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Socio-economic value of fisheries – Annex A: Conceptual Framework (MMO1387)



...ambitious for our seas and coasts

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Annex A Conceptual framework

A1 Introduction

This Annex summarises the theoretical and conceptual frameworks reviewed as part of the development of the conceptual framework for this project. The conceptual framework is then used to guide the evidence review and the development of wellbeing outcome indicators.

Understanding the wellbeing outcomes from fishing and how to measure them is challenging. Outcomes from fishing have been conceptualised in many ways, drawing upon different disciplinary perspectives. Dominant schools of thought in current political and governance usage include wellbeing and sustainability. These are, however, interconnected approaches with common threads.

To make these approaches useable, the MMO requires an operational framework that can identify the wellbeing outcomes associated with fishing and the impacts of management measures or other drivers on those outcomes. Development of the framework needs to consider theoretical approaches that frame and help explain what the wellbeing outcomes of fishing are and how they may emerge. It also needs to include an understanding of what data should be collected over time to track the impact of interventions on wellbeing outcomes.

Drawing on the wellbeing and sustainability literature (including capitals and ecosystem service approaches), this report briefly presents frameworks that can be used to explain the wellbeing outcomes of fishing. It then draws them together into a conceptual framework. It aims to connect the different theories, assumptions and beliefs about the wellbeing outcomes of fishing, unveiling important relationships that can be used to drive further study and inform decision-making. We pay particular attention to how this conceptual framework can be embedded within existing decision-making approaches.

A2 Understanding the wellbeing outcomes from fishing

This section provides a brief overview of theoretical and conceptual frameworks that can be used to explain the wellbeing outcomes from fishing. It is not designed to be comprehensive, but to introduce key concepts including (1) the five capitals approach, cultural capital and natural capital; (2) cultural ecosystem services, place-based and values-based approaches; and (3) social wellbeing.

A2.1 Capitals approaches

A2.1.1 The five capitals framework

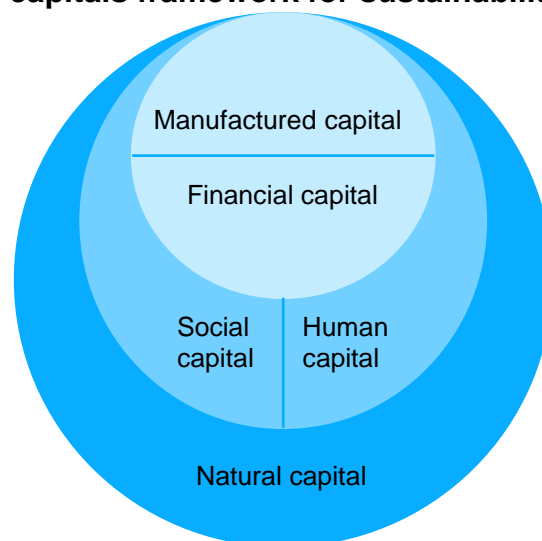
The five capitals framework (Porritt, 2005; Ekins, 1992) emerged from debates around sustainable development and focuses on the maintenance of five stocks of

capital (Figure A 1), rather than the flows of goods and services from them (e.g., Gross Domestic Product - GDP). The five capitals are¹:

- **Natural capital:** any stock or flow of energy and materials that produces goods and services (e.g., renewable and non-renewable resources; sinks that absorb, neutralise or recycle waste; processes such as climate regulation).
- **Human capital:** people's health, knowledge, skills and motivation.
- **Social capital:** the institutions that help us maintain and develop human capital in partnership with others (e.g., families, communities, businesses, trade unions, schools, and voluntary organisations).
- **Manufactured capital:** material goods or fixed assets which contribute to the production process rather than being the output itself (e.g., tools, machines and buildings).
- **Financial capital:** plays an important role in our economy, enabling the other types of capital to be owned and traded. Unlike the other types, it has no real value itself but is representative of natural, human, social or manufactured capital (e.g., shares, bonds or banknotes).

In some representations of the model, manufactured and financial capital are combined as economic capital, allowing exploration of other capital forms, such as cultural capital (see **A2.1.2 Cultural capital** below). Definitions for each capital have subsequently been refined. These are discussed in MMO (2023) and are not repeated here.

Figure A 1 The five capitals framework for sustainability (from Porritt, 2005).



The capitals framework conceptualises sustainability in economic terms (i.e., that capitals contribute to wealth creation) with an emphasis on organisations. Sustainable organisations maintain and enhance these capitals, rather than degrade them. It has been used to explore livelihood strategies (Rakodi, 1999; Scoones 1998) and it forms the basis for the OECD's wellbeing framework (OECD, 2020).

¹ All definitions have been taken from The Forum for the Future (2020) [The five capitals – a framework for sustainability](#), which draws on Porritt (2005).

Capital assets are assumed to lead to flows of goods and services that generate wellbeing. The model presupposes that capitals can be stored, transformed, exchanged or used to create those flows (Porritt, 2005). Application of the approach requires an assessment of all capitals rather than each in isolation.

Marine applications of the capitals approach are limited. The MMO (2023) explored its use to support marine planning and understanding of carrying capacity and trade-offs, but there are no readily available examples of its application to fisheries beyond its use in a sustainable livelihoods context. The sustainable livelihoods framework (e.g., Scoones, 1998) assumes that the ability of individuals and communities to pursue different livelihood strategies (e.g., fishing or farming) is dependent on the tangible and intangible assets or capitals that the individual and or community has access to (as per the five capitals framework). Access, use and transformation of capitals is considered alongside people's desired livelihood outcome, their livelihood strategies, the institutions, policies and organisations that determine access to assets and the individual's vulnerability context (Ashley and Carney, 1999).

Allison and Ellis (2001) take a sustainable livelihoods approach (that builds on the sustainable livelihoods framework) to small-scale fisheries in low-income countries to gain insights into conventional fisheries management policies (including community and territorial use-rights approaches). They found that incomplete understanding of livelihoods can result in the application of management approaches that are incompatible with resource conservation and the social and economic goals of fisheries management (i.e., desired wellbeing outcomes).

A2.1.2 Cultural capital

Cultural capital is one of the least theorised forms of capital. It is not explicitly considered in either the five capitals approach or the sustainable livelihoods framework, and there is no consensus in the literature about how it should be understood or deployed (Hale et al., 2023). Cultural capital is recognised as being distinct from other forms of capital. Like other forms of capital, it can be material (e.g., pictures, books, machines), but it can also be embodied (e.g., dispositions of mind and body), and institutionalised (e.g., in the form of qualifications) (Bourdieu, 1986). Bourdieu conceptualised cultural capital as a way of explaining social phenomena and as a contributor to "habitus", the way that individuals or groups perceive and respond to the social world around them (Bourdieu, 1977). The possession of cultural capital affects how social and cultural relations are made and remade, by whom and for whom. Alongside other capitals, cultural capital, is considered a resource and gives an individual the capability to be and act (Bebbington, 1999). Cultural capital enables cultural practices that are valued for their meaningfulness, and they can be highly associated with place. These practices are enabling and empowering in ways that the other forms of capital alone would not make possible.

Gustavsson et al. (2017) explores how cultural capital is accumulated, used and shared in a fishing context. Ownership of boats, machinery and equipment are interpreted as objectified cultural capital; the ability to demonstrate skills related to the use of fishing boats and machinery, and general working at sea represents embodied cultural capital; and certifications of competency provide an illustration of institutionalised cultural capital.

There are many challenges to the application of the concept of cultural capital, not least potential overlaps with other forms of capital. For example, objectified cultural capital (e.g., fishing boats) can be interpreted as manufactured or economic capital with an economic value, but this economic value does not represent the full range of values that these tangible objects represent. These wider values can be considered cultural value resulting from cultural capital (Throsby, 1999). Cultural capital may also overlap with social and human capital, although the extent to which they overlap depends on the definitions used. When embodied cultural capital is interpreted as skills and abilities, it may be considered human capital. When cultural capital is interpreted as social norms, values and beliefs it overlaps with definitions of social capital (when social capital is defined as a network of relationships *and* the properties of those relationships). All capitals, however, are interrelated and interlinked. The ability to use the concept of capitals therefore requires careful definitions as well as pragmatism.

A2.1.3 The natural capital approach

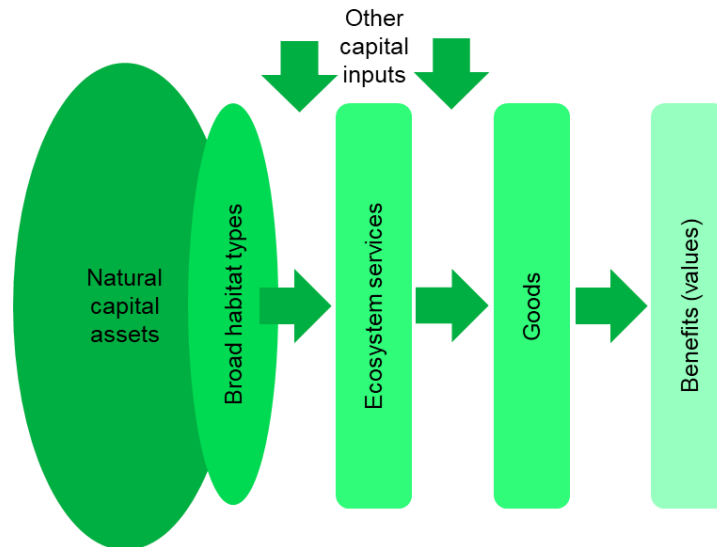
The natural capital approach has emerged from earlier work on ecosystem services. The Millennium Ecosystem Assessment (Millennium Ecosystem Assessment, 2005) developed a conceptual framework that explicitly focused on the contribution of biodiversity and ecosystems to human wellbeing via ecosystem services. Ecosystem services were defined as the benefits people obtain from ecosystems and were categorised into supporting, provisioning, regulating and cultural services. Ecosystem services were conceptualised as flowing from natural capital which, together with manufactured, human and social capital, forms society's productive base. A number of initiatives have emerged from the Millennium Ecosystem Assessment, including national and international assessments (e.g., the UK National Ecosystem Assessment and its Follow-On phase, and The Economics of Environment and Biodiversity).

Since the Millennium Ecosystem Assessment, the emphasis has shifted from ecosystem services to the positioning of ecosystem services in a natural capital logic chain. This natural capital approach (Figure A 2) focuses on the implications of change in natural capital for human wellbeing (Natural Capital Committee, 2014). It considers the value of the natural environment and ecosystems for people and the economy and is increasingly embedded in the UK's approach to public policy and decision-making.

The natural capital approach assumes that the quantity and quality of natural capital assets (e.g., fish stocks) affects their ability to deliver ecosystem services (Guerry et al., 2015). Ecosystem services are the conditions and processes of ecosystems that generate (or help to generate) benefits for people (such as the provision of seafood). People, often through the use of other forms of capitals, can access, use and / or enjoy ecosystem services, which in turn delivers valued benefits that contribute to human wellbeing. Institutions (e.g., property rights and access rights) will influence who can use different natural capital assets and ecosystem services and when, as will the nature of the ecosystem service. For example, use of an ecosystem service by one individual may exclude another from using or accessing that same service (i.e., they are private goods), while other forms of service may be equally accessible

by all and use by one does not affect or preclude use by another (i.e., they are public goods).

Figure A 2 Conceptual framework for the natural capital approach (Natural Capital Committee, 2014).



The natural capital approach has been used to illustrate how investment in the natural capital of fisheries can be both economically and ecologically viable (e.g., Döring and Egelkraut, 2008). The approach has also been used to support the development of fisheries management byelaws (e.g., Hooper, 2021). While informative, it is acknowledged that natural capital assessments are often limited in their ability to understand the social and cultural impacts of environmental change and the wider social and cultural benefits and values arising from interactions with the environment.

A2.2 Cultural ecosystem services, place-based and values-based approaches

A2.2.1 Cultural ecosystem services

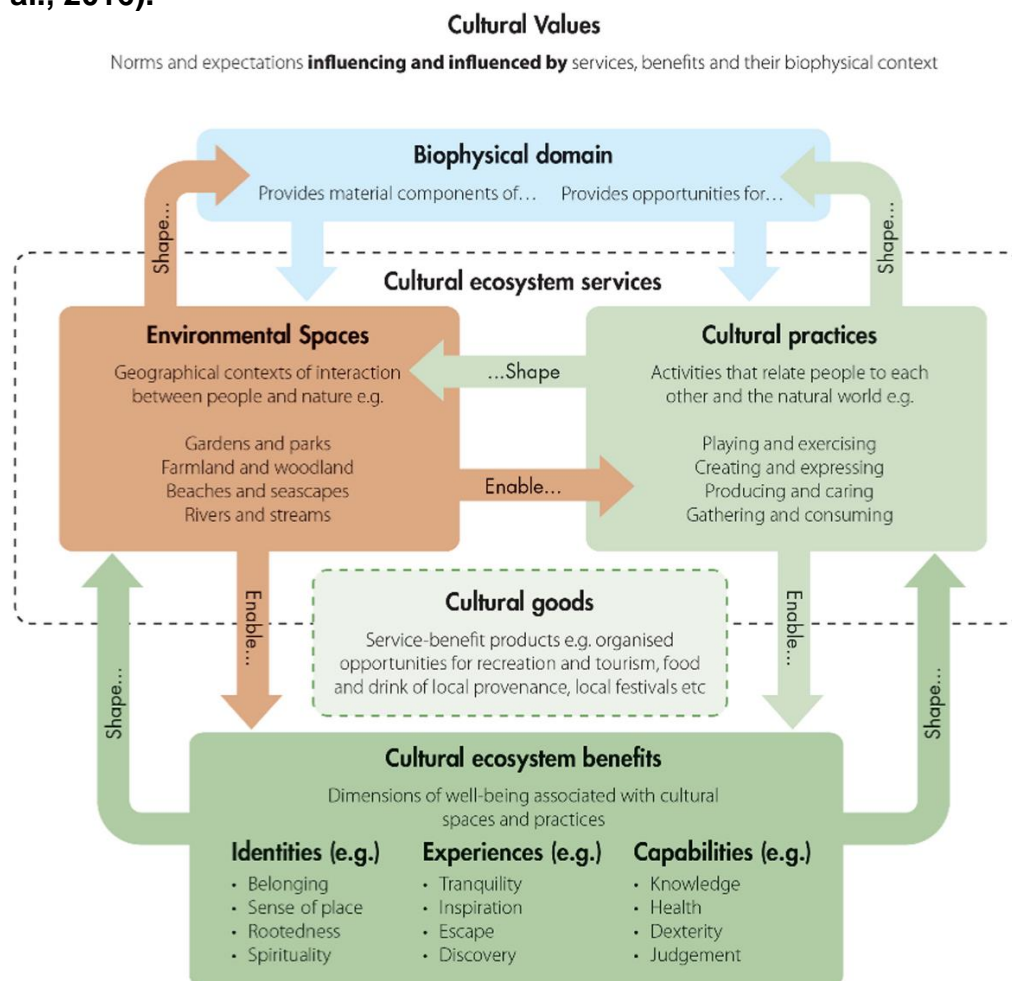
Cultural ecosystem services (CES) are one of the three main groupings of ecosystem services (alongside provisioning and regulating services²). Compared to provisioning and regulating services, there is less understanding of what constitutes a cultural ecosystem service, how they can be measured (especially quantitatively) and how they are valued (Fish et al. 2016). There is also a lack of evidence for how management interventions may affect CES as the link between the extent and condition of natural capital assets and CES is poorly understood.

² The [Common International Classification for Ecosystem Services](#) (CICES) defines provisioning services as “all material and biotic energetic outputs from ecosystems; they are tangible things that can be exchanged or traded, as well as consumed or used directly by people in manufacture” and regulating services as “all the ways in which ecosystems control or modify biotic or abiotic parameters that define the environment of people, i.e., all aspects of the ‘ambient’ environment; these are ecosystem outputs that are not consumed but affect the performance of individuals, communities and populations and their activities”.

Definitions of cultural services remain disputed and there is a lack of agreement over what constitutes a CES. There is growing recognition, however, of the relational nature of CES, and that they are co-produced and co-created through peoples' interactions with ecosystems (e.g., Chan et al., 2012). This moves away from the instrumental view of human-ecosystem relationships (Acott and Urquhart, 2018), i.e., that nature is valued as a means to an end. Fish et al. (2016, p. 212) therefore defines CES as the “*contributions ecosystems make to wellbeing through the identities they help frame, the experiences they help enable and the capabilities they help equip*”.

Fish et al. (2016) conceptualise CES as being enabled by the environmental spaces (i.e., places, localities, landscapes and seascapes) and species with which people interact (Figure A 3 **Error! Reference source not found.**). The environmental spaces and species shape, and are shaped by, cultural practices (e.g., playing and exercising, creating and expressing, producing and caring and gathering and consuming). Cultural practices enable the creation of cultural goods (e.g., tangible outcomes such as recreation and tourism, local festivals, heritage assets such as fishing boats and equipment) and cultural ecosystem benefits. Cultural practices (such as fishing) are the mechanisms that link cultural benefits to the biosphere and their cultural contexts.

Figure A 3 The conceptual framework for cultural ecosystem services (Fish et al., 2016).



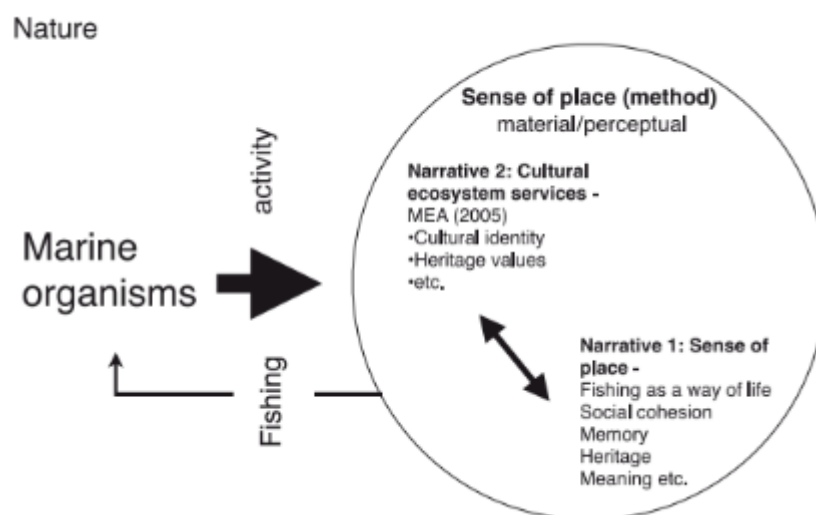
A2.2.2 Sense of place

The human geographical concept of place is an important element in the conceptualisation of CES in Fish et al. (2016). Place is a combination of location (a point in space), locale (the material setting for social relations) and sense of place (the feelings and emotions a place evokes, both individual and shared) (Cresswell, 2009). Places are also practised, with people doing and taking part in activities (e.g., fishing) in place, which contributes strongly to sense of place (Cresswell, 2009).

There is a growing interest in sense of place in the marine context. For example, the MMO has gathered baseline sense of place data to support marine planning (MMO 2019). Acott and Urquhart (2018) and Urquhart and Acott (2014) draw on the concept of sense of place (as a CES) to understand the complex, reciprocal relationship between fishers and the environment.

Figure A 4 illustrates how Acott and Urquhart conceptualise sense of place in the context of fishing. The physicality of a place is acknowledged and with this the link to natural capital and the co-construction of CES. Alongside which the material and intangible nature of sense of place are recognised as giving rise to a range of values associated with fisheries (e.g., heritage, spiritual, identity etc.). This narrative is located within the natural capital logic chain, recognising that the practice of fishing enables a range of social and cultural effects. A feedback loop between these outcomes, fishing activity and marine organisms indicates how social and cultural change can influence fishing activities and hence marine organisms.

Figure A 4 The sense of place conceptual framework (Acott and Urquhart, 2018).



A2.2.3 Values-based approaches

To fully understand the relationship between people and nature, it has been recognised that the diverse values held by individuals need to be considered (Diaz et al., 2015). The natural capital logic chain (Figure A 2) acknowledges the importance of understanding values but interprets value in an instrumental way. Changes in natural capital result in changes in ecosystem services, these lead to valued changes in the benefits people obtain from nature. This interpretation of value is

narrow and does not capture the wider ways in which people may have and express values for nature.

To address this shortcoming, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES 2022) has created a value typology based on:

Worldviews: the ways through which people perceive, conceptualise and modify the world, rooted in cultures and languages (IPBES 2022 from Olsen et al., 2019). They have a critical role in shaping how values are constructed, expressed and assessed.

Broad values: people's life goals and general guiding principles towards the world that are informed by their worldviews (Dietz et al., 2005). Examples of broad values include moral principles, such as justice, belonging and freedom, but also life goals, such as enjoyment, health, and prosperity.

Specific values: the opinions on or judgements of the importance of specific things (e.g., nature) in particular situations and contexts (IPBES, 2022). There are three main types:

- **Instrumental values**, the importance of nature as a means to achieve a particular end (e.g., to satisfy human needs, interests or preferences) (IPBES 2022).
- **Relational values**, preferences, principles, virtues associated with relationships, both interpersonal and as articulated by policies and social norms. They include "eudaimonic" values associated with a good life and are not present in things but derived from relationships and responsibilities to them (Chan et al., 2016).
- **Intrinsic values**, that something has value as an end-in-itself or has inherent or moral value that is not tied to human purposes (Rea and Munns, 2019).

All of these value types, combined with worldviews and knowledge types, will shape the behaviour of individuals, societies and organisations as well as their attitudes to nature. Understanding these diverse values will therefore be important for understanding how, for example, fishers and fishing communities may respond to fisheries management and how fisheries management may influence the social, cultural and economic outcomes obtained from fishing activities.

A2.3 Three-dimensional wellbeing model

Changes in wellbeing result from interactions with the environment. Wellbeing is a complex, multi-dimensional concept for which there is no agreed or unified definition (Dodge et al., 2012). It is assumed to comprise of both material (the assets an individual has that can be objectively measured) and subjective (how a person thinks and feels about their quality of life) dimensions. A more social interpretation also recognises that resources and the outcomes from their use are characterised by their use within a social and cultural context. This has led to the development of the concept of social wellbeing (Gough and McGregor, 2007; White, 2010).

In addition to material and subjective wellbeing, social wellbeing recognises the relational dimension of wellbeing – what an individual does through social

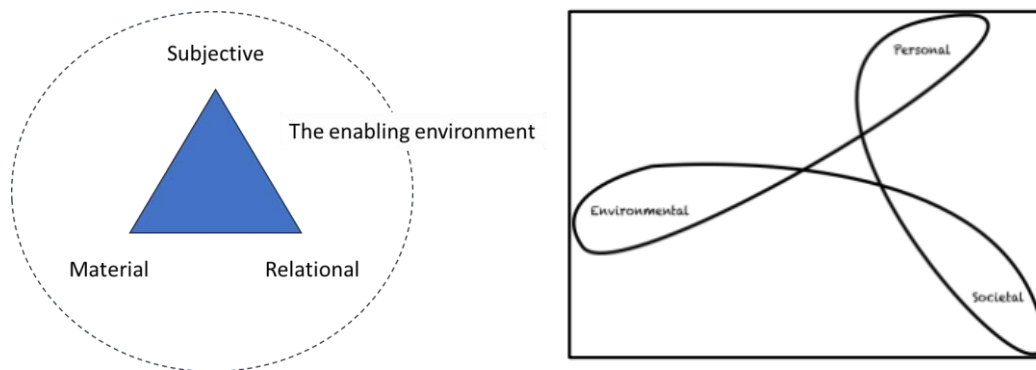
relationships to enable or disable processes contributing to wellbeing (Johnson et al., 2018; White, 2015). The bringing together of these three concepts resulted in the emergence of the three-dimensional wellbeing model.

In the three-dimensional wellbeing model, wellbeing is not simply an outcome (a state that individuals do or do not possess or experience) but a process that should be situated in the context (social, political, economic, environmental) in which an individual operates (Coulthard, 2012; White, 2015). An individual's wellbeing is interlinked with societal wellbeing, which in turn is linked to environmental wellbeing (Figure A 5). The relationship between these three elements may vary over an individual's life course.

Each of these elements of wellbeing can be considered in relation to different forms of capital or resources (White, 2010; White, 2015). Relational wellbeing draws on social and human capital, both of which will be dependent upon cultural and social norms and context. Individuals therefore become who and what they are as a result of the things that they have as well and through their relatedness to others and their environment.

In the context of fishing, it has been argued that the social wellbeing approach can help to provide a deeper understanding of the social impacts of fisheries decline (on fishers, their families and communities) and provide insights into fisher behaviour (e.g., Britton and Coulthard, 2013; Coulthard 2012).

Figure A 5 The three-dimensional wellbeing triangle (left; White 2010) and the concept of wellbeing as a process (right), where each element is interdependent and mutually supportive (White, 2015). The size of the relationship between the three elements will vary o



A2.4 Summary of findings from the review of frameworks

Each of the frameworks described above contributes understanding of how social, cultural and economic outcomes from fishing can be conceptualised, but each has its limitations. The following section presents a brief overview of their strengths and weaknesses.

A2.4.1 Capitals approaches

The capitals approaches (including the natural capital approach) emphasise the role of sustainable resource utilisation and how this creates benefits for people. Changes in assets are assumed to influence the achievement of desired outcomes (e.g., changes in natural, social, human, cultural, material and financial capital will influence the outcomes of fishing activities). The approaches can therefore be used to explore trade-offs between the different capitals and the implications of these trade-offs. Furthermore, the UK government is increasingly using the natural capital approach to support decision-making and so provides a useful starting point on which to build a more complete conceptual framework.

The location of culture in these approaches varies. The five capitals approach does not explicitly include cultural capital, assuming it is captured in social and human capital. The sustainable livelihoods approach considers culture as a transforming process, similar to laws, policies and institutions, which influence an individual's ability to access to assets. In contrast, the natural capital approach assumes that cultural benefits arise from the use or enjoyment of natural capital, but cultural practices (such as fishing) are considered external drivers of change (i.e., pressures on natural capital), rather than central elements of a wider system.

The explicit inclusion of cultural capital in a capitals approach could provide insights into the role of culture in the creation of benefits and other outcomes. Cultural capital, however, is not well theorised and the distinction between it and other forms of capital (especially human and social capital) is unclear. If cultural capital is to be included within a conceptual framework and be made operational, it will need to be carefully defined by users of that framework.

Capital based frameworks, however, do not support the categorisation of social, cultural and economic benefits and outcomes resulting from change. Capitals frameworks alone therefore do not support an understanding of how changes in fisheries management impact the benefits individuals, their families and communities derive from fishing. Nevertheless, it will be important to consider the sustainability of capital assets and how this may change as a result of management decisions. Access to capitals and the ability of users to use and transform capitals will influence the ability of individuals to engage with fishing and the outcomes that fishing can produce.

A2.4.2 Cultural ecosystem services (CES), sense of place and values

Conceptualisations of CES (including sense of place) recognise the contribution that capital inputs (other than natural capital) make to the production of ecosystem services (cultural or otherwise). Feedback loops are captured indicating how all services (cultural or otherwise) are co-produced through relationships between nature (e.g., fish stocks) and people (e.g., fishers). Unlike the natural capital approach, CES frameworks recognise fishing as a cultural practice and part of the system, rather than an external pressure. Like the natural capital approach, CES and sense of place frameworks capture culture in a positive sense; culture is seen as bringing benefits and as life enriching. The contested nature or “disbenefits” of people-nature relationships (e.g., the potential negative role of fishing on fisher health) are rarely captured explicitly in these frameworks.

Values-based approaches move away from a focus on benefits. The emphasis is on how values shape behaviour and therefore influence the outcomes of management approaches. Although this does not support identification or classification of outcomes, it highlights the need to understand the process through which outcomes are generated and how outcomes matter in different ways to different people.

A2.4.3 Three-dimensional wellbeing model

The CES approach, sense of place and the diverse values approach have considerable overlaps with the three-dimensional wellbeing model and the concept of social wellbeing. They all aim to capture both individual preferences and shared understanding of the world. Context is considered important, including an individual's or society's capital assets. The relational element of wellbeing, especially when considered a process, encourages an emphasis on the outcomes of change and the processes that support them, rather than the state and condition of the asset base that individuals and societies draw upon to generate wellbeing. These wellbeing outcomes can be categorised as material, subjective and relational.

A3 A conceptual framework for understanding the social, economic and cultural outcomes from fisheries

This section presents a framework for understanding the social, economic and cultural outcomes of fishing, categorised as material, subjective and relational wellbeing outcomes. It draws together elements from across the frameworks reviewed.

Fishing can be thought of as a cultural practice that facilitates and enables the realisation of wellbeing outcomes that are underpinned by natural capital (in the form of fish and shellfish stocks). The performance of fishing practices draws upon different forms of capital (cultural, social, human and economic) accessible by individuals, their families and the communities (occupational and place-based) in which they operate. Different fishing practices may draw upon slightly different forms of capital. Fishing practices also help to shape the form of these capitals as they are used and transformed to enable fishing. As recognised in the capitals approaches, there is a need to understand not only the impacts of management interventions and other changes in the outcomes arising from the practice of fishing, but also the assets that are used to generate them (i.e., forms of capital).

The fishing practices and the capitals fishers use and transform enable a process that supports the generation of wellbeing outcomes for individuals and their communities. These outcomes may be material (e.g., income, health and knowledge), subjective (e.g., job satisfaction, self-reported assessments of health) and relational (e.g., identity and social connections). They may also be positive (e.g., the creation of income) or negative (e.g., potential negative impacts on physical and mental health). These outcomes feedback into the system to shape the form of the capitals and the fishing practices used (e.g., cohesive fishing communities support each other, building social, cultural and human capital).

The process for generating wellbeing outcomes from fishing, including the use and transformation of capitals and how fishing practices are undertaken will all be

influenced by the worldviews held by the individual, as well as the broad and specific values given to elements of the fishing resource system. These values will shape how individuals respond to management measures and other sources of change. Depending upon the level of understanding of these values, responses may be predictable or unexpected.

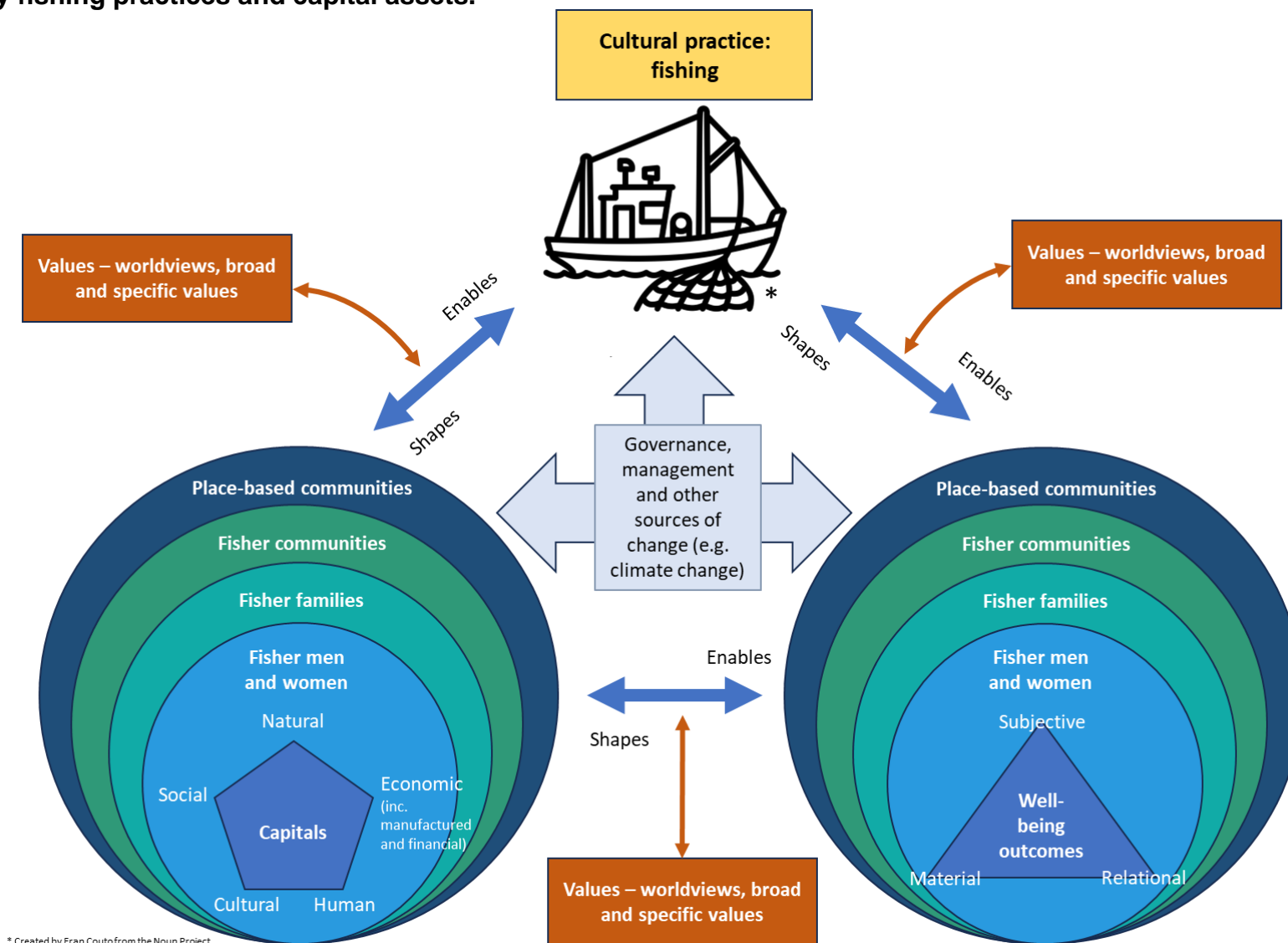
Governance and management actions may influence the performance of fishing practices and hence the amount, use and transformation of capitals held by individuals and communities. For example, closure of a nearby fishing ground may result in fishers needing to draw on additional economic capital to reach new fishing grounds, and additional human capital (e.g., skills) to understand where and how best to fish in the conditions of the new location. Governance and management will also influence the wellbeing outcomes derived from fishing. For example, the need to travel to more distant fishing grounds may affect job satisfaction (subjective wellbeing), strain family ties as more time is spent at sea (relational wellbeing) and result in increased costs reducing income (material wellbeing).

The extent to which management actions affect wellbeing outcomes and capitals is likely to vary with the scale of the intervention (e.g., closure of a fishing ground vs. the introduction of iVMS (inshore Vessel Monitoring System) or changes to bycatch regulations), but also the speed of change and by the outcome or capital type (for example Daw et al., 2016). For example, some wellbeing outcomes may be highly sensitive to change (e.g., trust) with others changing more slowly over extended periods (e.g., social cohesion, tangible cultural heritage).

Similarly, the outcomes these forms of capital can generate (and the value given to these outcomes), will also vary across individuals and communities and through time. When trying to assess and understand the wellbeing outcomes from fishing activities, it will also be necessary to explore changes in the capital assets that fishers can access as well as the outcomes they facilitate.

Figure A 6 presents the conceptual framework and Table A 1 includes definitions for the concepts within the conceptual framework.

Figure A 6 A conceptual framework for understanding the social and cultural outcomes from fishing and how these are enabled by fishing practices and capital assets.



* Created by Fran Couto from the Noun Project

Table A 1 Definitions for elements of the conceptual framework.

Concept	Definition
Natural capital	The part of nature which directly or indirectly underpins value to people, including ecosystems, species, freshwater, soils, minerals, the air and oceans, as well as natural processes and functions. In combination with other types of capital, natural capital forms part of our wealth; that is, our ability to produce actual or potential goods and services into the future to support our wellbeing (Natural Capital Committee, 2014).
Social capital	<i>“The institutions that help us maintain and develop human capital in partnership with others (e.g., families, communities, businesses, trade unions, schools, and voluntary organisations)”</i> (Porrit, 2005).
Human capital	<i>“People’s health, knowledge, skills and motivation”</i> (Porrit, 2005).
Cultural capital	Cultural capital takes three forms (Bourdieu, 1986) Embodied: in the form of long-lasting dispositions of mind and body that are consciously acquired or passively inherited (e.g., demonstrations of skill, the incorporation of cultural norms of the fishing community, identity). Objectified: in the form of cultural goods (e.g., fishing boats and equipment). It can be converted to economic capital through sale, but the cultural capital is not transferred unless the significance of the item is explained. Institutional: a form of objectification that guarantees properties of cultural capital (e.g., certification of competence). It is essentially a way of describing ones cultural capital and differs from human capital which refers to the actual skills that one has.
Economic capital	Economic capital comprises manufactured and financial capital. Manufactured capital: <i>“material goods or fixed assets which contribute to the production process rather than being the output itself (e.g., tools, machines and buildings)”</i> (Porrit, 2005). Financial capital: <i>“plays an important role in our economy, enabling the other types of capital to be owned and traded. Unlike the other types, it has no real value itself but is representative of natural, human, social or manufactured capital (e.g., shares, bonds or banknotes)”</i> (Porrit, 2005).
Cultural practices	Expressive, symbolic and interpretive interactions between people and the natural environment (Fish et al., 2016).
Wellbeing outcomes	Wellbeing outcomes are the resulting wellbeing status of an individual, group or population that can be attributed to an activity, process or change (e.g., a new fisheries management intervention, climate change, a change in access to capitals).
Material wellbeing	<i>“What a person has, i.e., the objective material resources that a person can draw upon to meet their needs, such as food, assets, employment, services and the natural environment”</i> (White, 2010).
Concept	Definition

Subjective wellbeing	Subjective wellbeing (or personal wellbeing) focuses on people's own experiences and perception of their lives. It includes aspects such as life satisfaction, positive and negative emotions, and whether their life is meaningful (Deiner et al., 1999).
Relational wellbeing	<i>"What a person does through social relationships that enables/or disables the pursuit of wellbeing (including relationships of care and love, relations with the state, social institutions, kinship, cultural rules and norms, forms of collective action, among others)"</i> (Coulthard 2012).
Worldviews	<i>"Are the ways through which people perceive, conceptualise and modify the world, rooted in cultures and languages (Olsen, 2019). Worldviews shape individual and collective ways of perceiving, interpreting and interacting with nature, and are expressed through culture, knowledge systems and languages"</i> (IPBES, 2022).
Broad values	General moral guiding principles and life goals (e.g., freedom, justice, responsibility, harmony with nature, harmony with Mother Earth, health, prosperity) informed by people's worldviews and beliefs (Dietz et al., 2005). They are often embedded in a society's institutions (i.e., informal social conventions and norms, and formal legal rules) and can underpin people's specific values of nature (IPBES, 2022).
Specific values	Opinions on or judgements regarding the importance of nature in particular situations. Specific values comprise instrumental, intrinsic and relational values(IPBES, 2022).
Instrumental values	The importance of nature as a means to achieve a particular end (e.g., to satisfy human needs, interests or preferences) (IPBES 2022).
Intrinsic values	That something has value as an end-in-itself or has inherent or moral value that is not tied to human purposes (Devos et al., 2019).
Relational values	Preferences, principles, virtues associated with relationships, both interpersonal and as articulated by policies and social norms. They include "eudaimonic" values associated with a good life and are not present in things but derived from relationships and responsibilities to them (Chan et al., 2016).

A4 Conclusions and next steps

The conceptual model presented in **Section 3** draws on a very brief review of common frameworks currently used to support resource (including fisheries) management. Other relevant frameworks (e.g., social and ecological systems approaches and resilience thinking) have not been presented nor have many of the nuances of the frameworks that have. To ensure that the framework can become operational and support decision-making, the next steps for this project include:

Assessing the applicability of the framework to the existing evidence base:

The existing literature on the social, economic and cultural outcomes of fishing will be explored to assess the extent to which this evidence can be captured under the

conceptual framework presented here, in particular the three dimensions of wellbeing described. This should enable refinements to the conceptual framework, especially where outcomes emerge that do not fit within the elements of the framework. A particular challenge will be interpreting what is a capital versus a wellbeing outcome, especially for more intangible and relational elements as they may not be mutually exclusive. For example, trust is often considered a form of social capital, but trust may also be considered a wellbeing outcome that results from working with others.

Developing indicators: To operationalise the conceptual framework, a series of indicators will be developed. Many indicators have already been defined during the development of Defra's fisher social survey (Urquhart et al., 2019) however this survey does not explicitly include cultural capital and wellbeing outcomes. It also focuses primarily on the individual fishers and their occupational communities and less so on fisher families and the wider place-based community. Indicators should focus on wellbeing outcomes at the individual, family and community level, but also the process of how they are achieved (i.e., capturing the level, use and transformation of different forms of capital), and potentially how an individual's values may influence them. A crucial challenge will be to understand how sensitive the indicators are to change and the speed at which they may change following an intervention.

Future work beyond the lifetime of this project should focus on sharing this framework with the decision-makers it has been designed to support, testing the assumptions embedded within the framework with members of different fishing communities, and modifying and elaborating on any inconsistencies arising.

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