



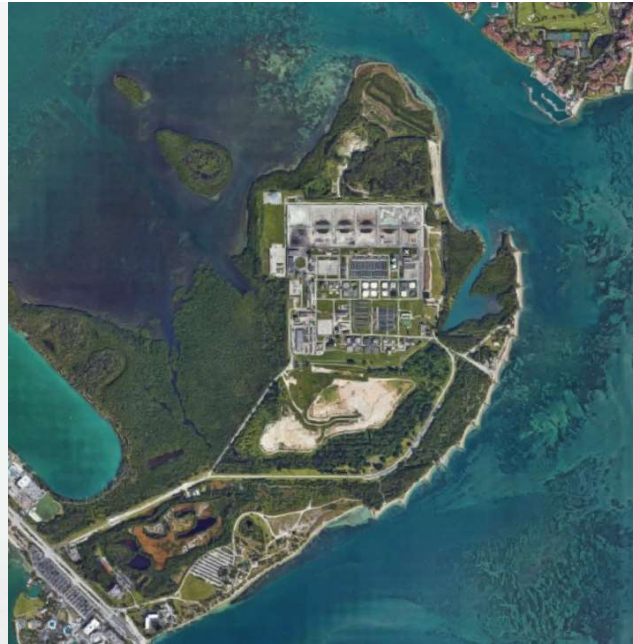
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Coastal flooding and critical infrastructure

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Floods + wastewater infrastructure

- 16,000 centralized wastewater systems serving 74% of the US population
- Most plants located at low elevation near the coastline
- Flooding can lead to the release of untreated sewage to waterways

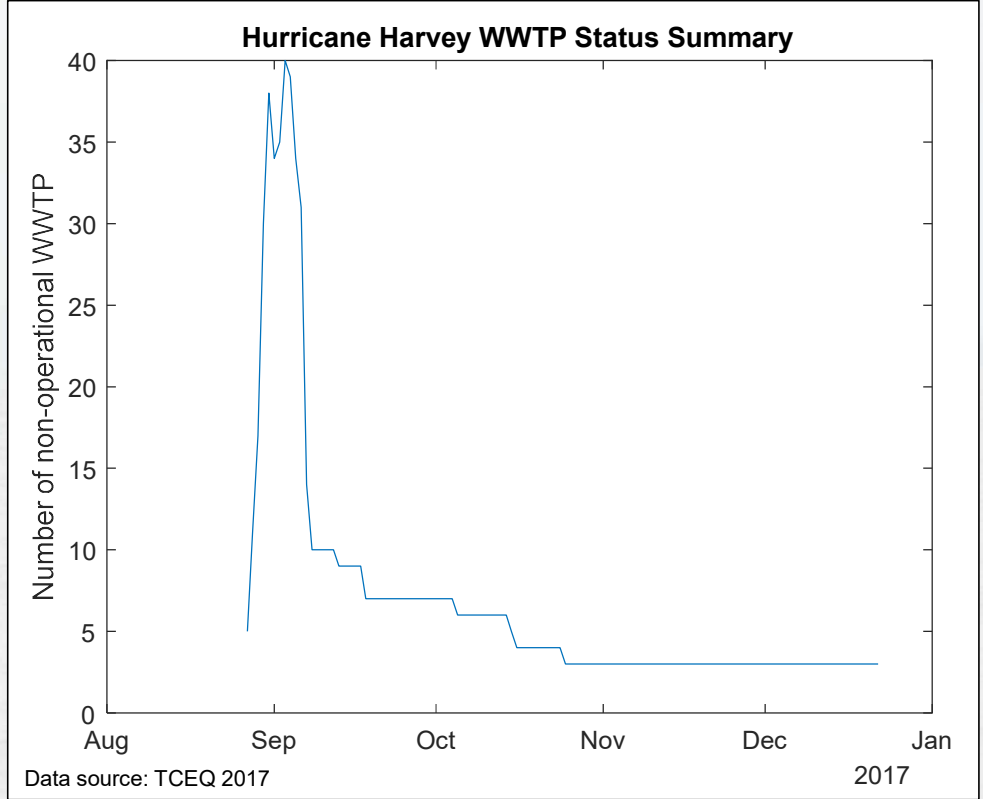


Image source: City of Houston Emergency Operations Center



wastewater treatment plants
exposed to SLR-induced flooding

	1ft	2ft	3ft	4ft	5ft	6ft
Maine	5	5	6	10	13	17
New Hampshire	2	2	3	3	3	4
Massachusetts			4	7	7	10
Rhode Island			1	1	2	4
Connecticut	4	7	9	11	14	17
New York	4	10	14	22	37	47
New Jersey	8	16	19	28	36	41
Delaware	1	1	3	3	5	6
Pennsylvania						
Maryland	2	8	9	16	20	22
Washington, D.C.						
Virginia	2	2	3	4	5	6
North Carolina	1	3	6	9	12	13
South Carolina	1	3	4	6	7	8
Georgia	1	3	4	8	8	9
Florida	2	6	14	28	36	41
Alabama						2
Mississippi	1	1	2	2	4	4
Louisiana	6	12	16	21	34	38
Texas	7	13	19	24	30	34
California	8	13	15	23	34	36
Oregon	2	2	4	7	11	13
Washington	4	4	7	12	18	22
Total	60	110	162	245	336	394

Data source: Hummel et al. (2018); Basemap source: Google Earth



Image source: Putneypics via Flickr; Duke Energy; MassDOT via Flickr; TEPCO

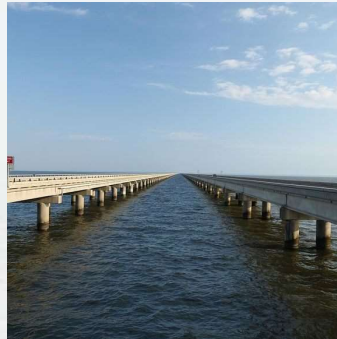
What can we do?

- For individual facilities:

Protect



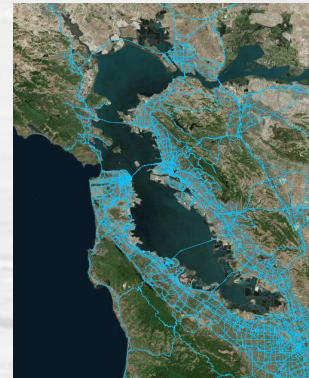
Accommodate



Relocate



- For infrastructure networks:
 - Build redundancy into the system



Resources

- Hummel MA, Berry MS, Stacey MT (2018) Sea level rise impacts on wastewater treatment systems along the U.S. coasts. *Earth's Future* 6(4), 622-633.
<https://doi.org/10.1002/2017EF000805>
- Fox, A. (2017), Sea level rise may swamp many coastal U.S. sewage plants, *Eos*, 98, <https://doi.org/10.1029/2017EO088905>. Published on 13 December 2017.

