Klondike Area Central Incubation/Outplanting Facility

Chandindu River Salmon Enumeration Weir
Brood Stock Feasibility 1998

RE-11-98

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December 15th, 1998

• Collect data on the Chandindu River, a river located in the Tr'on dëk Hwech'in traditional area, to determine the availability of brood stock to support an incubation/outplanting facility and a restoration program.

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and

The Yukon River Panel
Restoration and Enhancement

This report has been prepared by J. Duncan of Duncan Contracting

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Project RE-11-98

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Acknowledgements — *on reverse*

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* * *

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* * *

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The underlining concepts of a Klondike Area Central Incubation/Outplanting Facility is to (1) produce more fish to make returning salmon stocks larger to benefit fishermen on both sides of the border, and (2), equal in priority, to aid in the management of weak stocks by restoring these stocks to former healthy sizes, that could better withstand fishing pressure and natural mortality.

Mixed stock fisheries normally fish to total abundance. Weak salmon stocks are unduly impacted by this practice. By restoring weak stocks in the Tr'on dëk Hwech'in Traditional Territory we reduce some of the impacts of this practice to salmon stocks in the area.

Generally, we are interested in "kick starting" weak salmon stocks in the Klondike area by incubating eggs to the fry stage. During this period in the natural environment only 30% of the eggs survive to become fry.[1] By conducting this program we would like to increase the number of fish over a six year cycle by letting their eggs enjoy survival rates upwards of 80% in controlled circumstances.[2] These fry would then be outplanted back into their natal streams.

The resulting greater number of adult salmon returning to the river would then be more likely to withstand the fishing pressures and the natural challenges that exist in their life cycle. Such a program should have a limited life span as the intent is to temporarily help the weak stocks, not to continually outplant fry to streams in perpetuity. We are sensitive to the impacts of large hatcheries and their potential negative impacts on wild stocks of fish. We are attempting to develop a program that will minimize negative effects on wild stocks.

Each project carried out to date is an essential step in developing a complete program to achieve the above objectives. To this end we have carried out the following studies:

- Summary of Streams in the Tr'on dëk Hwech'in Traditional Area, A Search for Candidate Streams to Support a Program Based on a Klondike Area Central Incubation/Outplanting Facility

- Field Studies On Candidate Streams/Stream Surveys, A Component of Project CRE-05-97

- Klondike Area Central Incubation/Outplant Facility Site Evaluation

- Klondike Area Central Incubation/Outplant Facility Feasibility Study Progress Report

The Chandindu River was identified in the first two studies as being a candidate for restoration but is only one of the rivers we are looking at to support a facility in order to spread out the costs associated with such a program. We already have data that suggests that the Klondike would be a major candidate and are presently carrying out a feasibility study into the design of a facility under the Yukon Panel's Restoration and Enhancement Fund.

The primary goal of this study is to look at how many Chinook salmon are utilizing the Chandindu River for spawning purposes and to determine whether enough salmon exist to support a restoration program based on incubating eggs collected from salmon utilizing the river and outplanting the resulting increased number of fry back into the river.

To illustrate how we came to the conclusion that the Chandindu River should be looked at more closely and how a restoration program would work, I offer the following information.

DFO staff have indicated that only about 15% of spawning salmon get counted in aerial surveys in comparison to weir counts on similar rivers.[3] Aerial surveys were completed on the Chandindu River during the 1997 salmon run and relatively low numbers of salmon were observed. This, plus information gathered in Traditional Knowledge studies, reenforced our belief that the present-day number of salmon utilizing the Chandindu River is much lower than historic numbers. The objective of operating a weir on the Chandindu River was to "truth out" these beliefs and, with hard counts, determine if enough salmon exist to collect brood stock.

The highest count achieved during the aerial surveys conducted in 1997 was 21 salmon.[4] This survey was deemed to be early and estimates based on this number were considered to be conservative as salmon were observed holding in pools and not yet digging redds. If we were to use the 15% aerial observation factor, and realize that numbers used would be on the low side due to the early timing of the survey, we could assume that at least 140 salmon returned to the Chandindu river to spawn in 1997. If we were to assume a 39% female sex composition of these fish, then 55 females would have been present.[5] Again, a relatively low number for such a river but enough to safely take brood stock from. Using HEB protocols, where only 30% of females can be taken for brood stock, eggs could have been taken from 17 females.[6] If the average fecundity of those fish were upwards of 6000 eggs per female, another conservative estimate given the large size of salmon in the area, then 102,000 eggs could have been taken and raised to fry.[7] At a survival rate of 80%, typically found in similar facilities to the one proposed, 79,200 fry could have been released back into the Chandindu River.[8] At a 2% survival rate from fry to adult 1,584 adults could have returned to the Yukon River.[9]

Average exploitation rates have been 70% in recent years. With this rate factored in we could estimate that 475 salmon could have returned, from a 30% portion the original 140 fish, to the Chandindu River.[10] If these fish returned to the Chandindu River it would represent a significant

increase to the stock, from the original 17 female fish taken for brood stock. The remaining 48 female salmon would spawn naturally and would produce fish in addition to this increase.

If this were to continue for a full six year cycle the stock on the Chandindu River would be significantly increased and better able to deal with the effects of the mixed stock fisheries.

Current information indicates that this stock may be stalled at current population levels. If the stock on the Chandindu River received these increases it may be the "kick-start" needed to allow the stock to more closely reflect its historic levels.

1. Department of Fisheries and Oceans, Biological Science Branch, Pacific Biological Station, Nanaimo. Edited by C. Groot and L. Margolis, UBC Press 1991 *Pacific Salmon Life Histories*

2. Personal communication with Lawrence Vano regarding average survival rates of the Whitehorse Rapids Fish Hatchery.

3. Personal communication with Ian Boyce at DFO, regarding aerial surveys versus weir counts on the Fishing Branch River.

4. Duncan, J. November 12, 1997, A Component of Project CRE-05-97 Field Studies On Candidate Streams/Stream Surveys

5. The female composition is based on the sex ratios found at the Fish Ladder in Whitehorse over the recent cycle average 1992-97.

6. Habitat and Enhancement Branch, DFO

7. Average fecundity based on Personal Communication with Lawrence Vano, Manager, Whitehorse Rapids Fish Hatchery.

8. Personal Communication with Pat Milligan regarding the average survival rates from the Whitehorse Rapids Fish Hatchery.

9. Rates based on Personal Communication with Pat Milligan, DFO

10. Statistics based on personal communication with Pat Milligan, DFO

Photo 1

Above: Reconnaissance trip to the Chandindu River in March.

Photo 2

Above: The mouth of the Chandindu River, looking upstream towards Dawson.

Photo 3

Above: Glaciation at the headwaters of the Chandindu River.

Photo 4

Above: Glaciation on the Chandindu River.

Introduction

The Chandindu River is both a Chinook and a Chum salmon spawning stream located in the Tr'on dëk Hwech'in Traditional Territory. The watershed drains approximately 1,710 square kilometres. From its headwaters at Seela Pass to its mouth, it passes through 85 kilometres of rugged Oglivie Mountains to join the Yukon River 28.5 kilometres downstream from Dawson City, Yukon (Map 1) and 97.3km upriver from the Canada/U.S. Border. The Yukon River Basin is the fifth largest drainage in North America. It flows through the Yukon and Alaska from northern British Columbia to the Bering Sea.

The Tombstone River, The Little Twelve Mile River, Ballarat Creek and Thane Creek are all tributaries of the Chandindu River. The traditional name used by First Nations to identify the Chandindu is "TThë dëk", meaning obsidian tools, due to the historical uses of the geological formations in the area. Similarly, the traditional name that identified Thane Creek, was based on the Dog Salmon (Chum) that migrated to the creek every year. Locals, and many historic references, refer to the Chandindu River as the "Twelve Mile [River]".

Under the recently signed Tr'on dëk Hwech'in Land Claims Agreement, that First Nation now holds a large area at the mouth of the Chandindu River (Photo 2). This area is Type A Settlement Lands where the First Nation hold both surface and sub-surface rights (THLCA, section 5.4.1, March 1998). In addition to the Settlement Lands, under the Land Claim Agreement, a Territorial Park will be established that will encompass much of the headwaters of the Chandindu River (Photo 3-4). As a result of these agreements and of other regulatory mechanisms such as the Yukon Placer Authorization (Gov. Of Canada, 1993), the Chandindu River enjoys a high standard of habitat protection.

There have been both subsistence fisheries and commercial fishing operations at the mouth of this river for many years (Cox et al., 1997). Percy Henry, a Tr'on dëk Hwech'in elder, remembers a big camp at the mouth of the Chandindu called Twelvemile. He said a "lot of people" lived there year round and there were "thousands of fish".[1] Rowena Flynn, talks about the presence of good big fish there in July. She recounts a method of fishing without a boat where two strings were tied across the stream with one tied to the net. When one string was pulled, the net would go

across the river and when the net was full, the other string brought the net into shore.[2] Mabel Henry's grandmother lived at the Twelvemile with a few others, eating "fish, meat, berries and just some dried fish".[3] Martha Taylors's husband and brother built what might be the first fishwheel on this section of the river at the Twelvemile. Before that, her mother used a big dipper made of willow. She used to catch "lots of fish". Chlora Mason remembers getting 200-300 fish a day in the fish wheel.[4]

Percy DeWolfe and his partner set up by the Chandindu River in 1898 and sold their catch to the Dawson City market.[5] In 1959 Jack Flynn operated a fish wheel on the opposite side of the Yukon from the mouth of the Chandindu. He sold to the N.C. Co. who, in turn, sold to the NWMP. The Old Crow Division wanted two tonnes that year and Flynn was talking about putting in another wheel.[6]

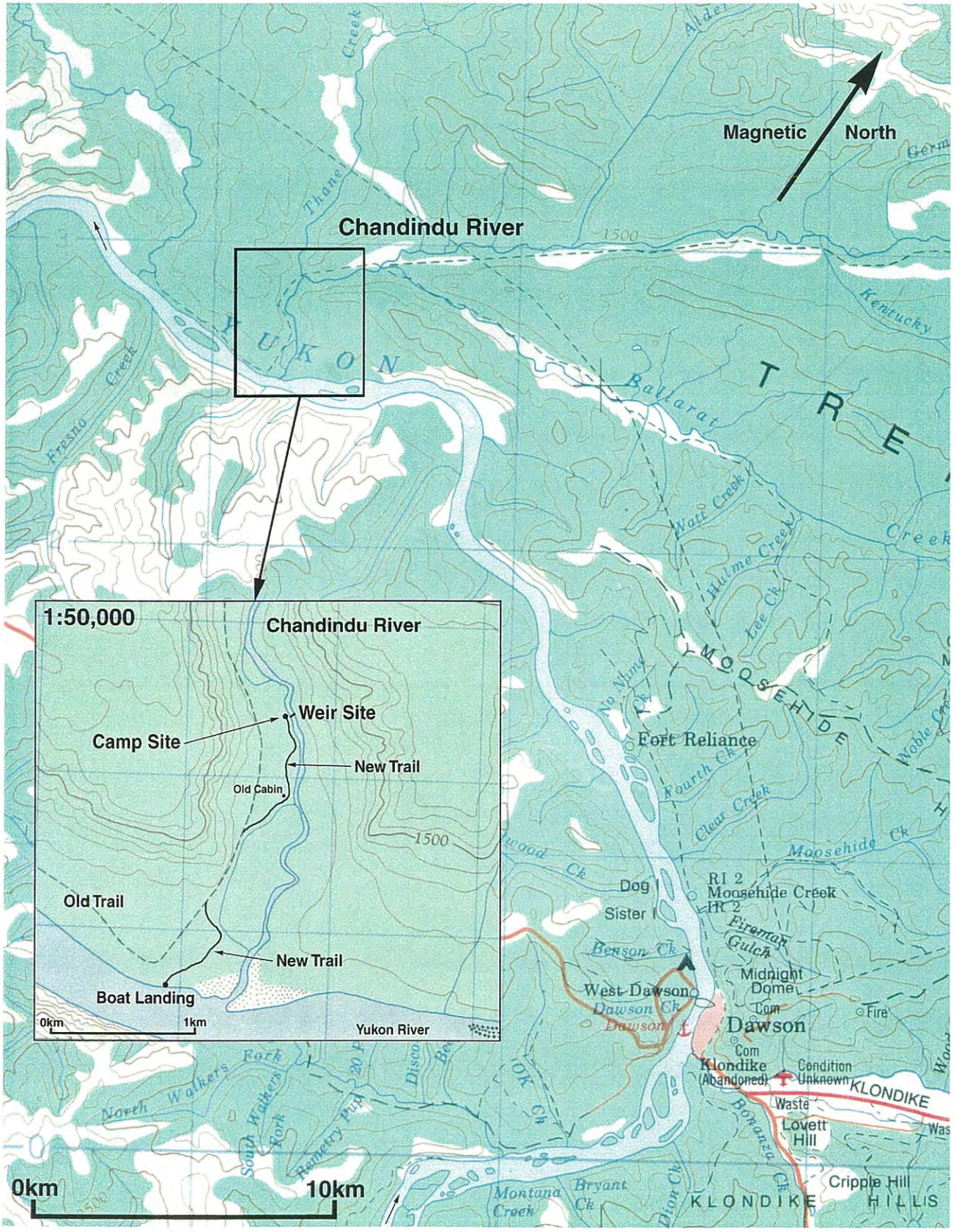
Members of the Takkudh Gwitchin travelled down the Chandindu from the Black City area every year in June or July. In 1922 and 1923, Annie Henry remembers seeing king salmon about 40-50 miles up from the mouth.[7] Firefighters have also seen fish up above Wolverine Canyon.[8]

In 1909 there were dams on the headwaters of the Little Twelvemile and the Tombstone rivers.[9] The Little Twelvemile dam may have stopped fish from ascending the river but the dam no longer exists.[10] The Little Twelve mile dam was reportedly ten feet high but contemporary photos dispute this.

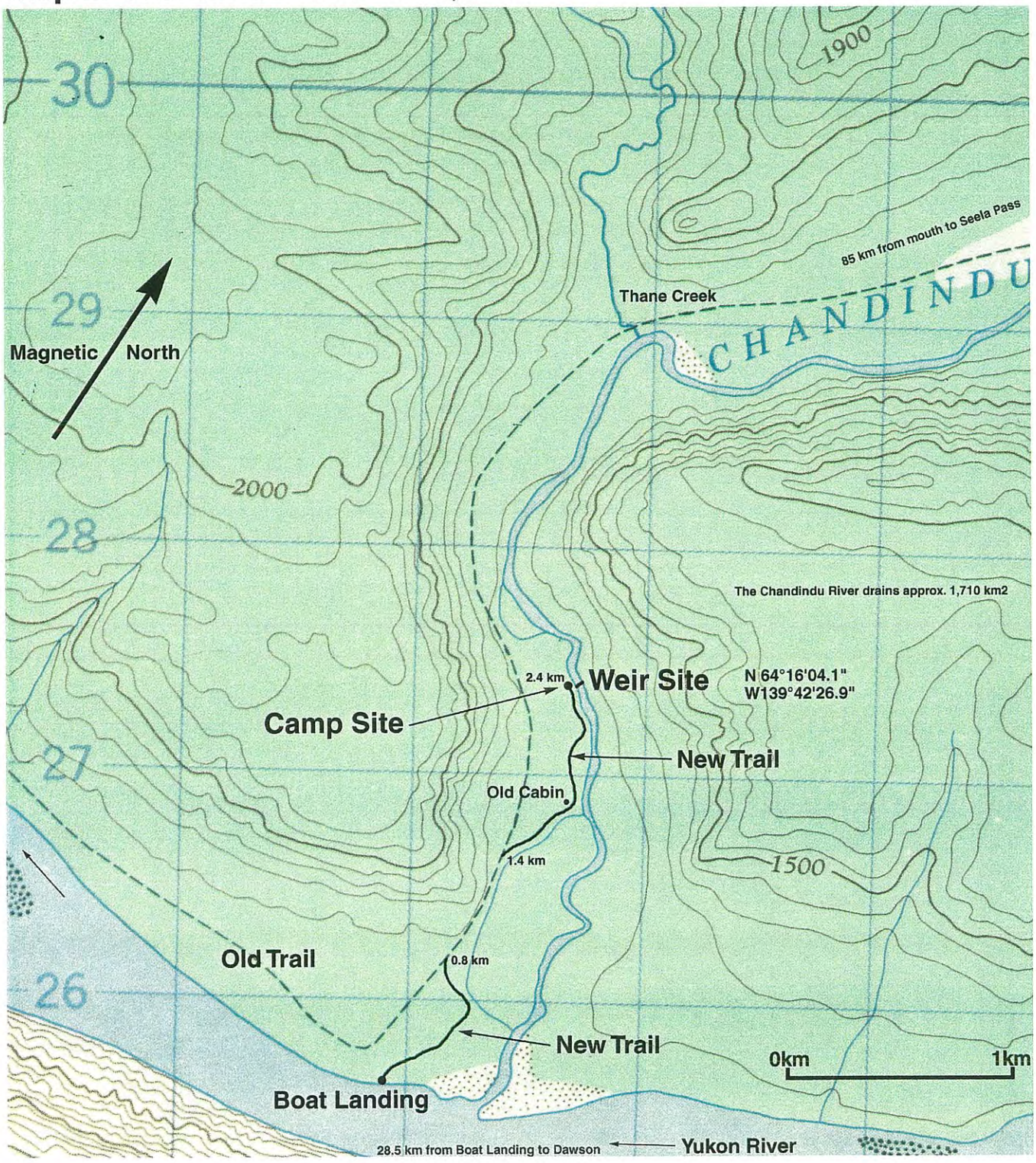
Willy deWolfe reported chum salmon spawning in the Chandindu River.[11] A study in 1977 documented salmon spawning.[12] A number of studies were carried out in 1985. Low numbers of spawning chinook were seen during an aerial survey.[13] A beach seining project in the same year found chinook fry in the mouth of the river.[14] Again that year, spawning at the mouth was reported by Steve Kormendy and a redd was confirmed just below Ballarat Creek.[15] In 1996, Al von Finster from DFO reported on a mud slide at the head of the Twelvemile and concluded that it would probably degrade the habitat for the chinook but would enhance the area for chum.[16]

In a more recent conversation with Steve Kormendy Sr., a local long-time trapper and fisherman, who has spent much time in the area, he recounted seeing many king salmon pooling up below the falls on the Little Twelve Mile River. He said that the salmon would try to ascend the falls and in the process “beat themselves to death”. He also remembered talking with some RCMP who had, at the time, recently travelled to the area, and

Map 1. Yukon River Downstream from Dawson 1:250,000



Map 2. Chandindu River 1:50,000



seen "the river red with the backs of salmon" just below the mouth of the Little Twelve Mile River on the Chandindu.[17]

During 1997, a stream survey was conducted as part of the Yukon Panel's R&E project CRE-05. On July 27, twenty-one chinook were observed as high up as the Tombstone River.[18]

Traditional Knowledge, reports and sightings of salmon have offered differing results but on the whole suggest a reliable, but depleted, population of chinook salmon on the Chandindu River.

1. "Salmon Resources, Chandindu/Twelvemile River" June 14, 1992 Memo to file from Al von Finster, FISS Support Files, DFO.
Percy Henry, Interviewed by Marilyn Jensen, July 31, 1997.

2. Rowena Flynn, Interviewed by Ingrid Johnson, July 31, 1997.

3. *Moosehide (Edha Dadhechan Ket'et): An Oral History*, pp.10-11, 23.

4. Shirley Henderson (Flynn), "Twelve Miles Oral History" (Whitehorse: Aboriginal Languages Services, 1992).

5. *Dawson Weekly News.* Obituaries of Percy de Wolfe. February 22, 1951 and March 1st, 1951.

6. W.K. Elliot, Whitehorse Fishery Officer. Correspondence to the Area Director of Fisheries, Vancouver, B.C. July 27, 1959. RG 23 Box 35 f.716-22-1 Part 4.

7. Annie Henry, interviewed by Marilyn Jensen and Percy Henry, July 31, 1997.

8. Percy and Mabel Henry, Jake Duncan and Sally Robinson. Interview, Sept. 5, 1997.

9. H.J. McKay, Inspector of Fisheries. Correspondence, 1909. RG 23, vol. 280., File 3384, Part 1.

10. Personal communication with Greg Skuce, October 30, 1997.

11. M.S. Elson and L.W. Steigenberger. *Measurements of chinook salmon collected in the Yukon River commercial fishery near Dawson City in 1975 and 1976.* (Northern Natural Resources Services Ltd. Feb. 1977), p.14.

12. Elson and Steigenberger: DFO files, 1977 in P.A. Milligan, W.O. Rublee, D.D.Cornett and R.A.C. Johnson. "The Distribution and Abundance of Chinook Salmon (Oncorhynchus tshawytscha) in the Upper Yukon River Basin as Determined by a Radio-Tagging and Spaghetti Tagging Program: 1982-1983", Department of Fisheries and Oceans, Canadian Technical Report of Fisheries and Aquatic Sciences. No. 1352, (1985), p.78

13. "Landslide: Little Twelve Mile River", April 3, 1996. Memo from Al von Finster, FISS Support Files, DFO.

14. "Beach Seining at Mouth of Chandindu River", July 2, 1985. FISS Support Files, DFO.

15. "Chandindu River", August 22, 1985, Memo to Tim Young from Al von Finster, DFO.

16. "Landslide: Little Twelve Mile River", April 3, 1996. Memo from Al von Finster, FISS Support Files, DFO.

17. Personal communication with J. Duncan in the summer of 1998.

18. Duncan, Jake November 12, 1997 *Field Studies On Candidate Streams/Stream Surveys. A Component of Project CRE-05-97*

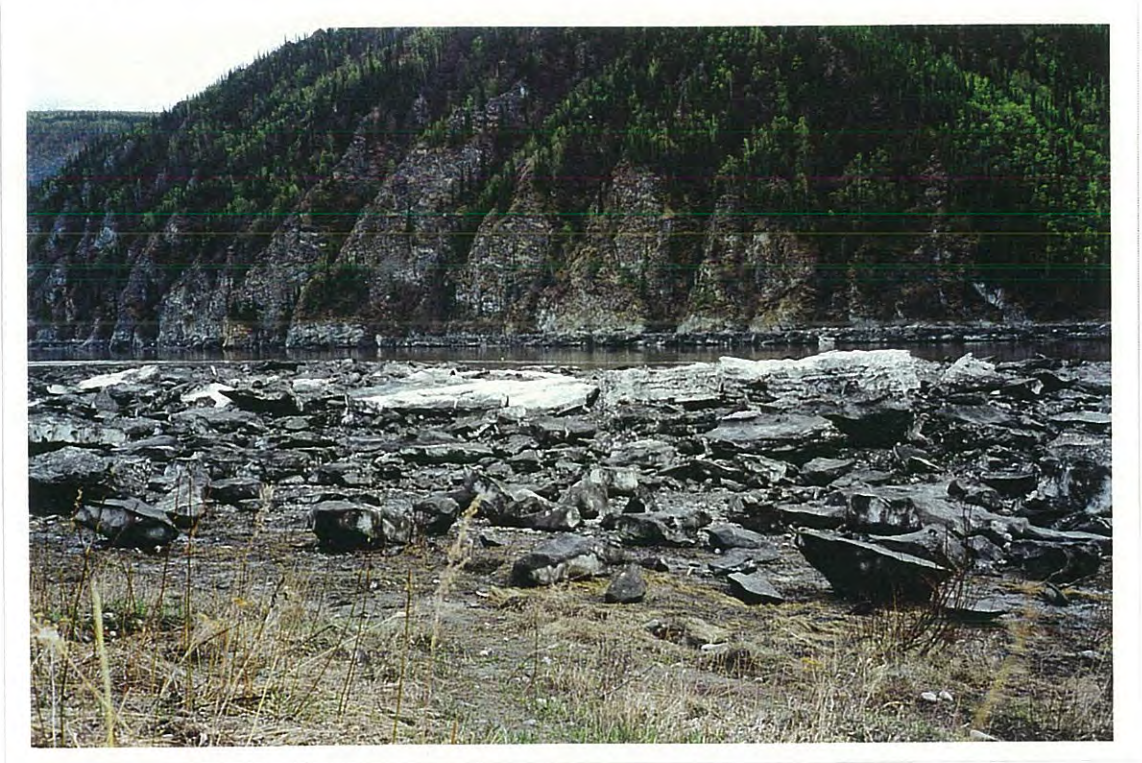
Photo 5

Above: The weir on the Chandindu River.

Photo 6

Above: Looking downstream towards the mouth of the Chandindu River from weir.

Photo 7



Above: Ice piled up at the mouth of the Chandindu after break up, May 17th.

Photo 8

Above: Standing on top of the ice at the mouth of the Chandindu.

1. Preliminary Work

On March 18th a reconnaissance flight was made over the area to better determine the weir site. Photos were taken of the area and later used in information packages and permit applications (Photos 2-4). A site was identified and plans were made to visit the area to take necessary measurements and determine logistics.

A trip to the weir site was made on March 21st-22nd by snowmachine and the site was confirmed (Photo 1). River measurements were made and trails to the site from the Yukon were blazed. A later trip, after break-up on May 17th, determined that part of the original trail was unusable without major trail upgrading (Photos 7-8). New trails were blazed on May 24th (Photo 11) and a determination was made that trail work would be needed early in the project to facilitate the freighting of supplies and to handle the traffic of shift changes once the high water conditions on the Chandindu River subsided, making jet-boat accessability to the site difficult. On this trip a temperature datalogger was placed in the Chandindu River. The datalogger was set to record temperature profiles throughout the summer (Table 1). Water in the Chandindu River was relatively low compared to previous years and it was thought that freighting to the weir site would be problematic without jet-boat accessability.

Early in May, weir materials were ordered locally and prefabrication of the weir began as the supplies became available. Jigs were made for the weir fabrication and tools were rounded up. A wall tent camp was prefabricated in town and packed up for freighting. Floors and framing of the camp were designed and manufactured in sections to be packed easily by a fourwheeler. An outhouse was prefabricated and other camp gear, such as an SBX radio, a water filter, generator, and pump were rounded up. A large funnel was made from lumber scraps, left over from camp construction, to aid in the filling of sandbags.

Interviews were held at the Tr'on dëk Hwech'in employment offices in the evening of May 28th. Six applicants who responded to the job postings were interviewed and the hiring committee selected three appropriate workers to fill the weir attendant positions.

2. Project Permitting and Authorization

Upon confirmation of funding for the project, necessary permits identified in the technical review were applied for at the Navigable Waters Protection Division, Canadian Coast Guard and at DIAND.[1]

Early in April, first correspondence with the Navigable Waters Protection Division determined that only minor attention be paid to the application as it was, at that time, considered only a "formality". A Land Use Permit for the camp and the trail upgrades was applied for at DIAND early in April as well.

Advertisements were placed in the Canada Gazette, the Yukon News and the Whitehorse Star as a requirement under the Navigable Waters Protection Act Sec.5(1) and proof of advertisement forms were filled out and sent back to the department. An information package was prepared and deposited in the DIAND office in Dawson for public review for the required 30 day period. Upon receipt of an additional information package, it was re-determined by the Department that an integrated environmental assessment would be necessary to appropriately permit the operation, under the CEAA (see Appendix for permits, ads, correspondence and information packages).[2]

Later, as the administrative process unfolded, it was determined that a Water Use Application was needed for the operation, and a Type B application for a "miscellaneous undertaking" was made to the Yukon Water Board mid-May. At this time it was also determined that the application would not make the June meeting of the Water Board as the application requires that an additional advertisement be made and a 10 day public review period lapse. This requirement, combined with the Board's administrative process, was calculated to overshoot the date of the June meeting of the Water Board. We were assured at this time that the first time the Board could consider the project's application would be in the July meeting, held on the second Tuesday in each month, or July 14th.

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[1] Department of Indian and Northern Affairs

[2] Canadian Environmental Assessment Act

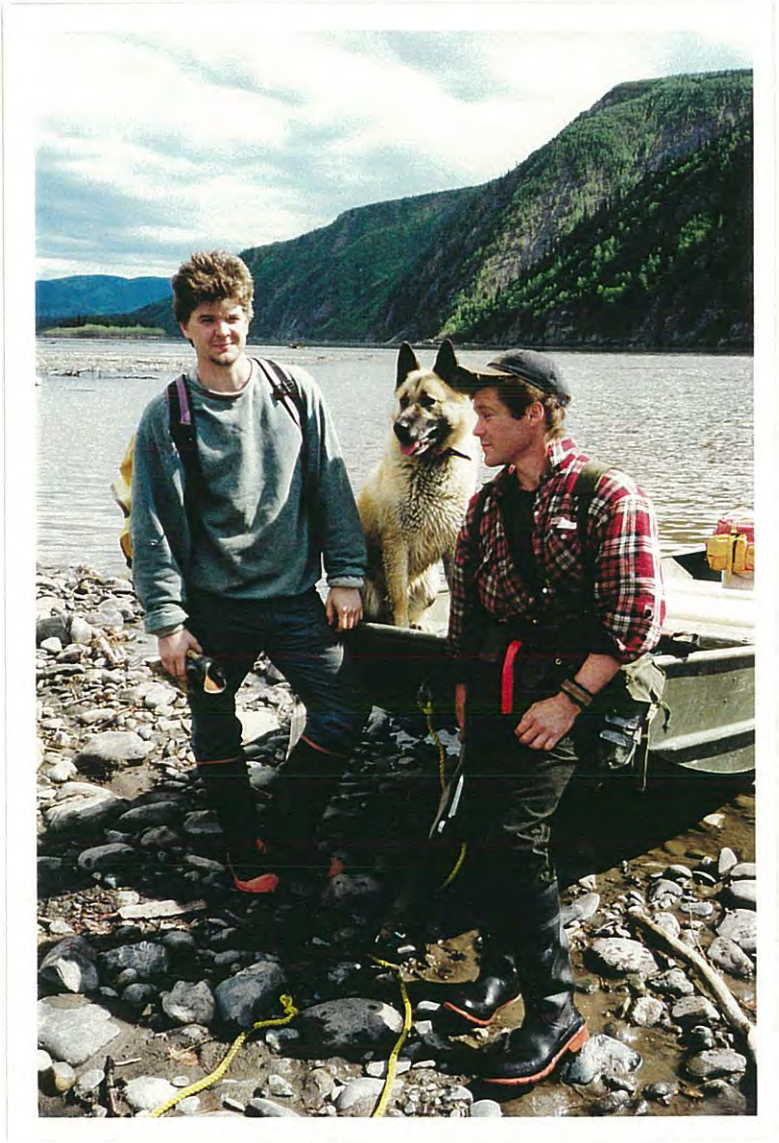
Photo 9

Above: Weir site on the Chandindu March 22nd.

Photo 10

Above: Weir site on the Chandindu May 17th.

Photo 11



Above: Trail Blazing crew getting ready to cut new trail into the weir site, May 24th.

Photo 12

Above: Trail clearing on the Chandindu for ATV.

Photo 13

Above: One of 6 bridges constructed to allow passage of ATV.

Photo 14

Above: Clearing out old mining/exploration trail.

Photo 15

Above: One section of the 2.4km trail from the Yukon to the weir site.

Packages and information regarding the project were, never-the-less, sent to the Water Board. The project was re-scheduled as a contingency plan to accommodate the fact that permits would not be available in time to operate the weir during the 1998 season. Scheduling included all preliminary work to be done in the 1998 season and all materials to be brought to the site and assembled. Trails were to be cut and the project would be prepared to enable a "turn-key" operation in the 1999 season.

Throughout the integrated CEA process, various comments, questions and requests were addressed. As a requirement of the Yukon Territory Water Board, a Fuel Spill Contingency Plan (see Appendix) was created and submitted to the Board on June 4th. Additional project details were clarified with the YTWB Environmental Assessment Officer, on a number of occasions over the telephone and confirmed via fax to better outline the Water Use Licence application.

As a requirement of the application to the Canadian Coast Guard to permit the project's operations, the date-stamped information package, posted in the Land Use Office in Dawson for the required 30 day public review period, was returned to the Coast Guard Navigable Waters Protection Division. A "Proof Of Advertising" form was filled out, signed and stamped by a Notary Public, and returned to them with the newspaper ads attached.

On June 10th we received confirmation that the Yukon Territory Water Board approved our application and a Type B licence was issued (MS98 100). On June 15th in a conversation with Jim Naylor of the Coast Guard Navigable Waters Protection Division, we were given the "go-ahead" to place the weir in the Chandindu River. At the time of the discussion, Mr. Naylor had not yet received the Proof Of Advertising Form, but assured us that the application was approved and that the resulting paperwork and operating conditions would be sent when available. We received the official confirmation on July 31st.

3. Weir Construction and Freighting of Materials

The construction of the weir started early in May. All materials were ordered and jigs were made to fabricate the many pieces of the weir. Mel Besharah of the YRCFA volunteered much of his time to manufacture the weir and the job required many supplies that were not budgeted for. The weir has been made to DFO standards and detailed diagrams of the weir are available (see Technical Drawings). In total eighteen steel tripods and stringer sections were made to fit 1,080 pieces of EMT conduit and a live pen, four feet deep by eight feet long, with gates was constructed. A sampling tote with a measurement stick and a fish cradle was constructed. The many hours of work in weir construction, tools, and shop time was donated to the project by the proponents.

On May 28th two loads were freighted to the mouth of the Chandindu River in large river boats (Photo 16). Another large boat-load was freighted to the mouth on May 29th. On the 29th and 30th of May the materials were freighted the remainder of the distance to the weir site in twenty-five considerably smaller loads by jet-boat. In total well over 10,000lbs of weir materials and camp supplies were freighted to the weir site (Photo 17).

4. Upgrades to Trails

On May 27th a two person crew was brought to the area with supplies and trail work commenced. The two were employed for five days clearing bush and building log bridges for the ATV. In total six ATV bridges were constructed and a 2.4km by four feet wide trail was brushed out. All brush was either stacked or used to fill low spots in the trail (Photos 12-16).

Later, during a period before the weir was completely installed and due to flooding on the river, the Weir Attendants were used to clear some of the rough spots in the trail and to reconstruct a bridge that was washed out during the flooding.

On July 22nd the YTG Renewable Resources' Y2C2 crew was brought to the area.[3] The volunteer crew consisting of six youth worked for three days, further clearing and cleaning up the trail.

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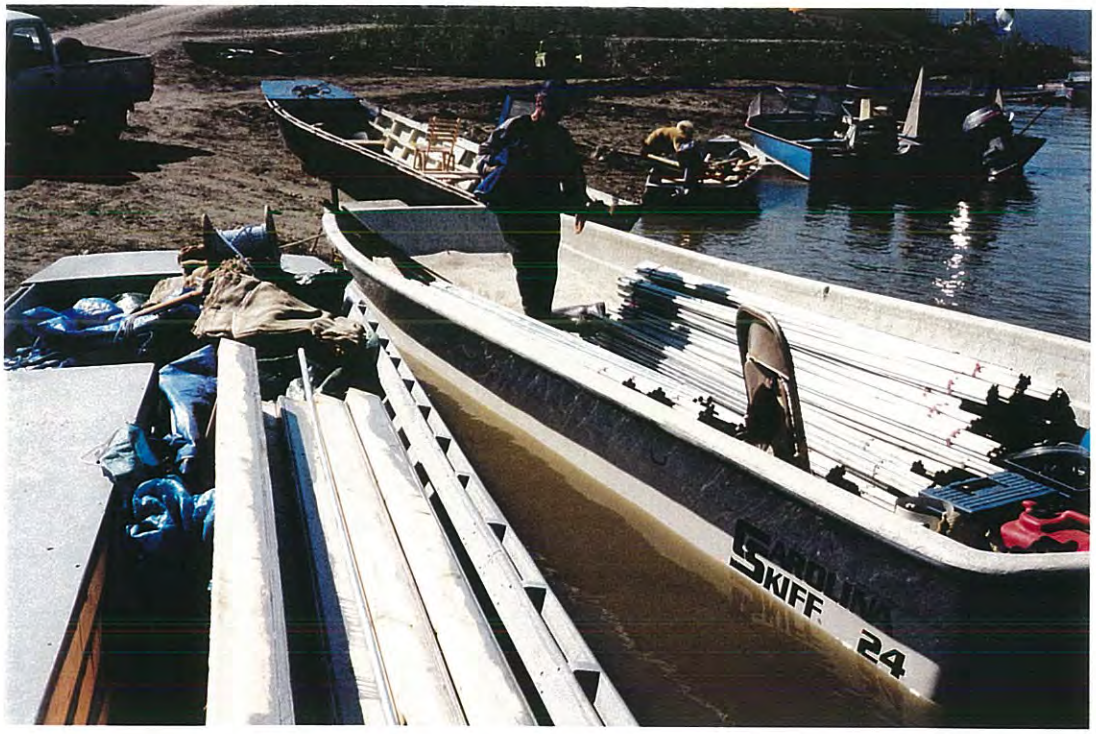
[3] Yukon Youth Conservation Crew

Photo 16



Above: Freighting weir materials from Dawson to the Chandindu River.

Photo 17

Above: Freighting 8,725lbs of weir materials up the Chandindu River to the weir site.

Photo 18

Above: Assembling the tripods and live pen at the weir site.

Photo 19

Above: Assembling weir and camp on the Chandindu River.

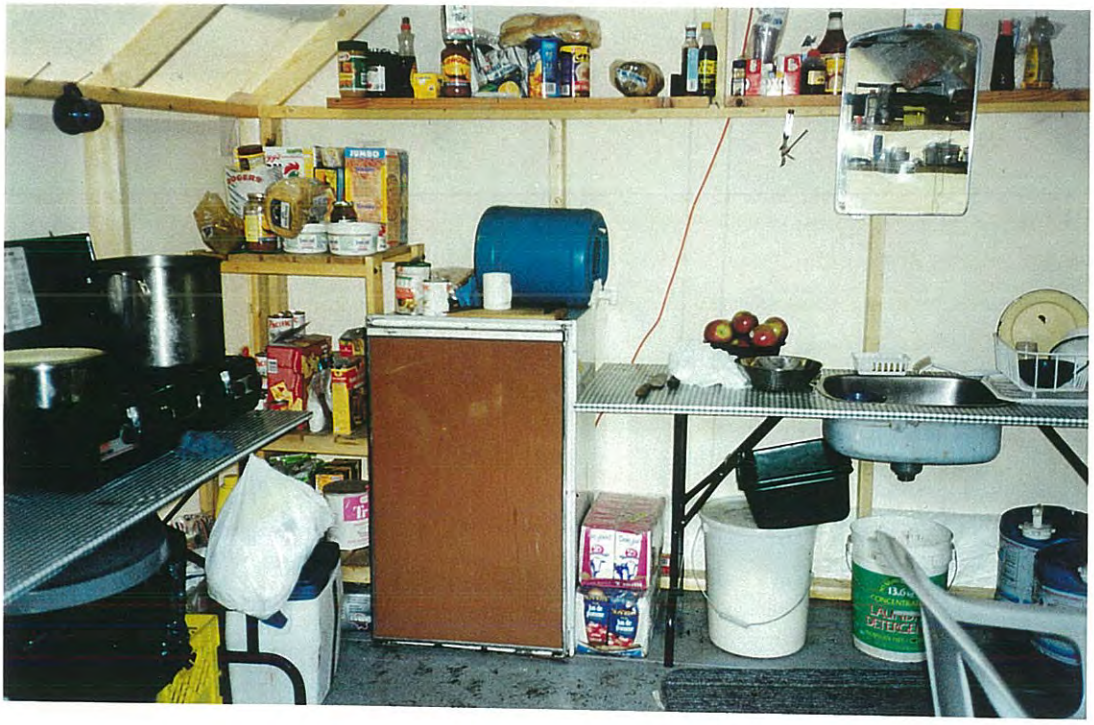
Photo 20

Above: Setting up wall tents at the weir site.

Photo 21

Above: Camp on the Chandindu River at the weir site.

Photo 22



Above: Inside the cook shack.

Photo 23

Above: Looking outside the cook shack at weir.

Photo 24

Above: Clearing limbs from trees near wall tents for fire safety.

Photo 25

Above: Installing live pen during high water.

Photo 26

Above: Flooding on the Chandindu River after extreme rainfall.

5. Camp Set Up and Weir Installation

Once all materials were freighted to the weir site, the wall tent frames were set up and holes were dug for a privy and for grey water. The area immediately around camp was then cleared of all low brush for bear safety purposes and an electric fence was set up around the perimeter.[4] Trees, close to the wall tents, were limbed to avoid problems with sparks from the wood stoves and spark arrestors were placed in the stove pipes (Photo 24). An SBX radio antenna was erected 50ft high in the trees for better reception/transmission in the event of an emergency. Fire wood was cut and a water filter, to filter out giardia from the river water, was set up.

Weir tripods and the live pen were assembled on the riverbank and preparations for making sandbags were made (Photos 18-23). A small gravel pit left from old mining exploration just upriver from the weir site was identified as being the only place where gravel was available. The crew then filled 400 sandbags and freighted them to the landing at the weir site with the jet-boat.

Water levels on the Chandindu were consistently very high due to late season heavy rainfalls. A cable was set up across the river with a pulley system to allow workers to use the boat as a work platform. The live pen was then installed with the aid of a chainsaw winch as it was assembled in one piece and was too heavy and awkward for workers to "man-handle". The original weir installation plan, a typical 45° from 90 across the river layout, was changed at the last minute. It was found that the tripods would not stay stable, as the brackets that hold the stringers and connect the tripods did not allow full movement of the tripods to get them placed parallel to the current. Brackets that allow greater movement should be developed. A new layout was worked out and the tripods were placed in a 15° from 90, or a more obtuse angle to the current.

Water levels on the Chandindu then exceeded the banks of the river. Many rainfall warnings were posted by Environment Canada two weeks prior to the rainfall event and 56mm of precipitation was recorded in a

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[4] Donated to the project by YTG Renewable Resources.

24 hour period in the headwater area.[5] Tripods were washed down the river and full trees, carried down the river by the flood, pounded the live pen (Photos 25-30).

To put this rainfall event into perspective, annual precipitation is generally low in the Yukon River Basin. Yearly levels from less than 375mm in the south west Yukon to over 750mm in the east-central portions of the basin are normal (Milligan et al., 1986). Average total monthly precipitation for the month of June in years 1995 through 1997, recorded at Dawson "A" YDA Climatological Station are 45.3mm, in contrast to the 56mm received in the 24 hour period.[6] As of the 26th of June the station had already received a total of 53.4mm of precipitation. June was a wet month and river levels in the area rose accordingly. Wash-outs on the Dempster highway were unprecedented. A 200km section of the highway was in need of repair after the heavy rains. The highway was closed to all traffic for over 2 weeks, non-existent in many places, and 12 to 14 foot culverts were running "full blast". Long-time Highways employees could not remember ever seeing a flood of this magnitude.[7] The airstrip at Chapman lake was completely covered in water.[8]

When the river levels subsided the tripods were again placed in the river and stringers attached. Fourteen tripods were needed to span the river with the new layout (Photos 31-36). The EMT Conduit was then placed through the stringers and stucco wire fencing was placed along the river-bottom edge with sandbags. The weir was checked for any "holes" that could allow salmon to migrate through it with the "Aquascope™", a glass bottomed, boat shaped box built to enable weir attendants to check for "fish-proofing". Although off schedule due to the high water, the weir was operational and fish proof on July 3rd.

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[5] At the YTG Highways Maintenance Camp located at the Oglivie River on the Dempster Highway.

[6] Dawson "A" YDA Climatological Station is located at the Dawson Airport.

[7] Personal communication with Peter Kormendy, YTG Highways Foreman.

[8] Personal communication with Helen Keedwell, Flight Service Station, Dawson Airport.

Photo 27

Above: Installing live pen during high water.

Photo 28

Above: The Chandindu River overflowing its banks after extreme rainfall.

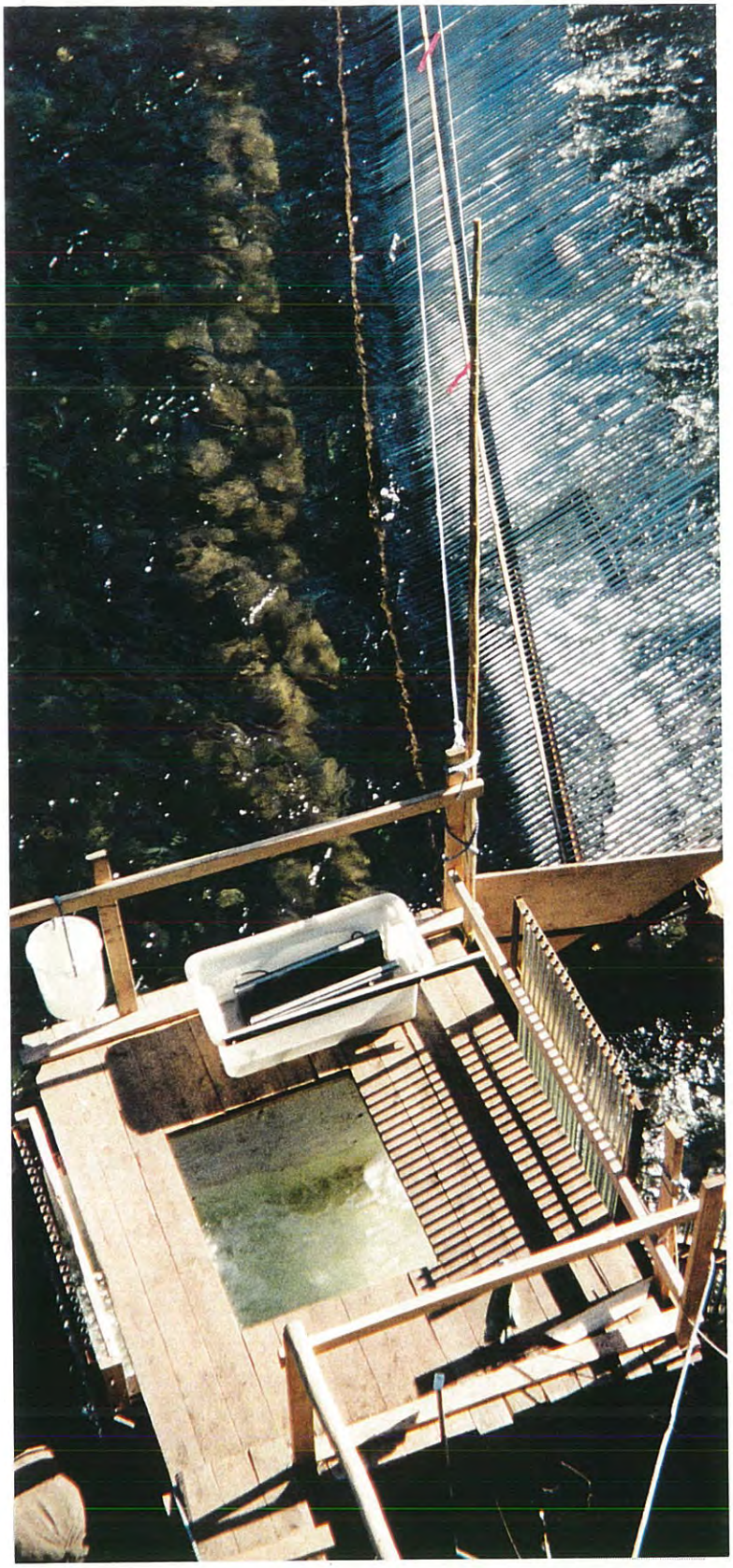
Photo 29

Above: Installing the tripods and stringers during high water.

Photo 30

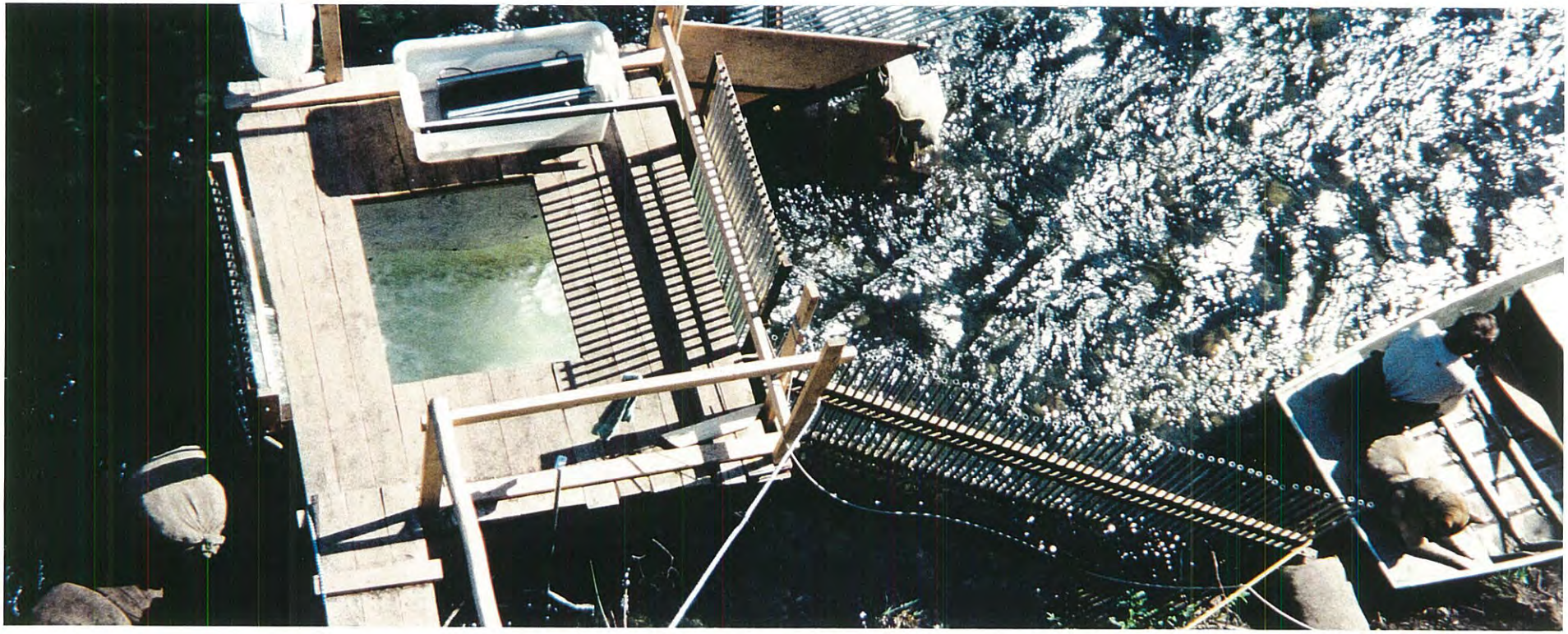
Above: "Pinning" the tripods with conduit during installation.

Photo 31



Above: The live pen and weir as seen from counting tower.

Photo 32



Above: The live pen and weir as seen from counting tower.

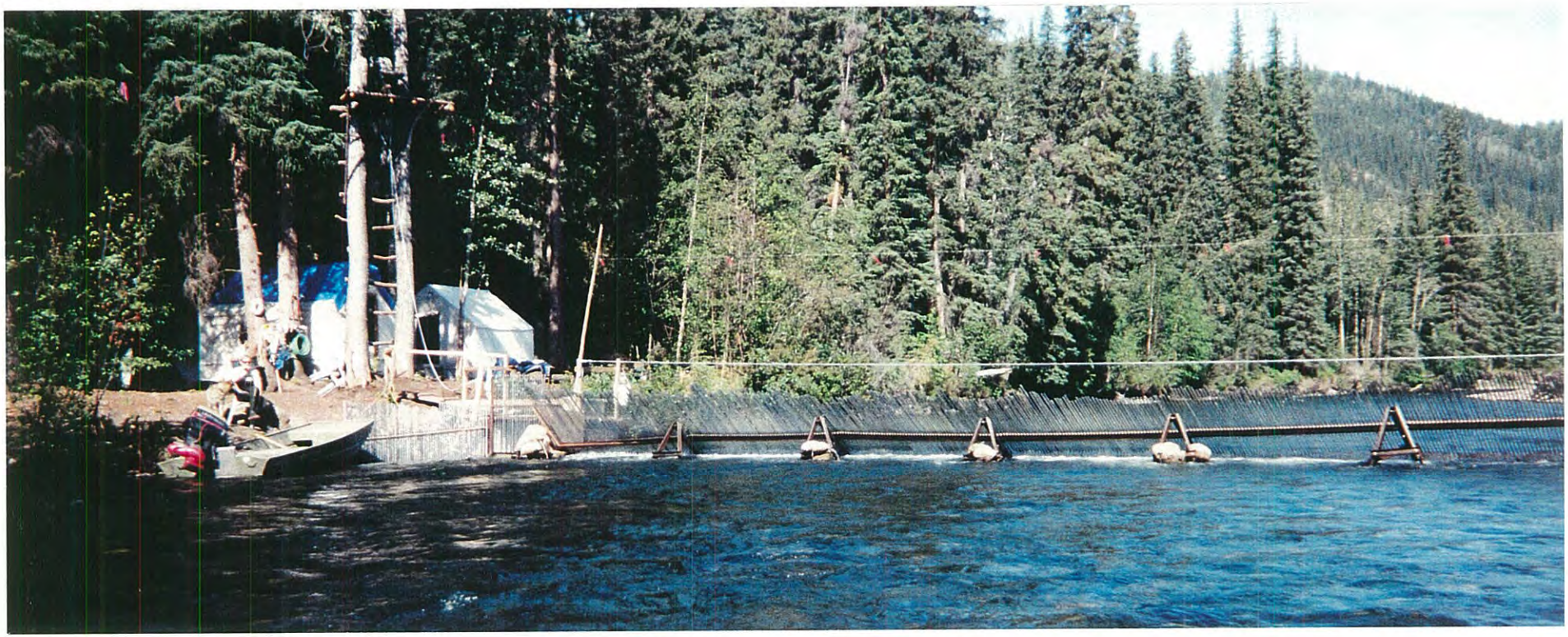
Photo 33

Above: The weir with lights at night.

Photo 34

Above: The Y2C2 volunteer crew after working on trail.

Photo 35



Above: The downstream side of weir showing live pen placement, camp location and counting tower.

6. Weir Operations

The weir was operational from July 3rd to August 25th. Although initially the weir was monitored 24 hours per day, it was later determined that the weir be "open" from 8am-12am, or 16 hours per day. During this time Weir Attendants were required to work twelve hour shifts that overlapped, (ie: Worker 1, 8am-8pm; Worker 2, 12pm-12am) in order to maximize the time when both attendants would be available to sample fish. Workers were required to assist in fish sampling when off duty and many times were awakened in the late or early hours to sample salmon. Weir Attendants worked a twelve days on and two days off schedule for the entire period of operations.

Weir Attendants kept a regular maintenance schedule and as a result kept the weir in top operating condition. Regular maintenance was conducted on two hour intervals in which workers cleaned accumulated debris from the weir and reported water temperature and water level information. The weir was checked for fish-tightness, scouring and structural integrity twice daily. In between regular maintenance checks attendants would observe the river and salmon from an observation tower, built to address the "shyness" of fish observed in the clear water.

Sampling procedures were established that took into account the fact that all fish were to be sampled. Great care and respect was demonstrated when sampling fish (Photos 37-44). Fish entering the live box were captured by triggering the bottom gate, thus trapping them in the live pen. A rope to the trigger was set up to allow attendants to trigger the gate from the observation tower. A board was then placed over the front gate to restrict current and fish were dipnetted from the live box into the sample tote. Time of capture, fish length, sex, general condition, were all recorded, and scale samples and DNA samples were taken from the fish. Fish were then released back into the live pen and the front gate opened. Fish were left in the live pen to continue their migration. Any fish that stayed too long in the relatively swift current of the live pen were removed and placed into a fish tube. The tubes were then placed in slack water and the fish would leave the tubes when ready to continue their migration. In addition, a limited fry sampling study was conducted weekly at the weir site (Table 4).

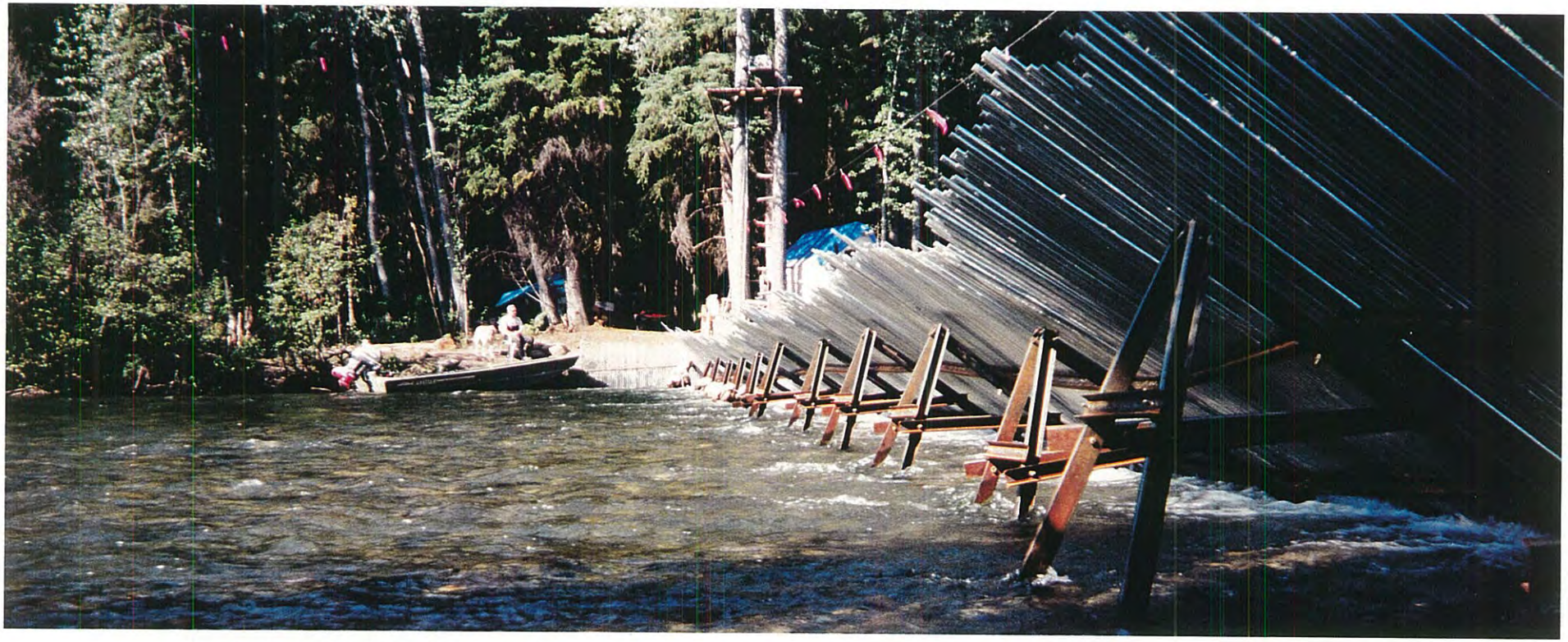
Camp duties were shared among workers. The camp was kept very clean to avoid problems with bears and ran smoothly. Garbage was packed out at every convenience and camp recyclables were washed and removed regularly, again, to avoid bear encounters.

All data collected from the weir has been forwarded to DFO for consideration. All samples, from Scale and DNA sampling, have been forwarded to DFO. Results from these samples are not yet available.

7. Take Down and Storage

The weir was disassembled on August 26th and stored neatly on the river bank above the high water mark. Sandbags and stucco wire were also removed from the river and stored above the high water mark. The privy pit and grey water ditch were backfilled. The entire wall tent camp was disassembled, and, along with any remaining garbage, flagging tape, etc., was removed from the site. It was then freighted to back up the Yukon River and stored in Dawson. The temperature datalogger was downloaded and placed back into the river to record winter temperature profiles.

Photo 36



Above: A view of the weir, camp, live pen, counting tower and jet boat from the opposite side of the Chandindu River.

Photo 37

Above: Dipnetting chinook salmon from live pen for sampling.

Photo 38

Above: Live sampling chinook salmon.

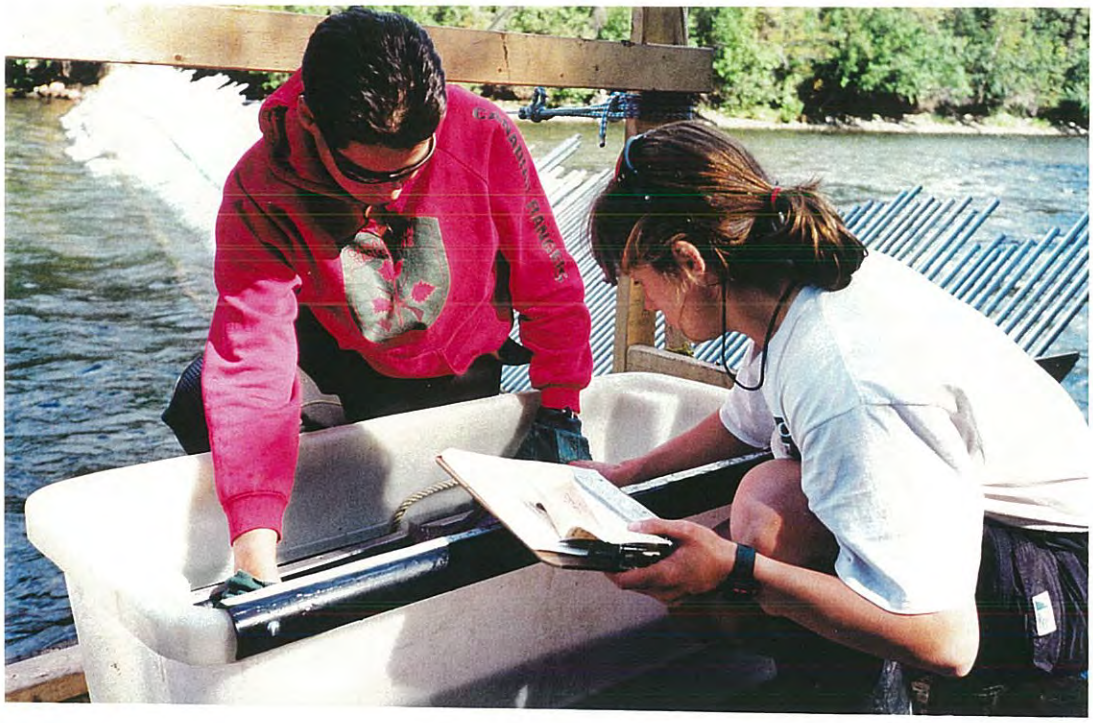
Photo 39

Above: Chinook salmon in fish cradle during sampling.

Photo 40

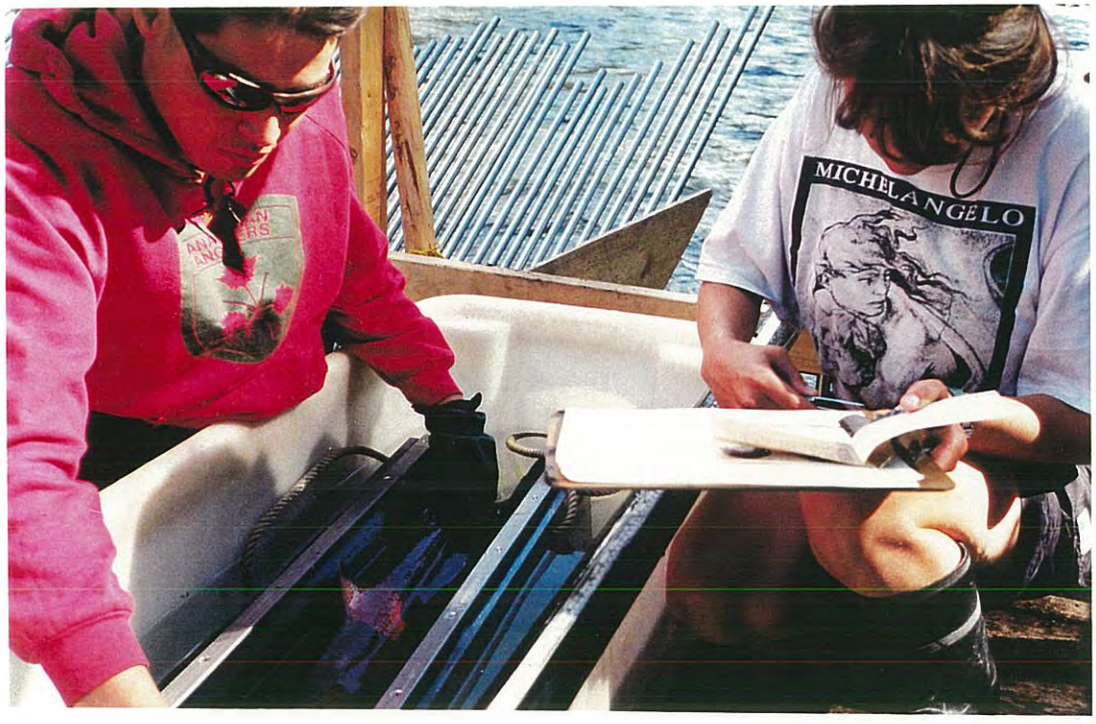
Above: Taking DNA samples from chinook salmon.

Photo 41



Above: Live sampling chinook salmon from fish tote.

Photo 42



Above: Taking scale samples from chinook salmon.

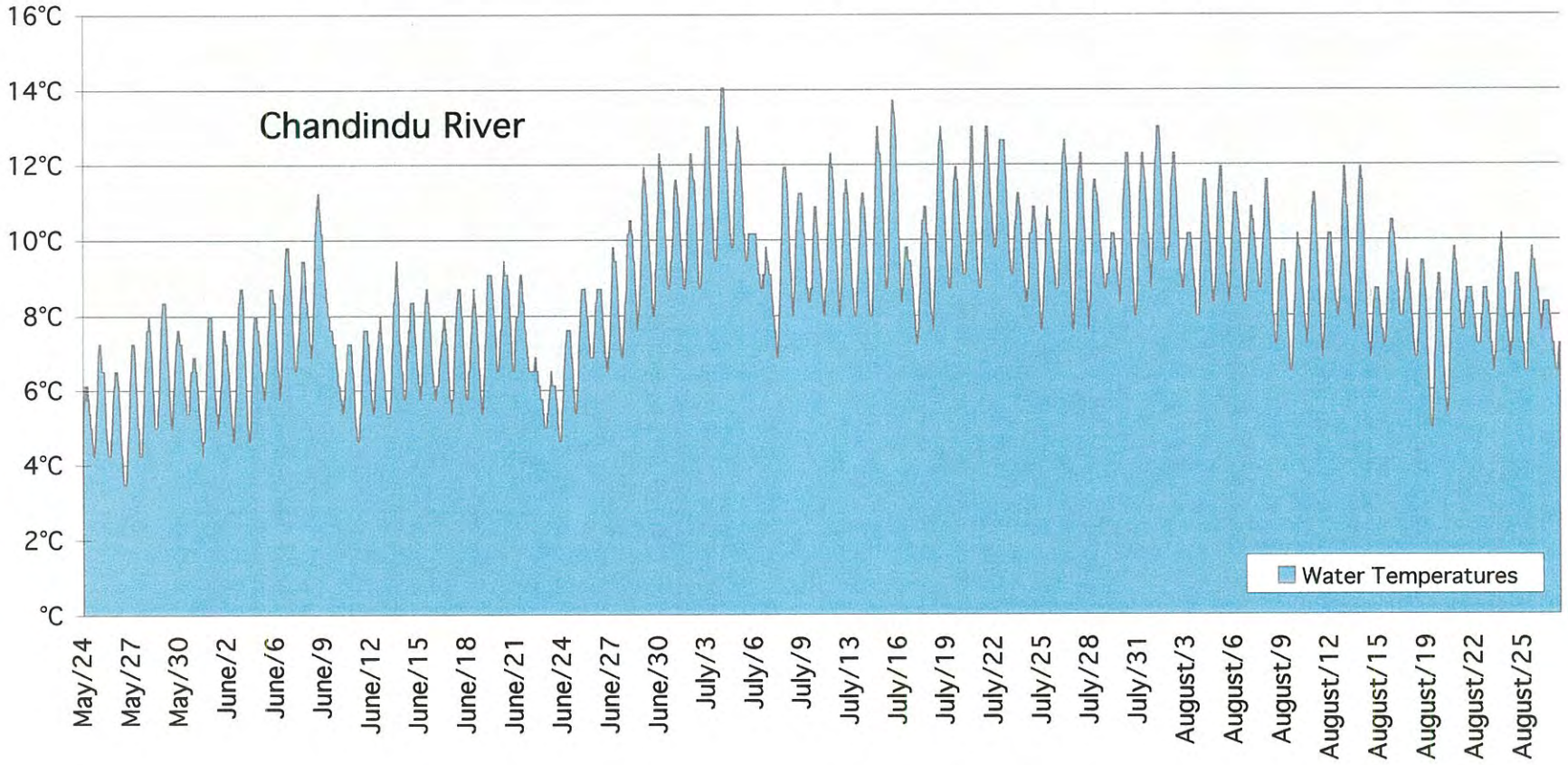
Photo 43

Above: Dipnetting chum salmon from live pen.

Photo 44

Above: Live sampling chum salmon.

Table 1 - Temperature Profiles



Chandindu River 1998

In 1998, the King Salmon run was far below other years in terms of population size.[1] Preliminary data suggests that the 1998 chinook run was 53% lower than the recent cycle average and even lower for chum populations. Low salmon runs are not completely uncommon in the Canadian portion of the Yukon River (Cox et al., 1997). In years such as this, the smaller salmon populations challenge our ability to estimate run sizes. During the 1998 salmon season Canadian fisheries managers were forced to conduct a test fishery to make their chinook population estimate after a very limited commercial opening indicated an extremely low run. Native Food Fishers and Commercial Fishers teamed up to gather the tag recovery data necessary for DFO to make a population estimate, as data normally collected from the Commercial Fishery was not available due to the fact that not enough fish were present to conduct a commercial fishery.

Although an interesting "Catch-22" scenario, the low run size compromised our ability to get a clear picture of how many salmon usually migrate to the Chandindu River. Nineteen ninety-eight was, for both chinook and chum salmon populations, a very poor year. Data gathered in this weir study has been considered in light of the very low returning populations of salmon.

From July 3rd to August 25th, a total of 132 chinook salmon (17 females, 115 males) passed through the weir on the Chandindu River. The first chinook was sampled on July 3rd and the last chinook salmon was sampled on August 25th (Table 2). Twenty spaghetti tags from DFO's mark recapture program were recovered from the chinook salmon representing a 15% tag ratio. The weir was installed off-schedule due to problems associated with high water and a small, but measurable amount of fish migrated above the weir prior to it being fish-proof. Using tag ratios it is estimated that roughly 15 additional chinook salmon migrated above the weir in addition to those sampled, however, brood stock availability calculations have been based on only the fish sampled.

[1] "King Salmon" is another name used to identify Chinook Salmon.

It took an average of 3 days for fish tagged at the DFO fish wheels to migrate through the Chandindu River weir, a distance of 99.5km or roughly 33km per day. This is not far off chinook migration rates found in other studies (Milligan et al., 1985) suggesting that migrating fish were not impeded by the weir. Also, early in operations it was noticed that human activity on the weir had a slightly negative effect on migrating salmon. A system to allow weir captures to be done remotely, by means of a triggered gate and counting tower, was developed and greatly reduced activity on the weir.

The high tag ratio of chinook sampled on the Chandindu may illuminate their importance in the system, but may also suggest that they get tagged at a higher rate, in comparison to other stocks, as they might be under the influence of bank orientation behaviour when passing the mark re-capture fishwheel sites.[2]

Under HEB protocols, only 30% of a stock can be used for brood stock.[3] When applying these protocols to the female component of the stock measured this year, only 5 females could have been available for brood stock. If these females had an estimated fecundity rate of between 6,000-8,000 eggs per fish then between 30,600-40,800 eggs could have been collected. If this years salmon run was 53% lower than the recent cycle average and assuming that the sex ratio was closer to an average of 39% female, then in a more average year 94 females could have be present and 28 available for brood stock.[4] If those returning fish had an estimated fecundity rate of between 6,000-8,000 eggs per fish, then between 169,540-226,053 eggs could have been collected. If those fish were raised in controlled circumstances, they would enjoy higher survival rates upwards of 80%, in contrast to the natural 30% egg to fry survival rate. If these fry were released, and after natural fry to adult survival rates and

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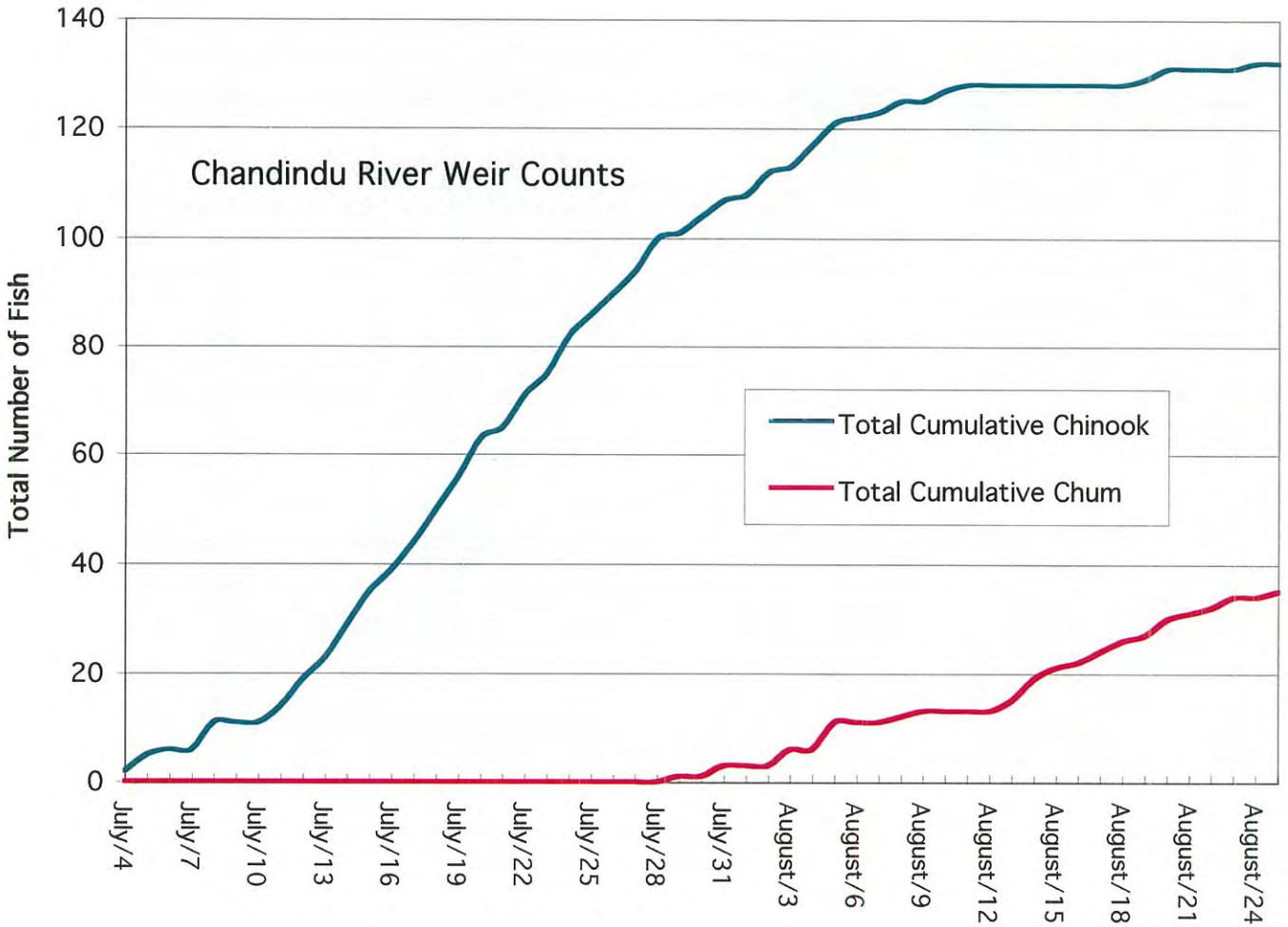
[2] Personal Communication with Ian Boyce at DFO.

[3] Habitat and Enhancement Branch, DFO.

[4] The female composition is based on the sex ratios found at the Fish Ladder in Whitehorse over the recent cycle average 1992-97.

Table 2 - Cumulative Timing



Chandindu River 1998

Table 3 - Brood Stock Availability and Potential Returns

Potential chinook salmon weir returns, broodstock availability, fry production and adult returns for the Chandindu River

Table using 1998 sex ratios, and weir counts

		POTENTIAL BROODSTOCK AT 30% HEB LIMIT	POTENTIAL EGGS @ 6000/female	POTENTIAL EGGS @ 8000/female	POTENTIAL FRY after 80% egg/fry	POTENTIAL FRY after 80% egg/fry	POTENTIAL ADULTS after 2% fry to adult survival		WEIR RETURNS after 70% exploitation rate	
			A	B	A	B	A	B	A	B
	1998 Weir Returns									
Males	111									
Females	17	5	30,600	40,800	24,480	32,640	490	653	147	196
Total	128									

Table using 39% AVG female ratio over recent cycle average, and assuming run is 53% below recent cycle average 1992-97

		POTENTIAL BROODSTOCK AT 30% HEB LIMIT	POTENTIAL EGGS @ 6000/female	POTENTIAL EGGS @ 8000/female	POTENTIAL FRY after 80% egg/fry	POTENTIAL FRY after 80% egg/fry	POTENTIAL ADULTS after 2% fry to adult survival		WEIR RETURNS after 70% exploitation rate	
			A	B	A	B	A	B	A	B
1998 if 39% were female	Weir Returns if 1998 run is 53% below Recent Cycle AVG (92-97)									
Males 78	147									
Females 50	94	28	169,540	226,053	135,632	180,842	2,713	3,617	814	1,085
Total 128	242									

exploitation rates were taken into account, a total (from the original 28 female chinook) of between 814 and 1,085 fish could feasibly return to the Chandindu River (Table 3). Natural production of the remaining 66 females not taken for brood stock would be in addition to this.

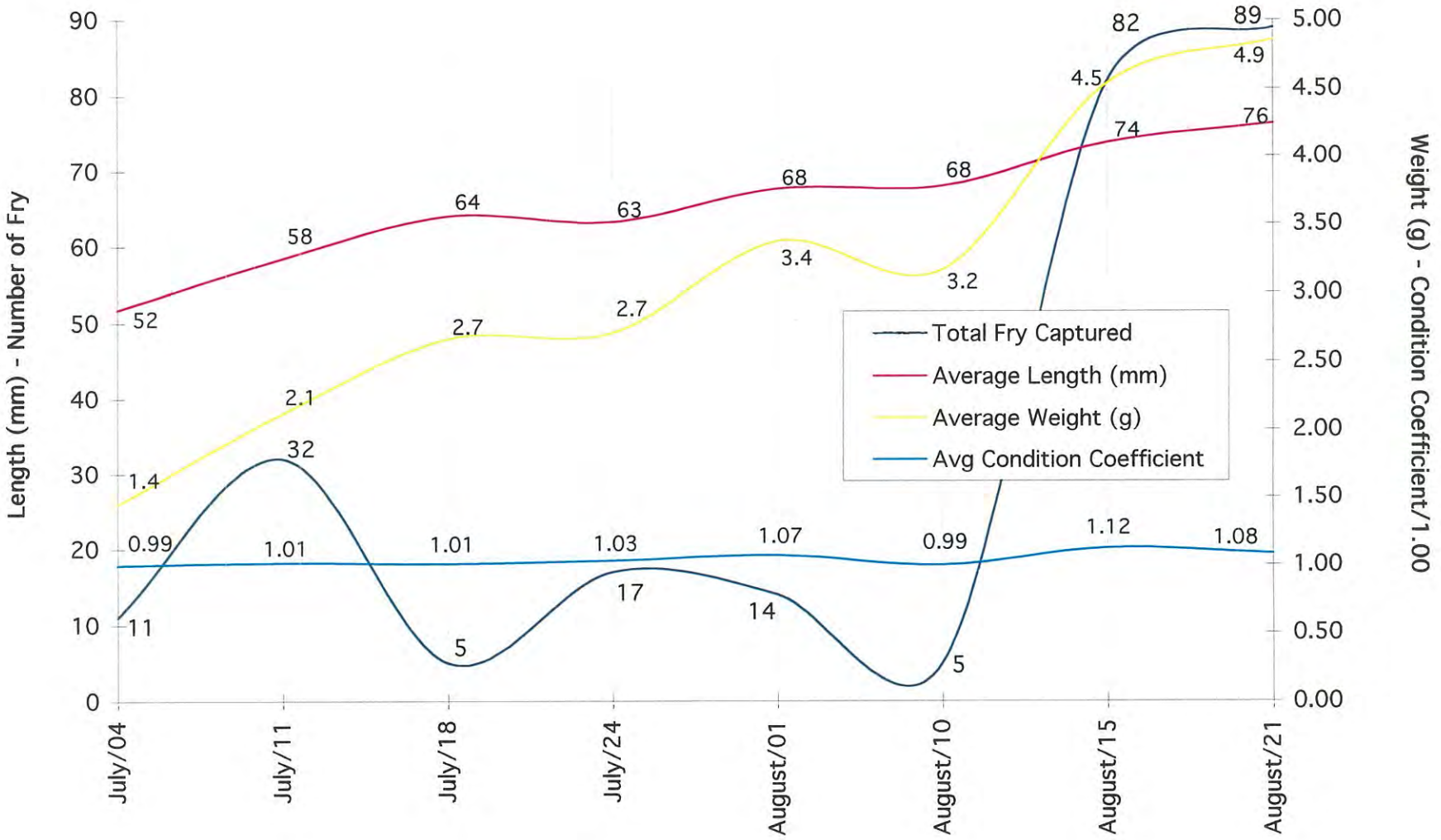
Therefore, notwithstanding the desirability of further study, it has been concluded that brood stock is available on the Chandindu River. Sufficient numbers are available to clearly make a marked increase and ultimate benefit to the weak Chandindu River chinook salmon stocks. If the incubation and outplanting of their fry were to continue through a six year cycle, then cease, the Chandindu River would be able to produce higher numbers of fish in the future on its own, in numbers that would closer reflect those found historically.

Consideration of the costs and benefits related to the collection of brood stock on the Chandindu River and the accompanying restoration program, particularly, the costs per fish raised, the costs per returning adult, potential benefits from the exploitation of returning adults, potential benefits from the exploitation of adult returns in future years from an increased stock, are all not yet available. To relate the brood stock availability to the costs and benefits in order to build an argument for the program's feasibility, in this study, is premature. The proponents are presently studying these costs as part of their Klondike Area Central Incubation/Outplanting Facility Feasibility Study (CRE-05, Phase 2).

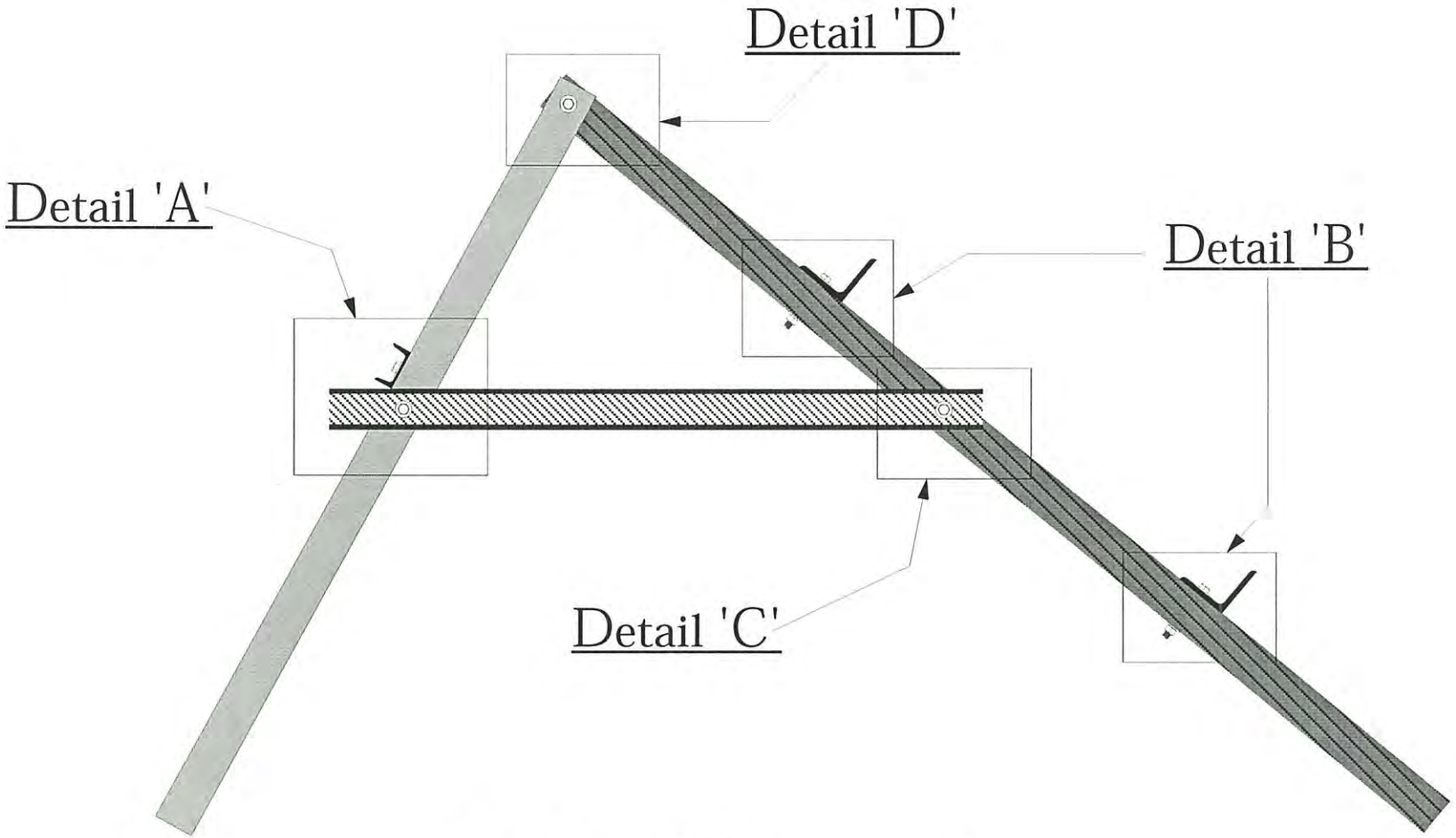
From July 3rd to August 25th, a total of 35 chum (26 females, 9 males) salmon passed through the weir on the Chandindu River. The first chum was sampled on July 29th and the last chum was sampled on August 25th (Table 2). Very high female ratios and early timing were noted. Sampling over the entire chum run was not done as the weir ceased operations previous to their complete migration. This information is secondary to the data collected on chinook stocks and has not yet been thoroughly examined. Further study into chum on the Chandindu River would be desirable.

Data collected from the weir in spreadsheet format is available on request.

Table 3- Fry Trapping Results

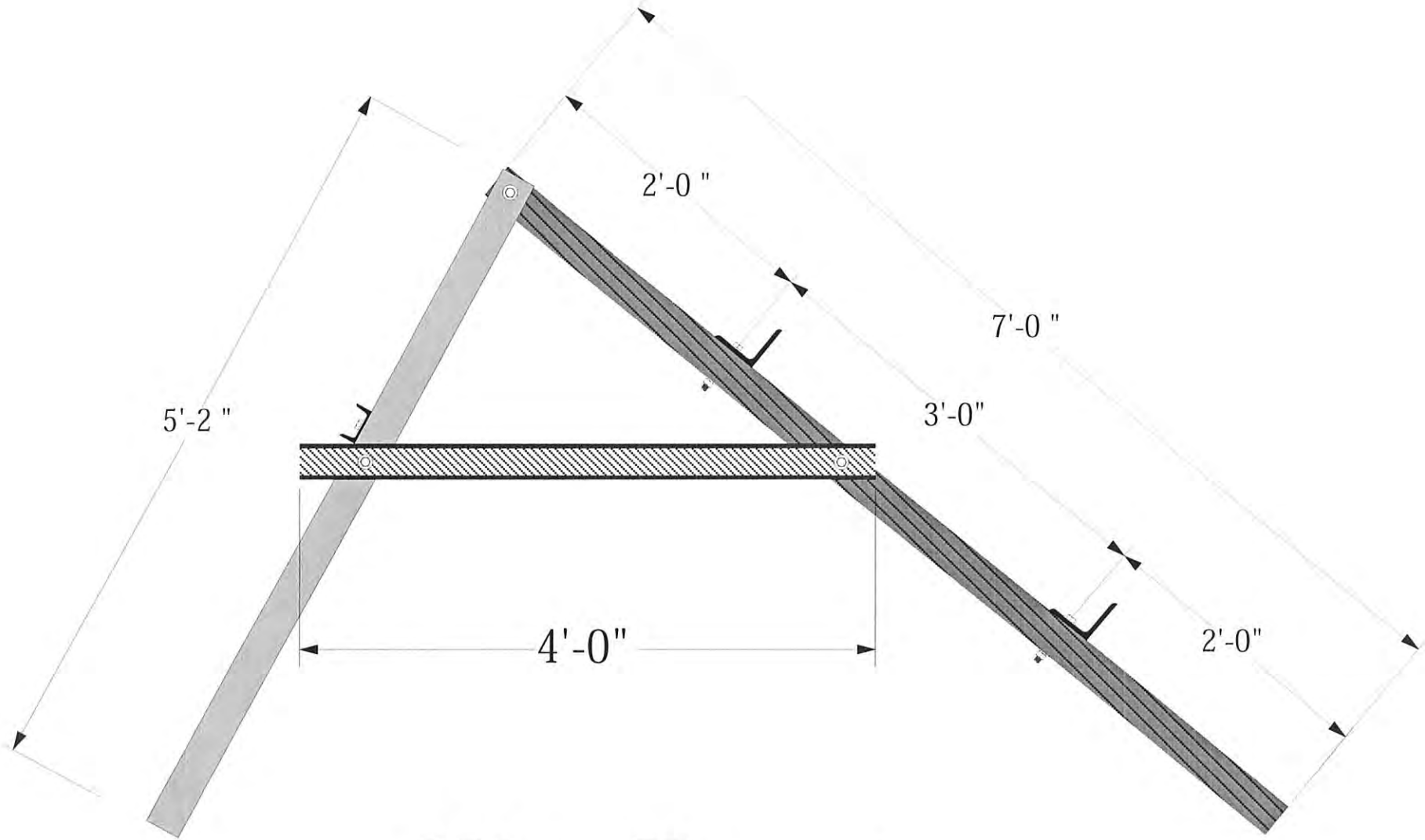


Chandindu River 1998



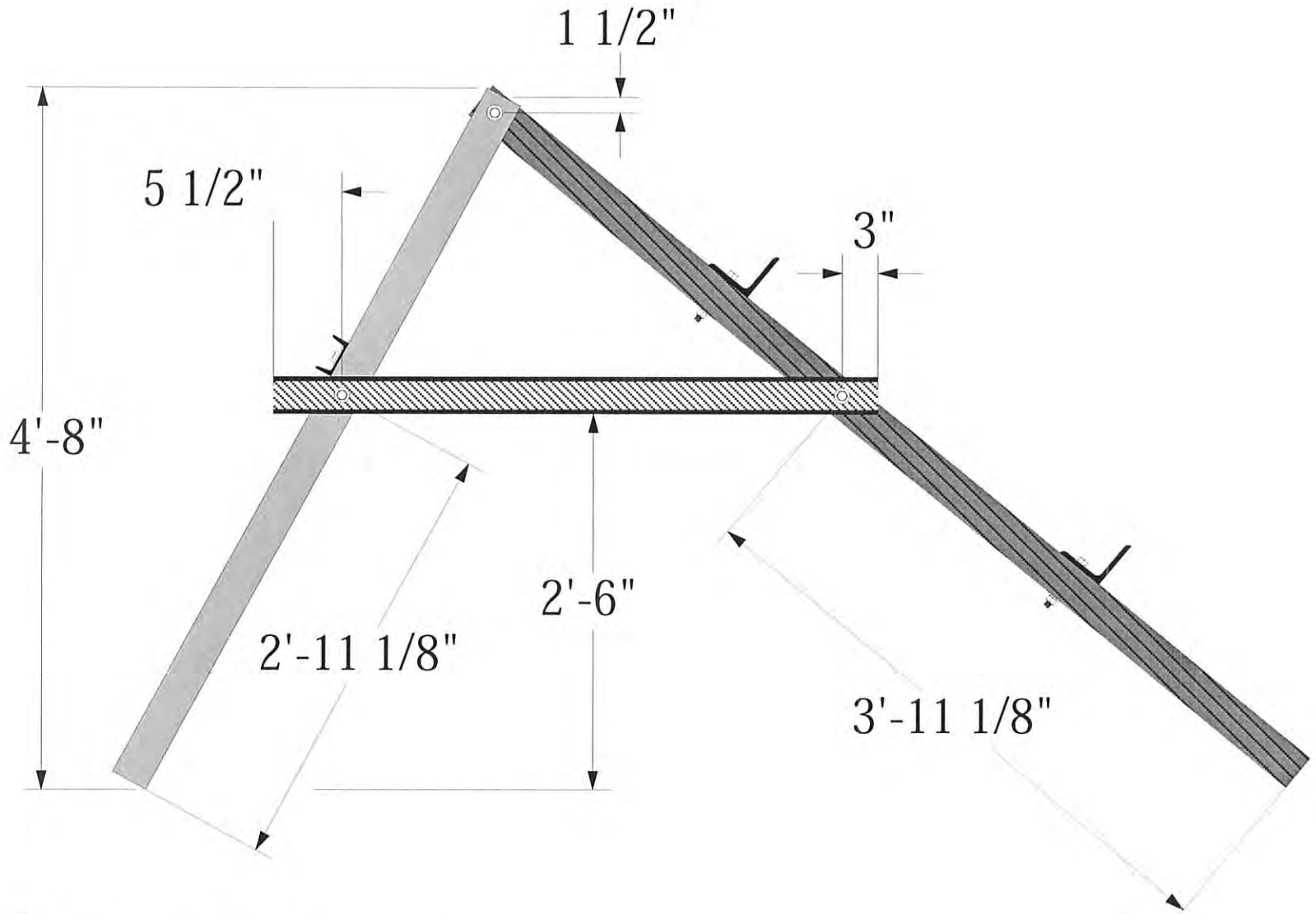
Weir Tripod

Side elevation - Detail schedule



Weir Tripod

side elevation - length dimensions

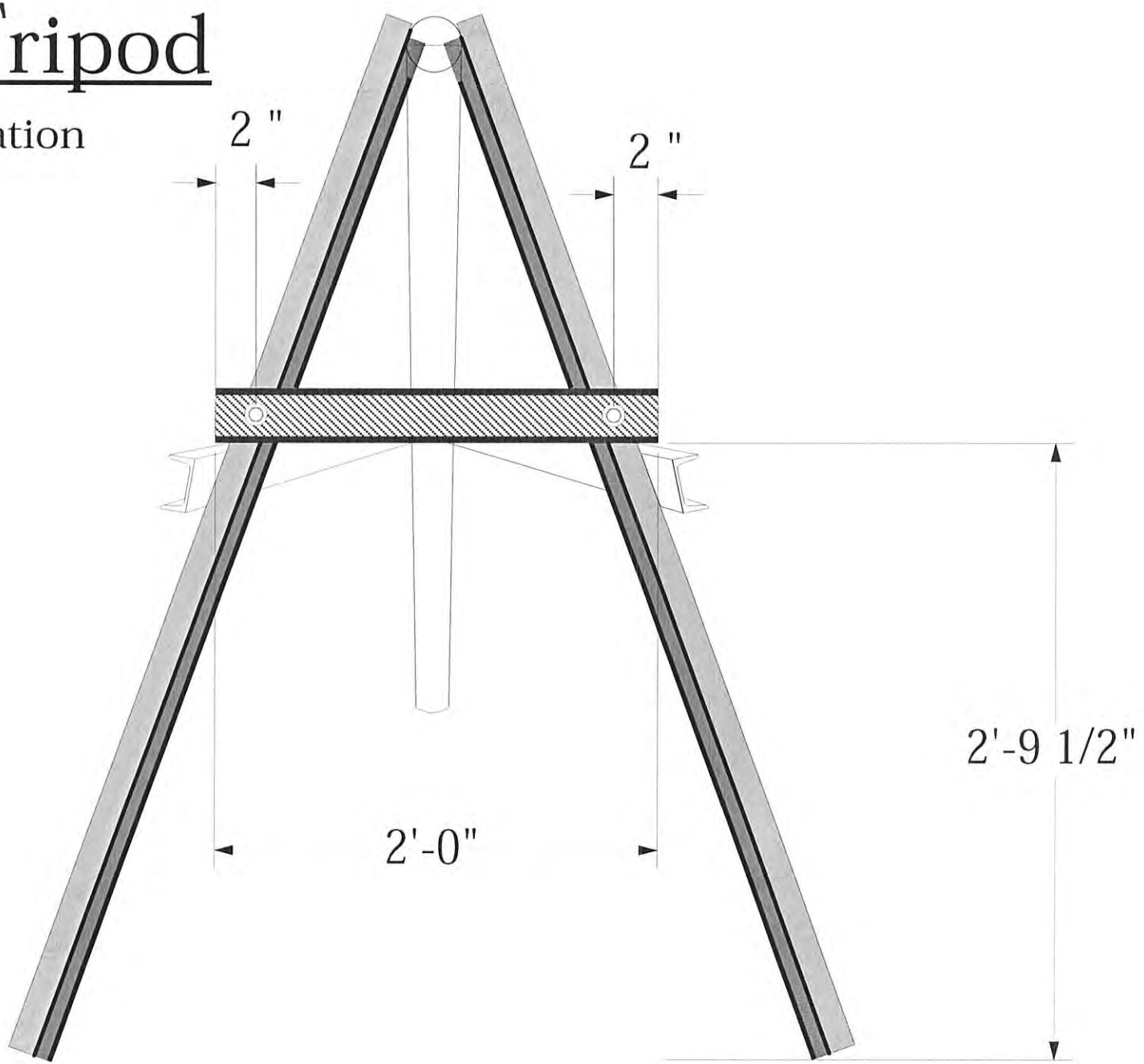


Weir Tripod

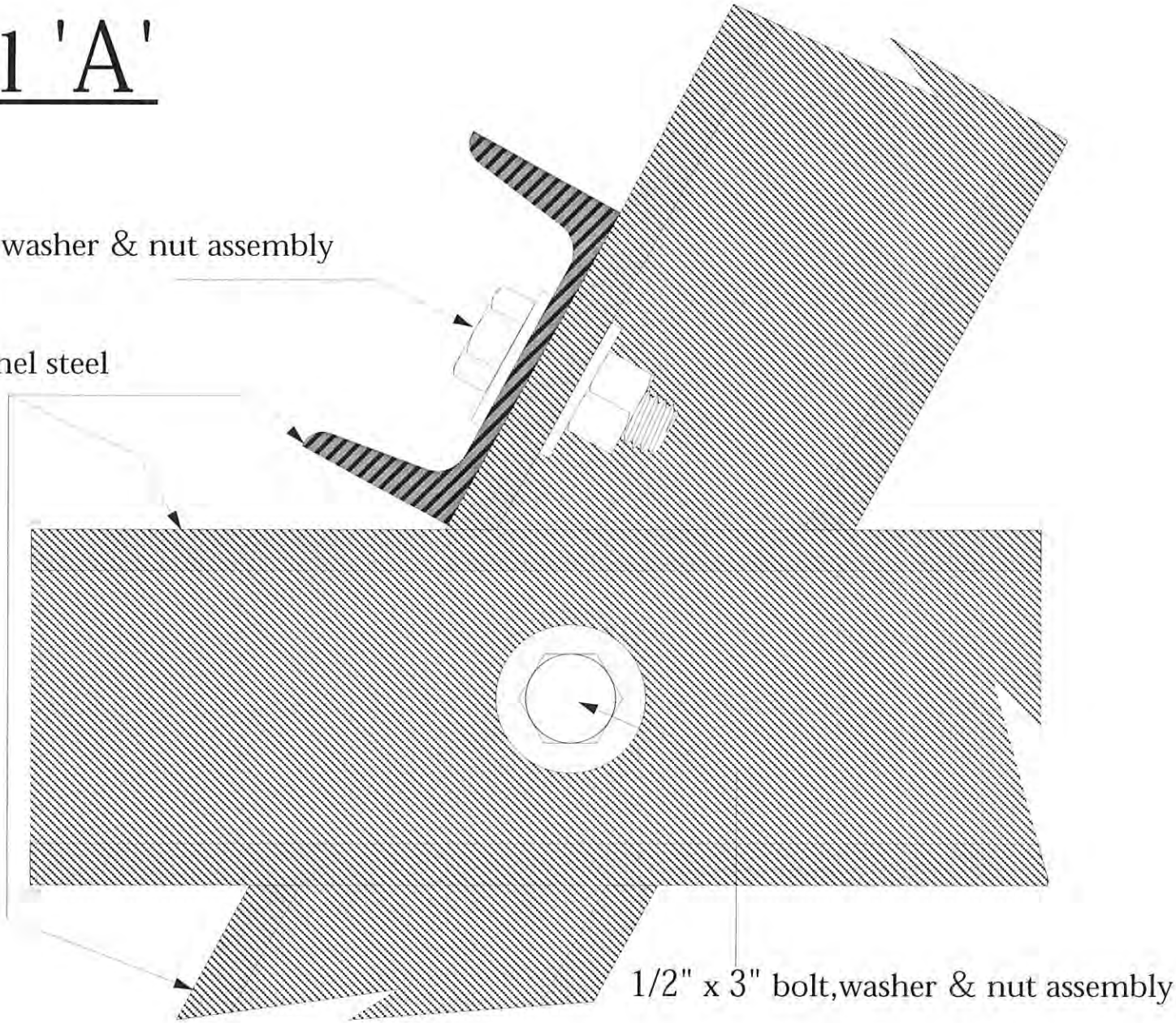
side elevation - dimensions # 2

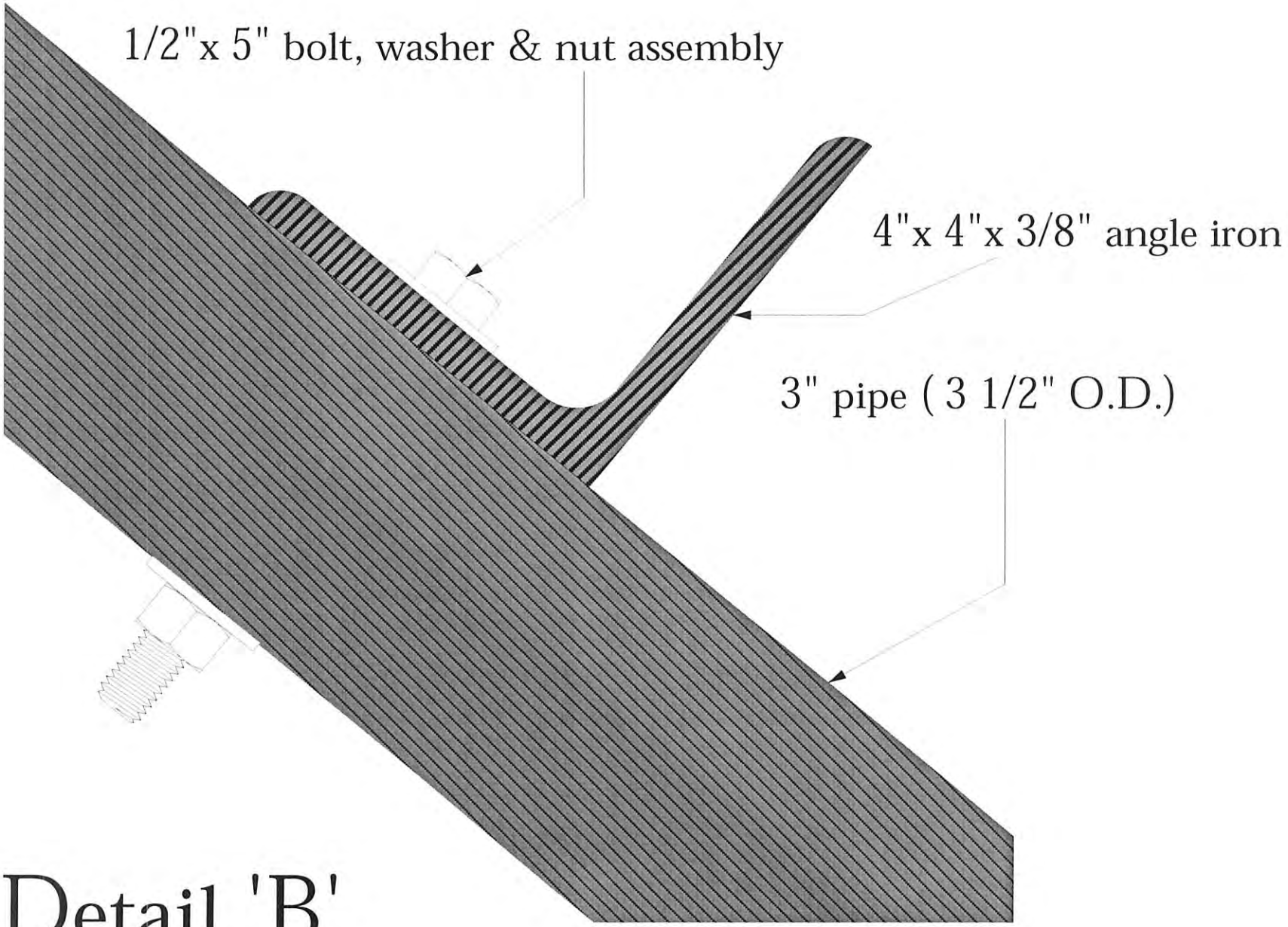
Weir Tripod

Rear Elevation



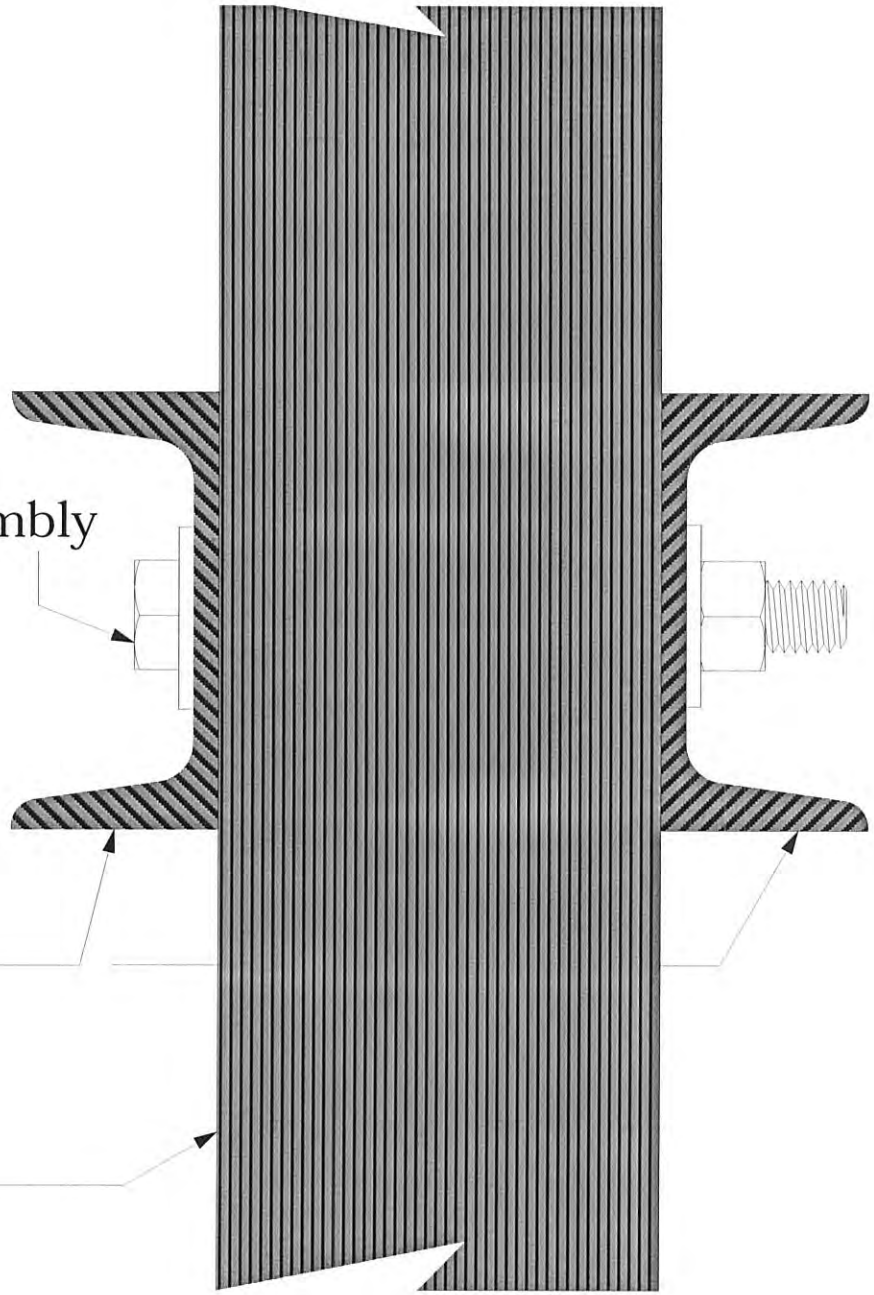
Detail 'A'

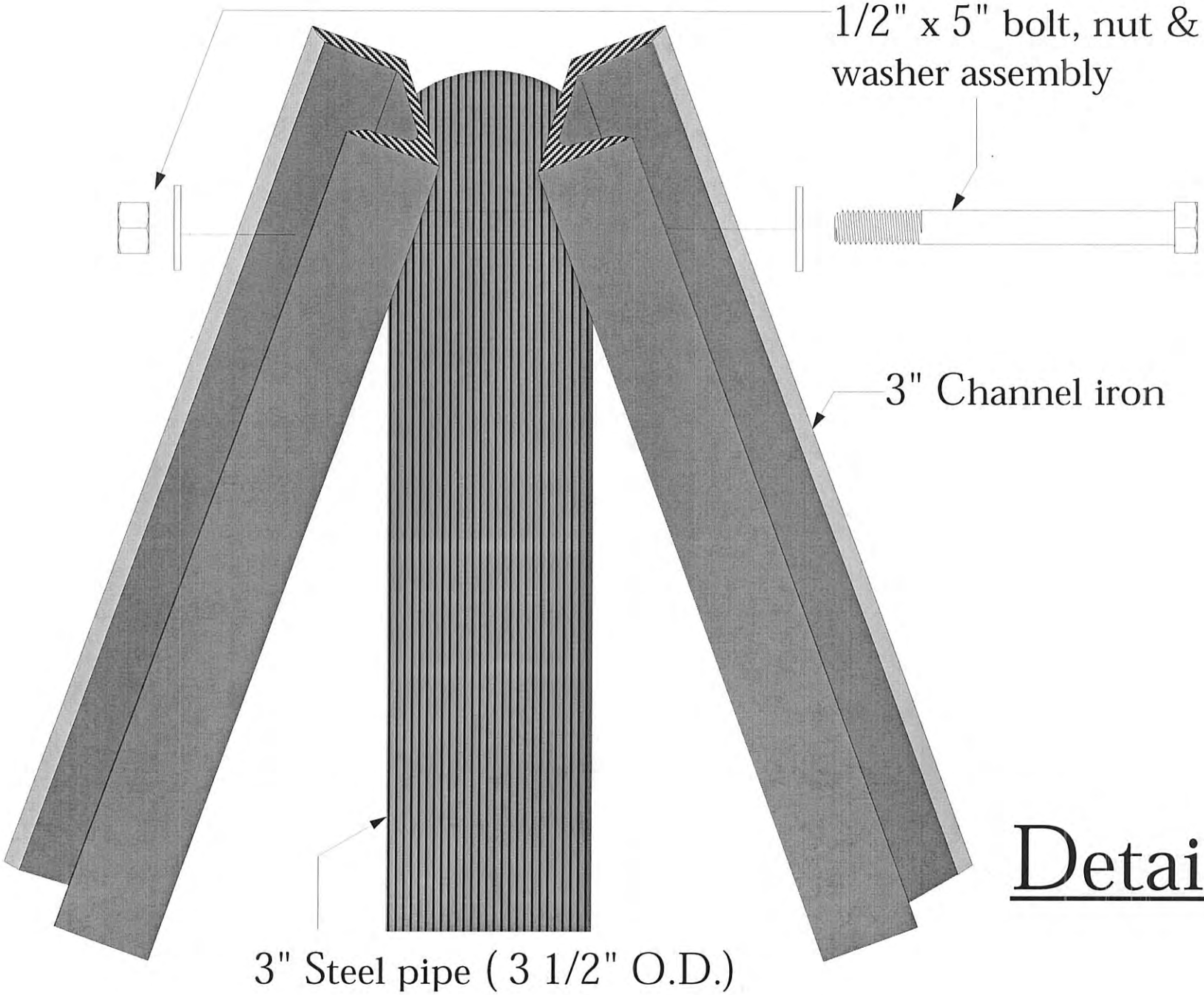

1/2"x 2" bolt, washer & nut assembly
C3 x 4.1 channel steel
1/2" x 3" bolt,washer & nut assembly


1/2"x 5" bolt, washer & nut assembly
4"x 4"x 3/8" angle iron
3" pipe (3 1/2" O.D.)

Detail 'B'

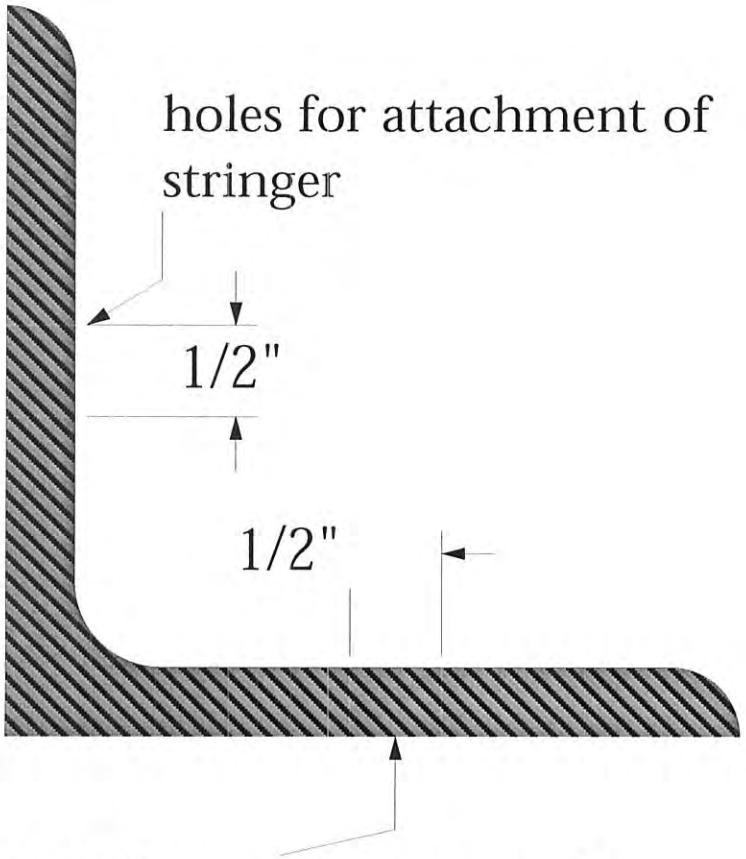
Detail 'C'

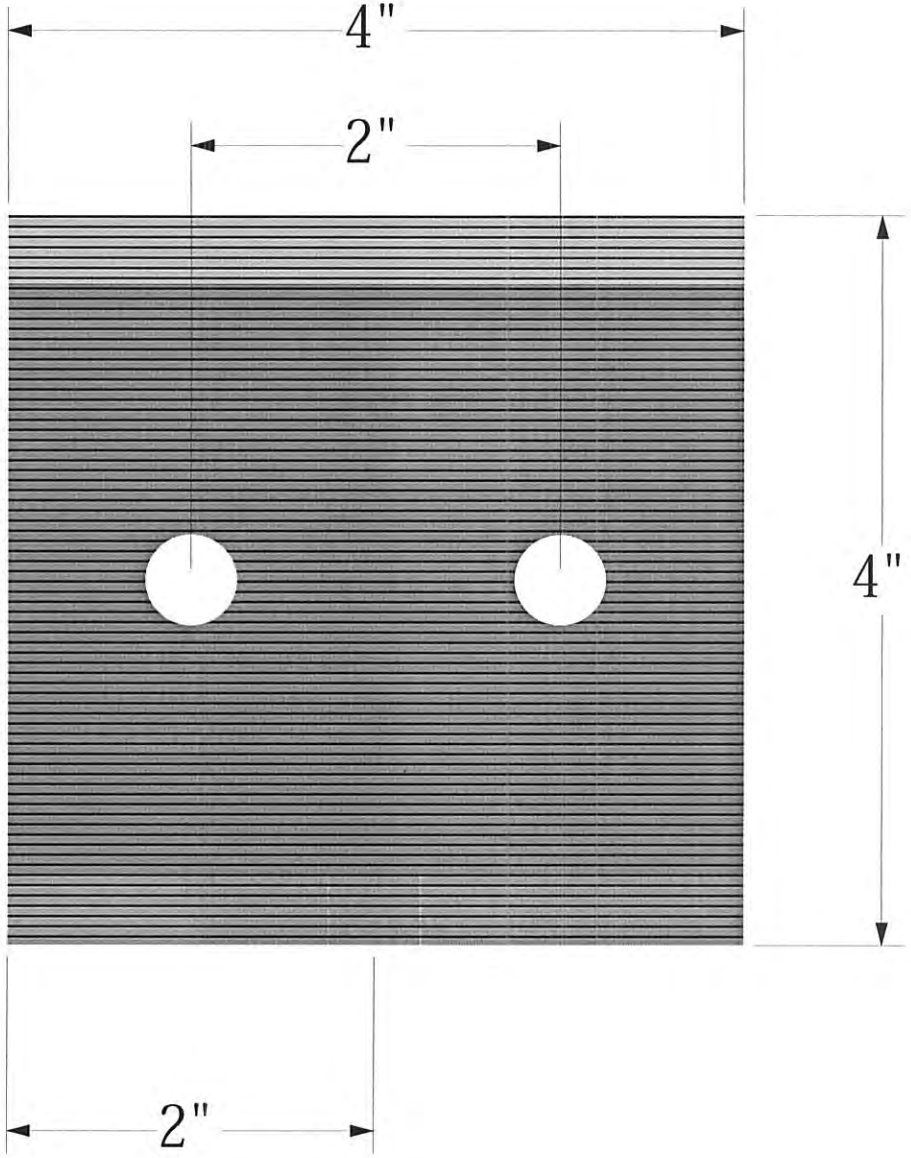

5" x 1/2" bolt, nut, washer assembly
3" Channel Iron SCHED 40
3" pipe SCHED 40


1/2" x 5" bolt, nut &
washer assembly
3" Channel iron
3" Steel pipe (3 1/2" O.D.)

Detail 'D'

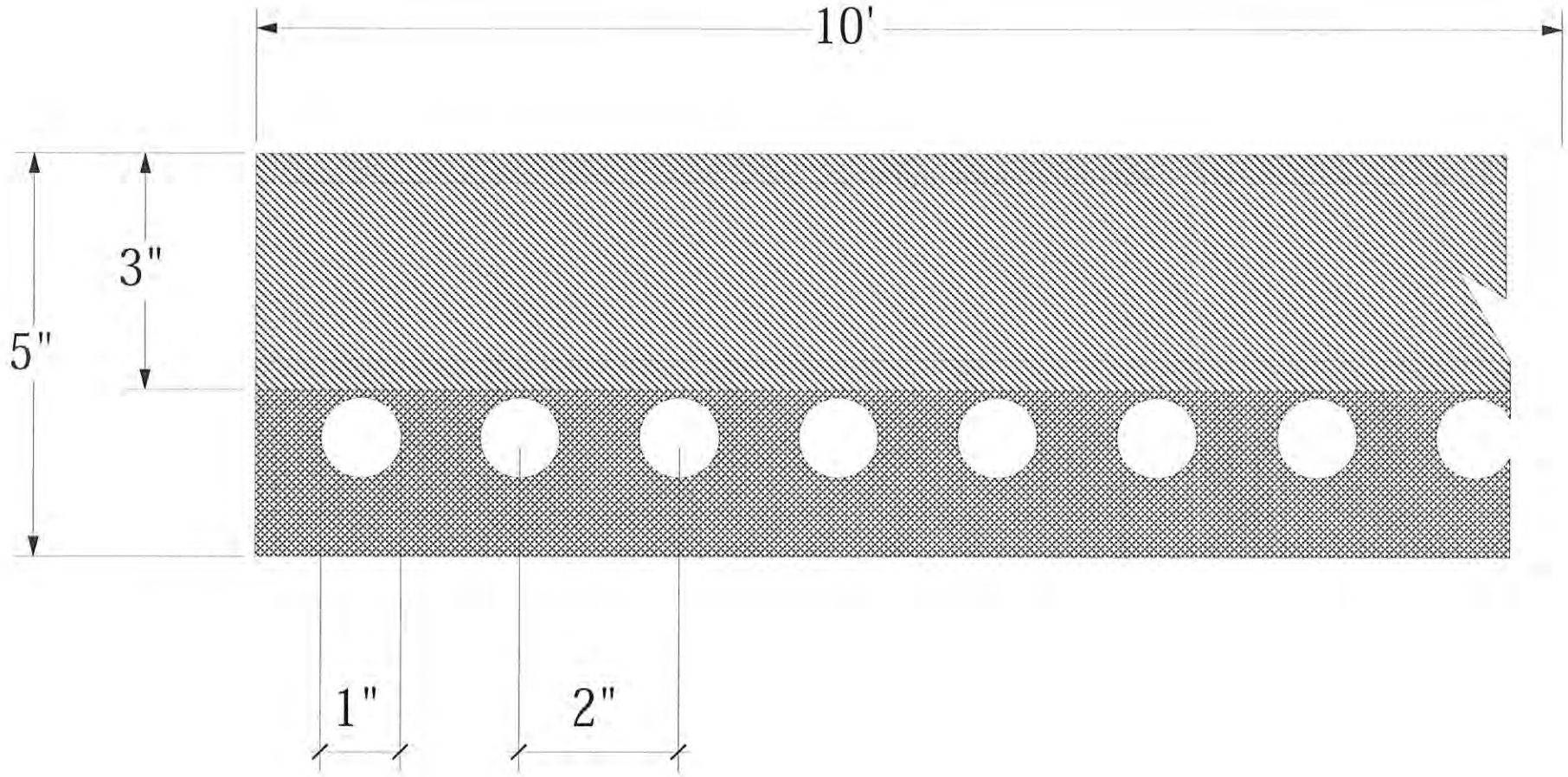
Angle Bracket

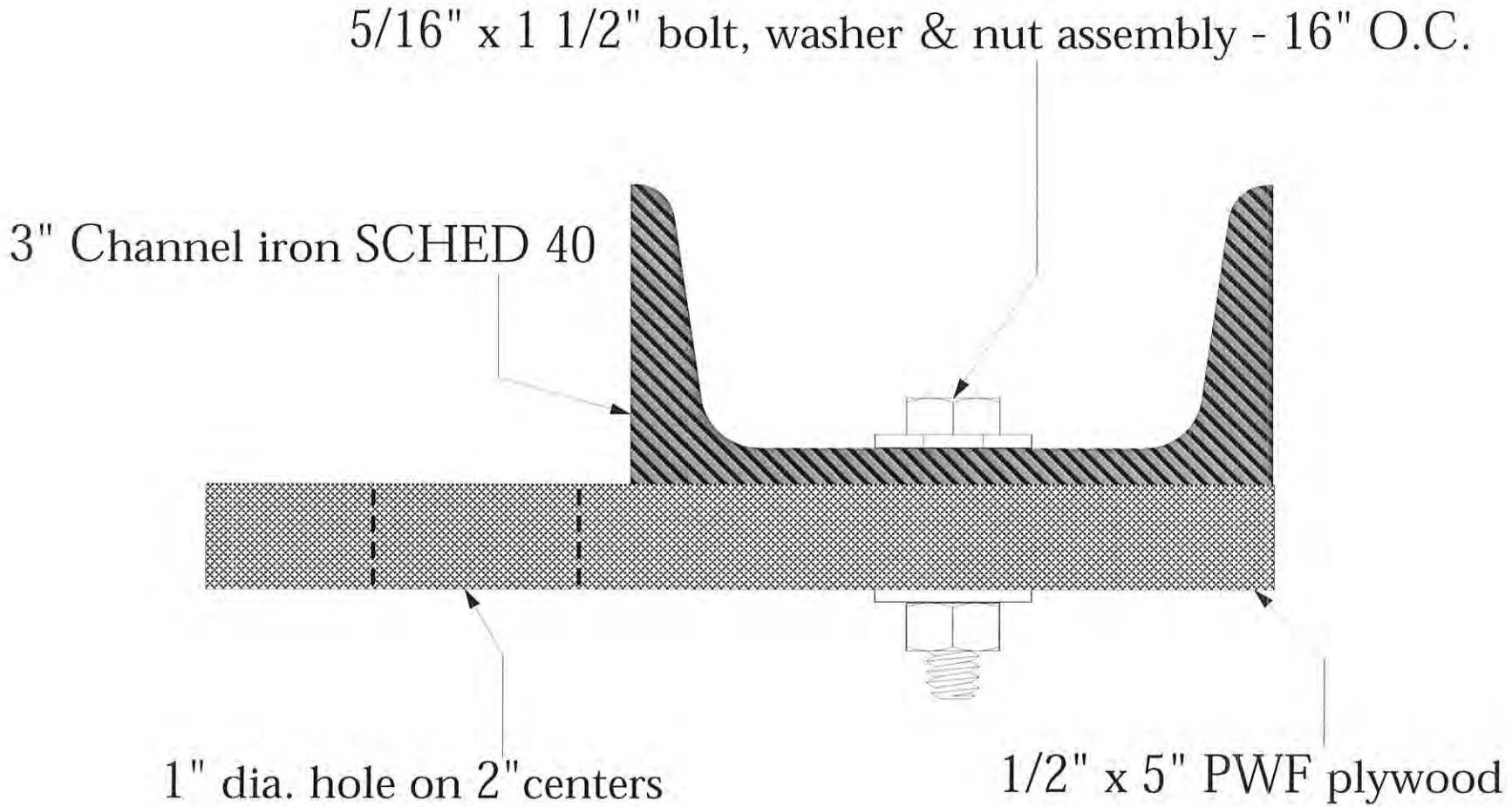




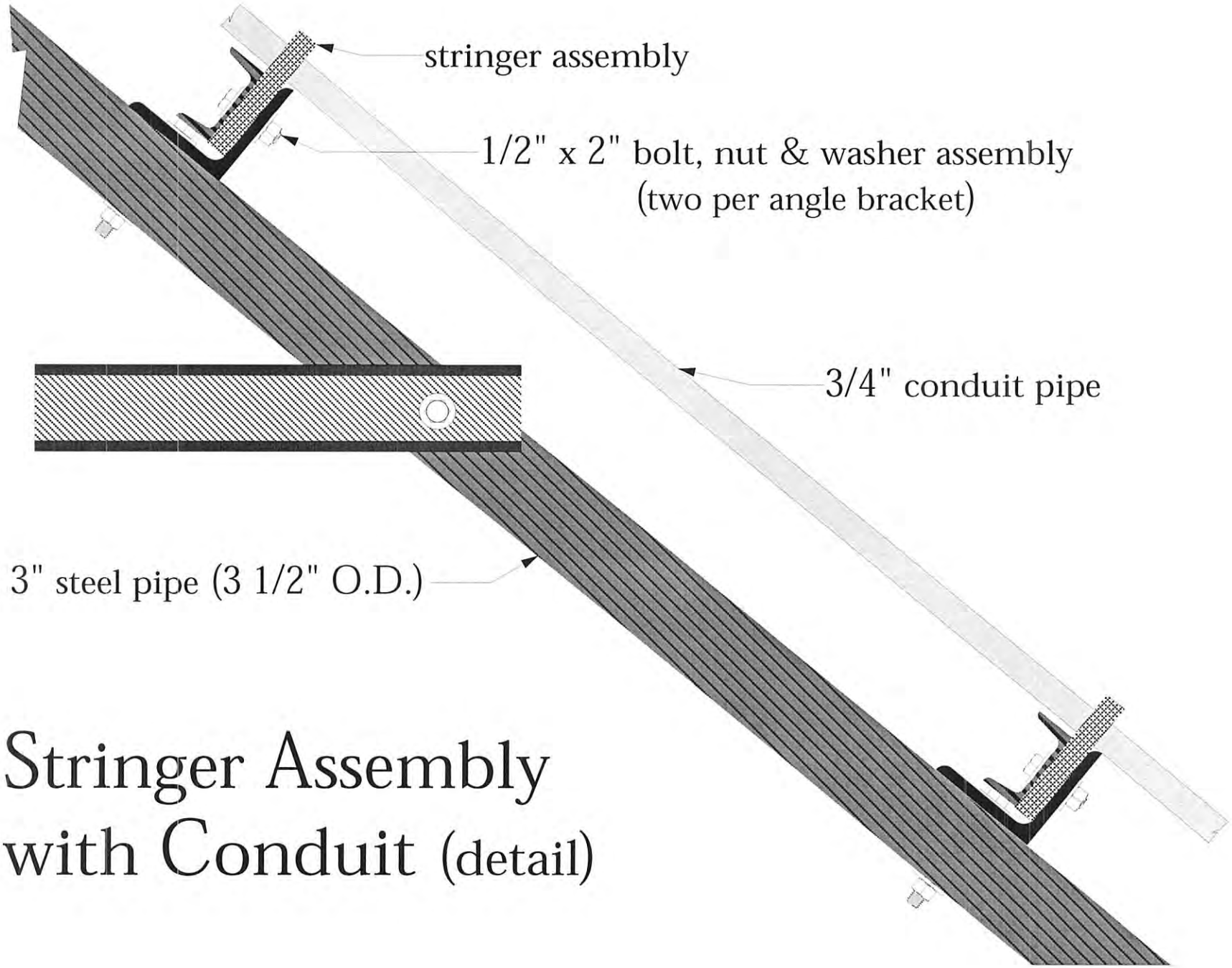
Stringer Detail

Top View

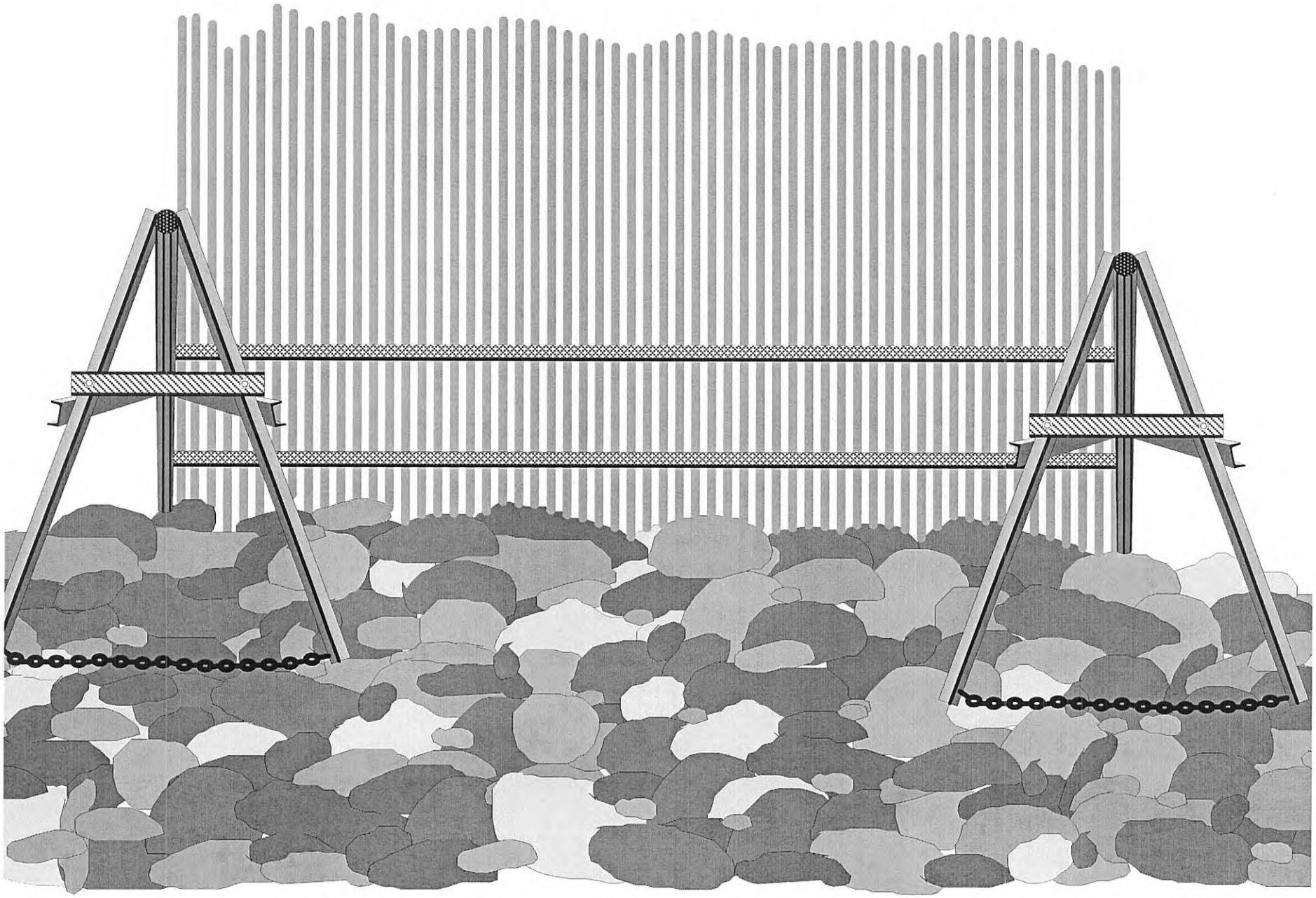




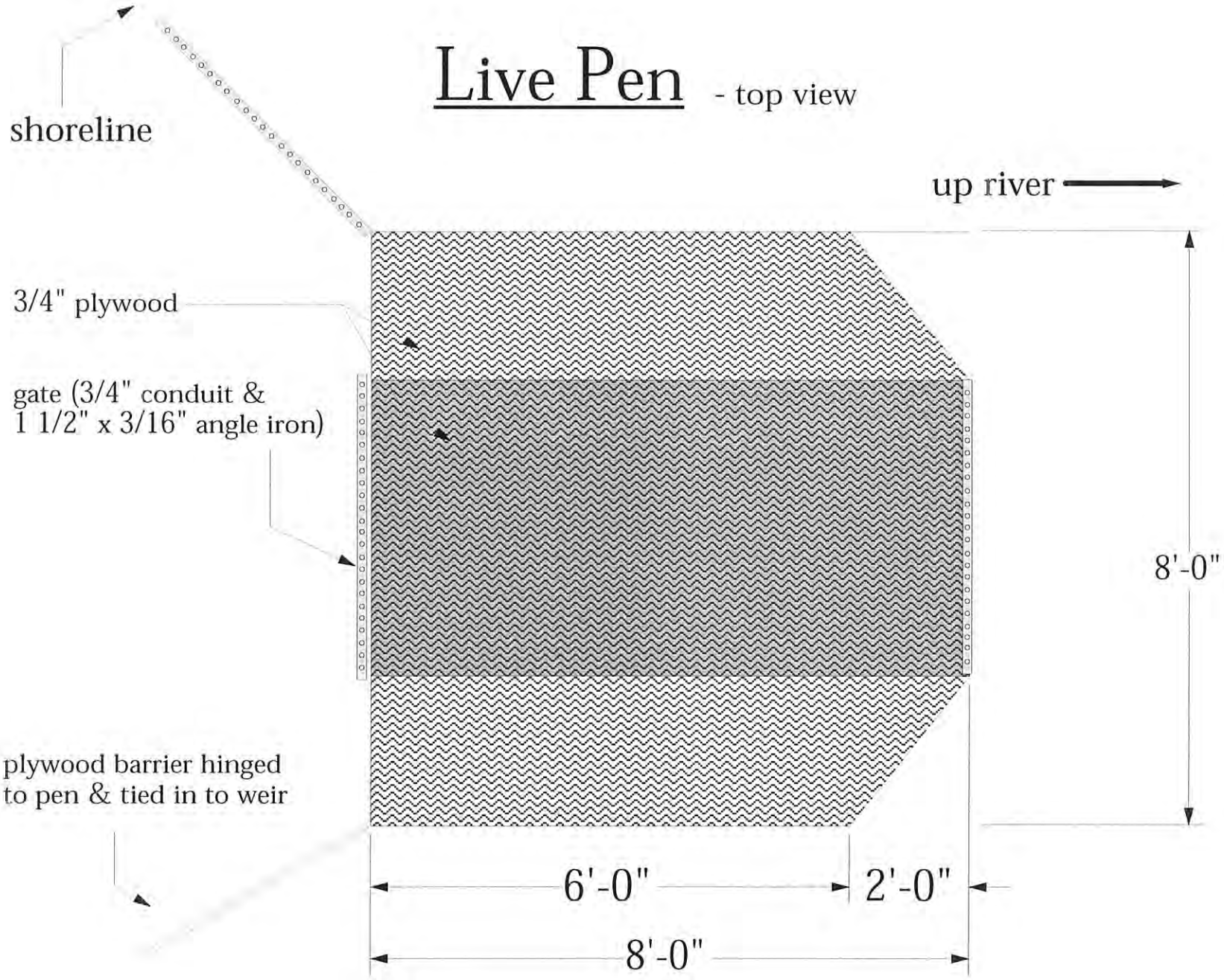
Stringer detail- end view



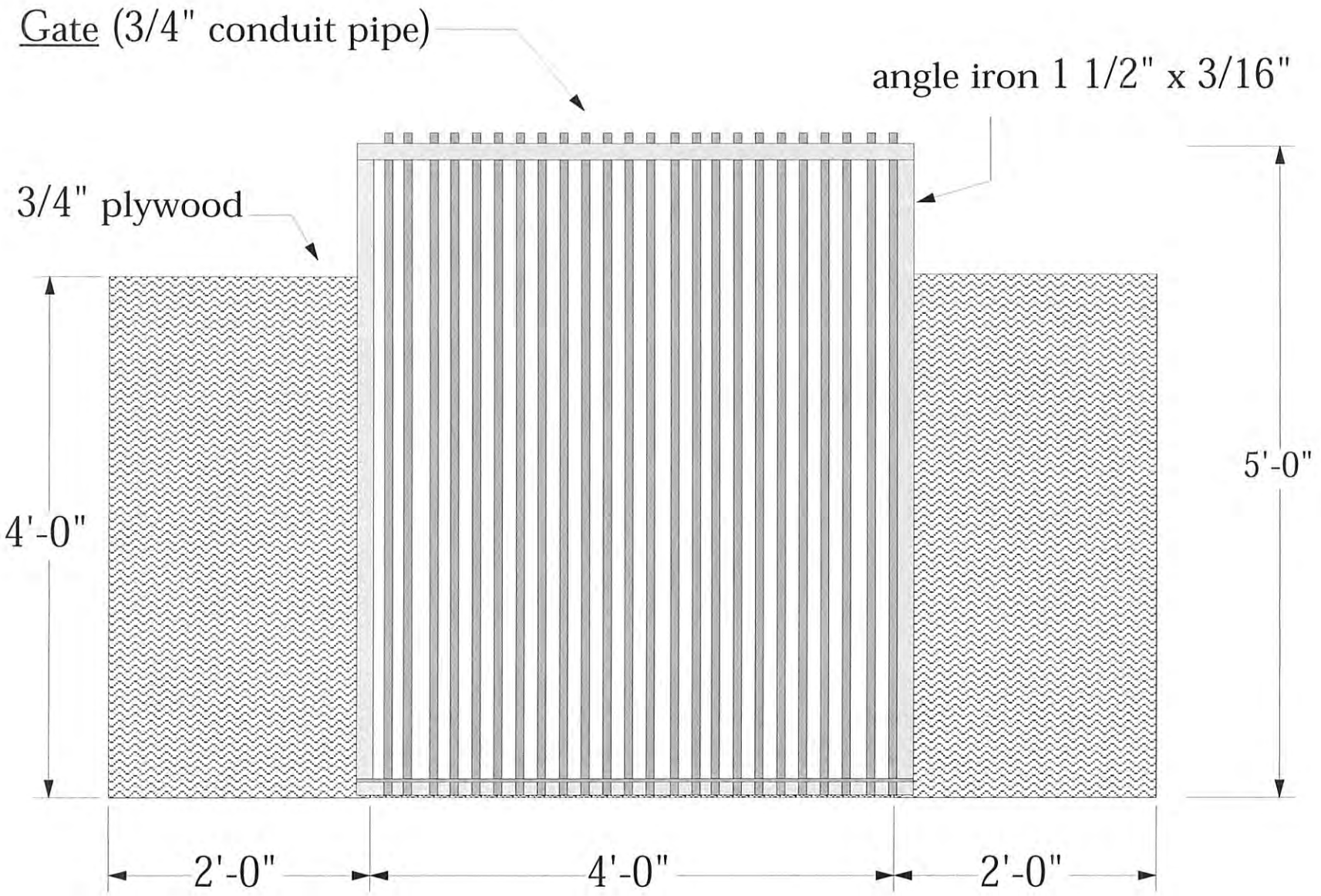
Stringer Assembly with Conduit (detail)



Weir section with conduit pipe


Live Pen - top view
shoreline
up river
3/4" plywood
gate (3/4" conduit &
1 1/2" x 3/16" angle iron)
plywood barrier hinged
to pen & tied in to weir
8'-0"
6'-0"
2'-0"
8'-0"

Live Pen-rear view



J. Cox, J. Duncan, S. Robinson, A Component of Project CRE-05-97 November 7, 1997 *Summary of Streams in the Tr'on dëk Hwech'in Traditional Area: A Search for Candidate Streams to Support a Program Based on a Klondike Area Central Incubation/Outplanting Facility*

Duncan, J. November 12, 1997, A Component of Project CRE-05-97 *Field Studies On Candidate Streams/Stream Surveys*

Department of Fisheries and Oceans, Biological Science Branch, Pacific Biological Station, Nanaimo. Edited by C. Groot and L. Margolis, UBC Press 1991 *Pacific Salmon Life Histories*

Government of Canada. Ottawa, Canada. June, 1993 *The Yukon Placer Authorization and Supporting Documents*

P.A. Milligan, W.O. Rublee, D.D. Cornett, and R.A.C. Johnston, August 1985 *The Distribution and Abundance of Chinook Salmon (Oncorhynchus tshawytscha) in the Upper Yukon River Basin as Determined by a Radio-Tagging and Spaghetti Tagging Program: 1982-1983*

P.A. Milligan, W.O. Rublee, D.D. Cornett, and R.A.C. Johnston, January 1986 *The Distribution and Abundance of Chum Salmon (Oncorhynchus keta) in the Upper Yukon River Basin as Determined by a Radio-Tagging and Spaghetti Tagging Program: 1982-1983*

D. Petkovich, W.R. Ricks, November, 1997 *Klondike Area Central Incubation/Outplant Facility Site Evaluation*

D. Petkovich, W.R. Ricks, October 19, 1998 *Klondike Area Central* Incubation/Outplant Facility Feasibility Study Progress Report

Tr'on dëk Hwech'in, March 10 1998 *Tr'on dëk Hwech'in Final Agreement, among the Government of Canada and the Tr'on dëk Hwech'in (Formerly Know as the Dawson First Nation) and the Government of the Yukon*

Photo List

1. Reconnaissance trip to the Chandindu River in March.
2. The mouth of the Chandindu River, looking upstream towards Dawson.
3. Glaciation at the headwaters of the Chandindu River.
4. Glaciation on the Chandindu River.
5. The weir on the Chandindu River.
6. Looking downstream towards the mouth of the Chandindu River from weir.
7. Ice piled up at the mouth of the Chandindu after break up, May 17th.
8. Standing on top of the ice at the mouth of the Chandindu.
9. Weir site on the Chandindu March 22nd.
10. Weir site on the Chandindu May 17th.
11. Trail Blazing crew getting ready to cut new trail into the weir site, May 24th.
12. Trail clearing on the Chandindu for ATV.
13. One of 6 bridges constructed to allow passage of ATV.
14. Clearing out old mining/exploration trail.
15. One section of the 2.4km trail from the Yukon to the weir site.
16. Freighting weir materials from Dawson to the Chandindu River.
17. Freighting 8,725lbs of weir materials up the Chandindu River to the weir site.
18. Assembling the tripods and live pen at the weir site.
19. Assembling weir and camp on the Chandindu River.
20. Setting up wall tents at the weir site.
21. Camp on the Chandindu River at the weir site.
22. Inside the cook shack.
23. Looking outside the cook shack at weir.
24 Clearing limbs from trees near wall tents for fire safety.
25 Installing live pen during high water.
26. Flooding on the Chandindu River after extreme rainfall.
27. Installing live pen during high water.
28. The Chandindu River overflowing its banks after extreme rainfall.
29. Installing the tripods and stringers during high water.
30. "Pinning" the tripods with conduit during installation.
31. The live pen and weir as seen from counting tower.
32. The live pen and weir as seen from counting tower.
33. The weir with lights at night.
34. The Y2C2 volunteer crew after working on trail.
35. The downstream side of weir showing live pen placement, camp location and counting tower.
36. A view of the weir, camp, live pen, counting tower and jet boat from the opposite side of the Chandindu River.
37. Dipnetting chinook salmon from live pen for sampling.
38. Live sampling chinook salmon.
39. Chinook salmon in fish cradle during sampling.
40. Taking DNA samples from chinook salmon.
41. Live sampling chinook salmon from fish tote.
42. Taking scale samples from chinook salmon.
43. Dipnetting chum salmon from live pen.
44. Live sampling chum salmon.

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

LAND RESOURCES
LAND USE SECTION
345-300 Main Street
Whitehorse, Yukon
Y1A 2B5

Your file *Votre référence*

Our file *Notre référence*

YB8N468

10 June 1998

Jake Duncan
c/o Y.R.C.F.A./ Tr'on dëk Hwëch'in
Box 844
Dawson City, YT
Y0B 1G0

Dear Sir:

LAND USE PERMIT YB8N468
MAKE NEW TRAILS AND A CAMPSITE
- YUKON RIVER TO SALMON WEIR SITE ON THE CHANDINDU RIVER

Attached is your Land Use Permit YB8N468 with annexed operating conditions.

I wish to draw your attention to operating condition 3.1 which requires that you contact Ed Lenchuk at (867) 996-5468 the Inspector located in Dawson prior to commencement of your operation.

This Land Use Permit is contingent upon holding a valid Water Licence. Cancellation or expiry of your Water Licence will void this Land Use Permit.

Should you have any questions contact me at (867) 667-3239.

Yours truly,

Marg White
A/Head, Land Use

CT/sd

cc. R.M.O., Dawson
YTG, Renewable Resources
Tr'on dëk Hwëch'in First Nation

Canada

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Indian and Northern Affairs Canada

Affaires indiennes et du Nord Canada

LAND USE PERMIT

NORTHERN AFFAIRS PROGRAM

PERMIS D' UTILISATION DES TERRES

PROGRAMME DES AFFAIRES DU NORD

Permit Class - Permis catégorie	Permit No. - No. Permis
B	YB8N468

Subject to the Territorial Land Use Regulations and the terms and conditions in this Permit, authority is hereby granted to:

Sous réserve du Règlement sur l'utilisation des terres territoriales et des conditions de ce permis:

JAKE DUNCAN

Permittee - Détenteur de permis

To proceed with the Land Use operation described is the application of:

Est autorisé à entreprendre les travaux d' exploitation des terres décrits dans la demande de permis de:

Signature	Date
Jake Duncan	1998/04/09

Type of Land Use Operation - Genre de travaux d' exploitation des terres

MAKE NEW TRAILS AND A CAMPSITE

Location - Emplacement

FROM YUKON RIVER TO SALMON WEIR SITE ON THE CHANDINDU RIVER

This permit may be assigned, extended, discontinued, suspended or cancelled pursuant to the Territorial Land Use Regulations.

Ce permis peut faire l' objet d'une cession , d'une prolongation, d'une cessation, d'une suspension ou d'une annulation, en vertus du Règlement sur l' utilisation des terres territoriales.

Dated at WHITEHORSE, YUKON
Daté à

Engineer
Ingénieur

This 10 Day of JUNE, 1998
Ce Jour de

Commencement Date
Date du début des travaux JUNE 10, 1998

Expiry Date
Date d'achèvement JUNE 09, 2000

NOTE

IT IS A CONDITION OF THIS PERMIT THAT THE PERMITTEE COMPLY WITH ANY OTHER APPLICABLE ACT, REGULATION, ORDINANCE, BY-LAW OR ORDER. DEFAULT HEREOF MAY RESULT IN SUSPENSION OR CANCELLATION OF THIS PERMIT.

REMARQUE

LE DÉTENTEUR DU PRÉSENT PERMIS DOIT SE CONFORMER A TOUT AUTRE REGLEMENT, LOI, DÉCRET, REGLEMENT MUNICIPAL OU ARRETÉ APPLICABLE. LE MANQUEMENT A CETTE OBLIGATION POURRAIT DONNER LIEU A LA SUSPENSION OU A L'ANNULATION DU PERMIS.

Canada

LAND USE PERMIT TERMS AND CONDITIONS

NAME OF PERMITTEE: Jake Duncan

The following terms and conditions are made pursuant to Section 31(1) of the Territorial Land Use Regulations and are hereby annexed to and form part of Permit YB8N468.

3.0 PLANS

.1 The Permittee's field supervisor shall contact or meet with E. Lenchuk, the Land Use Inspector at the Dawson office of Indian and Northern Affairs Canada. Phone 867-993-5468 at least 48 hours prior to the commencement of this Land Use Operation. **CONTACT INSPECTOR**

.2 The Permittee shall not conduct this Land Use Operation on any lands not designated in the accepted application, unless otherwise authorized in writing by the Engineer. **PLANS**

.3 The Permittee shall, in accordance with Section 33 of the Territorial Land Use Regulations submit a Final Plan. **FINAL PLAN**

4.0 NOTICES/REPORTS

.1 The Permittee shall provide the Land Use Inspector with the following information at least 10 days prior to completion of the Land Use Operation: **REPORTS BEFORE REMOVAL**

(a) his plan for removal or storage of equipment and materials; and

(b) when final clean-up and restoration of the lands used will be completed.

.2 The Permittee shall provide in writing to the Engineer, at least 48 hours prior to commencement of this Land Use Operation, the following information: **IDENTIFY AGENT**

(a) person, or persons, in charge of the field operation to whom notices, orders, and reports may be served; and

.../2

(b) alternates; and

(c) all the indirect methods for contacting the above person(s).

.3 The Permittee shall supply a Campsite Development Plan at least 5 days prior to camp establishment. The plan will include a map of the camp, proximity to water, location of sewage/grey water facilities, and a copy of the Health Canada Septic Disposal Permit if applicable. **CAMPSITE DEVELOPMENT PLAN**

5.0 DISPLAY PERMIT/INSTRUCT EMPLOYEES AND CONTRACTORS

.1 The Permittee shall display a copy of this permit on the permit site. **DISPLAY PERMIT**

6.0 EQUIPMENT

.1 The Permittee shall not use any equipment except of the type, size and number that is listed in the accepted application unless otherwise authorized in writing by the Land Use Inspector. **ONLY APPROVED EQUIPMENT**

7.0 PETROLEUM

.1 The Permittee shall clearly mark with stakes or flags the location of any spill of any petroleum and forthwith report the time, manner, location, amount and type of spill to the Engineer and Environmental Protection Service. (For the purpose of this condition Environmental Protection Service can be contacted at Phone (867) 667-7244, Whitehorse, Yukon). **REPORT PETROLEUM SPILLS**

.2 The Permittee shall not allow petroleum products to spread to surrounding lands or into water bodies. **FUEL CONTAINMENT**

.3 The Permittee shall not place any petroleum fuel storage containers within 12 meters of the normal high water mark of any stream. **FUEL BY STREAM**

.4 The Permittee shall at all times have on site sufficient oil spill clean-up equipment and material in readiness to clean-up all petroleum which may be spilled. **OIL SPILL CLEAN-UP EQUIPMENT**

.../3

9.0 WILDLIFE HABITAT

.1 The Permittee shall not unnecessarily damage wildlife habitat in conducting this Land Use Operation. — **HABITAT DAMAGE**

10.0 TRAVEL RESTRICTIONS

.1 The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs. — **SUSPEND OVERLAND TRAVEL**

11.0 LINES, TRAILS, & RIGHT-OF-WAY'S

.1 The Permittee shall use existing accesses only. — **USE EXISTING ACCESSES**

.2 The Permittee shall immediately suspend the Land Use operation on the site and notify the Land Use Inspector of the location of the site and nature of any unearthed materials, structures or artifacts. — **ARCHAEOLOGICAL SITES AND/OR BURIAL GROUNDS**

.3 The Permittee shall dogleg lines, trails and rights-of-way that approach lakes, streams or public roads, as specified in writing by the Land Use Inspector. — **DOGLEG APPROACHES**

12.0 FOREST FIRE PREVENTION

.1 The Permittee shall obtain a Burning Permit from the Northern Affairs Office in Dawson City, prior to the commencement of any burning operations. — **BURNING PERMIT**

13.0 DISPOSAL - BRUSH AND TREES

.1 The Permittee shall dispose of all brush and debris cleared from trails and lines by cutting the branches from the stems, and cutting the stems into lengths so that all parts of the trees felled lie flat on the ground surface. — **BRUSH DISPOSAL**

.2 The Permittee shall progressively complete disposal of all debris and brush. — **PROGRESSIVE DISPOSAL**

14.0 DISPOSAL - GARBAGE AND SOLID WASTE

.1 The Permittee shall remove all garbage and debris from the area of the Land Use Operation to a disposal site approved in writing by the Land Use Inspector. — **REMOVE GARBAGE**

.../4

.2	The Permittee shall ensure that the Land Use area is kept clean and tidy at all times.	**CLEAN WORK AREA**
.3	The Permittee shall keep all garbage and debris in a covered metal container until disposed of.	**GARBAGE CONTAINERS**
.4	The Permittee shall remove all scrap metal, discarded machinery and parts, drums, buildings and building materials associated with the Land Use Operation.	**REMOVE WASTE MATERIAL**
.5	The Permittee shall remove all non-combustible garbage and debris from the Land Use area to a disposal site approved in writing by the Land Use Inspector.	**REMOVE NON-COMBUSTIBLE**
.6	The Permittee shall burn all combustible garbage and debris in a container acceptable to the Land Use Inspector.	**INCINERATION**

15.0 DISPOSAL - SEWAGE AND LIQUID WASTE

.1	The Permittee shall obtain appropriate sewage disposal authorization required by law from the appropriate authority and provide a copy at least 48 hours prior to operation commencement to the Land Use Inspector.	**SEWAGE DISPOSAL**
.2	The Permittee shall not allow sewage to spread to surrounding lands or water bodies.	**CONTAIN SEWAGE**

17.0 WATER COURSES AND FISH HABITAT

.1	The Permittee shall not in any circumstances deposit or allow the deposit of any deleterious substances (including but not limited to fuels, lubricants, hydraulics, and coolants) of any type into any waters, or in any place under any conditions where the deleterious substances may enter any waters.	**DEPOSITING DELETERIOUS SUBSTANCES**
.2	The Permittee shall not excavate the banks of any stream unless authorized in writing by the Land Use Inspector.	**STREAM BANKS**
.3	The Permittee shall not use the bed of streams for access routes unless authorized in writing by the Land Use Inspector.	**STREAM BED ACCESS**
.3	The Land Use Inspector may curtail or stop repeated fording of a stream with vehicles.	**FORDING OF STREAMS**

.../5

.4 The Permittee shall not in any circumstances allow the deposit of any unauthorized soils or debris in any watercourse, or in any location where these materials could be deposited into any watercourse. **DEPOSITING SOIL IN STREAMS PROHIBITED**

.5 The Permittee shall not place dirt or debris into streams to serve as ramps for loading or unloading ships or barges unless first authorized in writing by the Land Use Inspector. **DIRT RAMPS**

18.0 EROSION CONTROL/PREVENTION

.1 The Permittee shall locate all camps on gravel, sand or other durable land. **CAMP LOCATION**

.2 The Permittee shall prepare the site in such a manner as to prevent rutting of the ground surface. **PREVENTION OF RUTTING**

19.0 RESTORATION

.1 The Permittee shall complete all clean-up and restoration of the lands used prior to the expiry date of this Permit. **CLEAN-UP**

.2 The Permittee shall remove any obstruction to natural drainage caused by any part of this Land Use Operation. **NATURAL DRAINAGE**

21.0 OTHER MATTERS

.1 The Engineer reserves the right to impose closure of any area to the Permittee during periods when dangers to natural resources are severe. **CLOSURE**

.2 The Permittee shall be liable for any costs of clean-up resulting from this Land Use operation. **CLEAN-UP LIABILITY**

.3 The Permittee shall not construct any structures of a permanent nature in conjunction with this Land Use Operation. **NO PERMANENT STRUCTURES**

.4 The Permittee shall not fence any part of the Land Use area. **FENCE PROHIBITED**

.../6

.5 The Permittee shall ensure that living accommodations are mobile. This includes trailers on wheels, skid shacks c/w skids, campers and tent or tent frames. All accommodations must be removed upon expiry of your Timber and Land Use Permits.

LIVING ACCOMMODATIONS

M. White
A/Head, Land Use

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

LAND RESOURCES
LAND USE SECTION
345 - 300 Main Street
Whitehorse, Yukon
Y1A 2B5

Your file / Votre référence

May 06, 1998

Our file / Notre référence
YB8N468

To:
- **All LUAC Members**
- **R.M.O.,Dawson**
- **Council for Yukon First Nations**
- **Yukon Conservation Society**
- **CPAWS**
- **Navigable Waters/ Canadian Coast Guard**
- **Tr'on dek Hwech'in First Nation**

LAND USE PERMIT APPLICATION YB8N468
JAKE DUNCAN
MAKE NEW TRAILS AND A CAMPSITE
- YUKON RIVER TO SALMON WEIR SITE ON THE CHANDINDU RIVER

DIAND - Land Resources is conducting a Canadian Environmental Assessment Act (CEAA) screening of Jake Duncan's Land Use Permit application for making new trails and a campsite.

Your comments on this proposal would be appreciated by 27 May 1998. As required under CEAA, please consider cumulative impacts associated with this project in your review. If you have any concerns with the proposal, please provide suggestions for mitigation that may be required. Upon completion of this review, DIAND will complete an environmental screening of the Land Use Permit application.

Should you have any questions please contact me at 867-667-3239 .

Yours truly,

MARG WHITE
A/Head, Land Use

Attach. (Land Use Application)

SD
c. Kelly Johnston BRO Liaison
Jake Duncan

Canada

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

Northern Affairs Program
P.O. Box 279
Dawson City, YT
Y0B 1G0

Telephone: (867) 993-5468
Facsimile: (867) 993-6233

Your file Votre référence

Our file Notre référence

YB8N468

October 16, 1998

Jake Duncan
c/o Y.R.C.F.A. Tr'ondëk Hwëchin
Box 844
Dawson City, YT
Y0B 1G0

Dear Sir:

Re: Land Use Permit #YB8N468

Enclosed find your copy of an Land Use Inspection Report dated October 2, 1998 on the above captioned permit.

At the time of inspection the operation was found to be generally satisfactory.

If you have any questions with regard to the Inspection, please do not hesitate to contact this office.

Thank you for your co-operation.

Yours truly,

Mike Collie
R.M.O.

cc: Head, Land Use
Tr'ondëk Hwëchin

Encl.

MC/db

Canada

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Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

LAND USE INSPECTION REPORT

Date October 02, 1998

▶ **FINDINGS OF INITIAL AND INTERIM REPORTS MAY BE SUBJECT TO FINAL INSPECTION DURING SUMMER MONTHS**

Permittee: (complete name and address) Jake Duncan c/o Y.K.C.F.A. Tr'ondëk Hwëch'in Box 914 Dawson City YT Y0B 1G0

	Permit Start Date	Permit Expiry Date	Initial Notice Date
Land Use Permit No. Y33N4B	June 10, 1998	June 07, 2000	
Quarrying Permit No. —			

Previous Inspection Dates

Pre-inspection	Initial	Last Previous	Final
	October 02, 1998		

Contractor Self

Location(s) Inspected Campsite / Access DFN Lands 2.33 A

Security Deposit ☐ Yes ☒ No Area Used 57.0 ha.

Current Stage of Operation Seasonal Shutdown

Program Modifications Approved: (See Remarks)

N/A

CONDITION OF OPERATION ▶ A - ACCEPTABLE U - UNACCEPTABLE N/A - NOT APPLICABLE

	Operating Condition	Aspect Inspected: Camp	Access		
3.0	Plans	A	A		
4.0	Notices / Reports	A	A		
5.0	Display Permit Instruct Employees	A	A		
6.0	Equipment	A	A		
7.0	Petroleum	A	A		
8.0	Explosives	N/A	N/A		
9.0	Wildlife and Fisheries Habitat	A	A		
10.0	Travel Restrictions	A	A		
11.0	Lines, Trails, R.O.W.'s	A	A		
12.0	Forest Fire Prevention	A	A		
13.0	Disposal – Brush and Trees	A	A		
14.0	Disposal – Garbage and Solid Waste	A	A		
15.0	Disposal – Sewage and Liquid Waste	A	A		
16.0	Disposal – Chemicals and Toxic Waste	N/A	N/A		
17.0	Streams	A	A		
18.0	Erosion Control / Prevention	A	A		
19.0	Restoration	A	A		
21.0	Other Matters	A	A		

Explanation and Remarks (include comments on other permit conditions, as necessary)	Corrective Action Date
Site was overflown with flagging. Small wooden bridge for atv travel noted across small tributary of creek. All gear stored securely @ campsite.	

☐ Page 2 Attached

Representative's Signature N/A	Representative's Title	Date
RMO Initials KD	Area Dawson	
Inspector's Signature		Date 98/10/12

802-5009-37 (3-85)

COPY 1 ▶ REGIONAL OFFICE COPY 2 ▶ PERMITTEE COPY 3 ▶ FIELD REPRESENTATIVE COPY 4 ▶ INSPECTOR Canada

Yukon Territory Water Board
Office des eaux du Territoire du Yukon

May 21, 1998

To: Distribution List (BY FAX)

Re: Water Use Application - MS98-100 - Yukon River Commercial Fishing Association and TR'ON DEK HWECH'IN First Nation - Chandindu River - Salmon Enumeration Weir- Dawson City.

The Yukon Territory Water Board has received Type B water licence application MS98-100, for a miscellaneous undertaking. This application is for the construction of a salmon enumeration weir across the Chandindu River (also known as Twelve Mile River). The weir will operate seasonally form June 1st to August 30th and will be removed from the watercourse when not is use. The applicant has requested a five year term of licence.

DIAND Land Use and Navigable Waters will also be issuing permits for these works. The Board will complete an integrated environmental assessment of this application, as required by the Canadian Environmental Assessment Act (CEAA).

I am enclosing a copy of the water use application. Please provide your comments and recommendations regarding the water use application, including recommendations regarding cumulative effects, to the Water Board by **June 1, 1998.**

Comments and Questions regarding the Land Use Permit # YB8N468 can be sent Christie Tavernor at DIAND Land Use (Tel: 667-3236, Fax 667-3214). Comments and Questions regarding the Navigable Waters Protection Act Sec 5(1) application #8200-98-8271can be sent to Jim Naylor (Tel: (604) 775-8868 Fax: (604) 775-8828).

Please ensure that the applicant receives a copy of any comments that you submit regarding this water use application. Thank you for your input.

Sincerely,

Brenda Casella

Brenda Casella

cc Christie Tavenor, LAND USE, FAX 667-3214 - Letter only
Jim Naylor, Navigable Waters Protection Branch, FAX (604) 775-8828 - Letter only

Suite 106, 419 Range Road, Whitehorse, Yukon Y1A 3V1 Ph: 867-667-3980 Fax: 867-668-3628
419 Chemin Range, bureau 106, Whitehorse (Yukon) Y1A 3V1 Tél: 867-667-3980 Fax: 867-668-3628

Yukon Territory Water Board

Office des eaux du Territoire du Yukon

May 20, 1998

Post-it™ Fax Note 7671E	Date MAY 21	# of pages ▶ 1
To J. DUNCAN	From B. CASELLA	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

Jake Duncan
Box 844
Dawson City, YT Y0B 1G0
By Fax: (867) 993-5960

Re: Water Use Application MS98-100 - Confirmation of New Information

Further to our conversation of this afternoon, I would like to confirm the following additional information you have supplied regarding your application:

- At the site of the weir the maximum width of the river (from ordinary high water mark to ordinary high water mark) is approximately 100' wide
- The cribbing of the weir will be positioned so as to be in the main current (deepest part) of the river.
- The shortest side of the weir will be approximately 35' in length.
- The longest side of the weir will be 135' in length.

This letter will now form part of your water licence application. Please call me at 667-3982 if you have any questions or if this information is incorrect.

Sincerely,

Brenda Casella

Brenda Casella
Environmental Assessment Officer
YTWB

cc water use register MS98-100, section 1.

Distribution List: MS98-100

As of May 21, 1998

Applicant: (Jake Duncan) Yukon River Commercial Fishing Assoc. & TR'ON DEK HWECH'IN F.N. Box 844 Dawson City, YT Y0B 1G0 Tel.: (867) 993-6974 Fax: (867) 993-5960	Darren Taylor Band Resource Officer Tr'on dek Hwech'in Bag 130 Dawson, YT Y0B 1G0 Tel.: (867) 993-5387 Fax: (867) 993-6553	Ed Lenchuk Resource Management Officer Box 279 Dawson, YT Y0B 1G0 Tel.: (867) 993-5468 Fax: (867) 993-6233
Jon Bowen Environmental Protection Branch YTG, Ren Res Box 2703 Whitehorse, YT Y1A 2C6 Tel.: (867) 667-3696 Fax: (867) 667-3641	Bill Slater Head, EA DIAND, Water Resources 345-300 Main Street Whitehorse, YT Y1A 2B5 Tel.: (867) 667-3147 Fax: (867) 665-3195	Council of Yukon First Nations 11 Nisutlin Drive Whitehorse, Yukon Y1A 3S4 Tel.: (867) 667-7631 Fax: (867) 668-6577
Al von Finster Senior Habitat Biologist DFO 200 Range Road Whitehorse, YT Y1A 3V1 Ph (867) 393-6721 Fax (867) 393-6738	John Hough Environmental Land Specialist, NAP 345 - 300 main Street Whitehorse, YT Y1A 2B5 Ph (867) 667-3105 Fax (867) 667-3214	Juri Peepre Canadian Parks and Wilderness Society 30 Dawson Road Whitehorse, YT Y1A 5T6 Tel.:(867) 668-6321 Fax:(867) 668-6321
Ken Kiemele Timber and Forrest Practice Technician, DIAND Forest Management 345-300 Main Street Whitehorse, YT Y1A 2B5 Tel: (867) 667-3350 #304 Fax: (867) 667-3138	Jim Naylor Navigable Waters Protection Officer 300-555 West Hastings Street Vancouver, B.C. V6B 5G3 Tel.: (604) 775-8868 Fax: (604) 775-8828	Jim Kincaid City Manager City of Dawson Box 308 Dawson, YT Y0B 1G0 Tel: (867) 993-7400 Fax: (867) 993-5237
Perry Savoie (M5) Land Use, YTG C&TS Box 2703 Whitehorse, YT Y1A 2C6 Tel.: (867) 667-3453 Fax: (867) 667-7962	Jennifer Ellis Yukon Conservation Society Box 4163 Whitehorse, YT Y1A 3T3 Fax (867) 668-6637	Vic Enns Environment Canada Mile 917.6B Alaska Highway Whitehorse, Yukon Y1A 5V1 Office (867)667 3867 Fax (867)667 7962
Bob Van Dijken Yukon Salmon Committee Water Board Bin (pickup)		

YUKON TERRITORY WATER BOARD

Pursuant to the Yukon Waters Act and Regulations, the Yukon Territory Water Board hereby grants a Type B water licence for a miscellaneous undertaking to:

Yukon Commercial Fishing Association
and Tr'on Dek Hwech'in First Nation
Box 844
Dawson City, YT Y0B 1G0

LICENCE NUMBER: MS98-100

LICENCE TYPE: B **UNDERTAKING:** MISCELLANEOUS

LOCATION: Chandindu River, a tributary of the Yukon River.

EXPIRY DATE: August 30, 2003.

PURPOSE: To install and operate a salmon enumeration weir, as proposed in water use application MS98-100.

EFFECTIVE DATE: The effective date of this Licence shall be the date on which the signature of the Chairperson of the Yukon Territory Water Board is affixed.

This Licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the Yukon Waters Act and the Regulations made thereunder. Where there is a discrepancy between the application and the terms of this licence, the terms of this licence shall prevail.

Dated this 9 day of June, 1998.

Witness

Approved:

Chairperson
YUKON TERRITORY WATER BOARD

PART A - GENERAL CONDITIONS

1. Definitions

a) "Act" means Yukon Waters Act and any amendments thereto.
b) "Regulations" means the Regulations made under the Act.
c) "Board" means the Yukon Territory Water Board.
d) "Inspector" means any person designated as an inspector under the Act.
e) "Waste" means any substance as defined in Section 2 of the Yukon Waters Act.

Waste Discharge Standards

2. This licence is issued to the Licensee, subject to the conditions contained herein, with respect to the use of water. However, it is also a condition of granting of this licence to the Licensee that, whenever future Regulations are made by the Governor in Council under the Yukon Waters Act, or any other structure imposing conditions relating to water use that are more stringent than any conditions included in this licence, this licence shall be deemed, upon prescription of such Regulations, to be automatically amended to conform with such Regulations.

Non-Compliance

3. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, with the approval of the Minister and subject to the Act, cancel the licence.

Correspondence

4. Where any direction, notice, order, or report under this licence is required to be in writing, it shall be given:

(a) to the Licensee, if left at or mailed by registered mail to the following address:

Yukon Commercial Fishing Association
and Tr'on Dek Hwech'in First Nation
Box 844
Dawson City, YT Y0B 1G0

and shall be deemed to have been given to the Licensee on the day it was left or seven (7) days after the day it was mailed, as the case may be.

(b) to the Board, if left at or sent by fax to (867) 668 3628, or sent by registered mail to the following address:

Yukon Territory Water Board
Suite 106, 419 Range Road
Whitehorse, Yukon Y1A 3V1

and shall be deemed to have been given to the Board on the day it was left or seven (7) days after it was mailed, as the case may be.

Spills and Unauthorized Discharges

5. (a) At least 10 days prior to placement of the weir, the licensee shall submit a spill contingency plan to the Yukon Territory Water Board.

(b) The licensee shall submit a spill contingency plan to the Yukon Territory Water Board 10 days prior to the commencement of construction. The Licensee shall immediately contact the 24-hour Yukon Spill Report number (867) 667-7244 and implement the contingency plan, should a spill or unauthorized discharge occur or seem likely to occur. A detailed written report on any such event, including but not limited to dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Yukon Territory Water Board not later than 15 days after the occurrence.

Annual Reports

6. On or before the anniversary of the date of issuance of this licence, and for each year during which this licence is in effect, the Licensee shall submit an annual report to the Board. The report shall comply with the requirements of the Regulations and shall:

(a) explain any difference between what was proposed in the Licensee's application for licence and what was done; and

(b) include results of physical inspection and any other reports which may be required by this licence; and

(c) details of maintenance and remedial works undertaken.

Other Laws

7. No term of this licence limits the application of any other Federal or Territorial Law.

Term of Licence

8. The term of this licence is for the period from the effective date to August 30, 2003.

Notification

9. Prior to placement and removal of the weir, the licensee shall provide to the Board, in writing, the name of the field supervisor and a contact number.

PART B - OPERATING CONDITIONS

Description of Water Use

10. The Licensee is hereby authorized to install and operate a salmon enumeration weir as proposed in Water Use Application MS98-100 and subject to this licence. Where there is a discrepancy between the water use application and the terms of this licence, the terms of this licence shall prevail.

Water Use Structures

11. The Licensee shall maintain in good repair all works associated with the undertaking.

12. The weir shall be inspected a minimum of once daily. If physical instability of the weir is noted, it shall be rectified.

13. Debris that catches on the weir shall be removed daily.

14. All construction or installation of associated works authorized by this licence shall occur on property which the Licensee has the right to enter upon and use for that purpose.

General Operating Conditions

15. Disturbed ground surfaces and work sites shall be stabilized in such a manner so as to prevent erosion and surface runoff from carrying sediment into any watercourse.

16. Waste substances shall be used, transported, stored or disposed of in such a manner that they are not deposited in or allowed to be deposited into any watercourse.

17. Material shall not be dislodged or excavated from the bed of the Chandindu River.

18. Freshwater fish passage shall not be effected as a result of the weir fencing.

PART C - SITE DECOMMISSIONING AND RESTORATION

19. All equipment shall be removed from the river within two weeks of completion of salmon enumeration.

20. Equipment shall be stored outside the flood plain of the Chandindu River.

REASONS FOR DECISION
WATER USE APPLICATION # MS98-100
YUKON RIVER COMMERCIAL FISHING ASSOCIATION AND
TR'ON DEK HWECH'IN FIRST NATION

The Yukon Territory Water Board ("the Board") has concluded it's deliberations pertaining to water use application MS98-100, an application, for a miscellaneous undertaking.

The applicant, Yukon River Commercial Fishing Association and Tr'on Dek Hwech'in First Nation, made application for a miscellaneous undertaking consisting of the placement of a salmon enumeration weir in the Chandindu River for the purposes of salmon enumeration.

Public notice of this application was provided in accordance with the requirements of the Yukon Waters Act. In response, the Board received interventions from Indian and Northern Affairs Canada (Water Resources, Forestry and RMO Dawson), and Government of Yukon (Renewable Resources). The Board did not receive a request for a public hearing into this application.

Freshwater Species:

In their intervention, the Government of Yukon indicated that the weir installation will coincide with the spawning time for freshwater fish species such as arctic grayling and longnose suckers. It is possible that the mobilization of sediment could impact the eggs laid by these species of fish. The board agreed that a condition prohibiting the applicant form dislodging or excavating material from the bed of the Chandindu River would provide ample mitigation to minimizing effects to freshwater fish species.

Prior to making licensing decisions, the Board undertook an integrated environmental assessment of this project along with DIAND Land Use and the Canadian Coast Guard, pursuant to the Canadian Environmental Assessment Act ("CEAA"). The Board is satisfied that the project is not likely to cause significant adverse environmental effects.

No term of the licence limits the application of any Federal or Territorial Law. Without limiting the generality of this statement, but in order to provide further clarification, the Board notes that the licence does not constitute approval or authorization pursuant to the Fisheries Act.

Ron W. Johnson

Ron Johnson
Chairperson
Yukon Territory Water Board

Date: June 9/98

Post-it™ Fax Note 7671E	Date June 17/98 # of pages 1
To Jake Duncan	From YTWB
Co./Dept.	Co.
Phone #	Phone # 667-3980
Fax # 867-993-5960	Fax # 668-3628

Fisheries and Oceans
Pêches et Océans

Pacific Region
#350-555 West Hastings Street
Vancouver, BC V6B 5G3
Tel: (604) 775-8868
Fax: (604) 775-8828

FAXED Apr 21/98

Your file Votre référence

Our file Notré référence
8200-98-8271

April 21, 1998

Jake Duncan
Box 844
Dawson City, YT Y0B 1G0

Dear Mr. Duncan:

RE: **Navigable Waters Protection Act Sec 5(1) application by Jake Duncan on behalf of Trondek Hwechin for approval to construct a Salmon Enumeration Weir, on Chandindu River, Dawson City, Yukon**

Reference is made to your application under the Navigable Waters Protection Act for approval of the above-mentioned work.

Your plans have been reviewed by officials of this Department. Please deposit two sets of drawings, one copy for public review in the local Registry Office (see enclosed list) and return the second copy to this office bearing the Registrar's certificate and signature or deposit number.

You may then proceed with publication of the necessary advertising as per the attached 'Model Advertisement' in the following:

1. **Canada Gazette**
   Telephone: (613) 991-1351
   Fax: (613) 991-3540
   Mailing Address: Manager
   Canada Gazette Group
   Canadian Government Publishing Centre
   Government Services Canada (GSC)
   350 Albert Street, 5th Floor
   Ottawa, Ontario
   K1A 0S5

2. Legal section of **two local newspapers**. The ad is required to appear in only one edition of each.

Please complete the attached "Proof of Advertising" form and return it to this office.

/...2

Canada

Thirty (30) days after the latest advertising date, we will be in a position to proceed towards finalizing this application. In the meantime, please ensure that no work is undertaken below the high water mark until formal approval documentation has been issued.

Yours truly,

For/ Jim Naylor
Area Officer
Navigable Waters Protection Division
Canadian Coast Guard

JN/lf
Enclosure

PLAN DEPOSITION PROCEDURES

DEPOSITION OF PLANS

Plans are to be deposited not registered. (Registration affects title)

FEES

For 1995, the fee for depositing plans in BC is $20. No fee in the Yukon.

LAND TITLES OFFICE REQUIREMENTS

A mylar original may be required (the Yukon Territory will accept mylar copies only). The legal description of the adjoining upland must be included, preferably on the plan itself, but the legal description on an accompanying letter may be accepted.

OFFICES

BRITISH COLUMBIA	*YUKON*
# 114 - 455 Columbia Street Kamloops, BC V2C 6K4 Tel: (250) 828-4455 88 - 6th Street New Westminster, BC V3L 5B3 Tel: (604) 660-2595 401- 299 Victoria Street Prince George, BC V2L 5B8 Tel: (250) 565-6200 850 Burdett Avenue Victoria, BC V8W 1B4 Tel: (250) 387-6331	(Yukon Territorial Government) (Box 2703 for mailing only) 2130 - 2nd Ave. (Main Floor) Whitehorse Y1A 2C6 Tel: (867) 667-5612

Canada

MODEL ADVERTISEMENT # 1

NAVIGABLE WATERS PROTECTION ACT
R.S.C. 1985, CHAPTER N-22

..... hereby (gives/give) notice that
(full name of applicant)

an application has been made to the Minister of Fisheries and Oceans under the Navigable Waters Protection Act for approval of the plans and site of the work described herein. Under Section 9 of the said Act,

.....has deposited with the Minister of Fisheries and Oceans,
(full name of applicant)
at Vancouver, BC and in the office of the District Registrar of the Land Registry District of

..... at .....
(name of county or district) (name of place where registry office is located)

under deposit number ..... a description of the site and plans of

.....
(name and status of work - e.g. existing/proposed wharf, breakwater, booms, bridge, cable, dam, etc.
- not merely "works" or such general terms)

(in the/over) .....
(name of river or other body of water)

at .....
(name of place where work is to be located)

in front of lot number .....
(or at the foot of such a street, etc.) (see note below)

And take notice that the project will be subject to review pursuant to the Canadian Environmental Asswssment Act.

Written objections based on the effect of the work on marine navigation or the environment should be directed not later than one month from the date of this notice to: Regional Director, Fisheries and Oceans, Canadian Coast Guard, Marine Programs, Navigable Waters Protection Division, Suite 350 - 555 West Hastings Street, Vancouver, BC V6B 5G3

Dated at ..... this ..... day of ....., 19 .....

(Signature) .....
(full name of applicant)

NOTE: It is essential that the location of the existing or proposed work be properly identified for the information of the public. The location of the work may also be indicated as being on a water lot, giving the number of the water lot or lot number in front of which it is situated. Where a work is to extend from one side of the river to the other, as in the case of a bridge, cable, dam, etc., the location should read from .....to..... .....
(well determined points)

Canada

Yukon News

To: _____
Attention: JAKE DUNCAN
No. of pages: 01
From: ROD J.
Date: MAR. 28
Time sent: 9:15
Confirmation needed: yes ✓ no ____
If we don't hear from you by _____ your ad will be printed as is
Please check carefully for any errors.
~~For your records only~~ _____

Phone 667-6285 • Fax 668-3755

Navigable Waters Act.TDH.First Nation.May 1/98 PM2 am

Navigable Waters Protection Act
R.S.C. 1985, Chapter N-22

I, Jake Duncan, on behalf of the Yukon River Commercial Fishing Association and the Tr'on dëk Hwech'in hereby give notice that an application has been made to the Minister of Fisheries and Oceans under the *Navigable Waters Protection Act* for approval of the plans and site of the work described herein. Under section 9 of the said Act, the Yukon River Commercial Fishing Association and the Tr'on dëk Hwech'in have deposited with the Minister of Fisheries and Oceans at Vancouver, B.C. and in the DIAND Resource Management Office, located above the Post Office on 5th Avenue, Dawson City, Yukon, a description of the site and the plans of the proposed Salmon Enumeration Weir to be located approximately 1 km upriver from the mouth of the Chandindu River, from its western bank to its eastern bank. Take notice that the project will be subject to review pursuant to the Canadian *Environmental Assessment Act*. Written objections based on the effect of the work on marine navigation or the environment should be directed no later than one month from the date of notice to: Regional Director, Fisheries and Oceans, Canadian Coast Guard, Marine Programs, Navigable Waters Protection Division, Suite 305-555 West Hastings Street, Vancouver, B.C. V6B 5G3.

Dated at Dawson City this 27th day of April, 1998
Jake Duncan

NOT LATER

JAKE: 2 col. x 3" AD.
~~93.78~~ + G.S.T. PER INSERTION.
$62.52
PLEASE PROOF-READ AND CALL
OR FAX TO CONFIRM DATES
YOU WOULD LIKE THIS TO RUN.

Thanks,
Rod J.

Attn: Jake Duncan

Please proof & call/fax
by 10:00 am tomorrow.
Thank you
Robyn 668-2060
668-7130 fax.

Navigable Waters Protection Act
R.S.C 1985, Chapter N-22

I, Jake Duncan, on behalf of the Yukon River Commercial Fishing Association and the Tr'on dëk Hwech'in hereby give notice that an application has been made to the minister of Fisheries and Oceans under the Navigable Waters Protection Act for approval of the plans and site of the work described herein. Under section 9 of the said Act, the Yukon River Commercial Fishing Association and the Tr'on dëk Hwech'in have deposited with the minister of Fisheries and Oceans at Vancouver, B.C. and in the DIAND Resource Management Office, located above the Post Office on 5th Ave., Dawson City, Yukon, a description of the site and the plans of the proposed Salmon Enumeration Weir to be located approximately 1 km upriver from the mouth of the Chandindu river, from its western bank to its eastern bank. Take notice that the project will be subject to review pursuant to the Canadian Environmental Assessment Act. Written objections based on the effective work on marine navigation or the environment should be directed not later than one month from the date of notice to: Regional Director, Fisheries and Oceans, Canadian Coast Guard, Marine Programs, Navigable Waters Protection Division, Suite 350-555 West Hastings Street, Vancouver, B.C., V6B-5G3

Dated at Dawson City this 27th day of April, 1998

Jake Duncan

up-river
effect of the

Fisheries and Oceans Canada
Coast Guard

Pêches et Océans Canada
Garde côtière

Pacific Region
Navigable Waters Protection Division
350 - 555 West Hastings
Vancouver, BC V6B 5G3
Tel: (604) 775-8868 Fax: (604) 775-8828

Your file Votre référence

Our file Notré référence
8200-98-8271

~~JUN~~ JUL 3 1 1998

REGISTERED

Jake Duncan
Box 844
Dawson City, Yukon
Y0B 1G0

Dear Mr. Duncan:

Re: **Navigable Waters Protection Act Sec 5(1) application by Jake Duncan on behalf of Trondek Hwechin for approval to construct a WEIR, Chandindu River, Lat. 64°16'04.7"N Long. 139°40'26.7"W, Dawson City, Yukon**

APPROVAL

Enclosed herewith is a formal document dated ~~JUN~~ JUL 3 1 1998 and signed on behalf of the Minister of Fisheries and Oceans.

This application has been screened under the Canadian Environmental Assessment Act (CEAA). The implementation of the mitigation measures (copy attached) designed to reduce the environmental impact of the work is the responsibility of the owner(s) or person(s) in possession.

Please advise this office attention Jim Naylor of the following:

- receipt of this documentation
- commencement of the works
- completion of the works

Yours truly,

Y Myers

Yvette Myers
Regional Superintendent
Navigable Waters Protection Division
Canadian Coast Guard

JN/lf

Enclosure

Canada

CANADA
DEPARTMENT OF FISHERIES AND OCEANS

FORM 1

8200-98-8271

NAVIGABLE WATERS PROTECTION ACT, PART I
Section 5(1)

Approval

APPLICANT: Trondek Hwechin
Yukon River Commercial Fishing Association
Box 599 (Trondek Hwechin) Box 552 (YRCFA)
Dawson City, YT Y0B 1G0

WORK: WEIR

SITE-LOCATION: Chandindu River, Lat. 64°16'04.7"N
Long. 139°42'26.7"W, Dawson City,
Yukon

IMPORTANT NOTICE: This document authorizes the work in terms of its effect on marine navigation. It is the applicant's responsibility to obtain any other forms of approval, including building permits.

WHEREAS the above-named applicant has made application to the Minister of Fisheries and Oceans under the Navigable Waters Protection Act for approval of the above-described work at the above-referred to site in accordance with the attached plan(s); (2)

WHEREAS it is considered advisable to approve the said work at the said site and plan(s) thereof for a period of 50 years, subject to the following term(s) and condition(s):

See attached NWPA conditions

THEREFORE, the Minister of Fisheries and Oceans, pursuant to the provisions of the Navigable Waters Protection Act, Revised Statutes of Canada, 1985, chapter N-22, hereby approves the said work at the said site and plan(s) thereof for the period of time aforesaid providing:

(a) the construction of the work is commenced within six (6) months and completed within three (3) years of the date hereof;

(b) the work is built, placed and maintained in accordance with the plan(s) the Navigable Waters Works Regulations and the aforesaid term(s) and condition(s).

Vancouver, BC

JUL 3 1 1998

R.S. Bryant
Regional Director
Canadian Coast Guard
for Minister of Fisheries and Oceans.

73-0090 (02-92)

NWPA CONDITIONS OF APPROVAL

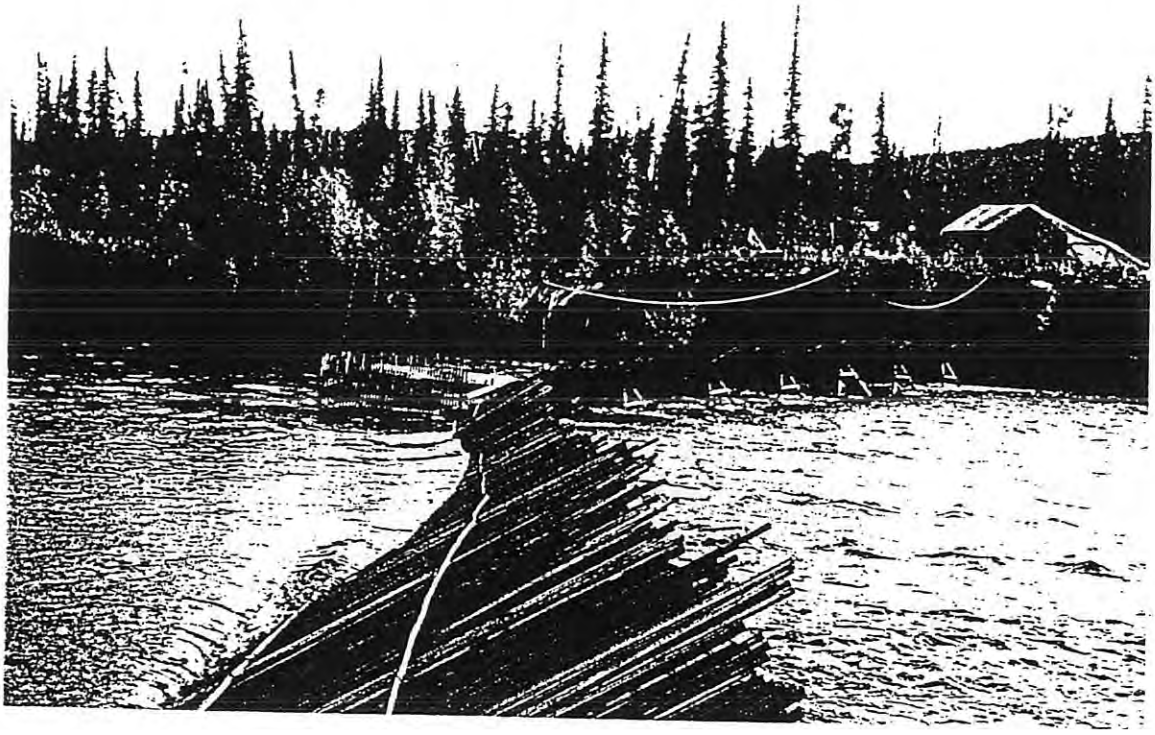
File # **8200-98-8271**

The owner(s) or person(s) in possession if required to ensure that:

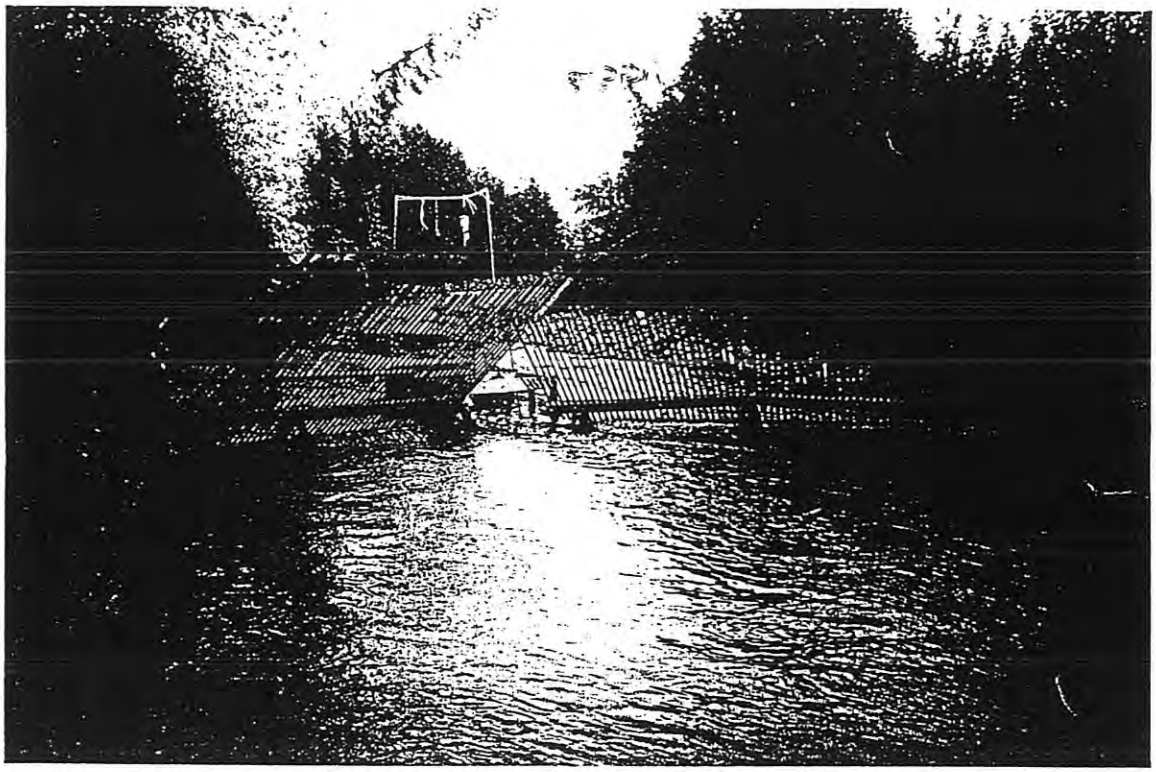
1. The weir shall not be placed in the water prior to June 1st and shall be removed in its entirety by August 31st. Should future operational circumstance necessitate modification of the above dates, written approval from this department will be required.

2. Signage of adequate size and durability shall be posted warning boaters of the weir while it is in the water.

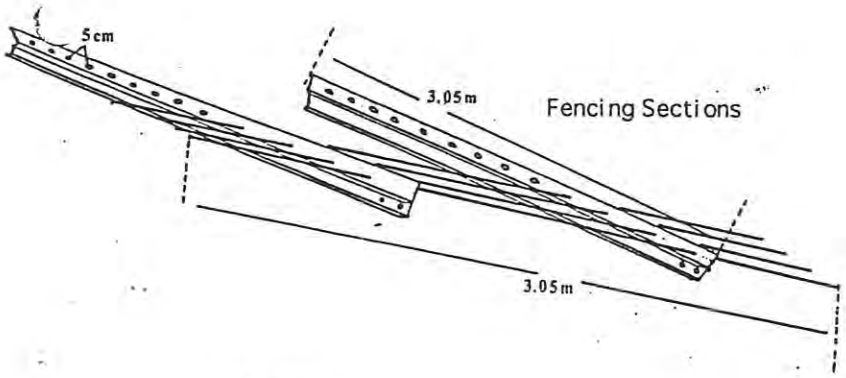
3. Provision and maintenance of a suitable portage path around the weir should the requirement arise in the future.



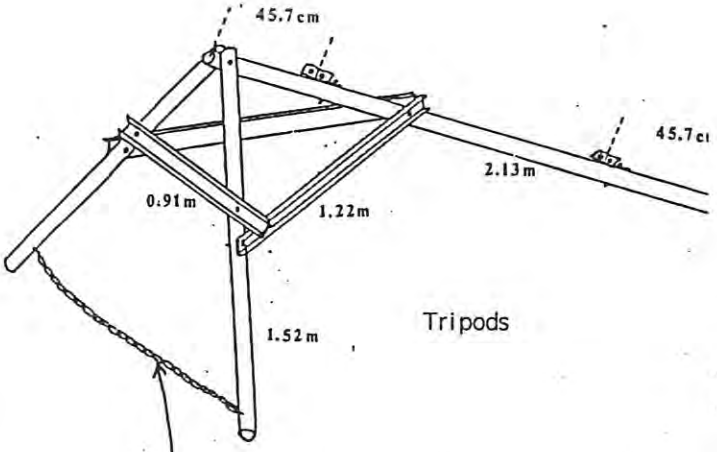
NAVIGABLE WATERS PROTECTION ACT
1 OF 5
JUL 27 1998
8200-98-827.1
PACIFIC REGION



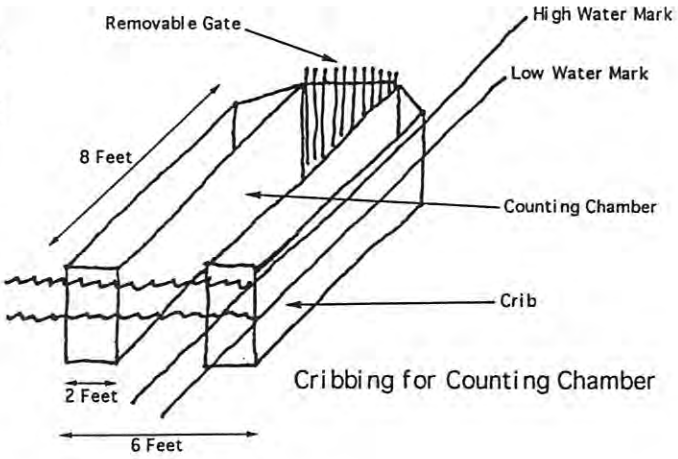
NAVIGABLE WATERS PROTECTION ACT
2 OF 5
JUL 27 1998
8200-98-8271
PACIFIC
REGION



Fencing Sections

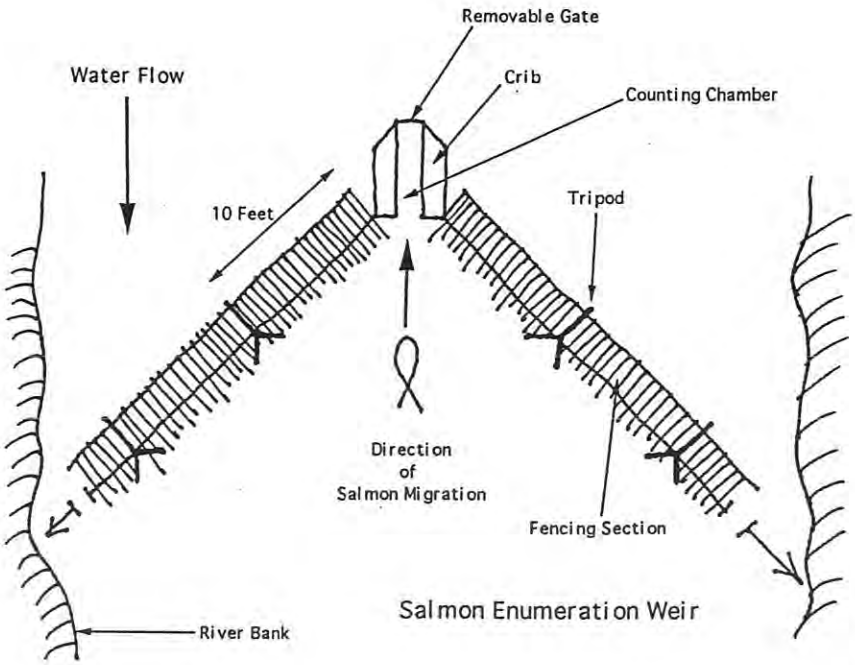


Tripods



Cribbing for Counting Chamber

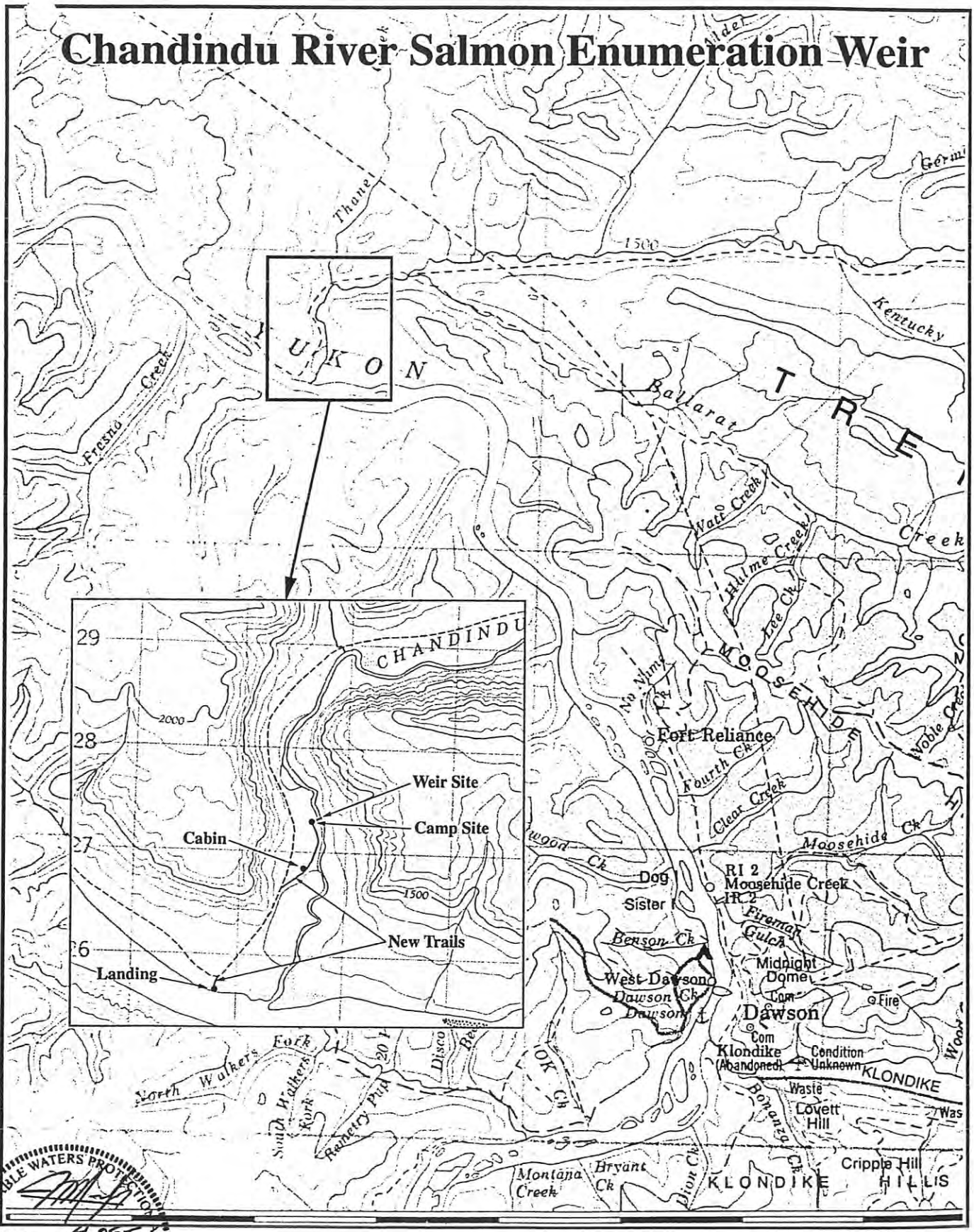
-chain link bolted on to prevent settling into gravels on tripods with high loads ie. deep water, fast current



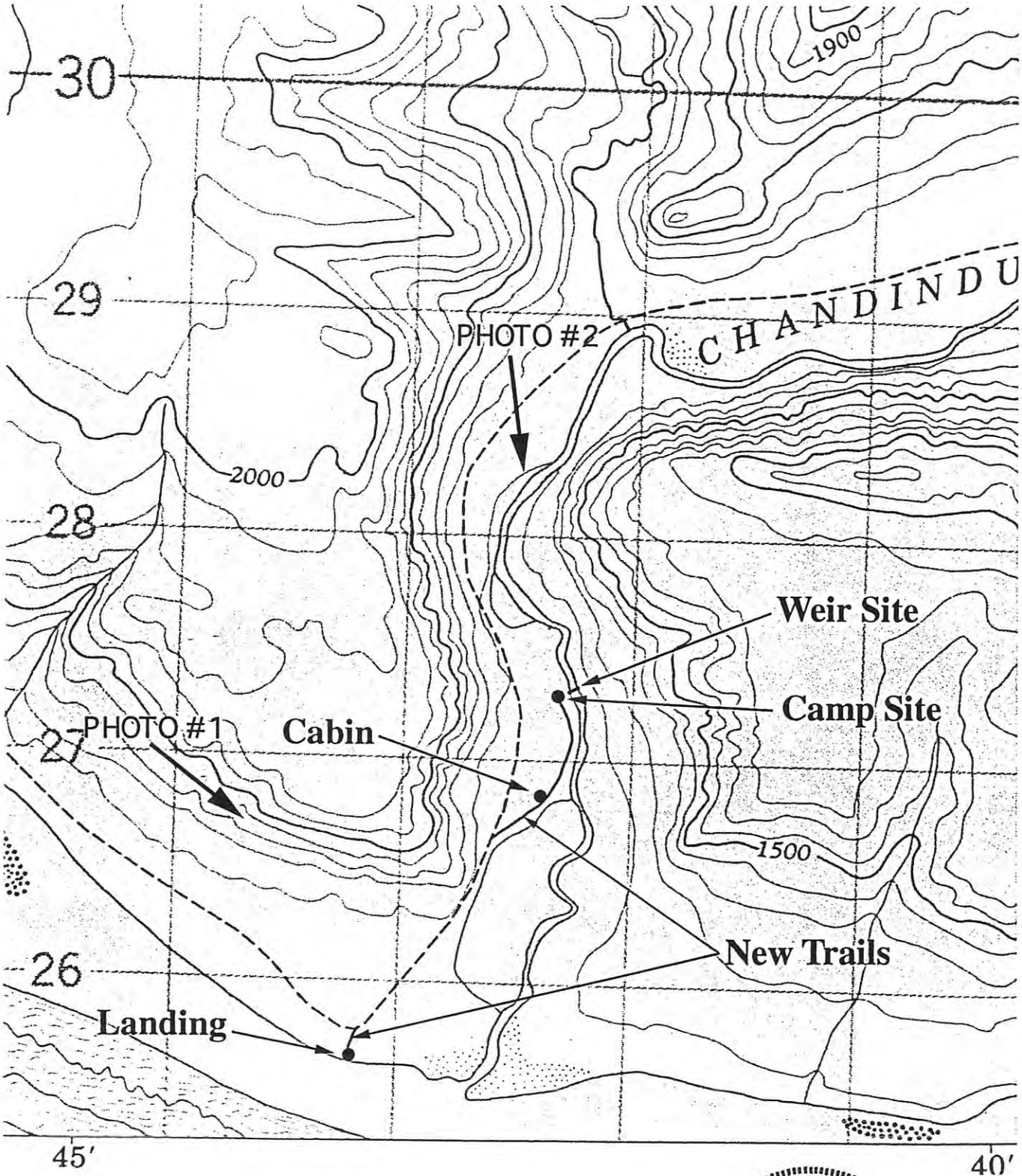
Salmon Enumeration Weir

NAVIGABLE WATERS PROTECTION ACT
3 of 5
JUL 27 1998
8200-98-8271
PACIFIC
REGION

Chandindu River Salmon Enumeration Weir



NAVIGABLE WATERS PROTECTION ACT
4 OF 5
JUL 27 1998
8200-98-8271
PACIFIC REGION



NAVIGABLE WATERS PROTECTION ACT
5 OF 5
JUL 27 1998
8200-98-8271
PACIFIC REGION

Jake Duncan
Box 844
Dawson City, Yukon
Y0B-1G0
ph(867) 993-6974
fx(867) 993-5960
e-mail: jduncan@yknet.yk.ca

June 4th, 1998

Brenda Casella
Yukon Territory Water Board
Suite 106, 419 Range Road,
Whitehorse, Yukon
Y1A-3V1

Re: Fuel Spill Contingency Plan/Water Licence MS98-100

Dear Brenda,

As a specific recommendation noted in the review of our water licence application, I have attached a Fuel Spill Contingency Plan to this letter.

Thank you and if you have any questions regarding this plan, or if you require any other information regarding the application, please do not hesitate to contact me at the above noted address/telephone number.

Sincerely,

Jake Duncan

Ps. Could you inform me of the status of the licence (prior to the Board meeting) A.S.A.P., many people, and our project are eagerly waiting for the news. Thanks again.

Fuel Spill Contingency Plan

Date: June 4th, 1998

Project: Chandindu River Salmon Enumeration Weir

Location: Chandindu River (Approx. 20 miles downstream from Dawson City)

Field Supervisor: **Jake Duncan**

Contact Telephone Numbers: 993-6974 Phone
993-5960 Fax

- Fuel to be freighted by Jake Duncan via the Yukon River. Fuel will be hauled in 5 gallon gas cans.
- Spill response equipment include assorted hand tools to collect contaminated soils, garbage bags and a locking drum for containment. Absorbal will also be available.

Response Procedures:

(1) Recognize and remove hazards to human life, health or safety.

(2) Contain spill.

(3) Notify spill hotline.

(4) Request direction from regulatory agency as to disposal of spilled fuel and contaminated material.

(5) Disposal of material and clean-up of site as per instruction.

Containment Procedures:

(1) Eliminate sources of ignition.

(2) Take action to minimize the spill if possible.

(3) Prevent the spill from entering any watercourse.

(4) Contain the spill in a natural catchment or berm, or one constructed from tarps and soil by hand tools. Absorb unrecoverable fuel using sand or absorbtion towels.

(5) If fuel reaches a watercourse, contain spill by booming if possible: if material is floating skim and remove.

Spill Site Clean-Up:

Contaminated material will be removed from the site and disposed of at an approved location. Disposal of the materials will be carried out as directed by the designated regulatory agency representative.

Reporting:

Weir Attendants > Field Supervisor > Spill Hot Line

Contact Numbers

24hr Yukon Spill Hot Line:	(867) 667-7244	
Water Resources Division Inspector:	(867) 667-3227	Tony Polyck
RCMP-Dawson City:	(867) 993-6282	or...
	(867) 993-5637	
Nursing Station/Ambulance:	(867) 993-4444	
Resource Management Officer:	(867) 993-5468	Ed Lenchuk
Forest Fire Control:	(867) 993-5468	Dawson Forestry Office

Fuel Spill Reporting Form

Name: _____

Date: _____

1. Type of spill: (check) Oil ___
   Gasoline ___
   Other ___

2. Specified Substances: _____

   Quantity: _____

3. Location (specific): _____

4. Cause of incident: _____

   _____

   _____

5. Weather Condition: _____

6. Watercourse in Area: _____

7. Fish Kill: _____

8. Fire Hazard: _____

9. How to prevent recurrence: _____

   _____

10. Action taken to date: Containment: _____

    Clean-Up: _____

Reported to (name): _____