



# Introduction to Research at the U.S. EPA

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**Office of Research and Development (ORD)**

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# EPA's Public Health Mission

**The mission of EPA is to protect human health and the environment.**

- **EPA is a public health agency**
- **Public health depends on ecological health**





## Mission for Research & Development

*Provide science and technology to support EPA's mission of protecting human health and the environment.*

Gulf Oil Spill



Bristol Bay, Alaska





# ORD: Advancing Environmental Science and Technology

## Responsive to Urgent Needs

- Hydraulic fracturing impacts
- Anthrax clean-up methods
- Oil spill in the Gulf of Mexico

## Innovative and Sustainable Solutions

- Sustainability decision support tools for communities and tribes
- Portable, miniature air pollution monitors for states, communities and citizen science
- Stormwater Calculator

## Leadership in Environmental Science

- Benefits of reducing greenhouse gases
- Evaluating chemicals using computational toxicology
- Use of indicators to inform environmental and human health

## Partnerships & Grants

- In-house research;collaboration with other agencies
- STAR Grants to universities
- Cooperative R&D agreements w/ companies
- Competitions and prizes
- International collaborations



# Aligning Research with EPA Strategic Goals

## Cross-Agency Strategies

## EPA Goals 2014-2018

## Research Programs

- Sustainable Future
- Visible Difference in Communities
- New Era of Partnerships
- High-Performing Organization

Addressing Climate Change and Improving Air Quality

Protecting America's Waters

Cleaning Up Communities and Advancing Sustainable Development

Ensuring the Safety of Chemicals and Preventing Pollution

Enforcing Laws, Ensuring Compliance

Air, Climate & Energy

Safe & Sustainable Water Resources

Sustainable & Healthy Communities

Chemical Safety for Sustainability

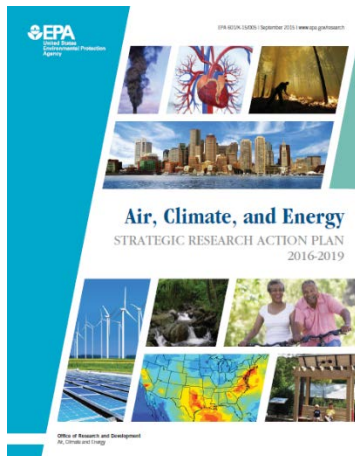
Human Health Risk Assessment

Homeland Security

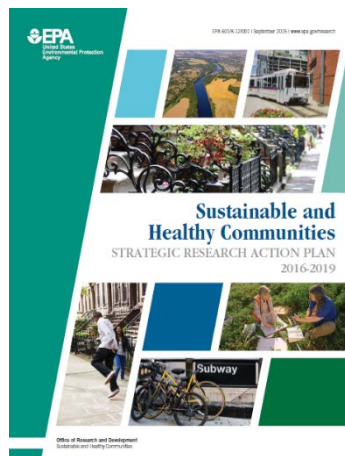


# Strategic Research Action Plans (StRAPs) 2016-2019

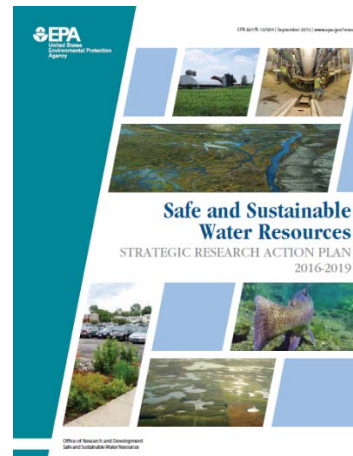
## Air, Climate & Energy



## Sustainable & Healthy Communities



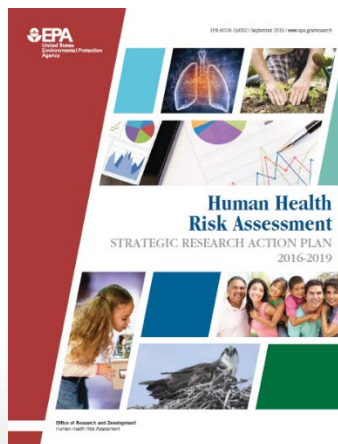
## Safe & Sustainable Water Resources



## Chemical Safety for Sustainability



## Human Health Risk Assessment



## Homeland Security





# ORD at a Glance

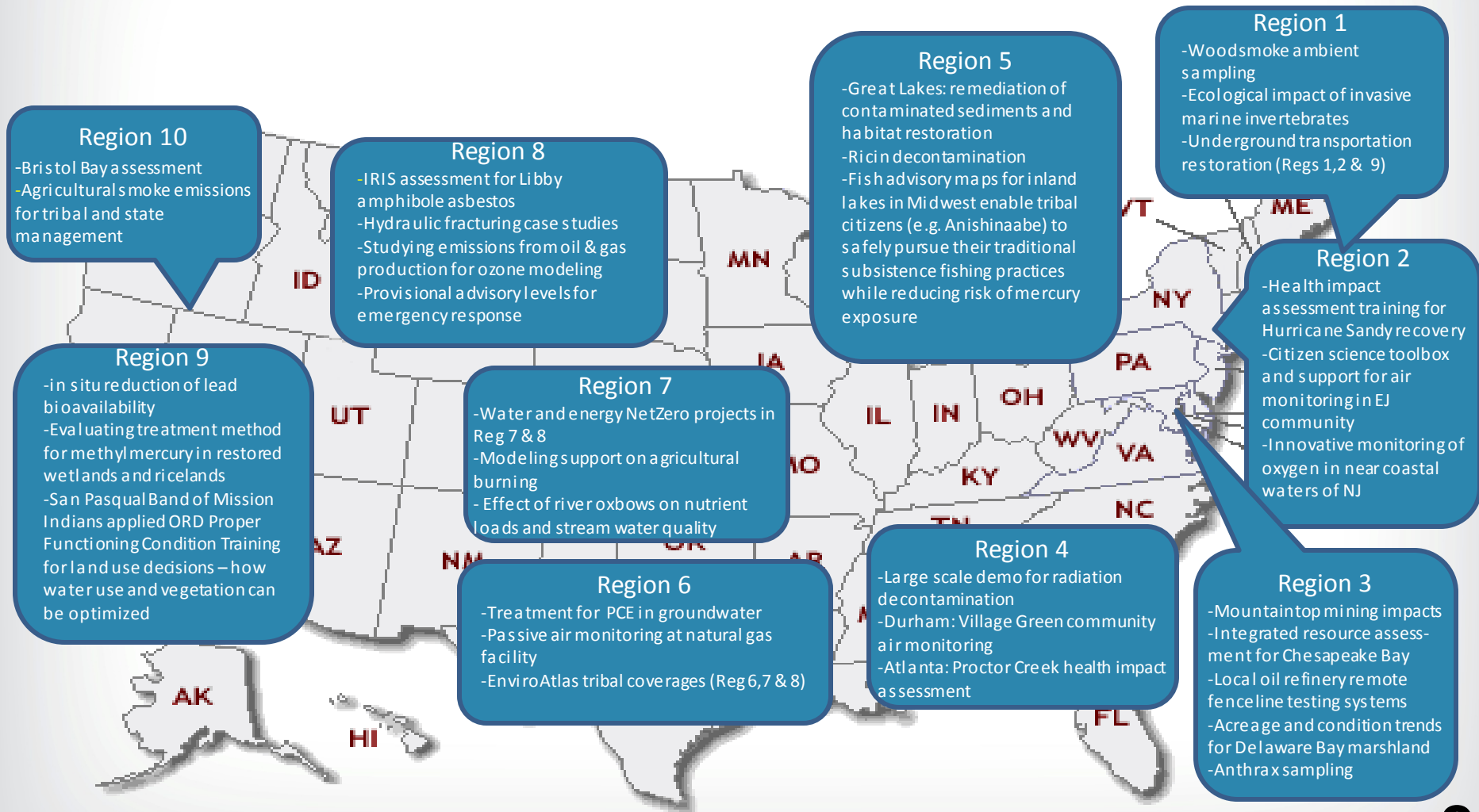
- **1,755 full time equivalents**
- **\$521 million budget**
  - **\$40 million extramural research grant program (STAR)**
  - **\$9 million STAR fellowship program**
- **13 lab or research facilities**

(FY 2015 Enacted Budget)





# ORD Regional Research







## Cross-Agency Strategy Making a Visible Difference in Communities

### Research Priorities

**Next generation air monitoring** – new Village Green stations in 6 locations, air sensors toolbox, citizen science air monitoring in EJ community (NJ), STAR grants to university/state/community partnerships for air monitoring

**Release of Community Focused Environmental Risk Screening Tool** – C-FERST, a community mapping, information access, and assessment tool designed to help assess risk and assist in decision making with communities

**Cumulative Risk** – Provide methods for cumulative, integrated place-based assessments of chemical and non-chemical stressors to reduce community environmental health risks (e.g., childhood lead modeling, asthma and mold)

**Health Disparities and Children's Environmental Health** – Strong partnerships with NIH to examine environmental health risks and disparities in most vulnerable populations

**EPA 51 communities** – ORD making commitments to a subset in early April



Village Green air monitoring station at the National Zoo in Washington DC



# Complex Public Health Issues

In order to solve these complex problems, we will need to use a systems approach:

- Understand the context of the problem
- Consider all of the many dimensions of a problem
- Understand that the ecosystem and human health are inherently connected.
  - The economy and human health and well-being cannot function without a healthy ecosystem.
  - Health is not just about health care (broader determinants of health)



## Cross-Agency Strategy

# State, Tribal, Local, International Partnerships

## Research Priorities

**Address state research needs** – work with ECOS and ERIS to

- Share information on ORD's scientific and technical capabilities and transfer knowledge
- Solicit input on how our tools, models, methods and research can be more relevant, useful and practical for states
- Extend more targeted outreach to state and local environmental health agencies



**Hydraulic fracturing study** – Brief states and tribes on draft assessment and HF study reports prior to release and coordinate messaging and next steps for the retrospective case studies.

**Tribal science** – Develop Tribally-focused assessment tools and approaches that incorporate traditional ecological knowledge

**China partnership** – Working with Ministry of Science and Technology on air, water, waste research projects

**Japan** – supporting the US-Japan Bilateral Commission on Civil Nuclear Cooperation decommissioning and environmental management working group.



# U.S. EPA Organizational Chart





# ORD Organizational Chart

## Immediate Office of the Assistant Administrator

Office of the  
Science Advisor

### National Program Directors

- Air, Climate & Energy
- Chemical Safety for Sustainability
- Safe and Sustainable Water Resources
- Sustainable and Healthy Communities
- Human Health Risk Assessment
- Homeland Security

### Headquarters Offices

Administrative offices  
Office of Science Policy– RSL/STL

### National Research Laboratories and Centers

Health and  
Environmental  
Effects Lab

Exposure  
Research  
Lab

Risk  
Management  
Lab

Environmental  
Assessment  
Center

Computational  
Toxicology  
Center

Homeland  
Security  
Center

Environmental  
Research  
Center