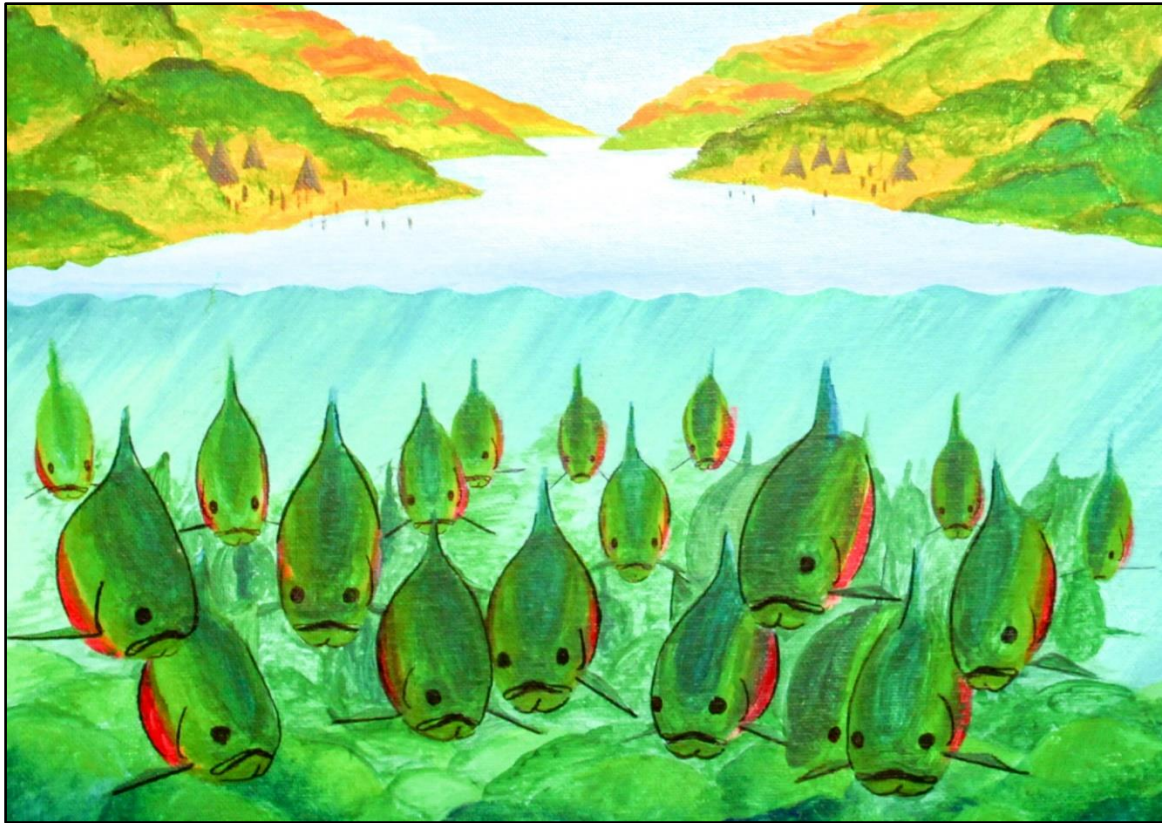


Killer Whales, Salmon, Taxes & LSR Dams



Art by Ariel Omega Young

Southern Resident Killer Whales (SRKW) At Risk of Extinction

- Decrease in salmon
- Increase in mortality
- J, K & L pods need
~1500 salmon a day



Haro Strait

Photo Betsey Thoennes

J-Pod J-34

April 10th 2016

April 28th 2016



Orca Network

Photo Susan Berta



James Island, Sidney Channel

Photo Mark Malleson

39-

Tuesday
Shows today but sun's making a comeback **B10**



Grab the Money Tree
Great discounts on local dining and services **B4**

PENINSULA DAILY NEWS



SOUND PUBLISHING INC Port Angeles-Sequim-West End March 15, 2016 | 75¢

Closing salmon fisheries eyed

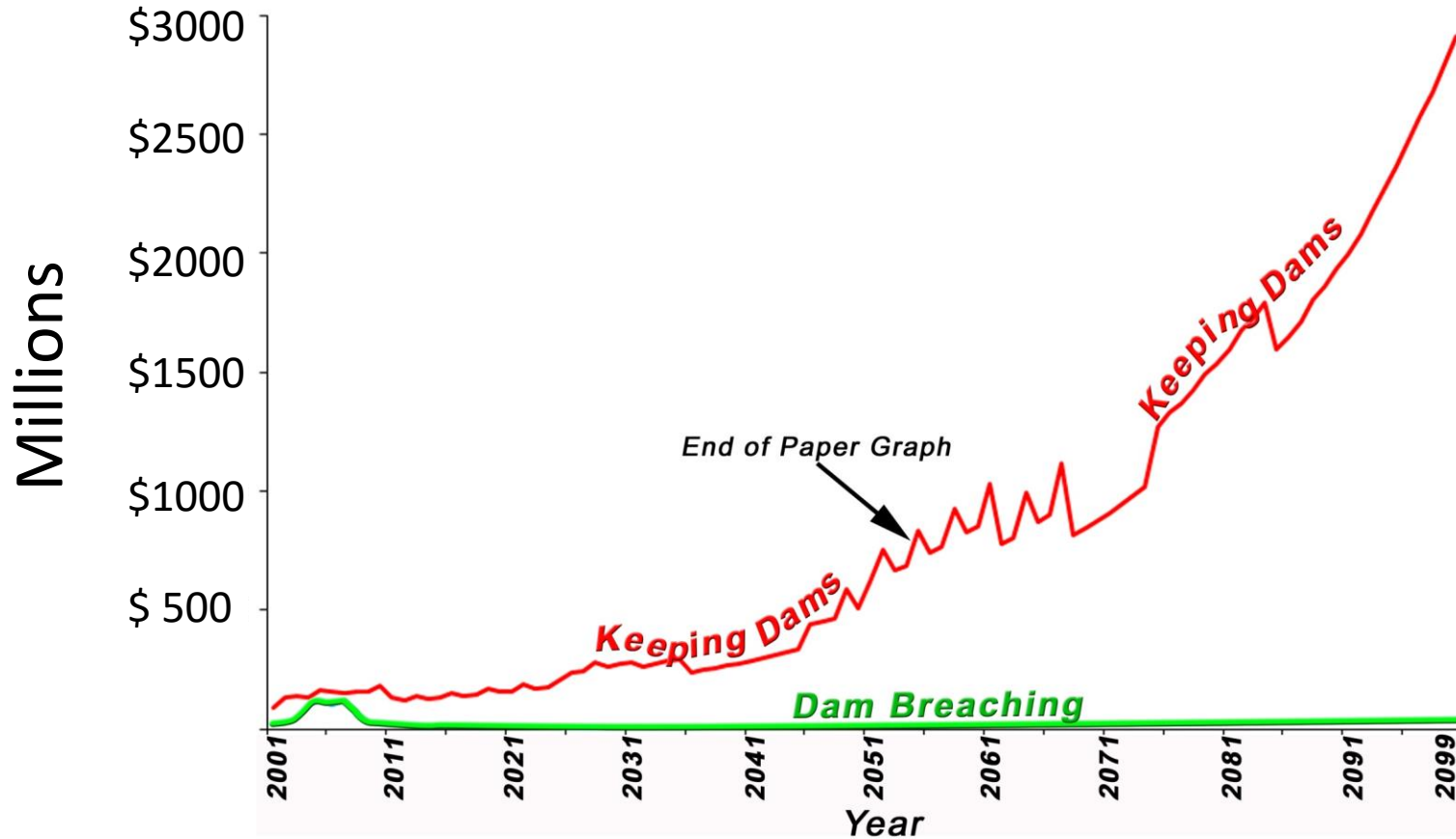
Officials mull options as coho forecasts fall short

and commercial ocean fisheries for chinook and coho. fisheries off the Washington coast: Alternative 1: 58,600 chinook and 37,800 coho. This option includes early season fisheries, from June 18-30, for hatchery chinook in Washington's ocean Marine Area 1 (Ilwaco). Alternative 3: No commercial or recreational salmon fisheries in Washington's ocean waters. For more details about the options, visit the PFMC webpage

"In many instances returns will likely be far below minimum levels needed to produce the next generation of salmon," said Lor-

- Runs < 3% of historic 10-16 million salmon
- \$900M & 15 years failed fish recovery

Lower Snake River (LSR) Dam Costs



Solution Is Breaching 4 Dams

- Breaching is quick & far cheaper
- Dam removal is costly and unnecessary

Lower Granite Dam



Nov 1 2016

Little Goose Dam



Nov 2017



You Can Help If You Care About...



➤ Killer whales



➤ Salmon



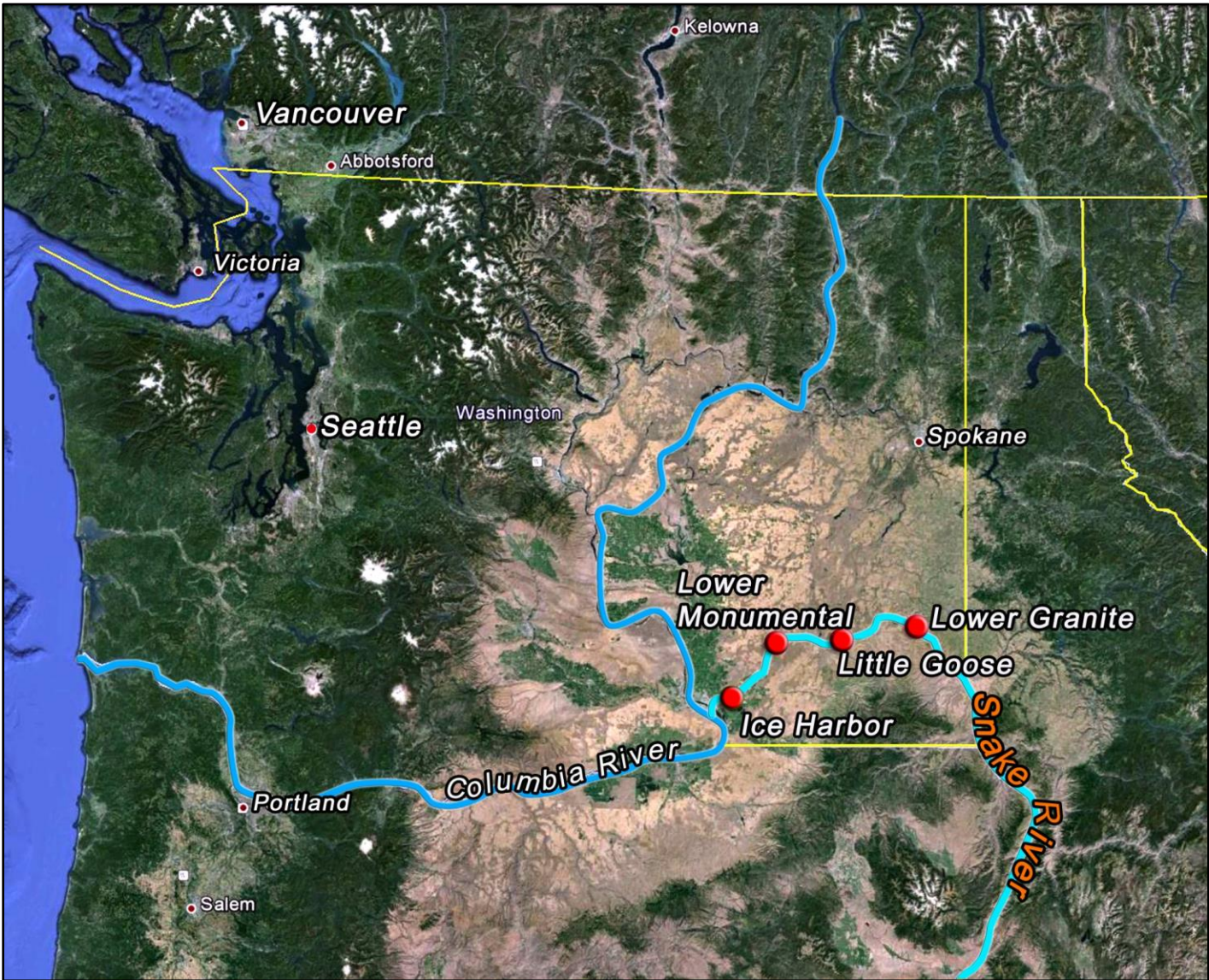
➤ Your taxes and power bill



➤ Economic opportunities

Lower Snake River Slack Water







Lower Granite



Lower Monumental



Little Goose



Ice Harbor



Reasons For Breaching

Dams are driving species to extinction

\$800M - \$1B failed efforts for salmon passage

Climate change poses new challenges

Dams could violate U.S. Treaties



River transportation in long-term decline, farmers shifting to rail

Hydropower already replaced

Corps Walla Walla District understated cost of keeping the dams by \$161M per year



Dams cost millions in lost economic benefits

Increased recreation will provide 2,350 – 4,100 jobs

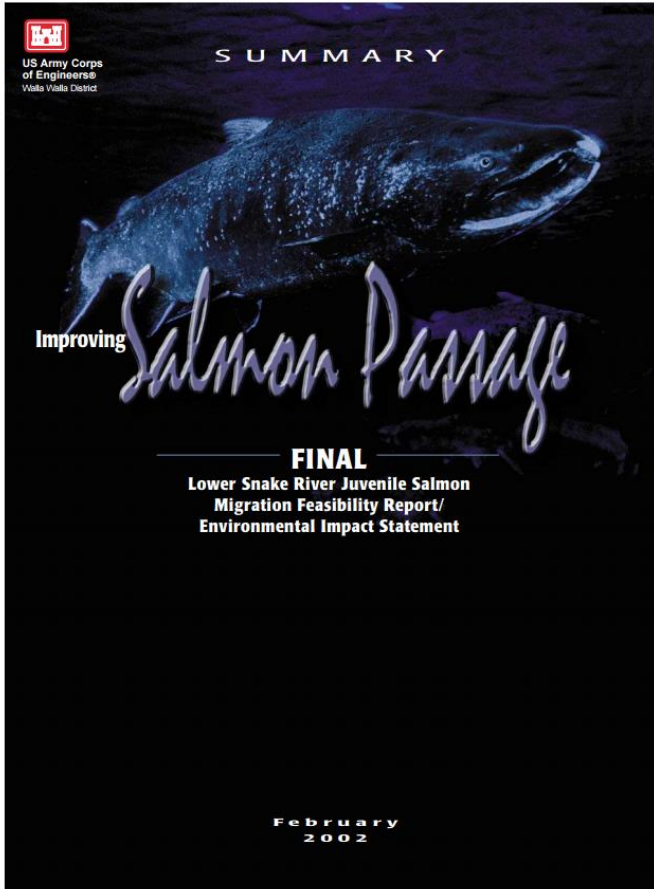
The Corps can no longer afford non-productive infrastructure

Why The Universal Belief That Dam Breaching Is Too Costly?



Ice Harbor Dam

Photo USACE Walla Walla District



US Army Corps
of Engineers®
Northwestern Division

RECORD OF DECISION

Lower Snake River Juvenile Salmon Migration Feasibility Study

September 2002



2002 EIS

- Feasibility of breaching to restore salmon runs
- 7 Years & \$33 Million
- Dam maintenance underestimated
- Cost of breaching overestimated
- Remains the operable EIS for the dams



2002 EIS Keep vs Breach

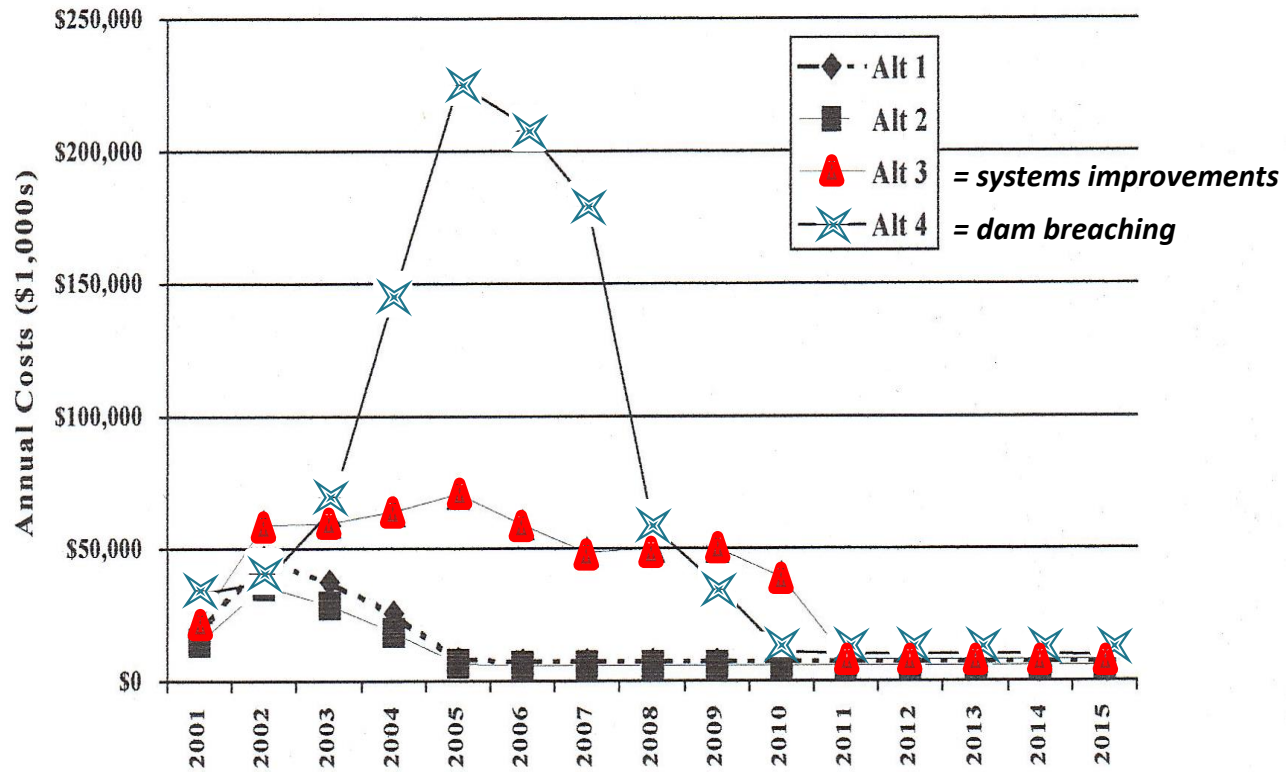
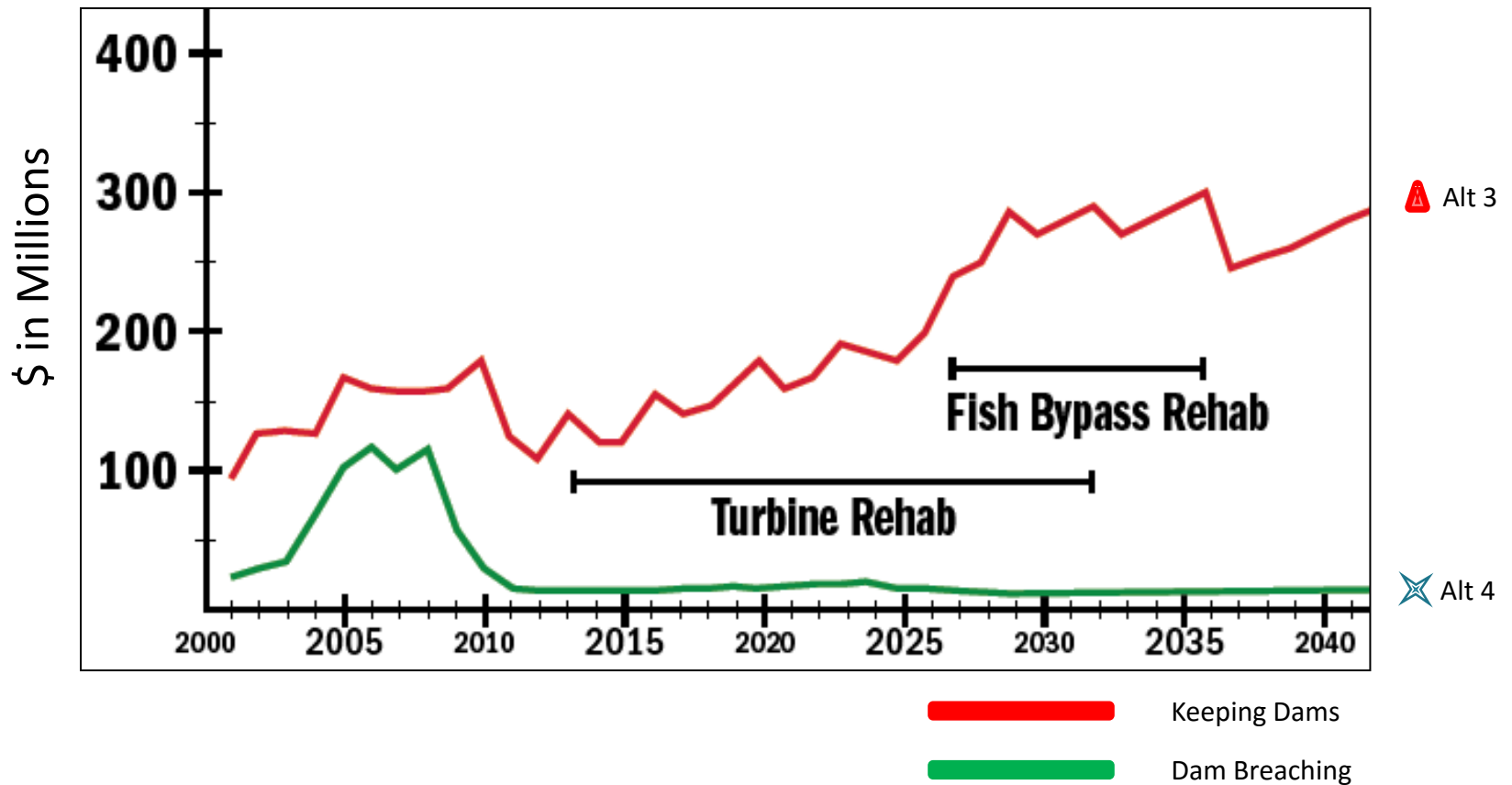


Figure 3.8-1. Comparison of Annual Implementation Costs

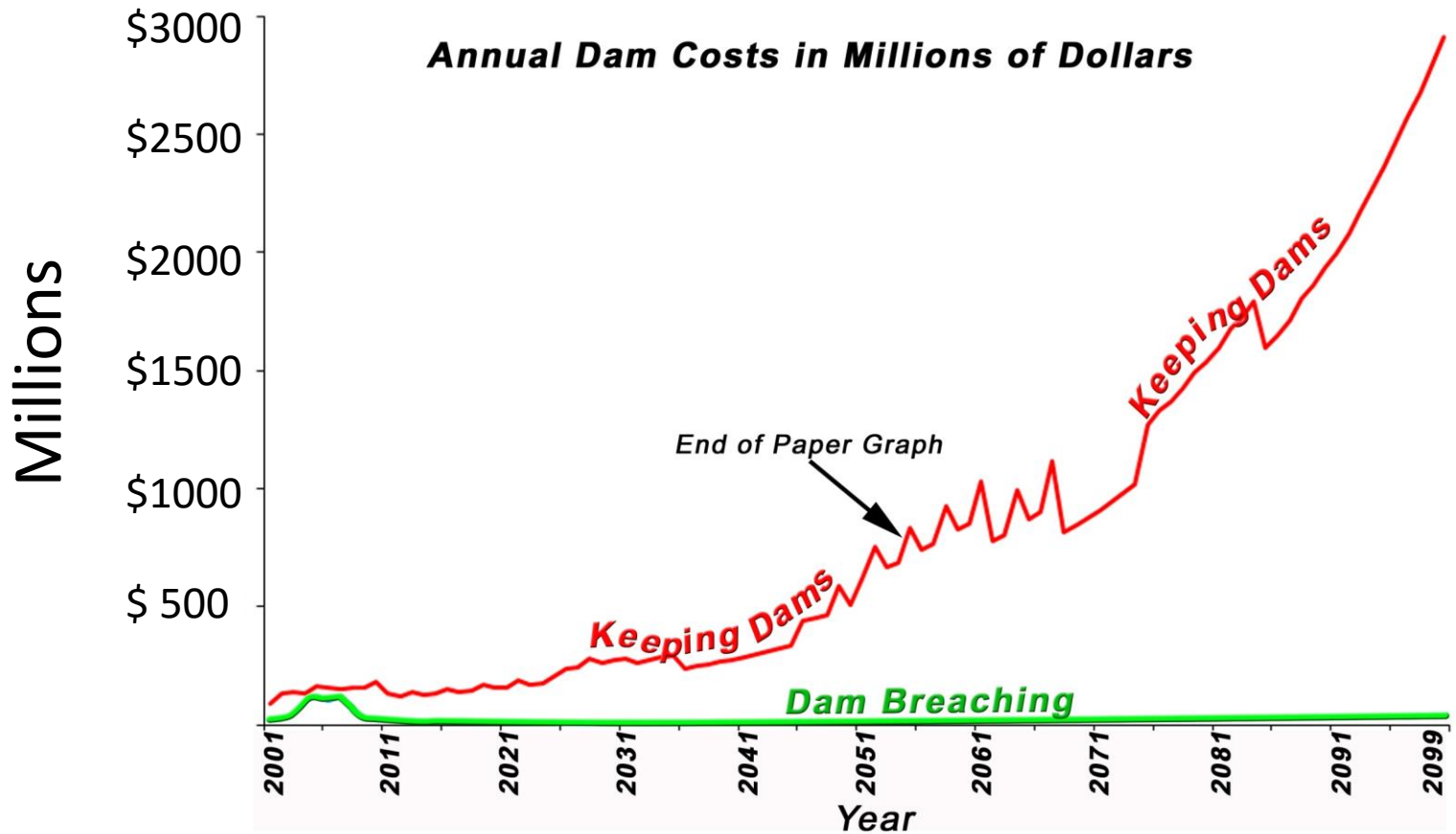
Reference: Lower Snake Feasibility Report / Environmental Impact Statement

2002 Corrected + Future Costs



Reference: Cost Report, July 2014, Jim Waddell

2002 Corrected Annual Costs



Reference: Cost Report, July 2014, Jim Waddell

- Cost errors revealed & corrected
- Breaching dams
 - Most Reasonable and Prudent Alternative
 - Frees up millions of dollars
 - Increases economic benefits

Benefit Cost Ratios

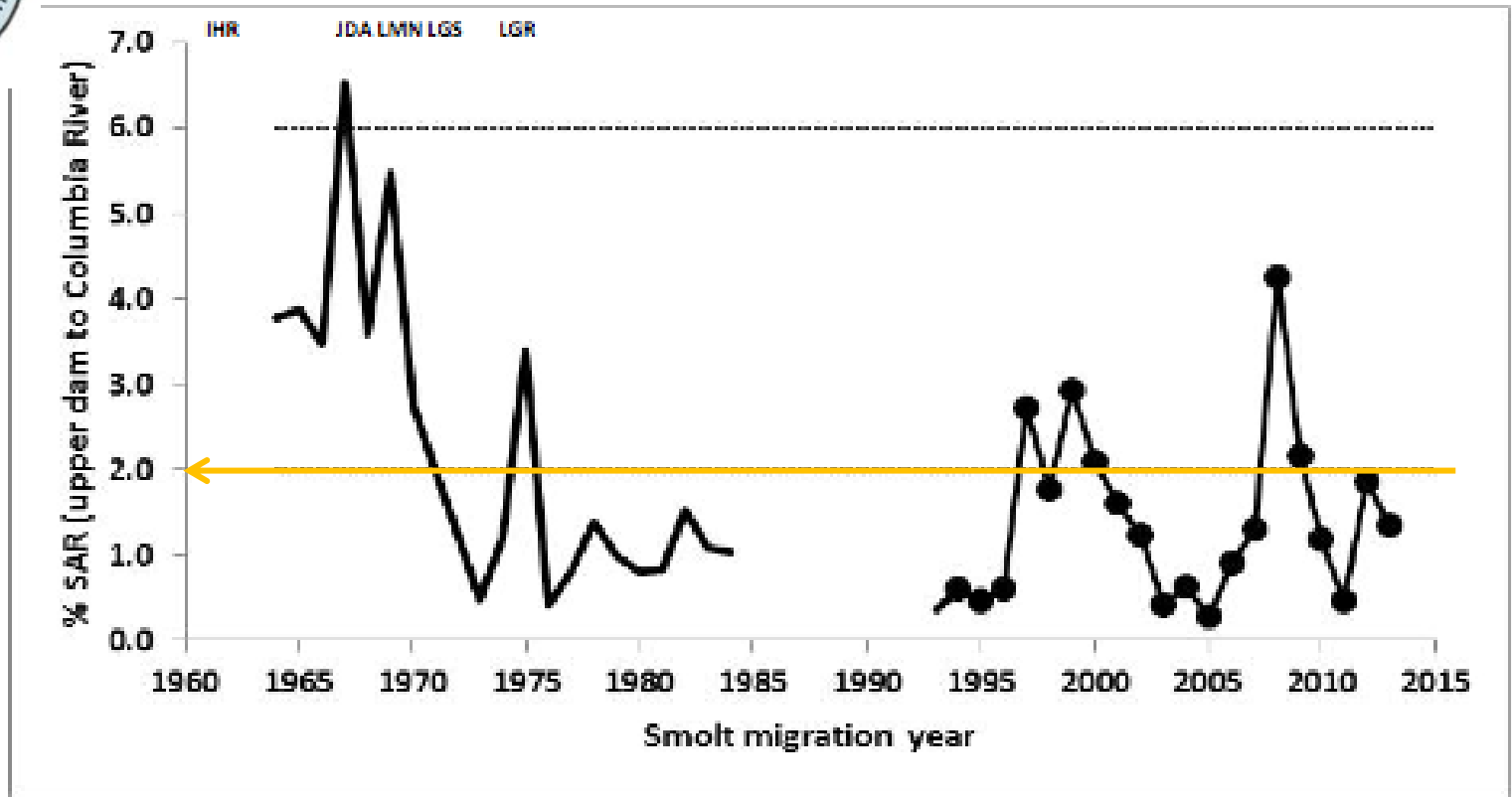
Economic / Ecologic Change
 Positive Neutral Negative

AA = Average Annual Cost at 6.8% Discount Rate

National Economic Development Benefit Cost Ratios →	Keep the Dams 15¢ return on \$1 spent	Remove the Dams \$4.30 – \$19.76 return on \$1 spent
Endangered Species Mitigation Endangered Southern Resident Killer Whales (SRKW) & Salmon Species Climate Change Challenges	The USACE spent \$800.0M over 15 years on failed system improvement efforts for juvenile salmon passage thru the four dams Warming reservoirs kill salmon and favor predators, methane emissions increase	Only remaining alternative in EIS for ecosystem recovery, increasing salmon numbers <i>and</i> prey availability for SRKW Diurnal cooling in natural rivers increases fish survival, allowing more fish to utilize high elevation spawning grounds in Idaho
Hydropower Hydropower Life Cycle Implementation	Benefit \$202.6M AA, <i>high side</i> Power generated is 2.9% of regional, with production trending downward due to aging infrastructure and the benefit likely a transfer from idle wind turbines Cost \$269.4M AA, 91% of costs	Cost \$0 - \$261.8M AA Shift to wind or other surplus sources; costs trending downward, regional grid surplus is 5 times production of LSR dams Cost \$29.0M AA, breach 1 dam / yr
Transportation Inland Navigation over 50%	Benefit \$7.6M AA, <i>high side</i> \$1.4M AA, 9% of dam	Cost / Loss \$7.6M AA rail improvement \$100M
Agriculture		



Wild Salmon Survival



“Figure 4.1. SARs from smolts at uppermost Snake River dam to Columbia River returns (including jacks) for wild Snake River spring/summer Chinook, 1964-2013. ... The NPCC (2014) 2%-6% objective for listed wild populations is shown for reference; SAR for 2013 is complete through 2-salt returns only.”

Reference: Fish Passage Center 2015 CSS Annual Report



Hatchery Fish Survival

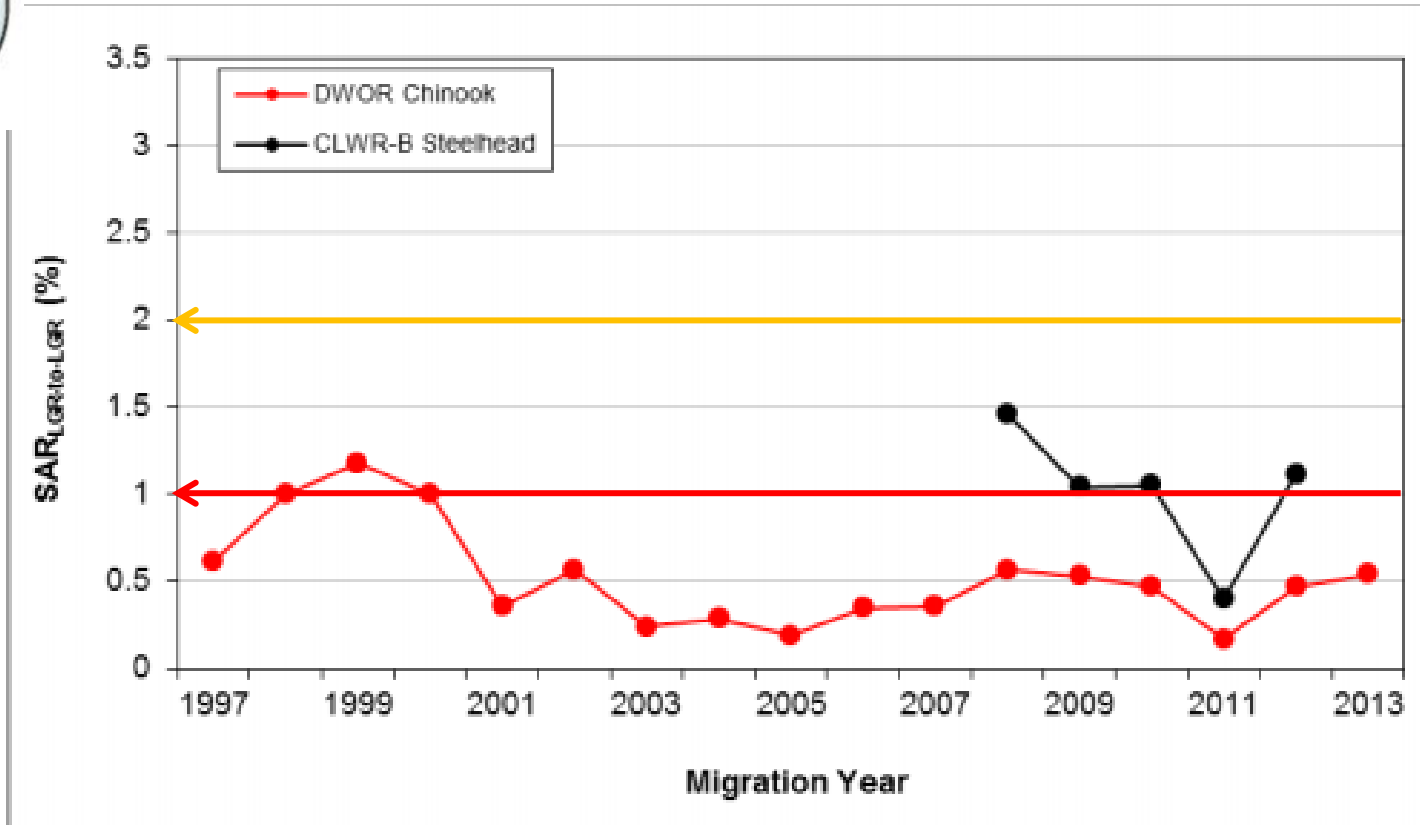
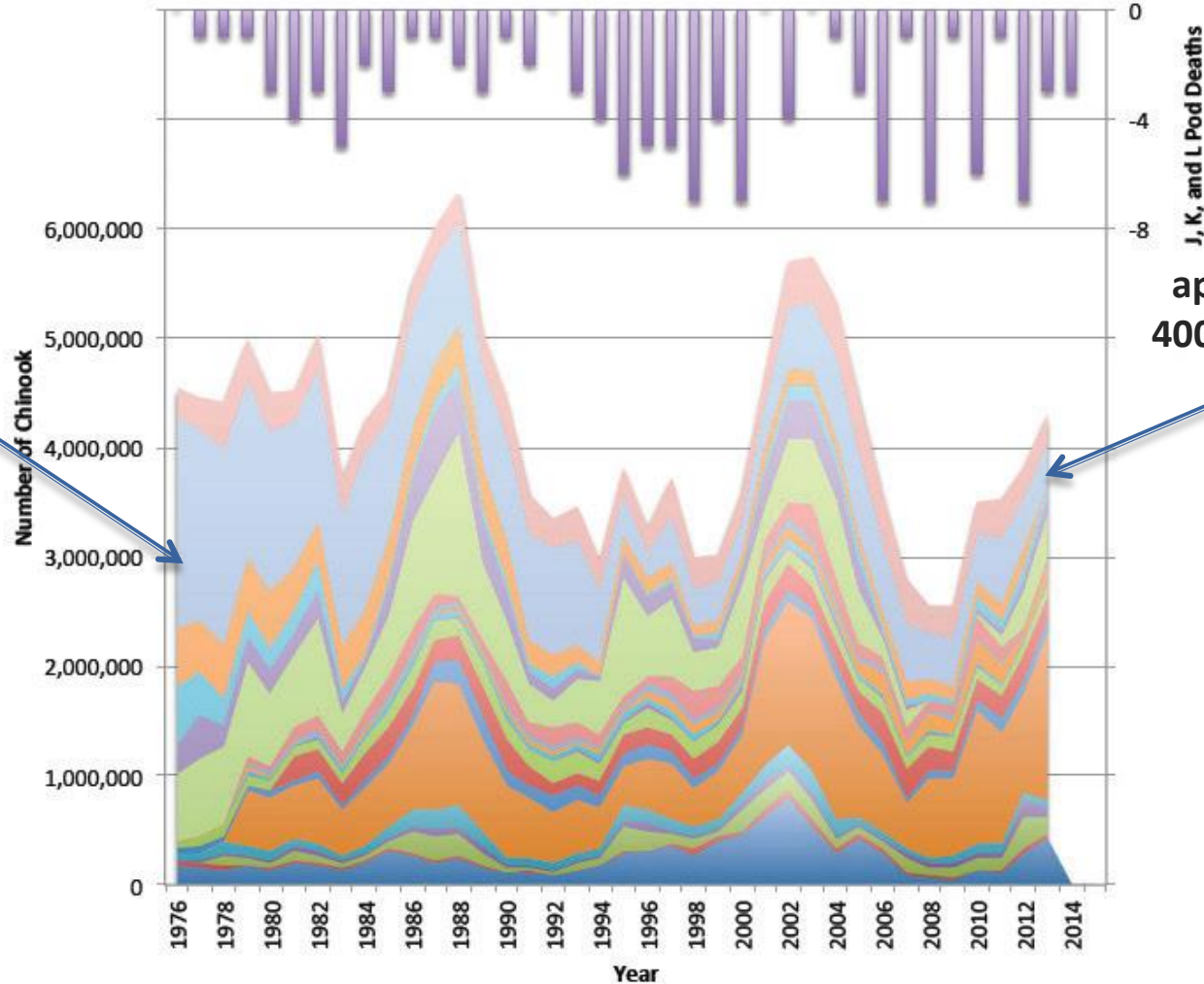


Figure 9. Weighted SARLGR-to-LGR for Dworshak NFH spring Chinook (1997–2013) and Clearwater-B hatchery steelhead (2008–2012). Migration year 2013 is incomplete for yearling Chinook, with Age 2-salt adult returns through 9/14/2015. <http://www.fpc.org/hatchery/dworshakhatchery2015.pdf>

WA/OR/CA/BC/AK Coast-Wide Chinook Abundance Trends and J, K, and L pod Deaths 1976-2014

1976
approximately
2,000,000
Chinook

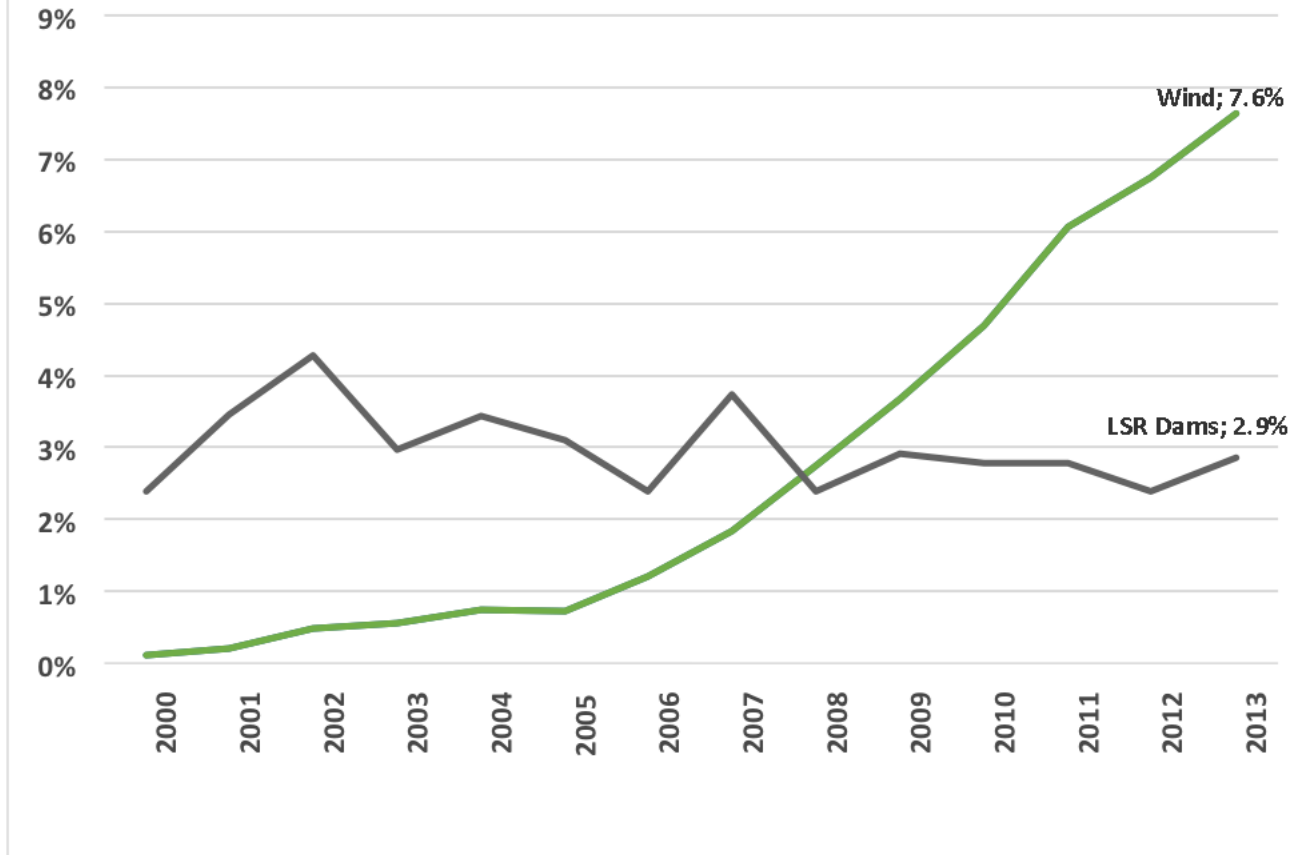


2013
approximately
400,000
Chinook

Columbia/Snake River chinook are represented by the blue band

Reference: Jane Cogan & Center for Whale Research


Wind Vs. Hydro Contribution to NW Electricity Generation



Reference: Mojica, J., Cousins, K., Briceno, T., 2016. National Economic Analysis of the Four Lower Snake River Dams: A Review of the 2002 Lower Snake Feasibility Report/Environmental Impact Statement. Economic Appendix (I). Earth Economics, Tacoma, WA.

Recreation

 **\$290 - \$501 Million**

 **2,350 - 4,100**

Jet boaters & skiers, rafters, kayakers, canoeists, swimmers, picnickers, campers, hikers, mountain bikers, hunters & anglers



White Salmon Before and After Condit Dam

Photo Ben Knight

The spending associated with recreation along a free-flowing LSR will generate substantial economic activity throughout the region, with the greatest economic activity occurring in the first four years.



Opposition

- NOAA West Coast
- BPA
- Corps Northwest Division
- Lower Snake Ports, e.g. Port of Lewiston
- PNWA, NW RiverPartners



Local & Regional Politics

- Leaders have been misinformed since 2002
- Political Mission Impossible: keeping salmon ***and*** the four lower Snake River dams
- Lack of political will
- Lack of community insistence to breach dams ***now***

Likely Last Call for Snake River Wild Salmon



Susitna River Wild Salmon

Photo Matt Stoecker

Why So Urgent?



- Snake wild salmon runs will be lost in 1-3 years, with hatcheries not far behind
- Obama can act before government change-over

Lower Granite Dam



Begin Breaching



Nov 1 2016



Biological, technical, economic and financial data support dam breaching



US Army Corps
of Engineers®



EIS provides authority to breach and funding mechanisms in place: freed up money can be re-applied to Columbia River dams



Congressional action not necessary

Opportunity to Leave Lasting Legacy



Barack Obama
President of the United States



Jo-Ellen Darcy
Assistant Secretary of the Army
Civil Works



➤ Over 50 affected tribes



➤ Leaders should seek corrected information

➤ Public must demand action

There Is Hope

Species

WIN

Economies

WIN

Taxpayers

WIN

- Elwha River basin roaring back to health
- Klamath River dam removal project announced
- Update on LSR Dams & Federal Agencies
- Far more gain by breaching: salmon, jobs, reliable power



What Legacy Will We Leave?

A Free Flowing Snake River with Salmon for Life

or

Extinctions for Salmon and SRKWs

***“You can always count on Americans to do the right thing –
after they’ve tried everything else!”***

Winston Churchill

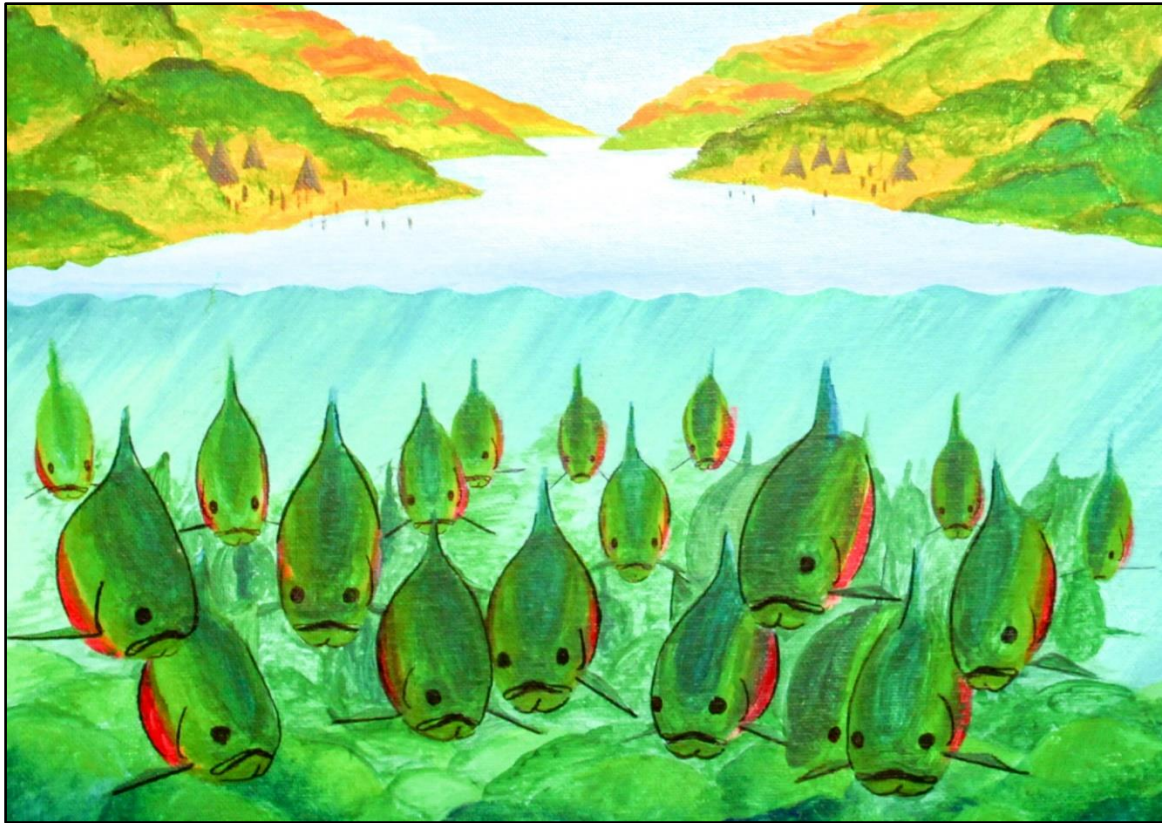
*Like the Free Flowing Elwha Below
Snake River Will Recover If We Let It*



Elwha River

Photo Ben Knight

Killer Whales, Salmon, Taxes & LSR Dams

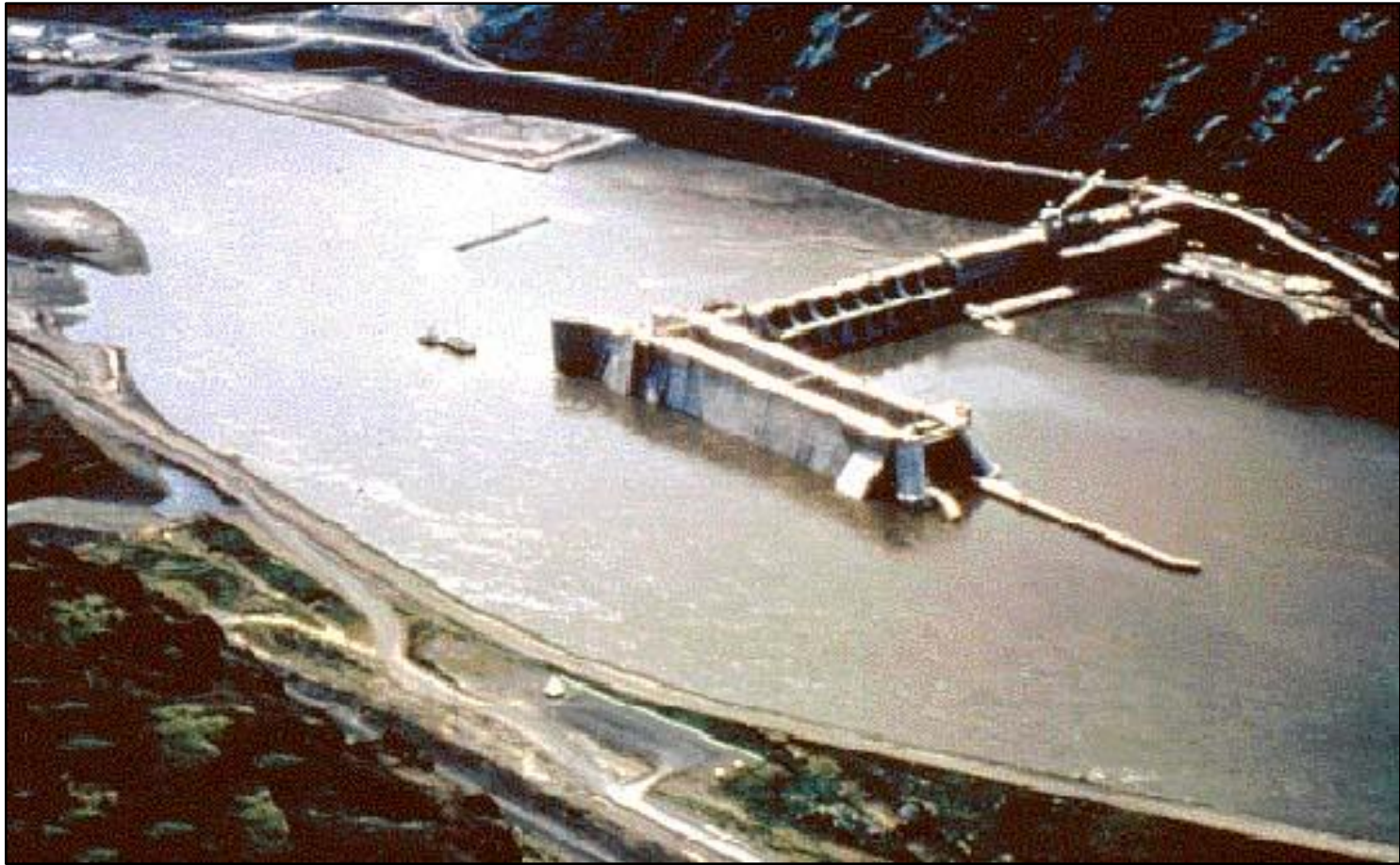


Art by Ariel Omega Young

END

Supporting information follows...

*After Breaching Lower Granite Dam
will look something like this...*



Lower Snake River Feasibility Study

Summary - Economic Effects

Relative Average Annual Costs - \$Millions

USER AREA	MAX TRANSPORT	SYSTEM IMPROVEMENT	DAM BREACHING
COST			
Power	-	-	(\$271)
Navigation	-	-	(\$24)
Irrigation	-	-	(\$15)
Implementation	-	(\$6)	(\$49)
S/T Costs	-	(\$6)	(\$359)
BENEFITS			
Comm. Fishing	-	-	\$2
Avoided Costs	-	-	\$29
Implementation	\$4	-	-
Recreation	\$2	\$2	\$82
Power	\$8	\$8	-
S/T Benefits	\$14	\$10	\$113
NET ECONOMIC EFFECT	\$14	\$4	(\$246)

Note: Numbers reflect change from current condition (base case).

FROM CORPS 1999-2000 INFORMATION BRIEFINGS

Lower Snake River Feasibility Study

Summary - Economic Effects

(Relative Average Annual Costs - \$Millions)

USED AREA	MAX TRANSPORT	SYSTEM IMPROVEMENT	DAM BREACHING
COST			
Power	-	-	(\$271) ?
Navigation	-	-	(\$24) (\$2)
Irrigation	-	-	(\$15) (\$8)
Implementation	-	(\$6)	(\$49) (\$39)
S/T Costs	-	(\$6)	(\$359) (\$320)
BENEFITS			
Comm. Fishing	-	-	\$2 ?
Avoided Costs	-	-	\$29 \$217
Implementation	\$4	-	-
Recreation	\$2	\$2	\$82 \$172
Power	\$8	\$8	-
S/T Benefits	\$14	\$10	\$113 \$389
NET ECONOMIC EFFECT	\$14	\$4	(\$240)

Note: Numbers reflect change from current condition (base case). BENEFIT

\$ 69 MILL AVR6. ANL.

AS OF 1 JAN 2005

A DIFFERENCE OF \$ 315 MILLION!!

Lower Snake River Feasibility Study

Summary - Economic Effects

(Relative Average Annual Costs - \$Millions)

CORRECTED NUMBERS BROUGHT FORWARD to 2015 @ 6.88% DISCOUNT RATE

USER AREA	MAX TRANSPORT	SYSTEM IMPROVEMENT	DAM BREACHING
COST			
Power	-	-	(\$271) ?
Navigation	-	-	(\$24) (\$2)
Irrigation	-	-	(\$15) (\$8)
Implementation	-	(\$6)	(\$49) (\$50)
S/T Costs	-	(\$6)	(\$350) (\$331)
BENEFITS			
Comm. Fishing	-	-	\$2 ?
Avoided Costs	-	-	\$29 \$313
Implementation	\$4	-	-
Recreation	\$2	\$2	\$82 \$172
Power	\$8	\$8	-
S/T Benefits	\$14	\$10	\$113 \$489
NET ECONOMIC EFFECT	\$14	\$4	(\$245)

Note: Numbers reflect change from current condition (base case). *\$158 MILLION AVRG. ANL. BENEFIT*

Navigation / Transport

Overall, freight volumes passing through the Ice Harbor locks (the lowest on the Snake River) have declined 20 percent since the 2002 study. Barges on LSR reservoirs are used to transport wood chips, wheat and barley, pulses (e.g., garbanzo beans), and rapeseed (canola). Commodity producers can choose shipping via rail or road. Since 2008, in large part a pipeline has moved petroleum to a refinery in Salt Lake City. Container-on-barge shipping down the Columbia effectively ended after container ships abandoned the Port of Portland in 2015.

Table 3: Tonnage by Commodity Group (000 tons)

Commodity	1987-96	1992-97	2010-14	Percent change 1987-96 to 2010-14	Percent change 1992-97 to 2010-14
Wood chips	550.5	634.0	236.0	-57%	-63%
Grain	3,051.4	3,038.0	2,800.0*	-8%	-8%
Petroleum	116.4	120.0	15.8	-86%	-87%
Total	3,718.3	3,792.0	3,051.8	-18%	-20%

Reference: Mojica, J., Cousins, K., Briceno, T., 2016. National Economic Analysis of the Four Lower Snake River Dams: A Review of the 2002 Lower Snake Feasibility Report/Environmental Impact Statement. Economic Appendix (I). Earth Economics, Tacoma, WA.

Water Supply

WATER SUPPLY

Approximately 34,000 acres of irrigated farmland use the reservoirs produced by the Lower Snake River dams for water supply. Should the dams be breached, these farms would either need to drill wells to reach the aquifers or modify their water withdrawal systems. The water supply values do not reflect the value of the water that is supplied, but the modification costs that would be incurred if the dams were to be breached. Because of this, there are no costs or benefits associated in the “with dams” scenario.

WITH DAMS

Although the Snake River reservoirs provide irrigation to approximately 37,000 acres of farmland, the costs versus benefits have not been calculated as the 2002 FR/EIS assessed this as a net change over the existing with dam condition.

BREACH DAMS

There have been no additional studies conducted on the cost of not having a reservoir for irrigation, and therefore the point estimate used in the analysis is the \$15.4 million (\$22.5 million in 2015 dollars) estimate from the 2002 FR/EIS. However, review to date indicates that the pumping capacity used to calculate these increased pumping costs is significantly overstated. The FR/EIS shows that the increased pumping costs would yield 1 foot of water across 37,000 acres every 19 days. The FR/EIS also assumes that the land would no longer be used for crop production, as opposed to switching to crops that demand less water, e.g., wheat or wine grapes.

USACE 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report / Environmental Impact Statement, Appendix I: Economics, Table 3.4-16 (pp 13-147), available at: www.nww.usace.army.mil/Library/2002LSRStudy.aspx

Reference: Mojica, J., Cousins, K., Briceno, T., 2016. National Economic Analysis of the Four Lower Snake River Dams: A Review of the 2002 Lower Snake Feasibility Report/Environmental Impact Statement. Economic Appendix (I). Earth Economics, Tacoma, WA.

Recreational Expenditures & Jobs Without Dams

The spending associated with recreation along a free-flowing LSR will generate substantial economic activity throughout the region, with the greatest economic activity occurring in the first four years.

- Jet Boating, Jet Skiing
- Raft / Kayak / Canoe
- Swimming
- Picnic / Primitive Camping
- Developed Camping
- Hike and Mountain Bike
- Hunting
- Angling

Table 5. Expected expenditures as a result of recreation from a free-flowing Lower Snake River (Values in millions, 2015 USD)

Year	Total	Asotin	Columbia	Franklin	Garfield	Walla Walla	Whitman
Year 1	\$501.1	\$120.4	\$23.6	\$141.8	\$30.1	\$50.5	\$134.7
Year 5	\$291.6	\$74.5	\$13.1	\$77.4	\$19.5	\$28.8	\$78.1
Year 10	\$347.9	\$86.8	\$16.0	\$94.7	\$22.4	\$34.7	\$93.4
Year 20	\$373.1	\$92.4	\$17.2	\$102.5	\$23.7	\$37.3	\$100.2

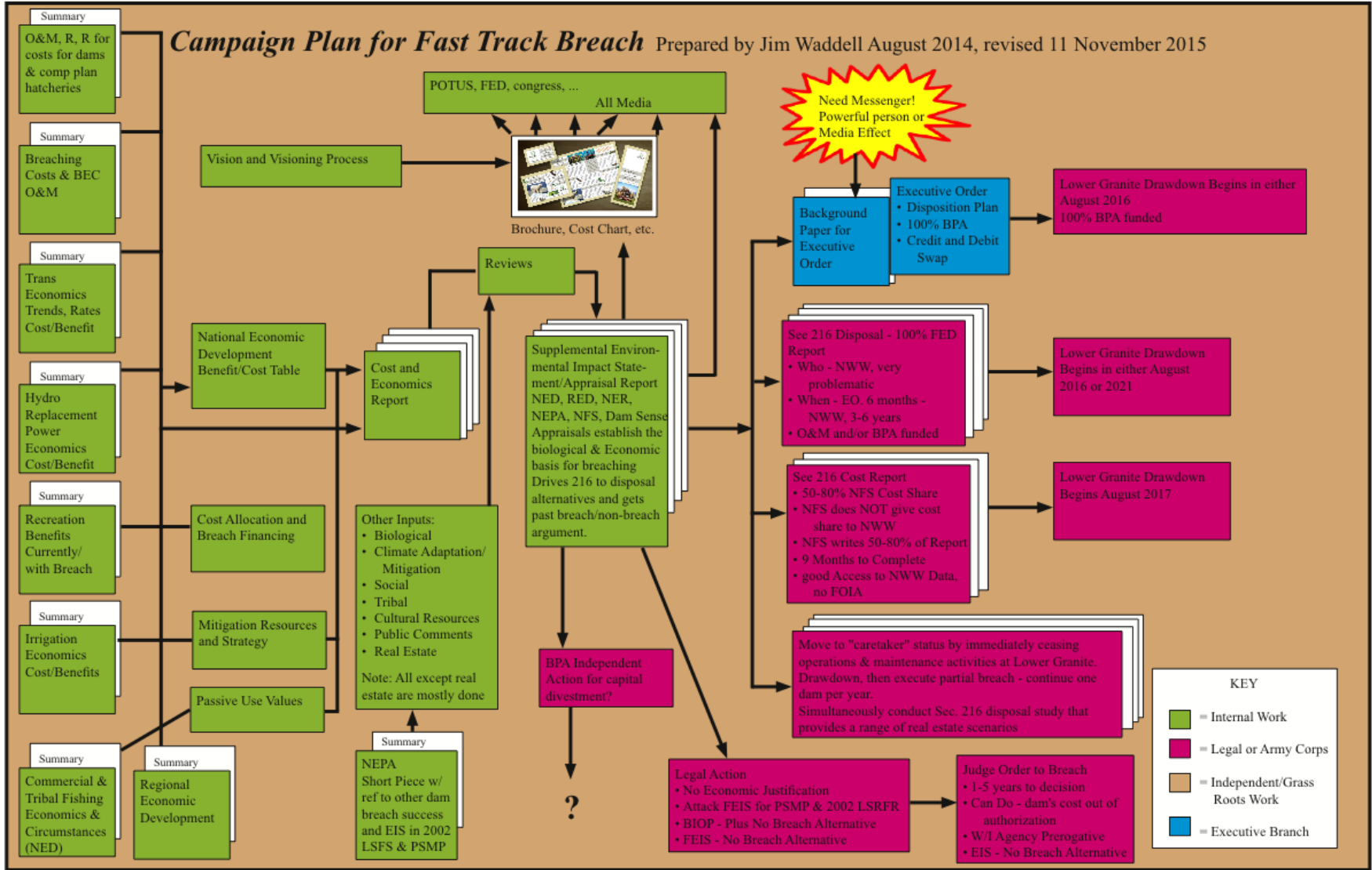
TABLE 7. JOBS SUPPORTED BY RECREATION EXPENDITURES

	Total	Asotin	Columbia	Franklin	Garfield	Walla Walla	Whitman
Year 1	4161	1104	181	1177	219	529	951
Year 5	2380	663	99	640	135	294	526
Year 10	2876	788	121	785	157	357	640
Year 20	3098	843	131	849	168	385	691

Reference: Mojica, J., Briceno, T., 2016. Regional Economic Analysis of the Four Lower Snake River Dams: A Review of the 2002 Lower Snake Feasibility Report/Environmental Impact Statement. Economic Appendix (I). Earth Economics, Tacoma, WA.

Campaign Plan for Fast Track Breach

Prepared by Jim Waddell August 2014, revised 11 November 2015



The 4 Dams Need to Be Breached Now But How?

- Reevaluate Corps 2002 Report
 - Value Engineer Breach Plan
 - Update the EIS
 - Update the Cost and Economics
 - Develop Financial Strategy
 - Inform ALL of new & corrected information
 - Develop Breach Execution Plans
 - Encourage Obama to leave a lasting legacy before it's too late
- 