

The Three Ages of Water

Prehistoric Past, Imperiled
Present, and A Hope for the
Future

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WRRC Water Webinar
University of Arizona
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Prehistoric Past, Imperiled Present,
and a Hope for the Future

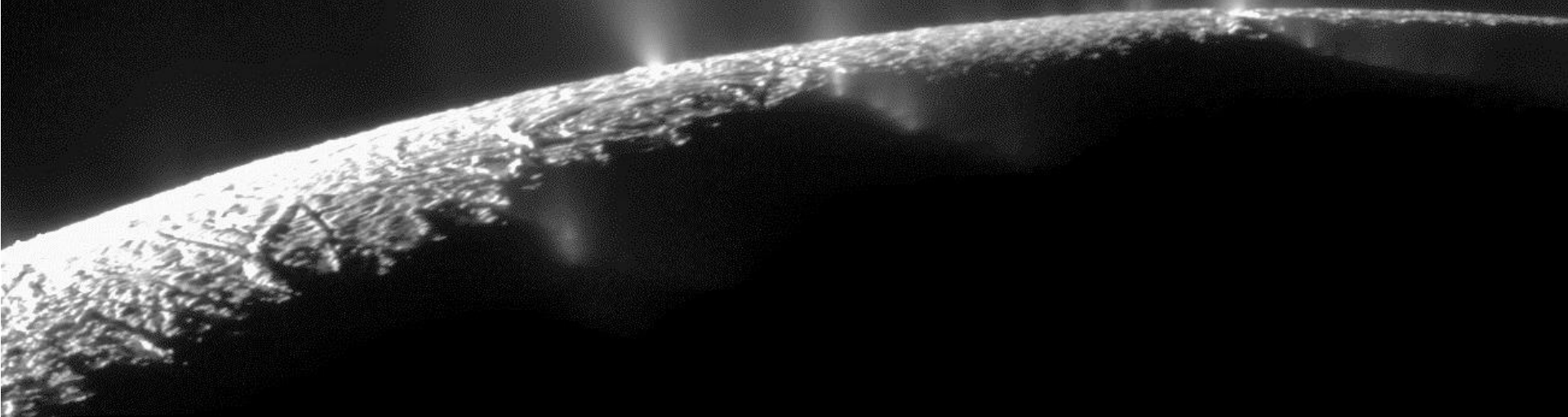
THE
THREE
AGES
OF
WATER

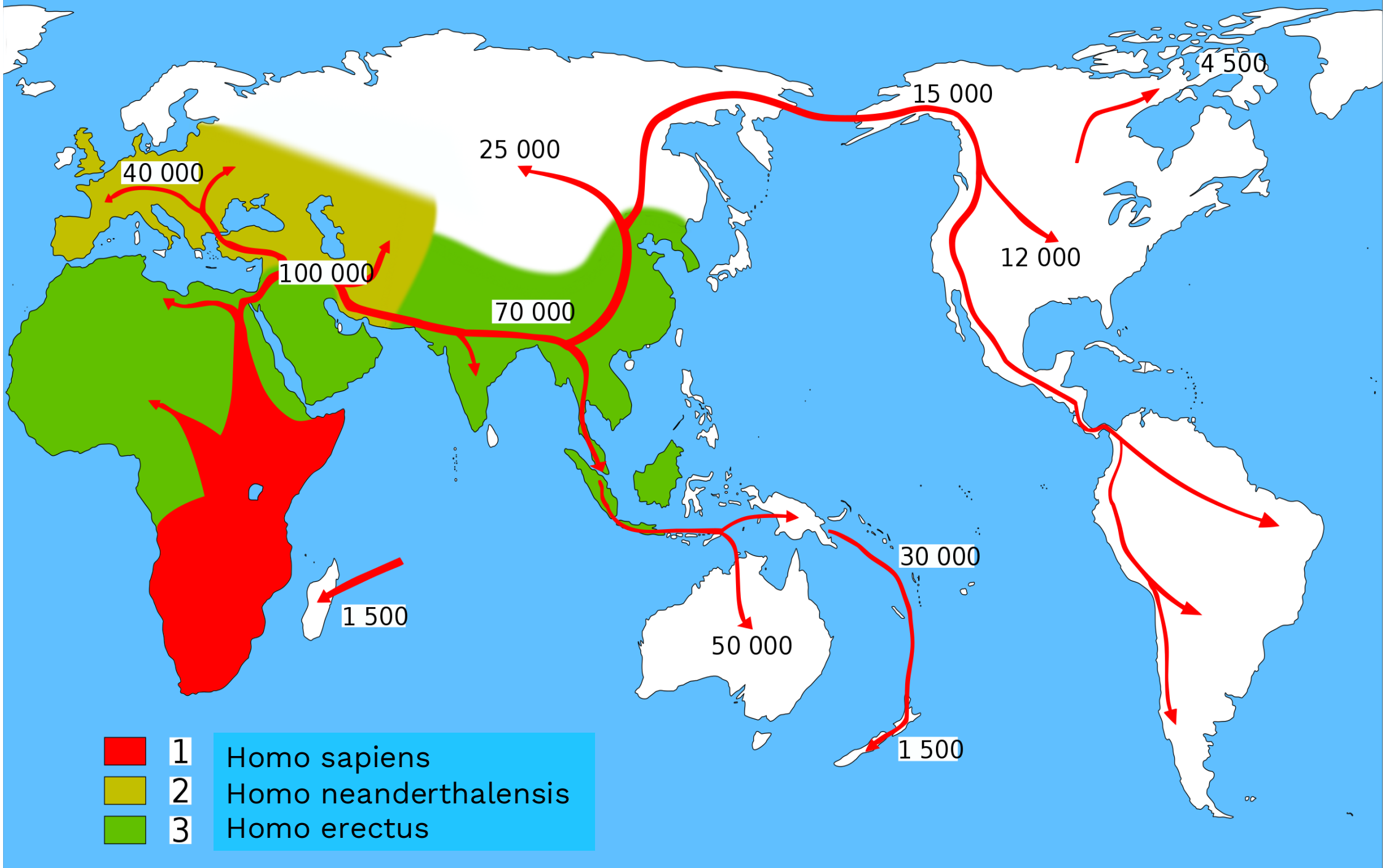
PETER GLEICK



Galaxy NGC 1961
Hubble Space Telescope (NASA)

Water vapor venting from Enceladus, a moon of Saturn
(NASA/JPL-Caltech/Space Science Institute)





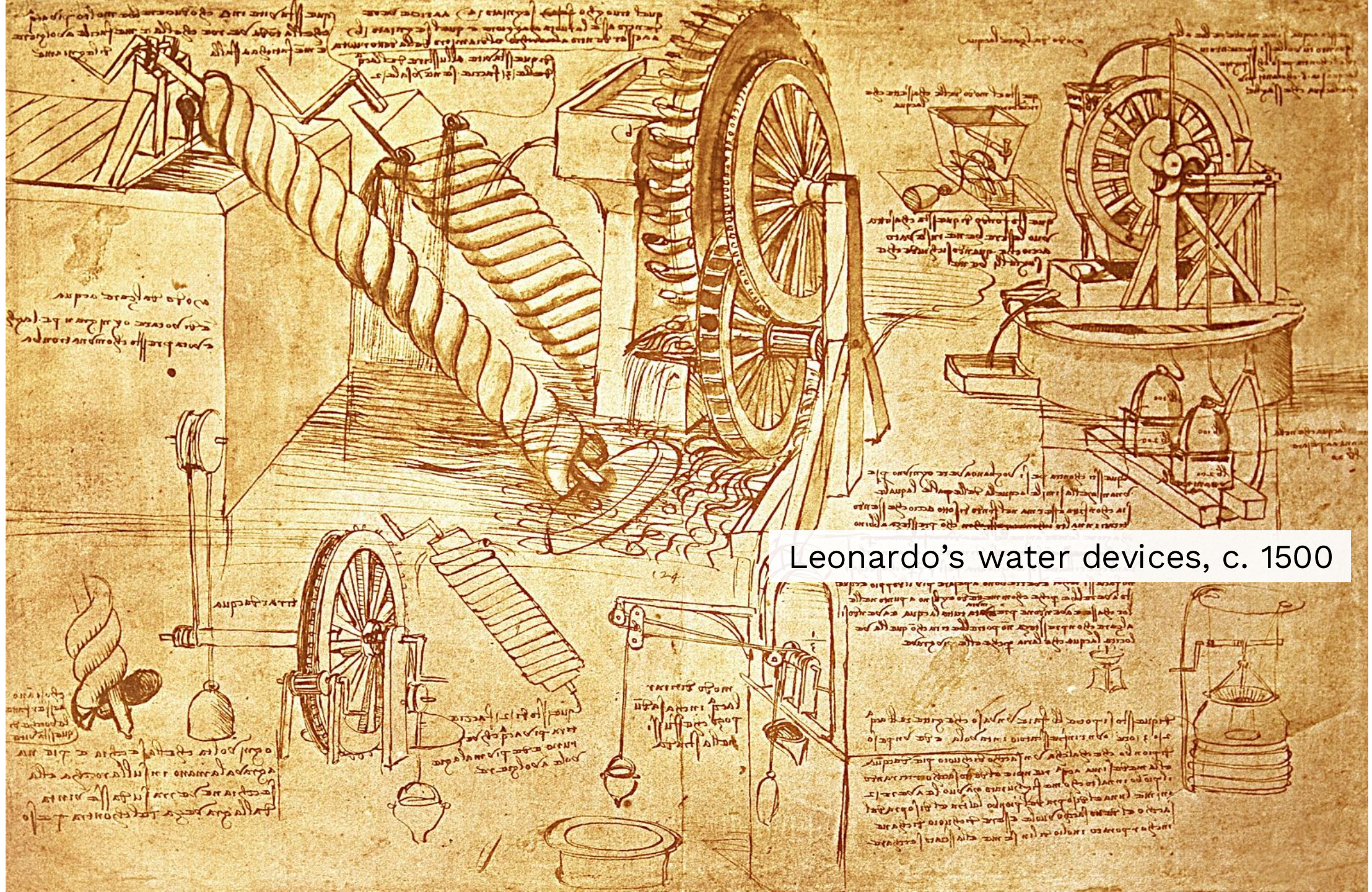
- 1 Homo sapiens
- 2 Homo neanderthalensis
- 3 Homo erectus

The Sadd El Kafar dam, Egypt,
c.2700 BCE





Pont du Gard, 1st century AD
(Photo: Gleick 2018)



Leonardo's water devices, c. 1500



Glen Canyon Dam,
Colorado River

Cholera Bacteria







Cuyahoga River Fire 1952
*Cleveland University State
Library*





Toxic Algal Blooms



Photo: Jeff Reutter



Flint, Michigan



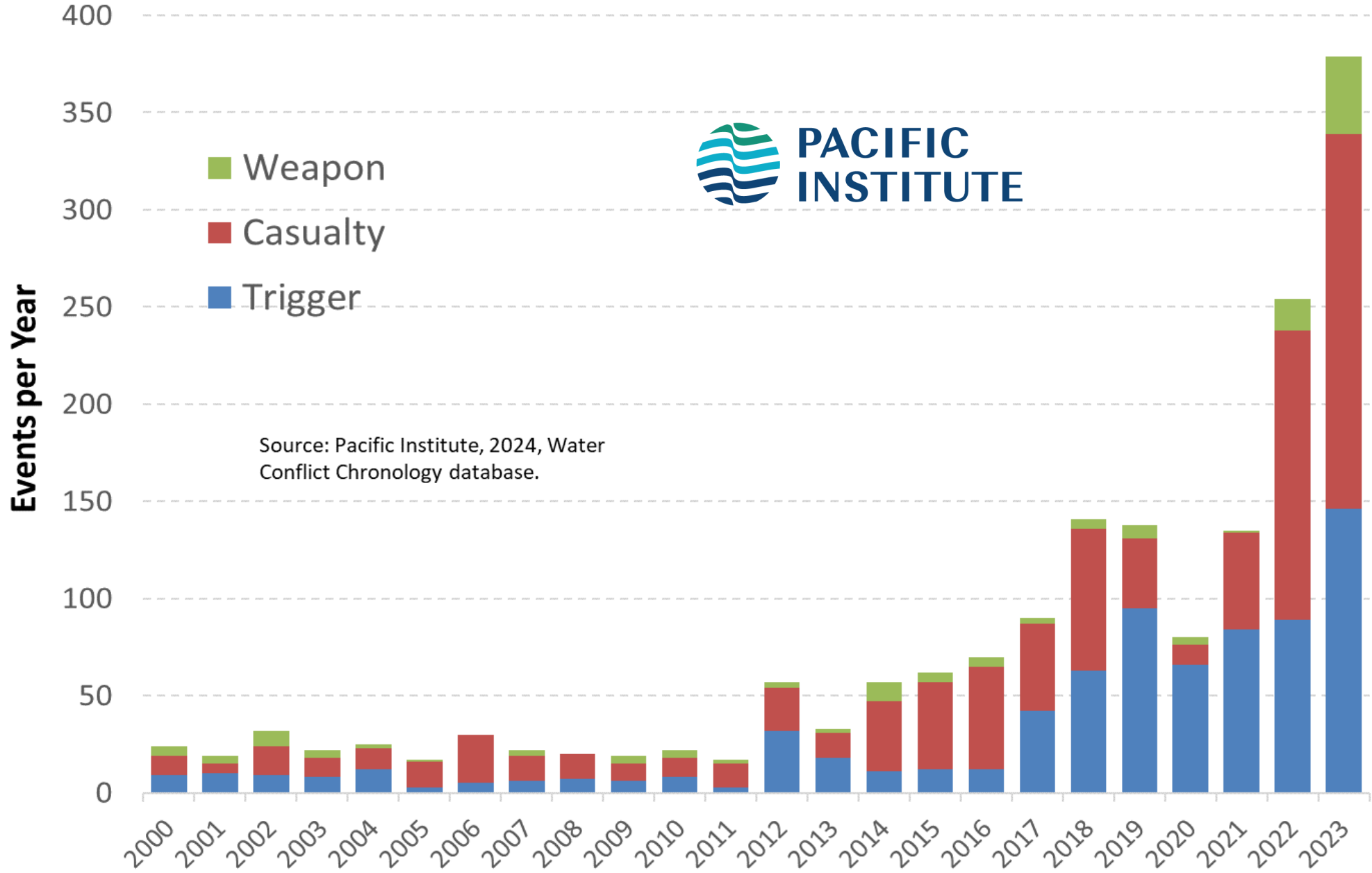


Trends in Water Conflicts by Type, 2000-2023

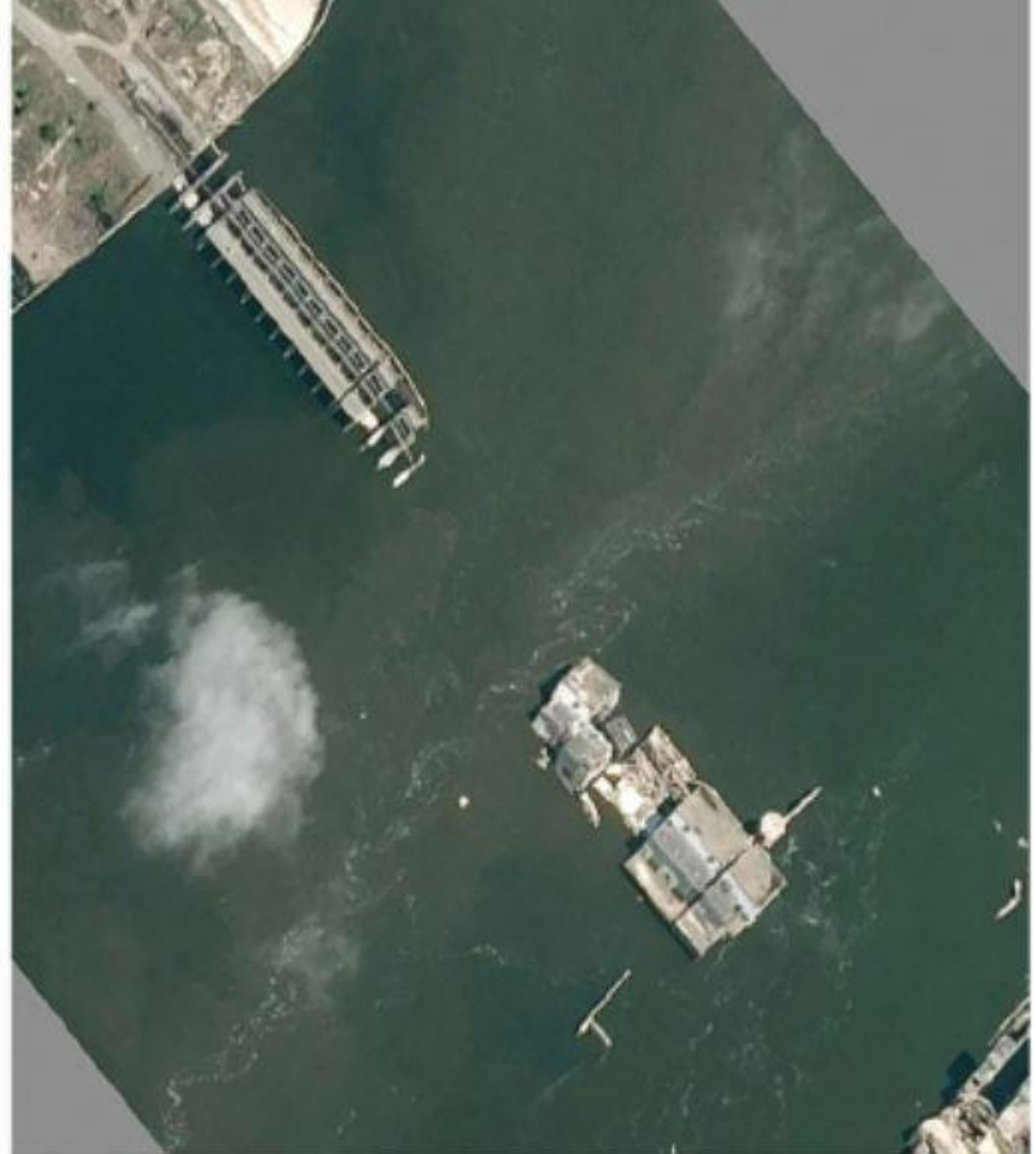
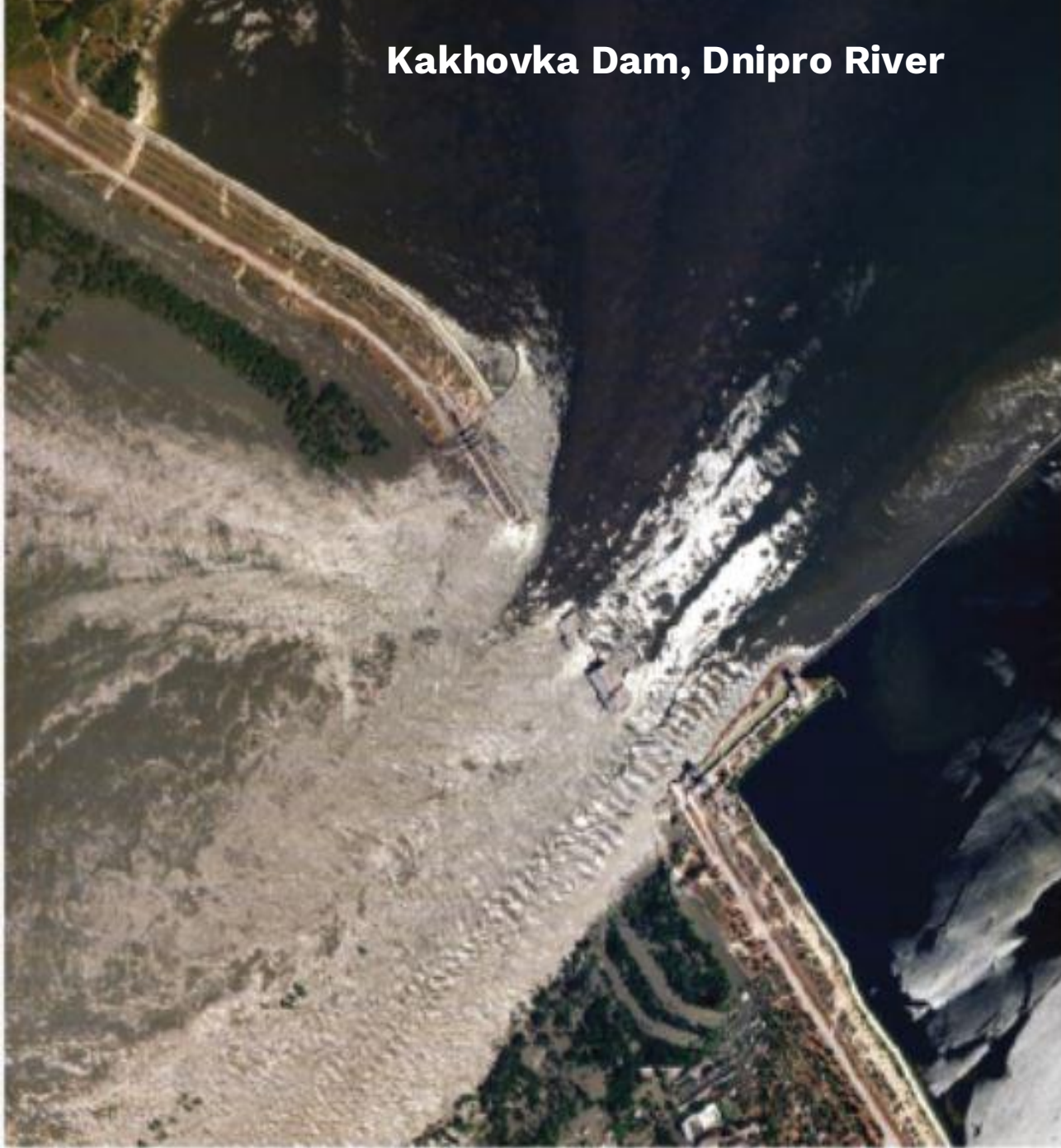


- Weapon
- Casualty
- Trigger

Source: Pacific Institute, 2024, Water Conflict Chronology database.



Kakhovka Dam, Dnipro River









A Transition to a New Path for Water: The Third Age



It is time for 21st Century “Soft Path” Water Solutions

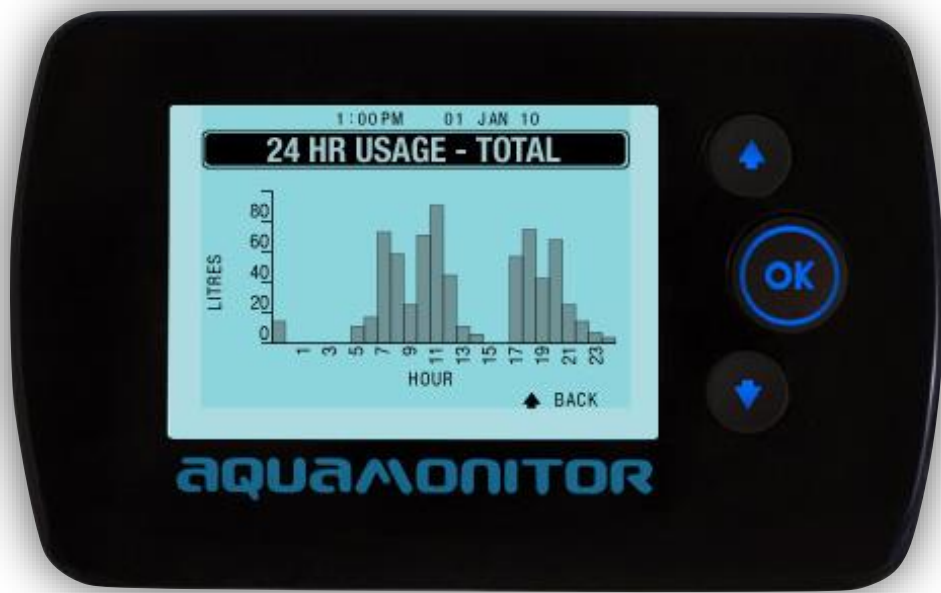
The Hard Path

- Build for water supply
- Satisfy projected demand
- Water is only an economic good
- Centralized water treatment; one water quality (potable) only
- No thought to ecosystem water needs or health
- Centralized management; limited public participation

The Soft Path

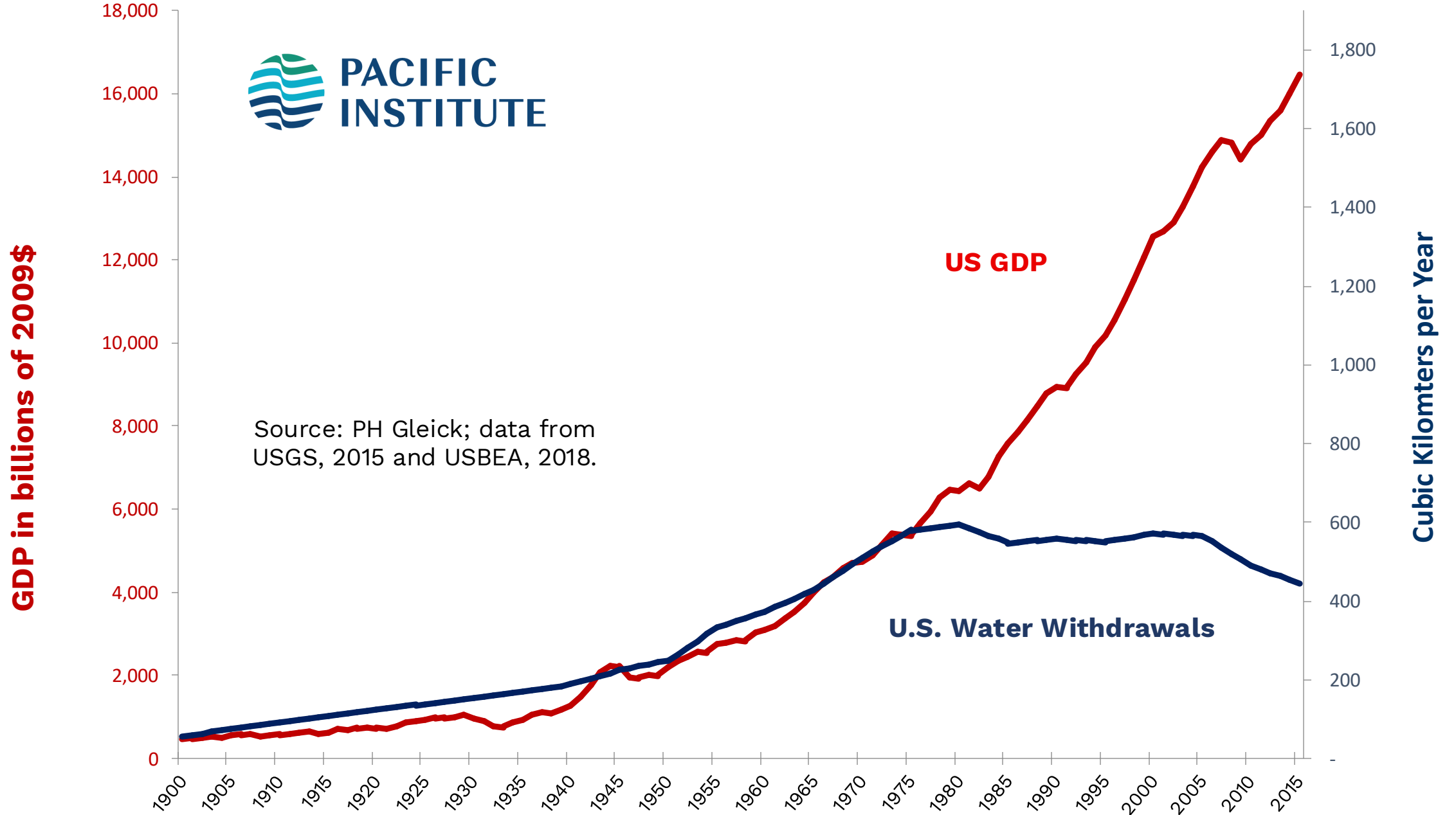
- Rethink “supply”
- Rethink “demand”
- Water is an economic good and a human right
- Protect source water quality; match quality of supply to quality of need
- Protect ecosystem needs and health
- Community participation; flexible water institutions







US Water Withdrawals and GDP







Ashdod Desalination Plant.
Photo: Peter Gleick

Elwha Dam Removal Project

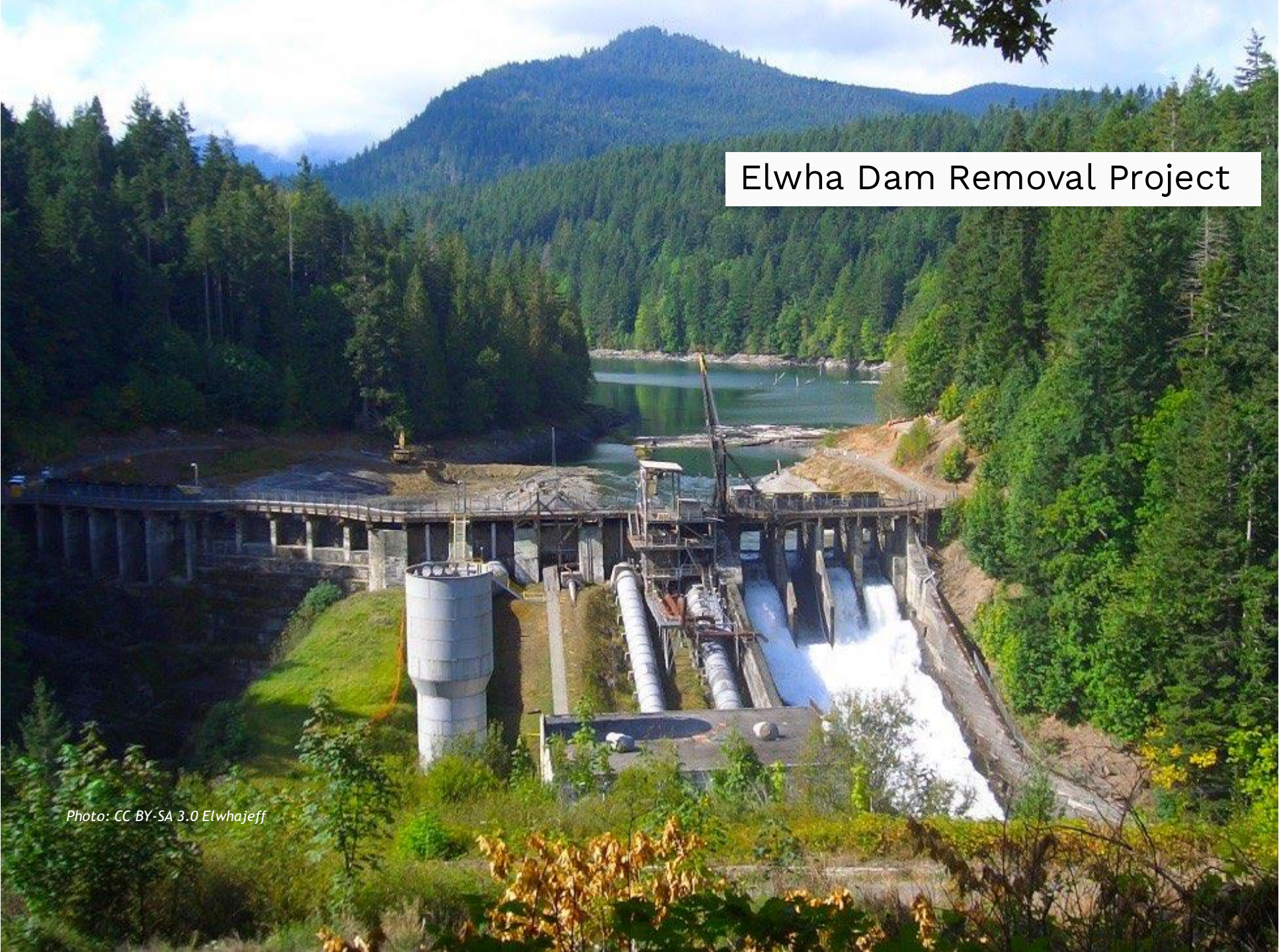


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Photo: CC BY-SA 3.0 Elwhajeff

Klamath River Copco
#1 Removal 2024



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