Columbia River And Tribal Treaty Fisheries

Mekong River Commission

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Columbia River Inter-Tribal Fish Commission

May 1, 2008

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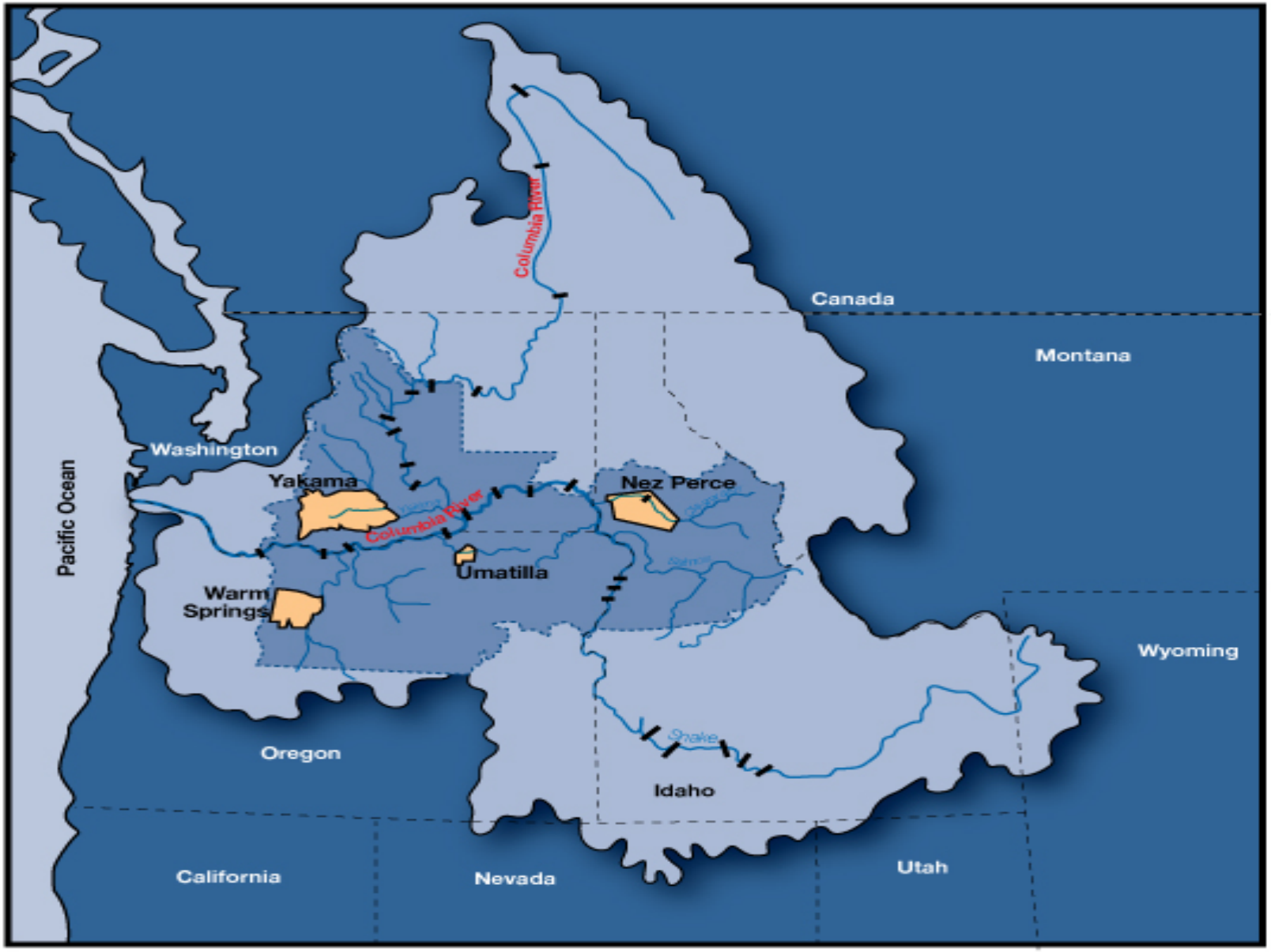
Columbia River Inter-Tribal Fish Commission

- Formed in 1977
- Umatilla, Nez Perce, Yakima, Warm Springs tribes
- Outgrowth of 1970's Belloni and Bolt Court decisions on 1855 Tribal treaties with the U.S.
- Tribes entitled to 50% of harvest
- 1977 Calloway Case and BPA MOA- tribes prevail on river operations for treaty fishing
- Federal agencies are fiduciary trustees of Columbia Basin tribal fish and wildlife resources



Columbia River basin

Ceded lands of the four Columbia River treaty tribes

Present-day reservation boundaries

Major dams on the Columbia/Snake rivers

Columbia River Basin
Mica
Revelstoke
Arrow Lakes
Duncan
Kootenay Lake
Keenleyside
Canada
U.S.
Grand Coulee
Chief Joseph
Wells
Rocky Reach
Rock Island
Wanapum
Priest Rapids
Columbia R.
Albeni Falls
Pend Oreille Lake
Libby
Noxon
Hungry Horse
Flathead Lake
Kerr
MT
N
Seattle
WA
Lower Monumental
Little Goose
Lower Granite
Dworshak
Ice Harbor
The Dalles
Portland
Bonneville
McNary
John Day
Hells Canyon
Oxbow
Brownlee
ID
Cascade
Deadwood
Willamette R.
OR
Lucky Peak
Arrowrock
Anderson Ranch
Swan Falls
C.J. Strike
Upper Salmon Falls
Milner
Snake R.
Minidoka
American Falls
Palisades
Jackson Lake
CA
NV
Corps of Engineers Dams
Dams owned by Others
Bureau of Reclamation Dams

Presentation Outline

- Columbia River Fish Commission- who we are and some tribal fishing history on the Columbia River
- Columbia Basin Forums and Partnerships with tribal participation
- Tribal fishery resources
- Historical changes in flows and temperature
- Historical changes to salmon migration and abundance
- Threats to fishery resources
- Mitigation for hydrosystem impacts to fishery resources
- Pacific Lamprey
- Summary

Columbia River Inter-Tribal Fish Commission

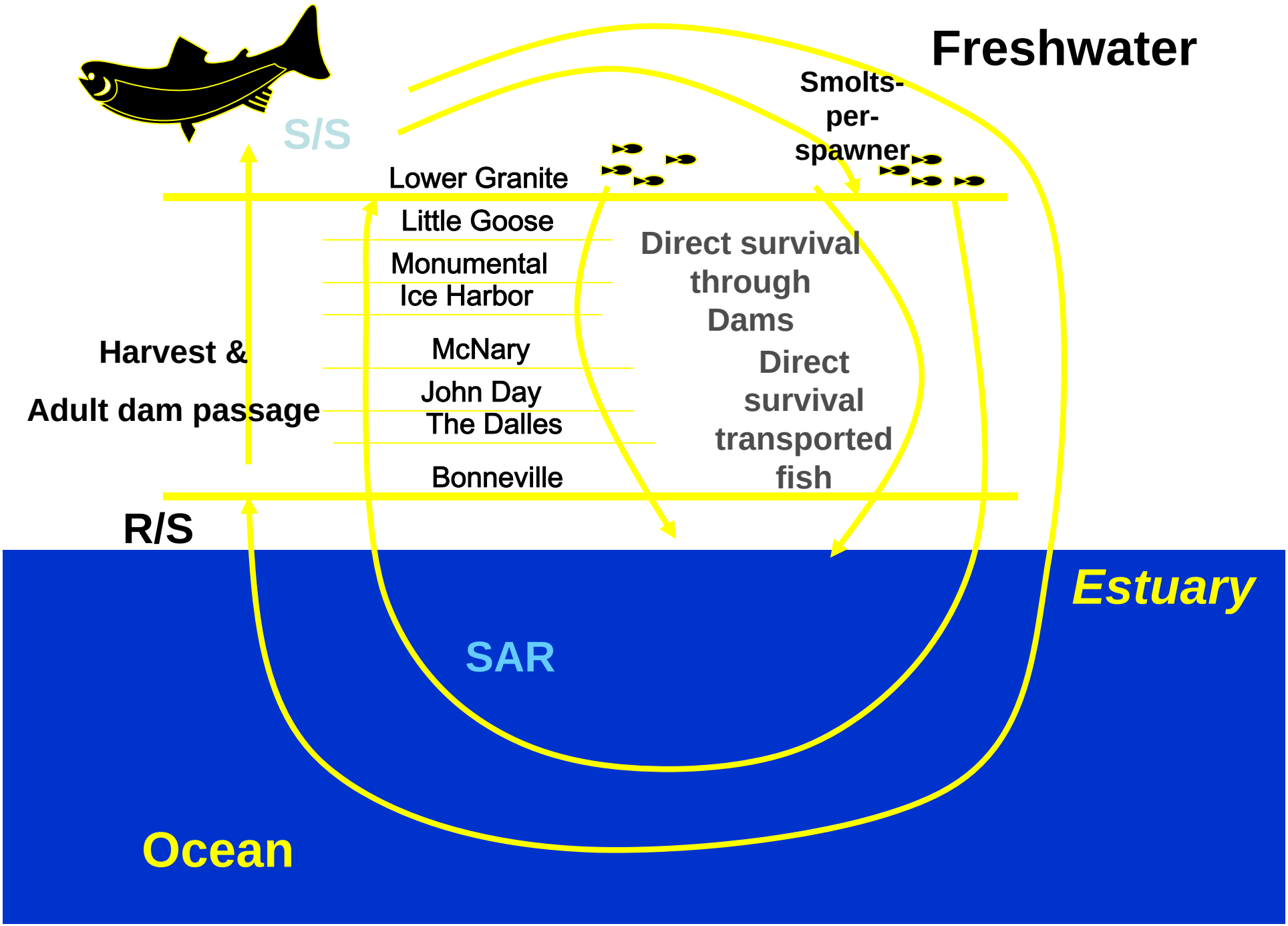
- Commissioners are elected or appointed tribal members
- 80 employees- biologists, hydrologists, attorneys, engineers, financial and administrative assistants, enforcement branch
- Forums and Partnerships: Harvest regulation with States and U.S. government (U.S. v. Oregon; International Treaty- Pacific Salmon Treaty; Federal Energy Regulatory Commission- hydro and LNG licensing; Northwest Power and Conservation Council; Affiliated Tribes of the Northwest; Federal Columbia River Power System (2008 Memorandums of Agreements)

Traditional Treaty Fishing-Klickitat River

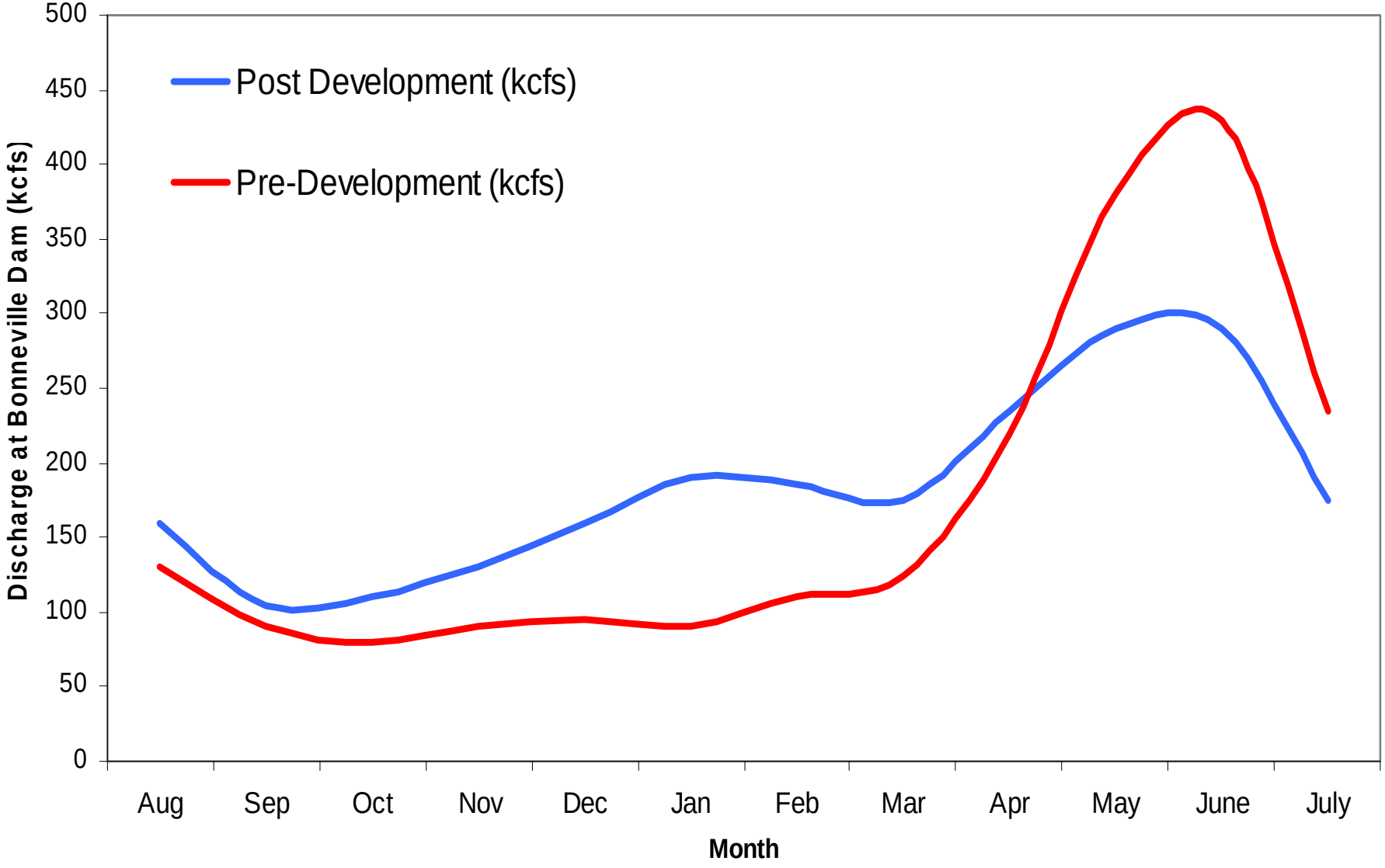
Traditional Treaty Fishing-Bonneville Pool

Tribal Lamprey (eel) Harvest

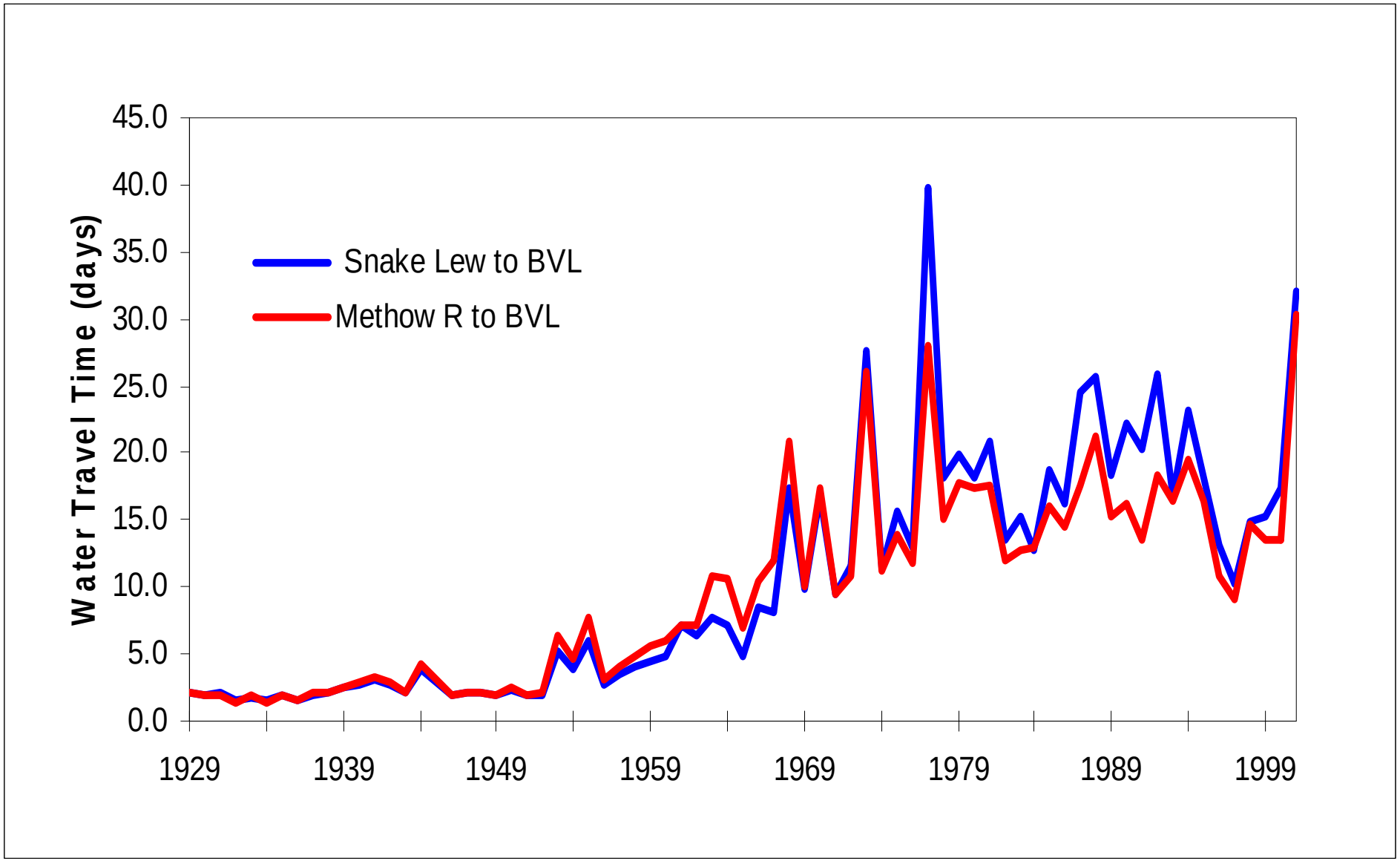
Tribal White Sturgeon Subsistence Fishery and Research


Freshwater
S/S
Smolts-
per-
spawner
Lower Granite
Little Goose
Monumental
Ice Harbor
McNary
John Day
The Dalles
Bonneville
Direct survival
through
Dams
Direct
survival
transported
fish
Harvest &
Adult dam passage
R/S
Estuary
SAR
Ocean

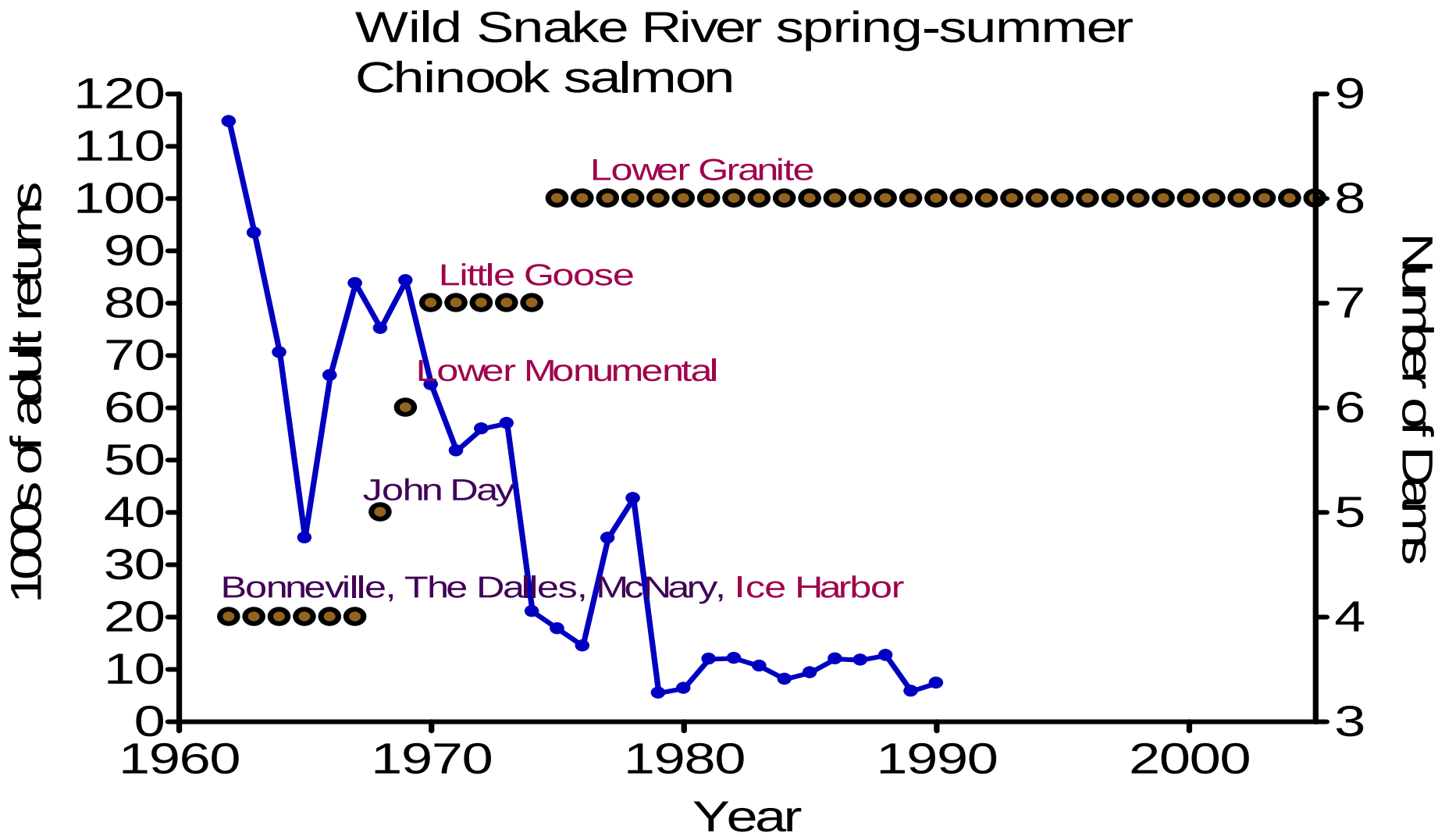
Pre Dam (1960) vs Post Dam Flows



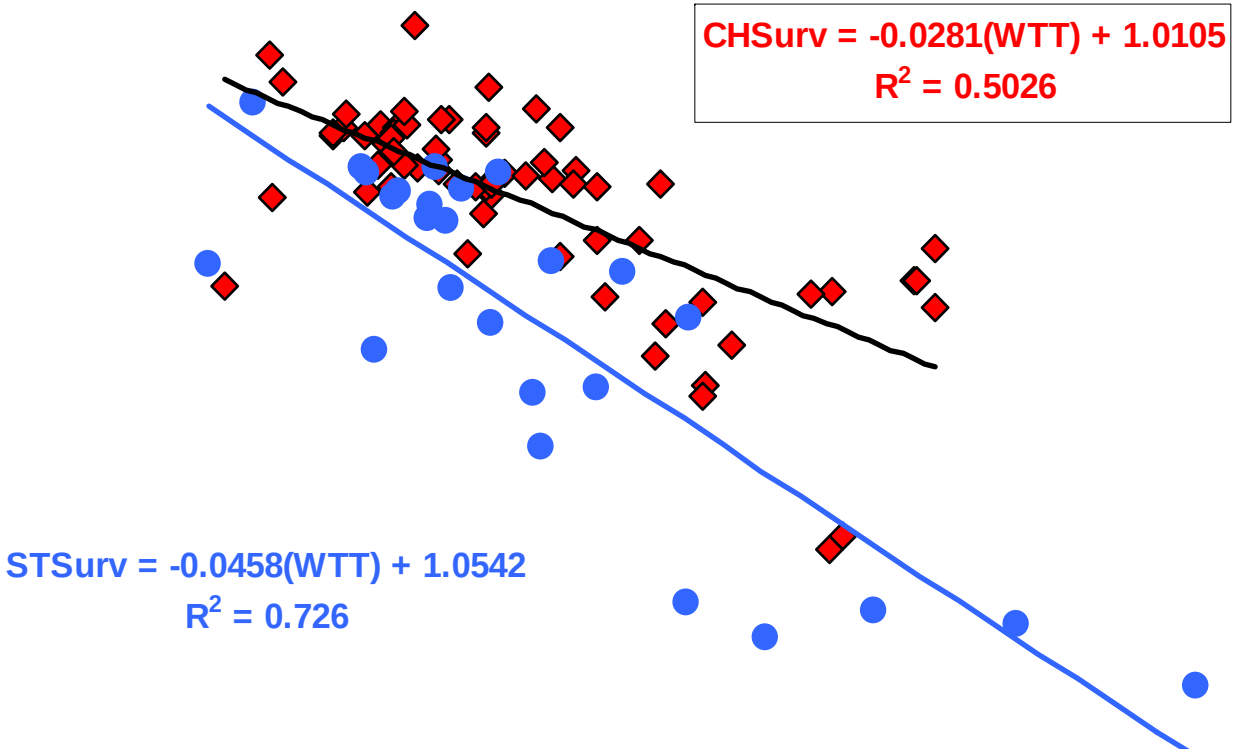
Dam storage in Canada and U.S. increase water and juvenile salmon travel time



River and Salmon Historical Changes



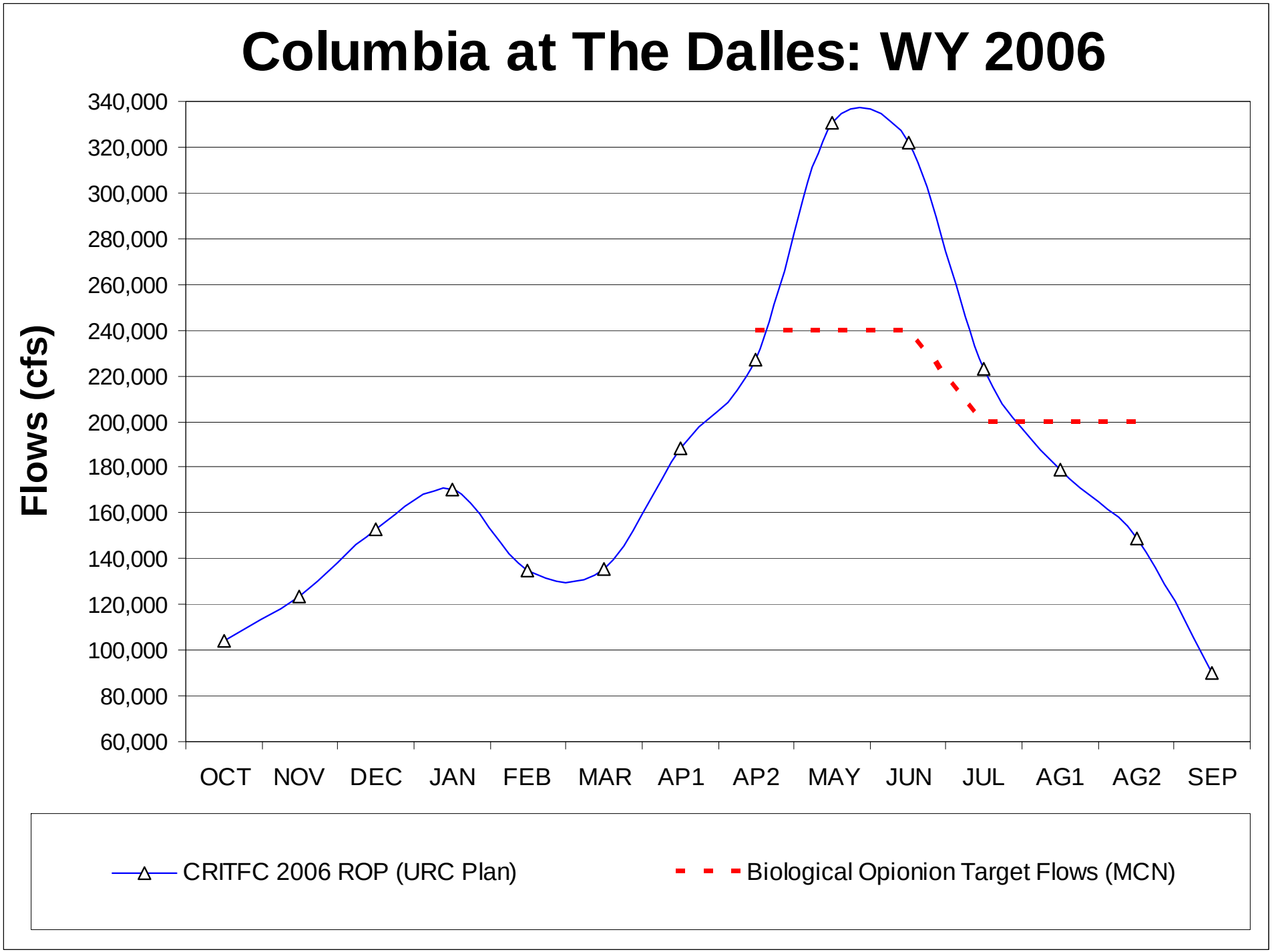
Snake River Yearling Chinook and Steelhead Survival versus Water Transit Time



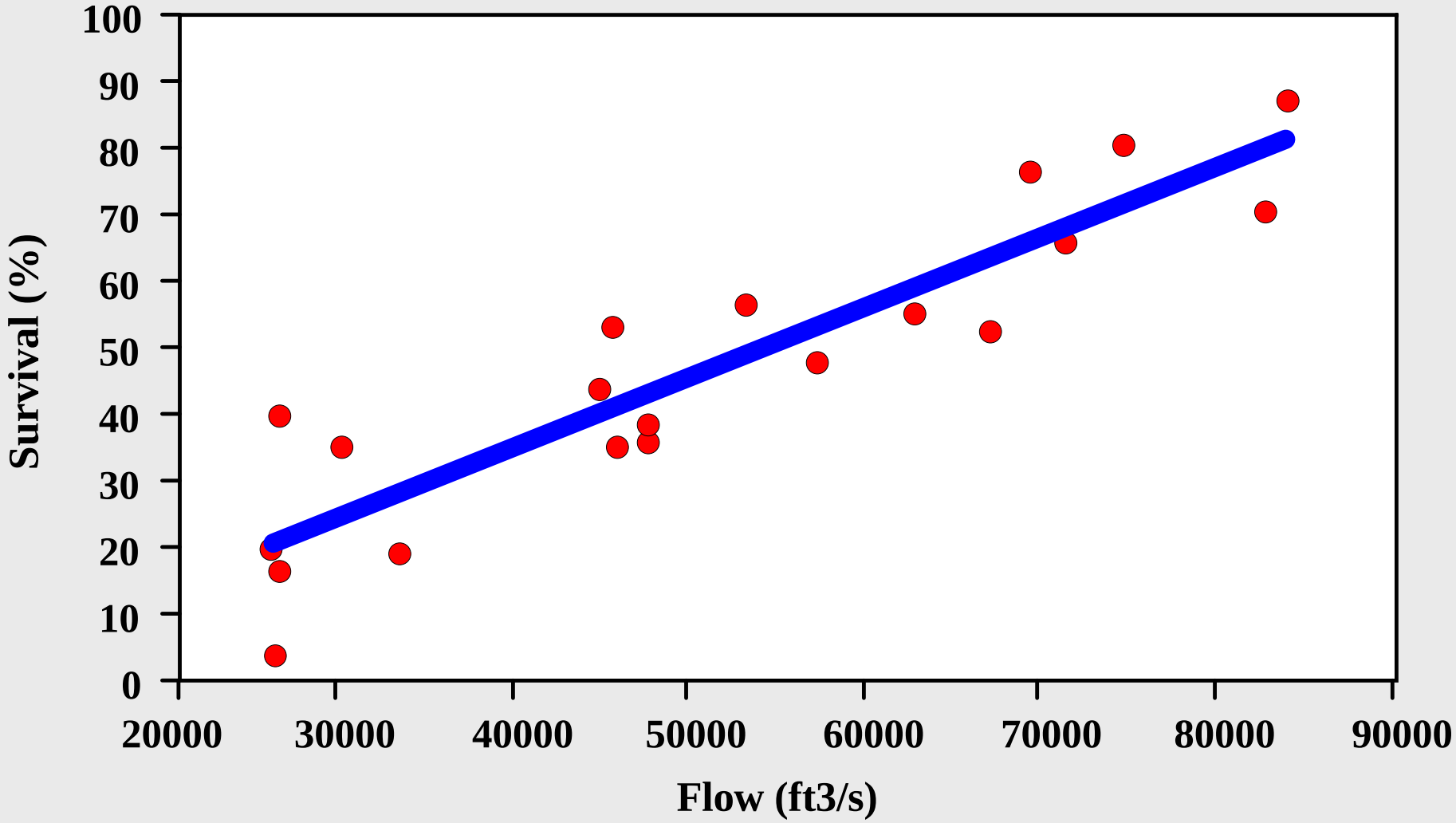
Options to reduce water, temperature and fish travel time to increase survival

- Increase spring and early summer flows by increasing winter storage
- Increase summer flows by augmenting flow volumes from storage
- Draw down reservoirs to reduce cross sectional area
- Selectively draw cool water from storage reservoirs at depth

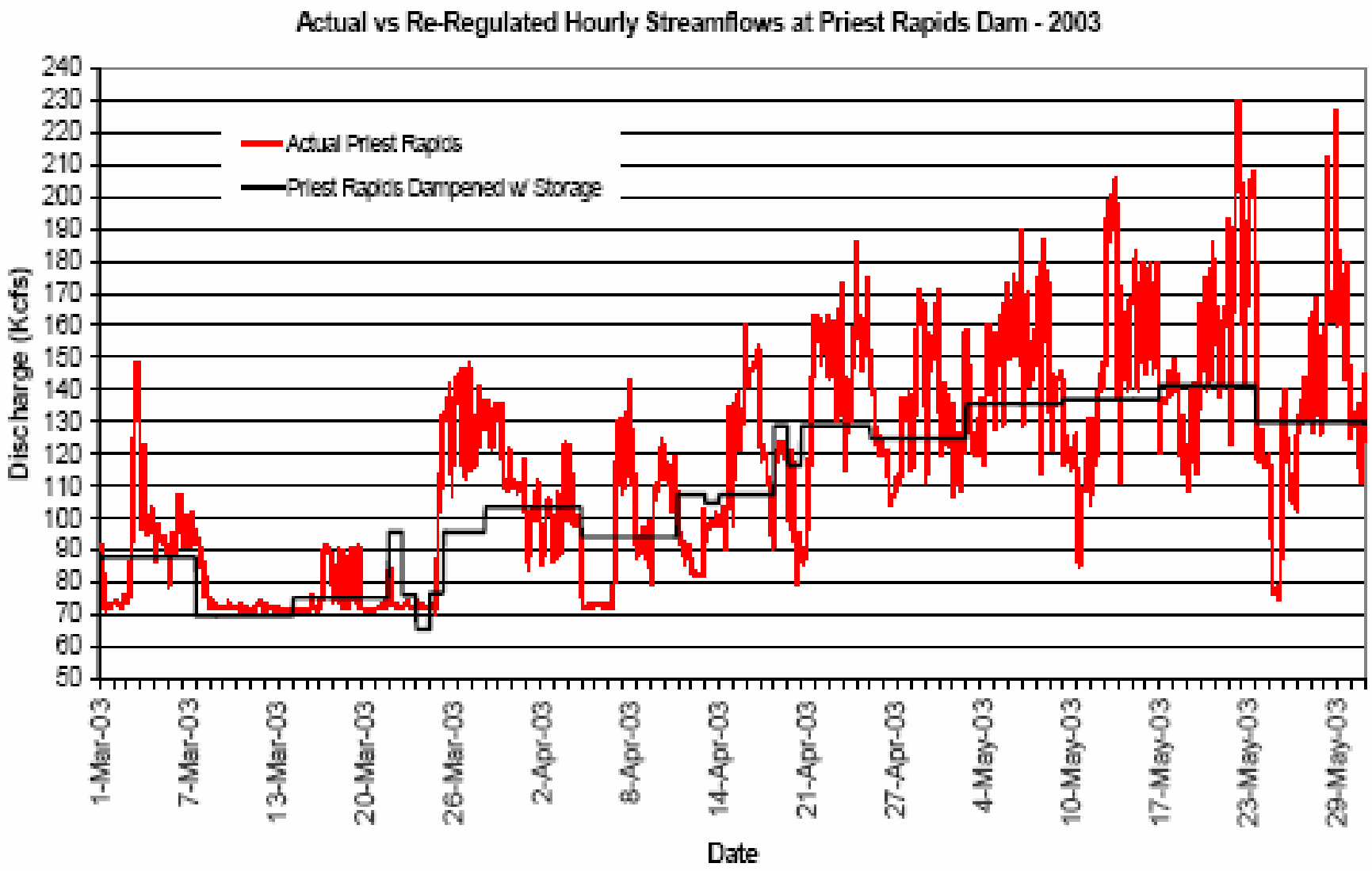
Additional Flow Sources: upstream storage reservoirs in U.S. and Canada
via modified flood control through better forecasting


Columbia at The Dalles: WY 2006
Flows (cfs)
340,000
320,000
300,000
280,000
260,000
240,000
220,000
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
OCT
NOV
DEC
JAN
FEB
MAR
AP1
AP2
MAY
JUN
JUL
AG1
AG2
SEP
CRITFC 2006 ROP (URC Plan)
Biological Opionion Target Flows (MCN)

Survival of wild subyearling fall chinook salmon to Lower Granite Dam Tailrace versus flow, 1998-2002.



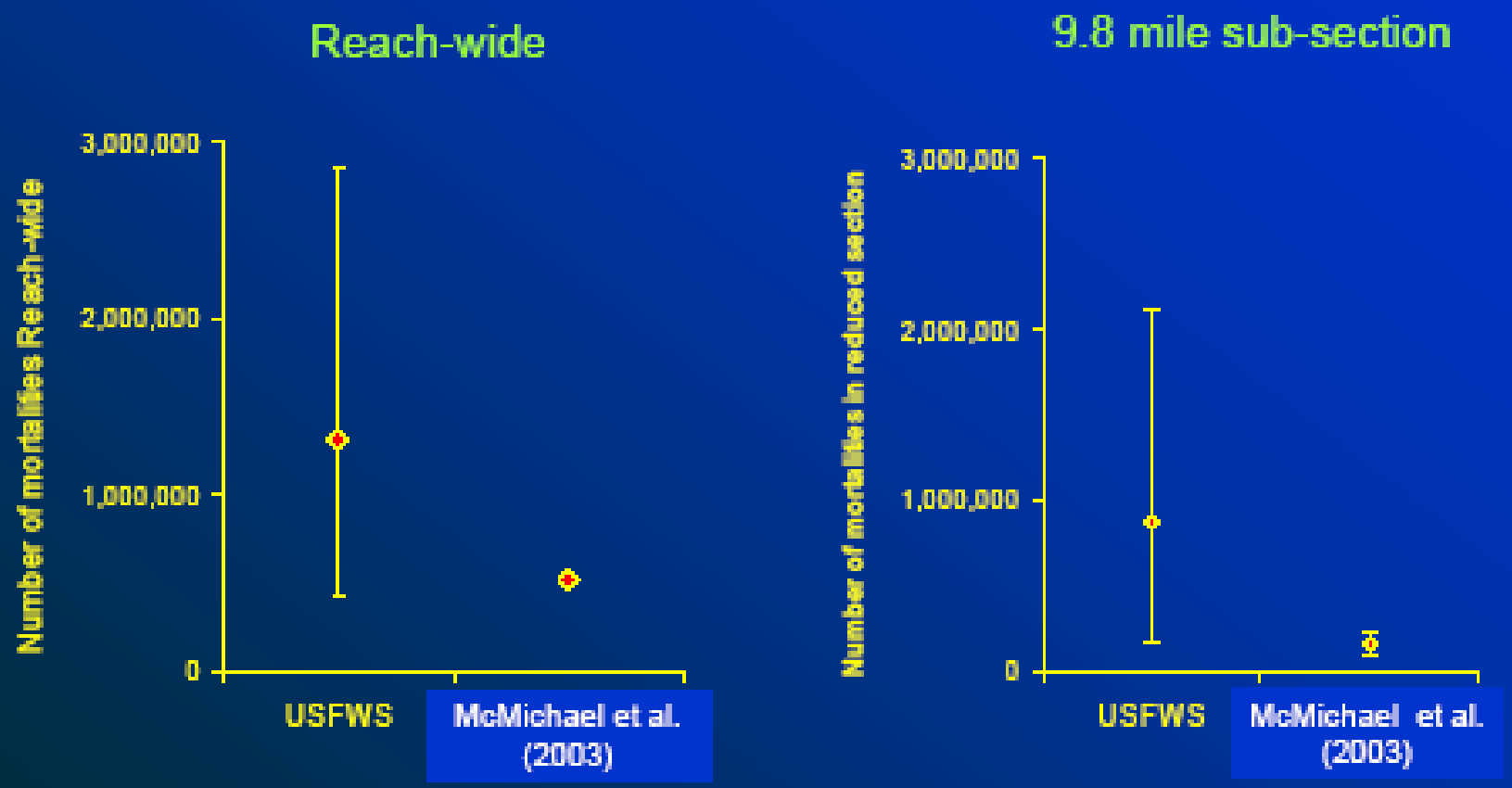
Dampening Hanford Reach Flow Fluctuations Using Dam Flow Re-regulation



Water Management Issues
Juvenile Chinook Rearing

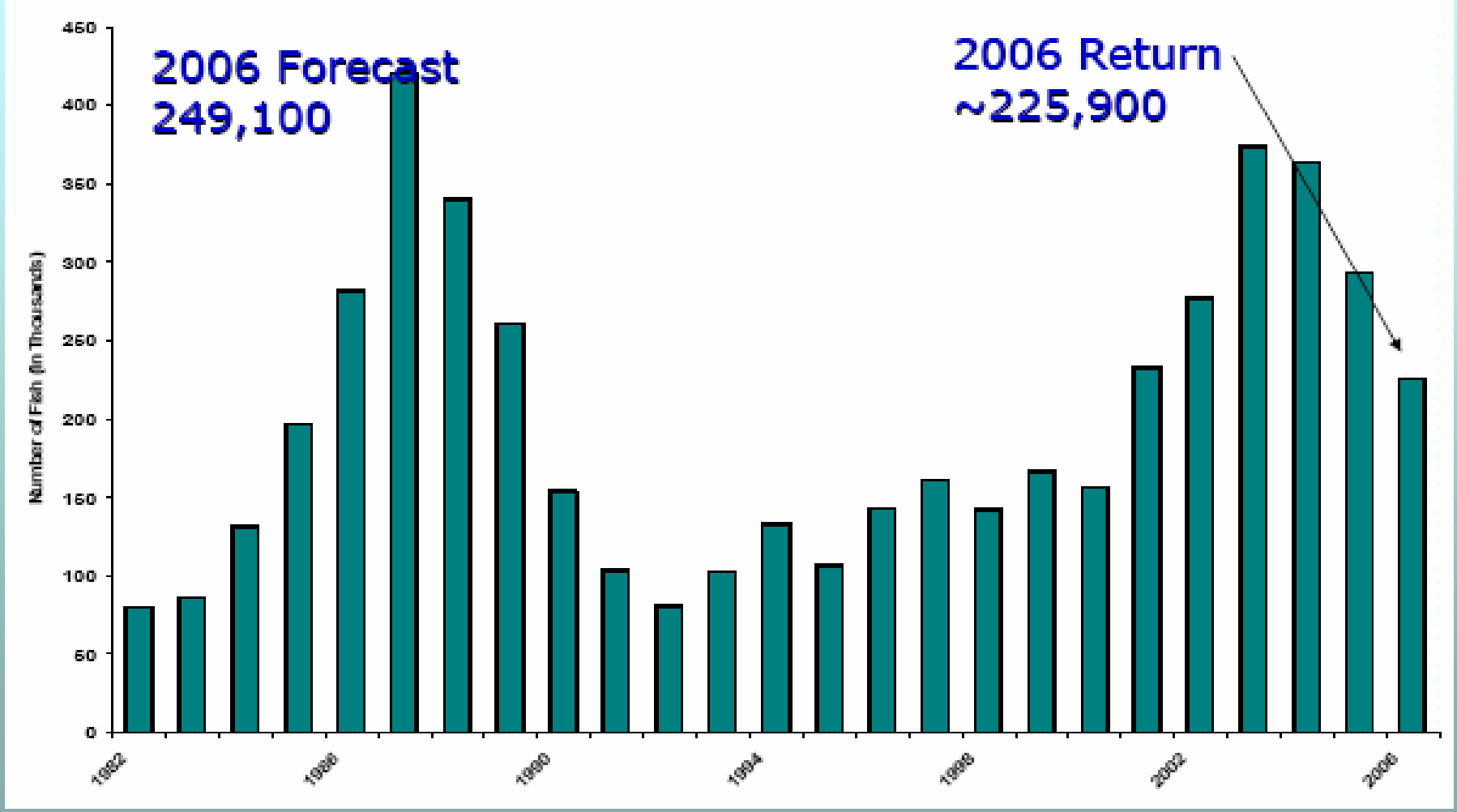
- **Entrapment of juveniles rearing in nearshore areas**

2003 impact estimates



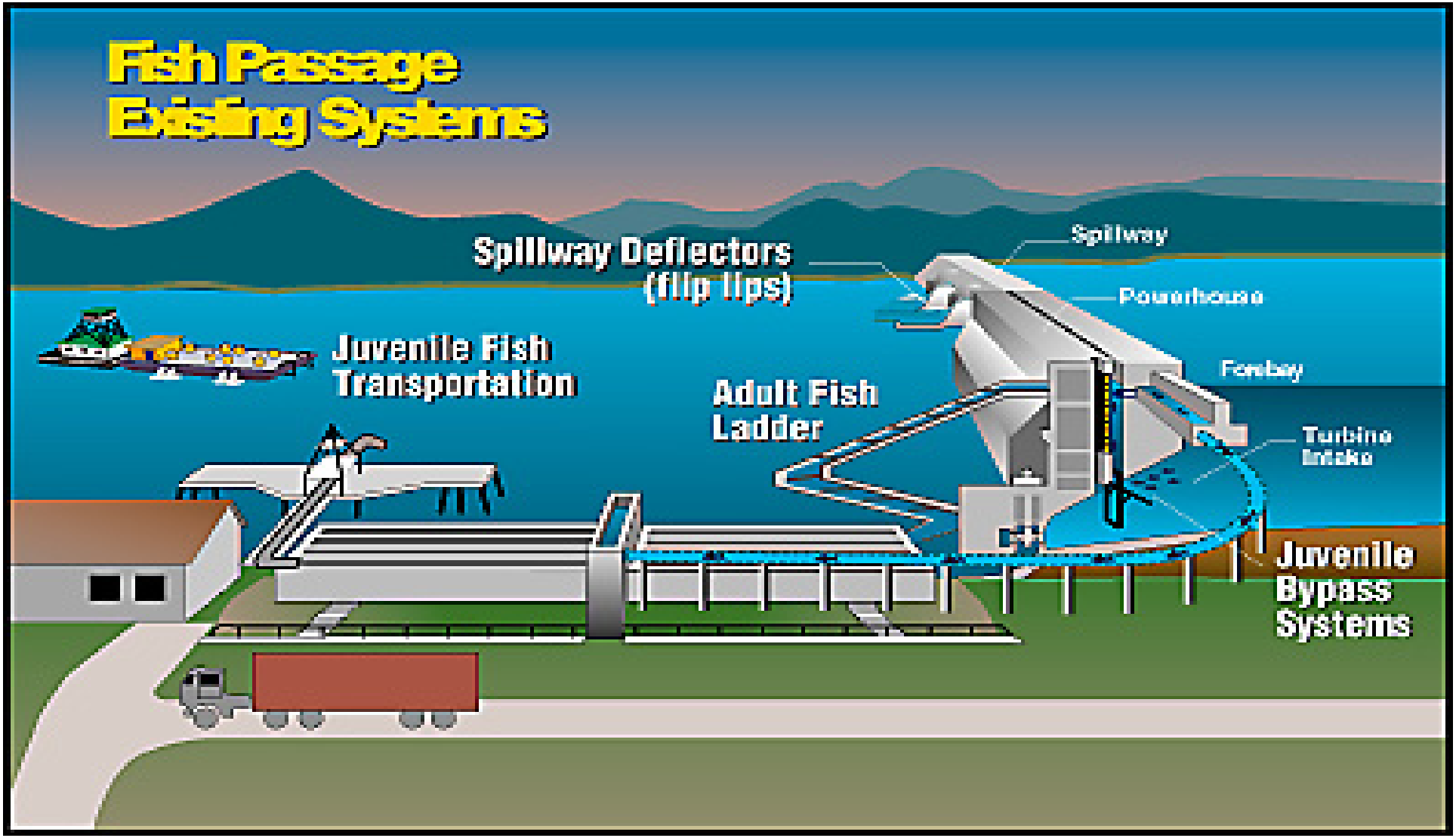
Flow impacts on Adult Hanford Reach Fall Chinook Spawning

Upriver Bright Fall Chinook Returns 1982-2006



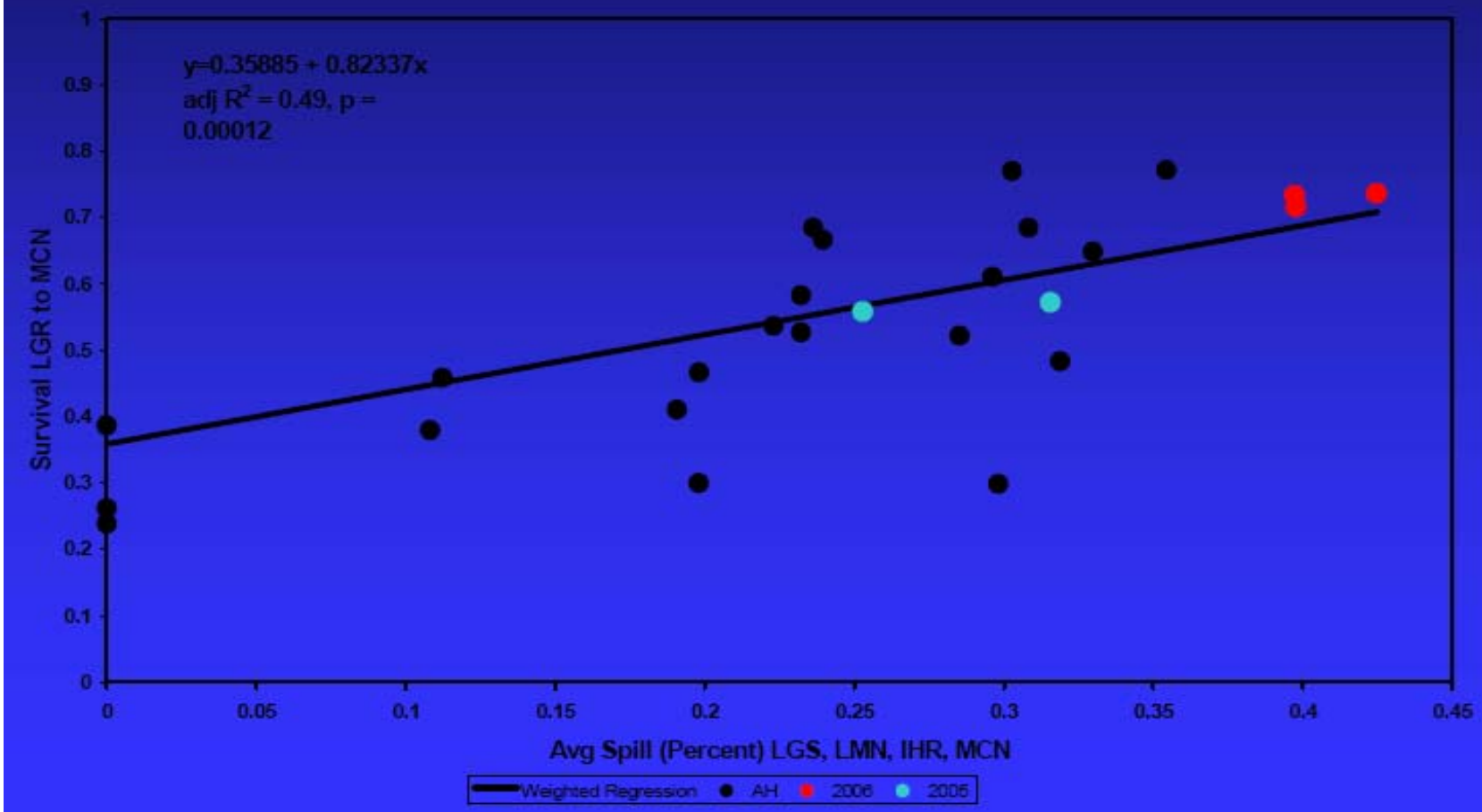
Juvenile Direct Survival Rates

Spill 92-100% (least delayed mortality)
Turbines 68-97%
Screen Bypass 84-100 % (most delayed mortality)



Spill decreases fish travel time and has highest direct survival rate

AH Subyearling Chinook Survival vs Avg Spill Pct LGS, LMN, IHR, McN

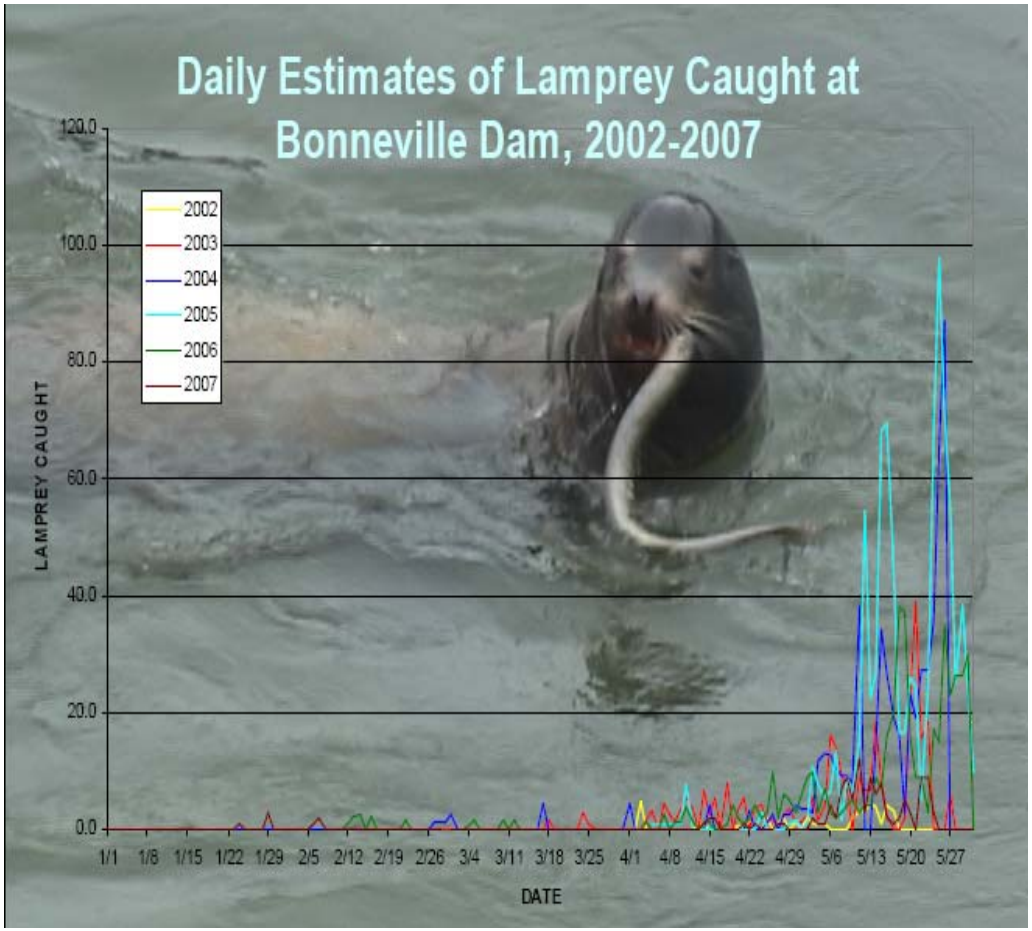


Delayed Transportation Mortality

(On average, twice as many fish die after release than in-river fish)

Adult Passage
8 Dam Reach Survival (60-80%)

Sea Lion Predation



Direct Reach Survival For Juvenile Snake River Steelhead

Survival From 2001 to 2006

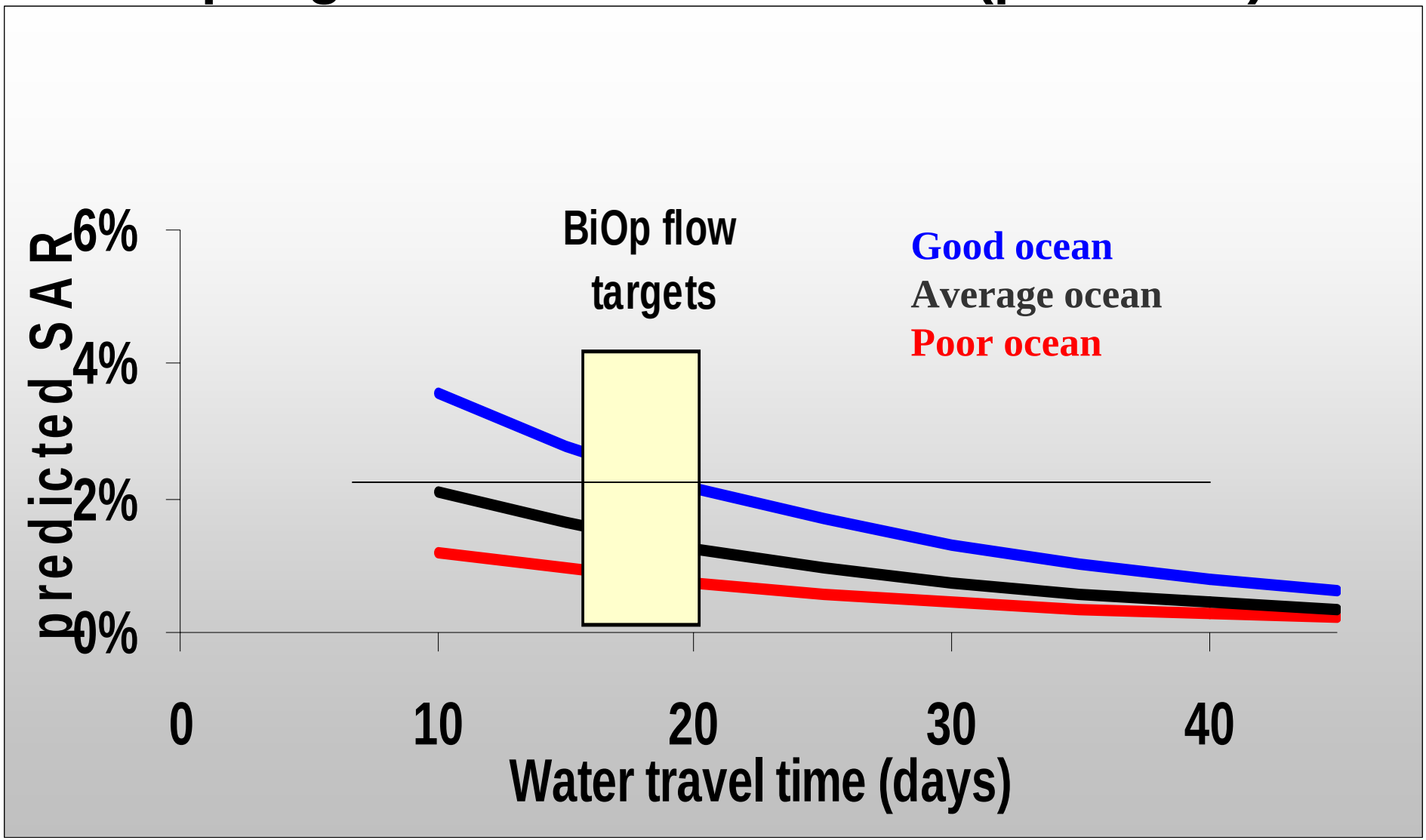
Reach	***2001*** ***(No Spill)***	**2002** ***(12 hour)***	**2003** ***(12 hour)***	***2004*** ***(No Spill)***	***2005**** ***(No Spill)***	**2006** ***(24 hour)***
Snake Trap to Bonneville	***3.8%***	23.4%	28.8%	***N/A***	***N/A***	37.39%
Lower Granite to McNary	***16.8%***	53.6%	59.7%	***37.9%***	***59.3%***	69.3%

*2005 Nearly meet the Spill Target Run Off Volume. In 2005 a period of nearly 10 days caused forced spill at all the Snake Projects, during this time large numbers of juveniles passed the project in spill. A significant portion of these are included in the 2005 estimate.

Delayed Hydrosystem Mortality

- Occurs after juvenile salmon are below Bonneville Dam
- Estimate range: 37-68% (Budy et al. 2002)
- Is tied to hydrosystem experience
- Is greater in low flow years
- Is much greater for transported fish

Reduction of Water Travel Time and Ocean Conditions have greatest effect on Spring/Summer Chinook SAR (predicted)



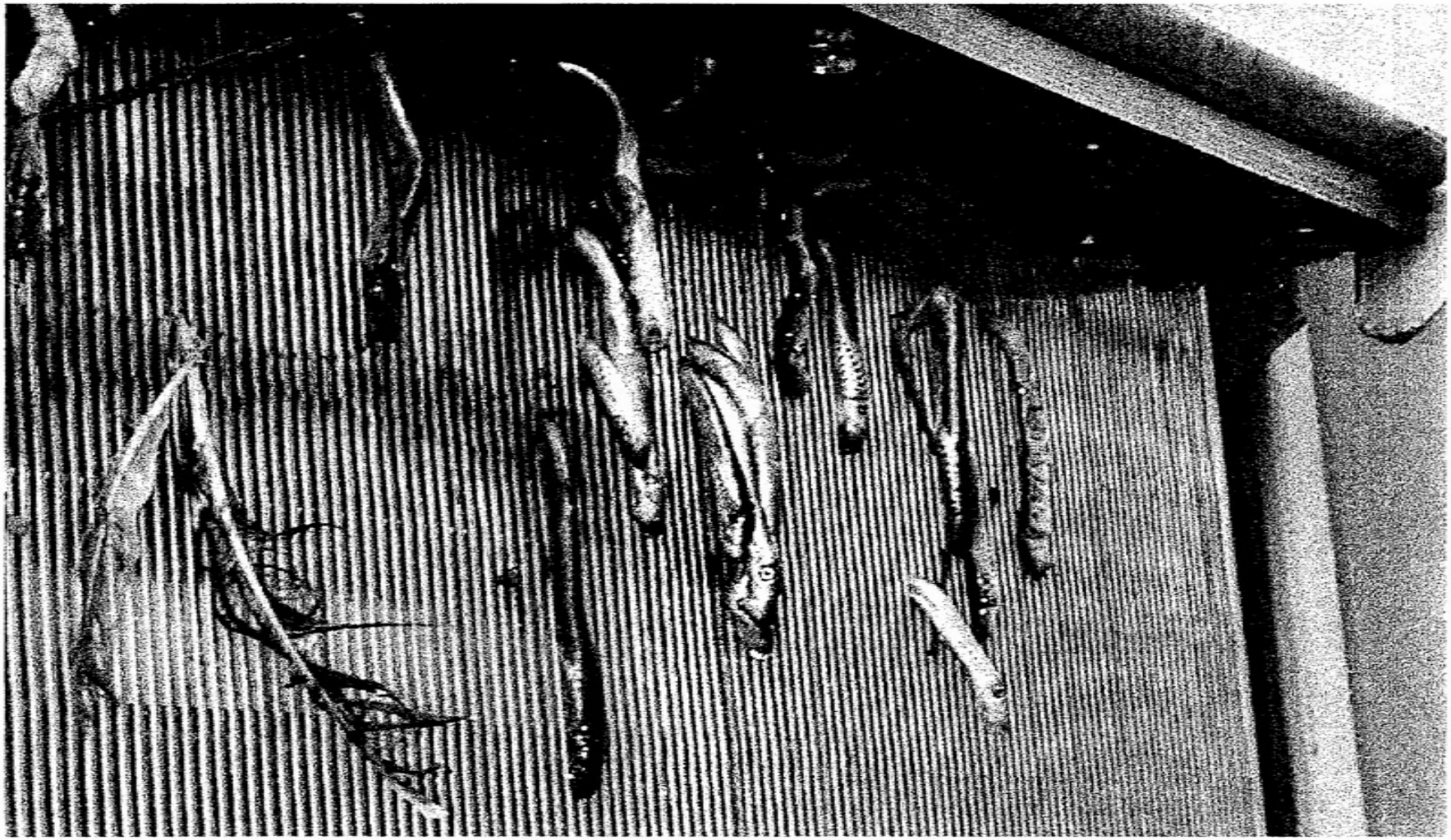
Adult Pacific Lamprey Counts

McNary Dam 1960's 25,000

	McNary	Ice Harbor	Lower Granite
2000	1,281	315	28
2001	2,539	203	27
2002	11,282	1,127	128
2003	13,325	1,702	282
2004	5,888	805	117
2005	4,158	461	40
2006	2,139	255	35
2007	3,454	288	34

Screened Bypass Passage Impacts

Juvenile Pacific Lamprey Impinged on John Day Dam Extended Bar Screen Bypass System (February 1998)



Summary

- **Our Commission's member tribes will continue to participate in important basin forums and partnerships to increase native fish production to maintain spiritual, cultural and subsistence needs**

- **The impacts of hydro development on tribal fishery resources were not considered when dams were constructed.**

- **Future water withdrawals, population growth and climate change will cause additional stressors to remaining tribal fish and wildlife resources**

- **Reservoir drawdown and or dam breaching will likely be necessary to fill recovery gaps in the face of climate change and population growth**

- **Renegotiation of the Columbia River Treaty and other regional agreements to consider water quality and fishery needs will be vital to the future persistence of fish and wildlife populations in the Columbia Basin**

- **The Mekong River Commission should continue to carefully investigate the potential impacts of hydro development on native peoples before making decisions that may be irreversible**

“We did not inherit this earth or its natural resources from our ancestors, we are only borrowing them from our children’s children; therefore we are duty bound and obligated to protect them and use them wisely until such time that they get here, and then they will have the same obligations.”

Eugene Greene, Sr. Chair, Columbia River Inter-Tribal Fish Commission