

Open Your Class With This Tomorrow- Upstream: The Quest to Solve Problems Before They Happen

Problem-Based Learning for Upstream Thinking

Directions: Climatologists now have the ability to predict how hurricanes may impact certain areas. Examine the data below and then try to identify ways in which the city of New Orleans can properly prepare for the next hurricane by saving property, infrastructure, and, most importantly, lives.

When brainstorming solutions, consider the following:

1. How will you get the right people involved?
2. How will the change be received?
3. Is the change reasonable and cost-effective?
4. How will you know if this proposal is successful?

Organization of the response

Create a three-pronged approach regarding how to best protect the citizens of New Orleans.

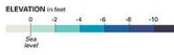
1. Your first paragraph should contain a thesis identifying the three-prongs.
2. Each paragraph should explain one of the strategies, including the information below, as well as your own information. The body paragraphs should also contain an acknowledgment of why some people might not fully agree with this approach.
3. The last paragraph should recap your proposals and summarize your arguments.
4. Please incorporate at least three of the following barriers to problem-solving into your response (availability heuristic, representativeness heuristic, anchoring heuristic, functional fixedness, mental set, creating unnecessary constraints, irrelevant information).

Simulated Data from climatologists	Actual Results from Hurricane Katrina
20 inches of rain	18 inches of rain
City of New Orleans under 10 to 20 feet of water	Up to 20 feet of flooding in some areas of New Orleans
Overtopping of the levees	Levees breached
Over 55,000 people were in public shelters prior to landfall	About 60,000 people were in public shelters prior to landfall
Over 1.1 million Louisiana residents displaced	1 million Gulf Coast residents displaced (mostly from Louisiana)
786. 359 people in Louisiana lost electricity at the initial impact	881,400 people in Louisiana reported without power the day after the impact

Chart from Health, D (2020). *Upstream: The quest to solve problems before they happen*. Avid Reader Press, New York, N.Y. page 216.

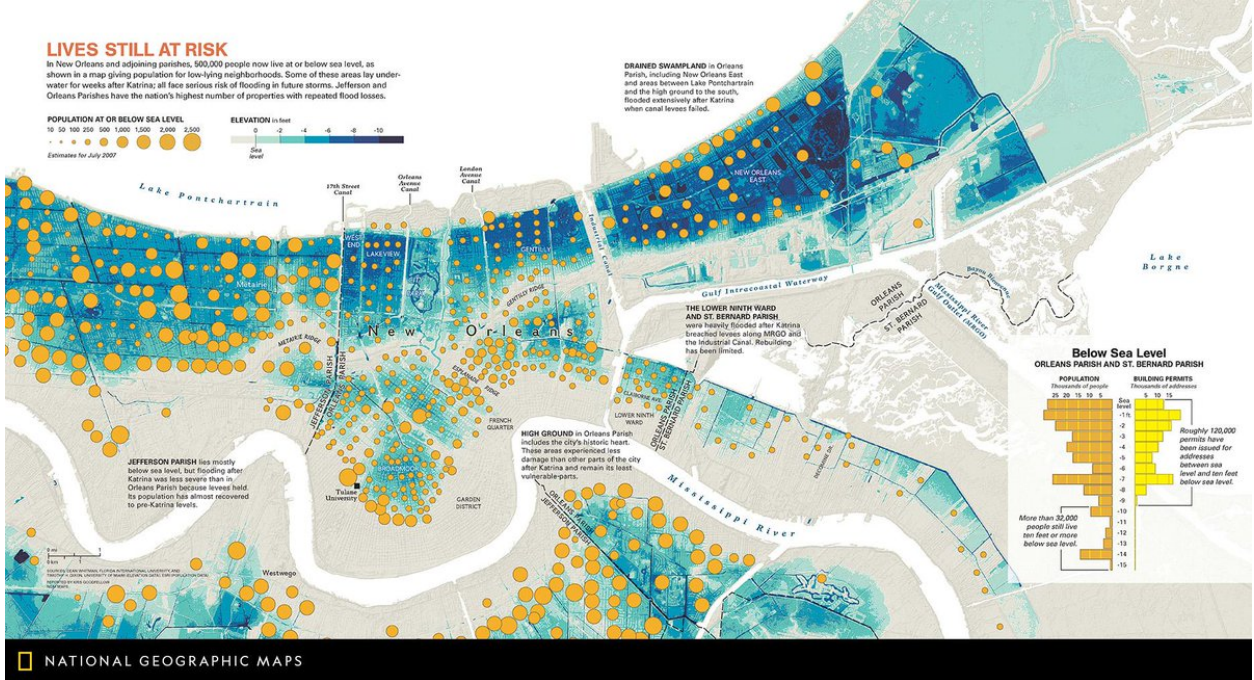
LIVES STILL AT RISK

In New Orleans and adjoining parishes, 500,000 people now live at or below sea level, as shown in a map giving population for low-lying neighborhoods. Some of these areas lay underwater for weeks after Katrina; all face serious risk of flooding in future storms. Jefferson and Orleans Parishes have the nation's highest number of properties with repeated flood losses.



Estimate for July 2007

DRAINED SWAMPLAND in Orleans Parish, including New Orleans East and areas between Lake Pontchartrain and the high ground to the south, flooded extensively after Katrina when canal levees failed.



JEFFERSON PARISH has mostly recovered after Katrina was less severe than in Orleans Parish because levees held its population has almost recovered to pre-Katrina levels.

HIGH GROUND in Orleans Parish includes the city's historic heart. These areas experienced less damage than other parts of the city after Katrina and remain at least water-tolerant.

THE LOWER NINTH WARD AND ST. BERNAUD PARISH were heavily flooded after Katrina breached levees along MRGO and the Industrial Canal. Rebuilding has been limited.

Below Sea Level

