**Comparing and Contrasting International Quota Share Policies**

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**Abstract:** Individual fishing quotas are commonly used market-based management tools for commercial fisheries that act like an individual property right by providing their holder the right to harvest a portion of the total allowable catch. These policies generate polarizing debate where their advocates see them as a mechanism to improve industry efficiency and control biological stock levels, and their critics draw attention to the negative socioeconomic and cultural impacts on local fishing communities produced by fishing quotas. However, when individual quota programs are broadly treated as the commodification of nature, important variations in the design features of these policies can be missed. This paper evaluates four leading global examples of fishing quota policies in New Zealand, Iceland, British Columbia, and Alaska to review their similarity to the “ideal” economic model of creating a new commodity in fishing quotas against the extent to which these policies incorporate provisions that explicitly work to protect local communities and operations. It finds that while some programs come close to the economic model for what a market-based program should look like, other programs including British Columbia—but especially Alaska’s 1995 halibut and sablefish individual quota program—strongly deviate from the ideal economic model for fisheries governance due to the policy’s inclusion of distinctive provisions designed to protect the sociocultural nature of the commercial fishing fleet that warrant greater attention and research.

**Key words**: Individual fishing quotas, marine governance, market-based policies

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| **Table 1: List of Abbreviations** |
| BSAI | Bering Sea Aleutian Islands Region |
| CDQ | Community Development Quota Program  |
| CQP  | Community Quota Program  |
| EEZ | Exclusive Economic Zone |
| FEIS | Final Supplemental Environmental Impact Statement  |
| FMP | Fisheries Management Plan |
| GRT | Gross Registered Tons |
| IFQ | Individual Fishing Quotas  |
| IPHC | International Pacific Halibut Commission |
| ITQ | Iceland's Individual Transferable Quota System |
| IVQ | British Columbia's Individual Vessel Quota System |
| Magnuson-Stevens Act | Magnuson-Stevens Fishery Conservation and Management Act  |
| NMFS | National Marine Fisheries Service  |
| NOAA | National Oceanic and Atmospheric Administration  |
| NPFMC | North Pacific Fisheries Management Council |
| OY | Optimal Yield |
| QMS | New Zealand's Quota Management System |
| TAC | Total Allowable Catch |

**1.0 Introduction**

International marine fisheries are remarkably lucrative, but humankind’s consumptive capacity coupled with wasteful labor throughout fishing industries place biological stocks at risk (Gordon 1954; Arnason 1993, 2005). An increasingly common approach to addressing this challenge privileges a narrow range of market-based policy solutions relying on new private rights to fish. An important specific policy design arising from this narrative is individual fishing quotas (IFQs). IFQs are individual property rights that give their holder the right to harvest a specified portion of the total allowable catch (TAC) for a given species. IFQs have garnered support in both theory (Moloney and Pearse 1979; Arnason 1993; Anderson 1994) and practice because they are now used by more than 40 nations to govern 900 species in over 200 distinct programs (Brinson and Thunberg 2016). Despite their rise in popularity, these programs are hotly debated where their advocates celebrate their ability to create efficient outcomes and reduce the harvesting pressure placed on environmental resources (Arnason 1993; Hannesson 2004), and critics claim these policies create negative distributional outcomes for local communities by commodifying nature and facilitating concentration of these rights in the hands of wealthier individuals (Copes 1986; Reedy Maschner 2007; Carothers 2008).

Advocates of transferable quota programs argue that creating new “property rights” to access a natural resource like fish stocks is the most efficient way to prevent overharvesting of that resource. Typically, theoretical arguments for these market-based policies prefer these rights to be as secure, transferable, and universal as possible (Moloney and Pearse 1979; Arnason 2005). These features form the basis for the “ideal” economic model that emphasizes the allocation of secure and easily transferable property rights to increase efficiency by giving the most efficient harvesters opportunities to purchase and consolidate quota shares. Although individual quota programs clearly reflect economic values that prioritize efficiency and market transactions, current research on these policies would benefit from greater attention to the important ways that some individual quota programs incorporate equity goals. Rather than focusing exclusively on the market logics driving the design of IFQ programs (Mansfield 2007), or explain privatization’s impact on local fishers and coastal fishing communities (Reedy-Maschner 2007; Langdon 2008; Lowe 2008; Carothers et al., 2010; Carothers 2011, 2013; Holen 2014; Thornton and Hebert 2015), this article examines four leading examples of individual quota share policies in New Zealand, Iceland, British Columbia, and Alaska to compare and contrast their similarity to the ideal economic model for commercial fisheries governance.

Drawing from existing research as well as original data collection through interviews and archival work in Alaska, I find that programs like New Zealand and Iceland come close to economist’s ideal for what a market-based program should look like by having few limits on the concentration of quota shares through market transactions (Arnason 2005). However, other programs like British Columbia’s halibut quota program and especially Alaska’s halibut and sablefish IFQ program deviate from the ideal economic model by incorporating stronger provisions to protect local fishing operations. Alaska’s halibut and sablefish IFQ program is especially noteworthy because it contains several unique provisions that are intended to protect the sociocultural nature of the commercial fishing fleet. Thus, the Alaskan case study warrants greater attention because its protections for local fishers and communities contradict what is expected from privatization policies where efficiency and capitalization are primary goals (Mansfield 2004), making it necessary to better understand what motivated the inclusion of the unique rules contained in Alaska’s halibut and sablefish IFQ program as well as their full implication for protecting local harvesters and fishing communities.

Before going further, it is useful to define terminology and introduce acronyms. Fisheries managed by individual quota systems are located a nation’s exclusive economic zone (EEZ). EEZs were established in the late 1970s and 1980s after the Law of the Sea was ratified. EEZs represent an area—typically 200 nautical miles—of marine territory adjacent to a country’s coastline where national harvesters have exclusive access to resources. The four international quota programs evaluated here include New Zealand’s 1986 Quota Management System (QMS), Iceland’s 1990 individual transferrable quota system (ITQ), British Columbia’s 1991 halibut individual vessel quota system (IVQ), and Alaska’s 1995 halibut and sablefish IFQ program. While each system holds a different title, they each allocate a specific number of catch shares on an annual basis for a specific species. These catch shares are limited property rights that provide their holders access to the fishery while excluding other potential participants. Allocated catch shares represent a dedicated portion of the Total Allowable Catch (TAC) in the fishery, which is the amount of fish eligible to be harvested in a given year. Fishery managers often set the TAC by using the principle of optimal yield (OY) or the largest expected yield that can be harvested from a species’ stock over a period of time.

In the following pages, I explain the variation in the design of New Zealand, Iceland, British Columbia, and Alaska’s individual quota share programs. I first situate this work in the broader literature on market-based governance for marine fisheries, which outlines the scope of the current debate on these programs. I then introduce New Zealand and Iceland’s quota programs, followed by a comparison of British Columbia and Alaska. I conclude with a comparative discussion, highlighting the ways in which Alaska’s halibut and sablefish IFQ program draws distinction.

**2.0 Market-Based Governance for Marine Fisheries**

Maritime governance is characterized by a complex set of institutions that aim to protect rapidly depleting natural resources by creating rules that regulate extractive behavior (Jentoft 2004). Prior to the implementation of individual quota systems, prominent international fisheries were managed by geographically-based harvest restrictions, shortened fishing seasons, and limited license policies that capped the number of individuals that had access to the fishery (Buck 1995). Individual fishing licenses are different from IFQs because they do not also specify the quantity of fish an individual harvester is able to take; as a result, these fisheries often exceed the TAC without effective monitoring and enforcement. Throughout the 1970s and 1980s, it became apparent to managers and policymakers that these policies were largely ineffective due to the absence of robust monitoring programs, technological changes in the industry that greatly improved the fleet’s harvesting capacity, and the economic incentives presented to fishers who were able to quickly harvest large quantities of fish in the shortened seasons that placed valuable fisheries at the brink of collapse (Anderson 1994).

Recognizing these problems, economists have long emphasized property rights as the best way to protect natural resources because they reduce the number of potential harvesters, increase efficiency throughout the fishing industry by removing unproductive labor, and give property owners a long-term stake in the resource thereby protecting its sustainability (Arnason 1993; Anderson and Leal 2001). To achieve these benefits, the rights must have clear ownership rules, and it was Coase (1960) who famously argued for transferable property rights with sufficiently low transaction costs for transferring rights to allow for those harvesters with the most capacity to purchase and consolidate rights (Arnason 2005). These assertions outline the “ideal” economic model for fisheries governance— the rights must be well-defined, easily transferrable, and secure by law or custom where the owner can withstand a challenge and maintain the right (Coase 1960; Demsetz 1967; Moloney and Pearse 1979).

 While economists may have come to a conclusion on what constitutes the ideal for creating a new commodity in fishing rights, the sociopolitical acceptability of a property regime depends on the working structure of the fishery (Alcock 2006). For example, a fishery characterized by relatively few vertically integrated firms are more likely to adopt a property rights regime because the industry will be less concerned with distributional outcomes and more focused on improving efficiency and maximizing rents. However, a fishery dominated by independent harvesters will be less likely to support the implementation of property rights because harvesters will be more focused on the potential for negative distributional outcomes to be produced (Alcock 2006). The distributional outcomes concerning independent harvesters include the loss of employment as large and over capitalized fleets consolidate, changes in fishing communities, a loss of bargaining power among crewmembers, and the redistribution of rents across the fishery (Copes 1986; Alcock 2006; Pinkerton and Edwards 2009).

Market advocates see the creation of a limited number of individual property rights to access a natural resource as the preferred way to efficiently harvest that resource over time, but critics of privatization have long argued that individual quota systems privilege economic concerns and give greater political control of a fishery to managers and politicians while placing social and cultural goals in the background (Carothers 2010). These concerns reflect findings from Ostrom (1990) that suggest management policies are less likely to be effective when local goals and values are not taken into consideration during the policy design process. This research further challenges the efficacy of individual quota policies by highlighting the negative distributional outcomes produced for fishing fleets and local communities as quota shares concentrate into relatively few hands over time (Karlsdóttir 2008; Carothers 2011). More specifically, privatization has marginalized traditional and kin-based fishing operations and lifestyles (Eythórsson 1996; Karlsdóttir 2008), broken social networks in fishing communities by producing cultural changes in the types activities pursued by individuals residing in fishing communities (Holen 2014), and created new barriers of entry for younger fishers (Donkersloot and Carothers 2014). In many cases, this alternative perspective tends to reject any attempt to create private fishing rights based on these distributional concerns.

The deeply polarized nature of the debate surrounding the use of property rights as a management tool often generates broad arguments that quickly support or dismiss individual quota systems as the commodification of nature. In doing so, advocates and critics alike can overlook important variations in the design features of these policies. Rather than treating individual quota policies in a monolithic way, this article considers four leading international quota systems to clarify important variations in their design features that affect local communities. It is surprising that so few comparative studies have been conducted to take stock of different IFQ policy’s design features (some exceptions include Batkin 1992; Dewees 1998; Arnason 2005), given that these programs have become a popular solution for maritime governance and they clearly have the potential to create both positive and negative distributional outcomes for industries and communities.

**3.0 Introducing Study Locations**

This section provides a brief introduction to my four cases. Following this section, I first consider New Zealand’s QMS and Iceland’s ITQ systems because both are celebrated for closely aligning with economist’s ideal for what a market-based policy should look like (Arnason 2005). Each system is comprehensive, implemented at the national-level, and different individual fisheries are managed in a relatively uniform fashion under the system. In contrast, the rules and the scope of British Columbia’s and Alaska’s halibut quota systems warrant a separate section of discussion. These two programs operate at the provincial or state-level, and they also lack comprehensive and uniform quota policies like those in New Zealand and Iceland. Rather, the specific fisheries (e.g., halibut, cod, or crab) in British Columbia and Alaska are managed by a multitude of different quota policies that each contain distinctive rules to govern extractive behavior. The fishery-by-fishery approach found in British Columbia and Alaska may partially explain the diversity of rules found in different quota programs, especially those that focus on providing more equitable distributional outcomes for local fishers.

Prior to moving forward with the analysis of each location’s policies, the key features of individual quota programs are summarized here. Some of the most important aspects of individual quota programs include the process of setting total catch limits for each fishery, the allocation of initial quota shares, deciding the type of entity (e.g., individuals or vessels) that is eligible to own quota shares, the rules for transferring quota shares, and limits on the amount of quota that each entity may own. These rules affect distributional outcomes among the fishing industry and local fishing communities by determining who can own quota shares and the extent to which shares can be consolidated (Moloney and Pearse 1979). Table 2 below captures the degree to which these rules vary in my four cases.

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| **Table 2: Snapshot Comparison of Individual Quota Programs** |
|  | New Zealand | Iceland | British Columbia | Alaska |
| Implementation Date | 1986 | 1990 | 1991 | 1995 |
| Owner Eligibility | Individuals and firms | Licensed fishing vessels, individuals, and firms | Licensed fishing vessels | A-shares owned by non-individual owner entities; B-D shares owned by individuals  |
| Quota Ownership Limits | Up to 45% for an individual stock and 20% for an individual species | No more than 12% for all species, 12-35% limit for individual species | 1% for halibut | 1% sablefish and 1.5% for halibut |
| Transfer Rules | Quota shares are transferable with very few restrictions | Some initial restrictions on transfers; post-1990 ITQ-shares are perfectly divisible and transferrable with few restrictions | Initial quota shares were not transferable from 1991-1992; quota shares became temporarily transferrable in 1993; in 1999 a provision allowed for quota shares to be transferred permanently | Initial quota shares could not be transferred between vessel classes sizes, but a 1996 amendment allows shares to be transferred down in vessel class size |
| Security | Quota shares are held in perpetuity and recognized as formal property under the law | ITQ system is uncertain and can be abolished without compensation, but TAC-shares are secure and protected by law | Quota shares held in perpetuity, but not recognized as formal property under the law | Quota shares held in perpetuity, but not recognized as formal property under the law |

**4.0 New Zealand and Iceland—Closer to the Economic Ideal**

*4.1 New Zealand’s Quota Management System*

New Zealand’s commercial fisheries have undergone several regulatory changes since the 1970s, but the idea for an individual quota system became viable in the 1980s when the nation’s inshore fishery stock levels were rapidly decreasing. New Zealand was also amidst a financial crisis in the early 1980s, leading the national government to privatize several industries and rely on free market forces to turn around the failing economy (Boyd and Dewees 1992). These dynamics drove the national government to fully develop the deepwater fisheries in its EEZ to increase the rents returned from all of the nation’s fishery resources, and implement its QMS in 1986 which created a new management structure in both the inshore and offshore fisheries (Batkin 1996; Dewees 2008).

The QMS was implemented to stop overharvesting in the inshore fisheries and prevent a similar occurrence in the newly formed deepwater fisheries. To achieve this, the QMS issued a moratorium on new fishery entrants, removed part-time fishers, and distributed quota shares to incumbent users but also corporations that could develop the deepwater fisheries (Dewees 2008, 37). Both individuals and firms may participate in the QMS by acting as a quota owner, lessee, or lessor (Stewart et al., 2005). Quota shares for both the inshore and offshore fisheries were allocated to harvesters on the basis of their commitment and historical responsibility to the fishery, and the amount of quota that an owner-entity received was based on harvester’s catch records from 1982-1984 (Batkin 1996; Lynham 2014).

Consistent with the free market ideal, shares owned by individuals or firms in New Zealand can be bought and sold with little restriction. Quota shares are divisible and additive which gives owners flexibility to sell a portion of their quota or their entire holdings as a block (Lock and Leslie 2006). These design features closely adhere to economist’s guidelines because greater transferability allows for those harvesters with the greatest capacity to harvest fish at the lowest cost to purchase additional quota shares (Arnason 2005). The driving assumption is that the most efficient harvesters will naturally be those with the greatest capital resources to purchase shares as they become available

In New Zealand, quota shares have a high level of security—they are held in perpetuity with the exception of the rock lobster fishery—and the national government recognizes quota shares as formal property under the law. This rule closely adheres to the ideal economic model because quota owners can rely on their access rights in efficiently planning for future harvesting investments, and they are able to withstand challenges from individuals or the government to the rightful ownership of the property (Bastone and Sharp 1999). Quota shares were initially allocated in metric tons of fish rather than a percentage of the TAC. In order to change the TAC, the government had to enter the quota market and buy back shares at market prices. When the national government wanted to raise the TAC, they would auction off additional shares for revenue (Dewees 2008). The cost of entering the quota market to buyback quota shares was unmanageable, and in response, new legislation was passed to redefine quota shares in terms of a percent of the TAC in 1999. This is a more commonly used practice because it allows for the TAC to be modified on an annual basis and quota share owner’s holdings change proportionally as a result.

Another feature of New Zealand’s QMS that closely aligns with the ideal economic model are its high quota aggregation limits. Limits are placed on both fish stocks and species where stock ownership limits range from 10-20% and the limits for individual species sit at either 35% or 45%.[[1]](#footnote-1) Aggregation limits vary by species because of their relative profitability, the available information about the condition of the biological stock, and more. The QMS allowed for high ownership limits in order “to encourage deepwater fishery development and to maintain the pre-QMS history in which the largest 10 vertically integrated companies landed two-thirds of the fish” (Dewees, 2008, 50).

In sum, New Zealand’s QMS demonstrates a strong preference for market-based management with relatively few limits on the new market to protect small fishers. Modifications to the policy like redefining quota shares as a percentage of the TAC progressively removed the government’s hand in the industry by not requiring the government to enter the quota market to buy back shares to reduce the TAC. At the same time, however, this new rule weakened the QMS’s reliance on market forces by giving the government more control over the size of TAC year-to-year. The ability of quota owners to divide and easily transfer their shares also facilitated the consolidation patterns listed above. While advocates of privatization celebrate these practices for their ability to professionalize the fishing industry and increase efficiency, critics have long argued that these features spur negative distributional outcomes that negatively affect local fishers.

*4.2 Iceland’s Individual Transferable Quota System*

Prior to the implementation of Iceland’s ITQ system, its national fisheries were governed by a combination of gear restrictions, area closures, and license limitation programs that sought to control fisher’s harvesting efforts (Chambers and Carothers 2017). However, similar to New Zealand, Icelandic fishery managers were motivated to implement an individual quota system when the rate of harvest under traditional regulations placed valuable commercial fish stocks at risk. As stocks became increasingly at risk for collapse, different interest groups like policy-makers, parliamentarians, and leaders from fishing communities became involved in conversations on how to best move forward Icelandic fisheries governance. In these discussions, individual quotas emerged as the primary solution under consideration, leading the Icelandic Parliament to pass an amendment that gave the Ministry of Fisheries the power to implement an individual quota system in 1983.

Iceland’s ITQ system was implemented in 1984 for a one-year trial period with the goal of restricting the size of each fisher’s harvest, improving the long-term sustainability of the nation’s commercial fisheries, and making both harvesting and processing more efficient for demersal or bottomfish fisheries (Kurien 2000). Iceland first incorporated its demersal fisheries into an ITQ program to protect valuable demersal commercial fish species such as cod that were on the brink of collapse. Although the ITQ system was put forth as the primary policy option, Iceland had to limit the extent of the new market to gain greater political support in Parliament (Kurien 2000). The original policy design included a rule that protected smaller harvesters by allowing vessels between 6 and 10 Gross Registered Tons (GRT) operating in the demersal fisheries to abide by earlier gear restrictions and operate under a fleet quota rather than receiving ITQ-shares (Runolfsson and Arnason 1997). This rule protected smaller operations, garnering political support among policymakers and fishers alike for allowing the existing dual system of local-national management to continue (Kurien 2000). Keeping this “inefficient” rule became less attractive in 1990, however, when Iceland implemented a comprehensive quota system for all fisheries due to observable improvements in the demersal fisheries stocks (Arnason 2005; Karlsdóttir 2008). The 1991 Fisheries Management Act eliminated the provision protecting small vessels from the ITQ system, at which point the ITQ system expanded incorporated vessels between 6 and 10 GRT (Pálsson and Helgasson 1995), bringing it closer to the economic ideal of secure, transferable and universal rights to the nation’s fisheries.

As summarized in Table 2, initial quota shares were allocated to fishers based on past historical catch records over a three-year averaging period prior to 1984 (Arnason 2005). Licensed fishing vessels, individuals, and firms can hold permanent quota shares for any species, and shares are quantified in terms of a percent of the TAC for a fishery, rather than for an absolute quantity of fish as was initially done in the New Zealand case. Thus, in Iceland “the size of each vessel’s annual catch quota in a specific fishery is a simple multiple of the TAC for that fishery and the vessel’s TAC-share.” (Arnason 2005, 252). Both individuals or corporations can buy and sell quota for a given species, though they are capped at owning 12% of quota for all species or 35% of a single species (Karlsdóttir 2008). By allowing for high quota aggregation limits, Iceland’s ITQ system provides an opportunity for the most efficient harvesters to consolidate quota shares into relatively few hands for a given fishery.

Contrary to the ideal economic model, however, initial ITQ-shares from 1984-1990 could not be transferred. Even so, vessel owners found a loophole in this restriction by selling the vessels to which the non-divisible ITQ-shares were attached (Pálsson and Helgason 1995). Nevertheless, this rule was included in the ITQ program to give harvesters a window of time to adjust to the new program and eventually make more informed market decisions with their quota shares. When the ITQ program was extended in 1990, these limits on transfers were dropped, thereby ensuring the efficient distribution of shares across the industry. As noted earlier, an often stated economic justification for high quota ownership limits and easy transfers is to allow for the most efficient harvesters to take over the industry.

A final rule worth noting in Iceland is the requirement that all vessels harvest at least 50% of their annual quota every other year or forfeit their quota shares (Arnason 2005). This rule aligns with economist’s expectations for an individual quota program by preventing speculative transfers of quota shares and keeping genuine fishers operating at full capacity to minimize industry profit loss, but it also protects active fishers and quota ownership in local communities by not allowing for latent quota holders. Overall Iceland’s ITQ system demonstrates a strong preference for market-based governance and closely adheres to the economic ideal. Similar to New Zealand, the ability of quota owners to easily divide and transfer their quota shares, as well as own a relatively large amount of the quota for a given stock or species, allows the industry to become vertically integrated.

**5.0 Quota Programs in the North Pacific**

*5.1 British Columbia*

Contrasting the individual quota programs found in New Zealand and Iceland, various policies in the North Pacific have stronger features designed to protect local communities and smaller fishing operations. In this discussion, I focus on two such programs—British Columbia and Alaska’s halibut quota programs—as informative distinctions for fisheries governance. There are multiple fisheries in British Columbia and Alaska managed by individual quota programs, but I focus on their commercial halibut fisheries because they share similar biological features and have a long tenure of being jointly managed by the International Pacific Halibut Commission (IPHC) which sets the TAC for each nation’s halibut fisheries (Pinkerton and Edwards 2009).

Prior to an individual quota system, British Columbia managed its fisheries by changing the season length and implementing geographical catch restrictions, thereby creating a derby fishery (Casey et al., 1995). Derby-style fisheries develop when managers shorten season lengths in an effort to reduce the amount of resources being harvested but do not also control the quantity each harvester is eligible to catch. These dynamics create perverse incentives for harvesters to race to fish, placing crew member’s lives in danger as vessels take greater risks to maintain their prior rates of harvest (Anderson 1994; Buck 1995). These conditions worsened in 1977 when the United States and Canada ratified the Law of the Sea that created a 200-mile EEZ for each nation. As a result of this legislation, the Canadian halibut fishing fleet underwent significant geographical redistribution as vessels turned south from Alaska and began fishing in British Columbia’s waters, threatening halibut resources and making it apparent to fishery managers that the fleet’s harvesting capacity was outpacing biological stock reproduction (Butler 2008).

 In response, British Columbia implemented a limited license program in 1979. This policy reduced the number of operators eligible to harvest halibut to 435 unique vessels in an effort to slow harvesting rates (Casey et al., 1995). The province also further shortened the length of the fishing season, but halibut catch records in the early 1980s indicated that 50% more halibut was caught in a six-day season than earlier seasons that extended over 65 days (Casey et al., 1995; Butler 2008). The coupled observations of biological stock collapse and derby fishing made it obvious that the existing regulations for British Columbia’s halibut fisheries were not working to protect fishery resources or the fleet’s safety. Reacting to these changes, fishing organizations across the province began to discuss alternative management options in the late 1980s, one of which was an individual quota system. The Canadian Department of Fisheries and Oceans sent out an initial survey to existing license holders in the halibut fishery (n=435) to gauge the industry’s support for an individual quota system. The initial survey demonstrated a majority of license holders supported the policy with 77% of license holders approving such a program (Casey et al., 1995). After receiving a positive response from existing license holders, the Canadian Department of Fisheries and Oceans formed the Halibut Advisory Board to incorporate the industry's input to the policy design process (Casey et al., 1995). Despite support from license owners, however, the proposal for an IVQ system was voted down twice by local fishers and processing companies due to concern for the program’s potential distributional impacts (Pinkerton and Edwards 2009). Individuals and processing companies were concerned that an individual quota system would consolidate quota shares into relatively few hands, displacing fishers who had a long operating tenure in the fishery. These concerns influenced the design of quota aggregation limits that will be discussed in greater depth below.

In 1991, British Columbia implemented an IVQ system for a two-year trial period with low quota aggregation limits to ease concerns in the industry that quota shares would rapidly consolidate. The new IVQ program capped vessel ownership of quota shares at 1% of the TAC (Pinkerton and Edwards 2009). This is a stronger limitation on quota transfers and aggregation compared to New Zealand and Iceland. In practice, however, British Columbia’s IVQ system does not fully prevent the concentration of quota shares because IVQs are attached to vessels and not individuals. This loophole allows an individual to own multiple vessels and consequently multiple licenses (Pinkerton and Edwards 2009). This was also a common practice in Iceland prior to 1990 where individuals would consolidate ITQ holdings by selling the vessels that they were attached to—sometimes at two to three times the vessel’s actual value (Pálsson and Helgason 1995). Similar practices are not common in Alaska where quota shares are attached to individuals rather than vessels, a point I will return to in the final section.

In 1991, the TAC was divided among the 435 licensed vessels operating under the 1979 system. The amount of quota that each vessel received was primarily based on their catch history from 1986-1989 (Dewees 1998). In another deviation from the economic ideal, quota transfers were only allowed on a temporary basis to allow fishery and industry participants a period of time to adjust to the new system (Dewees 1998). These rules were changed in 1999, however, and quota shares can now be permanently transferred so long as the ownership cap is not surpassed (Pinkerton and Edwards 2009).

In sum, British Columbia’s IVQ system includes some features that significantly deviate from the ideal economic model. Both Iceland’s ITQ system and British Columbia’s IVQ system limited initial transfers, but British Columbia’s low aggregation limits constitute an important deviation from the ideal economic model as they intend to prevent the consolidation of quota shares to the most efficient harvesters thereby protecting small operators and coastal fishing communities. Nevertheless, the rules contained in the IVQ system do not prevent the ownership of multiple vessels and thereby multiple quota shares (Pinkerton and Edwards 2009). Overall, British Columbia’s IVQ system contains some noteworthy distinctions, but it falls short of strongly deviating from the free market ideal. Consequently, this article now turns to Alaska’s halibut and sablefish IFQ program which does the most to protect local fishing interests.

*5.2 Alaska’s Halibut and Sablefish IFQ Policy*

Alaska is home to several marine privatization policies, but the 1995 halibut and sablefish IFQ program distinguishes itself from other quota share programs because of its incorporation of rules meant to explicitly protect smaller operators in the Alaskan fishing fleet and fishing communities. This section details the Alaskan case, drawing insight from semi-structured interviews (n=13) with individuals representing Community Development Quota organizations, the North Pacific Fisheries Management Council (NPFMC), the National Marine Fisheries Service (NMFS), the Bering Sea Fishermen’s Association, and Alaskan halibut fishers. Participants were selected via snowball sampling (Bernard 2006). Interviews were complimented with archival methods that focused on gathering and analyzing secondary data sources such as state and federal level natural resources governance laws and management reports. This process of data collection and analysis compliments the use of semi-structured interviews by connecting what participants say to historical evidence (Wu 2002, 84).

 Alaskan fisheries governance changed dramatically in 1976 when Congress passed the Magnuson-Stevens Fishery Conservation and Management Act (the Magnuson-Stevens Act). Consistent with the recently signed international Law of the Sea, the Magnuson-Stevens Act removed foreign fishing vessels prosecuting fish off the nation’s coastline, expanding the size of the domestic fleet operating in Alaskan waters. The Magnuson-Stevens Act also created eight regional management councils to oversee the fisheries within the nation’s new EEZ, including the North Pacific Fisheries Management Council (NPFMC) to manage fisheries in Alaskan, Oregon, and Washington waters. The NPFMC is responsible for developing regulatory decisions, such as fishery management plans (FMP), that establish rules for each management area. Alaska has eight management areas across the state—2C, 3A, 3B, 4A, 4B, 4C, 4D, and 4E. Typically, the NPFMC will work alongside the National Marine Fisheries Services (NMFS) and the National Oceanic and Atmospheric Administration (NOAA) to develop a FMP. Once completed, all FMPs undergo review by the U.S. Secretary of Commerce. If a FMP is approved, the U.S. Secretary of Commerce will act through the NMFS at the federal-level to implement and enforce the FMP.

In the late 1970s, the NPFMC worked to create a FMP for each commercial fishery species beyond three nautical miles of Alaska’s coastline (Patuzke and Oliver 1997). Initially, Alaska’s halibut fisheries were managed like other international fisheries with gear restrictions, catch limitations, and changing season lengths. By the late 1980s, however, it was evident that current plans creating derby-style fisheries were not working. In response, the NPFMC began to deliberate to find a new approach to limit fisher’s access to resources, slow harvest rates, and improve the fleet’s safety (Pacific Halibut Fisheries 1993). At that time there were four policy options on the table: the status quo, license limits that would cap the number of harvesters but not specify the amount of fish each harvester was eligible to take, IFQs, or annual fishing allotments that allow harvesters to land a specified amount of fish during the season but do not denominate allotments in terms of a percentage of the TAC (Pacific Halibut Fisheries 1993). In 1988, the NPFMC decided the status quo governance option was unacceptable, and the potential policy options were narrowed to license limitations and IFQs. The NPFMC was concerned that license limitation would not reduce the size of the fleet in an equitable manner, however, because these policies keep derby-style fisheries operating by not specifying the amount of fish each harvester can take, forcing the NPFMC to allow as few harvesters as possible. Consequently, the NPFMC began to work towards implementing an IFQ program for the state’s halibut fisheries in January 1990 (NPFMC 2016). Over the next few years, Alaska’s IFQ program proposal underwent several impact assessments, public comment periods, and reviews by the U.S. Secretary of Commerce. In January 1993, the proposed halibut and sablefish IFQ program was recommended for implementation, and the IFQ program was implemented in 1995.[[2]](#footnote-2)

 The more unique provisions included in Alaska’s IFQ program expanded upon below were influenced by the nature of the Alaskan halibut fleet, which was dominated by independent harvesters, making it difficult to garner support for a property regime (Alcock 2006). As one fishery manager explained:

*“Anyone could jump in a skiff and catch halibut, and so implementing a catch share program in response to all of the normal problems in the fishery that catch share programs are meant to address was you know…it seemed good from a management perspective but because there were so many participants in a fishery and such a diverse fleet it was challenging to develop and implement a program and then of course figure out eligibility for qualification of quota share and all of those things.”*

The record of public commentary filed with the Federal Register (see Pacific Halibut Fisheries 1993, 5983-5987) also provides insight to the politics of the IFQ proposal where individuals vocalized their concern over the fairness and potential effects of the state’s proposed IFQ policy:

*“The IFQ plan is unfair because it would take a public resource worth millions of dollars that everyone has access to and give it to a privileged few. This would unfairly force traditional small-boat fishermen out of the fishery and replace them with large corporations, or like other limited entry programs, will result in rich doctors and lawyers having the permits.”*

*“The IFQ program does not privatize ownership rights to individual fish stocks but only to the right to harvest certain species. Therefore, the ‘race-for-fish’ problem is not solved but limited to a privileged and protected group.”*

*“The IFQ system would be extremely detrimental to Alaskans residing in coastal communities. The halibut fishery is characterized by a large diversified fleet of relatively small vessels that are based in, and deliver their catch to, numerous ports within Alaska. Alaskan coastal communities are economically dependent on this large fleet of small family-owned fishing vessels.”*

To critics of privatization the concerns listed above are expected because the distribution of limited use rights necessarily restricts access to the resource and redistributes wealth to only a few (Copes 1986). However, the NPFMC’s final design for the IFQ program contradicts the expectations of both privatization’s proponents and critics alike. Three excerpts from NMFS’s filings with the Federal Register (see Pacific Halibut Fisheries 1993, 5983-5987) illustrate this point:

*“To be consistent with the "fairness and equity" criterion, an allocation should be rationally connected with the achievement of [optimal yield] OY or with the furtherance of a legitimate [fisheries management plan] FMP objective. Otherwise, the inherent advantaging of one group to the detriment of another would be without cause. In addition, an allocation of fishing privileges may impose hardships on one group if they are outweighed by the total benefits received by another group.”*

*“As indicated in the Final Supplemental Environmental Impact Statement (FEIS) (sec. 6.1), economic benefits to the United States are expected from the IFQ program. Although they are not maximized in deference to social concerns.”*

*“Consideration of the social and cultural framework of the fishery resulted in numerous constraints imposed on the transfer and use of quota shares and IFQ. These constraints will be costly in terms of foregone economic efficiency of the fleet but are nevertheless necessary to prevent undue disruption in the social and cultural framework of the halibut and sablefish fisheries.”*

Reflecting other international quota programs, Alaska allocated quota shares to individual fishers on the basis of their past prosecution and tenure in the fishery. To receive initial quota shares, fishers needed to make legal landings with fixed gear from 1988-1990. Similar to Iceland, the first halibut allocations were based on the average weight of the historical catch for five out of six years during 1984-1990. This allowed individuals to choose their best five years within the given period to earn their assigned quota shares (NMFS 2016). The extended eligibility period for initial quota did not necessarily impact distributional outcomes, but it did increase the number of eligible fishers because individuals were not disqualified for a season where they did not fish due to necessary equipment repairs, illness, or other unforeseen circumstances.

Consistent with the arguments above from the regulatory filing, Alaska’s IFQ policy includes several unique features designed to protect the interests of local communities and Alaskan operators. One interviewee explained “they [the NPFMC] needed to be sensitive to the fact that we are privatizing a commonly held resource.” As a result, vessel size classes were used to protect the diversity of the halibut and sablefish fleets by keeping a high number of independent harvesters operating. Alaska’s IFQ policy contains four vessel categories (A-D) for harvesting halibut quota shares and three (A-C) for harvesting sablefish quota shares that are determined by the length of the vessel (NMFS 2016, 24). A-shares are harvested on freezer vessels of any length; B-shares are harvested on vessels greater than 60’; C-shares are harvested on catcher vessels less than 60’ for sablefish and between 35’-60’ for halibut; D-shares are harvested on catcher vessels less than or equal to 35’ for halibut quota shares (NPFMC 2016, 25). A-shares to be harvested on freezer longliners that catch and process fish at sea may be owned by non-individual entities like corporations, but B, C, and D-shares for sablefish and halibut that are harvested with catcher vessels are only eligible to be owned by individuals. The allocation of A-shares to corporations reflected the fleet’s existing structure because freezer vessels are relatively large in size (120’ or greater) and a full crew is needed to operate them. Interviewees described this feature in their own terms stating, “the idea was to provide the most flexibility to the smaller operators thinking that in an IFQ system they may be potentially disadvantaged to purchase quota share,” and that vessel size categories act as a “vehicle for a lot of the sort of management of social or local regional economic impacts.”

Further contrasting the ideal economic model, the original regulations did not allow for quota shares to be transferred between vessel class sizes. In 1996, however, the NPFMC added an amendment that allowed for quota shares to be transferred down in vessel class size. These changes to halibut and sablefish quota share transfer rules for B, C, and D vessel class sizes offered the greatest flexibility to the smallest group of operating vessels (D-shares) because quota shares can be fished down in vessel size but not up (NMFS 2016, 20). This provision works to protect the smallest class of operating vessels that act as a proxy to represent costal Alaskan fishing communities. This rule contrasts New Zealand’s IVQ system where the primary restriction on quota transfers is that they cannot be sold or gifted to foreigners (Arnason 2005).

In order to maximize the number of potential shareholders that would have access to the halibut fisheries, the NPFMC included the Modified Block Proposal and set low quota aggregation limits to protect smaller entities and part-time fishers (NPFMC 2016, 44). The Modified Block Proposal required initial allocations to fishers less than 20,000 lb. to be issued as a single block of quota, while shares greater than 20,000 lb. were unblocked. Blocked quota shares cannot be separated, and they must be transferred as a whole unit. Fishers can own up to three blocks of halibut quota per regulatory area, and those fishers holding any amount of unblocked quota are capped at owning one block of quota per area (NMFS 2015, 9). In Alaska, an individual may not own more than 1% of the TAC for sablefish and 1.5% for halibut. In the southeastern regulatory zones, the quota ownership limit was set even lower at .5% for halibut. This additional restriction was set in place because the southeastern region of Alaska is home to several small fishing communities and has a high number of local operators. While these aggregation limits are similar to British Columbia’s IVQ system, Alaska’s quota shares are tied to the individual and not to vessels which protects against a person’s ability to consolidate quota shares under vessel purchases.

Alaska’s IFQ program requires all new quota owners to be onboard the vessel during the time of harvest. Such a provision intends to prevent mailbox fishers—individuals that own quota shares and profit from their ownership but do not harvest quota shares during the season—from taking over the fleet and help support local fishing communities. As one interviewee explained, “the owner onboard stuff was important to avoid what has now happened in British Columbia where it is just a share cropper fishery where all they do is lease it out,” and over 79% of the province’s halibut TAC was leased on an annual basis by 2006 (Pinkerton and Edwards 2009). However, this rule does not apply to individuals that received initial shares who can use a hired skipper. This loophole was created for initial owners because at the time of the program’s implementation some halibut and sablefish fishers borrowed or fished on vessels that they did not own outright. The rule aimed to protect the existing harvesting practices of some of the fleet so as to not further disrupt the industry. Table 3 below compares the 2000 and 2014 year-end distribution of quota shares by owner type across all management areas in Alaska. While the use of hired skippers in the halibut fishery has increased considerably since the program’s inception, partly due to the aging of initial recipients and an incentive for initial recipients to collect revenues for IFQ landings without incurring the cost or risks of harvesting (Szymkowiak and Himes-Cornell 2015, 2017), these data suggest that the active participation rules included in Alaska’s halibut IFQ program have been relatively effective given that the largest portion of quota shares are owned by individuals.

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|  **Table 3: Halibut Quota Share Holdings by Owner Type in 2000 and 2014** |
| **Areas** | **Owner Type** | **2000 Total Quota Share Holdings** | **2014 Total Quota Share Holdings** | **Change in Total Quota Share Holdings** | **Change Total Quota Share Holdings (%)** | **2000 Quota Share Holdings (%)** | **2014 Quota Share Holdings (%)** |
| All Management Areas | Corporation | 68,389,866  | 55,352,871  | -13,036,995 | -19.1% | 20.6% | 8.8% |
| Individual | 226,477,344  | 525,146,678  | 298,669,334  | 131.9% | 68.4% | 83.2% |
| Skippers | 29,332,432  | 43,975,919  | 14,643,487  | 49.9% | 8.9% | 7.0% |
| Other\* | 7,058,693  | 7,052,910  | -5,783 | 100.0% | 2.1% | 1.1% |
| Total | 331,258,335  | 631,528,378  | 300,270,043  | 90.6% | 100.0% | 100.0% |
| \*Other represents a compilation of other small owner categories (e.g., Community Quota Entities, partnerships, trusts, etc.). Source: NMFS (2015). |

Using a hired skipper is not legally equivalent to a formal lease of quota shares. While any portion of an A-share holding may be leased during the year, leases on catcher vessel holdings are subject to greater restrictions (NMFS 2015). There are a few situations where catcher vessel shares can be leased, including circumstances like medical transfers or military leave. Rules that permit temporary transfers and leasing are justified on standard economic terms because they allow for short-term reallocations of quota to those fishers that are willing to fish and most able to pay for the shares (Alcock 2006). Table 4 below provides broad data on halibut quota share leasing activity from 1995-2014.

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|  **Table 4: Halibut Quota Share and Lease Information, 1995-2014** |
| **Areas** | **Year** | **Year-End Quota Shares** | **Leased Quota Shares** | **Quota Share Lease Rate (%)** | **Year-End Persons\*** | **Unique Lessors** | **Lessor Rate (%)** |
| All Management Areas  | 1995 | 326,864,917  | 2,516,123  | 0.8% | 6,730  | 30  | 0.4% |
| 2014 | 331,556,698  | 12,260,115  | 3.7% | 3,246  | 124  | 3.8% |
| Avg. (1995-2014) | 331,162,263  | 5,544,399  | 1.7% | 4,486  | 65  | 1.5% |
| \*This count is not representative of unique owners. Rather, an individual that owns quota shares in multiple management areas is counted in each area where their shares are held. Source: NMFS (2015). |

These data demonstrate there have been a limited number of lease transactions during the program’s first twenty years for catcher vessel shares. Leasing rules often raise distributional concerns because fishers leasing quota from owners receive significantly less rent from the catch while incurring all of the operating costs (Pálsson and Helgason 1995), disproportionately redistributing rents from crewmembers and hired skippers to quota owners where the latter are the primary beneficiaries.

**6.0 Discussion**

Alaska’s halibut and sablefish IFQ program is considered to be a management policy founded upon neoliberal preferences for free markets and strong property rights (Carothers 2008, 2011), but the comparative analysis presented here clarifies important policy distinctions that can be missed when market-based policies are too quickly celebrated or rejected as tools of commodification. Alaska’s IFQ program includes unique rules that worked to prevent IFQs from being consolidated through the transfer or sale of quota shares—rules that emerged from unique socio-political conditions in Alaska and that also appear at the surface to have had some success at protecting the interests of small fishing operators and communities. For example, Alaska’s halibut program allocated shares to individuals and used vessel class sizes to protect the diversity of the fishing fleet and local fishing communities. This decision sharply contrasts New Zealand’s deliberate removal of part time fishers under the QMS in order to prioritize professionalizing the industry, improve efficiency, and increase rents. However, even the most innovative rights-based management programs have limitations on the protections they are able to provide to local communities.

Despite the inclusion of these unique protective rules, the halibut fleet and Alaskan fishing communities have undergone some significant changes (Olson 2011). Prior research acknowledges the inclusion of active participation rules (e.g., owner on board requirements or low quota aggregation limits) that aim to protect opportunities for Alaskan fishing communities, but many see these rules as insufficient for preventing negative distributional outcomes for fishing fleets and local communities (Szymkowiak and Himes-Cornell 2015, 2017). One critique leveraged against these rules was the absence of any place-based requirements for owner residency that would further protect local fishing communities by ensuring quota shares stayed within the region (Carothers 2013). A place-based requirement for quota shares may have had great utility for protecting these communities—over 5.5 million halibut quota share units were sold by individuals residing in small remote fishing communities—in the first few years after the IFQ program’s implementation (Carothers et al., 2010). Although these trends might be alarming for managers, policy-makers, and local fishers, these shares represent approximately 10% of the total quota share transfers from 1995-1999 (Carothers et al., 2010), and the data presented above in Table 3 suggests that individual operators are still the primary group of quota owners.

These findings make it clear that there is uncertainty regarding the full implication of the equity rules contained in Alaska’s halibut IFQ program. Thus, one important question arising from this research is the extent to which equity rules protect Alaskan fishers, and which class of harvesters receive the greatest benefit from these provisions. Halibut fisher’s participation in the IFQ markets varies by individual’s demographic background (e.g., gender, income, age, etc.), but many individuals have sold their quota shares because the amount that they were issued was too small to be economically viable (Carothers 2013). Other fishers sold their shares because they needed money or were looking to retire from the industry (Carothers 2013). In these instances, it is unlikely that protective equity rules would have affected individual’s motivation to keep their quota shares because they were not designed to provide fishers a sufficient and livable income.

Other policy design alternatives that might have offered local fishing communities greater protection post-privatization articulated by some interviewees include an absolute prohibition on leasing of any sort except for A-share holders, the allocation of quota shares to processing facilities in remote fishing communities, and the requirement that owners be onboard regardless of their status as initial recipients of quota shares. Each of these suggestions would move Alaska even further from the ideal economic model. Future extensions of this research should explore what made the architecture of Alaska’s IFQ program politically viable given their strong deviation from the ideal economic model for fisheries governance. It is also necessary to understand the full implication of the equity rules contained in these policies to explain the extent to which they are able to support Alaskan fishers and fishing communities deal with the negative impacts brought on by privatization. The insights generated from such an analysis would also have policy design and management implications for locations with quota share programs beyond Alaska.

**7.0 Conclusion**

IFQ policies are divisive, but the comparative approach deployed here explains how quota share policies can vary in important and sometimes surprising ways. Alaska’s halibut IFQ program is not only distinct from other policies considered here, but it also contains surprising inconsistencies to what we might expect to see out of a market-based policy because it explicitly foregoes wealth maximization. The results presented here suggest that important variations in policy design features can be missed when individual quota programs are broadly advocated or dismissed as the commodification of nature which can have broader impacts on distributional outcomes for the associated fishing industries and local communities. Thus, there is a need for greater research to understand how these design features work in practice as well as the political conditions that made them viable. This is especially true for Alaska where the efficacy of specific rules based on principles of social justice remain under explored.

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1. New Zealand FishServe: <https://www.fishserve.co.nz/information/quota-shares> (accessed January 11th, 2017). [↑](#footnote-ref-1)
2. Halibut and sablefish were coupled together in the same program because both fisheries were overcapitalized, there was a sense of urgency to solve the management problems in each fishery, and the fisheries are harvested in a relatively similar fashion. [↑](#footnote-ref-2)