Marine Management Organisation

Developing Network Analysis to Support Participatory Approaches

Final Report

...ambitious for our seas and coasts

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Executive summary

ICF and Howell Marine Consulting (HMC) were commissioned by the Marine Management Organisation (MMO) to undertake a research study into Developing Network Analysis Processes to Support Participatory Approaches. The objectives of the study were to provide insights on fishing community networks and provide recommendations on how to approach stakeholder mapping. To achieve this, we undertook a literature review into approaches to network analysis, devised and trialled a method within a case study fishing community and analysed findings related to the fishing networks and the approach used.

The MMO has published its 10 Year Strategic Vision that highlights the importance of collaboration and working relationships to achieving its strategic goals. Goal 4 identifies co-management as a means of transforming regulation, and goal 6 identifies participation by the fishing sector as a means of enabling sustainable fisheries. Participation and co-management depend on the MMO being able to identify relevant stakeholders and to provide opportunities to participate to those who choose to engage.

Case study

Findings

Within the case study area, the interviews pointed to the MMO coastal office and Southern IFCA having good knowledge about local fisheries sector actors. This is a result of the time spent by officers directly engaging with local fisheries. There is, though, no system in place to capture this information, meaning that it remains linked to individuals or a team, and as individuals leave the organisation, information is not retained. Information tends to be recorded only if there is a specific 'ask' e.g. in response to information gathering for a technical measure change. If a system to capture stakeholder knowledge is implemented, proportionality was raised as a concern by the MMO coastal office as capacity is already stretched. Additional administrative duties would reduce the time available for quayside visits, which were cited by interviewees as the main reason for the broadly positive relationships between Marine Enforcement Officers (MEOs) and fishers. GDPR constraints are an additional consideration, although there is an existing database that is used by MMO to send letters to stakeholders.

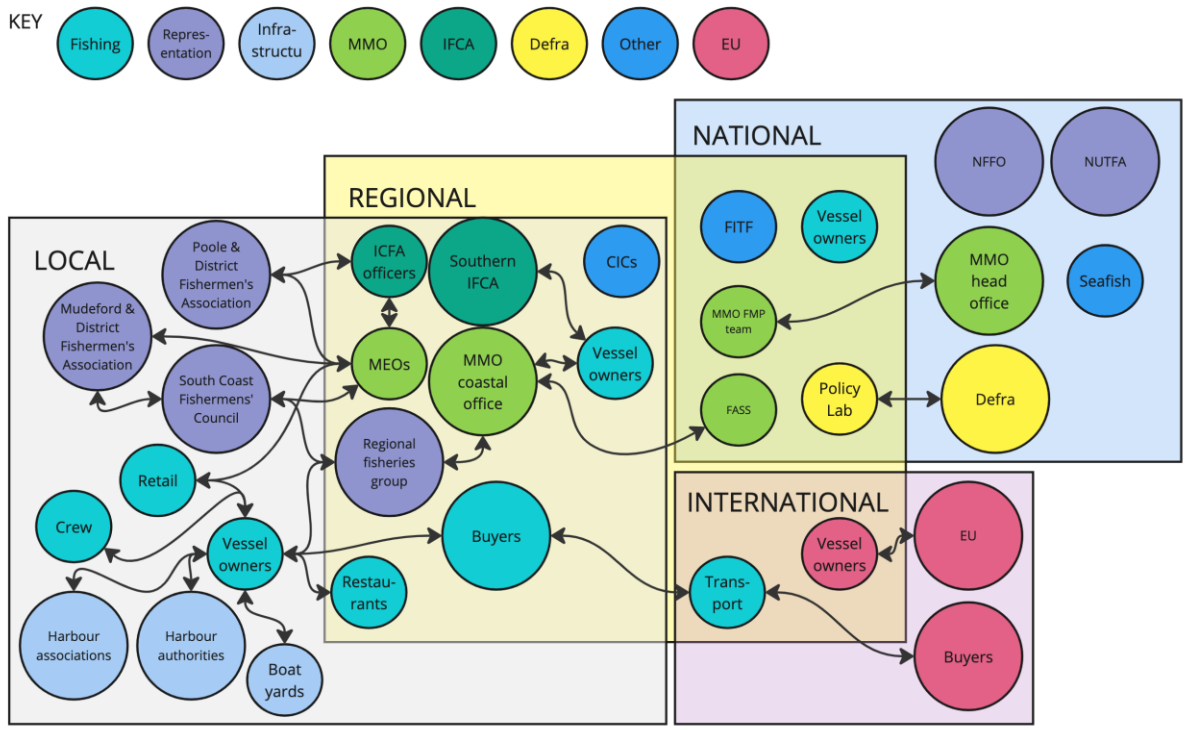
In the MMO's case, the depth of knowledge about local stakeholders was demonstrated by the effective outreach for and disbursement of Covid hardship payments, which were well received by eligible recipients. The MMO's efficiency was widely acknowledged by those interviewed who received payments. The broadly positive relationships between MEOs and local fishers are directly correlated with the time spent by MEOs quayside. These informal meetings and the emphasis on rapport building by the senior MEO resulted in fishers interviewed broadly identifying a good working relationship with MEOs. Feedback from interviewees about FMPs (bass and non-quota species) suggests that knowledge held by the coastal offices could have been more effectively applied by the FMP team when planning FMP engagement events.

Reported relationships were not uniformly positive, and distinctions were often drawn between relationships with MEOs and relationships with the MMO as an

organisation. The cumulative effect of pressures acting on individual vessels were flagged by fishermen as a source of stress, including the combination of changing fisheries management measures, increasingly stringent MCA requirements, and general uncertainty about the future. Among the fishing sector interviewees, a small number choose to minimise their engagement in fisheries management, citing a lack of perceived benefit from participating or a sense of persecution. Importantly, in context of this study, the MMO coastal office was aware of the individuals that reported not being engaged in fisheries management and/or not having a positive relationship with fisheries managers.

One subtlety that emerged from interviews was that power imbalances can exist between fisheries sector actors that may not be obvious to external actors. One example described individuals being unwilling to attend fisheries management meetings when a connected value chain actor with strongly held views was present who has made it clear in the past that opposing views may result in reduced market access. One challenge for the MMO is how to uncover imbalances and to enable the less powerful who wish to participate to have a means of participating without being exposed.

Figure 1: Model of the fisheries network in the case study area (see caveats in main body text)



Within the area studied, representation and engagement with fisheries management is largely achieved through membership of local fishing associations and councils, and through attendance at the Regional Fisheries Group meetings. The RFG was identified as a useful and welcome means of learning about forthcoming fisheries sector changes and to engage with the MMO. Two important findings emerged from interviews relative to participation and representation: i) National organisations representing fishers were not felt to represent local fishing interests, the bulk of vessels operating in the case study area are non-sector vessels; ii) In contrast, interviewees generally reported a positive perception of local fishing associations and councils. The limited and in some cases declining capacity of those organisations was flagged as a problem for future participation in fisheries management, which is

touched on in the following paragraph. Some local fishermen are not members of any organisation, often due to the specific and individualistic nature of the fishing they do, and sometimes due to a general sense of dissociation from fisheries management.

The capacity of fishing sector actors to participate in fisheries management is limited. Local associations are often heavily dependent on one or two dedicated individuals and the work is generally unpaid. The administrative burden is additional to the burden carried by individuals especially if they are also active fishers. Participatory events often fail to account for the specificities of fishing activity, and the format of information presented can be challenging to understand, or can change from meeting to meeting, making it less accessible to non-technical people. The trend in declining participatory capacity seems likely to continue unless there is a concerted and strategic effort to bolster it. The average age of fishermen in the case study area is relatively high and in combination with the generally poor perception of the benefits of participation (consultation is perceived as being told what is going to happen), encouraging younger fishers to lead local participation will be difficult. There is a historical memory of the influence of the Sea Fisheries Committees (SFCs) and of the benefits of participating through SFCs, suggesting that the current low opinion about the value of participation is not the status quo, rather it reflects a diminished sense of agency relative to fisheries management. Interviewees asked whether financial and human capital could be directed to support participatory capacity building, such as the creation of area-based fisheries liaison roles, or funding to aid local fisheries organisations.

Study approach to mapping the stakeholder network

Stakeholder mapping describes a range of methods for gathering information on the people who are relevant to an organisation. It is used by organisations in a variety of management contexts to inform their ways of engaging with people who are involved in, impacted by or interested in their activities. Stakeholders are identified and categorised systematically with characteristics that influence their relationship to the organisation and wider network.

The study team trialled the use of a qualitative egocentric social network analysis to map, and explore relationships between, stakeholders of the fishing sector in the case study area. The implemented approach conducted interviews with 19 network members, identified by convenience sampling of individuals identified through multiple sources, providing several different entry points into the community. The interviews provided for insightful conversations and captured information about interviewees' relationships with other network members and other qualitative insights including on the strength of the relationship. These were used to iteratively build an understanding of the apparent composition and relationships within the network. Several factors influenced how the approach was implemented by limiting the study team's ability to identify potential interviewees and conclude interviews, including (i) disillusionment with the point of participating in requested stakeholder engagement, (ii) low stakes, given the interviews for a research project with no direct interest or impact for stakeholders, and (iii) formal barriers (e.g. GDPR) and/or lack of interest/willingness to share information on stakeholder contacts.

The egocentric approach offered the following benefits for the study, which could be enhanced in future applications:

- Opportunities to uncover different stakeholders to those who may have been considered through a 'brainstorming' approach to stakeholder mapping involving individuals obviously and easily accessible to the MMO.
- Opportunities to triangulate findings with several individuals, and test findings from earlier interviews with later interviewees.
- Insights into how network members interact with each other – and therefore to uncover the existence and the role of intermediaries.
- Insights into how representative 'representative groups' are perceived to be by those that they represent.
- Insights on how different network members have different perceptions, including of their own role and relationships.

Reflections on stakeholder mapping

- The egocentric network analysis approach requires considerable time, resources and links to the community of interest to work best. Replicating the approach as it was designed and modified in this case study is unlikely to be good value and achieve desired. Strengths of the approach should be incorporated in future activities.
- Stakeholder mapping exercises should include actors beyond the usual suspects, consider the power and specifically market dynamic influence on participation, include triangulation and testing of findings with a range of individuals and organisations outside the MMO.
- Mapping and engagement activities should recognise that there may be no single community and should explore what may be the issues of relevance around which subgroups may coalesce.
- Individuals may not be members of a representative organisation, or may not feel that the organisation they are members of represent their interests. Mapping and engagement should recognise the different geographical layers at which organisations operate and individuals have connections; in particular recognising the importance of local organisations.
- Engagement approaches should be mindful that competition between fishers may mean that identifying individuals to act as representatives of others may be problematic (e.g. if that representative is an active fisher).
- This study has not been able to identify a single, simple and failproof approach to identify appropriate representatives. A combination of supporting and building capacity of representative bodies and supporting local MEOs to develop relationships of trust is likely to be more effective in enabling marginalised individuals to be identified and engage with the MMO.

Recommendations:

To build and maintain knowledge about fishing sector stakeholders to aid engagement: Take stock of what knowledge exists across the MMO, IFCA, and non-governmental bodies with experience engaging with local fisheries and use the information to increase engagement coordination to ease the consultation burden on fisheries sector actors, particularly in light of the push for collaborative approaches to FMP development.

Implement a proportional and GDPR compliant system for recording information about the fishing sector network that can be used by MEOs and MMO personnel to capture and maintain knowledge about actors in the fishing sector that will increase MMO institutional capacity.

To increase participation and address disengagement:

Provide feedback: There is a general feeling that the flow of information from the fisheries sector actors is one-way and that there are increasing demands made of people's time to give information. Feeding information back to participants about how their information was used and what outcomes resulted from using that information would be well received. The MMO's non-quota species FMP webpage was mentioned as an example of good information provision to interested stakeholders.

Manage expectations around participation: Increase awareness about what engagement can realistically achieve, what should people expect as a result of participating, what timescales and constraints apply. People want to feel that participation is more than a tick-box exercise, but there is limited understanding of how participation can influence outcomes.
Clarify and articulate how fishery-dependent information can be used in decision-making. At present there are concerns that information offered by fishermen tends to be used to implement restrictions that impact their fishing operations, such as the identification of marine protected areas, which is limited engagement by some fishermen.

Increase the participatory capacity of fisheries sector actors: Capacity can be addressed by providing support to improve the institutional and individual capacity of the sector. This should consider addressing the financial and time barriers faced by fishers, including those affecting the ability of local associations and representatives to retain meaningful members and perform their representative function. And reducing technical barriers by ensuring that engagement is undertaken through both online and in person activities designed with an appreciation of fishing patterns (both have merits in addressing different barriers) and that information presented is easy to understand and well explained, and presentational approaches are consistent over time. The potential for a specific fisheries liaison role to support MMO-industry communications was mooted. Identifying suitable representatives will be challenging given the heterogeneity of the fishing sectors operating and the competition that can exist between vessels.

Develop and implement a long-term strategy that enables small boat owners to co-manage or collaborate in the management of fisheries that support their operations. The timescales involved in enabling change in coastal fisheries and the breadth of issues affecting local fisheries require a longer-term approach. Positive change in fisheries management, such as the Poole Harbour clam fishery, are achieved over a decade and require a clear underlying vision, a common path that articulates interventions and that manages expectations, and commitment to capacity building. Political will is necessary at some point but is not essential at the beginning. Given the lack of clarity around participation and co-management in English waters, a recommendation is to develop a participation roadmap, including co-developing a vision of what participation looks like and would result in. The roadmap should specify a process for feedback – what are the points at which the fisheries sector actors can feed information in, what happens to the information provided, how will the information be used, what are the timescales that apply? Trust is a critical issue and

while good relationships exist between MEOs and vessel owners, there is generally a negative perception about the impact of participation. That said, there remains, broadly speaking, a willingness to engage. The proposition made here is that a co-developed participation roadmap will make the most of that willingness.

Recommendations for future work

The MMO should:

- Define requirements for providing feedback to those who take part in studies involving participatory input.
- Enable transparency between Government institutions and organisations seeking time with fishing sector stakeholders to coordinate and communicate outreach activities to reduce stakeholder fatigue.
- Investigate the potential for building participatory capacity through:
    - Enabling financial support and supporting guidelines for councils and associations.
    - Researching the longer view of participation: how has the representation and participation landscape changed over time and are there lessons to learn (e.g. SFCs).
    - Investigate the potential for a participation roadmap, including internal work on what participation and co-management look like, and involving stakeholders in a geographically restricted area to co-design a pilot roadmap.
- Clarify how fishers' information can be incorporated into decision making: can anecdotal evidence be given scientific rigour?
- Investigate and report on what resilience looks like for inshore fisheries taking a systems approach[1] and what are the institutional and stakeholder constraints, opportunities, and pinch points linked to potential system change towards co-management and participation in governance?

[1] Example approach: Cummings et al, 2020. https://www.sciencedirect.com/science/article/abs/pii/S1877343520300129

1. Introduction

1.1 Policy background

The 2018 Fisheries White Paper identified the UK's exit from the Common Fisheries Policy (CFP) as an opportunity to introduce a more sustainable model of fisheries management, which has been codified as 8 objectives within the Fisheries Act 2020[2]. In keeping with international best practice, the UK's post-CFP approach to fisheries management includes a focus on collaborative working.

Under the Fisheries Act, two instruments are identified to support collaborative working between national fisheries authorities and the fisheries sector: the Joint Fisheries Statement (JFS) and Fisheries Management Plans (FMPs). The Joint Fisheries Statement (JFS, 2022) defines how the fisheries policy authorities have interpreted the 8 objectives and how they will achieve them. Working in partnership with stakeholders including the fishing industry and creating appropriate structures for participatory decision making are identified in the JFS as key approaches to achieving the set of 8 objectives.

FMPs are documents that will set out how policy will be delivered to restore fish stocks and maintain them at sustainable levels. Collaborative working is central to FMPs, with design and delivery processes involving collaboration with the fisheries sector, arms-length bodies, and wider stakeholders. To collaborate effectively with stakeholders, authorities need to have confidence that they have identified relevant stakeholders and that those stakeholders are able to engage if they choose.

The Marine Management Organisation (MMO) is an FMP delivery partner and is the executive agency responsible for regulating commercial fisheries in England and enabling the sustainable development of marine industry through marine licencing and protection of the marine environment through enforcement of all marine protected areas and development of marine management for those located outside of 6nm. The MMO is the delivery partner of the Channel demersal non-quota species FMP and is expected to lead on the delivery of additional forthcoming FMPs. To support FMP delivery and the achievement of MMO strategic goals including collaborating with stakeholders as set out in the MMO Ten Year Vision[3], the MMO seeks to better understand its stakeholders so as to engage them effectively in FMPs and wider fisheries management.

At the outset of developing an FMP, authorities are required to develop a stakeholder engagement plan. The MMO undertook a stakeholder mapping process to support the development of this plan. Through this work, the MMO deemed it important to identify:

- *who* might be interested in an FMP;
- *what capacity* interested parties have to participate;
- *how* the authority should engage with those with interests and;

[2] The 8 fisheries objective as stated in Article 1 of the Fisheries Act 2020 are: (a) the sustainability objective, (b) the precautionary objective, (c) the ecosystem objective, (d) the scientific evidence objective, (e) the bycatch objective, (f) the equal access objective, (g) the national benefit objective, and (h) the climate change objective.

[3] Marine Management Organisation (2020), Our MMO Story – the next ten years

who the appropriate individuals or organisations are that can represent multiple members of the community.

The MMO anticipates that its recent efforts to map stakeholders as part of the Tranche One work may have missed important groups/individuals within a community or provided insufficient insight on how a community's stakeholder network operates. This may limit the extent to which stakeholder mapping can facilitate successful collaboration in the future and the benefits that it can bring.

1.2 Research objectives

The purpose of this study was to improve the MMO's understanding of the social networks of fishing communities as a means to support the MMO's ambitions for collaborative fisheries management.

Its specific aims were to provide:

Insights on fishing community networks and on engaging with different parts of such a network; and

Recommendations on approaches to stakeholder mapping as a means to support the MMO's planned engagement arrangements and how best to identify appropriate representatives.

1.3 Methodology

1.3.1 Case study approach

The study team undertook exploratory research that designed, trialled and evaluated a stakeholder mapping approach relevant to the MMO's needs. The study was conducted in three phases:

Design of research method and instruments for stakeholder mapping: Following a literature review and consultation with the MMO, the study team designed tools for qualitative egocentric network analysis to trial in the research context.

Qualitative case study of a fishing community: The study team identified a suitable case study and held semi-structure interviews with fishers, management officials and wider stakeholders.

Analysis of fishing networks and the approach used: Interview data was analysed to produce insights on the characteristics of the fishing community in the case study area. The study team then evaluated this approach to provide recommendations to the MMO on future stakeholder mapping approaches.

The process used is explained in greater detail below.

1.3.2 Design of stakeholder mapping tools

A design phase was undertaken to develop an approach to stakeholder mapping which could be piloted in the fishing community. This comprised:

Literature review: The study team conducted a rapid review of the literature on stakeholder mapping approaches. This produced a definition of the relevant

concepts in stakeholder research and provided a critical review of stakeholder mapping methodologies relevant to a natural resource management context.

Assessment of stakeholder mapping needs: The study team consulted the MMO to clarify the outcomes needed based on their previous experience of a stakeholder analysis exercise. This included a critical discussion of the MMO's preferences, conditions and context for deployment, and a critical review of their previous approaches.

Research approach and instruments: A qualitative egocentric social network analysis approach to stakeholder mapping was selected to be trialled in the case study area. The egocentric approach centres around an individual actor and explores the personal relationship of the actor with others in their network. The proposed approach was based on undertaking qualitative interviews with up to 30 individuals in the case study area. Participants were to be identified through iterative sampling, where each interviewee would be asked about other actors in their network. The study team would gradually build a map of the network and contact further participants as they gathered information from interviewees.

A topic guide for interviews with network members was designed and is presented in 1. The interviews aimed to explore: perceptions of their role as fishers; perceptions of the concept of community; professional relationships and quality of relationships; membership of organisations and views; how they receive information; engagement with the MMO.

1.3.3 Qualitative case study

The case study location was agreed by the study team and the MMO based on the appropriateness of the scale of the likely fishing community, anticipated ease of access to known stakeholders, and the variety of fisheries present. Preliminary desk research was undertaken to identify the characteristics and representative structure of the community of interest. The case study covered a geographical range from Lymington in the east to Swanage in the west, including Poole harbour and the Isle of Wight.

This study trialled the use of an “egocentric” social network analysis approach to map stakeholders of the fisher community within the case study area.
Initial “starting point” interviewees were identified at the scoping stage through purposive sampling. From these interviews, the approach assumed that that subsequent interviewees would be identified through iterative or “snowball” sampling. Interviewees were asked to provide information about members of their network which was used to identify subsequent participants. In reality, we found that early interviews did not yield sufficient numbers of further interviewees. The process is discussed in chapter 3.

The study team then generated supplementary contacts by undertaking further purposive or random sampling through searching through local and industry newspaper digital archives, social media pages, lists of fish-related businesses and other online sources as well as targeting known local representatives and industry contacts (beyond those in the starting point sample). Interviews were held between January and March 2023. The study team held interviews with 19 participants using a mix of mediums: face-to-face, over the telephone and over video call. A range of

stakeholders were interviewed which included vessel owners, crew, downstream actors in retail and processing, regulators, and non-governmental organisations with an interest in commercial fisheries.

In total, the study team spoke with:

3 officers from the MMO and the Association of IFCAs
10 fishers including 2 with direct sales interests and 2 representing fishers organisations
4 people engaged in downstream retail and processing of local catch
2 non-governmental organisations relevant to coastal management

Confidentiality of identity and responses was stressed to interviewees and several participated on condition of anonymity. To observe this condition, in general, the analysis presented here reports on findings in aggregate, selected statements are not attributed to individuals, and recorded detail of interviews have been kept confidential. Organisations are named within the report where necessary to support the observations made.

1.3.4 Analysis

Information from the interviews was subsequently analysed. The findings on insights on the fishing community are presented in Chapter 2. The study team met regularly over video calls in the period January and March 2023 to discuss progress with completing the egocentric stakeholder mapping exercise and reflect on the process. Insights from the process of stakeholder mapping are presented in Chapter 3.

1.4 This report

This report is structured as follows:

- Chapter 2 presents insights on fishing community networks drawn from interviews;
- Chapter 3 reflects on approaches to stakeholder mapping and draws lessons from the application of our approach in the selected case study area;
- Chapter 4 offers conclusions and recommendations for the MMO on stakeholder mapping and engagement.

2. Case Study insights

2.1 The case study fishing sector

The case study centres on a stretch of the south coast of England, from approximately Lymington in the east to Studland in the west. This coastline falls within the jurisdiction of the MMO coastal office in Poole and the Southern IFCA district.

The fishing industry[4] in the case study area is well established, diverse and is actively managed under national and local regulations. Fisheries in the region are dynamic, but by way of broad characterisation, the inshore waters are subject to intense fishing effort, while offshore waters are less heavily fished and support fewer vessels. There are many fishing vessels registered in the study area, but a sizeable proportion is part-time or are restricted to fishing close to harbours or within Poole Harbour. The number of fishing vessels continues to decline, and interviewees note that as a result fishing effort overall has probably reduced, although increased individual vessel capacity within certain metiers means effort may not have reduced in line with vessel number reductions.

The administrative port within the study area is Poole, which, after Newlyn, is the second largest port in terms of the number of vessels along the UK's south coast. As of December 2022, 89 10-metre and under vessels were registered as having home ports within the study area, of which 57 were registered in Poole. This number likely overestimates the number of fulltime fishing vessels, for example Christchurch (Mudeford) has 10 registered vessels, but only 3 were identified as fulltime operators.

Beyond ad hoc communications with local fisheries stakeholders through MEOs, the MMO is also engaging with fisheries stakeholders through the Channel non-quota species FMP, and through the Regional Fisheries Group.

[4] The term "fishing industry" is used here as a collective term to describe what is in reality a variety of fisheries and fishing businesses, individual fishers and large commercial businesses operating within the case study area.

Figure 2: The approximate geographical range of the case study, from Swanage in the west, to Lymington and Ventor in the east. Inset figure indicates broader geographical situation. Source: Apple Maps.

Commercial fishing has long operated in these waters and has weathered numerous challenges over time, responding to changing catch opportunities and competition for space with capital-rich land users and tourism. The conflict with tourism extends to replenishment of Bournemouth beaches, with vessel owners operating in Poole Bay flagging the perceived impact of fine sediment release on rocky habitats that impacts crustacean fishing.

Poole Harbour in its entirety is a designated Site of Special Scientific Interest (SSSI) as an important habitat for bird species. Several scientific and academic researchers and environmental groups operate in the locality. A number of strategic partnerships for environmental protection operate in the area including the Dorset AONB Partnership, the Dorset Catchment Partnership (which the MMO is a partner to) as well as the Poole Harbour Nutrient Mitigation scheme. The multiplicity of actors and partnerships creates a variety of perspectives about the use of the harbour and means there are various voices that speak for Poole harbour.

Outside the harbour, the local commercial fisheries context is diverse, with key landing sites (from east to west) including Lymington, Keyhaven, Mudeford (identified in official statistics as Christchurch), Poole and Swanage, with additional harbours on the Isle of Wight at Ventnor, Bembridge, and Yarmouth. Vessels here are typically small, operate with single operators or 1-2 crew and are equipped to operate short (less than 24-hour) fishing trips. Vessel owners have typically fished for decades and the average fisher age is estimated to be 50+. There are some examples of fishermen whose fathers and grandfathers were also fishermen, and notably many of these individuals have fished around the UK in their younger years. These coastal vessels are geographically restricted and dependent on inshore fishing grounds within comfortable steaming distance, as dictated by tide and weather. A common refrain is that these vessels are dependent on “catching what passes by the door”, referencing the seasonal and mixed nature of inshore fishing here. Vessels are often multivalent (able to operate multiple fishing gears over the course of a year) to provide a diversity of fishing opportunities, though interviewees observed increasing difficulties diversifying due to regulatory complexities and increasing restrictions.

The range of species fished is diverse and includes species that are sensitive to cumulative impacts of the many human activities present ashore and in coastal waters and which are to varying degrees likely to alter in terms of distribution and abundance due to climate change. The composition of the catch for the inshore fleets comprises molluscs, crustaceans, finfish and elasmobranchs, which are targeted using static and mobile fishing gears. Several target species are seasonal migrants to local waters, including cuttlefish, bass, sole, cod. Cuttlefish is subject to great interest, as it may fall within the developing non-quota FMP and is a critical economic contributor to many fishing businesses dependent on local waters. The whelk and crab/lobster fisheries continue throughout the year, although the fisheries show peaks in landings correlating with the times of year when the target species are most active or when weed growth permits fishing.

Nomadic vessels also operate periodically in these waters, as do non-UK flag vessels. Current concerns expressed by coastal vessel owners include the EU-fly seine fishery, a trawl fishery for cuttles further west by UK vessels that has impacted the inshore cuttle trap fishery, dredging and beach replenishment for Bournemouth beach that is alleged to have impacted local shellfish fisheries due to release of fine sediments, and continuing limitations on bass fishing opportunities for netting and line fisheries. Uncertainties around fishing opportunities, future restrictions on fishing, increasing costs, FMPs and fisheries management more broadly were frequently noted as sources of worry about the future.

At present, according to interviewees, broadly speaking, the MMO coastal office has a good understanding of the local fisheries sector actors, but that information is largely held in individuals heads. The MMO is reported to have no formal process to capture network information about the fishing industry and downstream value chain. There is a system to record useful intelligence, but this is not formalised and there is a strong reliance on the knowledge held by individuals. Unless there is an explicit link to a policy, regulation, or mandate, it is likely that information will not be documented. The MMO coastal office expressed a concern that the introduction of formal structured approaches to understanding the network could add to the workload. MMO coastal office capacity was also flagged, with MEOs already stretched and fishers interviewed have noted a reduction in interactions.

It was noted by MEOs that the IFCAs hold information on additional stakeholders (e.g. recreational permit holders) that fall outside the MMO’s remit. This knowledge contributed to the coastal office supporting the stakeholder mapping for the Channel non-quota species FMP. It was observed by the MMO coastal office that the stakeholder map indicated gaps, which reflect difficult to reach groups. The FMP is felt to be a big opportunity to improve relationships but will require sufficient resourcing to deliver. At present there is significant information held by fishers about specific fisheries and species that would support the FMP (e.g. cuttlefish), but there appears not to be a mechanism to gather and integrate this information into the FMP process.

Enabling greater engagement by the fisheries sector with fisheries management will require that the mechanisms through which those who wish to engage can engage are bolstered and supported, including financially. Local fisheries associations and

councils are reliant on individuals who are willing to provide time outside of their fishing activity. Options to support engagement and participation were discussed with interviewees, and the potential for a specific fisheries liaison role to support MMO-industry communications was mooted.

3. Insights into the fishing network community

The study aimed to investigate whether there is a fishing community within the study area. The majority of those interviewed did not consider there to be a single fishing 'community'. Rather, it was found to be more accurate in this context to speak of the fishing sectors that operate within the case study area and to recognise that there is often a competitive nature within and between sectors. Individual operators have interests that sometimes align with other operators, and that sometimes clash with other operators. There was broad agreement among fishing sector interviewees that their geographically restricted vessels and fisheries are negatively impacted by larger nomadic vessels, whether UK- or EU-flagged. There was notable anger against EU vessels operating fly seines and nomadic UK trawlers that targeted the cuttlefish brood stock before it migrated into local waters.

People's perception of community varies depending on where people are and what fishery they participate in. Where vessels are dispersed and working as individual operators, unless there is a common factor, such as working from a shared harbour, or seeking certification, there is little sign of cooperation and hence community. Some businesses actively avoid community as their method of fishing is very dependent on specific marks and so secrecy is important.

Where there is a common objective, for example addressing the poaching of clams in Poole harbour, sustained effort over a decade, notably by the Poole and District Fishermen's Association and the Southern IFCA, resulted in a sense of shared purpose and stewardship, which has been recognised by the clam fishery becoming MSC certified.

Multiple interviewees pointed to "there [being a community] in the past" but that now "we're a very fragmented community" and that "individualism has increased, there isn't the local feeling that there used to be". The competitive nature of fishing was raised by multiple people, with implications for representation: "There is a tendency for a few fishermen to stick together, but as soon as one thinks another has a leg up, that's the end of it". The diminishing number of active fishermen is also having an impact on community, with pockets of industry that are dispersed and competing with other sectors for space: "It's almost a hobby industry now, something for tourists to gawp at".

While the lack of trust within the seafood sector and between different stakeholder groups was highlighted by several interviewees, Poole harbour stood out as an exception: "In Poole fishermen have more of a sense of community"; "We're a community in that we fight common enemies". The sense of common purpose in turning around the Poole harbour clam fishery was identified as a means of aligning interests both within the fishing sector and between stakeholder groups. The presence of an established and strong association that has members operating from a shared space was also cited as a reason for positive progress.

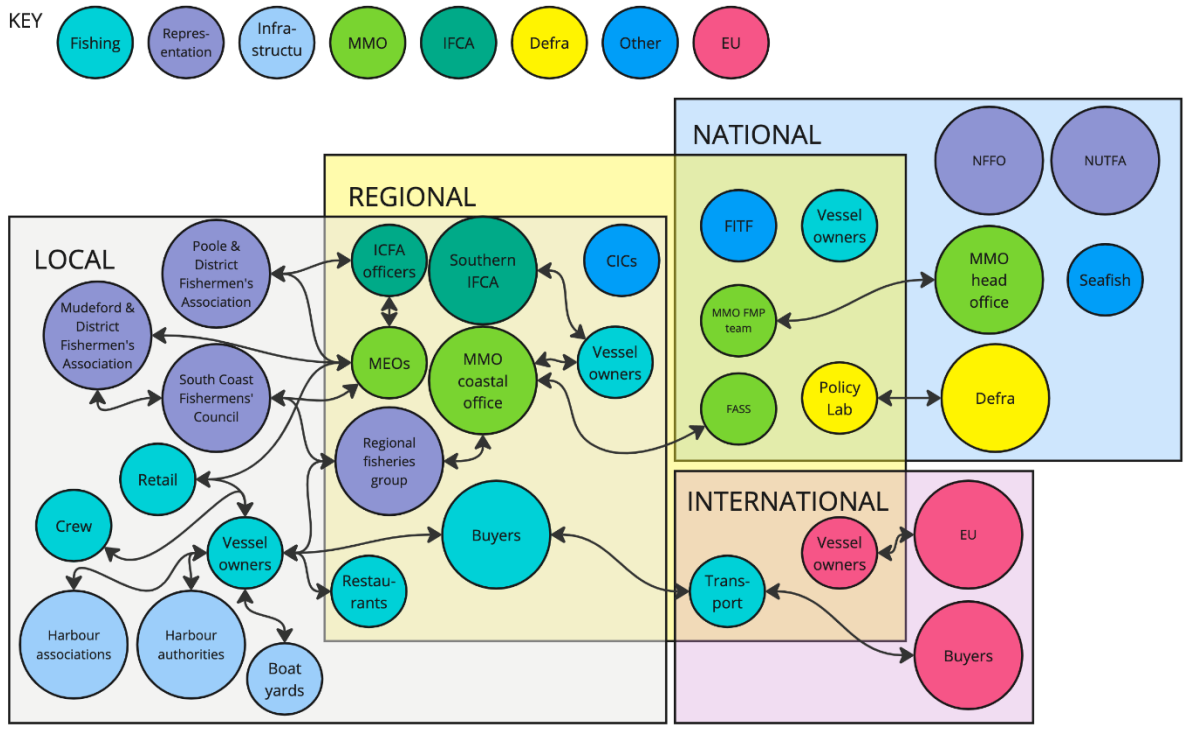
3.1 A simplified representation of the fishing network

By extracting actors and institutions identified by interviewees, a simplified network diagram was developed (Figure 2.1). The model is taken from a sum of 19 interviews and identifies actors that were mentioned by interviewees in relation to the questions

asked about fishing, community, participation, representation, and trust. Relationships identified within the model are not exhaustive and should be validated before drawing conclusions, but insights into the structure of the network as reported by interviewees can be gleaned.

The network includes four scales: local, regional, national, and international. Overlaps between scales are reflected by overlapping polygons. Connections between nodes (actors) represent strong relationships as identified by interviewees. Nodes were only connected if explicit mention of a strong relationship between nodes was made during an interview. The vessel owner node is repeated at different scales to represent the distinction between vessels that operate at local scale only, vessels that move within the region, and vessels that are highly nomadic (national or international).

Figure 3: Model of the fisheries network in the case study area (see caveats in main body text)



Bearing in mind the caveats listed above, several features of the network diagram stand out:

- Interviewees are much more aware of local-to-regional connections, and fewer local-to-national and international node connections were identified.
- No connection with national representative bodies was made by interviewees, other than to say that national representative bodies did not represent local interests.
- In contrast, interviewees were aware of and more positive about local fishing representative bodies, while noting the lack of capacity and declining membership, and of the positive relationship with regional fisheries groups.

- Contact between local representative bodies tended to reflect established personal relationships and tend to reflect the geographical region, that is, two associations covering distinct geographical regions tended not to interact unless at a regional forum.
- Buyers represent an important link between scales and there is more market diversity at a local scale. Flexibility of market options was noted as an important factor in business resilience.
- Weak rather than strong links between regional and national bodies involved in fisheries management were mentioned, reflecting opinions that there is a disconnect between national and regional fisheries management.

3.2 Insights into participation

An overriding observation is the lack of participatory capacity within the fishing sector. Fishing Into the Future (FITF) observed in a US visit that efforts to increase the skills and capacities of those participating in fisheries management were essential for meaningful participation, equipping people wishing to participate with the skills to do so and an understanding of what to expect from participation. In combination with increased capacity, there needs to be a clear mechanism through which participation can happen. Access to resources, including funding, to support participation would be needed. Increasing participatory capacity without this will lead to further frustration if that capacity cannot be put to use and there also needs to be a clear articulation of what collaborative approaches means in practice. What can seafood sector stakeholders achieve by investing time and effort into participation? What timelines are applicable? What are reasonable expectations of participation? How and when will information be fed back to those who have provided time and energy to participate?

A related observation is the need for financial support to associations or councils to support fisheries liaison and to increase participation. The local associations are highly reliant on individuals with limited time, usually volunteers working for free. The retirement of one individual can have a significant impact on the capacity of a representative body to reach out to members, to participate in relevant meetings, to organise and communicate. Multiple discussions raised the possibility of using seafood sector funding schemes to support associations and councils, or to fund trusted intermediaries who could act as conduits for information between Defra, MMO, and fishing sectors within the area.

Fishers interviewed reported multiple barriers to their ability to participate and engage with fisheries management. Fishers' capacity is constrained as they work long and unpredictable hours. This limits their ability to attend meetings, provide evidence and complete forms. Without financial compensation, the opportunity to work will take priority. In addition, some feel that the MMO and other agencies could do more to accommodate the needs and conditions of fishers, such as holding meetings that reflect fishing hours, working around the tides. Online forms, websites or workshops are often complex and time-consuming to navigate, and some fishers do not have the skills or equipment they need to access them. An interesting comment received was that having spent time understanding the format of charts presented at a meeting, the format changed at the subsequent meeting, making it harder to engage.

Some fishers reported feeling apprehensive or actively disengaged from participation. Discussions with some interviewees showed low levels of trust. Authorities are sometimes perceived as prioritising environmental protection and industrial activities over local fishing interests. Some interviewees felt in a catch-22 situation, knowing that if they don't participate, it will be challenging to contest unfavourable outcomes, but feeling that information provided will be used against their interests, for example to establish Marine Protected Areas. Fishers' interests are often perceived to be disregarded and environmental and other causes have a greater influence on management agencies. As a result of their low lobbying power, some fishers reported feeling like "we're shouting into a void" and that their perspectives aren't being listened to by the right people. A few fishers showed general disillusionment with participation, not knowing what impact past participation had had on outcomes and often feeling that outcomes were predetermined.

3.3 Insights into representation

In terms of representation, within the case study area there is no single organisation or association that represents the seafood sector, either commercial fishing or charter-angling activity. All commercial fishing vessels within the case study area licensed by the MMO are non-sector, that is, do not belong to a Producer Organisation. A council was convened to represent local fishermen, the South Coast Fishermen's Council, which covers the same area as the SIFCA. Multiple smaller fishermen's associations exist representing fishing from specific local harbours but are geographically distinct. Interviews with regional fishermen conducted in 2012 indicated that many were not active participants in an association that represents their interests, and most felt that they operated relatively independently. This finding was repeated in this study, exacerbated by the reduction in the number of active fishermen. It is well recognised within the fishing sectors that the lack of organisation and representation hampers the capacity of the fishing sectors to engage in co-ordinated discussion with other marine users and to represent their collective interests.

Interviews indicate that the associations that exist are important means of representing local fishing interests, but there is nuance within that. Those who are representing fisheries, or perceive that they are, feel that they are an essential voice: "As a member of an association, you end up representing fishers quite a lot. They don't have the time, skills, resources to represent themselves, they don't have any lobbying power". Capacity to represent wider issues is acknowledged by those individuals as being limited by there being "lots of parochial issues to deal with" and the administration, time, and finance constraints while working as a fisher and in many cases in other lines of work (fish shop, restaurants, tourist accommodations etc).

Interviews with individual vessel owners raised the issue of individual interests being perceived as fairly represented and in some cases being suppressed by vested interests. It is important to note that the criticism raised and noted below was not made with regard to local associations, but to powerful interests participating in regional meetings.

“[The association] represents the association views and there are conflicting views within. Lots of different sectors are represented, so I need to be involved personally [to make sure my interests are considered]”. One instance of a negative power dynamic was flagged, where market power was abused to intimidate individuals, to prevent opinions being aired that were contradictory to the influential person’s opinion: “Some people don’t go [to meetings] for fear of having to keep quiet”. The influence of non-fishing interests within representative bodies was also noted by one individual: “[The head] does what he wants and doesn't listen to concerns about [the] fishing sector”.

The fragmentation within the fishing sector was recognised by several interviewees as counterproductive for the sector: “The need for secrecy works against representation, there is no organisation that represents this kind of fishing”; “Nothing exists for the retail sector”. Interviewees expressed concern that it is: “Hard to see a way around the individualistic approach” and that “It is difficult to imagine a future where all local fishers would be represented by one organisation, there are many vested interests and there isn't widespread trust”. Multiple interviews recognise that change is necessary: “[the lack of organisation] has been self-defeating for local fisheries and a feeling that lots of people are elbowing others out of the way”.

Various opinions were provided about **how to improve representation**. Broadly, there was consensus among interviewees that increasing local representation rather than relying on representation through existing national bodies is necessary: *“[the national association] isn't representative, it has EU interests in there and substantial sector interests, it still says there is too much capacity in the U10s, while its members are highly capitalised and the [association] represents their interests”*; *“NUTFA puts forward well thought out views and … is articulate, but there isn't much coalescing of small associations around NUTFA”.*

There is a memory of **local associations having greater representative power in the past**: *“[The association] was initially set up in conjunction with Sea Fisheries Committees, as a means of supporting relationship and understanding of operations and processes of fishing network and the Committee”*; *“[The association] used to have a really good reputation by being part of the local network, but that is disappearing and people who ran the administration and outreach retired, no one has the time now”*. These observations led interviewees to question whether the MMO could *“support local fishing associations [with capital and skills]?”* and who could fairly represent local interests: *“If [widespread representation] happened, it would require an independent person to help matters along”*; *“There does need to be a voice for the local industry, that is why fisheries liaison in the past was great, an ex-fisherman so knows the language and challenges, but no interests in any business”*.

3.4 Insights into relations with regulatory bodies

Broadly speaking there is **a good working relationship with the local MMO office** and most interviewees feel that the local office, on the whole, has a good understanding of the sector. Perceptions tend to vary depending on the level of interaction with the MMO and how marginalised people are.

The local office’s approach to face-to-face interactions, which centres on rapport building and regular interactions (noting the recent reduction in MEO numbers) has

been noted by the fishing sector. The reduction in MEO numbers has been noticed quayside, as this is the primary means by which vessel owners, fishers, and downstream value chain actors engage with the MMO.

Fishermen located outside Poole Harbour report considerably different perceptions to those fishing from inside the harbour. Outside the harbour, the local IFCA is reportedly seen as being enforcement-driven with a somewhat zealous approach. In contrast, those fishing within the harbour report more frequent interactions with the IFCA and positive working relationships with the IFCA, noting the decadal timescale over which that relationship has developed.

Two factors appear to be associated with perceptions of positive relationships with regulatory bodies:

- the frequency of face-to-face interactions with officers
- Interactions that are linked to non-enforcement matters, notably access to funding and the covid hardship payments, which were well received and reported to be well administrated

3.5 Insights into stakeholder consultation

Fishermen expressed **scepticism about participating in consultations in general**. A comment received multiple times was that previous participation, or more accurately consultation, rarely led to tangible outcomes for those fishermen except on those occasions when new regulations were imposed that restricted their fishing operations.

Vessel owners are generally busy people who participate in fisheries management meetings **when they can and when they believe there is good reason to do so**. Finding additional time to speak with a consultant (for this study) on what felt like a more abstract topic was not a priority. However, the FMP process was commonly listed as a process that people see a reason (but not necessarily a benefit) in participating in.

Fishermen also flagged that **evidence calls were problematic**, as fishermen struggle to provide the types of evidence that are weighted highly. There is also a perception that providing information is counterproductive, as shared knowledge about the distribution of habitats and species has in the past led to conservation measures being passed that prevent fishing.

Fishermen were well aware that not participating is equally unpalatable, as if they do not participate they recognise that decision makers will not be aware of fishing sector views. But given the draws on people's time and the legacy of being (in the interviewed fishers' minds) penalised for participating, it is challenging to find motivation to lose a day's earnings to "*throw information into a cave"*. As one fishing elder put it: *"you're damned if you do and you're damned if you don't, so you may as well go fishing"*.

Consultations with people not knowledgeable about fishing was also raised as a source of frustration, as it adds to time and effort required, as some reported experiencing at some bass FMP events.

There is a general sense that **information flows in one direction** and there is rarely a follow-up where the outcome of having provided information is known. All this adds

up to being jaded about participation. However, despite this, there remains a willingness to engage if there is a valid reason with material impact on fishing, like the FMPs.

3.6 Insights into stakeholder perceptions on the future for local fisheries

A significant and common perception amongst interviewees was that **the fishing sector has little to no influence**: *"We can talk, complain, shout, but there is no one who will back fishermen, not the MMO, not MPs"*. Changes are perceived by interviewees to happen in a non-participatory manner: *"You get told what will happen to you"*; *"All of a sudden a letter would drop on a doorstep saying I no longer had a bass entitlement, but some years fish are there, in other years they are not. What small boats catch is different from year to year"*. There is a sense that the local inshore fleet is particularly lacking in influence and power and is being squeezed by emerging interests that are better organised and represented: *"The environmental lobby has all the power"*; *"Big boats have advocates, small boats do not"*.

There are **varied views on the outlook for the local industry**. There is widespread recognition that there is a significant aging problem: *"It is a greying industry"*, and that attracting new entrants is difficult: *"It's a hard job, it needs a lot of resilience. There are other options for people"*. Disappointment was expressed by several interviewees at the lack of materialised benefits for inshore fisheries post the UK's exit from the EU: *"The lack of protection of the 12nm zone especially off the back of Brexit has been a huge disappointment"*. The **stress and impact on wellbeing of striving to continue in the sector** was raised by multiple individuals.

There were also positive views: *"I'd love to be a youngster again, lots of opportunities out there. A good sustainable shellfish fishery. Looks like bass opportunities are coming back. More species seem to be opening up"*; *"It's pretty good, I make a fair living from it"*.

Consensus between interviewees in the fishing sectors and post-harvest sector, including retail was observed in relation to the **need for clarity about future opportunities and the need to simplify the management landscape**: *"More paperwork and red tape"*; *"You feel micromanaged, but the bigger issues aren't getting dealt with"*; *"There is no one [in government] looking at the bigger picture"*; "*We need to know what is coming down the road"*. A specific example raised was monitoring technology rollouts: *"iVMS hasn't been articulated – what will the rules be? Will boats be able to head to sea if the unit isn't working one day? What if you have nets at sea that need to be retrieved?"*; *"Management change is much slower than the changes we see in what fish is about"*.

When asked about what future support would be most beneficial for the sector, meaningful participation was flagged multiple times and is well articulated in the following quote: *"**The key support we require is meaningful participation, not just a tick box exercise**"*.

4. Approaches and insights on Stakeholder Mapping

4.1 What is stakeholder mapping?

Stakeholder mapping describes a range of methods for gathering information on the people who are relevant to an organisation. It is used by organisations in a variety of management contexts to inform their ways of engaging with people who are involved in, impacted by or interested in their activities. Stakeholders are identified and categorised systematically with characteristics that influence their relationship to the organisation and wider network. These categories are often presented visually through a stakeholder map.

Stakeholder mapping can be used to achieve many outcomes, including to:

- Understand the characteristics of important stakeholders in addition to their needs, interests and opinions;
- Foster trust with the community and engage stakeholders in decision-making and other activities; and
- Improve the organisation's reach, resources and access to feedback

Box 1: provides a definition of the key terms relevant to stakeholder mapping. A more detailed description of stakeholder mapping can be found in Annex 2.

Box 1: Glossary of terms: Stakeholder mapping

- **Stakeholders:** Those groups and individuals who influence or are influenced by fisheries management. **Primary stakeholders** depend on the fisheries for their assets and activities, such as fishers and their representative bodies. **Secondary stakeholders** are involved in the wider fisheries system, including management agencies, local fishing communities, dependent industries and interest groups.
- **Stakeholder map:** A visual representation of a stakeholder analysis which displays categories of stakeholders according to their characteristics and relationships.
- **Network:** A collection of fishing stakeholders who hold a relationship with one another for reasons of work, trade, management, family or other interests. These relationships will influence stakeholders' social position, abilities and access to resources.

The approaches used for stakeholder mapping vary widely based on the user organisation's needs and resources. Key approaches include actor linkage matrices, knowledge mapping and social network analysis (SNA).

Whilst methods can be both qualitative or quantitative, the following steps are typically used:

1. **Identification:** Primary or secondary data is collected on stakeholders and their characteristics. Two main approaches to data collection are used. Organisations may pre-empt which categories of stakeholder they wish to analyse, using an *ex-ante* approach. Others may identify categories through the data available, using an *ad-hoc* approach. As a result, data can be sampled both purposively and by 'snowballing'.

2. **First-level categorisation**: Stakeholders are organised into categories based upon common characteristics, such as their occupation or activities. Categories can be chosen from the top-down by the organisation or by using stakeholders' own classifications.
3. **Second-level categorisation**: Using the first-level categories, the relationships between stakeholders are then mapped. Different measures for relationships are used based on the policy setting and purpose of the exercise. The categories of 'interest' and 'influence' are often used in governance contexts. Reed's (2019) 'three i's' approach recognises that stakeholders can be impacted negatively or positively by others (see Box 2:).

Box 2: Glossary of terms: Second-level categories of stakeholder[5]

- **Influence:** Power to shape decision-making. Stakeholders may affect change through their 'power over' or 'power with' others.
- **Interest:** Needs, values and opinions related to decision-making.
- **Impact:** The potential benefit or harm caused by decision-making.

4.1.1 Our approach

The study team trialled the use of a qualitative egocentric social network analysis to map stakeholders of the fishing sector in the case study area. Social network analysis (SNA) describes a collection of methodologies for mapping the pattern of relationships within a network of stakeholders. Researchers identify the stakeholders within the network, map their connections, and analyse the attributes of these relationships.

There are two main approaches to undertaking SNA:

Sociocentric network analyses use mathematical and computer assisted modelling to assess quantitative data. They are useful to map the whole network of stakeholders within a formal organisation, such as a business.

Egocentric network analyses employ techniques to identify the relationships of individual stakeholders (an 'ego') to others (an 'alter'). It analyses the qualitative characteristics of these relationships and the purpose they serve. It is useful for analysing more informal networks such as local communities.

The study team drew upon elements of an egocentric SNA approach. Organisations can use the qualitative findings of this approach to identify the dynamics, language and values that need to be considered for effective stakeholder engagement. Helpful measures of network characteristics can be seen in Table 1:.

It was intended that the approach would help to:

- Trace the flow of information between stakeholders in the fishing sector;

[5] Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C. H., & Stringer, L. C. (2009). Who's in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of Environmental Management*, *90*(5), 1933–1949. https://doi.org/10.1016/j.jenvman.2009.01.001

- Identify which (type of) stakeholder holds influence within the fishing sector, including intermediaries and gatekeepers. Likewise, to identify those with least influence, who are at risk of being marginalised.
- Understand how the relationship between stakeholders is affected by patterns of engagement, levels of trust and perceived impacts.

Table 1: Glossary of terms: Measures of network characteristics[6]

Network characteristic	Definition	Example questions
Structure	The pattern of connections within the community or sector of interest	- What is the size of the network? - Which type of stakeholder is most present, and who is more peripheral? - With whom is power concentrated?
Function	The purpose of connections, such as economic, familial or collaborative.	- What do stakeholders gain from the network? - Why are stakeholders motivated to interact with others?
Strength	The quality of relationships between stakeholders, including the durability and intensity.	- How frequently do stakeholders interact? - What are the barriers and enablers of interaction?

Our intended application of the egocentric approach had the following features:

- Create a network map by conducting interviews with up to 30 individual members with the network;
- Iteratively create the network outwards by snowball sampling: initial interviewees to provide contacts for subsequent interviewees;
- Collect information about the strength of relationships, information flows and trust to overlay the network map with qualitative information; and
- Triangulate information gathered by checking our understanding of the community and how it operates with subsequent interviewees (without compromising confidentiality).

[66] Perry, B. L., Pecsosolido, B. A., & Borgatti, S. P. (2018). *Egocentric network analysis: Foundations, methods and models*. Cambridge University Press. https://doi.org/10.1017/9781316443255

4.1.2 Approach in context

The MMO had previously undertaken stakeholder mapping using the 'three i's' approach. Officers operating in the regional office were invited to a brainstorming session where stakeholders they were aware of were named and categorised according to ‘interest, influence and impact’. Limitations of the approach can be summarised as follows:

- Only actors already known to the individuals doing the mapping exercise were represented on the stakeholder map: “the usual suspects” were represented but those who do not engage may therefore be the most marginalised and in need of representation;
- Difficulties in interpreting what is meant by ‘interest, influence and impact’. Mapping exercise participants were not always able to agree about how to apply the labels. In effect, there is a need to define the policy setting and purpose of the exercise and replicate the exercise for each policy initiative and purpose;
- Strength, direction and quality of relationships and power dynamics were not satisfactory captured in the approach. For example, actors with greater market power (buyers) in this approach would be allocated higher ‘influence’ rating even though the intention of the MMO would be that all individuals in the networks are given an opportunity for their interests to be represented;
- The exercise was time consuming.
- The approach adopted in this study differed from the approach described above by going directly to individuals within the network. In effect, the approach could be defined as stakeholder mapping through stakeholder engagement.

4.1.3 Approach in practice

In practice, the ICF team were able to:

- Conduct interviews with 19 network members.
- Iteratively create the network by convenience sampling of individuals identified through multiple sources, providing several different entry points into the community.

The snowball sampling did not work as expected for the reasons explained below:

- The interviews provided for insightful conversations and captured information about interviewees’ relationships with other network members and other qualitative insights including on the strength of the relationship (as summarised in chapter 2).
- Create a visualisation to show how network member types relate to each other.

The intended snowballing approach did not yield sufficient contacts. Supplementary contacts were generated by undertaking further purposive or random sampling – searching for contacts through local and industry newspaper digital archives, social media pages, lists of fish-related businesses and other online sources, as well as by

targeting other known local representatives and industry contacts beyond those in the starting point sample. The approach was partially successful in including individuals and organisations who would not have been uncovered through the original approach, thus generating new perspectives. The search also offered insights into the decline of the industry with individuals identified in newspaper archives (for example) having retired and their family businesses (e.g. fish and chip shops) closing down.

Other options for undertaking further face-to-face engagements were explored, including through 'doorstep' recruitment, which we have successfully used to engage individuals in specific localities. Sector contracts were asked about opportunities to engage fishers at the quayside, or other social locations (such as pubs, markets or local centres). However, no individual contract could identify a suitable location or time period when any location would be visited by a member of the fishing community. This may reflect the loss of community assets and businesses, the decreasing and ageing population of active fishermen, or other social changes in fishing communities or communities more generally.

4.2 Insights from the approach

4.2.1 Insights on stakeholder engagement

Engagement with fishermen was most successful when arranged through a **trusted intermediary** as they were able to cajole individuals to spend time speaking to the interviewer. In hindsight and based on previous studies, formally including the intermediary in the study team would have aided engagement. Within the case study area, there are known, respected people who are effective in this role.

Face-to-face interviews were more successful than telephone outreach, though timing with tidal cycles and weather windows made arrangements challenging. In-person interviews also yielded better conversations and therefore better quality information.

The intention to build the network outwards through snowballing/iterative from initial interviewees outwards did not enable the target sample to be achieved within the time available. Reasons for this include:

Stakeholder fatigue and varying levels of interest to being interviewed – Two sector stakeholders were not keen on speaking due to previous frustrations spending time being interviewed and not seeing any impact of their participation. Key individuals who had been identified at early stages as important nodes in the network were initially keen to participate but their interest waned once it became apparent that the research was 'abstract' and not related to a specific action or reform.

'Low stakes' assignment – all people spoken with were polite and would have been more keen to participate if there was greater confidence that participation would achieve something relative to their interests. Even though the research team is experienced in engaging community members in research for public sector bodies, including specifically fishers, we could not persuade them to participate.

Practicalities in arranging interviews - contacting known vessel owners was achieved but required multiple phone calls to arrange meetings or to find a convenient time for a face-to-face or telephone interview. A number of fishers

reported being busy and were not keen to be interviewed when contacted, which was partly a reflection of study interview periods coinciding with periods of good weather bracketed by bad weather meaning people were keen to get to sea.

Access to and attitudes to sharing personal information – MEOs and fishing association representatives were not able to share contacts due to GDPR. Where they reached out to seek permission or to pass on interviewer details, individuals typically either did not agree to participate or did not get in touch.

A **shrinking population** – the population of active fishers in the community was smaller than anticipated. A significant number of local vessels have been retired, with individuals and fish shops identified through the supplementary purposive sampling, are no longer active. The fishing fleet in Lymington, for example, has reduced from around 10 permitted vessels in 2012 to three in December 2022.

4.2.2 Insights on the value of the egocentric SNA approach

The egocentric approach offered the following benefits for the study:

Opportunities to uncover different stakeholders to those who may have been considered through the 'brainstorming' approach of usual suspects. For example, one fisher interviewed explained that he has very little interaction with representative organisations and no longer sells to market or collaborates with any other fishers. Instead, he sells to a single buyer. It is unlikely that this individual would have been identified in other approaches as he has very little influence or interest (although depending on the context may be heavily impacted). Arguably the opportunities to uncover such individuals are highly opportunistic or even random.

Opportunities to triangulate findings with several individuals, and testing findings from earlier interviews with later interviewees. While this is a feature of the network mapping approach, triangulation could be implemented on any approach with initial stakeholder maps tested on external groups. Doing this without compromising confidentiality is a challenge.

Insights into how network members interact with each other – and therefore to uncover the existence and the role of intermediaries. This was particularly interesting in terms of uncovering power imbalances related to market power where a buyer has considerable power over their network of fisher.

Insights into how representative 'representative groups' are perceived to be by those that they represent. It was particularly interesting that national organisations (including governmental) were revealed to have no strong links with the any of the individual actors in our case study.

Insights on how different network members have different perceptions, including of their own role and relationships. For example, one interviewee stated that they were well trusted by the local fisher community, whereas the interviewed fishers did not hold the same view of the organisation.

The approach is time consuming. It takes time to build relationships and trust within a community, and to identify contacts through snowballing and deliver face-to-face interviews whilst working around unpredictable external factors (e.g. weather). However, stakeholders may be more willing to participate if the purpose of the mapping is more obviously relevant to them that was the case for this hypothetical exercise. There is, however, potential for replicating aspects of the approach where

MEOs are trusted and have capacity, or for appropriate local liaison officers to be appointed to undertake this specific assignment.

5. Reflections

5.1 On MMO Practices

The MMO should consider introducing processes to better capture information about local fishing networks. Consideration should be given to balancing this need and not overburdening or taking MEOs away from face-to-face interactions with fishers. Integration with IFCA sources would result in a richer evidence base.

There is potential for a specific fisheries liaison role to support MMO-industry communication and boost capacity and efficiency of local offices.

MMO central office should consider how it consults, includes and listens to local MEOs, including supporting their skills to engage with central structure and with their local communities such as through training and allowing them sufficient time within their workload for community engagement.

Local fishing representative bodies are well regarded but lack capacity and resources. The MMO/Defra could support local bodies financially and/or through providing training and access to resources (sharing of facilities, equipment, expertise).

MMO should consider the multiple barriers to fishers ability to participate and engage within the fishing sector and change its engagement practices to minimise these barriers.

Increasing the capacity of the sector to participate in fisheries management and to provide knowledge would be welcomed by the sector, but there needs to be clarity about what could be realistically achieved by participation, how the process of participation works including timelines, and management of expectations. Defining what collaborative approaches mean in practice requires a clear position to be articulated from MMO, Defra, and IFCAs.

To strengthen the willingness to participate, people need to see the outcome of that participation. Communication should not only be clear on what will happened to information and when, but also articulate after the event what has happened and what the implications were.

To reduce stakeholder fatigue, coordination between government bodies can improve, especially in relation to the FMP process where the expertise and knowledge held by the MMO coastal office is not being fully engaged.

5.2 On stakeholder mapping and engagement approaches

The egocentric network analysis approach requires considerable time, resources and links to the community of interest to work best. Replicating the approach as it was designed and modified in this case study is unlikely to be good value and achieve desired results. Strengths of the approach should be incorporated in future activities.

Stakeholder mapping exercises should include actors beyond the usual suspects, consider the power and specifically market dynamic influence participation, include triangulation and testing of findings with a range of individuals and organisations outside the MMO.

Mapping and engagement activities should recognise that there may be no single community and should explore what may be the issues of relevance around which subgroups may coalesce.

Individuals may not be members of or may not feel that the organisation they are members of represent their interests. Mapping and engagement should recognise the different geographical layers at which organisations operate and individuals have connections; in particular recognising the importance of local organisations.

Engagement approaches should be mindful that competition between fishers may mean that identifying individuals to act as representatives of others may be problematic (e.g. if that representative is an active fisher).

This study has not been able to identify a single, simple and failproof approach to identify appropriate representatives. A combination of supporting and building capacity of representative bodies and supporting local MEOs to develop relationships of trust is likely to be more effective in enabling marginalised individuals to be identified and engage with the MMO.

5.3 On further research

This report has noted that the fisher community is now fatigued of being engaged in research and consultations, particularly on abstract research where there might not be an observable benefit for the individual. It would thus be disingenuous to suggest replicating the study another locality – as interesting as it may be. There may be opportunities however to learn from the next trance of engagement for the FMPs.

It would be interesting to explore MEOs perceptions and relationships with MMO central office in terms of their views on their ability to influence national policy, their skills and abilities to engage with stakeholders and on how to support stakeholders to engage with the MMO.

1. Annex 1 Interview Topic Guide

Topic Guide for Fishers

Thank you for agreeing to take part in this research study.

I am researcher at Howell Marine Consulting / ICF, an independent research organisation. My company with ICF / Howell Marine has been asked by the Marine Management Organisation to look into the relationships within the local fishing community. As part of this research, we are speaking with fishers and other people related to the local fishing industry in this area to find out more about how the fishing community "works" and how you hear news and receive information about the fishing industry.

Our conversation will take around 15-20 minutes, depending on your responses. Taking part in this study is voluntary. There are no right or wrong answers, and you do not have to answer any questions that you do not wish to.

The information you provide will only be used for the purpose of this report. We will anonymise all information we collect in the interviews, meaning that your name will not appear in any of our reports.

I will not share your name or anything you tell me with the MMO officers or in any other location or anyone else outside my colleagues at ICF and Howell Marine Consulting.

I will be taking notes and, if it is ok with you, I will record the conversation. My notes and the recording will not be shared with anyone at the MMO and the files will be destroyed when we finish our research. Any personal data you provide will be deleted when the report has been completed. Does that sound alright?

Do you have any questions for me before we start? You can ask me at any point. We can end the conversation at any point. Is it ok to start recording now?

1.1 Questions for Fishers

Key Relationships (Introductory)

- Are you an active fisherman? Please tell me about your day-to-day fishing activities?
- Do you see yourself as part of a fishing "community"? What does "fishing community" mean to you? Who would you say is in **your** community?
- Are you a member of a fisher or other community association? Why? Why not?
- Who are your most important relationships with regard to your fishing interests?

Prompt / explore work, trade, industry/ecological advice, financial support, community / place

  - What is the nature of the relationship – how do you know they, why is the relationship important to you and what do you 'use' it for?
  - How do you interact with them, how often?
  - Why do you interact with them?

- Do you do direct sales or do you sell through a merchant? *Do you mind telling me who it is? [Who do you trade with (ask sensitively with commercial interests in mind). If they are not willing to name the trader explore why not.]*

.

Representation

- Going back to the people/ organisations we spoke about, who do you say you trust to:
  - Receive news from (about fisheries)
  - Give you advice about fishing business /

Why do you trust them?

Is there anyone you don't trust? Why?

- Is there an organisation or an individual who you trust to speak on your behalf? Why? Specifically, who *do you trust to speak on your behalf* about:
  - Your fishing business
  - Your community
  - When speaking to the MMO about quotas and other regulatory changes

If new people / organisations are mentioned, return to Q1 and explore "trust".

- Do you feel you can influence what's happening to your fishing interests? Why / why not?
- What changes would improve this (how you feel about influencing)? *Explore:*
  - Within your community
  - Within the industry
  - Within policy / fisheries management
- Rank organisations on "trust to speak on your behalf". Rank from 5 to 1 where 5 is trust the most and 1 trust the least.

Receiving Information

- How do you learn about changes that affect your fishing interests?
- How do you learn about changes specifically in relation to quotas, regulations, government plans and fisheries management?

Prompt for the methods below. Explore for the role of the people and organisations in questions:

- Word-of-mouth (who?)
- MMO emails
- Other email newsletters (which ones, from who?)
- WhatsApp groups (with who?)
- Other social media (which ones?)

For each channel explore:

  - What type of information?
  - Is the information comprehensive / understandable?

- How could the information be improved? *Explored both content/language and sharing mechanism.*

Relationship with MMO

- Who do you communicate with when you encounter problems in relation to fishing regulations, quotas and enforcement? *How do you communicate with them? Why do you go to those people / organisation?*
- What do you think is the role of the MMO? What is their job? [No prompts]
- Do you see the MMO delivering what they are meant to do? Why / why not?
- Do you engage with the MMO, and what for? Can you provide an example?
- How do you engage with the MMO when you need to?
- Have you needed to communicate with the MMO but weren't able to?
- How would you like the MMO to be working with you?

Is there anything else you would like to say? Anything you thought I was going to add but haven't?

Thank you for your time.

For the researcher –

1. Review list of contacts / individuals. Seek contact details, ask how to best contact them.

2. If they represent an organisation, ask for consent for naming the organisation. "*Do you mind if we mention* [your organisation] *in the report ?*

2. Annex 2 Literature Review

This annex presents findings from a rapid review of literature on stakeholder analysis and social network analysis. The review has prioritised academic articles and grey literature related to natural resource management, marine management, and other relevant policy areas.

2.1 What is stakeholder analysis?

Defining stakeholder analysis

Stakeholder analysis is a management tool which gathers information on the network of actors relevant to an organisation. It identifies the diverse groups and individuals who are involved in, impacted by or interested in the organisation's activities (Gunton et al., 2010; Pomeroy and Douvere, 2008). With its roots in the corporate management literature, the tool emerged to understand the needs and interests of stakeholders (Bridoux and Stoelhorst, 2022). This can be used for a variety of purposes. Donaldson and Preston (1995) outline three key motivations for undertaking stakeholder analysis:

> **Descriptive:** To collect information on the activities of key stakeholders, including their relationship to the organisation.
>
> **Normative:** To consider stakeholders' opinions and needs when making decisions.
>
> **Instrumental:** To engage stakeholders in ways which benefit the organisation.

Stakeholder analysis provides an important foundation for engaging stakeholders. Firstly, authorities can assess the effectiveness of policies, including their impact on different groups (Colvin et al., 2020). Likewise, they can build more durable relationships with stakeholders, enabling knowledge-exchange and consultation (Colvin et al., 2020). Third, they can engage all relevant stakeholders, including those who are less advantaged (Grimble and Wellard, 1997). This reflects the UK Government following benefits of engaging stakeholders:

- Forming a clear understanding of stakeholders' needs, interests and concerns
- Developing trust and collaboration across the community in focus
- Raising the authority's profile and reach within the community
- Increasing the pool of resources available
- Collecting feedback and insights on policy delivery

Stakeholder analysis is valuable for natural resource management organisations. Authorities have shown a growing interest in representing and engaging the stakeholders affected by their activities (Schwermer et al., 2020). This reflects wider developments in natural resource management. Grimble and Wellard (1997) find that authorities often lack an adequate understanding of their stakeholders' needs and interests. This weakens the effectiveness of policy, which can limit co-operation, increase opposition, and foster conflict.

Who is as a fisheries stakeholder?

Within fisheries research, definitions of the term 'stakeholder' are often unclear and conflicting (Schwermer et al., 2020). Freeman (1984) defines stakeholders as "any group or individual who can affect or is affected by the achievement of an organization's objectives" (p. 46). However, this can exclude individuals who hold a legitimate stake in decision-making, despite being less directly affected. Mitchell (1997) proposes that stakeholders will hold power over others, claim a legitimate stake, or be socially or economically dependent on decisions. Nevertheless, the literature highlights that stakeholders may not hold these attributes clearly, and are flexible approaches are needed to prevent stakeholders from being marginalised (Leventon et al., 2015).

Fisheries management literature typically identifies stakeholders based upon their involvement in the management of fisheries or in the fishing sector (Haapasaari et al., 2013). However, this overlooks actors who depend on the resources being managed or have a broader interest in them (Pomeroy and Douvere, 2008). To account for this, stakeholders can be distinguished by their primary or secondary roles:

> Primary stakeholders depend on the fishery for their livelihoods, including their "assets (natural, physical, human, financial and social capital), activities, and access to these" (Lorenzen, 2008, p. 15). Possible primary stakeholders include fishers and their representative bodies (Mackinson et al., 2011).
>
> Secondary stakeholders influence or are influenced by the wider fisheries system, including "fishing communities, dependent industries, management agencies, Civil Society Organisations…and other citizens" (Mackinson et al., 2011, p. 1).

What are the key steps of stakeholder analysis?

Methodological approaches to stakeholder analysis vary widely, depending on the problem being addressed (Grimble and Wellard, 1997). Strategies for stakeholder analysis should be informed by authorities' intended use, such as for developing, implementing or evaluating policy (Varvasovszky and Brugha, 2000). These will vary the timescale used, the stakeholders who are consulted, and the findings.
The UK Government Communication Service recommends that authorities consult prior examples of stakeholder engagement within the authority, policy area or related authorities in order to determine the best approach (GCS, 2021). Reed et al. (2009) identify three key stages of stakeholder analysis:

1. **Identifying stakeholders:** Firstly, data collection is undertaken to identify stakeholders. Both primary and secondary data can be used to recognise potential stakeholders, including official documents, relevant events, and suggestions from other stakeholders (Schwermer et al., 2019). Stakeholders are often identified through an 'ad-hoc' approach, which relies upon snowball sampling methods (Creighton, 2005; Reed et al., 2009). Recommendations from existing stakeholders are used to form a list of stakeholders who can then be categorised and analysed. This differs from an 'ex-ante' approach, which searches for stakeholders within pre-existing categories, such as government, trade and community actors (Reed et al., 2009). Whilst pre-existing categories are often used in natural resource management, this often prioritises more central

stakeholders over others (Reed et al., 2009; Colvin et al., 2020). As a result, an ad-hoc approach can draw out stakeholders who hold a less evident stake in the policy setting.

2. **Categorising stakeholders:** Next, stakeholders are organised into categories based upon common characteristics, such as their influence on change and relationship to others. Stakeholders are categorised in a multitude of ways, and categories can be created from the top-down or through reflecting stakeholders' own classifications (Reed et al., 2009). These are then used to map stakeholders in relation to each other, using grids or typologies (Reed et al., 2009).
3. **Second-level categorising by Influence and interest*:*** Stakeholders are commonly categorised using the measures of influence and interest. Influence denotes stakeholders' power to shape the policy setting. Those in a position of hierarchy can use their 'power over' others, whilst others with less power may affect change collaboratively with others (Reed, 2019). These measures are commonly applied in policy settings to identify the types of engagement that is most appropriate for different groups. The UK Government Communication Service (2021) recommends the Boston Matrix for use in stakeholder engagement strategies. Here, a matrix organises stakeholders by a combination of influence and interest. Whilst stakeholders' may hold high influence in the policy setting, those with less interest may be less willing to engage with the authority. Likewise, stakeholders with less influence may still have vested interests in engaging with decision-making.

The influence/interest duality can demonstrate the role of power amongst stakeholders. However, the method has been criticised for prioritising more prominent stakeholders (Reed, 2009). As a result, Reed et al. (2018) argues that the level of interest a stakeholder holds in decision-making does not correspond with the outcomes they may experience. This is particularly important for harder-to-reach and marginalised stakeholders, who may not have direct influence or interest over management decisions. In response to these criticisms, Reed (2019) proposes a 'three 'i's approach, which integrates an impact evaluation into stakeholder analysis.

Second-level categories for categorising stakeholders:

- **Influence:** Power to shape the policy setting.
- **Interest:** Values, opinions and needs related to decision-making.
- **Impact:** Potential to benefit from, or be harmed by, decision-making.

Source: Reid (2019)

Within this framework, "impact" considers those stakeholders who are likely to benefit from engagement, and those who may be harmed or further marginalised as a result (Reed, 2019). This includes both short-term impacts (such as learning or conflict), and long-term decisions with broad social, economic and environmental consequences. As a result, this ensures that emphasis is placed on those affected by decision-making, rather than those with the greatest visibility or proximity to the organisation.

Investigating the relationship between stakeholders

Having categorised stakeholders, a final stage of analysis investigates the relationships between stakeholders. This aims to provide insights into the power dynamics of the stakeholder network, including areas of conflict, cooperation and marginalisation. Reed et al. (2019) identifies three key approaches for investigating these relationships:

1. **Actor-linkage Matrices:** Actor linkage matrices illustrate the strongest and weakest relationships between stakeholders within a policy setting (Biggs and Matsaert, 2004). Within a grid, the relationship between each stakeholder is organised by numbers or keywords which demonstrate the extent and nature of their relationship. The method's strengths include its convenience and flexibility, which can be applied with minimal resources (Reed et al., 2009). However, the lack of detail makes it complex for those who are unfamiliar with the method, and therefore is most appropriate for small-scale internal studies (Biggs and Matsaert, 2004).

2. **Knowledge Mapping:** Knowledge mapping identifies the flow of information within a policy setting, rather than the nature of relationships. It investigates how stakeholders provide, receive and exchange information, including the key stakeholders who enable or block information from being shared. Mapping information flows can enable authorities to identify those stakeholders which require greater support and collaboration in order to be engaged in decision-making. Knowledge mapping can be especially useful when used as a supporting tool to other methods, such as social network analysis (Reed et al., 2009).

3. **Social Network Analysis (SNA*):*** This is a collection of methods which map the pattern of relationships between actors within a network (explored in detail in section 2.2 below). These typically describe and visualise the connections between stakeholders, illustrating the key characteristics of their relationships. SNA uses rigorous data collection to produce rich information on relationships in a policy setting, which makes it more resource intensive than other methods.

SNA has been identified as a suitable companion to stakeholder analysis (Ahmadi et al., 2019) and a way to address some of the limitations of stakeholder analysis (Prell et al., 2009). Firstly, the detailed and systematic approach can provide greater transparency to the research process (Lienart et al., 2013). Since the research process is often subjective, Krupa et al. (2018) argue that SNA can ease tensions which arise when central stakeholders are perceived to be prioritised over others. Likewise, SNA captures both central and marginal connections within a network, which enables authorities to locate and highlight stakeholders who are at risk of being overlooked (Prell et al., 2009).

2.2 Social network analysis for stakeholder analysis

What is social network analysis?

Social network analysis (SNA) is a methodology which explores the relationships that influence social outcomes (Marin and Wellman, 2014). Researchers identify the actors within a social network, map their connections and analyse the relationships between them. It encompasses diverse methods which identify the actors within a

social network, drawing upon the social sciences, mathematics and computer science.

SNA is rooted in a relational understanding of social behaviour. Whilst traditional methodologies assess the individual attributes and characteristics which influence behaviour, a relational approach emphasises the interactions between groups and individuals (Singh, 2019). This holds that individuals cannot be separated from their social context, and therefore will be driven by their position within the social network.

What is a network?

Social networks are collections of actors who hold a relationship with one another, including individuals, organisations, and social institutions such as families (Perry et al., 2018; Wasserman and Faust, 1994). Social behaviour takes place within these networks, since each actor is influenced by, or influences, the actions of those around them. Actors become individual 'nodes' who are connected to others through social ties. This posits that actors' positions in society are dynamic and change as their relationship to those around them changes (Perry et al., 2018).

Key measures of network characteristics

- **Structure:** Pattern of ties in the network, including size, density, and centrality.
- **Function:** Purpose of ties, including relationships of exchange or collaboration.
- **Strength:** Intensity, frequency, and durability of ties between stakeholders.
- **Content:** Information which informs ties, including cultural, social and economic factors, knowledge and values.

Source: Perry et al., 2018.

2.3 Approaches to SNA

There are two key approaches to undertaking SNA: sociocentric and egocentric.

Sociocentric Network Analysis: Often referred to as whole-network analysis, sociocentric network analysis examines the structure of an entire network (Perry et al., 2018). This seeks to identify every actor within the network in order to assess the pattern of relationships between them. This typically uses *mathematical and computer-assisted modelling to assess quantitative data*, which is often displayed visually. Patterns are identified through this data, identifying which actors are related, the key players in a network and those who are more peripheral.

Sociocentric SNA typically requires using a survey or many surveys to collect information on each actor within a network. It requires that every individual in the network is surveyed; and is therefore resource and time intensive.

The sociocentric approach has been used effective where there is a finite, pre-defined set of members of a network such as analysing relationships within a business organisation. However, in the case of more informal or larger networks it can be difficult to define the boundaries of the whole network and to ensure each individual is represented (Perry et al., 2018).

Egocentric Network Analysis: Egocentric network analysis centres around an individual actor. It understands that each individual or group (an 'ego') will have a unique network consisting of their personal relationships, and the actors ('alters') that influence or are influenced by them (Perry et al., 2018; McGloin and Kirk, 2010). Whilst sociocentric SNA alludes to the structure of a network, egocentric SNA places greater emphasis on the nature of relationships (or 'ties') between actors (Perry et

al., 2018). Functions that influence this or the "ties" are: (1) *the strength of ties*, (2) the *functions* they serve, and the (3) *knowledge which sustains* them.
To examine individual networks, egocentric SNA typically employ qualitative techniques. Iterative sampling techniques is used to identify the actors within a network and build outward. The extent of the network examined is flexible and depends on the feasibility and scope of the research (Perry et al., 2018). Egocentric approaches allow for emphasis to be placed on those relationships that are relevant to the research or the organisation.

Applying SNA within nature resources management

There are a number of reasons for using SNA within the natural management. Firstly, SNA can demonstrate the flows of information between different stakeholder groups within the policy setting. This enables management authorities to identify knowledge gaps which occur when networks are more fragmented, as a result of weaker communication (Sandstrom et al., 2009). Secondly, it can demonstrate how power is distributed between stakeholder groups, enabling authorities to identify those central and excluded from decision-making (Crona and Bodin 2010). Third, it enables authorities to identify stakeholders at different levels of decision-making, local, regional and national (Salpeteur et al., 2017).
SNAs in natural resource management typically utilise a mixed-methods design (Salpeteur et al., 2017). Most published studies adopt a socio-centric approach to analysis (Groce et al., 2017; Mertens et al., 2015) – though academic literature does not reflect or report actual institutional practice of resource management organisations. Some studies recognize the difficulties of performing a whole-network, socio-centric analysis with the resources available in a policy context (Wojcik et al., 2021). In their mixed-methods analysis within agricultural policy, Hauck et al. (2016) recognise the benefits of qualitative data. Whilst conducting and analysing interviews brings its own resource and time demands, it enables authorities to capture stakeholders' preferences. This can facilitate more participatory approaches to engagement, by recognising the language, perspectives and position of stakeholders more accurately.

2.4 Literature review summary

A summary of the findings from the literature review and implications for this study are:

- **Stakeholder analysis is management tool for gathering information** on the network of actors relevant to the organisation.
- Understanding stakeholders and responding to their needs and interests appropriately can help natural resource management organisations manage resources more effectively by improving cooperation and reducing conflict.
- Primary **stakeholders in fisheries** are those who depend on the fishery for their livelihoods and include fishers and their representative bodies. Secondary stakeholders are those influenced by the wider system including fishing communities, dependent industries, civil society organisations and other citizens.
- Key steps in stakeholder analysis are: identifying stakeholders, categorising stakeholders by common characteristics and assigning second-level categories by influence (power to shape policy) and interest (opinions and

needs related to decision making). Adding “impact” (potential to benefit, or be harmed by, decision making) is proposed to ensure that those stakeholders who are harder-to-reach and marginalised are included in stakeholder analysis.

- There are many ways to investigate the relationship between stakeholders including knowledge mapping (recording knowledge and information flows) and social network analysis (SNA).
- Knowledge mapping can help organisations identify those stakeholders which require greater support and collaboration in order to engage in decision making. It identified the flow of information within a policy setting and investigates how stakeholders, provide, receive and exchange information. It is a particularly useful tool when used in collaboration with other tools such as SNA.
- Social network analysis (SNA) is a method to explore the relationships within actors in a social network. A social network is a collection of actors who hold relationships with others. Actors are connected through “nodes” or “ties”. Network characteristics can be assessed by looking at the structure (pattern of ties), function (purpose of ties), strength (intensity of ties), content (information/knowledge which sustains ties).
- SNAs can be undertaken using a sociocentric or egocentric approach. The sociocentric approach examines the whole network. It uses mathematical or computer assisted modelling and quantitative data. It that every single actor in the network is surveyed. It is thus resource and time intensive. The SNA egocentric approach centres on the individual and maps the network of relationships of the individual. It uses qualitative interviews with individuals and places greater emphasis on the nature of relationships (strength of ties, function of ties, knowledge that sustains ties).