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## Thirty years after privatization: A survey of Icelandic small-boat fishermen

Catherine Chambers<sup>a,b,\*</sup>, Courtney Carothers<sup>c</sup>

<sup>a</sup> University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, 905 N. Koyukuk Drive, 245 O'Neill Building, Fairbanks, AK 99775, United States

<sup>b</sup> Hólar University College & Blönduós Center of Research and Collaboration, Árbraut 31, 540 Blönduós, Iceland

<sup>c</sup> University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, 1007 West 3rd Ave, Suite 100, Anchorage, AK 99501, United States

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### ABSTRACT

Iceland's nationwide privatized Individual Transferable Quota (ITQ) system is over thirty years old but remains a topic of public and political debate, particularly because of the continued effects on small-scale fisheries. A national survey of small-boat fishermen was distributed to: (1) identify major defining characteristics of participants in ITQ and non-ITQ fisheries, (2) document and examine differences in satisfaction with fisheries management, and (3) evaluate the existing options for newcomers to participate in small-boat fisheries. Survey results indicate that Icelandic small-boat fishermen are engaged in multiple management systems within a wide range of boat sizes. Those who held quota were more satisfied with the current ITQ system compared to those who did not hold quota; however, nearly all fishermen were still critical of fisheries management in Iceland and the two major non-ITQ options of lumpfish and coastal fishing were not perceived to offer significant opportunity for entry-level fishermen. Dissatisfaction stemmed from the lack of decision-making power, a distrust of scientific advice, and the perception that the ITQ system did not serve the purpose of protecting fisheries resources, but was rather oriented only toward economic goals. The dynamic nature of Icelandic small-boat fishing livelihoods and the pervasive negative attitudes thirty years after ITQ implementation demonstrate the need for culturally appropriate and equitable fisheries management schemes where success is measured in social as well as economic and biological terms.

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### 1. Introduction

The privatization of access to marine resources represents a dramatic shift in the ways human societies have traditionally organized around marine resources. Under privatized fisheries, the right to fish, once governed by commons arrangements, becomes a limited and tradable commodity. The push for privatization of marine resources began in the early 1950s with the development of fisheries economics and bio-economic modeling [1,2]. In this emerging view of fisheries, overcapitalization was a major problem that led to inefficiencies in the system as too much capital was used to catch fish, dissipating the potential aggregate wealth and potentially threatening the long-term viability of fish stocks. The primary justification behind the implementation of privatization schemes is therefore to reduce overcapitalization by making the right to fish a private commodity [3–8] so that less efficient fishermen sell out of the system, theoretically resulting in a more economically-efficient fishery.

This framing of fisheries that puts economic efficiency as the primary goal can minimize other important social aspects of fisheries systems. In particular, small-scale fishing operations and rural coastal communities can be irreversibly and disproportionately impacted by the transformations generated by fisheries privatization schemes. For example, crew and boat owners lose jobs as increasing costs force small-boat owners to sell fishing rights [9], remaining crew receive less shares [10] or become wage laborers [11], women and migrant workers lose jobs when small-scale on-shore processing facilities close due to decreases in fish deliveries [12], local fishing practices and values become marginalized [13,14], and existing social inequalities in rural communities can deepen, causing tension between those who hold fishing rights and those who do not [15].

As research exploring the social impacts of privatized fisheries continues to accrue [11,16,17], there is evidence that the logic behind privatization—that individuals are inherently self-interested profit-maximizers—does not apply to all small-scale fisheries. Individual private property mechanisms are based on a largely asocial view of how people organize around resources [18,19], and small-scale fishers are constrained by, and operate under, complex cultural, political, and historic aspects in addition to economic

\* Corresponding author.

E-mail addresses: [cat@mail.holar.is](mailto:cat@mail.holar.is) (C. Chambers), [cicarothers@alaska.edu](mailto:cicarothers@alaska.edu) (C. Carothers).

considerations [e.g., 20–23]. Fisheries can be a way to make only a small amount of money without the intent to increase production or build up status [24], a flexible opportunity to maintain income in times of few options [20], a rural livelihood that blends small commodity and subsistence production [25], and an activity that weaves together cultural, familial, and historic ties to a way of life not fully centered on commercial gain and full engagement in commercialized fisheries [26]. Small-scale fisheries worldwide are therefore important to creating and maintaining community sustainability through flexible arrangements that respond to local social and environmental conditions [23,27].

This paper explores the current status of Iceland's small-boat fisheries within the larger context of a national fisheries privatization system to provide a better understanding of the ways privatized fisheries management affects small-boat fishermen's ability to engage in culturally and historically important livelihoods. Privatized access fishery systems can take on many forms and vary greatly in their specific regulations on transferability, species covered, initial allocation, boat sizes, etc. In Iceland, the variation in possible management structures combined with the ease of enacting policies for a comparatively small population of fishers has led scholars, politicians, and others in the public sphere to remark on the "experimental" nature of fisheries privatization [28–32]. In fact, at the time of implementation, the ITQ system was often referred to as a temporary measure to protect fish stocks. Thirty years after fisheries privatization changes began, this so-called experiment has generated dramatic transformations that are still unfolding. Recent scholarship regarding Iceland's fisheries privatization has focused on human rights and the legality of the ITQ system [33], the involvement of stakeholders and power imbalances in the management process [28], the changes in longline fishing practices [34], and fisherwomen's experiences of change [35]. This paper explores the current status of the Icelandic ITQ system with particular focus on small-boat fisheries and fishing livelihoods. First, this paper documents the basic characteristics of individuals participating in the major small-boat fisheries. Second, it explores fishermen's satisfaction with the current management arrangements and examines how individuals take part in governance processes. Third, it assesses the ability of Iceland's small-scale fisheries to support entry-level fishermen. This research aims not to evaluate the effect of Iceland's privatized management system on small-boat fisheries *per se*, but to understand the legacy of past fisheries management decisions, or "experiments," for individuals who are currently participating in small-boat fisheries.

## 2. Icelandic fisheries

Iceland was one of the first countries to develop a nationwide privatized ITQ system, in which fishermen or companies can buy and sell fisheries quota, which is a percentage of a yearly total allowable catch (TAC) of one species [36]. Before the ITQ system, Icelandic fisheries were managed by various combinations of gear restrictions, area closures, licensing, effort restrictions and catch quotas, and were subsidized by the Icelandic government with mechanisms such as loans from public funds and debt restructuring [6,12,30]. First instituted with transferability restrictions in the early 1980s to demersal species, the ITQ system became fully transferable and was expanded to the majority of commercial fish species for boats over six gross registered tonnage (GRT) with the 1990 Icelandic Fisheries Management Act, while boats under six GRT were exempt [36]. In general, quota for each species was allotted to vessels based on their fishing record in the three years prior to ITQ implementation. For all species in the ITQ system, the Marine Research Institute (*Hafrannsóknastofnun*) gives official scientific advice and final TAC decisions are set by the

Minister of Industry and Innovation (Fig. 1). "Cod equivalents" are a common factor in quota trading, in which other species are given a weighted value in relation to their market value compared to cod. Administration of the ITQ system and licenses is undertaken by the Directorate of Fisheries (*Fiskistofa*), which also oversees compliance with other regulations such as area closures and gear restrictions. No discards are permitted in any fishery, and catch from small boats is landed at designated "fish markets" that give real time landing updates to the Directorate of Fisheries and then sell the catch through a centralized daily national auction [37].

After implementation of ITQs, changes in fisheries participation were immediate. Quota consolidated in larger companies and boats and migrated away from rural communities. Many small-boat owners felt forced to sell out of the system, and public discontent with the equity of privatized fisheries continued to grow [12,21,38,39]. In 2003, the community quota system (*byggðakvóti*) was enacted, in which each year, the Ministry gives quota directly to fishermen who will land the fish in particular communities under regulations specific to the community. (There were 7000 t of cod equivalents assigned to the community quota system in the 2014–2015 fishing year, less than 2% of the 2015 TAC in cod equivalents). Then in 2004, handline and longline small boats under 15 GT were split away from the large-scale industrial ITQ fisheries in a small-boat ITQ system to counteract the accumulation of quota by large factory trawlers and companies. In 2009, the post-economic crash government instituted a new non-ITQ small-boat handline season called "coastal fishing" (*strandveiðar*) in an effort to offer access for newcomers to fishing lifestyles, partly in response to rulings by the United Nations Human Rights Committee on the social equity problems of the privatization of fisheries resources [40], and partly to revitalize small coastal communities that had suffered from loss of ITQs. Coastal fishing is also managed under the Ministry and Directorate of Fisheries and includes four regions that each have a portion of the same TAC used in the ITQ fisheries (totaling 8600 t in 2015, less than 2% of the 2015 TAC in cod equivalents). Coastal fishing with a maximum of four jig machines is allowed for 14 h per day from Monday to Thursday during May–August and is subject to a daily catch limit of 650 kg of cod equivalents of demersal species, mainly cod, saithe, and rockfish. The other non-ITQ fishery, the small-boat spring lumpfish roe gillnet fishery, has always existed outside of the ITQ system and is managed by limited entry licensing as well as days-at-sea (32 continuous days as of the 2015 season) and net length and mesh size restrictions put into law by the Ministry and Directorate of Fisheries (Fig. 1).

As shown in Fig. 1, there are five major fishery sectors in Iceland, and four of these categories relate to small-boat fisheries: small-boat ITQ, coastal fisheries, community quota, and lumpfish. These categories are not exclusive and there is often overlap in participation between small-boat fisheries, and between large and small-boat fisheries. Currently, small-boat fisheries are defined as longline, handline, and gillnet boats under 15 m in length and 30 GT. Shrimp boats, larger longliners, Danish seines, purse seines, and pelagic and bottom trawlers over 30 GT are included in the large-boat ITQ fishery. In 2014, small-boat fisheries consisted of around 1418 boats (compared to 267 large boats) and employed around 1600 individuals full time. In the 2014–2015 fishing year, the total catch for small-boat fisheries was about 8% of the total catch landed in Iceland (or 91,740 t, compared to 987,556 t for large-boat fisheries), and 14% of the small boat catch (or 1% of the total catch) was landed by non-ITQ fisheries [41].

## 3. Methods

This research explores the experiences and attitudes of Icelandic small-boat fishermen engaged in different fisheries

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