

# Taking stock of British Columbia's fish habitat

A report on the Kalum Forest District

By John Werring, M.Sc., R.P. Bio



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Foundation

David Suzuki Foundation

219 - 2211 West 4th Avenue, Vancouver, BC Canada V6K 4S2

Tel: 604-732-4228 • Fax: 604-732-0752

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

The following people contributed to this report, either by adding to and/or reviewing the contents, or by providing photographs:

Heather Deal, Lorena Dexter, Derek Martin, Christoper Pollon, Jay Ritchlin, Dave Taylor, Bill Wareham, John Werring, and Jeffery Young.

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# Executive Summary

**Fish are an integral part of our natural environment, and their presence can tell us a lot about how well we manage our forests and watersheds. The reality is B.C.'s fish and fish habitat are in trouble. Collapsing fish stocks and polluted aquatic environments are clear signs that current protection strategies are not working. Changes in forest regulations have also increased the risk to fish habitat.**

**This report documents existing and potential *Fisheries Act* violations in the Kalum Forest District of the North Coast. It is based on field surveys of forestry cutblocks that were logged between 2003 and 2005.**

## Background

In May and September 2005, the David Suzuki Foundation conducted a series of watershed inspections in British Columbia's Kalum Forest District near Terrace. The purpose was to assess the impact of current logging activities on fish habitat. We also reviewed sites that were logged within the past three years. There were also examinations of infrastructure and road development work and its effect on nearby waterways. The goal was to determine the level of industry compliance and enforcement with the federal *Fisheries Act*.

Under the *Fisheries Act*, the Department of Fisheries and Oceans (DFO) is responsible for the protection of Canada's fish habitat. The Act proclaims that it is illegal to harmfully alter, disrupt or destruct fish habitat unless expressly authorized by the Minister of the DFO. The Act also states that no one is permitted to deposit a toxic substance into water containing fish.

## Findings

With the exception of North Kitimat River and MacKay Creek, real or potential *Fisheries Act* violations were discovered at every site we investigated in the Kalum region. The most significant problem was a lack of road maintenance. There were also inadequate drainage systems and incidences of road-surface erosion that resulted in landslide debris within stream channels. There were tributary streams leaking onto roadways, and many fish streams traversed vehicle routes. All of these problems pose a serious threat to fish-bearing streams. Fish require suitable water quality to survive, grow and reproduce. Road crossings can seriously impede the ability of fish to get upstream, and leaked oil and crushed gravel leads to contamination of fish habitat.



## Actions

All of the field assessment findings were reported to the British Columbia Ministry of Forests (MoF) and the DFO. While both parties acknowledged an awareness of the problems, little has been done to address the most serious violations. Although the province can enforce certain sections of the *Fisheries Act*, it is imperative that the DFO conduct ongoing fieldwork and monitor compliance. However, this appears to be a challenge for the chronically under-funded department.

## Challenges

Another impediment to safeguarding Kalum's fish habitat is that B.C. is currently without an official forest stewardship code. Since 2001, provincial regulations that affect salmon habitat have been severely weakened and industry has been left to self-regulate. In particular, road building and maintenance regulations under the former Forest Practices Code of British Columbia Act have been repealed and replaced with regulations that generally place the responsibility of forestry road maintenance with the BC MoF. The MoF may or may not delegate this responsibility to industry licensees. In cases where the MoF maintains responsibility for road maintenance, it is the public that covers the bill.

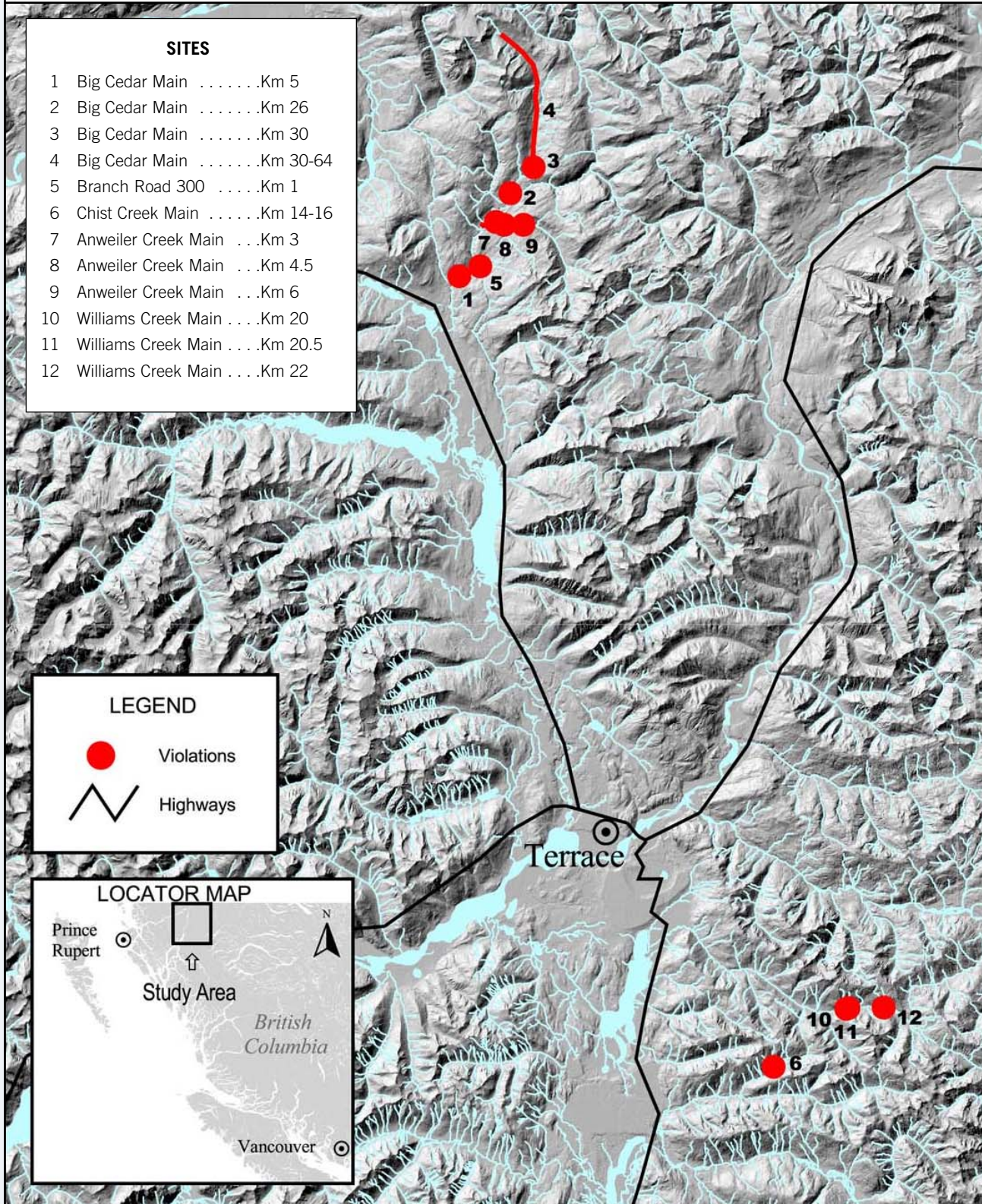
B.C.'s fish habitat can only benefit from more rigorous monitoring and enforcement of protection regulations. Habitat degradation and loss are contributing to the decline of B.C.'s salmon stocks, and the DFO and the Province of B.C. must show greater leadership in managing fish and forests.

## Next Steps

Given the questionable conditions in the Kalum Forest District, the David Suzuki Foundation will work to determine if this situation is representative of what is happening throughout the province. In the coming months, we will collect data from forests in the Lower Mainland, Central Coast, North Coast and Northern Vancouver Island, and share our conclusions in upcoming reports. It is our hope that these documents will encourage the DFO and the provincial government to take action to better protect B.C.'s fish habitat.



## Existing and potential *Fisheries Act* violation sites





## Habitat Survey Results

# Big Cedar River Drainage

### Big Cedar River Mainline, 40 kilometres north of Terrace

Big Cedar River is a known salmon stream and is an important chinook spawning stream.

**Date of inspection** May 11 and September 5, 2005.

## Violations

**Kilometre 5** | There was significant erosion on the surface and downslope shoulder of the road due to blocked culverts. As a result, silt and debris were ending up in two small streams that were directly tributary to the Big Cedar River. This debris can eventually smother salmon spawning beds.

## Action taken

A report was filed to the MoF and the DFO on May 12, 2005.

## Current status

No repair work has been done. As of late September 2005, DFO field staff had still not investigated the situation at Big Cedar River.

**Section 35 of the Fisheries Act states that any harmful alteration of fish habitat is illegal unless specifically permitted through an environmental assessment. “No person shall carry out any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.”**

Source: Fisheries and Oceans Canada website  
[http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait/11\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait/11_e.htm)



## Big Cedar River at Branch Road 300

Big Cedar River at Branch Road 300 leads to previously harvested land at Eden Creek. Eden Creek is a major tributary of the Big Cedar River. The creek is known for its healthy population of chinook, coho and steelhead.

**Dates of inspection** May 11, 2005 and September 5, 2005.

### Violations

**Kilometre 1** | At spur 300, there was a significant roadside slope failure at a major wooden box culvert. The culvert was in place to direct road ditch flow toward a salmon and coho-bearing tributary of the Big Cedar River. The roads had not been maintained properly and ditchwater was seeping on to the road surface causing extensive erosion and collapse of the culvert.

Most of this debris will eventually end up downstream in fish-bearing reaches of the stream, potentially smothering spawning beds and lowering the water quality for fish.

### Action taken

A report was filed to DFO and MoF on May 11, 2005.

At spur 300, approximately 80 m<sup>3</sup> of road material and logs from the culvert superstructure had collapsed into the channel below.







## Current status

The location of the culvert failure has been marked with flagging tape—indicating someone has been to the area to inspect the site. But as of September 5, 2005 no other progress has been made to improve conditions.

### Big Cedar River Mainline

**Kilometre 26** | A primary tributary to the Big Cedar River had been diverted from its course due to a blocked culvert. The water had formed a pool on the upstream side of the road. It was flowing into a ditch right next to the main logging road for approximately 100 metres. It then entered another culvert equipped with a ditchblock. The stream was flowing at a rate of .5 metres per cubic second—fast enough to cause significant ditch erosion and carry silt to downstream fish habitat.

The second culvert was unable to retain all of the water and most of the stream flow was seeping on to the surface of the road. Any vehicle driving over the weakened water-saturated section of the road could have triggered a road failure that would have deposited hundreds of cubic metres of sediment and rock directly into the Big Cedar River.

## Action taken

A report was filed to the MoF and the DFO on May 12, 2005.

## Current status

The blocked culvert at kilometre 26 has been cleared. The stream has now been re-directed into its normal channel.



**Kilometre 30** | A three metre wide stream was flowing through a culvert/bridge and under the road. The condition of a culvert/bridge made the road impassable. The road surface over the culvert had been washed away and it formed a large crevice in the road prism. The source of the road surface and culvert failure was uncontrolled ditchwater running down a ditchline for approximately 200 metres.



## Action taken

A report was filed with the MoF and the DFO on May 12, 2005. MoF advised Foundation staff that they had been aware of this situation since December 2004.

## Current status

Only partial repair work has been done. The hole in the road surface was filled in to facilitate passage, but the road bed remains unstable and the drainage issues that caused the problem have not been rectified.

### Big Cedar River Mainline

**Kilometre 30-64** | Tension cracks were developing in the downslope side of the road surface, which weakens the road shoulder. Under these precarious conditions, road bed failure could happen at any time, with significant amounts of sediment potentially ending up in the Big Cedar River. This debris can eventually smother salmon beds and reduce water quality for fish.

## Action taken

Foundation staff did not file a report as the presence of flagging tape indicated that MoF staff were aware of the problem.

## Current status

In July, MoF advised Foundation staff that an action plan was being developed to deal with all the identified road problems in the Big Cedar drainage. However, following a second visit to the site in September, it became evident that, with the exception of fixing the plugged culvert at kilometre 26, no major work has been undertaken to date. Many of the tension cracks observed from kilometre 30-64 have been marked with flagging tape, but no other restoration has occurred.

**At kilometre 30, the remaining surface above the culvert was unstable, deeply undercut and prone to further erosion.**



## Anweiler Creek, located in the Big Cedar watershed

Date of inspection May 11, 2005 and September 5, 2005.

### Violations

**Kilometre 3.0** | A road failure had deposited approximately 100 cubic metres of silt, sand and rock into a stream that is a direct tributary to Anweiler Creek – an important rearing site to chinook, coho, sockeye and steelhead. The road failure was triggered by large rocks that had fallen from a steep cut slope. A lack of road maintenance had worsened the problem. Failure to properly maintain this road and the fact that the slide had not been fixed or stabilized makes this a potential violation of the *Fisheries Act*.



**Failure to properly maintain this road and the fact that the slide had not been fixed or stabilized makes this a potential violation of the *Fisheries Act*.**

**Kilometre 4.5** | Beyond the bridge crossing at Anweiler Creek, the road surface was littered with debris from road cut slope failures. Virtually every culvert between the bridge crossing at the creek and kilometre 6.0 was plugged with debris. A large section of the side slope of the road had given way and several hundred cubic metres of dirt, rocks, and broken trees were deposited into Anweiler Creek.

### Action taken

A report was filed to DFO and MoF immediately after inspection.

### Current status

With the exception of clearing some of the debris (rocks, boulders and fallen trees) off the road surface, nothing has been done to fix any of the road related problems at this drainage.



**Major cutslope failures and blocked culverts on Anweiler Creek mainline.**



## Chist Creek, approximately 25 km south of Terrace

This creek is a tributary to the North Kitimat River and is home to chum, coho, chinook, bull trout and other fish.

**Date of inspection** May 12, 2005 and September 6, 2005.

### Violations

Logging routes at Chist Creek drainage were in need of a major overhaul. Road repair and new construction was underway in order to access timber at North Chist Creek.

Illegal road building practices known as sidecasting had been utilized at Chist Creek. Two previous slopeside failures had already resulted in major landslides and fish stream damage. Road debris and gravel can settle over fish eggs, infill spawning beds and impair feeding ability.

Two fairly steep sections of the road did not have any culverts installed for lengths of road exceeding 300 metres. As a result, there was excessive ditch erosion which had carried sediment and debris downstream to fish-bearing waters. In order to minimize this form of erosion, accepted road building practices call for culverts placed at a minimum of every 100 metres on steep road sections.

### Action taken

Foundation staff filed a report on May 12. Four days after the initial visit, DFO officials had not yet inspected the site and said it would be at least another week before they could get to Chist Creek. A delayed site inspection would likely destroy all evidence needed to prosecute *Fisheries Act* violations. Once a road has been repaired, it is difficult to identify offences. Incidentally, MoF officials inspected the site, but did not issue any fines or citations.

### Current status

There is now active logging at the Chist Creek drainage. The landslide tracks observed in May have not been stabilized and there are still a lack of adequate culverts in some sections. Parts of the road have been hydro-seeded to help stabilize sediment from certain ditch lines and road side slopes. However, the areas where the landslides occurred and where there are not enough culverts remain uncorrected.

# Williams Creek,

approximately 12 kilometres south of Terrace

Williams Creek is home to several species of salmon and trout. It is also a tributary to Lakelse Lake. Chinook, coho, chum and sockeye salmon pass through Lakelse to spawn in Williams Creek. There was active logging in the Williams Creek watershed in May, but not in September.

**Date of inspection** May 8, 2005 and September 7, 2005.

## Violations

**Kilometre 20** | A blocked culvert was forcing a stream onto the logging route. The stream had eroded the road surface to a depth of approximately 40 centimetres. The erosion channel had been crossed by vehicles on numerous occasions. The road prism was saturated with water. The downside slope of the road was steep enough to suggest an impending road failure. If the road were to give way, nearby fish habitat at Williams Creek (less than 100 metres away) could be smothered by slide debris.

**Kilometre 20.5** | Another plugged culvert had caused white water to spill across the access road. The plugged culverts were only a few kilometres away from an active logging site, but the road had not been fixed. Unstable roadways can eventually lead to erosion with excess sediment ending up in fish streams.



**PHOTOS 5, 6** At kilometre 20 and 20.5, there was stream flowing across the surface of the Williams Creek Forest Service road.

**PHOTO 7** A stream by-passing plugged culverts at the Williams Creek Forest Service road.

**PHOTO 8** Just beyond the blocked culverts noted above, there was an active logging operation at kilometre 21 on May 12, 2005. Logging trucks would have had to cross streams to access operations.



**Kilometre 22** | Within 50 metres of the main Williams Creek forest service road, an intersecting spur road was partially built into a low-gradient tributary. This low gradient stream should have been classified and treated as an S3 fish-bearing waterway (see page 15 for stream classification explanation.) Instead, both sides of the stream had been logged to their banks.

There was no bridge or culvert for fish passage and there were a significant amount of rocks within the stream channel. These rocks were not natural stream sediment. The stones constricted the channel and were smothering what could have been valuable fish habitat. The jagged debris looked as if it had been “blasted” and deliberately placed at the stream, as some pieces had wires and caps attached, while others had gouged holes.

Part of the forest on the far side of Williams Creek had been logged and there appeared to be a skidder trail next to the far side of the bank. Evidently, vehicles had crossed the creek by driving right through the stream.



**PHOTOS 9, 10**  
Evidence of road building debris was left in a potential fish-bearing tributary to Williams Creek.

## Action taken

A report was filed to the DFO and the MoF on May 9th.

## Current status

As of September 7, nothing had been done to address these issues.



**PHOTO 11** A logging site on the far side of Williams Creek.

The absence of a properly constructed crossing meant that vehicle traffic and log hauling would have occurred by traversing the Creek (a known fish-bearing stream).



## STREAM CLASSIFICATION SYSTEM

Fish streams are separated into four classes based on evidence of fish presence, channel gradient and the mean channel width. In the absence of an acceptable fish inventory to rule out fish presence, stream channels with gradients of less than 20% are automatically deemed to be fish streams.

**CLASS S1**  
streams are 20 metres wide.

**CLASS S2**  
streams are >5 and < 20 metres wide.

**CLASS S3**  
streams are 1.5 metres wide and < 5 metres wide.

**CLASS S4**  
streams are <1.5 metres wide.

All community watershed streams are managed as fish streams, regardless of fish presence or absence.

Fish streams in this region are frequented by any of these species: rainbow trout, cutthroat trout, brown trout, Dolly Varden char, mountain whitefish, lake whitefish, arctic grayling, burbot, bull trout, steelhead as well as coho, chinook, chum, pink and sockeye salmon.

These waterways could also include any threatened or endangered fish or a regionally important fish designated by the BC Ministry of Forests.

Source: Fish-Stream Identification Guidebook, Forest Practices Code of BC, 1998.



## Glossary

**Bridge culvert**: A culvert constructed out of wood or logs to form a small bridge over a stream. Also known as a wooden box culvert.

**Culvert**: A small channel or drain that allows water to pass under a road, railway, canal or other obstacle. Culverts can be galvanized steel pipes of various diameters, or made of logs. Different designs are required if fish are intended to pass through a culvert.

**Ditch block**: A mound of earth placed in the roadside ditch on the downslope side of a culvert to prevent ditch water from flowing past the culvert. The ditchblock forces the water through the culvert and prevents what is otherwise known as “run by.”

**Hydro-seeding**: A process of applying a mixture of wood fibre, seed, fertilizer, and stabilizing emulsion on overexposed soils to temporarily protect soil from erosion by water and wind.

**Stream gradient**: The general slope, or rate of vertical drop per unit of length, of a flowing stream

**Road prism**: An area of ground containing the road surface, cut slope and fill slope.

**Salmonids**: Members of the fish family “Salmonidae,” including salmon, trout and chars.

**Sediment**: Soil or other materials transported by wind or water as a result of erosion.

**Sidecasting**: The deposition of material removed for road building to the side of the road. On steep slopes, this material may slide down to fish-bearing streams. In past years, the sidecast could include these stumps, which eventually rot and cause landslides.

**Skidder trail**: A trail made by a soft-wheeled machine known as a skidder that pulls logs off a cut block.

**Spur road**: A road off a main logging road used to access a cut block so that fell timber can be retrieved.

**Tributary**: A small stream that flows into a larger stream.





## Conclusion

Many fish habitat issues and *Fisheries Act* violations were identified in the Kalum Forest District. The problems appear to be the result of inadequate care and attention by logging companies, weak guidelines and logging plans from the Province, and an insufficient effort by DFO to maintain and enforce the *Fisheries Act*. When DFO was advised of incidences of habitat change, little or no action was taken. We conclude that there is a lack of will and capacity to deal with pressing matters in the Kalum region. In order to prevent further fish habitat damage, the DFO and the provincial government must significantly enhance their response time and synchronize enforcement strategies.

## Recommendations

More can and must be done to prevent future loss and degradation of B.C.'s fish habitat. Current protection strategies are not enough to restore healthy salmon runs. The lack of coordination between federal and provincial conservation bodies has contributed to the decline of this precious resource. It is time for a systematic approach that includes environmental planning, watershed management and regulatory enforcement. The DFO and the province of B.C. need to act immediately to conserve fish habitat.

In the coming months, the David Suzuki Foundation will conduct additional site inspections in the Lower Mainland, Central Coast and Northern Vancouver Island. In Spring 2006, we will release a comprehensive report on the status of fish habitat throughout British Columbia.