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Transferable Quota Fishery**

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The Hidden Role of Processors in an Individual Transferable Quota Fishery

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Abstract

The economically and culturally important Pacific halibut fishery in British Columbia, Canada, managed as an Individual Transferable Quota fishery since 1993, has frequently been held up as an example of management best practices. This narrative of success has continued despite repeated warnings that there are serious problems with the fishery, including processors exerting ever greater control over the fishery, contrary to stated fisheries objectives. Administrative data from federal and provincial datasets were used to consider ownership and control in the halibut fishery, with a focus on processor quota ownership, leasing, and brokerage of leases. The analysis indicates that direct processor ownership of halibut quota, while more than doubling between 1996 and 2016, remains relatively low at less than 10% of the available quota. Processor control through the leasing of halibut, however, is much higher, accounting for more than half of all halibut quota transfers in 2016. Through strategies such as “holding licences”, processors increasingly act as hubs for leasing activity, which has shifted the balance of power in the fishery. This analysis (a) reveals that there is much more processor control than is obvious from a cursory review of ownership, (b) highlights approaches for assessing the level of processor control, and (c) recommends alternative government procedures for improving transparency and evaluating full spectrum outcomes of fisheries management such as equitable distribution of benefits.

Key words: asymmetric information, holding licences, oligopsony, ITQ leasing, transparency

INTRODUCTION

Fisheries management systems can have many unexpected and often unwelcome impacts, influencing power dynamics, resilience, and overall fisheries success (Hentati-sundberg et al. 2015, Foley et al. 2015, Stoll et al. 2016). Individual Transferable Quotas (ITQs) are permits allowing the holder of the ITQ to catch or transfer a share of a total allowable catch (TAC). ITQs as a fisheries management system have been widely promoted as a means to achieve positive economic and conservation outcomes (Casey et al. 1995, Grafton 1996, Grafton et al. 2006a, Branch et al. 2006, Grimm et al. 2012). ITQs have had a mixed record, however, when the full spectrum of fisheries objectives are considered, particularly related to equitable distribution of benefits, social and economic outcomes for fisheries-dependent communities, resilience, employment, and safety (McCay 1995, 2004, Pálsson and Helgason 1995, Copes and Charles 2004, Sumaila 2010, Carothers et al. 2010, GSGislason & Associates Ltd 2013, Pinkerton 2014, Emery et al. 2014, Carothers 2015). Concerns over the competitiveness of markets (i.e., monopoly and monopsony issues) and related price manipulation, are responsible, in part, for the restrictions on the concentration of quota share ownership that are present in nearly all ITQ fisheries (Anderson 2008).

Analysis of quota lease markets in ITQ fisheries has primarily focused on ownership and related issues of market function (Newell et al. 2005, van Putten and Gardner 2010, van Putten et al. 2011, Ropicki and Larkin 2014, León et al. 2015). Mechanisms for non-ownership control in quota markets have been noted (Pinkerton and Edwards 2009) but have not been subject to the same level of scrutiny as ownership mechanisms. At the same time, there is a growing interest in how hidden activities and relationships can exert control over fisheries and lead to unexpected and often negative impacts (Adger et al. 2009, Liu et al. 2013, Galaz et al. 2018).

It is within this context that consideration of the processor control of an ITQ fishery was undertaken. Processor control of fisheries can take the form of (1) limiting opportunities for fishing enterprises to sell product (oligopsony, where there are few buyers and many sellers) and (2) control over fisheries production and access to fishing opportunities (oligopoly, where there are few sellers). The potential for processors to exert control over fisheries through purchase of licences has long been recognized as a potential issue that can lead to market inefficiencies and inequitable distribution of benefits (Clark and Munro 1980, Anderson 1991, National Research Council 1999). In addition to direct ownership of fisheries access rights, processors have other avenues through which they can exert control, including financing, conditional sales agreements and joint or indirect ownership through which they can dictate the conditions of sale for fishing enterprise catch (Shaffer 1979, Cruickshank 1991, Windle et al. 2008). Concern over processor control in Canada arose historically due to both oligopsony and oligopoly issues (Government of Canada 1976, Pinkerton 1987, Gough 2008). The potential for a small number of processors to exert control that distorts fish prices and disadvantages independent fishing enterprises was the impetus for both the fleet separation and owner-operator policies in Atlantic Canada (Gough 2008). While processor control mechanisms have been well studied, the potential for processors to exert control over a fishery through a secondary quota leasing market, in which the processor is acting as an intermediary with limited ownership but extensive control of fisheries access rights, has not received the same attention and is the focus of this paper.

Overview of the BC halibut fishery

Canada's Pacific halibut fishery is an iconic fishery that is economically and culturally important throughout coastal British Columbia (BC). It is one of the highest value fisheries in BC, with \$58.3 million in landed value and \$93 million in wholesale value in 2016 (Province of BC 2017). Individual vessel quotas were implemented in the halibut 'L' licenced fishery in 1991, followed by limited temporary transferability in 1993 and full temporary and permanent transferability in 1999. Unlimited

transfers of halibut were permitted, subject to rules on minimum and maximum holdings on the licence (Fisheries and Oceans Canada 2019). There are no restrictions on the number of licences that an individual or company can own.

As part of government efforts to repatriate fisheries access to Indigenous people, the Indigenous communal licence designation was created in the 1990s. Indigenous communal halibut licences are designated as 'FL'. The Government of Canada has been purchasing 'L' licences and quota and transferring them to the 'FL' designation since 1997. There were 76 'FL' licences identified in 2018 with combined quota totalling about 16% of the TAC.

The BC halibut fishery is one of the earliest major ITQ fisheries in Canada and has often been referenced as an example of success in fisheries management (McRae and Pearse 2004, Grafton et al. 2006b, Munro et al. 2009, Casey et al. 1995). Fisheries participants and observers have raised concerns, however, about the state of the fishery, citing excessively high lease prices, diminishing financial returns for fishing enterprises, an aging fleet and workforce with little opportunity to attract and retain new entrants, inequitable distribution of benefits and questionable societal benefits from the resource (Nuu-chah-nulth Tribal Council 2005, United Fishermen and Allied Workers' Union 2005, Ecotrust Canada 2009, Pinkerton and Edwards 2009, Davidson 2010, Canadian Council of Professional Fish Harvesters 2018). The quota leasing system is central to these concerns.

The Government of Canada is mandated to safeguard the interests of Canadians in managing this common pool resource (Fisheries Act, R.S.C. 1985, c. F-14) and fisheries are expected to be managed to meet a full spectrum of social and economic objectives, including benefits to adjacent communities, maintenance of small boat independent fleets, and distributed benefits amongst participants (Stephenson et al. 2018), as affirmed in legislation (Oceans Act, S.C. 1996, c.31) and policy (Fisheries and Oceans Canada 1999, 2018). Processor ownership of fisheries access privileges has long been recognized as running counter to fisheries management objectives in Canada, leading to the establishment of limits on corporate concentration in the BC fisheries (Shaffer 1979, Pinkerton 1987, Gough 2008) and owner-operator and fleet separation provisions in other regions of Canada (Gardner 1995, Fisheries and Oceans Canada 2003, Gough 2008, Foley et al. 2015, Barnett et al. 2017). Despite the early recognition of the importance of placing limits on processor ownership, BC's fisheries are some of the only ITQ fisheries in the world without any kind of ownership concentration or processor ownership restrictions. The restrictions on processor control of BC fisheries that were in place were never formalized in legislation or regulation and monitoring and enforcement of these restrictions was abandoned by DFO in the late 1970's, long before the introduction of ITQs to the BC groundfish fisheries. The prevailing view in the 1970's was that processor ownership in the BC fisheries was minimal (Government of Canada 1976). This stood in contrast to Canada's east coast fisheries where processor ownership was acknowledged to be significant, and was theorized to be the cause for artificially low prices due to pricing practices of vertically integrated processing companies (Gough 2008). The resulting establishment of fleet separation and owner-operator policies subsequently led to further formalization of ownership and control restrictions in Canada's east coast fisheries (Gough 2008, Barnett et al. 2017).

A further rationale for the absence of processor limitations in the BC ITQ fisheries was the perception that ITQs would favour fishing enterprises over processors. Furthermore, oligopsony concerns in BC have historically focused on herring and salmon (Pinkerton 1987). Halibut was not considered a concern, given a competitive, non-collusive market while a layup system was in place to spread effort in time and create transparent auction-like conditions in the delivery to processors (Pinkerton 2013). In fact, ITQs were credited with shifting the balance of power between the licence/vessel owner and the processor-buyer, with the licence/vessel owner appropriating a greater share of the increase in value than the processor (Gislason 2008). What the evaluation by Gislason (2008) failed to account for was the fact that the quota owner and the fishing enterprise are increasingly distinct entities, providing an opening for other actors,

namely processors, to exert control through the quota leasing system. This paper considers the extent of processor control in an era of quota leasing by processors.

METHODS

Methods primarily consisted of a detailed analysis of datasets obtained from the management agency, Fisheries and Oceans Canada (DFO), supplemented by the Statistics Canada Inter-Corporate Ownership historical databases, BC Provincial Corporate Registry Services records, BC provincial processor licence lists, and the Transport Canada vessel registry on-line query system and historical vessel lists. Methods also included input from BC fishermen active in the halibut fishery, facilitated through the Canadian Fisheries Research Network – a six-year research network that brought together academia, industry and government to undertake collaborative research on fisheries in Canada (Thompson et al. 2019). This research was also informed by testimony from BC fishermen to the Parliament of Canada House of Commons Standing Committee on Fisheries and Oceans for their study on the regulation of west coast fisheries.

Data

All DFO data used for this research was accessed through access to information requests, which are governed by legislation that requires government departments to release most publicly-held data upon request (Access to Information Act, R.S.C. 1985, c. A-1). Only a small portion of the data that is collected for the management and oversight of the BC fisheries is made publicly and freely available, namely the licence lists. However, licence list data was unusable for the purposes of this research due to an error in the dataset. It consists of current and historical licence holdings and includes the licence type, number and year, associated vessel, vessel length, and the name of the contact owner. At some point between 2008 and 2013, DFO began incorrectly linking licences and vessel ownership for vessel-based licences in this dataset, assuming the most recent owner of the vessel on record was the owner throughout the lifetime of the vessel. This meant that when a vessel was sold to a new owner, that new owner would be recognized as the owner of the vessel and all associated vessel-based licences in the dataset for the entire period of the dataset, which extended from 1981 to the date the dataset was published.

Multiple access to information data requests were made to DFO over a 15-year period for catch, management and ownership data for BC licences and ITQs. DFO has been inconsistent in its release of data, redacting individual identifiers at times and releasing the requested information in its entirety at other times. DFO has cited the exemption for confidential ‘third party information’ to justify redactions. As the governing legislation has not changed over the period of requests, and the type of information being requested has not changed, this inconsistency can only be attributed to variable interpretation by the department of their legislative requirements to release this information. The main issue seems to be whether the quota allocations and reallocations that DFO regulates and manages, issuing quota each year and processing quota reallocations upon request, constitute ‘government records’ or ‘third party information’. Catch data by vessel is consistently redacted and was not available for the analysis. The three datasets that were available and used for the analysis were: (1) licence/vessel ownership, (2) quota transactions administrative records, and (3) quota allocations.

Licensing data by vessel is readily available from DFO, but with limitations. Whereas the ‘FL’ licence is a ‘party-based licence’, meaning that the licence is attached to an individual, the ‘L’ licence is a ‘vessel-based licence’, meaning that the licence is attached to a vessel and not an individual (Fisheries and Oceans Canada 2019). In most cases, the owner of the vessel and the owner of the licence are the same, but when vessel-based licences are leased, the owner on record is a lessee and not the actual licence owner. It is important to note the distinction between licence leasing and quota leasing – quota leasing is common and there is an administrative procedure for the management agency to recognize quota leases

that does not impact recorded ownership. In contrast, there is no mechanism to ‘lease’ a licence – the licence must be transferred to the lessee vessel in the same way as if the licence were sold and is regarded as a permanent transfer by the management agency which then impacts recorded ownership. While quota leasing is common, licence leasing in the halibut fishery is not widespread, although it does occur. Vessel ownership is used in this analysis as a proxy for licence ownership, as this is the only available source of ownership data and this is consistent with the approach taken by DFO to assigning ownership. The other limitation in assigning ownership relates to multiple owners. The vessel can have multiple owners associated with it, either due to joint ownership of the vessel or licences, to recognize ownership of licences or quota by different owners, or due to financing arrangements. In this analysis, ownership was assigned to the contact owner on record. Secondary ownership by processors based on the full list of owners was also assessed.

The second dataset is the quota transfers administrative data. Quota transactions are comprised of both temporary and permanent transactions. A temporary transfer is a time-limited (in-season) transfer of quota between licences. These transfers can be between licences owned by a single owner or, more commonly, between different owners. In the latter case, the transfer is referred to as a lease. A temporary transfer only applies to the current fishing year, with the quota reverting to its primary licence the following year. Once fished, quota cannot be moved from the licence on which it was fished until the next year. Before it has been fished, quota can be transferred an unlimited number of times, and it is common for quota to be transferred two or three times before it is fished. Temporary transfers are expressed in pounds and permanent transfers can be expressed in either percentage or pounds, although ultimately the purchaser of quota is purchasing a percent of the TAC in each year, not a guaranteed poundage. A complete time series for quota transfers was compiled for 1993 (the beginning of quota transferability) to 2016. The analysis of quota transfers considered only halibut quota from halibut licences. Administrative quota transfers not associated with leasing, e.g., the transfer of quota between DFO-held licences and the 2006 transfers of 10% of the halibut quota to and from the Pacific Halibut Management Association as per an agreement with the department (Fisheries and Oceans Canada 2006), were excluded from the analysis. Quota transfers between licences owned by a common owner were also excluded from the analysis of leasing.

The third dataset is the initial quota allocation data by licence, which is expressed as a percentage of the commercial halibut TAC. This data has been treated as confidential at different times by DFO, but released at other times. A complete time series was not available, but could be reconstructed using available allocation data and the quota transaction dataset. A complete time series for quota allocation was compiled for 1991 through 2016, with the exception of 1997 when a different allocation formula was used due to a court case that was later overturned on appeal.

Analysis

Determination of which vessels fished, in the absence of individual catch records, was based on the presence on the licence of greater than 3,500 lbs of halibut quota at the end of the year. This was determined by the difference between the initial allocation and quota transferred on and off the licence during the year. For the years 2001 through 2006, end of year quota on the licence was also available, which was used to validate this approach. A cut-off of 3,500 lbs was chosen based on the lowest amount allocated to a licence in the initial allocation in 1991, verified with industry input indicating that this corresponded to a reasonable minimum catch level of quota that a vessel would need to justify gearing up for a halibut season.

Additional data analysis was undertaken to identify parent company ownership and company affiliations. Processors were identified through a review of the Province of BC list of processor licences,

supplemented by a review of trade publications (e.g., Westcoast Fisherman magazine). Building on work to assess corporate concentration in the BC salmon and herring fisheries (Haas et al. 2016), the Statistics Canada Inter-Corporate Ownership (ICO) records were accessed to identify ‘parent-child’ company relationships for large companies. To examine ownership of the smaller companies, searches of the BC Provincial Corporate Registry Services records and the Transport Canada vessel registry were also undertaken. ‘Parent-child’ relationships and affiliations were identified based on co-occurring directors, records of sales, and home addresses on record. For licences with a high degree of quota transfer activity, where affiliations were not obvious from direct or parent ownership, an analysis of the patterns of quota transactions and discussion with active halibut fishermen was undertaken to identify affiliations in three years – 1996, 2006 and 2016.

The quota trading system in 1996, 2006 and 2016 was mapped as social networks to visualize the relationships between the different quota trading entities. Network analysis is a well established field of research that can provide insights into the characteristics of a system of connected actors (Jackson 2008). Network analysis has been used to consider relationships between participants in fisheries (Crona and Bodin 2006, Ramirez-Sanchez and Pinkerton 2009, van Putten and Gardner 2010). In this analysis, connections in the network denote temporary transfers of halibut quota between different actors within the halibut fishery, to examine leasing relationships. Quota trading relationships were visualized using the network analysis package ‘igraph’ (Csardi and Nepusz 2006) in R (R Development Core Team 2019).

THE HALIBUT QUOTA LEASING SYSTEM

The halibut fishery is comprised of four primary types of actors: fishing enterprise, processor, investor, and Indigenous communal lessor. Within the DFO licence list, there is no classification of licence holders according to these categories. Furthermore, for the BC fisheries, DFO does not track affiliations/control due to leasing or other arrangements such as controlling agreements, does not track which companies are processors and does not distinguish between licence holders that fish (e.g., ‘fishing enterprises’) from licence holders that do not fish (e.g., ‘investors’).

For this analysis, licences were assigned to categories according to the following criteria:

- 1) Fishing enterprise: this includes individuals and companies that can have multiple vessels and licences. The main distinguishing feature of this category is that the enterprise must have at least one vessel that catches halibut in the directed halibut fishery in a given year. The second distinguishing feature is that the enterprise is not classified as a processing company. This includes fishing enterprises that fish communal Indigenous (‘FL’) licences as well as those that fish regular (‘L’) halibut licences.
- 2) Processor: companies that purchase halibut from fishing enterprises to process and sell in the wholesale or retail market. They may own licences, quota and/or fishing vessels that are fished by a hired skipper. For the purposes of the analysis of quota leasing, licences that are owned by the processor, either wholly or jointly with a fishing enterprise, as well as licences that are ‘affiliated’ with but not owned by processors, either being leased or in some other controlling arrangement, are classified here as processor licences. When considering ownership, only those licences that are directly owned by processors are classified as processor licences.
- 3) Investor: companies and individuals that own halibut licences and quota that they do not fish themselves and which they lease to others. This includes former fishing enterprises that no longer fish halibut but have retained their halibut quota to lease to others.

- 4) Indigenous communal lessor: licences held communally by Indigenous organizations (e.g., by an Indigenous government entity, economic development organization, or not-for-profit) that are not fished by them but the quota is leased to fishing enterprises. Most of the licences within this category are ‘FL’ licences. Indigenous individuals holding regular ‘L’ licences are not included in this category, being included in either the ‘fishing enterprise’ or ‘investor’ categories, depending on whether they fish halibut. Indigenous companies that both hold ‘FL’ licences and process fish are classified in the Indigenous communal lessor category, not the processor category.

Anyone across any of the categories can act as a broker. Independent quota brokerage firms have existed in the BC groundfish fishery, primarily servicing the groundfish trawl fishery. A separate broker category was not identified for the halibut fishery as the evidence suggests there is only minimal leasing activity within the halibut fishery that could qualify as being carried out by a broker separate from investors, fishing enterprises and processors. The low penetration of independent brokerages in halibut can be attributed to: (1) relatively high transaction costs for using a brokerage company, (2) established relationships, particularly between processors and investors, and processors and fishermen, and (3) the widely held view that processors are willing to pay higher lease prices than fishermen, and thus are a more attractive target for investors (Pinkerton and Edwards 2009).

Extent of leasing

By the mid-2000’s, nearly every licence in the halibut fishery engaged in leasing to some extent (Fig. 1). This can be attributed to (1) the minimum permanent quota holdings requirement for halibut licences (at least 0.01149% of the TAC on each licence, equivalent to 706 lbs in 2016) (Fisheries and Oceans Canada 2019), (2) high quota lease value (\$8.40/lb in 2016) (Simpson 2017), (3) a strong leasing market, and (4) low levels of quota ownership by many fishing enterprises. In 2016, investors owned 43% of the halibut quota, up from 0% in 1991 and 23% in 1996 (Edwards 2019a). In contrast, owner-operators went from owning 90% of quota in 1991 to 15% in 2016.

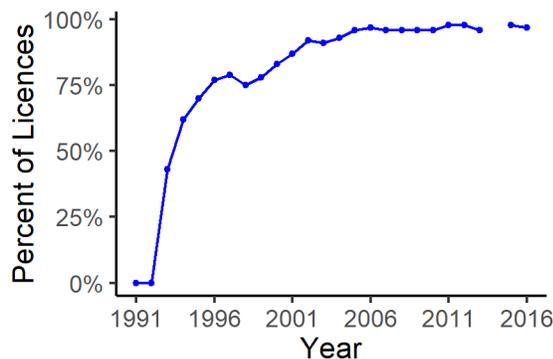


Figure 1. The percent of halibut licences involved in temporary quota transactions each year.

PROCESSOR OWNERSHIP AND CONTROL

If one looks only at licence and quota ownership based on the DFO licencing database, there is little evidence of processor control or changes in processor ownership over the last twenty years. Based on reported ownership, the maximum percent of halibut quota owned by a single entity in 2016 was 1.95% of the TAC, which increased to 3.35% when parent ownership was considered. While not an insignificant amount of quota, having a lease value of \$1.7 million in 2016 and a current market value of more than \$20 million, this level of ownership is not on its own indicative of high corporate concentration. When ownership by processors as a whole was considered, ownership steadily increased but was still below

10% in 2016 (Fig. 2). Processors as declared secondary owners of licences was also considered. When secondary ownership was included, processor ownership nearly doubled in 1996, but was of diminishing importance in later years. In 2006, processors had ownership interests in vessels associated with 30 halibut licences, for which they were the primary contact owner of 18 and secondary owners of 12. In 2016, the number of these licences increased to 31, but processors were secondary owners of only 6. Secondary ownership should be interpreted with caution, however, as the nature of the secondary ownership by the processor is not known and could be anything from a loan against the vessel, ownership of another licence on the vessel, to full ownership of the halibut licence and quota. Where processor control becomes more evident is in an examination of quota leasing, particularly the use of holding licences.

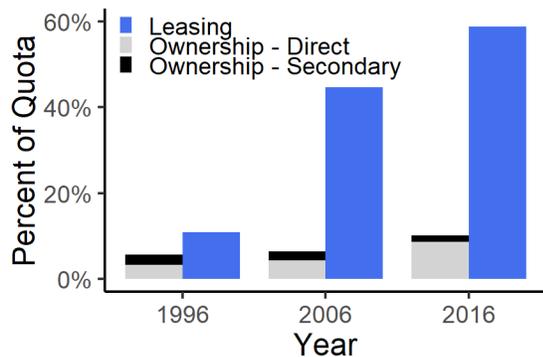


Figure 2. Processor quota ownership expressed as a percent of TAC, for both direct ownership and ownership where the processor is listed as a secondary owner, and processor control over leasing as measured as quota transfers through processor owned and affiliated licences as a percent of total quota temporarily transferred in the year, for 1996, 2006 and 2016.

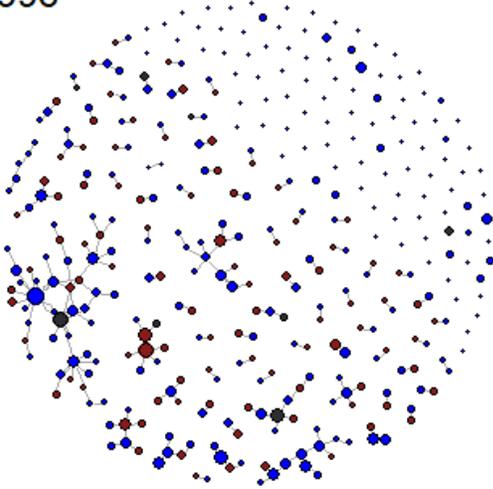
An approach that has gained prominence in the halibut fishery is the use of holding licences by processors, used to hold quota in-season. For example, a processor may lease (for a nominal price) one of the more than 200 halibut licences that are not being fished, and use it to hold quota temporarily when acting as a broker between lessors and lessees of halibut quota. These holding licences have a high poundage of quota transferred on and off, and the licences are typically not fished themselves. These licences, which can be either already owned by the processor or leased by the processor each year, serve to consolidate control by processors, enabling them to lease in quota early in the season, take possession of it on a licence they control, and then lease it back out to fishermen through the season when fish is delivered to them. The previously dominant practice was for fishing enterprises to lease directly from lessors or for processors to arrange the quota lease and transfer the quota directly from the lessor to the fishing enterprise. Even when the processor was arranging the lease, this approach afforded information to the fishing enterprise on the source of the quota and to some extent the amount of quota leased. The use of holding licences impedes transparency in the quota leasing system, reducing information available to fishing enterprises about the original source of the quota that they are leasing. They know only that it has been transferred from the processor's holding licence and are not provided any indication of how much quota the processor has leased or from whom or at what price.

The use of holding licences by processors has evolved over time. There was one processor-controlled holding licence identified in 2006, which had over 2 million lbs of quota transfers on and off the licence that year. The quota transfers through this one holding licence represented control over about 1 million lbs of quota, equivalent to about 9% of the TAC in 2006. The difference between the quota transfers (2 million lbs) and the quota involved (a maximum of 1 million lbs) is due to the fact that for a holding licence, quota leasing includes both inward and outward transfers, with quota leased from quota owners

and transferred onto the holding licence and then leased out again to fishing enterprises and transferred off the holding licence to the licence used to fish the quota. As evident from analysis of the quota transfers dataset, the practice of using holding licences became more widespread and sophisticated in the years following as other processors adopted the practice. By 2016, there were nine licences with transfers of more than 200,000 lbs of quota each while not being fished in the year, with processors managing multiple holding licences to provide more flexibility, given individual licence cap limitations of 1% of the TAC. The same processor with the 2 million lbs+ holding licence from 2006 had holding licence leases representing up to about 9% of the TAC in 2016 as well, only over multiple licences. This same processor had declared ownership of less than 2% of the halibut quota. The second most active processor in 2016, with quota leases corresponding to about 7.5% of the halibut TAC, did not own any halibut licences or quota. While the practice of leasing through holding licences has become more widespread, processor leasing continues to be concentrated: the top four processors in 2016 were responsible for over 80% of the quota holding licence leasing by processors. These processors were all well-established, having operated in the BC fisheries for decades.

Processor penetration into the overall halibut quota leasing system, as measured based on quota transactions that involved a processor owned or affiliated licence, is significant, reaching 59% of temporary quota transfers by weight in 2016. Quota was predominantly leased from investors, although Indigenous communal quota lessors, other processors and fishing enterprises also leased quota to processors (Fig. 3). In Figure 3, the nodes (circles) represent individual quota traders, and the size of the nodes is indicative of the total poundage of quota transferred by the entity in that year, inclusive of both inward and outward trades. Nodes that do not connect to others are cases where no quota was traded or where quota was traded only within a fishing enterprise or to licences outside of the directed halibut fishery. The total poundage transferred decreased from 2006 to 2016 because of an almost 50% drop in the TAC. Total temporary quota transfer activity of halibut, inclusive of all licences, increased over this period, both in terms of percent of TAC (79% of TAC in 2006 to 108% in 2016) and in the total number of temporary quota transfers (779 in 2006 and 911 in 2016). Consideration of direct ownership and leasing through holding licences was only possible through the amalgamation of a number of different data sources from DFO and the BC provincial government, combined with information from fishery participants, and is not information that is currently tracked by DFO nor made publicly available. The extent of processor control presented here represents only a minimum estimate, given limitations of both the quota transfer data that is released and the data that is collected in the administration of quota transfers by the management agency. Processors continue to lease quota that they transfer directly from the original lessee to the fishing enterprise licence, in which cases processor involvement is not evident from the information provided within the quota transfers administrative data received from DFO.

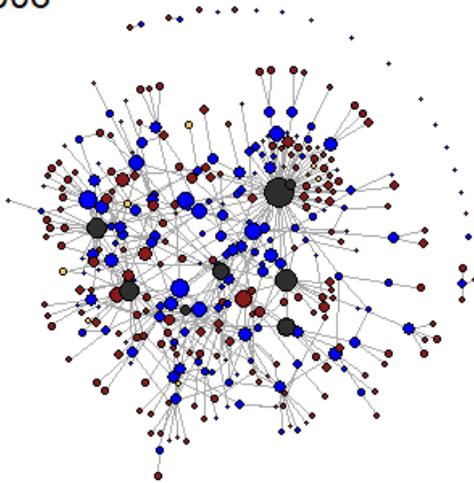
1996



Quota Trader Category

- Fishing Enterprise
- Processor
- Investor
- Indigenous Communal

2006



Total Quota Transferred

- 10,000 lbs
- ◊ 50,000 lbs
- ◊ 100,000 lbs
- 500,000 lbs

2016

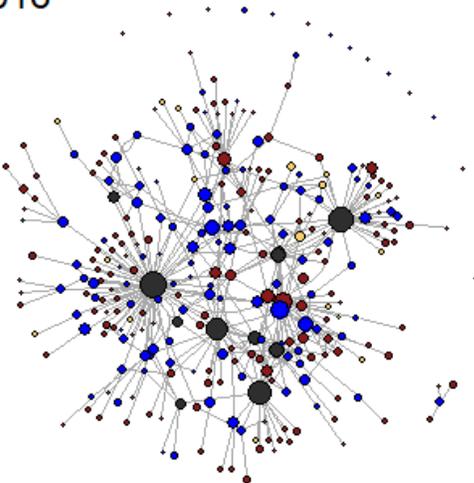


Figure 3. The quota trading network in the BC halibut fishery in 1996, 2006, and 2016, as characterized by temporary quota transactions between quota traders.

POWER DYNAMICS IN THE QUOTA LEASING RELATIONSHIP

Processors are able to readily fill a brokerage role in the quota leasing system in large part because of their access to capital. For fishing enterprises that do not own appreciable amounts of halibut quota, which is now the majority of the vessels fishing, it is often a financial struggle to operate (Edwards and Pinkerton 2019). About 70% of fishing enterprises in 2016 fished at least 20,000 lbs of halibut quota. The lease cost for 20,000 lbs of halibut quota is estimated to have been as high as \$168,000 in 2016 (Simpson 2017). Most halibut fishing enterprises do not have access to this amount of capital to lease quota at the beginning of the season. Financial institutions in BC will not loan against quota, particularly for an in-season lease, unless other more tangible assets are used as collateral and, even then, at a high cost. This puts leasing of any larger amount of quota at the beginning of the season beyond the reach of most fishing enterprises, and indeed, even smaller processors looking to enter the business. The requirement to access significant capital strongly favours incumbents that are already in a good financial position and have a business that accommodates large fluctuations in cash flow through the year, which characterizes successful, established processors, but not most fishing enterprises. At the same time, quota owners have expressed a preference to lease to processors, with the prevailing view in the industry that processors are willing to pay higher lease prices for quota than fishermen, and that there is less social pressure on owners to lower their lease price when dealing with processors (Pinkerton and Edwards 2009).

Access to capital is but one aspect of the power imbalance between fishing enterprises and processors. In part because of their greater access to capital, processors are in a preferred position to lease quota from investors. This then allows the processors to establish relationships with the investors that further entrenches their access to quota over time, and control of the quota market. These processor-investor relationships have been identified by fishery participants as an obstacle to more independent fishing enterprises (Testimony to the Parliamentary Standing Committee on Fisheries and Oceans 2019). These relationships also afford processors access to information about who holds quota, in what amounts, and at what price they will lease it out – which, unlike regulated trading markets, is information that is not readily available to most other participants in the quota market.

As processors gain greater control over leasing, industry norms related to information sharing about landed value and lease fees have also shifted. When processors provide access to the majority of quota that a vessel fishes, the fish slip recording the sale of fish to the processor no longer reflects the actual landed price or the lease price for the quota, instead providing only the after-lease price. The fish slip is a record of the landing, required by DFO, which must list the buyer, seller, weight and price for each species and grade of fish sold. The after-lease price is the price received by the lessee fishing enterprise – the difference between the landed price and the lease price, as well as any fees or adjustments added in by the processor. For fishing enterprises, the listing of only the after-lease price on the fish slip means that they do not know what lease price they are paying per pound, or what their catch is worth at the dock. They only know what they are receiving as the difference of the two. Because fishing enterprises must sell to the processor that is providing access to the quota that is needed to cover the catch, and basic information such as landed price is often not provided, fishing enterprises are at a distinct disadvantage in any attempt to better their position and seek higher prices.

Processors have a strong incentive to lease quota pre-season as a means to secure supply of halibut deliveries during the season, with most of the risk borne by fishing enterprises. The processor is able, in most instances, to pass on the full costs of the lease to the fishing enterprise while also guaranteeing that the lessee will deliver their catch to the processor. While indications are that competition between processors for quota remains very high, evidence suggests that competition to attract and retain fishing enterprises as suppliers of the actual catch is low. Despite steep increases in landed price of halibut since 2010 (Province of BC 2017), the average after-lease price has been stable to trending downwards

(Edwards 2019b). Quota leasing is not without some risk for processors, particularly when leasing large amounts of quota pre-season at prices that assume that the wholesale market in the coming year will support the lease price. The risk to processors is ameliorated, however, by the ability of processors to adjust the after-lease price to make up for lower than expected wholesale prices. Given the limited information available to lessee fishing enterprises, they do not know the components of the after-lease price they are receiving – if it is the landed price less the lease price paid, or if lease losses or management or financing charges are included. Adjustments to the after-lease price are bounded to some extent. Even though fishing enterprises are highly competitive for access to quota to fish, few fishing enterprises, when given the choice, will fish if short-term costs, such as bait, fuel and monitoring costs, are not being covered (Edwards and Pinkerton 2019). Not all fishing enterprises have the choice, however, as fishing enterprises may fish at a loss if the enterprise risks losing future access to quota if they do not (Testimony to the Parliamentary Standing Committee on Fisheries and Oceans 2019).

THE ROLE OF GOVERNMENT IN MANAGING MARKETS

The management agency has taken on a strictly administrative role in the quota market, processing quota transfer requests. With no public quota registry or management of the quota leasing system, quota leasing operates in a black box opaque to most fishing enterprises and the management agency and without official oversight or influence. DFO has characterized the quota leasing system as “willing buyer, willing seller” (Mawani 2009) and has absented itself entirely from a role in overseeing those relationships or in mitigating the potential of the system to violate management objectives.

Governments in a market economy are, at a minimum, expected to intervene in cases of market failure arising from externalities, imperfect information, or market control. A minimalist approach to government intervention often focuses on research, education, and developing market mechanisms to improve information availability, counter monopolies or oligopolies, and correct externalities such as ecosystem degradation (e.g., pollution, habitat destruction). A minimalist approach to government intervention has been criticized for not adequately accounting and adjusting for disruptions in society and the economy. An alternate view has been posited that identifies an important role for government in leading on transformational change (Mazzucato 2015). Under either scenario, there is a clear role for government in intervening in the BC halibut quota lease market. At the very least, there is a strong rationale for government to undertake research and investigations into the state of the quota market and address the asymmetric information and capital availability issues that are leading to uninformed decision-making and market inefficiencies. Stabilizing the quota market, instituting rules and procedures to create transparency including new reporting requirements for tracking ownership and leasing, and preventing market distortions are further actions that would be expected of government seeking to prevent market failures such as described above.

There is an extensive literature on the importance of the availability of information to all parties involved in negotiation for effective and efficient market function (Coase 1960, Stigler 1966, Stiglitz 2000, Holland et al. 2015). The lack of transparency and limited data collection by the management agency to track ownership and control of a public resource is an issue that has been previously highlighted for the BC salmon and herring fisheries (Haas et al. 2016) and groundfish fisheries (Pinkerton and Edwards 2009). This situation is exacerbated by the corporate reporting requirements in Canada. There are no requirements for public reporting of private company shareholders, no requirements to disclose beneficial ownership when creating a corporation (Meunier 2018) and anonymous shell companies can be readily established (Sharman 2011). Federal tracking and reporting of intercorporate ownership through Statistics Canada only reaches the very largest fishing companies. The BC provincial government only requires BC registered companies to list directors and not shareholders in annual report filings and does not make even information on directors or other basic information such as incorporation

date freely available or readily searchable. Rather, the provincial government requires payment of a fee to access the corporate history, such as it is, for each corporation. The practice of DFO to not track licence ownership of vessel-based licences is a further obstacle to understanding, monitoring and reporting on conditions in the BC fishery.

CONCLUSION

There has been a marked change in the role of processors over time as the number of quota transactions increased and processors exerted a more pronounced influence in the quota leasing market. Despite their hidden role in the fishery, directly owning less than 10% of halibut quota, processors have considerable influence through their role as quota lessees and lessors, controlling more than 50% of temporary quota transfers by poundage. This influence consolidated in the period between 2006 and 2016, with processors becoming the primary hubs for quota leasing. The central role of processors in controlling the leasing market has shifted the balance of power in the fishery to disadvantage fishing enterprises, particularly those that are in the position of having to lease the majority of their quota, which is a steadily increasing proportion of fishing enterprises. This has implications for the ability of fishing enterprises to negotiate for higher prices, and thus for the distribution of benefits in the fishery. Established processors have been controlling access to enough of the quota market through leasing to limit the pool of buyers, thus gaining the ability to control the market, and by extension, the after-lease price received by fishing enterprises. This raises concerns about oligopsony and the competitiveness of the raw halibut market.

Despite data limitations, analysis and determination of the minimum level of processor ownership and control is possible, as was demonstrated with this analysis. Indeed, the management agency's preferential access to data would enable a more complete consideration of the processor control issue. For example, a more direct evaluation of oligopsony in the halibut fishery would be possible with access to data treated as confidential by the management agency, notably through examination of fish slips to identify more completely the relationships between fishing enterprises and processors and to determine what proportion of halibut deliveries and the associated benefits the dominant processors receive. There is also an opportunity for collaboration across the provincial and federal governments to combine their respective datasets to better understand ownership and control within the BC fisheries.

An improved understanding of how processors can exert control over an Individual Transferable Quota fishery offers lessons for implementation and management of ITQ fisheries globally. As interest in full spectrum evaluation of fisheries increases, the need to address a broad range of issues including distribution of benefits, power dynamics and resilience, consideration of the levers of control and influence within fisheries systems has become increasingly important. Better understanding of how the fishery operates and the power relationships across the fishery could also directly inform the development of fisheries and rural economic development policy in Canada. Fisheries, as a common pool resource and economic driver for coastal communities in Canada, are meant to contribute to objectives for economic prosperity and social inclusion. Improved access to fisheries by coastal and Indigenous communities has been identified as a policy imperative for BC (Bennett et al. 2018). Despite a widely held view that, once implemented, ITQs are nearly impossible to change, there are mechanisms available to the management agency and others to retroactively address processor and corporate control in ITQ fisheries (Edwards and Edwards 2017, Edwards 2019c), which would be aided by a full understanding of conditions in the fishery. The BC halibut fishery is an example of asymmetric information between parties and poorly functioning markets that act as impediments to informed management and business decision-making. Further analysis is needed, warranting both new approaches to data collection by the management agency and consideration of existing data, either carried out and reported on by the management agency or through making heretofore restricted data available to external researchers and stakeholders.

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