



Twitter: @aaronhuertas

CaterCommunications.com

[aaron@catercommunications.com](mailto:aaron@catercommunications.com)

ScienceCommunicationMedia.com

Trellis (AAAS)

Facebook - PCST: The Global Network  
for Science Communication

**NWQMC Webinar Series:  
Using the Right Tools to Develop  
Effective Science-Based Messages  
for Any Audience**



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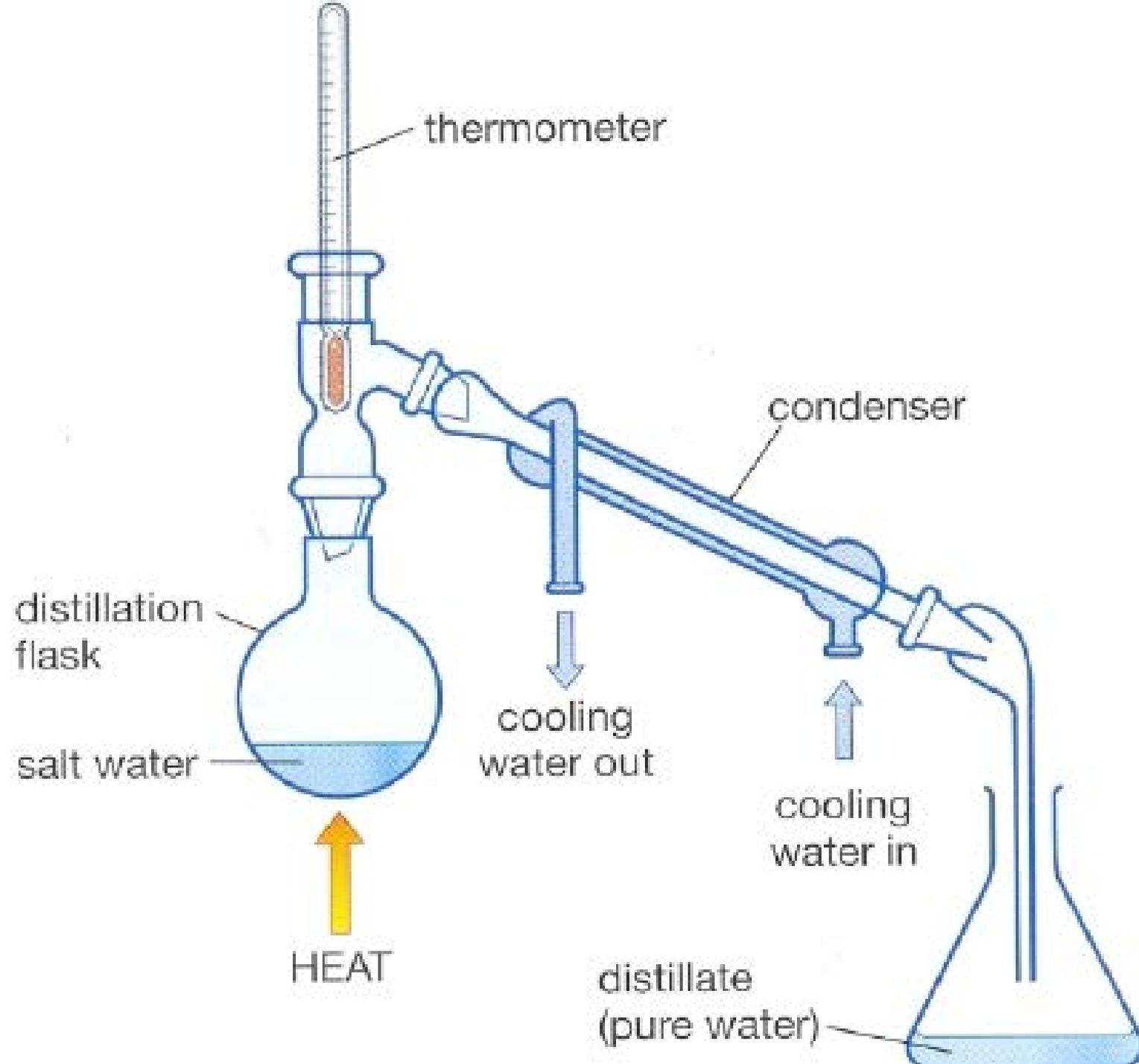
Union of  
**Concerned Scientists**  
Science for a healthy planet and safer world



OPPORTUNITIES TO USE  
REMOTE SENSING  
IN UNDERSTANDING  
**Permafrost** AND  
RELATED ECOLOGICAL CHARACTERISTICS

Report of a Workshop





Guidance



1	APPETIZERS
2	SOUPS/SALADS
3	PASTA
4	SIDE DISHES
5	MAIN DISH
6	MEAT/CHICKEN
7	SEAFOOD
8	MARINADES
9	DESSERTS/BREADS
10	DRINKS

# Organization

# How Did the Flint Water Crisis Happen?

by [Cynthia Gordy](#)

ProPublica, Jan. 25, 2016, 11:35 a.m.

Comments |  E-mail |  Print

The water crisis in Flint, Michigan – in which the city’s drinking water became contaminated with lead, bacteria and other pollutants – has come to national attention in recent weeks. President Obama declared a federal emergency in Flint, freeing up \$5 million in federal aid, but Flint’s water problems have been unfolding for almost two years.

 Tweet

 Like 0

Ron Fonger, reporter for The Flint Journal and MLive, has been writing about the water contamination since 2014, when the city began using the Flint River as its water source. From covering city council meetings and town hall forums, where almost immediately residents complained about discolored, tainted water, he has had a front-row seat to the crisis. On this week’s podcast, Fonger speaks with ProPublica editor-in-chief Stephen Engelberg about what caused the problem, who dropped the ball, and what happens next.



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ProPublica

How Did the Flint Water Crisis Happen?

 SOUNDCLLOUD



Share



18:38

▶ 1.8K

Interesting and Memorable





## **A basic message template:**

- Here's what we know.**
- Here's what's new.**
- Here's why it matters.**

## **In science terms:**

- The basic science.**
- The new finding.**
- The implications for scientists or society.**

**BASIC SCIENCE:** The Caribbean has the 2<sup>nd</sup> highest rate of HIV in the world and it's the leading cause of death for people aged 20 to 59.

**FINDING:** Tourism areas combine a number of risk factors, including drug use, sex work and population mixing.

**IMPLICATION:** This finding can inform where we target HIV interventions.

**BASIC SCIENCE:** There are just as many people living in California as there are living in the Caribbean, but Caribbean countries have twice as many people living with HIV.

**FINDING:** HIV thrives where drugs, sex work and people come together and that's in major tourism areas.

**IMPLICATION:** We know that tourism hot spots are HIV hot spots, too.

# Policy-Focused Message Template

- **Problem:** What a project is trying to address.
- **Solution:** What research suggests can address the problem.
- **Action:** What steps or series of steps can flow from the studied solutions.
- **Benefits:** What societal goals could be served by following these actions.

**PROBLEM:** Low-income seniors are becoming more vulnerable to heat-related illness as the climate warms.

**SOLUTION:** We found that senior centers with strong community bonds are better able to respond to extreme heat.

**ACTION:** Buildings should come up with heat response plans and identify floor captains who can check on their neighbors.

**BENEFITS:** These plans can save lives at little to no cost.

**PROBLEM:** For many older Americans, summers are hotter than they remember and that can be dangerous for low-income seniors, in particular.

**SOLUTION:** Strong communities are safe communities and that's true when we're talking about extreme heat.

**ACTION:** It can be as simple as having floor captains who can check on their neighbors as part of a heat response plan.

**BENEFITS:** In the middle of a heat wave, a knock on someone's door can save a life.

Climate warming comes with: sea level rise, atmCO2 increases, and surface warming.  
And **oxygen loss in the deep sea** (see PLOS ONE article).

Recent deglaciation provides a laboratory to answer questions about how marine ecosystems respond and recover to climate change

This research reveals that previous oxygen loss wiped out seafloor biodiversity/abundance very quickly (decades-centuries), committing seafloor ecosystems to >1000 years of ecological recovery.

### The Problem

Ocean ecosystems take thousands of years to recover after they are disturbed by abrupt climate warming and oxygen loss in the deep sea.

Benefit?

So what?

Marine ecosystem recovery previous though to occur on 100 year timescales, this research extends that estimate by an order of magnitude.

The composition of deep-sea seafloor communities is really, really sensitive to relatively small changes in dissolved oxygen.

### Solutions

Short term: More comprehensive assessment of climate "commitment" impacts – i.e. what does permanent change look like to ecosystems/economies we "care" about.

Long term: GHG reduction. International action.  
Depoliticize climate science and solutions.

To science: Better understanding that climate-forced oceanographic change is essentially permanent (on a human timescales).

To climate change decision making: Adds to the very large body of evidence linking climate change to major/catastrophic risks to ecosystem and economies.

# COMPASS

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Why Science Needs Story



**HOUSTON,**

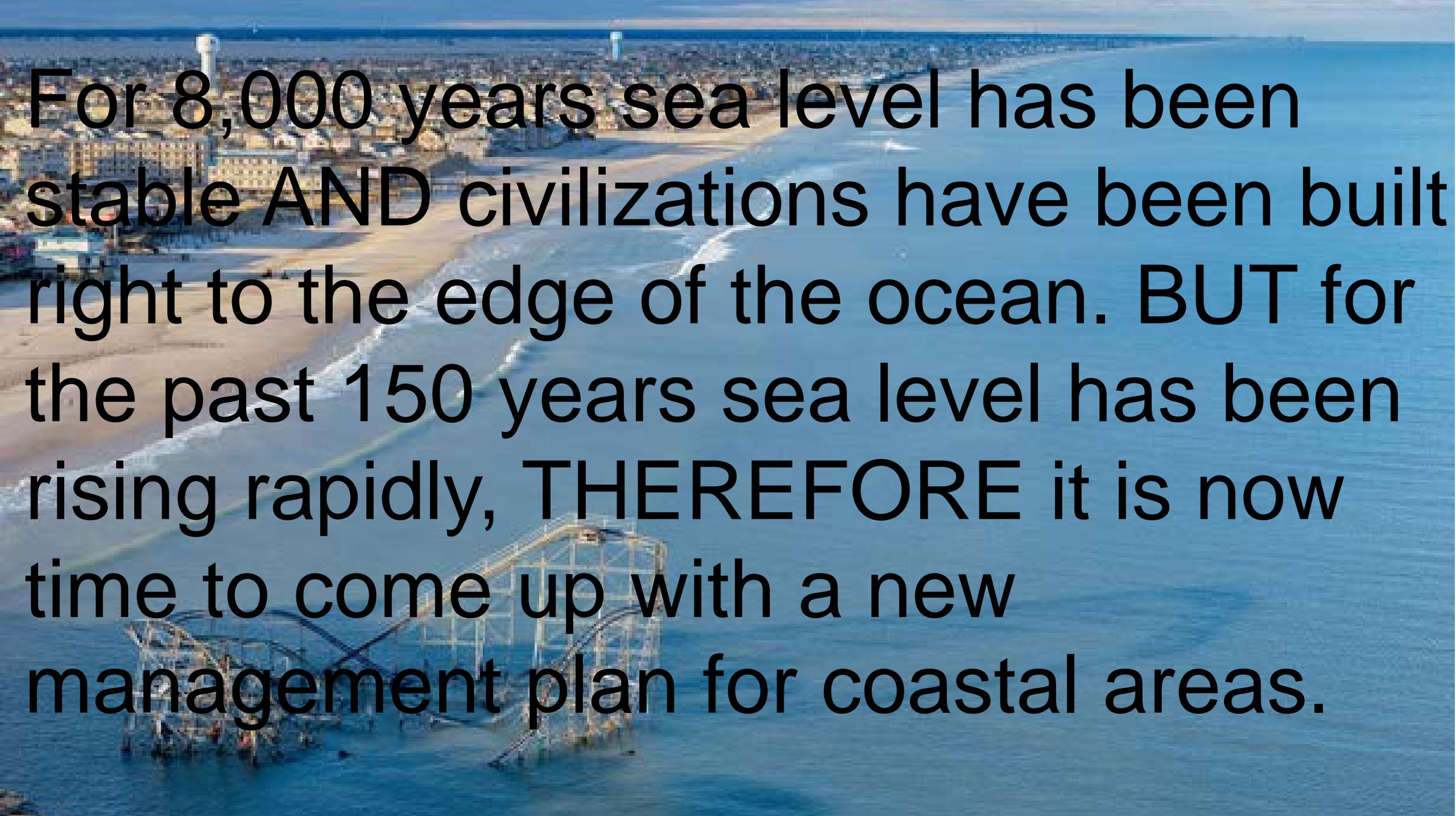
**WE HAVE  
A NARRATIVE**



**Randy Olson**

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An aerial photograph of a coastal city, likely Miami, showing a wide sandy beach, the ocean, and a city skyline in the background. The text is overlaid on the image.

For 8,000 years sea level has been stable AND civilizations have been built right to the edge of the ocean. BUT for the past 150 years sea level has been rising rapidly, THEREFORE it is now time to come up with a new management plan for coastal areas.

**Vaccines are widely  
administered AND no one  
questions them, BUT when my  
child received vaccines he  
became autistic, THEREFORE  
we need to be suspicious of  
vaccine**

My wife was getting ready to give a child a vaccine AND as she was pulling the shot into the syringe the child had a seizure BUT if the child's seizure had come after the shot, it would have been very difficult to convince the parents they weren't connected THEREFORE we can't trust anecdotes, we have to trust the scientific method.

AUTISM REVERSAL

- **Put your findings in perspective**
- **Metaphors and analogies**
- **Paint a picture**
- **Parallel structure and alliteration**
- **Social math**
- **Show a little emotion**
- **Cliches and cultural references**

Joyce Zhu, a doctoral student, went to collect samples at a Flint hospital, looking for signs of the bacteria that cause Legionnaires'. "When I turned on the tap, you see this corrosive, reddish, brownish tap water," she said. "It's that moment that made it so real." ("As Flint Fought to Be Heard, Virginia Tech Team Sounded Alarm," New York Times, [2/6/16](#))



**“Yes, and...” for brainstorming**  
**“No, but...” for crafting**



## SCIENCE ADVOCATES

WHY IS IT IMPORTANT THAT WE HAVE TRAPPED ANTIMATTER?

OH! IT HAS FUTURE APPLICATIONS IN PROPULSION, ENERGY CREATION, DATA TRANSMISSION, YOU NAME IT!

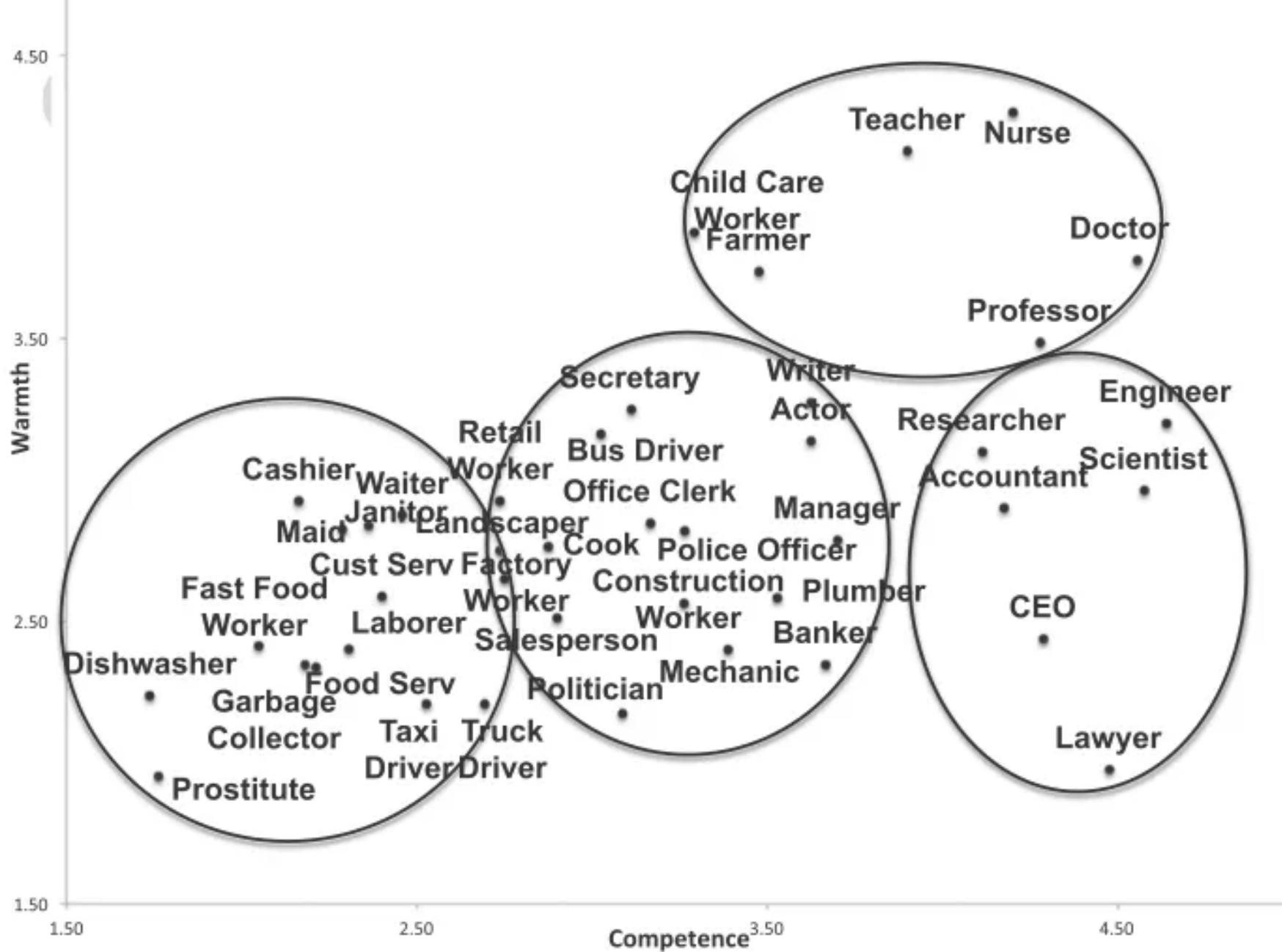


## SCIENTISTS

WHY IS IT IMPORTANT THAT WE HAVE TRAPPED ANTIMATTER?

BECAUSE IT'S @\$%^#!~ AWESOME.





"Gaining trust as well as respect in communicating to motivated audiences about science topics," was published online Sept. 16 in *PNAS*: [www.pnas.org/content/111/Supplement\\_4/13593.abstract](http://www.pnas.org/content/111/Supplement_4/13593.abstract)



**“Nothing shocks me. I’m a scientist.”**

# BE BRAVE.



THERE HAS NEVER BEEN A MORE IMPORTANT TIME TO BE  
A WELL-SPOKEN MEMBER OF THE SCIENTIFIC COMMUNITY.

@SARAHMYHRE AND @TESSA\_M\_HILL