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Food for Thought

Beyond consensus: perceptions of risk from petroleum developments in Lofoten, Vesterålen, and Senja, Norway

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The proposed petroleum developments in the Lofoten, Vesterålen, and Senja are a controversial issue in Norway. We ask how insights into legitimacy and risk perception can help to illuminate the disputed policy process for petroleum developments in Lofoten, Vesterålen, and Senja. Our Q-methodology elicits three key narratives that steer the policy process: (i) best practice and knowledge does not permit coexistence, and fishing takes priority; (ii) coexistence is possible with good process where the nation-state manages risk; and (iii) the state and industry cannot facilitate coexistence, science and conservation come first. We argue these narratives reflect divergence in worldview in three key ways: (i) differential perspectives on the priority of local, national, and global scales; (ii) emphasis on the role of knowledge, skill, and rectitude in finding best policy; and (iii) differential concern for fish, the nation-state, and conservation. We argue for a more realistic approach to coexistence in deliberative democracy that does not aim for consensus and win-win outcomes, and assert that disagreement and partial victories and losses is a natural and healthy state of affairs in a democracy.

Keywords: agonism, consensus, deliberative democracy, Lofoten, Vesterålen and Senja, petroleum discourse, Q-methodology, risk perception.

Introduction

Since the 1960s, the Norwegian oil industry has been narrated as the "oil fairy tale" (*oljeeventyret*) with unprecedented benefits to Norway's societal development (https://www.norskpetroleum.no/okonomi/statens-inntekter). The Norwegian oil industry has generated more than NOK 14 000 billion since its start in the early 1970s, and it is expected to generate more than NOK 200 billion in 2018 (Oljedirektoratet, 2018). This industry expanded relatively undisputedly in the North Sea up to latitude 65° North (Figure 1), where a wide continental shelf allows oil fields distant from the coast, avoiding competition over space with fisheries and other industries. Interrupting the northward expansion into the Barents Sea, the narrow continental shelf of the Lofoten, Vesterålen, and Senja region would place oil rigs among fishing vessels and in the view of tourists to this much-visited region. This proximity also increases the potential damage from oil spills in sensitive areas. These considerations led to both the 1974 Impact Assessment, and the 2003 Norwegian Management Plan recommending the area remain closed to petroleum extraction. Strengthening that standpoint, commitment to the Paris Agreement indicates further petroleum industry expansion may be inadvisable. Still, early investments in anticipation of the petroleum industry in this region has already benefited local communities, a welcome trend for many who perceive the southern regions have benefitted disproportionally from the nation's economic boon. For instance, the level of education in the north is lower than in the south of Norway, leading some to comment that an improvement in the competence level will benefit employment in general (Jungsberg *et al.*, 2018), and perhaps lead to a positive demographic trend. Furthermore, pragmatic perspectives voice the consideration that the North Sea petroleum is less polluting than tar sands and other low quality reserves, and cite good Norwegian environmental governance as presenting a more appropriate alternative for meeting the unavoidable petroleum demand over coming decades while meeting Paris targets (Schjøtt-Pedersen, 2018). Hence, Arctic petroleum development presents both substantial opportunities and challenges for local communities (Hovelsrud *et al.*, 2011; Dale *et al.* 2018) and global societies.

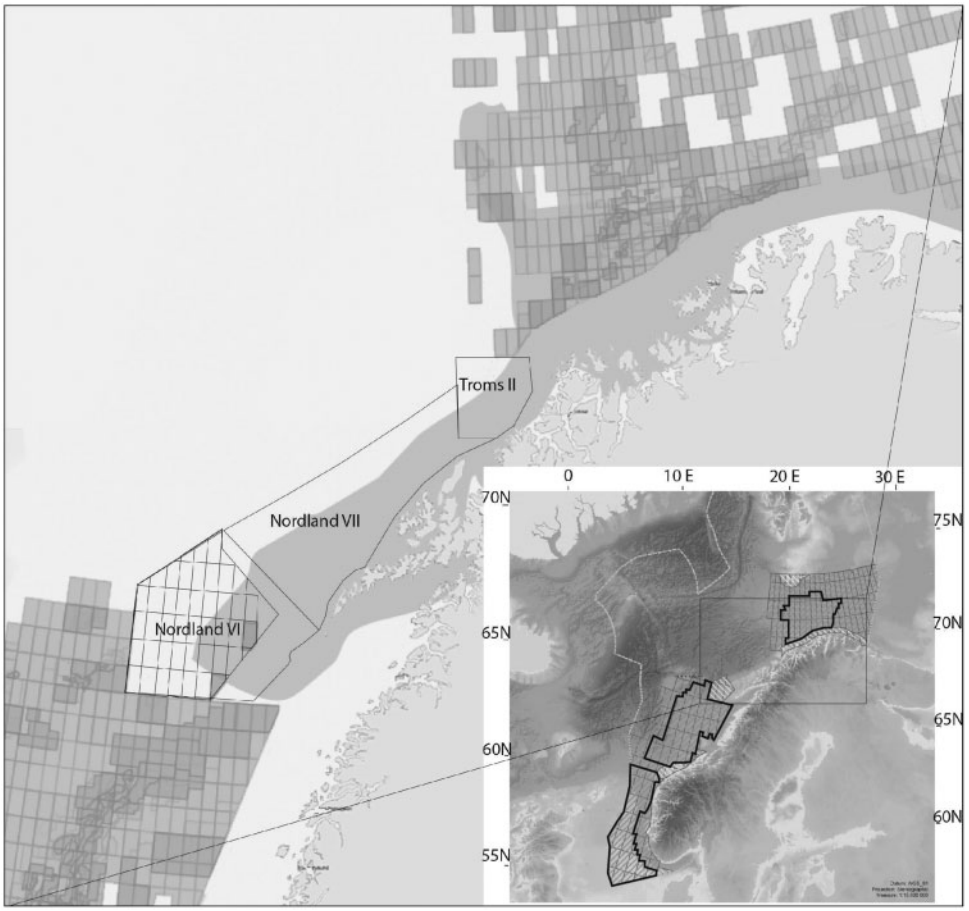

Figure 1. Map of the Nordland V, VI, VII, and Troms II areas, also known as the LoVeSe region, showing important ecological zones in continuous and plain shaded area, and the expected size of petroleum deposits in shaded rectangles (light to dark indicating low to high, respectively). The thicker black line in the inserted map delineates TFOs (tildeling i forhåndsdefinerte områder, allocations in predefined areas), which are defined as mature resources where leasing policies are adjusted to allow access to time-critical reservoirs.

Over the last decade, the public debate signals a deteriorating trust in the democratic process. For instance, the ability to form a coalition government in the 2013 and 2017 elections was predicated on a promise that the government would not permit an Impact Assessment for the Lofoten, Vesterålen, and Senja region. The concern from central politicians and voters was that an Impact Assessment would not act its role as a knowledge base for a future decision over petroleum exploration, but that initiating the assessment process would instead perform as a *de facto* approval. As such, the revised management plan of 2011 recommended further knowledge acquisition—not an impact assessment—of the areas (https://www.visitnorway.no/innsikt/statistikk/verdiskaping/) as a compromise between parties (Oljedirektoratet, 2018). With the 2017 election, the new government took a more industry friendly stance, but the coalition remains tethered on the "pause" in the impact assessment process. In this way, the knowledge-based management plans for marine areas in Norway aims to balance development and value creation with maintaining healthy ecosystems (Norwegian Ministry of Environment, 2002; Ottersen *et al.*, 2011). An important principle for ecosystem based management of the Norwegian Sea and coastal areas is that management should be knowledge-based and take an holistic approach (Norwegian Ministry of Environment, 2002; Ottersen *et al.*, 2011; Gullestad *et al.*, 2017). Key knowledge providers such as the Norwegian Polar Institute and the Institute of Marine Research have on the basis of this management plan clearly advised against petroleum activity in the area. For instance, the Institute of Marine Research states that their "unequivocal advice is not to open for oil activity in "LoVeSe." The area is the most important for Norwegian fisheries - and the most vulnerable to oil spills" (Rogne and Vikebø, 2017). Given this unequivocal advice, questions arise about the need for an impact assessment. How, then, do these insights position the role of knowledge-generation and impact assessments in decisions over petroleum developments in the Lofoten, Vesterålen, and Senja region?

Environmental governance was established within a technocratic model for decision-making, based on sound scientific advice i.e. universal, objective scientific information, as part of the scientific management paradigm (Hajer, 1995). For instance, the Research Council of Norway's call for projects examining the societal dimensions of petroleum development (PETROSAM 2010–2016) defines a causal relationship between scientific production of knowledge, economic rationality, and a resulting logical implementation of advice by decision-makers. However, rationalities underlying behaviour and sentiments influenced by socio-cultural factors determine how science is interpreted and deployed in policy processes (Kahan *et al.*, 2012). Kahan *et al.*

(2011) show that increasing scientific evidence does not necessarily lead to better use of scientific advice. Indeed, the debate can become more polarized as technical-scientific literacy increases (Kahan *et al.*, 2012). Individuals will interpret scientific knowledge and assess risk based on their worldview and experience of agency and security (e.g. O'Brian *et al.*, 2007; Kahan *et al.*, 2011; Veland and Lynch, 2017)—that is, their ontological security (Giddens, 1984). Ontological security is "the confidence that most human beings have in the continuity of their self-identity and in the constancy of their social and material environments of action" (Giddens, 1984, p. 2). When threatened, ontological security trumps scientific facts. Additional stresses on the legitimacy of expert production and use of knowledge resulted from the Chernobyl accident in the 1980s and the bovine spongiform encephalopathy crisis of the 1990s (Irwin, 2001; Løvbrand and Øberg, 2005; Løvbrand *et al.*, 2010). In other words, subjective value orientations play a pivotal role in the acceptance and application of scientific insight (see for instance Bjørkan, 2011; Scott, 2016).

A response among social and natural scientists has been a turn toward participatory processes such as citizen science and co-production of knowledge (Meadowcroft, 2004; Bjørkan, 2011). Citizen involvement in research design as well as political processes is assumed to generate more legitimate knowledge and decisions (Shackley and Wynne, 1996; Løvbrand *et al.*, 2010). These more open and inclusive processes, typically referred to as good governance approaches, are based on the deliberative democratic model for decision-making (Linke *et al.*, 2011). The underlying theory is deliberative democracy, which promotes deliberative ideals of public arguing and reason towards a common goal (Dryzek, 2006; Backstrand *et al.*, 2010; Løvbrand *et al.*, 2010; Mouffe, 2013). However, the focus on consensus in deliberative democracy has been criticized for its inability to deal with conflict (Mouffe, 2013). This is particularly relevant in contexts where stakes are high, and the end-result create winners and losers, i.e. access to space (Porter, 2011; Birnbaum, 2015). The inability to deal with conflict is also problematic, we argue, because an expectation of consensus resists or ignores the fundamental role of world-views and the associated sense of security and agency in shaping policy positions. The expectation or ideal that consensus can be achieved across such differences may be fraught in democratic theory and praxis in general, and, as we argue in this paper, for the policy process over Lofoten, Vesterålen, and Senja in particular.

This article considers the cultural dimensions of risk from petroleum developments in the Lofoten, Vesterålen, and Senja region by analysing recent public discourse. Taking on insights that experimental design influences scientific findings (Latour, 1987; Bohr, 1987), we draw on Q-methodology, in order to move analytic attention away from entrenched roles and opinions and instead address directly how key decision-makers structure the discourse. In this way, we look for patterns in shared value orientations that may influence how scientific knowledge may be mobilized, contested, or rejected for different policy outcomes. The article begins with a background on the region, before presenting the Q-methodology. We then present our findings, before arguing these results show the debate is more nuanced than is conventionally presented, and that addressing these nuances in opinion can improve understanding among actors and thereby improve the quality of the debate. Moving focus away from the presumed identity politics of actors and their interests and power discrepancies, and toward the substantive contents of the discourse can produce a more productive policy process. We conclude with the argument that the three distinct and scaled narratives about petroleum in this region cannot be reconciled, and that Mouffe's (2005, 2013) idea of agonism may be a more productive approach to decision-making.

Regional background

The Lofoten, Vesterålen, and Senja regions share characteristics, with strong fishery and tourism economies, and are as such often grouped together. The three areas lie across two counties (Nordland and Troms) and 15 municipalities. The total population across the three regions was 63 774 people in 2011, down from 65 257 in 2011, with a majority in the age 30–49.

Forming the basis for historical human settlement in the Lofoten, Vesterålen, and Senja region, the spawning North East Atlantic Cod (*Gadus morhua)* each February/March migrate into Vestfjorden(Olsen *et al.*, 2010). This fjord between the Lofoten, Vesterålen, and Senja region and the mainland (see Figure 1) is home to the Lofoten fishery, which remains the world's largest cod-fishery. Although the number of fishers has decreased markedly over recent decades, the landed amount of fish remains quite stable, indicating that there are fewer but larger fishing vessels in operation (Hersoug *et al.*, 2012).

Over recent decades, tourism has become an important part of the region's business structure. In 2015, the tourism consumption in Nordland reached NOK 1.380 billion and in Troms County NOK 1.276 billion (https://www.visitnorway.no/innsikt/statistikk/verdiskaping/)), an economy that contributes to the ability to maintain a dispersed settlement and employment in the county (Mariussen *et al.*, 2013). The increase in tourism revenue has been driven by the tourism industry's marketing the dramatic landscapes where the ocean gives way to steep peaks, interspersed with pittoresque fishing infrastructure that persists as a legacy from centuries of Lofot-fishing. This tourism advertises the Lofoten, Vesterålen, and Senja region as a pristine destination where visitors can experience wilderness and culture in close proximity. As such, tourism operators are concerned that petroleum infrastructures may become visual pollution that negatively affects tourists, in turn affecting revenue and visitor numbers (https://www.aftenposten.no/okonomi/i/dllM1/Turistnaringen-i-nord-sier-nei-til-olje).

The petroleum industry advocates for exploration in the Lofoten, Vesterålen, and Senja region as the epoch of lower latitude petroleum discoveries passes, rendering northern latitude deposits more desirable. This continued push for development has been rejected and protested by a host of government, private, and public bodies. Most prominently, a 2006 Norwegian Ministry of Environment white paper (Report no. 8, 2005–2006) laid out an *Integrated Management Plan of the Barents Sea and the Sea Areas off the Lofoten Islands* (Norwegian Ministry of Environment, 2006), recommending that since this is a vital spawning area for the NEA cod stock and about 70% of the fish in the North East Atlantic, it should remain closed to petroleum activities (see also Sundby *et al*, 2013). The Government and parliament (Storting) confirmed this advice in the revised management plan for the Barents Sea in 2011 (Ministry of Environment, White Paper, no. 10, 2010–2011). The recommendations followed the 2003 introduction by the Norwegian Parliament of a holistic management plan for the Barents Sea, governing both human use and conservation of ecosystem structure and function (Olsen *et al*

2007; Knol, 2010). A key concern for ecosystem management is oil spills, but the more immediate concern for fishers is the 500 m, or 20 min security zone around oil rigs, which includes bottom structures, which restricts the space available for fishing vessels. Further, contestation persists as to whether seismic activities may induce fish to move away from fishing areas, and impact fish reproduction (see for instance Jensen 2017, Robertsen 2017, Aadland 2018, Cumming 2018, Martinussen 2018, c.f Løkkeborg *et al.* 2010). From the perspective of municipalities, the petroleum industry requires highly educated workers, leading to a concern for a lack of local retention of benefits such as local employment (Jungsberg *et al.*, 2018).

Into this entrenched debate over the merits and detriments of petroleum developments in the Lofoten, Vesterålen, and Senja region, we contribute a discourse analysis based on the Q-methodology, with the aim to look more closely at this debate and provide alternative perspectives on its outcomes.

Methodology

The Q-methodology was developed by William Stephenson as a method to "correlate persons instead of tests" (Stephenson, 1953, p. 17). Tests (e.g. covariate, multivariate) are used to compare individual viewpoints in order to elicit information about how their variables (e.g. demographic) help to explain variance, where statistical significance is achieved by sampling a sufficient number of individuals. The Q-methodology inverts this approach by comparing the full array of a person's viewpoints, and achieves statistical significance from the sample of subjective value statements chosen to represent the full discourse on a topic. This distinction is epistemic. Although test-based approaches adhere to traditions where variables related to personal characteristics have primary analytic value, the Q-methodology adheres to a tradition where the discourse on a topic holds primary analytic value (For instance, asking how the discourse on petroleum developments is structured.). As such, Q-methodology is more than a technique and a method, and is an epistemic orientation expressed in a "set of statistical, philosophy-of-science, and psychological principles" (Stephenson, 1953, p.1). By attending less to demographic characteristics, and more to the ways in which persons subjectively structure the discourse, the Q-methodology can avoid a surreptitious reification of politically defined or expected perspectives, and in that way offer novel insight.

The Q-methodology assumes public discourse is structured according to a limited set of shared value orientations, and uses factor analysis and principal component analysis to detect such patterns (Barry and Proops, 1999). Assuming there is a "population" (N) of possible statements on a topic, called the *concourse*, the method involves extracting a representative *Q-sample* (n) of this discourse from appropriate oral and written sources. Rigour and significance in sampling is sought by using a theoretical framework that ensures comprehensivity and selectivity (see below). The respondents (*P-sample*) are not selected in order to produce generalizable "patterns across individual traits, such as gender, age, class, etc.", but to examine "patterns within and across individuals" (Barry and Proops, 1999, p. 339). As such, a limited number of participants is acceptable and appropriate (Watts and Stenner, 2012). Respondents are asked to create a *Q-sort* where the sampled statements are placed across a normal distribution (bell curve) that indicates degree of agreement/disagreement (Table 3). The steepness of the bell curve will dictate how strongly the respondent must clarify their standpoint (steeply to elicit strong response (e.g. −3/+3), gradual to elicit nuance (e.g. −5/+5). Although some recommend interaction with the respondent during the sorting exercise (Watts and Stenner, 2012), evidence suggests that the factors obtained from online administration (such as FlashQ) will not differ from those obtained in person (Lynch *et al.*, 2014).

Each Q-sort constitutes a matrix for which a Q-dimensional vector can be calculated via principal component analysis. Factor analysis then determines a small number of ideal vectors that can capture a healthy amount of the study's overall vector variance (Watts and Stenner, 2012). This small set of ideal vectors represents groups of shared perspectives, displayed by a corresponding model Q-sort, or *factor array*, that represents "no more or less than a *single q sort configured to represent the viewpoint of a particular factor*" (Watts and Stenner, 2012, p. 140, emphasis in original). Each factor array has an associated *factor loading* that indicates the explanatory power of variables (note that the variables are persons). This loading is used to determine the appropriate number of factor arrays (usually 2–5). Each statement in this factor array is given a *z-score* that indicates the degree to which an individual statement contributed to defining that model Q-sort. Below, we outline the approach used in this study, before presenting the results.

Methods

The concourse of statements for this study was drawn from participatory observation and semi-structured interviews with targeted stakeholders, and relevant publications petroleum developments in the Lofoten, Vesterålen, and Senja region. M. Bjørkan conducted semi-structured interviews with fishers in May 2016 in Lofoten and Vesterålen and performed participant observation at a 2-day meeting organized by the Norwegian Institute for Marine Research in Bergen in 2016. Participants at this meeting included scientists from several universities and advisory bodies, the petroleum industry, the seismic industry, the Norwegian Fishermens Association and the regulatory authorities including the Ministry of Petroleum and Energy. Relevant surveyed literature included government documents and regional and national newspaper articles. We also used statements from semi-structured interviews conducted by B. Dale as a part of the Arctic Challenge project that run from 2014 to 2017. To develop the Q-sample, we selected statements that clearly communicated a standpoint concerning the role of petroleum in the Lofoten, Vesterålen, and Senja region. Colloquial or dialectical expressions were normalized (to *bokmål*), while retaining their original meaning.

We sampled the discourse using a theoretical framework in which the columns and rows were defined by the eight value orientations of the policy science framework (Lasswell, 1971) and recent developments in risk research. The policy science framework assumes persons are motivated by a set of at least eight value orientations (wealth, rectitude, skill, enlightenment, affection, power, well-being, and respect), which are represented in the rows (Table 1). The columns are based on recent developments in risk management literature, where a differentiation in outcomes is produced between policies aimed at (i) individually defined *end-points*, (ii) the intersections of multiple risks in *context*; and (iii) the *processes* by which context or goals are articulated (O'Brian *et al.*, 2007; Veland *et al.*, 2013). For instance, scientific management approaches conform to the idea that knowledge is a

Table 1. Structure of the Q-statements, based on their orientation toward process, context, or end-point.

	Process		Context		End-point
1	Good, holistic, fact-based solutions for coexistence is possible	2	We are worried about the exploration and seismic testing, not the oil platforms	3	The continental shelf is too narrow for fish and oil
4	I see why the tourism industry will not trade the brand Lofoten for nothing. It is a sensitive area.	5	Fishing is based on other values than the oil industry. Fishers care for one another	6	Norway needs the oil in Lofoten, Vesterålen, and Senja to secure the welfare state
7	The oil industry uses any means to remove intrusive opponents	8	The authorities should prioritize oil before fisheries	9	Impact assessments always lead to drilling
10	The petroleum industry has increased competency in Northern Norway	11	There is a deep worry in Lofoten for consequences	12	More knowledge about possibilities and consequences lowers the level of conflict
13	I trust central authorities can weigh all knowledge and make a good decision about oil drilling	14	Government, tourism, oil industry and fisheries live in different "bubbles" and do not care about the others	15	The "green shift" and Paris agreement demand protection of Lofoten, Vesterålen, and Senja
16	We must listen to those who know the sea. Fishers, researchers, governance agree it is too risky	17	The future debate should be based on research to prevent unfounded fear	18	Landing, base functions, and jobs are prerequisites for taking the risk
19	New oil areas have positive impacts on local communities	20	It is fish, not oil the world needs from Lofoten, Vesterålen, and Senja	21	Fishers are opportunistic and can be "paid out" of fishing
22	Norwegian oil has strict standards for health, environment, and safety	23	Oil development best prevents ageing and depopulation	24	Lofoten oil development will be good for the climate

Table 2. Response to survey question by sector.

NGO	Oil industry	Local government	Research and education	Tourism	Fishery	Politician	Other	Unknown
6	2	1	2	1	1	1	5	1

Note that "unknown" indicates the respondent that elected not to answer this question.

cumulative outcome from discrete disciplines and research projects (end-point perspectives); social science approaches from geography and anthropology in particular orient toward human experience as the intersections of many competing priorities (contextual perspectives); while critical, Marxist and postcolonial orientations orient more strongly toward how structures of power shape what is sayable, thinkable, and knowable (processual perspectives). In this study, we are interested in understanding whether different orientations toward risk management as the end-point, context, or process may help explain divergent perspectives on petroleum developments in the Lofoten, Vesterålen, and Senja region. Based on this framework, we extracted a concourse of 2428 statements from interviews and policy documents, from which 24 were selected as representative (Table 1). We used the expertise of the ArcticChallenge project team to test and select the statements for the final Q-sort.

The survey form ensured anonymity, but the survey respondents could opt to share demographic information to supplement the Q-sort (postal code of residence, postal code of work, profession, membership of professional organizations). We solicited response among bureaucrats, fishers, representatives from the oil industry, as well as representatives from NGOs and regional development agencies (Table 2). We used the category "other" to refer to persons in various independent consultancy NGO-related capacities that did not feel the other categories described them. Two persons did not provide demographic information in the survey (listed as "unknown" in Table 2). However, follow-up phone conversations confirmed that at least one respondent was a fisher. The anonymity offered by the online survey tool ensured the participation of some decision-makers who did not wish to make official statements. 60 participants were invited, of which 20 responded, representing each category. One of the main benefits with Q is that a relatively few participants are needed to give statistical significant results, because each participants Q-sort provides a vast amount of information (Barry and Proops, 1999, p. 334). The fishers and regional development agencies live in the area of study, while the bureaucrats and oil industry representatives are located in the larger cities of Bergen, Stavanger and Oslo.

We inserted the Q-set into an online survey tool (FlashQ), which guided participants through a process to sort the 24 statements anonymously from disagree (−3) to agree (+3) (Table 3). After the initial e-mail invitation, we sent out a "friendly reminder" by e-mail and followed up with phone calls to ensure participation. In follow-up phone conversations, all respondents reported they were able to follow the survey instructions correctly, and expressed that the sorting task was interesting, and that they enjoyed the exercise. Interestingly, one group of respondents rescinded themselves for participation in the survey on the grounds that their role specifically denied their having a subjective perspective on the policy process. These respondents work within the Ministry for Oil and Energy and consider that their mandate is to apply a regulatory framework, and as such do not use subjective judgements as part of practicing their profession. In order to elicit factors, we applied a varimax (orthogonal) auto-rotation to extract factors (Watts and Stenner, 2012). We then used automatic flagging in PQMethod to elicit model Q-sorts.

Results

Three factors loaded over 1, which together explained 69% of the variance, with factors 1–3 each accounting for 28, 23, and 18% of the variance, respectively (see Supplementary Appendix). (Watts and Stenner, 2012, p. 140, emphasis in original). PQMethod

identified three statements where each factor array agreed, disagreed, or diverged strongly (Table 4).

Analysis

We interpreted each of the three factors holistically by following the "crib-sheet" method (Watts and Stenner, 2012) and creating tabular representations of the z-scores within the theoretical framework (Tables 5–7), to look for patterns of agreement and disagreement. The three factor arrays can be interpreted as expressing three narratives: (i) best practice and knowledge does not permit coexistence, and fishing takes priority; (ii) coexistence is possible with good process where the nation-state manages risk; and (iii) the state and industry cannot facilitate coexistence, science and conservation come first. The emphasis on coexistence here comes from observation that the three factors diverge on their position on the statement, "good holistic, fact-based solutions for coexistence are possible" (Table 4). We present an analysis of each factor in the following sections.

Factor 1: best practice and knowledge do not permit coexistence, and fishing takes priority

This factor orients toward emphasis on knowledge as the cornerstone of good policy-making. Emphasis is on the local level as the locus of policy and expresses faith that science will agree with their perspective that fishing is too sensitive to petroleum developments to permit petroleum industry presence (Table 5). As such, this perspective considers co-existence between fisheries and petroleum impossible. They emphasize the role of fisheries for the region and the world, and express concern for impacts from oil. This factor strongly disagrees with the notion that oil from this region is important for the welfare state or for countering an ageing and declining population. Nevertheless, they also express a strong faith in the structures for decision-making, seeing knowledge as key to lowering fear and conflict, expressing trust in Norwegian safety regulations, and disagreeing with the idea that impact assessments always lead to drilling. This discursive grouping has a regional perspective that stresses the need to respect and sustain fisheries as the cornerstone of the Lofoten region.

Table 3. Forced-choiced frequency distribution for the administered Q-sort.

Most disagree						Most agree
−3	−2	−1	0	1	2	3

The design allows for a set of 24 statements, and respondents were asked to rank these from "most agree" to most disagree."

Factor 2: coexistence is possible with good process where the nation-state manages risk

This factor orients toward values of affection for the nation-state and good policy processes. Emphasis is on the national scale as the locus of skill and capacity to provide for the local communities, international obligations, and the nation-state—by way of good established protocols for risk reduction and capacity building. This discursive group expresses concern for national interests and considers these synergistic with local and international commitments. This factor array strongly supports the possibility for coexistence, and strongly disagrees with the notion that the continental shelf is too narrow to accommodate all industries (Table 6). They have strong faith in Norway's risk management

Table 4. Statements for which the factor arrays (F1, F2, and F3) agreed, disagreed, or diverged strongly.

No	Statement	Result	F1	F2	F3
1	Good, holistic, fact-based solutions for coexistence are possible	Factors diverge strongly	−2	3	−2
17	Fishers, scientists and managers agrees that it is too risky	All factors agree	1	2	1
23	Petroleum development is the best way to prevent decreasing population	All factors disagree	−3	−1	−3

Table 5. Factor 1: Best practice and knowledge do not permit coexistence, and fishing takes priority; Z-scores for statements within the theoretical framework.

Process	Context	End-point
−1.351 Good, holistic, fact-based solutions for coexistence is possible		
		−1.628 Norway needs the oil in Lofoten, Vesterålen, and Senja to secure the welfare state
		−1.260 Impact assessments always lead to drilling
	1.104 There is deep worry in Lofoten for consequences	**1.112** More knowledge about possibilities and consequences lowers the level of conflict
	1.068 The future debate should be based on research to prevent unfounded fear	
	1.964 It is fish, not oil the world needs from Lofoten,	**−1.224** Fishers are opportunistic and can be "paid out" of fishing
0.835 Norwegian oil has strict regulations for health, environment, and safety	**−1.554** Oil development best prevents ageing and depopulation	

This illustrates that Q-sort focus is on context and goals.

Table 6. Factor 2: Coexistence is possible with good process where the nation-state manages risk; Z-scores for statements within the theoretical framework.

Process	Context	End-point
1.637 Good, holistic, fact-based solutions for coexistence is possible		**−1.811** The continental shelf is too narrow for fish and oil
	−1.045 Fishing is based on other values than the oil industry. Fishers care for one another	**1.390** Norway needs the oil in Lofoten, Vesterålen, and Senja to secure the welfare state
−1.429 The oil industry uses any means to remove intrusive opponents		The "green shift" and Paris agreement demand protection of Lofoten, Vesterålen, and Senja
0.980 The petroleum industry has increased competency in Northern Norway		
		−1.105 Impact assessments always lead to drilling
1.406 We must listen to those who know the sea. Fishers, researchers, governance agree it is too risky		
1.752 Norwegian oil has strict standards for health, environment, and safety		

This illustrate that the Q-sort focus is on the process and goals.

Table 7. Factor 3: The state and industry cannot facilitate coexistence, science and conservation come first; Z-scores for statements within the theoretical framework.

Process	Context	End-point
− 0.934 Good, holistic, fact-based solutions for coexistence is possible		
		−0.901 Norway needs the oil in Lofoten, Vesterålen, and Senja to secure the welfare state
1.154 The oil industry uses any means to remove intrusive opponents		**1.325** Impact assessments always lead to drilling
−1.115 I trust central authorities can weigh all knowledge and make a good decision about oil drilling		**1.543** The "green shift" and Paris agreement demand protection of Lofoten, Vesterålen, and Senja
	1.531 The future debate should be based on research to prevent unfounded fear	
	1.302 It is fish, not oil the world needs from Lofoten,	
	−1.391 Oil development best prevents ageing and depopulation	**−1.823** Lofoten oil development will be good for the climate

This illustrate that the focus of the Q-sorts is distributed evenly across risk perceptions.

principles, disagree with the notion that impact assessments are *de facto* seals of approval for development, and consider the petroleum resources important for the sustainability of the welfare state. They do not agree there is a conflict between Norway's commitments to international agreements and petroleum developments in Lofoten, Vesterålen, and Senja, nor with there being a deep concern in the area about the consequences. They consider that the oil industry has improved competency in the population, and do not agree that this industry uses every means necessary to remove vocal opponents. Nevertheless, they consider that fishers, scientists and managers agree it is too risky to open the area for oil drilling, indicating perhaps that this group does not identify as part of these sectors. They express opposition to the idea that fishers have stronger affective considerations than the oil industry.

Factor 3: the state and industry cannot facilitate coexistence, science, and conservation come first

This factor presents a value orientation toward rectitude with a particularly strong focus on science, conservation, and the climate. This factor considers global political and environmental processes as primary and emphasizes the moral imperative for conservation in lieu of national or industrial priorities. The factor does not express faith that good solutions for coexistence is possible, nor that it is desirable in terms of securing the welfare state or preventing ageing or depopulation. They express a view of the petroleum industry as a powerful actor that can remove opponents they consider obtrusive. Furthermore, they do not trust the government to make a reasonable decision on the matter, and express distrust in the policy process, considering that impact assessment effectively approve oil drilling. This third discursive group connects local and global concerns and displays little trust in national political leadership to look after these interests. Rather, they stress global responsibilities for reducing emissions and maintaining healthy fish stocks to feed the world, and a distrust in the sincerity of arguments in favour of the petroleum industry.

Discussion

Although disagreement over the future of the Lofoten, Vesterålen, and Senja forms the rationale for this study, our

analysis seeks to look beyond established roles and narratives to examine shared and differentiated perspectives that might otherwise be overlooked. Three key levels of distinction can be elicited from the previous discussion: (i) the discourse diverges into differential perspectives on the priority of local, national, and global scales; (ii) the three diverge into emphasis on the role of knowledge, skill, and rectitude in finding best policy; and (iii) they differentially express concern for fish, the nation-state, or conservation. Although the first factor places most trust in the role of science and praxis to steer the policy process, the second expresses trust that established processes can secure all interests, and the third expresses a clear distrust in state and industry capacity to respect local and global commitments.

What these insights show is that the three are not following the same narrative: they use different symbols (fish, the nation-state, and conservation), express different values (enlightenment, skill, and rectitude), and stress the primary importance of different scales (local, national, and global). As such, it is perhaps surprising that the three do not strongly agree with the statement, "Governance, tourism, oil industry and fisheries live in different 'bubbles' and do not care about the others." This statement was not strongly loaded by any but one participant (who placed it on 2). Meanwhile, the strength of Q-analysis is that it removes attention from actors to discourse. As such, the lack of dis/agreement with that statement may represents a cross-sectoral concern: the statement's focus on *actors* as being in "bubbles" may elide insight that it is the *discourse* itself that exists in different bubbles. This may indicate that ontological security is a factor here. The experience of ontological security is often unquestioned and taken as "the nature of things" rather than understood as a subjective sense of security and belonging in the world (Giddens, 1984; Howitt and Suchet-Pearson, 2006). Participants in the policy process may lack awareness of their different experiences of ontological security, and the implications this may have for the effectiveness in their choice of symbols and strategies in the policy processes.

In expressing support for the statement that fishers, scientists, and managers agree petroleum developments are too risky, the three discursive groups may have different rationales for doing so. The perception of risk between the three discourse groups differs markedly, being concerned for impacts at different scales, on different values, and on different symbols. In particular, the second group, which otherwise places trust in capacity to accommodate the petroleum industry in the region, may perceive that while they express agreement that these groups agree, they may not themselves agree with that assessment. The other two, meanwhile, weigh the statement lower, perhaps suggesting less certainty in this risk assessment.

Each factor array disagrees more or less strongly with the idea that the petroleum industry can prevent an ageing and decreasing population. Indeed, as compared with other industries such as mining or fishing, the oil industry has comparatively little need for local work forces. The petroleum industry relies in large part on highly educated engineers and sophisticated technology for its extraction.

Coexistence of conflicting narratives: true democracy?

The perception that fishers, petroleum corporations, local and national government, and tourists want fundamentally different things is an entrenched characteristic of the LoVeSe debate. Indeed, this grid-lock is the impetus for the ArcticChallenge project of which this study takes part (Dale *et al.*, 2018). Such crises arise when parties ignore the complexity, diversity, and synergy of human experience and expect consensus as an achievable outcome. In this vein, Levinas (see Bergo, 2011) and Husserl (1970) in different ways argued that insisting on acontextual categories and schemes of interpretation to formulate goals and approach problems elides the potential for common ground that may exist outside established roles, identities, and narratives. As such, drawing on discourse analysis using Q-methodology permits drawing attention away from seemingly established categories to seek alternative characterizations of the debate. Indeed, our analysis has revealed further nuance in the debate, suggesting it can be divided into three distinct and coexisting narrative strains that have less to do with the specifics of petroleum exploration and extraction, and more to do with how people understand the world around them and their role in it.

In democratic theory, the works of Rawls (1987) and Dryzek (2006) have been highly influential in shaping orientations toward deliberative governance as a democratic ideal. The idea of deliberation is pursued as the means of arriving at consensus and legitimacy, and thereby win–win outcomes among initially opposing groups. Dryzek (2006) suggests two necessary approaches to achieve legitimacy in this way. First, to support satisficing compromises and build consensus through deliberative democracy. Second, to permit, and encourage contestation. Although supporting this democratic ideal, the agonistic pluralism suggested by Mouffe (2005, 2013) and others (e.g. Kahan *et al.*, 2011; McClymont, 2011; Lundberg *et al.*, 2018) indicate that democratic process both requires and is strengthened by the coexistence of multiple and diverging narratives that do not need to be reconciled in order to produce democratic outcomes. We find this latter insight particularly pertinent to the analysis of entrenched differences in orientations toward petroleum developments in the Lofoten, Vesterålen, and Senja region. Given that the three narratives differ in their scope, value, and symbol, it may be impossible to achieve consensus. Rather, in line with Mouffe's agonistic pluralism, the ontological security of these diverse perspectives may be indulged in policy processes that do not demand consensus, even as it encourages contestation and expression.

Indeed, insistence that democratic deliberation shall aim to form a consensus on outcomes exemplifies the use of acontextual categories to shape policy. The assumption that underlies such expectation is precisely that indicators and outcomes that capture all variance exist (and can be found), and thereby produce win–win outcomes that benefit all stakeholders. Moreover, we should keep in mind that the while the consensus-based approaches seek to "transcend conflict and exclusion," every consensus is based on exclusion, and the "particular constellation of power that produced the decision often remains hidden" (Scoones, 2009, p. 479). Also, the focus on consensus in decision-making processes can narrow the range of issues that gets to the table (Scott, 2016) and insisting on a rational, objective debate can obscure struggles over knowledge politics and values (Dryzek, 2006).

Reframing the debate to one where coexistence is not an ideal state to be achieved after good policy processes has been enacted, but instead a fragile and sticky (Howitt *et al.*, 2013) state *sui generis* opens the possibilities we can imagine. In this sense, coexistence is a praxis in which questions of justice or human dignity

are held "in tension with pragmatic decision processes" (Lynch and Veland, 2018, p. 6). Participants in the policy process appear to derive a sense of ontological security in fundamentally different narratives, each of which shapes the contextualizing of petroleum developments, rendering it unlikely a universal or consensual narrative can be wrought. And indeed, more fundamentally such a narrative may not be required. For example, carbon-neutral futures can be achieved without needing to agree on whether, as an environmentalist might maintain, there is a moral imperative to deny petroleum developments to reduce carbon emissions. Or, as a petroleum engineer or corporate board member might contend, the Norwegian national security depends on maintaining production. The agonistic perspective as provided by Mouffe posits that this is what characterizes democracy: the purpose of democracy is to allow for different interpretations of the world to coexist without forcing simplified and acontextual narratives of consensus. The processual aspects of democracy permit the winner or hegemony to always be challenged by counter-hegemonic positions. The "pause" in petroleum development in 2017 meant that the pro-petroleum side lost the "battle," but the "war" for the resources of the region is still on. The narrative of the pro-development NGO LovePetro (2018; http://www.lovepetro.no/index.php/2011-11-11-09-37-06) confirms this perspective, saying

> "*The "Storting" [the parliament] has decided that petroleum activities in Nordland VI and VII will not be initiated during the current parliamentary term. With the situation today, we make Winston Churchill's words ours; "Nothing is impossible, the impossible only takes longer." (. . .) Lofoten and Vesterålen will not accept that Nordland VI and VII become petroleum-free zones (the government's environmental alibi). Therefore, Lofoten and Vesterålen Petro will follow up the government's promise to launch seismic collection in Nordland VII, compilation of seabirds and bottom conditions outside Lofoten and Vesterålen during this parliamentary term.*"

This perspective posits that the *current* outcome is inevitable and therefore acceptable, despite the denial of their preferred option. There is no expectation of consensus, but rather, in line with Mouffe a capacity to satisfice within the present condition while strategizing for future opportunities. To agree permanently and universally (as in win–win) is beyond reach, but to continually promote a narrative while also accepting political defeat is achievable.

Returning to our research question, how, then, do these insights position the role of knowledge-generation and impact assessments concerning developments in the Lofoten, Vesterålen, and Senja region? In a democratic society, generating room for opposing views is key. The different discourses aim to undermine each other to some degree, making their viewpoint the "winner" of the Lofoten battle. Still, there is no discussion about the other's *right* to hold and voice their view. Hence, the petroleum development process in Lofoten, Vesterålen and Senja is a good example of how the national policy processes in Norway makes room for agonism. Disagreement over the kinds of developments that will ensure a continued sense of security and belonging in the world may to some extent be irreducible, where deliberation and additional knowledge is not likely to resolve tensions (Kahan *et al.* 2012). A lack of consensus is in this agonistic viewpoint not a failure of democratic process. Allowing for conflict and disagreement can perhaps instead be understood as the hallmark of legitimate democratic processes that works from the current, awkward and fragile coexistence in praxis rather than toward a theoretic and ideal future coexistence. The Norwegian continental shelf has been a boon for the Norwegian welfare state. Nevertheless, the coexistence between the petroleum industry, Norway's other industries, and the Nation's natural bounty has, and will remain awkward and challenging well into the post-petroleum economy. Until then, a democracy that expects and supports agonism may be the best way forward for the Lofoten, Vesterålen, and Senja region.

Final remarks

This article concludes that agonism can be a productive principle in the processes of knowledge-generation and impact assessments in general, and concerning petroleum developments in the Lofoten, Vesterålen, and Senja region in particular. The Q-methodology allowed this study to discover further nuance in debates over petroleum developments in the Lofoten, Vesterålen, and Senja region. The three distinct narratives we identify each highlight the importance of coexistence, but with different emphasis on scale, values, and symbols in their articulation of risks and benefits from the petroleum industry. These differences are more related to how people understand the world around them and their role in it than the specifics of petroleum exploration and extraction. For the parties engaged in shaping policy on this region, this distinction may help devise more effective communication strategies.

Consensus may be a fraught goal in decisions over petroleum exploration. We support the agonistic perspective provided by Mouffe, where the purpose of democracy is to allow for and encourage different interpretations of the world. What we find is that the agonistic space generated through the national debate about the region embraces legitimate and public contestation. Hence, seeking consensus in this case would not be a more democratic approach; indeed, it would be *less* democratic and lead to the exclusion of legitimate viewpoints. In this context, agonism emerges as a more legitimate form of democratic process.

Consensus then, we argue, is not critical for a democratic process. To allow for different views, is. We suggest that the expectation of harmonious coexistence that is either supported or rejected among the respondents may be more helpfully reoriented toward a more pragmatic framing of coexistence. By seeing coexistence as a state *sui generis* that is not chosen, but a fragile and sticky condition that arises in-place, decision-makers and authorities on different scales can take a more realistic approach by accepting that a permanent and universal consensus is beyond reach. More generally, we suggest that the success of such contested policy processes cannot be measured based on the degree of consensus, but rather in the capacity to permit and even encourage contestation.

Supplementary data

Supplementary material is available at the *ICESJMS* online version of the manuscript.

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