

# Byrne Creek Fish Kill, February 2006

## Southeast Burnaby, BC



Prepared by Byrne Creek Streamkeepers

### Summary:

Over 350 cutthroat trout, over a dozen coho salmon, and other aquatic species were killed in Byrne Creek in southeast Burnaby on the weekend of Feb. 25/26, 2006, when someone poured a toxin into the storm-drain system in the upper watershed somewhere in the Edmonds area. (As of late March 2006, biologists estimate the kill at about 700 fish based on the recovery of dead fish.) City staff and BC Environment biologists responded promptly when notified by streamkeepers of the kill. Without a witness, it is impossible to identify the substance or the exact source. There was extensive media coverage on television and in local newspapers. Subsequent fish-trapping surveys found no fish in the upper half of the creek, and very few in the lower half. Byrne Creek Streamkeepers were conducting bug counts of aquatic invertebrates before the spill and continued after, and found a drop in numbers in the upper watershed, while lower areas were not significantly affected. Chum salmon fry (babies) were seen in the creek in mid-March, so it appears at least some of the eggs laid by spawning salmon in autumn 2005 survived. Streamkeepers will continue work with the city to ensure that such events do not happen again.

### Kill Data

#### Estimated time of fish kill:

*Between mid-afternoon on Saturday, Feb. 25, and morning Sunday, Feb. 26.*

Two streamkeepers first saw dead fish in the lower ravine above Southridge Dr. on Sunday, Feb. 26, 2006, in the early afternoon. They checked nearby pools and collected and photographed dead cutthroat trout from 10cm to 25cm long, and a coho smolt (yearling). The trout live in the creek year-round, and coho live in the creek for one year after they hatch before going out to sea. They called the Burnaby emergency spill line at 604-294-7200, and a staff member from the Engineering Department was on the scene within half an hour to take water samples and help with an initial assessment of numbers of dead.

The two streamkeepers had walked the ravine on Saturday and had not noticed any dead fish, so the kill happened sometime between mid-afternoon Saturday and early Sunday, for the fish had been dead for at least several hours by the time they were discovered Sunday afternoon.

## Extent and source of fish kill:

*The source was likely a storm (rain) drain in the Edmonds area. The effect was total mortality in the upper section of the creek (upstream of Southridge Dr.), with some signs of life below Marine Way, likely due to escapement to tributaries, or gradual dilution of the toxin as it flowed downstream.*

Following dead fish upstream narrowed down the source of the toxic input. On Monday, Feb. 27, another streamkeeper traced dead fish upstream to Griffiths Dr. (as far up as fish are known to inhabit the creek) and observed dead worms in the creek up to 16th Ave. where Byrne Creek first emerges from pipes. It appeared that all fish from the top of the creek (near Griffiths Dr.)

to Marine Way died. The toxin likely entered the storm drain system when someone poured a poisonous substance into a street drain, a basement floor drain or parking garage drain somewhere in the area bounded by 18th Ave., 18th St., 10th Ave., Davis St., Edmonds, and Kingsway.



There was little chance of determining what toxin entered the stream because it had been flushed out of the creek. It could have been a pesticide, chlorine from a pool or hot tub, concrete wash from a truck or mixer, a concentrated cleaning compound or something else.



## **Numbers of dead fish collected:**

*Total: Over 350 cutthroat trout and over a dozen coho smolts (yearlings).*

On Sunday, streamkeepers counted over 150 dead fish in the artificial spawning and rearing habitat at Meadow Ave., and a city staff member counted over 50 more in the ravine.

Two biologists from the BC Environment Ministry arrived on Monday, Feb. 28, to collect dead fish, assisted by streamkeepers and city staff. They covered the area from Tag 523 near the storm outfall known as the Hell Hole, accessed from Ron McLean Park, upstream to Tag 539 near the fish ladder at the pool known as Griffiths Pond.

The biologists intended to make the best of a bad situation by collecting as many of the dead fish as possible to determine counts of species, sex, size, etc., to get a picture of life in an urban creek.

The biologists returned on Tuesday, Feb. 28, and collected dead fish from Tag 523 (the Hell Hole) downstream through the ravine, artificial spawning habitat, and as far as Marine Way (Tag 505), assisted by streamkeepers. Over 350 cutthroat trout, several coho smolts, and a lamprey were collected, and based on that data, the biologists eventually estimated that about 700 fish died.

## **Media coverage:**

Television coverage included video and interviews on CTV, Global TV and Shaw Community Cable (BCIT Magazine). The *Burnaby Now* and the *News Leader* both had front page coverage with photos, and both had editorials about the kill. The *Vancouver Sun* mentioned the kill in its Lower Mainland section. City staff have informed streamkeepers that the media exposure led to calls about other stream problems in the city. Two new members have joined the streamkeepers after hearing about the kill.

## **Follow up:**

### **Fish trapping March 2/3:**

*No life in upper creek, a few fish in lower reaches.*

The Environment Ministry placed 16 fish traps in the creek on Thursday morning March 2, and a streamkeeper helped collect, tally and release fish on Friday morning March 3.

Ten traps were placed between the Fraser River and the golf course (Tag 501 - Tag 504), three near the habitat at Meadow Ave. (Tag 507 - Tag 508), and three near the Hell Hole accessed from Ron McLean Park (10m upstream, at, and 10m downstream of Tag 533).

There were a few signs of life in the lower reaches that were the farthest away from the toxin's point of entry. The tally was 3 cutthroat trout, 1 coho smolt, several dozen stickleback, and 1 sculpin spread out among the 10 traps between the Fraser and the golf course. They could have come from tributaries, or found refuge in them, or perhaps the toxin was diluted by that point.

There were a couple of stickleback in three traps around Meadow Ave. and the lower end of the spawning channel that may have survived by being in the upper reaches of the overflow pond where they might have avoided the toxin. Stickleback are often seen at the upper end of the overflow pond, and such off-stream habitat may prove to be a refuge in future events.

There were no fish the three traps upstream and downstream of the storm outfall called the Hell Hole.

### **Fish trapping March 11/12:**

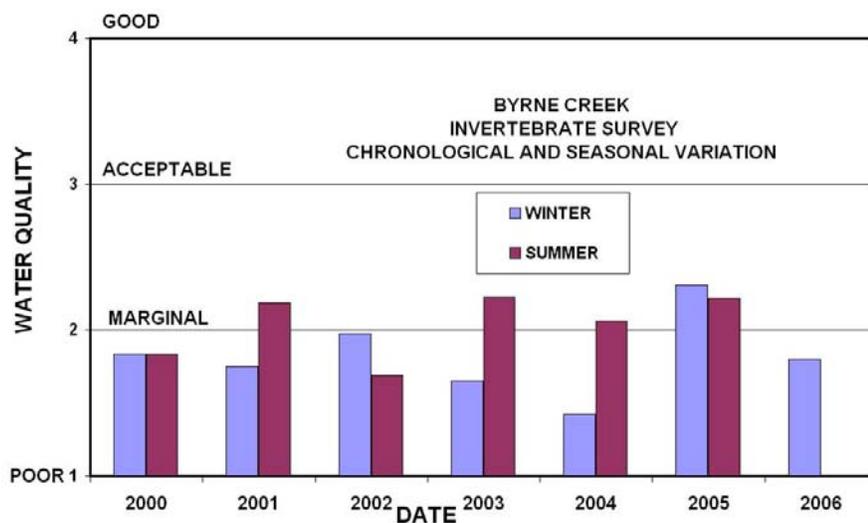
*No fish found in the upper creek between Griffiths Dr. and Southridge Dr.*

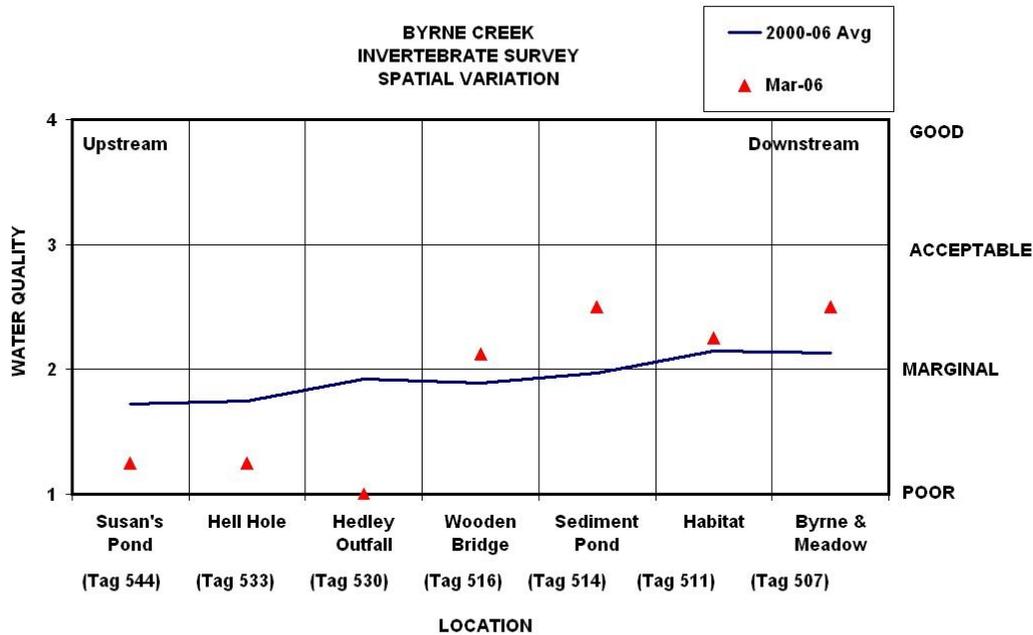
During regular semi-annual juvenile fish trapping on March 11/12 in the ravine from the wooden footbridge (Tag 516) to Griffiths Pond (Tag 539), streamkeepers did not find any fish in 9 traps. Based on previous surveys the “normal” range would have been three to four fish per trap, or a total of 27 to 36 fish.

### **Bug surveys:**

*There was a noticeable reduction of quantity/quality of invertebrates in upper reaches, and little noticeable effect in downstream areas.*

Streamkeepers assess water quality twice a year using bug sampling and counting methods from *The Streamkeepers Handbook*. Average results from bug surveys up to 2006:





It can be seen from the above graph that post-kill results were well below normal in the upper areas of the creek, and better downstream, perhaps due to dilution of the toxin.

### Fry observations:

Good News: Salmon fry identified in mid-March

Streamkeepers observed hundreds of chum salmon fry in the spawning habitat section of the creek on March 19, so it appears at least some of the eggs deposited by spawning salmon in autumn 2005 survived the toxin.

### Action items:

- ❖ The city is sending out information about the kill and the connection between the storm-drain system and local creeks to all households and businesses in the watershed.
- ❖ Streamkeepers will redouble efforts to ensure yellow fish signs are painted or refreshed on all rain drains in the watershed, including in industrial areas and parking lots. This may entail assistance from the city to access some properties.
- ❖ Install more large educational signs about the life in the creek in public areas such as the Edmonds Skytrain station, 18th Ave, 16th Ave., and other public sites.

- ❖ Install “Welcome to the Byrne Creek Watershed” signs on major roads. Perhaps this could be expanded across the city for other watersheds.
- ❖ Create a South Slope Environmental Education Center somewhere in the Byrne Creek watershed, ideally in the upper part where most people live and do business. This could provide public space for people to learn about the stream and other issues and operating space for educational programs, volunteer activities and monitoring. Space could be shared by Byrne Creek Streamkeepers, the Stream of Dreams Murals Society, Kaymar Creek Streamkeepers and other similar groups.
- ❖ Follow up in the media. Streamkeepers will submit update articles. Perhaps the city could sponsor printing more detailed watershed maps and articles in local newspapers to show the area of the kill, where the toxin likely came from, and ask for help from community members in identifying the source. Such articles could also provide general information on the rain-drain system and precautions about dumping anything into rain drains.

This report was produced by Paul Cipywnyk, Joan Carne, David Burkholder and John Grange of the Byrne Creek Streamkeepers.

**[www.byrnecreek.org](http://www.byrnecreek.org)**

The Byrne Creek Streamkeepers would like to thank the Engineering Department of the City of Burnaby and the BC Environment Ministry for their invaluable assistance in following up on the kill.

