

# Black Sand Beach

## Slag Removal and Beach Replacement Project

Upper Columbia River

Stevens County, WA

November 15, 2010

Presented by the



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# Black Sand Beach - 2007



# Quotes and Perspectives

**“In order for something to become clean, something else must become dirty.”**

- *Imbesi's Conservation of Filth Law*

**“The river moves from land to water to land, in and out of organisms, reminding us what native peoples have never forgotten: that you cannot separate the land from the water, or the people from the land.”**

- *Lynn Noel, Voyages: Canada's Heritage Rivers*

**“Don't grow up too quickly, lest you forget how much you love the beach.”**

- *Michelle Held, Beach Quotes*

# Background Info

- Located approximately 3 miles south of the U.S.-Canadian border
- Southeastern bank of Upper Columbia River
- Approximately 1 acre beach area
- Popular site for recreation use
- “Black Sand” largely consists of slag material from the Trail smelter



# Site Location



# Aerial View





# Upstream Beach Area



# Downstream Beach Area



# Key Project Elements

## Phase 1 - Planning

- Voluntary Independent Interim Action Agreement
- Work Plan Preparation and Engineering Design
- State Environmental Policy Act (SEPA) Review
- Community Outreach, Meetings and Public Participation
- Permitting (JARPA, HPA, Shorelines)
- Cultural Resources – Archaeological Survey
- Wetland Inventory



# Key Project Elements

## Phase 2 – Construction

- Select a Contractor
- Identify Clean Fill Material Sources
- Mob and Construction Set-up
- Install Best Management Practices
- Excavate Slag – Place and Grade Clean Fill
- Haul the Slag Across the Border (TriMac Facility)

# Key Project Elements

## Phase 2 – Construction (cont.)

- Monitor Water Quality (turbidity and pH)
- Use Local Labor and Resources
- Emphasize Worker and Public Safety
- Continuous Cultural Resources Monitoring
- Restore Access Roads

# It takes a village.....

- Local Community/CCC
- Teck American Inc.
- URS
- Envirocon
- DNR
- Stevens County
- Corps of Engineers
- CCTs and Spokane Tribe
- Dept. of Ecology
- Adar/Hemphill Trucking
- Colville Valley Concrete
- Columbia River Rock
- BNSF
- TriMac Facility
- U.S.-Canadian Customs
- Mustang Grill & Many others!

# Why Focus on Black Sand Beach?

- **Moderate-sized slag deposit**
- **Slag contains hazardous substances that can harm the river and aquatic life**
- **Slag is eroding and washing back into the river**
- **Provide a cleaner beach area for recreational use and enjoyment**
- **State trust land - managed by DNR**

# Why Focus on Black Sand Beach?

- **Prioritized for funding by WA State Legislature on the 2009-2011 Capital Budget**
- **Teck agreed to pay for all costs associated with the slag removal and beach replacement**
- **Ongoing EPA study will take many years to complete before reaching cleanup decision**



# What's been said about this work

- “It’s a starting point...replacing the slag with clean fill material will benefit people and the environment.” -**Ecology**
- “It’s an opportunity ...to get something done that everyone felt should be done...It will lower some of the concerns that people have about the river... it’s nice to work on something with a tangible, positive result for the community that we can all agree on.” -**Teck**

# Construction Steps & Photos

- 1) Evaluate Slag Thickness**
- 2) Install Silt Barrier**
- 3) Excavate Along River's Edge – Stockpile Slag**
- 4) Install Clean Fill “Soil Berm”**
- 5) Suction Slag From Bedrock and Downstream Area**
- 6) Install Layered Fill – Cobbles, Gravel, Sand**
- 7) Install Erosion Protection Pads**
- 8) Establish Final Beach Grades**

# Initial Slag Evaluation Upstream Beach





# Upstream Beach Test Pit





# Upstream Beach Test Pit





# Initial Slag Evaluation

## Downstream Beach



# Downstream Beach Test Pit





# Downstream Beach Test Pit



# River's Edge Excavation





# River's Edge Excavation





# River's Edge Excavation





# River's Edge Excavation





# River's Edge Excavation





# River's Edge Excavation





# Erosion Protection Layer





# Layered Fill Placement





# Layered Fill Placement





# Layered Fill Placement





# Layered Fill Placement





# Bedrock Cleaning





# Suction Removal of Slag





# Suction Removal of Slag





# Near-River Fill Taking Shape





# Near-River Fill Taking Shape





# Sand Fill Placement Upstream Beach





# Sand Fill Nearing Grade

## Upstream Beach





# Slag Excavation and Stockpiling

## Downstream Beach





# Cobble Backfill Placement

## Downstream Beach





# Slag Excavation – Nearing the End Downstream Beach





# Fill Placement – Working Inland Downstream Beach





# Fill Placement – Checking Grades Downstream Beach





# Final Stages of Excavation

## Downstream Beach





# Erosion Protection Pad Installation Downstream Beach





# The Final Product

## Downstream Beach



# The Final Product

## Downstream Beach





# The Final Product

## Downstream Beach





# The Final Product

## Upstream Beach





# The Final Product

## Upstream Beach



# Just for the Record...

- **9100** Tons of Slag-Enriched Sediment Removed
- **647** Truckloads Hauled to Canada
- **6900** Cubic Yards of Clean Sand, Gravel and Cobbles Used to Build the Replacement Beach
- **50%** of the project costs went to local business for labor and expenses



# Just for the Record...

- **BSB removal action represents <0.1%** of the total quantity of slag discharged to the river at Trail
- **Zero** - Accidents and/or safety incidents
- **Priceless:** Community support and involvement

# Looking Ahead: What about Erosion or Recontamination?

- **Teck will monitor the beach for up to 5 years and document any notable changes**
- **If erosion occurs, assume it to be part of natural, ongoing river processes in the floodplain**
- **Sampling and analysis of beach sediment may occur if recontamination concerns arise**



# Project Contacts

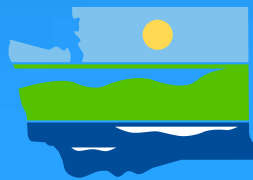
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**Thank You to everyone  
who helped make this  
project a success.**



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