Stream Tender Magazine

November 2012

The State Of The Fishery On The Bow River In Cochrane

The Bow River upstream and downstream of the Town of Cochrane, is primarily a rainbow trout fishery. This population of rainbow trout is entirely dependant on only one spawning tributary for this species on this section of the Bow River, which is the Jumpingpound Creek.

Many anglers are aware of this, and I am often asked about whether there has been a successful spawning season from year to year on the JP Creek. This is a good question that cannot be answered right away on most years.

Having conducted spawning surveys in the past on the JP, to establish some baseline data, it was after those surveys that I could answer the question of how good a spawning run was, immediately after.

However, nowadays, I employ a less labour intensive method of assessing the state of the fishery and the reproduction from previous spawning seasons. This method is called fishing!

I simply just go down to the Bow River to try and catch a few small rainbow trout!

So you may ask how this has anything to do with assessing the state of the fishery and rainbow trout reproduction. The answer is directly related to the size of rainbow trout that I catch each year.

You see, if I catch a lot of small rainbow trout in the 5 to 7 inch size range, during the mid summer months, I know right away that there was a good spawn on the JP Creek, the year before.

If there are also a lot of 10 to 12 inch rainbow trout to catch around the same time in the summer, I know automatically that there was also a good spawning run up the JP Creek, two years prior.

It is a very simple and cost effective method of assessing the state of the fishery in the Bow River. It is not that complicated and anyone that has a knowledge of how fast these rainbow trout grow, can do the same!

" If you have a basic knowledge of how fast rainbow trout grow, you can determine how successful the previous annual

Above:
Bow River trout, such as this on that was caught near the Town of Cochrane, may be small, but they tell us a story about the state of the fishery. This small rainbow trout is a little over one year of age. It hatched from an egg during the previous years spawning on the Jumpingpound Creek!

"Studies Have Proven That The Jumpingpound Creek Is Vital To Sustainability Of The Bow River Rainbow Trout Population!"

In 1993, the Jumpingpound Chapter of Trout Unlimited Canada set out to prove, once and for all, that the Jumpingpound Creek was crucial to the sustainability of the Bow River's rainbow trout fishery. For many years, some of the local anglers in Cochrane knew very well that the rainbow trout moved up the JP in the spring of the year, to spawn.

To document and verify this spawning migration, it was necessary for the group to conduct a trout trapping and processing study on the Jumpingpound Creek, in the spring, near the mouth of the Bow River. In April of 1993, a fence and entrance trap was constructed on the creek, approximately 1 kilometre upstream of the confluence with the Bow River.

The fence and trap was completed on April 17th, and on the next morning, 6 mature rainbow trout were already captured in the trap and ready to be processed. The processing involved implanting a small visual numbered tag behind the trout's eye, weighing and measuring the trout, and then releasing it back into the creek, upstream of the trap.

After release, the trout could continue on up the stream to spawn. This process would allow the TU group to find out how many trout move up the system in the spring.

By the time the study was completed, the JP Chapter of TU had processed a total of 1,137 rainbow trout and 9 cutthroat trout from the trapping program. This number of spawning rainbow trout was significant enough to determine that the Jumpingpound Creek was vitally important to the sustainability of rainbow trout in the Bow River, from the Ghost Dam downstream to the Bearspaw Dam.

The results of the study had proven the importance of the JP Creek and measures could be put in place to protect the stream's spawning run, into future years! This happened over a period of years, but it took a lot of pressure from the JP membership!

Above: Members of the JP Chapter of TU help construct the fish fence and trap.

Above: This photo was taken from the top of the Jumpingpound Creek Valley, looking down over the fence and trout trap below. The angle of the fence helped to direct trout into the centre box trap, where there was a conical entrance opening that allow trout in, but confused their exit.

This is a mature Jumpingpound Strain of rainbow trout, which annually moves up the JP Creek to spawn and generate new generations of trout for the Bow River, in future years

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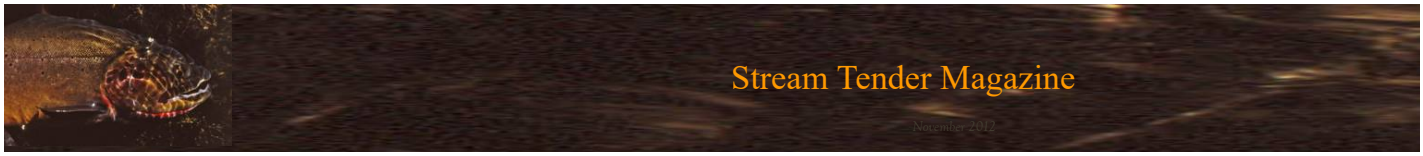
Read More About the Jumpingpound Creek's Study Program !



The 1994 Electro-Fishing Survey On The Jumpingpound Creek

In 1994, Mount Royal College, Roger Packham of SRD, Fish & Wildlife, and Guy Woods of BVHD, conducted an electro-fishing survey on the lower reach of the Jumpingpound Creek, near Cochrane.

The objective was to determine the success of the 1993 and 1994 spawning season for rainbow trout. Also, the study would help to investigate how long juvenile trout would stay in the Jumpingpound Creek, after they hatch in the early to middle part of summer.

The results of the survey would contribute towards a better understanding of what year classes of rainbow trout were staying in the creek, while they are still relatively small and before they migrated back down to the Bow River.

The electro-fishing survey was completed on a beautiful fall day, in the first week of October, when the small rainbow trout, from 1994 hatch, were large enough to capture using this method of collection.

Students from Ray Sloan's MRC environmental studies class were participating in the program as part of their curriculum. The students didn't seem to mind participating in the program, it would give them a chance to enjoy the outdoors and nature, while learning some science!

Roger Packham had played a key role in helping the JP Chapter of Trout Unlimited Canada, set up the trout trapping program near the mouth of the Bow River, a year earlier. His ongoing support was greatly appreciated!

This program would verify whether or not there was a successful incubation of trout eggs, after the spawning event in the previous season. The information gathered would be valuable in the management policy for the Jumpingpound Creek in future years.

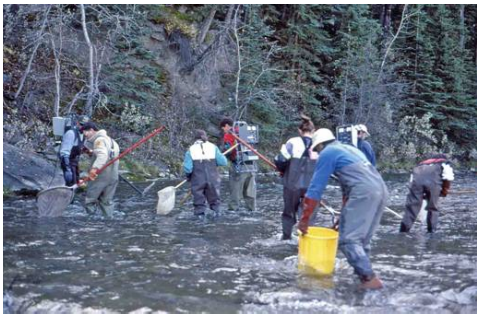
I do not have an accurate count of the number of small rainbow trout that we captured and processed that day, but I do recall that there were plenty of them!

The survey area encompassed approximately 200 metres of the Jumpingpound Creek channel. In that section of stream, we captured a large number of both second year trout, from the 1993 hatch and first year rainbows from the 1994 hatch, only months earlier.

With all of the data collected that day, and knowing that most of the small trout captured were from the same year's spawning and incubation, we arrived at a very obvious findings for the day's shocking program. Most importantly, it was clear to us that the JP rainbow trout fry spend their first year in the creek, before they migrate down to the Bow River.

This result added significant importance to the Jumpingpound Creek as not only a spawning tributary to the Bow River, but it was also an important nursery habitat for juvenile rainbow trout!

I really enjoyed participating in this very worthwhile study and I recall the day with clarity!



Above: A keen group of electro-fishers hunt the waters of Jumpingpound Creek for small juvenile rainbow trout. Despite a few leaky waders, everyone had a really enjoyable experience!

" After you read this, you will never look at a small trout in the same way, next time you catch one on the Bow River near the Town of Cochrane!"

Left Photo:

This is a photo of two different year classes of rainbow trout that were captured on that fall day in October 1994, on the Jumpingpound Creek.

The larger rainbow trout is approximately 6 inches in length, and it is from the 1993 spawning season. I usually see plenty of rainbow trout in this size range, while fishing the Bow River in the late summer and early fall, near the Town of Cochrane.

The smaller rainbow trout is from the 1994 hatch, and it is approximately 2.5 inches long. This small trout will winter over in the Jumpingpound Creek, until it migrates to the Bow River in the following year. That is, unless it decides to spend another season in the Jumpingpound!

Above: As I was digging thru some old slides to accompany this article, I came across this photo of myself, doing something that I really enjoyed as a much younger man. Yes, it is a photo of myself (the publisher of this magazine), up to my knees in a stream that I really love. As you can tell by my smile, it was a real good day of fishing!

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All of this, is done - So that you can enjoy - More of this, in the future

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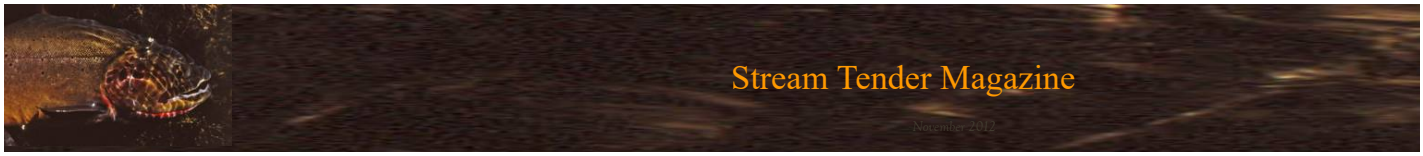

The Bighill Creek Project

The photos on the top of this page show perfectly healthy habitats located along the Bighill Creek, I used them to show you what the entire stream should look like!

The objective of the Bighill Creek Project covers a variety of goals, some of which have already been partially completed. Those objectives are as follows:

- To complete a comprehensive fisheries study on the lower reach of Bighill Creek. *(Completed)*
- To collect baseline data on the water chemistry of ground fed springs that feed the Bighill Creek in the Town of Cochrane. *(Completed)*
- *To restore and enhance the habitat of small feeder springs that juvenile trout inhabit. (Partially Completed)*
- To work towards the recovery and enhancement of riparian habitat along the stream banks of the Bighill Creek. *(A work in Progress)*
- To stabilize eroding stream banks along the stream channel. *(A work in Progress)*
- To enhance spawning habitats and fish habitats where necessary and beneficial to trout. *(A work in Progress)*
- To work towards improving the water quality in the BHC.
- To raise public awareness about the importance of the BHC to the fishery and also to native wildlife that inhabit the environment along the stream. *(A work in Progress)*
- To educate the public about the environment and ecology of streams such as the Bighill Creek and its tributaries. *(A work in Progress)*

"Measures to reach these objectives or goals will be covered in future issues of Stream Tender Magazine!"

Project Mission Statement

Historically, the Bighill Creek was locally known as a sport fishery, with a variety of different trout species inhabiting its waters. With an increase in the annual volume of flows in the creek, the trout fishery is in recovery. Both brown trout and brook trout are now present in the lower reach of the BHC, with even a few rainbow trout in the lower stretches of the stream.

It is Bow Valley Habitat Development's mission to take measures that will facilitate the recovery of this Bighill Creek fishery, including advocacy and education to insure the protection of the BHC into future years!

Below: A bank stabilization site:

There are a number of stream bank erosion sites along the Bighill Creek channel that require measures to stabilize them, utilizing advanced bio-engineering methodology. By using willow and tree planting techniques, these banks can be stabilized over time and the amount of silt loading in the stream can be reduced significantly!

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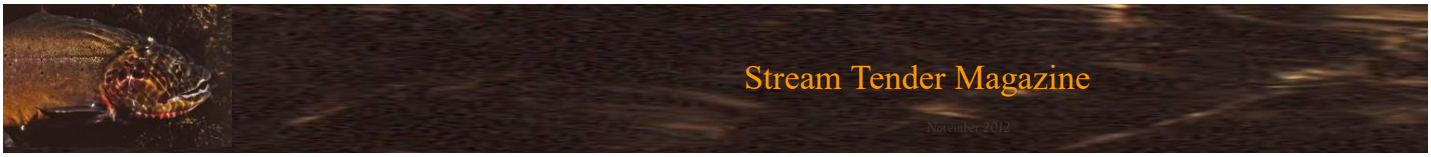
Above: A spawning site on the Bighill Creek:

If you look carefully at this photo, you will see spawning brown trout, over a clean gravel substrate! You will also notice good willow cover overhanging the stream channel, which provides good cover for the spawning event. Presently, the willow and tree planting on the Bighill Creek includes planting along known spawning habitats. The healthy riparian growth of willows and trees will contribute to the collection of suitable spawning gravel, in areas where the woody debris and branches of these plants makes contact with the flowing water in the channel! The constriction of flow also enhances the stream channels velocity and depth to create ideal conditions for spawning trout!

Below: One of a number of small feeder spring channels that feed the Bighill Creek:

These small feeder spring creeks are vital to the main-stem fishery of the Bighill Creek! They provide juvenile trout habitat during key times of the year and in some cases, a spawning habitat for trout that occupy the BHC. Measures to protect and enhance these small spring creeks have already taken place, as part of the Bighill Creek Project. A good example of this is both Ranch House Spring Creek and Millennium Creek Projects!

If you would like to have a look at the Bighill Creek Newsletters
Click Here



Cochrane Foundation's Willow Planting

Update:

In the early spring of 2012, a total of 500 + willow and tree plants were planted on Bighill Creek by BVHD, with funding support from the Cochrane Foundation.

The Cochrane Foundation has been a strong support NGO and partner, for a number of BVHD fish habitat enhancement projects in the Cochrane area. Primarily on the Millennium Creek Restoration Program.

Left: This photo was taken in late September and it shows how one of these willows are doing.

BVHD has monitored the willow crop that was planted on the BHC this spring and the results are very promising. Most of the plants are doing very well and they have made it thru the summer and into the late fall dormancy period!

A large percentage of the crop was planted in Glenbow Park, in the heart of the Town of Cochrane, so the plants will be quite evident to many Cochrane residents, after a few years of growth.

All 500 of the willow and poplar trees were Stage One pre-rooted cuttings, when they were planted into the ground along the streambanks.

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Bow Valley Habitat Development's Willow Planting

During the spring 2012 planting program, BVHD planted 440 Large Diameter willow plants, 10 Stage One and 100 Stage Two pre-rooted cuttings along Bighill Creek. The large diameter plants are a little more labour intensive to plant, but they are by far the fastest growing and better surviving willow plant cuttings.

There is a photo of one of these plants on the cover page of this issue, at the bottom left hand side of the page. If you zoom in on this photo, you can see how long the branches are, and all of this development occurred over one growing season on the BHC.

Because the large diameter plants are placed deeper in the ground, I often plant them a little further back from the waters edge on the creek. With the larger diameter stock of the cuttings, they are less likely to be damaged by rodents, especially the 3M's (Mice, Moles and Muskrats). The new limbs are also a lot higher up the trunk of the plant, where some rodents are less likely to climb.

The 100 Stage Two plants that were planted by BVHD are also doing very well by the end of this growing season, and I expect to see some rapid growth this next year!

BVHD provides the Stage Two plants for volunteer planting programs. The developed tops and established root systems give the cuttings a better chance at survival, especially if they are planted properly, and with care!

Left: *This is one of the Stage Two willow cuttings that was planted this spring. The photo was taken in mid-September when the leaves were just starting to turn color. The roots continue to develop after the leaves are gone, right thru until there is frost in the ground!*

Above: *This is a photo of what a Stage One Pre-rooted willow cutting looks like, before it is planted in the ground.*

Cochrane Community Grant Program's Willow Planting

Update:

Later on in the spring of 2012, another 500 + willow and poplar trees were planted on the Bighill Creek. The planting was a partnership effort between the Town of Cochrane and Bow Valley Habitat Development.

BVHD provided the plants and completed the planting along the stream banks. The project was funded by the Town of Cochrane Community Grant Program.

Left: This photo was taken in late September of 2012 and the leaves are just starting to change color on the plant.

Although these Stage One pre-rooted willow and tree cuttings were planted a little later on in the spring, they are still doing very well. Over the next growing season in 2013, the plants will show major development, with root systems already well established!

With the methodology that BVHD uses in its willow and tree planting programs, willows and trees can be planted throughout the spring, summer and well into late fall.

This full season planting option can be quite advantageous for many different planting requirements. The key factor is that the ground along streams is always moist and ideal for planting willows and poplar trees!

"Old poplar trees provide ideal habitat for a number of native birds!"

Above: *This is a photo of one of the many poplar trees that were planted along the banks of the Bighill Creek this year. The poplar trees are fast growing, but they are also prime targets of rodents when they are in this early stage of their development.*

Above: This is one of the chosen planting sites located along Bighill Creek, in the Town of Cochrane.

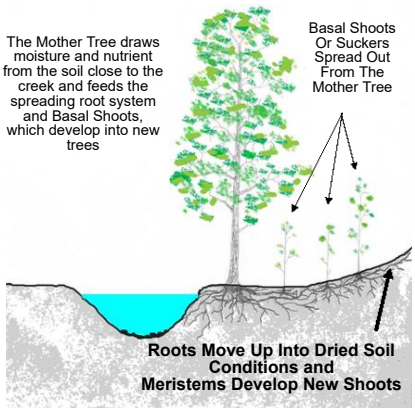
" Many Trees From One! "

One of the major advantages of planting poplar trees along a stream bank, is their ability to produce many trees from the same network of root systems.

After a poplar tree has matured enough to spread its root system and develop meristems off of the main root, they will grow Basal Shoots. These shoots are commonly referred to as suckers, and they are new trees that grow out of the ground in close proximatey to the mother plant.

The advantage of this type of new tree recruitment is that poplar trees will start to grow in areas of soil that are low in nutrient and possibly too dry to support seed growth.

This makes the poplar trees an ideal choice for riparian planting programs. Once the plant is established along the stream bank, in a moist and nutrient rich habitat, its roots will spread out over the years and develop multiple trees from the first one that was planted!



Nose Creek Plantings Will Contribute To More Willows Downstream!

Once the willow plants in Airdrie and Calgary have reached maturity, the seeds that they produce will recruit new willows downstream on Nose Creek. The willow plants will take about 10 years to mature enough for optimal seed production.

The willows planted along the west stream bank in Airdrie and on West Nose Creek in Calgary, are in the best position on the stream channel for recruitment by seed. The prevailing wind from the west will blow seeds into the flowing water, where they will be dispersed downstream on the system.

The seeds germinate very quickly when they hit the water, in less than a few days! As they float down the creek, they will be deposited onto moist areas along the stream channel. Here they will take root and grow.

For volunteers that participated in the planting program in Airdrie, these long term benefits of planting willows is something that you should consider, for your time investment. I personally, really get a lot of satisfaction out of knowing this, while being involved in such planting programs!

Hopefully, we are all still around to witness some of these benefits in future years!

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" Prairie Streams; The Disappearance of Riparian Cover and the Decline in Water Quality "

There was a time when you could visually determine the course of a prairie stream across a pasture or valley bottom, by following the line of willows along its stream bank.

Nowadays, you would be lucky to see any type of riparian willow cover on many of Alberta's prairie streams! What is left in natural willow and tree stands, is now definitely in decline!

The impacts of agriculture, mainly cattle pasturing and herbicide spraying, have taken their toll!

With not much remaining in native stands of willows along these creeks, there is little hope for natural seed recruitment to restore what has already disappeared. It is a pretty bleak situation for these important flowing waters!

If new generations of willows did manage to take root from seed, there is little chance that they will reach maturity, because of the same ongoing agricultural practices.

There needs to be some serious measures taken to resolve this problem!

Further to the East of Calgary, these disappearing riparian buffers along prairie creeks are vital habitats for not just fish, but native prairie wildlife species. There is very limited habitat on our prairie landscape, when you take away the cover along all of the flowing streams!

I have spent many hours on the prairie lands of the central part of Alberta, and I thoroughly enjoy watching and listening to the native wildlife in that zone of the province. Having done this for years, I have noticed a definite decline in our prairie wildlife!

I don't know what the future holds for what is left of our prairie streams, but I know that projects such as the Nose Creek Watershed Partnership Program are definitely a step in the right direction.

Willow planting programs with volunteers will help inform the public of the importance of this issue. These type of programs will also help to promote further education and the development of remediation techniques. Combined, this will help to reduce impacts and restore what is important for the environment of prairie streams!!

"Thistle Spraying Kills Willows!"

Above:

This photo shows how thistle spraying killed part of a Wolf Willow or Silverberry Willow stand. The spray kills broad leafed plants when it comes in contact with the leaves, so willow plants will also fall victim to the chemicals.

It is a concern to think about what the long term impacts that these type of chemicals have on not only the soil, but the water quality as well. Spraying thistle sprays and other similar herbicides have probably played a roll in the disappearance of many a willow plant and other native riparian cover!

The cumulative increase of chemicals in our environment are of major concern to all of us!

Update for Microsoft's Planting on West Nose Creek in Calgary!

I visited the planting site, one week after the planting program in the spring and noticed that we still had a good crop of willows. However, a number of the plants were in recovery from planting shock and a killing frost that occurred the day after the planting.

Later on in the summer, when I visited the site, I found a number of willows in the tall grass that had survived the initial shock of transplanting.

Top Left:

This is the photo that I took, one week after the planting program. You can see that a number of plants were still coming out of the shock of transplanting.

Bottom Left:

This is a photo of one of the willow plants in late August. By that time, it was very hard to find the willows in the tall grass.

I expect that next spring will be the best time to visit the site for further assessment on the survival rates.

Funding for the Nose Creek willow planting programs was provided by Evergreen and its corporate donors

Willow Planting Update for Nose Creek in Airdrie!

I have closely monitored the planting project sites that CP and Stantec completed on Nose Creek in Airdrie, over the summer and fall months. I am please to report that we should have a good willow crop surviving into the 2013 growing season! Although there were areas where the plants did not survive that well, overall there were enough plants surviving to make the program worthwhile.

Some of the plants that were damaged by rodents or lack of moisture during hot and dry spells, will probably show new growth in the spring of next year. As long as the root systems are still alive and the cuttings respiratory system is not damaged too much. The photos to the right and below will show you how some of the plants are doing!

Below Left: *This photo was taken in early August of 2012. The red arrows will help you identify a few of the willows.*

Below: *This photo shows some of the plants in September, when they are about to loose their leaves.*