

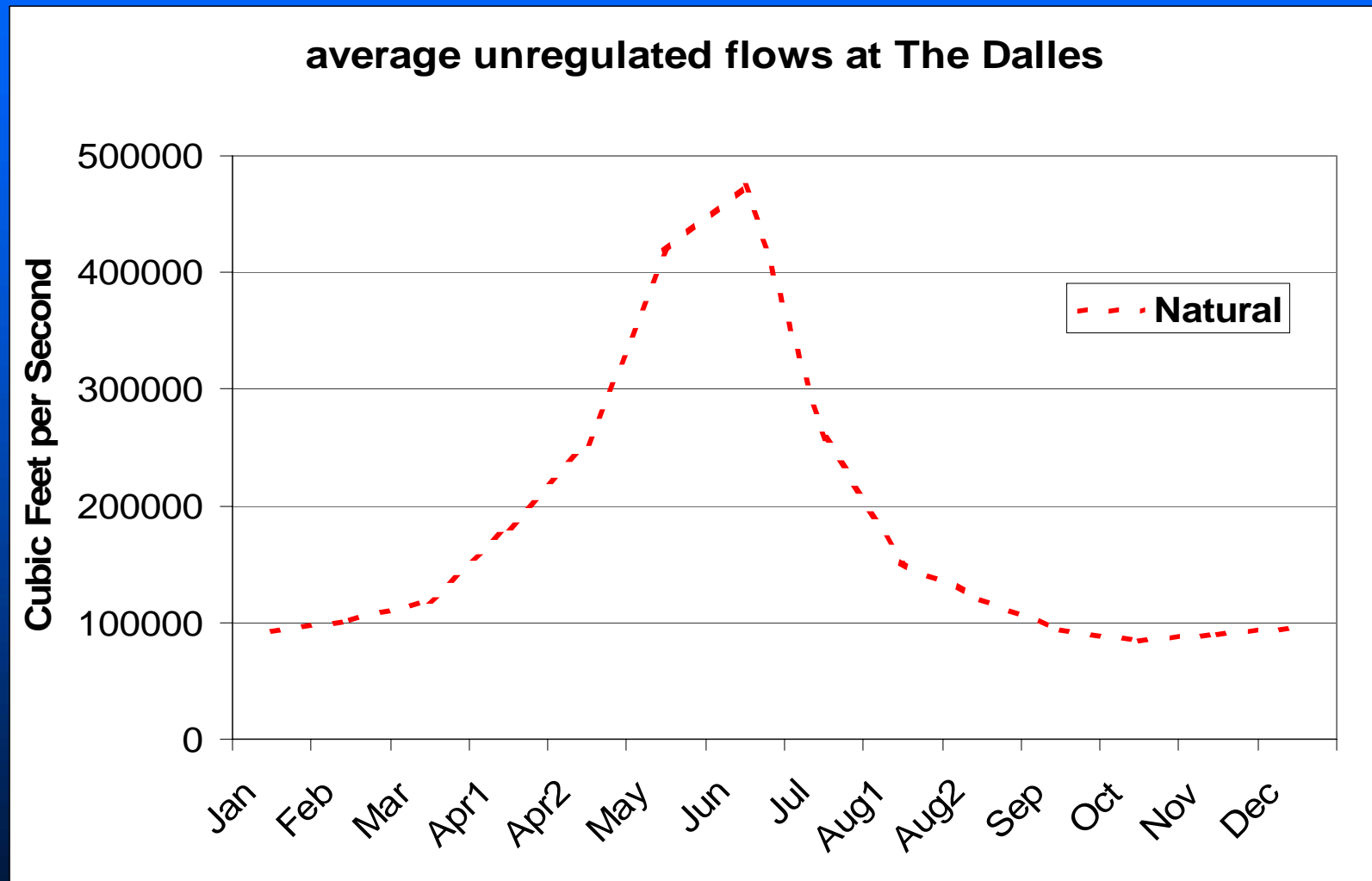
# Rethinking the Columbia River Treaty

John Shurts

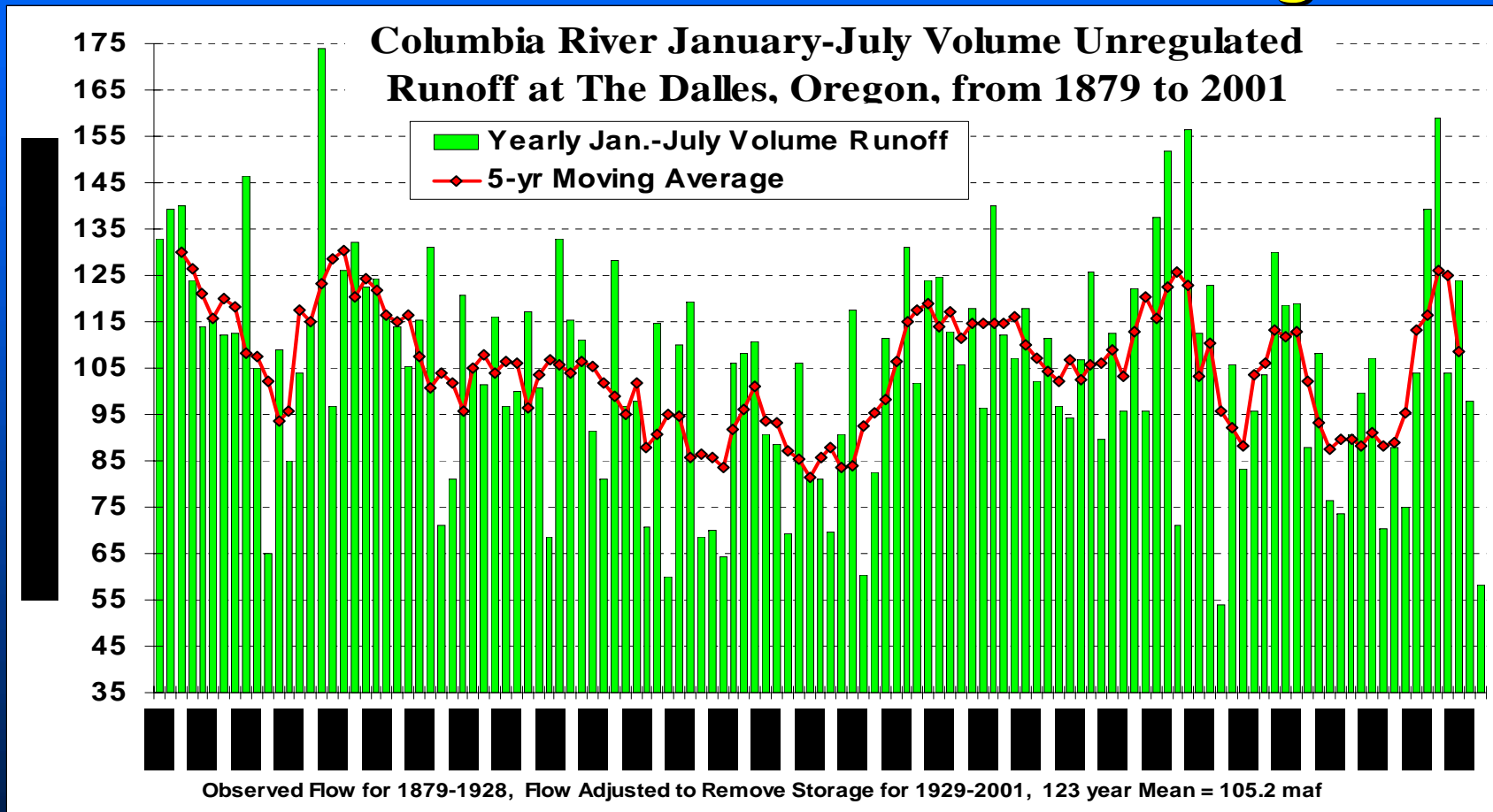
June 2010



# Columbia River – Unregulated flows



# Year to Year Variation in Flow About +/- 50% of Average

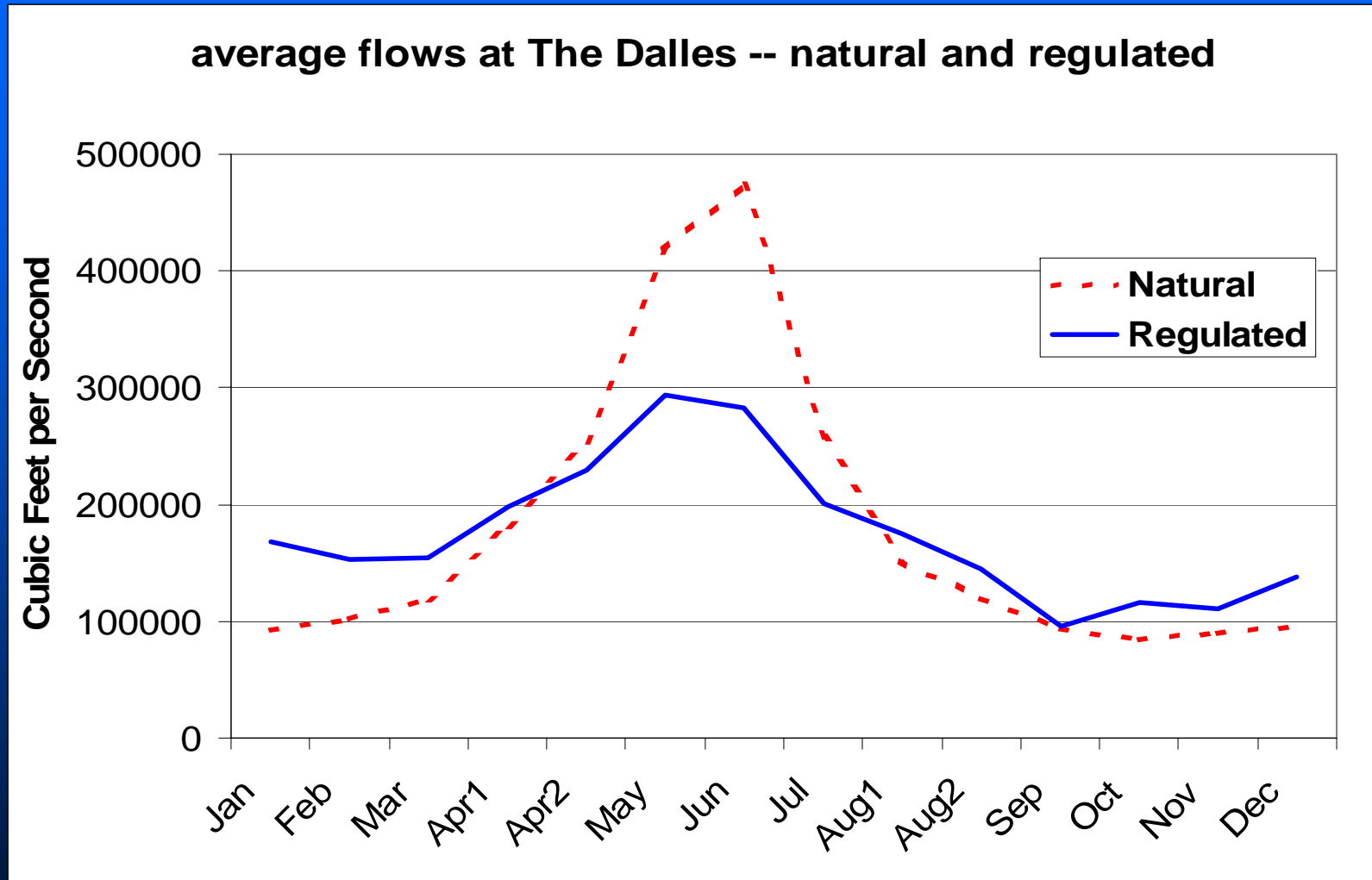


Min= 66 km<sup>3</sup> (53.5 Maf), Average= 130 km<sup>3</sup> (105.6 Maf), Max= 214 km<sup>3</sup> (173.8 Maf)  
 Year to year variations are almost random, and  
 95% confidence error for January forecast = +/- 33 km<sup>3</sup> (27 Maf)

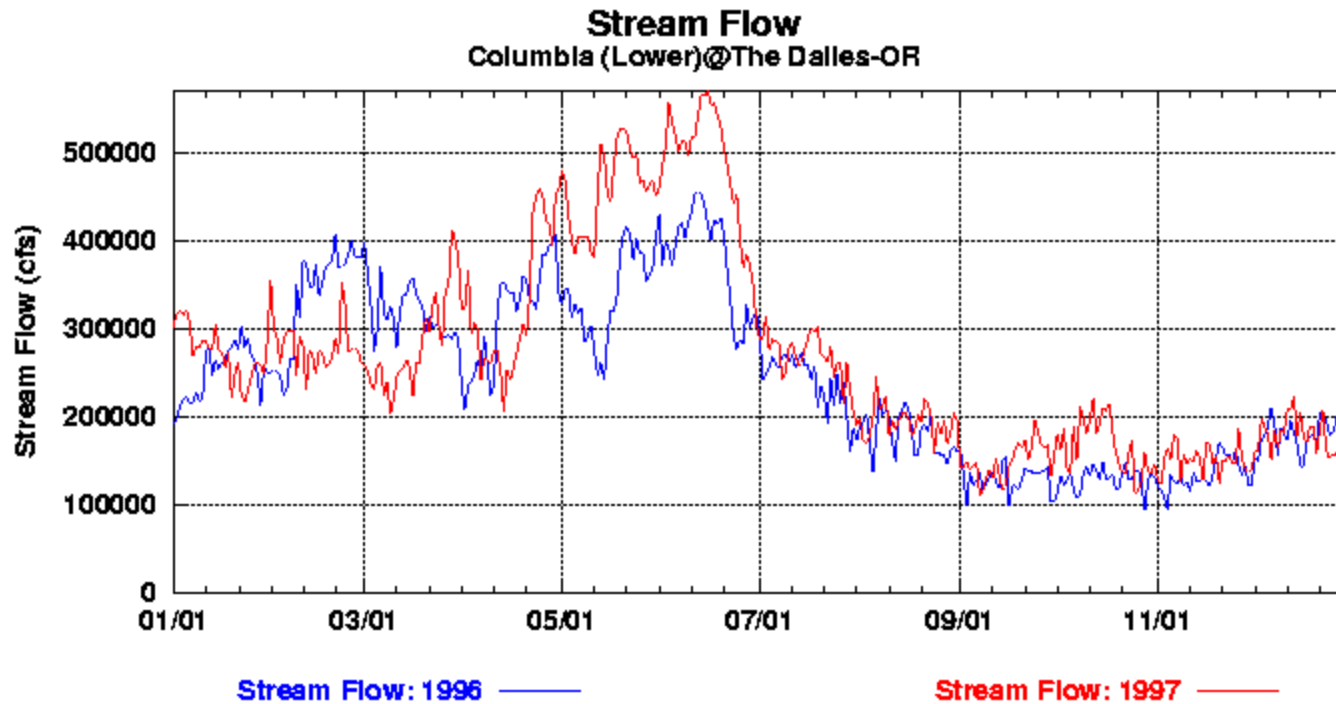
# Columbia flow and the Treaty concept

- **Large within-year variation:** Average unregulated February flows at The Dalles little more than 100 kcfs; May-June unregulated flows at the same point more than 400 kcfs.
- **Huge year-to-year variation:** Unregulated flows at The Dalles vary from 36 kcfs (1937) to 1,240 kcfs (1894), a 1:34 ratio. Compare to the St. Lawrence 1:2 and Mississippi 1:25.
- Canada has 15% of the basin area, but contributes about 40% of the average annual flow at The Dalles.
- In mid 20<sup>th</sup> century, this is a flood control and power problem.
- **Treaty solution:** Concept was to smooth out an inconvenient hydrograph and create power and flood control benefits largely in the United States through an agreement to build storage in Canada, and then to share the benefits.

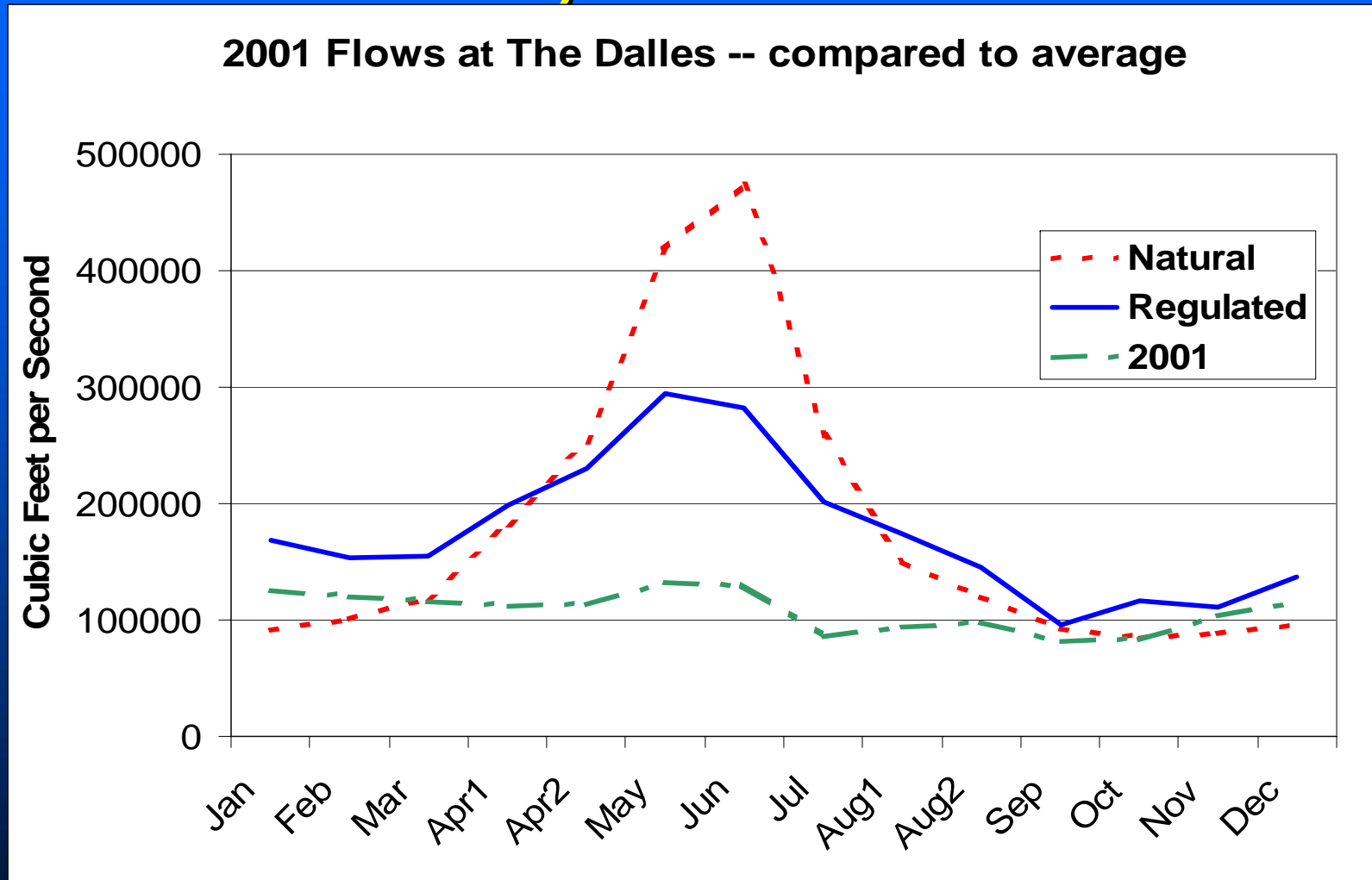
# Columbia River – average regulated flows



# Columbia River in 1996 and 1997

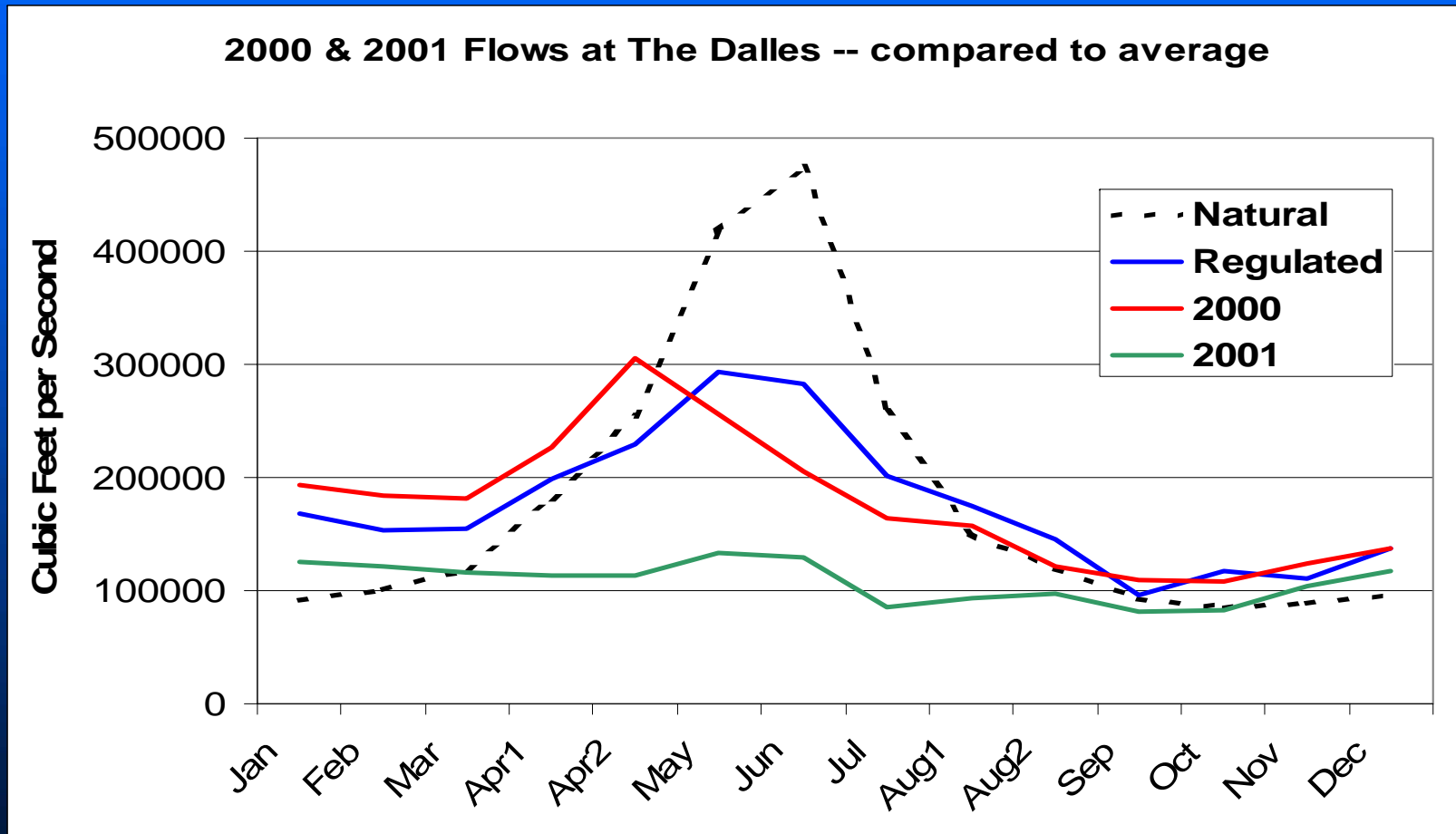


# Columbia River in 2001 – what can you do?

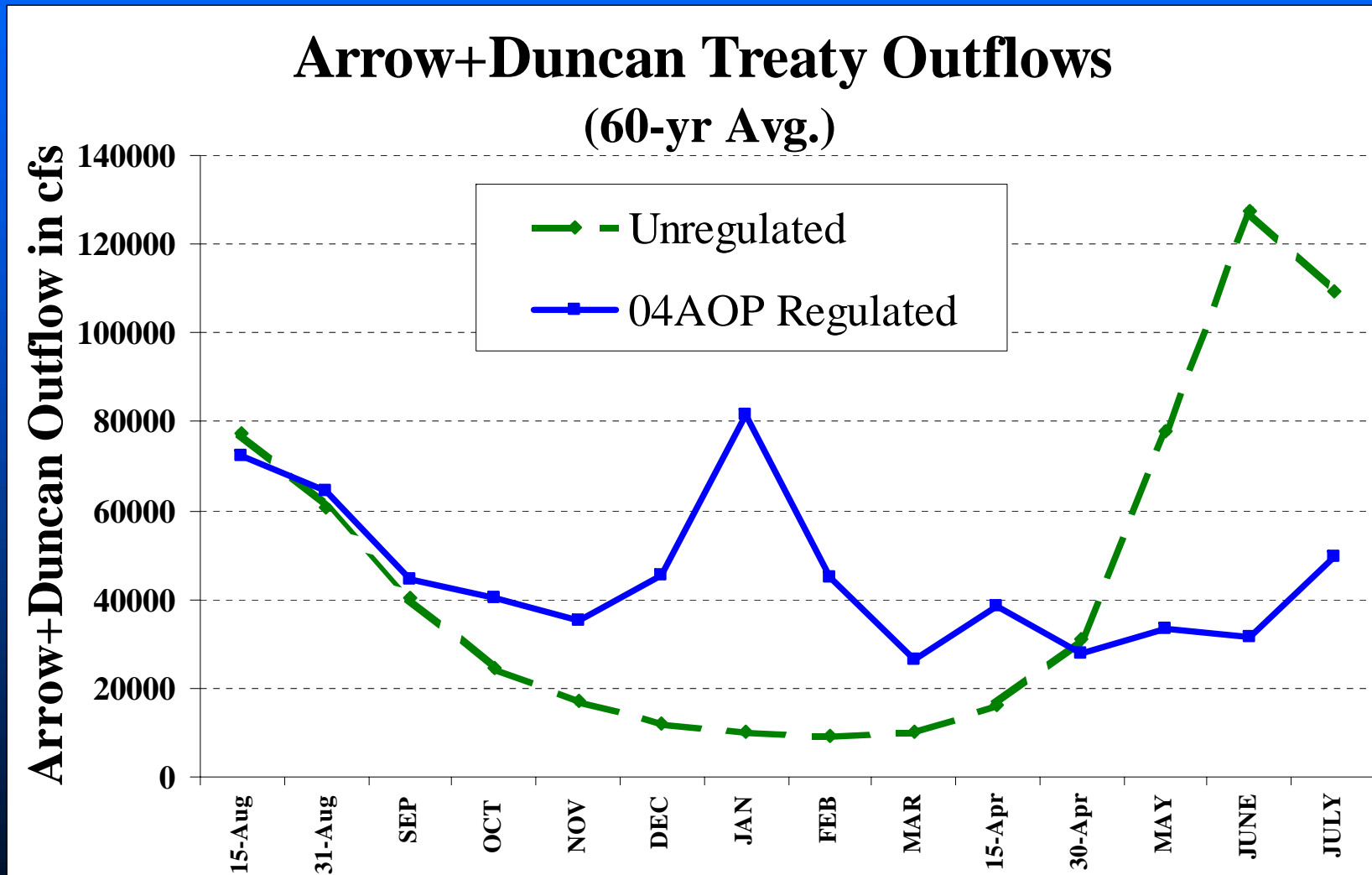




# Columbia River in 2000 -- an example of things to come?



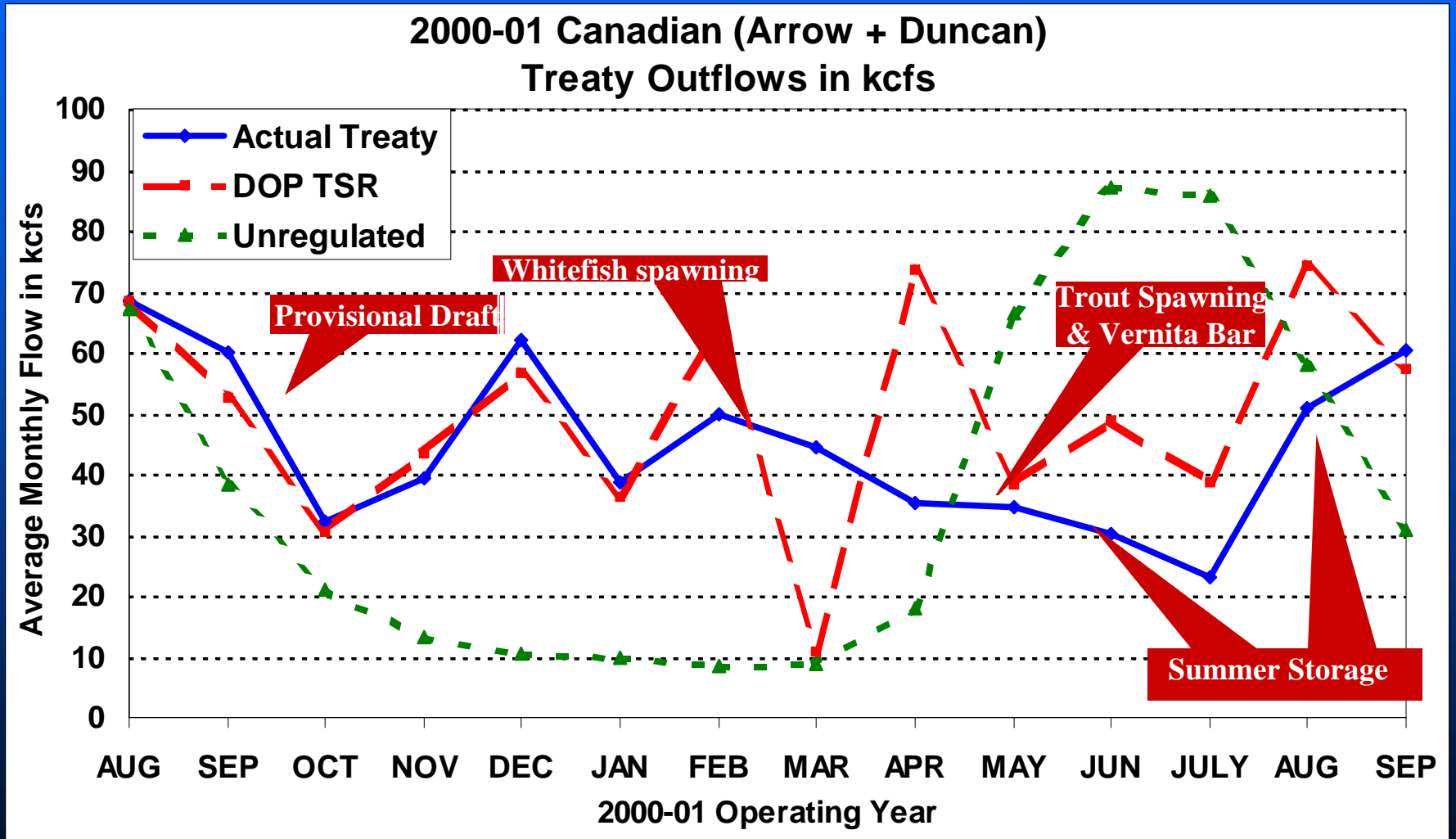
# Canadian Outflows for Power and Flood Control



# Treaty Allows Mutually Beneficial Supplemental Operating Agreements

- **Treaty Article XIV(2)k allows the Entities to develop and implement operations that may produce results “more advantageous” to both countries than what would result from the assured operating plans prepared in accordance with power and flood control provisions in Treaty.**
- **Entities have interpreted “more advantageous” to include both power and non-power benefits, including fisheries.**

# 2000-01 Treaty Outflows



## Needs/Benefits in 2010

- **flood control**
  - **power**
  - **fisheries; ecosystem conditions**
  - **recreation**
  - **climate change influences**
  - **participation**
  - **etc**
- **What benefits do we want from coordinated management, and how do we share those benefits?**

## Mechanisms and Issues

- **Treaty continues; continue annual supplemental operating agreements – can this bear weight of all other needs? what to do with flood control?**
- **Treaty continues; develop new multi-year operating agreement/Treaty protocol to bring up to date?– can you graft the one on the other? how to reconfigure benefit sharing as well as operations?**
- **Treaty termination – what do we lose? how to handle flood control?**
- **New or revised Treaty – pros and cons?**
- **other?**
- **Participation and governance issues**