WATER RESOURCE MANAGEMENT

Reclaimed Water for Beneficial Reuse in NJPDES

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May 14, 2024

What are we going to talk about today?

- Water reuse basics
  - Water cycle and global water availability
  - NJ water withdrawals
  - USEPA perspective
  - Resources
- New Jersey's drought history
  - How drought response influenced program
  - History of reuse permitting
- How reuse is permitted today
- What does this mean for NJ?
  - Reuse statistics and examples

Photo: Watershed at Atsion Lake in Wharton State Forest by J Douglas, NJDEP

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REUSE BASICS

Reclaimed Water for Beneficial Reuse in NJPDES

Reuse Basics – The Water Cycle

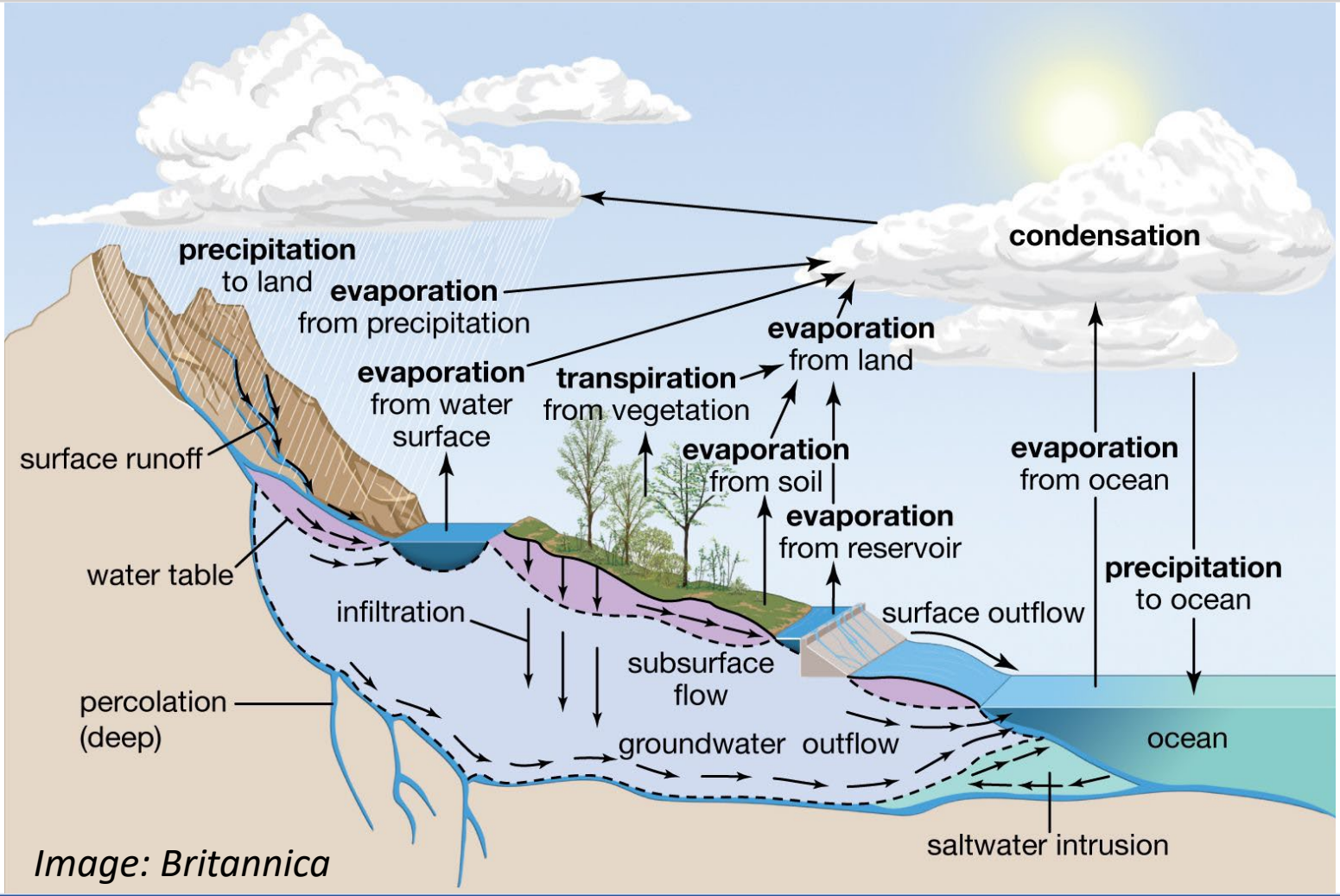

Image: Britannica

Reuse Basics – Global Water Availability

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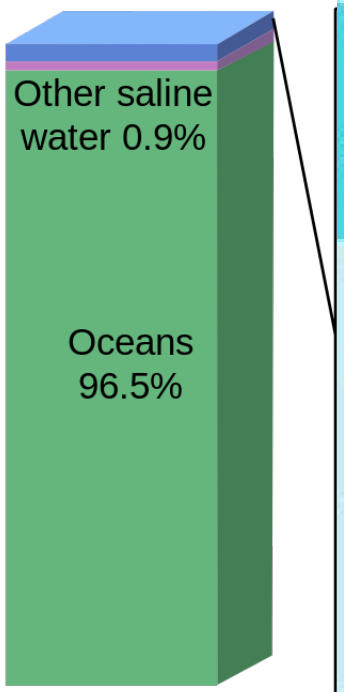
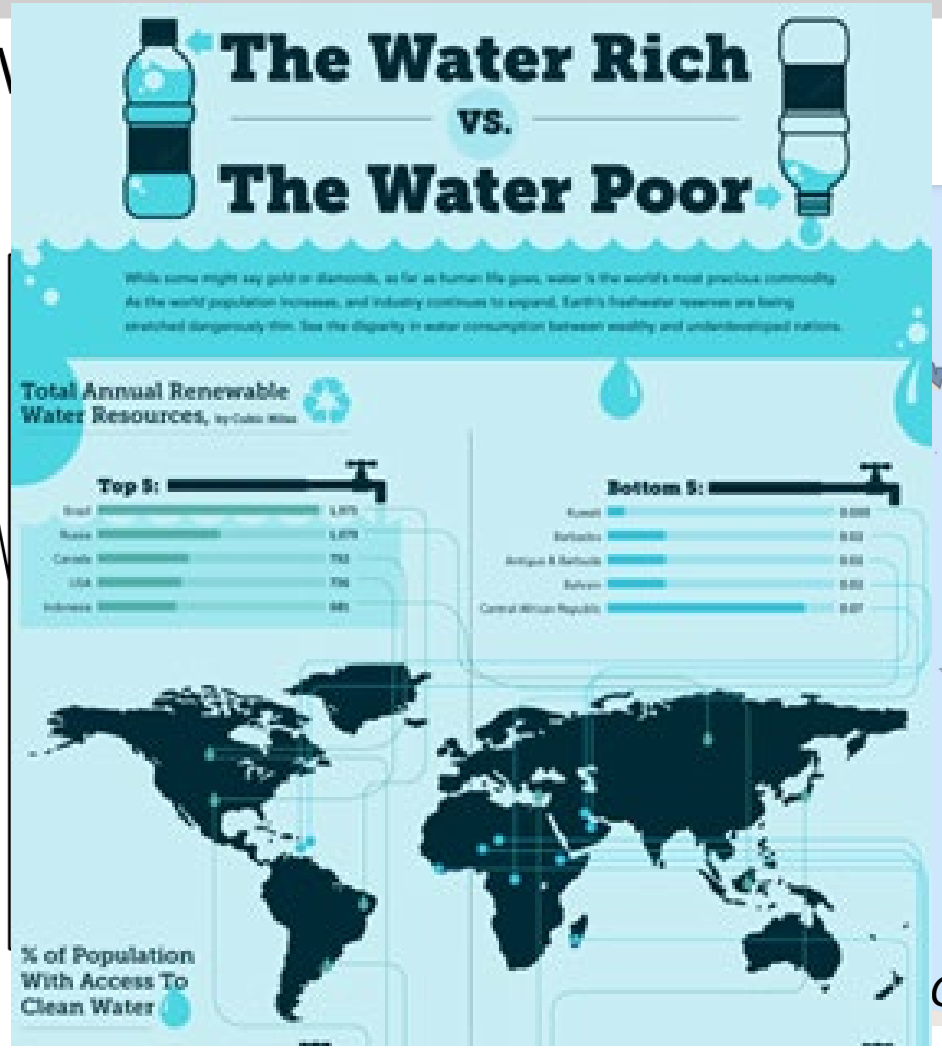
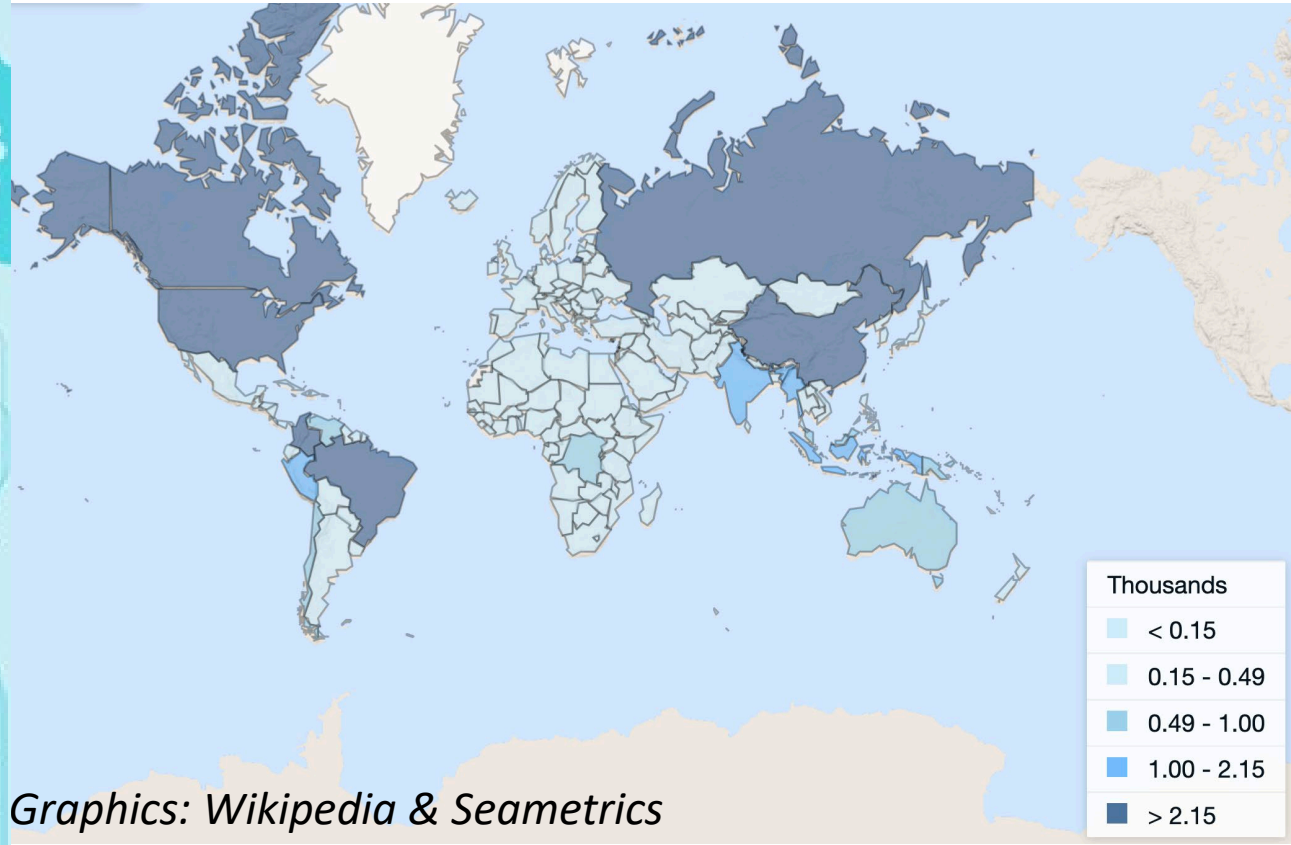
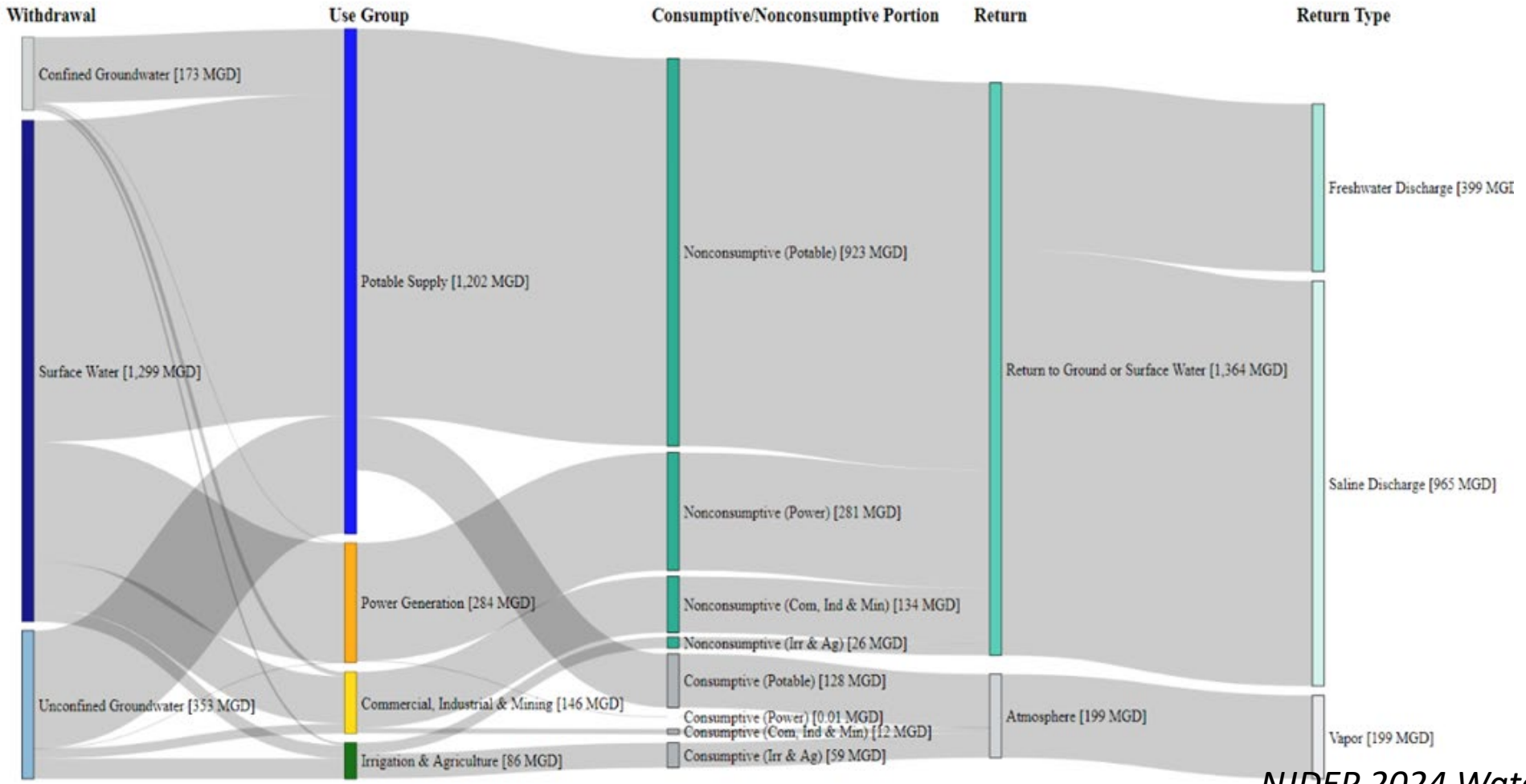






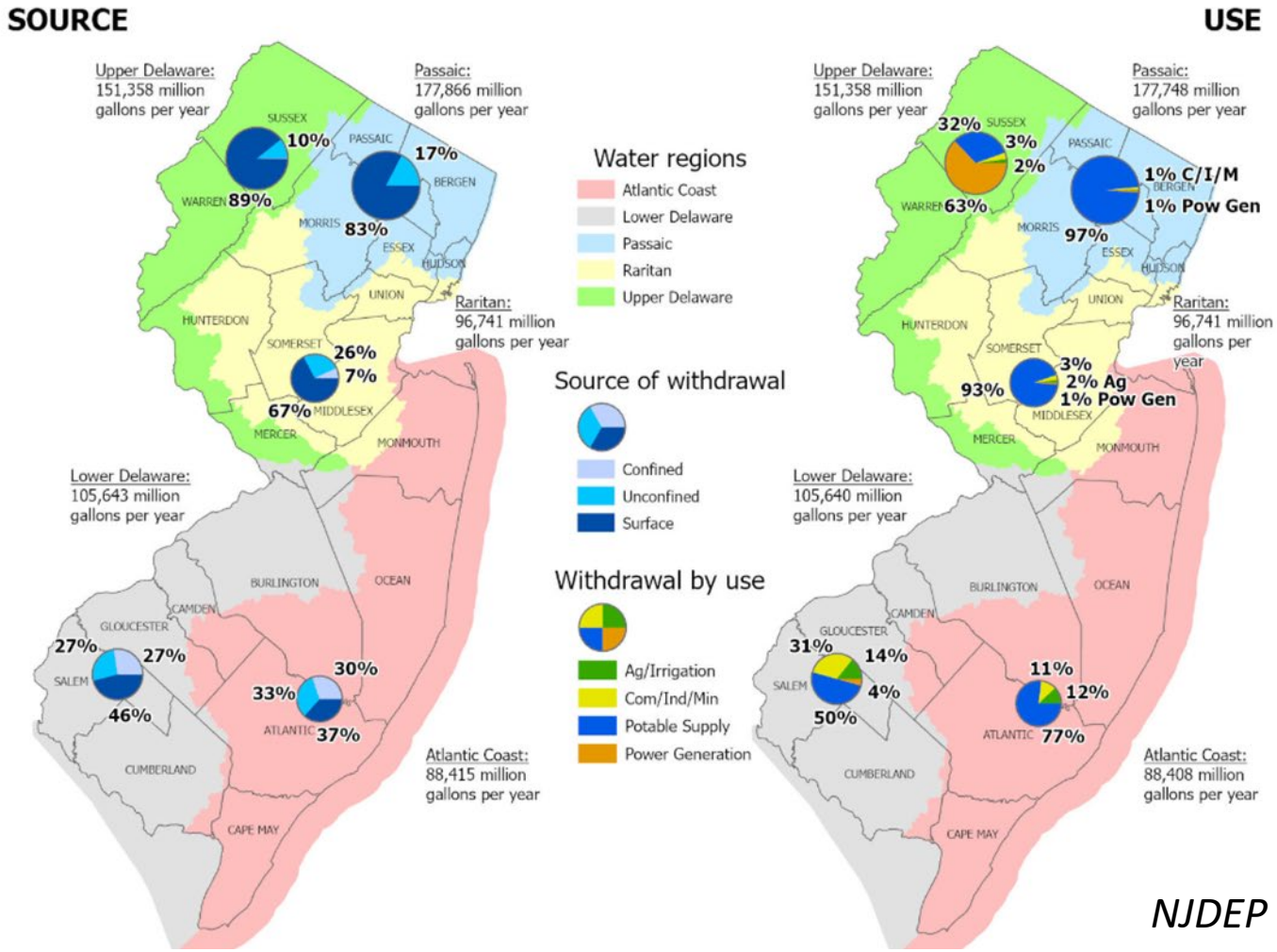
Graphics: Wikipedia & Seametrics

Reuse Basics – NJ Water Withdrawals



NJDEP 2024 Water Supply Plan Draft

Reuse Basics – NJ Water Withdrawals



NJDEP 2024 Water Supply Plan Draft

Reuse Basics - USEPA

- Water recycling = Water reclamation = Beneficial reuse
- Planned vs unplanned
  - “Fit for purpose”
- USEPA does not regulate reuse directly
  - States have primacy
  - Safe Drinking Water Act and Clean Water Act as foundation
  - NJPDES allows RWBR

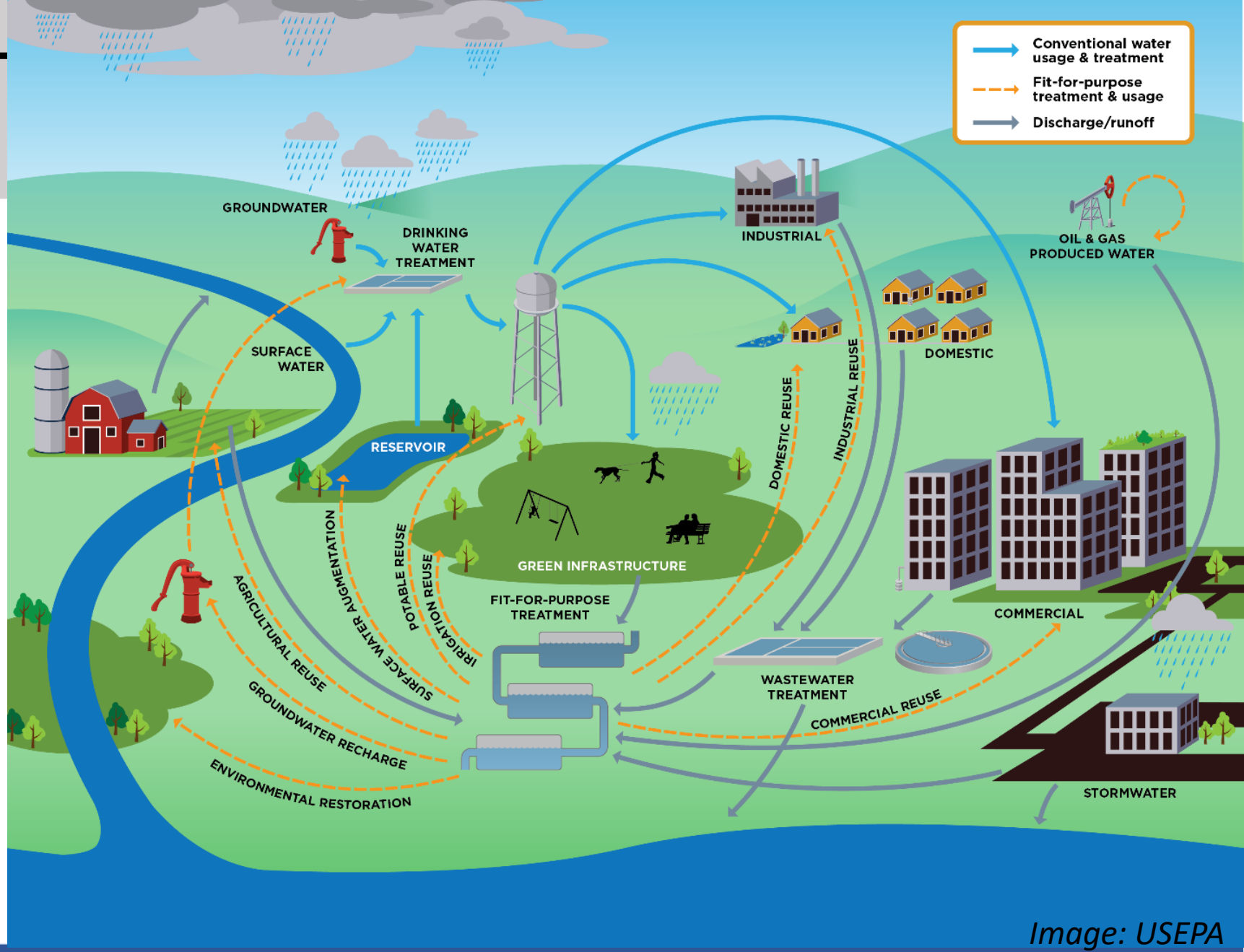


Image: USEPA

Reuse Basics – Resources

- USEPA 2017 Potable Reuse Compendium
- USEPA REUSExplorer
  - Recent use regs in western states (relatively water poor)
    - Example: CO's Direct Potable Reuse Regs - Factsheet
- USEPA Water Reuse Interagency Working Group
  - Comprised of senior reps across the fed gov; partner with industry, research, NGOs
  - Water reuse as a tool applied on a watershed scale
  - National Water Reuse Action Plan (est. 2020)
  - Early participation by water poor states with increasing participation by water rich states
- WateReuse Association
  - Symposiums, membership, resources

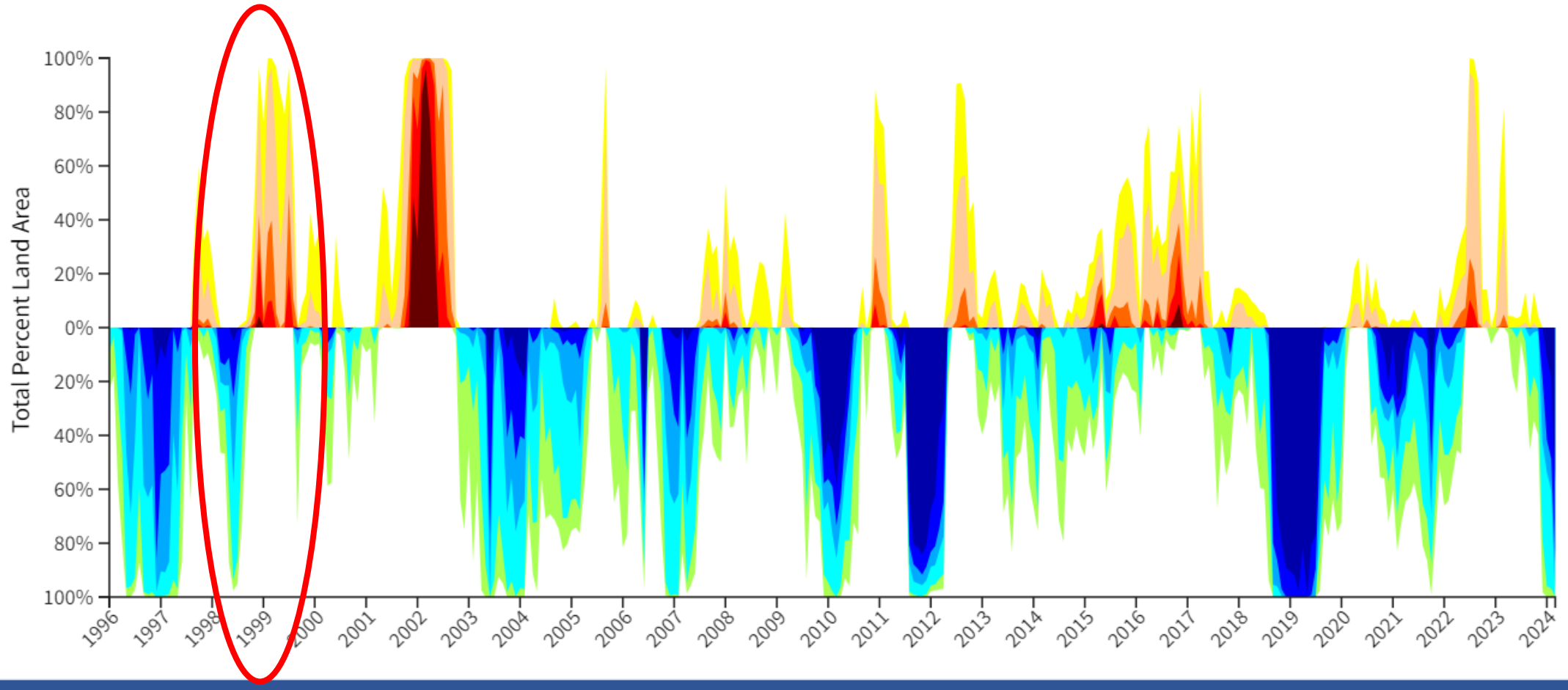
WATER RESOURCE MANAGEMENT

NJ's DROUGHT HISTORY

Reclaimed Water for Beneficial Reuse in NJPDES

New Jersey: Historic Drought Conditions

New Jersey | Drought.gov



Administrative Orders in 1999

- Mandatory Restrictions: The following uses of water are prohibited:
  - Watering of lawns
  - Washing of vehicles
  - Street Sweeping
  - Flushing of sewers
  - Watering for outdoor recreation and ornamental fountains
  - Other uses
- *How could the lost water be replaced?*

Photo: City of Lambertville, Facebook

Administrative Orders 1999 – NJPDES

- Section III – Authorized domestic treatment works (DTW) to use final treated effluent which meets all of its New Jersey Pollutant Discharge Elimination System (NJPDES) permit requirements as a substitute for potable water sources
- DTW had to be in compliance with its NJPDES permit
- DTW had to obtain written approval from the NJPDES program

Administrative Orders 1999 – Reuse

- **Recommendations:**
  - Street sweeping,
  - Non-edible crops,
  - Golf courses,
  - Roadside plantings
  - Mobile fire protection
- Note: No runoff or ponding or contact/inhalation of water vapor

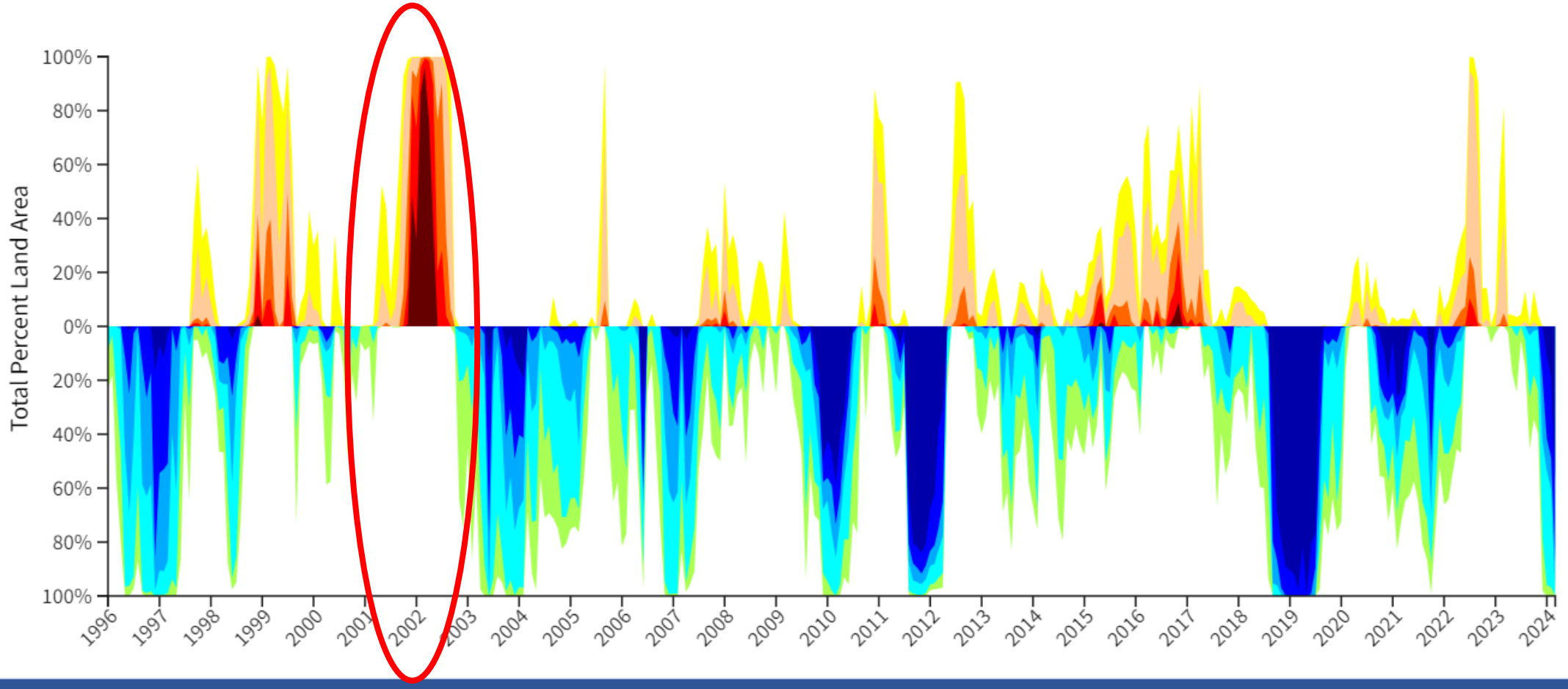
- **Prohibitions:**
  - Residential lawns,
  - Recreational areas
  - Indoor use
  - Edible crops or
- Anywhere there is a high probability of immediate human contact

Administrative Orders 1999 – Other Restrictions

- Several Key Words are Used:
  - Can only be sprayed in areas and at times of limited or no **public access**
  - Signage is required.
  - The DTW must track the user, date of pick up, number of gallons and location of **disposal**.
  - **Reuse** of final treated effluent shall not be considered a basis for increasing capacity for the DTW.

NJPDES Response in 1999

Another Drought in 2002



Reuse Manual

- Specifies reuse requirements
- Source of Permit language
- Lists Uses, Operation requirements and Limitations
- Guidance on Reuse Feasibility Studies

NJPDES Next Response – General Permit

- General permit for reuse, the ABR was effective June 2006
- General permit issued only for **Restricted access**:
  - Sanitary sewer jetting
  - Street sweeping
  - Industrial processes
- The ultimate goal was to incorporate reuse into individual permits

Photo: Tuckahoe Turf Farms website

Reuse Regulations NJAC 7:14A-2.15

- Effective January 2009
- Defines Restricted Access as any activity where the possibility of human exposure is limited
- Defines Public Access as any activity where the possibility of human exposure is high
- Lists what an application should include

Photo: NJDEP

WATER RESOURCE MANAGEMENT

HOW REUSE IS PERMITTED TODAY

Reclaimed Water for Beneficial Reuse in NJPDES

NJPDES Permanent Response – Individual Permits

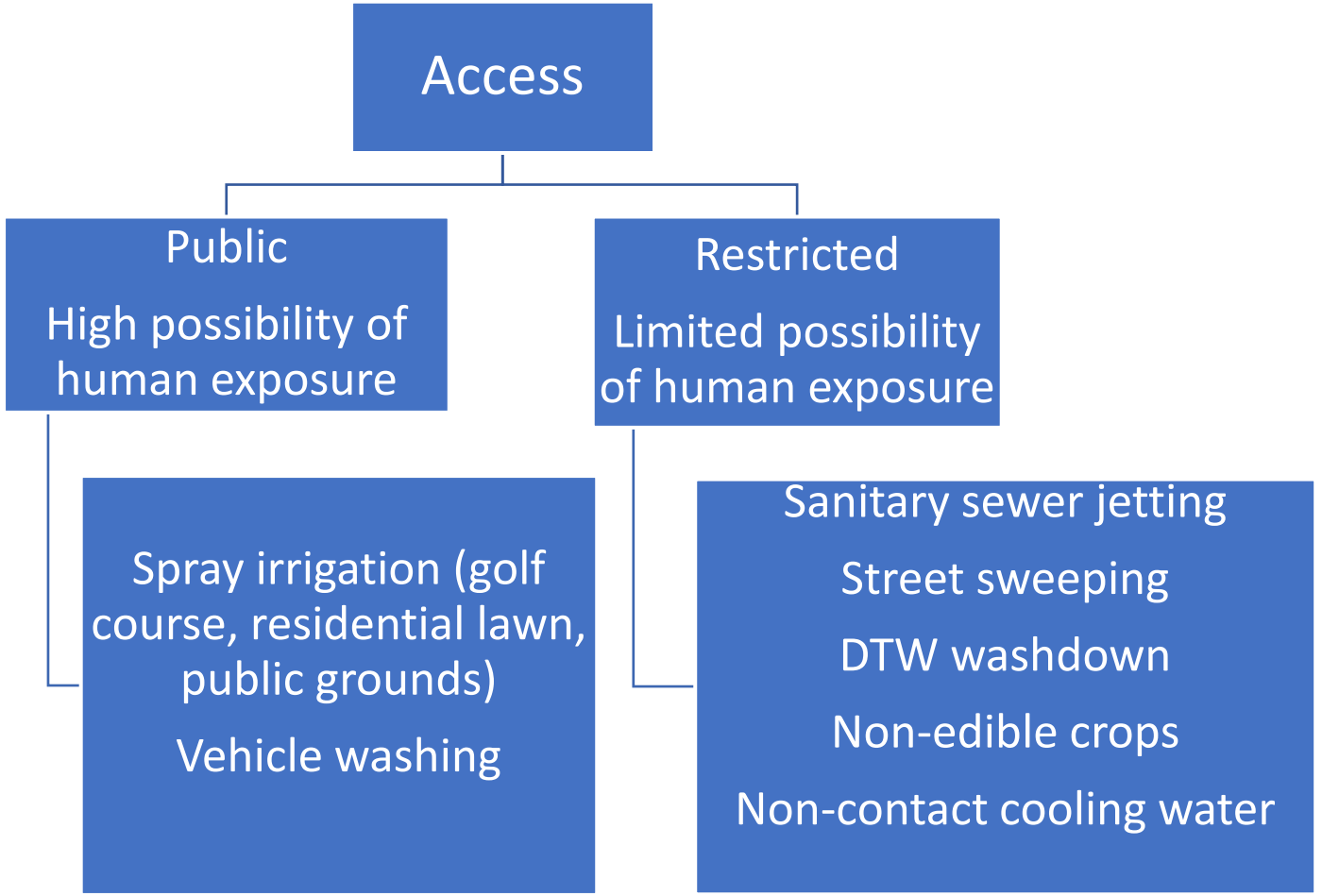
- Reuse requirements were put into individual permits as they were renewed
- If the facility is reusing, the requirements become active upon issuance
- If the facility is not reusing, the requirements remain in the permit but inactive. They can be activated when the DTW determines they have a need
- Two types: Restricted access and Public access
- Public Access requires more disinfection and more monitoring (e.g., bacterial indicator is 2 orders of magnitude more protective)
- Annual reports were required

Image: CMCMUA website

Individual Permits: Types of Reuse - Uses

- Defines access as public or restricted; acceptable uses

Image: Google Gemini



Individual Permits: Types of Reuse – Operations

Public Access

- Operations Protocol - How the facility is operated to ensure standards are met. A detailed set of instructions for operators.
- User/Supplier Agreement
- Annual Report

Restricted Access

- Standard Operations Procedure – Written to assure proper disinfection
- User/Supplier Agreement
- Annual Report

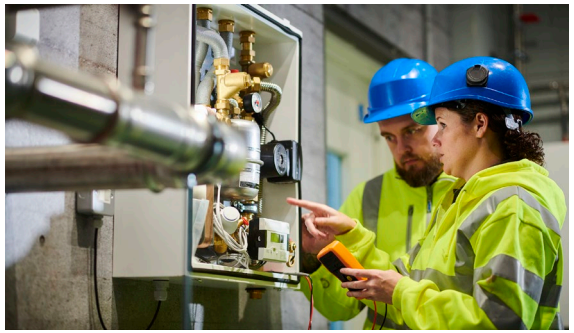


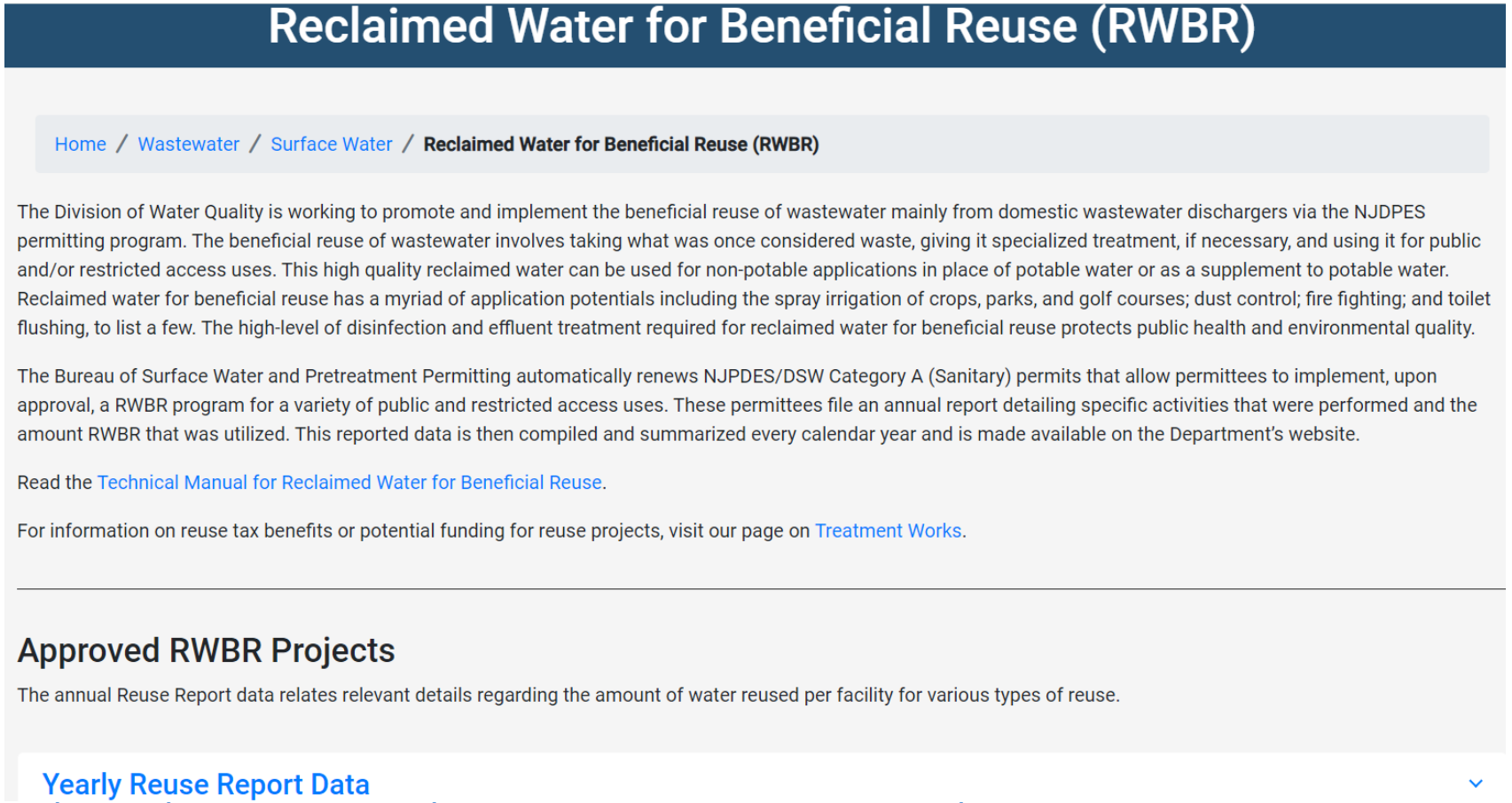
Photo: Getty Images

WATER RESOURCE MANAGEMENT

WHAT DOES THIS MEAN FOR NJ?

Reclaimed Water for Beneficial Reuse in NJPDES

Division of Water Quality RWBR Website



Reclaimed Water for Beneficial Reuse (RWBR)

Home / Wastewater / Surface Water / **Reclaimed Water for Beneficial Reuse (RWBR)**

The Division of Water Quality is working to promote and implement the beneficial reuse of wastewater mainly from domestic wastewater dischargers via the NJDPES permitting program. The beneficial reuse of wastewater involves taking what was once considered waste, giving it specialized treatment, if necessary, and using it for public and/or restricted access uses. This high quality reclaimed water can be used for non-potable applications in place of potable water or as a supplement to potable water. Reclaimed water for beneficial reuse has a myriad of application potentials including the spray irrigation of crops, parks, and golf courses; dust control; fire fighting; and toilet flushing, to list a few. The high-level of disinfection and effluent treatment required for reclaimed water for beneficial reuse protects public health and environmental quality.

The Bureau of Surface Water and Pretreatment Permitting automatically renews NJPDES/DSW Category A (Sanitary) permits that allow permittees to implement, upon approval, a RWBR program for a variety of public and restricted access uses. These permittees file an annual report detailing specific activities that were performed and the amount RWBR that was utilized. This reported data is then compiled and summarized every calendar year and is made available on the Department's website.

Read the Technical Manual for Reclaimed Water for Beneficial Reuse.

For information on reuse tax benefits or potential funding for reuse projects, visit our page on Treatment Works.

Approved RWBR Projects

The annual Reuse Report data relates relevant details regarding the amount of water reused per facility for various types of reuse.

Yearly Reuse Report Data

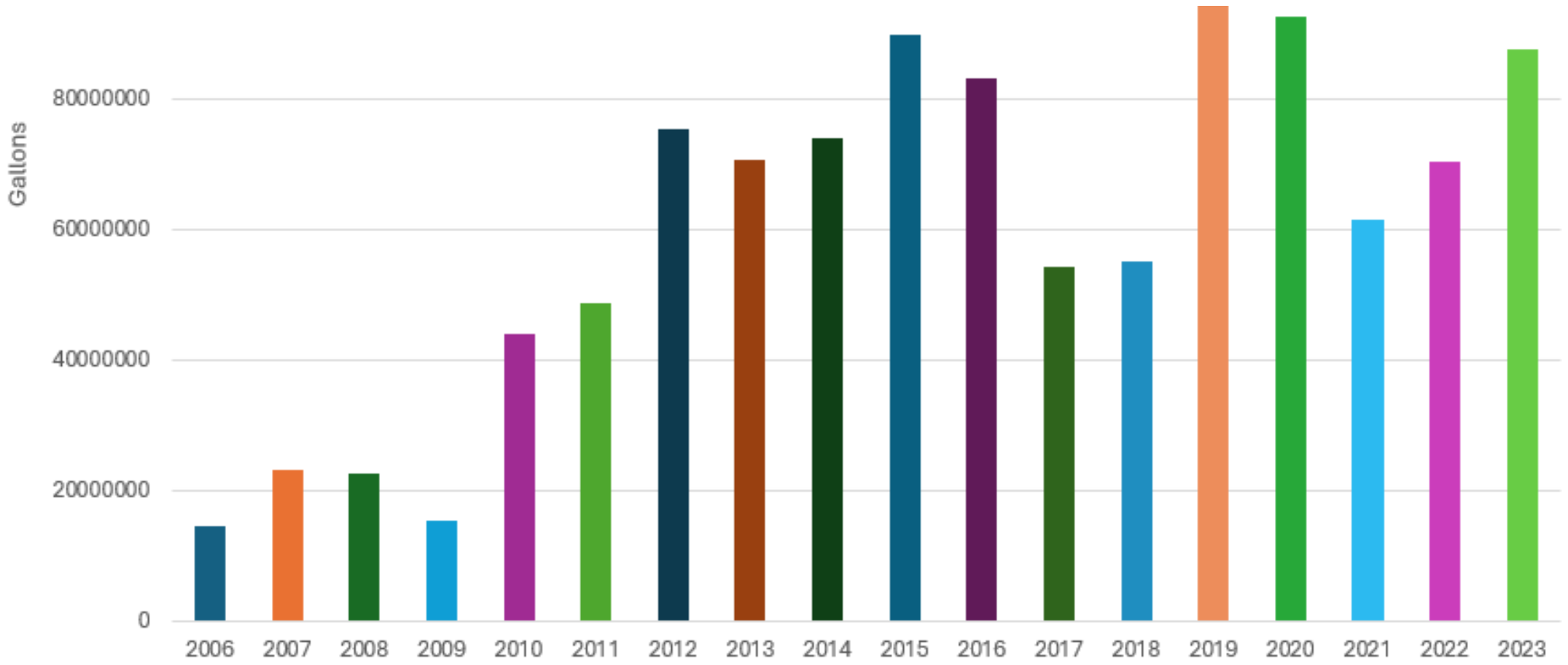
https://dep.nj.gov/dwq/wastewater/surface-water-discharge/reclaimed-water-for-beneficial-reuse-rwbr/

Public Access Project - Indian Springs Golf Course

Photo: Indian Springs website

- Public Access Reuse Since 2006
- Effluent from Evesham MUA - Elmwood
- Uses 10M to 20M gallons/yr; averages about 17M gallons/yr

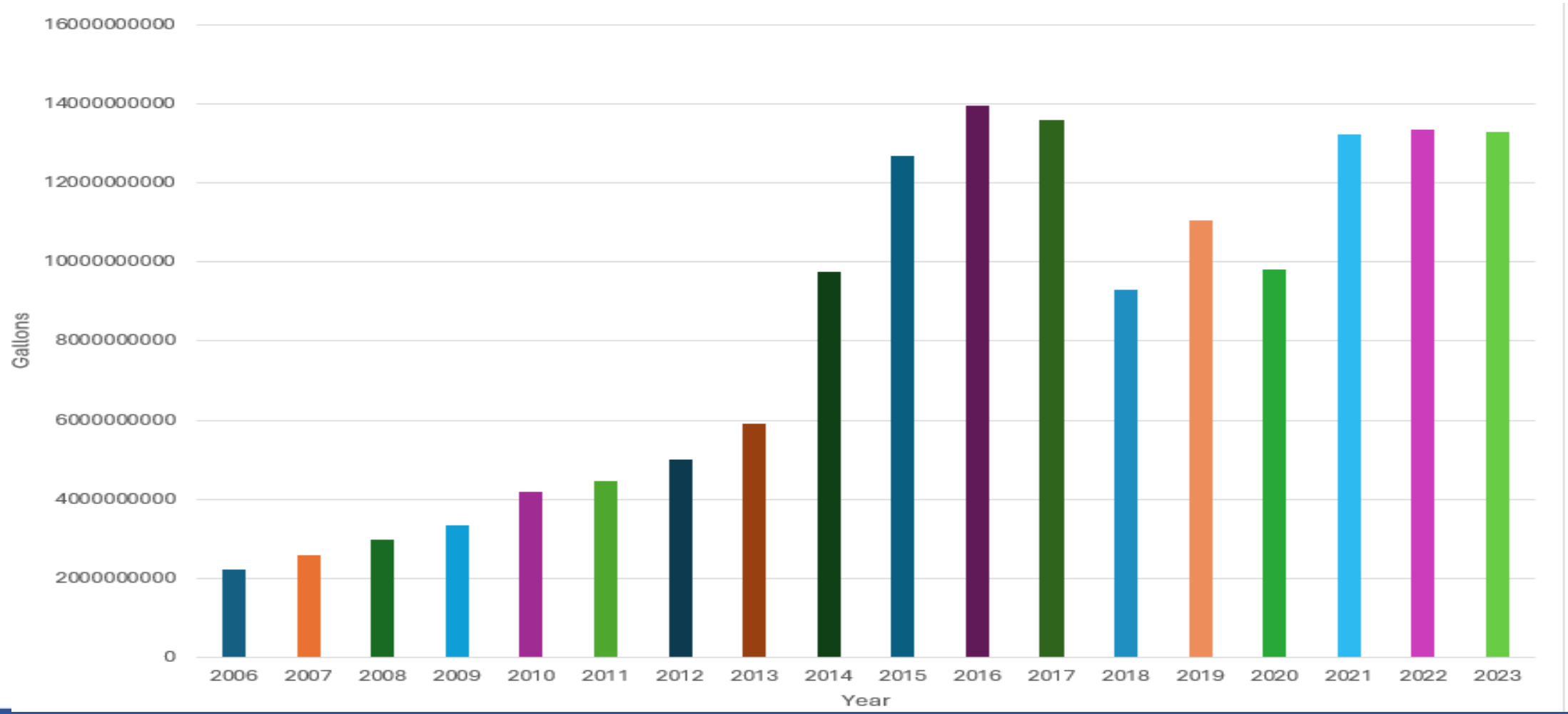
Public Access from 2006 - 2023



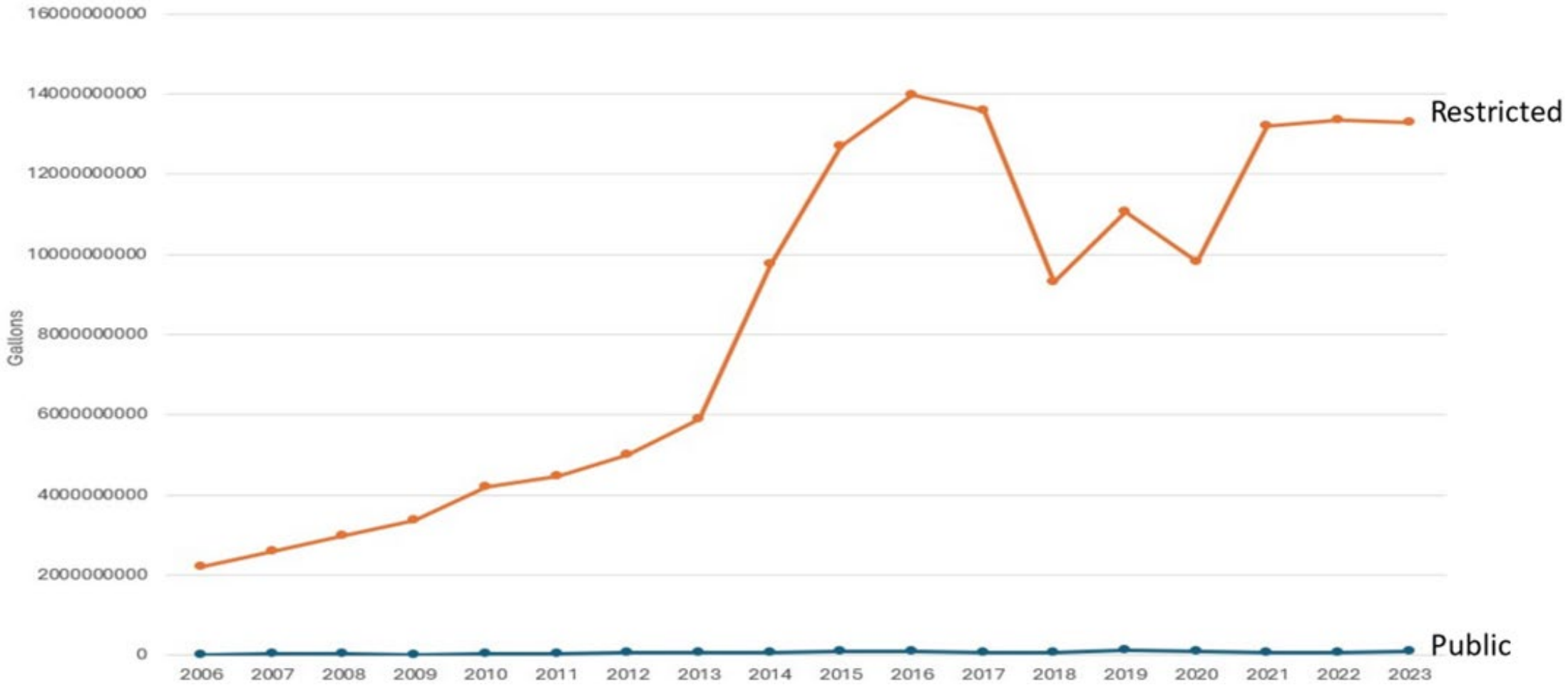
Restricted Access Project – Parkway Generation & Linden Generating Station

- Restricted Access Reuse Since 2006
- Effluent from Linden Roselle Sewerage Authority
- Uses 300M to 1.6B gallons/yr; averages about 1.1B gallons/yr

Restricted Access from 2006 - 2023



Restricted and Public Access Comparison 2006 - 2023



THANK YOU!

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