



Duwamish Proposed Cleanup Plan

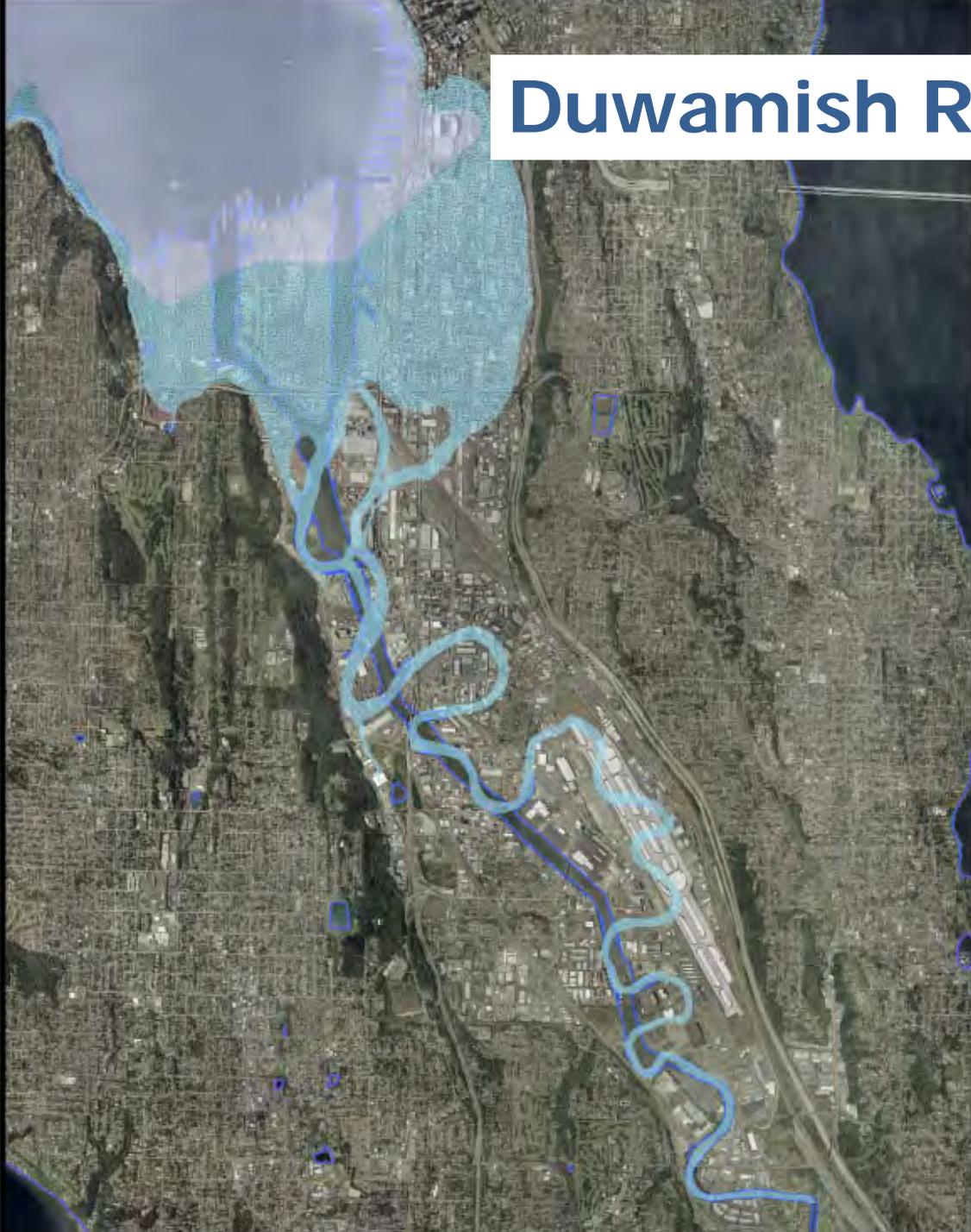
Allison Hiltner

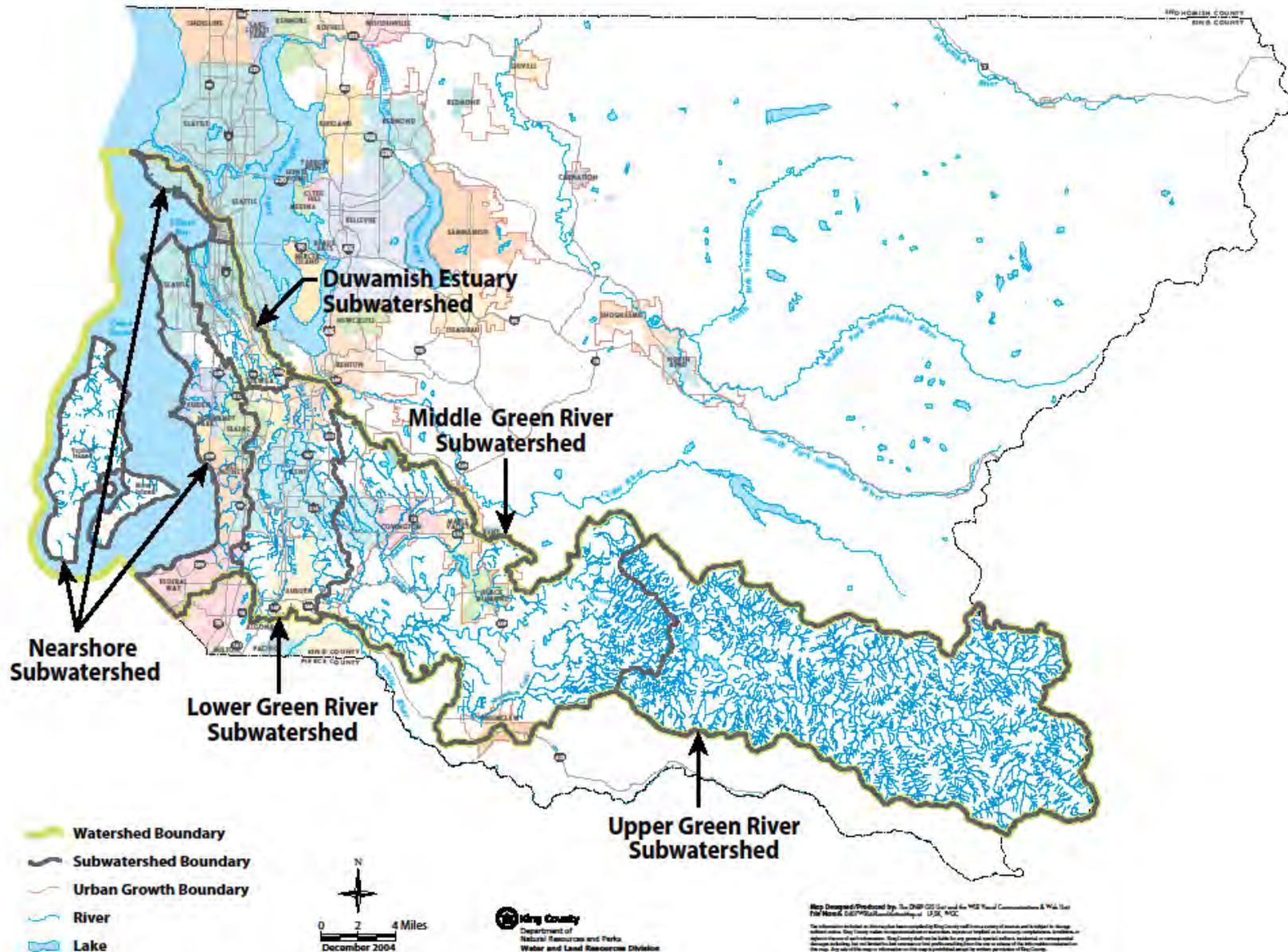


Duwamish River Then & Now

Light blue
river before
1909

Dark blue
current
waterway





Duwamish Watershed

Key parts of the Duwamish cleanup

**Clean up
early
action
areas**



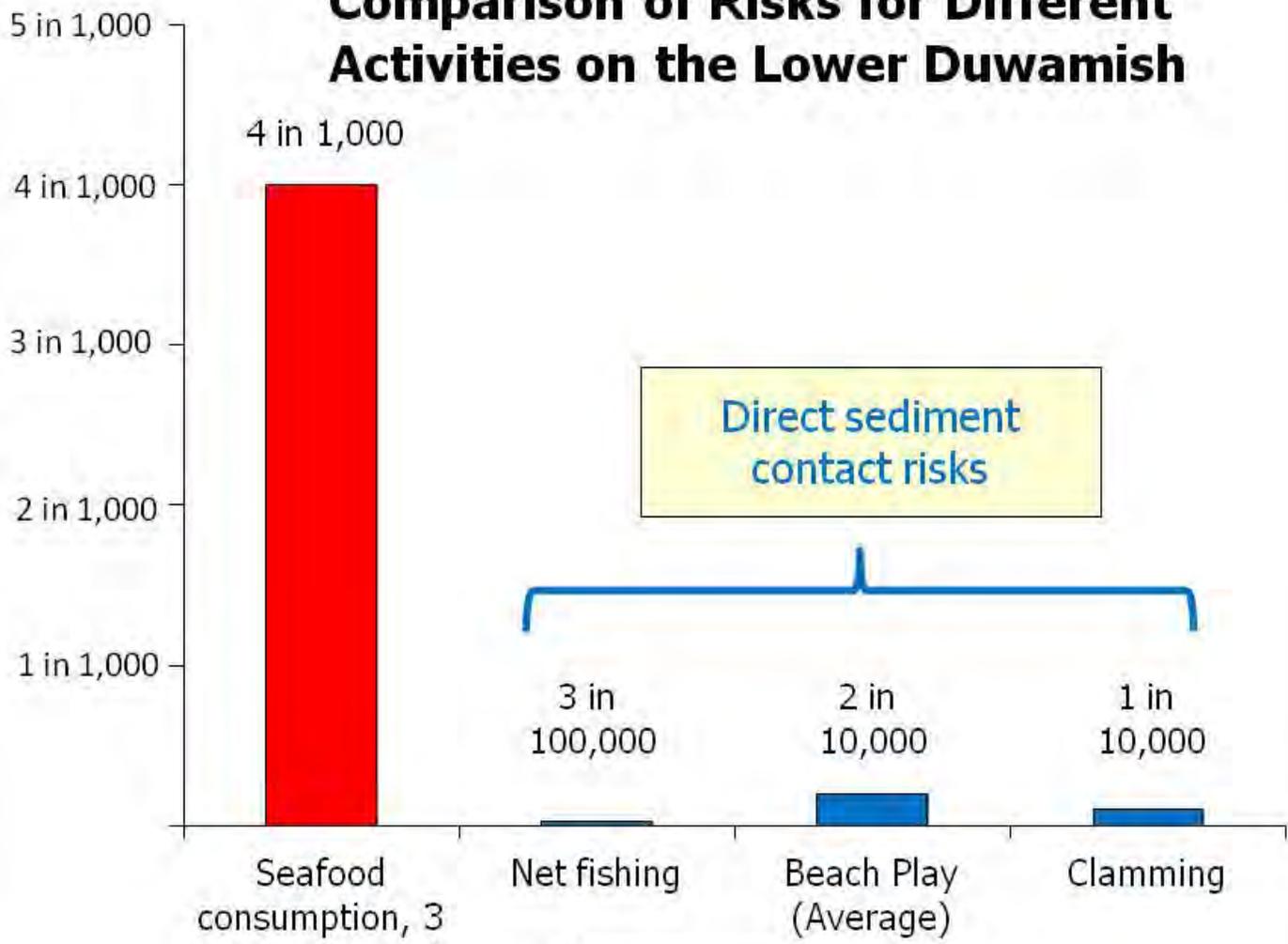
**Source
control**



**Sediment
Cleanup**

Additional chance of getting cancer for an individual

Comparison of Risks for Different Activities on the Lower Duwamish



Type of activity

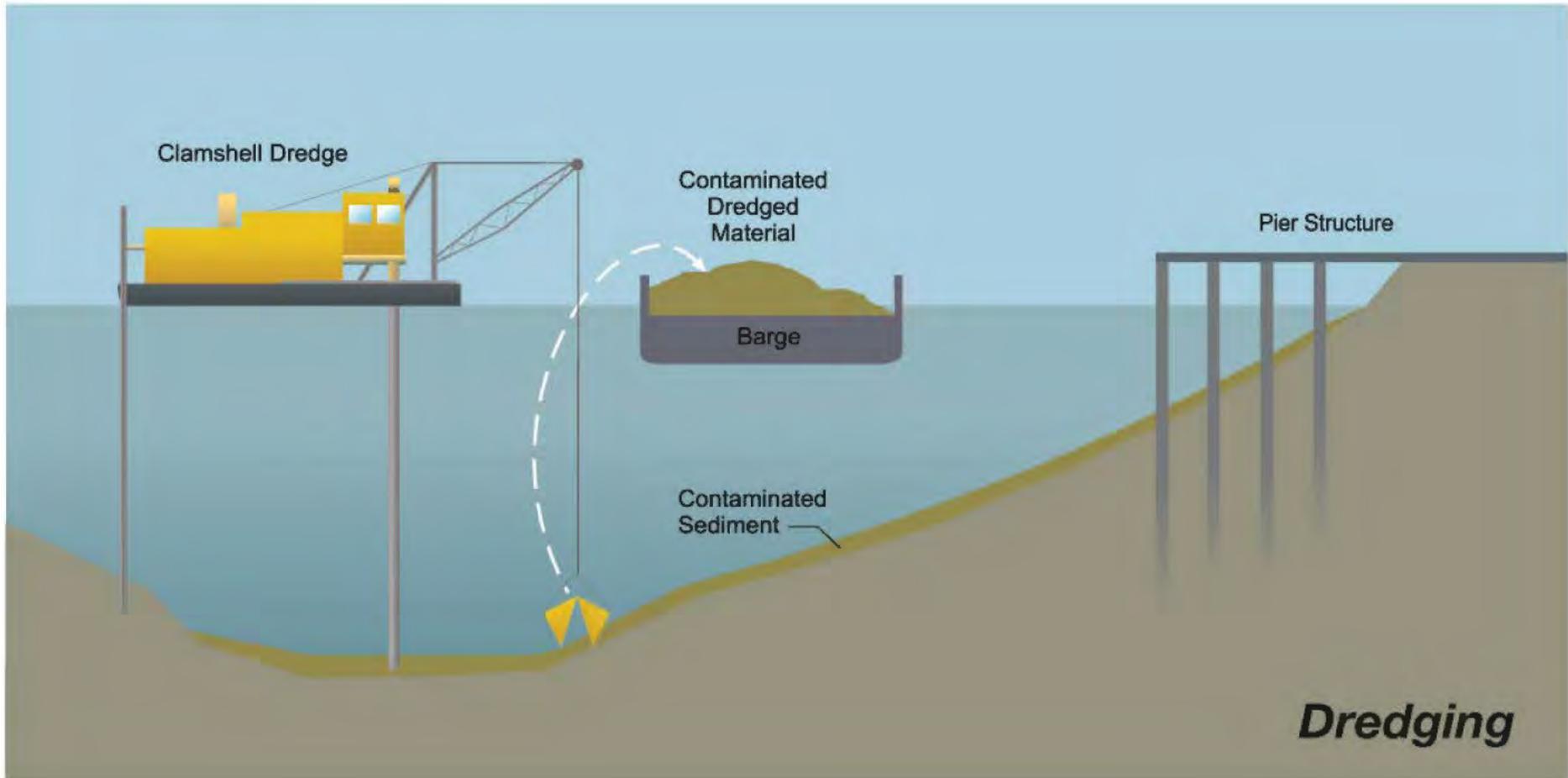
Cleanup Objectives

Reduce risks to:

1. People who eat resident fish and shellfish.
2. People coming into contact (skin contact and incidental ingestion) with contaminated sediments.
3. Bottom-dwelling organisms.
4. Crabs, fish, birds, and mammals.

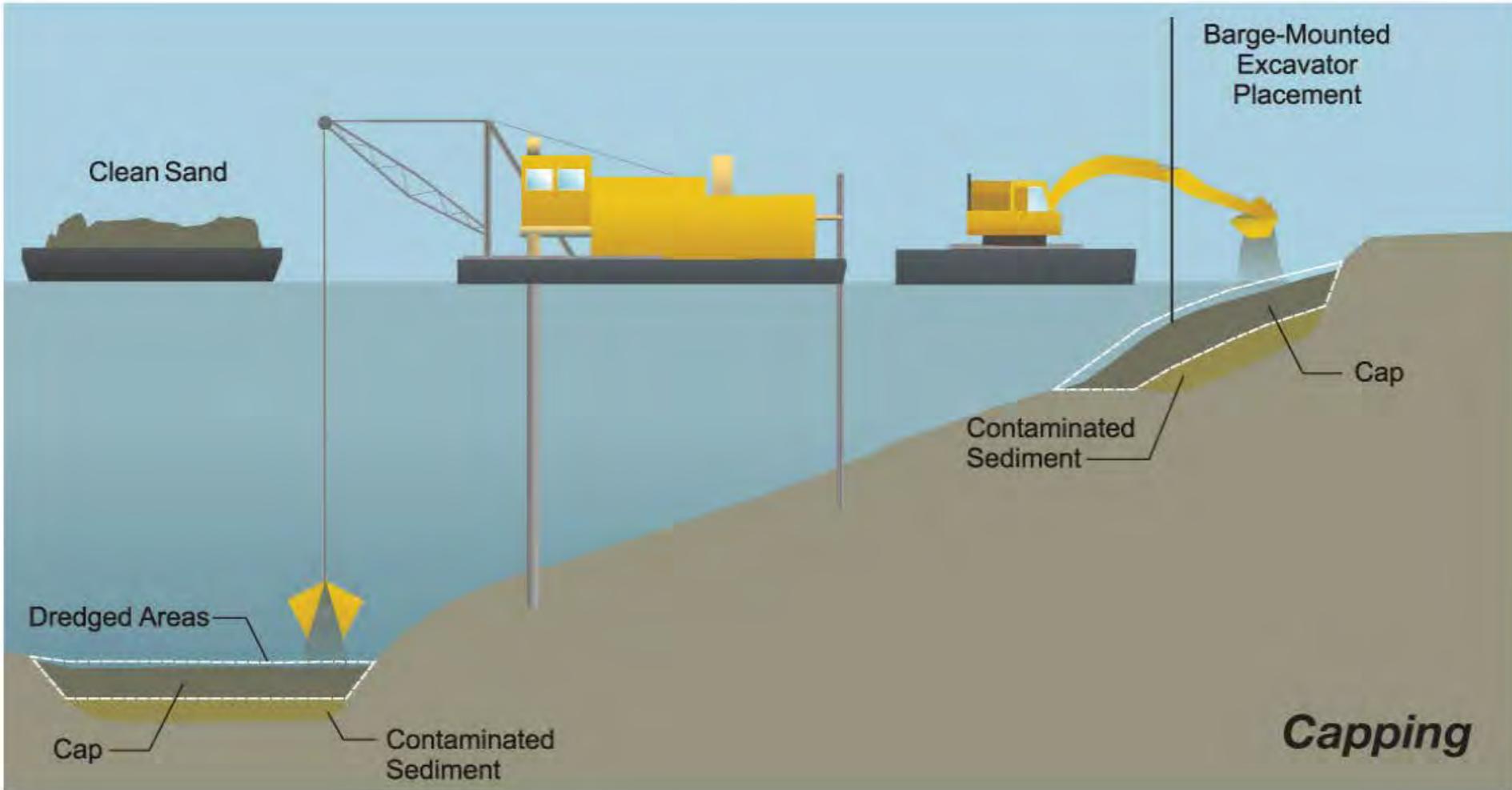


Removal





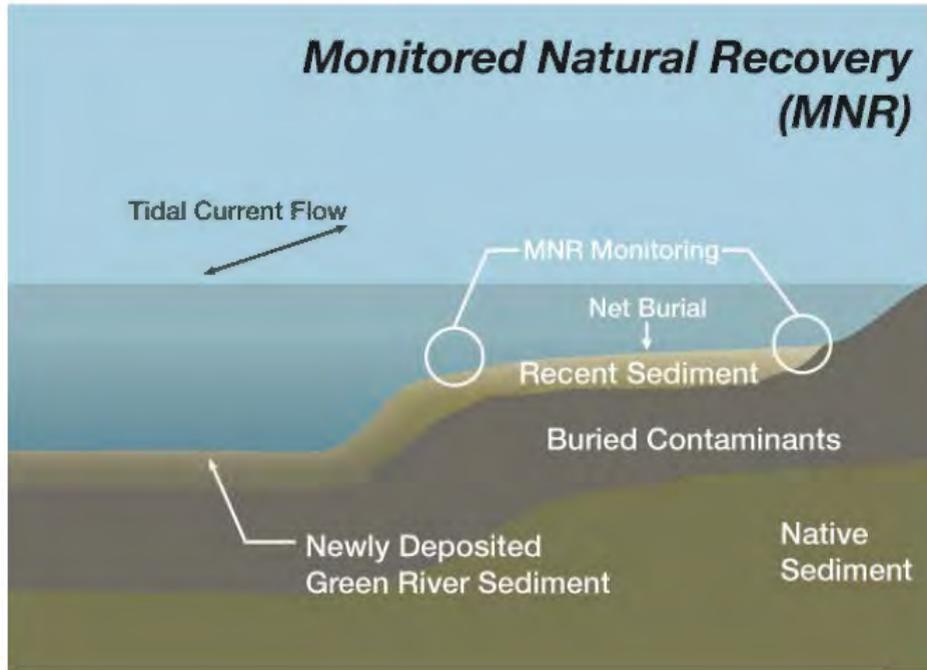
Containment



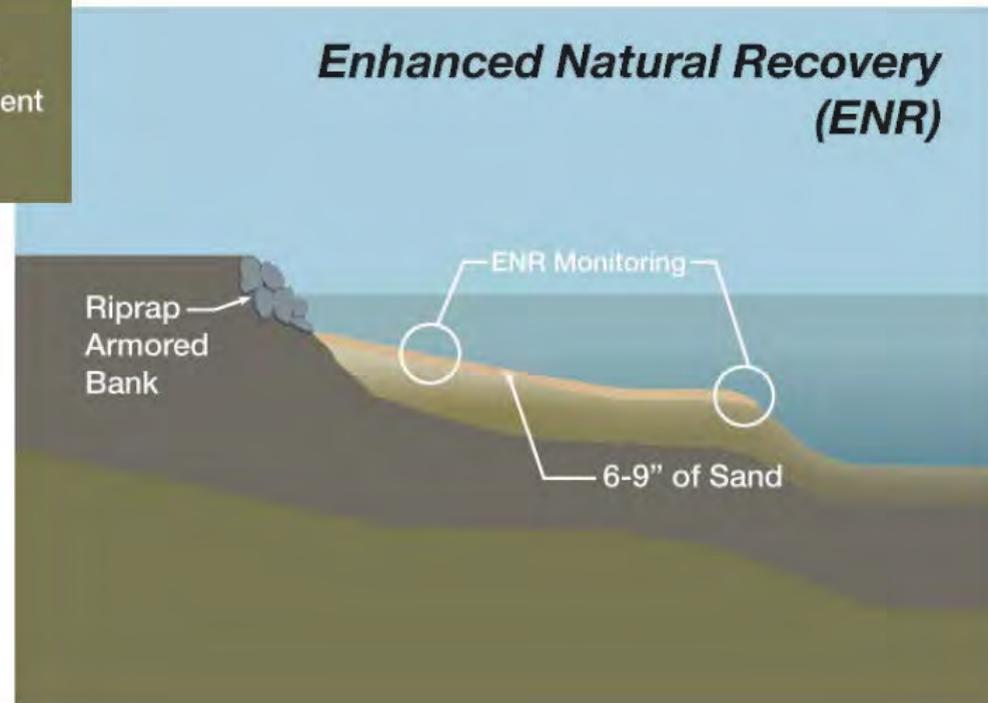


Natural Recovery

Monitored Natural Recovery (MNR)

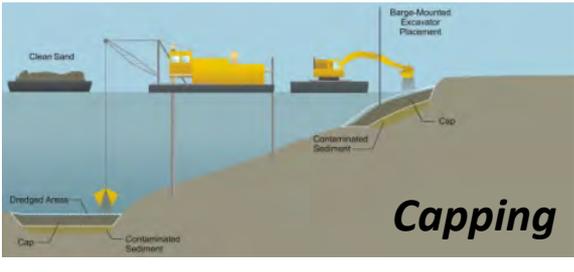
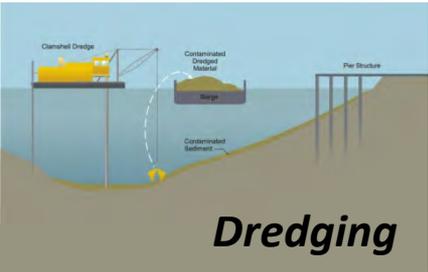


Enhanced Natural Recovery (ENR)



ALL ALTERNATIVES

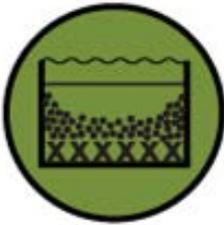
ARE DIFFERENT COMBINATIONS OF:



Removal

Containment

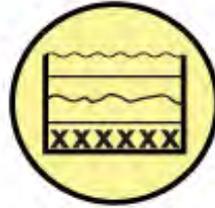
Natural
Recovery



COMBINATIONS OF THE TECHNOLOGIES BECOME...



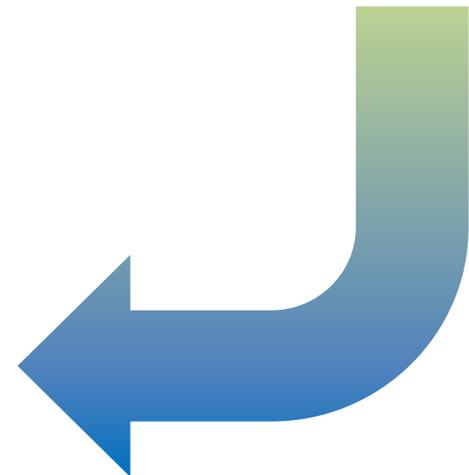
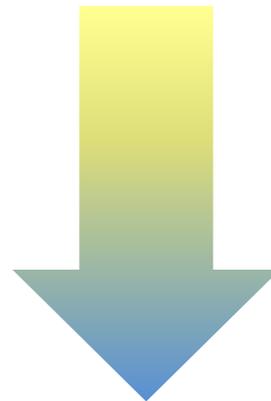
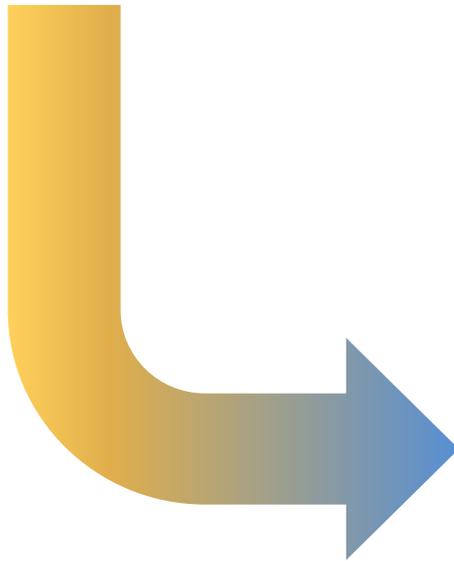
Removal



Containment



**Natural
Recovery**



... ALTERNATIVES

EPA's Evaluation Criteria

The Proposed Cleanup Plan must:

- Protect Human Health and the Environment
- Comply with Federal, State, and local Environmental Laws

It must achieve the best balance of:

- Long-term Effectiveness and Permanence
 - Reduction of Toxicity, Mobility, and Volume through Treatment
 - Short-term Effectiveness
 - Implementability
 - Cost
- ***These criteria are considered after public comment period:***
 - State/Tribal Acceptance
 - Community Acceptance

Alternatives have Different Features and Effects



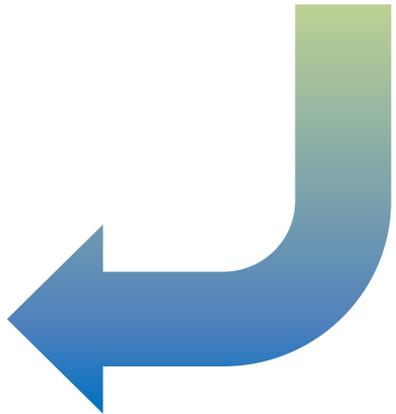
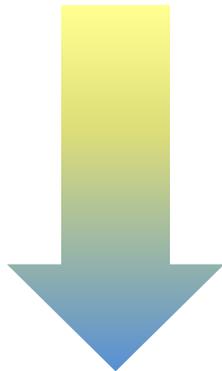
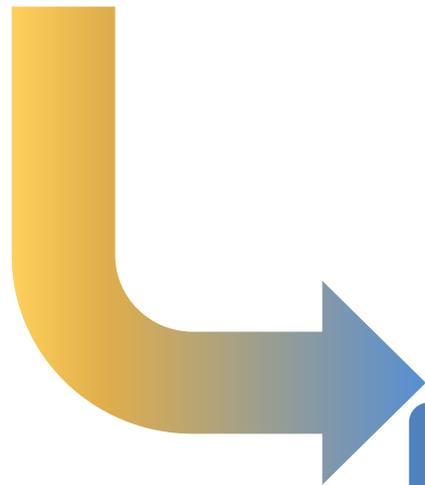
Removal



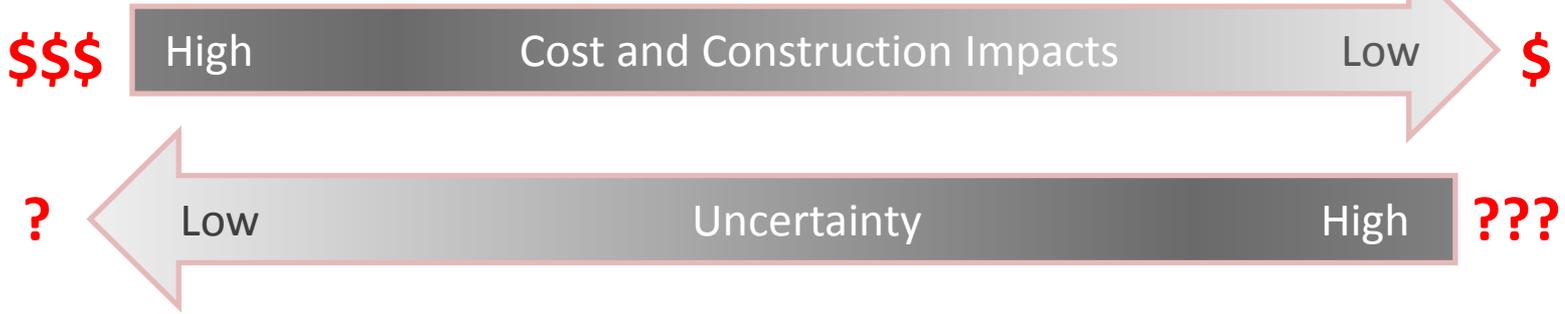
Containment



**Natural
Recovery**



ALTERNATIVES

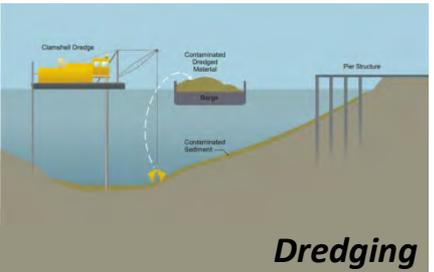
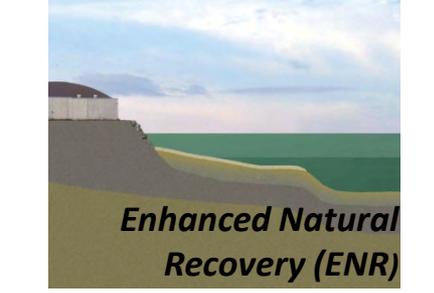
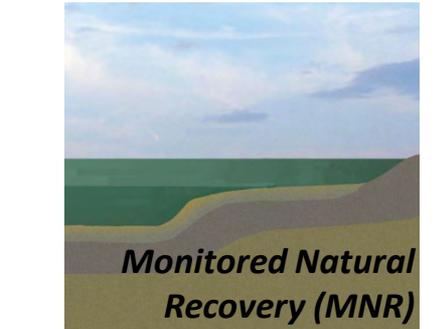


Range of Alternatives Considered

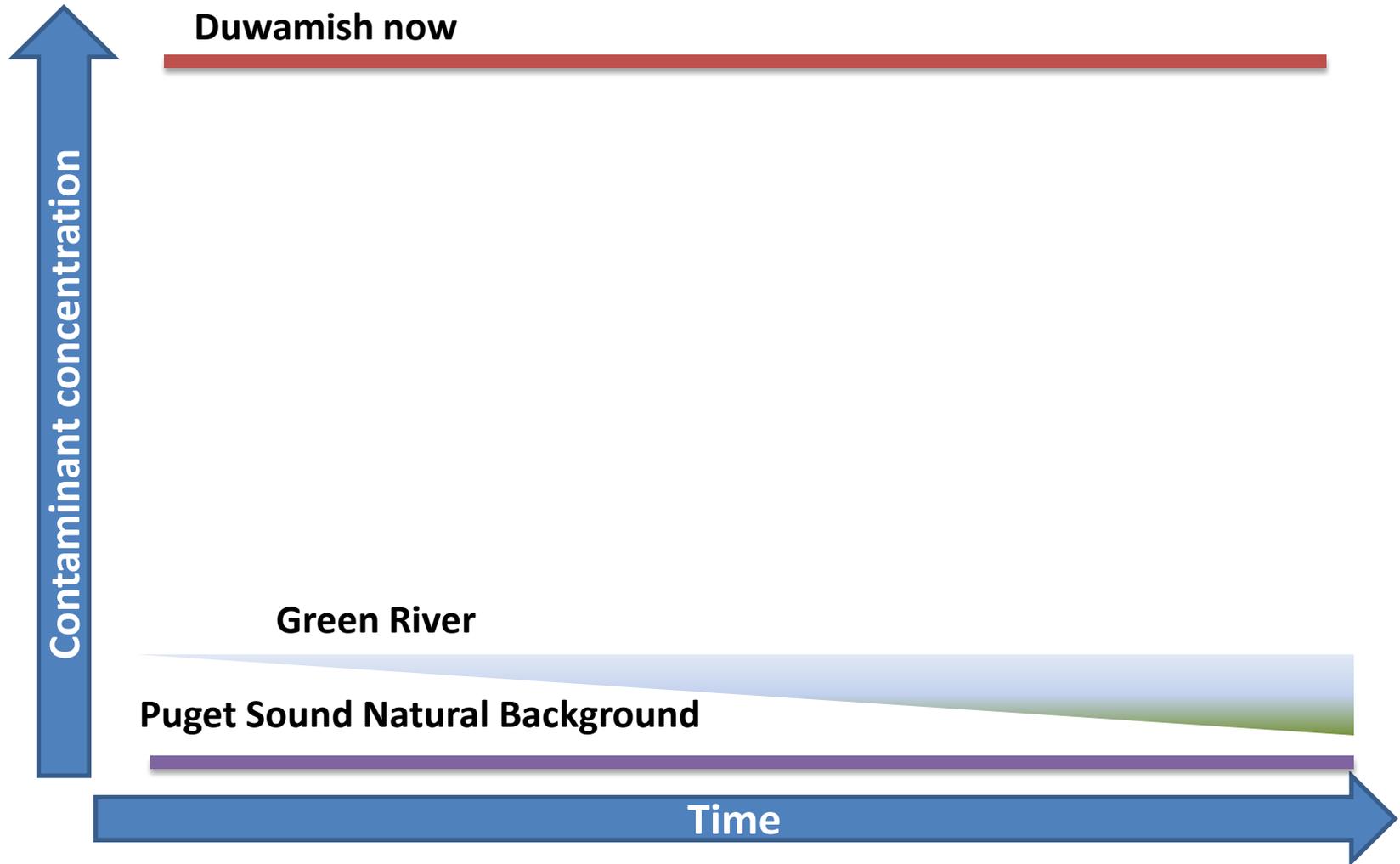
EPA and Ecology considered 12 Alternatives plus No Action (only action alternatives shown in table)

	Range of Alternatives	Preferred Alternative
Dredge or partial dredge and cap	31 – 302 acres	84 acres
Cap	0 – 51 acres	24 acres
Enhanced natural recovery	0 – 101 acres	48 acres
Monitored natural recovery	110 – 380 acres	256 acres
Dredge volume	390,000 – 3,900,000 cy	790,000 cy
Construction time frame	4 – 42 years	7 years
Time to reduce contamination	16 – 42 years	17 years
Cost	\$200 M – \$810 million	\$305 million

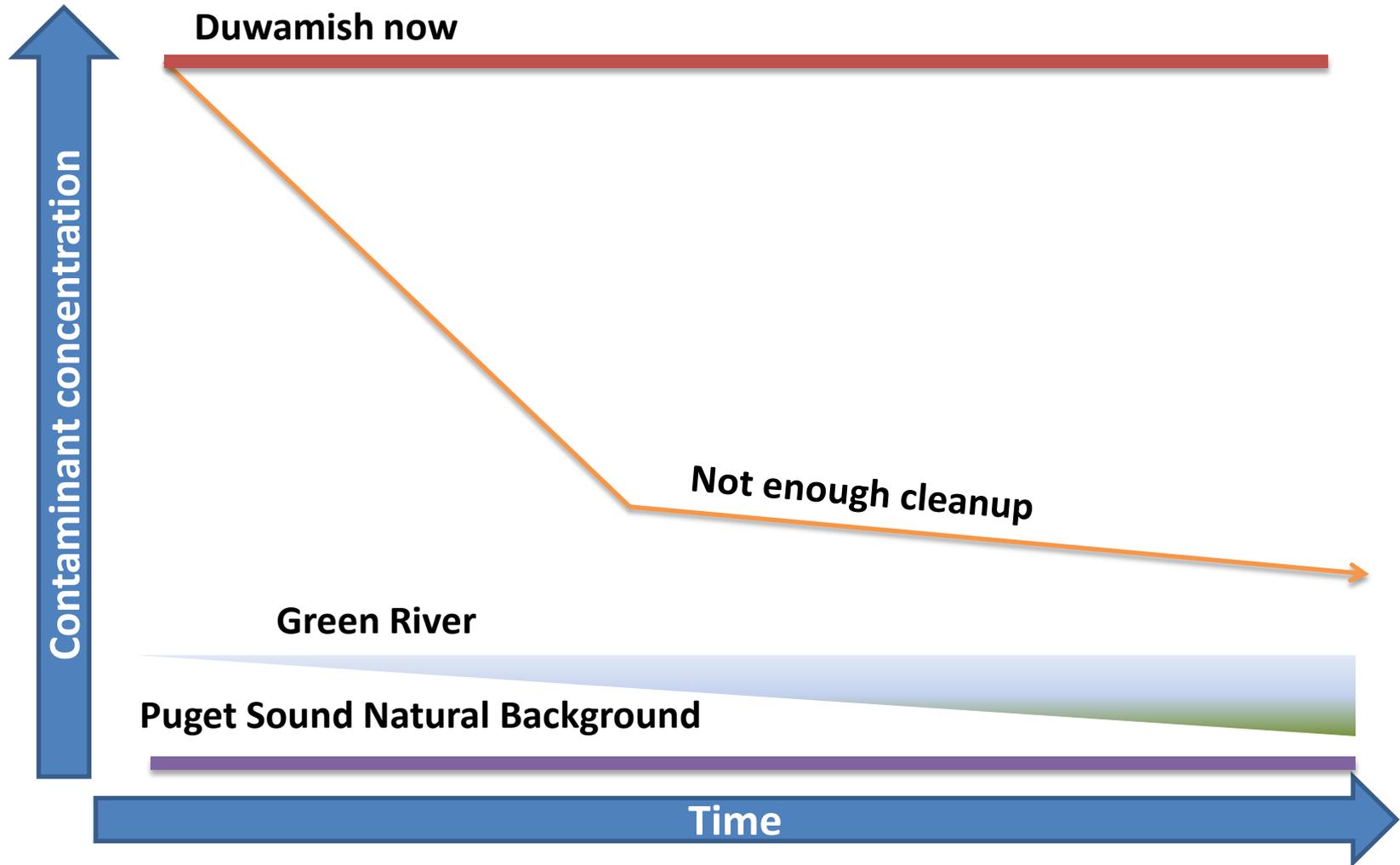
cy – cubic yards

	Area	Time	Cost	Follow-Up
 <p>Dredging</p>	84 Acres			
 <p>Capping</p>	24 Acres	7 Years		
 <p>Enhanced Natural Recovery (ENR)</p>	48 Acres			
 <p>Monitored Natural Recovery (MNR)</p>	256 Acres	10 Years		
	412 Acres	17 Years	\$305 Million	

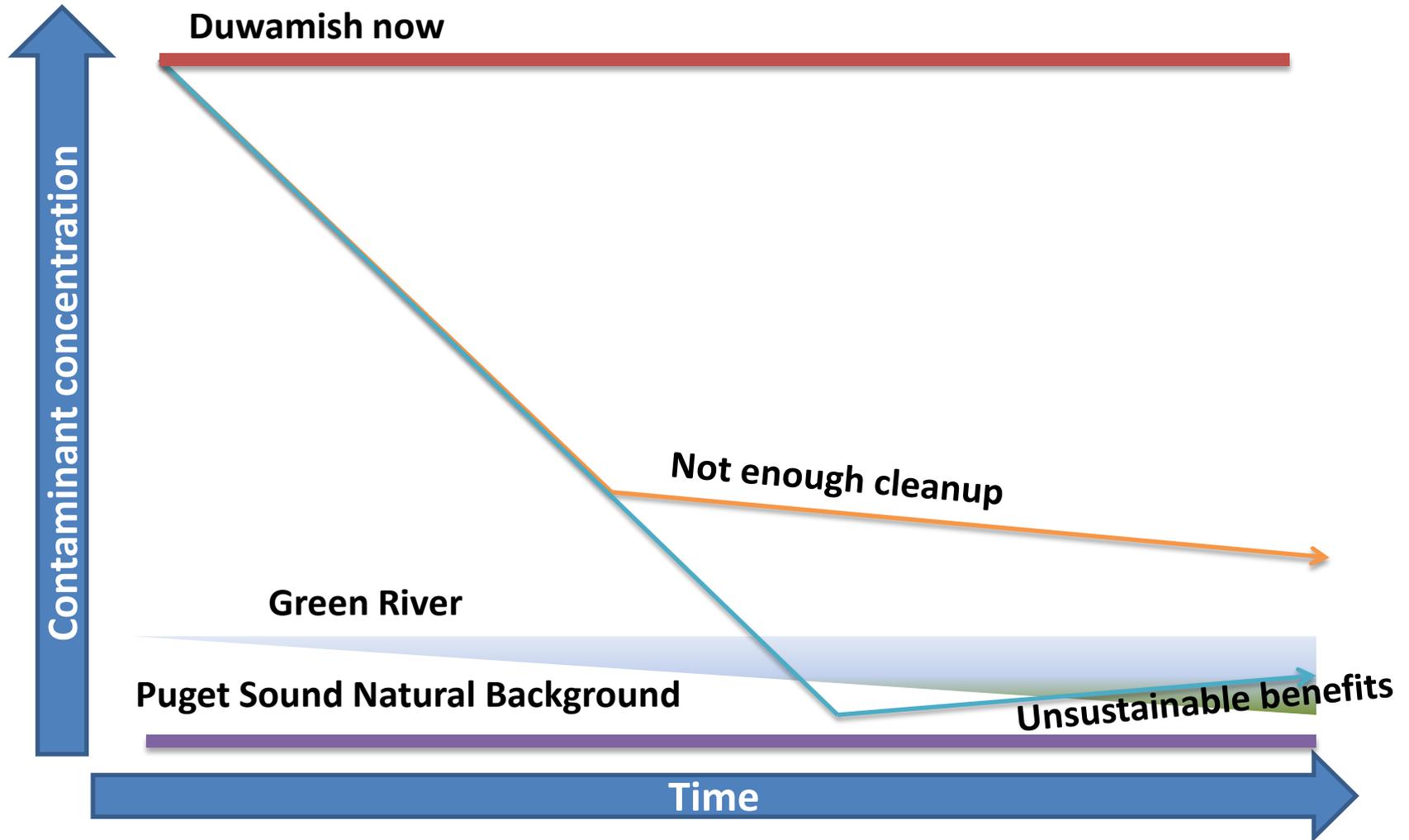
How Much Cleanup is Enough?



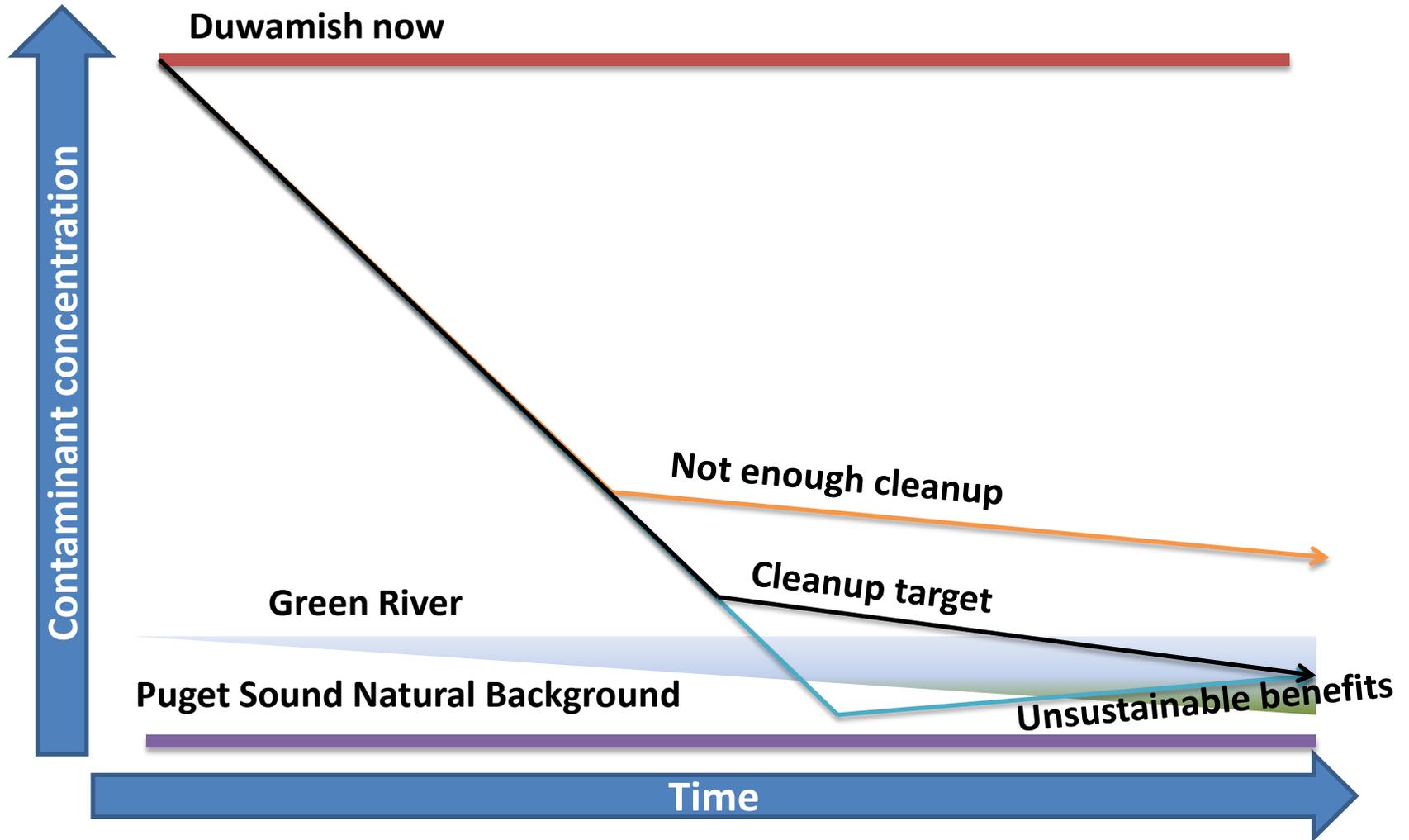
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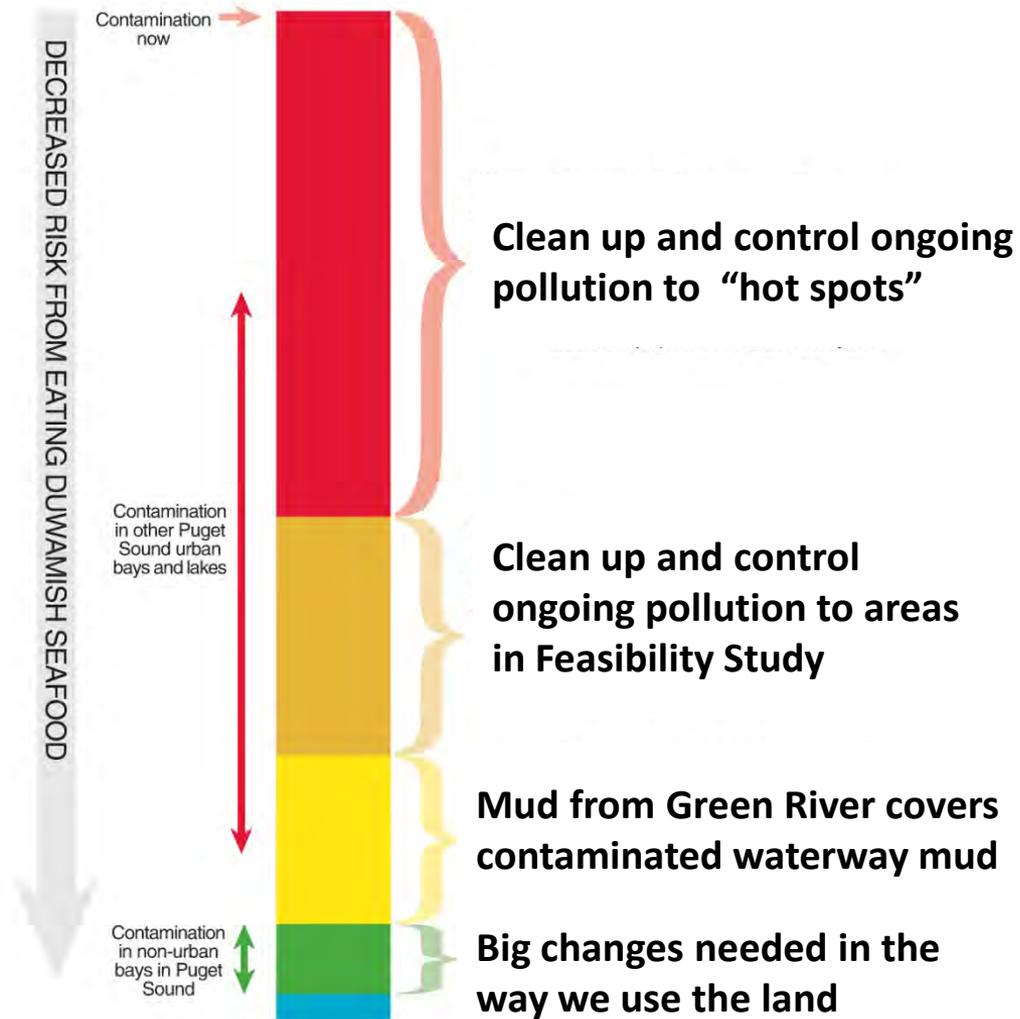
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How Much Cleanup is Enough?



What is Needed to Clean the Duwamish?

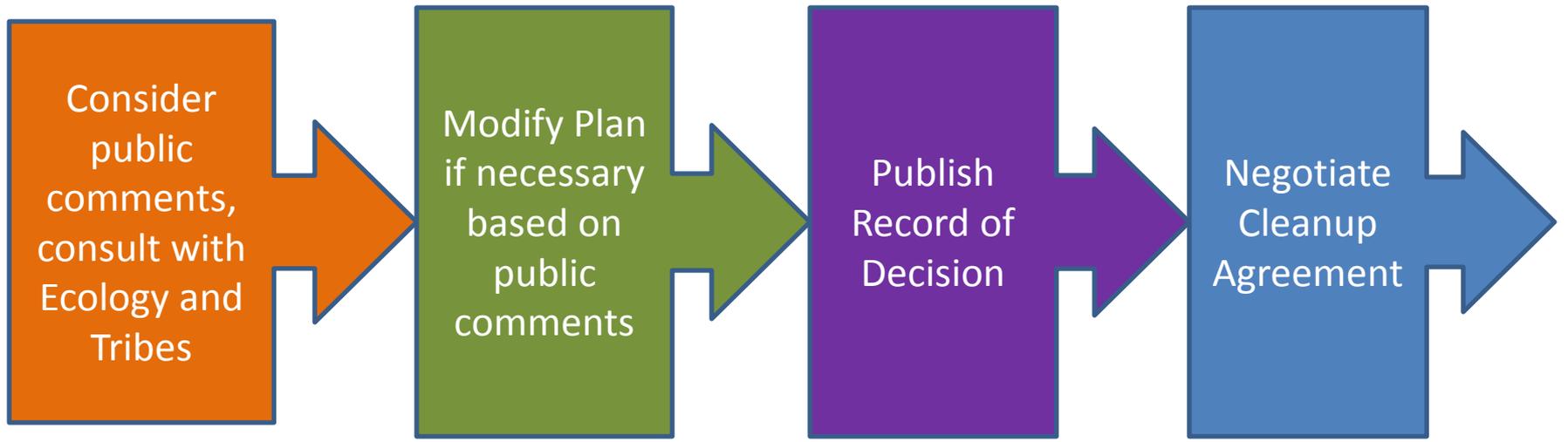


EPA's Plan Considers Environmental Justice

- Cleanup is designed to protect people who eat more seafood than the average population
- Impacts to the community during the cleanup will be reduced to the extent possible
- Long-term benefits to the community were considered

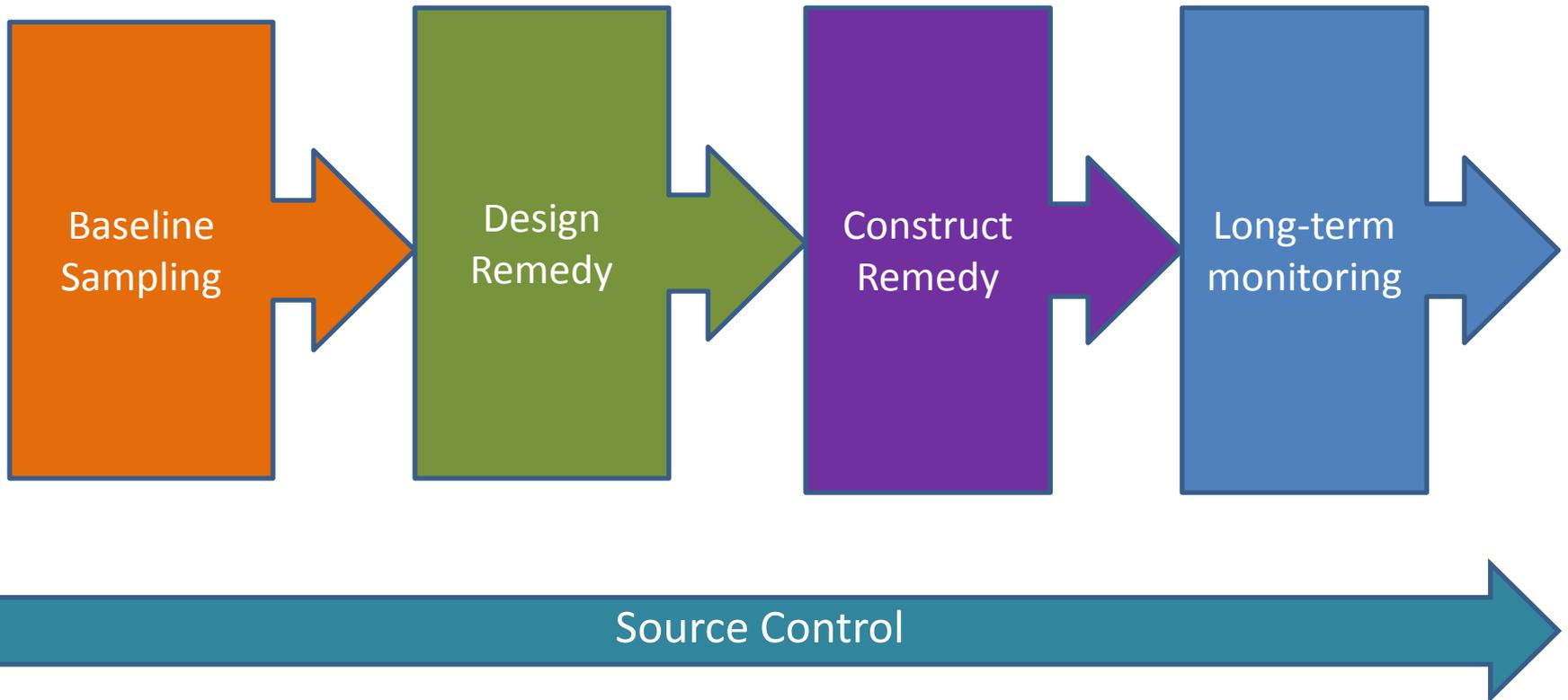


What Happens Next



What Happens Next

2016 +





**Thank you
for your
comments**