

Parksville 2019: Second Annual Vancouver Island Symposium on Water Stewardship in a Changing Climate

*2019 Theme: Make Better Land Use Decisions &
Move Towards Restorative Land Development*

In 2019, join us in Parksville at the City's Community and Conference Centre (132 E. Jensen Avenue) for a field day on April 2, followed by a 2-day symposium on April 3-4

TO REGISTER VISIT: civicinfo.bc.ca/event/2019/Parksville-Water-Stewardship-Symposium



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A program deliverable for "Sustainable Watershed Systems, through Asset Management",
Implemented under the umbrella of the Georgia Basin Inter-Regional Education Initiative

Water Stewardship in a Changing Climate

Move Towards Restorative Land Development: Symposia Overview

CONTEXT: The rhythms of water are changing – warmer and wetter winters; longer and drier summers. Adapting to this ‘new normal’ requires transformation in how we value nature and service land, and how we reconnect hydrology and ecology. **The goal of the ‘whole-system’ approach is to re-establish creekshed function!**

Nanaimo 2018 Symposium

Held in April 2018, Water Symposium #1 was a ‘call to action’. The theme? Build on the good outcomes that flow from local government and stewardship sector collaboration!

Symposium #1 introduced a vision for ‘restorative land development’ that would re-establish creekshed function. And it energized the audience with this challenge: ***How will communities ‘get it right’ through collaboration as land develops and redevelops?***

Parksville 2019 Symposium

Water Symposium #2 will celebrate local government initiatives on Vancouver Island that are ‘getting it right’. These success stories are characterized by 3 attributes: commitment, collaboration and the ‘hard work of hope’.

A decade of effort, by partnerships of local governments and community stewards, is demonstrating success on the ground where it matters. They are on a pathway to reconnect hydrology and ecology. ***Follow the leaders!***



Water Stewardship in a Changing Climate

2019 Program at a Glance

Tuesday, April 2nd

“In the Field”

OPTION 1

Join us on a tour of the newly completed Englishman River Water Service treatment plant serving Oceanside region.

OPTION 2

(40 registrants maximum)

Learn from Dave Derrick. First, a classroom session. Then, an in-stream lecture at Shelly Creek, which is an emerging demonstration application for “sustainable stream stabilization”.

Wednesday, April 3rd

Theme: *“Sustainable Stream Restoration”*

Reconnect hydrology and ecology – what happens on the land in the creekshed does matter to streams!

Understand how ‘changes in hydrology’ (water quantity) have consequences for stream ecology. 1) Development reduces the capacity of the landscape to absorb water. 2) Thus, more flow volume in creeks when it rains, and little or no flow during a drought.

In the 1990s, Chris May’s seminal research defined the relationship between land use change and stream impacts.

Thursday, April 4th

Theme: *“Restorative Land Development”*

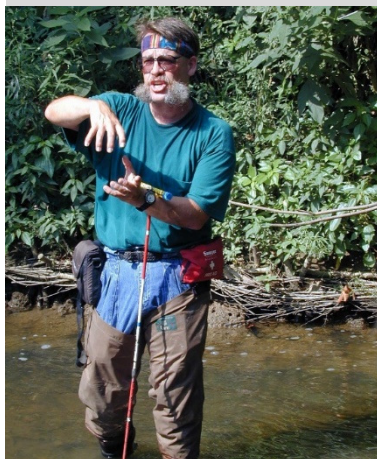
Yes, we can decrease our destructive footprint while at the same time increasing our restoration footprint!

Celebrate Vancouver Island success stories. These are inspirational in nature, creekshed in scale, and precedent-setting in scope and outcome. “Get it right” and proceed along a restorative development pathway.

FREE PUBLIC LECTURE:

An evening lecture on April 3rd by Storm Cunningham is the bridge between the two days.

Cross-border collaboration expands our horizons and connects us with a larger body of experience!



Dave Derrick

Stream Restoration Innovator
(home base is Alabama)



Dr. Chris May

Environmental Scientist-Engineer
(from Washington State)



Storm Cunningham

Author – Motivator – Publisher
(home base is Maryland)

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Dave Derrick & Sustainable Stream Restoration



Dave Derrick

Stream Restoration Innovator

Dave Derrick had a 35-year career with the US Army Corps of Engineers where he held the position of Research Hydraulic Engineer in the Coastal and Hydraulics Lab.

Dave has had the opportunity to model ideas in the lab and then implement solutions in the field. He developed and refined dozens of cost-effective streambank protection techniques, including different types of Bendway Weirs.

He enjoys working with community-based groups. His focus is on “using nature’s materials”. Through 150-plus workshops over the past decade, he has taught over 8,000 individuals.

A true innovator in *Potomology* (the study of the behaviour of rivers), his wealth of hands-on experience encompasses over 10,000 hydraulic structures in rivers and streams, in every American state, and under every possible situation.

To learn more, view Dave’s PowerPoints at <https://wots.el.erdc.dren.mil/techwork.html>

On April 2, an Introduction to Stream Investigation & Stabilization

MORNING: Classroom Lecture

Improving Stream Function

Dave Derrick was a co-developer and co-instructor in the first American Society of Civil Engineers stream class, titled ***An Introduction to Stream Investigation, Stabilization, and Restoration***.

The morning lecture is a streamlined version of this course. Dave Derrick will cover the philosophy of restoration, channel dynamics and evolution, and bioengineering methods. Shelly Creek is the case study for improving in-stream hydraulic and environmental functions in fish-bearing streams along the east coast of Vancouver Island.

Space is Limited / Maximum 40 Registrants

AFTERNOON: On-Site at Shelly Creek

Human Impact on Shelly Creek

Shelly Creek is an outdoor classroom for Dave Derrick to demonstrate how to assess stream stability problems and develop sustainable solutions in a ‘whole-system’ context.

When the Englishman River was declared to be the most endangered river in BC, the ‘call to action’ resulted in a Watershed Recovery Plan. **Survival of Coho salmon depends on a healthy Shelly Creek**, the key tributary.

Hydrology hits first and hardest. As a result, channel erosion and sedimentation caused by ‘changes in hydrology’ are threats to aquatic habitat and fish survival in Shelly Creek.

Water Stewardship in a Changing Climate

Make Better Land Use Decisions: Shelly Creek Relevance

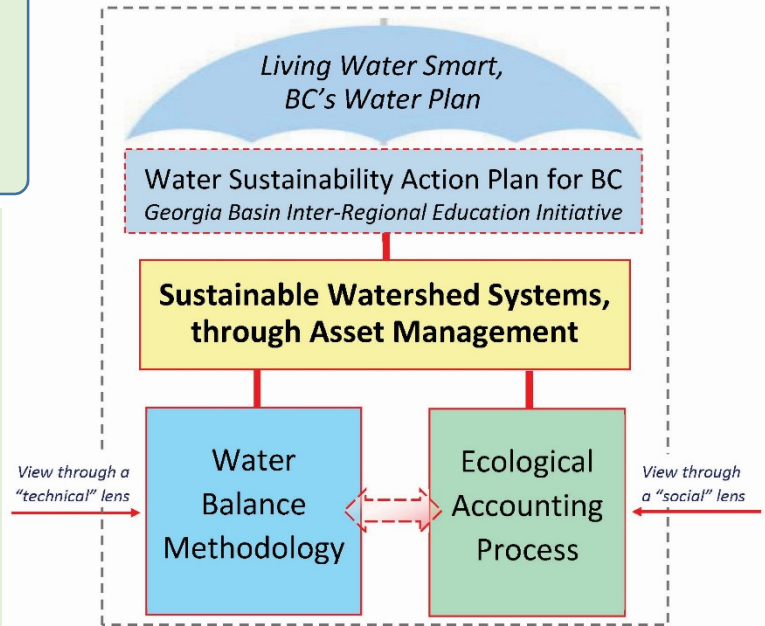
Shelly Creek is a provincial demonstration application for the **Whole-System, Water Balance Approach** and the **Ecological Accounting Process (EAP) Initiative**

The Water Balance Methodology applies science-based understanding to establish creekshed-based performance targets and downscale those targets to the site level.

Taking action depends on what a community thinks a creekshed is worth. The EAP methodology quantifies 'worth'.

Success in solving 'in your face' problems caused by land use changes would mean:

1. Less flooding
2. Less stream erosion
3. More streamflow when needed most



The Twin Pillars of Sustainable Watershed Systems

Hydrology is the Engine that Powers Ecological Services



Connecting People to Their Landscape

The Shelly Creek experience demonstrates how an informed stream stewardship sector can expand its involvement and influence beyond the stream channel; and be a catalyst for changes in planning and engineering practice that would restore the water balance over time.

'Getting it right', both on the landscape and in the stream channel, depends on a 'top-down & bottom-up' approach that is founded on partnerships and collaboration.

The restoration challenge: align efforts in order to move from *stop-gap remediation* of in-stream problems to *long-term restoration* of a properly functioning creekshed.

DOWNLOAD: http://waterbucket.ca/rm/files/2017/10/Shelly-Creek-Water-Balance-Demonstration_Oct2017.pdf

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Dr. Chris May & the ‘Whole-System’ Approach



Dr. Chris May
Environmental Scientist-Engineer

In the 1990s, the pioneer work of Dr. Chris May and Dr. Richard Horner at the University of Washington was transformational. Their findings resulted in a hydrology-based framework for protecting watershed health.

Their seminal 1996 paper synthesized a decade of research. They identified and ranked the four factors limiting stream health. #1 is ‘changes in hydrology’; #4 is water quality.

Twenty years later, Chris May is Surface & Stormwater Division Director with Kitsap County Public Works in Washington State. His local government work has allowed him to put theory into practice. Under his leadership, Kitsap County has applied the Whole-System Approach to develop its strategy for watershed retrofit and rehabilitation.

Horner and May’s research findings influenced and are integrated into the methodology that is the foundation for **Stormwater Planning: A Guidebook for British Columbia**.

On April 3, the theme is *Sustainable Stream Restoration*

Mimic the Water Balance to Reduce Flooding, Erosion & Loss of Baseflow

So many studies manipulate a single variable out of context with the whole and its many additional variables. Horner and May, on the other hand, investigated whole systems in place, tying together measures of the landscape, stream habitat, and aquatic life.

The key to the Whole-System Approach is understanding how rainfall reaches a stream via three flow paths in a watershed: surface runoff, lateral interflow in shallow soils, and deep groundwater. Chris May provides this perspective on stream restoration that lasts:

“Unlock that key and we can successfully implement appropriate measures to mimic the natural water balance.”

Action Required at Multiple Scales to Restore Natural Flow Regimes

Chris May has learned through experience that it is necessary to do everything:

“Working at multiple scales and multiple levels is really key. But, so many people in local government are just too busy these days to even contemplate what needs to be done to repair and restore at multiple scales and levels. As a result, in the big urban cities it is just too difficult for local government staff to work concurrently at multiple scales.”

“Kitsap is at a manageable scale. The County is big enough to effect change and make things better. That is our goal – have a positive impact on the community.”

Water Stewardship in a Changing Climate

On April 3, the theme is 'Sustainable Stream Restoration'

KEY MESSAGE: Reconnect hydrology and ecology – what happens on the land in the creekshed does matter to streams! *Development reduces the capacity of the landscape to absorb and hold water. When it rains, there is more flow volume and streams erode; in a drought, there is little or no flow as the surrounding land dries out.*

| Module | Theme & Description of Scope |
|---------|--|
| A | “Getting It Right”: The Whole-System Approach |
| 1 ¼ hrs | ABSTRACT: Dr. Chris May will set the tone for the symposium. He will tell the story of how his research correlated the relationship between land use and stream health; and how Kitsap County is a living laboratory for implementing a hydrology-based approach at multiple scales (to build resilience). TAKEAWAY: Participants understand that hydrology is the engine that powers ecological services. |
| B | Panel & Town-Hall Session: Watershed Health and You |
| 1 ¾ hrs | ABSTRACT: The Englishman River ‘big picture’ story (endangered river, regional water source, Shelly Creek restoration) provides the backdrop for developing a shared understanding of what a whole-system approach looks like, and what it would mean to reconnect hydrology and ecology. The town-hall is the heart of the symposium program. The spotlight is on citizen science , and in particular the catalyst role that MVIHES plays. A 5-person team will prime the audience with 5-minute vignettes. TAKEAWAY: Participants would be engaged, energized and inspired to make a difference. |
| C | Make Better Decisions: First, Understand How Rain Reaches a Stream |
| 1 ¾ hrs | ABSTRACT: The provincial government leads the way in the collection, storage and dissemination of surface and groundwater data. However, there is a gap beneath this layer where data are sparse to non-existent at the creekshed scale. To fill this gap, an initiative is underway on Vancouver Island to mobilize stewardship groups and community volunteers. These groups have the local knowledge to understand the water resource; and are the most invested and most connected to the land base. Streamflow data collection is a way to educate them about creekshed hydrology, in particular what the points on the <i>flow-duration curve</i> mean in practice. A leadership role in an ongoing data collection program would enhance their effectiveness as champions for reconnecting hydrology and ecology. TAKEAWAY: Participants would understand the scope for their involvement in provincial initiatives. |
| D | Back to the Future: Learn from Past Experience to “Get It Right” |
| ¾ hr | ABSTRACT: This segment is the book-end for the Chris May opening. Decades of in-stream restoration work have not been sustainable because communities have not addressed the root cause of ‘changes of hydrology’, even though we have known what we need to do. The closing for Day 1 is a ‘call to action’, and the bridge to both the Storm Cunningham evening lecture and following Day 2 program. TAKEAWAY: Participants would be primed for Day 2 on <i>restorative land development</i> . |

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Storm Cunningham & Restorative Development



Storm Cunningham

Author – Motivator - Publisher

Everywhere one turns these days, some form of the words “renewal”, “restoration” or “regeneration” appear. Storm Cunningham was the catalyst of that global “re” trend when he published **The Restoration Economy** in 2002. This was followed by **reWealth** in 2008. Coming in 2019 is his third book, **RECONOMICS: Resilient Prosperity For All**. Storm is founder of REVITALIZATION.org and the hands-on publisher of the global news journal [REVITALIZATION](https://revitalization.org)¹.

He has been called “the world’s thought leader on community revitalization and natural resource restoration”. His message: *“When collaboration goes beyond the watershed restoration ‘silo’, it can yield partnerships with local and regional revitalization efforts. This, in turn, can yield new funding and political support for restoration.”*

To learn more, watch Storm Cunningham’s TEDx Talk at <https://www.youtube.com/watch?v=fpokEthuW2U>

¹ <https://revitalization.org>

On April 4, the theme is *Restorative Land Development*

On the evening of April 3: A Free Public Lecture

Doors open 6:30pm, welcome at 7pm

The Challenge: Design with Nature

“In my experience, the civil engineering profession has trouble adopting the restorative mind-set. The main problem is that engineering is all about control and certainty. Urban planners have a similar problem. But living systems---like watersheds and cities---resist control, and exhibit surprising behavior when they are healthy.

This is why 80% of the revitalizing work done by urban planners and civil engineers in the 21st century will undo 80% of the work their predecessors did to cities and nature in the 20th century. We don't fully understand complex systems, so humility and adaptive management are needed to restore nature, and to revitalize cities.” – Storm Cunningham, Sept 2018

On April 4 at the Symposium: Concluding Reflections

We Can Create the Future We Want

Storm Cunningham will reflect on what he heard throughout the 2-day symposium. He will connect dots when he relates Vancouver Island initiatives to this perspective:

*“Visionaries, designers, planners, policy makers, and project managers abound. **Strategists are rare.** As a result, resilience and revitalization efforts often fail due to 1) **bad strategy**, and 2) **no strategy**. Since strategies are our path to success, they become our primary interface with our world. Thus, what we restore, restores us. What we revitalize, revitalizes us.”*

Water Stewardship in a Changing Climate

On April 4, the theme is 'Restorative Land Development'

KEY MESSAGE: Yes, we can decrease our destructive footprint while at the same time increasing our restoration footprint! *Celebrate Vancouver Island success stories. These are inspirational in nature, creekshed in scale, and precedent-setting in scope and outcome. "Get it right" and proceed along a restorative development pathway.*

| Module | Theme & Description of Scope |
|---------|---|
| A | "Getting It Right": Make Better Land Use Decisions |
| 1 ¼ hrs | ABSTRACT: The Regional District of Nanaimo is actively steering to a sustainable and well-informed water future. The first decade of the Drinking Water & Watershed Protection Program (DWWP) (2009-2018) built a strong foundation of public outreach and science. The focus moving into the next operational period is using awareness and data to inform water policy and planning. TAKEAWAY: Participants would understand that Action Plan Update is about better land decisions. |
| B | Panel & Town-Hall Session: Vancouver Island Success Stories |
| 1 ¾ hrs | ABSTRACT: The town-hall is the heart of the symposium program. Hence, a 4-person team will prime the audience with 5-minute vignettes. These will inform and educate participants about two long-term and two emerging initiatives in four regional districts on the east coast of Vancouver Island. TAKEAWAY: Participants would be engaged, energized and inspired by stories of collaboration. |
| C | Hard Work of Hope: Bringing Bowker Creek Back to Life in the Capital Region & A Tale of Two Creeksheds in the Town of Comox |
| 1 ¾ hrs | ABSTRACT: Two presentations will expand on the vignettes presented in Module B. The Bowker Creek experience serves as a guide for implementing a 'top-down and bottom-up' approach. The Blueprint and 100-year Action Plan resulted from a unique multi-jurisdictional effort and community buy-in. Success begets success. Implementation is approaching the second decade. Sustained commitment and love of community – these values are at the heart of the existing partnership and decade-long effort to restore the integrity of the Brooklyn Creek corridor. Lessons learned have informed a <i>whole-system, water balance</i> strategy for development in Northeast Comox. TAKEAWAY: Participants would understand why these are provincially significant precedents. |
| D | We Can Create the Future We Want |
| ¾ hr | ABSTRACT: Storm Cunningham will conclude the symposium with an inspirational message. The goal of making the world 'less worse' does not go far enough, he will state. Rather, we have it within our power to undo previous damage and make the world better. The process of restoring our planet and revitalizing our communities is becoming a rigorous discipline, with the proper education and tools. TAKEAWAY: Participants would be inspired to lead by example and be 'difference-makers'. |