



# ‘Getting the Right Nutrients to Those Who Need Them Most’: towards nutrition-sensitive governance of fisheries in the Global South

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Received: 10 May 2022 / Accepted: 15 November 2022  
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**Abstract** Here we propose a framework and agenda for nutrition-sensitive governance (NSG) of fisheries that rethink dominant paradigms of fisheries governance and propose measures to incorporate nutrition-related objectives into fisheries governance. Fish, rich in micronutrients, have potential for improving the nutritional status of coastal and riparian communities, particularly in the Global South where inadequate nutrition is prevalent. Yet, the potential for fish to alleviate malnutrition remains limited to policy documents and high-level government commitments. We propose an agenda for NSG in the Global South grounded in three main pillars: 1-extending the boundaries of fisheries governance, 2-integrating multiple forms of knowledge, and 3-prioritizing domestic and local needs; each of these pillars links different levels of governance starting at the level of conceptualization and images connected to what fisheries are and should do, to a more policy-oriented level with hands-on recommendations, through an intermediate level that links the two. Overall, we propose a concept and agenda for NSG grounded in a human-centred approach to fisheries governance with social sciences playing a crucial role in unearthing

the nodes of power that limit access and agency of poor and vulnerable (fishing) communities to the nutritional benefits of fish. In doing so, we critically analyze dominant fisheries governance agendas (‘Blue Economy’, ‘Blue Growth’) through the lens of food and nutrition security and anchor these debates to the objective of *getting the right nutrients to those who need them most*.

**Keywords** Fisheries governance · Nutrition and food security · Global South

## Background

Micronutrient deficiencies, or hidden hunger, are estimated to affect over half of preschool aged children and two thirds of women of reproductive age globally, with these deficiencies particularly pronounced across the tropics (Stevens et al. 2022). These micronutrient deficiencies can have lifelong health impacts, limiting growth and development, and reducing countries GDP’s by up to 10% (Victora et al. 2008; Hicks et al. 2019). Fish, when adequately targeted, have a role to play in addressing these micronutrient deficiencies, given that many species are dense in micronutrients such as Vitamin A, B12, iron, and zinc, and are especially concentrated when dried, and therefore easily distributed (Byrd et al. 2021).

Food systems are at crisis point, with the need for transformation well recognised (Webb et al. 2020).

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**Table 1** Nutrition-Sensitive Governance of fisheries in the Global South: a glossary of relevant terms

<i>Governance</i>
Ways of organizing government and other public institutions, civil society, and private actors in order to create opportunities or solve problems (Meuleman 2008)
<i>Governance for nutrition</i>
The process by which impact on nutrition by non-nutrition policies (e.g. policies in fisheries, education, and trade) is leveraged or mitigated (Gillespie et al. 2019: 14)
<i>Sustainable food systems</i>
Integrated approaches to production, distribution and consumption of food based on diversity of food and nutrients for optimal health of both human beings and natural eco-systems (Webb et al. 2020)
<i>Blue Economy and Growth</i>
A vision for ocean as new 'economic frontiers' with economic value driving utilization of environmental resources (Shutter et al. 2021)
<i>Blue Justice and De-Growth</i>
A counter-argument and agenda to those connected to the Blue Economy and Growth 'imperative' for an 'alternative imaginary' of oceans, human-centred, and with a more equitable distribution of benefits (Ertör and Hadjimichael 2020: 4)

Countries in the Global South, in particular across Sub-Saharan Africa and south Asia, have particular felt the brunt of the negative effects of current food systems. For example, food security policy has historically focused on addressing hunger in the Global South, which has led to a focus on increasing caloric intake through productivist approaches, rather than seeking redistributive strategies. The result is diets in low-income countries are dominated by starchy vegetables, including rice and maize, and lack micronutrient rich foods necessary for healthy growth (Miller et al. 2022). In addition, countries of the Global South have suffered a fundamental lack of influence in decision-making power within the increasing corporatization of the global food industry focused on profit and spearheaded by a small number of transnational corporate firms (Clapp 2021) and creating a dependence on food import (Clapp 2009).

The place that fish and other aquatic foods have come to occupy within these current debates is that of a sector with an 'untapped potential' (Thilsted et al. 2016). Given the high concentration of micronutrients, fish is increasingly being considered by fisheries and nutrition scientists alike to have the potential, if given the necessary consideration, to become a major source of these micronutrients accessible by people and communities in developing countries where

access to micronutrients is otherwise poor (de Bruyn et al. 2021; Kawarazuka and Bene 2011). Increasingly, 'Blue Food' initiatives are emerging<sup>1</sup> based on evidence that shows the extent to which aquatic foods, from both capture fisheries and fish farming (Chan 2019, Farmery et al. 2021; Thilsted et al. 2016) as a source of nutrition can potentially aid the development of healthy and sustainable diets (Golden et al. 2021; Hicks et al. 2019), for human health, and for the overall ecosystem (Gephart et al. 2016).

In order to achieve results in this direction, more efforts are needed in the policy making arena and by researchers to integrate aquatic foods into broader systems that merge nutritional aspects to other key social, environmental, and economic spheres (Simance et al. 2022). Efforts to increasing the amount of these foods (ie. through increased production) are important but not sufficient and need to be combined with efforts to ensure that what is there goes to those that need it most—this is the space that needs governance the most, so that decisions are not made to maximize production or trade before securing food.

<sup>1</sup> For instance, the Blue Food Assessment joint initiative led by the Stockholm resilience Centre; see <https://bluefood.earth/>.

## A call for nutrition sensitive governance (NSG) in the Global South: *getting the right nutrients to those who need them most*

Our call for a nutrition-sensitive approach to the governance of fisheries in the Global South taps into a number of connected concepts, processes, and fields of inquiry of which we give a brief glossary below (Table 1.), starting with the concept of governance itself, and that together shape relations that humans establish with nature and environment. At the foundation of our call is the necessity to introduce nutritional outcomes as a crucial objective of fisheries governance, in its own right, and as a major driver of overall sustainability—we call for a Nutrition-Sensitive Governance to tackle current food and nutrition-related challenges endured by poor and vulnerable fishing communities in the Global South stemming from the primary objective of *getting the right nutrients to those who need them most*.

Governance is a complex arena and the process of decision-making is sometimes obscure. Adding nutrition-related objectives to official policies or strategies is not sufficient as even attempts at measuring results and decisions in nutrition governance can be problematic, for instance how to measure (e.g. what indicators to include) governments' 'commitment' or 'capacity' in addressing nutrition-related questions (Namirembe et al. 2021, 2022). To tackle these complexities and make headways in its endeavours, a nutrition-sensitive governance of fisheries requires breaking outside of the technical arena of 'implementation' and develop links between theory and practice, values and actions, and between different forms of knowledge, requiring changes in the current ways fisheries are thought of and managed.

To a great extent, fisheries governance debates have concentrated on the question of *objectives*, including in the Global South. The narrative of global fisheries crisis (Allison 2001) has led to debates about conflict between the economic and ecological objectives as the current state of affairs, and harmonization (of the objectives) as the principal ambition, against a backdrop ridden with stumbling blocks. The fundamental question of how (and whether) conflicting objectives can in fact be pursued in parallel have arisen (Brochier et al. 2018; Cross 2015; Ferraro and Brans 2012; Hara 2013; Querou and Tomini 2013). Despite undeniable progress in the last couple of

decades towards 'reconciliation' (Cochrane 2021), global fisheries have been exploited at a productive capacity that has been often artificially enhanced through global government subsidies to lower costs for fuel and vessel construction (Sala et al. 2018; Sumaila et al. 2021; Tickler et al. 2018). This has resulted, after decades of consistent pressure and negotiation from a number of fisheries scientists and activists globally, in a World Trade Organization ban on fisheries subsidies (Sumaila et al. 2021; WTO 2022).

The Global South, more than developed countries, has experienced mixed results towards reconciliation of different objectives within the complex undertaking of fisheries governance (Cochrane 2021). Despite the good resolutions of supporters of ecosystem-based approaches, which in the realm of fisheries have branched out into Ecosystem Approach to Fisheries under the wings of FAO (Cochrane et al. 2009; Purcell et al. 2014; Ratner and Allison 2012), the prospects of a sustainable future through trade-offs between 'human well-being' and 'ecological well-being' (Hara 2013) and integration of economic, ecological and social dimensions have struggled to see a real validation in terms of governance assessment and options beyond the principles being spelled out on paper (Ratner and Allison 2012: 381).

Over time, the basket of ideas for better governance has been gradually topped up with new terminologies for governance market-based tools such as fishing quota, total allowable catches (TAC) (Fabinyi and Barclay 2022: 6) or the so-called 'wealth-based' approach (Bene et al. 2010; Cunningham et al. 2009; Ratner and Allison 2012: 377), i.e. an 'upgraded' version of the 'rights-based' system founded on the 'sustainable' reinvesting of economic resources obtained through rent for 'wealth-generation' (Ratner and Allison 2012: 377). Tools such as these, (re) fashioned and rebranded with state-of-art technical innovations, (re)mix the ingredients of an old recipe, that is, to continue to economically exploit ocean resources while avoiding resource degradation. Normative assumptions as to what fish and oceans *are* and what they should *do* remain unquestioned, being currently rather reinforced with new ideas of an 'untapped potential' of oceans for a new 'Blue Economy' (Cohen et al. 2019). While some of the predicaments of fisheries governance are in part embedded and inherent to the common-pool resource nature

of fisheries which makes some problems ‘wicked’ (Jentoft and Chuenpagdee 2009), fisheries governance can be another case of what Hajer et al. (2015) call ‘cockpit-ism’, that is the persistence, fixation, and illusion that technical solutions can be fine-tuned, particularly by national government and inter-governmental agencies, to steer towards sustainability, without a real mobilization of ‘new agents of change’, from businesses to civil society.

However, as of late, a number of conditions have arisen for a real debate around fisheries governance with nutrition at its core for fish and fisheries to be given the recognition deserved as a crucial source of livelihood across the Global South. In the first instance, the publishing by FAO in 2004 of the Voluntary Guidelines on the Right to Food, and in 2015 of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries. Although not legally binding, these strategies represent a growing recognition for local producers and small-scale fishers (Chuenpagdee 2018: 305) and are key for the governance of sustainable food systems that can contribute to the eradication of malnutrition (De Schutter 2014). Second, the consolidation of a food-related objective on the international development stage with a shift from ‘simply’ *eradicating hunger* based on a food security approach in the Millennium Development Goals framework to the more complex question of *nutrition security* in the Sustainable Development Goals framework. Thirdly, growing and more vigorous calls in the academic and development communities for integrating aquatic foods into healthy and sustainable diets through advocacy for policy shifts that realign objectives of fisheries policies with those of nutrition policies, hence consolidating efforts that so far have been done in (policy) silos (Bennett et al. 2021a, b, Tigchelaar et al. 2021).

A greater role of fish for nutrition security is possible at the intersection of these processes, within global food systems. This, however, necessitates debates and actions that cannot be exempt from fundamental issues of justice, equity and human rights (Allison et al. 2012; Bennett et al. 2021a, b; Ratner et al. 2014; Hicks et al. 2022). Food systems are altogether increasingly monopolized by a small number of actors (i.e. large corporations) which determine market dynamics, production and distribution, hence, access to food (Bene et al. 2019; Clapp 2021). This makes the question of sustainability of food systems,

ultimately, a matter of how to create more just food systems for all beyond technical solutions, such as increased (food) production (Foilieaux et al. 2017), better logistics, or increased income (for more food) (Herforth and Ahmed 2015; Hicks et al. 2022).

Making food systems fairer is a complex endeavour. On the one hand, there is indeed promise for countries and communities in the Global South to pursue sovereign food-related agendas as struggles for decolonization and self-determination continue to grow (Boidin et al. 2012; Rigg 2007). On the other hand, delving into the necessity of fairer food systems, one is confronted with different perspectives and interpretations that involve not only the possible solutions but the nature of the problem itself, making sustainability (of food systems) a slippery concept (Bene et al. 2019). Food sovereignty movements such as La Via Campesina are one possible direction to tackle justice in food systems but have been subject to criticism for being disconnected from an action-based agenda (Akram-Lodhi 2015; Cadieux and Slocum 2015).

Fish-as-food movements and motions for change have been made by scientists and food sovereignty advocates as well (Bennett et al. 2021a, b; Levkoe et al. 2017), but cannot elude the ‘messy reality of the present’ (Akram-Lodhi 2015: 563) in which they are embedded, making it hard to locate the nodes of power that block change. NSG can probe the (possibly unrealized) efficacy of food sovereignty movements and Blue Justice (Ertör 2021) and anchor them to the practical objective of ‘getting the right nutrients to those who need them most’; this is an agenda that extends to ‘doing’ food justice (Cadieux and Slocum 2015) by making important nutrients available to local communities, particularly to the poorer and more vulnerable.

### **Towards an agenda for nutrition-sensitive governance of fisheries in the Global South**

We propose an agenda for a Nutrition-Sensitive Governance of fisheries in the Global South grounded in three main pillars: 1-extending boundaries of fisheries governance, 2-integrating multiple forms of knowledge, and 3-prioritising domestic and local needs as summarised in Table 2. Each pillar links different levels starting at the level of conceptualization and images of fisheries governance

**Table 2** Pillars for a Nutrition-Sensitive Governance of fisheries in the Global South

Pillars for Nutrition-Sensitive Governance			
	Extending the boundaries of fisheries governance	Integrating multiple forms of knowledge	Prioritizing domestic and local needs
Conceptualization of fisheries governance	Move beyond governance models based on rights of access to water	Rethink what oceans (and other water bodies) <i>are</i> and what they should <i>do</i>	Nurture a human-centred image of fisheries
Intermediate level	Incorporate pre- and post-harvesting phases	Incorporate local categorizations of fish in governance of fisheries	Anchor Human Rights in fisheries to the objective of ‘getting the right nutrients to those who need them most’
Policy-oriented recommendations	Recognise social difference – small-scale actors along the fisheries value chain (women traders)	Link local categorizations of fish to governance tools	Balanced diets as provider of sustainability checks
			Facilitate downward accountability

to a more policy-oriented level with more hands-on recommendations.

Extending the boundaries of fisheries governance: practices, networks, actors

To start with, for NSG to happen, paradigms and models that have driven action in fisheries governance to date need to be called into question, particularly fisheries governance narrowly conceived of as management of natural resources geared towards, and limited to, setting rights of access to water for fishing. These ‘models’ have been applied in the Global South to respond to dynamics and doctrinal systems originated elsewhere, including the so-called co-management, or polycentric, model as one of the building blocks of the liberalization agenda and hardly resulting in an actual devolution of power for management of natural resources despite the bottom-up community-based principle (Allegretti 2019; Morrison et al. 2019).

To work towards such direction, the first step needed is to extend the boundaries of fisheries governance beyond the activity of fishing and include pre- and post- ‘harvesting’ (i.e. fishing) activities into the picture and realm of fisheries governance (Basurto et al. 2020; Pihlajamäki et al. 2018). Fisheries governance has often been limited to dictating *who is* ultimately entitled to go into the waters to ‘exploit’ the natural resources (ie. fish) for economic

gains, and *who is not* entitled (to go into the waters), in order to preserve ecological equilibrium, and according to such concepts as maximum sustainable or economic yields. This is a quantitative (and short-sighted) approach that has in history biased fisheries governance as much as land-based systems such as pastoralism with the comparable ‘maximum land carrying capacity’ concept, used as foundation of negative ‘tragedy of commons’ images connected to pastoralism and obscuring the whole host of benefits that come from it (Nelson 2012).

Instead, fishing is an undertaking that involves a wide host of practices and meanings at local level among communities; as Basurto et al. 2020 argue, “fishing starts at home cooking the food needed for the outing” (p. 1) and includes all pre-harvesting negotiations that lead to the final outcome of who goes into the water, what happens to the catch afterwards (Pihlajamäki et al. 2018), the commoditizing potential of fish, and how all these dynamics eventually affect the ‘food plate’ (Noack and Pouw 2015). This requires extending the gaze to the whole host of local circles and networks of exchange in which fish is embedded with money and food as well as more intangible assets and access to such things as (political) power, claims of or access to specific memberships, and belonging. These provide an entry into economic, ecological, and social milieus, as well as the micro politics that ultimately determine people’s food plate.

Extending the gaze to the whole host of practices that occur in the pre- and post-harvesting phases of fisheries necessarily entails recognising *social difference*, that is, the wide range of actors in the fisheries value chain, particularly those who are often forgotten such as poor female traders at the margins of global fish markets (Harper et al. 2013; Lawless et al. 2021). Social difference intersects with differentiated nutritional needs, and downward accountability as a mechanism to ensure representation. This resonates with other calls for nutrition sensitive governance, such as nutrition sensitive agriculture, and the necessity highlighted to extend the gaze of the governing enterprise beyond production, price or income, to *access* (to food) and the social dynamics that determine it, for instance those gender-based and related to women's status and empowerment (Ruel et al. 2018; Sherma et al. 2021).

#### Integrating multiple forms of knowledge: using the social science gaze to rethink images of fisheries

To extend the boundaries of the realms of governance beyond 'harvesting' does not mean to extend the bureaucratic arm of fisheries administrations and governments' rules and restrictions over other aspects of the fish-based economy. This would only have the negative effect of extending the oppressive arm of normative judgements and frameworks on vital spaces for community self-governance grounded on local context and knowledge that respond to local needs and values. Quite the opposite, extending boundaries of governance should be done at the fundamental level of conceptualization, to question the boundaries of governance models in the first place, and what ideas of fish, oceans, and water bodies in general they are based on. NSG should bring to the surface the constraints and limitations of conceiving fisheries governance as an undertaking driven by one single set of values, objectives, or models. Recognising these limitations should lead to integrating different forms of knowledge that drive fisheries globally—this is the second pillar of NSG.

Knowledge production about oceans and fisheries has historically been guided by a particular (constructed) image of oceans, and everything they contained, as *natural* places, 'unpeopled', and providing a platform for humans to economically exploit its resources (Campbell et al. 2016: 519). This has been

the outcome of the application of specific knowledge tools grounded in the natural sciences with natural scientists being vested with the task of 'knowing' the oceans through such tools (Campbell et al. 2016: 523). This limited vision calls for (re)integrating multiple forms of knowledge, that is, to envision a multi-disciplinary, cross-sectoral approach that breaks disciplinary and sectoral silos, and with social sciences at the forefront to look at how fish shifts between regimes of value, hence regimes of governance, how these dynamics affect the circles and networks of exchange and, ultimately, nutritional outcomes.

One possible way of working towards multi-faceted images and visions behind oceans and fisheries is to depart from the analysis of the *transformations* and *conversions* to which fish is subject as it 'moves' across all the stages of the value chain, from pre- to post-harvesting, and along the continuum between the small-scale fisheries and large-scale fishing industry. Looking at transformations and conversions entails looking at the different categorizations and regimes of value to which fish is subject—value that is not set by normative models of governance, but rather emerges from the ways in which humans 'think like a fish' (Bear and Eden 2011; Duggan et al. 2014), that is, through multi-faceted relations that people and institutions establish *with* fish and with each other *through* fish, in relation to its behaviour, size, and other contextually-defined characteristics. This is a 'relational approach' (Fabinyi and Barclay 2022: (1) that points to the necessity to look at the *processes* vis-a-vis the structures or normative principles underlying models of governance. Transformations of fish between regimes of value are about performances, negotiations and discourse that determine how fish is managed at the intersection of different levels of management, markets, and overall governance and may occur in line or in conflict with the institutional framework set by policy documents and governance models.

The social sciences have a crucial role in an analysis and application of a new 'human-centered' governance reframed around the analysis of transformations and conversions of fish. The focus on process, relations, and performance that is characteristic of anthropology has led fisheries social scientists to delve into the myriad of classifications and categorizations that fish is subject to, such as for instance, 'wild' and 'cultured' and how this determines markets, trade and consumption dynamics (Lien and Law

2011). Also, the understanding of different (spatial) structures of power, unearthed by critical geographies and political ecologies, according for instance to a critical institutionalism perspective, within which performances and processes occur (De Koning and Cleaver 2012; Hall et al. 2014), can help overcome fisheries being exclusively the realm of natural sciences that in history have ‘render(ed) people and their resource claims invisible’ (Campbell et al. 2016: 523).

Through the social science eye, NSG can spearhead images of governance and fisheries that are by and for the people—images more intimately connected to people’s needs, the domestic hearth, good health through family-based practices of feeding and nurturing. Acting on global ‘images’ of fisheries (Jentoft and Chuenpagdee 2015; Kooiman 2008; Song et al. 2013) can shape the context in which governance tools and ‘best practices’ are devised; it is clear that these lag behind in recognizing the potential of aquatic food for food and nutrition security because of the limited understanding of the role that fish play for people’s livelihoods (Farmery et al. 2021).

Prioritising domestic and local needs: towards a human-centred governance framework for achieving Blue Justice

Sustaining human-centred images of governance through the social science gaze taps into the fundamental questions of sustainability and equity, leading to the third pillar of NSG, that is, to prioritise the domestic and local needs of the poor and most vulnerable. Until a decade ago, social sciences had a marginal role in the analysis of fisheries systems and ocean governance. This led to an inadequate understanding of the political economy of fisheries, that is, how evolving relations of production and consumption hid (and hide) away unequal relations between the different actors and categories involved in fisheries (Havice and Campling 2021). Few would question that to continue with life on the planet as we know it, humans will need strategies to cope with climatic change, shrinking resources and growing population. Crucial questions in relation to achieving equity within a sustainable utilization of fishery natural resource, however, have not yet found clear answers, such as: sustainability *of what?* And *for whom?* (Farmery et al. 2021: 12).

Looking at fisheries with the eyes of social scientists can help deconstruct and overcome negative images such as the ‘race for fish’ or ‘tragedy of commons’ that associate human activity in fisheries, ironically, often by the smaller scale fishers rather than large-scale actors, to threats to oceans, when seen as a stronghold of ecological conservation (Allison et al. 2012). Social scientists have the crucial role as the ‘watchdogs’ of a human-centred appreciation for oceans (Ommer et al. 2009) within latest global discourses of an ‘untapped potential’ of oceans driving the Blue Growth agenda (Ertör and Hadjimichael 2020). This has been embraced enthusiastically in the Global South (Childs & Hicks 2019), and has become an ‘imperative’ for a new global vision in ocean management (Ertör and Hadjimichael 2020), but referred to by others, in more blunt terms, as the new shiny rebranded ‘blue’ version of green grabbing (Barbesgaard 2018; Okafor-Yarwood et al. 2020).

Because of these dramatic developments, in the last decade, the questions of power imbalances and structures of inequalities that the social science perspective can bring out through analysis of transformations and conversions have been analyzed through the lens of human rights approaches (HRAs) and Blue Justice (Allison et al. 2012; Bennett et al. 2021a, b; Ertör 2021; Mills 2018). The notion that fisheries can be sustainable only once fishers are lifted out of a condition of vulnerability, which unfortunately bonds small-scale fishers across the Global South, helps focus on the conditions that lead to vulnerability which are dictated by a fundamental lack of basic human rights (Allison et al. 2012).

HRAs are a complex proposition to put into practice for necessitating the sort of structural changes at the level of meta-order or image of governance that also NSG envisions; NSG fully embraces the cause of human rights and Blue Justice advocates and envisions the utilization of nutritional outcomes as tangible objective and proxy through which overall well-being can be achieved and measured. NSG anchors HRA to the tangible objective of *getting the right nutrients to those who need them most* for human rights approaches to have more traction. NSG can help Human Rights advocates overcome the criticism to which HRAs in global fisheries have been subject, that is, to constitute a ‘replacement’ of ‘good governance’ as one of the aid conditionalities in North–South relations which reproduce the neoliberal

agenda in the Global South mediated by market (unequal) relations (Ruddle and Davis 2013). Nutritional outcomes are a tangible and measurable objective, not mediated by market-based tools that have driven global fisheries governance, and can lead to mechanisms to allow fish to be consumed by fishers (and their families) themselves before it enters larger markets (national and international).

Anchoring human rights to a tangible objective of *getting the right nutrients to those who need them most* requires steering away from governance paradigms based on technical solutions that characterize ‘anti-politics’ approaches in management—approaches that are currently bolstered by the kind of ‘depoliticization’ of ocean governance associated with the advancing of the Blue Economy (Shutter et al. 2021). Sustainability can neither be achieved nor measured through ‘technical’ approaches as even the tools to measure it can be and have been subject to scrutiny (Hajer et al. 2015; Hicks et al. 2016). Social sciences debunk the false beliefs behind technical solutions; one such solution in the food-related realm of fisheries is what Brent et al. (2020) call the ‘protein fix’, that is, the confidence in the emerging aquaculture sector, with the associated policy attention and related investments in technology, as the panacea for protein deficiencies across poor communities. This is a key pillar of the Blue Growth agenda which is reinforced by narratives of declining capture fisheries and by omitting associated pitfalls in the development of aquaculture (e.g. the dependency on capture fish for feeds) by the Blue Growth proponents (Brent et al. 2020: 37).

Development models and paradigms that favour ‘quantity’, e.g. *more* food, *higher* income, *increased* production, over ‘quality’, e.g. better access and distribution, reproduce the ‘productionist trap’ (Foilleaux et al. 2017) and the false belief that more food (produced) translates into food security for all—this is incorrect on two different levels: first, more food produced does not necessarily mean that it will reach those who need it, and second, even when food reaches them, it is not assured that it will be the kind of food that leads to better nutritional outcomes (ie. food rich in micronutrients, rather than saturated fat and refined carbohydrates). Other similar assumptions around quantitative paradigms and technical solutions when it comes to the ‘spillover’ effects on food and nutrition security have been

disproven or questioned, such as the direct link between higher income and better nutrition, or the positive effects on nutrition of healthy natural ecosystem (Farmery et al. 2021: 12).

NSG uses balanced and sustainable diets as the providers of the sustainability checks for the overall functioning of governance. NSG is revolved around diet and nutrition rather than income/profit, or natural ecosystem conservation, to set off positive processes with spillover effects beyond nutritional outcomes. Sustainable diets and nutrition are not revolved around quantity and production (i.e., more food) but rather quality and diversity—this fundamental shift of paradigm favours smaller-scale fisheries, which often produce more diverse catches in terms of species including more nutritious smaller fish, vis-à-vis industrial production which commonly relies on single species (and less nutritious bigger fish) depending on global market demand. Favouring smaller-scale production and consumption works towards the achievement of the goals of food sovereignty and ‘Blue Justice’ fishers’ movements that have flourished recently (Mills 2018) and the lowering of footprint according to major indicators (Gephart et al. 2016).

The link between nutritional outcomes and (blue) justice is crucial for NSG of fisheries. Blue Justice can be achieved if processes of downward accountability are set off, that is, the recognition of and devolution of power to actors whose contribution is often forgotten but crucial in the fishing industry such as women employed as gleaners, traders, processors (Weeratunge et al. 2010). Enhancing downward accountability sustains emerging ‘degrowth’ struggles (Ertör and Hadjimichael 2020) against injustices and failures of the ‘growth’ agenda. For this to happen, fish and other aquatic or ‘blue’ foods need to be ‘rediscovered’ to spearhead policy changes and for fish and fisheries to break out of the economic arena or the arena of ecology and environmental conservation in which they have normally been debated. Constraining fish and fisheries to these arenas has in history reinforced upwards accountability towards powerful actors and institutions such as large-scale industries or national governments and pushed small-scale fishers and their communities to the margins.

**Funding** This work was supported by the European Research Council, Starting Grant number 759457.



## Declarations

**Conflict of interest** The authors have no competing interests to declare that are relevant to the content of this article.

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