



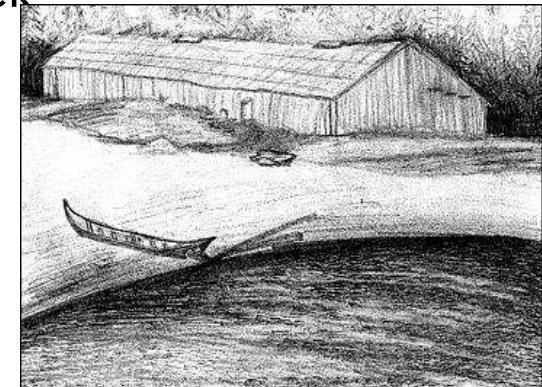
LIVING BY THE WATER: STREAMSIDE STEWARDSHIP



With Dave Clough & Charles Thirkill

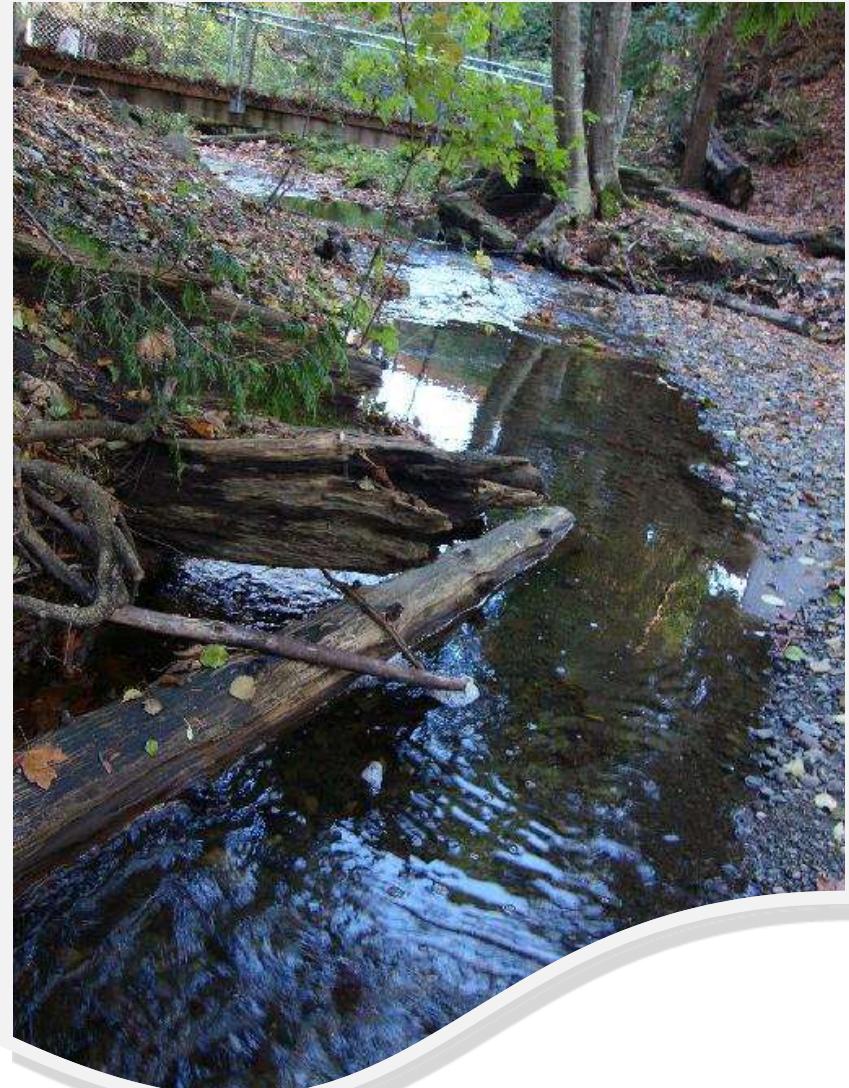
Cultural significance of this place

- Snuneymuxw First Nation Traditional Territory
- *Stl'ilnup* (meaning at the base of the mountain) - winter village site and burial ground here at Departure Bay
- Thousands of years of use during months between Dec - March to support food gathering, shelter and culture
- Performed winter dances here and bathed in the creek
- Plentiful deer and elk, Herring runs in March, spring salmon and halibut
- Still extremely important cultural site



Profile of Departure Creek

- Departure Creek originates as two tributaries: Joseph Creek from a ditch near Wellington Secondary and Keighly Creek from the Nanaimo Golf Club.
- About 3 km long, Departure Creek drains most of the Departure Bay neighborhood—a watershed of approximately 3 square kilometers.
- The lower 800m of the stream is accessible to spawning coho salmon



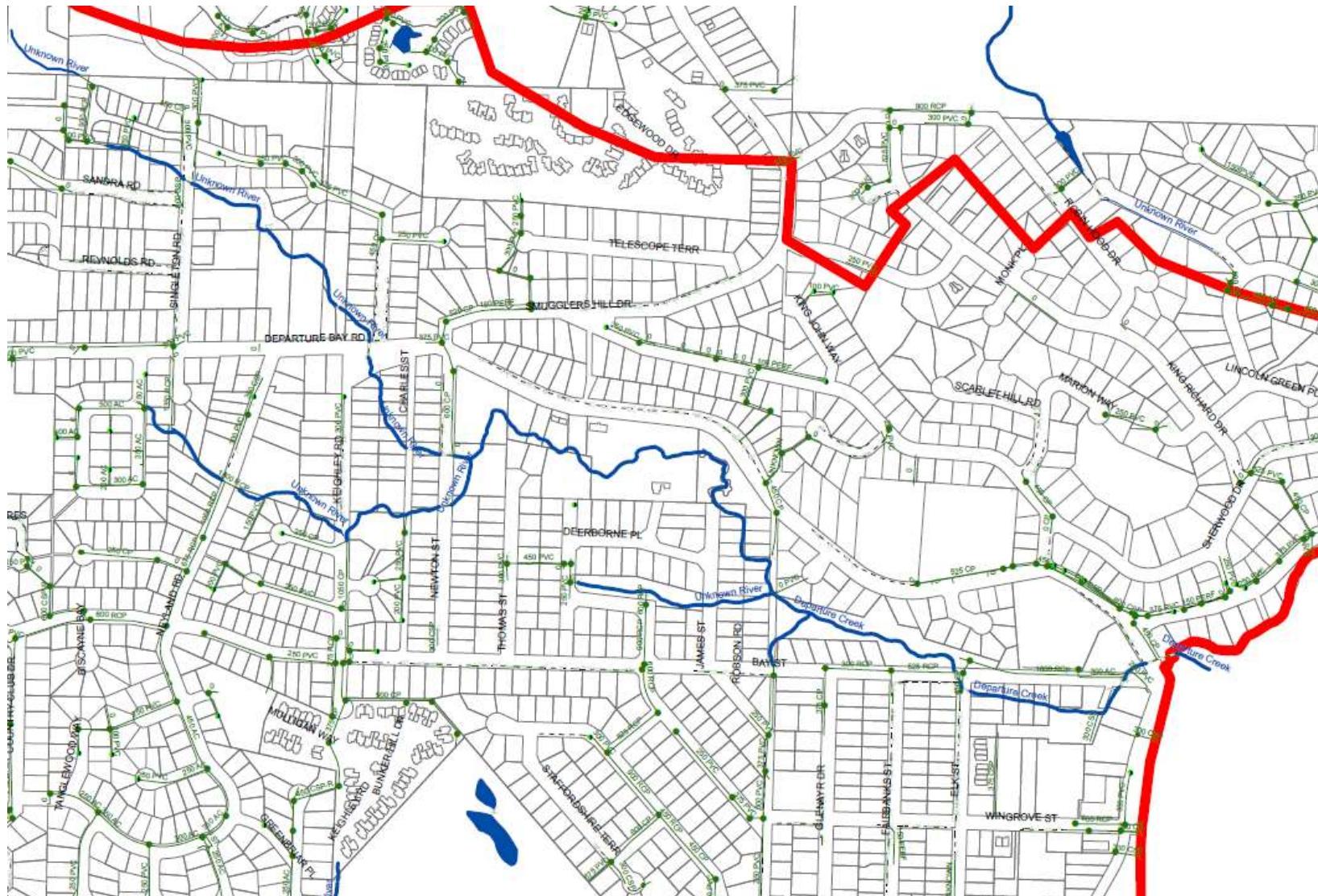
Profile of Departure Creek



- Almost all of the watershed area has been developed for housing – roof tops and paved roads have replaced most of the natural vegetation and forest cover.
- Stormwater is diverted into a network of ditches and storm sewers that run directly into the creek.

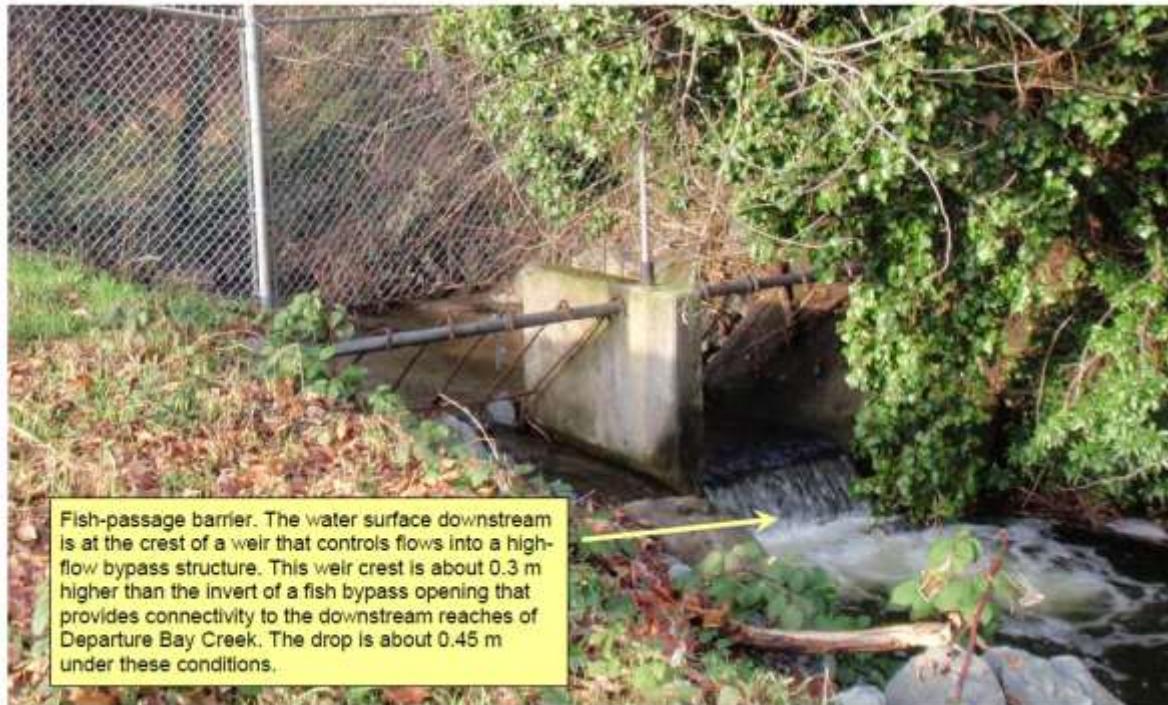


Storm-drain system in Departure Creek Watershed



Departure Creek Restoration

- Restoration began in 2010 with the removal of a man-made barrier located at the downstream end of Woodstream Park. This was a partnership between the City of Nanaimo and NALT.



Departure Creek Restoration

During 2012 in-stream work continued including:

- the construction of five large woody debris structures,
- two rock weirs and
- in-stream placement of boulders



This resulted in the increased hydraulic complexity of the creek as well as creating additional quality rearing habitat and stable spawning habitat along an approximately 100 m. in-stream length of Departure Creek.

In November 2012 a Coho was confirmed spawning in this enhanced area. In late March 2013 Coho fry were identified in these same pools created by this project.

Invasive plants were removed from the riparian zone and over 300 native shrubs and trees planted. Additionally over 100 native willow stakes were driven into an unstable bank as prescribed.

Parks installed low level split cedar railings to protect riparian areas by deterring foot traffic along the eroding banks.

This work was a partnership with BCCF, City of Nanaimo Parks and the Harbour City River Stewards + Departure Creek Streamkeepers and funded by PSF.

Large Woody Debris

The presence of large woody debris is important in the formation of pools which serve as salmon habitat in the Pacific Northwest



Proposed continued restoration...

- Moving forward to further enhance the creek, there are recommendations for the addition of eight LWD structures, bridge abutment protection, bank cut, two rock riffles, two spawning platforms and planting of riparian vegetation to address the upper portion of the creek.



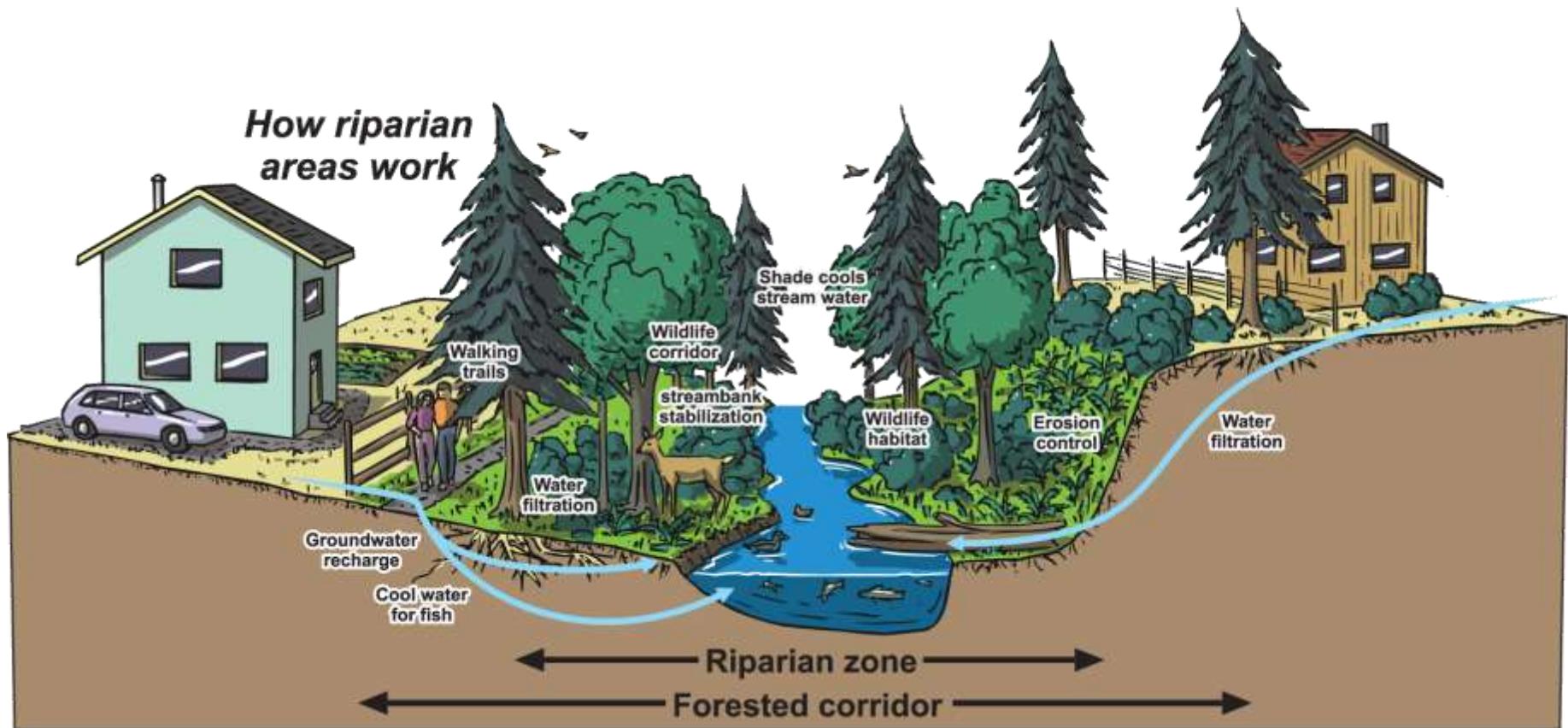
Connection to the sea



Signs of a healthy creek

- No disturbance along riparian areas
- Abundant Native Trees.
- Clear clean water with year round flow
- Deep pools with abundant cover
- Clean gravel beds for spawning
- No garbage, no pollution
- A healthy stream has Stewards looking after the watershed.

A corridor of habitat through our communities...



Importance of vegetation

- Plant communities feed the watershed through leaf litter, shrubs including salmonberry are especially important as forage plants
- Trees along the banks prevent erosion, help to slow and filter run-off
- Trees provide cover habitat for the fish
- Trees are the homes for many wildlife species especially important to cavity nesters from bears to owls.
- Dead and down trees provide food and cover for insects, birds and amphibians.



What lives in/around the creek?

- Departure Creek is home to pink and coho salmon, cutthroat trout, stickleback and sculpins. Salmon are restricted to the lower part, but cutthroat trout are found throughout the creek.
- Other wildlife also depend on the creek for their livelihood. Pileated woodpeckers and black-tail deer are common in the wooded ravines. Raccoons and songbirds also live along the riparian (streamside) areas.
- Invertebrates in the stream include Mayfly, Stonefly, Caddisfly, Dragonfly, Crayfish, and Worms.



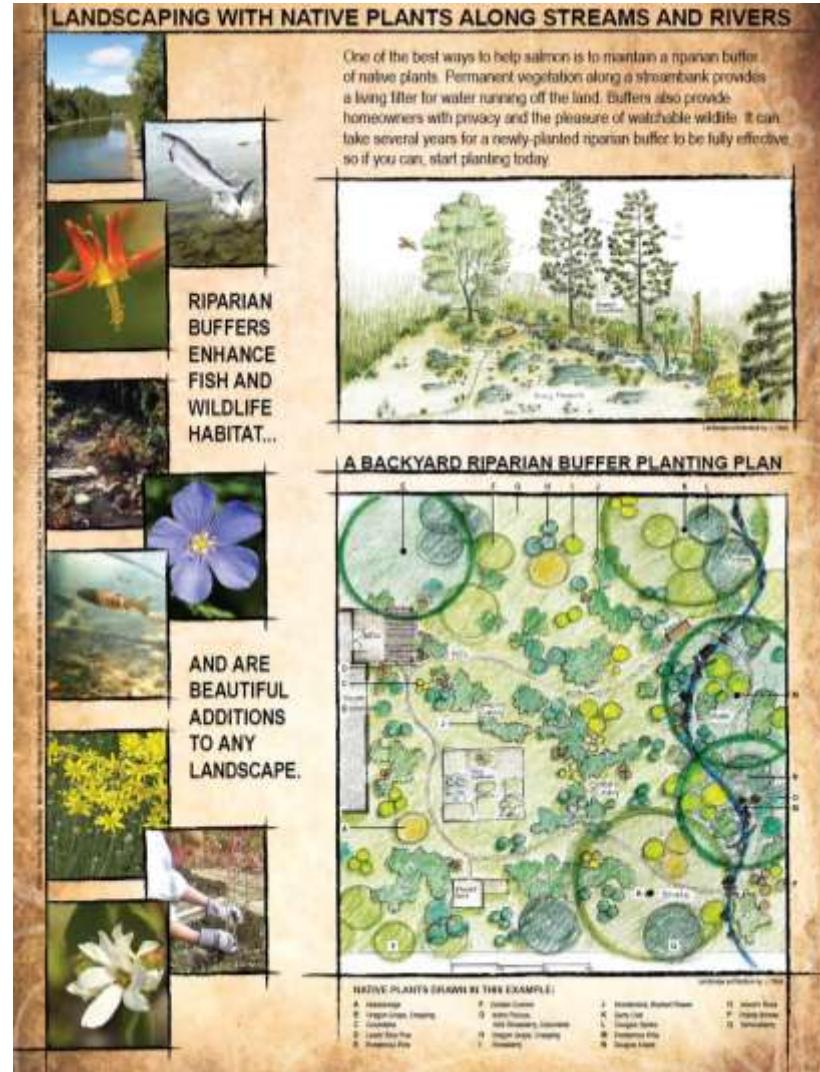
Impacts of backyard activities

- Removal of trees can reduce shade and increase erosion.
- Burning barrels and compost piles on creek banks release toxic oxygen robbing leachates into the creek.
- Paved areas (incl. patios) increase runoff and potential for flash flooding
- Chemicals used on lawns can wash into the creek, impacting aquatic life and water quality

In your backyard...

Alternative practices that are better for stream health:

- Leave a buffer along the creek edge.
- Keep your back yard clean along the creek edge
- Encourage native plants or plant your own.
- Ensure foot entry points to the creek are limited and do not erode banks or remove significant plants.
- Control/avoid property runoff towards stream by using gravel, loose bricks and other pervious alternatives to pavement and concrete.
- Let rainwater from roof gutters drain into the soil or capture it for re-use rather than having it piped into the storm system directly to the creek.
- Consider adding wildlife friendly plants or nesting boxes.
- Eliminate or reduce the use of pesticides and fertilizers.



Beyond your backyard...

- Walking dogs – keep them out of the creek (especially during salmon spawning), pick up after them
- Helping with stream monitoring, clean-up, enhancement initiatives
- 👉 Departure Creek Streamkeepers
- Pass on stewardship ethic to neighbours, children, visitors



Together we can keep it healthy!



What Departure Creek will look like in the future depends on the community working together.

Efforts need to focus on planting more native vegetation throughout the watershed, improving water quality, using better stormwater management measures, and generally observing what is going on in and around the stream.

Working together, residents, community groups and the City can restore and enhance Departure Creek to become a healthy and productive model of an urban fish-bearing watercourse for future.