

Comox Valley Eco-Asset Symposium
Context for Concurrent Workshops

What would eco-asset management look like in practice, on the ground, through a local government lens?

Moving Towards “Sustainable Watershed Systems, through Asset Management”

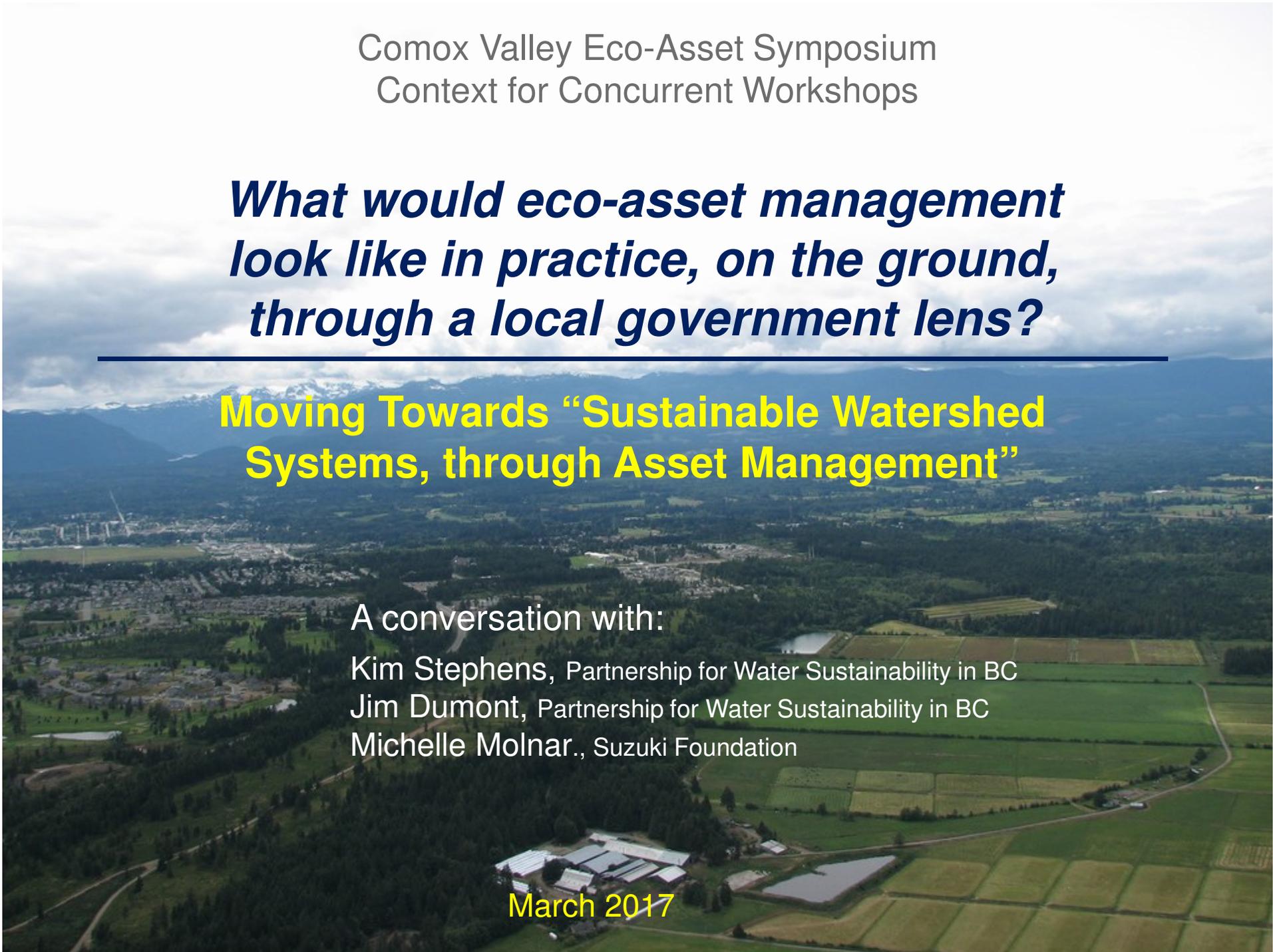
A conversation with:

Kim Stephens, Partnership for Water Sustainability in BC

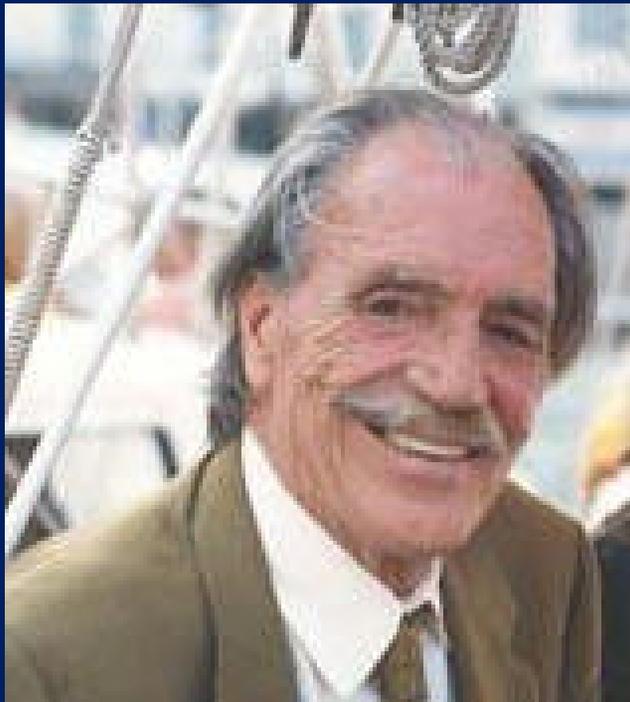
Jim Dumont, Partnership for Water Sustainability in BC

Michelle Molnar., Suzuki Foundation

March 2017



BACK TO THE FUTURE: A half-century later,
Eco-Asset Management is another
call to action to “Design With Nature”!



Ian McHarg (1920-2001)

Renowned landscape architect,
writer, educator, “father of GIS”,
and author of **Design With Nature**

“The shaping of land for human use
ought to be based on an
understanding of natural process.”

“Let us green the earth, restore the
earth, heal the earth.”

What would eco-asset management look like, in practice, through a local government lens?
Over the next $\frac{3}{4}$ hour, we will:

- Build on the morning keynote
- Prime you for the concurrent workshops
- Introduce two 'eco-asset' initiatives
- Engage you in a conversation
- Provide a closing reality-check

MANAGING BY THE NUMBERS: For the past decade in BC, thought leaders have encouraged practitioners to “think like a system” rather than “like an accountant” ...

Canada Treasury Board & Public Service Accounting Board (PSAB)

- limited to Capital Assets that are purchased, constructed, developed
- assumes that asset value drops to zero after 40 years

Asset Management

- can include Net Present Value
- limited to capital, operating, maintenance, and replacement costs

Sustainable Service Delivery (“BC Framework”)

- focus on the service, not the asset
- community determines what ‘services’ are important, the ‘level-of-service’ that is desired, and how to deliver the service sustainably
- **Sustainable Watershed Systems (“Ecological Accounting Protocol”)**
 - this is a new way of thinking about and valuing ecological services
 - developing a protocol to inform sustainable service delivery for drainage infrastructure asset management (note: watershed is the driver)

LOCAL GOVERNMENT LENS:
 “The role of local government is to deliver services. Achieving sustainable service delivery is the end goal of asset management.”



David Allen, Co-Chair
 Asset Management BC
 &
 CAO, City of Courtenay



Asset Management Continuum for Sustainable Service Delivery

GROUND ZERO: In the beginning, no **Asset Management Plan** exists. A consequence is an ‘unfunded infrastructure liability’.

STEP ONE: Local governments embrace the BC Framework, with an initial focus on core engineered assets (water supply, sewage, roads) and embark on an **Asset Management Strategy / Plan / Program** process.

STEP TWO: Local governments start thinking holistically and implement a life-cycle approach to infrastructure decision-making so that **Sustainable Service Delivery** for engineered assets becomes standard practice.

STEP THREE: For the drainage function, local governments will integrate natural systems thinking and climate adaptation into asset management and account for the **Water Balance Services** provided by watershed systems.

As understanding grows, local governments will progress incrementally along the **Continuum**

BUILDING BLOCKS PROCESS: The 'green infrastructure' journey in BC began almost two decades ago. Game-changers and notable milestones along the way include:

- 1998 – East Clayton Sustainable Community – *planning began*
- 2000 – UniverCity Sustainable Community - *planning began*
- 2003 – Green Infrastructure Partnership - *formed*
- 2006 – Convening for Action on Vancouver Island - *launched*
- 2007 – The Green Infrastructure Guide - *published*
- 2007 – **Comox Valley - Nature Without Borders** – *published*
- 2008 – Living Water Smart – *released / provincial call to action*
- 2014 – Town of Gibsons Financial Statement – *eco-assets referenced*
- 2015 - Moving Towards “Sustainable Watershed Systems, through Asset Management” – *published*

Latest milestones in the
“green infrastructure journey” focus on
services provided by natural assets:

- Municipal Natural Asset Initiative –
*is sponsoring projects to illustrate strategies
to value natural assets and influence policy*
- Ecological Accounting Protocol Initiative -
*is a tool to help practitioners calculate the
opportunity cost of drainage infrastructure*

The two initiatives have the potential to achieve complementary outcomes, albeit at different scales:

		MNAI	EAP
1	Frame of reference:	Get community to think about eco-assets at the policy level	Help the players in the trenches measure what matters
2	Primary audience:	Local government policy makers and staff	Practitioners (local government, business, non-profit)
3	Purpose:	Demonstrate local government recognition of natural capital using engineered replacement values	Demonstrate how to implement Step 3 on the <i>Asset Management Continuum</i> by developing the means to measure work and capture prices
4	Objective:	Influence policy by demonstrating local government commitment	Achieve optimum infrastructure outcomes
5	Relationship to Sustainable Watershed Systems:	Examples of values established for natural assets in demonstration cases	Opportunity cost evaluation

**Next, Michelle Molnar and
Jim Dumont will share the
thinking behind each of
these two initiatives**

The shift - How can we recognize green infrastructure?



“What we measure affects what we do. If we have the wrong metrics, we will strive for the wrong things.”

Joseph Stiglitz

What do we need to understand and measure?

1. What natural assets do we own, manage, or are responsible for?
 - Municipalities often have a good idea of what natural assets are contributing to which services
2. What flows of benefits do those assets produce for the city and the wider community?
 - Hydrological models are telling us about the capacity of the assets to provide stormwater services
3. What is the value of those benefits?
 - What does it cost to replace those services with engineered services (i.e. replacement cost)?
4. What does it cost to maintain the assets and flows of benefits?
 - What does it cost to monitor and maintain natural assets?

What about the additional benefits of natural assets?

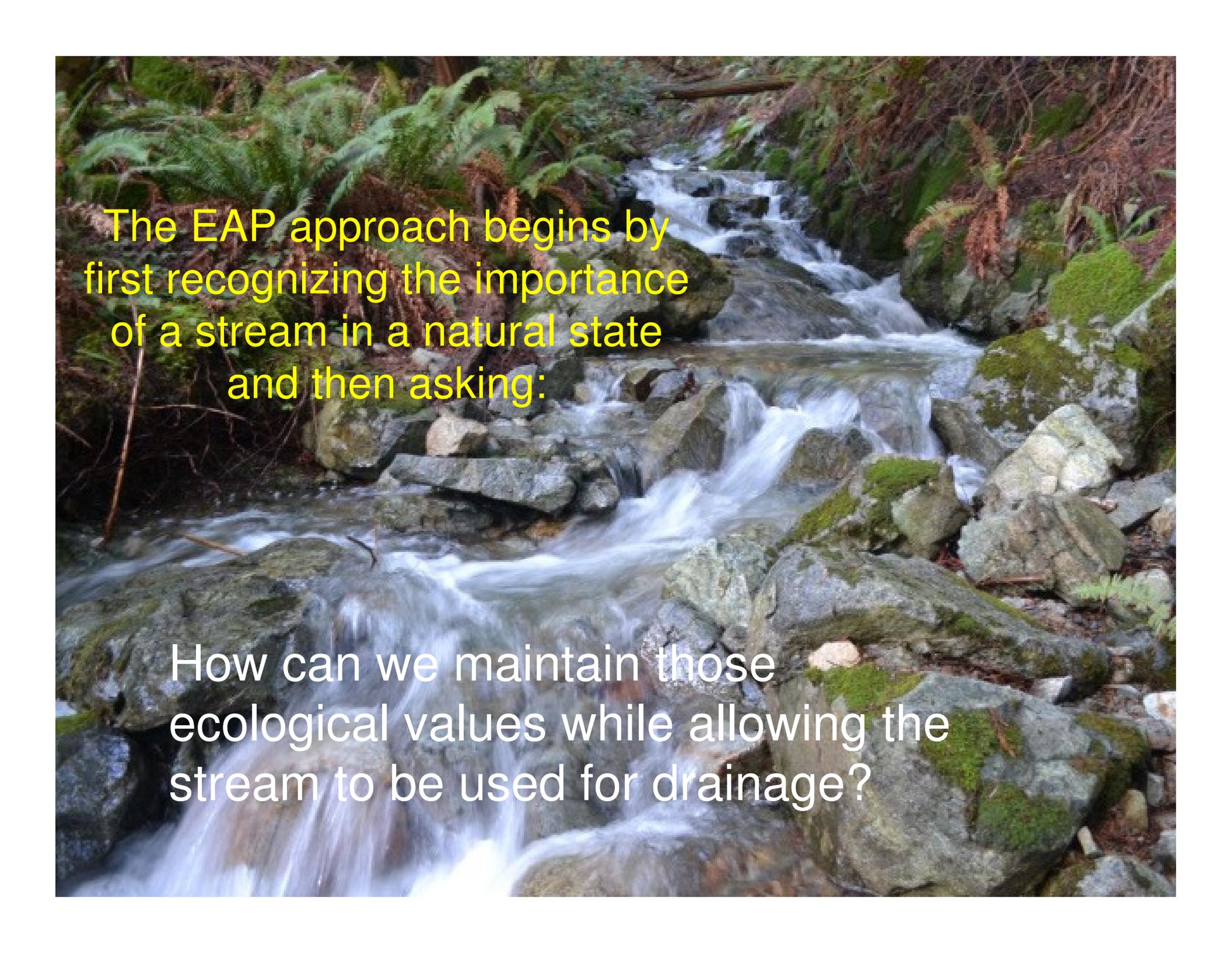
Nature provides a wide array of services, beyond infrastructure-related services. We don't want to lose those benefits, so we're tracking those of importance to municipalities through:

- Beneficiary assessments
- Multiple account analysis

These include things like:

- Wildlife habitat
- Recreation
- Health benefits



A photograph of a small stream flowing over rocks in a forest. The water is clear and white with foam as it cascades over the grey and brown rocks. The surrounding vegetation is lush and green, with ferns and moss visible. The text is overlaid on the left side of the image.

The EAP approach begins by first recognizing the importance of a stream in a natural state and then asking:

How can we maintain those ecological values while allowing the stream to be used for drainage?

To protect watershed health, engineered infrastructure ought to fit into natural systems rather than the other way around !

	EAP Mind Map
WHAT	Natural pathways by which rainfall reaches streams are “infrastructure assets” and provide “water balance services”
SO WHAT	Determine an optimum balance of services drawn from nature and engineered approaches for drainage infrastructure because “ Optimum Infrastructure Design = Watershed Health ”
NOW WHAT	Measure what matters. Build an index that quantifies and prices “water balance services” provided by a properly functioning watershed system. Get real data!

If communities are to truly benefit from use of nature's assets to provide vital community infrastructure services, then two issues must first be recognized as being impediments to changes in practice:

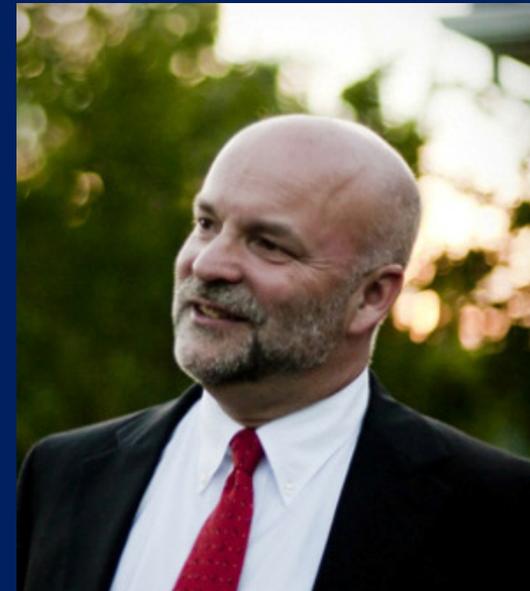
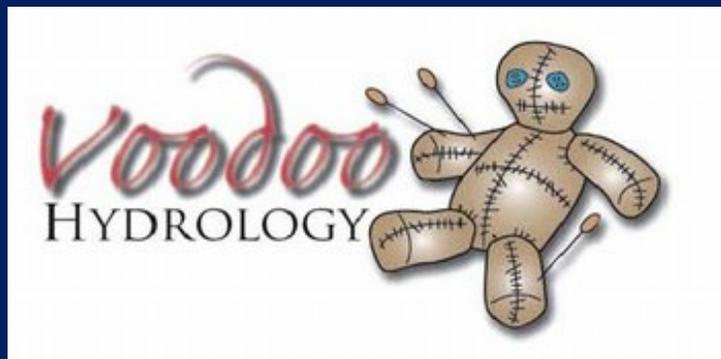
- Widespread lack of understanding of the relationship between flow-duration and stream (watershed) health
- Widespread application of a standard of practice that has led to the current situation of degraded streams, and that has little connection to real-world hydrology

Town-Hall Sharing & Learning

- What Caught Your Attention?
- What Do You Now Wonder?

Andy Reese coined the term Voodoo Hydrology in 2006 to describe the misapplication of science that characterizes drainage engineering and stormwater management practice

“The rise of Green Infrastructure and Resilience Planning opens the door for newer Voodoo like never before”



Andy Reese

Water Resource Engineer, Writer, Speaker
Co-author of “Municipal Stormwater Management”

CHANGING CLIMATE & HYDROLOGIC INSTABILITY: The risks are too high, and the margins for error too small, to view water and watersheds only through narrow technical lenses

“They are calling themselves hydrologists, water resources engineers, etc., but I seem to be getting a lot of blank looks when I talk about continuous simulations and/or flow duration curves to assess impacts on natural systems.

Is it my imagination, or has the industry regressed back into peak flow analysis to evaluate impacts to watersheds/streams?”

personal communication with a manager
in local government, February 2017

Tropical Moisture Exports

So, what can streamkeepers do?

Scope of your involvement and influence is expanding beyond the creek channel



“Looking ahead, an informed stewardship sector may prove to be the difference-maker that accelerates implementation of the ***whole-system, water balance approach.***”

“Wouldn’t it be great if everyone really understood what it means to think and act like a watershed.”

Peter Law

Regional Biologist & Guidebook Chair,
Ministry of Environment (retired)

Vice-President, Mid Vancouver Island
Habitat Enhancement Society