

# **Leasing Practices in BC Commercial Fisheries in the Context of the PICFI Program**

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## Preface

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GSGislasen and Associates Ltd. and Castlemain Group Inc. were retained to provide an analysis of leasing practices in BC commercial fisheries.

The consultants have benefited from discussions with Commercial Fishing Enterprises (CFEs), industry, government and others. Notwithstanding this assistance, the consultants have final responsibility for the analyses and conclusions of the study.

## Summary

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- Leasing out resource access is a common but frequently misunderstood practice in the BC commercial fishing industry. Leasing of access also is a common practice in other resource sectors such as oil and gas, forestry, mining and agriculture including First Nations business enterprises in these endeavours.
- There is significant overcapacity in the BC fish harvesting sector, the cost of purchasing and operating fishing vessels is high, and licencing regulations are complex. Leasing of licences and quota allows the available fish harvest to be taken at lower cost and provides the flexibility to meet sustainability criteria through bycatch management. Leasing can also reduce operational risks.
- The lease price for access can be high and reflects the cost structure of existing participants. Due to the overcapacity situation, the lease price is driven by the expected revenue less the expected variable costs of fishing as fixed costs are already covered by the base activity of the vessel.
- The Pacific Integrated Commercial Fisheries Initiative (PICFI) program and the associated fishing access granted to the 20 coastal Commercial Fishing Enterprises (CFEs) has generated significant revenues to the CFE organizations and significant wages and jobs to First Nations' communities.
- These beneficial revenues and job impacts have grown over time as the CFEs have refined their business practices, and as First Nations' fishing capacity has grown. Today approximately 70% of vessels and jobs from fishing PICFI licences and quota accrue to First Nations individuals or entities.

	<b>Fishing Activity Using PICFI Access</b>		
	2010/11	2013/14	2016/17
<b>No. of Vessels Fishing</b>			
Total Vessels	50	170	210
First Nation-owned Vessels	15	115	150
% First Nation Vessels	30%	68%	71%
<b>Fishing Jobs</b>			
Total Jobs	170	530	580
First Nation Jobs	65	370	410
% First Nation Jobs	38%	70%	71%

- These benefits would not have been possible without the ability to lease out fishing access to meet the financial and economic development goals of the CFE organizations. The ability to lease out fishing access was critical to the success of the PICFI model.
- CFEs typically give leasing priority to local First Nation applicants, then non-local First Nation applicants and finally to non-First Nation applicants. The majority of CFEs provide access to community and other First Nations at a lower lease rate than the market rate as a way to build fishing capacity.
- The path to economic prosperity through fisheries development can be a long arduous road especially for CFEs and First Nations communities with a low base level of commercial fishing capacity. Significant progress has been made and further advancements are possible. Leasing of fisheries access is a very important component of the economic development toolkit to achieving this potential.

# Acronyms

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ATP	Allocation Transfer Program
BDT	Business Development Team
CDQ	Community Development Quota
CFE	Commercial Fishing Enterprise
CFV	Commercial Fishing Vessel
CQE	Community Quota Entity
DFO	Canada Department of Fisheries and Oceans
FN	First Nation
FNFC	First Nations Fisheries Council
FSC	Food Social and Ceremonial
FRC	Fisher Registration Card
IQ	Individual Quota
ITQ	Individual Transferable Quota
NNFC	Northern Native Fishing Corporation
NPFMC	North Pacific Fisheries Management Council
PICFI	Pacific Integrated Commercial Fisheries Initiative
TAC	Total Allowable Catch
VRN	Vessel Registration Number

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## 1.0 Introduction

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This paper addresses the topic of leasing of commercial fisheries access in British Columbia, its prevalence, practices and underlying business rationale. In addition, the paper investigates the leasing of fisheries access under the Pacific Integrated Commercial Fisheries Initiative (PICFI), a program designed to help First Nations (FN) expand their participation in the commercial fishery. An evaluation of the PICFI program recommended that a review of current leasing practices be conducted (DFO 2016).

The term “leasing” as applied in this paper refers to the temporary transfer of commercial fisheries access rights with the access rights reverting back to the original holder after a specified period of time.

The leasing of licences and quota in the BC commercial fishery is a common but frequently misunderstood industry practice. There are passionate arguments against or in favour of leasing in the fishery (see for example Pinkerton & Edwards 2009 and Turriss 2010). This paper presents a reasoned discussion of the topic.

### 1.1 Background and Context

For many coastal and inland First Nations in BC, fisheries provide the backbone of economic, social, and cultural life. Historical documents and oral records provide strong evidence of the importance of the resources of the oceans, lakes, and rivers for sustenance.

As a result of several court cases in recent decades aboriginal fishing rights have been clarified and expanded. First Nations in British Columbia have acquired communal community access to fisheries through such programs as PICFI. These programs have augmented access for Food Social and Ceremonial (FSC) purposes for community sustenance with the key difference being that communal commercial harvests can be sold into the seafood value chain.

Under PICFI, Commercial Fishing Enterprises (CFE) were formed to enhance the participation of First Nations in the commercial fishing sector. There are 25 CFEs, encompassing 97 First Nations, formed either individually or as part of aggregate groups of First Nations. The acquisition of access (licences and quota) and the establishment of successful CFEs were key objectives of PICFI. Through the relinquishment process, over 340 commercial fishing licences and quota have been distributed to 20 marine-based CFEs - five inland CFEs were provided commercial access to salmon through demonstration fisheries. CFEs now play an important role for many First Nations communities and for members that rely on the harvesting of seafood for their livelihoods and well-being.

Under DFO’s communal commercial “F” licence designation, CFEs are able to utilize the fisheries access to generate financial and economic development benefits. CFEs have a diverse range of policies and practices to encourage utilization of licences and quota by their members. Actual practices often depend on the locations and experience of members, vessel availability and conditions, and the profile of the licence and quota portfolio. In some cases, communal commercial access is utilized through a CFE-owned fishing vessel while in other cases, it is leased by the CFE to an existing commercial fisheries entity.

## 1.2 The Task

There is a need to better understand the leasing model and its ramifications for First Nations and others. This paper:

- investigates the practice of leasing, its prevalence, rationale and differences if any between First Nations and non-First Nations,
- addresses the economic repercussions of leasing and the benefits under leasing, and
- provides insights that hold promise for enhancing benefits to First Nations through utilization of fishing access.

Our view is that in order to understand the leasing issue first one must understand the commercial fishery, its evolution, economics, and changed business environment. Accordingly, these topics are addressed as well.

The project addresses leasing of both First Nations and non-First Nations or general access in the commercial fishery.

The discussion of leasing of First Nations access is restricted to the marine component of PICFI and the 20 coastal CFEs (the 5 inland CFEs do not lease access as they are provided with a share of the salmon Total Allowable Catch or TAC rather than licences). Much of the discussion of leasing of PICFI communal commercial access is applicable to the broader portfolio of all communal commercial access in the British Columbia fishery.

## 1.3 Information Sources

The research program included both primary (interviews) and secondary (literature review) research:

- interviews with 15 of the 20 coastal CFEs
- interviews with individuals - fishermen, processors and analysts - in British Columbia and Alaska
- review of several reports and publications (see Bibliography)

In particular, the interviews with each CFE used a Structured Interview Guide and addressed the prevalence and rationale of leasing, the terms and conditions in leasing arrangements, and the fishing job profile - First Nations vs non-First Nation - for the portfolio of PICFI fishing access that the CFE held.

## 1.4 Report Outline

The next section profiles the BC commercial fishery, its regulation, history, key drivers of change and the ownership of licences and quota. The remaining sections of the report comprise:

Section	Topic
2	BC Commercial Fishery Profile
3	Review of Leasing Practices
4	Impacts of Leasing Practices
5	Conclusions

The text is supported by statistical material in Appendix A.

## 2.0 BC Commercial Fishery Profile

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The BC commercial fishery harvests a variety of finfish and shellfish that is converted to finished food products that are distributed throughout the world. The harvesting sector is diverse in terms of species harvested, gear employed, vessel size, and scale of operation.

### 2.1 Fisheries Management and Regulation

Under the *1867 Fisheries Act*, the federal government has sole responsibility for the management of the commercial fisheries in British Columbia. The underpinning of Canadian fisheries regulations are licensing restrictions and input controls such as time, area, and gear restrictions.

DFO first implemented limited entry licensing in 1969 for the BC commercial salmon fishery. Since then, limited entry has been applied to most of the valuable Pacific fisheries.

**Types and Licencing of Fisheries.** Limited entry fisheries fall into two broad classes:

- Competitive – In competitive fisheries, licensed individuals/vessels compete for the available catch
- Individual quota – In IQ fisheries, licensed individuals/vessels are allocated a predetermined share of the available catch

There is also herring “pool” fishery management whereby the licensed fleet is divided into pools, each pool participant receives the same quota, and the pool decides how many boats fish the aggregate quota. This management approach is very closely aligned to IQ fisheries management.

Each fishing vessel requires a Vessel Registration Number (VRN). Each commercial fisheries component, specified by gear and species, is managed separately and requires a separate licence e.g., a vessel fishing salmon and halibut requires separate salmon and halibut licences. Companies including fish processing companies can own fishing licences, quotas and vessels.

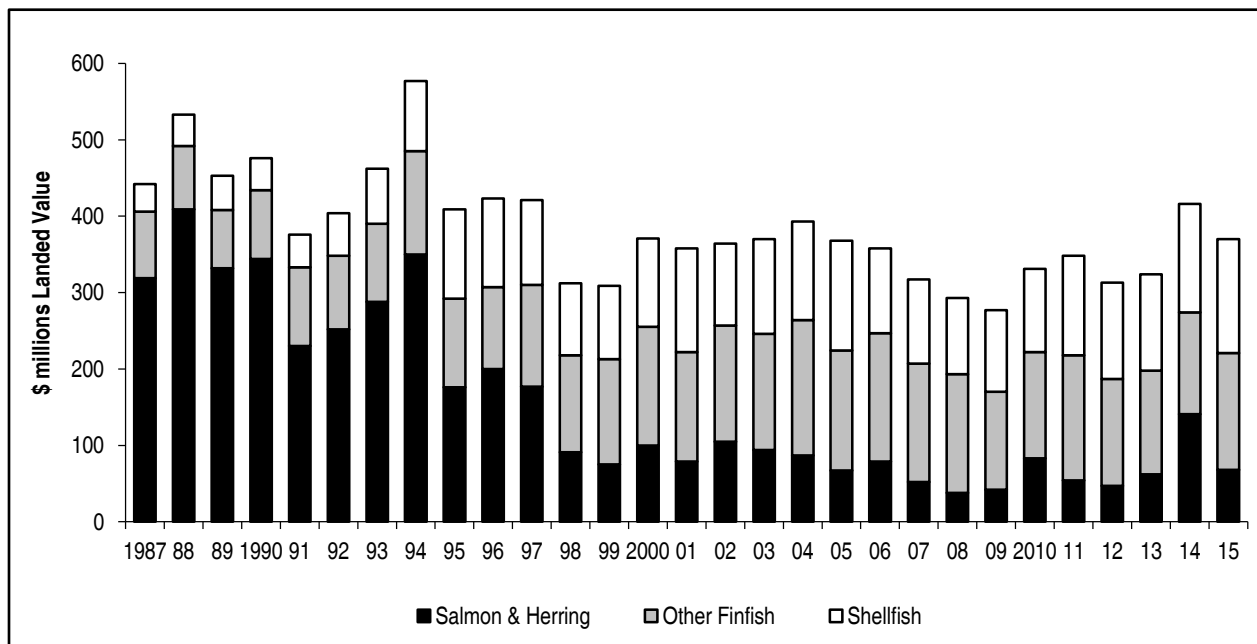
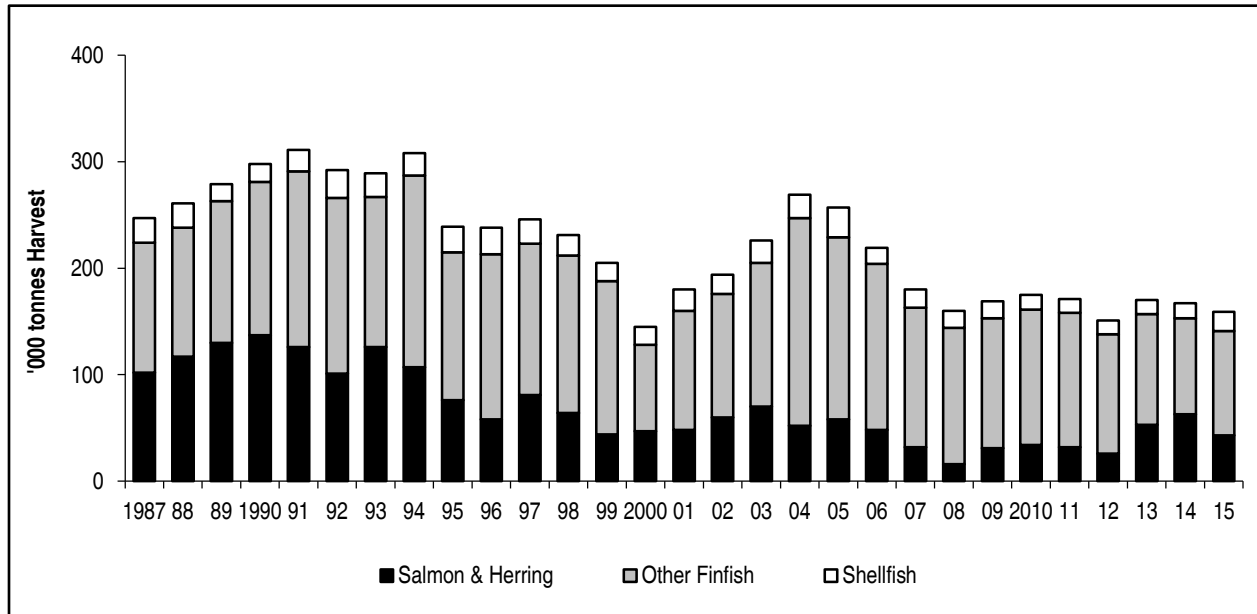
Commercial fishing licences and quota are transferable i.e., can be bought and sold. Stacking, whereby a vessel can acquire more than one licence to fish a particular species is allowed in certain fisheries. For example, the salmon fishery is subject to area licencing and one can acquire more than one licence to fish more than one area with a single vessel. Prawn licence holders can acquire traps from a second licence holder that allows their vessel to set more traps than a vessel with a single prawn licence.

Each fisherman onboard a commercial fishing vessel must have a Fisher Registration Card or FRC. The VRN and FRC requirements do not apply to inland aboriginal commercial fisheries on rivers and lakes.

Many licence categories have vessel length restrictions i.e., a licence on a vessel can only be transferred to another vessel within a specified length tolerance. Moreover, it is often the case that licences are “married” in the sense that all licences associated with a vessel must be transferred at the same time i.e., the owner of a vessel with multiple licences can not transfer only one licence.



**Exhibit 1: BC Commercial Fisheries – Harvest and Landed Value**



Source: Exhibit A.1, Appendix A.

**Communal Commercial Fishing Licences.** There are communal commercial “F” category fishing licences issued to First Nation entities.

Under the Allocation Transfer Program (ATP), created in 1994 as part of the Aboriginal Fisheries Strategy (AFS), DFO acquired relinquished commercial fishing access and then distributed the equivalent fishing capacity to First Nations organizations in the form of communal commercial access. Similarly, the PICFI program also distributes relinquished fishing access to First Nation CFEs in the form of communal commercial licences and quota.

The Northern Native Fishing Corporation (NNFC) created in 1985 holds communally 254 commercial salmon gillnet licences that they lease annually to First Nations fishermen. However, these “N” category licences comprise part of the regular fishery and not the communal commercial fishery.

## 2.2 Industry Developments

**Shift in Species Focus.** The BC commercial fishery has transformed over the past 25 years from one heavily concentrated in production of salmon and herring to one much more dependent on other finfish and on a variety of shellfish – see Exhibit 1.

In the late 1980s, salmon and herring comprised over 70% of the total harvest value whereas today salmon and herring typically comprise less than 20% of the total harvest landed value. Other finfish such as halibut, sablefish and shellfish such as geoducks, prawns and crab have increased in importance in both absolute and relative terms. The net result is a smaller industry in both volume and value than 25 years ago.

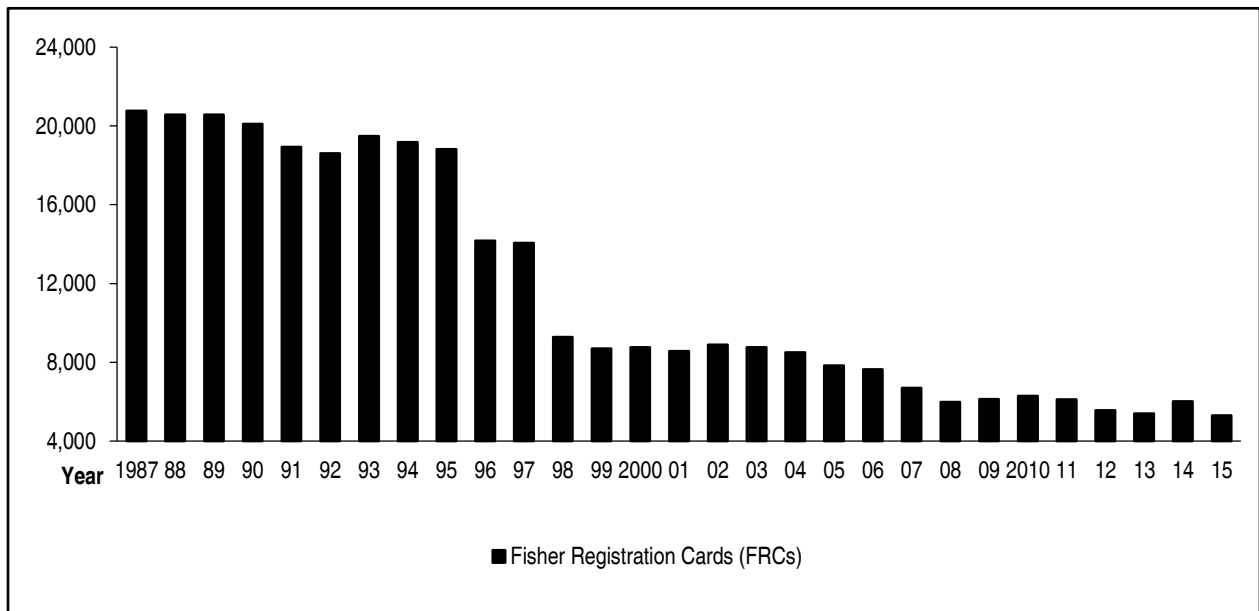
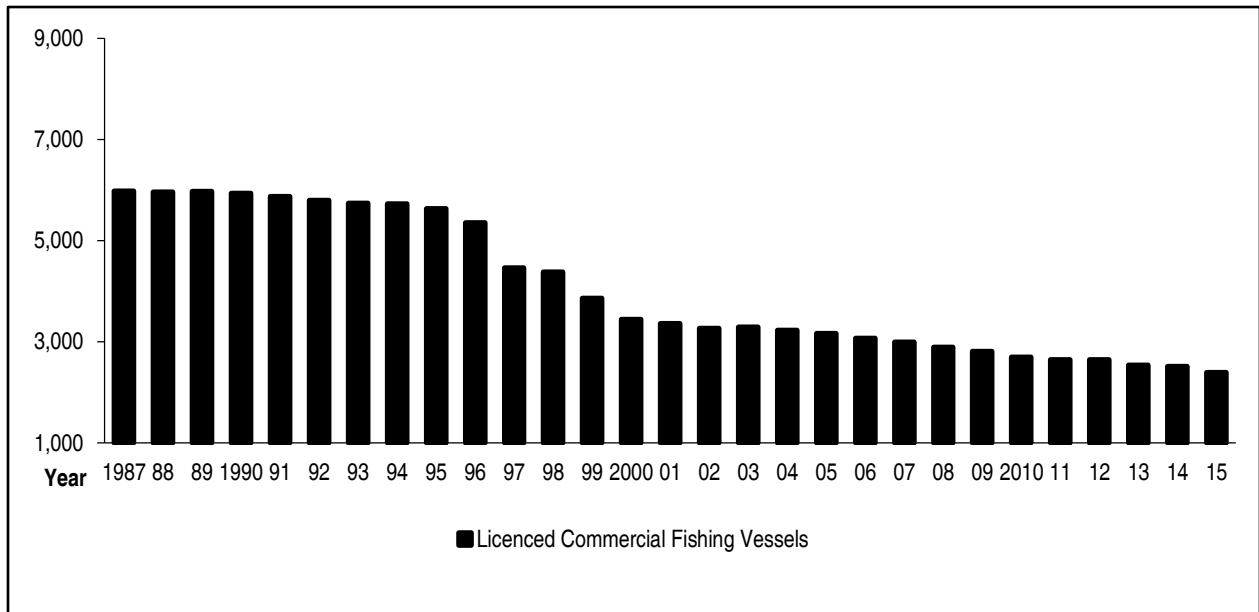
The problems with salmon and herring fisheries reflect both stock declines and lower catches, and changes in the marketplace and reduced prices. In contrast, other species such as halibut and sablefish (finfish) and geoduck and prawn (shellfish) have experienced large price increases. These species have experienced declines in catch but the significant price increases have more than offset the reduced catch.

**Drivers of Change.** The BC fish harvesting sector in general has been affected over the past one to two decades by:

- a flattening or even a decline in biomass levels for many species,
- a precautionary approach to fisheries management – resulting in a smaller share of the smaller biomass being available for harvest e.g., lower Total Allowable Catches or TACs,
- fluctuations of the value of the Canadian dollar stronger against the US dollar – seafood prices in world markets are largely set in the currency of the importing country,
- a liberalized trade environment – resulting in globalization and increased competition,
- dramatically increased oil prices – resulting in much higher vessel fuel costs,
- technological change including more efficient fishing vessels and gear, and
- new marketplace standards – farmed salmon and farmed whitefish such as tilapia and catfish have set new standards or expectations as to quality standards.

Business conditions have changed and these changes have produced challenges for the BC seafood industry and its fish harvesting component.

**Exhibit 2: BC Commercial Fisheries – Participation Measures**



Source: Exhibit A.2, Appendix A.

**Reduced Participation.** Participation in the BC fishing industry today is half or less than that of the late 1980s – see Exhibit 2:

- the number of Commercial Fishing Vessel (CFV) licences has declined from about 6,000 to 2,400
- the number of Fisher Registration Cards or FRCs has declined from over 20,000 in the late 1980s to 5,300 today

The declines reflect: 1) the two Salmon Licence Buyback programs of the late 1990s (which resulted in a reduction of salmon licences from 4,400 to 2,200), 2) the introduction of individual quota, area licensing, and pool fisheries management in some fisheries, and 3) a general consolidation of operations over time that is common to other resource-based industries such as agriculture and forestry.

The decline in licensed commercial fishing vessels has continued since the last Salmon Licence Buyback program was completed in 2000. Today's commercial fishing vessels are larger on average than the fleet of 20 years ago – see Exhibit A.2 Appendix A.

Today a larger share of fishing vessels fish more than one species group or fish more than one licence within a single fishery e.g., a hook and line vessel may fish halibut, rockfish and salmon, a dive vessel may fish more than one geoduck licence or fish both geoducks and red sea urchins. That is, fewer vessels have a single fishing licence than in the past.

There is significant harvesting capacity in the BC fishing industry over and above what is necessary to harvest the available Total Allowable Catch or TAC for many species. This situation is one of “overcapacity” (as defined by Pascoe and Gréboval 2003).

The overcapacity has spurred consolidation of fishing operations in fisheries such as halibut whereby fishing access through licences and/or quota can be transferred easily on a temporary in-season or on a permanent basis. There are 435 commercial halibut fishing licences but only about 150 vessels fish halibut annually i.e., the other 285 vessels transfer or lease their quota to the 150 active vessels each year.

**An Increased Business Focus.** The fish harvesting sector has more of a business focus today than 20 to 40 years ago - capital costs for licences, quotas and vessels are substantially higher and fishing times are much shorter. Financial risks are much greater.

The skills needed to catch fish and the skills needed to run a fishing business are different. Most fishing businesses that fail today fail because of an inability to manage effectively the business of fishing and not due to an inability to catch fish.

## 2.3 The PICFI Program

The Pacific Integrated Commercial Fisheries Initiative (PICFI) program announced in 2007 has spent more than \$170 million to date on fishing access rights, fishing vessels and capacity building through training and other endeavours (see GSGislason 2014 for a detailed description of the program and its impacts).

PICFI has distributed over 340 licences to CFEs - see Exhibit 3. PICFI has provided to CFEs about 7% of the coastwide halibut Total Allowable Catch or TAC, about 15% of the coastwide sablefish TAC and 5% of the coastwide geoduck TAC.

**Exhibit 3: Fisheries Access to Coastal CFEs under PICFI**

<b>Fisheries Access Issued to the 20 Coastal CFEs in 2016/17*</b>		
<b>Licence Type</b>		
<b>Salmon</b>	Seine (FAS)	2
	Gillnet (FAG)	36
	Troll (FAT)	8
<b>Herring</b>	Seine (FHS)	7
	Gillnet (FHG)	138
<b>Groundfish</b>	Halibut (FL)	44
	Sablefish (FK)	4
	Trawl (FT)**	3
	Rockfish (FZN-I)	12
	Rockfish (FZN-O)	2
<b>Shellfish</b>	Prawn (FW)	42
	Crab (FR)	13
	Geoduck (FG)**	5
	Red Sea Urchin (FZC)	17
	Shrimp (FS)	10
<b>Schedule II</b>	Species (FC)	<u>3</u>
<b>Total</b>		346
<b>Quota Type</b>		
	Halibut	7.38624% of TAC
	Sablefish	15.34577% of TAC
	Geoduck	5.45455% of TAC

\* licences issued as of March 2017 (all licences are F-category aboriginal communal commercial).

\*\* one group of 3 CFEs each have a geoduck licence and share 10 blocks of geoduck quota, another group of 3 CFEs have one geoduck licence and share 10 blocks of geoduck quota and a 3rd group of 5 CFEs have one geoduck licence and share 10 blocks of geoduck quota i.e., 5 geoduck licences and 30 blocks of geoduck quota are shared by 11 CFEs.

Source: DFO.

## Evolution of the PICFI Program

PICFI and its funding support program has evolved. Originally a CFE would submit a Business Plan based on a specific budget amount, and PICFI program personnel would review the proposal and allocate a specific portfolio of licences and quota to the CFE for one year. There also was a separate funding pool to support capacity building. A CFE could apply for funding support to purchase a vessel.

In 2015/16 the program transitioned from licence relinquishment to providing CFEs with capital to purchase regular commercial access. In both 2015/16 and 2016/17 approximately \$375,000 was available to each CFE under Business Development Source funding to provide support for harvest related activities, such as acquiring additional licences and quota, fishing vessel and gear, as well as fishing operation upgrades. Each CFE also received \$130,000 for capacity building such as training and administrative support. The Pacific Commercial Fisheries Diversification Initiative was launched in 2015/2016, with \$6 million in total funding over 3 years. CFEs can apply to get funding to diversify their business operations e.g., to get into aquaculture, value-added processing or market access.

Today CFEs have greater certainty in business planning as they have multi-year access agreements (up to 5 years), rather than one year agreements on licence and quota allocations. And today CFEs have greater discretion as to how to spend their financial allotments.

CFEs also have greater business support. In 2015 the First Nations Fisheries Council retained the services of a Business Development Team (BDT) to provide confidential support to CFEs as part of the PICFI Refresh program. The BDT has worked with all CFEs on a range of access acquisition, capacity development, business planning, and funding initiatives. In addition to the BDT, DFO also retained the services of an Independent Third Party Evaluator to complete due diligence and to review and assess CFE applications for funding ensuring that investments create a valuable return for CFEs, are in line with organization goals and objectives, and create employment for nation members.

The PICFI portfolio of licences includes substantial numbers of groundfish and shellfish licences, as well as salmon and herring licences, whereas the precursor Allocation Transfer Program (ATP) had greater concentration in salmon and herring licences.

### 2.4 Ownership of Fishing Licences and Quota

**Licence Ownership.** There are approximately 6,100 commercial fishing licences in British Columbia - see Exhibit 4 (the count excludes clam by hand licences and a few licences for minor fisheries). First Nations entities or individuals own or have access to one third of the total licences overall with much greater shares of this for salmon and herring licences.

Category		No. of Licences	
Private Ownership	- Non First Nations	~3,996	66%
	- First Nations*	~1,000	16%
Communal Commercial	- First Nations**	<u>1,088</u>	18%
		<b>6,084</b>	

\* includes 254 "N" category licences (also includes both full fee and reduced fee licences owned by First Nations).

\*\* only "F" category communal commercial licences.

Source: Exhibit 4 (First Nation private ownership is an estimate by GSGislason).

**Exhibit 4: BC Commercial Fishing Licences, Quotas and Values in 2015**

Fishery	IQ Fishery	No. of Commercial Licences				Regular Quota '000 lbs	Market Value \$ millions		
		Full Fee	Reduced Fee	Communal Commercial	All		Licences	Quota	All
Salmon - Seine	No	195	15	66	276	NA	88	-	88
- Gillnet	No	713	366	330	1,409	NA	45	-	45
- Troll	No	337	13	84	434	NA	44	-	44
Herring - Roe Seine	Yes	194	47	11	252	37,950	12	-	12
- Roe Gillnet	Yes	746	253	268	1,267	24,450	24	-	24
- Spawn-on-kelp	Yes	34	-	12	46	544	6	-	6
Groundfish - Halibut	Yes	343	-	92	435	4,910	15	363	378
- Sablefish	Yes	41	-	7	48	3,452	10	190	200
- Trawl	Yes	135	-	4	139	315,313	8	218	226
- Rockfish	Yes	212	-	50	262	785	30	-	30
- Schedule II	Yes	367	-	14	381	in below	4	-	4
- Lingcod	Yes	in above	-	in above	in above	2,575	-	21	21
- Dogfish	Yes	in above	-	in above	in above	20,988	-	2	2
Shellfish - Crab	No	189	-	32	221	NA	135	-	135
- Prawn	No	193	-	57	250	NA	142	-	142
- Shrimp	No	215	-	23	238	NA	9	-	9
- Geoduck	Yes	50	-	5	55	3,120	13	286	299
- Sea Cucumber	Yes	84	-	1	85	1,344	63	-	63
- Red Sea Urchin	Yes	80	-	30	110	7,280	5	-	5
- Green Sea Urchin	Yes	48	-	1	49	438	1	-	1
- Euphausid	Yes	16	-	1	17	1,037	1	-	1
Other - Tuna USA 68	No	110	-	-	110	NA	9	-	9
<b>TOTAL</b>		<b>4,302</b>	<b>694</b>	<b>1,088</b>	<b>6,084</b>		<b>664</b>	<b>1,080</b>	<b>1,744</b>

- Note:
- Each of roe herring, spawn-on-kelp, sea cucumber, red sea urchin, green sea urchin and euphausid licence classes has the same quota per licence - market value is ascribed to the licence.
  - Tuna licence value only for the 45 licences in recent years allowed to fish in US waters.
  - Regular quota is quota associated with full fee and reduced fee licences only. Market values of licences and quota are values associated with full fee and reduced fee licences only.
  - Regular groundfish trawl quota is 315,313 thousand lbs - 220,758 outside hake and 94,555 other.
  - Rockfish quota number is rockfish quota for the licenced rockfish fleet.
  - All quota numbers are expressed in round lbs except halibut which is dressed head off and sea cucumber which is split weights.
  - Licences owned by First Nations individuals or entities include all reduced fee and communal commercial licences plus a portion of full fee licences (254 Category "N" gillnet licences included under reduced fee).

Source: DFO Licencing plus Nelson Bros Fisheries Ltd. "West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota and Vessel Values as at March 31, 2015", Prepared for Fisheries and Oceans Canada, March 2016.

It is estimated that First Nations hold 10-15% of licences/quota by value through PICFI and ATP (BDT Grand Basin Group 2016).

The share of First Nation communal commercial access has increased dramatically as a result of PICFI and ATP programs over the past two decades.

**Market Value of Access.** The estimated market value of licence quota and fishing vessel in the BC commercial fishery is approximately \$2,100 million - \$1,750 million in licences and quota plus \$350 million for the 1,800 active fishing vessels in the industry (see Exhibit 4 for licence and quota values, the vessel value figure is an estimate by GSGislason). The market value of licences and quota held under communal commercial licences is zero since the licences can not be sold.

Species Group	No of Regular Licences*	Market Value \$ millions		
		Regular Licences and Quota	Landed Value	Ratio
Salmon	1,385	177	64	2.8
Herring	1,274	42	16	2.6
Groundfish and Other	1,208	870	141	6.2
Shellfish	875	655	136	4.8
All	4,742	1,744	357	4.9

\* licences that can be sold i.e., excludes communal commercial "F" category and NNFC "N" category licences.

Source: Exhibit 3 and Exhibit A.1 Appendix A (landed value is the 2012-2015 annual average, landed value for salmon includes values for aboriginal commercial fisheries).

Fishing access to the groundfish and shellfish fisheries, many of which are managed under individual quotas, is more valuable than access to the traditional salmon and herring fisheries.



## 3.0 Review and Analysis of Leasing Practices

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In situations where there is excess harvesting capacity in the commercial fishery and where there is opportunity to harvest the available stock with fewer fishing units, there will be incentives to consolidate fishing operations. Consolidation can occur through two mechanisms - the purchase of additional fishing rights and their long term consolidation onto an existing vessel or the temporary leasing of additional fishing rights and the short term consolidation onto an existing fishing vessel.

This section explores the concept of leasing in the BC commercial fishery, its practices and underlying incentives. First we need to identify the components of a fishing enterprise.

### 3.1 Fishing Enterprise Components

A fishing enterprise comprises: 1) a fishing licence/quota which authorizes fishing to occur under certain conditions, 2) a fishing vessel and gear from which to conduct the fishing activity, 3) a vessel skipper or captain who directs the fishing activity, and 4) in most cases one or more deckhands involved in the fishing. Some fishing vessels only have one person onboard.

There are a myriad of owner-labour combinations possible. In some cases the skipper is owner, in whole or in part, of the vessel and licence and/or quota. In these situations, the person is an owner-operator. In other cases, the person may not own the vessel or licence/quota and acts as a hired skipper. Some fish processing companies own vessels and retain hired skippers, but the majority of hired skippers work for private individuals or incorporated non-processing companies.

At one time the owner-operator business model was the predominant one in the BC commercial fishery. This is no longer the case due to the advent of limited entry licencing and IQ fisheries. As the cost of acquiring licences, quotas, and vessels have increased, increasingly the enterprise components - the licence/quota, vessel and gear and labour - are provided by separate interests.

There has been a separation of the capital and labour interests akin to what has occurred in other resource industries (Gislason 2010). This has led to the phenomenon of leasing as the owners or providers of each factor of production demand a share of fishing revenue.

### 3.2 The Leasing of Fisheries Access in General

Leasing in the BC commercial fishery has a long history. The industry started over 125 years ago with fish companies providing boats and gear to individuals who fished by row or sailboat i.e., the companies leased the equipment to individuals to enable them to go fishing. In the early days of the industry, access to the fishery was provided through access to a vessel and gear.

With the advent of limited entry licencing in the late 1960s, the introduction of Individual Transferable Quota (ITQ) fisheries management in later decades, and the industry forces in play, the prevalence of leasing of fishing access has become a common, in fact essential component of the industry.

**Leasing is Pervasive Today.** Leasing of fishing privileges is common especially in those fisheries with high prices, low costs, and therefore good economics and in those fisheries in which it is relatively easy to combine access onto a single vessel.

For many fisheries, the number of active vessels is much less than the number of licenced vessels yet fishing opportunities are fully exploited. The difference or gap between number of licences and number of vessels fishing is a general indicator of overcapacity and the prevalence of leasing - see below.

<b>Selected Fishery</b>	<b>No. of Licences</b>	<b>No. of Active Vessels</b>
Salmon	2,119	~1,000
Herring - Roe Seine	252	~10-12 pools
- Roe Gillnet	1,267	~15-20 pools
Halibut	435	~150
Sablefish	48	~30
Groundfish Trawl	142	~50
Geoduck	55	~40
Sea Cucumbers	85	~30
Prawn	250	~200

Source: Exhibit 4 this study and GSGislason 2013 p.11.

However, there is wide variation among different fisheries with some of the gap explained by idle vessels, due to poor economics or stacking. For some fisheries such as prawn, there is little leasing. Note that the NNFC business model for their 254 “N” gillnet licences is a 100% leasing model.

The pool system for the roe herring seine and gillnet fishery actually mandates leasing - groups of licence holders form a pool of licences, each with the same per licence quota, and decide which limited number of vessels fish and under what terms including payment terms to all licence holders in the pool.

The available information above suggests that half or more of commercial fishing licences and/or quota in the overall fishery are leased in a given year.

**Incentives Underlying Leasing.** Economic forces of both supply and demand drive the lease market. And for many species there is greater demand than supply resulting in a seller’s market (Nelson Bros 2006).

Supply forces that can come into play to make it attractive to lease out fisheries access include:

- no seaworthy vessel or skipper and crew e.g., several widows own licences and quota and rent them out annually, vessel breakdowns or family emergencies can prevent the opportunity to fish, individual is too old or incapacitated to fish
- less risk to leasing out access - leasing provides a guaranteed revenue stream, under the right terms and conditions, that is less risky than fishing the access
- tax considerations - sale of access may result in capital gains tax treatment on sale of fishing licences/quota, where it was acquired at zero or low cost
- low interest rates - lease revenue streams can be attractive relative to uncertain investment return if one sells the access and invests outside the fishing industry, investors can enter the industry with the explicit intent of leasing due to the low or uncertain returns in alternative investments

Furthermore, leasing rather than selling fisheries access allows one to maintain a toehold in the fishing industry, an industry that one may have spent a working lifetime at and a vocation for which many have a special affinity regardless of financial returns.

Demand for fishing access is driven in large part by the simple fact that the Total Allowable Catch or TAC in most fisheries could be taken by many fewer vessels i.e., there is significant overcapacity. The result is that a vessel owner could expand its catch level by acquiring additional access rights, catch this additional fish with the existing vessel and only incur additional variable costs.

The lease price then is driven by the expected revenue less the expected variable costs as fixed costs are already covered by the base activity of the vessel.

In some fisheries the price is very high relative to the variable costs of fishing. For example, the market for halibut has been very strong. In the halibut fishery in the past two years the lease price has been approximately 75% of the landed price whereas 10-15 years ago the lease price for halibut would have been less than half the landed price.

Other demand considerations include:

- groundfish bycatch limits - a groundfish vessel may harvest an unexpected large amount of non-target species and need bycatch quota on short notice to continue fishing
- cost and financing constraints - it is more manageable financially to lease quota rather than purchase quota i.e., lower price point and can pay for it from cashflow through a checkoff system to buyer, without the need to secure financing from a financial institution

Another consideration is the mindset of the fishermen. Fishermen are optimistic by nature and can take an optimistic view of fish prices when they lease quota, or are optimistic about their catch success in cases where they are leasing licences in competitive fisheries.

There can also be a degree of bravado or ego that comes into play in pursuing a higher catch. For example, the catch of a single halibut vessel is restricted by regulation to no more than 1% of the TAC. Some individuals will lease extra quota to reach this maximum, regardless of economics, so they can claim to fish a "full ticket".

**Leasing Practices.** Many access holders will lease out and lease in fishing access over their fishing lifetime as circumstances change. Lease transaction may be between access holders directly or can be facilitated by processors and by brokers (just as real estate transactions commonly are executed).

In IQ fisheries typically quota leases will be on a \$ per kg or lb of quota basis plus fees paid to DFO (DFO has a minimal resource access fee). In competitive fisheries, licence leases often will be a lump sum dollar amount per season. Alternatively, a competitive fish licence lease can be based on a percentage share of catch value e.g., 25% (often with a base fee paid up front).

Some individuals wishing to lease out quota put it out to competitive bid every year whereas others have a long term relationship with an individual who leases the quota year after year.

Much of the leasing occurs between active fishermen e.g., Fishermen A who holds both halibut and sablefish quota will trade/lease with Fishermen B who also holds halibut and sablefish quota - Fishermen A then can concentrate on halibut fishing while Fishermen B can concentrate on sablefish fishing. In contrast, in some cases access holders will lease out their licence or quota year after year and not go fishing at all.

As noted earlier, in the groundfish sector a lot of leasing is conducted to address bycatch concerns. The flexibility to lease quota is a fundamental and necessary component of the Groundfish Integration Program launched by DFO in 2006.

### **3.3 The Leasing of Fisheries Access by CFEs**

The investigation of leasing of fisheries access by CFEs draws on our interview program with CFEs and industry at large, and on prior reviews of the PICFI program and the leasing issue in fisheries (e.g., Gislason 2010, GSGislason 2014). Exhibit 5 presents some of the views expressed by CFEs.

**Leasing is Pervasive.** The 20 CFEs own in the order of 20-25 fishing vessels or 10-12% of the estimated 200 or so vessels that are fishing the PICFI access. One third of CFEs interviewed did not own any vessels with one quarter only owning one vessel. The fishing of PICFI access by a CFE-owned vessel is not common practice.

The interview program with CFEs indicated that CFE vessel ownership is not of interest or a priority for the majority of CFEs, both those with and without established First Nation-owned vessels in their shareholding communities.

Leasing of licences and quotas to non-CFEs is a fundamental component of the business practices for most CFEs. As discussed later, the majority of the access is leased to and fished by First Nations individuals.

**Incentives Underlying Leasing.** Most CFEs have a policy of avoiding vessel purchases and encouraging individual ownership by the First Nation members. In many cases, the leasing of access is a strategic decision by the CFE and its Board of Directors.

Most of the CFEs that want to pursue or have pursued vessel ownership appear to be CFEs that do not have a ready pool of local fishermen to fish the access. For others, vessel ownership was necessary in order to acquire desired access i.e., due to DFO length restrictions and “married” licence restrictions on licence transfers.

One constraint to purchasing a vessel, from either a CFE or individual viewpoint, was the short one-year access agreements in the early years of the PICFI program. An individual would be loathe to invest in the industry without assured long term access. With the advent of multi-year access agreements between CFEs and DFO, there may be increased interest in purchasing vessels. However, as noted above, many CFEs do not want to own vessels but rather want to encourage individual entrepreneurship in the community. Nevertheless, the multi-year access agreements between CFEs and DFO can enable multi-year access agreements between CFEs and individual fishermen which in turn can lead to greater individual ownership of vessels.

In many cases, the demand for licences and quota far outstrips the supply. Where there is limited fishing capacity, CFEs increasingly are trying to help their members to acquire vessels and viable fishing operations by committing licences and quota over longer terms.

CFEs note that in many cases they received a quota amount or number of licences that was not economic to fish on a single vessel. It had to be bundled with the quota from another quota holder.

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**Exhibit 5: The Perspective of CFEs on Leasing - Some Comments**

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“our CFE policy is to avoid vessel purchases and encourage individual ownership”

“leasing allows you to maximize your revenues with limited risk”

“we don’t have a set policy on discounting the lease price to members, we look at the bid overall - 50% of the industry rate is the starting point for our group discussion”

“leases to non-First Nations must maximize First Nation employment and training on vessels”

“incubating independent fisher owner-operators is our mandate - we encourage landing at plants where members are employed - we also have a mandate to support other CFEs and First Nations”

“quota may be so small that it needs to be packaged with other quota to make it attractive”

“99% of our licences are leased to our members, first priority”

“internal policy is to go to CFE shareholder Nations first, then our [umbrella] Tribal Corporation, then coastal First Nations and then other bidders - the only time it does not get leased to a First Nation is if the capacity [or interest] is not there”

“industry lease rates rarely provide enough revenue for beginning native fishermen to be viable and favour established non-native industry fishermen with large scale operations that often have gear and vessels paid for...each member [First Nation] fishermen has different circumstances and may need assistance at start-up versus a fisherman already fully equipped”

“members get a reduced rate. If they want to get a vessel they get 50% off [the going rate for] the licence quota for 5 years, with an incremental increase of 10% per year after that increasing to full value by year 10 when they then pay full price”

“we charge industry average rates for leases to our members but they are given 10% back at the end of the season if all terms and conditions are met e.g., logbooks completed, fished food fish”

“leases for some species such as geoduck are very competitive - processors are always fighting over it!”

“many of our FN fishers can not be viable at the market lease price, they don’t have the ability to get the volumes that are necessary. All FN fishers get a discounted price”

“we distribute a portion of earned revenues equally to our shareholders, we re-invest in quota and licences, and we keep a full year’s operating expenses as a contingency fund”

“we are looking at consolidating licences and quota [on a smaller number of vessels] and making them multi-purpose vessels”

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Source: *Interviews with CFEs.*

DFO regulations can also spur leasing. In some cases, the PICFI program allocates a quantity of sablefish quota but not a “K” sablefish licence to a CFE. DFO regulations state that in such instances, the entity can fish temporarily within the season only a small amount of sablefish quota on a halibut licence. The inclination therefore is to lease out the small amount of CFE sablefish quota to a non-First Nation entity as it is not economic to fish on a First Nation-owned vessel.

We note that the major fish companies sold their rental salmon gillnet fleets and associated licences in the early 1980s because the business model of 100% vessel ownership was problematic e.g., the crew often did not take care of the vessel, management and even normal maintenance was a burden. Today some large fish processing companies have partial ownership say 50% of a vessel with a fisherman owning the other 50% but the companies are very reluctant to take a 100% ownership stake in vessels. The partnership model has proven much more successful since the fisherman has the incentive or vested interest in maintaining the vessel.

**Leasing Practices.** The key leasing issue for CFEs therefore is not whether it should be pursued or not. In many if not most cases, it makes sense to lease. Rather the issue is who conducts the fishing in the lease arrangement and under what terms and conditions. This typically is not a concern or issue in a lease arrangement in the general non-First Nations fishery as long as the lessor is guaranteed of getting paid. In the CFE lease situation, however, the entity is concerned with both CFE revenues and the business and job opportunities for community members.

Typically a CFE will solicit applications or bids to fish a licence or quota. The submission is expected to detail: 1) the price and price terms e.g., paid up front or not, 2) the planned crew and their First Nations status, and 3) other considerations e.g., training provided, the obligation to food fish. The successful applicant is expected to sign a licencing agreement.

Applications are assessed or scored holistically on both price and non-price aspects. The CFEs take direction from their Board of Directors as to what fits the CFE mandate and company goals and objectives. Priority is given to local First Nation applicants, then non-local First Nation applicants and then finally to non-First Nation applicants. CFEs have policies and procedures in place to encourage their First Nation members to lease CFE licences and quota especially when fishing capacity - vessel and crew - are available in their member communities.

Leasing practices of CFEs have improved over time:

- less inactive licences or quota
- closer to market rates for leases
- more First Nations employment on vessels fishing (see analysis to follow in Section 4)

Policies and procedures vary among CFEs on whether the licenses and quota are leased at current industry market rates or provide a different lease rate to CFE nation members and other First Nations. The vast majority of CFEs interviewed stated that they consider or do provide access to community members and other First Nations at a lower cost than they do other industry bids. Differences in price points varied widely.

### Leasing Practices for Halibut Quota by CFEs

The interview program with CFEs indicated a wide range of lease rates for halibut quota, a range from \$1.30 per lb to \$7.00 per lb. The overall average lease rate was about \$5.00 per lb whereas the industry average in 2016 was in excess of \$7.00 per lb. Over 90% of halibut quota of CFEs was leased to or fished by First Nations interests.

All CFEs have conducted training and capacity-building initiatives since the inception of PICFI. Some communities with little existing fishing capacity have purchased vessels or encouraged local residents to purchase vessels and have sponsored significant training of local residents to fish. Some of the vessels purchased have served as “training vessels”.

The fishing industry also notes some recent developments in leasing practices by CFEs. In the early years of the PICFI program, a CFE may have leased their access at a somewhat reduced rate to a processor-buyer but insisted on an on-board training opportunity for a First Nation community member. Today the same CFE may approach a processor-buyer with a quota and vessel ready to fish the quota and offer to deliver the fish to the processor if the processor will lease additional quota to the CFE-sponsored vessel. Such types of partnership arrangements are becoming more common.

#### 3.4 Leasing of Fisheries Access in Other Jurisdictions

**Atlantic Canada.** Atlantic Canada has a different fisheries licencing system than British Columbia. Generally owners of a licenced vessel under 19.8m (65 feet) in length must fish their licence personally, i.e., there is an owner-operator clause. And in fisheries restricted to the use of vessels less than 19.8m in length, licences can not be transferred or issued to corporations including those involved in processing. So in theory fishery access can not be leased for the so-called “small boat fleet”.

In practice, leasing of fishing access does occur in Atlantic Canada through conditional sales or other legal agreements. The enforcement of the owner-operator is complaint-driven rather than actively enforced. There are also significant exclusions to owner-operator provisions.

**Alaska.** Key factors of the Alaskan salmon licencing program are: 1) an owner-operator clause for small boats, and 2) area licencing whereby licence holders are licenced to fish one area only. In the halibut/sablefish Individual Fishing Quota (ITQ) program launched in 1995, licenced individuals can purchase a quota, subject to restrictions, from another quota holder and put the quota in their own boat. Leasing or the temporary transfer of fishing privileges does occur.

An important element of the management of fisheries in the North Pacific is the existence of Community Development Quota (CDQs) which grant community corporations the right to fish in many fisheries off the coast of Alaska (Haynie 2014). Over the last 25 years the usage of these rights in the case of the pollock fishery has evolved to a full leasing model in which the rights are leased to large corporations. The community shareholders decided that receiving the millions of dollars in lease payments annually, money that is used to support local community development, was more prudent than purchasing and operating multi-million dollar vessels to fish the quotas. Some jobs on pollock vessels do go to First Nations community members.

The state also started a Community Quota Entity (CQE) program in 2004 that was intended to promote economic development in isolated communities. However, takeup to the program has been very low, largely due to lack of capital and financing issues (the program did not provide funds for quota purchase) - see below.

### **The Community Quota Entity (CQE) Program in Alaska**

The CQE program created in 2004 allowed isolated small coastal communities to form non-profit corporations called CQEs and purchase quota under the Halibut/ Sablefish ITQ (Individual Fishing Quota) Program. By the year 2010, 20 CQEs representing 21 communities of the 42 eligible communities had formed a CQE - but only one CQE had actually purchased halibut quota and none had purchased sablefish quota.

The program did not provide funds to the communities and CQEs for purchasing quota. Key barriers to participation included: 1) the high cost of quota, 2) the lack of quota available for purchase, 3) the difficulty and terms in financing purchases, 4) the administrative overhead to run a CQE, and 5) the need to provide dividends or benefits in equal proportion to shareholders from existing for-profit economic development corporations.

Source: *NPFMC March 2010 and Alaska Sea Grant 2009.*

The PICFI program, in contrast to the Alaskan CQE program, provided significant funds for licence and quota purchase and for administrative support.

### **3.5 Leasing in Other Resource Contexts**

The practice whereby resource access has a distinct value and can be leased out is common in forestry, mining, oil and gas extraction and other business endeavours (Gislason 2010). There is also a significant rental housing market around the world which is a form of property leasing.

First Nations in resource development ventures such as oil and gas in Alberta, forestry in Northern BC, and vineyards and winemaking in the BC Okanagan have forged partnership and joint venture (JV) agreements with non-First Nations business. These partnerships not only provide royalty (lease) revenues but also training, wages and jobs to First Nations. They also build capacity in business management.

The lesson is that leasing of resource access is a fundamental tenet of modern business. The challenge to First Nations is to participate in such leasing ventures under terms and conditions that are consistent with their goals and aspirations.



## 4.0 Impacts and Benefits of Leasing

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Leasing provides benefits from both a general fisheries perspective and from a First Nations perspective.

### 4.1 General Fisheries Perspective

Leasing allows greater flexibility in fishing operations, in business planning, and in reacting to unexpected events. Leasing also allows individuals or business entities to concentrate on the element(s) of the fishing enterprise for which they have skill or expertise e.g., operating a vessel, catching fish, running a business, marketing.

The ability to lease quota in short notice is absolutely critical to the various groundfish fleets under the Groundfish Integration Program whereby each vessel must have quota to cover catch of both target and non-target species.

Leasing also promotes economic efficiency in fishing operations in that the available catch can be taken at lower tangible cost in vessels and equipment.

Without the ability to lease the industry aggregate catch, revenues, net returns, and job base from groundfish and other fisheries would be significantly lower. The ability to lease is needed to tap the economic potential of the fishery as well as to address environmental concerns regarding the sustainability of fisheries operations.

### 4.2 The First Nations Perspective

The ability to lease out licences and quota is critical for the financial viability of CFEs, for the ability of CFEs to achieve their goals and objectives, and for the success of the PICFI program. Without such leasing capability much of the fishing access would sit idle.

In the longer term, the CFEs can use lease revenues to acquire additional fishing access or tangible fishing vessels and other assets to enhance community fishing capacity.

The CFE community can benefit directly in three main ways from fisheries access:

- direct financial return from the access to the fishery i.e., lease revenues
- business return from fishing this access e.g., First Nation-owned and operated vessels
- wages and jobs to those individuals within the fishing business accessing the resource e.g., crew wages and jobs

The first is a communal return accruing to the community at large. The latter two financial benefits typically accrue to the private individuals engaged in the fishing operation. In some cases, CFEs own fishing vessels and earn vessel owner returns but this may come at the expense of a lower lease return.

An ideal situation for a CFE with sufficient local fishing capacity may be one in which: 1) the CFE receives sufficient lease revenues to expand their access portfolio and to develop their organizational capacity, 2) the access is leased to a First Nation vessel owner, and 3) 100% of the vessel crew fishing the access are First Nation individuals. As noted previously, CFEs have become more astute in their leasing practices over time. And the number and shares of First Nations vessel owners and jobs tied to fishing the PICFI access has increased over time - see panel on next page.

Some CFEs have introduced innovative terms into their lease agreements as well. These features have included discounted lease rates to new First Nations entrants and training and mentoring support to First Nations crew members. This approach is consistent with the long run PICFI goal of increasing First Nations participation in the commercial fisheries of British Columbia.

	<b>Fishing Activity Using PICFI Access</b>		
	2010/11	2013/14	2016/17
<b>No. of Vessels Fishing</b>			
Total Vessels	50	170	210
First Nation-owned Vessels	15	115	150
% First Nation Vessels	30%	68%	71%
<b>Fishing Jobs</b>			
Total Jobs	170	530	580
First Nation Jobs	65	370	410
% First Nation Jobs	38%	70%	71%

Source: 2010/11 and 2013/14 estimates from GSGislason 2014 p.15.  
2016/17 estimates from interview program with CFEs for this study.

The First Nations share of jobs associated with fishing PICFI access has increased dramatically from program conception. Today approximately 70% of vessels and jobs from fishing PICFI licences and quota accrue to First Nation individuals or entities.

Apart from these economic benefits, fishing is an activity that conforms with First Nations culture, traditions and history and also is an endeavour that does not require relocation from the home community. Commercial fishing also can be coupled with other marine endeavours such as Food, Social and Ceremonial (FSC) harvesting activities that provide broad-based community benefits.

## 5.0 Conclusions

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Leasing out resource access is a common but frequently misunderstood practice in the BC commercial fishing industry. Leasing of access also is a common practice in other resource sectors such as oil and gas, forestry, mining and agriculture including First Nations business enterprises in these endeavours.

**Significant Benefits from Leasing.** There is significant overcapacity in the BC fish harvesting sector, the cost of purchasing and operating fishing vessels is high, and licencing regulations are complex. Leasing allows the available fish harvest to be taken at lower cost and provides the flexibility to meet sustainability criteria through bycatch management. Leasing can also reduce operational risks.

The Pacific Integrated Commercial Fisheries Initiative (PICFI) program and the associated fishing access granted to the 20 coastal Commercial Fishing Enterprises (CFEs) has generated significant revenues to the CFE organizations and significant wages and jobs to First Nations' communities. These beneficial revenues and job impacts have grown over time as the CFEs have refined their business practices, and as First Nations' fishing capacity has grown. Today approximately 70% of vessels and jobs from fishing PICFI licences and quota accrue to First Nations individuals or entities.

These benefits would not have been possible without the ability to lease out fishing access to meet the financial and economic development goals of the CFE organizations. The ability to lease out fishing access was critical to the success of the PICFI model. That said, further improvements in program performance and leasing practices are possible. These improvements are tied to initiatives of both the CFE community and DFO.

**Future Initiatives.** Long term access agreements and additional acquisition of licences and quota is key to the sustainability of CFEs and their member First Nations communities. A minimum threshold of supply is required to support community fishermen in a variety of species, and to invest in asset upgrades that improve the efficiency of their operations.

Given the overcapacity in the industry, partnerships with individual community members and other sector participants may be a prudent course especially as it relates to investment in physical assets (e.g., vessels, etc.). The risks associated with 100% ownership of these assets are high given their significant costs, and are also unwieldy from a CFE management and oversight perspective. The ability to lease is a key ingredient of these partnership opportunities.

CFE management training and organizational capacity development is critical to support the next phase of CFE growth. Further training for fishermen in hard-to-fill positions such as commercial divers is also required as CFEs diversify their access portfolios and operations.

DFO for their part should review many of the regulations and vessel-based licence restrictions, such as vessel length restrictions, that inhibit the use of some licences. Greater certainty through long-term CFE agreements should also be pursued, as well as innovative arrangements to secure access to capital for acquisitions, expansion, and long-term sustainability and independence of CFEs.

**The Road to Economic Development.** The path to economic prosperity through fisheries development can be a long arduous road especially for CFEs and First Nations communities with a low base level of commercial fishing capacity. Significant progress has been made and further advancements are possible. Leasing of fisheries access is a very important component of the economic development toolkit to achieving this potential.

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# Appendix A

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The BC Commercial Fishery – Historical Catch, Value and Participation

## Exhibit A.1: BC Commercial Fisheries Catch and Value

	Catch '000 tonnes					Catch Value \$ millions				
	Salmon	Herring**	Other Finfish	Shellfish	Total	Salmon	Herring	Other Finfish	Shellfish	Total
1987	64	38	122	23	247	212	107	87	36	442
88	85	32	121	23	261	312	97	83	41	533
89	89	41	133	16	279	256	76	76	45	453
1990	96	41	144	17	298	263	81	90	42	476
91	86	40	165	20	311	172	58	103	43	376
92	66	35	165	26	292	192	60	96	56	404
93	85	41	141	22	289	205	83	102	72	462
94	66	41	180	21	308	260	90	135	92	577
95	49	27	139	24	239	90	86	116	117	409
96	35	23	155	25	238	100	100	107	116	423
97	49	32	142	23	246	110	67	133	111	421
98	30	34	148	19	231	54	37	127	94	312
99	17	27	144	17	205	26	49	138	96	309
2000	19	28	81	17	145	50	50	155	116	371
01	23	25	112	20	180	33	46	143	136	358
02	33	27	116	18	194	57	48	152	107	364
03	39	31	135	21	226	49	45	152	124	370
04	26	26	195	22	269	53	34	177	129	393
05	27	31	171	28	257	34	33	157	144	368
06	24	24	156	15	219	61	18	168	111	358
07	20	12	131	17	180	32	20	155	110	317
08	5	11	128	16	160	22	16	155	100	293
09	19	12	122	16	169	24	18	128	107	277
2010	24	10	127	14	175	71	12	139	109	331
11	21	11	126	13	171	48	6	164	130	348
12	13	13	112	13	151	34	13	140	126	313
13	32	21	104	13	170	45	17	136	126	324
14	42	21	90	14	167	125	16	133	142	416
15	20	23	98	18	159	52	16	153	149	370

\* Includes aboriginal commercial fisheries in years 2012 -2016.

\*\* Includes roe herring, herring spawn on kelp and food and bait herring.

Source: GSGislasen & Associates Ltd. estimates based on BC Agriculture "Seafood Year in Review" and DFO Catch Statistics "Summary Commercial Catch Statistics".

## Exhibit A.2: Numbers of Commercial Fishermen and Commercial Fishing Vessels in BC

	Fisher Registration Cards (FRCs)	No. of Commercial Fishing Vessels by Vessel Length				
		<10.7m	10.7-13.7m	13.4-19.8m	19.8m+	All*
1987	20,774	2,467	2,505	688	294	5,983
88	20,576	2,444	2,505	688	297	5,963
89	20,578	2,441	2,505	696	299	5,973
1990	20,097	2,404	2,496	702	303	5,937
91	18,934	2,364	2,486	700	294	5,876
92	18,610	2,294	2,476	696	298	5,797
93	19,478	2,288	2,439	686	293	5,738
94	19,177	2,274	2,431	691	297	5,725
95	18,818	2,227	2,401	681	289	5,630
96	14,164	2,073	2,304	659	284	5,352
97	14,059	1,730	1,863	570	268	4,462
98	9,286	1,727	1,822	562	270	4,381
99	8,696	1,521	1,580	514	244	3,860
2000	8,760	1,387	1,364	458	237	3,446
01	8,574	1,375	1,333	431	220	3,359
02	8,884	1,327	1,290	424	222	3,263
03	8,764	1,345	1,292	426	227	3,290
04	8,505	1,322	1,270	414	224	3,230
05	7,829	1,301	1,237	404	219	3,162
06	7,636	1,247	1,213	396	215	3,072
07	6,700	1,213	1,196	385	201	2,996
08	5,988	1,156	1,156	388	189	2,890
09	6,129	1,138	1,122	365	183	2,809
2010	6,299	1,072	1,093	357	177	2,699
11	6,119	1,063	1,064	341	177	2,645
12	5,562	1,032	1,005	335	179	2,645
13	5,402	1,017	1,011	331	179	2,538
14	6,011	1,024	1,001	319	170	2,514
15	5,308	1,004	966	273	153	2,396

\* Includes a small number of vessels of unrecorded lengths.

Source: DFO Licencing.