

# Introducing the Columbia River Treaty and its review

Open Houses  
April-May 2013



# Today's presentation

- ◆ Treaty Basics
- ◆ Purpose of 2014/2024 Treaty Review
- ◆ Mechanics of Treaty Review
- ◆ Stakeholder involvement and input
- ◆ Why this matters to Portland area
- ◆ Next steps

# The Columbia River



- ◆ Originates in Canada
- ◆ Flows over 1,240 miles through 2 countries
- ◆ 259,000 square mile drainage area
- ◆ 15% of basin area in Canada with 38% average annual flow from Canada.
- ◆ Over 60 large dams and reservoirs owned and operated by many different entities for multiple purposes.

# Operating a system for multiple uses

- Flood risk management
- Hydropower
- Fish and wildlife
- Navigation
- Water supply
- Recreation



# What is the Columbia River Treaty?

An agreement to manage water for flood risk management and power

Between Canada and the U.S.  
Implemented in 1964

“Relating to International  
Cooperation in Water Resource  
Development in the Columbia  
River Basin”



Treaty monument at Libby Dam (Montana)

# Primary purposes

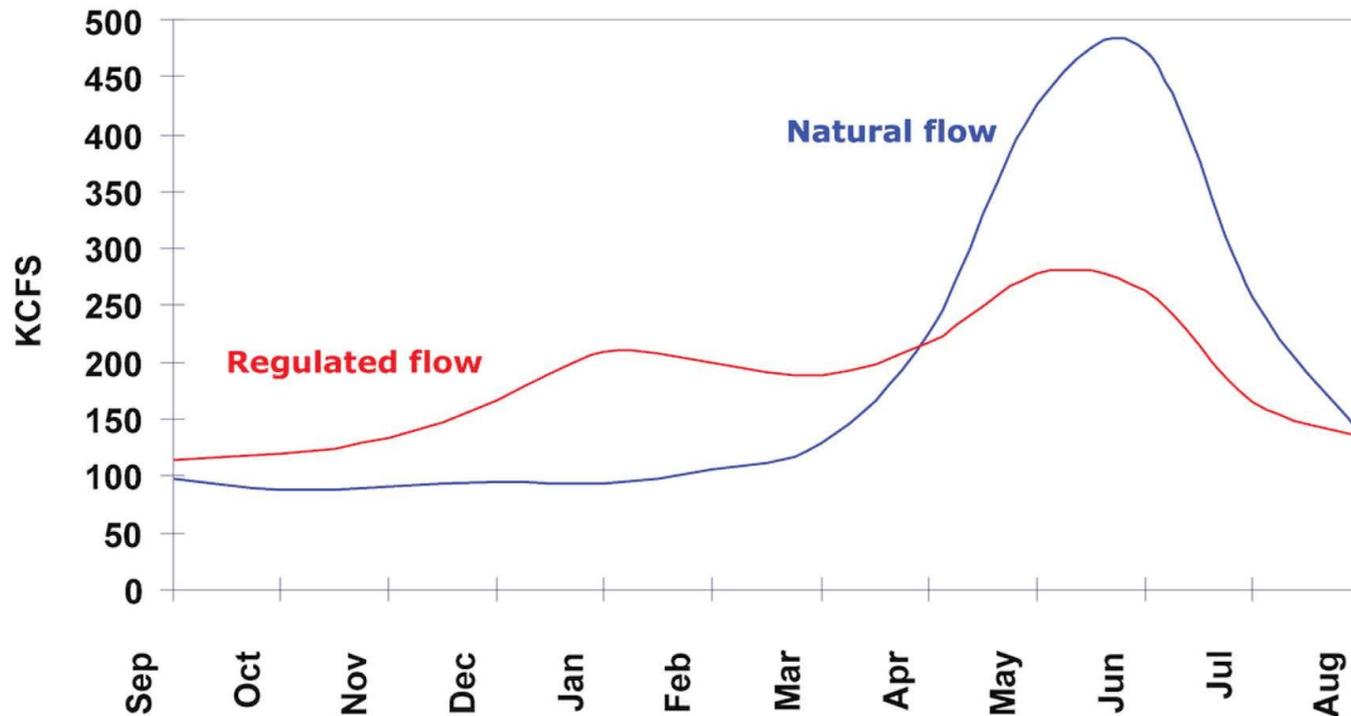
Capture the spring snowmelt in Canada to refill the reservoirs and manage peak flood flows along the Columbia and specifically at Portland, OR.



Release water from Canadian Treaty reservoirs for power production at all Columbia River dams from Mica in British Columbia through Bonneville, east of Portland

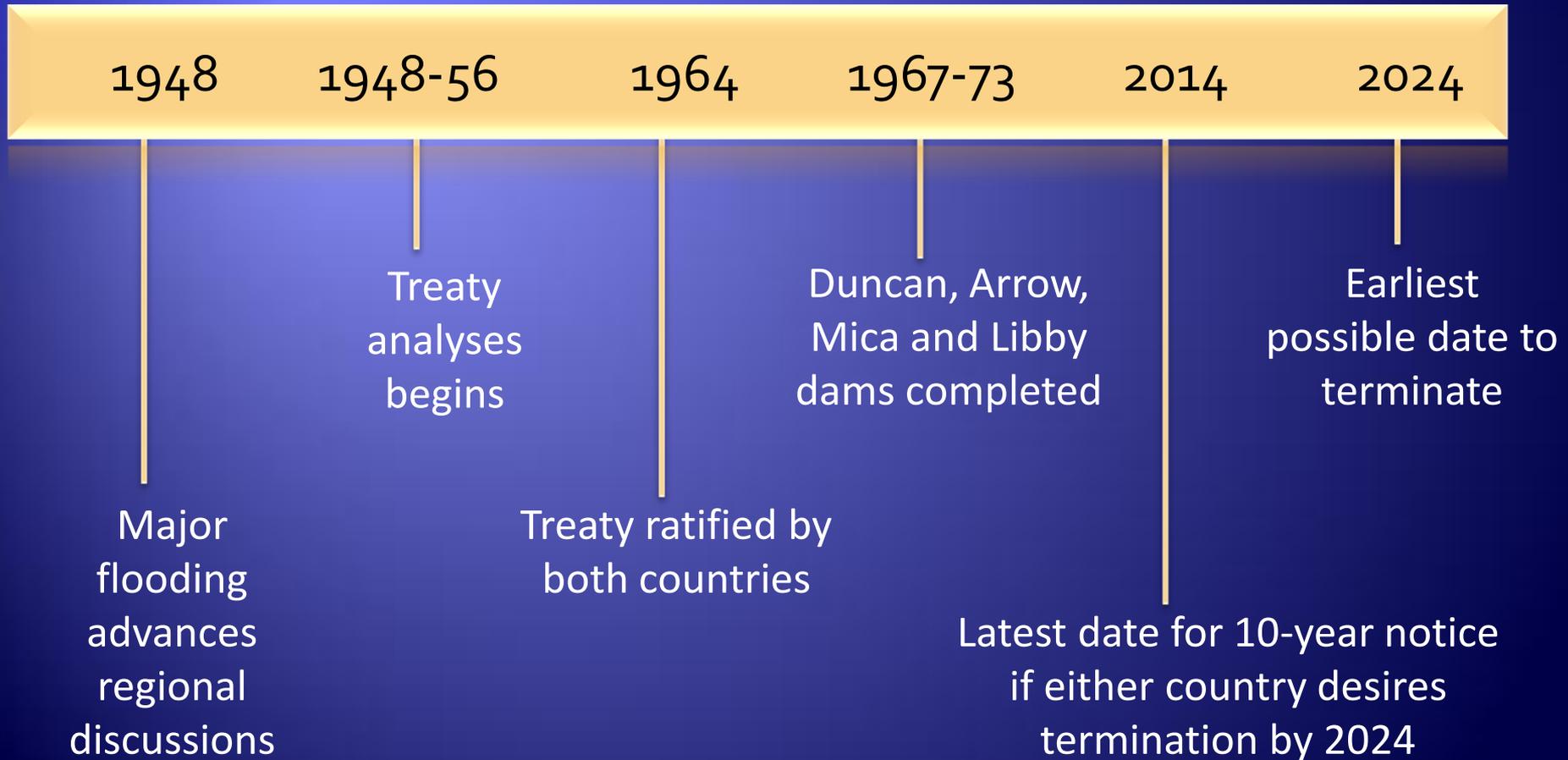
1948 flood devastated homes, farms, and levees from Trail, British Columbia to Astoria, Oregon

# Flow management



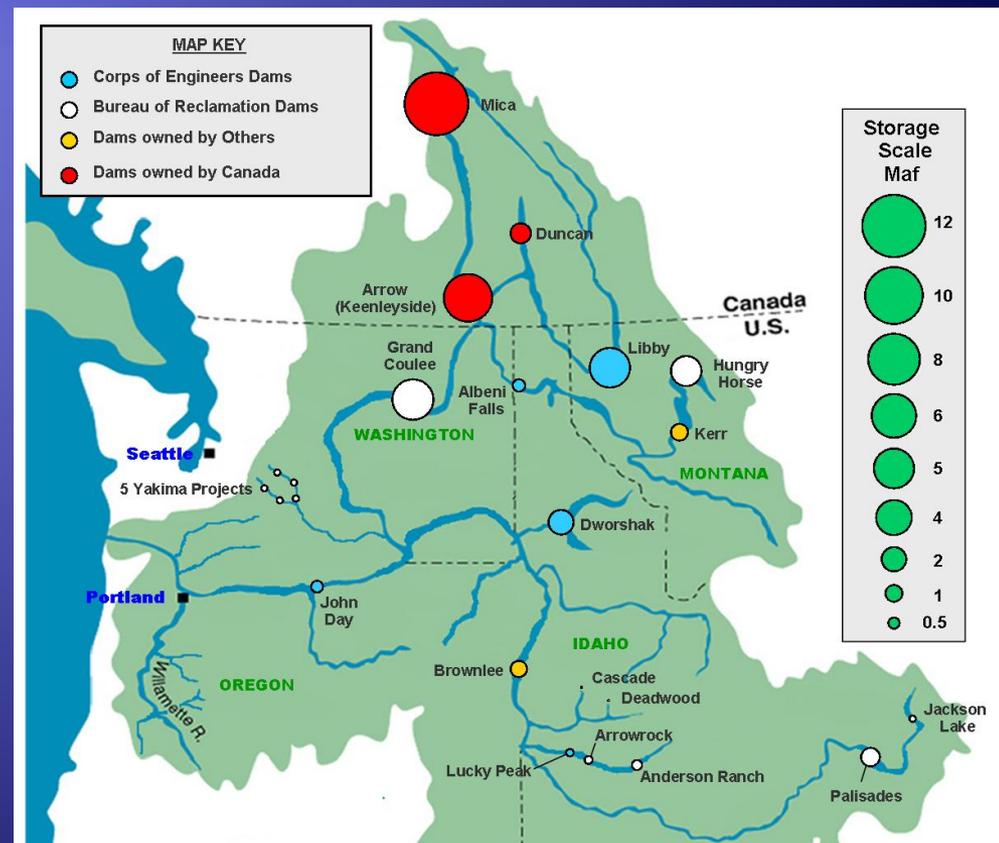
*Kcfs is a flow rate measured by 1000 cubic feet of water per second*

# Key dates in history



# Treaty benefits

- ◆ Canadian storage - 51% of total basin capacity
- ◆ Infrastructure and governance
- ◆ Power coordination agreements



# Power provisions

- ◆ Canada must operate 15.5 million acre-feet of Treaty storage to optimize power generation downstream in both nations.
- ◆ U.S. must deliver power to Canada equal to one-half the estimated U.S. power benefits from the operation of Canadian Treaty storage, This **Canadian Entitlement** currently worth about \$250-\$350 million annually.
- ◆ British Columbia owns Canadian Entitlement
- ◆ Five Mid-Columbia non-federal hydro projects deliver 27.5% of Canadian Entitlement to BPA for delivery to B.C.



# Flood risk management provisions

- ◆ Canada obligated to operate 8.95 million acre-feet of storage to help eliminate or reduce flood damages in both Canada and the U.S.
- ◆ Canada must also operate all additional storage in these dams on an on-call basis (as requested and paid for).  
*This has never been used to date.*
- ◆ U.S. paid Canada \$64.4 million for expected future flood damages prevented in U.S. from 1968 through 2024.
- ◆ U.S. purchase of assured flood storage expires in 2024.

*an acre-foot is 1 acre of water to a depth of 12 inches*



# Organization



## U.S. Entity:

- Bonneville Power Administration Administrator
- U.S. Army Corps of Engineers' Northwestern Division Engineer

## Canadian Entity:

- B.C. Hydro, a province-owned electric utility
- Province of British Columbia (disposal of Canadian Entitlement)

# Why review the Treaty now?

- ◆ While Treaty has no specified end date, either nation can unilaterally terminate most provisions as early as September 2024 with 10 years' written notice.
- ◆ 2014 is the latest date for either nation to declare its intentions to terminate at the earliest possible date of 2024.
- ◆ Important changes in flood risk management provisions in 2024.

# Treaty Review goal

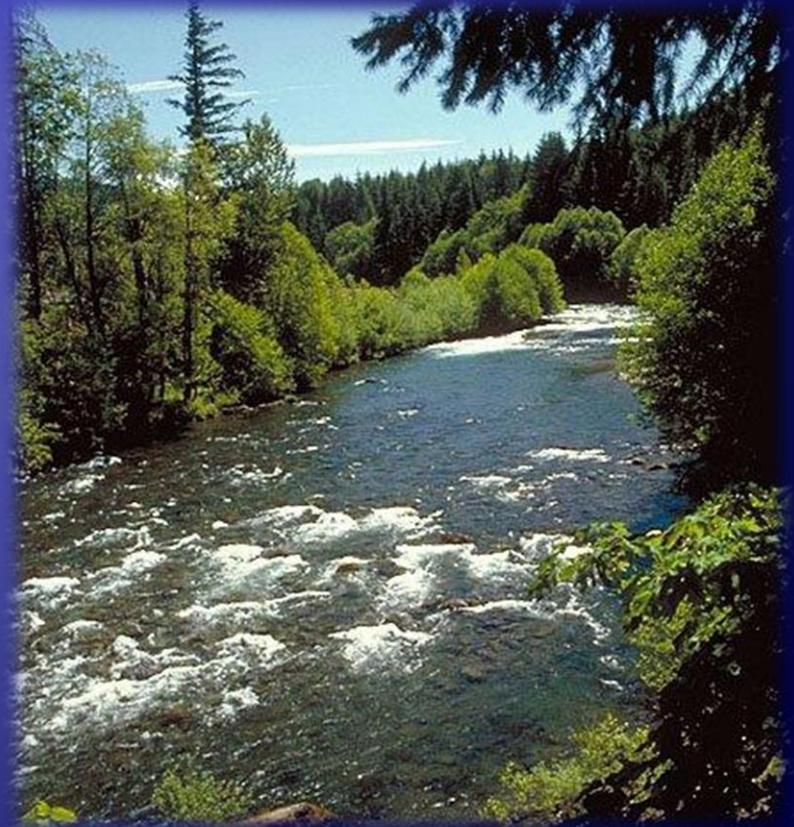
- ◆ Enable the U.S. Entity to provide an informed and regionally supported recommendation to the U.S. Department of State by end of 2013.
  - ◆ Determine if the United States better off with the Treaty or without the Treaty

# Treaty Review is not

- ◆ A National Environmental Policy Act (NEPA) process
- ◆ An Endangered Species Act (ESA) process
- ◆ The development of a detailed operational plan or implementation plan for the Columbia Basin

# Changes and opportunities

- ◆ The world has changed since 1964.
- ◆ Opportunity to “modernize” the Treaty to reflect regional values and priorities.
- ◆ Opportunity to re-evaluate the value of Canadian Entitlement in terms of today’s power benefits.



# Scope of studies

- ◆ Develop River Management Alternatives that include :
  - ◆ Hydropower
  - ◆ Flood risk management
  - ◆ Ecosystem-based Function
- ◆ Assess benefits and impacts of future Treaty alternatives
- ◆ Better understand sensitivity of future operation to Climate Change

# Opportunity to review

- ◆ What are the possible impacts and benefits from different Treaty futures on:
  - ◆ Water supply
  - ◆ Navigation
  - ◆ Recreation
- ◆ How might these be improved or hindered with a modified Treaty? What if Treaty terminates?
- ◆ Can the Treaty be modified to be resilient and adaptable to future conditions such as climate change?

# Ecosystem analysis

- ◆ How might the Treaty be changed to better reflect ecosystem needs?
- ◆ What are impacts and benefits of various Treaty futures on ecosystems in the Basin?
- ◆ How would these impacts and benefits change if the Treaty were modified or terminated?

# Flood risk management changes

Changes in 2024	In Treaty Review
Assured flood control procedures end in 2024 – with or without the Treaty.	What is the level of flood risk certainty for the U.S. when this assured protection expires?
The U.S. must “call upon” Canada for flood management assistance and pay associated costs.	How often will we have to call upon Canada for flood risk protection?  How much will it cost?
The U.S. must make effective use of its reservoirs before calling on Canada.	How effective use impact U.S. reservoirs and ecosystems?

# Value of Canadian Entitlement

Current Treaty	In Treaty Review
<p>U.S. delivers power in exchange for water storage in Canadian reservoirs. Currently 536 average annual mw; \$250-350 million per year.</p> <p>Power payments are higher than actual benefits produced in the U.S. today.</p> <p>Mid-Columbia utilities deliver 27.5% of power. Remainder delivered by BPA's regional electricity customers.</p>	<p>What are the actual power benefits to the U.S. from the operation of the Canadian projects?</p> <p>Is the Canadian Entitlement a true reflection of the power benefits resulting from Treaty operation?</p> <p>If not, what is a more equitable payment?</p> <p>What should the Canadian Entitlement look like post-2024?</p>

# To answer the questions

## Understand

- Impacts and benefits of current Treaty
- Today's regional needs and priorities.
- Possible future needs & priorities

## Ask

- Can the current Treaty meet those needs?
- Does the Treaty need to be changed?
- Modify current Treaty or develop new one?

## Analyze & Answer

- Collect information
- Evaluate policies, options and potential results
- Assess impacts

## Provide

Informed, regionally supported recommendation

# Study process

## Iteration 1

Develop & test alternative approaches to river management

## Iteration 2

Gather more information by testing the boundaries of Treaty operation

## Iteration 3

Consolidate information from Iterations 1 & 2 to test additional Treaty alternatives

**Recommendation**

## Please note

- ◆ The ultimate decision to terminate or pursue negotiations to modify the Treaty rests with the U.S. Department of State and the Oval Office.

# Scope of Iteration 2 studies

- ◆ Advance 3 alternatives from Iteration 1 for full impact assessment
  - Treaty Continues with 450 and 600 kcfs flood flow objectives (1A-TC and 2B-TC)
  - Treaty Terminates with 450 kcfs flood flow objectives (1A-TT)
- ◆ Analyze specific approaches and operational bookends (components) for more information
- ◆ Consider 4 additional Treaty Terminates Canadian Operations scenarios
- ◆ Incorporated 2 Climate Change scenarios into select Treaty alternatives

## Current Condition (RC-CC\*)

- ◆ This is how the system is managed up to 2024 under current Treaty provisions and current U.S. operations
- ◆ All alternatives and components are compared to the current condition

\* RC-CC: Reference Case, Current Condition

# Defining Alternatives

- ◆ A system of operational, structural and/or non-structural measures
- ◆ Designed to include all three primary purposes
  - Ecosystem-based Function
  - Flood Risk Management
  - Hydropower

# Defining Components

- ◆ System of operational, structural and/or non-structural measures.
- ◆ Formulated to focus on only one primary purposes.
- ◆ Not intended as stand-alone alternatives that could realistically be implemented.
- ◆ Analyzed to better understand the operation and explore the “bookends” of the Columbia River system for a single purpose.
- ◆ Based on what is learned during Iteration 2, components may be combined during Iteration 3 to form comprehensive alternatives.

# Iteration 2 Components – Ecosystem

## **E1 – Natural Spring Hydrograph**

Store and release water from U.S. and Canadian reservoirs to meet a natural flow based on the type of water year, no system flood control, no operation specifically for power

## **E2 – Reservoirs as Natural Lakes**

Generally hold reserves full and pass inflows through, no system flood control, no operation specifically for power

## **E3 – Summer Flows**

Store water in Canadian projects during the fall and release to augment summer flows in U.S.

## **E5 – Dry Year Strategy**

Store water in Canadian projects during winter/early spring to augment spring flow in lowest 20% of water years

# Iteration 2 components – Hydropower

## **H1 – Optimize Canadian and U.S. hydropower system**

Optimize Canadian and U.S. hydropower systems using current projects

## **H2 – Optimize Canadian and U.S. power system with Biological Opinion operations included**

Including fish operations, optimize the Canadian and U.S. hydropower system using current system projects

# Iteration 2 components – Flood risk

## **F1 – Full use of authorized storage**

Maximize use of authorized U.S. storage (full draft as needed)

## **F2 – No Called Upon flood storage**

No use of Canadian storage for U.S. flood risk management

## **F3 – Modify U.S. levees to perform to authorized levels**

Evaluate ability to reduce U.S. flood risk if all U.S. levees perform to authorized level

# Iteration 2 Impact Assessment

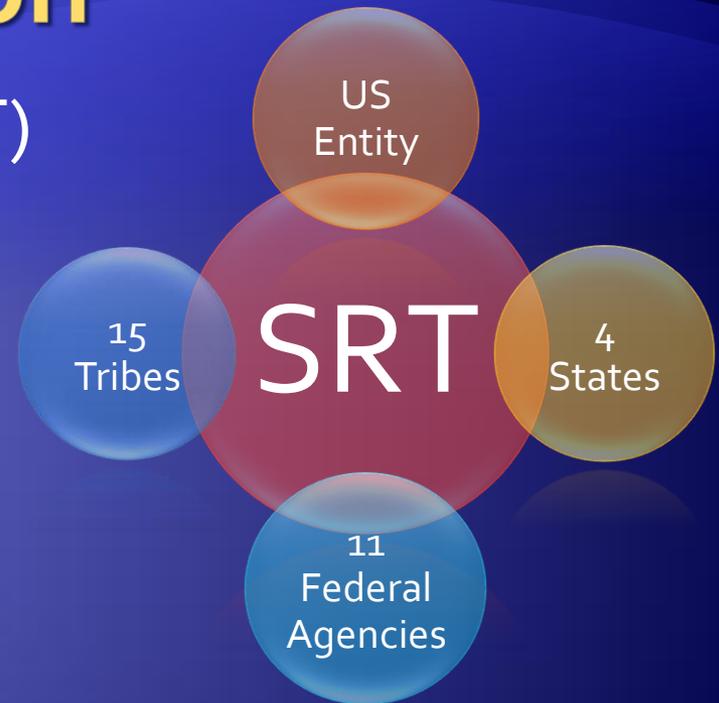
- Ecosystem-based function
  - Water quality
  - Resident fish
  - Anadromous fish
  - Estuary
  - Wildlife
  - Cultural resources
- Flood risk management
- Hydropower
- Water supply
- Recreation
- Navigation
- Sediment and toxics
- Climate change

# Where we are now



# Regional collaboration

- ◆ Sovereign Review Team (SRT)
  - 4 States
  - 15 Tribes (5 representatives)
  - 11 Federal Agencies
- ◆ Sovereign Technical Team
  - Technical leads and staff representing SRT members
- ◆ Each team has been meeting at least monthly since Fall 2010
- ◆ Influence and advise on every aspect of Treaty Review



# Regional stakeholders and public

- ◆ Making sure we are accountable
  - Transparency, clarity in the process
  - Frequent opportunities to be involved
- ◆ Since 2011
  - Over 55 meetings, presentations and discussions with a wide variety of interests throughout the four-state region.

# Regional and national coordination

- ◆ U.S. Department of State
  - Monitoring and engaged in Treaty Review
- ◆ Interagency Policy Committee (IPC)
- ◆ Regional federal agency coordination
- ◆ Congressional delegation

# Coordination with Canada

- ◆ Ongoing Treaty implementation
- ◆ Separate but parallel Treaty Review process
- ◆ Communication on possibilities within current Treaty framework

# Why is the Treaty's future important to the Portland area?

- ◆ Canadian Treaty reservoirs capture 51% of system-wide storage, providing significant flood risk management for the Portland/Vancouver area.
- ◆ Canadian reservoir operations after 2024 could impact navigation of the Columbia River deep draft and inland waterway channels, affecting the economic viability of ports, including Portland and Vancouver.
- ◆ River operations after 2024 could have both positive and negative impacts on fish and wildlife habitat, water quality and other ecosystem functions in the lower Columbia River and estuary.

## Portland area (continued)

- ◆ Canadian Entitlement payments (currently worth \$250-\$350 million per year) are higher than actual benefits produced in the U.S. today
- ◆ We could use those resources to meet other regional priorities, including:
  - ◆ Return energy costs to ratepayers
  - ◆ Fund ecosystem restoration projects and programs

# Next steps

2013

April-May

Open Houses



May-Aug

Complete  
Step 3 of  
Analysis

September

Share Draft Regional  
Recommendation  
with the Public

December

Submit U.S. Entity  
Recommendation to  
U.S. State Department

# For more information

- ◆ Visit [www.crt2014-2024review.gov](http://www.crt2014-2024review.gov)
- ◆ Email [treatyreview@bpa.gov](mailto:treatyreview@bpa.gov)
- ◆ Read [Treaty Review fact sheets](#)
- ◆ Call
  - ◆ Bonneville Power Administration, 800-622-4519
  - ◆ Corps of Engineers, 503-808-4510

# Comments welcome

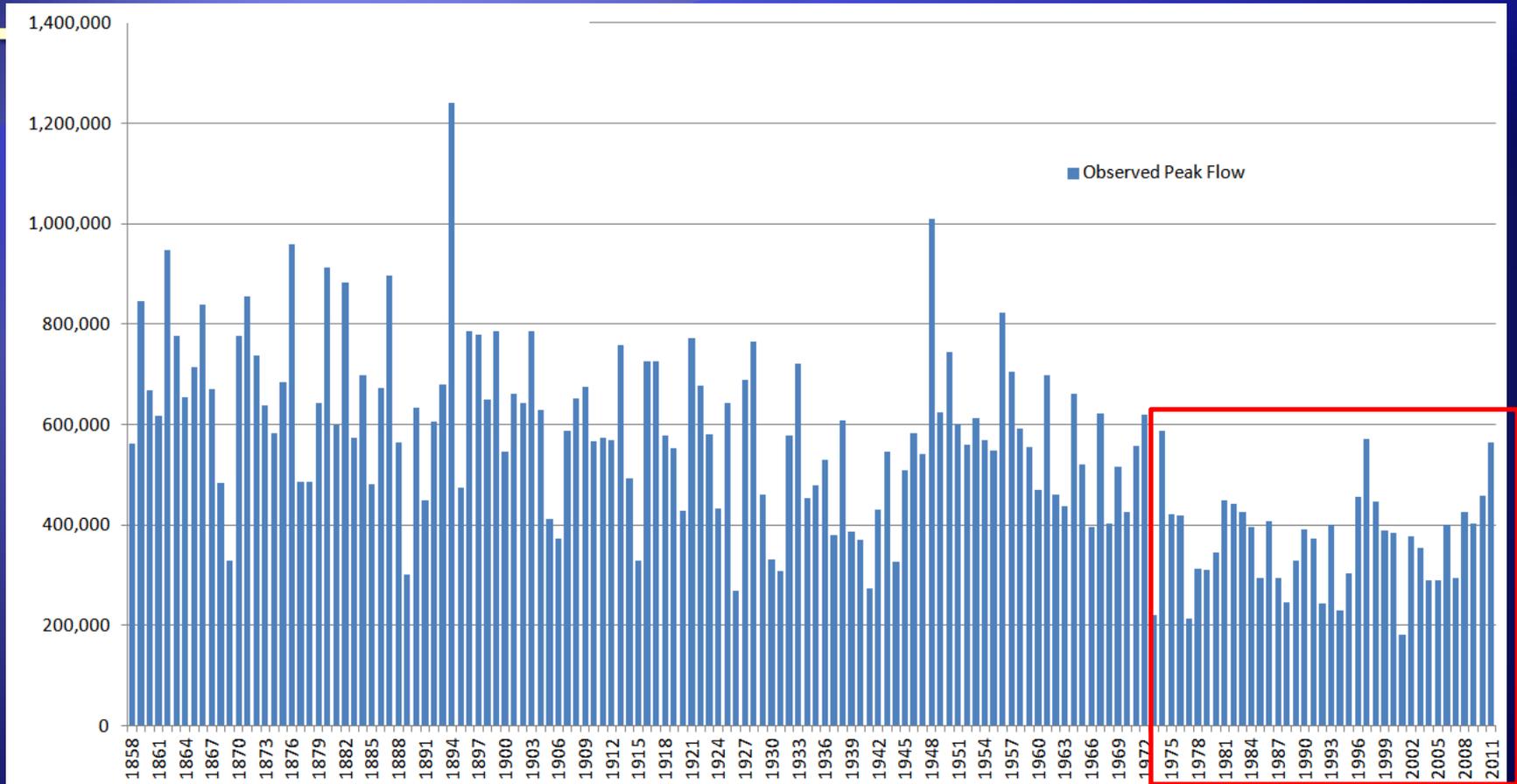
- ◆ Today:
  - ◆ Write them down and leave with staff
- ◆ After the meeting:
  - ◆ Email [treatyreview@bpa.gov](mailto:treatyreview@bpa.gov)
  - ◆ Call: BPA or the Corps
  - ◆ Mail: Bonneville Power Administration, PO Box 3621  
Portland, OR 97208-3621
  - ◆ FAX: 503-230-4563

**Thank you for coming!**

**Extra stuff below – use if needed or  
incorporate into above**

# Public input

- ◆ Assisted with goal setting and Phase 1 and 2 study alternatives
- ◆ Issues of most interest
  - Ecosystem
  - Canadian Entitlement
  - Flood risk protection
  - Balance of hydropower, flood risk, ecosystem
  - Equity for upper river/lower river issues
  - Climate change
  - Water supply, Navigation, Recreation
  - Understanding of Canadian perspectives



# What influences our current level of flood risk?

- ◆ Economic factors
  - ◆ Homes
  - ◆ Businesses
  - ◆ Property
  - ◆ Agriculture
  - ◆ Transportation
  - ◆ Emergency management
- ◆ Hydrologic factors
  - ◆ Infrequent-high damage events
  - ◆ and more frequent-low damage events
  - ◆ Unforecastable events
  - ◆ Multiple contribution points
    - ◆ Factored into Expected Annual Damages
- ◆ Social/political factors
  - ◆ Safety
  - ◆ Cultural
  - ◆ Ethical
  - ◆ Communication
  - ◆ Ecosystem
  - ◆ Recreation
- ◆ Management
  - ◆ Infrastructure
  - ◆ Reservoir storage
  - ◆ Non-structural measures

# What we are hearing from regional stakeholders

- ◆ Desire for transparency and clarity
- ◆ Interest participating in:
  - ◆ scoping, formulation of alternatives and evaluation of impacts, and;
  - ◆ developing and regionally vetting the recommendation.
- ◆ A robust study of Flood Risk, Hydropower, and Ecosystem Function Concerns
- ◆ Fully assess impacts of future Treaty alternatives on other parts of the system, including water supply, irrigation, navigation, recreation, water quality, and cultural resources
- ◆ Consider possible implications of climate change on the Treaty decision.
- ◆ Provide an understanding of Canadian perspectives
- ◆ Reconsideration of the present governance of the CRT