ATSDR Region 10 (AK, ID, OR, WA) and Children's Environmental Health

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Collaborative on Health and the Environment – Washington
Children's Environmental Health Working Group
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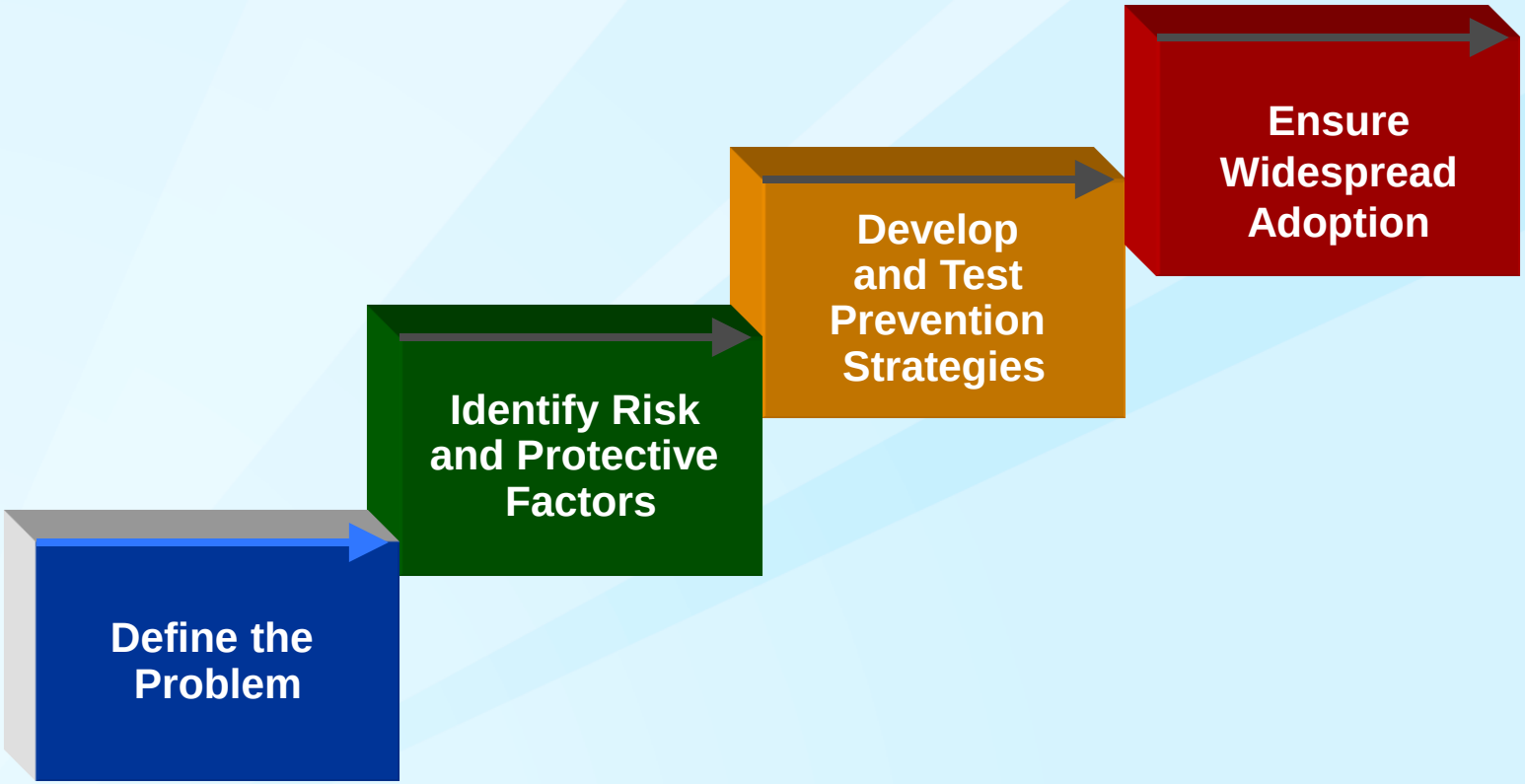
OUTLINE

1. What does ATSDR do?
2. How does ATSDR Region 10 work toward improving children's health?
3. Describe exposures and potential health effects at hazardous waste sites
4. Discuss challenges and opportunities

Public Health Approach to Prevention



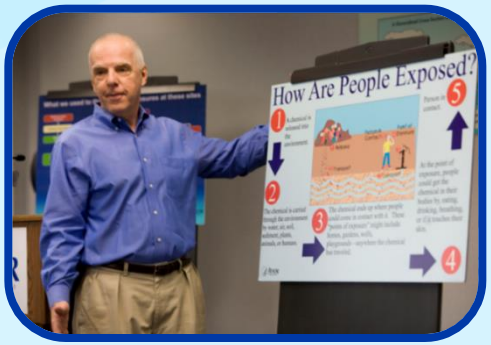
Who we are

- The Agency for Toxic Substances and Disease Registry is a federal public health agency.
- ATSDR's regional office reduces exposures to harmful substances in the environment and their health consequences by
  - Conducting site-based evaluations
  - Strengthening scientific capacity
  - Enhancing health education and outreach
  - Turning site-specific findings into national strategies

http://www.atsdr.cdc.gov/ (Mission of the Division

ATSDR…

- Responds to communities where people might be exposed to hazardous substances in the environment
- Determines how hazardous a site is or has been
- Recommends actions that need to be taken to safeguard the health of the community



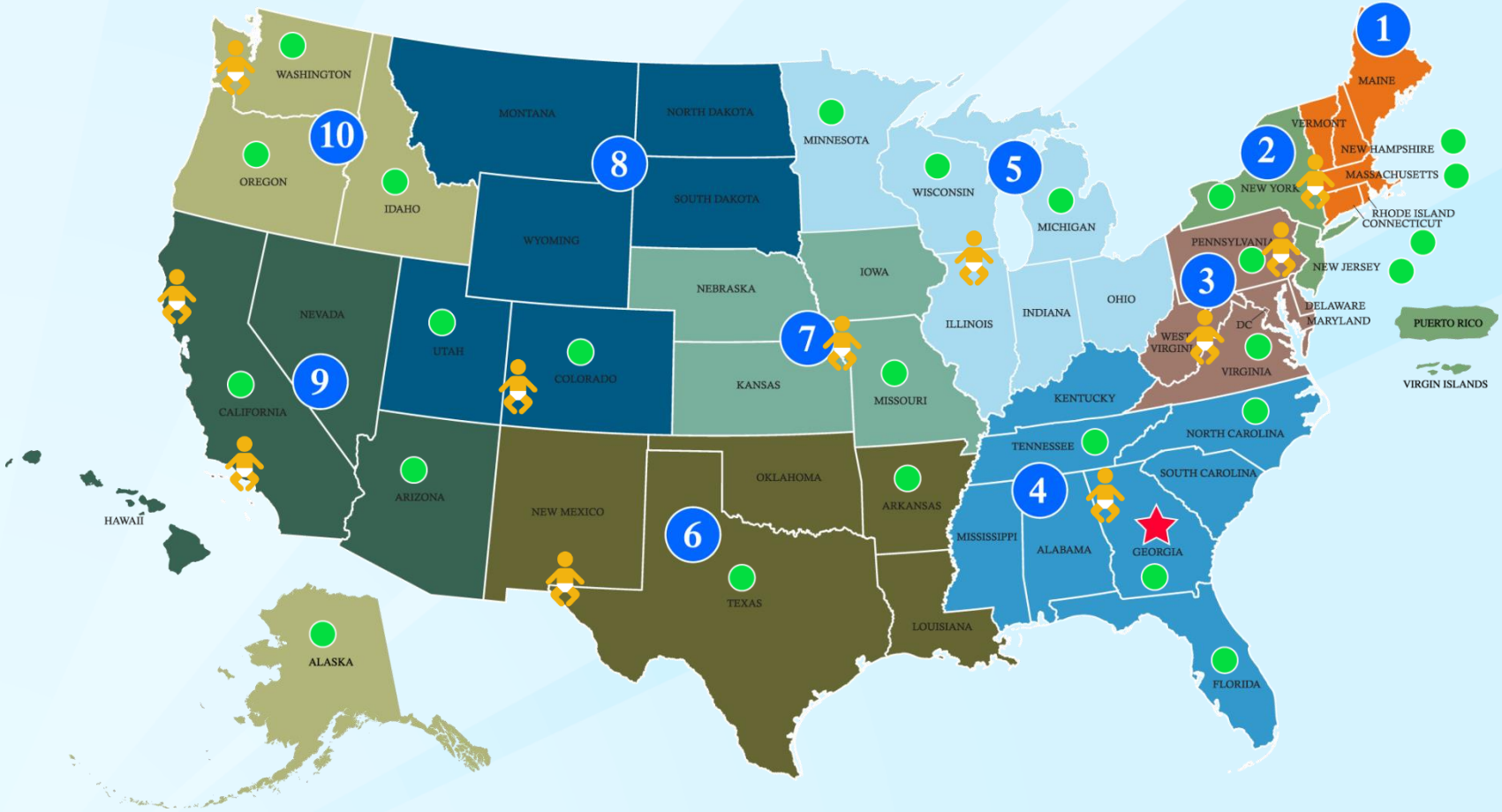
ATSDR… (continued)

- Educates communities nationwide about hazardous chemicals and substances
- Researches and publishes information on toxic substances
- Involves communities and tribes when responding to their environmental public health concerns
- Maintains exposure registries

How we get involved

- A site is on or proposed for the U.S. Environmental Protection Agency's Superfund National Priorities List (EPA's NPL)
- EPA, state agencies, and local governments request ATSDR's help
- A community or tribe petitions ATSDR to conduct an assessment of a site

ATSDR Programs and Staff



ATSDR Regional Offices

States Funded by Cooperative Agreement

Pediatric Environmental Health Specialty Units

ATSDR Partners

- State and local health departments
- Federal and state environmental agencies
- American College of Medical Toxicology
- Pediatric Env. Health Specialty Units
- Health care providers
- Poison Control Centers
- Academia
- Community members
- Tribal members and governments
- Private businesses

ATSDR's State Cooperative Agreement Program

- Accomplishes ATSDR's mission in communities nationwide
- Builds scientific capacity in state health departments; funds 25 partners at an average level of $400K annually, which includes 80 full time employees
- Places staff geographically closer to site-related issues

Region 1	Region 2	Region 3	Region 4	Region 5
Connecticut Massachusetts New Hampshire	New Jersey New York	Pennsylvania Virginia	Florida Georgia North Carolina Tennessee	Michigan Minnesota Wisconsin
Region 6	**Region 7**	**Region 8**	**Region 9**	**Region 10**
Arkansas Texas	Missouri	Colorado Utah	Arizona California	Alaska Idaho Oregon Washington

http://www.atsdr.cdc.gov/states/

What a community can expect from ATSDR

When ATSDR or our state health partner is the lead public health we will

- **Gather community concerns and information about the site**
- **Identify ways people might come in contact with hazards and effects of that contact**
- **Issue a draft report for public comment**
- **Communicate the final results and recommendations and complete follow up activities**

Who does what?

ATSDR	U.S. EPA	State and Local Agencies
Evaluates the potential **health impacts** of hazardous waste sites or spills.	Takes samples and determines if there has been a violation.	May take samples.
Determines the possible health effects of exposures.	Performs a risk assessment to determine cleanup levels.	May regulate, impose fines, and monitor sites.
Recommends actions that need to be taken to safeguard the health of community residents.	Regulates and monitors sites and enforces laws. Prioritizes contaminated properties for clean up.	May assess what cleanup is needed; refer to U.S. EPA when they cannot clean up a site.
Works with communities to minimize any harm from toxins in the environment.	Plans and performs large cleanups. Gets federal funds when the responsible parties cannot pay.	May remain in the area after federal agencies have left.

Evaluating health impacts

- Public Health Assessments
- Exposure investigations
- Health consultations
- Health studies

Community Involvement

- **Community involvement and health education staff will**
  - Assess needs, interests, and concerns of the community
  - Partner with local organizations to meet the needs of the community
  - Create materials and presentation that you can understand
- **Includes interviews with multiple stakeholders**

Health education

- **Provide education on a wide array of topics, including**
  - How exposure occurs
  - How to avoid exposures
  - Sensitive populations (children, pregnant and breastfeeding women, elderly, asthmatics, etc.)
  - Environmental health for health care professionals

ATSDR Accomplishments in 2015

- **Completed 148 investigations at 142 sites in 32 states/territories**
- **Assessed 1.3 million people of which**
  - 365,100 exposed to harmful substances
  - 519,209 exposed to potentially harmful substances
- **Protected 639,933 people**

*DCHI meeting 1/6/2016

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1. What does ATSDR do?
2. **How does ATSDR Region 10 work toward improving children's health?**
3. Describe exposures and potential health effects at hazardous waste sites
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Role of ATSDR's Regional Office

- Advocate for public health needs of communities and tribes affected by environmental hazards
- Establish working relationships with partners and communities
- Facilitate implementation of public health programs
- Develop technical documents and provide technical assistance
- Prepare for and respond to emergencies
- Prepare technical documents
- Serve as a liaison with ATSDR headquarters

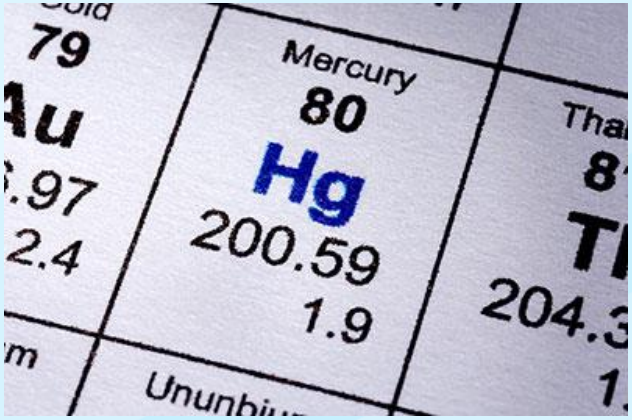
http://www.atsdr.cdc.gov/dro/index.html

Strategic plan to protect children's health

- Long-standing support of the Pediatric Environmental Health Specialty Units
- Implement policy to prevent the siting of child cares on and near hazardous waste sites
- Status Quo – use child-protective screening levels in community health investigations

‘Don’t Mess with Mercury campaign

- Provide kid-friendly messaging about mercury hazards
- Develop school curriculum
- Deliver products to schools



http://www.atsdr.cdc.gov/dontmesswithmercury/index.html

Well-known chemicals that affect children

- **Mutagenic compounds**
- **Metals**
  - Mercury
  - Lead
- **Endocrine disruptors**
- **Particulates**
- **PCBs**
- **Solvents**

Behaviors Making Children Vulnerable

- Spend more time outside
- Play in contaminated outdoor areas (don’t know the difference)
- Bring food or drink into contaminated areas
- Interact with the ground more (crawling, playing, running, biking)
- Create dustier environments
- Need to be reminded to wash their hands
- Have more hand-to-mouth movements

Inherent Factors Making Children Vulnerable

- **Different metabolism; detoxification proteins not fully developed in infants and toddlers**
- **Small size leads to higher dose**
- **More air goes through their lungs from breathing faster**
- **Constantly working immune systems**
- **Nutritional status**
- **Permanent damage from exposures during fetal and child development stages**
  - Mutagens
  - Neurocognative effects
  - Endocrine disrupters

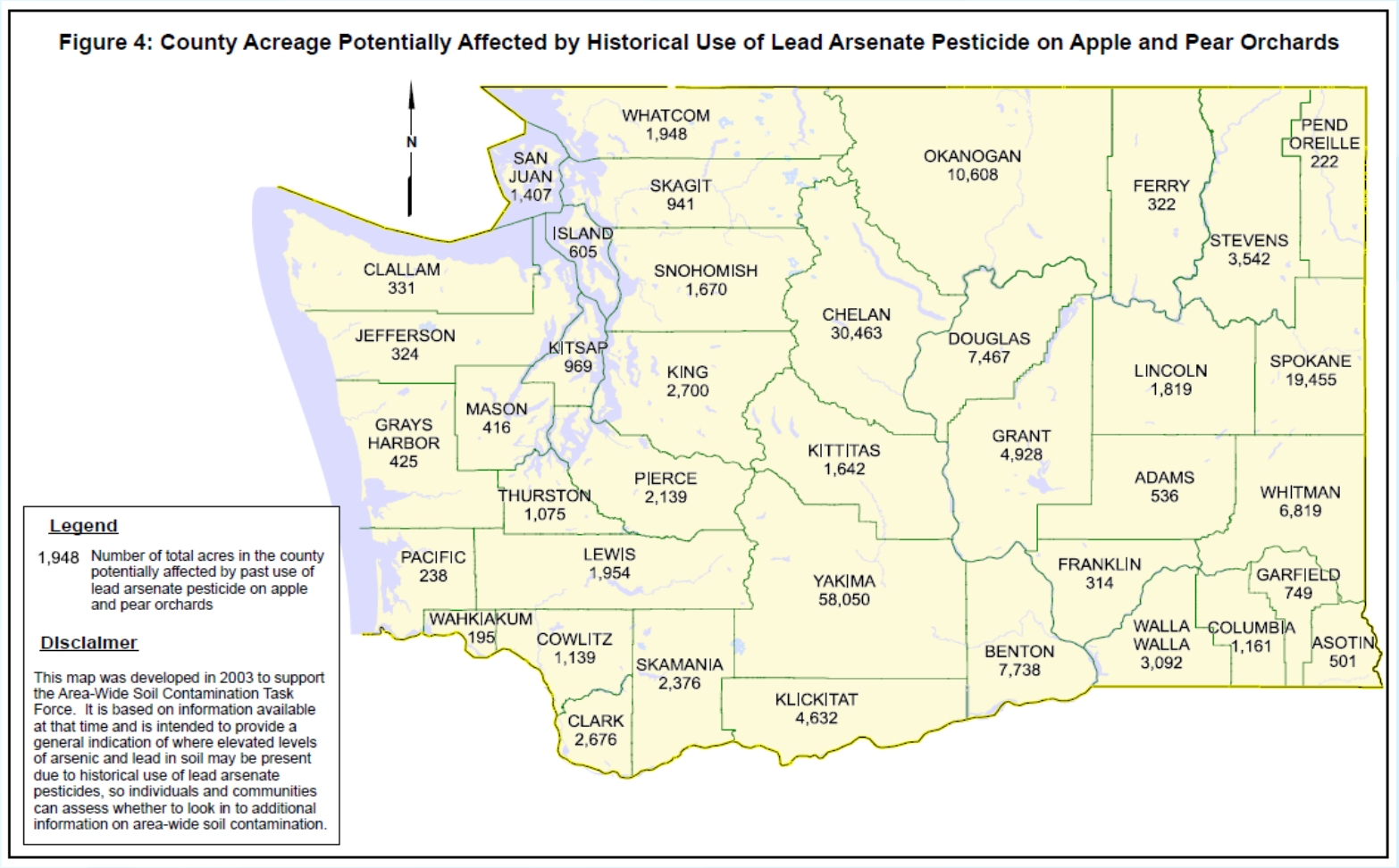
OUTLINE

1. What does ATSDR do?
2. How does ATSDR Region 10 work toward improving children's health?
3. **Details on sites in Washington that may affect child exposures**
4. Discuss challenges and opportunities

Lead Arsenate Use

- Used as insecticide used to control insects in orchards from 1905-1947
- Replaced by DDT (used to late 1960s)
- Remains in soils
- Apple and pear orchards
- Built schools on former orchard lands
- Starting to develop orchards into residential tracts

Acreage Potentially Affected by Lead Arsenate



http://www.ecy.wa.gov/programs/tcp/area_wide/AW/Toolbox_chap2_figures/Fig4.pdf

Elementary Schools

- Characterized by Ecology between 2003-2006
- ATSDR state coop performed health consultations for schools

- Ecology funded cleanups at 26 schools and two

- DOH performed outreach and education to schools that didn't get cleanup

Ongoing Concerns for Orchards

- **DOH recommended a closer look at child and day cares on orchard lands**

- **Land use development**
  - Residential tracts
  - Parks
- **Beverages**
  - *Juice, infant formula
  - **(Wines)

http://www.ncbi.nlm.nih.gov/pubmed/23270108
http://www.ncbi.nlm.nih.gov/pubmed/26591333

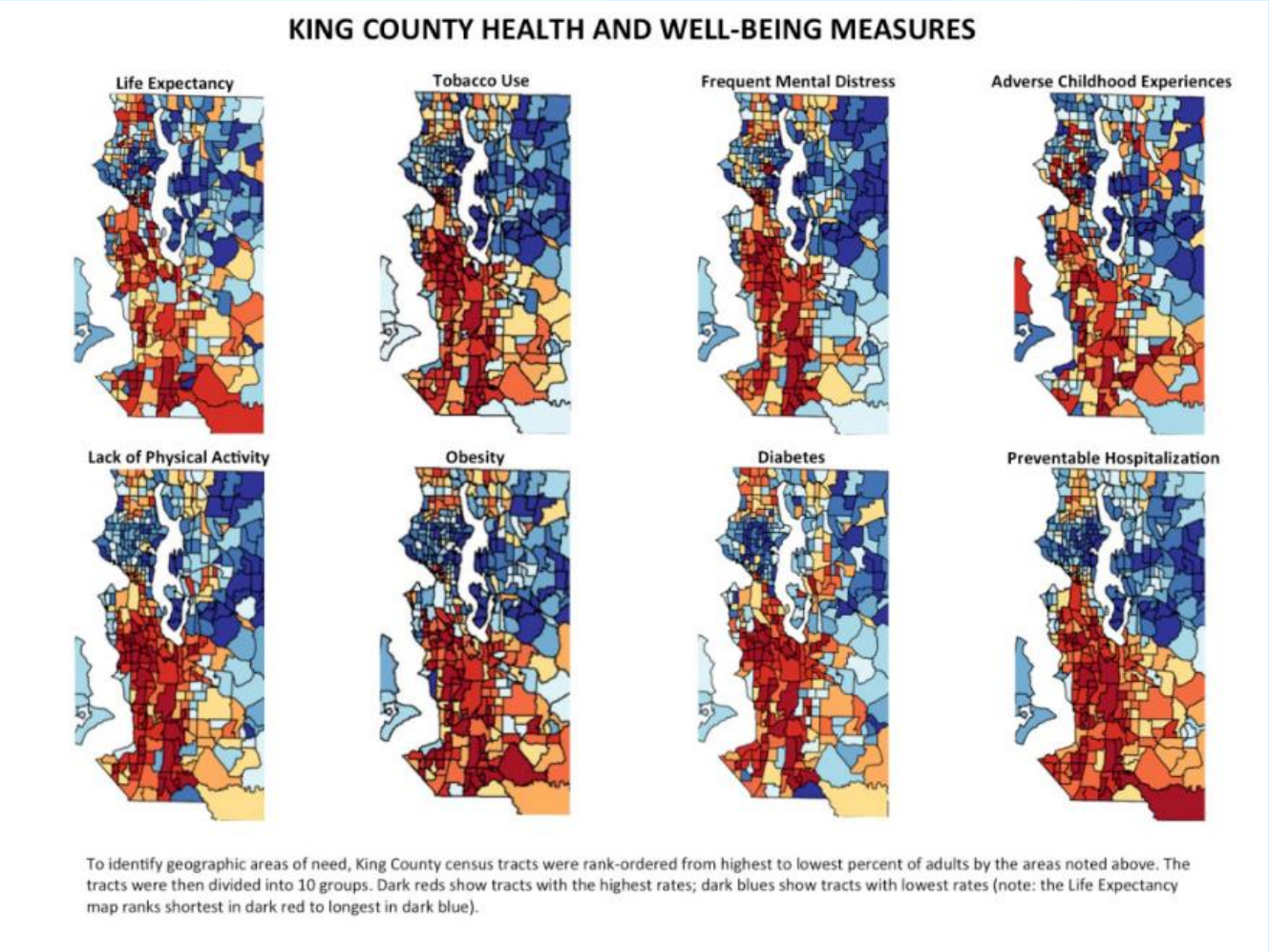
Lower Duwamish Waterway

- **Risk to people mostly from PCBs, Arsenic, Dioxin, PAHs**
- **Exposures**
  - Playing on some shorelines
  - Eating resident fish contaminated by sediments
- **Cleanup starts in two years and will last for seven**

http://www3.epa.gov/region10/pdf/sites/ldw/duwamish_rod_long_fact_sheet.pdf

PAH – polycyclic aromatic hydrocarbons

Health Inequities for the Community



http://publichealthinsider.com/2015/05/15/not-so-fast-ny-times-how-a-closer-look-at-neighborhoods-paints-a-different-picture-for-our-kids/

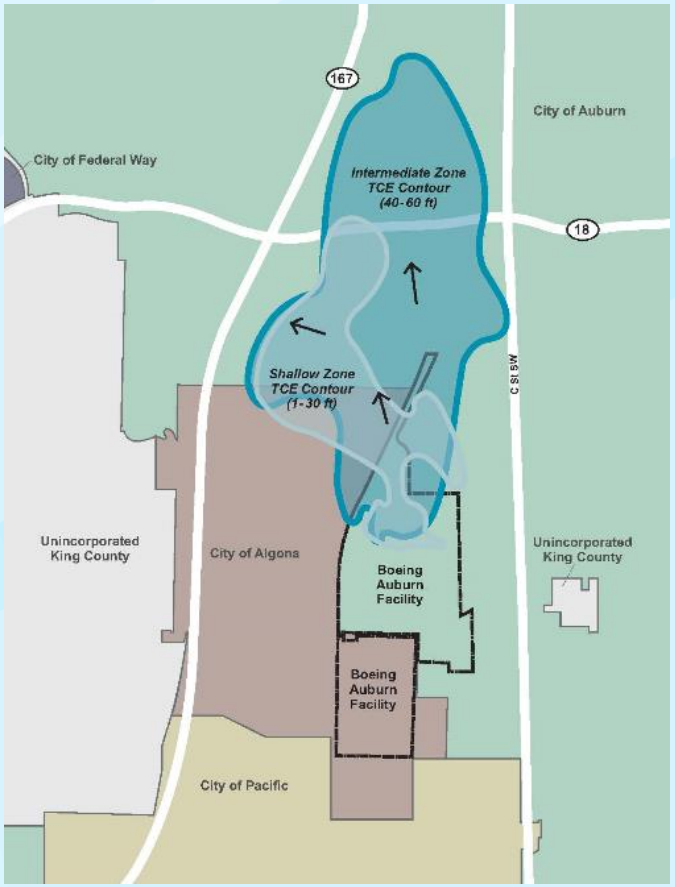
Fish Advisory as an EPA Institutional Control

- PCBs in resident fish (DOH 2003)
- Fish may improve but advisory will never lifted
- EPA finishing up a Fisher Study
- Grant work by Seattle working with Vietnamese and Latino fishers to identify alternatives

http://www.doh.wa.gov/CommunityandEnvironment/Food/Fish/Advisories#DuwamishRiver

Boeing Auburn Fabrication Site

- **Groundwater plume of trichloroethylene (TCE)**
- **Ecology still characterizing**
- **DOH completed 4 health consults**
  - Drinking water
  - Surface water (2)
  - Vapor intrusion



http://www.doh.wa.gov/AboutUs/ProgramsandServices/EnvironmentalPublicHealth/EnvironmentalPublicHealthSciences/SiteAssessments

http://www.ecy.wa.gov/programs/hwtr/CleanupSites/boeing-fabn/MapsAndResults.html

Trichloroethylene

- **Non-flammable, colorless liquid used as industrial degreaser**
- **Common in household products**
- **Used in drycleaning**
- **May cause liver, non-Hodgkins's lymphoma and kidney cancer (EPA & NTP)**
- **Low levels may affect unborn babies**
  - Immune system
  - Heart-related health effects

Potential Child Exposures

- Shallow groundwater interacts with ditch water
- Sampled ditches and ponded surface water in yards in 2011-2014

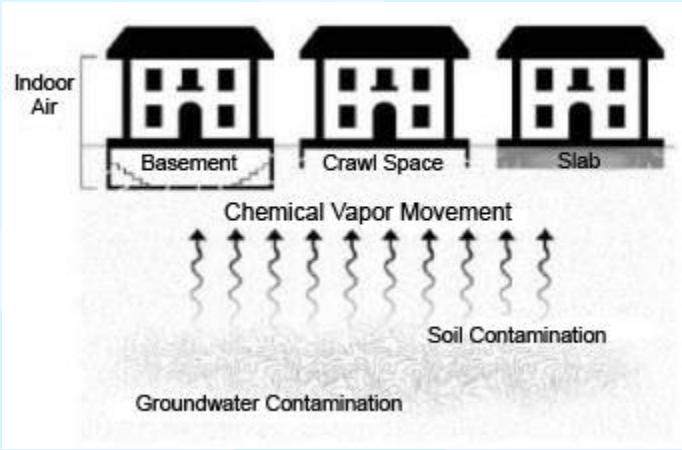
https://tribkcpq.files.wordpress.com/2013/02/algona.jpg

- TCE present in closest ditch to facility
- Assumed child played in ditch water or yard water frequently
- No health concerns
- Keep monitoring

http://www.doh.wagv/CommunityandEnvironment/AirQuality/IndoorAir/VaporIntrusion

Potential for Vapor Intrusion

- Vapor Intrusion
- Sampling in 2013 offered to 24 properties, 14 participated
- Living spaces, basements, below house, outside
- Follow up sampling offered



- No immediate concerns
- Keep monitoring
- Complications with household products

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ATSDR Region 10 Thanks You!

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