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RESEARCH ARTICLE



Conflicts between traditional and modern governance structures in Irish seaweed harvesting

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ABSTRACT

The Maritime Spatial Planning Directive (2014/89/EU) required European Union member states to finalise Marine Spatial Plans by 2021. These efforts have created new forums for considering synergies and conflicts around blue growth objectives at both national and local scales, but in many cases have consolidated management action at European or national levels. These nationalised MSP actions can conflict with the path dependence (legacy effects) of traditional industries. The preparation and publication of Ireland's National Marine Planning Framework (NMPF) provides rich examples of how the legacy effects of traditional rights of access and withdrawal can both inform and complicate planning goals. This research describes these interactions in the context of Ireland's seaweed sector. Efforts to equitably expand and manage Ireland's seaweed resource are hampered by controversy in the licensing of seaweed harvesting. Interviews with seaweed harvesting stakeholders were analysed using modified grounded theory, supplemented with critical analyses of the NMPF. Interviews made clear a longstanding and successful path dependence of community management of the Ireland's seaweed resource. However, national blue growth targets may conflict with local management traditions, alienating goal dependence between institutions and actors. These conflicts are exacerbated by national and exclusionary definitions of seaweed ownership. This work reveals conflicts between top-down management and local traditions of seaweed harvesting and provides recommendations as to how Irish legislation could prevent actor alienation from the management process by considering path dependence in management decisions and cultivating interdependent relationships to ensure seaweed harvester rights are respected in management plans.

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Seaweed; blue growth; marine spatial planning; Europeanisation; local knowledge

1. Introduction

Natural resource governance has deployed increasingly democratised language in recent decades, embracing the vision of sustainable development set in 1992 at the United Nations Conference on Environment and Development, and its *Agenda 21* (UNCED 1993). *Agenda 21* affirmed the hopes of the world community, stating in its Preamble that “this process marks the beginning of a new global partnership for sustainable development” and a commitment to increasing public

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participation in the planning and decision-making process, which itself was formalised in 1998 by the Aarhus Convention (UNECE 1998). Within the European Union (EU), *Agenda 21* was communicated through *Towards Sustainability* (No. C 138/7 of 1993).

In the years since, scholars have taken a critical eye at the ability of governments to fulfil *Agenda 21* commitments, particularly at local levels through so-called *Local Agenda 21s* (LA21) (Freeman 1996; Morphet 1993; Tuxworth 1996; Voisey et al. 1996). Barriers to public participation were identified and guidance proffered (Dodds 1997; Owen and Videras 2008; Selman 1998). These critical academic efforts were best summed up by J. Gustave Speth, then Administrator for the United Nations Development Programme. He wrote, “Sustainable development does not take place in a political or social vacuum but depends both on effective governance and on the empowerment of communities in civil society to participate in the decisions that affect their lives” (Dodds 1997, xiii).

With the benefit of hindsight, it is clear that inclusive, participatory governance has not been achieved as broadly as envisaged by LA21s across the EU (Knill and Liefferink 2013; Wilkinson 1997). The need for consistent, well-articulated governance and policy that can be uniformly applied to each EU member state without prejudice (European Union 2010) has engrained what Lenschow (2002, 19) describes as “traditional regulatory policy approaches”, characterised by a persistent role for the EU and European Commission in matters international and national, coupled with considerable governance inertia (Adshead 2014; Mathieu 2016) and a top-down process, known simply as *Europeanisation* that is difficult to unmesh from.

Bürzel (1999, 574) defined *Europeanisation* as the “process by which domestic policy areas become increasingly subject to European policy-making”, a position further explored by Radaelli (2002), Stephenson (2013) and others. This structure is repeated at the national level by complying member states. Literature examining these so-called multilevel governance frameworks (Dąbrowski, Bachtler, and Bafoil 2014; Stephenson 2013) focus on dynamics between international and national actors, an acknowledgement that local considerations like LA21s are at the far end of a policy – and frequently funding – pipeline (Bache, Bartle, and Flinders 2016; McInerney and Adshead 2010). For particular EU member states with a history of highly centralised governance, empowering local government remains a work in progress (Mullally 2014; Rees, Quinn, and Connaughton 2016).

The imprint of *Europeanisation* is particularly visible in the governance of Europe’s considerable maritime areas (Howlett, Vince, and del Río 2017; van Tatenhove 2015). The Maritime Spatial Planning Directive (2014/89/EU) “establishes a framework for maritime spatial planning aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources” (Article 1.1), “taking into account land-sea interactions” (Article 3.2), and “in accordance with the institutional and governance levels determined by Member States” (Article 3.3) by 31 March 2021. Article 5.1 compelled Member States to “promote the coexistence of relevant activities and uses” in establishing and implementing marine spatial plans (MSPs) through an ecosystem-based approach, while Article 9.1 provided avenues for public participation and consultation “at an early stage in the development of MSPs”.

Where MSPs have been established and implemented within the EU, there now exists a rich forum to (re)consider the effect *Europeanisation* has had on the planning process, particularly the extent and coverage of MSPs (Article 2.3). Questions remain on how well scales of governance have been translated downward from the EU Directive by Member States to local communities and their LA21 aspirations. As authorities are designated by Member States to analyse and organise human activities (Article 3.2) in implementing the Directive, a natural tension between national and local actors develops on who has the power to negotiate how rights of access and withdrawal are granted. At its most severe, “apathy, disappointment and frustration amongst some [local] stakeholders” (Jones, Leiberknecht, and Qiu 2016, 260) tends to result where there isn’t sufficient clarity of rights and inclusion in the MSP process.

These tensions, as well as how they might be resolved, can be examined as part of an evolutionary planning and governance process once MSPs are established and implemented. Ostrom (2014, 11) frames the relevant concern concisely: “Contemporary scholarship tends to focus on rules that are formally prescribed by a *national government*, but we must understand the process of rule changes *at a community level as well*” [emphasis added]. Governance structures that result from the implementation of the Maritime Spatial Planning Directive are themselves shaped by what O’Hagan, Paterson, and Le Tissier (2020) term *path dependence* (i.e. how current governance structures are shaped by actor and institutional legacies), *goal dependence* (i.e. how shared visions shape relationships between actors and institutions) and *interdependence* (i.e. the continually changing relationship between actors and institutions as each responds within the planning system, thus ensuring the necessity of the other into the future). The long history of the use and governance of marine resources means actor and institutional path dependencies can be particularly ingrained, thus narrowing down relevant existing and future activities and uses and their impacts on the environment (Article 5.5) to a subset of economic interests with the longest, and frequently loudest, legacies (Flannery, Healy, and Luna 2018). As such, without sufficient stakeholder involvement, planning priorities can be orthogonal to those of other actors with limited or highly localised legacies (Kelly, Ellis, and Flannery 2019). Such common stakeholders can become alienated from the planning process, becoming more resistant to being governed by institutions which do not reflect their own goals (Kelly, Ellis, and Flannery 2019; O’Hagan, Paterson, and Le Tissier 2020). As such, the authors posit that risk of alienation is set upon how well three central questions are answered:

1. Are traditional definitions of the rights to access and withdrawal of marine resources (path dependence and self-governance) reflected in institutional goals?
2. Do future activities actors feel institutional structures engender a shared sense of goal dependence with existing activities actors within MSPs?
3. How well are actor legacies of resource use and self-governance respected and incorporated into the planning process and evolving governance structures?

Using the small but culturally important Irish seaweed harvesting sector as a case study, this paper uses the above questions as a conceptual basis to examine how actor-institution dissonance shapes and reshapes multilevel governance structures like MSPs. Ireland’s own MSP, as well as its governance, is the culmination of a nearly decade-long process of establishing goals, seeking consultation, reviewing existing and then proposing new policy and governance structures (DHLGH 2021; DHPLG 2018a, 2018b, 2019; Government of Ireland 2021; MCG 2012), as well as even longer efforts to support sustainable development through LA21s (DELG 1997). The Irish seaweed sector is an ideal example to apply these analyses. Compared to other sectors, seaweed has remained relatively small-scale, but has its own deeply rooted legacy particularly within rural communities far removed from the usual attention of national institutions. At the same time, seaweed is being viewed nationally as an *emerging activity* for MSP that could be rapidly globalised and become a key contributor as Ireland works toward national blue growth goals (DHPLG 2018c; JCECG 2015; MCG 2012).

2. Site description and policy framework

This work was conducted along the west coast of Ireland, with a specific focus on engaging Irish-speaking *Gaeltacht* regions, seaweed harvesting communities and related state agencies and ministries. These rugged rural areas often have high unemployment rates and limited economic sectors leading to a locally aging population as younger people leave to seek work (Figure S1; Gkartzios and Scott 2010). *Údarás na Gaeltachta* (literally, “Gaeltacht Authority” and referred to as *Údarás* here on out), is a state agency which supports development and employment in Gaeltacht regions through investment, enterprise support and Irish-language programmes (note, *Údarás*

does not hold planning or licensing authority). Seaweed has received specific attention from *Údarás* as an opportunity to celebrate Irish culture as well as a source of employment. Nearly 4,000 people have their employment supported by *Údarás* schemes (Government of Ireland 2018).

Seaweed has been utilised in Ireland for centuries (Mac Monagail and Morrison 2020), reflected both in archaeological excavations and a rich folklore relating to seaweed (Pérez-Lloréns et al. 2020). *Ascophyllum nodosum* – known locally as rockweed, bladderwrack, sea whistle, asco, or *feamainn bhuí* in the Irish language – represents the lion's share of the seaweed harvest, and its harvesting has been an important income supplement and contingency plan during economic recessions (Guiry and Morrison 2013), dating back at least 300 (Hession et al. 1998). Ireland remains a significant producer of rockweed in the Atlantic, and seaweed production is seen as an important contributor to Ireland's marine biotechnology and bio-products sector. At the outset of Ireland's efforts to increase the value of their blue economy, seaweeds were a €18 million per year sector (MCG 2012), since increasing to nearly €30 million per year (SEMRU 2019). The sector is an important employer in heavily rural areas along Ireland's coast, with 150–300 individuals working to harvest 25,000–40,000 tonnes of seaweed annually (DHLGH 2021).

Beginning in the nineteenth century, property owners were given rights to access seaweed, some of which were included in property folios, registered deeds of land ownerships and extractable resource rights (JCECG 2015). These seaweed rights continued throughout the twentieth century, and the Property Registration Authority has identified 9568 property folios containing references to seaweed (DHLGH 2021). Many seaweed harvesters who have harvested the same areas for much of their life also feel profit-à-prendre seaweed rights should be formally recognised. These concerns were further exacerbated by the highly visible fights over corporate rights to access seaweed exemplified by Acadian Seaplant's acquisition of the public seaweed processing company Arramara Teoranta and seaweed claims in Bantry Bay by BioAtlantis (see *Irish Times*, Jul 28, 2017; and *Irish Examiner*, May 20, 2020).

Seaweed harvesting is licensed under two separate departments of the Irish government. Under the Foreshore Act of 1933, the Department of Housing, Planning and Local Government (DHPLG)¹ is responsible for issuing licences to harvest seaweed from wild stocks up to 12 nautical miles from the mean high-water mark (DHPLG 2019). Separately, the Department of Agriculture, Food and the Marine (DAFM) issues licences for both marine- and land-based cultivation of seaweed (DAFM 2018). As a licensing condition, seaweed harvesters are required to consider impacts on the surrounding environment, especially ecologically valuable Natura 2000 sites. Harvesting is allowed provided it does not impact specific conservation objectives.

The legally-defined state ownership of the foreshore places folio rights and profit-à-prendre rights within a grey area of foreshore governance and complicates the licensing process. Between 2006 and 2020, the DHPLG received 20 foreshore licence applications, 17 of which have been for the manual harvesting of seaweed, of which only licences before 2011 have been granted determinations (Table S1).² Spatial overlap is common between harvesting areas (Figure 1), though harvesters targeting different seaweeds (e.g. dillisk versus rockweed) could hypothetically harvest the same area without competition. These multi-dimensional considerations are further complicated by existing folio rights to seaweed.

The DHPLG has faced enormous pressures both from larger seaweed processing companies and small seaweed harvesters to make licensing decisions. A landmark 2018 decision delivered by Minister Damien English stated that the Irish government recognises existing folio (appurtenant) and profit-à-prendre rights, and that the DHPLG cannot issue licences in areas where traditional rights already exist (DHPLG 2018b). This position is upheld in the newly released National Marine Planning Framework (NMPF), but specific recommendations for how licensing should proceed are not provided (DHLGH 2021). Licensing regimes are expected to change under the Maritime Area Planning (MAP) Act, ratified in December 2021, which is expected to further centralise and streamline the licensing process of Ireland's maritime area through the development of Maritime Consent Areas and Designated Maritime Area Plans (Government of Ireland 2021).

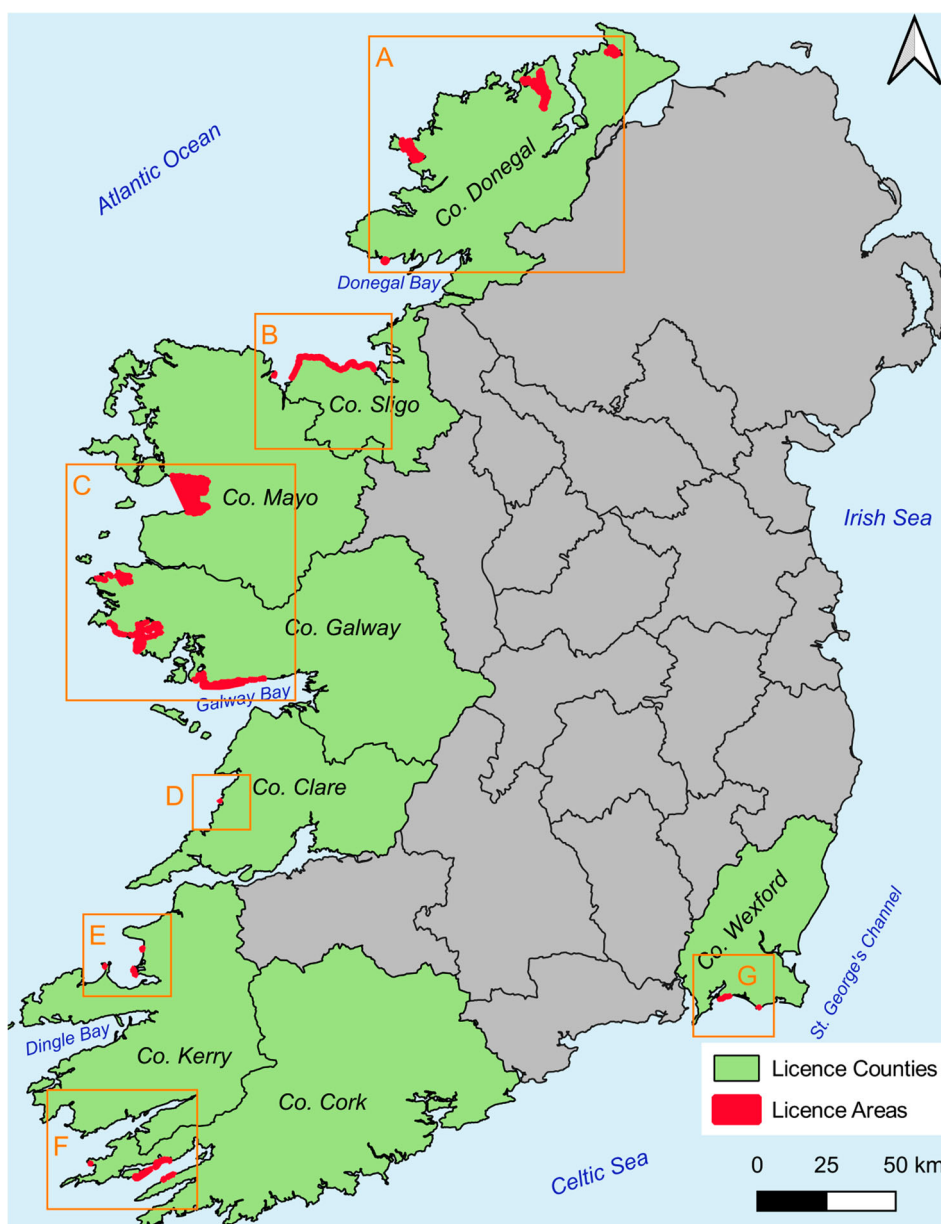


Figure 1. Seaweed harvesting applications from 2006 to 2019. Seaweed applications and attached maps were manually searched and screened through the DHLPG's Foreshore Application search portal and digitised in QGIS. Detailed areas in gold boxes are displayed in the following pages. For applications which only highlighted sections of coastline, the licence area was delimited between the coastline and a 250 m buffer extended from the coastline.

Looking forward, Ireland's MSP, implemented through the *NMPF* and *MAP Act*, is expected to continue providing "high value employment and a positive economic contribution to coastal communities" (DHLGH 2021, 167), while promoting "the coexistence of different types of maritime usages in the maritime area" (Government of Ireland 2021). As such, it is anticipated that a wider seaweed sector will have an important part in Ireland's blue growth strategy (O'Mahony 2016). This has meant clarifying how to expand the national harvesting capacity to better secure its potential value (Bruton et al. 2009; Troy and Tiwari 2016; Walsh et al. 2011), in a manner that meets

European-level obligations for sustainability whilst reducing potential conflicts with other sectors operating in the foreshore (DAFM 2015; European Commission 2013).

3. Methodology

Publicly available seaweed harvesting licence applications were analysed to determine the location and type of seaweed harvesting proposed along Ireland's west coast (Figures 1 and 2(a,b)). Using a Grounded Theory approach (Glaser and Strauss 1967) sixteen semi-structured interviews and a roundtable discussion were recorded between October 2019 and July 2020. A modified form of Grounded Theory (see Corbin and Strauss 2008; Glaser 1992; McCallin 2003; Pidgeon, Turner, and Blockley 1991) was identified as a suitably flexible methodology given the interrelated questions posed by the authors on stakeholder alienation and self-governance within radically changing planning and governance structures (see Groulx 2017; Seyfi, Michael Hall, and Fanoni 2019). From this modified approach, an analytical framework, built from conceptual coding (Corbin and Strauss 2008) was used to revisit those questions and contextualise stakeholder views into linked expressions of local knowledge and expertise (Jentoft 2007; Turner 1983). This consideration is perhaps best reflected by Pidgeon, Turner, and Blockley (1991, 154) who wrote that research "outcomes should reflect the experts' understanding of the problem".

Sixteen individuals who work directly in seaweed harvest, processing and product development participated in the study, four of whom work for either *Údarás* or Acadian Seaplants. The remaining 12 individuals independently harvest seaweed via folio or profit-à-prendre rights or produce and sell seaweed-derived products. Study participants were selected via word of mouth through participating seaweed harvesters and through online searches of seaweed harvesting companies in Ireland; all harvesters who agreed to be interviewed were included in the study. Interviews were conducted between October 2019 and July 2020, although difficulties were experienced as a consequence of the 17 March–18 May 2020 country-wide COVID-19 lockdown, the longest lockdown in the European Union. To partially remedy this, supplementary correspondence like email exchanges, non-recorded conversations and publicly available documents were also used to inform the analysis. Through all stages of this research, confidentiality was maintained and adhered to institutional ethical requirements.

Transcribed interviews were coded using NVivo 12 Pro (QRS International Pty Ltd., 2020). Transcripts were analysed by manually highlighting and coding passages. These *primary codes* (nodes, in NVivo) were selected through a literature review or generated organically during interviews and analyses. These nodes were developed to address seaweed harvester viewpoints on licensing schemes, traditional methods of seaweed management and conflicts between harvester traditions and current foreshore governance (Table S2). Several primary codes were later subdivided into *children nodes* to reflect direction of viewpoint (e.g. positive or negative opinions) or to increase specificity (Corbin and Strauss 2008). Seaweed harvesters also participated with the first author in an online roundtable to discuss ways of improving information sharing and professional cooperation. The author guided and moderated the roundtable conversation, allowing participants to generate responses, actions and solutions to relevant issues surrounding seaweed harvesting, and coded the roundtable transcript using the same primary codebook as with primary interviews. In addition to interviews, coding was applied to seaweed-related sections in Irish policy and legislative documents, including *Harnessing Our Ocean Wealth* (MCG 2012), the *NMPF Baseline Report* (DHPLG 2018a), *NMPF Consultation Draft* (DHPLG 2019) and the *NMPF* (DHLGH 2021), but not the MAP Act (Government of Ireland 2021) which at the time of final analysis had not yet been ratified. All data were considered in the final analysis, with fieldwork data explicitly compared to available policy data at the time of analysis. Interviews and analysis occurred in tandem, with previous interviews informing coding and coding informing later interviews in an iterative process (Glaser and Strauss 1967).

This reflexive approach (Glaser 1992) helped secure research objectives, despite the recognition that not all issues may have been brought up or fully captured. Achieving data saturation may be

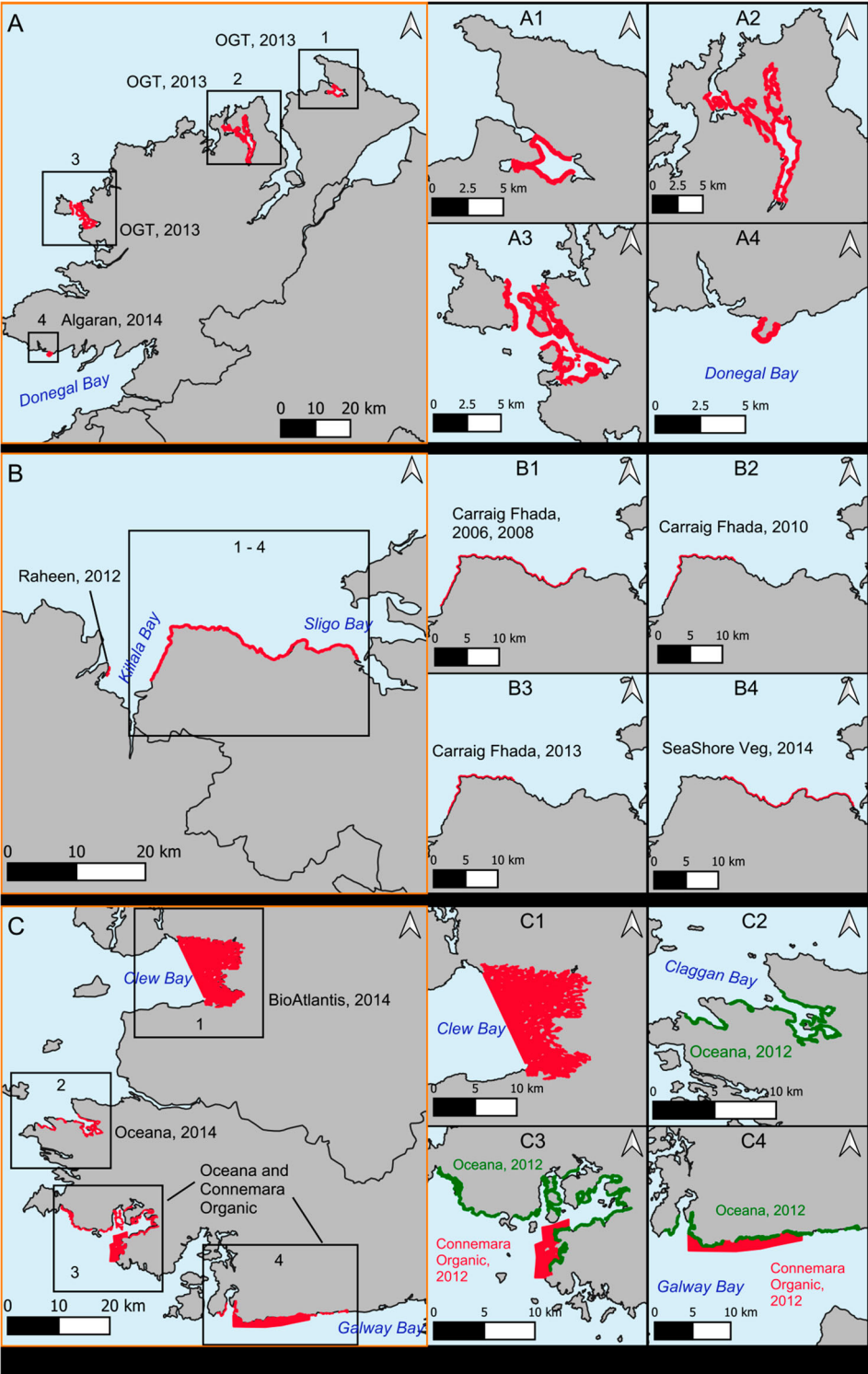


Figure 2. a. Expanded licensing application areas in Donegal (A), Sligo (B) and Galway (C). b. Expanded licensing application areas in Clare (D), Kerry (E), Cork (F) and Wexford (G).

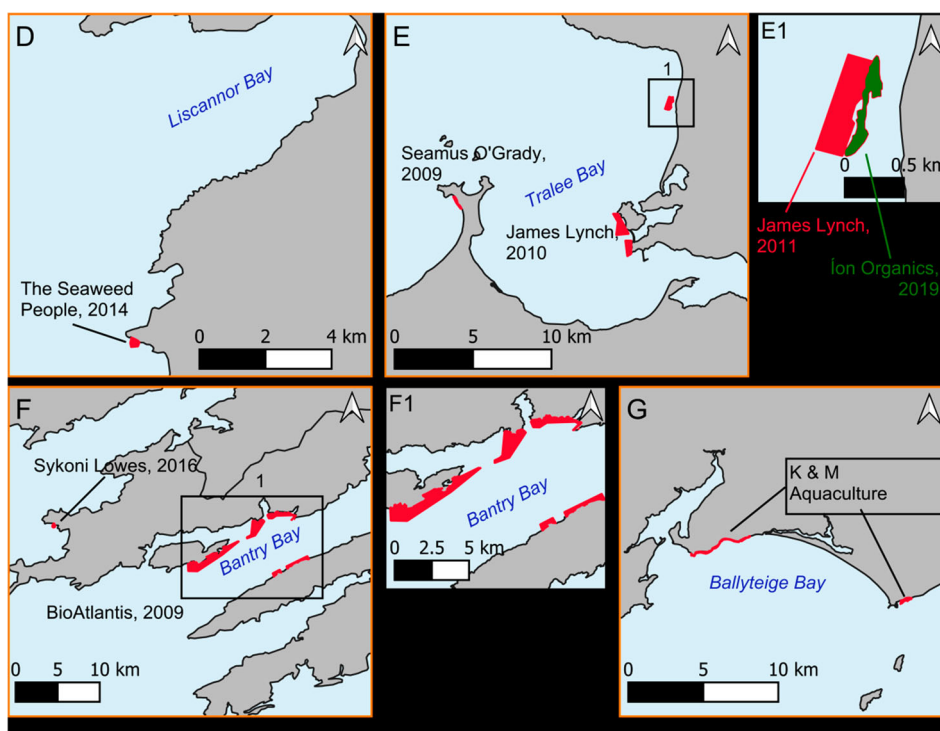


Figure 2 *Continued*

difficult to achieve, but for qualitative studies, it may be an arbitrary demonstration of best practice by the researcher. Braun and Clarke (2021, 212) describe data saturation as “*not a particularly useful, or indeed theoretically coherent, concept*” [emphasis in original]. The work presented here focused on capturing sector perspectives towards governance and governance structures while balancing participant availability and ease, time limitations, and restrictions in travel and engagement brought on by Ireland’s COVID-19 lockdown. The themes that emerged from the analysis reflect unaddressed concerns and issues that the seaweed sector has and can serve as starting points for policymakers tasked with answering the question of governance and future direction of development of Ireland’s seaweed resource.

4. Results

This research examines how traditions in Ireland’s seaweed harvesting sector are incorporated into Ireland’s MSP, considering various dependences between actors and institutions across the scales of multilevel governance. Interview and roundtable data were analysed through manual coding. The principal goal of this coding was to define and contextualise conflicts between traditional rights of access and withdrawal and current management policy.

4.1. Path dependence in the NMPF: are traditional definitions of the rights to access and withdrawal of marine resources (path dependence and self-governance) reflected in institutional goals?

Legacy effects (Meyer-Sahling and Yesilkagit 2011) related to the slow but persistent shift from local (i.e. traditional) to national governance in the management of Ireland’s seaweed resource have, perhaps unintentionally, created a policy blind spot where the actual meaning of *rights* to access

and harvest seaweed often, as perceived and practiced by resource users, goes undefined in both government documents and press coverage. Both harvester interviews and policy documents would imply seaweed rights allow rights-holders to harvest and sell seaweed from a specified area of the coast. Disagreements remain concerning whether these rights should be exclusive (i.e. the ability to access seaweed and control others' access) or common (i.e. the ability to access seaweed but not control others' access, see section 4.3).

Resolving these disagreements lie at the heart of licensing reform for Ireland's seaweed sector. When the *NMPF* discusses seaweed licensing, it fails to present concrete recommendations for licensing reform. The *NMPF* does note that "the Government is committed to ensuring that sustainability of seaweed natural resources underpins the licensing regime for seaweed harvesting" (DHLGH 2021, 167). In addition to exploring options to update the national biomass assessment for "certain types of seaweed", the *NMPF* has also gained the support of the newly-formed *Ascophyllum nodosum* Processors Group (ANPG) – comprised of some of Ireland's larger seaweed processors including Arramara Teoranta and BioAtlantis – who writes:

The ANPG supports reforms of the licensing system for sustainable seaweed harvesting taking account of Appurtenant and Profit-à-Prendre harvesting rights. The ANPG supports the [NMPF] as it provides a mechanism to protect the marine environment, whilst also facilitating the expansion of Ireland's seaweed processing industries and their continued development of innovative technologies from this valuable and renewable resource. (DHLGH 2021, 167, inset)

Policy guidance within the *NMPF* for the seaweed harvesting sector needs to balance economic, environmental and socio-cultural demands of marine shareholders (DHLGH 2021; DHPLG 2018a, 2019; MCG 2012). Relevant to this study, and serving as a counterpoint against efforts to industrialise and corporatise the sector, traditional rights to harvest seaweed, both profit-à-prendre and folio, are recognised:

Security of supply is important for the production of high value products derived from the processing of seaweed, while also ensuring that the rights of those who can harvest seaweed are respected. (DHLGH 2021, 167)

Such policy clarity affirms the rights of small-scale harvesters in seaweed resource planning, even if only in a limited and informal capacity, noting:

Any sector engaged in or planning to engage in activity that could affect seaweed harvesting rights in an area should engage in prior consultation with the rights holders in advance of any works taking place. (DHLGH 2021, 167)

During public consultation following the *NMPF* Baseline Report in 2018, the incorporation of local knowledge was a major response, being mentioned within seven submissions out of the 32 submissions relevant to seaweed harvesting:

Seaweed harvesting is a traditional activity of the community and any promotion of commercial harvesting should be done in partnership with the community. – Thomas Pringle T.D., Donegal

In the section of Seaweed harvesting we would like to see any licence decisions to be based upon scientific and local information. This is essential to ensure sustainable use of resources and involvement of the local community. – Cork Nature Network

And these concerns are further echoed by a *Údarás* employee

... how do you support and valorise a traditional harvesting community within a global marketplace environment ... How do you protect historical rights in a growing market environment? – *Údarás* employee

Taken together, the *NMPF* clearly considers path dependence in terms of traditional seaweed harvesting and intends to understand legacy effects, though it is unclear to the authors how processor input (who have organised to influence MSP decisions) will differ from harvester input (who have yet to organise).

4.2. Blue growth as a vision of goal dependence: do future activities actors feel institutional structures engender a shared sense of goal dependence with existing activities actors within MSPs?

Sustainably growing the blue economy (i.e. blue growth) is a defining vision for Ireland's marine policy over the next several decades. As a key issue for MSP, the *NMPF* states that:

... aligning 'blue growth' with the sustainable use of shared marine resources [such as areas of the foreshore where seaweed is harvested] should be encouraged, though bearing in mind the need to avoid cumulative negative effects. (DHLGH 2021, 81)

Blue growth is also a major talking point for *Údarás* employees but rarely discussed by harvesters. Of the 19 times "blue economy" is mentioned explicitly during interviews, 18 of these references are by *Údarás* employees, one of whom emphasised the special importance of the blue economy in Gaeltacht areas:

But a significant degree of the Gaeltacht special territory is coastal by nature, as you're well aware, due to the dispersion of activity across the coastal areas. The blue economy has historically been very very important. – *Údarás Employee*

Seaweed users are less likely to consider growth of the blue economy as a whole. However, the globalisation of the seaweed sector, and its expansion within Ireland, is recognised, both as an opportunity to bolster rural communities:

I believe [seaweed aquaculture] will [be successful], because the global trends for seaweed, nothing but positive. – Seaweed Harvester

The post office closed, the shop has closed, and the pub is going to close, right? So it's just, we need, we badly need the seaweed, the harvesting to keep something that people can get income like. – Seaweed Harvester

and a risk to Irish seaweed producers:

But the only problem is there's too much of [seaweed businesses] opening up at the moment. And they won't be able to keep going. You know, it'd be alright if you only had one or two places. But now, now they're going into business with seaweed everywhere, and that's not going to last either. – Seaweed Harvester

While there is generally strong agreement between seaweed harvesters and the government concerning the value of expanding the seaweed sector, there are significant concerns that implemented programmes will be insufficient or misaligned with small harvester goals:

Now with *Páirc na Mara*, that has taken the attention of *Údarás* to the point where that's all that matters, that's the only show in town. When actually, to know there are sites that could be developed, could foster employment, that could be supported with very little investment. But their attention is solely on *Páirc na Mara* ... – Seaweed Harvester

The perception of Irish seaweed's importance both culturally and economically is a major opportunity to realise both blue growth and environmental conservation goals outlined by the *NMPF*. Ireland's harvesters recognise that the full value of seaweed has not yet been realised. What was once seen as a small economic lifeline for rural coastal communities where unemployment was high, Irish seaweed today is perceived by harvesters as being especially high-quality and wholly Irish:

It's not quantity. It's quality, and we have that, you know, that natural pristine product. – Seaweed Harvester

Connemara out and around the Gaeltacht part was where the most seaweed was harvested in Ireland for the past 50 years. So it's really, it's really with the Irish language it's intertwined for a long time, yeah. – Seaweed Harvester

You know, it's one of the things, one of the things you associate with the Aran Islands. Jumpers, walls, seaweed. – Seaweed Harvester

Most harvesters felt strongly they could be more profitable selling value-added products rather than whole-sale seaweed; a cooperative was seen as an effective way to optimise the positive perception of Irish seaweed and advance these value-added products:

The raw materials are being collected here but they're being shipped off to add the value, so as an industry the people have to get together to add value at home. – Seaweed Harvester

4.3. Actor-Institution interdependence and the future of Irish seaweed policy: how well will actor legacies of resource use and self-governance be incorporated into evolving governance structures?

The strong path dependence of Ireland's seaweed harvesting sector is enshrined both in cultural mores, traditional forms of managing access and withdrawal rights, and legal inclusion of seaweed rights in property folios. Seaweed harvesting in Ireland has been managed, in part, by generations of community-led decisions and actions that – though they may push up against formalised legislation – is consistent with the principles of localised self-governance (Ostrom 1999). This continues today through informal rights of access and harvest, filling a policy vacuum produced by a lack of legislative coherency and consistency as well as limited enforcement capacity from state agencies.

Decisions as to who can harvest seaweed and where were traditionally made within communities and differed by species. For example, on the Aran Islands, stormcast was “treated as commonage” and divided among the community (Seaweed Harvester), while access to fucoid patches is exclusive and often determined by property lines on land. Theoretically, a disconnect exists between these traditional rules and the decision-making at the national level. Putting aside the recognition of traditional rights to harvest seaweed, the DHPLG controls access to seaweed through the Foreshore Act. What's more, the final version of the *NMPF* recognises all seaweed rights as *exclusive*:

Where an individual right to harvest seaweed exists, a licence under the 1933 Foreshore Act is not required by the holder of that right in order to harvest seaweed, nor can any other entity be licensed under the Foreshore Act to harvest seaweed in an area where existing formal or informal rights to harvest seaweed already exist. – *NMPF*, 166

As such, if an individual claims rights to harvest seaweed, they are able to exclude others from accessing that seaweed resource. While this is consistent with traditions of *Ascophyllum* harvesters having exclusive rights to their seaweed patches, it is complicated by non-harvesters who may have folio rights and wish to prevent seaweed harvesting along their shores. This licensing scheme does not match traditional mores for edible seaweed harvests or stormcast.

Seaweed harvesters can influence licence decisions by voting for like-minded ministers and participating in public consultations, but there remains some scepticism over competency:

And here it's the minister who has to sign your licence. I can't, that's beyond belief. This guy doesn't know nothing, he's a politician. – Seaweed Harvester

This sense, while tangible to some within the seaweed harvesting community, may have little effect on the sector. Harvesting continues despite stalled application reviews and decisions (seaweed harvesters, personal interviews). Moreover, ministerial oversight has not been extended to enforcing access to, or monitoring of the seaweed resource. As such, traditional modes of collective choice rules remain more functional in managing the Irish seaweed resource than actual Irish law and represents a lack of interdependence in the seaweed decision-making process. This creates a tension between those who feel they have traditional rights (and the power to exclude harvesters) and those who wish to obtain government permission to access seaweed:

And that's what's making me cross, because I was ready to pay, and [the locals] seem to block everything. So, I was paying my licence, and they were, the other guys down there were not paying anything. – Seaweed Harvester

I can't stay I have the licence; I can't stop anybody. So I have still, until I have applied for a licence, I have to go on the shore and fight with someone else who is selling maybe drying and selling the seaweed in the local markets ... – Seaweed Harvester

Attempts to resolve access and harvest disputes that have arisen from what is effectively a lack of policy clarity and guidance have been chequered and decidedly outside official channels:

I think if anyone didn't want you to be somewhere, you'd probably know about it fairly quickly. – Seaweed Harvester

And one day they clashed with a harvester coming for himself. Harvesting the same seaweed ... so the little fellow decided to throw kerosene on the seaweed to [prevent them from taking] their own seaweed. – Seaweed Harvester

Traditional modes of management, while enforced through informal institutions, are not upheld by formal laws. As such, many harvesters interviewed expressed concern over their ability to exclude other harvesters from their patches without legal support.

The Foreshore Act 1933 legislates coastal and maritime resources under state ownership out to 12 nautical miles (i.e. Ireland's territorial seas), as supported by the Registration of Title Act 1964. The MAP Act extends State jurisdiction from "the high water of ordinary or medium tides of the sea to the outer limit of the continental shelf" (Government of Ireland 2021, at Section 2.3). Language within the MAP Act 2021 could play a role in further shaping *ownership* of Ireland's seaweed resource away from local actors and communities, and toward the State (Government of Ireland 2021, at Section 99.5). As the MAP Act states:

Neither the taking, during any period however long, from any foreshore of seaweed deposited or washed up thereon by the action of tides, winds and waves or any of them and not rooted or growing thereon, **nor the letting or licensing to other persons**, during any period however long, of **an alleged right to take such seaweed from any foreshore shall, by itself and without more, constitute possession of or be proof of title to such foreshore** [emphasis added].

This suggests that the rights and agreements once enjoyed by local actors are at risk of being usurped and redirected by State institutions. Legislative language places the onus on local actors to secure their rights by demonstrating ownership and continued use. This means that previously honoured agreements between actors may not be recognised by the State. More forebodingly, this could lead to a situation where separate State licensing to a third party *may* be recognised, particularly in profit-à-prendre instance.

The MAP Act stipulates that "*no part of the maritime area shall be treated at any time as privately owned [folio rights] unless the part is land whose owner is, or is deemed to be, registered under the Registration of Title Act 1964*" [emphasis added] (Government of Ireland 2021, at Section 99.2). For example, the introduction of boat-and-rake harvesting could threaten localised modes of management as boats are able to access patches by sea and may not recognise locally understood property delineations, like mearring stones, and rights of shore access and harvest. State recognition of existing rights – even informal rights as framed by the *NMPF* – have become especially pertinent in the wake of efforts to grow and industrialise the seaweed sector.

The buy-out of the publicly owned Arramara Teoranta by Acadian Seaplants was roundly criticised by seaweed harvesters:

Besides this, it is the government who sold the company Arramara to Canadian, and they have not developed in the company at all, they are just messing around. – Seaweed Harvester

... the Irish government couldn't hold on to our own, you know, valuable, very very valuable resources, you know? – Seaweed Harvester

The large-scale (and still confidential) application of Acadian Seaplants to harvest large tracts of Irish coastline is consistent with other large-scale applications by Irish processing companies (Figure 1), though it is unclear whether seaweed harvesters would be more forgiving of the sale of rights to

Irish companies and at what scale. These discussions will be further complicated by European programmes encouraging investment and innovation across the E.U., e.g.:

[Irish companies] have been bought by Spanish. By a Spanish multi-national. All the companies have been bought by multi-nationals. All the seaweed company making seaweed extract have been bought by multi-national. Except Donegal Seaweed, who is based in Dungloe, and they got a huge customer in Italy who is a multi-national themselves. – Seaweed Harvester

While much of the MAP Act's focus is on large-scale, long-term leasing of maritime space through maritime area consents (Government of Ireland 2021), the success of small-scale seaweed harvesters in maintaining their rights to harvest are unknown. Formally, use of the maritime area requires a licence under both the Foreshore Act (Section 3) and MAP Act (Section 286.3), and barring proof of ownership through titled registration, such activities would be considered to be conducted on State property. Once the State claims formal ownership – or more likely once a local actor cannot definitively present evidence of private ownership – negotiating access and use (i.e. profit-à-prendre rights) becomes more complex. The State practice of licensing maritime space for users, complete with firmly drawn lines on maps, moves the entire practice of seaweed harvesting away from long understood informal agreements over properties delineated by transitory and sometimes arbitrary boundaries, the so-called “shifting freehold” (Lee 1967). Such property rights, particularly those not backed up by an extant folio, face a protracted struggle to better affirm profit-à-prendre seaweed rights held by individuals within a sector increasingly managed through state licensing and leaseholds looms.

One potential response would be collective action among seaweed harvesters to amplify harvester concerns, as discussed during the round table:

Harvester 1: I think in terms of, leadership in the industry, I don't think there's a huge amount of it really ... there's not that much in terms of leadership of anyone getting everyone together ...

Harvester 2: I was, sorry, I was wondering right now, if whatever body, minister, is trying to sort out the harvesting licences, do they know what we think, and what we are experiencing? Are they really aware of the problems? And, can we get the message to them?

Harvester 3: I suppose, individual companies find it hard to have a voice I suppose.

Seaweed collectives have previously been organised in Ireland (Mac Monagail and Morrison 2020). These associations were seen by interviewed harvesters as unsuccessful for different reasons. For some, associations required an investment for which the benefits were too insubstantial or too delayed to be feasible for a small business. Other harvesters shared concerns of losing brand identity by joining an association. Some harvesters interviewed were unilaterally uninterested in joining a collective.

However, harvesters who participated in this study had positive views of a new seaweed collective. Perceived benefits included the ability to pool monetary resources, share manufacturing spaces and machinery, share innovations and local knowledge, expand marketing efforts, better advocate for seaweed harvester interests to the government, play to individual harvester's strengths (e.g. sourcing different seaweed from different counties for a shared line of products), and better negotiate with distributors and retailers, e.g.:

... so as an industry the people have to get together to add value at home ... it's up to small companies I suppose and how can we add value at home, and maybe join as you said, get a cooperative ... – Seaweed Harvester

While harvesters expressed a clear interest in a seaweed collective, some were unsure whether Irish legislation and marine spatial planning scheme would support self-organisation. Many felt outside partners would make organisation easier:

And maybe that is what we need. That kind of focus and that kind of drive. But I think it should be from a central point ... – Seaweed Harvester

I don't know, it's very difficult to pull together seaweed companies. It has to be on a higher level. It has to be from, maybe from the government? – Seaweed Harvester

With *Bord Iascaigh Mhara* (BIM) in the Department of Agriculture, Food, and the Marine having an especially positive reputation:

Yeah, we've had support from BIM giving us mentors to come in and plan sort of, production flows and everything for the business, and, and then after that they put us through the FLAG which came to help us to fund our project, so that was a huge help for us. – Seaweed Harvester

... BIM is a great organisation, there's a lot of people that know about things, but they're not taken seriously – Seaweed Harvester

5. Discussion

The ability of communities to manage their seaweed resource is uncertain going forward. The evolving governance of seaweed harvesting, which was intensely localised through personal arbitration and social mores until only recently, has redistributed powers toward national and international institutions, thus benefitting those actors and institutions whose legacies and interests have helped shape and direct that evolution (e.g. seaweed processors versus seaweed harvesters). This research reveals that opportunities for seaweed users to organise and manage their seaweed resources are prevalent, but significant obstacles remain.

5.1. Recommendation 1: Provide outside support for seaweed organisation

There may be a potential pathway for outside organisations to take a supportive or leadership role in organising seaweed harvesters. The existing network of harvesters from which Acadian sources seaweed could be fortified to protect seaweed harvester rights and whole-sale seaweed selling prices. Many harvesters expressed interest in leadership and assistance from non-state organisations like the International Blue Council, the Centre for Co-Operative Studies at University College Cork, or a select group of positively viewed public agencies, including *Údarás*, *Bord Iascaigh Mhara* and *Bord Bia*. These outside organisations could help negotiate goals between industry stakeholders and national agencies, improving goal dependence between the two groups.

5.2. Recommendation 2: Integrate licensing between seaweed harvesting and farming

The robust tradition of community-led management is important social capital that can be ratified through formal legislation (i.e. a new licensing regime). Moreover, a perceived mismanagement of seaweed licensing by the DHPLG has eroded users' trust in that department; seaweed licensing may be better regarded through DAFM. This is especially true as some users consider diversifying to both wild seaweed, farmed seaweed and other aquaculture products; a stream-lined licensing process within one department could reduce red tape. Additionally, positive perceptions of *Bord Iascaigh Mhara* within DAFM could encourage the transition.

5.3. Recommendation 3: Localise seaweed management to improve spatial and temporal adaptability

Regardless of the outcome, new licensing regimes are likely to cause conflict between those seeking to protect their traditional rights and new businesses hoping to access seaweed. The shift in policy and governance has important cultural and environmental effects at local scales, however, which may sit at odds with stated blue growth targets. Depending on the vantage point, defining sustainable outcomes is made nearly impossible due to the "tensions between the global and the local" (Stratford 2003, 495). Enshrined mandates such as ecosystem-based approaches to management

(see Article 1.3 of the Marine Strategy Framework Directive 2008/56/EC and Article 5.1 of the MSP Directive 2014/89/EU) successfully reinforce existing national and Europeanised institutions (Qiu and Jones 2013). Yet evidence of mandate effectiveness at achieving policy goals like sustainable growth of blue economies through locally-focused, adaptive governance, is less certain (Abramic et al. 2020; Carr 2019; Cavallo et al. 2017).

These issues will be especially difficult to resolve if ownership (and exclusion privileges) of seaweed resources is tightly held at national levels of government. Local Agenda 21s (LA21s), enacted by municipal governments, are perhaps more likely to align with local knowledge and traditions of harvesting. LA21s, which synthesise environmental, socio-cultural and economic considerations, are especially well prepared to produce adaptive policy which can respond to the variability in seaweed harvesting methods, intensity and seasonality across Ireland's West Coast (Freeman 1996). Seaweed is often seen as a *social bank*, a flexible source of income for coastal communities to dip into during times of financial stress (Mac Monagail and Morrison 2020). For example, economic impacts during the COVID-19 epidemic increased seaweed harvesting (*Afloat Magazine*, November 24, 2020). Such small-scale temporal variability complicates national licensing regimes which favour large-scale, long-term licensing applications. Additionally, national ownership and control of withdrawal rights might favour those groups (international corporations, processor collectives) who are able to lobby at those higher levels of governance. Future research that gathers communities to craft management plans would help demonstrate how these priorities could be resolved on a local level and provide a model for LA21 implementation under the *NMPF* vision for Irish seaweed harvesting.

Notes

1. Now named the Department of Housing, Local Government and Heritage (DHLGH). However, DHPLG is used to remain consistent with stakeholder interviews, except when referencing new publications (e.g. DHLGH 2021).
2. Only applications deemed complete are available for public view; more applications have been made that are yet to be termed complete and so are not included in this review.

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