

Health Impact Assessment: Proposed Cleanup Plan *for the* Lower Duwamish Waterway Superfund Site

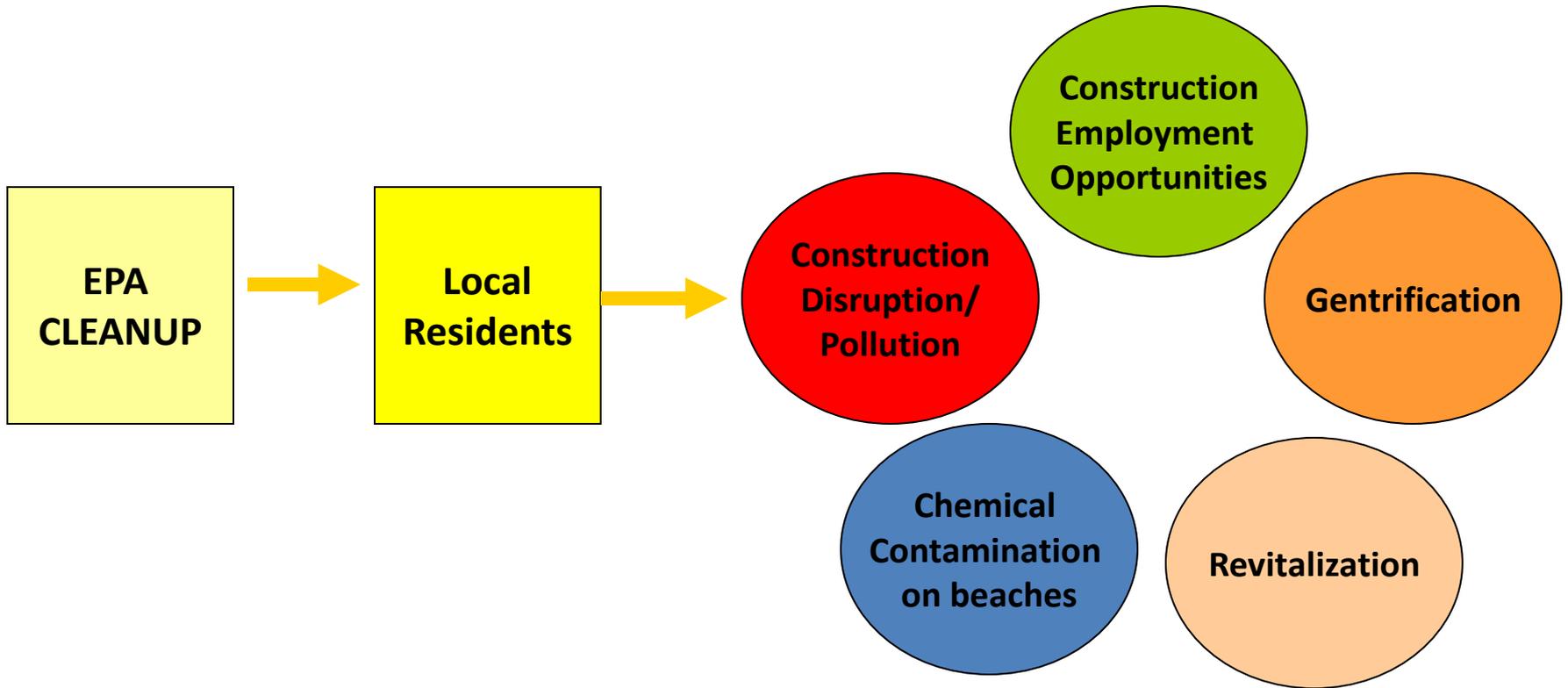
Recommendations to
maximize health benefits,
minimize impacts, and
reduce health inequities
of Proposed Duwamish
River Cleanup Plan

*UW School of Public Health
Just Health Action
Duwamish River Cleanup Coalition/
Technical Advisory Group*

Advance HIA Report

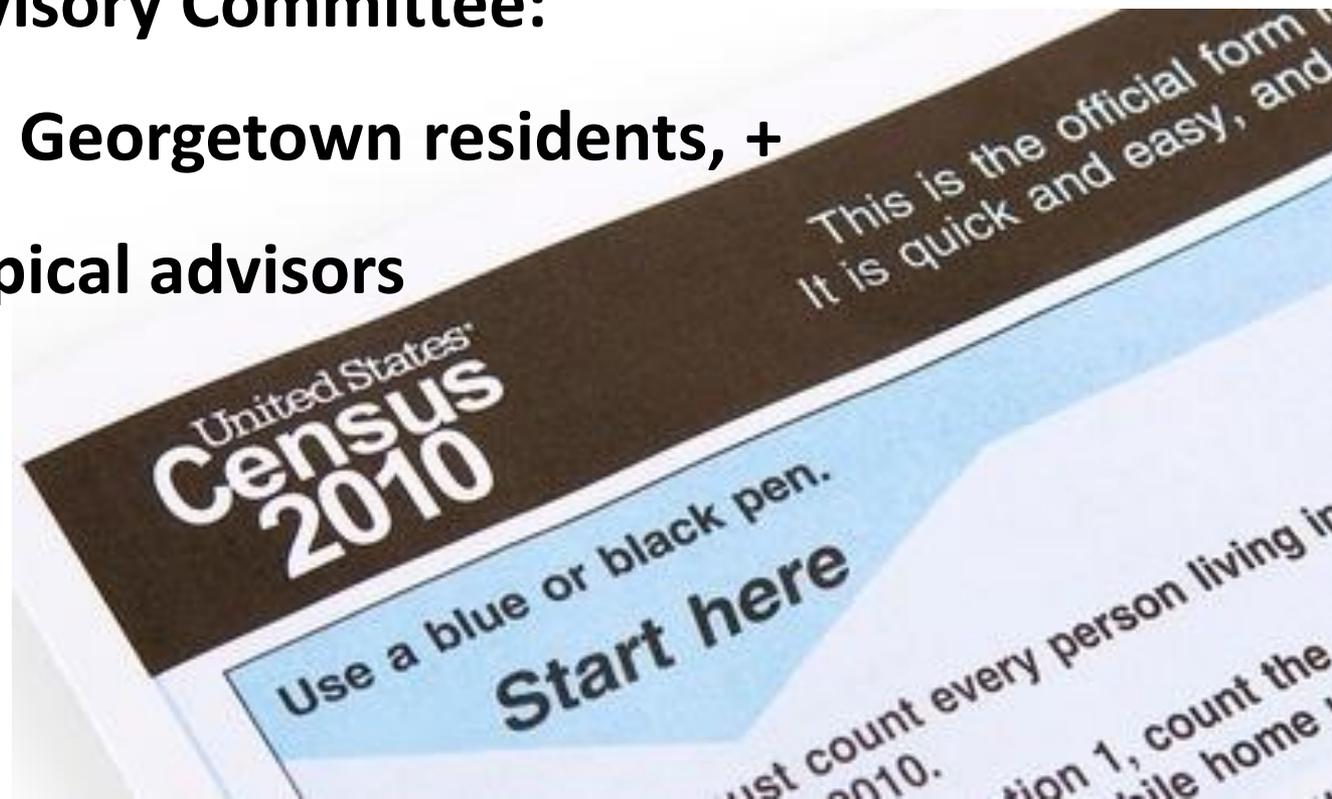


Local Residents



Resources & Methods

- EPA & Census data sources
- Literature Review
- Resident Advisory Committee:
South Park, Georgetown residents, +
selected topical advisors

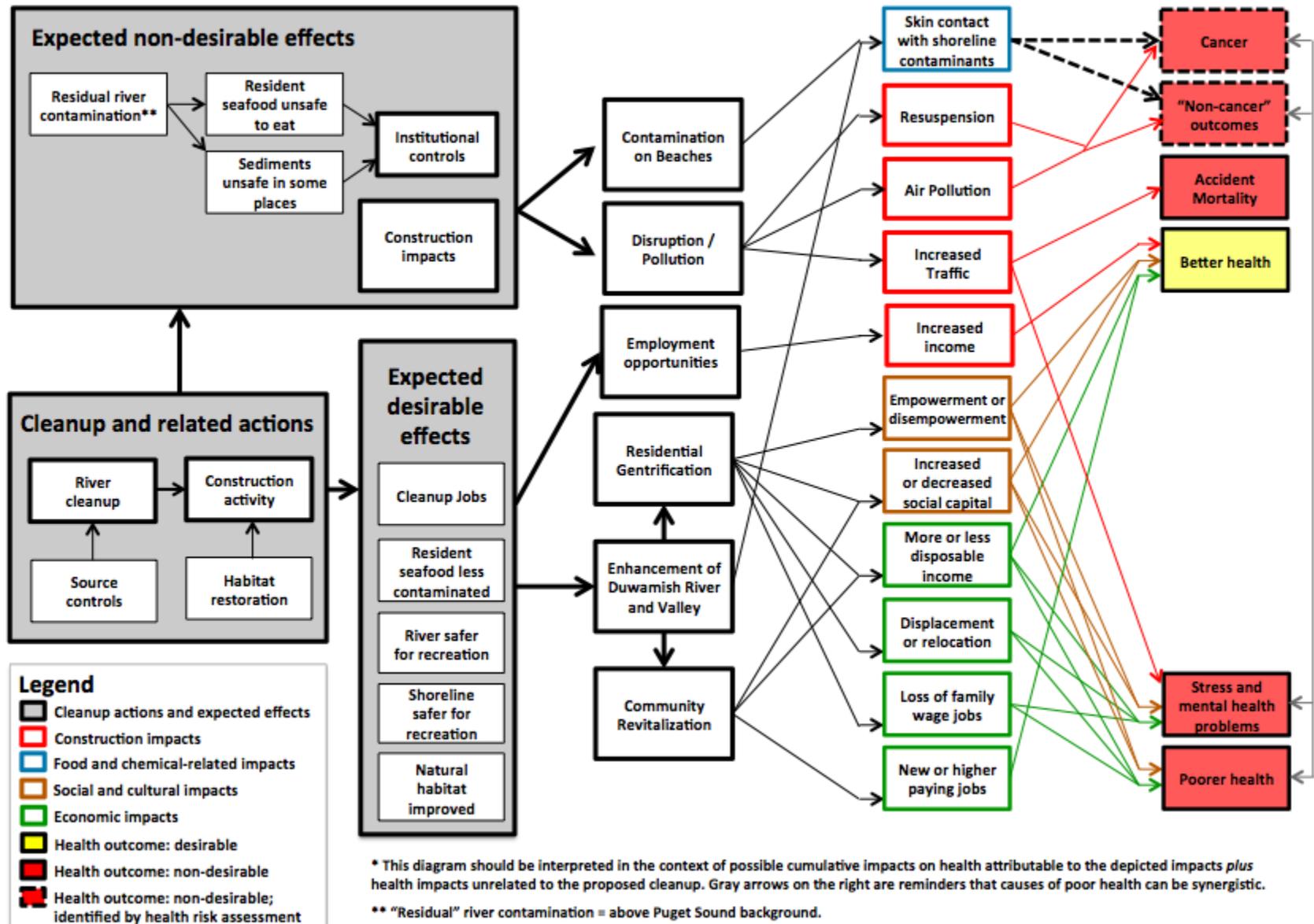


Residents

- **South Park, Georgetown**
- **Low-income, high unemployment**
- **Large minority, immigrant communities**
- **Disproportionate environmental exposures, health burdens**



Figure 1: Potential health impacts of the proposed cleanup plan *



Health Effects

	Direction	Likelihood	Magnitude	Distribution
Construction Disruption/ Pollution	ADVERSE	POSSIBLE – LIKELY	LIMITED – MODERATE	Neighborhood differences; Disproportionate harm to fishers, beach users
Construction Opportunities	BENEFICAL	LIKELY	LIMITED – MODERATE	Restorative equity effect
Contamination on Beaches	ADVERSE	POSSIBLE	LIMITED	Disproportionate harm to beach users
Gentrification	ADVERSE	VERY LIKELY	SUBSTANTIAL	Disproportionate harm to low income residents
Gentrification	BENEFICAL	POSSIBLE – LIKELY	LIMITED – SUBSTANTIAL	Disproportionate benefit to high income residents

Recommendations

Construction & Contamination Impacts

1. Use environmental dredging technology and skilled operators to reduce suspension
2. Negotiate vehicle traffic routes with community; develop mitigation measures
3. Use low-sulfur fuels and “green remediation” to reduce emissions
4. Provide signage and washing stations at local beaches until cleanup goals are met



Recommendations

Construction Opportunities

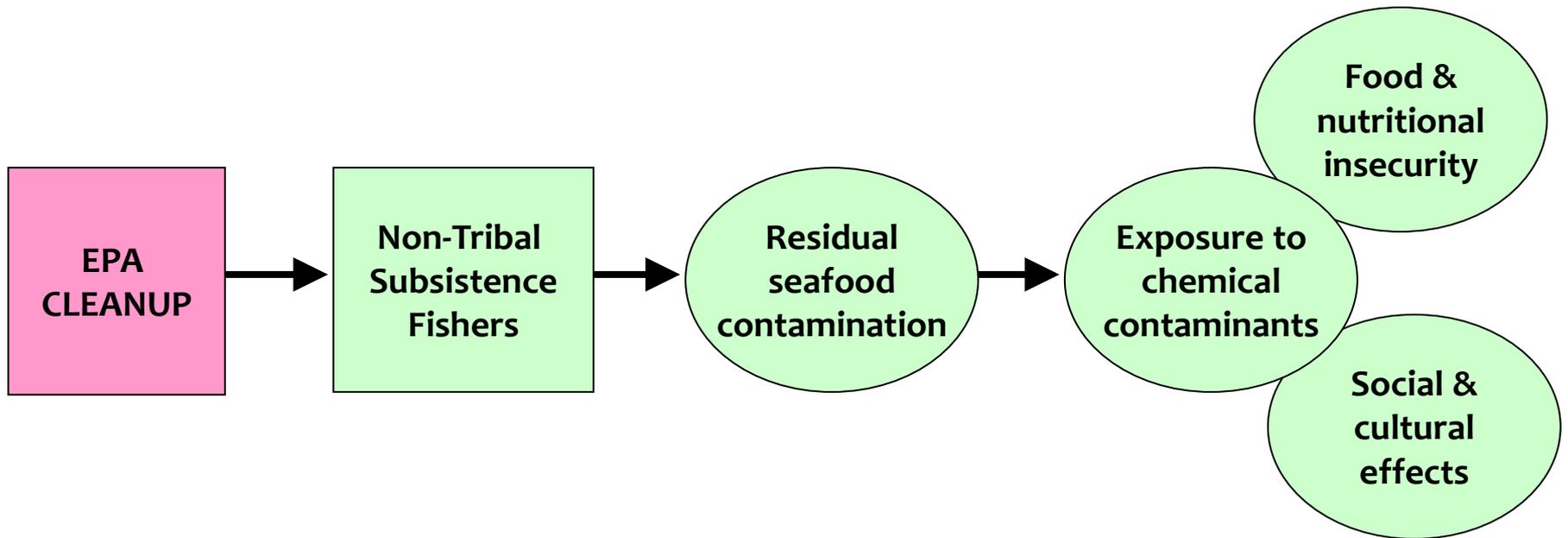
5. Provide job training and placement program for local residents

Gentrification

6. Ensure equity in all development through existing race, equity and social justice ordinances
7. Coordinate reinvestment and development through agency/community coalition
8. Preserve affordability, produce affordable housing
9. Protect and promote home ownership



Non-tribal Subsistence Fishers



Resources and methods

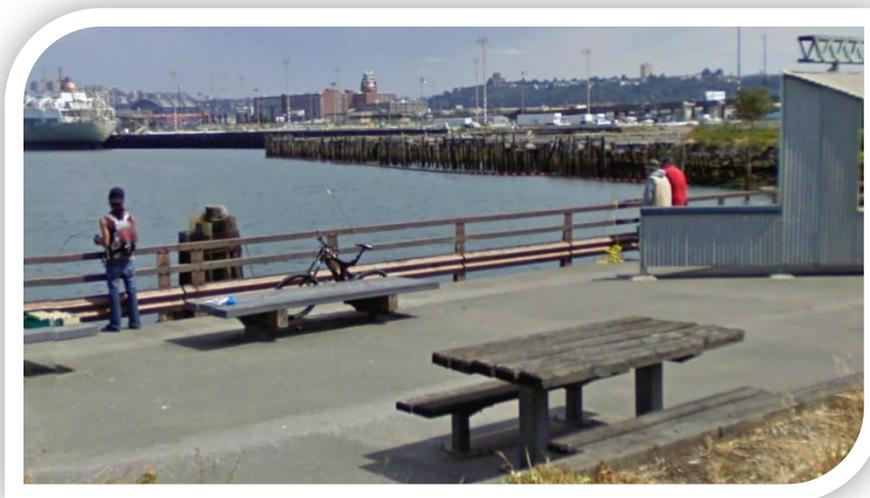
- * **Literature review**
- * **Community advisors**
- * **Key informant interviews**
- * **Focus groups**

- * **Graduate student: Amber Lenhart**

Fishing populations

Who is currently fishing on the Duwamish?

- * Asian and Pacific Islander immigrants and Americans
- * Other immigrant populations
- * People of color
- * Low-income, food-insecure
- * Urban American Indians and Alaska Natives



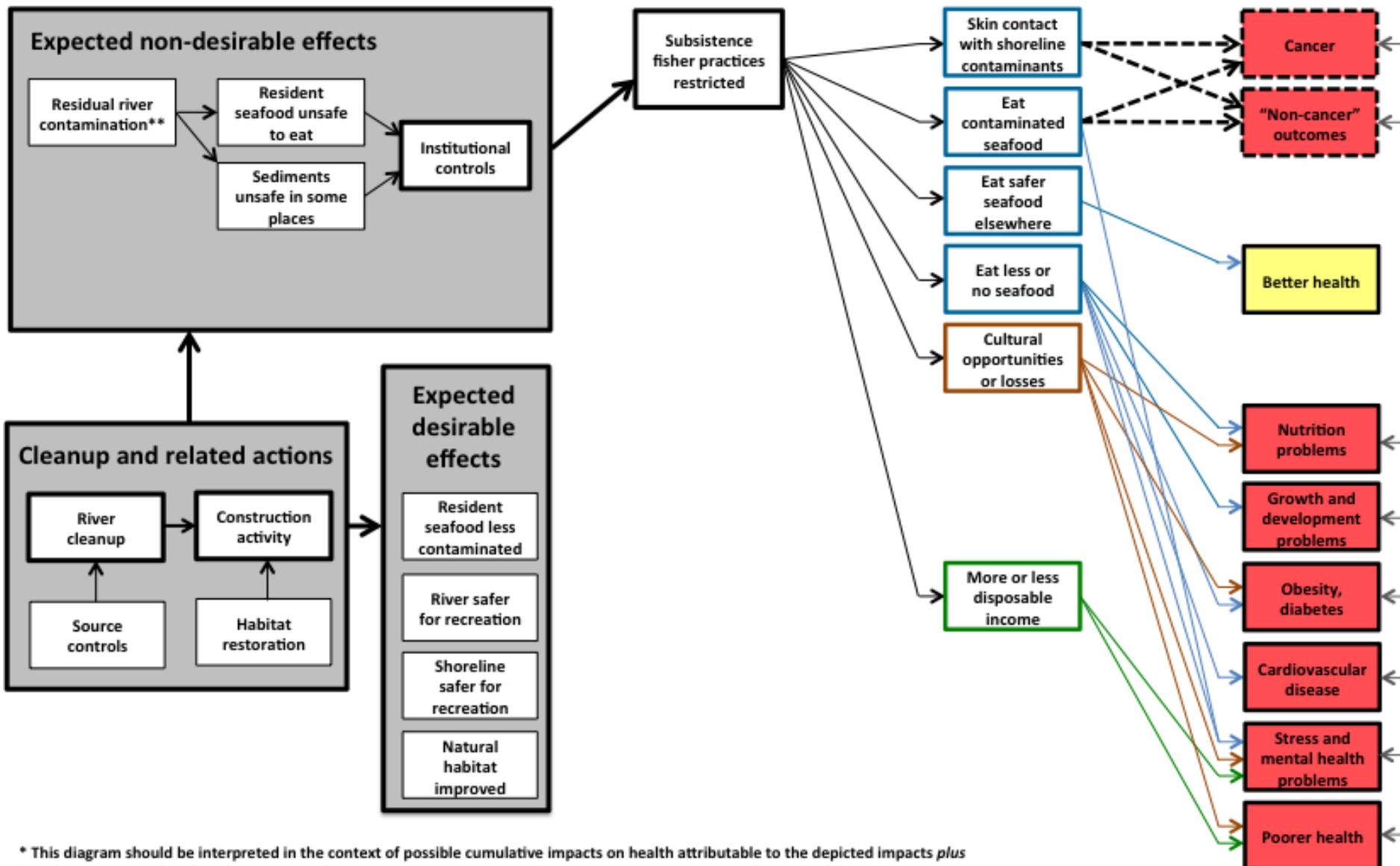
Fishing from Spokane St. Bridge (Google Maps Street View)

Fishing populations

Why are people fishing on the Duwamish River or other urban waters?

- * cultural and traditional reasons
- * recreation and relaxation
- * convenient and inexpensive source of perceived healthy and culturally relevant food
- * opportunity to spend time with friends and family

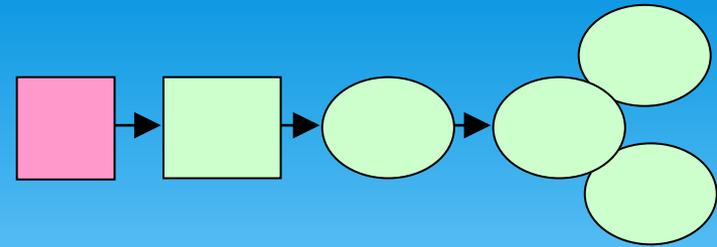
Potential health impacts of the proposed cleanup plan for subsistence fishers



* This diagram should be interpreted in the context of possible cumulative impacts on health attributable to the depicted impacts plus health impacts unrelated to the proposed cleanup. Gray arrows on the right are reminders that causes of poor health can be synergistic.

** "Residual" river contamination = above Puget Sound background.

Health impacts



	Direction	Likelihood	Magnitude	Distribution
Exposure to chemical contaminants	Adverse	Very likely	Limited to moderate	<ul style="list-style-type: none"> • Lower income • Non-English speaker • People who fish for social, cultural or traditional reasons
Food & nutritional insecurity	Adverse	Likely	Limited to moderate	<ul style="list-style-type: none"> • Lower income • Food-insecure people
Social & cultural effects	Adverse	Likely	Limited to moderate	<ul style="list-style-type: none"> • People who fish for social, cultural or traditional reasons

Recommendations

1. Institutional controls should go beyond restrictive and informational actions.
2. Interventions should emphasize positive alternatives.
3. There is a clear need for innovative thinking.
Possible options:
 - a. “Off-sets” in EPA *EJ Analysis*
 - b. Supply fish to local food banks
 - c. Community Supported Fishery (CSF) programs
 - d. Urban fishing ponds

Recommendations

4. Target audience should include people who *might* fish on the Duwamish; not just current fishers.
5. Efforts should be culturally appropriate, and should be designed to help people make informed choices.
6. Efforts should engage and empower members of fishing populations, to participate meaningfully in all stages of intervention.

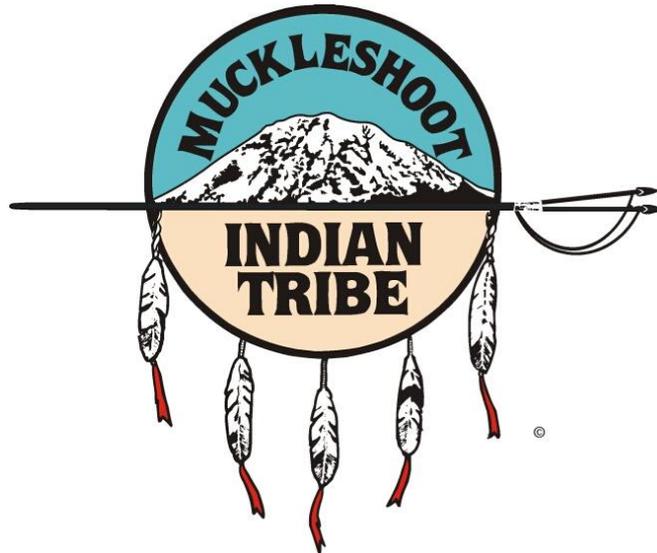
Three Tribes



Duwamish Tribe



Suquamish Tribe



Tribal Advisory Committee



- Who?
 - 2 professional staff from Suquamish and 2 Duwamish Tribe members. (Muckleshoot chose not to participate)
 - Tribal advisors (Drs Jamie Donatuto and Robin Gregory)
- What?
 - Discuss tribal health beliefs relative gen pop
 - Discuss how cleanup may affect Tribal health
 - Advised and reviewed our research
 - Provide recommendations

Table 1: Comparison of American Indian/Alaska Native Indicators to General Population in Washington State and King County

Indicators/Source	WA AI/AN	WA Gen Pop	KC AI/AN	KC Gen Pop
Sociodemographics				
Poverty (percent)	26.3*	12.1	25.1*	9.7
Source	US Census, ACS 2006-2010; GCT1701		US Census, ACS 2005-2009:GTC1701	
College Education (percent)	13.2*	31.0	16*	44.8
Source	US Census, ACS 2006-2010; B15002		US Census, ACS 2005-2009; B15002	
Unemployment (percent)	16.4*	7.6	10.9*	5.7
Source	US Census, ACS 2006-2010: DP03		US Census, ACS 2005-2009: DP03	
Mortality				
Cancer mortality per 100,000	170.3	177.7	177.3	165.6
Source	US National Center for Health Statistics 2004-2008		U.S. National Center for Health Statistics 2003-2007	
Heart disease mortality per 100,000	185.5	168.5	176.5	152.6
Source	US National Center for Health Statistics 2004-2008		U.S. National Center for Health Statistics 2003-2007	
Heart health				
Heart disease (percent)	4.9*	3.5	6.3	2.8
Source	BRFSS 2006-2010		BRFSS 2005-2010	
Smoking (percent)	31.3*	15.9	23.7*	12.1
Source	BRFSS 2006-2010		BRFSS 2005-2010	
Diabetes (percent)	11.5*	7.3	12.2*	5.9
Source	BRFSS 2006-2010		BRFSS 2006-2010	
Obesity (percent)	39.0*	25.6	35.3*	20.1
Source	BRFSS 2006-2010		BRFSS 2006-2010	
Maternal and childhealth				
Infant mortality per 1,000 live births	9.7*	5.1	13.2*	4.5
Source	US National Center for Health Statistics 2003-2007		US National Center for Health Statistics 2002-2006	
Low birth weight (percent)	7.6*	6.3	6.9	6.5
Source	US National Center for Health Statistics 2004-2008		US National Center for Health Statistics 2003-2007	
Mental health				
Mental distress (percent)	19.1*	9.9	15.7*	8.3
Source	BRFSS 2006-2010		BRFSS 2005-2010	
Wellness				
Cirrhosis deaths per 100,000	31.6*	9.1	24.3*	7.8
Source	US National Center for Health Statistics 2004-2008		US National Center for Health Statistics 2003-2007	
Asthma (percent)	17.3*	9.2	17.3*	8.1
Source	BRFSS 2006-2010		BRFSS 2005-2010	

Health data produced by: Urban Indian Health Institute: Seattle Indian Health Board

U.S Census Data and Table 1 compiled by: Just Health Action

BRFSS- Behavioral Risk Factor Surveillance System

* Statistically significant at p= 0.05

Tribal Health Effects: Residual Contamination

- Traditional EPA Risk Assessment = disproportionate risks to Tribes
- Residual risks post-cleanup = still disproportionate
- Cumulative risks not accounted for



credit: Ashley Ahearn, KUOW

Potential Tribal health effects from residual contamination due to Institutional Controls (fish advisories)

RESIDUAL CONTAMINATION

INTERMEDIATE EFFECTS

HEALTH OUTCOMES

EPA
CLEANUP

Institutional
Controls:
Treaty
rights/practices
violated

Eat seafood
anyway

Don't eat
seafood
(food
Insecurity)

Disempowerment

Cancer

growth,
development
problems

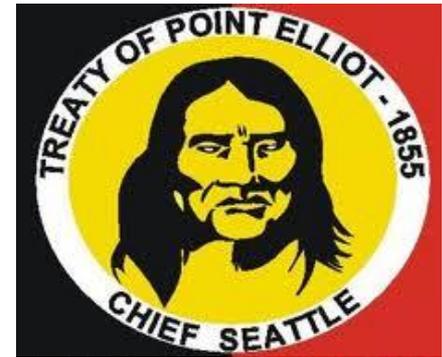
obesity, diabetes,
cardiovascular
disease

stress, mental
health problems





Tribal Health Effects: Institutional Controls



1. Violation of Tribal fishing rights
2. Food security
3. Physical health to protect spiritual health

Like we say, it's our spiritual food so it feeds our soul; so it might poison our body, but then we we'd rather nourish our soul

Swinomish Elder – Donatuto, 2011

Tribal Health Effects: Habitat Renewal

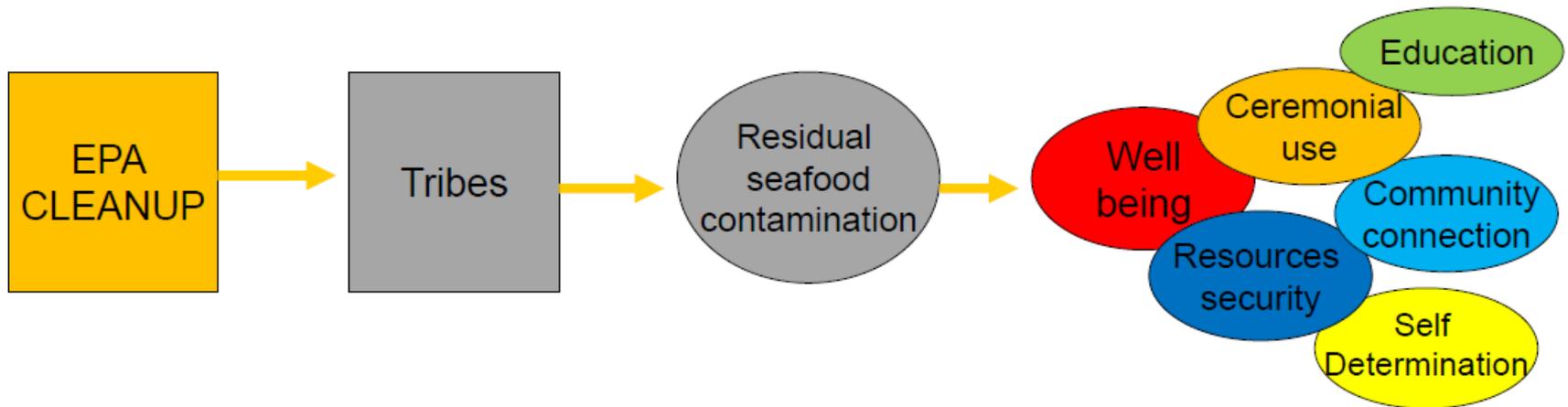
Good for health:

Pride, empowerment, ownership -
“more ceremonies on river”



Three Tribal Advisory Committee Recommendations

1. Collaborate with Tribes to more fully address their health concerns about river cleanup



Health through Tribal Lens: Indigenous Health Indicators

Three Tribal Advisory Committee Recommendations (continued)

2. Restore Tribes' traditional resource use in accordance with Treaty rights: Institutional Controls need to be temporary, not permanent
3. Establish Revitalization Fund to enhance Tribal empowerment and health until Institutional Controls are removed



Closing comments

