Final Reporting Compilation
Market Planning and Coordination Support for Mid and Upper Fraser Demonstration Commercial Fishery Projects - 2009/10

A Compilation of Reporting on the:

Market Planning and Coordination Support for Mid-Fraser Demonstration Commercial Fisheries 2009/10

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Preamble

On January 10, 2009 the partners of this project received a letter from DFO requesting a brief concept proposal for First Nations in-river demonstration fisheries for 2009. The Secwepemc Fisheries Commission (SFC) submitted the proposal on February 23, 2009 and DFO accepted the proposal March 17, at which time DFO requested a detailed proposal. SFC submitted the detailed concept proposal on April 17, which was verbally approved in May, subject to available commercial allocations (TAC).

This project was undertaken to strengthen partnership collaborations between two First Nations Organizations [Secwepemc Fisheries Commission (SFC) and the Siska Traditions Society (STS) – the partnership of the two referred to throughout as SFC-Siska, and the Upper Fraser Fisheries Conservation Alliance – UFFCA) pursuing the development of inland commercial salmon fisheries, and facilitate the success of the 2009 Demonstration Commercial Fishery feasibility projects these two groups pursued. The work is ultimately intended to inform the respective business plans that will be required to guide inland commercial salmon fisheries in these areas.

Fisheries within and between the upper and mid-Fraser areas differ in their timing, the nature of harvesting, processing and transport logistics, and the stocks and species that can be targeted, and their quality and characteristics. However, there are undoubtedly learning curves that can be shortened and economies of scale and scope that can be achieved through an approach involving inter-regional coordination and collaboration.

The broad objectives of the project were:

- to conduct research and design operational plans for marketing, production, transport, processing, and reporting phases of the 2009 feasibility studies;
- to maximize linkages and develop collaborations between mid-Fraser and Upper Fraser PICFI proponents to better inform the respective business plans; and,
- to explore potential efficiencies or competitive advantages available via inter-regional collaboration.

Early in the project the persons responsible for Market Planning and Coordination Support projects in the mid-Fraser and Upper Fraser met and developed the specific tasks listed below, and identified those that each would pursue independently, and those that require combined efforts, and responsibilities were assigned as appropriate. A summary of the Terms of Reference developed to guide the work were as follows:

1. In collaboration with the mid-Fraser contractor, complete and submit a printed copy and a digital copy of a written report describing all project activities and summarizing project findings.

2. Facilitate pre-season discussions and arrangements with prospective buyers and/or processors:
    a. Explore the applicability and logistics of using the "Virtual Warehouse" concept for marketing mid and upper Fraser River fish products.
    b. Develop suggested guidelines for contracting terms for engaging with buyers, brokers or processors etc. (legal process and structuring of agreements to minimize financial risk to fishery proponents).

3. Assist in the coordination of preparatory measures with fishery proponents including:
    a. Organize pre-season communications meetings as required to liaise with government agencies (e.g. DFO Conservation and Protection, BC Food Health/Safety).
    b. Assist with pre-planning for local and potential distant market arrangements.
    c. Investigate options related to processing, ice and freezer space, container requirements, landing/sales site requirements – to inform market options.

4. Investigate and provide advice regarding regulatory and compliance issues (e.g., license applications and fish handling, sales, transport and processing):
    a. Investigate local processing options with a focus on determining if existing local business(es) meet the requirements to allow sorting and gutting of catch, or if temporary measures can be explored, and if not, identify what measures are required to achieve compliance. This is expected to involve a considerable level of liaison with Food Safety Personnel.

5. Make arrangements for the UFFCA to utilize processing capacity at Siska Plant (likely for NSTC or TNG sockeye):
    a. Conduct sockeye roe recovery and distribution for assessment and/or sale.
    b. Consider potential return of processed sockeye to the UFFCA area markets or to other markets.

6. Expand local sales opportunities:
    a. Provide advice to SFC on conducting fresh sales of UFFCA area sockeye in the Kamloops area market – processed at the Siska plant.

7. Develop and/or confirm standards for each fishery including information management (data collection procedures and forms), quality management (fish handling, bleeding, icing), and relevant regulatory measures:
    a. Capture/update "standards and practices" in a manual format.

8. Assess product and packaging options for all fisheries (e.g., investigate options and provide advice for value-added and lower grade products):
    a. If required, make arrangements for a small portion (10-20) of the fish captured from fisheries in each area to be assessed for product suitability options, and subsequently professionally processed and packaged according to options that are best suited to known market demands and the unique qualities of in-river sockeye. This is anticipated to involve an existing value-added processor in Vancouver or Prince Rupert.

9. Assess the various products in relation to their desirability to various markets, and price, demand and logistical considerations. This will be accomplished through several mechanisms.

10. Provide in-season and longer-term advice on certification, branding and traceability issues:
    a. Consider options for developing a "Certification Standard" applicable to in-land/near-terminal fisheries.

11. Facilitate a post-season workshop(s) to present project results and discuss lessons learned.

12. Review project evaluation methods and conduct detailed post-project analyses and reporting
    a. Explore business models and assess current barriers to profitability, and mechanisms for redressing these issues.

In-Season Project Adjustments (2009)

As the 2009 sockeye season unfolded, it became apparent that the planned sockeye demonstration fisheries in the upper Fraser weren't likely to proceed. This required a substantial alteration in the UFFCA's components of this work, refocusing efforts away from in-season fishery support, and towards the investigation of infrastructure and regulatory matters related to fish harvesting and processing in the upper watershed. The planned marketing and assessment component was maintained. The adjusted schedule of activities is described in detail below.

The fishery for Chinook within the SFC-Siska area occurred largely as planned, and the initial terms of reference for the mid-Fraser component of this work proceeded largely as outlined at the onset of the project.

Document Structure

Given the differing nature of the activities this project entailed within the mid-Fraser (SFC-Siska) and the upper Fraser (UFFCA), this compilation document is structured according to the reporting produced by each of the organizations, with the results of the mid-Fraser (SFC-Siska) 2009 presented within the 1st Section, and the results of the upper Fraser (UFFCA) presented in the 2nd Section of the document. A specific section suggests specific areas where inter-regional collaboration would be beneficial, or where inter-regional collaborative possibilities should be explored.

Executive Summary SFC-Siska

The overall goal of the Market Planning and Coordination Support for Mid and Upper Fraser Demonstration Commercial Fisheries in 2009/10 was to research and design operational plans for production, processing, transportation, marketing and reporting for commercially harvested chinook and pink salmon. Collaboration between Mid Fraser and Upper Fraser PICFI proponents was also established to identify common linkages to better inform the respective business plans. Competitive advantages and production efficiencies via inter-regional collaboration were also explored. The partners were the Secwepemc Fisheries Commission (SFC), Siska Traditions Society, and the Upper Fraser Fisheries Conservation Alliance (UFFCA).

Production, processing, sales volumes and timing were closely integrated and carefully monitored. Five hundred thirty-four (534) chinook were harvested by large mesh gillnets in Kamloops Lake. The fishing and processing schedule was from August 25 to September 18; during which time fishing occurred a total of 14 days

Pinks (20,258) were harvested by beach seining at Steelhead Park at the outlet of the Thompson River, at the west end of Kamloops Lake. The fishing and processing schedule was from Sept 28 to Oct 4, during which time harvesting occurred for a total of six days.

All of the chinook catch was transported daily to Siska's licensed processing/ice plant for processing and temporary cold storage. Fish were processed as headed and gutted, steaks, BBQ strips, or fillets. Pre-orders were taken and a large portion of the catch was sold to Kamloops area customers. The rest of the catch was sent to a coastal processor for further processing into value added product. Samples of value added fish products were sent to BC Southern Interior retail fish outlets. Eggs were extracted, brined and transported to a coastal processor/buyer for sale.

All the pink catch was transported daily to Siska's plant for processing and temporary cold storage. Only females were processed for egg extraction and brining. All processed and unprocessed catch was transported from Siska to a coastal processor/buyer for sale.

Operational plan evaluations were completed for all demonstration fisheries allowed in 2009, and recommendations were made for production, processing, transportation and marketing collaborative harvesting of commercial salmon harvested from the mid and upper Fraser.

Introduction – SFC-Siska

Siska Traditions Society (STS) is a non-profit organization with a board of directors made up of Siska Indian Band community members and representatives from Siska Indian Band Chief and Council. It operates economic programs related to fisheries, forestry and tourism to enhance social cultural and economic development within the Siska community.

Secwepemc Fisheries Commission (SFC) is a non-profit, support service agency operating as a division of the Shuswap Nation Tribal Council Society. SFC's office is located in Kamloops within the territory of the Secwepemc or Shuswap people. One of the SFC's goals is to assist the affiliated communities with re-establishing an economy related to fishing.

Previous Studies – SFC-Siska

The Siska Indian Band (Nlakapamux Nation) has demonstrated leadership in commercial salmon fisheries feasibility studies in the middle Fraser River since 2005. Demonstration fisheries occurred at Siska in 2007 utilizing the fish wheel, and the Siska processing plant has been operating in season since 2007.

STS has operated fish wheels for stock assessment and hosted collaborative management strategy discussions with other similar fisheries in the Fraser and Skeena Rivers since 2005.

SFC has conducted six years of commercial fishing feasibility studies from 2004 to 2009. SFC's commercial fisheries feasibility research to date has focused on the following:

- selecting suitable target salmon stocks for harvest;
- testing harvesting methods and locations to determine production capacity;
- determining fish handling and transportation options;
- identifying licensing, certification and regulatory requirements (federal and provincial);
- preparing a range of product samples for quality assessments;
- exploring options for local marketing of fresh and processed products;
- making sales agreements with various fish buyers;
- developing collaborative arrangements with other inland First Nations producers and processors (primarily Siska First Nation); and,
- conducting preliminary business planning including multi-year production and marketing plans.

Goals and Objectives – SFC-Siska

The overall goal of the Market Planning and Coordination Support for Mid and Upper Fraser Demonstration Commercial Fisheries in 2009/10 was to research and design operational plans for production, processing, transportation, marketing and reporting for commercially harvested salmon, and refine the business plans under development for STS, SFC, and UFFCA to be complementary where beneficial. This project was to collect, analyze and report on the information relevant to assess the viability of an in-river commercial fishing enterprise, as required for a submission to the PICFI program.

The program aimed at addressing the following primary objectives:

- develop a strategic partnership agreement between STS, SFC, and UFFCA that strongly links the three complementary business plans under development;
- closely integrate and carefully monitor fish production, processing and sales in terms of volumes and timing throughout the course of the program;
- conduct local delivered sales of processed chinook and sockeye to establish sales targets;
- develop suggested guidelines for contracting terms for engaging with buyers/brokers/processors to minimize financial risk for fishers;
- consider options for developing a "Certification Standard" for in river fisheries;
- determine the potential scale and scope of the fisheries in order to establish annual production targets for viable business plans;
- assess production/processing efficiencies and best use production plans, and,
- collaborate with other First Nations in the Fraser on research and development activities throughout all phases of the work.

Partner Roles and Responsibilities SFC-Siska

STS was responsible for coordinating the operations of the Siska fish processing plant including

- recording daily fish delivery arrivals and plant production (processing)
- processing whole fish into a variety of products
- quality management throughout the entire processing chain
- monitoring and tracking of processed and finished products for market through a traceability system
- delivery to customers of finished product.
- coordinating transportation logistics for products to the lower mainland

SFC was responsible for coordinating the fish harvesting and primary transportation phases of the program. SFC's role in the program included planning, administration, management and reporting. SFC held the demonstration commercial fishing license from DFO on behalf of the participating Secwepemc communities. SFC contracted Skeetchestn, Simpcw, Bonaparte and Kamloops bands as participants in the fishery; band policies governed hiring practices. The bands conducted fish harvesting, landing, monitoring and transportation under contract to SFC.

In-Season Methods Summary

Processing

STS staff and the plant manager were responsible for licensing and start up of the Siska processing/ice plant. All chinook caught in Kamloops Lake were processed in the plant, and a portion of the pinks caught at Steelhead Park were also processed. Options for cold storage, freezer space and landing/sales sites were also explored.

Transportation

Chinook products leaving Siska for local sales were transported by pick-up truck and trailer in fish totes to Kamloops. Each load was accompanied by a transport form.

Chinook H&G bound for the coast for development into value added products was transported by pick up and a commercial trucking company. Each load had a Bill of Lading attached to it for traceability purposes.

All pink products and some chinook roe were transported to the Virtual Warehouse by two different commercial trucking companies with attached paperwork. The Virtual Warehouse is an online seafood bidding web site administered by Shah Hamid, who is based out of Seven Seas Fish Co. Ltd. in Delta.

Quality Management Plan

Quality Management Plans (or QMP's) are being piloted in the Fraser River by several First Nations to assist them in achieving their objectives related to fishery sustainability, and achieving the best value and quality in their fishery from harvest to the market. QMP's are a set of standards commonly used to manage fishery practices, including fish handling procedures. In 2007 the UBC Food Sciences Department developed a draft quality management plan (QMP) for the Siska Fish Processing Plant. In 2008, the UBC Food Sciences was contracted to provide oversight for the preparation of a QMP for the chinook gillnet fishery on Kamloops Lake. Preparation of the QMP included:

- advice on handling and icing the catch;
- fish and egg quality sampling;
- product temperature verification using thermal buttons; and,
- development of standard operating procedures for plant/fishery management, monitoring, product distribution, data logger deployment and roe extraction.

In 2009 the draft QMP was followed in both fisheries and in the plant, and refinements are ongoing. Data loggers supplied by the UFFCA were deployed throughout the chinook fishery in a variety of scenarios; none were deployed during the pink fishery.

Standard Operating Procedures

In 2009 a draft Standard Operating Procedures, which is a component of the overall QMP, was completed in a manual format that covers regulatory and compliance issues for all aspects of inland commercial fisheries.

Fish Egg Quality Sampling

A quality sampling program was done for the Thompson River pink salmon. Meat color was assessed with the Riverfresh color card developed in 2008. How far along the fish were into the spawning stage was assessed by the hump size on the males. The eggs were assessed for size and hardness, although the roe grading for hardness that determines market worth can only be assessed after final processing.

Marketing

The general marketing objectives for the project were to:

- continue maximizing direct sales in local markets in the BC southern interior for fresh processed products;
- identify target customers, consumer preferences (portion sizes, quality expectations), potential local demand (saturation thresholds), and product pricing options for different products;
- utilize wholesale arrangements with other processors/markets for any remaining salmon meat and the roe;
- collect information to formulate a detailed multi-year fish marketing and sales plan.

SFC retained custody of all chinooks from harvest through delivery to the local customers. Custody of all pink products shipped to the Virtual Warehouse was not retained. As the SFC and STS are non-profit societies, any and all profits

realized in the program will be reinvested into future commercial fisheries development activities.

Potential pricing options for the various chinook products were discussed pre-season by the project partners. For direct local sales, prices were set after a review of the 2008 prices and increased by a factor the partners felt the local customers could absorb. For retail outlets, prices were set after industry price indexing and considering the prevalent attitude that river caught fish is of lower quality.

Sales Communications

- Contact was made with the administrator of the Virtual Warehouse to discuss applicability and logistics of products that would be sold under this system.

- The product order form was distributed via email all local customers from the previous year. All products were branded as "Riverfresh Wild Pacific Salmon". In addition, a flyer campaign for one weekend and an article in the *Kamloops Daily News* about the project helped to generate local sales interest.

- Retail outlets in the BC interior were contacted to assess interest in receiving samples of products for evaluation and potential sales.

- A value added processor on the lower mainland who had expressed interest in the products was also contacted.

Sales Options

In 2009 fish and eggs were sold using a variety of options:

1. Local Delivered Sales of Processed Products;
2. Production and Sales of value added products to Retail Outlets; and,
3. Direct Sales to Coastal Plants/Buyers/Brokers (of eggs and surplus meat).

Local customers were the main target market for chinook meat, while retail outlets were targeted for value added products. For most chinook and all pink roe, along with all pink meat, the Virtual Warehouse was the only customer.

Results – SFC-Siska

Processing – SFC Chinook Salmon

A total weight of 9,977 lbs of whole chinook was delivered to the Siska Processing Plant from the Kamloops Lake fishery with an 18.7 lb average per fish (N = 534). All fish were headed and gutted; secondary processing was done depending upon local sales orders for fillets, steaks, and BBQ strip products.

Only 54 pounds of pale chinook fillets were sold to the local market, and the customer was contacted first to see if this was acceptable. All other pale chinook was shipped to Ocean Master Foods International Ltd. along with a portion of the red chinook for value added production into candied nuggets.

The green eggs extracted that were destined for the Virtual Warehouse were brined in a 70% saline solution at the processing plant. This was to stabilize them for the transportation process so value would not be lost.

Most roe that was destined for the local bait market was frozen. This proved to be very advantageous especially on weekends when no coastal processing plants or logistics companies were open to process or ship roe. A small amount of local bait roe was delivered fresh.

Recovery rates were calculated for most of the product types, excluding BBQ strips due to data collection difficulties for this particular product (Table 1). BBQ strips are the belly flaps that are removed in the filleting process. In 2008 these were discarded. In 2009 the fins were removed and the remaining belly meat was sold as BBQ strips.

Table 1. Summary of processed weights and recovery rates for chinook at Siska Plant.

Product	Whole	H&G	Steaks	Fillets	Green Eggs
Total Processed Weight (lbs)	9 977	7042	495	1397	610
Average weight per chinook (lbs)	18.7	13.2	11.5	10.0	2.7 (♀)
Recovery Rate (%)		71%	62%	50%	6.11%

Most pale meat chinook and a portion of the red chinook were shipped to Ocean Master for processing into value added product. The product produced was a smoked, candied chinook nugget. The nugget production summary is in Table 2.

Table 2. Chinook Candied Nugget Summary.

Shipment	Chinook H&G (lbs)	Nuggets Produced (lbs)	Recovery Rate (%)
1	1158	405	35
2	1308	515	39
3	924	345	37
TOTAL	**3390**	**1265**	**37 %**

The information recorded in the Siska Processing/Ice Plant inventory tracking spreadsheet (Appendix 1) was used to calculate recovery rates and ratios. The ratio of females to males was 29:21, or 58%:42%. The recovery rate for the roe encompasses the entire population.

Processing – SFC Pink Salmon

A total of 74,727 lbs of pinks were shipped to the Siska plant. A portion of this was processed (Table 3), and almost all whole and processed production was shipped to the Virtual Warehouse. The pink fillets were shipped to Ocean Master for product research. Female carcasses were only stripped of the eggs, not gilled and gutted.

Table 3. Summary of pink processed weights and recovery rates at Siska Plant.

Product	Whole	Carcass	Fillet	Green Eggs
Total Processed Weight (lbs)	20 089	16 394	755	2 723
Average weight per pink (lbs)	3.7	2.9	1.3	.49 (♀)
Recovery Rate (%)		81%	34%	13% (♀)

The ratio of females to males was 52%:48%. The roe recovery rate encompasses the female population only.

Processing Efficiency

The Siska plant with two employees plus plant manager could H&G all SFC's chinook production in 2009. To maximize Siska's H&G production capacity SFC would have to harvest 150 chinooks per day. Secondary processing into fillet, steaks, and BBQ strips was where chinook production outstripped processing efficiency. Local orders had to be completed according to what the crew could process that day.

The Siska plant with three employees and the plant manager could strip approximately half of the SFC's pink female production. Fifty percent of all females and almost 100% of all males were shipped whole to the Virtual Warehouse for processing and sales. A tote of females and a tote of males was filleted and sent to a coastal processor for value added product development.

DFO funded an ice machine for the Siska Demonstration Fishery that was installed in the processing plant. The machine produced up to a ton every 24 hours, and produced enough ice for the 2009 Demonstration Fisheries work performed at the Siska plant. The ice machine increased the plant efficiencies by reducing labor; plant employees did not have to go outside to the reefer unit, transfer ice into a tote by hand, and then either pallet jack or transfer smaller totes by hand into the plant. Plant efficiencies are listed in Table 4.

Table 4. Siska Processing Plant processing production rates

Weight(lbs)	Product	Time per fish	# of fish per day/processor	Lbs per day/processor
15 plus	H&G	4 min	90	959 plus
15 plus	Steak	10 min	36	335 plus
15 plus	Fillet	10 min	36	270 plus
10 to 15	H&G	4 min	90	639 to 959
10 to 15	Steak	10 min	36	223 to 335
10 to 15	Fillet	10 min	36	180 to 270
5 to 10	no demonstration fishery information obtained in this weight category			
2 to 5	H&G	2.5 min	150	213 to 533
2 to 5	steak	no steaked product processed in this weight category		
2 to 5	Fillet	2.5 min	150	150 to 375
2 to 5	Stripped carcass	30 sec	720	1166 to 2916

**pink fillet weights will be considerably lower due to a recovery rate of 34%*

A processing rate schedule (Table 6) was developed using the daily operations cost of the plant for 2009 (Table 5).

Table 5. Daily Siska Plant Operations Cost

Total Plant Operations Cost for 2009	$44 755.00
Processing Days	22
Daily Operating Cost	$2034.32

The Siska plant has no refrigerated or freezer storage capacity. There is also no blast freezing capability. Basic refrigeration storage has to be rented from the coast every season. The only companies capable of being contracted to perform blast freezing and freezer storage are a small number of lower mainland

processing plants. There is no seafood blast freezing or available freezer storage space in Kamloops.

Table 6. Siska Processing/Ice Plant Custom Processing Rates

Weight (lbs)	Product	Rate
15 plus	H&G	$0.62/lb
15 plus	Steak	$2.24/lb
15 plus	Fillet	$2.78/lb
15 plus	Vacuum seal and blast freeze	$0.27/lb
10 to 15, average12.5 lbs	G&G	$0.74/lb
10 to 15, average12.5 lbs	Steak	$2.69/lb
10 to 15, average12.5 lbs	Fillet	$3.33/lb
10 to 15, average12.5 lbs	Vacuum seal and blast freeze	$0.27/lb
5 to 10, average 7.5 lbs	G&G	$0.74/lb
5 to 10, average 7.5 lbs	Vacuum seal and blast freeze	$0.27/lb
2 to 5, average 3.5	G&G	$1.59/lb
2 to 5, average 3.5 lbs	Stripped carcass	$0.37/lb

Transportation

Whole chinook harvested from Kamloops Lake were shipped via Skeetchestn Band pick up and trailer in fish totes in an ice slurry to the Siska plant for processing.

Chinook meat products leaving Siska for local sales were transported by the plant manager's pick-up truck and rented trailer in fish totes to Kamloops. Ice blankets provided by DFO where very effective in keeping the temperatures of the processed products below 4 degrees Celsius. Each load was accompanied by a transport form to link the traceability chain.

A delivery of fresh H&G chinook was delivered to Ocean Master Foods International Ltd. by the plant manager's pick-up for value added processing into candied chinook nuggets with the attached transport form. Three other shipments of H&G chinook were transported by Clark Freightways to Ocean Master for processing into nuggets also, with a Bill of Lading for traceability.

Fresh chinook roe for the local Kamloops bait market was loaded into fish totes with ice blankets and delivered by the plant manager's pick up. Frozen bait roe for the local market was loaded into a fish tote with an ice blanket and delivered by the plant manager's pick up.

Chinook roe destined for the Virtual Warehouse was packaged in the wax cardboard boxes with gel pacs. These were then loaded into fish totes, covered with an ice blanket, and shipped in the plant manger's pickup to Clark Freight in Kamloops. Clark Freight then delivered it to the Virtual Warehouse.

All pink products were transported to the Virtual Warehouse by Keep It Cool based in Vancouver. Keep It Cool shipped the pink production from Steelhead Park to Siska in a small 3 ton reefer cube van and a flat deck 5 ton truck. A reefer transport truck then picked up processed and unprocessed product, when there was a big enough load to fill the trailer, and shipped it to the Virtual Warehouse.

A summary of shipped products is in Table 7.

Table 7. Products shipped from Siska plant during 2009 demonstration fisheries

CHINOOK PRODUCTS (lbs)	LOCAL SALES	VIRTUAL WAREHOUSE (Seven Seas)	VALUE ADDED (Ocean Master)
H&G	746	0	3390
Steak	480	0	0
Fillet	1397	0	0
Roe	214	396	0
PINK PRODUCTS (lbs)			
Male Whole	0	35591	0
Female Whole	0	16837	0
Female Carcass	0	16394	0
Male Fillet	0	0	451
Female Fillet	0	0	304
Roe	0	0	2723

Confusion surrounding the proper paper work that should accompany the various loads and types of products shipped during the 2009 Demo Fisheries was evident. At the end of the season all transport documentation (Appendix 2) required for each load type was determined (Table 8).

Table 8. Shipping Documentation required

Documentation	To Plant	Virtual Warehouse		Other Processors		Local Markets
	Whole	Whole	Processed	Whole	Processed	Processed
Original copy of the Buyers Station/Vehicle Inspection Document (MAL)	*	*		*		
Fish Transport and Authorization Report (DFO)	*	*		*		
Fish Slips (DFO)	*	*		*		
Copy of Fishing License (DFO)	*	*		*		
Riverfresh Transport Manifest			*		*	*
Virtual Warehouse Shipping Summary		*	*			
Bill of Lading (commercial trucking company)		*	*	*	*	

The load of candied chinook nuggets was shipped from Ocean Master to Kamloops via Versa Cold, and picked up at the Versa Cold depot by the plant

manager for delivery to the SFC office, where it is in freezer storage. This load was 500 lbs, and cost $80.00 to ship. A comparable load with Clark Freightways cost $250.00 to ship. Versa Cold charges $0.16 a pound; whereas Clark charges $0.50 a pound for orders over 100 pounds, more for smaller loads.

Quality Management

Standard Operating Procedures

In 2009 the draft SOP/QMP was followed in both fisheries and in the plant. Data loggers supplied by UFFCA were deployed throughout the chinook fishery in a variety of scenarios; none were deployed during the pink fishery. The SOP/QMP for the chinook fishery was not followed in couple of instances.

Chinook that were harvested dead from the net were not being bled, which resulted in a lot of blood present when the customers in Kamloops received their order.

Some chinook were not having their gills cut, but rather ripped by hand to enable bleeding. This practice separates the backbone and bruises/rips meat.

There was some debate about allowable soak times for the chinook gillnets in the 2009 demonstration fishery. A soak time of six hours did not appear to have any detrimental effect on the meat quality at the plant. However, industry standard dictates for every hour a fish is above 4 degrees Celsius in rigor is 24 hours off the shelf life. All chinook products were processed and moved so quickly this theory wasn't tested.

Data Loggers

Data loggers provided by UFFCA were deployed in a variety of scenarios throughout the chinook fishery. They were also deployed in the ONA FSC sockeye fishery. No data loggers were deployed in the pink fishery; temperatures were taken with traceable thermometers.

The first scenario recorded was chinook from the water to the Siska plant. The data loggers were inserted as soon as the fish left the water, and retrieved when the fish was processed (Figures 1 to 4).

Figure 1. Data logger download for Sept 7/2009

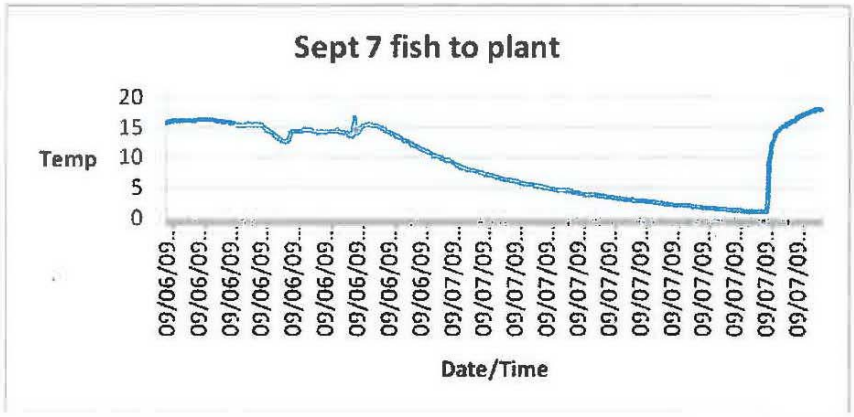


Figure 2. Data logger download for Sept 9/2009

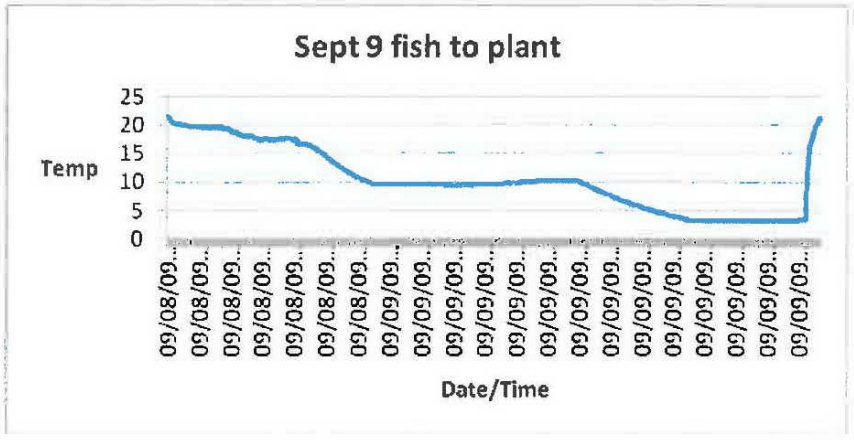


Figure 3. Data logger download for Sept 10/2009

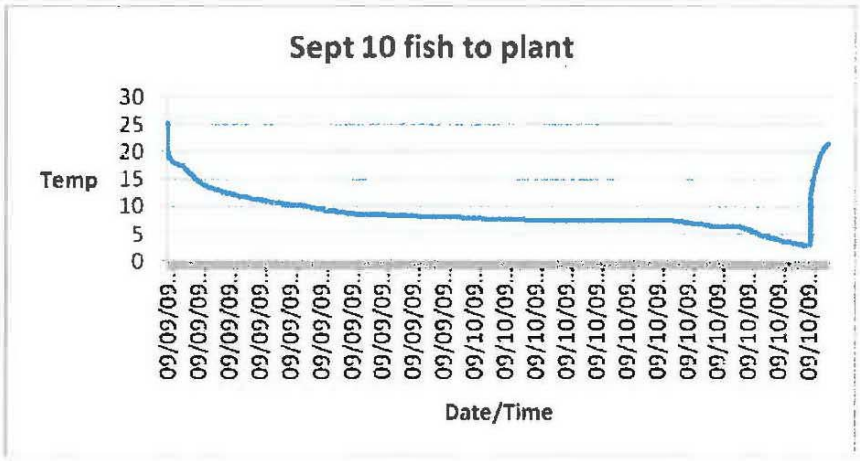
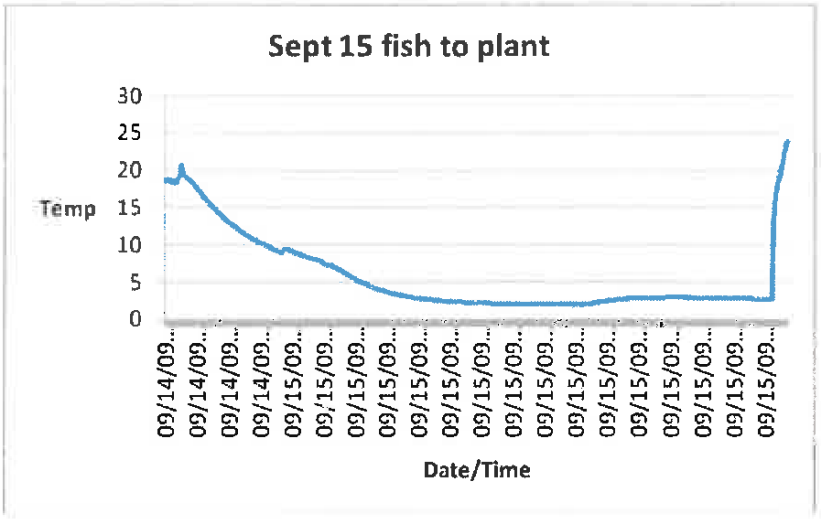
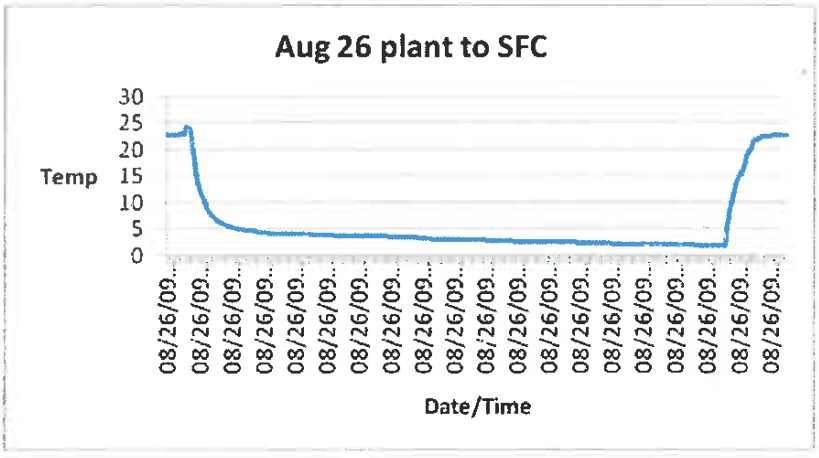


Figure 4. Data logger download for Sept 15/2009



The second data logger scenario was temperature recordings of processed product from the plant transported in fish totes by pick-up to SFC for local sales (Figures 5 and 6).

Figure 5. Data logger download for Aug 26/2009



The third data logger scenario was roe extracted and brined at the Siska plant, then transported in fish totes by pick-up to Clark Freightways in Kamloops. Clark then delivered the eggs to the Virtual Warehouse. The roe was packed in cardboard wax boxes with gel pacs within the fish totes (Figure 7).

Figure 6. Data logger download for Sept 10/2009

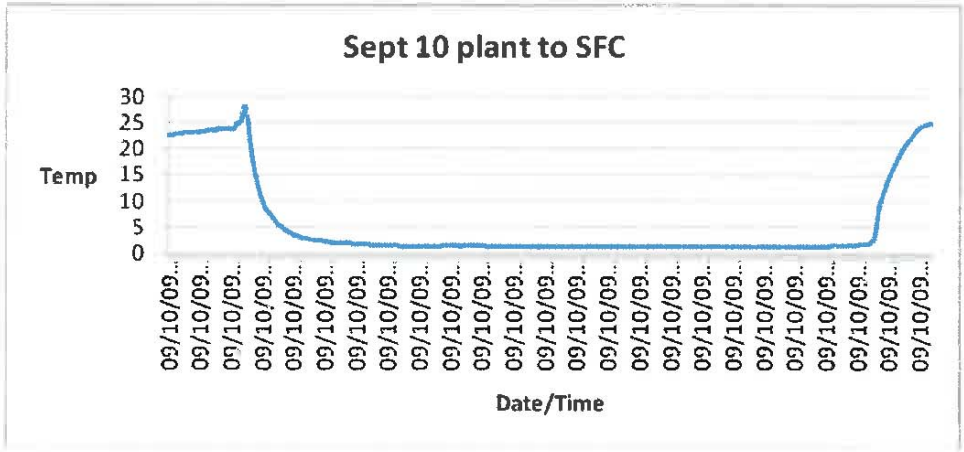
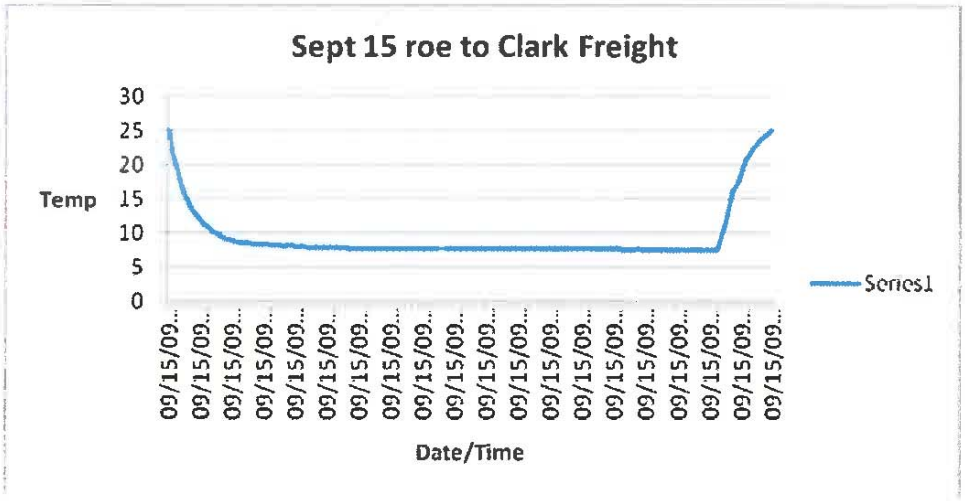
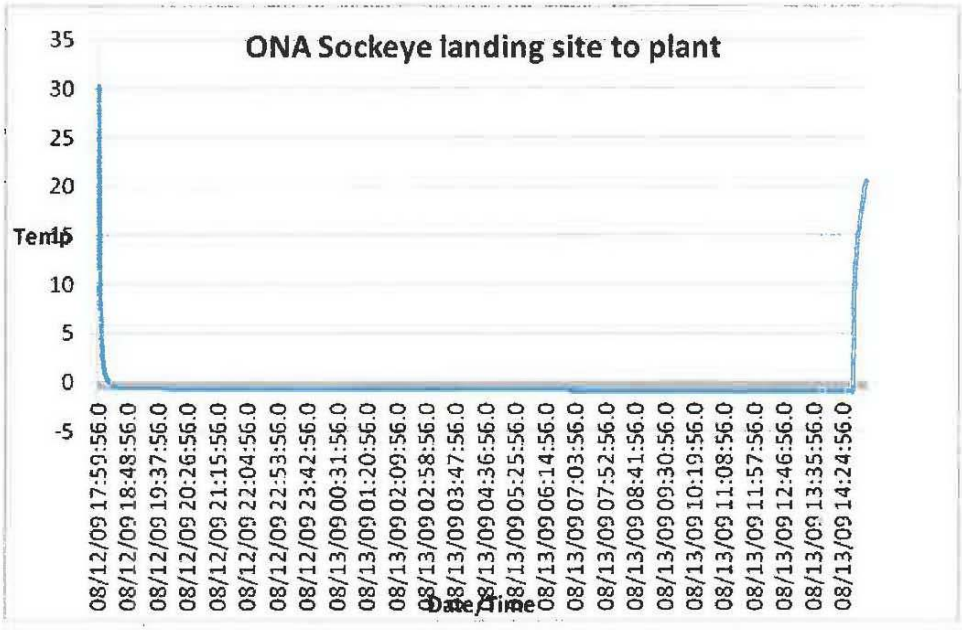


Figure 7. Data logger download for Sept 15



The fourth data logger scenario was sockeye caught in Oosoyos Lake by DFO and ONA, then put in a tote in a water-ice slurry. The data loggers were inserted a few hours later when the fish reached the landing site. The tote was then shipped by pick-up to the Siska plant, where the data loggers were retrieved. Three data loggers were inserted into sockeye in the same tote with identical results (Figure 8).

Figure 8. ONA sockeye from landing site to plant



Fish Egg Quality Sampling

No quality sampling program was completed for the Kamloops Lake chinook fishery, but the local customer feedback was very positive. One shipment of processed chinook had a large amount of blood present in the cardboard boxes they were shipped to Kamloops in. It was determined that this was due to the fish not having their gills cut because they were dead when harvested. Cutting the gills on dead fish will result in blood loss through osmosis in the bleeding totes and in the slurry during transportation. All fish were bled after this, dead or alive, and the problem did not recur.

The candied chinook nuggets were also well received by the local customers. The retail outlets that samples were sent to had positive feedback on the taste and quality of the product (Appendix 3).

A sampling program was completed for SFC's pink harvest at the Siska plant. Twenty pinks were sampled, ten males and ten females (Appendix 4). The feedback related to pink quality from the Virtual Warehouse was that the meat had a bad odour to it and was unsellable. The smell also permeated the roe, but it was processed regardless and is in storage at Seven Seas awaiting sales through the Virtual Warehouse.

Marketing

Local customers from the previous year were contacted via email and sent the Riverfresh Order Form (Figure 9).

Figure 9. Riverfresh Product Order Form

Riverfresh
Wild Pacific Salmon

Product Order Form - 2009

Wholesome, wild BC salmon direct from the river to your plate.

Fresh, never frozen; iced upon landing for maximum quality.

Caught in local, sustainable and selective fisheries.

Meets or exceeds all government standards.

		Price/lb	Price/100g
Red Chinook			
	fillets - bone in, skin on	$4.49	$0.99
	steaks - 1½ inch	$3.99	$0.88
	dressed - headed & gutted	$3.49	$0.77
	BBQ strips	$3.19	$0.70
Smoked Salmon			
	candied chinook nuggets	$12.99	$2.86

notes:

* *Steaks or fillets - minimum 10 lb order*
* *40 lb orders include transport boxes.*
* *All prices include shipping to Kamloops.*
* *Orders will be filled depending upon product availability.*

Name	Daytime Phone	Alt. Phone	Product	Quantity Ordered (lbs)

Return Order Form To: Secwepemc Fisheries Commission fax: (250) 828-2756 email: info@shuswapnation.org

A flyer campaign utilizing copies of the same order sheet was conducted August 22 and 23 in two Sahali shopping mall parking lots in Kamloops.

No marketing for pink products was attempted locally; all pink products were shipped to the Virtual Warehouse.

Samples of the candied chinook nuggets produced by Ocean Master International Foods were taken to a retail meat shop in Kamloops, and to two retail seafood shops in the interior, one in Kelowna and one in Penticton.

Sales

A variety of sales options were explored in 2009, with the emphasis being on selling as much chinook products as possible to local customers. No marketing for pink products was attempted locally; all pink products were shipped to the Virtual Warehouse. A summary of where products were sold is in Table 9.

Table 9. 2009 Sales Summary.

	LOCAL SALES (lbs)	VIRTUAL WAREHOUSE (lbs)	RETAIL SALES (lbs)
CHINOOK PRODUCTS (lbs)			
Candied Nuggets	99	0	55
H&G	746	0	0
Steak	480	0	0
Fillet	1397	0	0
Roe	214	396	0
PINK PRODUCTS (lbs)			
Male Whole	0	35591	0
Female Whole	0	16837	0
Female Carcass	0	16394	0
Male Fillet	0	0	0
Female Fillet	0	0	0
Roe	0	2723	0

Local Sales

Pre-orders for local delivered sales were taken by SFC staff from Kamloops-area private individuals usually over the phone. The list of orders was relayed to the Siska Processing Plant Manager to align with the supply of fresh fish at the plant. Orders were filled at the processing plant as close to the requested product weights as possible, then packaged and transported to SFC's office for delivery and payment.

Delivery dates were generally scheduled according to the Siska plant processing capacity. There were no retail sales to the general public in 2009; all fresh fish products delivered to the SFC office were sold in advance.

Orders were normally filled in the sequence in which they were placed (i.e., on a first-come, first-served basis). In some cases, very large orders could not be filled entirely during one delivery and were split between two deliveries. In other cases, customers asked that delivery of their order be delayed until a more convenient date. Customers were normally given 1-2 days notice of when their delivery could be expected.

Retail Sales

One order of the candied chinook nuggets was shipped to a retail outlet in Kelowna as of February 3, 2010.

Wholesale to Coastal Plants/Buyers/Brokers

Surplus fresh product that could not be sold locally was shipped to the Virtual Warehouse. No chinook meat was shipped to the Virtual Warehouse in 2009, while most pink meat was. Both chinook and pink eggs were shipped to the Virtual Warehouse. The staging area for the Virtual Warehouse is Seven Seas located in Delta, BC. Products are held in freezer storage awaiting sales through the Virtual Warehouse.

Records Management

A detailed recording of all chinook and pink products shipped from Siska was kept through Transport Authorization forms, Bills of Lading, fish slips, the Virtual Warehouse Shipping Summary, the Riverfresh Transport Manifest, and the inventory tracking program used at the Siska plant.

SFC kept track of all local sales through the SFC office.

Conclusions and Recommendations – SFC-Siska

Processing

- The Siska plant must increase production rates of all products to lower custom processing customer's costs; mentoring from a coastal processing expert would be very beneficial in this area.
- Siska plant must be upgraded to have blast and freezer storage facilities.

Transportation

- Roe being delivered in a pick-up truck to Kamloops for further shipping does not remain below 4 degrees Celsius. A small reefer unit is needed for this purpose.

- For large shipments to the coast (i.e. pinks) the maximum load the transport truck can take must be determined before any paper work is drawn up. This will ensure the paperwork matches what is on the truck exactly.

- All shipments leaving the landing site **MUST** have the proper documentation in the driver's possession along all legs of the journey.

- Versa Cold should be used to ship products to the coast from Kamloops, Clark Freightways is too expensive.

Quality Management

- All fish must be bled, dead or alive, by having the gills cut with a knife, not ripped by hand.

- Data loggers indicated the chinooks were cooling to below 4 degrees in 2.5 to 3.5 hours after leaving the water. This is an optimum cooling timeframe. The September 10 data logger showed a cooling trend that took 17 hours for the chinook to reach below 4 degrees. This was the load that shattered block ice was used to make the slurry; all fish in this load were above 4 degrees when tested at the plant. Only flake ice should be used to make a slurry.

- Shipping processed products in the wax cardboard boxes on ice in a fish tote with an ice blanket to Kamloops keeps the product below 4 degrees Celsius.

- Care must be taken with smaller fish in a slurry, they will easily freeze if too much salt is added; further testing with slurry mixtures is needed.

- Roe cannot be shipped by pick-up to Kamloops for further shipping. A reefer unit must be used for this purpose. The roe only has gel pacs in the boxes to keep it cool as ice will melt by the time the roe reaches Vancouver; the gel pacs are not sufficient to keep the roe cool enough.

- Further experimentation is needed to establish acceptable net soak times for warm water river fisheries.

Marketing and Sales

- More advertising can be done to maximize the local market. Paper, TV and radio advertising should be explored, especially when production increases with better techniques and more experience.

- When in-land commercial sockeye harvests occur, sockeye products should be used to break into the lucrative retail and restaurant markets. Attempting to gain these markets with chinook has proven very difficult, and these market segments will not consider pinks at this time.

- Try and develop a local market for the highest quality pink meat for home canners/smokers etc.

- Minimize products going wholesale to the Virtual Warehouse. It is to be used only as a market to sell products that the local and restaurant/retail markets will not purchase, or overflow production.

The results of the 2009 work were compiled into a Pre-Feasibility Planning document intended to guide SFC-Siska Demonstration Fisheries in 2010 (Appendix 6).

Acknowledgements SFC-Siska

The project was a success due to the invaluable contributions of the following people:

- Pat Matthew and Aaron Gillespie, Secwepemc Fisheries Commission, project planning, supervision, and monitoring support;
- Don Ignace, Chuck Louie, Skeetchestn Band, John Matthew, Simpcw First Nation, Brad Pierro, Bonaparte Indian Band, and Faron Manuel, Kamloops Indian Band, chinook harvesting crew;
- Ashleen Ranahan, Kamloops Indian Band, Chuck Louie, Bob Hewitt, Don Ignace, Charles Etienne, Sheldon Jules, and Marshall Gonzalas, Skeetchestn Indian Band, pink beach seining crew;
- Darvey Hewitt, Skeetchestn Band, landing site monitoring and fish transport services; and,
- Dave Southgate, Tom Nevin and Chris Narver, DFO, for harvesting operations supervision and equipment.
- Vincent Peters and Virginia Bleakney, Siska Band, fish processing and sampling support;
- Gilbert Cure, Siska Band, technical assistance at Siska Plant;
- Terry Raymond, Siska Traditions Society, administrative oversight for Siska Plant;

Sincere gratitude and thanks are also extended to Department of Fisheries and Oceans for their financial support of this study.

Executive Summary – UFFCA

Due to the unanticipated poor returns of Fraser sockeye salmon in 2009, and the absence of the opportunity to conduct Demonstration Fishery projects as planned, the UFFCA substantially altered their intended work plan related to this project. A small number of sockeye caught in the food fishery were processed into value added products for the purposes of conducting a product and market assessment study. Regulatory needs related to harvesting/landing, transporting, processing and selling sockeye were clarified through a review of regulations and discussions with pertinent regulatory agencies, including requirements for conducting fresh sales out of Province. Available processing and cold storage capacity within the Central Interior was reviewed and considered relative to the regulatory information. Using this information, various scenarios were considered for three fishery locations within the UFFCA area in relation to processing and marketing options possible and preferable at each location. Certification "processes" were researched for the purposes of considering the development of Certification Standards for UFFCA area fisheries, for the purposes of leveraging the inherent conservation benefits achievable through these fisheries, which are otherwise unobtainable through mixed stock fisheries. Mechanisms for coordinating fresh local and regional sales were also explored.

Contemporary in-land commercial salmon fisheries on the Fraser River are as yet at a rudimentary stage of development. However, various aspects of the manner in which Fraser sockeye are and will be managed in the future suggests that increased in-land commercial opportunities will be available. Fisheries in the UFFCA area allow the opportunity to deploy harvesting efforts on individual stocks, avoiding the negative impacts of mixed stock fisheries, which include the capture of non-target stocks and species.

Two of the value added products that were produced were used as the basis of a survey within various potential markets, which provided extensive feedback on the food quality and desirability of the products, as well as the characteristics or attachments of the products that were most desirable. There is undoubtedly at least one value added product that is economically lucrative dependent on harvest and transport-to-processor costs, given that processing capacity is as yet nonexistent outside of the Prince Rupert and Vancouver areas. Feedback from survey participants provided valuable insight for product refinement, branding and marketing.

The fishery formats or scenarios that hold the most potential to be economically viable within each of 3 UFFCA area fishery locations were outlined, including recommendations for infrastructure requirements that would create other viable options, or improve the viability of existing options. Research on regulatory requirements related to in-land commercial salmon fisheries were reviewed and summarized.

The status of locally available blast freezing and freezer storage capacity was assessed in the Prince George area, and a description of how it could be utilized within the context of local fisheries is provided. Recommendations for determining whether or not this capacity could beneficial are provided.

A description of how a Certification process specific to upper and mid Fraser commercial fisheries could be advantageous for the purposes of branding and marketing fish and fish products from these fisheries is provided, and a summary of what is required to establish a Certification process is outlined.

Recommendations are provided to guide ongoing work towards developing viable commercial fisheries within the UFFCA area, and a summary of specific areas where collaboration with the SFC-Siska partnership could be beneficial is provided.

Introduction – UFFCA

The Upper Fraser Fisheries Conservation Alliance (UFFCA) is an independent legal society established for the purposes of pursuing the fisheries and aquatic related interests of First Nations within its geographical boundaries. Its membership is open to the 23 First Nations with communities within the salmon bearing portion of the upper Fraser watershed, and the organization is governed by a First Nations board of directors, and meets 8 or more times a year to facilitate information exchange between DFO and First Nations. The UFFCA engaged with the SFC-Siska partnership to work towards developing the economic viability of commercial salmon fisheries within the upper Fraser, including exploring the benefits that might be achievable through collaborating with mid-Fraser groups. The UFFCA is primarily interested in developing commercial salmon fisheries in the upper Fraser because of the more conservative and sustainable nature of stock-selective rather than mixed-stock fisheries, and the benefits that moving a proportion of commercial harvesting in-land would have on a number of stocks in the UFFCA area.

Previous Studies – UFFCA

Several First Nations with the UFFCA area have been very active in the exploration of the economic viability of commercial salmon fisheries in near terminal areas. Lheidli T'enneh previously completed extensive studies in this area in relation to their Treaty discussions with Canada (Todd 2004). The Northern Shuswap Tribal Council has also completed works to assess commercial viability in the Quesnel/Horsefly system, and the UFFCA previously commissioned a research project on the business and operational models other in-land commercial salmon fisheries follow, as well as theoretical production models for in-land fisheries (Moore and Toth 2007).

In-Season Project Adjustments (2009)

As the 2009 sockeye season unfolded, it became apparent that the planned sockeye demonstration fisheries in the upper Fraser weren't likely to proceed. This required a substantial alteration in the UFFCA's components of this work, refocusing efforts away from in-season fishery support, and towards the investigation of infrastructure and regulatory matters related to fish harvesting and processing in the upper watershed. The planned marketing and assessment component was maintained.

Specific Tasks, Deliverables and Actions - UFFCA

The specific Terms of Reference for the project were redesigned to include the following:

1. Contact Delta Pacific to ascertain if they will custom process a sample of sockeye (50 fish) from the upper Fraser; meet with them to discuss the potential value-added products that can be derived from these fish; and obtain their advice regarding the desirability of each product in terms of market and selling price. Addressing *Guiding Terms of Reference* items 8 and 9 and contributing to Tasks 2-5.
    i. Coordinate delivery of sockeye sample from Prince George to Delta Pacific Processors

2. Utilizing product samples, conduct product and market assessments to inform business planning scenarios

3. Develop scenarios for near-terminal area fisheries in terms of relating the fishery to various processing and marketing options, and relating those criteria to three geographical fishery locations; adjacent to or in a smaller urban area such as Prince George, Williams Lake, or Quesnel; or in a major fish processing centre such as Prince Rupert or Vancouver.

4. Interview regulatory agency personnel and obtain current fish processing regulations; discuss with regulators the potential for low-tech primary processing and shipping strategies and the criteria for licensing (Best Practices Agreements) such methods/facilities; and include the results when assessing potential options per Task 2. Addresses *Guiding Terms of Reference* Item 4, and contributes to Task 3. Additionally;
    i. Identify permitting/licensing needs for local (within BC) vending opportunities
    ii. Identify regulatory criteria for cold storage of frozen products

5. Investigate existing local food (animal) processing facilities in Prince George, Quesnel, and Williams Lake to ascertain the presence of any existing facilities that could provide fish processing or storage services and infrastructure needs (and to what level), taking into account the

information derived from Task 4 above. Addresses *Guiding Terms of Reference* Item 4, and contributes to Tasks 3 and 4.

6. Research regulatory and administrative constraints for out of Province shipments and sales of fish (focus Alberta):
   i. H&G, frozen in commercial reefer;
   ii. H&G, frozen in tote; processed/value added frozen/preserved, in roadside stand or farmer market level quantities.

7. Research Certification "brands" for the purposes of considering the development of a Certification Standard for UFFCA area fisheries, for the purposes of leveraging the inherent conservation benefits achievable through these fisheries, which are otherwise unobtainable through mixed stock fisheries.

8. In collaboration with the mid-Fraser contractor, complete and submit a comprehensive written Final Report relating to the *Guiding Terms of Reference* and specific Tasks above, including a summary of activities undertaken and information ascertained, including recommendations (to guide business planning scenarios, identify infrastructure and capacity needs, and future research needs, etc.).

Project Methods Summary

In October 2009 Diversified Ova Tech Ltd. ("Ova Tech") was contracted by the Upper Fraser Fisheries Conservation Alliance (UFFCA) to assist with the gathering of information relevant to potential collaborative economic fisheries in the Alliance's management area. Six tasks were identified that would be undertaken by Ova Tech:

1. Organize the development and packaging of several value added products with a lower mainland based processor
   a. Track associated shipping and processing costs for the purposes of assessing potential margins for various products
2. Complete a Product/Market Assessment study with the products, focussing on a variety of potential markets
3. Develop scenarios for commercial fisheries operating out of Prince George, Williams Lake and Quesnel, and the viability of various harvesting scales, products and marketing channels
4. Assess regulatory considerations relevant to in-land commercial salmon fisheries to identify infrastructure needs to support fishery development
5. Assess Prince George area processing, blast freezing, and freezer storage capacity
6. Assess regulatory and administrative constraints for shipping upper Fraser sockeye and/or sockeye products out of Province (focus Alberta)

Arrangements were made to secure 50 sockeye harvested in the Prince George area from Lheidli T'enneh's food fishery. Fish were shipped via Clark Freightways to Delta Pacific Seafoods. Ova Tech met with and engaged an expert in the area of value added product development.

Marcel Shepert (UFFCA Facilitation Coordinator) was engaged to conduct the Product/Market Assessment study. A survey was developed (Appendix 6) and arrangements were made to meet with a number of retail outlets and chefs/buyers for individual and chain restaurants (to complete the survey).

Ova Tech assessed previous reports and data developed through this project to consider potential scenarios for commercial sockeye fisheries within the upper Fraser area focussing on harvest levels and transportation and processing options and costs.

Ova Tech engaged the relevant regulatory authorities to determine the requirements related to in-land fisheries in terms of permitting, licensing and other aspects of regulatory approval related to fish landing, transport and processing facilities. This was for purposes of informing in-land fishery proponents of licensing and permitting requirements, as well as identifying the infrastructure requirements related to processing.

Ova Tech also investigated the requirements for shipping sockeye and sockeye products with a focus on Alberta. The locations of some mid and upper Fraser fisheries hold a geographical advantage for shipping into Alberta, relative to other sockeye fishery and processing hubs within BC. A summary of licensing needs and processing facility requirements is discussed.

Brian Toth (UFFCA Executive Director) coordinated the UFFCA's component of this project, researched Certification processes as to their relevance to in-land fisheries, and initiated the development of options for improving the coordination of fresh fish sales in the central interior. Recommendations related to each are provided. Jeremy Farrow (UFFCA Information Technologist) completed work on a template website for taking and coordinating online orders for fresh fish.

RESULTS – UFFCA

Value Added Product Development

In 2009 the Lheidli T'enneh Band (a member community of the UFFCA) was able to carry out a small stock specific sockeye harvest. Fifty sockeye were cleaned (head off and gutted, or "h&g"), vacuum packed, and frozen in a standard domestic freezer. These fish were intended for use in further processing and value-added product assessment.

On December 3 Ova Tech (N. Todd) met with Thomas Chan (value-added processing manager) of Delta Pacific Seafoods at their plant in Delta, BC. Delta Pacific had successfully custom processed upper Fraser sockeye as part of a study carried out by Lheidli T'enneh under a Treaty Related Measure (Todd 2004). The results from that study provided strong indication that there was potential economic value in products made from sockeye salmon caught in the Upper Fraser area.

Discussions resulted in the following advice from Delta for converting the 50 2009 h&g carcasses into value added products:

a) lox (pre-sliced, 227 gm vacuum pack): these are smaller individual pieces, layered, about roughly 1.5 - 2" in diameter, rounded – good for appetizers, placing on crackers, etc.
b) lox (pre-sliced, 400 gm vacuum pack): this is a "side" that has been trimmed to provide a uniformly sized, shaped, and weighted fillet that is thinly sliced.
c) smoked and processed in retort pouches: different size (weight) packages are available. This smoked product has a good shelf life (four years) without needing refrigeration. Despite the fact that it has an altogether different flavour and look from the lox, or from a "traditional" smoked whole side of salmon, it has tested well in previous years in some venues.
d) Smoked "Indian candy" (227 gm vacuum pack), available with a variety of flavours depending on the recipe chosen. This kind of value-added product can be made from sockeye that might not be high enough grade for lox.

All products except the retort pouches require freezing and cold storage (-28 F).

Arrangements were made to ship (via Clark Freightways) the frozen sockeye to Delta Pacific in January 2010. Upon arrival and inspection, it was apparent some of the sockeye had been cut in half prior to packaging, presumably for more compact storage in limited space in the Band's freezer. This presented some difficulties in value added processing and would result in lower recovery rates than if all carcasses had been left whole. After discussion of the options it was agreed that Delta Pacific would proceed as follows: pre-sliced lox (a little less than half of the available biomass), smoked retort pouch (about the same amount as the lox), and the remainder as Indian candy. Upon completion of the processing, in February 2010 the results were: 21 packs of Indian candy at 227 gm per pack; 74 packs of lox at 227 gm per pack; and 147 packs of retort pouch at 113 gm per pack.

Products were stored at Delta Pacific Seafoods and then shipped via Clark Freightways to a private business in Prince George where -27C storage space was rented. The products, which were all marked "not for resale", were picked up daily for the purposes of conducting product/market surveys.

Product/Market Surveys

The value added products developed were utilized to conduct a survey of potential markets for the products, including an assessment of the desirability of two selected products, and the market's interpretation of the product. A summary of the businesses with which surveys were completed is provided in Table 10.

Table 10. Businesses that participated in the product/Market Survey.

Company Name	Business Description	Market
1. Meinhardt Market	Specialty food business focus on small indulgences located in Vancouver only	Premium brands and upscale upwardly mobile customers located in expensive neighbourhoods
2. Choices Market	Specialty foods business with focus on organic and non-organic products including meats and vegetables	Western Canada's largest supplier of specialty foods with 8 stores in Vancouver and 1 in Kelowna (middle and upper class market)
3. Ric's Grill Restaurant	A western Canadian restaurant chain specializing in steaks and chops	Mid priced steak house for casual and contemporary dining, focused on quality steak and chop
4. Ramada Hotel	International hotel chain located in Prince George	Family hotel with many different restaurants located within. Ramada also does the largest scale events in town incl: Mothers Day etc..
5. Coast Inn Hotel	Western hotel chain located in Prince George	Focus on business travelers with three restaurants catering to both mid and upper scale dinners. Shogun mid range Japanese and Winston's focused on upper scale dinning.
6. White Goose Bistro	French bistro with focus on local organic supplies	Mid priced dining experience with focus on unusual and local products

A number of businesses were contacted in attempts to arrange for delivery of the survey and hold a short discussion, but only those above were successfully engaged. In some cases, a number of individuals associated each of the businesses listed in Table 10 participated in the survey.

Two of the available products were selected for use during the surveys. As SFC-Siska was already working with a Smoked Candied Nugget product, the UFFCA chose the frozen pre-sliced lox and smoked retorted products for use. The survey was designed to assess participant's feedback on the food quality of the products, as well as the non-consumable characteristics of the product. The survey consisted of questions that involved quantitative scoring and qualitative verbal responses (Appendix 5).

Product Food Quality; Cold-smoked Frozen Lox

A total of 12 survey respondents ranked the quality of the lox product as 4.00, 3.25 and 3.75 for the products flavour, texture and moisture, respectively. The most mentioned least appealing aspect of the product's quality was that it was too salty, while the most appealing aspect was its appearance (colour). The most commonly mentioned improvement was that it should be manufactured in thinner slices (it is a pre-sliced product).

The average of the survey participant's scores with respect to whether or not they would be interested in offering the product to customers was 3.18, with 5 respondents indicating they were interested, and 4 indicating that they were not interested. The package size suggested as being desirable to respondents was generally equally split between the options presented in the survey (3, 4, 4 – for 454g, 225g and other, respectively). Three of the four responses in the other category specified they would be interested in smaller weight packaging.

Respondents that were interested indicated a range of prices that they would be willing to pay for the product, depending on packaging size. The volumes that might be required (only 3 respondents) were indicated from 70-100kg, 225lbs/week and 1000kg per year.

Half of the respondents indicated that they currently regularly offer a product of this type. Nanuk (name brand) was mentioned as a product stocked by 4 of the respondents.

Five of the respondents indicated that fresh sockeye would be a product that they would be interested in (inferred that they were interested in fresh frozen meat – fillets etc.).

Product Food Quality; Hot Smoked Retort

A total of 7 survey respondents were surveyed regarding the hot smoked product and on average ranked the qualities of the hot smoked product as 4.00, 4.00 and 4.00 for the products flavour, texture and moisture, respectively. The only two negative aspects of the products mentioned were that one respondent felt the product was too salty (although they still ranked it as good in all aspects), and another indicated that the packaging could be improved (for the retail-consumer

market). The only suggested improvement was that it would be nice to have options of added flavours (i.e. maple etc.).

The average response regarding whether or not survey participants would be interested in offering the product to their customers was 4.3, with all respondents answering either 4 or 5 (yes, interested, or strongly interested).

The most commonly requested package weight was 454g, with one retail outlet indicating that they would prefer it in the existing package weight (113g).

All of the respondents offered a price they would be willing to pay, which ranged from $7-10 for the 113g package (for retail outlets), with the restaurants wanting the package in larger packaged weight, suggesting $15-20/kg would be a fair price for the product.

Volume requirements suggested (only 3 respondents) ranged from 20kg to 1000kg.

Interestingly, only two respondents indicated that they had carried a product with similar features, and both noted that the UFFCA product was substantially different and unique within their market in their opinions.

As above, survey respondents expressed a desire for portioned sockeye meat products, and one respondent suggested that they would like to see a similar hot smoked product, but candied, and another respondent suggested they would like to see this product packaged for their purposes as a VIP gift item for their hotel chain.

Product Characteristics

As indicated, the survey was also intended to assess the non-food characteristics of the products (or other similar products from other stock-selective in-land commercial fisheries) that appealed to respondents in different market channels. The results of the surveys with respect to each of 5 characteristics that can be attributed with the product were as follows:

Table 11. Non-food characteristics related to the products and their level of importance from the respondents perspectives.

Non-Food Characteristic	Importance
Wild sockeye	4.4
BC/Fraser Sockeye	3.4
Selectively Caught – Conservation Focus	4.3
First Nations caught (First Nation's product)	3.3
Certification Branding	4.2

Advice from Survey Participants

Some excellent general information on food market trends in BC was received during the delivery of the surveys from both retail outlet and restaurant participants.

Currently more people are eating out and seeking better nutrition especially within younger generations. Generally speaking seafood is well placed to compete with beef, pork, and poultry. The Asian influence and the ageing of the population will trend toward a more health-oriented market.

Families are seeking more convenience items because of both parents working and with more ethnic demographic there will be more opportunities for salmon and salmon products, particularly with the Asian markets.

There has also been a trend toward a more regional preference for salmon products, but this approach needs more information and marketing. Increasingly producers are seeking value-added products such as fillets, portion controlled packaging, retort, and vac-packs.

Another opportunity is the Japanese market especially for sushi products that was demonstrated by the larger hotel chains in this survey, which were all interested in using the lox product for sushi preparation. Grocers pointed out that older people prefer fish to meat, but the younger generation tends to dislike fish because it is too complicated to prepare – many young people don't want to or don't have time to cook, and therefore want food that is easy to prepare. In general, customers are seen as wanting easy preparation and a wholesome healthy selection, and producers need to think about those needs in product development and marketing.

Competition is large for the lox products since there are many suppliers; Seven seas, Nanuk, Sea Choice, and Little Chief and English Bay were all mentioned as producing a lox product. It was also pointed out that salmon products are coming from Alaska and Kamchatka Russia. These large scale producers are increasing production and squeezing margins and doing their own branding and, as demonstrated by the high-end grocery markets, there is a continued retail consolidation in all developed markets. Choices' owner pointed out the giant Walmarts, Costcos, Safeways, and Save-on-Foods are putting tremendous deflationary pressures on products like salmon – they are demanding better quality fish at a cheaper price. While Upper Fraser salmon will never be able to supply the volumes needed for these chains, it is worth mentioning since it does exert an effect on the other grocery chains, even Meinhardt and Choices.

Fishery Scenarios

Relationship of fishery to major fish processing centres.

In the mid-upper Fraser the traditional fisheries are characterized by relatively low catch rates (compared to lower Fraser or marine fisheries), often in fairly isolated areas that are primarily accessible by pick-up truck. It is not feasible to capture sufficient quantities of fish in short enough periods of time such that they can be economically transported to major fish processing centers such as Prince Rupert or the Lower Mainland (Todd 2004). An entirely different approach has to be used if economic fisheries in the mid-upper Fraser areas are to be established following a similar model to coastal-based fisheries.

The Lheidli T'enneh study examined the feasibility of servicing the fresh fish (sockeye) market in Prince George (Todd 2004). The study indicated that there was positive economic potential for servicing a fresh fish market in Prince George; unfortunately it was carried out over only two short seasons so its full potential could not be explored. The potential of a "fresh-frozen" market could not be tested because of the lack of the requisite facilities (primary processing, flash freezing, and cold storage). However, based on the Lheidli experience Quesnel and Williams Lake, though smaller in urban population than that of Prince George, would likely support local fresh and fresh-frozen fish sales if they were available. The constraints encountered in the Prince George study included:

1. Low catches per hour by Lheidli fishers – influenced by the numbers of fish available in the limited number of sockeye stocks available in the upper Fraser. DFO management decisions would have to be made taking into account that the success of rights based fisheries, and hence the success of small scale economic fisheries, is dependent on there being sufficient numbers of fish passed upriver to not only seed the spawning grounds but also to supply adequate opportunity to achieve harvest targets. In some years this constraint would not apply to the Quesnel or Williams Lake area fisheries with their access to larger stocks/runs.
2. Timing of the fishery – the best catches during the period of the study occurred just before and after Labour Day weekend. This is the time of the year when consumers have little time to shop for and take care of quantities of fresh fish.
3. Duration of fresh fish availability – the mid and upper Fraser areas are "near terminal". The sockeye stocks that currently have a potential harvestable surplus are accessible to fishers for relatively short periods of time (3-4 weeks maximum). This limits the duration of availability for fresh fish sales.
4. Very limited advertising and distribution – an adequate advertising budget was not available. In addition, the nature of the study precluded the ability to market the fish in high volume consumer locations.
5. Overcoming taboos – the consumer public has been conditioned by DFO management and enforcement policies over the last half of the 20th

century that it is against the law, and potentially putting health at risk, to buy fish from First Nation people.

Despite the constraints noted above, the public reaction to the very limited sales study was so positive that it is evident that small scale opportunities for positive economic benefits do exist. Traditional fisheries occur within two hour drives of each of the urban centers of Williams Lake, Quesnel, and Prince George. Both the Williams Lake and Quesnel areas have access to sockeye stocks that do not go to the upper Fraser. There is every reason to believe that there is a small scale market for fresh – and by extension fresh-frozen – fish in all three centers.

Preserving/storage facilities

Flash freezing (plate freezing or blast freezing) and cold storage facilities are an essential component of economically viable fisheries in the mid-upper Fraser. Many of the constraints encountered in developing an economically viable fishery (see above) can be solved or mitigated for by the use of flash freezing (chilling the fish to –40C within 3-4 hours) and storing (-18C). Thus the "season" of fish availability to market can be extended from three weeks to a year or more. Large quantities of frozen primary-processed fish can be saved up over the duration of the fishery, thus making transport of dressed fish to value added processing facilities (Vancouver, Prince Rupert) an economically viable proposition. Local consumer markets for fresh-frozen and value added products (stored in cold storage facilities) can be supplied on a steady year round basis at a rate that accommodates demand.

Research into flash freezing facilities indicated that industry does not think in terms of small-scale "cottage" or "artisanal" operations, even though it is evident that positive economic benefits can be derived at this scale of production. However, there are small-scale "portable" freezing and storage units (some of them combine the two functions) that utilize plate freezing (rather than blast freezing) technology which would be adequate for small lots of fish (approximately 1000 kg of fish per day).

Currently, blast freezing and cold storage facilities are available in Prince George for approximately 10 months of the year (unavailable during the period Sept 15 to Nov 15).

Value-added

The Lheidli T'enneh study (2004) demonstrated that artisanal fisheries that are carried out in the traditional manner (preferred fishing sites, individual fishers in isolation or small groups) can be economically successful under certain conditions. The study demonstrated that they could NOT be economically successful if they were forced to transport fish "in the round" from the mid-upper Fraser to either the Lower Mainland or Prince Rupert.

However, the study also demonstrated that maximum value per fish caught could be achieved through secondary processing into specific value added products. Such value added processing facilities are capital intensive and on an industrial scale – they need to rely on large quantities of available raw product supplied throughout the year. These value added processing facilities are currently located in the major centers, or on Vancouver Island (smaller custom processing). It is questionable – given the constraints in the current supply of sockeye and Chinook salmon in the mid-upper Fraser – that building such a capital-intensive facility could be accomplished on a profitable basis in the mid-upper Fraser.

Scenarios with potential for economic feasibility.

The Lheidli study (2004) demonstrated conclusively that sockeye caught in the upper Fraser could be successfully marketed as:

- Fresh
- Value added smoked (variety of methods/products)

The study demonstrated that fresh caught sockeye (and presumably fresh-frozen local sockeye) is a product that was desired by local consumers. The study also demonstrated that two varieties of value added product were considered very desirable by specialty "high end" markets in major urban centers where they would command a premium price. The following scenarios are based on those conclusions, and the assumption that those conclusions are equally applicable to sockeye harvested in fisheries in the Williams Lake to Quesnel area, as well as those in the Prince George area.

Sockeye harvest (30,000) in the Lheidli T'enneh fishing area:

- fish are bled when caught, put on ice, and transported by boat and/or pickup truck to a small licensed primary processing platform either floating or on the banks of the Fraser River (could be up to three in number spaced out south of Prince George, east of Prince George, and west of Prince George in the Nechako R.) where the fish are h&g, rinsed, re-iced, and transported to the flash freezing/cold storage facility at/near Prince George. (**Alternatively: each fisher h&g's the fish as they are caught, discarding the offal into the river, and putting the fish on ice to take them to the Landing Site where they are rinsed and re-iced per Taku River.**) Blast freezing unit needs to be capable of handling 2,500 kg per day; cold storage unit must be capable of handling a minimum of 60,000 kg of sockeye.
- Frozen h&g fish are accumulated in cold storage until sufficient numbers are available for economic transport to a value added processing facility (Vancouver or Prince Rupert).
- Sales of small volumes of fresh sockeye (h&g) could be made at the freezer facility, either by advance order or to drop-in customers. If the latter, un-sold fish at the end of the day could be frozen and stored.

- 60,000 kg of sockeye could generate the following revenue and cost scenario:
    i. 5,000 kg h&g sold fresh @ 7.00/kg = 35,000 revenue
    ii. 5,000 kg sold frozen @ 7.00/kg = 35,000 revenue
    iii. 50,000 kg value added processed sold @ 12/kg = 600,000
    iv. Total revenue = 670,000
    v. 30,000 sockeye h&g and delivered to freezing/storage facility @ 7.50/fish = 225,000
    vi. 50,000 kg value added processed including shipping to and from Vancouver @ $5/kg = 150,000
    vii. Total basic costs = 375,000
    viii. Leaving $295,000 for freezing/storage facility operation and capital cost amortization, plus value added product marketing and distribution costs.

The foregoing scenario could be applied to the Quesnel and Williams Lake areas, with small licensed satellite h&g stations at the main fishing areas in the Quesnel River and Chilcotin River systems and similar sized freezing/storage units in each of Quesnel and Williams Lake.

Centralized freezing and storage facility (total mid-upper Fraser harvest of 100,000 sockeye).

A cooperative freezing and cold storage facility could be established and centrally located at Quesnel. Similar to Scenario 1, fish would be harvested in small quantities in the traditional fishing areas (Chilcotin, Quesnel, upper Fraser), dressed h&g at or near the capture sites in small seasonal licensed primary processing stations, and delivered to the Co-op in Quesnel by the fishers using pickup trucks. Alternatively, the Co-op would pick up fish closer to the harvest sites on a pre-arranged schedule using a fleet (three) of 5-ton flatdeck trucks. This would also serve as a supply line for ice to the fishers. The facility would have to have the capability of flash freezing up to 10,000 kg h&g fish per day, and storage of 200,000 kg h&g sockeye.

Potential markets

Utilizing either Scenario 1 or Scenario 2, major markets for value added products within trucking distance would include Vancouver, Seattle, Edmonton, and Calgary. Overseas markets (Asia, Europe, elsewhere in North America) could be serviced from the Prince George Airport.

Fish Processing Regulations and Regulatory Agencies.

Once fish are caught, they become the property of the fisher; this puts the buying, processing, and selling of fish under Provincial jurisdiction in accordance with the Constitution Act 1867. Provincial legislation (health and safety, inspection, processing, packaging, storage, export, quality, and labeling) applies

to aboriginal fisheries and persons/businesses handling fish harvested in aboriginal fisheries

The Ministry of Agriculture and Lands (MAL) "licenses all fish processing plants, fish buying stations, fish brokers, and fish vendors" (Factsheet #42, A Guide to Fish Vending, Buying, Processing, and Broker Licences) as required by the British Columbia Fisheries Act and the Fish Inspection Act. MAL does this through the legislation and several Memoranda of Understanding, and in cooperation with Fisheries and Oceans Canada (DFO), the Canadian Food Inspection Agency (CFIA), local Health Authorities, and the Ministry of Environment.

A Fish Processing License is required by any company or individual processing or cold storing fish. Processors (includes cold storage facilities) where fish are prepared for sale in British Columbia are inspected by the local Health Authority. Processors exporting seafood products outside of British Columbia must have their facility registered with and inspected by the CFIA. "Processing" includes "eviscerating, filleting, icing, and freezing" fish. The Act provides for one exemption from the need to have a Fish Processing License: "A licensed fisher that eviscerates and ices, freezes, or packages their own catch on board their fishing vessel does not require a license." Regulations require that flash freezing facilities be capable of chilling the fish to –40C within three to four hours; and cold storage facilities maintain frozen fish at a temperature of –18C (minimum).

DFO (Federal Pacific Fisheries Regulations Sec 17) requires salmon to be landed at a Designated Landing Station, which is a building or a barge permanently affixed to the shore, and which is provincially licensed as a Fish Buying Station or Fish Processing Plant. Fish Processing Plants – Guidelines for Plan Approval and Structural Requirements are provided by the BC Centre for Disease Control (BCCDC). These Guidelines are based on a large scale industrial model but it is hoped that the principles behind the requirements would be applicable to small scale artisanal fisheries.

The onerous amount and complexity of legislation, regulations, and federal and provincial government agencies involved in the business of economic fisheries made it impractical to begin interviewing regulatory agency personnel on a "what if" or "theoretical" basis. Instead, it is advised that the UFFCA determine the best configuration or "model" for its area fisheries in order for it to have potential economic viability, then approach the agencies armed with the business plan and detailed description of the facilities and procedures it needs to use.

Low technology primary processing – head and entrails removal (h&g).

There are currently no licensed facilities for the primary processing (h&g) of fish in the mid-upper Fraser, with the exception of the Siska Fish Plant near Lytton. The economic feasibility of constructing such a facility would likely rely on an

industrial-scale fishery being implemented. Such a fishery, given the current and near future difficulties that sockeye salmon are encountering, is likely not going to be available for the foreseeable future. However, this does not preclude the very real potential of small scale "cottage industry" or "artisanal" economic fisheries that can provide significant employment benefits to First Nations communities in the mid-upper Fraser.

In the mid-upper Fraser area (Williams Lake to Prince George) there is potential for the development of "artisanal" commercial fisheries where primary processing (h & g) could take place at or very close to the point of capture. A low-tech h&g station would be licensed Federally as a Designated Landing Station and Provincially as a Fish Processing Plant. If licensed as a Fish Processing Plant, the station does not need a Fish Buying Station Licence as long as the Processing Licence includes the category of product being received (bought from the commercial fisher).

The rationale for the low-tech remote location h&g stations is based on the precedent set by the Taku-Tlingit commercial fishery in the lower Taku River in north-western British Columbia. The fishery takes place at a very remote location; in the early years, the harvested sockeye had to be transported by air to a transfer point at Atlin BC (M. Wallden, pers. comm.) The cost of air transport (small float plane) dictated that all un-needed weight and volume would have to be discarded at the point of capture/shipping in order to make the fishery economically viable. The Dept. of Fisheries provided permission for the Taku River Tlingit fishers to primary process (h&g) their catch while on the river by writing such a procedure into the terms of their licence. In recent years, the primary-processed fish have been transported by boat to Juneau Alaska. The same licence conditions remain in effect, i.e. the ability to h&g the fish at capture and dispose of the offal into the riverine environment, consistent with best practices in relation to maintenance of ecosystem productivity values. What works for the Taku Tlingit can work for the First Nations of the mid-upper Fraser.

In the Upper Fraser, permits for similar fisheries would depend on the judgment of the appropriate Federal Fisheries Officer and an assessment of each case (M. Wallden, pers. comm.). The argument to be made for including a licence condition that provides for the ability to h&g fish at the capture site would be that access to the harvest site is difficult and usually feasible only by pick-up truck, the volume of fish caught in a 12 to 24 hour period is relatively small (likely in the region of 100-200 per fisher). Economic viability would hinge on being able to transport as much weight of usable carcass as possible per trip, thus necessitating the removal of head and entrails (offal) at the location of harvest.

While possibly outside the mandate or consideration of the permitting official, in recent years there has been growing realization among resource managers that salmon are an integral driver of the ecosystem in which they spawn. It only makes sense for near-terminal fisheries to leave as much of the salmon as

possible within the ecosystem in order to mitigate the damage that would be done if complete carcasses were routinely removed and significant amounts of salmon biomass were lost forever from the ecosystem which generated them. A not inconsiderable additional benefit is the elimination of landfill/waste disposal issues near or in populated areas.

Permitting/licensing needs for local vending opportunities (MAL and local Health Authority).

Under Section 13 of the provincial Fisheries Act a Fish Vending Licence is required by commercial fishers who sell their own catch directly to the public for personal use. The licence is issued to the person; but the facility used for vending is subject to inspection under the Fish Inspection Regulations. In addition, local Health Authorities have specific inspection requirements applying to roadside sales. The vendor must also abide by zoning bylaws and any business licence requirements. In addition, the commercial fisher must be a bona fide commercial fisher with a current Fisher Registration Card.

Table 12. Regulatory and licensing summary table.

Stage/Step/Option	Licensing/Permitting Requirements	Other Considerations
Licence for commercial harvest to Band	Aboriginal Communal Fishing Licence	Provision re sale of fish is included in "Disposition of Fish"
Option – Band licenses Fishers	Commercial Fisher Licence	Designation ID Issued by the Band
Option – Band hires harvesting staff	Proof of employment and position would be carried	Band holds the commercial licence (Communal Fishing Licence)
Catch Landing Site	Designated in Communal Fishing Licence (DFO) plus Fish Buying Station Licence (MAL); if primary processing here, can be provided for in the Communal Fishing Licence (e.g. Taku); and Fish Processing Plan Licence (MAL) (don't need Buying Station Licence in this case)	Fish transported from the Landing Site must have a Landing Slip (DFO); transporter to place of sale must have Fish Transport Authorization Licence (DFO)
Transport fish to processing facility	From Buying Station/Landing Site/Processing Plant h&g – to freezing/cold storage – Landing Slip and Fish Transport Authorization	
Band/Fisher sells fresh ITR – Public	Fish Vendor Licence (MAL) plus Commercial Fisher Licence (Band)	
Band/Fisher sells fresh ITR – Buyer	Fish Vendor Licence (MAL) plus Commercial Fisher Licence	
H&G at harvesting site	See Catch Landing Site above –	Includes Local Health

(Landing Site) OR h&g at harvesting site (individual fisher)	Communal Licence (DFO) and Processing Plant Licence (MAL) if done at Landing Site	Authority, BCCDC involvement either option
H&G in facility	Fish Processing Plant Licence (MAL)	Includes Local Health Authority, BCCDC
Blast freezing	Fish Processing Plant Licence (MAL)	Includes Local Health Authority, BCCDC
Cold storage	Fish Processing Plant Licence (MAL)	Includes Local Health Authority, BCCDC
Value added processing	Fish Processing Plant Licence (MAL)	Includes Local Health Authority, BCCDC, CFIA

ITR-in the round (whole, un-gutted)

Requirements; Shipping fish out of Province

All fish being exported from British Columbia must first be processed in a CFIA licensed facility. Province of Alberta laws and regulations would apply to vendors located in Alberta, or vendors going to Alberta from British Columbia for the purpose of selling fish or value added fish products. Time did not permit for research into Alberta laws and regulations for various types of vending venues.

Locally Available Storage and Processing Capacity

A survey was conducted of several meat (game) processing and meat shops in Prince George. Business owners were informed of this project and asked to provide some information about their processing and freezing storage and capacity. In general, it was apparent that a number of game processing facilities have substantial blast freezing and some freezer storage capacity that is excess to their needs for a portion of the year. The game processing facilities are primarily busy from mid-September to mid-November during the hunting season, and complete custom cutting of beef and pork during other portions of the year. They possess blast freezing capacity to quickly freeze custom cut meat, which is then stored in -18C storage until it is picked up. Outside of these time periods it was apparent that there is excess blast freezing and freezer storage capacity available, and at least two of the businesses were interested in engaging with the UFFCA on a rental arrangement, with the understanding that it would be time limited by their primary business.

When the prospect of handling fish was breached, particularly gutting, it was apparent that fish-related regulatory requirements seemed to be more of a headache than the requirements for beef or game. It is apparently unlikely that a facility is allowed process both fish and meat within the same facility.

Given that fish can be headed and gutted by the fisher on the water, it is possible that fish (surplus to local sales needs) could then be flash frozen and stockpiled in freezer storage locally and later shipped to a value added processor. Alternatively, they could be flash frozen and stockpiled in freezer storage in the round. Discussions with the value added processor used in this study indicated

that this approach would not substantially reduce subsequent product quality. It is unclear if either of these scenarios would require the facility to have any additional regulatory or licensing needs in order for this approach to be legal. This should be investigated further.

Available blast freezing and freezer storage capacity within the Quesnel and Williams Lake area was not extensively investigated, although there are several game and custom meat processing business listed for that area. Should the use of existing capacity appear to be legally viable, it should be investigated.

Fishery/Product Certification

Harvesting sockeye and other salmon species closer to their spawning areas in the mid and upper Fraser provides the opportunity to focus harvesting effort on stocks that can support commercial exploitation, while avoiding or reducing weak stocks and by-catch species, relative to fisheries occurring in areas where stocks are mixed. This makes commercial fisheries within these areas far more precautionary, conservation oriented and sustainable relative to other fisheries. These issues have become socially relevant in recent years as the public becomes increasingly aware of a growing number of conservation matters.

This provides an opportunity for fish harvested from these selective or more precautionary fisheries to be branded as uniquely ecologically and socially superior relative to fish harvested in other mixed-stock fisheries, which is of course advantageous for the purposes of marketing. Fish harvested in near-terminal areas are generally considered to be inferior and of lower market value relative to coastally harvested fish. Every opportunity to increase their value should therefore be explored and capitalized on.

The best manner in which to highlight the ecological benefits of near-terminally captured salmon is to create and apply a "Certification" process. Industry and product certification has become an increasingly important consideration in many industries and particularly in the Natural Resource extraction sectors. Common examples are the ISO http://www.iso.org/iso/home.html, which generally is applicable to an individual company or organization, Forest Stewardship Council (FSC) http://www.fsc.org/ where forest land bases and companies are Certified, and the Marine Stewardship Council (MSC) http://www.msc.org/, where fisheries are certified. In these cases each of the certification bodies develops a set of standards and criteria before the entity and/or industry activity that they "Certify" can be endorsed as carrying their Certification standard. The objective for those pursuing certification is that if they achieve the necessary certification, their companies and/or products can carry the Certification "brand", providing the consumer with recognition that what they are purchasing in terms of goods or services, is compliant with a certain set of standards and/or criteria.

Most reading this report are likely somewhat familiar with the Marine Stewardship Council's (MSC's) recent attempt assess the commercial fishery on Fraser sockeye as being certifiable according to their standards. Stock selective commercial fisheries in the mid and upper Fraser have the opportunity meet standards for conservation and sustainability that would greatly exceed the MSC standards.

Establishing a Certification Standard that could be applied to in-land commercial fisheries in the mid and upper Fraser would be relatively simple. Most Certification organizations are private organizations, and establishing the Certification process consists of the following:

1. Trade marking the Certification "brand"
2. Developing a set of suitable criteria and standards that a fishery would have to meet in order to be certified.
3. Identifying a suitable agent for assessing fisheries, and a process for applying, denying, monitoring for compliance, and revoking Certification
4. Outlining the conditions of the Certification "brands" use

The opportunity would be that fish harvested from these fisheries, and products subsequently developed from these fish, could carry the Certification "brand", providing informed consumers with knowledge about the products they were buying. In order for this opportunity to provide an advantage, the Certification process would have to gain "brand" recognition.

The product/market survey completed indicated that the top 3 non-food related characteristics of a fish product that would guide their choice in supplying the product to their customers were:

1. That it was wild fish
2. That it was caught in a conservation oriented fishery
3. That it carried a Certification standard related to conservation

Fresh Sales Coordination

Previous studies completed by Lheidli T'enneh and previous and ongoing work being completed by the SFC-Siska has indicated that selling locally captured salmon fresh into the local market is likely one of the best options for dealing with relatively small volumes of fish (or at least what the local markets can absorb). It is also minimally capital intensive.

However, this market option does not come without substantive challenges, as experienced by both Lheidli and SFC-Siska. Challenges experienced include:

1. Taking orders (by phone is time consuming for staff), and lists can be lost or stolen or misplaced
2. Aligning orders with supply in an effective and efficient manner (delivery isn't an option and coordinating pickup is time consuming for staff)

3. Accepting payment (most offices don't have the means to accept debit and credit card payment)

As a means of eliminating some of these problems it was envisioned that a web-based system could be designed that would eliminate many of these issues, and if not eliminate them, making the process far more efficient. A launch ready website was developed that primarily consisted of:

1. Background information on in-land fisheries and their benefits, and the quality of the fish to be sold
    a. It also explained that their order would be filled when and if the fishery occurred, and that they would be contacted via email a short time prior to their order being ready for pickup
2. An order form where persons could place an order, provide their contact information, and select their preferred pickup point from a drop down menu
3. The website has a "background" database that provides the site administrator, as requested, with a summary of the orders placed, and customers contact information so they can be contacted via individual or mass email.

In this manner, orders can be tracked and filled when the fishery is successful, and customers can be contact en mass, with directions on where to attend to pickup and pay for their orders.

It was intended that these sites would be launch ready for 2010, with additional development occurring before they were launched, including the ability for customers to pay deposits on their orders.

Conclusions – UFFCA

The product/market survey completed reaffirmed previous knowledge that there is substantial value in sockeye harvested from the UFFCA area, particularly as value added products. The survey also indicated that there is a substantial opportunity to capitalize on increasing societal and consumer awareness of conservation, sustainability and ecological issues in order to create a marketing advantage for near-terminally captured salmon, which may in-part offset their decreased market value relative to coastally produced fish. It is clear that a Certification process for mid and upper Fraser fisheries would be beneficial in this regarding and that it would be possible to create and maintain.

An assessment of economic viability scenarios for commercial fisheries in the UFFCA area indicates that the combined challenges created by regulatory burdens and the absence of regulatory compliant processing and storage capacity creates substantial challenges for these fisheries. A number of recommendations for infrastructure requirements are outlined for the purposes of improving the potential viability of fisheries in these areas.

Fishery scenarios considered indicate that fresh local sales should be maximized until such time that the necessary infrastructure requirements are available.

A system to improve the coordination and efficiency of fresh local fish sales is clearly needed and valuable, and its development should continue until it is suitably employed.

Recommendations - UFFCA

Those First Nations pursuing economic fisheries in the mid and upper Fraser develop a business plan based on the following features:

- Formation of a Cooperative for the construction, ownership and operation of a centralized facility (Quesnel) freezing and cold storage facility. This would allow for annual production from a variety of stocks and locations whose abundance varies on a cyclical or annual basis.
- The Cooperative would also establish and own small, low-technology, primary processing facilities located in remote locations at traditional harvesting areas. Freshly harvested fish would be purchased from licensed fishers and quality control would be maintained at the source. Additionally, a percentage of fish biomass would be retained within the ecosystem that produced it through the low density discard of offal near the terminal areas, mimicking to some degree the natural processes that drive the ecosystem.
- Establish a partnership with an existing value added processing facility located in the Vancouver area (proximity to U.S. and Canadian markets) that has a proven track record in terms of product quality.

In the absence of processing (heading and gutting, and particularly blast freezing and freezer storage) infrastructure in close proximity to each in-land fishery location, the opportunities to viably move beyond local fresh sales will be challenging at best. Until such infrastructure is available, it is therefore recommended that work continue on the development of a web-based system for coordinating orders and delivery/pickup mechanisms. A particularly valuable component would be the addition of the ability for customers to pay deposits for their orders using credit card.

The regulatory requirements and legalities related to using locally available blast freezing and freezer storage capacity should be investigated.

The ability to setup accounts for accepting customer's payments via debit and credit card at the point of order pickup should be investigated.

The product and market survey work identified at least one highly valued product that appeared to be appealing to a variety of markets. Larger-scale production and marketing should be attempted through the PICFI program so that the

necessary experience can be gained related to the logistics and costs of sales coordination and product delivery.

The development of a fishery/product Certification process, including the development of criteria or standards to be considered, the processes for Certification, including maintenance and monitoring, and the Certification Brand-trademark should be pursued. The product and market survey indicated that this was a highly sought after marketing feature of fish from mid and upper Fraser fisheries. It also provides an avenue for increasing the market value of selectively captured near-terminal fish.

We should all stop using the term near-terminal when referring to these fisheries and fish, as it conveys negative connotation to potential customers and the public in general.

Collaborative Opportunities (Siska-SFC & UFFCA)

The Siska fish plant provides some opportunity for commercially harvested fish from the UFFCA to be processed according to the necessary regulatory requirements. Whether or not it is viable for fish processed at the plant to then be transported back to the UFFCA area for fresh sales would depend on the numbers being considered.

The mid and upper Fraser groups would likely benefit from the joint coordination of annual fresh fish sales in their respective local areas. This could be facilitated by the web-based sales coordination tool described in this report and is necessitated by the fact that commercial fisheries will not always annually occur in all areas of the mid and upper Fraser, but demand for fresh fish will, and the need to continue developing sales and marketing expertise within each area should be pursued annually if possible. A system of fresh commercial fish sales and distribution within the mid and upper Fraser should be considered.

Likely the largest opportunity for productive collaboration between the UFFCA and SFC-Siska is in the form of continued information sharing, to ensure learning curves are shortened and the benefits of simultaneous capacity development are maximized.

Acknowledgements – UFFCA

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Appendix 1 – Siska Plant Inventory Spreadsheets

Sheet 1: Primary Processing

Date	Fish Slip #	Tote #	Lot #	Temp in tote	Pieces	Delivered Wt (lbs)	Total H&G (lbs)	Rejected Wt (lbs)	Reds - H&G (lbs)	Pales - H&G (lbs)	M (#)	F (#)	Roe (lbs)	Comments (odor, totes leaking, ice left in tote, datalogger, adipose clip, rejects, etc.)
Total					0	0	0	0	0	0	0	0	0	

Sheet 2: Secondary Processing

Date	Lot #	Primary Processing			Secondary Processing						Comments
		Total H&G (lbs)	Reds - H&G (lbs)	Pales - H&G (lbs)	Pales - H&G (lbs)	Pales - Fillets (lbs)	Reds - H&G (lbs)	Reds - Fillets (lbs)	Reds - Steaks (lbs)	Reds - BBQ Strips (lbs)	
Total		0	0	0	0	0	0	0	0	0	

Sheet 3: Order Shipping

Date Shipped	Customer	Tote#	Order#	Finished Product Info (lbs)							Shipping Info				Comments
				Pales-H&G	Pales-Fillets	Reds-H&G	Reds-Fillets	Reds-Steaks	Reds-BBQ Strips	Roe	Lot#s	Shipper	Bill of Lading#	Destination	
TOTALS				0	0	0	0	0	0	0					

Sheet 4: Summary and Calculations

Pieces	**0**
Delivered Weight (lbs)	**0**
Rejected Weight (lbs)	**0**

Primary Production:

Total H&G (lbs)	**0**
Total H&G - recovery rate	**0**
Reds - H&G (lbs)	**0**
Pales - H&G (lbs)	**0**
Roe (lbs)	**0**
Roe - recovery rate	**0!**

Secondary Production:

Pales - H&G (lbs)	**0**
Pales - Fillets (lbs)	**0**
Reds - H&G (lbs)	**0**
Reds - Fillets (lbs)	**0**
Reds - Steaks (lbs)	**0**
Reds - BBQ Strips (lbs)	**0**

Orders Filled & Shipped:

Pales - H&G	**0**
Pales - Fillets	**0**
Reds - H&G	**0**
Reds - Fillets	**0**
Reds - Steaks	**0**
Reds - BBQ Strips	**0**
roe (lbs)	**0**

Unsold/Errors:

Pales - H&G	**0**
Pales - Fillets	**0**
Reds - H&G	**0**
Reds - Fillets	**0**
Reds - Steaks	**0**
Reds - BBQ Strips	**0**
roe (lbs)	**0**

Appendix 2 – Transportation Forms

A) DFO Fish Transport Authorization Report:

FISH TRANSPORT AUTHORIZATION & REPORT

PART A - Completed by an Authorized representative of Fisheries and Oceans Canada

1. Name of organization authorized to transport fish: Siska Indian Band
2. Organization / Individual Contact Names: Terry Raymond - Siska Indian Band - (250) 455-2219
3. Communal Economic Fishery License No: BCI-2009-CL05 / Siska DemoFishery

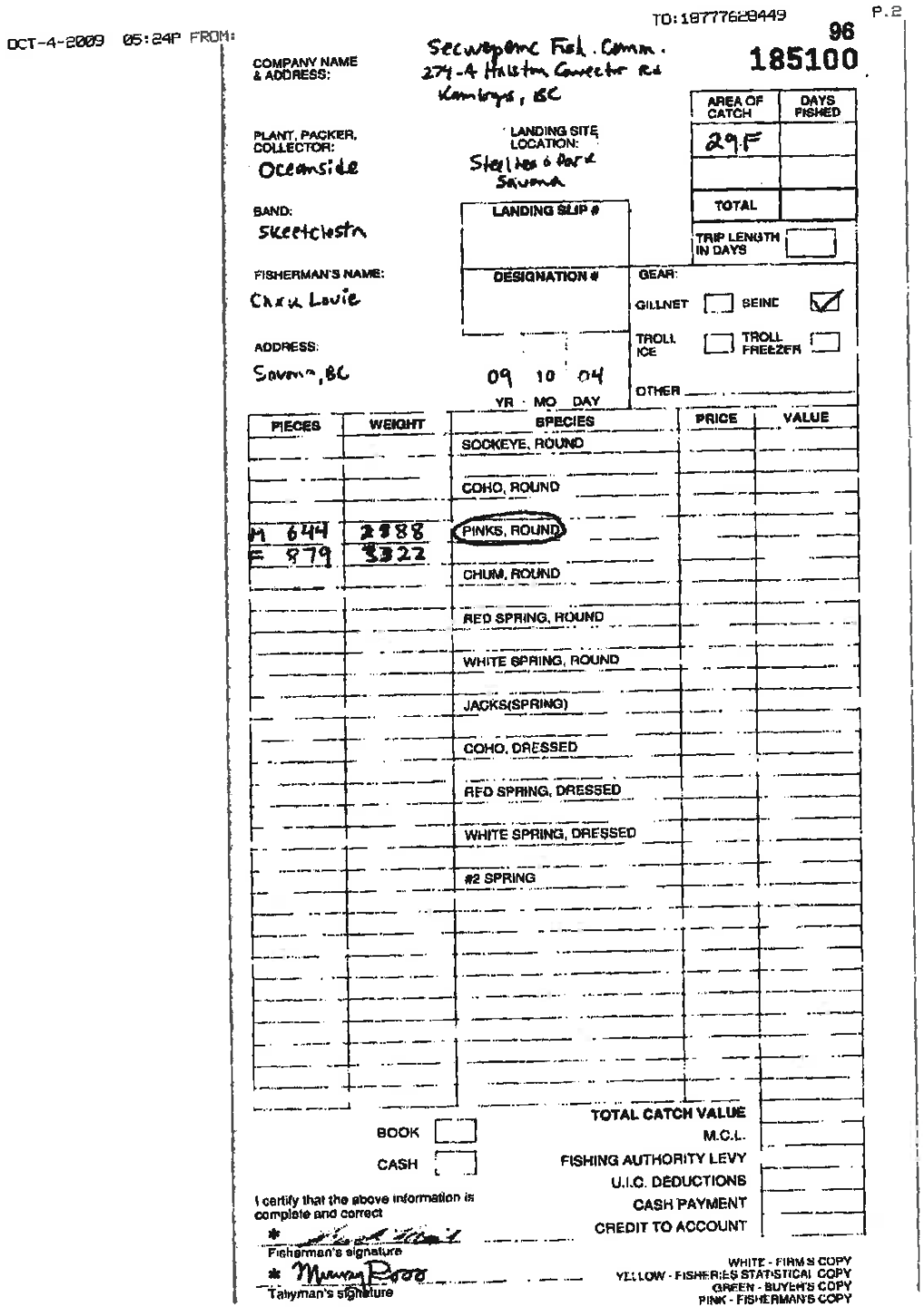
Approved by: _____
Dave Reedman, Resource Manager - DFO Williams Lake
Tel (250) 305-4019 Fax (250) 305-4017

Within 24 hours of arrival at destination complete the arrival time on the **Fish Transport Authorization & Report** form and fax to Fishery Officer Barry Zunti at Department of Fisheries & Oceans in Kamloops (fax # 250-851-7717)

PART B - Completed by Person Transporting Fish

Trip No.	Date of Transport	Landing Site	Tote #s	PK salmon transported	Amount of roe transported	Destination	Departure Time	Arrival Time	Name of person transporting fish	Initials of person transporting fish	Initials of person receiving fish
1	21-Sep-09	Siska									
2											
3											
4											
5											
6											
7											
7											
7											
8											
8											
9											
9											
9											
10											
11											
11											
12											
12											
13											
13											
14											
15											

B) DFO Fish Slip:



OCT-4-2009 05:24P FROM: TO:18777629449 P.2

96
185100

COMPANY NAME & ADDRESS: Secwepemc Fish. Comm. 274-A Halston Connector Rd Kamloops, BC

PLANT, PACKER, COLLECTOR: Oceanside

LANDING SITE LOCATION: Stellako & Port Simpson

BAND: Skeetchestn

FISHERMAN'S NAME: Chris Louie

ADDRESS: Savona, BC

LANDING SLIP #

DESIGNATION #

09 10 04
YR MO DAY

AREA OF CATCH	DAYS FISHED
29F	
TOTAL	

TRIP LENGTH IN DAYS

GEAR:
GILLNET ☐ SEINE ☑
TROLL ICE ☐ TROLL FREEZER ☐
OTHER

PIECES	WEIGHT	SPECIES	PRICE	VALUE
		SOCKEYE, ROUND		
		COHO, ROUND		
M 644	2388	PINKS, ROUND		
F 879	3322	CHUM, ROUND		
		RED SPRING, ROUND		
		WHITE SPRING, ROUND		
		JACKS(SPRING)		
		COHO, DRESSED		
		RED SPRING, DRESSED		
		WHITE SPRING, DRESSED		
		#2 SPRING		

BOOK ☐
CASH ☐

TOTAL CATCH VALUE
M.C.L.
FISHING AUTHORITY LEVY
U.I.C. DEDUCTIONS
CASH PAYMENT
CREDIT TO ACCOUNT

I certify that the above information is complete and correct

* Fisherman's signature

* Tallyman's signature

WHITE - FIRM'S COPY
YELLOW - FISHERIES STATISTICAL COPY
GREEN - BUYER'S COPY
PINK - FISHERMAN'S COPY

C) Riverfresh Transport Manifest:

Riverfresh Transport Manifest **Manifest #** Siska-09-

From: Siska Plant
P.O. Box 519
Lytton, BC V0K 1Z0

Date:

To: Secwepemc Fisheries Commission
274-A Halston Connector Rd.
Kamloops, BC V2H 1J9

Shipper: McLean

Tote #	Species	Product Description	Wt (lbs)	Temp (°C)	Ice Left?	Odor?	Received in Good Order
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
					Y N	Y N	Y N
Total Wt							

Comments:

Shipper: **Receiver:**

D) Virtual Warehouse Shipping Summary

Virtual Warehouse Shipping Summary

Date

Pinks	Number of totes	meat color	Meat firmness	weight
Female round				
Female eggs removed				
Male round				

Eggs	Number of boxes	Weight

Other species	Number of totes	Weight

BL Number	
Carrier	

Comments

Name

Signature

Appendix 3 – Retail Feedback Forms

Riverfresh Fish Quality Survey Retail/Restaurant Outlets Codfather's Seafood (Kelowna)

How was the firmness of the flesh? __ Excellent x Good __Poor __ Unusable

How was the taste of the flesh? __ Excellent x Good __Poor __ Unusable

Was skin color an issue? NA

Would you be willing to purchase this product, assuming the price is right (around industry standard)? x Yes __ No

Comments: Price was right, very happy with the quality of the product, will replace current line of chinook nuggets with Riverfresh nuggets.

Riverfresh Fish Quality Survey Retail/Restaurant Outlets Buy the Sea (Penticton)

How was the firmness of the flesh? __ Excellent x Good __Poor __ Unusable

How was the taste of the flesh? __ Excellent x Good __Poor __ Unusable

Was skin color an issue? NA

Would you be willing to purchase this product, assuming the price is right (around industry standard)? __ Yes x No

Comments: Quality was good, will keep my candied farmed Atlantic line because of price, $10.99 per lb as opposed to the Riverfresh price of $13.99 per lb.

Appendix 4 – Thompson River Pink Sampling Program

Date			6-Oct-10	6-Oct-10	6-Oct-10
Lot number			THPI-Oct3	THPI-Oct3	THPI-Oct3
Species			Pink	Pink	Pink
FISH	Fish No		1	2	3
	Whole weight (lb)		3	2	3
	Belly Flap (mm)		2.5	3	3
Skin Colour	Dark	1	1	1	1
	Blush	1			
	Black	2			
	Fuzzy	3			
Eye	Shiny and clean	1	1	1	1
	Opaque	2			
	Blood clots	3			
	Picture No				
	Gender		f	f	f
Fillet Colour			O	M	M
	Uniform? (Yes)	1	1	1	1
	Uniform? (No)	2			
	Pale	1	1	1	1
	Flesh Firmness	Firm=1		1	
		Med=2	2		2
		Soft=3			
Total Points			6	5	6
Quality			**Good**	**Good**	**Good**
ROE	Skein	2	2		2
	Loose	1		1	
	Hard	2	2	2	2
	Soft	1			
Roe Colour					
	Roe size (mm)	3	4.5	6	5.5
Total Points					
Quality					

Appendix 5 – Product/Market Survey

In-River Commercial Sockeye Feasibility Project
Value-Added Products; Product Assessment Component

Dear _____

The UFFCA is pursuing a project assessing the economic viability of in-land commercial harvests of sockeye salmon (focusing on Chilcotin, Quesnel/Horsefly and Nechako summer stocks). The primary benefit of shifting fisheries toward near-headwater areas is that fisheries can attain a higher degree of stock-selectivity (harvesting more productive stocks), while negating impacts on and conserving less productive stocks and species. These fisheries are being driven by First Nations groups in each of these areas, as they reflect a more conservation oriented approach. The primary challenges in facilitating economically viable inland fisheries is the absence of supporting fishery infrastructure in near-headwaters areas and the qualities that salmon harvested in-river possess, which differ from the existing market norms.

The UFFCA is presently assessing infrastructure needs, including processing capacity, as well as available product and market options, including viable products and the market segments they are best suited towards.

The UFFCA is also working to establish its own Certification Standard for these fisheries and products resulting from these fisheries. As indicated, fisheries within the UFFCA area can obtain a high degree of stock-specific selectivity, thereby making them among the most conservation-oriented and sustainable fisheries in the world. The UFFCA is in the process of creating a "Certification Brand" that will include a standardized set of criteria that each UFFCA area fishery will have to meet before products from those fisheries can carry the "Certification".

The UFFCA has produced several value-added products from sockeye harvested from the upper Fraser area for the purposes of assessing the product's suitability and desirability for various markets. These products have been processed by a certified firm (Delta Pacific Seafoods Ltd.) and are not for resale. We're conducting this survey to gather your valued opinion about these products, including their desirability for your business, and what qualities and characteristics make them either desirable or undesirable. The intent is to gather information for our future product development and marketing plans.

We respect your time and will complete this survey as quickly as possible.

Upper Fraser Fisheries Conservation Alliance

Survey Participant: _____

Affiliation: _____

Product: _____

Survey Administered by: _____

Date: _____

Key feedback desired – Product Qualities

Please rate the desirability of this product in terms of its Food Qualities

1 (not at all) 2 (not much) 3 (somewhat) 4 (good) 5 (very good)

1. **Palatability of the product (overall)**
   a. aspects that are **most** appealing (flavour, texture, moisture)

Flavour	1	2	3	4	5
Texture	1	2	3	4	5
Moisture	1	2	3	4	5

   b. Other aspects of food quality that are most or least appealing?

   c. Any key food quality improvements that can be identified?

2. **Degree of desirability**

    a. Would you be interested in offering this product to your customers?

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

    b. What package size would be most appealing?

        454g 225g other_____

    c. What price would you think would be fair for the product (base on package size)?

    d. If desirable, can you estimate the volume of product you think you would require annually?

3. **Do you currently stock/offer any similar products? If so, what are their brands etc.?**

    a. Are there other sockeye products that you would see as being desirable for your market? (please describe)

Key feedback desired – Product Characteristics/Attachments

Please rate the desirability of this product in terms of its Product Characteristics

If you did wish to provide this product to your customers, what are the primary aspects of the non-food qualities or the characteristics attached to this product that would compel you to provide it to your market?

1. **Wild**

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

2. **BC / Fraser sockeye**

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

3. **Selectively caught (Conservation Focus)**

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

4. **First Nations caught (First Nation's product)**

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

5. **Certification Standard / Branding (Conservation Focus)**

1 (not at all) 2 (not much) 3 (somewhat) 4 (yes) 5 (very much so)

6. **Other (describe)**

Are there other persons within your industry that you think we should include in this survey? (names and contact information)

Any other information, advice or feedback you would like to provide?

Thank you for your time!

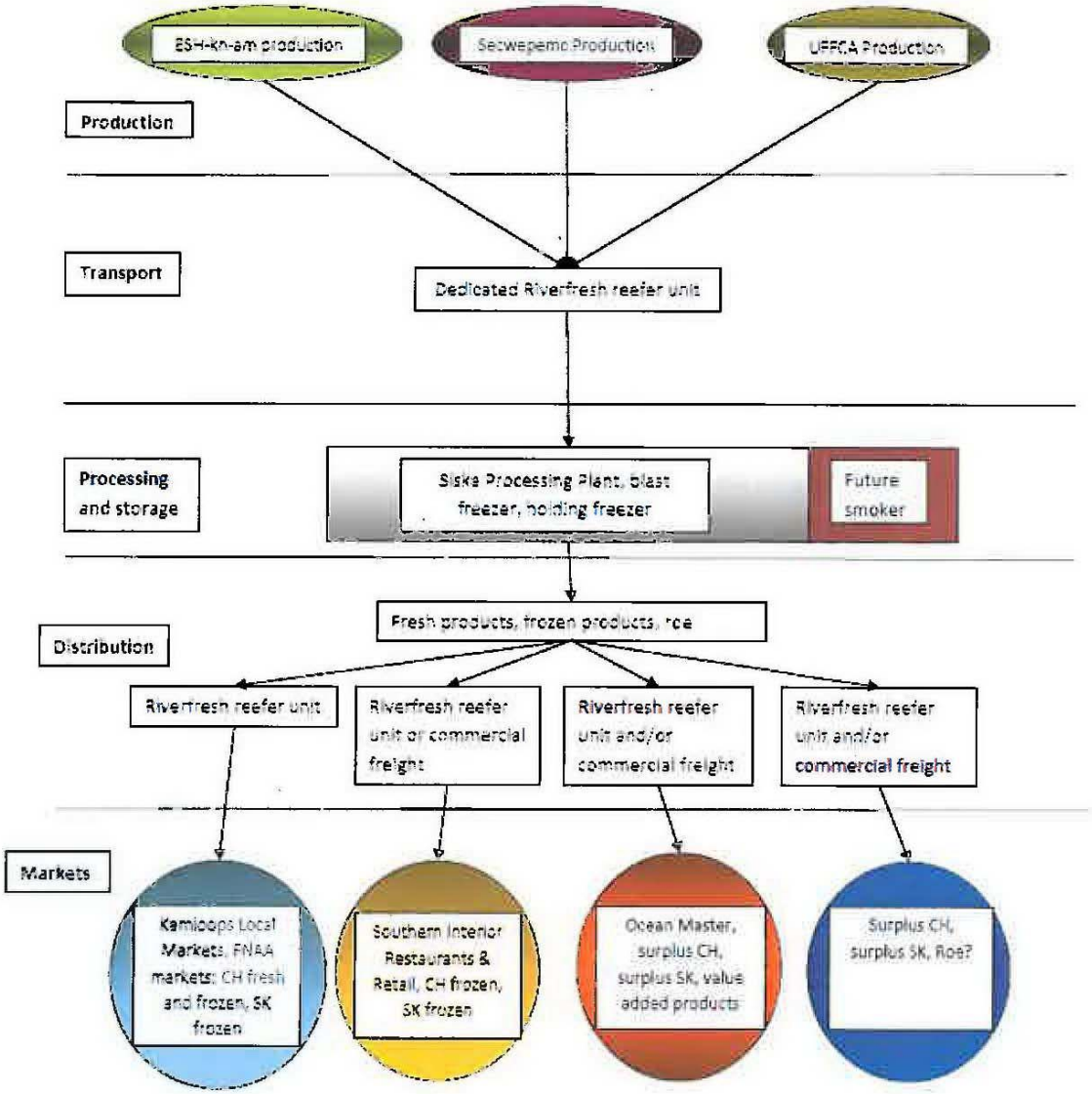
Appendix 6 – 2010 Pre-Feasibility Planning (SFC-Siska)

Pre-Feasibility Planning for 2010 Communal Commercial Demo Fisheries

BUSINESS PLAN COORDINATION

The Riverfresh BC Interior business plan approach will utilize production from three main First Nations' organizations, Esh-kn-am, Secwepemc, and UFFCA. Processing will take place at the Siska plant, and be distributed from there to Riverfresh markets (Figure 1).

Figure 1: Riverfresh business plan partners



Production, transport, distribution and markets are where the bulk of the PICFI business planning will occur. Perhaps the best way to structure it would be 3 different "mini plans" for each producer nested into a larger comprehensive plan. The comprehensive plan will utilize all production after processing for value added, shipping, and sales portions of the PICFI business plan. The processing plant business plant will have to be developed outside of PICFI funding.

Traceability Case Study for SFC 2009 Pink Demonstration Fishery

When the pinks were landed at the beach they were separated into male and females, weighed and iced. The traceability starts here with the DFO fish slips. The totes were then loaded onto Keep It Cool's truck for shipping to the Siska plant. At this juncture the plant manager should receive fish slip copies, the DFO Transport Authorization form, and a Bill of Lading from Keep It Cool listing the totes, their numbers and weights. In 2009 the Bill of Lading was absent.

Female pinks were processed at Siska for egg removal, and all males, unprocessed females, female carcasses and roe were then packaged for shipping. All processed products were assigned a lot number linking that production to the tote number from the fishery. Both unprocessed product tote numbers (whole male and female pinks) and assigned lot numbers for processed products (roe, female carcasses, fillets) were entered into the Siska plant inventory tracking spreadsheet.

Keep It Cool picked up all products from Siska in their semi reefer unit for transportation to Seven Sea for further processing and sales on the Virtual Warehouse. The driver was sent with a Keep It Cool Bill of Lading, Fish Slips, and the DFO Transport Authorization form. These forms were posted on the Virtual Warehouse web site that linked further processing back to the shipments, lot numbers and tote numbers that the SFC fishery and Siska produced.

After Seven Seas traceability was not accessible as to where unprocessed females and males went to be further processed, or where the roe went to be processed into caviar until 4 months later. The paperwork posted is still unclear what was processed at the listed plants. A couple of problems arose with traceability paperwork in 2009 with shipping from the Siska plant and beyond.

The first problem occurred when the load that needed to be shipped to Seven Seas was too heavy for the truck. Keep It Cool was supposed to have a B-Train reefer unit sent to Siska, but due to logistics problems only a single reefer showed up, resulting in a load that was too heavy.

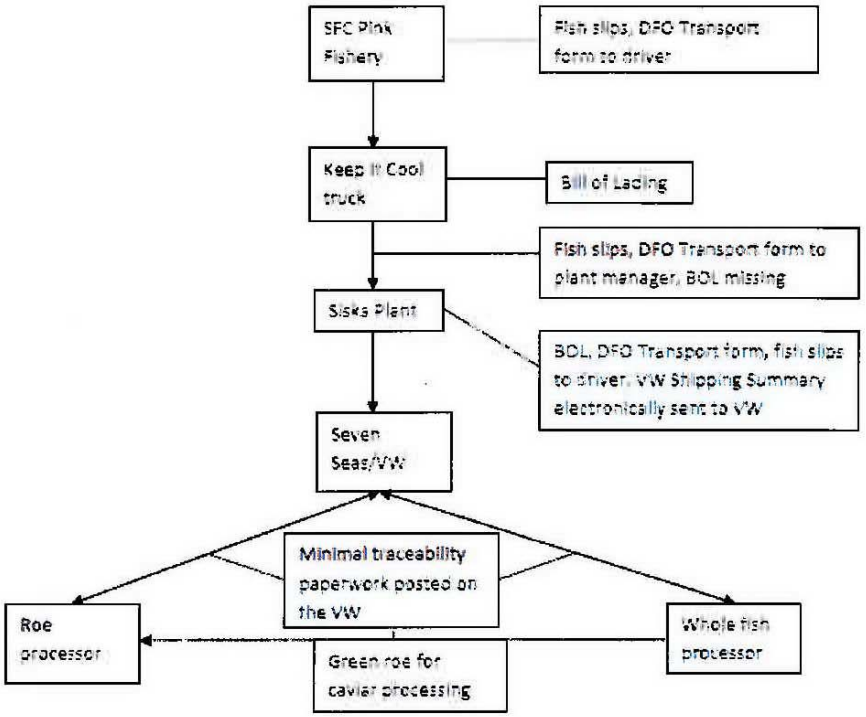
The totes were being loaded at night, after the plant manager had filled out all paperwork and was not present. Six totes had to be left behind due to the driver's concerns about an overweight load. When the truck unloaded at Seven Seas/Virtual Warehouse, there was much concern about the missing six totes which were now the Virtual Warehouse's responsibility. The problem was eventually sorted out due to the traceability systems in place for Riverfresh, but could have been easily avoided.

The second problem occurred when a reefer load of pinks were sent from Siska to Seven Seas/Virtual Warehouse, then to a processing plant in the USA. The truck driver did not have the proper paperwork and the load was confiscated by the FDA at the border and held in the impound yard for a couple of days. As far as the Riverfresh partners were informes the major piece of missing paperwork was a copy of the DFO demonstration fishery license. The fish was processed eventually and the eggs made into caviar.

A major problem that occurred in 2009 was wasted pink meat. The pink meat market was saturated due to massive allocations in the ocean, in-river, and globally. All pink meat coming from the Steelhead Park beach seine was deemed TDU (Tainted, Decomposed, and Unwholesome) due to a "bad smell" emanating from the meat, which also permeated the roe. Pinks cut at the Siska plant for fillets did not seem overly pungent, but were definitely of a lower quality. Due to the TDU quality assessment, 67 569 pounds of pink meat was discarded, none made it to market for any type of product. It is not clear what "discarded" means; i.e. land fill, fertilizer, rendering plant, etc. Secwepemc had no say in this decision and lost custody of the fish at the Virtual Warehouse/Seven Seas juncture. The Virtual Warehouse administrator recommended shutting the fishery down five days into harvesting due to the fact Secwepemc and the Virtual Warehouse/Seven Seas would lose money.

The Virtual Warehouse provides a service where roe processing and sales are taken care of, plus sales of any overflow production that the Riverfresh partners produce. There is some question as to how far traceability must go when the Virtual Warehouse administrators have to make quick decisions on where and how to process fish. Do the partners need to know where the roe went to be produced into caviar, or where the whole fish went to be processed? Or is it enough that the finished products end up back at Seven Seas and are posted on the VW for sale; trusting that the VW has the traceability system in place to be able to track those products backwards to link them with the tote numbers from the fishery and the lot numbers from the Siska plant in case of recall. Bills of Lading for products shipped from Seven Seas to the various plants were not posted on the VW. Figure 2 shows the traceability paperwork flow.

Figure 2: Traceability paperwork flow 2009



A traceability workshop was held with government and traceability experts to determine if there is a way to streamline the paperwork with respect to redundant forms and online information transfers. DFO is going to look at the regulatory requirements and will make recommendations from there, possibly amalgamating everything into one form. The traceability issues surrounding the Virtual Warehouse will not be addressed due to the fact Seven Seas is no longer willing to be the administrators.

Concept Planning for 2010 Demo Fisheries

CHINOOK FISHING SCHEDULE

Table 1: Kamloops Lake Chinook Gillnet Demo Fishery

Kamloops Lake Chinook Gillnet Demo Fishery																					
	August									September											
	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12
Testing																					
Fishing																					
Plant Deliveries																					
Local Sales/Deliveries																					
Roe/Unprocessed Fish Deliveries																					

Table 2: Siska Fish Wheel and Martel GN/BS Chinook Demo Fishery

Siska Fish Wheel and Martel GN/BS Chinook Demo Fishery																				
	August																September			
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5
Testing																					
Fishing																					
Plant Deliveries																					
Local Sales/Deliveries																					
Roe/Unprocessed Fish Deliveries																					

SOCKEYE FISHING SCHEDULE

Table 3: Steelhead Park Beach Seine

Steelhead Park Sockeye Beach Seine																				
	September																	October		
	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1		
Testing																					
Fishing																					
Plant Deliveries																					
Local Sales/Deliveries																					
Unprocessed Fish Deliveries																					

Table 4: Siska Fish Wheel and Martel GN/BS Sockeye Demo Fishery

Siska Fish Wheel and Martel GN/BS Sockeye Demo Fishery																			
	September																		
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Testing																			
Fishing																			
Plant Deliveries																			
Local Sales/Deliveries																			
Unprocessed Fish Deliveries																			

FISHING SCHEDULE OVERLAPS

Table 5: Chinook Fishing Schedule Overlaps

Kamloops Lake Chinook Gillnet Demo Fishery/ Siska Fish Wheel and Martel GN/BS Chinook Demo Fishery Overlaps																				
	August									September										
	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12
Siska Fishery																					
Martel Fishery																					
Secwepemc Fishery																					

Table 6: Sockeye Fishing Schedule Overlaps

Steelhead Park Sockeye Beach Seine																					
	September																		October		
	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1		
Siska Fishery																					
Martel Fishery																					
Secwepemc Fishery																					

PLANT PROCESSING SCHEDULE

The plant will run from August 11 to Dec 31, possibly longer if enough production is harvested and processed. There are harvesting overlaps between Siska/Martel and SFC harvesting in the weeks Aug 30 to Sept 3 and Sept 20 to Sept 24. Depending on how much production is coming from the landing sites the plant will be receiving variable amounts of fish and the processing schedule will have to reflect that. Low volumes are based on SFC harvest rates for chinook and sockeye. The Siska plant in 2010 will have 4 employees plus the plant manager. Table 5 shows

some possible scenarios. During the weeks the schedule overlaps between Siska/Martel and Secwepemc fisheries occur the plant may not be able to handle all production.

Table 5: Processing and freezing thresholds

	Harvest Production	H&G	Hours of Operation	Blast Freezing Capacity	Freezer Storage Capacity
Chinook (SFC, Siska/Martel production)	Min – SFC 50 ch Siska 50 ch Martel 50 ch	**Siska Plant can H&G 270 15 lb plus in 8 hrs.**		Blast freezer will be built according to max plant production	50 15 lb H&G chinook per tote
Low volume	50	50	4 hrs	750 lbs	1 tote
Mid volume	270	270	8hrs	4050 lbs	6 totes
High volume	540	540	16 hrs	8100 lbs	11 totes
Sockeye (SFC, Siska/Martel Production)	Min - SFC 600 sk Siska 300 sk Martel 300 sk	Siska Plant **can H&G 450 5 lb in 8 hrs.**		Blast freezer will be built according to max plant production	**150 4.3 lb H&G sockeye per tote**
Low volume	600	600	10 hrs	2580 lbs	4 totes
Mid volume	900	900	16 hrs	3870 lbs	6 totes
High volume	1500	900	16 hrs; 600 pieces unprocessed fish to coast	3870 lbs	6 totes

- Minimum charge $1140 for 4 hours plant operation
- Minimum charge $2274 for 8 hours plant operation (this is where a price per pound will be feasible)
- Maximum freezer storage capacity is 36 totes per unit, possibility of adding more than one freezer unit

RIVERFRESH TRANSPORTATION

A dedicated Riverfresh 3-5 ton reefer truck will be leased to deliver whole product to the plant and processed products to the various markets from the plant. Roe and surplus meat will have to be shipped to the SQA plant via a commercial trucking company unless the Riverfresh truck has time and a large enough load to warrant a trip to Vancouver. Figure 3 illustrates the product flow.

Figure 3: Riverfresh Product Flow

Any restaurant accounts in Kamloops Riverfresh attains in 2010 will be serviced with the same reefer unit. Depending on how far away other interior markets are either the Riverfresh reefer will deliver or a commercial trucking company will be used. When the fisheries stop and only processed products are being shipped, it may be necessary to return the large truck and lease a small reefer van for deliveries.

MARKETING

Local Marketing:

An email contacting all previous local customers will be sent out to inform everyone about the 2010 chinook fishery. To increase local chinook sales newspaper ads, flyer campaigns, and possibly radio ads (very expensive) can be utilized.

A strategic, clear marketing plan should be developed for in river chinook and sockeye production, showcasing Riverfresh chinook and sockeye products at the same time to break into the local restaurant/retail markets.

Preliminary talks with FNAA (First Nations Agriculture Association) regarding product development with regards to chinook have taken place. The concept is to develop a few recipes that cater to Riverfresh chinooks unique qualities, and then showcase these products to local chefs. FNAA has hired a chef and revitalized the industrial kitchen at the Chief Louis Center for grass fed beef product development.

FNAA also has a large market share that wants wholesome, local foods. Talks are in progress that could lead to some Riverfresh products being showcased at the Choices Market in Kelowna.

Local sales should remain focused on chinook, as the volumes caught are such that the Siska plant can handle roe extraction and secondary processing into fresh sales products.

Sockeye harvest production could very well outstrip Siska plant capacity, in which case the sockeye processed in the plant will be H&G'd and blast frozen until the fisheries stop, then marketing/secondary processing will occur.

Any products that Siska plant cannot handle will be sold to Ocean Master, or possibly custom processed by Ocean Master and then shipped back for interior sales .

Seven Seas is no longer willing to work with Riverfresh stating the volumes of product are to low. An alternate plant that will be willing to sign an SQA will have to be found before the 2010

fisheries for roe sales, or the interior bait market aggressively pursued to absorb all Riverfresh roe production, chinook and possibly sockeye.

SALES

Talks are in progress with FNAA about the possibility of using their retail facility for pre ordered chinook sales to local Kamloops customers. The capacity at the SFC office building is no longer able to deal with the customer volumes that will be occurring in 2010.

All other sales are dependent on how successful the marketing plans for both chinook and sockeye are.

Any surplus will have to be contract processed by a coastal processor or sold wholesale. Ocean Master is the only coastal plant so far that has been approached for wholesale sales. Other processors have to be contacted and price estimates attained, and contracts/buying agreements signed before any sales go through.

COST RESEARCH FOR SFC-SISKA 2010 DEMO FISHERIES

Equipment	Cost	Shipping	Contact
Totes	$385/tote	$600.00 to Van for 25 totes, $1000 from Van to Kamloops	Plastics Plus Fabricating 250-830-1528 contact: Cheryl
Tote Liners	waiting for quote	$0.2293/lb	Mike Rekus 1-604-833 0818
Nets	Contact George Myers with exact specifications needed for each fishery	$0.2293/lb	Redden Net Co. 1-800-667-9455 contact: George Myers
Ice	$25/tote	$0.50/lb	Mike Rekus 1-604-833 0818
Lead line	Contact George Myers with exact specifications needed for each fishery	$0.2293/lb	Redden Net Co. 1-800-667-9455 contact: George Myers
Tote Scale	$2 239.00 each	$50.00	Dave Dennis Mettler Toledo, Inc. Suite 454, 7231 120

			Street Delta, BC V4C 6P5 (604) 591-7112
Hook Knives	$18.90 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Fiber totes	$25.00 each	$0.2293/lb	Mike Rekus 1-604-833 0818
Bleeding totes	$54.20 each	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
Ice blankets	$26.96 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Scotchman buoys	$28.00 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Lighted buoys	$120.00 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Anchors	$129.15 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Fish Plunger	33.54 each	$0.2293/lb	Pacific Net and Twine 1-604-274-7239 contact: Kris Nakashima
Traceable Thermometers	$75.00 each	$20.00	VWR International 1-800-932-5000
Food grade ice shovels	$51.51 each	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
HI pressure hose	$280.41 for 50 feet	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk

Food Bags	$40.00 for 200	Delivered	Stemel Restaurant Supply 1-250-377-1935
Box Liners	$102.51 a roll, 400 per roll	$0.2293/lb	Great Little Box Co. 1-877-861-3444
Cardboard Seafood Boxes	Top - $1.62 Bottom - $1.72	$0.2293/lb	Great Little Box Co. 1-877-861-3444
Gloves	$2.71 a pair	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
Hair nets	$6.95 for 100	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
Aprons	$12.95 each	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
Smocks	$25.95 each	Delivered	Janitors Warehouse 1-250-938-1060 contact: Collin Tkachuk
Processing knives	$25.05 filleting knife $25.85 gutting knife $61.20 heading knife	$0.2293/lb	Pacific Net and Twine 1-604-274-7238 contact: Kris Nakashima
Reefer truck	28' Pup reefer truck $750.00/month $0.03 per mile $2.00/hour engine and reefer use $7.00/day insurance max	Must be picked up in Delta	Ocean Trailer, Delta, 1-604-945-3718 Contact: Sharon
Bob cat rental	$2160.00	$600 delivery and pick up if amalgamated with Bobcat and forklift shipping	Leavitt Machinery Kamloops (250) 828-6177
Forklift rental	$1200/month	$600 delivery and pick up if amalgamated with 2	Leavitt Machinery Kamloops (250) 828-6177

		Bobcat's shipping	
Bobcat/forklift training	$1568.00 for 6 people		My Safety Training 1-250-670-2595

- Shipping rate is Secwepemc's Clark Freightways price