What is a Combined Sewer Overflow?

The majority of New York City's sewer system is combined, which means it is used to convey both sanitary and storm flows. Sometimes, during heavy rain and snow storms, combined sewers receive higher than normal flows. Treatment plants are unable to handle flows that are more than twice their design capacity and when this occurs, a mix of excess stormwater and untreated wastewater discharges directly into the city's waterways at certain outfalls to prevent upstream flooding. This is called a combined sewer overflow (CSO). CSOs are a concern because of their effect on water quality and recreational uses in local waterways.
Combined Sewer Overflows in New York City

Combined Sewer Overflow (CSO) Volumes

- **Tier 1** = 50% of Total CSO Volume
- **Tier 2** = 20% of Total CSO Volume
- **Tier 3** = 10% of Total CSO Volume

Signs are placed near every CSO outfall location.
Various Ongoing & Completed CSO Projects

- Paerdegat Basin CSO Retention Facility
- Gowanus Canal Pump Station & Flushing Tunnel
- Flushing Bay CSO Retention Facility
- English Kills In-Stream Aeration
Current Water Quality Standards

### New York State Saline Surface Water Quality Standards

<table>
<thead>
<tr>
<th>Class</th>
<th>Bacteria (when disinfection is practiced)</th>
<th>Dissolved Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Coliform</td>
<td>Fecal Coliform</td>
</tr>
<tr>
<td>SA</td>
<td>Median ≤ 70 MPN/10 mL</td>
<td>–</td>
</tr>
<tr>
<td>SB</td>
<td>Monthly median ≤ 400/100 mL, 80% ≤ 500/100 mL</td>
<td>Monthly geometric mean ≤ 200/100 mL</td>
</tr>
<tr>
<td>SC</td>
<td>Monthly median ≤ 400/100 mL, 80% ≤ 500/100 mL</td>
<td>Monthly geometric mean ≤ 200/100 mL</td>
</tr>
<tr>
<td>I</td>
<td>Monthly geometric mean ≤ 10,200/100 mL</td>
<td>Monthly geometric mean ≤ 2,000/100 mL</td>
</tr>
<tr>
<td>SD</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

**SA Shellfish**

The best usage of Class SA waters are shellfishing for market purposes, primary and secondary contact recreation and fishing. These waters shall be suitable for fish propagation and survival.

**SB Bathing**

The best usage of Class SB waters are primary and secondary contact recreation and fishing. The waters shall be suitable for fish propagation and survival.

**SC Bathing/Fishing**

The best usage of Class SC waters is fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use of these purposes.

**I Boating/Fishing**

The best usage of Class I waters are secondary contact recreation and fishing. These waters shall be suitable for fish propagation and survival.

**SD Fish Survival**

The best usage of Class SD waters is fishing. These waters shall be suitable for fish survival. This classification may be given to those waters that because of natural or man-made conditions, cannot meet the requirements for primary and secondary contact recreation and fish propagation.
Nine Elements of a Long Term Control Plan*

Characterization, monitoring, and modeling of the combined sewer system

Public participation

Consideration of sensitive areas

Evaluation of alternatives to meet CWA requirements

Cost/performance considerations

Operational Plan

Maximizing treatment at the existing wastewater treatment plant

Implementation schedule

Post-construction compliance monitoring program

* As defined by EPA CSO Control Policy
NYC's Combined Sewer Areas and LTCP Waterbodies

- Coney Island Creek
- Hutchinson River
- Westchester Creek
- Bronx River
- East River and Open Waters
- Flushing Bay
- Flushing Creek
- Alley Creek
- Gowanus Canal
- Newtown Creek
- Jamaica Bay and Tributaries
- Coney Island Creek

Legend:
- Combined Sewer Watersheds
- Other (Separate Sewers, Direct Drainage, Unsewered Areas)