



“Each stream has its own history,  
flavour, and voice, and yet it has the  
potential to form a larger whole,”

—Michael Blackstock

# Planet Reconciliation

Interweaving Indigenous knowledge and western science  
to make water-first decisions through Blue Ecology.

BY KIM STEPHENS, MICHAEL BLACKSTOCK, AND BOB SANDFORD

**THE WARMING OF THE PLANET'S ATMOSPHERE** is causing water to move more quickly and disruptively through the global water cycle. Flood, drought, fire, wind, and extreme cold events are becoming the norm. Instabilities in the water cycle are increasingly apparent. Impacts are magnified by human interventions. We have arrived at a fork in the road.

The situation calls for a whole-systems approach to managing the water balance distribution. The risks are too high, and the margins for error too small, to view water and watersheds only through narrow technical lenses. Adapting to changes in the water cycle and restoring the water balance starts with re-visiting our relationship with nature.

Over the generations, we have lost our way. Western science is not wrong; it is just not complete. It does not account for water as part of a living ecosystem.

The journey to a water-resilient

future starts with Western science acknowledging water for its central functional and spiritual roles in our world. Long recognized by UNESCO and the International Association of Hydrological Sciences, Blue Ecology is defined as the interweaving of western science and traditional First Nations teaching and local knowledge.

Blue Ecology has five guiding principles and aligns with the whole-system, water balance approach—Spirit, Harmony, Respect, Unity and Balance. To make the right choices moving forward, we must understand how and where the rhythms of water are changing. Then we can apply ecosystem-based understanding to adapt our practices to suit a changing climate.

## Signs of change

Recently identified and potentially dangerous phenomena, such as atmospheric rivers, demand our full

attention. An atmospheric river is a narrow corridor of concentrated water vapour aloft. These great rivers can be 400 kilometres across and thousands of kilometers long. The best known is the famous Pineapple Express, which periodically crosses the Pacific from Hawaii and unloads heavy rain when it hits the west coast of North America. When moderate in scale, atmospheric rivers bring badly needed water to dry states like California. When larger in scale, they can cause flooding of magnitudes not witnessed before.

The laws of physics provide a reality-check: the warmer the global temperature becomes, the more water the atmosphere can carry. Until we stabilize the composition of the Earth's atmosphere, phenomena such as atmospheric rivers are likely to cause greater flooding and related economic damage widely—forever making sustainability and adaptive resilience a moving target.

The Blue Ecology water cycle and principles, designed by Michael D. Blackstock.



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talking about is reconciliation—going back to the headwaters of where we got our relationships with water and with one another wrong, and then starting back down the river of time. Only this time, the journey is made together, with a full understanding of the importance of embracing a water-first approach to planning human interventions in the environment. WC

### Hope for the future

There is hope for future generations. Success depends on embracing a water-first approach. Water is a core human interest upon which we can build collaborative cross-cultural climate change strategies. We need to build on that core interest now.

Indigenous societies believe that water is a living entity. It is the sacred centre from which all other activities radiate. The Blue Ecology frame provides a holistic cultural context to enhance Western science's knowledge of the water cycle for the benefit of hydrologists and water managers. What we are essentially



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#### Some Facts and Figures

- One-third of the Netherlands lies below sea level, incl. our economic center
- Lowest point in the Netherlands lies at 6.76 meters below sea level
- The Dutch coastline is 451 kilometers long
- The Dutch Delta Works encompasses 16,500 kilometers of dikes
- The Netherlands has 6000 kilometres of rivers and canals
- The Dutch water system has less than 5% leakage
- 99% of Dutch houses are connected to the sewer system

