



Portland Harbor Superfund Site

Project Overview

April 15, 2008





Superfund – CERCLA

Comprehensive Environmental Response Compensation and Liability Act

- enacted by congress in 1980





Superfund

- Cleanup the nation's uncontrolled hazardous waste sites
- Chemical and petroleum industry tax for a trust fund to cleanup abandoned or uncontrolled sites
- Federal authority to respond directly
- Provided for liability of parties responsible for releases at sites.



Superfund Programs

- Removal Program
- Remedial Program
- Emergency response
- Long-term cleanups
- Spills, direct threats
- National Priorities List
- Early Actions



PA/SI → Preliminary Assessment/Site Investigation

HRS → Hazard Ranking System scoring

NPL Listing → National Priorities List site listing process

RI Remedial Investigation / FS Feasibility Study → Remedial Investigation / Feasibility Study

Proposed Plan → Proposed Plan

ROD Record Of Decision → Record Of Decision

RD Remedial Design → Remedial Design

RA Remedial Action → Remedial Action

O & M Operation and Maintenance → Operation and Maintenance

Deletion From NPL → Deletion

Superfund Remedial Process



Natural Resource Damages

- CERCLA provides authority for assessment and restoration of natural resources injured by a hazardous substance release or response
- Protection of natural resources – held in trust for the public – federal, state and tribal responsibility





Background

- Lower Willamette River from Swan Island to the southern tip of Sauvie Island
- Heavily industrialized for past 100 years
- Many types of industries:
 - Ship repair and maintenance
 - Pesticide manufacturing
 - Wood treating
 - Bulk petroleum storage





Lower Willamette River Fish

- 39 species
- 3 runs of chinook salmon
- 2 runs of steelhead
- Individual runs of coho and sockeye salmon
- Pacific lamprey
- Some are endangered species



1888



2001



1921 | Guilds Lake Fill & Swan Island Before Airport



Portland Harbor Superfund Site – bank fishing



Project Milestones

- 1997 - Site Investigation
- December 2000 - NPL Listing
- September 2001 - AOC signed with LWG
- 2002 – Round 1 sampling
- 2004 – Remedial Investigation Feasibility Study (RI/FS Work Plan) and Field Sampling Plan Development
- 2004/5 – Round 2 sampling

1997 Sediment Investigation

DEQ and EPA investigation identified elevated levels of contaminants in shallow near-shore sediments in the Lower Willamette River (RM 3.5-9.2)

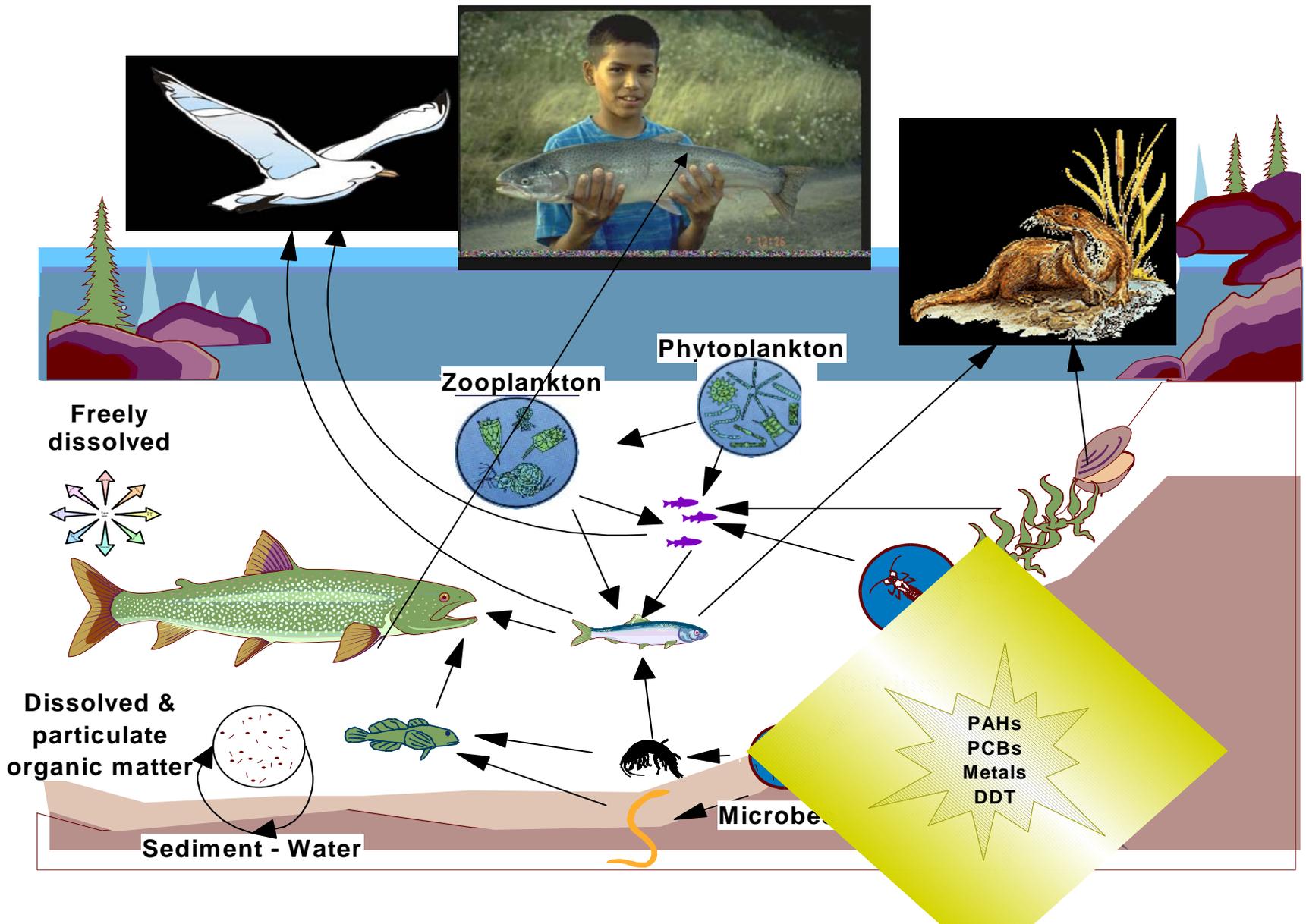


Contaminants

- Metals
- Pesticides
- PAHs
- Semi-volatile organics
- PCBs
- Herbicides
- Dioxins, Furans

Sediment

- Habitat for benthic organisms
- Contaminated sediments
 - Reservoir of contamination
 - Benthic organisms have direct contact
 - Exposure varies based on toxicity, organism
 - Bioaccumulation through food web



Gould and
McCormick and
Baxter were
previously listed
as Superfund
Sites.

McCormick –
construction
complete

Gould – complete
deleted





NPL Site Listing

- Data met criteria for NPL listing
- Portland Harbor Site proposed for listing
- Public comment - Broad support for listing – trustees, tribes, environmental groups, public, Governor support
- Added to the NPL in December 2000.





2001

2002/2003

Summer 2004

Fall 2004

Winter 2005

AOC
MOU

Begin Round 1
Work Plan

ROUND 1
SAMPLING:
•Fish Tissue
•Sediment
•Bathymetry

Approved Work
Plan and Field
Sampling Plan

ROUND 2A
SAMPLING:
•Surface
•Subsurface
•Bioassays

Round 1 Site
Characterization
Report

ROUND 2A
SAMPLING:
•Surface Water
•Groundwater pilot

Step 1 Hydro
Model
Report

ROUND 2A
SAMPLING:
•High Flow
Surface Water

Spring 2007

Fall 2006

Fall 2005

Summer 2005

Round 2 Report

ROUND 3A
SAMPLING:
•Sturgeon
•Storm Water

Framework
Issues

ROUND 3A
SAMPLING:
•lamprey
•Up & downstream
•Surface Water

Food Web
Model Report

ROUND 2B
SAMPLING:
•Benthic (clams)
•Groundwater

Round 2A
Data Report

ROUND 2B
SAMPLING:
• Sediment
Cores
•Subyearling
Chinook

Summer/Fall 2007

2008

2009

2010

F&T Model
Report

ROUND 3B
SAMPLING:
•Biota Tissue
•FS (N&E)
•Risk (bioassay)

 Draft RI and
Baseline
Risk
Assessments

Draft FS
Report

Proposed
Plan and
Record of
Decision

Portland Harbor Remedial Investigation and Feasibility Study

Memorandum of Understanding

- EPA
- DEQ
- US Fish and Wildlife Service
- Oregon Department of Fish and Wildlife
- National Oceanic and Atmospheric Administration

Six tribes:

- Siletz
- Grand Ronde
- Warm Springs
- Nez Perce
- Yakama
- Umatilla

Site Management

MOU specified:

- EPA will direct in-water investigations
- DEQ will direct uplands investigations
- State and federal natural resource agencies and six tribal governments will actively participate in technical work.

Natural Resource Trustee Agencies

- NOAA, US Fish & Wildlife, State Fish & Wildlife, DEQ
- Separate funding for NRDA
- Goal is to seek opportunities for restoration concurrent with CERCLA activities
- ESA coordination

Tribal Governments Involved in Portland Harbor Process



- The Confederated Tribes of the Grand Ronde Community of Oregon
- The Confederated Tribes of Siletz Indians of Oregon



- The Confederated Tribes of the Umatilla Indian Reservation
- The Confederated Tribes of the Warm Springs Reservation of Oregon



- The Confederated Tribes and Bands of the Yakama Indian Nation
- The Nez Perce Tribe



General Tribal Issues

- Protect Indian treaty fishing rights
- Uphold federal obligations
- Protect rights as natural resource trustees
- Protect cultural resources
- Salmon, sturgeon & lamprey



Negotiations

- General notice letters sent to 69 Potentially Responsible Parties (PRP's)
- To conduct Remedial Investigation and Feasibility Study
- Negotiations began in late January 2001





Administrative Order On Consent

Ten potentially responsible parties, the “Lower Willamette Group” signed Order with EPA to conduct investigation

- City of Portland
- Atofina (Arkema)
- ConocoPhillips
- Northwest Natural
- Chevron
- Port of Portland
- Gunderson
- Time Oil
- Union Pacific Railroad
- Oregon Steel



Remedial Investigation / Feasibility Study

PA/SI

HRS

NPL
Listing

RI
Remedial
Investigation

FS
Feasibility
Study

Proposed
Plan

ROD
Record Of
Decision

- Characterize site conditions
- Determine the nature/extent of contamination
- Assess the risk to human health and the environment
- Develop, screen, and evaluate alternative cleanup actions

RD
Remedial
Design

RA
Remedial
Action

O & M
Operation and
Maintenance

Deletion
From NPL





Project Goals

(included in Statement of Work)

Survival growth and reproduction of:

- Benthic organisms
- Fish and Wildlife
- Humans, including sensitive and subsistence populations.
- Endangered Species under ESA



ATSDR

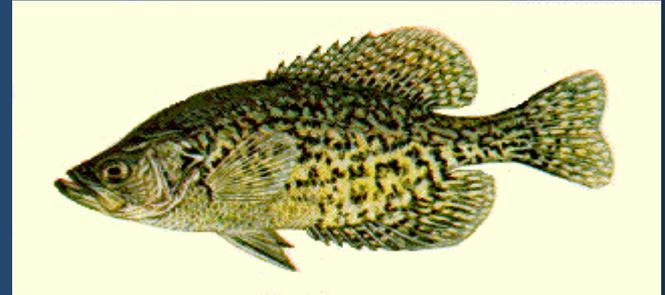
Preliminary Health Assessment

- Draft report released in January 2002
- Recommended fish sampling
- Recommended investigation of fish consumption

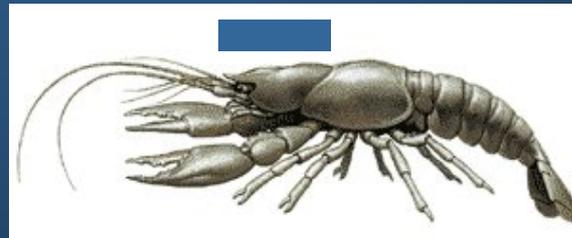
Resident Species



Small mouth bass



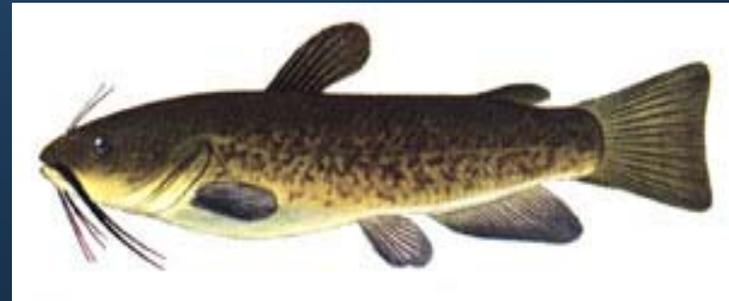
Black crappie



Crayfish



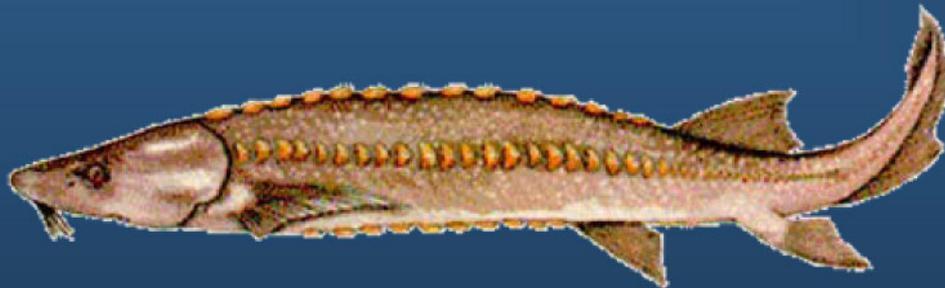
Common carp



Bullhead catfish

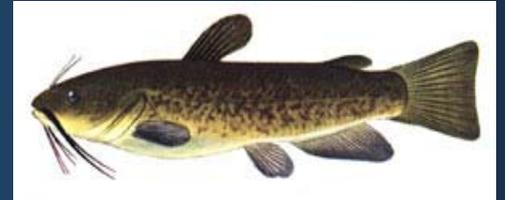
Additional Study of non-resident species:

- Oregon Department of Human Services
- Oregon Department of Fish & Wildlife
- Agency for Toxic Substances & Disease Registry
- EPA Region 10
- City of Portland

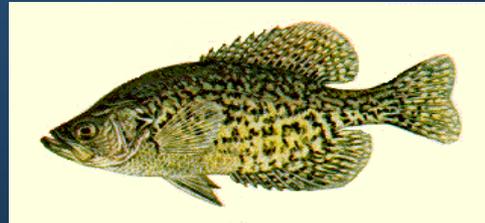


Summary

- Metals detected in fish are relatively low
- Some fish have high organic contamination loads~



- Other fish have lower organic contamination loads~



DHS issued advisory for Portland Harbor area of lower Willamette June 2004 for resident fish

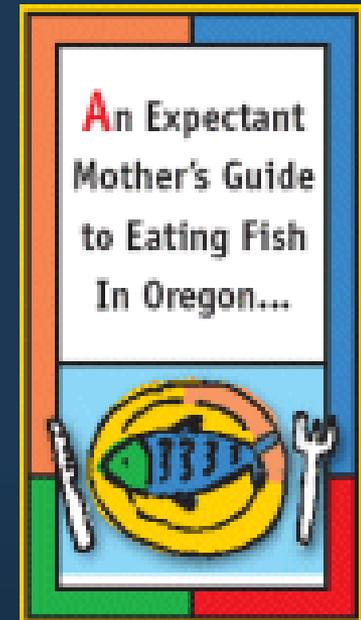
Based on results showing elevated PCBs

Area between Sauvie Island and Freemont Bridge

Women of childbearing age, children – avoid eating resident fish (carp, bass, catfish)

Others – no more than 8 ounce meal/month

There is also an advisory in effect for mainstem of the Willamette River based on PCBs mercury and pesticides



OREGON FISH ADVISORY

Fish from these waters may be harmful to eat, especially for children and pregnant or nursing women.

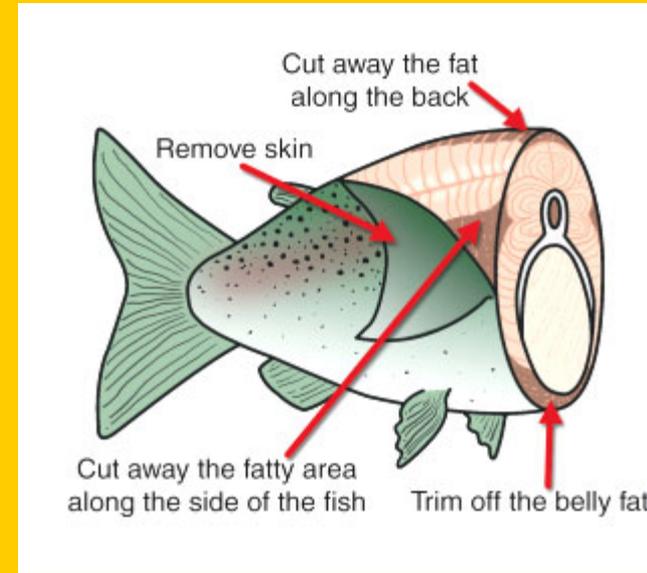


Atención: Los peces de estas aguas pueden ser dañinos al comerlos, especialmente a mujeres embarazadas, mujeres que están lactando (amamantando) y a niños.

Chú ý: Ăn cá từ những vùng nước này có thể sinh nguy hại, nhất là cho trẻ em, phụ-nữ đang mang thai hoặc cho con bú.

注意：食用這些水域的魚類，可能會使健康受損，尤其對兒童、懷孕婦女、或正在用母乳哺乳的母親影響更大。

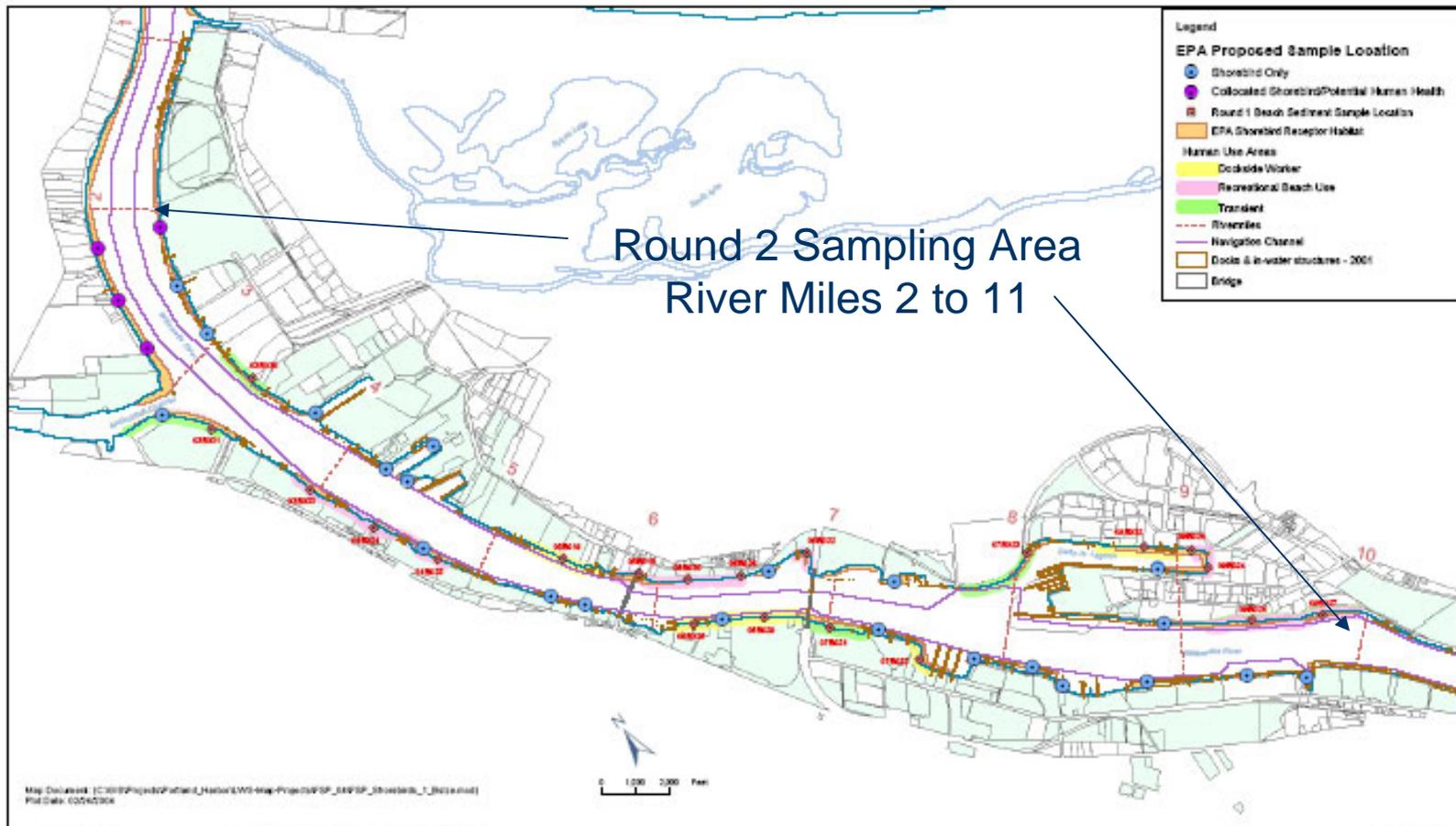
Внимание: Рыба из этой воды может быть вредной для употребления, особенно для детей, беременных и кормящих женщин



AVOID Evite comer Tránh 避免 ИЗБЕГАЙТЕ



Round 2 Sampling Area



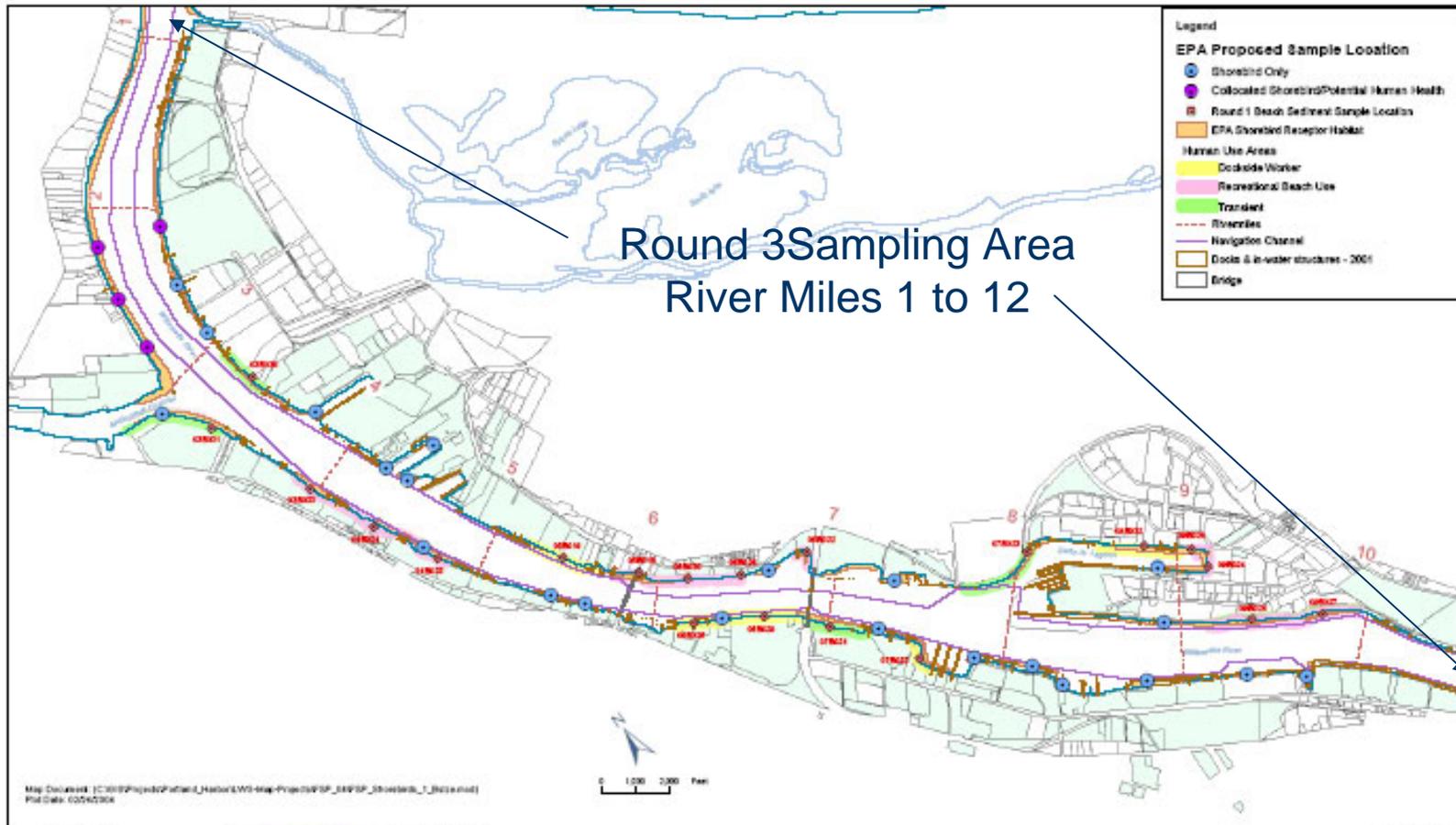
Round 2 Sampling Area
River Miles 2 to 11



LEGEND
 EPA Proposed Sample Location
 Shorebird Only
 Collocated Shorebird/Potential Human Health
 Round 1 Beach Sediment Sample Locations
 EPA Shorebird Responder Habitat
 Human Use Areas
 Dockside Worker
 Recreational Beach Use
 Transient
 River Miles
 Navigation Channel
 Docks & in-water structures - 2001
 Bridge

Figure 2-1
Portland Harbor R0F8
Round 2 Field Sampling Plan Addendum
Shore and Beach Sediment Sample Locations

Round 3 Sampling Area



Round 3 Sampling Area
 River Miles 1 to 12



LEGEND
 EPA Proposed Sample Location
 Shorebird Only
 Collocated Shorebird/Potential Human Health
 Round 1 Beach Sediment Sample Location
 EPA Shorebird Responder Habitat
 Human Use Areas
 Dockside Worker
 Recreational Beach Use
 Transient
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 Bridge

Figure 2-1
 Portland Harbor R0F8
 Round 2 Field Sampling Plan Addendum
 Shore and Beach Sediment Sample Locations

Challenges

- Bottom of Willamette watershed
- Dynamic river environment
- Working harbor, federal navigation channel
- Multiple sources and contaminants
- No sediment cleanup standards
- ESA species

Community Involvement

- Community Involvement Plan Feb 2002 - later updated
- Fact sheet/site updates - 900 on mailing list
- Community Advisory Group
- TAG Grantee - Willamette Riverkeeper (supplemental funding)