Wastewater Treatment at Newtown Creek
Wastewater Resource Recovery Facility (WRFF)

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Total Dry Weather Capacity:

**New York City:**
1.8 bgd

**Newtown Creek:**
310 mgd
Wastewater Treatment Process

Dry Weather:

Wet Weather (Combined Sewer Overflow):

[Diagram showing wastewater treatment process under dry and wet weather conditions]
Step 1: Screening

Gravity pushes sewage through metal bars, spaced 1-inch apart.

Bar screens help remove large debris (cans, bottles, rocks, sticks, leaves, and more).
Step 2: Main Sewage Pumps

- **Manh-Pump Station**
  - 400 MGD

- **BQ Pump Station**
  - 700 MGD
  - 400 MGD
Primary settling allows solids to settle on the bottom and floatables (such as plastic) to be removed from the waste stream.
Step 3: Primary Treatment

Sewage flows into large tanks where it slows down and begins to settle. Gravity and specific gravity provide treatment.

Heavy items, like sand and gravel, settle out to the bottom of the tank (called grit).

Lighter items with a specific gravity lower than water, like cooking oils and grease, float to the top of the tank (called floatables).

Both the grit and floatables are removed and sent to a landfill.
Step 4: Aeration

Naturally occurring bacteria eat the organic material in the sewage. We **add air** to help these **aerobic bacteria** eat more and grow faster.
Step 5: Final Settling

The sewage slows down again in large tanks – **gravity** settles the heavy bacteria to the bottom.

Now, the settled bacteria and remaining water go separate ways.

*Flocced bacteria under a microscope*
Step 6: Disinfection

The water flows next into a chlorination tank.

**Sodium hypochlorite** (NaClO), same as bleach, is added to the water to kill any remaining bacteria.

This chemical process is called **oxidation**. The added chemical has one sodium (Na) atom, one chlorine (Cl) atom, and one oxygen (O) atom.
All odorous air is passed through virgin carbon adsorbers that filter out any odors before being discharged through tall stacks.
Sludge from eggs is transported via marine vessel to WRRFs with dewatering for further processing into biosolids.

New sludge dock and 3 new motorized barges
Safety Briefing
Before Tours