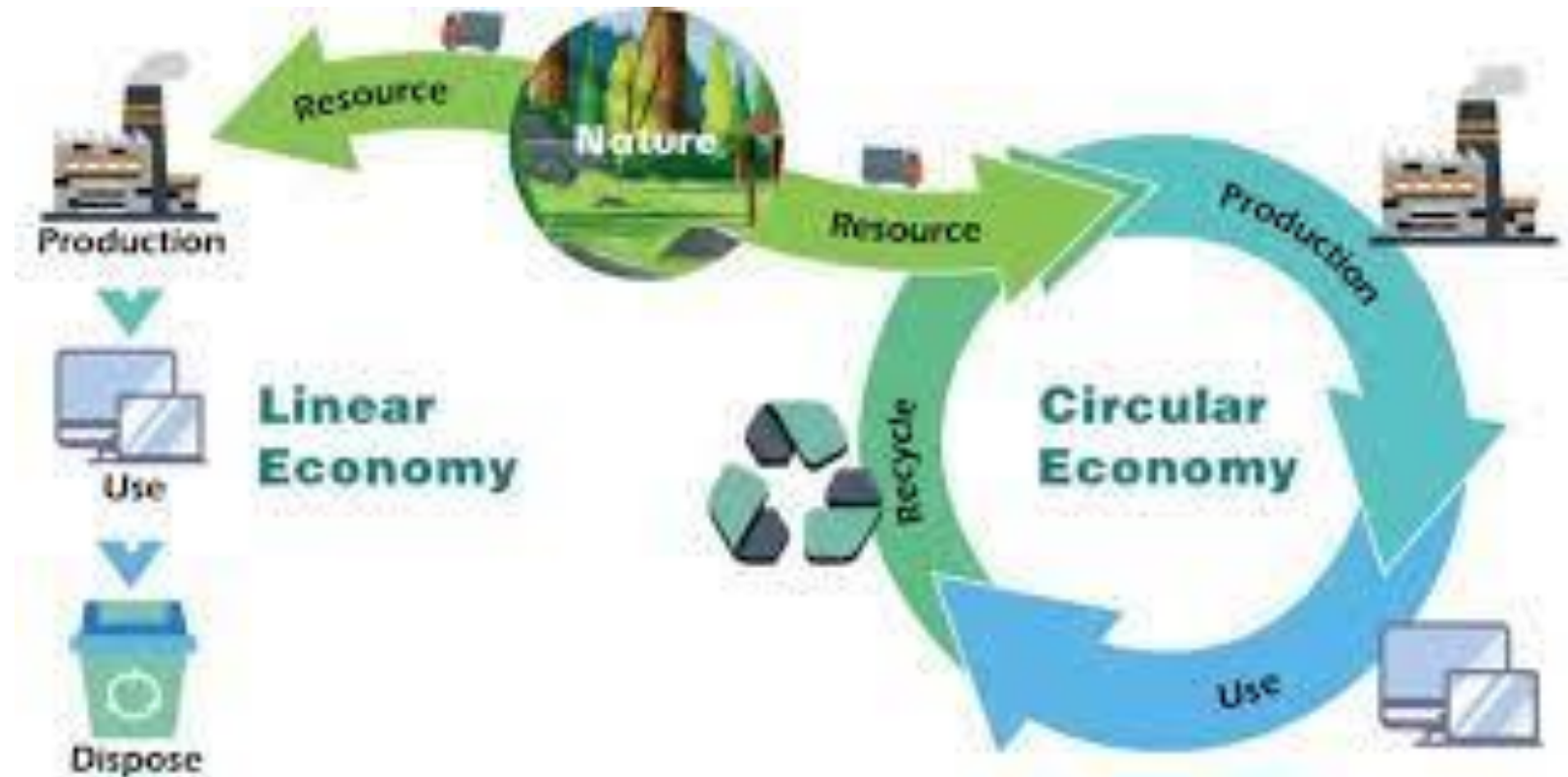
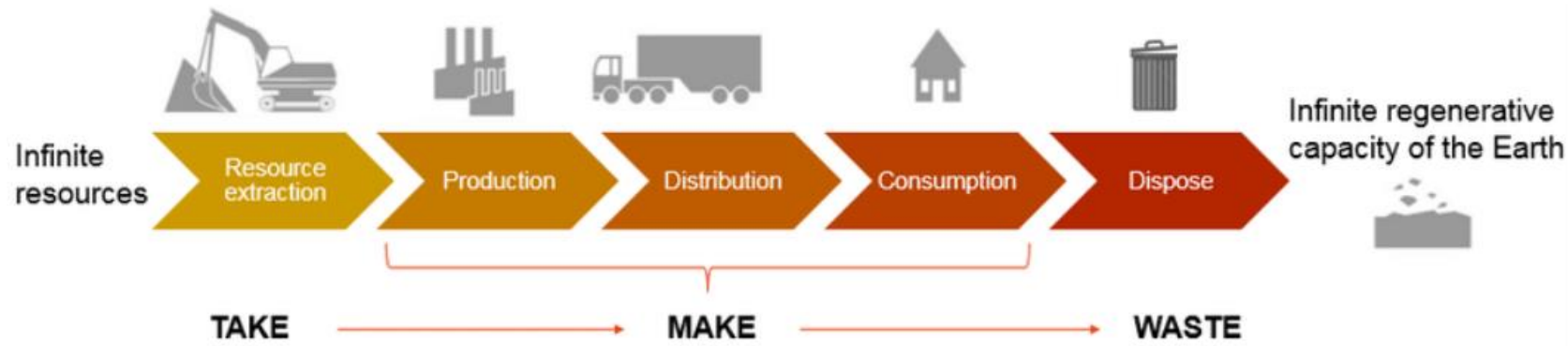
4.4lb/day \*

Source EPA

---

7.1 lb/day

# The Linear vs Circular economy...



# Conducting A Trash Audit

- What is your Goal?
- Determine a sample period.
- Gather Supplies/monitor/sort
- Analysis of your waste pattern results
- Identify Waste Reduction goals based on trash contents
- Determine small, manageable lasting change goals



# Fast Fashion

## How T-shirts donated to charity are causing pollution in Ghana

Garment pollution graphic



Consumer gives their T-shirt to charity



Charity shops only sell up to 20% of donated clothes



Ghana is the world's largest importer of used clothing. Most ends up in Kantamanto in Accra, the world's largest second-hand clothes market



Unsold donations are sold to for-profit aggregators who package the clothes in bales for export



Traders pay on average between \$120-200 a bale. They sell and upcycle what they can. About 40% of the average bale is waste.



100 tonnes of garments leave the market daily as waste. About 30% is collected by the city, the rest ends up in illegal dumps or ditches and drains



Textile waste flows into the Odaw river, Korle Lagoon and the sea and washes on to beaches, causing major environmental damage



# A Word About Wish Cycling

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- Know your towns recycling rules and follow them.
- Towns pay by weight for transport of trash contaminated recycling
- Low purity can lead to recycling being refused and loss of recycling programs

## WISHCYCLING

HOPING SOMETHING CAN BE RECYCLED

INTENTION

HMM, MAYBE THEY CAN?



✓ CHECK WHAT YOU CAN RECYCLE LOCALLY

EFFECT

YUCK! WHAT IS THIS??



THE QUALITY'S ANWFUL WE CAN'T SELL IT AND IT'S COSTING TOO MUCH TO SORT

✓ IF IN DOUBT KEEP IT OUT



Quiz:  
Recyclable or not? Which of the following should actually go in the recycling container?

---

Starbucks paper take out Coffee Cup

---

'compostable' cutlery made from corn/sugar beat or biodegradable plastic

---

AA, AAA, C, D Batteries

---

Cardboard Pizza boxes

# Trash/Waste Reduction Resources

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- <https://www.storyofstuff.org/> Organization with multiple waste reduction campaigns and high-quality information
- <https://www.catalogchoice.org/> one stop opt out for unsolicited mailers
- <https://mcmua.com/index.asp> Morris County Utilities authority. Home for all waste/recycling information in the region
- <https://www.sustainablejungle.com/bulk-stores-online/> List of online bulk retailers for variety of products
- <https://www.litterless.com/bulk-food-guide/new-jersey> Where to buy bulk products in NJ towns.



Quiz:

How much  
water does  
the Average  
NJ resident  
use per day

---

25-40 gallons/day

---

80-100 gallons/day

---

130-150 gallons/day

---

200-220 gallons/day

Quiz:

How much  
water does  
the Average  
NJ resident  
use per day

---

25-40 gallons/day

---

***80-100 gallons/day.***

---

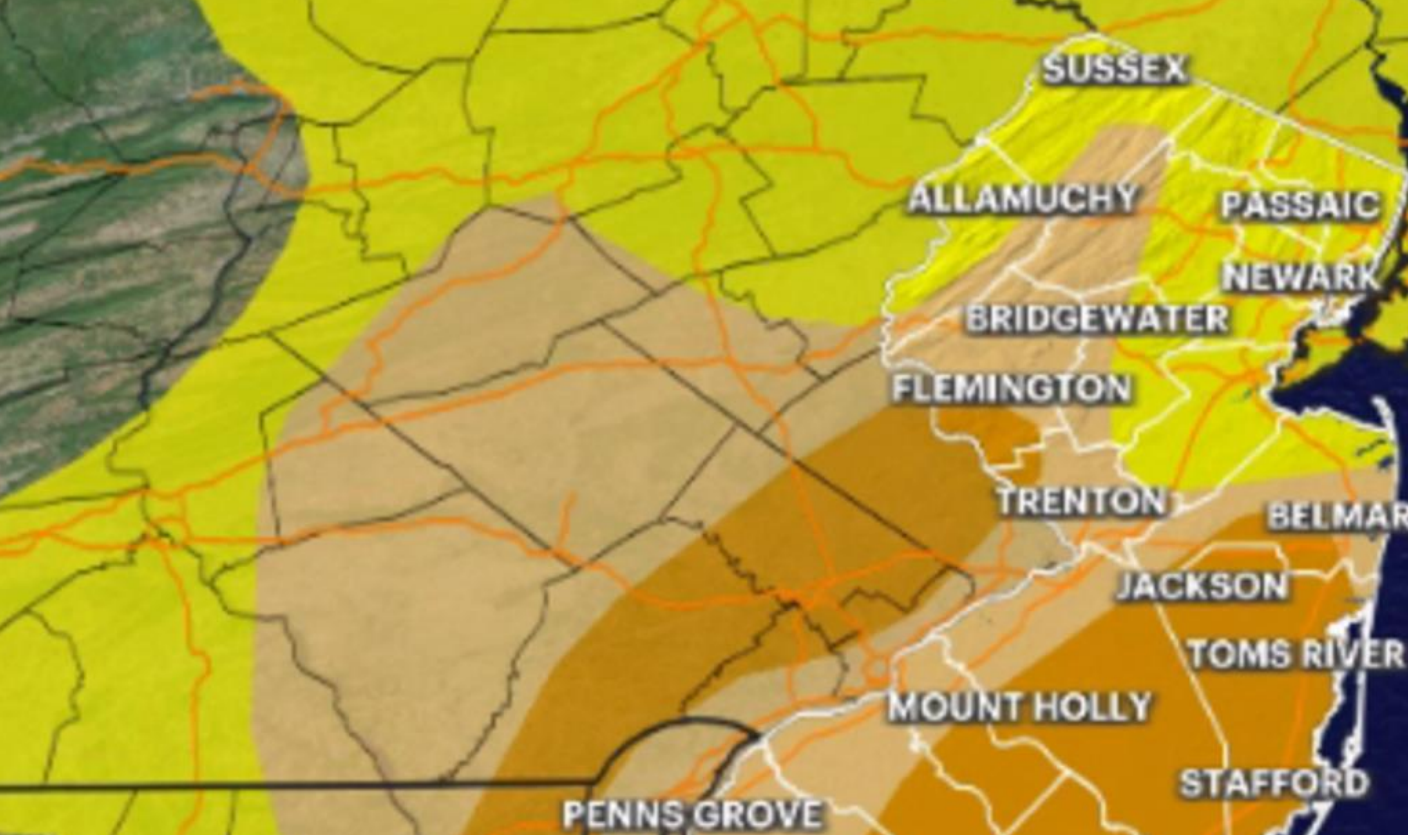
130-150 gallons/day

---

200-220 gallons/day

# DROUGHT MONITOR

AS OF: OCTOBER 24, 2024



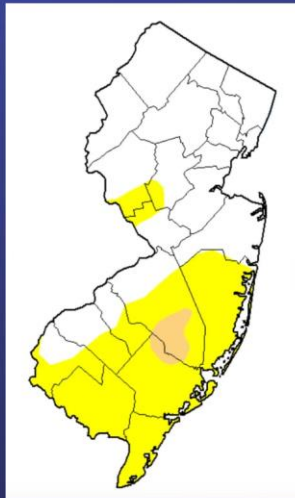
-  ABNORMALLY DRY
-  MODERATE DROUGHT
-  SEVERE DROUGHT
-  EXTREME DROUGHT
-  EXCEPTIONAL DROUGHT

## NEW JERSEY DROUGHT STATUS

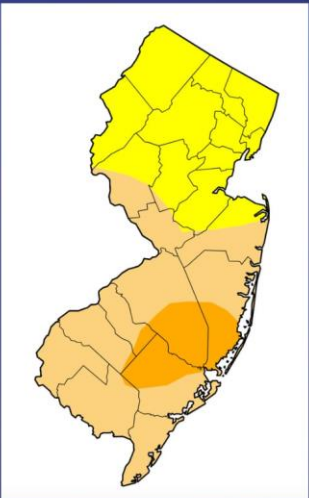
*Intensity:*

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

SEPT. 12

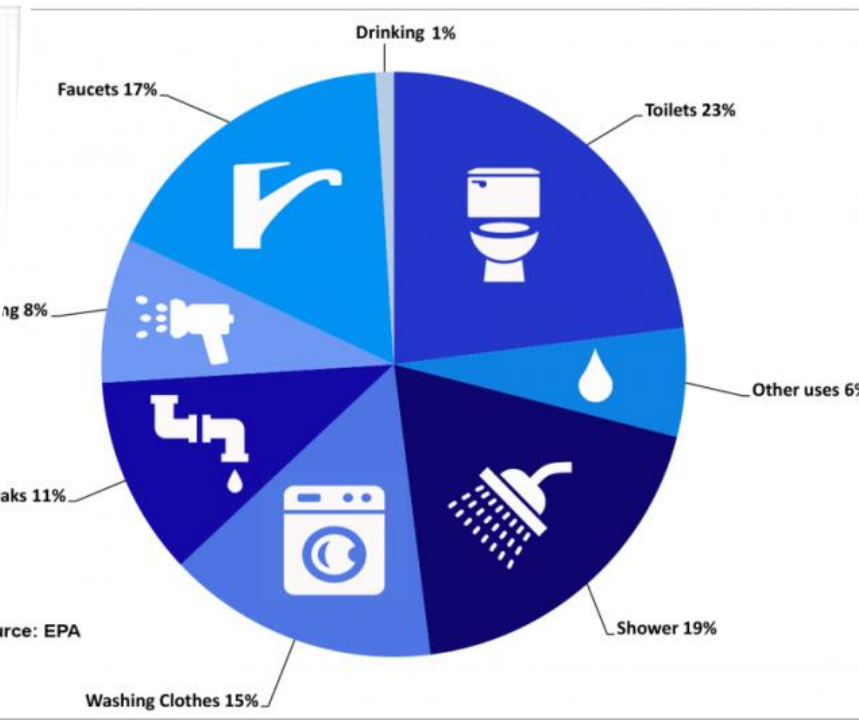
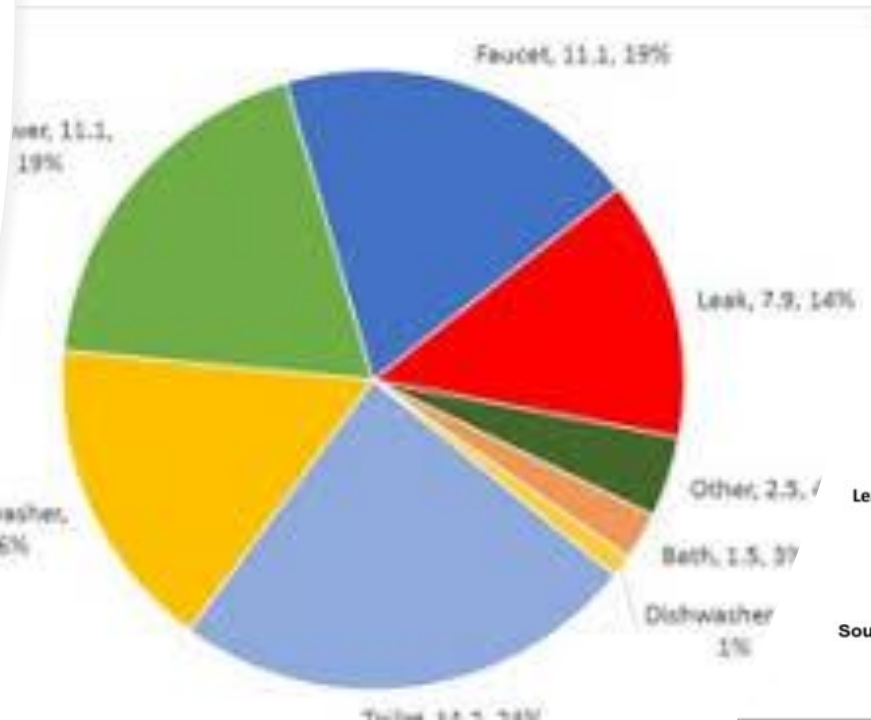
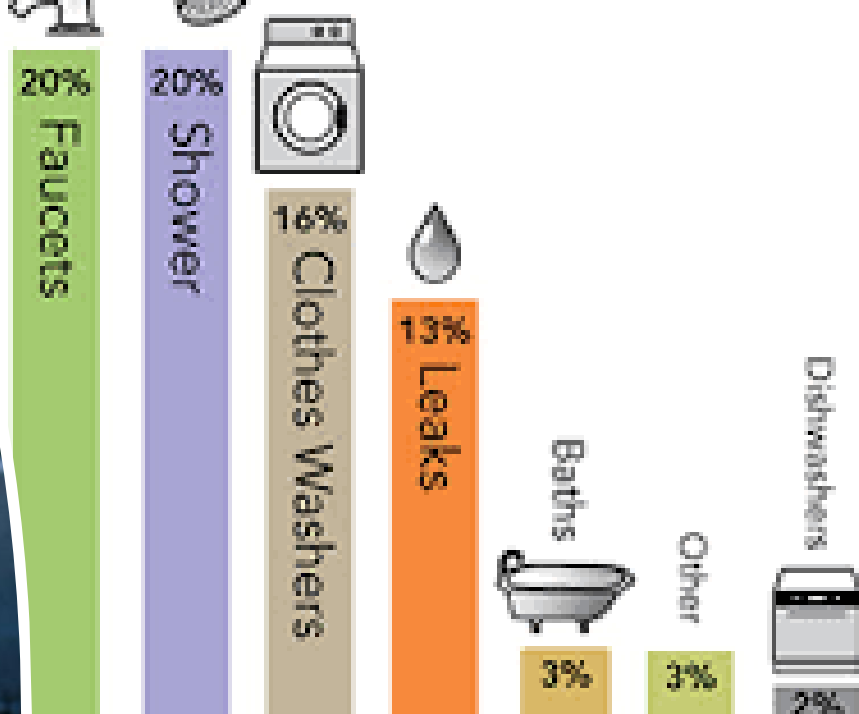


OCT. 17



# Water Use Data Tables Vary Greatly!

- Depending on household size
- Region of the Country
- Seasonality
- Outdoor features- pools/hot tubs
- Behaviour
- Water use calculators can help you understand your daily water routines and the unexpected uses of water in your life



## Breakdown of typical water usage

- **Average US Family** 300gall/day
- 70% indoor use
- 27% in **bathroom** uses
- Doesn't count treated water being used for watering/outdoor uses

Appliance/Device	Household/day	% of Total
Toilet	33 gallons	24%
Shower	27 gallons	20%
Faucet	27 gallons	20%
Washing Machine	22 gallons	16%
Leaks	18 gallons	13%
Bath	4 gallons	3%
Dishwasher	2 gallons	2%
Other	4 gallons	3%
Total	138 gallons	100% (101% with rounding)



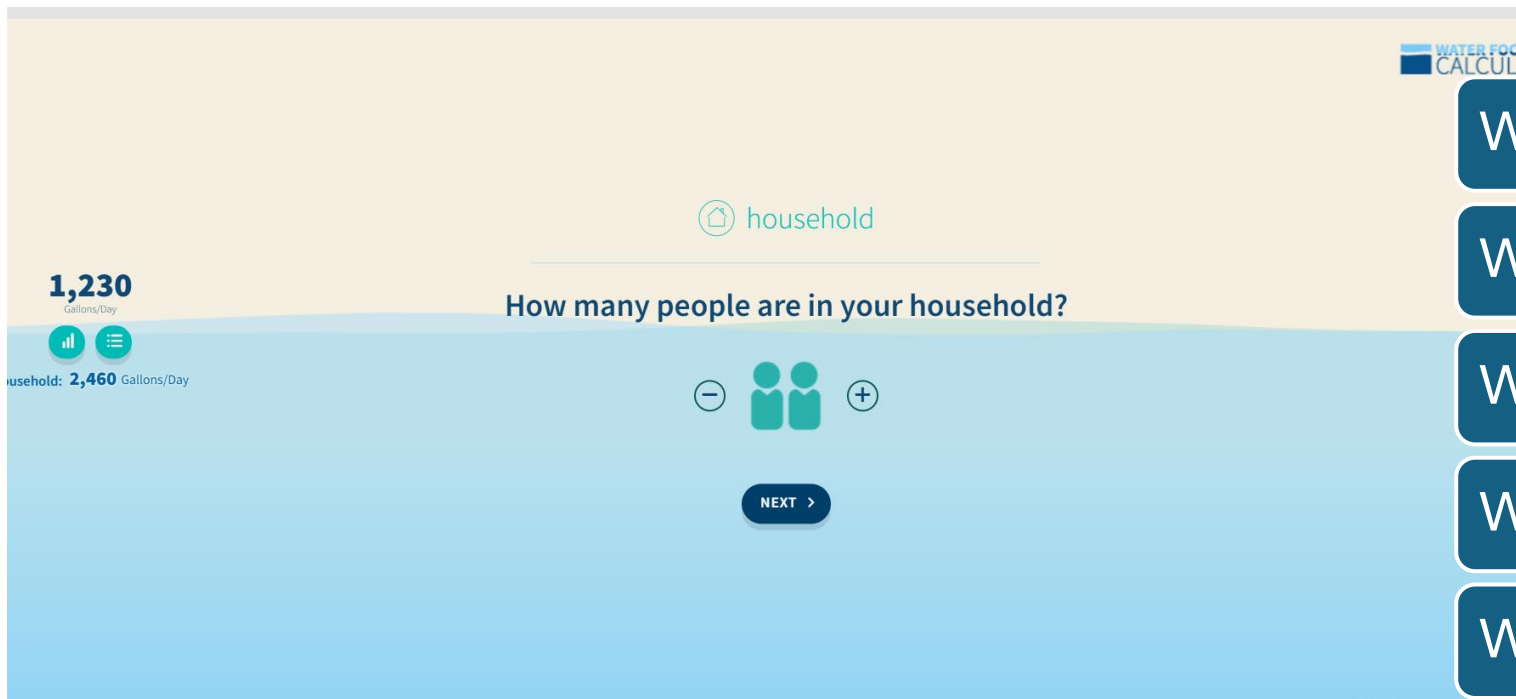
# Direct and Indirect Water use in calculators



- Water for Boiling/rinsing pasta
- Water to grow wheat
- Water to produce fuel for harvest
- Water to transport wheat/final product
- Water for Electricity for processing to flour
- Water for manufacture of pasta and packaging
- Water for distribution to point of sale

# What do water footprints typically calculate?

<https://watercalculator.org/wfc2/q/household/>



Water in your food

Water Use around the house

Water use outdoors

Water to make energy

Water in the things you buy

Climate and environment

<https://home-water-works.org/calculator>



[Home](#) » Water Calculator

## Water Calculator



# Outdoor Water Use



- Seasonally 50% of Average NJ homeowner water use is for turf and landscaping outside....
- In a future increasingly drought-prone climate, water conservation **MUST** be a major objective around the yard.
- Lawns are water hogs!!
- **Water less frequently** Set automatic sprinklers to water every 4 days. In general, lawns in NJ need about 1"water/week, which can be provided by rainfall and dew. Use rain sensors to reduce sprinkler use
- **Use efficient irrigation.** Drip irrigation and micro-sprays can use 30–50% less water than sprinklers.
- **Harvest rainwater** Use a rain barrel to collect water from your downspout for watering your lawn and flowers.
- **Let your lawn go dormant** During periods of drought or extreme heat, let your lawn go dormant and save water.
- **Xeriscape.** Choose plants that are adapted to droughty conditions—think natives

# If you Need to keep the lawn... consider...

Lawns need 1” water/week. **Coffee Can Trick to test** water use

- Efficient watering creates drought proof plants
- Mow grass only when grass height is 4”
- Grass cycle- leave the clippings to fertilize the lawn and drought proof grass, shading roots and reducing water loss through evaporation!
- Increase the width of less water consumptive foundational planting beds annually. Think Natives!





- Consider directing downspouts into beds to reduce additional watering
- Mulch beds heavily.
- Water at dusk.
- Angle sprinklers low to avoid evaporation.
- Irrigate using drip or soaker hose.

# Xeriscaping

Plants for drought proof yards: think south Jersey Pinelands species or Dunes, Dry forest Natives – these are tough and require few resources

Split your yard into low/medium and high input water areas.. Maximize the low input areas



---

Carolina Rose

---

Prickly Pear Cactus

---

Almost Any Goldenrod species

---

Big Blue Stem

---

Blue Mistflower

---

Broom Sedge

---

Prairie Drop seed

---

Indian Grass

---

River Oats

---

Butterfly weed

---

Partridgeberry

---

Arrowwood Viburnum

---

Bayberry

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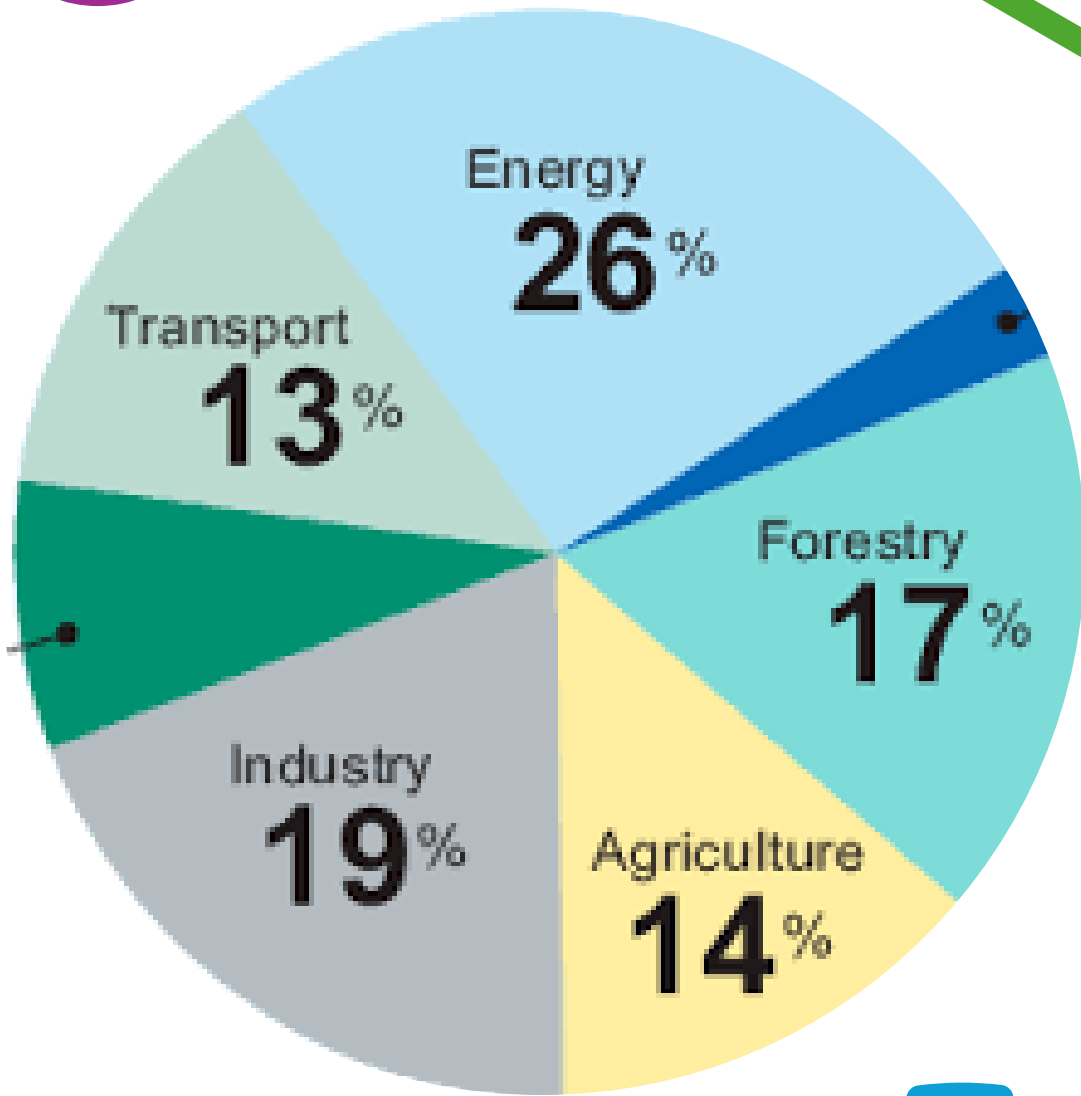
See our 2024/5 Plant sale for many more ideas!

# Water Footprint Calculators and Resources



- <https://home-water-works.org/calculator> Calculates water use by room, inside and outside the house
- <https://www.epa.gov/watersense/start-saving> How much water you can save by switching older fixtures to water sense products
- <http://www.csgnetwork.com/waterusagecalc.html> Simple calculator
- <https://watercalculator.org/about/>
- <https://npsnj.org/> Native plant society of NJ. Xeriscaping plants and other great resources





# Carbon Dioxide Emissions

Quiz:

How much  
Co<sub>2</sub> is  
produced by a  
roundtrip  
flight from  
Newark to  
Los Angeles?

---

600 Kg CO<sub>2</sub>

---

900 Kg CO<sub>2</sub>

---

1.4 tons CO<sub>2</sub>

---

2.5 tons CO<sub>2</sub>

Quiz:

How much  
Co<sub>2</sub> is  
produced by a  
roundtrip  
flight from  
Newark to  
Los Angeles?

---

600 Kg CO<sub>2</sub>

---

900 Kg CO<sub>2</sub>

---

1.1-ton CO<sub>2</sub>

---

1.4 tons CO<sub>2</sub>

# New York to LA... if you don't fly...

- Avoiding this trip is as climate friendly as...
- being vegetarian for: **2.6 years**
- carpooling for: **1.4 years**
- **700 million** people in the world emit fewer greenhouse gases in one year:
- You could travel **5.9 times around the world** in an electric train like Eurostar
- These emissions melt **46 square feet** or **4.3 square meters** Arctic sea ice:



# What is a carbon footprint?

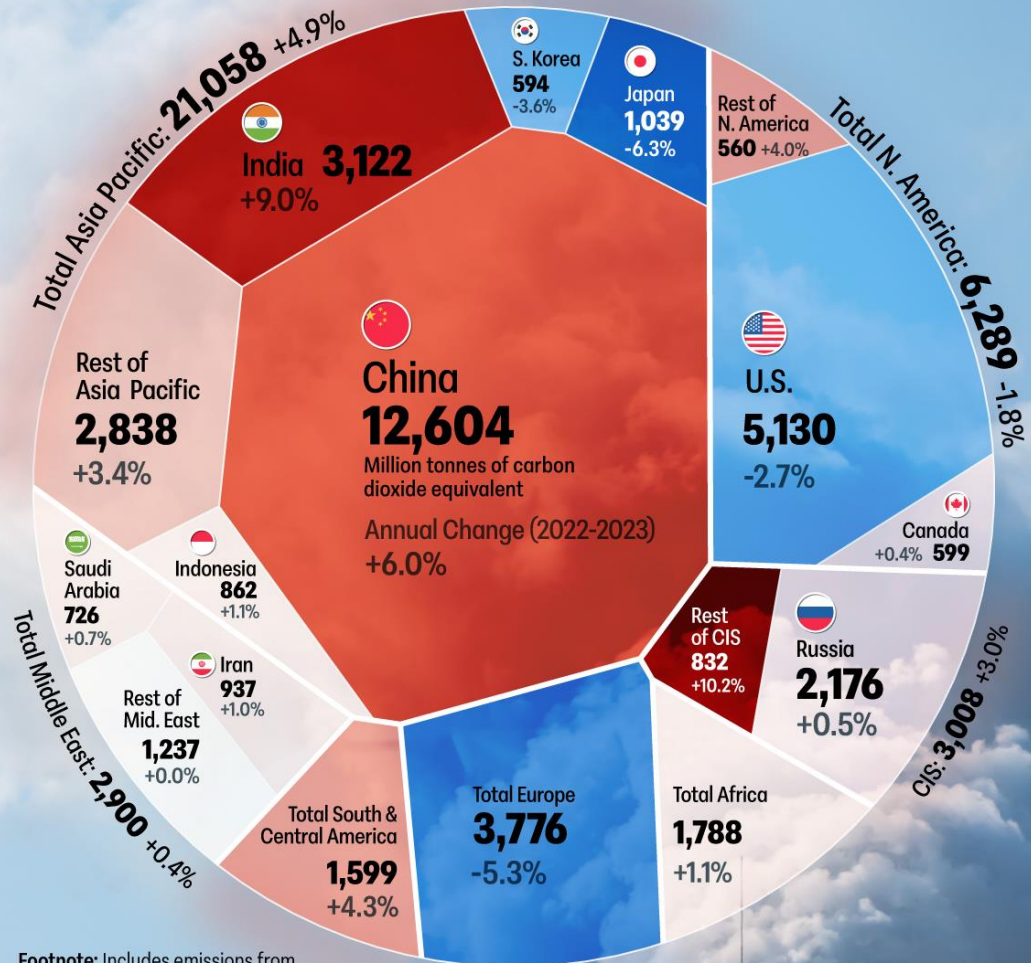


- A carbon footprint is the total amount of greenhouse gases (including CO<sub>2</sub> and CH<sub>4</sub>) that are generated by our actions.
- Average USA resident carbon footprint is 16 tons.
- US has one of the highest rates in the world.
- Globally, the average carbon footprint is closer to 4 tons.
- To avoid a 2°C rise in global temperatures, average global carbon footprint/year needs to drop to **under 2 tons by 2050.**

# CARBON EMISSIONS

FROM ENERGY PRODUCTION  
IN 2023

SHADING BASED ON ANNUAL CHANGE (2022-2023)



Footnote: Includes emissions from energy production, flaring, industrial processes, and the transportation and distribution of fossil fuels.

- Source of our Energy production has a great impact on Carbon emissions for our country
- Solar and Renewables must replace fossil fuel to get anywhere close to maintaining temperature increase to less than 2°C

Source: <https://www.visualcapitalist.com/charted-the-worlds-carbon-emissions-from-energy-production/>

<https://www.carbonfootprint.com/calculator.aspx>

# CARBON CALCULATOR

Carbon Footprint Calculator For Individuals And Households

This carbon calculator is provided free to use

Show you care for the environment and communities across the World by Carbon Offsetting.

You can support [Carbon Offsetting](#) Projects that both tackle climate change and support impoverished communities across the world. Just click the 'Offset' button after you have finished your calculation. It takes only a few easy clicks and costs only a few Pounds/Dollars/Euros per tonne CO<sub>2</sub>. **You also get a personalised Certificate recognising your offsetting - makes an ideal gift too!**



Language:

[Why create an account?](#)

 Like 10K people like this. [Sign Up](#) to see what your friends like.

Welcome [House](#) [Flights](#) [Car](#) [Motorbike](#) [Bus & Rail](#) [Secondary](#) [Results](#)



Welcome to the web's leading carbon footprint calculator

First, please tell us where [you live](#):

Country:

State:

Carbon footprint calculations are typically based on annual emissions from the previous 12 months  
Enter the period this calculation covers (optional):

Why create an account?

 Like 10K people like this. [Sign Up](#) to see what your friends like.

Welcome **House** Flights Car Motorbike Bus & Rail Secondary Results



### Household carbon footprint calculator

Enter your consumption of each type of energy, and press the Calculate button

Your individual footprint is calculated by dividing the amount of energy by the number of people in your house.

How many people are in your household?

To calculate your full household footprint, select "1".

Electricity:  kWh at a factor of  kgCO<sub>2e</sub>/kWh [what's this?](#)

Natural gas:  kWh

Heating oil:  US gallons

Coal:  kWh

LPG:  therms

Propane:  US gallons

Wooden pellets:  metric tons

**Calculate Household Footprint**

**Total House Footprint = 0.00 metric tons of CO<sub>2e</sub>**

[< Welcome](#)

[Flights >](#)



Why create an account?

 Like 10K people like this. [Sign Up](#) to see what your friends like.

Welcome House **Flights** Car Motorbike Bus & Rail Secondary Results



### Flight carbon footprint calculator

You can enter details for up to 3 flight itineraries

Return trip  One-way flight

From:

To:

Via (optional):

Class:

Trips:

Click to include radiative forcing [what's this?](#)

**Calculate & Add To Footprint**

**Total Flights Footprint = 8.40 metric tons of CO<sub>2</sub>e** **Offset Now**

8.40 metric tons: 4 x Economy class direct return flight from EWR to EDI [\[remove\]](#)

**< House**

**Car >**

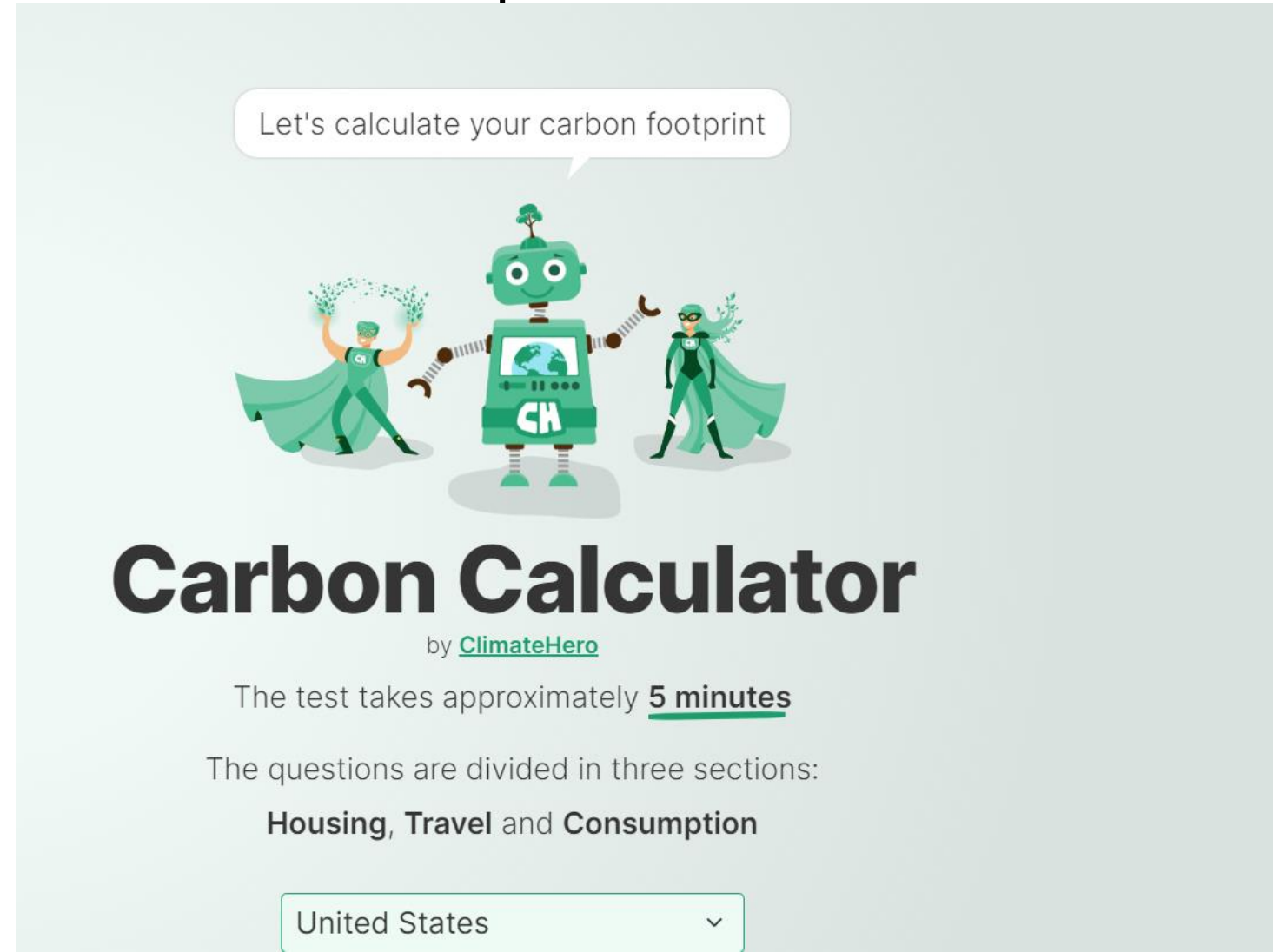
[add our CO<sub>2</sub> calculation tools to your website](#)

In general, trains are a more environmentally friendly option than cars or planes, emitting up to 83% fewer greenhouse gas emissions than driving, and up to 73% fewer emissions than flying

# What can you do about Climate Change?

Reduce your **Carbon Footprint** – use different strategies to minimize carbon emissions into the atmosphere

- Take your footprint calculator to see how you stack up.

The image shows a screenshot of a web-based carbon calculator interface. At the top, a white speech bubble contains the text "Let's calculate your carbon footprint". Below this is a central illustration featuring a green robot with a tree on its head and a globe on its chest, flanked by two green superheroes. The robot's chest has the letters "CH" on it. Underneath the illustration, the title "Carbon Calculator" is displayed in a large, bold, black font. Below the title, it says "by [ClimateHero](#)". Further down, it states "The test takes approximately 5 minutes". Below that, it says "The questions are divided in three sections: **Housing, Travel and Consumption**". At the bottom, there is a dropdown menu with "United States" selected and a downward arrow.

<https://climatehero.me/>



[CALCULATE](#) [OFFSET](#) [GIFT CARDS](#) [FOR BUSINESSES](#) [FAQ](#)  [LANGUAGE](#) ▼



## Welcome to ClimateHero

Calculate your carbon footprint in just 5 minutes

[Start test now](#)

How can I contribute to solving the climate crisis?



# What can you do to reduce Carbon footprint?

Responses can be simple, but are additive to reducing environmental impact!

- Personally conserve electricity - Unplug appliances and turn off lights
- Monitor home temperatures and use the thermostat to reduce energy use
- Consider renewable sources
- Remember there are more than 3 Rs. **Reduce**, **Reuse**, **Recycle**, **Refuse** **Reject**, **Research**, **Re-educate**, **Remove**
- Learn what behavior changes have the biggest reduction impacts through different nonprofit climate change organizations.
- Commit to a couple of changes and implement them , then add additional changes.

- Personally conserve electricity

Unplug appliances and turn off lights

- Monitor home temperatures and use the thermostat to reduce energy use

- Consider renewable sources

- Remember there are more than 3 Rs.

**Reduce, Reuse, Recycle, Refuse Reject, Research, Re-educate, Remove, Replace**

- Learn what behavior changes have the biggest reduction impacts through different nonprofit climate change organizations. Commit to a couple of changes and implement them , then add additional.



# Carbon budget calculator by country

## 1. Country

Carbon budgets ⓘ This calculator ⓘ

- Bangladesh
- Brazil
- China
- France
- Germany
- India
- Indonesia
- Japan
- Mexico
- Nigeria
- Pakistan
- Philippines
- Russia
- Sweden
- UAE
- UK
- USA**
- The average country

## 2. Global warming choices

(a) The limit to global warming: **1.5** 1.6 1.7 1.8 1.9 2.0 °C

(b) Confidence in meeting this limit: 17% 33% 50% **67%** 83%

These two choices give a global CO<sub>2</sub> budget of **400 billion tonnes CO<sub>2</sub>** (50 tonnes CO<sub>2</sub> per person).

Show more

## 3. Accounting choices

(a) **Include** or Ignore emissions from imports & exports.

(b) **Include** or Ignore emissions from aviation.

(c) **Include** or Ignore equity between nations, i.e. the provision specified in the Paris Agreement.

These five choices mean **the USA's CO<sub>2</sub> budget was used up in 2022.**

Show more

## Carbon budget calculation for the USA



Target: limit global warming to 1.5°C with 67% confidence  
Including imports/exports, aviation and equity between countries

Pathway assessed: Linear Net Zero 2050

Assessment: not compliant - the carbon budget ran out in 2022

■ Renewables (rough CO<sub>2</sub> equivalent) + linear extrapolation  
■ Within carbon budget  
■ Exceeding carbon budget

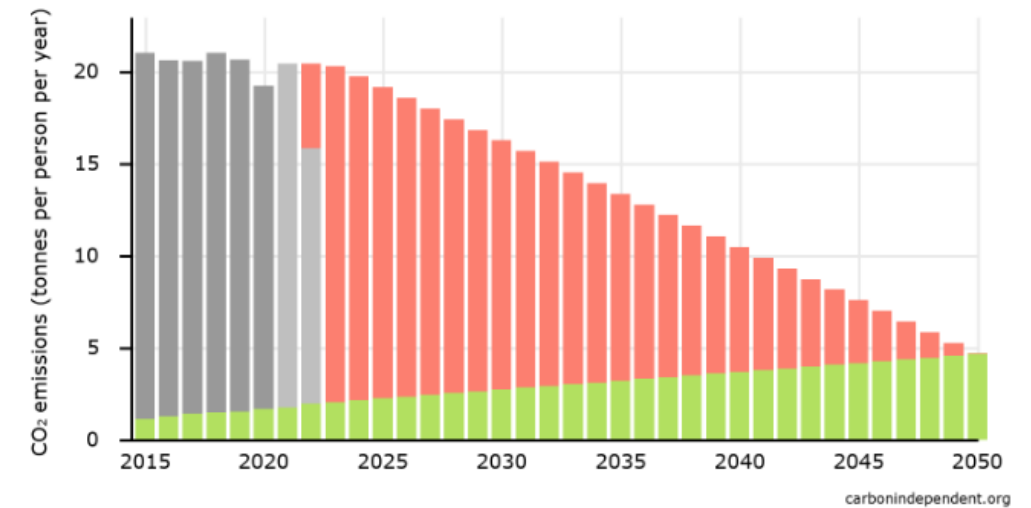


Chart start:

1990 1995 2000 2005 2010

**2015**

end:

2030 2035 2040 2045 **2050**

2060

Renewables:

0 + linear extrap. + exponential extrapolation



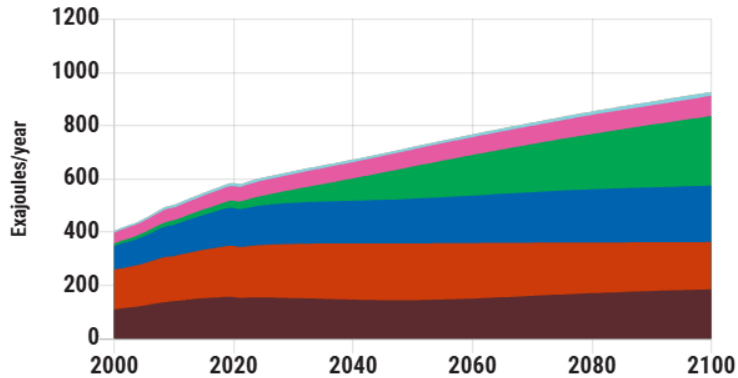
# <https://www.climateinteractive.org/en-roads/>



English Simulation Graphs View Help

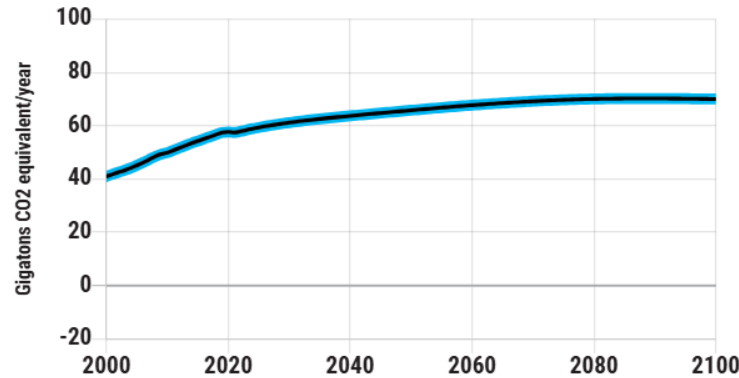
Share Your Scenario

## Global Sources of Primary Energy



COAL OIL GAS RENEWABLES BIOENERGY NUCLEAR NEW ZERO

## Greenhouse Gas Net Emissions



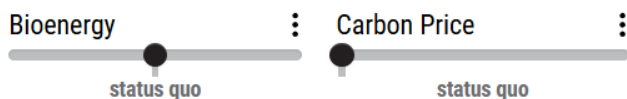
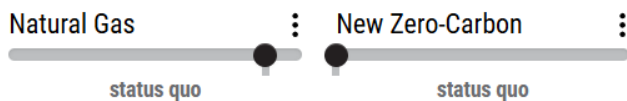
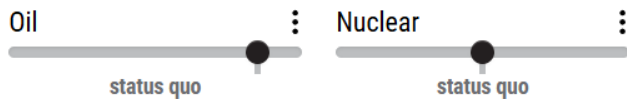
BASELINE CURRENT SCENARIO

+3.3°C

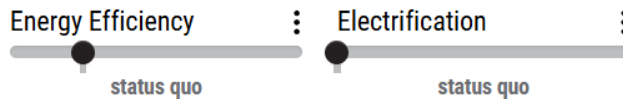
+6.0°F

Temperature Increase by 2100

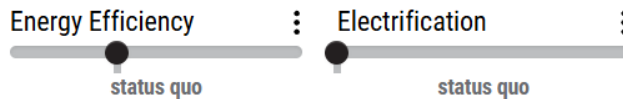
### Energy Supply



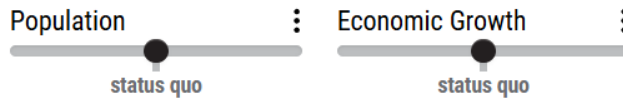
### Transport



### Buildings and Industry



### Growth



### Carbon Dioxide Removal



### Other Sources of Greenhouse Gases



Register Your En-ROADS Event

# Carbon Footprint Reduction Resources



- <https://subjecttoclimate.org/teacher-guides/10-helpful-resources-for-cop29#Equality> ten things you can learn about to become more climate aware- ties into COP29
- <https://www.carbonfootprint.com/calculator.aspx> carbon footprint calculator linked to tips for reducing and offsetting footprint
- <https://www.carbonindependent.org/> both quick and in-depth calculators
- <https://flightfree.org/flight-emissions-calculator> calculate the carbon cost of your flight
- <https://www.carbonindependent.org/carbonbudgets.php> Look at Carbon budget by country to see where are the sources
- <https://www.climateinteractive.org/en-roads/> Consider what you have to do to get warming down to 1.5°C based on a model created by MIT and using most UpToDate data
- <https://www.footprintcalculator.org/home/en> Calculate your ecological footprint



Created and powered by



Discover your personal Overshoot Day

WHAT IS YOUR

# Ecological Footprint?

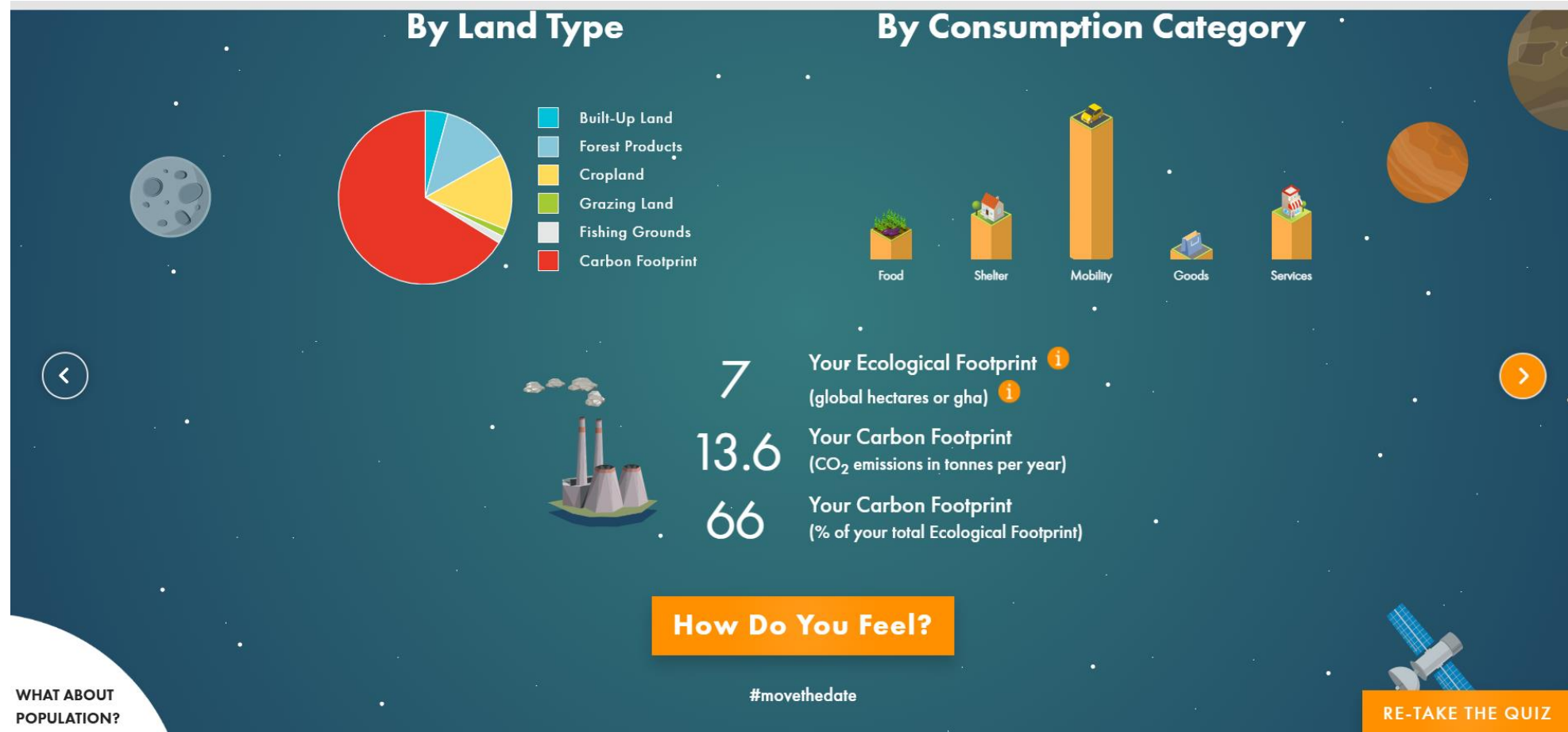
How many planets do we need if everybody lives like you?

When is your personal Overshoot Day?

TAKE THE FIRST STEP



<https://www.footprintcalculator.org/en>





Great Swamp Watershed Association

Protecting the waters of the Passaic River region, from source to sea.

