

# An Environmental Bill of Rights for Rivers

Ellen Wohl  
Department of Geosciences  
CSU

Under our legal system, only people (& corporations) have rights

New Zealand has declared that a river can be a legal person

Rachel Carson suggested in 1962 that the US needs an environmental bill of rights

*... the right of the citizen to be secure in his own home against the intrusion of poisons applied by other persons. I speak not as a lawyer but as a biologist and as a human being, but I strongly feel that this is or ought to be one of the basic human rights.*

This idea was expanded on in the 1972 Stockholm Declaration:

*Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.*

If we follow New Zealand and grant rivers legal status as persons, what would an environmental bill of rights look like for rivers?

Start with physical integrity:

a set of active river processes & landforms such that the river corridor adjusts to changes in water & sediment inputs within limits of change defined by societal values

*(Graf, 2001, Annals Assoc. Am. Geographers)*

Add ecological integrity:

the ability of the river corridor to support & maintain a community of organisms with species composition, diversity, & functional organization similar to those within natural habitats in the same region *(Parrish et al., 2003, BioScience)*

physical integrity focuses on river's ability to adjust to changing inputs

ecological integrity focuses on river ecosystem's ability to sustain a relatively natural biotic community, which partly depends on the physical integrity of the river

**River integrity** combines these definitions to describe the ability of the river to adjust to changing water & sediment inputs and through these adjustments to maintain the habitat, disturbance regime, & connectivity necessary to sustain native biotic communities.

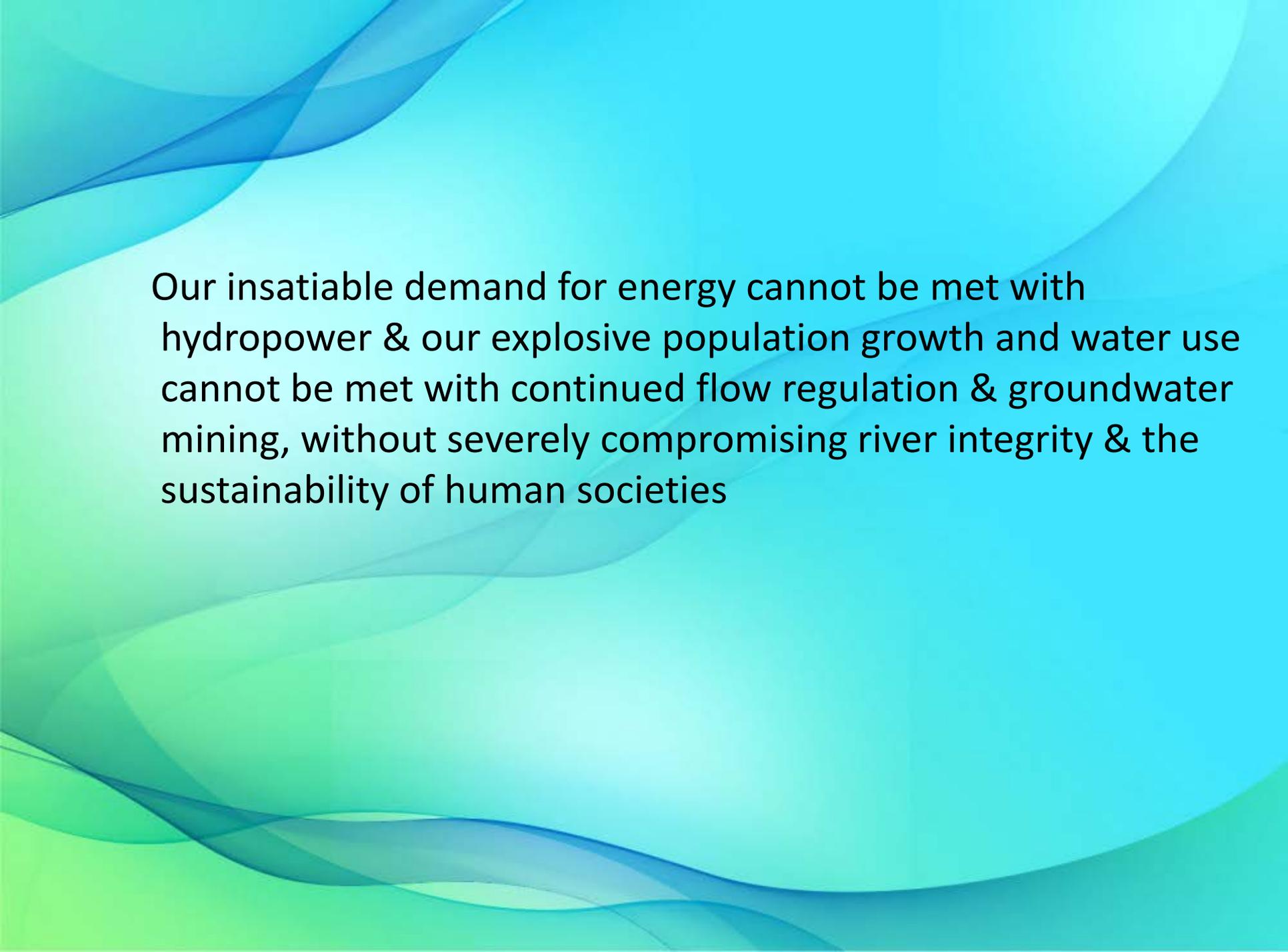
An environmental bill of rights for rivers would guarantee the right to river integrity.

Why do this?

- because it's right
- because if we don't, we lose fundamentally necessary clean water, as well as other ecosystem services

Despite plans to colonize Mars, we cannot or do not provide completely pure water

Treatment is not keeping up with new contaminants that adversely affect humans, let alone other species to which we grant no rights

The background of the slide features a series of overlapping, wavy, semi-transparent bands in shades of light blue, cyan, and lime green. These bands flow from the top left towards the bottom right, creating a sense of movement and depth. The overall color palette is cool and natural, evoking the colors of water and sky.

Our insatiable demand for energy cannot be met with hydropower & our explosive population growth and water use cannot be met with continued flow regulation & groundwater mining, without severely compromising river integrity & the sustainability of human societies

Projected future rates of extinction for freshwater fauna in North America are 5X those of terrestrial fauna  
*(Ricciardi & Rasmussen, 1999, Conservation Biology)*

Chronic problems with surface-water quality in rivers & lakes  
*(Govt. Accountability Office, 2013)*

Riverine & nearshore eutrophication  
*(Bennett et al., 2001, BioScience)*

Increasing flood damages despite more than a century of focused efforts to reduce flood hazards  
*(Cartwright, 2005, J. Contemporary Water Resources Education)*

Increasing shortages of water for human consumptive use  
*(GAO, 2014)*

Accelerated erosion of deltas  
*(Syvitski and Saito, 2007, Global and Planetary Change)*

Despite a billion-dollar-per year river restoration industry, we are experiencing net loss of rivers as functional ecosystems – rivers with integrity (*Bernhardt et al., 2007, Freshwater Biology*)

‘Cosmetic’ restoration (form without function) & stream mitigation banking do not address the problem

We need to conceptualize rivers as ecosystems with the right to integrity