

RESEARCH ARTICLE

Fishing rights, property rights, human rights: the problem of legal lock-in in UK fisheries

Thomas Appleby*, Emma Cardwell† and Jim Pettipher‡

Property rights are a widely advocated policy tool to encourage stewardship over a range of environmental goods. Despite the extent to which property rights are dependent upon law to work, economists rarely consider that property rights are enmeshed within a complex web of pre-existing national and international legal frameworks—such as human rights law—that put strict limitations on the way they operate. This important issue is illustrated here with reference to the legal struggles in the UK around the “ownership” of fishing rights. The social and economic changes under market-based management in the UK made the fisheries regulatory regime unpopular, and undoubtedly contributed to the overwhelming vote within the catch sector to leave the European Union, even though the responsibility to allocate fishing opportunities to the British fishing industry lay with the UK authorities. The lesson from the UK experience is that despite the legal-blindness of much resource economics, the application of economic theory should not outrun its legal foundations. We conclude that promoting the allocation of public fishing rights to the private sector without adequate safeguards—such as a valuation of the rights in question and carefully considered written terms and conditions—could be considered negligent.

Keywords: Fisheries; fisheries management; market based environmental policy; property rights; property law; ITQ

1. Introduction

Private property rights are widely advocated as a tool for creating sustainable fisheries. With enthusiastic espousal by economists, and widespread adoption by fisheries managers, the creation of private property is perhaps the archetypal fisheries panacea. Economists argue that private property rights will improve efficiency, increase profitability, and lead to sustainable harvesting of marine resources (Grafton et al., 1996; Scott and Shotton, 2000). Others, however, have pointed out myriad issues, particularly social, that these policies create (Carothers and Chambers, 2012; Bromley, 2009), leading to calls for a more holistic approach to fisheries policy, integrating the insights of ecologists, sociologists, biologists, anthropologists and geographers (Degnbol et al., 2006; Cardwell and Thornton, 2015).

In this paper, we address the particularly legal problem created by private property rights, which contribute to these rights being inflexible, easily captured, and potentially incompatible with a precautionary approach to harvesting from uncertain and dynamic ecosystems (Copes,

1998; Phillips et al., 2002; Acheson et al., 2015; Bromley, 2009). To facilitate our analysis, we use an empirical case study of the informal individual tradable quota (ITQ) system in the United Kingdom of Great Britain and Northern Ireland (henceforth UK) to illustrate some of these potential negative impacts.

The UK experience illustrates that one of the most significant problems with private property rights systems is the way that they can limit the management powers of government by reducing the range of possible policy interventions (see also Eagle, 2007; Bradshaw, 2004a, 2004b). This effect is because property rights are subject to existing legal frameworks, such as human rights law, which serve to circumscribe how governments are able to intervene in management and distribution. The principle effect of property rights is that once they are created, they cannot be taken away by the state:

- without due process;
- such a “taking” must be in the public interest; and
- without paying compensation at market value.

Once established, property rights can therefore significantly limit the options of managers.

The means of property creation stem from simple mechanisms such as selling some sort of right over the

* University of the West of England, Bristol, UK

† University of Lancaster, Lancaster, UK

‡ Green and Gold, Ross on Wye, UK

Corresponding author: Emma Cardwell (e.cardwell@lancaster.ac.uk)

resource (such as a licence, lease, use right, privilege, or franchise—all of which mean the same thing) to more arcane processes under constitutional law, human rights law or under the public law doctrines such as “legitimate expectation”. All of these mechanisms operate in the same way and safeguard the implicit promises made by the state that it will not interfere with individual proprietary rights. The use of multiple legal terms over the years (for instance, see Phear, 1859, p 67) mask a binary situation, where either rights have been created by the state, which it cannot remove without compensating the rights holder to the value of those rights (for the purposes of clarity we have called them “individual rights”), or else those rights are exercisable by the public at large (“public rights”), where no compensation is due.

Further difficulties arise because it is quite possible for the state to create individual rights by accident. This possibility stems from a function of the rule of law and the courts, particularly in common law jurisdictions, to curb the power of the state. The effect is that through a course of dealings, permissions granted by public authorities can become individual rights. The difficulty is that there is no hard-and-fast rule as to what is or is not an individual right, and one impact of this legal “grey area” is that it further limits the operation of active management. The threat of litigation, even on relatively thin legal grounds, makes it hard for public administrators to make transformative decisions. Paradoxically, continuing with the *status quo* tends to strengthen legal arguments that the rights over the resource have been propertized into individual rights and are thus locked-in under the property rights regime. In the case of fisheries, where adaptability to environmental, social and economic shock is vital for the long-term resilience of both ecosystems and economic communities, legal lock-in can cause serious problems, and is inherently incompatible with adaptive management. This incompatibility suggests that if we want to avoid unwieldy and ineffective panaceas, knowledge of law is a vitally important arrow in any nation’s fisheries management quiver.

The UK, with its unwritten constitution and complex constitutional settlement, is a good example of the dangers of unintended lock-in, potentially one of the most significant side effects of the property-rights panacea. This case study presents an example of how, without proper design, property rights systems can become legally enmeshed within national or international human rights law, serving to circumscribe how governments are able to intervene in management and distribution.

As property rights grow in popularity as a fisheries management tool, particularly in the global south, where the culture of constitutionalism may be less defined, it is vital that governments are made aware of the ways in which their hands can be bound by poorly designed regulation. And, as property rights become increasingly popular in environmental policy beyond fisheries (such as pollution reduction and biodiversity conservation), policy makers must be aware of pre-existing legal structures, and how these could substantially decrease their ability to govern vulnerable ecological systems.

1.1 The UK context

The United Kingdom of Great Britain and Northern Ireland is a cluster of islands in the northeast Atlantic, at its northernmost point approximately 400 miles south of the Arctic Circle. The Republic of Ireland is the only country with which it shares a land border. As an archipelago, the UK has claimed a large exclusive economic zone (EEZ) (Great Britain, 2013) and, in part thanks to a wide continental shelf, enjoys relatively rich fishing opportunities. The UK also has jurisdiction over its Overseas Territories and Crown Dependencies, but they will not be examined in this paper.

The UK is currently a member of the European Union (EU), which has “exclusive competence” for the fisheries policy of its members (*Commission v United Kingdom Case 804/79*; Eur-Lex, 2018) and manages UK waters as part of the larger “common pond” which allows reciprocal access rights to the waters of other European nations under article 5 of EU Regulation 1380/2013 (European Union, 2013a).¹ The EU has delegated rights for the UK to control access to its waters to the 6 nautical-mile limit. In England these inshore waters are managed by Inshore Fisheries and Conservation Authorities (successors to Sea Fisheries Committees), and in Wales, Scotland, and Northern Ireland inshore waters are managed by the devolved administrations (DAs).

Until now, in return for shared access to much of the EU’s waters (some 25 million km²),² the UK has agreed to limit the catches of its fleet relative to other EU member states (at the time of their entry) under a doctrine known as “relative stability” (Churchill and Owen, 2009, p 154). This term is calculated on a stock-by-stock basis and relates to the landings of each species. The quantified fishing opportunities for each stock for each member state (known as total allowable catch, or TAC) are agreed at the EU level. Each member state is given a set amount as a TAC, which it then distributes to its fishing businesses using its own domestic laws (which must be compliant to the general principles in EU law; see p 25 in *United Kingdom of Fish Producer Organisations (UKAFPO) v Secretary of State for the Environment, Food and Rural Affairs* [2013] England & Wales Administrative Court 1959 (Courts and Tribunals Judiciary, 2018). UK-registered vessels are also required to have an “economic link” to the UK (Churchill and Owen, 2009, p 202–210), but this requirement has not stopped the acquisition of UK vessels by foreign companies. Data from 2009 recorded 9% of UK quota by value being held by foreign-flagged vessels and 16% of landings by weight accruing to these vessels (Vivid Economics, 2009). Greenpeace has estimated that nearly half of English and Welsh quota is owned by foreign companies (McClenaghan and Boros, 2016).

The UK has the second largest fishing fleet in Europe after Spain (measured by gross tonnage) and the fourth most powerful (measured by aggregate engine power) (Marine Management Organisation, 2017). In terms of vessel numbers, the majority of UK vessels are small-scale (79% are under 10 m in length) but the tonnage and value of catches of this small-scale sector are dwarfed by the minority of large-scale boats, with the large-scale sector

responsible for approximately 89% of the UK catch by value.

2. Producer Organisations and the origin of the UK transferable quota system

In UK waters (around 770,000 km²) fishing operates under the ancient public right to fish (Appleby, 2005) which permits all UK citizens (and currently, presumably, by extension EU citizens through UK membership of the EU) to fish its waters. The vessels are licensed under section 4 of the *Sea Fish (Conservation) Act* (Great Britain, 1967) and article 7 of CFP Regulation 1224/2009 (European Union, 2009). Upon exit from the EU, these regulations are set to continue until repealed by the UK government or the DAs. Because of the complexity of devolution, there is a concordat on vessel licensing and quota distribution between the four nations' administrations (The Administrations, 2016), although there are wide differences between the management in Scotland and the rest of the UK (The Sunday Times, 2014).

There is no ongoing charge for fishing licences in the UK, though "entitlements" to licences (which are distinct from quota, as they relate to the entitlement to a vessel licence rather than the quota itself, which sits on that licence) are bought and sold and even aggregated, as new licences are not currently being issued (Scottish Government, 2015). Prior to May 2015 fishing licences were renewed periodically. However, the Marine Management Organisation, which has considerable responsibility for English fisheries, has now announced the removal of the fixed date from fishing vessel licences (Marine Management Organisation, 2015).

As outlined above, upon accession to the EU, the UK pooled the management of its fishery under the EU's Common Fisheries Policy (CFP). TACs were first introduced for UK vessels for pelagic species by the North East Atlantic Fisheries Commission in 1974, then extended to other key stocks with the introduction of the CFP in 1983. At first, the UK government managed TAC allocations centrally by setting monthly landings limits for fishing vessels. At this time a number of large-scale operators were grouped into regional fish marketing organisations called producer organisations (POs). Shortly after accession to the CFP, the PO for Shetland, a group of remote islands in the northern North Sea (the most northerly point of the UK) asked if they could manage the annual TAC for their members locally. This devolved management was then gradually spread around the country, with POs taking management control of their members' shares of national TAC.

Fishing businesses in the UK are therefore now grouped in two categories. Under 10 m (small-scale) vessels, which are not in membership of a recognised PO, are managed directly by the government fisheries administration, and are allocated quota monthly via a shared community "pool". Over 10 m vessels can either join a PO, and have their quota allocations managed by the PO, or remain outside the PO system and be directly licensed. Over time, the number of vessels in the over 10 m "non sector" (non-PO) has dwindled to 442 of the 1229 large-scale vessels flying the UK flag. Under 10 m vessels are allowed to join a PO,

but if they do so, they lose their right to fish from the government-administrated under 10 m quota pool. Currently, of the 4,299 under 10 m vessels in the UK fleet, 53 are on the vessel lists as in PO membership (Department for Environment, Food and Rural Affairs [DEFRA], 2018).

Since 1985, the amount of UK TAC managed by POs has been slowly increasing, and by 2015 approximately 94% of quota by tonnage was under PO control. This percentage includes both the quota held by a PO's members that is managed by that PO, and the quota a PO may hold in its own right as a corporate entity. The government allows POs to determine their own methods of quota allocation, though of course the opinions of members, particularly those with substantial holdings, play an integral part in management decisions. Management varies from organisation to organisation, with some POs pooling quota between their members and setting monthly limits, others allocating individual quota, and some using a combination of both. Until 1996, quota shares of TAC could not be transferred between POs. After that date, these rules were relaxed, and an informal market—both facilitated, and officially denied by, an ambivalent government (see Cardwell, 2012)—for quota was established.

The allocation of quota was originally based on a track record, which was attached to a vessel's (not its crew's) landings (or "catch history") on a three year rolling period. To allocate quota, a catch history record of (say) 100 tonnes of cod would be converted into a fixed quota allocation of 1000 FQA units of cod at 100 kg per unit. Each unit then changes in terms of weight depending on the UK's annually agreed allocation of TAC at the EU level. The process of rolling allocations was later recognised as encouraging a "race for fish" as each vessel tried to maximise its landings to maintain future quota. The rolling track record was therefore replaced in 1999 with fixed quota allocations (FQAs) based on the three years from 1994 to 1996 (Marine Socio-Economics Partnership, 2014). The shift from allocating quota based on a rolling track record to FQAs made trading much easier. As this market developed, more POs switched to individual quota management, or allowed their members to purchase individual quota to top up their pool allocations.

This development led to an unusual situation whereby POs (purchasing FQAs for collective use) and their members (purchasing FQAs for individual use) are often competitors on the UK FQA market. As POs are both officially non-profit organisations, and dependent on membership fees for their income—and the fees paid are largely dependent on the amount of quota held by a member, this situation can lead to perverse incentives for POs not to purchase quota for community use, and risk alienating powerful members. If a PO has a member with large quota holdings, as POs are paid for quota management, that company will provide a significant proportion of the PO's income. When FQAs for certain species come on the market, there is an incentive for the PO manager not to bid against the interests of members on whom they are financially dependent. Furthermore, the PO could even be prevented from bidding against its members altogether, as the more powerful of these (those with larger quota

holdings) tend to be represented on the PO's board, which employs and dictates terms to the PO manager. This situation has exacerbated the trend for FQAs to be purchased for individual, rather than collective, use in the UK.

As quota trading has increased, the regional nature of POs has decreased, and with some exceptions under particular geographic circumstances (such as Shetland and Fife PO, the membership of which remain regional) fishermen can now 'shop around' for the quota management regime that suits them best. Although transferability is now a key aspect of the UK's quota scheme overall, significant differences still exist in both the membership and management styles of the different POs.

3. Government ambivalence and ownership ambiguity: FQAs as possessions

The informal way in which quota trading has developed in the UK means that the Government has always had a somewhat ambiguous relationship with the market. This ambiguity culminated in a court-battle between the government and industry in 2013, which was focused on the extent to which FQAs could be considered private property (*UKAFPO v Secretary of State for the Environment, Food and Rural Affairs* [2013]; Courts and Tribunals Judiciary, 2018) The complexity of this case hinged on the fact that since the earliest days of the system, the UK government has flip-flopped between censuring trading (by stating fixed quota allocations should not be transferred) and recognising and facilitating trading (through periodically reconciling quota holdings to take transfers into account).

The gradual shift towards a transferable quota market in the UK can be largely seen as one of confused and piecemeal administration, rather than an intentional move to increase efficiency or protect stocks. Quotas progressively became more transferable as this was expedient for the POs that managed FQAs, particularly in the lean years with a restrictive European TAC, rather than due to a particular governmental ideology. Despite the active involvement of the POs in the development of the system (with government "industry consultation" almost always being limited to interactions with POs) the path to transferability should not be categorised as a simple, rational decision made collectively by the industry. Notwithstanding their administrative clout, the POs account for only a small proportion (15%) of the UK fleet, and little say has so far been given to fishers outside of PO membership in management decisions. A study conducted in 2001, shortly after FQAs were introduced, found that many UK fishermen were actually against the idea of fully transferable quota, even if they also considered it inevitable (Hatcher et al., 2002).

The blind-man's-buff manner in which the UK has moved towards transferable fishing rights has led to considerable uncertainty arising about the "property" status of FQAs. Kevin and Susan Gray highlight three key aspects of a property right (Gray and Gray, 2009, p 91):

- Immunity from summary cancellation or extinguishment – the right cannot be immediately curtailed by government or third parties;
- Presumptive right to exclude others – the right per-

mits the holder to manage the asset and excludes other from using it; and

- The right to prioritise resource values – the holder can choose whether to exercise their right or not, or to sell or rent the right to others.

These "sticks in the bundle" (Hohfeld, 1917) are the key legal features of property. When the UK set about creating its quota system, the nature and extent of these "sticks" were not properly defined. At the time, an exasperated House of Commons Select Committee (1999) complained of the need for "clear guidance on the legal title to licences and quota in the context of transactions between individuals and/or organisations." However, the UK Government ducked the issue and responded later to the Committee:

"There are no plans to change the existing position whereby licences and quotas apply at the discretion of the Minister but with fishermen's interest protected by the legal concept of legitimate expectation" (Ministry of Agriculture Fisheries and Food, 1999).

Any property lawyer would instantly respond that, in a rights-based market, it is vital that the nature of those rights is properly known. Questions such as: "when can the right be terminated?"; "How long does the right last?"; "Can it be sold?" "Is there a resource rent or licence fee?" are critical.

Instead, the UK system developed on an *ad hoc* basis, and fundamental terms that should have been defined *ab initio* were left to develop with no proper deliberation or legal counsel. Assuring the parties that quota was protected by the "legal concept of legitimate expectation" gave some measure of protection from summary cancellation to FQA holders. Where a public body has given an expectation that a practice will continue to an individual who will retain some benefit (in this case the allocation of quota and licences), then a failure to meet that expectation will be an actionable breach of law (*R v North East Devon Health Authority, ex parte Coughlan* [2001] Queen's Bench 213 [Court of Appeal]; Westlaw, 2018a). Quota grants with it the right to exclude others (non-quota holders cannot land fish), either through state sanction by fines or through the operation of POs, who can take civil action against members who have not complied with their quota obligations. It also grants the right to prioritise its value – particularly when quota is used as collateral or sold or rented.

To add to this confusion, FQA trades were taxed in the 2000s for capital gains tax purposes (*Fullarton v Inland Revenue Commissioners* [2004] Simon's Tax Cases 207; Westlaw, 2018b). In 2007, in the context of the decommissioning of vessels, vessel owners were able to keep their quota, without it being attached to a vessel. The government reasoning behind this ability was that the quota "was not ours to take back" (House of Commons, 2007). So, while the UK government on the one hand professed that quota remained in public ownership, at the same time it was maintaining, at least at some level, that quota had become some form of individual right. The billion-pound

question is: “which of the opposing government views is correct?” (Appleby et al., 2016).

The system certainly appears to have engendered widespread acceptance of FQAs as an individual right by those in the industry. This perception was supported by the common practice of banks accepting FQA holdings as collateral for loans. The House of Commons Select Committee on Agriculture (1999, p 85), struggling to understand the legal status of the quota system after the shift to FQA, said:

“The sense of ownership resulting from the purchase of quota is somewhat misleading as the legal owner of licences and of quota remains the UK Government.”

At this time, only shortly after the introduction of FQA, quota and vessel licences were valued at over £1 billion. The Select Committee recorded deep disquiet over the trades of quota from within the industry, but also some support. They noted the fatalism with which the shift to market allocation had been accepted as both inevitable and irreversible:

“Most representatives of the fishing industry voiced their strong disapproval of the trade but also their acknowledgment that it had now become “a recognised and accepted practice which cannot be stopped because of the amount of money which has changed hands.”

4. The performance of transferable FQAs: evaluating distribution, disclosure and democracy without transparency

A concentration of the fishing fleet into fewer hands is a well-documented outcome of the introduction of transferable fishing rights. Currently, 94% of 2017 UK TAC by tonnage is allocated to the 845 over 10 m vessels (and 57 under 10 m) that are members of UK POs, representing approximately 15% of the UK fleet. The remaining 85% of the fleet (4,649 boats) have just 6% of the UK’s 2017 TAC tonnage available to them as fishing opportunities, of which only 1.8% is allocated to them (DEFRA, 2017).

Until recently, it was impossible to scrutinise the ownership of the UK fishing fleet much beyond these aggregate numbers. Although transfers have been officially recognised since trading began, there was no official or public record of quota holdings in the UK until late 2013 (Her Majesty’s [HM] Government, 2015). Under Fisheries Minister Richard Benyon, the UK government introduced the requirement that privately held FQA fishing opportunities should be recorded and published. Until that point, the industry and members of the public were effectively shut out of any access to information on this particular aspect of fisheries management, making proper analysis of the impacts of the transferable FQA system very difficult.

The relatively recent publication of this quota register means that it is only now becoming possible to highlight anomalous holdings of fishing opportunities. However, though the register represents a significant improvement for transparency, it still has notable flaws. The current

system lists separate registered quota holdings and holders, but it does not identify (or require POs to identify) who the ultimate controlling parties for these quota holdings are. Following the money beyond the PO holdings listed, our research suggests that after 15 years of transferable rights, the vast majority of English POs have either one or two members holding 50% or more of their FQA holdings, giving them controlling stakes in those organisations. Until recently, this information was not only unavailable to the public, but also the government and industry as a whole, leaving quota management predominantly under very little, if any, government scrutiny and denying government the proper information necessary to either evaluate or manage the quota system.

This lack of scrutiny, both official and public, is symptomatic of the UK’s relationship with the POs that drive the management of UK fishing quota. The extent to which the UK’s recognition and regulation of POs is in accord with European Community law is questionable. For example, a number of the more recently recognised POs appear to have a single ultimate controlling and owning party—put simply, these are “producer organisations” that manage the quota holdings of just one fishing company. This situation appears to explicitly contravene the intentions of the EU Regulation 1380/2013 (European Union, 2013a) and its subsidiary, the common organisation of the markets in fishery and aquaculture products regulation (commonly known as the “CMO Regulation”) (European Union, 2013b).

Articles 6.1. and 6.2. of the CMO Regulation read:

1. *Fishery producer organisations and aquaculture producer organisations (“producer organisations”) may be established on the initiative of producers of fishery or aquaculture products in one or more Member States and recognised in accordance with Section II.*
2. *Where relevant, the specific situation of small-scale producers shall be taken into account when establishing producer organisations.*

Article 6.1 therefore specifically requires that a PO represents multiple producers (the sentence does not read “on the initiative of a producer of fishery or aquaculture products...”). Furthermore, the requirement at Article 6.2 does not seem to accord with a regulatory regime that enables the UK’s 22 of the 23³ recognised fishery POs to exclude the vast majority of its fishing fleet – specifically, the small-scale fleet – from 94% of its fishing opportunities. For example, with regard to the regulation of already recognised fishery POs, Article 18.1 reads:

“Member States shall carry out checks at regular intervals to verify that producer organisations and inter-branch organisations comply with the conditions for recognition laid down in Articles 14 [specifies ongoing recognition criteria for producer organisations] and 16 [specifies ongoing recognition criteria for “inter branch organisations”] respectively. A finding of non-compliance may result in the withdrawal of recognition.”

The reference in Article 18.1 to Article 14 of the CMO requires Member States to check recognised POs' compliance with eligibility criteria relating first to the "*internal functioning of producer organisations*" which includes at 17(d) a requirement that a PO has "*a democratic functioning that enables the members to scrutinise their organisation and its decisions*". It is not clear how this scrutiny can be achieved by a recognised PO that has a single ultimate controlling party which holds the only vote, as is the case with some of the UK's POs.

The structure of the UK POs also raises cause for concern in respect of competition law. Article 14.1 (f) of the CMO states that Member States may recognise as POs all groups set up on the initiative of fishery or aquaculture producers which apply for such recognition, provided that they comply with certain competition rules and do not abuse a dominant position on a given market. With 94% of all FQAs allocated to the minority of PO members, it is clear that the current system creates remarkably powerful, individual commercial enterprises within the PO structures. Whether this creation has resulted in (or from) abuses of a dominant position in the market remains to be seen, but it should be remembered that fishing quota has raised issues of competition law for many years (Barback, 1976).

Article 14.1 (h) of the CMO further states that:

"Member States may recognise as producer organisations all groups set up on the initiative of fishery or aquaculture producers which apply for such recognition, provided that they... provide relevant details of their membership, governance and sources of funding."

Despite the powerful position of POs in fisheries management, neither the UK government, nor the DAs, have ever asked for these details.

The UK government has recently begun to actively try to address these representative and quota imbalances. This effort began with the attempts to rebalance unused quota after the UK government won the *UKAFPO* case and has recently included the UK government officially recognising the Coastal PO, which at the time of recognition had already recruited 254 small-scale fisher members. The Coastal PO is a fishery PO specifically designed to represent the small-scale boats—more than 75% of the UK fleet—that until now have not enjoyed the benefits of membership of an officially recognised PO. However, the Coastal PO's success will be dependent on the UK government providing small-scale fishers with increased access to quota through it. If small-scale fishers cannot make a viable living through their membership of the PO, they will not continue to support it.

Notwithstanding moves by the UK government (and similar moves in Scotland) to redress the balance, the current poor recognition and regulation of POs means that the ultimate control of traded fishing rights is not necessarily held within the industry. Fish producers are defined in the CMO along with other relevant terms, but no direct link is made stating that fishing opportunities should only be available to fish producers (fishers). This absent link

creates the opportunity for middlemen, such as holding companies and agents, to hold quota primarily as a form of capital with the aim of financial accumulation—these are known derisively in the business as "slipper skippers."

For example, let us consider the case from the DEFRA online register⁴ of FQAs of the South Western Fish PO's member *N C Trawlers* and its 25,873 FQAs, which are recorded on the register against licence number 9031, the holding type of which is identified as "Fishing Vessel Licensee in membership of PO" and recorded as associated with vessel name, "Provider II".

For accuracy and transparency, this entry in the register should be amended to reflect that *N C Trawlers* is in fact *N.C. Trawlers Limited*, Company number 03052127, and the vessel name needs to be removed as the company no longer owns or uses that vessel for actively fishing (the August 2017 DEFRA register of fishing vessels now identifies the only "Provider II" as a member of the Cornish Fish PO). Whoever supplies the information to the register has amended the "licence type" to a "dummy" licence, which suggests that it is not connected to an active fishing vessel or licence.

Given that *N.C. Trawlers Limited* appears to be in the business of holding quota but not actively fishing, does *N C Trawlers* meet the regulatory criteria to (a) hold fishing opportunities or (b) be a fish producer member of a recognised fish producer organisation? The answer is unclear. How many other, similar entries does the register include? That is also unclear.

What is evident, however, is that either the UK's regulatory regime is not picking up the obvious irregularities in the published register or the UK government is picking them up and choosing not to act on them.

Moreover, it is possible to pay lip service to the rules and still operate a quota trading company, as can be seen through the operation of fishing vessel E538, the *Nina May*. The *Nina May* is 4.8 m long. In August 2017, the *Nina May* held 5% of the Cod allocation in sea area 7a, and between 10 and 20% of the fishing opportunities for plaice, whiting and sole in a number of other sea areas. In fact, the *Nina May* held 26% of the UK's opportunities to fish for sole in sea area 7a alone. It is extremely unlikely that, given the dimensions of the vessel, *Nina May* could ever hope to land even a small tithe of that catch. It may be convenient for the *Nina May* to hold quota on behalf of other vessels held by the same owner, but this convenience leads to another significant change in the fleet. Traditionally quota was allocated to owner operators. Now, ownership has consolidated and UK fishing businesses increasingly hire skippers and crew who have no stake in the vessel or the quota, casting doubt on the claim that property rights encourage stewardship (van Putten et al., 2014).

The examples above show both how complicated the ownership (and use) of quota in the UK has become and how difficult and onerous it can be for governments in a transferable quota system to keep track of where exactly quota holdings are, and who is controlling them. The monthly vessel lists that DEFRA publishes do record (some) of the vessels in PO membership, but do not

identify their owners, the ultimate controlling parties or the persons with significant control. From a legal perspective, regulators should require the POs to provide that vital information, as it is the owner (not the vessel) that is the PO member.

5. Impediments to change and legal lock-in

Another key issue for policy makers in this area is that the creation of property type rights brings with it certain constraints of which many legislators may not be aware—particularly where the creation process of the right is informal. In the UK, there is a legal adage that “Parliament cannot bind its successors.” This adage is explained by Dicey (1959, p. 68) as follows:

“The logical reason why Parliament has failed in its endeavours to enact unchangeable enactments is that a sovereign power cannot, while retaining its sovereign character, restrict its own powers by any Parliamentary enactment.”

So, in theory, should Parliament wish to alter the allocation of fishing quota because of any dysfunctionality in the structure of rights created, the process should be straightforward. But there is a limit on the capricious exercise of sovereign powers through human rights law, which creates an internationally accepted framework on the extent of sovereign power, as former Lord Chief Justice Tom Bingham (Bingham, 2010, p 83) said:

“[T]he rule of law requires that the law affords adequate protection of fundamental human rights. It is a good start for public authorities to observe the letter of the law, but not enough if the law in a particular country does not protect what are there regarded as the basic entitlements of a human being.”

One of the cornerstones of human rights legislation in the UK is Article 1 of the First Protocol of the European Convention for the Protection of Human Rights and Fundamental Freedoms (1950) (Council of Europe, 2018a) which states:

“Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law.

The preceding provisions shall not, however, in any way impair the right of a State to enforce such laws as it deems necessary to control the use of property in accordance with the general interest or to secure the payment of taxes or other contributions or penalties.”

This puts strict limits on the UK government’s powers to interfere with its citizens’ “possessions”. Such interference usually requires specific powers enabling the acquisition of the property right, the payment of com-

pensation (*James v United Kingdom* [1986] European Court of Human Rights 21; Council of Europe, 2018b) and significant justification on the grounds of public interest. In the USA there is a similar provision under the 5th Amendment:

“No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.”

Our intent is not to discuss the rights and wrongs of fundamental constitutional protections for property rights, but there is a pressing problem in the UK for public fisheries administrators. For nearly all property, it is clear whether the property is an individual right or not. Land, goods and even intellectual property have been relatively well defined over the centuries. The recent arrival of fishing quota, “entitlements”, vessel licences and days at sea regulation (to name the most common licensing arrangements for fishers) means that there are serious questions as to whether these are individual rights or not, whether the government of the day can interfere with them and, if so, what are the terms of any compensation due and what is the process.

If they are not “possessions” but fishers operate under some form of public right, fisheries administrators may change their allocation policy and even the legislation in whatever manner they see fit. If they have become individual right then the public authority is effectively powerless to intervene without paying compensation. Given the potential value of fishing quota, such compensation payments could be huge, as the UK’s fishing rights were valued at over £1 billion (\$1.35 billion) in 2016 (Appleby et al., 2016). As a result it is challenging for commentators to justify the “track record” method of originally allocating FQA units in the UK, which resulted in the gifting of quota and other fishing rights to individual fishing businesses who just happened to be in the right place at the right time. No safeguards were put in place to ensure that proper value was paid in recompense to the public for the loss of their right, nor was there any proper contemplation of how the market in any tradable rights created would work.

Where quota was allocated to members of POs, there do not appear to have been any checks on how this wind-fall benefit has been divided among the members, or on their performance.⁵ This problem is not restricted to the UK. When limited access privilege fishing rights were granted in the US under the Magnuson-Stevens Fishery Conservation and Management Act of 2007 (National Oceanographic and Atmospheric Administration, 2018) it was expressly stated that:

“[the Act] shall not confer any right of compensation to the holder of such limited access privilege, quota share, or other such limited access system authorization if it is revoked, limited, or modified.”

However, whether even that statutory attempt to limit compensation has been successful remains to be seen (Eagle, 2007; Weiss, 1992), and falls beyond the scope of this paper.

Problematically for managers, the development of the nature and shape of the property rights in UK quota has been driven by the courts. In the cases of *R (ex parte Quark Fishing Limited) v Secretary of State for Foreign and Commonwealth Affairs* Law Reports, Appeal Cases (Third Series) [2006] 1 House of Lords (Westlaw, 2018c), Quark Fishing Limited lost its licence to fish around the UK Overseas Territories of South Georgia and the South Sandwich Islands following an intervention from the Secretary of State. The suite of cases investigated the complex relationship between the Crown, the UK Government and the UK Overseas Territories (Hendry and Dickson, 2011, p 151) but raised the question of whether compensation was due under the UK human rights legislation. The court ruled that the Human Rights Act of 1998 did not apply because its provisions had not been expressly extended to cover the Territory, so compensation was not due.

The case of *Jersey Fishermen’s Association Limited and Others v States of Guernsey* [2008] 1 Law Reports of the Commonwealth 198 (Westlaw, 2018d), did not directly challenge the ability of a state to amend a licensing system. The Sea Fish Licensing (Guernsey) Ordinance 2003 purported to expand Guernsey’s licensing powers from the 3-mile to the 12-mile limit. These powers were exercised so that fishermen from nearby Jersey and other commercial interests from the UK found their interests damaged. On appeal the Privy Council found that the Guernsey authorities did not have the power to make legislation with extra-territorial effect. This ruling resulted in compensation being paid to the adversely affected thought to run to millions of pounds (Guernsey Press, 2011), a significant sum for a small island community. This compensation would have flowed from interference with “possessions” of the affected parties by the erroneous legislation; however, the payment was settled out of court, so the status of the affected licences was not decided.

In the *UKAFPO* case, the UK government tried to reallocate unused English fishing quota from the larger offshore vessels of the POs to the smaller vessels of the inshore fishing fleet. Despite confirming that the fish were a public resource⁶ (*UKAFPO v Secretary of State for the Environment, Food and Rural Affairs* [2013]; Courts and Tribunals Judiciary, 2018, para 100) and confirming that there was no substantive legitimate expectation, Justice Cranston did confirm (“for better or worse”) that quota was a “possession” for the purposes of human rights legislation, but that because the quota was unused it had no value and therefore did not qualify for compensation resulting from its reallocation (Appleby and Pieraccini, 2012). This case achieved the result of permitting the

immediate reallocation of a relatively small amount (to the value of the UK wide fishery) of £4 million of unused quota, but by confirming that quota was a possession, the implication is that compensation may be due to affected quota holders if quota which was historically used was reallocated. In short, the court confirmed quota was an individual right. Of course, the level of compensation due would be dependent on the nature and extent of quota, something which remains frustratingly poorly defined.

In reality the combination of human rights claims and the inadvertent creation of “possessions” by poorly conceived and even more poorly regulated licensing regimes is having the effect of granting “squatters’ rights” over public property. In the process, rights are being created in the public fishery that have the effect of creating the sort of “tortuous and ungodly jumble” of laws about which Oliver Cromwell complained in the seventeenth century (Church, 2013, p 175). Over 20 years since the House of Commons demanded urgent action, it is still impossible to say with any clarity who owns what and for how long.

Academic literature in the area tends to assume some sort of smooth continuum with state ownership at one end and sole ownership at the other:

“It is widely accepted that the design of property rights plays a key role in determining the value of natural resource stocks. On one end of the rights spectrum is open access, the regime under which complete dissipation of the stock’s value may ensue. On the other end is sole ownership, which provides ideal conditions for maximizing the value of the stock.” (Deacon et al., 2013, p 83)

The UK case suggests that this spectrum is not as simple as the theorists believe. What we see here is an incredibly complex mess of semi-legitimate derivatives and bizarre squatters’ rights, combined at some unknown level with public ownership. This situation represents the potential privatisation of the harvesting rights of a colossal area of sea; such a transfer of harvesting rights from the Crown to the private sector has not been seen in the UK since the Middle Ages, and if permitted to continue will affect the shape of UK fishing businesses and coastal communities for generations to come.

How irregular this potential privatization is needs to be considered in the light of other assets leased or sold by the public sector in the UK (Macinko and Bromley, 2002, make similar observations in relation to the US system). The Crown Estate Commissioners is the body tasked with controlling many Crown assets. It is permitted to dispose of property but (under section 2 of the Crown Estate Act 1961) only at best market value or for some identifiable charitable purpose (section 3). Similar duties are placed on local authorities when disposing of property under section 123 of the Local Government Act (Great Britain, 1972). This codification is also similar to the public trust doctrine in the US (Sax, 1969). It is almost impossible to conceive of a circumstance where disposal on a “first come first served” basis with no payment to the public on uncertain terms would be permissible for assets managed

by the Crown Estate Commissioners and must cast doubt on the arrangement of the whole UK quota management system. Is it reasonable to dispose of a public asset for a three-year track record on unknown terms? It is a sobering thought that were trustees to allocate resources under their control to private individuals in this fashion the trustees would likely be considered negligent. In the case of *Re Olive* (1886) 34 Chancery Division 70 (Westlaw, 2018e), trustees who failed to get an adequate valuation of a property investment were forced to make up the difference of a failed investment from their own pockets. We submit that giving away public assets, without extensive valuation advice, and without clear terms for the disposal, would be similarly negligent.

A clearer definition of UK fishing rights would also be desirable, as UK waters are becoming increasingly crowded. Developments in wind farms, undersea cabling infrastructure and subsea oil and gas extraction impact on fishing rights, and there is bound to be dispute over the relative nature of each industry's rights and obligations. Such disputes will be exceptionally difficult while the rights fishers operate under remain so poorly defined.

6. Future directions

The *UKAFPO* judgment that FQA has become a possession under human rights legislation, and thus an individual right, seriously hinders the discretion of fisheries management in the UK. There is some hope for the government in that this decision is a first instance, and it may be possible to overturn that judgment on appeal or under different conditions. However, primary legislation is required to resolve exactly what quota, vessel licences, "entitlements", days at sea and the rest are and establish a proper mechanism for the disposal of the asset and safeguard the public interest in the resource. Otherwise the courts will continue to try to define these rights on an *ad hoc* basis, depending on which cases are presented to court and the arguments deployed for those singular circumstances. The complexity and consequences of these court decisions make the court a particularly inappropriate forum for the creation of law in this area.

While the system maintains its current form, fisheries managers will need to continue using what mechanisms they can, and (because of the expense and delay) where they can, avoid court. The recent end of another transferable quota system in the UK—that of milk (European Commission, 2015)—offers one example of a potential future for the UK's FQA fishing right that may not have been considered by the industry. Holding an FQA entitles the holder to the opportunity to go out and catch fish to a specific value in weight of fish that varies subject to EU and UK annual calculations and negotiations. Therefore, the value of an individual FQA fluctuates, just as the value of sterling fluctuates since we departed from the gold standard. There is no "fish standard" and so, although the debate around ownership has until now revolved around the idea that an FQA—as the name suggests—is a share "fixed" by value or by portion (e.g., 1 FQA might be 1% of UK TAC), in reality it is neither.

Despite the *UKAFPO* decision, which defines FQA as a possession, the exact legal status of FQA is still unknown, so there are still potentially further options open to the UK fisheries administrations to regain some control over its distribution. For instance the administrations are potentially at liberty to create additional FQA which is kept back from the main allocation and which could be distributed to third parties, while the original holder maintains their share of the initial allocation. Indeed, this policy has been adopted in Scotland (Anon, 2017, 13 February). In effect the value of the original FQA is purposefully watered down through inflation. This solution is clearly not optimal, as it remains liable to legal challenge and does not deal with the initial extra-legal nature of the original allocation. Other options include the gradual renationalization of the resource or potentially cancelling the system altogether and distributing access to the fishery by some other means, although this latter approach is more likely to result in legal challenge and would have significant impact because of the leveraged nature of many fishing businesses and the use of quota as collateral.

However the UK and the DAs may choose to implement quota reform, there is a sense that the *UKAFPO* decision, in noting that used quota had become a possession, has given tacit assurance to the view that quota is an individual right and thus a compensatable interest. There is still scope under the forthcoming Fisheries Bill to reform the right itself and set out plainly the terms of holding quota, such as the length of the holding, its transferability, the recovery of administrative costs, any compensation due on cancellation and even the potential to charge a resource rent, but the terms of any formal right created will need careful drafting to avoid judicial intervention.

6.1 Brexit

Perhaps of interest is the much-publicised role that quota issues, and the legislation blamed for them, the CFP, played in Brexit (e.g., see *BBC*, 20 May 2016, "Fishing for Leave Group Launches"; *The Guardian*, 1 June 2016, "Salt in their veins and fire in their bellies: fishermen battling for Brexit"; *The Sun*, 17 April 2017, "British skippers want to see loathed fishing quotas scrapped post-Brexit..."). In a poll conducted by Aberdeen University, 92% of fishermen intended to vote to leave the EU (McAngus, 2016). However, a significant feature of the struggle faced by the UK fleet was a product of the UK's market-based and poorly regulated quota distribution, rather than European Law in and of itself. Undoubtedly other factors (such as the distribution of TAC between member states) have a role to play, but as far as the distribution of UK quota is concerned, including the extensive ownership of quota by foreign companies, there is a sense that the European Union institutions were being blamed for a problem that was "made in Britain." It was, after all, the UK government's competence to allocate quota to fishing businesses, not the EU's.

However, Brexit, which for so many areas of UK policy has created considerable uncertainty, has resulted in the UK government developing primary legislation in this area with its proposed Fisheries Bill (HM Government, 2017). The key purpose of the Bill is to "*control access to its waters*

and set UK fishing quotas once it has left the EU." There is therefore a chance that management and distribution of quota could form a key part of this legislation, and this represents an opportunity to design effective legal mechanisms and incorporate the controls required. Indeed (as we made clear above) the UK should have been progressing a Fisheries Bill anyway. However, the devolution of fisheries management within its EEZ, to Scotland, Wales and Northern Ireland, means that the passage of any significant reforms will need to be coordinated between the four nations of the UK, which will undoubtedly add a layer of complexity.

If there are lessons to be drawn from Brexit for other states (other than to be very careful about constitutional referenda), then these stem from the sheer constitutional complexity of managing a relatively small industry by such a Byzantine system. The EU has "exclusive competence" for fisheries policy (*Commission v United Kingdom Case 804/79*; Eur-Lex, 2018). In the bald wording of the case:

"member states are therefore no longer entitled to exercise any power of their own in the matter of conservation measures in the waters under their jurisdiction."

Yet fisheries need to be well managed at a local level via a range of technical measures. They are not the sort of common property that lends itself to centralised management, and the EU system itself has been criticized for attempting to micromanage (Al-Fattal, 2009). In the UK this situation has been compounded by devolution. The result is that fisheries legislation emanates from a complex wedding cake of overlapping bureaucracies. Fisheries managers can be forgiven, to some extent, for overlooking the accidental privatisation of the resource, because navigating effective stock conservation management measures through the system is very difficult, and under these circumstances the promise of an effective panacea can be very attractive. Rather than setting strategic objectives, as the EU does with conservation legislation, exclusive competence means that the EU has total control unless it has delegated some aspect to member states. (In addition, in the UK, some management has then also been delegated to: its devolved administrations; a quango, the Marine Management Organisation; and, for England, Inshore Fisheries and Conservation Authorities.) The EU's exclusive competence means that for some management measures, for instance permitting electric fishing (Stokstad, 2018), when rules need to be amended, it potentially affects the whole of Europe, and inevitably involves international wrangling. So, while UK fishers are wrong to blame the EU for any issues relating to the allocation of UK fishing quota, which are a UK competence, the EU is certainly responsible for creating an overly complex system for such a small industry.

But Brexit will not necessarily rid the UK of institutional complexity. In the turmoil of the tight timelines that the UK has set for itself to leave the EU, it is perfectly possible for the resulting bureaucratic tangle to be even more dysfunctional than the current system, with the added

problem for managers of unfamiliarity. As yet, with the UK on the cusp of leaving the EU, there is little sense as to how it will reorganise its bureaucracy both in terms of its ongoing relations with the EU and the heavily politicized relations between the UK government and the DAs. There are many messages from the Brexit vote, which will doubtlessly be unpicked by scholars, but the combination of a complicated bureaucracy and an over-concentration of control over quota has certainly fed an unstable political environment.

7. Conclusion

As the issues presented above illustrate, the piecemeal introduction of the panacea of transferable quotas to manage fisheries has, in the UK, had significant legal and economic consequences that make management very difficult for government administrators. Despite the best of intentions, the bounded rationality of governors left them unable to predict the impact of the ITQ system and how it would mesh with existing legal frameworks, with the resultant predicament of a dissatisfactory management system that is discriminatory, complicated and difficult to change. This inflexibility is particularly important given the importance of adaptive management in fisheries, whereby interventions are approached as experiments to be adjusted in response to performance (Armitage et al., 2015). The inability to change any policy direction makes it a very risky experiment. As our case exemplifies, if fisheries policy is to be truly holistic and adaptive, its design must include legal knowledge, as well as social, economic and environmental.

These issues should be borne in mind for any fisheries managers considering implementing ITQs. It is both difficult and absolutely essential to create watertight legal frameworks for an ITQ system, and the *existing* legal frameworks around property mean that if ITQ legislation is not properly drafted then government loses control of a public asset in a windfall give-away. Piecemeal resolution of (the highly predictable) resultant disputes in the courts is not a professional method of establishing a property-rights based system. ITQ systems must be very carefully drafted to recognise the essential public ownership of the fishery (such as the Crown Estate model in the UK or the public trust model in the US). The creation of inflexible (or unknown, in the case of the UK) property rights will dramatically decrease the potential for administrators to adapt management systems, either to suit changing external circumstances (such as ecological or climate fluctuations) or in the face of poor performance.

Despite the extent to which property rights are dependent upon law to work, these legal issues are rarely, if ever, considered in the economic theory that drives market-based fisheries management. The lesson from the UK experience is that despite the legal blindness of much resource economics, the application of economic theory should not outrun its legal foundations. This omission is frustrating as the disposal of public assets to the private sector is well understood; it is standard practice in almost every other arm of public administration. Indeed, for a lawyer to advise on the disposal of assets without

ensuring appropriate valuations and without insisting on formal written terms would almost certainly be negligent, and for such a transaction to take place with no payment to the public owners there would have to be demonstrable public benefit.

For many in the fishing industry a combination of exclusive competence of fisheries by the EU and a complex management system have engendered a significant sense of disenfranchisement. It is easy to see how quota, and the concentration of its ownership, has played a part in that narrative. Although the CFP has improved in recent years, it remains deeply unpopular, and the severe dissatisfaction of UK fishers was amply demonstrated in the overwhelming numbers in which fishers voted for Brexit. Government can only operate with the consent of the governed, and while to some extent effective management measures are often unpopular, both the UK and EU did not monitor the effect on UK fishing businesses and coastal communities of its laws and regulations or, crucially, bring those communities with them. However “successful” ITQs may be, clever technocratic solutions need buy-in for those impacted if they are not to trigger a public outcry; ultimately, like all legal devices, ITQ is about managing people, not property rights. It is possible that in the new Fisheries Bill some of these issues will be redressed, but only time will tell whether the UK can unravel the tangled legal knots that a *laissez faire* approach to ITQ has created.

Data Accessibility Statements

The data used were from a publically available UK government repository: <https://www.fqaregister.service.gov.uk/>.

Notes

- ¹ Of the UK's Overseas Territories and Crown Dependencies, only the UK itself and Gibraltar are members of the EU.
- ² Despite the geographical spread of this potential fishery, statistics show that most catches by UK-registered vessels occur in what would be the UK EEZ, particularly the northern North Sea and West of Scotland (see charts 3.7 to 3.15 in Marine Management Organisation, 2017).
- ³ The 23rd is the recently introduced Coastal PO, discussed later in this section.
- ⁴ FQA Register: <https://www.fqaregister.service.gov.uk/>.
- ⁵ Even though such checks are a legal requirement under Article 18, Regulation 1379/2013 of the European Parliament and of the Council, and failure to implement clearly undermines Member States Article 17, CFP implementation.
- ⁶ This confirmation is certainly an error in law, as fish are *ferae naturae* and ownerless until captured; it is the fishery which potentially could be in public ownership.

Acknowledgements

This paper was written in response to the workshop Consequences of Rights Based Fisheries in the Arctic, hosted by The Institute of Arctic Studies, Dartmouth College, USA, and the Stefansson Arctic Institute, Iceland, at Dartmouth College on 21–29 September 2015.

Funding informations

This paper is partially funded by the Lloyd's Register Foundation, a charitable foundation helping to protect life and property by supporting engineering-related education, public engagement and the application of research. This work was supported by the Economic and Social Research Council [grant number EF/H013989/1]; and the Lloyd's Register Foundation, a charitable foundation helping to protect life and property by supporting engineering-related education, public engagement and the application of research.

Competing interests

TA and EC have no competing interests to declare. JP is the CEO of The Coastal Producer Organisation, a fish producers co-operative that represents small and coastal vessels in the UK.

Author contributions

- Conception and design: TA, EC, JP
- Acquisition of data: TA, EC, JP
- Analysis and interpretation of data: TA, EC, JP
- Writing: TA, EC, JP
- Approval for publication: TA, EC, JP

References

- Acheson, J, Apollonio, S and Wilson, J.** 2015. Individual transferable quotas and conservation: a critical assessment. *Ecology and Society* **20**(4): 7. DOI: <https://doi.org/10.5751/ES-07912-200407>
- Al-Fattal, R.** 2009. The Tragedy of the Commons: Institutions and Fisheries Management at the Local and EU Levels. *Review of Political Economy* **21**(4): 1–13. DOI: <https://doi.org/10.1080/09538250903214834>
- Anon.** 2017. Scots Ministers withhold mackerel quota to deter foreign landings. *Fishing News* (13 February 2017). Available at: <http://fishingnews.co.uk/news/scots-minister-withholds-mackerel-quota-to-deter-foreign-landings/> [Accessed 24 August 2017].
- Appleby, T.** 2005. The public right to fish: Is it fit for purpose? *The Journal of Water Law* **16**(6): 201–205.
- Appleby, T, van der Werf, Y and Williams, C.** 2016. *The management of the UK's public fishery: A large squatting claim?* Working Paper. University of the West of England. Available at: <http://eprints.uwe.ac.uk/28855> [Accessed 5 March 2018].
- Armitage, D, Alexander, S, Andrachuk, M, Berdej, S, Dyck, T, et al.** 2015. Emerging concepts in adaptive management. In: Allen, CR and Garmestani, AS (eds.), *Adaptive Management of Social-Ecological Systems*, 235–254. Springer, Dordrecht. DOI: https://doi.org/10.1007/978-94-017-9682-8_13
- Barback, RH.** 1976. United Kingdom. In: *Forms of cooperation in the fishing industry* **9**. EEC Information Agriculture. Bruxelles.
- Bingham, T.** 2010. *The Rule of Law*. London: Allen Lane.
- Bradshaw, M.** 2004a. The market, Marx and sustainability in a fishery. *Antipode* **36**(1): 66–85. DOI: <https://doi.org/10.1111/j.1467-8330.2004.00382.x>
- Bradshaw, M.** 2004b. A combination of state and market through ITQs in the Tasmanian commercial

- rock lobster fishery: the tail wagging the dog? *Fisheries Research* **67**(2): 99–109. DOI: <https://doi.org/10.1016/j.fishres.2003.11.007>
- Bromley, DW.** 2009. Abdicating responsibility: the deceptions of fisheries policy. *Fisheries* **34**(6): 280–290. DOI: <https://doi.org/10.1577/1548-8446-34.6.280>
- Cardwell, E.** 2012. Invisible fishermen: the rise and fall of the UK small boat fleet. In: Schriewer, K and Hojrup, T (eds.), *European Fisheries at a Tipping Point*. Editum, Universidad de Murcia, Murcia.
- Cardwell, E and Thornton, TF.** 2015. The fisherly imagination: The promise of geographical approaches to marine management. *Geoforum* **64**: 157–167. DOI: <https://doi.org/10.1016/j.geoforum.2015.06.008>
- Carothers, C and Chambers, C.** 2012. Fisheries privatization and the remaking of fishery systems. *Environment and Society* **3**(1): 39–59. DOI: <https://doi.org/10.3167/ares.2012.030104>
- Church, SH.** 2013. *Oliver Cromwell*. London: Forgotten Books. (Original work published 1899). Available at: http://www.forgottenbooks.com/books/Oliver_Cromwell_1000272639 [Accessed 3 November 2013].
- Churchill, R and Owen, D.** 2009. *The EC Common Fisheries Policy*. Oxford: Oxford University Press.
- Copes, P.** 1998. Adverse Impacts of individual quota systems in small-scale fisheries: what are the positive alternatives? In: Loucks, L, Charles, AT and Butler, M (eds.), *Managing Our Fisheries, Managing Ourselves*, 23–30. Halifax, Nova Scotia: Gorsebrook Research Institute for Atlantic Canada Studies, Saint Mary's University.
- Council of Europe.** 2018a. *European Convention on Human Rights* [online]. Available at: https://www.echr.coe.int/Documents/Convention_ENG.pdf [Accessed 12 April 2018].
- Council of Europe.** 2018b. *James v United Kingdom* [1986] ECHR 21 [online]. Available at: https://hudoc.echr.coe.int/app/conversion/pdf?library=ECHR&id=001-73433&file_name=JAMES%20v.%20THE%20UNITED%20KINGDOM.pdf [Accessed 12 April 2018].
- Courts and Tribunals Judiciary.** 2018. *United Kingdom Association of Fish Producer Organisations v Secretary of State for the Environment, Food and Rural Affairs and another* [2013] EWHC 1959 (Admin) [online]. Available at: <https://www.judiciary.gov.uk/wp-content/uploads/JCO/Documents/Judgments/uk-assoc-fish-producer-orgs-10072013.pdf> [Accessed 12 April 2018].
- Deacon, R, Parker, D and Costello, C.** 2013. Reforming fisheries: lesson from a self-selected cooperative. *Journal of Law and Economics* **56**: 83–125. DOI: <https://doi.org/10.1086/667864>
- Degnbol, P, Gislason, H, Hanna, S, Jentoft, S, Nielsen, JR,** et al. 2006. Painting the floor with a hammer: technical fixes in fisheries management. *Marine Policy* **30**(5): 534–543. DOI: <https://doi.org/10.1016/j.marpol.2005.07.002>
- Department for Environment, Food and Rural Affairs (DEFRA).** 2018. UK Fishing Vessel Lists, 9 January 2018. Available at: <https://www.gov.uk/government/statistical-data-sets/vessel-lists-10-metres-and-under> [Accessed 26 February 2018].
- Dacey, AV.** 1959. *The Law of the Constitution*. 10th ed. London: Palgrave Macmillan.
- Eagle, J.** 2007. A window into the regulated commons: the Takings Clause, investment security, and sustainability. *Ecology Law Quarterly* **43**(2): 619–654.
- Eur-Lex.** 2018. *European Commission v United Kingdom* Case 804/79. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61979CJ0804> [Accessed 12 April 2018].
- European Commission.** 2015. *The EU milk sector prepares for the end of milk quotas*. Press Release 26 March 2015. Available at: http://europa.eu/rapid/press-release_IP-15-4694_en.htm [Accessed 22 December 2015].
- European Union.** 2009. *Council Regulation for establishing a Community control system for ensuring compliance with the rules of the common fisheries policy*. [online]. Council Regulation (EC) No 1224/2009 of 20 November 2009. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:343:0001:0050:EN:PDF> [Accessed 27 October 2015].
- European Union.** 2013a. *Regulation of the European Parliament and of the Council on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC* [online]. Council Regulation (EU) No. 1380/2013 of 11 December 2013. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1380> [Accessed 26 February 2018].
- European Union.** 2013b. *Regulation of the European Parliament and of the Council on the Common Fisheries Policy on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000*. [online] Council Regulation (EU) No. 1379/2013 11 December 2013. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1424680663995&uri=CELEX:32013R1379> [Accessed 26 February 2018].
- Grafton, RQ, Squires, D and Kirkley, JE.** 1996. Private property rights and crises in world fisheries: turning the tide? *Contemporary Economic Policy* **14**(4): 90–99. DOI: <https://doi.org/10.1111/j.1465-7287.1996.tb00636.x>
- Gray, K and Gray, SF.** 2009. *Elements of Land Law*. 5th Ed. Oxford University Press.
- Great Britain.** 1967. *Sea Fish (Conservation) Act 1967* [online]. Chapter 84. Available at: <http://www.legislation.gov.uk/ukpga/1967/84> [Accessed 12 April 2018].

- Great Britain.** 1972. *Local Government Act 1972* [online]. Chapter 70. Available at: <https://www.legislation.gov.uk/id/ukpga/1972/70> [Accessed 12 April 2018].
- Great Britain.** 2013. *The Economic Zone Order, 2013* [online]. SI 3161/2013. Available at: <http://www.legislation.gov.uk/uksi/2013/3161/contents/made> [Accessed 12 April 2018].
- Guernsey Legal Resources.** 2018. *The Sea Fish Licensing (Guernsey) Ordinance 2003* [online]. Available at: <http://www.guernseylegalresources.gg/article/97194/Sea-Fish-Licensing-Guernsey-Ordinance-2003> [Accessed 12 April 2018].
- Guernsey Press.** 2011. States silent over UK fishermen deal. 23 June. Available at: <http://guernseypress.com/news/2011/06/24/states-silent-over-uk-fishermen-deal/> [Accessed 3 November 2015].
- Hatcher, A, Pascoe, S, Banks, R, Macfadyen, G and Arnason, R.** 2002. *Future options for UK fish quota management*. CEMAR Report Number 58 to the Department for the Environment, Food and Rural Affairs. Portsmouth: Centre for the Economics and Management of Aquatic Resources, University of Portsmouth.
- Hendry, I and Dickson, S.** 2011. *British Overseas Territories Law*. Oxford: Hart Publishing.
- Her Majesty's (HM) Government.** 2015. *Register of quota holdings Fixed Quota Allocation (FQA register)* [online]. Available at: <https://data.gov.uk/dataset/register-of-quota-holdings-fixed-quota-allocation-fqa-register> [Accessed 18 December 2015].
- Her Majesty's (HM) Government.** 2017. *Queen's Speech* [online]. Available at: <https://www.gov.uk/government/speeches/queens-speech-2017> [Accessed 12 April 2018].
- Hohfeld, WN.** 1917. Fundamental legal conceptions as applied in judicial reasoning. *Yale Law Journal* **26**: 710–770. DOI: <https://doi.org/10.2307/786270>
- House of Commons.** 2007. *Decommissioning of Fishing Vessels Scheme 2007*. Session 2006–07 [online]. Available at: <http://www.publications.parliament.uk/pa/cm200607/cmgeneral/deleg9/070314/70314s01.htm> [Accessed 30 October 2015].
- House of Commons Select Committee on Agriculture.** 1999 (July). *Eighth Report – Sea Fishing* [online]. Available at: <http://www.publications.parliament.uk/pa/cm199899/cmselect/cmagric/141/14103.htm> [Accessed 30 October 2015].
- Macinko, S and Bromley, D.** 2002. *Who Owns America's Fisheries?* Washington: Island Press. Available at: https://www.researchgate.net/publication/297246469_Who_Owns_America's_Fisheries [Accessed 12 April 2018].
- Marine Management Organisation.** 2015. *Fishing vessel licensing arrangements* [online]. Available at: <https://www.gov.uk/government/publications/changes-to-fishing-vessel-licensing-arrangements/fishing-vessel-licensing-arrangements> [Accessed 27 October 2015].
- Marine Management Organisation.** 2017. *United Kingdom Sea Fisheries Statistics 2015* [online]. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/462753/UK_Sea_Fisheries_Statistics_2014_-_online_version.pdf [Accessed 17 August 2017].
- Marine Socio-Economics Partnership (MSEP).** 2014. *An overview of UK fishing quota (FQA) Ownership. MSEP Facts and Figures Series 1: An overview of UK fishing quota (FQA) ownership* [online]. Available at: http://www.mseproject.net/doc-presentations/doc_download/117-3b-uk-quota-ownership-overview [Accessed 12 April 2018].
- McAngus, C.** 2016. *Report on initial analysis of a survey of UK fishermen ahead of the referendum on the UK's membership of the EU*. Aberdeen University [online]. Available at: <https://www.abdn.ac.uk/news/9282/> [Accessed 24 August 2017].
- McClenaghan, M and Boros, C.** 2016. Big Fish quota barons squeeze out small scale fishermen. *Greenpeace Unearthed*, 20.4.2016. Available at: <https://unearthed.greenpeace.org/2016/05/15/investigation-big-fish-quota-barons-squeeze-out-small-scale-fishermen/> [Accessed 26 February 2018].
- Ministry of Agriculture Fisheries and Food.** 1999. *Memorandum in reply to the Eighth Report from the House of Commons Select Committee on Agriculture* [online]. Available at: <http://www.publications.parliament.uk/pa/cm199899/cmselect/cmagric/853/85303.htm> [Accessed 30 October 2015].
- National Oceanographic and Atmospheric Administration.** 2018. *Magnuson-Stevens Fishery Conservation and Management Act 2007*. Available at: https://en.wikipedia.org/wiki/Magnuson%E2%80%93Stevens_Fishery_Conservation_and_Management_Act [Accessed 12 April 2018].
- Phear, JB.** 1859. *A Treatise on Rights of Water: Including Public and Private Rights to the Sea and Sea-shore*. London: V & R Stevens and GS Norton.
- Phillips, G, Kriwoken, L and Hay, P.** 2002. Private property and public interest in fisheries management: the Tasmanian rock lobster fishery. *Marine Policy* **26**(6): 459–469. DOI: [https://doi.org/10.1016/S0308-597X\(02\)00026-X](https://doi.org/10.1016/S0308-597X(02)00026-X)
- Sax, J.** 1969. The public trust doctrine in natural resource law: Effective judicial intervention. *Michigan Law Review* **68**: 471. Available at: <https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https://www.google.co.uk/&httpsredir=1&article=2359&context=facpubs> [Accessed 12 April 2018].
- Scott, A and Shotton, R.** 2000. Introducing property in fishery management. *FAO fisheries technical paper No. 404/1*, 1–13. FAO, Rome.
- Scottish Government.** 2015. Making changes to your fishing vessel licence. Available at: <http://www.gov.scot/Publications/2006/10/30105532/4> [Accessed 27 October 2015].

- Stokstad, E.** 2018. Tensions flare over electric fishing in European waters. *Science* (16 January 2018). DOI: <https://doi.org/10.1126/science.aat0249>
- The Administrations.** 2016. A subject-specific concordat between The Department for Environment, Food and Rural Affairs Marine Scotland, The Welsh Government and The Department of Agriculture, Environment and Rural Affairs (Northern Ireland) (“the Administrations”) on management arrangements for fishing opportunities and fishing vessel licensing In the United Kingdom. Available at: <http://www.gov.scot/Resource/0052/00527417.pdf> [Accessed 12 April 2018].
- The Sunday Times.** 2014 (2 February). Ban on selling fish quotas to outsiders. Available at: <https://www.thetimes.co.uk/article/ban-on-selling-fish-quotas-to-outsiders-w02070zfvnq> [Accessed 26 February 2018].
- Van Putten, I, Boschetti, F, Fulton, EA, Smith, AD and Thebaud, O.** 2014. Individual transferable quota contribution to environmental stewardship: a theory in need of validation. *Ecology and Society* **19**(2): 35. DOI: <https://doi.org/10.5751/ES-06466-190235>
- Vivid Economics.** 2009. A review of the effectiveness of the economic link. London: Department for the Environment, Food and Rural Affairs. Available at: <http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16629> [Accessed 12 April 2018].
- Weiss, JD.** 1992. A Taxing Issue: Are Limited Entry Permits Property. *Alaska Law Review* **9**(1): 93–112.
- Westlaw.** 2018a. *R v North East Devon Health Authority, ex parte Coughlan* [2001] QB 213 [CA]. Available at: www.westlaw.co.uk [Accessed 12 April 2018].
- Westlaw.** 2018b. *Fullarton v Inland Revenue Commissioners* [2004] STC 207. Available at: www.westlaw.co.uk [Accessed 12 April 2018].
- Westlaw.** 2018c. *R (ex parte Quark Fishing Limited) v Secretary of State for Foreign and Commonwealth Affairs* AC [2006] 1 (HL). Available at: www.westlaw.co.uk [Accessed 12 April 2018].
- Westlaw.** 2018d. *Jersey Fishermen's Association Limited and Others v States of Guernsey* [2008] 1 LRC 198. Available at: www.westlaw.co.uk [Accessed 12 April 2018].
- Westlaw.** 2018e. *Re Olive* (1886) 34 Chancery Division 70. Available at: www.westlaw.co.uk [Accessed 12 April 2018].

How to cite this article: Appleby, T, Cardwell, E and Pettipher, J. 2018. Fishing rights, property rights, human rights: the problem of legal lock-in in UK fisheries. *Elem Sci Anth*, 6: 40. DOI: <https://doi.org/10.1525/elementa.295>

Domain Editor-in-Chief: Jody W. Deming, Department of Biological Oceanography, University of Washington, US

Guest Editor: D.G. Webster, Environmental Studies, Dartmouth College, US

Knowledge Domain: Ocean Science

Part of an *Elementa* Special Feature: Sea Change in Fisheries Governance

Submitted: 07 September 2017

Accepted: 21 April 2018

Published: 18 May 2018

Copyright: © 2018 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.



Elem Sci Anth is a peer-reviewed open access journal published by University of California Press.

OPEN ACCESS