Marine Protected Areas and Offshore Petroleum Licensing in Scotland

by
Manuela Perez Guzman

Supervised by
Gail Fraser

A portfolio submitted to the Faculty of Environmental and Urban Change in partial fulfillment of the requirements for the degree of Master in Environmental Studies

York University, Toronto, Ontario Canada

July 30, 2025

Abstract

Economic growth and development have been prioritized over marine conservation, even though conservation measures such as Marine Protected Areas (MPAs) remain one of the few effective tools for protecting marine species and habitats from human activities. In the UK, energy companies bid for marine blocks under the Offshore Petroleum Licensing process, a system that reflects the ongoing tension between economic interests and environmental protection.

This research examines the regulatory process of the UK offshore petroleum licensing rounds, focusing on the legislative framework, the role of regulators for both oil and gas and environmental protection, and the influence of other actors such as conservation bodies, eNGOs, and the public. As part of a broader series of case studies, existing interview questions, coding templates, and themes developed by a PhD student (Rutherford, J.) and an MES alumni (Kapoor, A.) were adapted to the UK context. 15 interviews were conducted, both in person and online, with stakeholders involved in marine conservation and petroleum licensing. For data analysis, a three-day coding workshop provided training in paper-based coding methods (highlighting and marginal notes), and additional instruction was obtained through online courses on NVivo software.

This major research portfolio includes an introductory chapter on the general issue of marine conservation and social and economic development, followed by a literature review on topics relevant to the research, including energy transition, marine spatial planning, public consultation, and marine protected areas. The final component is a manuscript prepared for submission to the Journal of Aquatic Conservation: Marine and Freshwater Ecosystems. The manuscript examines the licensing of ocean blocks within MPAs for offshore oil and gas exploration (and possible development) in Scotland. It identifies significant shortcomings in the UK's offshore petroleum regulatory framework, including limited credibility in consultation and engagement processes and weak or absent consideration of cumulative environmental impacts.

The findings suggest that while the regulation of offshore oil and gas in the UK primarily prioritizes economic development, it does include environmental assessments and conservation regulations intended to protect marine ecosystems. However, in practice, these environmental safeguards are often weakened or overridden in favour of the energy industry interests. This not only undermines the effectiveness and benefits of MPAs, but also threatens the health and survival of marine ecosystems. Therefore, it is imperative that policy makers strengthen the implementation of environmental assessments and regulations, along with establishing highly protected MPAs to help marine species and habitats recover and thrive. These measures are essential to achieving the target of protecting 30% of the ocean by 2030.

Foreword

My motivation to focus on marine conservation comes from my experiences as a traveler to coastal and marine destinations, where I witnessed firsthand the pressures humans place on marine ecosystems. Seeing coral bleaching, the inadequate training of tourist guides—who often failed to explain best practices such as not stepping on coral reefs, not chasing marine animals, and avoiding sunscreen use in the water—as well as the pollution and contamination of beaches, deeply impacted me. I was struck by how humans mostly view nature as a tangible resource to be exploited for economic gain rather than appreciating its beauty and the wonderful life it supports. I decided to study this issue academically because I wanted to learn and shape myself as an advocate for marine species and ecosystems, giving a voice to those who do not have one.

In the first semester of the MES program, I came across a project that investigated the call for bids processes, where parcels offered for bidding spatially overlap with, or are in close proximity to, MPAs across five jurisdictions. This project perfectly aligned with my area of concentration: marine conservation and social, economic, and marine development. My research focused on the licensing of oil and gas blocks within MPAs in Scotland, examining how economic growth and energy development intersect with marine conservation efforts. This research fits into my Plan of Study because it explores both marine conservation and the social and economic factors that influence it, particularly in relation to extractive industries. While the licensing of offshore oil and gas is often presented as necessary for societal progress and economic growth, it poses significant threats to marine species and habitats.

My research has contributed directly to fulfilling my learning objectives in several ways. Through research and interviews with regulators, industry representatives, and conservation stakeholders, I gained a deeper understanding of the roles played by government agencies, industry sectors, NGOs, scientists, and communities in marine conservation. I developed insights into how MPAs and marine spatial planning (MSP) contribute to or challenge conservation efforts, while also analyzing the structures that hinder or support conservation within economic systems. I now have a better understanding of how marine ecosystems are managed for human use and how economic interests often take precedence over environmental protection.

The interdisciplinary nature of the MES program was crucial in expanding my perspective, allowing me to look at these issues from multiple angles. I used qualitative methods, including literature review, in-person and online interviews in the UK, and coding and analysis using both paper-based methods and NVivo software. I participated in a three-day coding workshop in St. John’s, Newfoundland, with Professor Fraser, Professor Carter, and PhD candidate Rutherford, where we learned coding techniques and developed an outline for my research paper. Conducting interviews in Aberdeen, Scotland, was challenging—especially because of the strong accents—but I was supported by Professor Fraser, who guided me through the process. This experience

helped me develop essential research skills, from organizing sources with Zotero to conducting interviews, analyzing data, and evaluating policy and regulatory frameworks.

Even though conservation tools like MPAs and MSP have existed for some time, my research highlights that they often remain weakly enforced, with economic profits continuing to take precedence over environmental protection. However, my research also offers hope by showing how community groups and eNGOs are mobilizing for stronger environmental legislation and a phase-out of fossil fuels. It further stresses that as we introduce renewable energy, we must learn from the mistakes of the oil and gas industry regarding its impacts on marine ecosystems.

The most important contribution of my research is that it underscores the need for policymakers to integrate ocean protection and conservation as a priority above economic interests. This experience has already opened new doors for me—I secured an internship with the Marine Conservation Institute, which will allow me to pursue my long-term goal of working at the intersection of science, communication, and advocacy. My aim is to turn scientific research into accessible storytelling, so people can better understand environmental issues and advocate for the ocean and the species that depend on it.

Acknowledgments

I am deeply grateful to my partner, Alejandro, for being my greatest cheerleader, and for believing in me, especially when I doubted myself. To my parents, Jairo and Emma, thank you for always supporting my dreams and for being proud of my achievements.

I am also incredibly grateful to my supervisor, professor Gail Fraser, for giving me the opportunity to take on the project that became my master's research—a project that brought personal, educational and professional experiences I will always cherish. Thank you for your thoughtful feedback and constant encouragement.

A special thanks to Jon, my favourite writing tutor, for showing me that the limits of my English are set by me, and not by the fact that it is not my first language.

I would also like to thank all the participants for generously giving their time to be interviewed and for sharing their valuable knowledge.

This research was funded by the Social Sciences Research and Humanities Council of Canada.

Finally, I dedicate this work to my childhood self, a girl who love exploring and admiring nature, and to my future self—may you keep fighting for your dreams.

Table of Contents

List of Abbreviations

AA – Appropriate Assessments

DESNZ – Department for Energy Security and Net Zero

HPMAs –Highly Protected Marine Areas

HRA – Habitats Regulations Assessment

IUCN – The International Union for Conservation of Nature

JNCC – Joint Nature Conservation Committee

MPAs – Marine Protected Areas

NSTA – North Sea Transition Authority

OPRED – Offshore Petroleum Regulator for Environment and Decommissioning

PMFs – Priority Marine Features

SACs – Special Areas of Conservation

SEAs – Strategic Environmental Assessments

SPAs – Special Protected Areas

UKCS – United Kingdom Continental Shelf

1. Introduction

CO_2 sequestration, neutralization of ocean acidification, climate change resilience, temperature regulation, and oxygen production are just a few of the benefits that healthy marine ecosystems provide to both nature and humans (Chuenpagdee et al., 2013; Techera & Winter, 2019). However, these benefits—as well as the survival of marine species and habitats—are increasingly threatened by the economic development of the ocean (Ostrom, 2008; Phelan et al., 2020). Overfishing has caused a significant decline in global fisheries, threatening the survival of marine species and the livelihoods of millions who depend on fisheries for income and food security (Ehler & Douvere, 2009; Püts et al., 2023). Moreover, oil and gas exploration and extraction have large-scale impacts, seabed disruption and contamination of the waters (Andrews et al., 2021; George, 2023; Techera & Winter, 2019). Despite these consequences, most of the ocean remains unprotected; less than 3% is effectively covered by MPAs, even though the Marine Conservation Institute recommends protecting at least 30% to stop biodiversity loss and seabed degradation.

Advocates of marine development emphasize the economic potential of marine resources, arguing that activities such as offshore energy extraction, tourism, and aquaculture create jobs, generate revenue, and drive societal progress (Smith et al., 2018; Venables, 2016; Yates & Bradshaw, 2018). This economic perspective frequently minimizes environmental impacts. For instance, the oil and gas industry contributed £25.2 billion in gross value added (GVA) to the Scottish economy in 2022 (Scottish Government, n.d.). Therefore, breaking away from the carboniferous sector is said to have serious social and economic drawbacks, which include but are not limited to delays in infrastructure construction, job losses, and company bankruptcies (Aanesen & Armstrong, 2019).

Conservation scholar, however, stressed the long-term value of healthy marine ecosystems for biodiversity and human well-being. They warn that natural-resource industries are compromising the ecological integrity of the marine environments (Aanesen & Armstrong, 2019) and advocate prioritizing long-term environmental sustainability over short-term economic gains (Čábelková et al., 2023). Indigenous scholars further emphasize the interconnectedness of ecosystems, arguing that damage to one marine system has cascading effects on others and, ultimately, on human communities (Proulx et al., 2021; Vierros et al., 2020).

This major research portfolio examines the ecological importance of marine ecosystems, the opportunities and challenges of marine conservation, and the institutional and policy structures that either hinder or support marine conservation efforts in the context of offshore energy development. It draws on scientific literature, policy analysis, and case studies to explore

questions such as: Why is it essential to protect marine environments, and who advocates for their protection? What roles do conservation authorities and stakeholders play in decision-making? How effective are public consultations in conservation processes? To what extent does traditional ecological knowledge (TEK) influence marine conservation? How do social and economic factors shape conservation outcomes? Are environmental and cost-benefit assessments given equal weight in development decisions? Can existing frameworks guide the design of sustainable marine and coastal development plans?

Humans have primarily focused on profiting economically from the sea, leading us from admiring its innate value to thinking of it economically (Ostrom, 2008; Phelan et al., 2020). This focus has contributed to substantial ecological degradation, particularly from extractive activities such as oil and gas development. Institutional opacity among regulators, limited credibility in public consultations, and inadequate consideration of the cumulative impacts of extraction emerged as key findings of this paper. Therefore, this major paper argues for stricter environmental assessments, a more balanced distribution of regulatory power between conservation authorities and oil and gas agencies, and the establishment of highly protected MPAs supported by effective management plans.

2. Literature Review

2.1 Introduction

Because offshore oil and gas resources play a significant role in the economics of any country wealthy in such resources, these nations hold sovereignty over petroleum in their territorial waters and continental shelves. As one of these oil-rich countries, the United Kingdom (UK), has implemented a licensing model to award these petroleum rights to operators. This licensing model offers the operators a licence which allows an activity (e.g. exploration or extraction of oil and gas) that could be unlawful otherwise. Operators can apply for two types of seaward licences: exploration or production (Gordon et al., 2011). The seaward exploration licensing process matters because it negatively affects the protection and conservation of marine environments.

Consequently, as marine ecosystems hold the oil and gas reserves, these environments are also an important part of the socio-economics of a country. Different economic sectors exploit the marine environment for goods and services such as energy, food and tourism. However, the combination of these exploitative sectors has increased in the last years, putting pressure on the health of the ocean and threatening its survival. As a result, these adverse effects have urged decision-makers to adopt tools that aid in the conservation and protection of marine species and habitats (e.g. Marine Protected Areas) (Harrison, 2021; Hopkins et al., 2018; Pendleton et al., 2018). In 2014, Scotland launched its own Marine Protected Area (MPA) network, an assembly of different protected areas designated under legislation to “protect biodiversity and important ecological features in the ocean.” (Government of Canada, 2018).

Here, I focus on offshore seaward petroleum licensing and its intersection with Marine Protected Areas (MPAs) in the UK, specifically Scotland. Petroleum licensing system is fundamentally a threat to the health of marine species and destruction of geological features, I investigate those areas that can best address the threat. Energy transition, Marine Spatial Planning (MSP), public consultations and MPAs are nature and social based solutions that will be covered throughout this paper and have the potential to slow down and remediate the increased pressure on marine environments.

2.2 Energy Transition

In recent years, it has become increasingly apparent the far-reaching negative impacts of the oil and gas industries on ecosystems. Therefore, governments around the world have begun transforming their sources of energy. Scotland, as an example, released in 2023 its first "Draft Energy Strategy and Just Transition Plan," a proposal that intends sustainable, equitable and low-carbon energy systems for all (Scottish Government, 2023). With the strategy, the Scottish government aims to lower its greenhouse gas emissions while addressing the challenges of climate change. This energy transition strategy is a big step forward to alleviate the pressure that offshore oil and gas puts on marine species and habitats.

However, despite the Scottish government's efforts for a green energy transition (e.g., wind energy), the government structure poses a challenge to this. Scotland matters are overseen by two governments – the United Kingdom and the Scottish – divided into "devolved" and "reserved" matters (UK Government, n.d.-a). Devolved matters are decentralized, and the Scottish government has a say over them (e.g., onshore energy). Whereas reserved matters are in control of the UK government (e.g., offshore energy). Hence, the unilateral power that the UK has over the offshore oil and gas reserves can significantly limit or stop the Scottish transition to renewable energy sources.

While the UK's authority over offshore oil and gas is one challenge to the transition, the increased need for carbon based energy sources to allegedly ease the transition into renewables is another (UK Government, n.d.-c). Until green energy sources are completely unraveled and used in the same capacity as oil and gas, the demand for oil and gas will remain high. Not to mention that oil and gas basins are in decline, with the North Sea basin having its lowest production of oil in 2024 since its establishment in the 70s (Taylor et al., 2024). For this reason, while the complex phase-in of renewables and the decline of the oil and gas reservoirs encourages some to further invest time and money to accelerate the transition, they prompt others to exploit what still remains. Rishi Sunak's (2022 to 2024 UK's Prime Minister) launch of new exploration licences is an example of the latter. Sunak claimed that a transition to a green energy system should be based on extracting the last drop of petroleum from the North Sea to alleviate costs and deliver energy security to the country (Milmo, 2023; UK Government, 2023b). Consequently, Sunak's statement not only undermines Scottish efforts for an energy transition but also endangers the

health of marine environments through the disturbance of animal navigation and geolocation, seabed disruption, habitat displacement, species endangerment, and water contamination (Uplift & Oceana, 2023).

Beyond the repercussions of introducing new offshore oil and gas licences, the transition to renewable energy creates conflicts between different sectors and conservation objectives (Scottish Government, 2015b). As both these new offshore licences and wind energy require significant amounts of ocean space, sectors such as fishing get squeezed even further, imposing economic hardship on fishers as they strive to provide for their families. Subsequently, in terms of conservation objectives, decommissioning oil and gas infrastructure and installing wind turbines can obstruct different marine biodiversity protection goals as both activities cause harm and impact entire ecosystems (Uplift & Oceana, 2023). Edwards from the Wildlife Trust, said it would be impossible to achieve the goal of protecting 30 per cent of our ocean by 2030 "if [the UK] start damaging our protected sites" (Smith, 2022). These conflicts between sectors and conservation objectives are the result of a lack of, or deficiency in, public consultation among active users of the sea. Not getting representatives of all different sectors and conservation objectives to discuss their concerns can hinder the likelihood of sustainable and equitable use of the ocean (Ehler, 2021; Greenhill, 2018; Yates, 2018).

2.3 Marine Spatial Planning

The competition between offshore energy and other sectors in the marine environment has continued to grow, leading to two major conflicts: multi-user conflicts and human-nature conflicts (Ehler, 2018; Yates et al., 2018). This lack of coordination between sectors has placed an intense pressure on the ocean, urging a response from authorities to take action. As reported by the International Oceanographic Commission (IOC), Marine Spatial Planning (MSP) has mainly been a reaction to "conflict among human uses, a need for a more integrated approach, [and] marine conservation concerns…" (Ehler, 2021, p. 11). MSP is an effective marine management framework that can balance the competing demands of traditional and new uses, while also incorporating a conservation perspective (Yates et al., 2018). For that reason, MSP is being employed in more than 60 countries (Ehler, 2018) as it can facilitate the balance of competing uses and protect the sea. MSP matters because all these sectors demand the same marine area, which lead to a deteriorated seabed and to a decline in marine biodiversity.

Scotland is one of the countries that actively applies MSP with its National Marine Plan (NMP) (Scottish Government, 2015b). The NMP was developed and adopted in 2015 in accordance with the legislative framework for marine protection and planning in the UK and Scotland—the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010. The plan that extends to 200 nautical miles, covering inshore and offshore waters, is a statutory obligation allowing the management and coordination of 11 marine industries and activities that compete for the use of the Scottish seas. The issue is that even though the oil and gas industry has a section in the plan, it clearly states that offshore oil and gas is "a reserved activity not in the direct control of the

Scottish Government." (Scottish Government, 2015b). Again, as in the energy transition strategy, in this plan, it is notable how the dual authority in Scotland presents a challenge in the protection of the marine environment regarding oil and gas regulation. Although the Marine Scotland Act 2010 required one document for the NMP that includes inshore and offshore waters, the Scottish Parliament can only pass legislation to prevent activities that impact the marine ecosystem in inshore waters (Slater & Claydon, 2020; UK Government, n.d.-b). This legal declaration, therefore, leaves Scotland without the power or the authority to stop the licensing of blocks for oil and gas exploration and extraction in Scottish offshore waters.

Although the NMP seems to be influenced by this top-down type of governance, it has followed one of MSP's key principles— public consultation (Brooker et al., 2019; Flannery & McAteer, 2020). Through this principle, MSP looks to influence traditional governance into one that shares decision-making power, involves stakeholders, and can evolve with change (Brooker et al., 2019; Greenhill et al., 2020). During the creation of the first and second NMP, the government sought participation and involvement of all communities and sectors. At the time of writing (February 2025), the consultation round for NMP 2 had closed. For example, in the planning stage of the NMP 1 there were several meetings and joint workshops to consult stakeholders on the scope and content of the plan (Scottish Government, 2015a). Similarly, in the statement of public participation for the NMP 2, the government aimed to "provide a mix of active engagement opportunities – through collaboration and formal consultation – and regular communication and updates to keep stakeholders informed of the process" (Scottish Government, 2024b). Yet, the real question is how effective these meetings are, who gets invited and, more importantly, if the comments and concerns are considered in the latest iteration.

In theory, MSP is great at public consultation, but in reality, consultees and stakeholders think the opposite. Several fishers and indigenous people interviewed in Nova Scotia by Kapoor et al. (2021; part of a series of case studies my research is part of) mention that the consultation process lacks credibility and transparency. Interviewees described the consultation during the establishment of MPAs and oil and gas licensing as a wasted effort because their knowledge and concerns were not considered during the decision-making process. Which is why supporters of MSP state that factors such as integration, communication, and transparency if not used strategically, can impede meaningful participation, impacting the participation process and yielding unfavourable results for MSP (Yates, 2018). Therefore, when employed appropriately, public consultation can provide diverse knowledge about maritime space, facilitate discussions between users' priorities, and resolve conflicts by enriching the planning process and increasing compliance with management measures (Brooker et al., 2019; Yates, 2018).

2.4 Public Consultation

The pressing need to address the imminent strain that humans have caused on the world's seas and oceans requires a strategy that engages leaders, stakeholders and the public to find solutions (Hopkins et al., 2016). Finding solutions that tackle these problems requires a better

understanding of the needs of those who use the sea by working directly with them. Public consultation is, therefore, a means to the goal of achieving equitable strategies and policies. A fair practice of public participation begins with a good advertisement, allowing interested communities and sectors to know how and when to get involved. For example, the Scotland Marine Directorate, in its NMP 2 stakeholder engagement strategy and statement of public participation, recognized that "working with stakeholders results in better information and evidence to inform policy decisions, such as… insights as to how certain stakeholder groups could be affected by or perceived a given policy" (Scottish Government, 2024b). Public consultation matters because it assists in shaping a better future where everyone's views are considered and the responsibility of marine protection spreads into a collective one.

Nevertheless, implementing meaningful public consultations is not a straightforward activity; it comes with barriers, especially in matters regarding marine conservation and oil and gas licensing. Consultations involve asking stakeholders and the public to comment on planning or redacted policy documents; and these highly technical documents often exclude people from participating. Brooker et al. (2019) highlighted that one of an Environmental Non-Governmental Organizations (ENGOs) roles is to simplify marine plans and industry development documents for citizens. ENGOs' contributions can help to bridge the gap between the public and decision-makers, making marine protection and planning more accessible and engaging to civil society through better communication and technology use.

Another barrier to effective public consultation is the government's vested interests in the offshore petroleum industry. UK ENGOs and community members have repeatedly sued governments for disregarding the effects of oil and gas on the marine environment demonstrating how flawed public consultation in the petroleum licencing processes is. For instance, in 2024, Oceana UK took legal action over 31 licences that the North Sea Transition Authority (NSTA) issued in its latest licensing round, arguing that observations and advice from Statutory Nature Conservation Bodies (SNCBs) and ENGOs were not considered (see figure A; Oceana, 2024). As stated by Tagholm (Oceana UK executive director) in 2024, "This is not a case of misunderstanding or lack of information. This is a deliberate choice to unlawfully ignore expert advice and jeopardise our seas, climate and future." It is evidently how the UK government gives precedent to the economic growth that the offshore oil and gas industry brings to the UK's and Scottish economies at the expense of the deterioration of their rich marine biodiversity.

2.5 Marine Protected Areas

MPAs are conservation measures used in jurisdictions such as Canada, New Zealand, the UK and Scotland to preserve and restore marine biodiversity (Hopkins et al., 2018; Püts et al., 2023) from human impact. By limiting or restricting human activities, these areas allow marine habitats and organisms to thrive. MPAs in Scotland are not just a single category but rather a broad term that includes multiple types of conservation sites. These sites include Nature Conservation MPAs, Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Sites of

Special Scientific Interest (SSSIs), among others, serving different purposes related to marine protection and biodiversity conservation. Two hundred forty-seven sites constitute the Scottish MPA network that was created mainly under these legislative frameworks: the Marine (Scotland) Act 2010, the Marine and Coastal Access Act 2009 and the European Habitats Directive and Birds (Harrison, 2021; Hopkins et al., 2018; NatureScot, 2023). MPAs are being considered in this paper because blocks— the UK's ocean unit of space— selected in the UK's petroleum licensing rounds result in overlaps or proximity to them.

Scotland, contrary to other countries, does not follow the International Union for Conservation of Nature (IUCN) and its six MPA designations. Instead, The Scottish MPA network follows a feature-based site selection approach called Priority Marine Features (PMFs), where the identification of sites is based on the "locations of habitats or species which are important, rare, threatened and/or representative of the range of features in the UK marine area" (Scottish Government, 2011). Therefore, the PMF approach to designing MPAs makes most of these MPAs multi-use, meaning that extractive activities are allowed on the condition that they do not affect the marine feature the area was designated to conserve or recover (Harrison, 2021). The problem is that by allowing different sectors to perform their activities on this condition, the pressure that different activities place on all other marine features continues to increase. For instance, during the seaward petroleum licensing, a block whose area overlaps with an MPA, but exploration and extraction do not affect the PMF can be offered for bidding. It does not matter if the seismic testing disturbs other animals and geological features or the implications of the cumulative effects.

Since designated MPAs under this feature-based approach do not truly restrict "the most damaging or widespread pressures in the sea" (Scottish Environmental LINK, 2024), the Scottish marine ecosystems are declining at an alarming rate. As evidenced by the State of Nature Scotland's 2023 report, "No areas of seafloor around Scotland currently meet good ecological status, in part due to habitat disturbance…" (Walton et al., 2023, p 43). This raises questions about the lack of results from the Scottish MPA network. Essentially, although MPA designations cover 37% of the Scottish seas, not all have a management plan in effect (Walton et al., 2023). In fact, enforced restrictions on fishing are only applied to some MPAs (Scottish Government, 2024a)

Apart from MPAs being impacted by fishing, MPAs can also be affected by oil and gas exploration. In the oil and gas licensing process, there are two instances where the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) carry out environmental assessments. The first instance is to study the environmental implications of a draft plan for future offshore energy licensing, referred to as the Offshore Energy Strategic Environmental Assessment (OESEA) (UK Government, 2022). This assessment is done at a planning scale and includes a vast number of blocks. The second instance is after applicants have selected the blocks

they want, a project-level assessment. OPRED, to comply with the Offshore Petroleum Activities (Conservation of Habitats) Regulation 2001, undertakes two assessments, also called stages (UK Government, 2023a). Stage 1, the Habitats Regulations Assessment (HRA), is a block and site screening “to determine whether licensing of any of the Blocks offered… may have a significant effect on a relevant site, either individually or in combination…” (UK Government, 2023a). If the HRA identifies that awarding these blocks can have significant effects on MPAs, these blocks are passed to stage 2, also known as Appropriate Assessment, where they will be further assessed.

Even though consultation with SNCBs happened in these two stages of the latest seaward petroleum licensing round, ENGOs argue that their comments were not considered in the decision-making process. For instance, the Joint Nature Conservation Committee (JNCC), the statutory advisor to the UK Government, notes in its advice document acquired by a Freedom of Information (FOI) request by ENGOs that awarding the blocks would indeed have significant effects on MPAs (JNCC & NatureEngland, n.d.). But despite this advice, the NSTA issued over a third of these blocks that did not pass the assessment, putting further pressure on areas already with unfavourable conditions (Oceana, 2024).

While there are many flaws in the offshore petroleum environmental assessments, not everything is wrong with the protection and management of MPAs in Scotland. For instance, the Lamlash Bay no-take zone, part of the South Arran Nature Conservation MPA, demonstrates the benefits of restricting access to a marine area (Salomonsz et al., 2019). This Scottish not-take zone banned extractive activities since 2008, and research done by the University of York evidence “that there is nearly twice the cover of living organisms within the no-take zone compared to a nearby area that is still open..." (Harrison, 2021, p 2). This shows that when you restrict human activity, biodiversity is likely to recover at a greater speed compared to areas that allow human activity. Strictly protected areas are therefore a tool supported by scientific evidence that provides significant results in conserving marine flora and fauna, and its designation is encouraged by international policy (Harrison, 2021). It is remarkable how the Scottish Government have a clear example at home to look up to, yet they fail to reflect on it and learn.

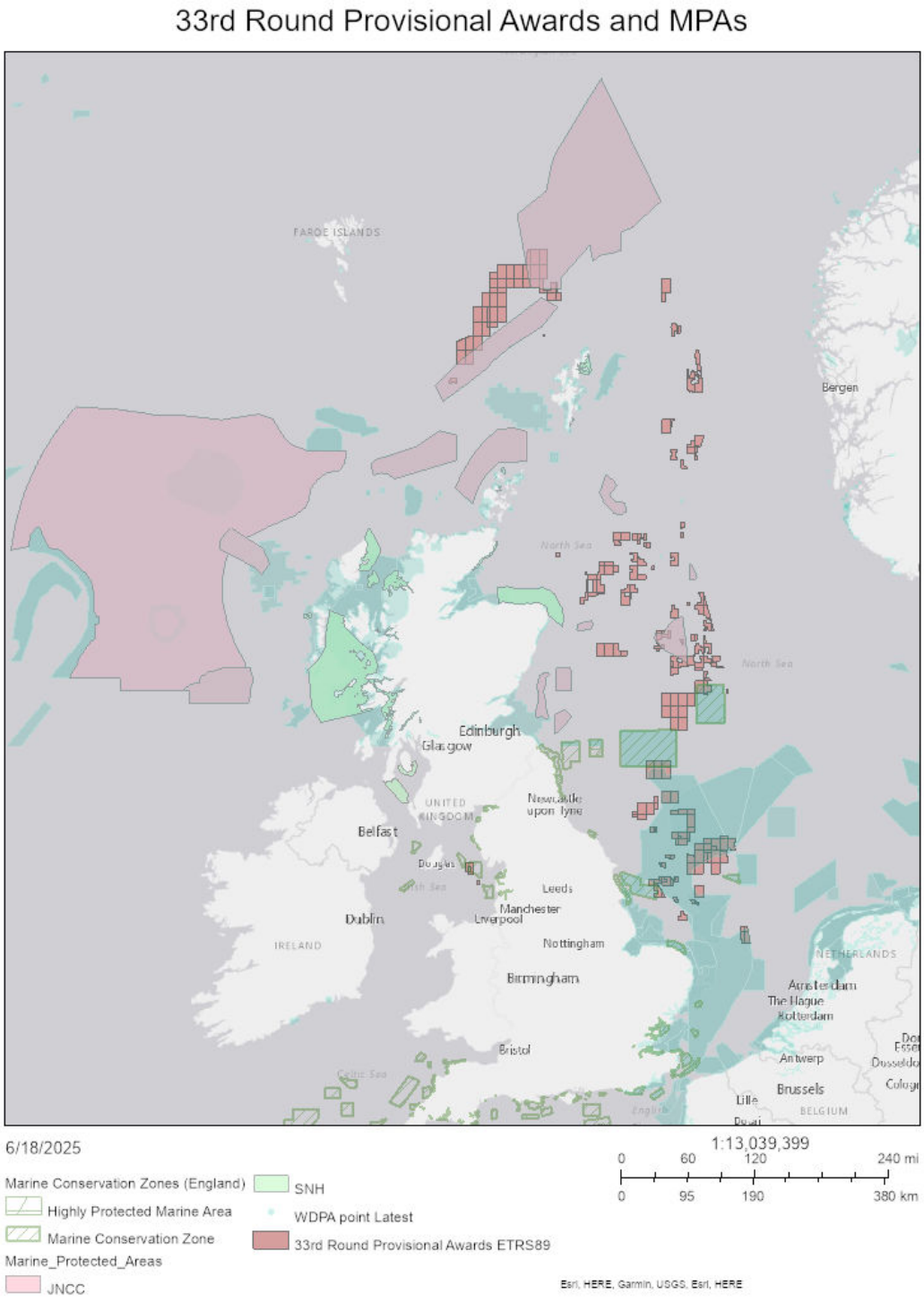

Figure A - UK's Marine Protected Areas and areas nominated in the 33rd offshore petroleum licensing round of 2022. Map created with ArcGIS, data layers from (North Sea Transition Authority, n.d.).

References

Aanesen, M., & Armstrong, C. W. (2019). Trading off co-produced marine ecosystem services: Natural resource industries versus other use and non-use ecosystem service values. *Frontiers in Marine Science*. https://doi.org/10.3389/fmars.2019.00102

Andrews, N., Bennett, N. J., Le Billon, P., Green, S. J., Cisneros-Montemayor, A. M., Amongin, S., Gray, N. J., & Sumaila, U. R. (2021). Oil, fisheries and coastal communities: A review of impacts on the environment, livelihoods, space and governance. *Energy Research & Social Science*, *75*, 102009. https://doi.org/10.1016/j.erss.2021.102009

Brooker, E. E., Hopkins, C. R., Devenport, E., Greenhill, L., & Duncan, C. (2019). Civil society participation in the Scottish marine planning process and the role of Environmental Non-Governmental Organisations. *Journal of Environmental Planning and Management*, *62*(12), 2101–2123. https://doi.org/10.1080/09640568.2018.1532876

Čábelková, I., Smutka, L., Mareš, D., Ortikov, A., & Kontsevaya, S. (2023). Environmental protection or economic growth? The effects of preferences for individual freedoms. *Frontiers in Environmental Science*. https://doi.org/10.3389/fenvs.2023.1129236

Chuenpagdee, R., Pascual-Fernández, J. J., Szeliánszky, E., Luis Alegret, J., Fraga, J., & Jentoft, S. (2013). Marine protected areas: Re-thinking their inception. *Marine Policy*, *39*, 234–240. https://doi.org/10.1016/j.marpol.2012.10.016

Ehler, C., & Douvere, F. (2009). *Marine spatial planning: A step-by-step approach toward ecosystem-based management*. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. http://unesdoc.unesco.org/images/0018/001865/186559e.pdf

Ehler, C. N. (2018). Marine spatial planning: An idea whose time has come. In *Offshore Energy and Marine Spatial Planning* (1st ed., Vol. 1, pp. 6–17). Routledge. https://doi.org/10.4324/9781315666877

Ehler, C. N. (2021). Two decades of progress in Marine Spatial Planning. *Marine Policy*, *132*, 104134. https://doi.org/10.1016/j.marpol.2020.104134

Flannery, W., & McAteer, B. (2020). Assessing marine spatial planning governmentality. *Maritime Studies*, *19*(3), 269–284. https://doi.org/10.1007/s40152-020-00174-2

George, S. (2023). *New oil and gas licences putting marine protected habitats at risk, PM warned*. Edie.Net. https://www.edie.net/new-oil-and-gas-licences-putting-marine-protected-habitats-at-risk-pm-warned/

Gordon, G., Paterson, J., & Üşenmez, E. (Eds.). (2011). *Oil and gas law: Current practice and emerging trends* (Second edition). Dundee University Press.

Government of Canada, F. and O. C. (2018). *Marine Protected Area Networks: Northern Shelf*. https://www.dfo-mpo.gc.ca/oceans/publications/backgrounder-fiche/pacificnorthernshelf-plateaunord/index-eng.html

Greenhill, L. (2018). Challenges and opportunities for governance in marine spatial planning. In K. L. Yates & C. J. A. Bradshaw (Eds.), *Offshore energy and marine spatial planning* (pp. 56–73). Routledge.

Greenhill, L., Stojanovic, T. A., & Tett, P. (2020). Does marine planning enable progress towards adaptive governance in marine systems? Lessons from Scotland's regional marine planning process. *Maritime Studies*, *19*(3), 299–315. https://doi.org/10.1007/s40152-020-00171-5

Harrison, J. (2021). *Strictly Protected Marine Protected Areas: International Policy and National Practice* (Briefing No. 5; Saving Our Seas through Law Policy Brief Series). University of Edinburgh. https://www.law.ed.ac.uk/sites/default/files/2021-04/Marine%20Briefing%205%20%28updated%29%20-%20ACC.pdf

Hopkins, C. R., Bailey, D. M., & Potts, T. (2016). Scotland's Marine Protected Area network: Reviewing progress towards achieving commitments for marine conservation. *Marine Policy*, *71*, 44–53. https://doi.org/10.1016/j.marpol.2016.05.015

Hopkins, C. R., Bailey, D. M., & Potts, T. (2018). Navigating future uncertainty in marine protected area governance: Lessons from the Scottish MPA network. *ESTUARINE COASTAL AND SHELF SCIENCE*, *207*, 303–311. https://doi.org/10.1016/j.ecss.2018.04.020

JNCC, & NatureEngland. (n.d.). *33rdLicensingRound_JNCCNatureEngland_Response_15092023*.

Kapoor, A., Fraser, G. S., & Carter, A. (2021). Marine conservation versus offshore oil and gas extraction: Reconciling an intensifying dilemma in Atlantic Canada. *The Extractive Industries and Society*, *8*(4), 100978. https://doi.org/10.1016/j.exis.2021.100978

Milmo, C. (2023). *Fury at new North Sea oil and gas exploration in areas of protected marine life*. Inews.Co.Uk. https://inews.co.uk/news/fury-north-sea-oil-gas-exploration-protected-marine-life-2761070

NatureScot. (2023). *Scotland's Marine Protected Area network | NatureScot*. Nature.Scot. https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/marine-protected-areas/scotlands-marine-protected-area-network

North Sea Transition Authority. (n.d.). *33rd Round Provisional Awards – ETRS89 [GIS dataset]. ArcGIS Hub.* North Sea Transition Authority Open Data. Retrieved July 21, 2025, from https://opendata-nstauthority.hub.arcgis.com/datasets/c612ee158f304d4fb3a04362dc68e537_5/explore

Oceana. (2024). Oceana threatens legal action over harm to UK seas from latest offshore oil and gas licensing. *Oceana UK*. https://uk.oceana.org/press-releases/oceana-threatens-legal-action-over-harm-to-uk-seas-from-latest-offshore-oil-and-gas-licensing/

Ostrom, E. (2008). The Challenge of Common-Pool Resources. *Environment: Science and Policy for Sustainable Development*, *50*(4), 8–21. https://doi.org/10.3200/ENVT.50.4.8-21

Pendleton, L. H., Ahmadia, G. N., Browman, H. I., Thurstan, R. H., Kaplan, D. M., & Bartolino, V. (2018). Debating the effectiveness of marine protected areas. *ICES Journal of Marine Science*, *75*(3), 1156–1159. https://doi.org/10.1093/icesjms/fsx154

Phelan, A. (Anya), Ruhanen, L., & Mair, J. (2020). Ecosystem services approach for community-based ecotourism: Towards an equitable and sustainable blue economy. *Journal of Sustainable Tourism*, *28*(10), 1665–1685. https://doi.org/10.1080/09669582.2020.1747475

Proulx, M., Ross, L., Macdonald, C., Fitzsimmons, S., & Smit, M. (2021). Indigenous Traditional Ecological Knowledge and Ocean Observing: A Review of Successful Partnerships. *Frontiers in Marine Science*, *8*, 703938. https://doi.org/10.3389/fmars.2021.703938

Püts, M., Kempf, A., Möllmann, C., & Taylor, M. (2023). Trade-offs between fisheries, offshore wind farms and marine protected areas in the southern North Sea – Winners, losers and effective spatial management. *Marine Policy*, *152*, 105574. https://doi.org/10.1016/j.marpol.2023.105574

Salomonsz, M., Perraudeau, M., & Harrison, J. (2019). *The Establishment and Expansion of the Scottish Marine Protected Area Network* (Briefing No. 1; Saving Our Seas through Law Policy Brief Series). University of Edinburgh. https://www.law.ed.ac.uk/sites/default/files/2020-09/Marine%20Briefing%201%20(final)_3.pdf

Scottish Environmental LINK. (2024). Marine protected area management—FAQs. *Scotlink*. https://www.scotlink.org/marine-protected-area-management-faqs/

Scottish Government. (n.d.). *Oil and gas*. Retrieved February 4, 2024, from http://www.gov.scot/policies/oil-and-gas/

Scottish Government. (2011). *Marine Protected Areas in Scotland"s Seas: Guidelines on the selection of MPAs and development of the MPA network*. National Records of Scotland. https://webarchive.nrscotland.gov.uk/

Scottish Government. (2015a). *NMP - Statement of Public Participation*. https://www.gov.scot/publications/national-marine-plan-key-documents/

Scottish Government. (2015b). *Scotland's National Marine Plan*. https://www.gov.scot/publications/scotlands-national-marine-plan/

Scottish Government. (2023). *Draft Energy Strategy and Just Transition Plan*. https://www.gov.scot/publications/draft-energy-strategy-transition-plan/

Scottish Government. (2024a). *Marine Protected Areas (MPAs)*. https://www.gov.scot/policies/marine-environment/marine-protected-areas/

Scottish Government. (2024b). *National Marine Plan 2: Stakeholder engagement strategy and statement of public participation*. https://www.gov.scot/publications/scotlands-national-marine-plan-2-stakeholder-engagement-strategy-statement-public-participation/

Slater, A.-M., & Claydon, J. (2020). Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies. *Environmental Law Review*, *22*(2), 85–107. https://doi.org/10.1177/1461452920927340

Smith, D. C., Begg, G. A., Lukatelich, R., Anson, T., Baghurst, B., Ham, J., Lapidge, S., Lewis, R., Ormandy, P., Smith, R., & Ward, T. (2018). A whole of systems approach to improved understanding of the environmental, economic and social values of a frontier marine oil and gas field: Establishment, success factors and lessons learnt.

Deep-Sea Research Part II, Topical Studies in Oceanography, *157*, 3–10. https://doi.org/10.1016/j.dsr2.2018.09.009

Smith, S. (2022). *North Sea oil and gas licenses 'overlap' with areas home to threatened species*. The Independent. https://www.independent.co.uk/climate-change/news/north-sea-oil-gas-licenses-ocean-protection-arctic-b2198022.html

Taylor, M., Horton, H., & Ambrose, J. (2024). North Sea oil decline: 'We can't have a repeat of what happened to 80s miners.' *The Guardian*. https://www.theguardian.com/environment/article/2024/jul/01/north-sea-oil-transition-plan

Techera, E. J., & Winter, G. (Eds.). (2019). *Marine Extremes: Ocean Safety, Marine Health and the Blue Economy* (1st ed.). Routledge. https://doi.org/10.4324/9780429491023

UK Government. (n.d.-a). *Devolution and Scotland | UK and Scottish governments*. Delivering for Scotland. Retrieved April 5, 2024, from https://www.deliveringforscotland.gov.uk/scotland-in-the-uk/devolution/

UK Government. (n.d.-b). *Explanatory Notes to Marine (Scotland) Act 2010*. King's Printer for Scotland. Retrieved July 21, 2025, from https://www.legislation.gov.uk/asp/2010/5/notes

UK Government. (n.d.-c). *Government backs new oil and gas to safeguard UK and grow the economy*. GOV.UK. Retrieved July 21, 2025, from https://www.gov.uk/government/news/government-backs-new-oil-and-gas-to-safeguard-uk-and-grow-the-economy

UK Government. (2022). *UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4) Report*. https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4

UK Government. (2023a). *33rd Seaward Licensing Round Habitats Regulations Assessment*. https://www.gov.uk/government/consultations/33rd-seaward-licensing-round-appropriate-assessment

UK Government. (2023b). *Hundreds of new North Sea oil and gas licences to boost British energy independence and grow the economy*. GOV.UK. https://www.gov.uk/government/news/hundreds-of-new-north-sea-oil-and-gas-licences-to-boost-british-energy-independence-and-grow-the-economy-31-july-2023

Uplift, & Oceana. (2023). *In Deep Water: Exposing the hidden impacts of oil and gas on the UK's seas*. https://www.indeepwater.co.uk/

Venables, A. J. (2016). Using Natural Resources for Development: Why Has It Proven So Difficult? *Journal of Economic Perspectives*, *30*(1), 161–184. https://doi.org/10.1257/jep.30.1.161

Vierros, M. K., Harrison, A.-L., Sloat, M. R., Crespo, G. O., Moore, J. W., Dunn, D. C., Ota, Y., Cisneros-Montemayor, A. M., Shillinger, G. L., Watson, T. K., & Govan, H. (2020). Considering Indigenous Peoples and local communities in governance of the global ocean commons. *Marine Policy*, *119*, 104039. https://doi.org/10.1016/j.marpol.2020.104039

Walton, P., O'Brien, D., Smart, J., Burns, F., Basset, D., BradferLawrence, T., Foster, S., James, B. D., Mancini, F., Mordue, S., Pakeman, R. J., Pescott, O. L., Simkin, J.,

Stanbury, A. J., & Towers, M. (2023). *State of Nature Scotland 2023, the State of Nature Partnership*. State of Nature. https://stateofnature.org.uk/

Yates, K. L. (2018). Meaningful stakeholder participation in marine spatial planning with offshore energy. In *Offshore Energy and Marine Spatial Planning* (1st ed., Vol. 1, pp. 169–188). Routledge. https://doi.org/10.4324/9781315666877

Yates, K. L., & Bradshaw, C. J. A. (Eds.). (2018). *Offshore energy and marine spatial planning*. Routledge.

Yates, K. L., Polsenberg, J., Kafas, A., & Bradshaw, C. J. A. (2018). Marine spatial planning in the age of offshore energy. In *Offshore Energy and Marine Spatial Planning* (1st ed.). Routledge. https://doi.org/10.4324/9781315666877

Manuscript[1] – **Navigating Conflicts: The Role of Oil and Gas Regulation in the Conservation of Marine Protected Areas in Scotland**

M. Perez Guzman, G.S. Fraser, J. Rutherford, A. Carter, and J. Ellis

Abstract

As different economic sectors exploit the marine environment for goods and services such as energy, food and tourism, the combination of these sectors in recent years has placed an increasing pressure on the ocean health and threatening its survival. These adverse effects have prompted decision-makers to adopt tools aimed at conservating and protecting marine species and habitats, such as Marine Protected Areas (MPAs). This paper analysed the regulatory and decision-making process behind the offering and awarding of blocks that intersect with, or lie adjacent to, MPAs in the UK's offshore petroleum licensing. It focuses on the roles of regulatory and conservation bodies, block selection methods, and the influence (or lack thereof) of MPAs and MSP. This study employed a qualitative methods approach, examining government documents, public consultations, academic papers, and newspapers, alongside a thematic analysis of fifteen interviews conducted both online and in person. The findings revealed inadequacies in the UK's offshore petroleum regulatory framework, limited credibility in consultation and engagement processes, and poor—if not absent— consideration of cumulative impacts within environmental and conservation frameworks. This study adds to existing evidence that the conservation mechanisms integrated into, or related to, the UK's offshore petroleum licensing process—such as Strategic Environmental Assessments, MPAs, and Marine Spatial Planning—fall short of their intended purpose. Therefore, strengthening environmental assessments and regulatory implementation, as well as establishing highly protected MPAs with effective management plans, is essential to helping marine species and habitats recover and to achieving the global target of protecting 30% of the ocean by 2030.

Keywords

Marine Conservation, Marine Protected Areas, Offshore Oil and Gas Licensing, Marine Spatial Planning, Public consultation, Scotland, United Kingdom

Introduction

Offshore petroleum exploration and extraction place severe pressure (Scottish Government, 2024b; Uplift & Oceana, 2023; Yates & Bradshaw, 2018) on marine ecosystems (Fraser, 2014; Harrison, 2021; Salomonsz et al., 2019). Seismic testing, for example, is a significant form of noise pollution affecting fish distributions (Knaap et al., 2021), fisheries catches (Engås et al., 1996), and cetacean behaviour (Weilgart, 2007). Both large blowouts and smaller spills have short-term (immediate mortality) and longer-term negative effects across many taxa (e.g.,

[1] In partial format of the Journal of Aquatic *Conservation: Marine and Freshwater Ecosystems*.

seabirds, marine mammals, fish, and sea turtles; e.g., see Barron et al., 2020; Takeshita et al., 2021). Light pollution from supply ships and exploratory or production rigs is less studied but has negative effects on particular groups of seabirds (e.g., Fraser, 2014; Gjerdrum et al., 2021; Montevecchi, 2006; Wiese et al., 2001)

Despite these risks, rising energy demands continue to drive oil and gas companies to bid for licenses that grant access to marine blocks for exploration and potential extraction (Kark et al., 2015). The process for licencing is labeled differently depending on the jurisdiction: call for bids (Canada; Kapoor et al., 2021); acreage release (Australia; Chandler, 2018) and petroleum licensing in the United Kingdom (UK). The processes in determining which licensing are released for bidding varies depending on the country. Both Shrimpton et al. (2003) and Kapoor et al. (2021) describe the offshore allocation process as being largely industry-driven, with selection of parcels primarily based on oil and gas companies expressing interest or being consulted by governments.

In the UK, the petroleum licensing process is overseen by both oil and gas regulators and environmental regulators. The review process includes other actors: non-governmental conservation agencies and the public are invited to participate (see more below). However, the regulatory structure—spanning oil and gas licensing and environmental oversight— raises numerous questions— from how blocks (the UK's ocean unit of space) are identified to the transparency of environmental assessments, the quality of stakeholder consultation and how marine protected areas (MPAs) are considered.

To mitigate marine habitat degradation and species decline, MPAs have been established to achieve conservation and protection objectives for healthy, functioning marine ecosystems (Andrews et al., 2021; George, 2023; Techera & Winter, 2019; UK Government, n.d.-d). Scotland's National Marine Plan provides the overarching policy framework for managing the country's marine area and is the main mechanism through which marine spatial planning is delivered (Scottish Government, 2015). MPAs form an essential part of this framework, as the National Marine Plan requires public authorities to consider these protected areas in decision-making to ensure that activities in Scottish waters support conservation objectives.

Since 2012, the Scottish MPA network has expanded to 247 designated sites, covering 37% of its waters (NatureScot, 2023). However, these protected areas are not only offered for biddings during the licensing rounds but also awarded (Table 1). In the last licensing round (2022), 352 of the 898 blocks offered were located within or near MPAs (Uplift & Oceana, 2023). The awards for this licensing round were announced in multiple phases. In the first announcement phase, there were 6 of 27 licences that overlapped with MPAs (Table 1; Oceana UK, 2023). In the second announcement phase, 6 of the 24 licences intersected with MPAs. The last phase, which involved the blocks subjected to more detailed assessments on potential negative environmental

impacts, resulted in 21 of 31 licences being awarded in areas overlapping with MPAs (Uplift, 2024). This pattern of offering and awarding licences in MPAs raises concerns about the prioritization of economic profiting at the expense of marine conservation.

Table 1. Overlap between awarded offshore petroleum licences and MPAs in the 33rd licensing round. Information gathered from (North Sea Transition Authority, n.d.-b; Oceana, 2023; Uplift, 2024).

Announcement date	Licences awarded	Total Blocks	Licences overlapping with MPAs
Oct 2023	27	64	6 licences (22%)
Jan 2024	24	74	6 licences (24%)
May 2024	31	88	21 licences (68%)

In this paper, we investigate the regulatory and decision-making process behind the offering and awarding of blocks that intersect with, or lie adjacent to, MPAs in the UK's offshore petroleum licensing. It focuses on the roles of regulatory and conservation bodies, block selection methods, and the influence (or lack thereof) of MPAs and Marine Spatial Planning (MSP). In doing so, we aim to expose the trade-offs and power dynamics that continue to shape this highly disputed marine space— where conservation commitments and economic profit remain in direct tension.

Context

Oil and gas licensing

While offshore oil and gas activities take place in waters off Scotland, they are overseen by the UK as offshore energy remains a "reserved" matter (Figure 1). This governance structure is based on a division between "devolved" and "reserved" matters (UK Government, n.d.-b). Devolved are decentralized affairs allowing the Scottish government to exert authority (e.g., designation of inshore and offshore MPAs), whereas with reserved matters the UK government maintains control (e.g., offshore energy). This divide complicates offshore conservation initiatives like Scotland's National Marine Plan (Scottish Government, 2015b; & see below)

During a licensing round, operators apply for offshore petroleum licences (e.g., exploration or production) through a bidding process facilitated by the oil and gas authority under the UK jurisdiction (Figure 2; UK Government, 2024). Once applications are received, an environmental impact screening of all blocks and sites selected is undertaken, follow by a consultation with conservation bodies (Figure 2). Blocks and sites determined to have no significant negative effects on the environment are awarded to the bidders, but those that may have significant effects, including on MPAs, are require further assessment (UK Government, 2024). Further assessment includes consultations with conservation bodies and the public. After blocks and sites

are evaluated and the likelihood of the impact found, blocks are also awarded but may be subject to mitigations measures (Figure 2).

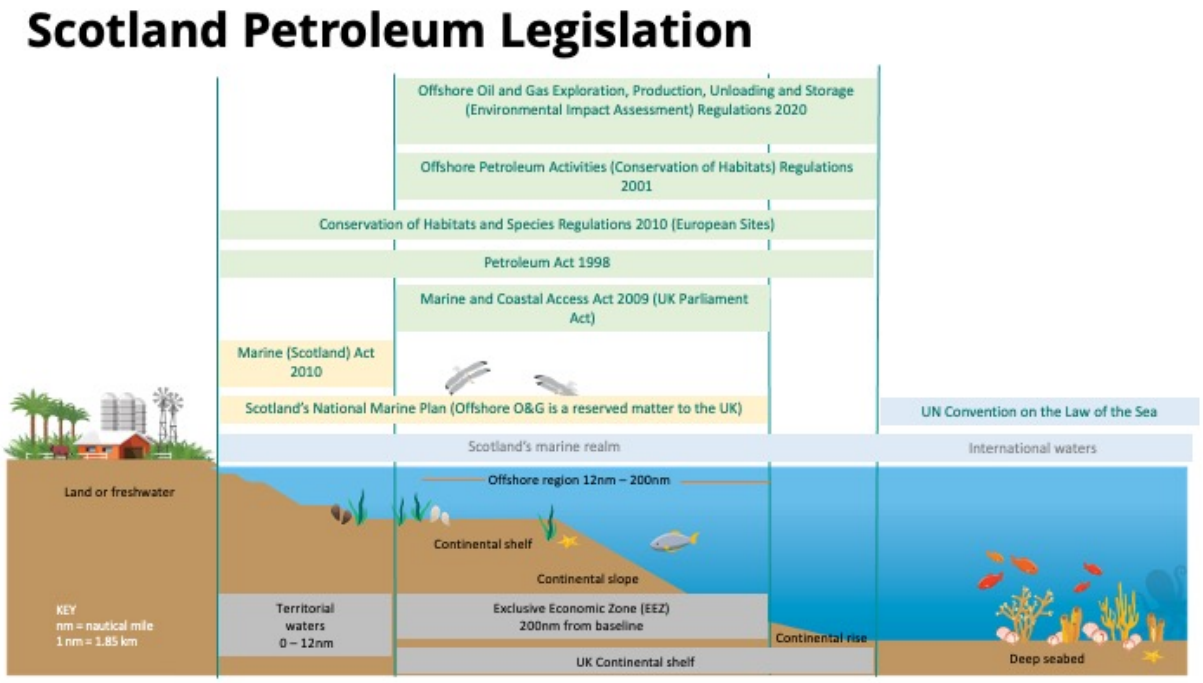

Figure 1- Scotland's offshore petroleum and environmental legislation. Image modified from (Macpherson et al., 2024).

Key actors involved in the initial licensing decision

The following actors are the most relevant to the initial licensing decision, and each plays a key and distinct role in shaping the licensing rounds (Figure 2).

- North Sea Transition Authority (NSTA) – oil and gas authority

The Oil and Gas Authority, is an independent, arm's-length regulator whose sole shareholder continues to be the Secretary of State for Energy Security and Net Zero (Gordon et al., 2018).[2] The NSTA is responsible for the offshore petroleum licensing rounds, including the selection of blocks to be offered, the public announcement of each round, the review of operator applications, and the awarding of the licences (North Sea Transition Authority, 2025). To date, the authority has held 33 licensing rounds, with the most recent launched in 2022.

[2] After being established by the UK government in 2016, the OGA changed its business name to the North Sea Transition Authority (NSTA) in 2022 to reflect its "expanding role in energy transition …" (NSTA, 2022) including offshore hydrogen and carbon storage. Its legal name (OGA), however, remains unchanged.

- OPRED – environmental regulator

The offshore Petroleum Regulator for Environment and Decommissioning (OPRED) is a subdivision within the Department for Energy Security and Net Zero (DESNZ) and is responsible for implementing environmental regulatory frameworks for offshore oil and gas operations in the UK (UK Government, n.d.-a). OPRED oversees environmental assessments that inform licensing decisions, including SEAs, as well as Habitats Regulations Assessments (see below).

- Steering committee – advisory group for SEA

The steering committee is composed of representatives from multiple sectoral organizations, including (but not limited to) DESNZ, OPRED, the Scottish Government, Marine Scotland, World Wildlife Fund, Scottish Environment LINK, National Federation of Fishermen's Organisations and nature conservation bodies (UK Government, n.d.-e). This committee acts as an advisory group, offering objective leadership in the development of the offshore energy SEA by providing strategic direction and assisting with the review of scoping drafts.

- Statutory Nature Conservation Bodies (SNCBs) – nature conservation advisory bodies

SNCBs are legally designated government agencies under Regulation 5 of the *Conservation of Habitats and Species Regulations 2017* (UK Government, n.d.-g). Each statutory adviser represents a specific jurisdiction, for instance the Joint Nature Conservation Committee (JNCC) advises the UK Government on offshore and UK-wide conservation issues, while NatureScot advises the Scottish Government and, occasionally the UK Government. Natural England, Natural Resources Wales, and Ireland Environment Agency also form part of the (non-exhaustive) list of SNCBs. These bodies are responsible for advising both the UK and devolved governments on nature conservation and biodiversity, providing scientific and technical input into environmental assessments, protected area designations (e.g., MPAs), and species protection.

There are three key instances where SNCBs play a decisive role in offshore petroleum licensing rounds. First, prior to the announcement of a licensing round, an Offshore Energy SEA is undertaken. Before the SEA is finalized and adopted, consultations must occur with SNCBs and the public (Figure 2). The other two instances take place after applicants submit their bids: SNCBs are again consulted during the Habitats Regulation Assessment (HRA), at both stage 1 and 2 (see below). Although the offshore petroleum licensing is a reserved matter under the UK jurisdiction, Scotland contributes to the process through its statutory adviser, NatureScot.

- The public

The public (e.g., citizens and environmental organizations) is also given opportunity to participate in consultations held during the offshore energy SEA and at stage 2 of the HRA. Notably, during these consultations, SNCBs and the public are engaged simultaneously, creating a barrier for public access to expert input (Figure 2).

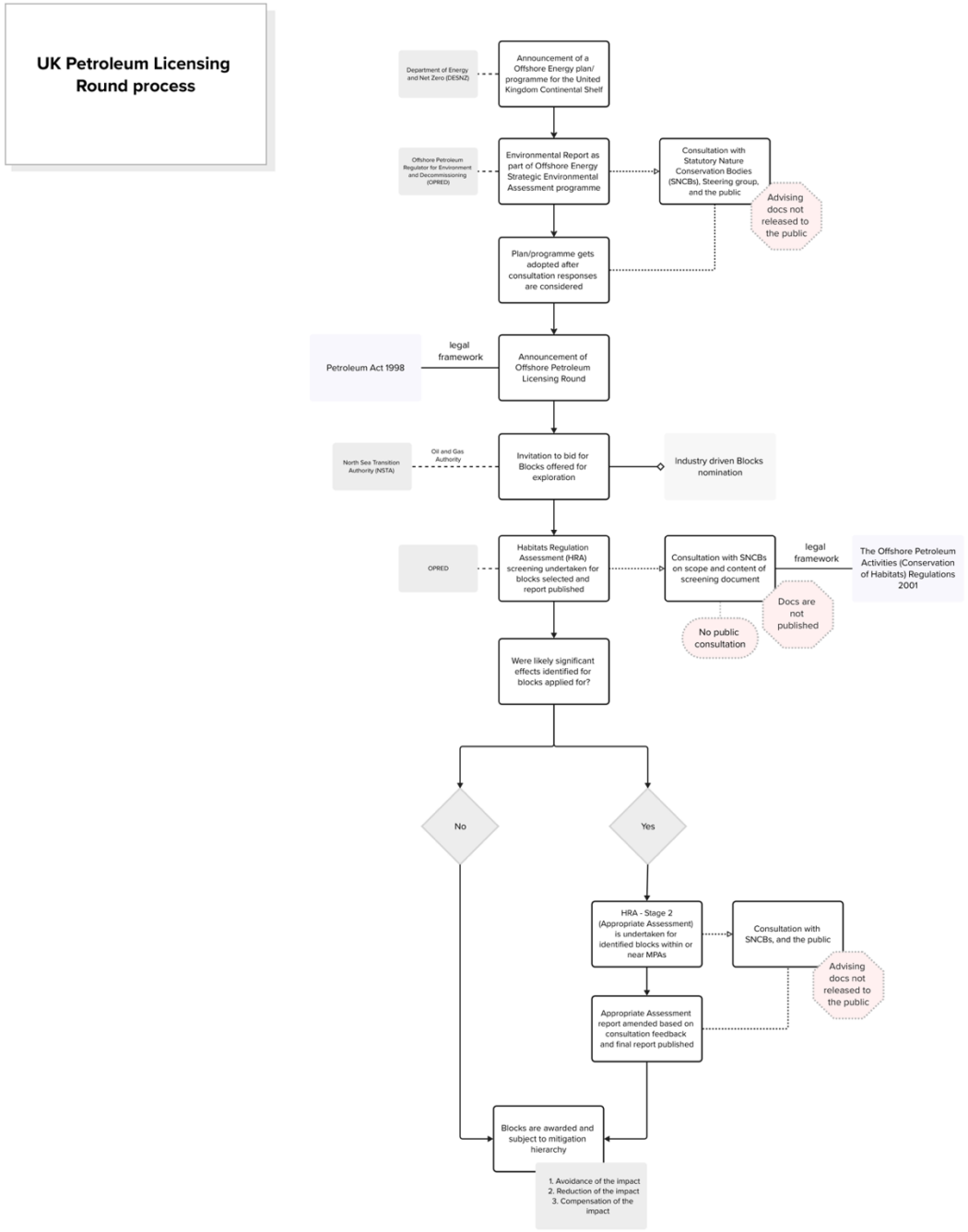

Figure 2 - UK's offshore petroleum licensing process. Information gathered from (UK Government, 2024). Figure created using Mural (2024).

Offshore Energy Strategic Environmental Assessment (*OESEAs)*

OESEAs are carried out by OPRED before an offshore oil and gas licensing round to assess the potential environmental implications of proposed plans or programs (Lamorgese et al., 2015). These assessments are required to be conducted "in accordance with the Environmental Assessment of Plans and Programmes Regulations 2004 (as amended) (the SEA Regulations) …" (UK Government, 2022). To date, eleven SEAs have been undertaken to inform seventeen offshore licensing rounds, beginning with the first SEA in 1999 for the 19th licensing round (Department of Energy and Climate Change, 2016; Department of Trade and Industry, 2005, 2021). This indicates that not every round is preceded by a new SEA, for instance the licensing rounds from 2017 to 2019 were informed by an earlier, potentially outdated SEA. In other words, OPRED does not carry out a new SEA for every licensing round, but instead reuses existing SEAs to inform licensing rounds.

OESEAs are informed by environmental data, which includes seismic and ecological information. These data comes from "a series of research and monitoring surveys commissioned [by DESNZ] to acquire new data about the offshore environment…" (British Ecological Survey, n.d.). The most recent government funded geographical survey relevant to the OESEAs were conducted in 2015 and 2016 (North Sea Transition Authority, n.d.-a).

Habitats Regulation Assessment (*HRA) stages*

Before a final decision is made on which licences may be awarded, and after the oil and gas companies have submitted their applications, the HRA is undertaken to determine whether the proposed selection of blocks could impact MPAs (UK Government, 2024). The HRA consist of two stages, Stage 1 involves screening to assess whether the blocks selected by applicants are likely to have significant individual or in combination effects on designated conservation sites. Stage 2, also known as Appropriate Assessment, provides a more detailed analysis of the blocks that were identified in stage 1 as potentially having significant effects. Importantly, only the blocks identified as potentially significant in stage 1 are subject to consultation with SNCBs and the public. This means that if a block is screened out in stage 1 (i.e., deemed not to have likely significant effects), it does not undergo public consultation.

Climate compatibility checkpoint

The climate compatibility checkpoint is a series of tests developed by DESNZ and operated by the NSTA "to ensure (…) the compatibility of future licensing with the UK's climate objectives." (Department for Energy Security and Net Zero, n.d.) before a licensing round can be offered. This checkpoint was created after a review of the UK's petroleum licensing in 2021, which concluded that the UK climate objectives of achieving net zero by 2050 are compatible with oil

and gas licensing, but need to be checked constantly (Department for Energy Security and Net Zero, n.d.). This alleged compatibility between a liveable climate and continued oil and gas development goes against the report from the International Energy Agency (2021), which concluded that if the world wants to limit warming to 1.5C and hit net zero by 2050, then no new oil and gas licences should be awarded from 2021 onward.

However, Shapovalova (2025) noted "while the original conception of the Checkpoint was ambitious, the final draft became a non-statutory, watered-down version, omitting several key criteria, including the assessment of Scope 3 downstream emissions." This means that after the NSTA applies the checkpoint criteria and advises ministers on whether licensing rounds align with the net zero commitments, the NSTA is not bound to follow its outcome. This omission of the Scope 3 downstream emissions was effectively challenged by the UK Supreme Court, which found these emissions to be indirect effects of the oil and gas development. As a result, at least at the project level, Environmental Impact Assessments are now legally required to assess the emissions resulting from the combustion of the extracted oil and gas (Shapovalova, 2025).

Notably, in the Labour Party's (2024) manifesto, Prime Minister Keir Starmer pledged a phase-out of new fossil fuel by not issuing new licences. This, however, only applies to new exploration and production licensing rounds, while the licences already awarded in the 33rd licensing rounds are not to be revoked. A future government could reverse this position unless it gets passed into law through parliamentary legislation.

Earlier this year, DESNZ ran an eight week consultation on "Building the North Sea's Energy Future," which aimed to seek feedback from industry, experts and the public on how to implement the pledge to stop awarding new oil and gas licences (Department for Energy Security and Net Zero, 2025). The consultation closed on April 30, 2025, and it is still under revision as of July 2025.

Scottish National Marine Plan

Under devolution, the Scottish National Marine Plan was developed and adopted in 2015 in accordance with the legislative framework for marine protection and planning in the UK and Scotland—the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010 (Scottish Government, 2015). The plan that extends to 200 nautical miles, covering inshore and offshore waters, is a statutory obligation allowing the management and coordination of 11 marine industries and activities that compete for the use of the Scottish seas. Among these industries, there is one that intersects between the devolved and reserved affairs. While the oil and gas industry have its own section in the plan, it clearly states that offshore oil and gas is "a reserved activity not in the direct control of the Scottish Government." (Scottish Government, 2015). As a result, although the Act 2010 required one document that includes inshore and offshore waters

for the National Marine Plan, the Scottish Parliament can only pass legislation to prevent activities that impact the marine ecosystem in inshore waters (Slater & Claydon, 2020; UK Government, n.d.-c).

Scotland MPAs

The Scottish MPA network is another example of devolved affairs where Scotland has complete control over the designation of MPAs in inshore and offshore waters. MPA designation in Scotland began in 2005 under the EU Birds and Habitats Directive, which was the first legal instrument to provide powers for designating MPAs aimed at protecting specific marine species and habitats. Following this, the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 granted authority to Scottish Ministers, who—acting on advice from Statutory Nature Conservation Bodies (SNCBs)—could designate areas deemed at imminent risk due to ecological vulnerability (Scottish Government, 2012). These designations aim to protect habitats and both nationally and internationally important species, contributing to the fulfillment of broader international conservation obligations (Scottish Government, 2012). As part of these legislative frameworks, a progress report on the MPA network must be submitted to the Scottish Parliament every six years (Scottish Government, 2012)

Since the creation of the Scottish MPA network in 2012, it has expanded to include 247 sites, covering 37% of its seas. This surpasses “the global biodiversity target to achieve MPA coverage of 30% of global seas by 2030 (known as 30x30).”(Scottish Government, 2024a). However, most of the Scottish MPAs are designated as multipurpose, permitting extractive activities, and managing threats with the dual aim of biodiversity conservation and sustainable use (Salomonsz et al., 2019). Of the network, only one representative MPA prohibits extraction (Salomonsz et al., 2019).

The Scottish MPA network follows a feature-based site selection approach called Priority Marine Features (PMFs), where the identification of sites is based on the "locations of habitats or species which are important, rare, threatened and/or representative of the range of features in the UK marine area" (Scottish Government, 2011). Since designated MPAs under this feature-based approach do not truly restrict “the most damaging or widespread pressures in the sea” (Scottish Environmental LINK, 2024), Scottish marine ecosystems are declining at an alarming rate (Walton et al., 2023). Walton et al. (2023) noted, “No areas of seafloor around Scotland currently meet good ecological status, in part due to habitat disturbance…” This raises question about the lack of protection from the Scottish MPA network (p 43).

Once a site is designated as an MPA, it is expected to have a management plan that outlines how the area will be protected, monitored, and used. These plans typically identify conservation objectives, assess pressures, and proposed specific measures to reduce or eliminate threats such

as fishing and habitat destruction (NatureScot, n.d.). However, in Scotland, many MPAs wait years before such plans are developed and implemented, undermining their effectiveness (Salomonsz et al., 2019). For instance, although MPA designations cover 37% of the Scottish seas, not all have a management plan in effect (Walton et al., 2023). In fact, enforced restrictions on extractive activities such as fishing are only applied to some MPAs, and offshore oil and gas activities are not included in these restrictions since they fall under the jurisdiction of the UK government (Scottish Government, 2024b).

Therefore, while Scotland has full authority to designate and manage MPAs and has developed a national marine plan to coordinate competing marine activities, its power is limited where it arguably matters most. Offshore oil and gas licensing—concentrated largely in Scottish waters—remains under UK jurisdiction, meaning Scotland has not direct authority to restrict these activities, even when they overlap with MPAs. This jurisdictional divide undermines Scotland's ability to fully achieve its marine conservation objectives.

Methods

We identified potential interviewees through a systematic search that included government documents, MPA's public consultations, academic papers, and newspapers, enhanced by the snowball method. Participants were selected based on the following criteria: an active role in offshore petroleum licensing, MPAs or MSP; relevant experience in these areas; and academically pertinent research experience in offshore petroleum licensing, MPAs or MSP. Sixty-three individuals were contacted via email and phone calls to participate in either online or in-person interviews. Of those, fifteen individuals agreed to take part (anonymous code referenced in Results): six were from environmental non-profit organizations (eNGOs), three were from fishing organizations (FO), four were academics (A), and two were government officials (GO). Seven were online and seven were in-person and one was a written response. Despite being contacted several times, both NSTA and OPRED declined to participate. Interviews occurred in the fall of 2024.

We utilized a semi-structured interview design (approved by the Human Participant Review Committee at York University, Fraser e2019-231#). With a focus on the UK, interview questions included MPAs and marine spatial planning efforts; how spatial planning linked to oil and gas activities; and details on oil and gas licensing rounds (Appendix A). The recordings of the interviews were professionally transcribed. This project was part of a larger study and as such we used an existing template for coding and followed a template analysis (King & Brooks, 2017; Rutherford et al. submitted manuscript). The template coding (using N vivo 14) included five *a priori* themes (based on Kapoor et al., 2021): 1) Perceptions, Rights Inequities and Power Imbalances around Economic, Environmental, Indigenous & Community Sustainability; 2) Consultation Processes Lacking Credibility; 3) Mobilisation for Stronger Environmental Protection (Legislation); 4) Complex, Inadequate and Inequitable Regulatory Structure; and 5)

Greater Recognition of Cumulative Impacts across Broader Ocean Decisions; and ten additional categories (Rutherford et al. submitted manuscript). The results from this study were considered in the context of the research questions and literature review of the UK system.

Results

Although five higher level themes were used in the coding, we focused the results around three raised by participants: (1) public consultation processes lacking credibility; (2) a complex, inadequate and inequitable regulatory structure; and (3) a greater recognition of cumulative impacts across broader ocean decisions.

1. Complex, Inadequate and Inequitable Regulatory Structure

Interviewees highlighted, as the first major theme, the complexities and inadequacies of the UK's offshore oil and gas regulatory framework and marine protection measures. They specifically criticized the limited influence of SNCBs, the lack of transparency within the NSTA, and the flaws in the OESEA process, all of which they viewed as contributing to negative impacts on marine ecosystems.

1.1 | Statutory Nature Conservation Body's (SNCB) structural and perceptual constraints

Interviewees thought that the licensing system appeared to be biased against SNCBs—who are essential in guiding decision makers toward environmentally conscious decisions— and in favour of OPRED. One interviewee (eNGO) interpreted this as a systemic issue: "the opinions of the JNCC" and other SNCBs carry virtually no weight in the decision-making process, either in the selection or licensing of blocks. Given that SNCBs' advice appeared to have limited influence over OPRED and the licensing process, another interviewee (GO) noted that SNCBs often coordinate their responses to increase impact—though doubts remained about how seriously these are taken.

In addition to a system disadvantaging conservation bodies, interviewees also reflected on the perceived quality of the SNCBs advice. An (eNGO) interviewee questioned the adequacy of SNCBs' advice regarding the seismic surveys allowed as part of the offshore petroleum exploration licence, which companies conduct to assess the presence and potential extent of oil and gas reserves beneath the seabed. The interviewee stated that their organisation does not "consider that the advice is necessarily the best practice in terms of mitigating impacts of seismic surveys" on marine biodiversity. Another (eNGO) also criticized SNCBs for not "pushing back as strongly as they could" in their advice.

1.2 | O&G procedural secrecy and lack of transparency

Interviewees expressed concerns about the institutional opacity of the O&G authority, the NSTA. One (eNGO) interviewee noted that "they don't publish anything in terms of their process. The NSTA is incredibly untransparent as a company," adding that this behaviour has remained consistent over time. According to another (eNGO) interviewee, the lack of transparency may be linked to the NSTA's unusual setup as "a government [-owned] company." Unlike traditional government departments, this structure may grant the NSTA greater autonomy in the internal operations and decision-making potentially reducing public accountability.

In addition to concerns about institutional opacity, interviewees also voiced frustration with the secrecy and complexity surrounding of oil and gas procedures. One (GO) compared aspects of their involvement in O&G licensing under the UK government with that of renewable energy licensing under the Scottish Government. The main difference, they noted, is that the NSTA's portal is secured with a high level of access restrictions, whereas the Scottish Marine Licensing portal is open and more accessible. The interviewee added, "I don't find it a transparent process at all."

Secrecy was not only seen in the project applications portal, but also in relation to the selection of blocks for bidding. Several interviewees reported being unable to explain how the NSTA chose the blocks, citing a lack of publicly available information. One (eNGO) described the process as a hidden matter, speculating that "it's based on the economics [,] where there's likely to be oil [and] what companies are asking for." Another (eNGO) echoed this view, stating that the block selection appears "somewhat strategic" prioritising economic interests over conservation goals.

1.3 | Offshore Energy Strategic Environmental Assessment (OESEA) flaws and their impact on marine ecosystems

Interviewees pointed out several inadequacies of the OESEA. According to a (FO), SEAs were often desk exercises (i.e., no field site visitations) using outdated surveys, relying on old data and possibly inaccurate data. The interviewee remarked, "surveys…are routinely 20, 25 years old [and] do not correspond to the site in consultation." SEAs appeared to serve more as an administrative step than a meaningful environmental safeguard—what the interviewee (FO) described as merely, "a check box" in the process of approving plans and projects. They explained, "they always find that there will be no environmental damage… there won't be any significant impact to any other users of the sea. It's not a meaningful process and nothing ever comes out of it."

Additionally, interviewees expressed concerns about how flawed SEAs were employed in the selection of blocks for bidding. One (eNGO) interviewee emphasized that SEAs were too broad to meaningfully identify areas unsuitable for development and once blocks were identified for bidding (and selected by applicants), there was a high likelihood of exploration occurring. Habitat Regulations Assessment by SNCBs were too late in the licensing process to have any real impact, but as interviewees noted it is unlikely OPRED would pull the blocks back if the applicant could demonstrate having the minimum mitigation or compensation measures. An (eNGO) illustrated the impacts of this process, noting that a developer would obtain, "areas of seabed that were totally inappropriate for development and would have massive impact on the marine environment."

2. Public Consultation Processes Lacking Credibility

Interviewees discussed their experiences participating in the public consultations conducted before the OESEA gets adopted and during the second stage HRA (see Figure 2), focusing on the limited visibility of the initial advertising and accessibility of this process. One interviewee (eNGO) noted that the advertising of public consultations by the UK government agencies was "quite slim," contributing to the lack of public awareness. Another interviewee (FO) highlighted that "most of the public is not very aware" of when and how they happened. If a member of the public wants to know if there is a consultation, they have to "be checking a website" explained an (eNGO) interviewee.

Furthermore, interviewees discussed the technical and informational barriers that hinder public involvement during consultations. An interviewee (eNGO) noted that often public consultations require a high level of technical knowledge and familiarity with complex legislative frameworks to be able to understand and write a response. Another interviewee (FO) went further and said not only is technical language and jargon an issue, but there is also too much information, "people are not equipped to deal with the volume of information that you have to digest in order to understand what all of these developments mean."

In addition to poor publicity and the overwhelming volume and technical jargon of the documents, (eNGO) interviewees emphasized the lack of access to SNCBs' valuable expert advice for eNGOs and members of the public. SNCBs provide feedback on each licensing round (see Context above), however, an interviewee (eNGO) said that OPRED and the NSTA "don't normally publish the advice of the agencies," and the only way to access it is by applying to "a freedom of information request."

3. Greater Recognition of Cumulative Effects across Ocean Decisions

In this section, we first consider interviewees' criticism of OPRED's environmental assessments for downplaying significant effects and failing to properly account for cumulative impacts in licensing decisions. Then, we discuss Scotland's MPA network, which was described as ineffective due to weak management, a limited scientific basis, and an inability to restrict harmful activities such as oil and gas development. Finally, we consider tensions within the Scottish National Marine Plan, where sectoral dominance and poor integration of MSP were seen as intensifying competition for space and overlooking the cumulative pressures on marine resources.

3.1 | OPRED questionable dismissal of significant effects

The quality of OPRED's work conducted in the two stages of the Habitat Regulations Assessment (see Figure 2) was perceived by interviewees as inadequate. Interviewees indicated the "Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001" and the "Conservation of Habitats and Species Regulations 2010 (European Sites)" (see Figure 1) by OPRED was problematic. A (GO) pointed out that "they try and dismiss anything that could have a likely significant effect or… push it into…[the] insignificant box." Similarly, interviewees also added that OPRED tend to minimize the potential damage that awarding the blocks may have on protected species and MPAs. An (eNGO) interviewee recalled how OPRED would say, "it's such a small percentage of the MPA that will be impacted," or "it may take out some of these protected species but only a few." Another (eNGO) highlighted how OPRED failed to undertake a comprehensive evaluation of the cumulative effects of awarding most of the licences. The (eNGO) noted that even though OPRED is required to consider "the integrity of the whole site," they only look at individual effects of a licence (either a block or half block) and disregard the cumulative effects of awarding most of the licences, which can be devasting for the marine animals and physical features.

Interviewees not only acknowledged the problematic quality of OPRED's work in the past, but also pointed out how in the last offshore petroleum licensing round, the SEA was inadequate and assessment was lacking on the potential significant effects that awarding the licences may have on MPAs during the HRA Stage 2. One (eNGO) interviewee said that "over a third of the blocks on offer for bidding in the 33rd licensing round overlapped or were within an MPA," and concluded that OPRED did not avoid areas in or near MPAs during block selection stage (Figure 2). Consequently, another (eNGO) interviewee explained that the NSTA, with OPRED's approval, required assessment in the HRA Stage 2 (applied to blocks that are within or adjacent to MPAs) for 21 of the 31 awarded licences. The interviewee argued that OPRED made no effort to exclude blocks that could have likely significant effects.

3.2 | Ineffective MPAs

Interviewees described several inadequacies with the designation and management of the Scottish MPA network. Interviewees pointed out that current MPA designations failed to restrict harmful activities (e.g., oil and gas) within these protected areas. An (eNGO) interviewee stated that "in designated protected areas around the UK there is oil and gas exploration and production." This was further supported by another (eNGO) interviewee, who noted that "there's no regulations necessarily that prevent you from putting an oil and gas rig in an MPA." Concluding that blocks within or near protected areas may be granted during petroleum licensing rounds, which poses a threat to already vulnerable marine ecosystems.

Moreover, interviewees highlighted the lack of ecosystem-based approach and the limited inclusion of climate-resilience in MPAs designation criteria. Scottish MPAs are narrowly focused and fail to incorporate broader ecological relationships or climate change considerations. An (eNGO) interviewee explained "…[MPAs] tend to be very feature-led in terms of their objectives and management, rather than broader ecosystem-based protection."

In addition to allowing harmful activities and neglecting ecosystem-based and climate-resilience approaches, interviewees also emphasized the weak scientific foundation and data gaps in the MPA network. A (FO) observed that "MPAs are not evidence-based in the UK." They added that there are not "regulations based on science, based on a scientific evaluation of the conservation benefits of particular measures, and the conservation needs of the area." Another (FO) echoed this, pointing out that MPAs are not even monitored to determine whether their objectives are being met or if the measures are effective: "they don't really know whether [MPAs are] successful or not because they're not doing the science to back it up."

Finally, interviewees expressed concern regarding the poor management, monitoring, and enforcement of Scottish MPAs. An (A) recalled a classroom discussion where students noted that Scottish MPAs "are paper parks to some extent," meaning they exist mostly on paper and lack proper management plans. Another (A) and a (GO) reinforced this, stating that MPAs are poorly managed and not well-enforced. The (GO) reflected on the fact that monitoring is mostly conducted onshore due to the high costs of offshore activities. Yet monitoring is essential to assess whether the site is recovering and maintaining ecological health. Without enforcement or adequate oversight, even well-designated MPAs may fail to achieve their goals. As one (FO) appropriately concluded, "there is definitely a tension…between the theatre of declaring something an MPA and actually managing… to achieve a conservation objective."

3.3 | Sectoral Dominance and MSP Tensions

Interviewees revealed the issues with the structure, legal status, and implementation of the Scottish National Marine Plan 1. A recurring concern was the disconnection between sectoral chapters, where each sector operates in isolation without coordination or mutual reinforcement. One (eNGO) remarked on this, saying that "the objectives of the oil and gas chapter is to maximize exploration and extraction of oil and gas, alongside decarbonising the economy and maximising renewables. So, our National Marine Plan is a bit of a juxtaposition." Another (eNGO) interviewee pointed out that MSP was not legally required in the petroleum licensing process, allowing the O&G regulator to select blocks anywhere in the North Sea without considering cumulative human pressures, "do they plan where they're going to give out the licences according to marine spatial plan…? No…they don't legally have to."

In addition to this lack of integration, interviews also highlighted sectoral imbalance and exclusion within the National Marine Plan 1. One (eNGO) noted that fishers are often not meaningfully involved, even though they are disproportionately affected by the licensing of new industries: "I think what would happen a lot of the time is if fishers were involved, it would be very clear, very quickly, that their industry was going to be the loser in this trade-off of where everything's going to go." An (A) added that fishing "seems to be left out of the [Marine] Plan." Notably, National Marine Plan 1 does not include a chapter dedicated to the fishing sector.

Beyond these exclusions, interviewees expressed concern about the absence of an overarching, coherent strategy in marine governance. A (FO) observed that while multiple sectors are now competing for marine space, no strategic framework has been developed to guide these interactions: "We have a number of different competing uses… and no overall strategic view of how that should be distributed." This sentiment was echoed by others calling for a holistic MSP strategy that incorporates all marine activities, especially fishing: "There is no strategy… we want a strategy, a marine strategy, and a fishing strategy, because at the minute, it's all piecemeal."

Finally, interviewees raised alarms about the growing competition for space and the resulting spatial squeeze, particularly for traditional users like fishers. One (A) explained that fishers feel "squeezed out" as more sectors occupy the marine space. The same interviewee emphasized the importance of addressing cumulative impacts, pointing out that "whether you're licensing oil and gas, or licensing renewables, or licensing fishing, you've got to take consideration of what else is being licensed there, and how they might be impacted."

Discussion

Interviewees' responses revealed the inadequacies in the UK's offshore petroleum regulatory framework, a lack of credibility in consultation and engagement processes, and poor consideration—if not absent— consideration of cumulative impacts within environmental and conservation frameworks. This study adds to existing evidence that the conservation mechanisms integrated into, or related to, the UK's offshore petroleum licensing process—such as SEAs, MPAs, and MSP—fall short of their intended purpose. This discussion is organized following a top-down approach, beginning with the authority-led regulatory framework, then examining the roles and effectiveness of the environmental assessments, the credibility of public consultation processes, the dismissal of the environmental assessment results and recommendations, and the loopholes within conservation frameworks. Taken together, this analysis reveals the power dynamics where regulators have all the power while conservation efforts do not, highlighting institutional opacity within the petroleum sector and persistent challenges in integrating environmental considerations into decision-making.

1. Discretion-based regulatory system

Our study confirms longstanding concerns about the procedural secrecy and lack of transparency in the UK's petroleum licensing process, a problem identified by Gordon et al. (2014, 2018), Fidler & Noble (2012), and Shapovalova (2024). It suggests a deeper institutional reluctance to engage with external scrutiny.

Since its establishment, the UK's petroleum licensing process has been referred to as a "discretionary system" (Gordon et al., 2014, 2018), in other words, a system where some information can be kept secret. The primary reason is the limited detail in the Petroleum Act (1998) (UK Government, n.d.-f) on how to manage licences, which grants a far-reaching power to the O&G authority to decide on an applicant-by-applicant basis rather than according to objective criteria. Such discretion risks producing arbitrary decisions based on the NSTA's judgment, a concern echoed by interviewees in this study. This tendency towards discretion extends beyond the awarding of licences to the administration of the entire licensing process, including the block selection process, as highlighted by interviewees.

Fidler & Noble (2012), in their comparative study about SEAs in the offshore oil and gas sectors of Norway, Canada and the United Kingdom, noted that the UK petroleum regulators refused to participate in interviews, unlike their Norwegian and Canadian counterparts. Similarly, the NSTA and OPRED also refused to participate in this study. They were the only regulatory authorities who declined an interview in the broader series of case studies conducted in two Provinces in Canada, Australia, and New Zealand. This pattern reinforces interviewees' perception of a consistent institutional reluctance to engage with external scrutiny.

Moreover, recent evidence supports interviewees' concerns that the NSTA's lack of transparency is a persistent behaviour. Shapovalova (2024) noted that the NSTA did not provide details on how they applied the Climate Compatibility Checkpoint for the OESEA prior to the 33rd licensing round. Such limited disclosure reinforces concerns raised by interviewees in this study regarding the lack of detailed information on the selection of blocks for bidding. The secrecy and lack of transparency may stem from the NSTA's institutional set up as an arm's-length regulator. While it is a government-owned company, limited by shares, with the Secretary of State for Energy Security and Net Zero as its sole shareholder, it operates with a high degree of operational independence. This structure allows it to function differently from a government department, giving it greater flexibility—while also sheltering it from accountability.

However, the UK is not the only jurisdiction criticized in the literature for the lack of detail in its publications. Shrimpton et al. (2003) found that, although Norway, Alaska and the UK publish findings and decisions related to the licensing process, these reports often lack clarity regarding how decisions were made or whether public input was considered.

Based on these findings, we recommend the reporting of internal processes occurring before, during, and after the licensing round, which would allow the public to be informed about the criteria used, as well as empower them to hold the authorities accountable in their decision making process (Shapovalova, 2024). We also recommend greater willingness to participate in events such as conversations and round tables that create opportunities for the public and eNGOs to review and monitor processes and decisions (Fidler & Noble, 2012; Marsden, 1998).

2. SEA and marine conservation

This study contributes to the limited SEA literature in the UK by building on challenges previously identified in global SEAs reviews (Kapoor et al., 2021; Lamorgese et al., 2015; Vilardo et al., 2020). Lamorgese et al. (2015), in their analysis of SEA processes in the oil and gas sector found that, although SEA is globally recognized as a significant instrument to support 'sustainability-driven decision-making,' its application often falls short. They argued that "when the motivations are in favour of merely matching economic reasons and environmental protection, much of the emphasis of the SEA procedures appears to be directed toward approval of oil and gas proposals rather than to reflect on the environmental and social implications and uncertainties that such activities could determine..." (p 22). The use of dated data and the limited focus on the UK OESEA, as noted by the interviewees, point to a broader pattern in which sectors known for their economic benefits undermine efforts aimed at ensuring the early integration of environmental considerations into programmes and planning processes. We recommend involving a varied stakeholder group from the early stages to ensure the

representation of conservation needs and local communities, which would bring environmental and social implication to the table (Lamorgese et al., 2015).

Kapoor et al. (2021), in their assessment of stakeholder opinions and participation in Nova Scotia's, Canada SEAs for offshore oil and gas decisions, found that while the federal and provincial governments, along with the regulator, were satisfied with the SEA's performance, non-governmental stakeholders distrusted the regulator and questioned the usefulness of the SEAs. Interviewees in our study expressed similar concerns, noting that SEAs are often too broad to meaningfully identify areas unsuitable for development. Consequently, SEAs risk not only misguiding block selection but also contributing to the degradation of the marine ecosystem if they continue to overlap with MPAs and if they cannot be included in MSP efforts.

Brazil also implemented SEA as a pre-bidding assessment tool to guide oil block selection, initially steering exploration away from sensitive areas. However, Vilardo et al. (2020) found that institutional and political shifts have since allowed the government to ignore SEA processes and include marine sensitive areas in recent bidding rounds. This has shifted environmental assessments to the project-level EIA stage, which the authors warn is a move that further threatens marine biodiversity. The UK faces a similar issue: although the Offshore Energy SEA and HRA are designed to assess the environmental impact of offshore developing, including specific effects on MPAs— yet interviewees noted that OPRED often release identified areas that have gone through further examination. Rather than excluding sensitive areas gone through HRA, OPRED reportedly seeks loopholes or ignores expert advice. Vilardo et al. (2020) argued that environmental assessments are intended to guide the planning decisions and steer the selection of blocks away from vulnerable marine environment. If conducted properly, SEAs should promote conservation-driven decision-making (Fidler & Noble, 2012; Stinchcombe & Gibson, 2001).

If conducted well, such as including impacts from other sectors and alternative options (Stinchcombe & Gibson, 2001), cumulative effects can also be identified and mitigated in SEAs (Lamorgese et al. 2015; Fidler and Noble 2012). Elvin & Fraser (2012) noted the inadequate consideration of cumulative stressors from multiple human activities in impact assessments for the offshore oil and gas industry on Canadian marine ecosystems. They recommended implementing a coordinated National SEA framework that integrates diverse stakeholders to assess cumulative effects across regions and sectors. Such a framework would enable more effective management and mitigation strategies by considering all adverse impacts— past, present and future— at the planning stage. It may also help protect and maintain marine biodiversity from offshore oil and gas development.

In line with this, we also recommend the continued use of MSP, referred to in Scotland as the National Marine Plan*,* as an integrated approach to manage the various sectors that use the sea.

This approach facilitates stakeholder participation and conflict resolution for the shared and adaptive use of the ocean (Kapoor et al., 2021). We further encourage the expansion of the MPA network, the establishment of Highly MPAs and the prompt development of management plans that ensure protection from the start.

3. Public consultation processes lacking credibility

The barriers limiting participation in public consultations identified by interviewees reinforce previous critiques of consultation practices (Brooker et al., 2019; Kapoor et al., 2021; Vespa et al., 2017), and highlight that, despite these concerns being well-documented, little progress has been made in improving visibility and accessibility in licensing processes. Vespa et al.'s (2017) assessment of the SEA for the Western Newfoundland Offshore Area in Canada, releveled that the foundational elements of meaningful consultation were not met. Many participants expressed a lack of trust in the consultation process, feeling that "the engagement method, type and amount of notice, [and] information provided, […] were totally inadequate." (Vespa et al., 2017, p 15). Similarly, interviewees in our study described how the volume of information and technical wording makes the UK consultation process overwhelming and inaccessible for the public, requiring prior knowledge and significant time investment to participate effectively. Jurisdictions such as Newfoundland and Labrador and Nova Scotia have likewise been criticized for giving little to no power to stakeholder consultations in decision-making. Kapoor et al. (2021) characterised this as 'tokenistic,' where information is collected but has no real impact on decisions such as seafloor allocation. This perceived lack of genuine consideration of public input contributes to widespread disappointment and disengagement in public consultation processes.

Brooker et al. (2019) described a related issue, 'stakeholder fatigue', which refers to the exhaustion caused by the demands of participating in long, and jargon-heavy consultation processes. To tackle this issue, Brooker et al. (2019) highlighted the role of eNGOs in translating marine plans and policy documents for citizens, educating them on marine ecosystems importance, and facilitating communication between citizens and decision makers. In Canada, for instance, members of the public have access to the comments submitted by various government environmental and protection agencies before the submission of the public comments is due on SEAs or other oil and gas related consultations (Saha et al. manuscript in review). Having the opportunity to go through the opinions of experts in the field guarantees that people not only understand the purpose of the consultation, but also recognise the potential impact that awarding licences may have on the marine environment. In contrast, during the two instances of public consultation that were carried out in the UK's licensing process (Figure 2), the public does not have access to such advice. Restricting this key environmental information limits transparency and prevents citizens from forming informed responses.

Based on these insights, we recommend taking concrete steps to improve public engagement and ensure that participation becomes more inclusive, accessible, and impactful. This includes implementing effective ways (e.g., social media, radio) to share information before consultation begins so the public is alerted, as well as offering active forms of participation that encourage dialogue and discussions among community members and regulators (Vespa et al., 2017). Vespa et al. (2017) emphasized that meaningful and proactive public consultation is essential, particularly when participants feel heard, and their contributions are genuinely integrated into decision-making. Similarly, Brooker et al. (2019) highlighted the need for effective public participation in marine conservation and planning to empower civil society and integrate human-environment interactions into decisions such as the awarding of offshore petroleum licences.

4. Dismissal of significant effects across offshore petroleum decisions

Our study adds to growing critique of the environmental regulator's failure to protect MPAs from offshore petroleum development, an issue stated by our interviewees and supported by previous research (Doelle et al., 2013; Kapoor et al., 2021; Stinchcombe & Gibson, 2001; Uplift & Oceana, 2023) . Across these studies, a common theme emerged: environmental assessments are shaped more by potential revenue opportunities than by sustainability objectives.

Doelle et al. (2013), in their examination of the oil and gas leasing regimes in Canada, the UK, and Norway, found that most SEAs repeatedly conclude that "standard mitigation" measures are sufficient, regardless of concerns stated by conservation agencies and multi-use conflicts. This copy-and-paste approach suggests that regulators consistently underestimate cumulative impacts—an issue also emphasized by interviewees in this study, who described cumulative effects in the UK licensing processes as inadequately addresses or entirely dismissed.

Similar concerns were raised in the most recent OESEA (2022). According to Uplift & Oceana (2023), "there is a general tendency for these assessments to dismiss or downplay some impacts of developments on the marine environment." (p. 36), raising serious doubts about OPRED's ability to fulfill its role as an environmental regulator, which is to protect European sites and MPAs. Interviewees likewise noted that OPRED applies a less rigorous process, enabling the NSTA to approve the majority of offered licences, even where significant impacts on MPAs are identified.

Legal challenges are testing these practices. In March 2025, Oceana brought a case against the UK government (Oceana, 2025), arguing that the 33rd licensing round failed to properly assess cumulative impacts on protected sites. Oceana (2025) stated that, "granting these exploratory licences while overruling the environmental consequences of both exploration and potential development is not only unlawful, but short-sighted and will serve no-one." Such failures, they

argue, risk worsening the climate crisis, increasing marine heatwaves, acidification, and oxygen depletion—all of which threaten marine biodiversity.

Underlying these issues is a deeper structural problem. Kapoor et al. (2021) noted that regulators are often influenced by industry power and financial benefits rather than by marine conservation objectives, or a balanced approach between conservation and profit. Stinchcombe & Gibson (2021) similarly highlight that when the same department promotes oil and gas development while overseeing environmental assessments, conflicts of interest are inevitable. This is precisely the case in the UK, where OPRED's inadequate dismissal of significant impacts on MPAs and marine species—both in previous and the most recent licensing rounds—really highlights the conflict of interest built into its role. The same department responsible for promoting offshore oil and gas—DESNZ also houses the body tasked with assessing its environmental impacts. This institutional arrangement raises serious concerns about regulatory independence and the genuine protection of marine ecosystems.

A similar structure exists in Canada, where the Canada–Nova Scotia Offshore Petroleum Board (C-NSOPB) is widely seen as not objective. This is because its legal mandate is to both promote and regulate oil and gas activities. Environmental, Indigenous and fisheries groups interviewed by Kapoor et al. (2022) described the Board's role as biased and problematic, particularly in the context of marine conservation. These concerns closely mirror those raised in the UK. In both countries, this kind of institutional setup creates an unavoidable conflict of interest, making it easier for regulators to downplay or dismiss the environmental impacts of offshore petroleum activities—especially when those impacts affect MPAs and protected marine species.

5. Designation and management of MPAs

Our study contributes to the growing body of literature highlighting the legislative, institutional and practical challenges of effectively designating and managing MPAs. Our findings align with Pendentlon et al. (2018), Maestro et al. (2019), Hopkins et al. (2018), Tonin, (2018), Salomonsz et al. (2019), Horta E Costa et al. (2016), and Harrison (2021) all of whom stress that while MPAs are critical for addressing biodiversity loss and climate change, their effectiveness depends heavily on how they are designed and managed.

Fully protected MPAs have been shown to deliver significant ecological benefits (Pendleton et al., 2018). However, most MPAs worldwide—and in Scotland—are multipurpose, designed to balance conservation with other objectives such as job creation and extractive activities. Pendleton et al. (2018) argued that these competing goals often undermine conservation, raising doubts about how meaningful such designations are. Similar concerns are echoed by Horta E Costa et al. (2016), who warned that many MPAs, although increasing in number, lack effective management plans, allow extractive activities, and provide a "false sense of protection."

Hopkins et al. (2018) critiqued Scotland's feature-based approach, which focuses on protecting specific species or habitats rather than entire ecosystems. Interviewees in this study similarly described this approach as overly individualistic, overlooking the interdependencies necessary for marine ecosystem resilience. Without a holistic perspective, MPAs are unlikely to withstand climate-related stressors such as rising temperatures and ocean acidification. Hopkins et al. (2018) recommended transitioning toward adaptive and ecosystem-based management, which—although requiring substantial data, buffer zones, and flexible boundaries—could progressively strengthen Scotland's MPA network.

Even where MPAs are designated, their effectiveness depends on the timely adoption of comprehensive management plans. Salomonsz et al. (2019) noted that some Scottish MPAs wait years for such plans, leaving harmful activities insufficiently regulated. This delays meaningful conservation and risks rendering MPAs as symbolic gestures rather than functional tools. Maestro et al. (2019)further stressed that management quality, rather than MPA designation alone, determines their success in halting biodiversity loss.

In light of this, we recommend that the UK and Scotland should commit to creating highly or strictly protected areas. Harrison (2021) defined these as those that "exclude all extractive, destructive and depositional use and only allows other activities at levels that would be non-damaging." (p 1). The IUCN recommended that 30% of global MPAs adopt such strict protection. However, most countries, including Scotland, continue to prioritise multipurpose MPAs. This raises a key policy question: what is the appropriate balance between multipurpose and strictly protected MPAs if Scotland is to meet its climate and biodiversity objectives (Harrison, 2021)?

Conclusion

With the reluctance to phase out of petroleum-based energy, the increasing adoption of renewables, and the continued exploitation of the marine environment for goods and services, it is imperative that marine conservation efforts—such as MPAs and MSP— are effectively implemented and managed to help shape regulatory and decision-making processes in favour of conservation and protection. Highly protected areas are far more effective than multipurpose MPAs in helping marine species and habitats recover and thrive (Harrison, 2021). Such measures are essential to achieving the global target of protecting 30% of the ocean by 2030. However, the controversial selection of offshore oil and gas marine blocks may sometimes result in overlaps with or proximity to MPAs. This is where MSP plays a crucial role in minimizing the negative impacts of offshore oil and gas activities on MPAs by ensuring effective coordination and incorporation of environmental considerations into the planning and decision-making processes (Ehler, 2018; Martin, n.d.; Reimer et al., 2023; Yates & Bradshaw, 2018).

References

Andrews, N., Bennett, N. J., Le Billon, P., Green, S. J., Cisneros-Montemayor, A. M., Amongin, S., Gray, N. J., & Sumaila, U. R. (2021). Oil, fisheries and coastal communities: A review of impacts on the environment, livelihoods, space and governance. *Energy Research & Social Science*, *75*, 102009. https://doi.org/10.1016/j.erss.2021.102009

Barron, M. G., Vivian, D. N., Heintz, R. A., & Yim, U. H. (2020). Long-term ecological impacts from oil spills: Comparison of Exxon Valdez, Hebei Spirit and Deepwater Horizon. *Environmental Science & Technology*, *54*(11), 6456–6467. https://doi.org/10.1021/acs.est.9b05020

British Ecological Survey. (n.d.). *Strategic environmental assessment (SEA) data portal*. British Geological Survey. Retrieved July 21, 2025, from https://www.bgs.ac.uk/technologies/databases/strategic-environmental-assessment-sea-data-portal/

Brooker, E. E., Hopkins, C. R., Devenport, E., Greenhill, L., & Duncan, C. (2019). Civil society participation in the Scottish marine planning process and the role of Environmental Non-Governmental Organisations. *Journal of Environmental Planning and Management*, *62*(12), 2101–2123. https://doi.org/10.1080/09640568.2018.1532876

Chandler, J. A. P. (2018). *Petroleum Resource Management: How governments manage their offshore petroleum resources*. https://www-elgaronline-com.ezproxy.library.yorku.ca/monobook/9781786432209/9781786432209.xml

Department for Energy Security and Net Zero. (n.d.). *Climate compatibility checkpoint design*. GOV.UK. Retrieved July 21, 2025, from https://www.gov.uk/government/publications/climate-compatibility-checkpoint-design/climate-compatibility-checkpoint-design

Department for Energy Security and Net Zero. (2025). *Building the North Sea's Energy Future—Consultation document*. UK Government. https://assets.publishing.service.gov.uk/media/67d0005ed107f3a16e028796/building-the-north-sea-energy-future-consultation.pdf

Department of Energy and Climate Change. (2016). *UK Offshore Energy Strategic Environmental Assessment—OESEA3 Environmental Report*. https://assets.publishing.service.gov.uk/media/5a74807e40f0b646cbc40557/OESEA3_Environmental_Report_Final.pdf

Department of Trade and Industry. (2005). *SEA 6—Background—Strategic Environmental Assessment for Offshore Oil & Gas Licensing—Information for Stakeholders*. https://assets.publishing.service.gov.uk/media/5a750da440f0b6360e472f8b/SEA_6_Stakeholder_Background_Information.pdf

Department of Trade and Industry. (2021). *An overview of offshore oil and gas exploration and production activities*. https://assets.publishing.service.gov.uk/media/5a7a2ac2e5274a319e77853e/SD_SEA2EandP.pdf

Doelle, M., Bankes, N., & Porta, L. (2013). Using Strategic Environmental Assessments to Guide Oil and Gas Exploration Decisions: Applying Lessons Learned from Atlantic Canada to the Beaufort Sea. *Review of European, Comparative & International Environmental Law*, *22*(1), 103–116. https://doi.org/10.1111/reel.12018

Ehler, C. N. (2018). Marine spatial planning: An idea whose time has come. In *Offshore Energy and Marine Spatial Planning* (1st ed., Vol. 1, pp. 6–17). Routledge. https://doi.org/10.4324/9781315666877

Elvin, S. S., & Fraser, G. S. (2012). advancing a national strategic environmental assessment for the canadian offshore oil and gas industry with special emphasis on cumulative effects. *Journal of Environmental Assessment Policy and Management*, *14*(3), 1–37. JSTOR.

Engås, A., Løkkeborg, S., Ona, E., & Soldal, A. V. (1996). Effects of seismic shooting on local abundance and catch rates of cod ((Gadus morhua) and haddock)(Melanogrammus aeglefinus). *Canadian Journal of Fisheries and Aquatic Sciences*, *53*(10), 2238–2249. https://doi.org/10.1139/f96-177

Fidler, C., & Noble, B. (2012). Advancing strategic environmental assessment in the offshore oil and gas sector: Lessons from Norway, Canada, and the United Kingdom. *Environmental Impact Assessment Review*, *34*(Complete), 12–21. https://doi.org/10.1016/j.eiar.2011.11.004

Fraser, G. S. (2014). Impacts of Offshore Oil and Gas Development on Marine Wildlife Resources. In *In Peak Oil, Economic Growth, and Wildlife Conservation* (pp. 191–217). Springer New York. https://doi.org/10.1007/978-1-4939-1954-3_10

George, S. (2023, August 4). *New oil and gas licences putting marine protected habitats at risk, PM warned*. Edie.Net. https://www.edie.net/new-oil-and-gas-licences-putting-marine-protected-habitats-at-risk-pm-warned/

Gjerdrum, C., Ronconi, R. A., Turner, K. L., & Hamer, T. E. (2021). Bird strandings and bright lights at coastal and offshore industrial sites in Atlantic Canada. *Avian Conservation and Ecology*, *16*(1). https://doi.org/10.5751/ace-01860-160122

Gordon, G., Paterson, J., & Üşenmez, E. (Eds.). (2014). *Oil and gas law: Current practice and emerging trends* (Second edition). Dundee University Press.

Gordon, G., Paterson, J., & Üşenmez, E. (Eds.). (2018). *UK oil and gas law: Current practice and emerging trends* (Third edition). Edinburgh University Press.

Harrison, J. (2021). *Strictly Protected Marine Protected Areas: International Policy and National Practice* (Briefing No. 5; Saving Our Seas through Law Policy Brief Series). University of Edinburgh. https://www.law.ed.ac.uk/sites/default/files/2021-04/Marine%20Briefing%205%20%28updated%29%20-%20ACC.pdf

Hopkins, C. R., Bailey, D. M., & Potts, T. (2018). Navigating future uncertainty in marine protected area governance: Lessons from the Scottish MPA network. *Estuarine, Coastal and Shelf Science*, *207*, 303–311. https://doi.org/10.1016/j.ecss.2018.04.020

Horta E Costa, B., Claudet, J., Franco, G., Erzini, K., Caro, A., & Gonçalves, E. J. (2016). A regulation-based classification system for Marine Protected Areas (MPAs). *Marine Policy*, *72*, 192–198. https://doi.org/10.1016/j.marpol.2016.06.021

IEA. (2021). *Net Zero by 2050 – Analysis—IEA*. https://www.iea.org/reports/net-zero-by-2050

Kapoor, A., Fraser, G. S., & Carter, A. (2021a). Marine conservation versus offshore oil and gas extraction: Reconciling an intensifying dilemma in Atlantic Canada. *The Extractive Industries and Society*, *8*(4), 100978. https://doi.org/10.1016/j.exis.2021.100978

https://doi.org/10.1016/j.exis.2021.100978

Kapoor, A., Fraser, G. S., Carter, A. V., & Brooks, D. (2021). Overcoming Divisive Strategic Environmental Assessments for Offshore Oil and Gas in Nova Scotia, Canada. *Journal of Environmental Assessment Policy and Management*, *23*(01n02), 2250012. https://doi.org/10.1142/S1464333222500120

Kark, S., Brokovich, E., Mazor, T., & Levin, N. (2015). Emerging conservation challenges and prospects in an era of offshore hydrocarbon exploration and exploitation. *Conservation Biology*, *29*(6), 1573–1585. https://doi.org/10.1111/cobi.12562

King, N., & Brooks, J. M. (2017). *Template Analysis for Business and Management Students*. SAGE Publications Ltd. https://doi.org/10.4135/9781473983304

Knaap, I. van der, Reubens, J., Thomas, L., Ainslie, M. A., Winter, H. V., Hubert, J., Martin, B., & Slabbekoorn, H. (2021). Effects of a seismic survey on movement of free-ranging Atlantic cod. *Current Biology*, *31*(7), 1555-1562.e4. https://doi.org/10.1016/j.cub.2021.01.050

Labour Party. (2024). *Change Labour Party Manifesto 2024*. Labour Party. https://labour.org.uk/wp-content/uploads/2024/06/Labour-Party-manifesto-2024.pdf

Lamorgese, L., Geneletti, D., & Partidario, M. R. (2015). Reviewing Strategic Environmental Assessment Practice in the Oil and Gas Sector. *Journal of Environmental Assessment Policy and Management*, *17*(2), 1–26. JSTOR.

Macpherson, E., Mortiaux, R., & Jorgensen, E. (2024). Scale-sensitive marine law and policy design: Towards ecosystem-based management across spatial and temporal scales. *WIREs Energy and Environment*, *13*(5), e537. https://doi.org/10.1002/wene.537

Maestro, M., Pérez-Cayeiro, M. L., Chica-Ruiz, J. A., & Reyes, H. (2019). Marine protected areas in the 21st century: Current situation and trends. *Ocean & Coastal Management*, *171*, 28–36. https://doi.org/10.1016/j.ocecoaman.2019.01.008

Marsden, S. (1998). Importance of context in measuring the effectiveness of strategic environmental assessment. *Impact Assessment and Project Appraisal*, *16*(4), 255–266. https://doi.org/10.1080/14615517.1998.10600136

Martin, B. (n.d.). *Clocean Podcast—Wta'n: Our living ocean* (Marine Spatial Planning-A plan for the future) [Audio podcast episode]. https://open.spotify.com/episode/3qhnjsXhFiCWucF3aWXggm?si=008b0e53246043ba

Montevecchi, W. (2006). Influences of Artificial Light on Marine Birds. In C. Rich & T. Longcore (Eds.), *Ecological Consequences of Artificial Night Lighting* (pp. 94–113). Island Press.

NatureScot. (n.d.). *Frequently Asked Questions (FAQs) | NatureScot*. Retrieved July 21, 2025, from https://www.nature.scot/doc/frequently-asked-questions-faqs

NatureScot. (2023, August 2). *Scotland's Marine Protected Area network | NatureScot*. Nature.Scot. https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/marine-protected-areas/scotlands-marine-protected-area-network

North Sea Transition Authority. (n.d.-a). *Data—Seismic*. Retrieved July 21, 2025, from https://www.nstauthority.co.uk/data-and-insights/data/themes/seismic/

North Sea Transition Authority. (n.d.-b). *Licencing*. Retrieved July 26, 2025, from https://www.nstauthority.co.uk/regulatory-information/licensing-and-consents/licensing/

North Sea Transition Authority. (2025). *NSTA Overview 2025*. https://www.nstauthority.co.uk/news-publications/nsta-overview-2025/

Oceana. (2023). New oil and gas licences: 22% of overlap with protected areas. *Oceana UK*. https://uk.oceana.org/press-releases/new-oil-and-gas-licences-22-of-overlap-with-protected-areas/

Oceana. (2025). UK Government in court over marine impacts of oil & gas licences. *Oceana UK*. https://uk.oceana.org/press-releases/uk-government-in-court-over-marine-impacts-of-oil-gas-licences/

Pendleton, L. H., Ahmadia, G. N., Browman, H. I., Thurstan, R. H., Kaplan, D. M., & Bartolino, V. (2018). Debating the effectiveness of marine protected areas. *ICES Journal of Marine Science*, *75*(3), 1156–1159. https://doi.org/10.1093/icesjms/fsx154

Reimer, J. M., Devillers, R., Zuercher, R., Groulx, P., Ban, N. C., & Claudet, J. (2023). The Marine Spatial Planning Index: A tool to guide and assess marine spatial planning. *Npj Ocean Sustainability*, *2*(1), 15. https://doi.org/10.1038/s44183-023-00022-w

Salomonsz, M., Perraudeau, M., & Harrison, J. (2019). *The Establishment and Expansion of the Scottish Marine Protected Area Network* (Briefing No. 1; Saving Our Seas through Law Policy Brief Series). University of Edinburgh. https://www.law.ed.ac.uk/sites/default/files/2020-09/Marine%20Briefing%201%20(final)_3.pdf

Scottish Environmental LINK. (2024, August 26). Marine protected area management—FAQs. *Scotlink*. https://www.scotlink.org/marine-protected-area-management-faqs/

Scottish Government. (2011). *Marine Protected Areas in Scotland"s Seas: Guidelines on the selection of MPAs and development of the MPA network*. National Records of Scotland. https://webarchive.nrscotland.gov.uk/

Scottish Government. (2012). *Report to the Scottish Parliament on Progress to Identify a Scottish Network of Marine Protected Areas*. https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2012/12/report-scottish-parliament-progress-identify-scottish-network-marine-protected-areas/documents/00410956-pdf/00410956-pdf/govscot%3Adocument/00410956.pdf

Scottish Government. (2015). *Scotland's National Marine Plan*. https://www.gov.scot/publications/scotlands-national-marine-plan/

Scottish Government. (2024a). *Marine Protected Area Network—2024 Report to the Scottish Parliament*. https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2024/12/marine-protected-area-network-2024-report-scottish-parliament/documents/marine-protected-area-network-2024-report-scottish-parliament/marine-protected-area-network-2024-report-scottish-parliament/govscot%3Adocument/marine-protected-area-network-2024-report-scottish-parliament.pdf

Scottish Government. (2024b). *Marine Protected Areas (MPAs)*. https://www.gov.scot/policies/marine-environment/marine-protected-areas/

Shapovalova, D. (2024). Climate change and oil and gas production regulation: An impossible reconciliation? *Journal of International Economic Law*, *26*(4), 817–835. https://doi.org/10.1093/jiel/jgad032

Shapovalova, D. (2025). The Legal Significance and Practical Implications of the *Finch* Decision of the UK Supreme Court – A New Hope for Climate or Business as Usual? *Journal of Environmental Law*. https://doi.org/10.1093/jel/eqaf014

Shrimpton, M., De Jonge, B., McIsaac, L., & Cadigan, S. (2003). *Atlantic Canada offshore petroleum exploration rights permitting study*. https://www.osti.gov/etdeweb/biblio/20415031

Slater, A.-M., & Claydon, J. (2020). Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies. *Environmental Law Review*, *22*(2), 85–107. https://doi.org/10.1177/1461452920927340

Stinchcombe, K., & Gibson, R. B. (2001). STRATEGIC ENVIRONMENTAL ASSESSMENT AS A MEANS OF PURSUING SUSTAINABILITY: TEN ADVANTAGES AND TEN CHALLENGES. *Journal of Environmental Assessment Policy and Management*, *03*(03), 343–372. https://doi.org/10.1142/S1464333201000741

Syal, R., & O'Donnell, E. (2023, November 20). *More than a quarter of newly approved oil and gas blocks fall in marine protected areas*. Unearthed. https://unearthed.greenpeace.org/2023/11/20/more-than-a-quarter-of-newly-approved-oil-and-gas-blocks-fall-in-marine-protected-areas/

Takeshita, R., Bursian, S. J., Colegrove, K. M., Collier, T. K., Deak, K., Dean, K. M., De Guise, S., DiPinto, L. M., Elferink, C. J., Esbaugh, A. J., Griffitt, R. J., Grosell, M., Harr, K. E., Incardona, J. P., Kwok, R. K., Lipton, J., Mitchelmore, C. L., Morris, J. M., Peters, E. S., … Hall, A. J. (2021). A review of the toxicology of oil in vertebrates: What we have learned following the Deepwater Horizon oil spill. *Journal of Toxicology and Environmental Health, Part B*, *24*(8), 355–394. https://doi.org/10.1080/10937404.2021.1975182

Techera, E. J., & Winter, G. (Eds.). (2019). *Marine Extremes: Ocean Safety, Marine Health and the Blue Economy* (1st ed.). Routledge. https://doi.org/10.4324/9780429491023

UK Government. (n.d.-a). *About us-OPRED*. GOV.UK. Retrieved July 21, 2025, from https://www.gov.uk/government/organisations/offshore-petroleum-regulator-for-environment-and-decommissioning/about

UK Government. (n.d.-b). *Devolution and Scotland | UK and Scottish governments*. Delivering for Scotland. Retrieved April 5, 2024, from https://www.deliveringforscotland.gov.uk/scotland-in-the-uk/devolution/

UK Government. (n.d.-c). *Explanatory Notes to Marine (Scotland) Act 2010*. King's Printer for Scotland. Retrieved July 21, 2025, from https://www.legislation.gov.uk/asp/2010/5/notes

UK Government. (n.d.-d). *Marine Protected Areas (MPAs)*. GOV.UK. Retrieved July 21, 2025, from https://www.gov.uk/guidance/marine-protected-areas-mpas

UK Government. (n.d.-e). *Offshore Energy SEA Steering Group*. GOV.UK. Retrieved July 21, 2025, from https://www.gov.uk/government/groups/offshore-energy-sea-steering-group

UK Government. (n.d.-f). *Petroleum Act 1998*. Statute Law Database. Retrieved July 26, 2025, from https://www.legislation.gov.uk/ukpga/1998/17/contents

UK Government. (n.d.-g). *The Conservation of Habitats and Species Regulations 2017*. Statute Law Database. Retrieved July 21, 2025, from https://www.legislation.gov.uk/uksi/2017/1012/regulation/5

UK Government. (2022). *UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4) Report*. https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4

UK Government. (2024). *33rd Seaward Licensing Round Appropriate Assessment*. https://www.gov.uk/government/consultations/33rd-seaward-licensing-round-appropriate-assessment

Uplift. (2024). *Award of oil and gas licences under the 33rd licensing round—Research brief from Uplift (Publication)*. https://www.upliftuk.org/post/award-of-oil-and-gas-licences-under-the-33rd-licensing-round

Uplift, & Oceana. (2023). *In Deep Water: Exposing the hidden impacts of oil and gas on the UK's seas*. https://www.indeepwater.co.uk/

Vespa, M., Sinclair, A. J., Boerchers, M., & Gibson, R. (2017). New Process, Same Doubts: Participants' Perceptions of Strategic Environmental Assessment in Western Newfoundland. *Journal of Environmental Assessment Policy and Management*, *19*(01), 1750004. https://doi.org/10.1142/S1464333217500041

Vilardo, C., La Rovere, E. L., Evora, J. E. M., & Montaño, M. (2020). Lost at SEA? Environmental assessment and offshore oil and gas planning in Brazil. *Impact Assessment and Project Appraisal*, *38*(3), 261–268. https://doi.org/10.1080/14615517.2020.1720378

Walton, P., O'Brien, D., Smart, J., Burns, F., Basset, D., BradferLawrence, T., Foster, S., James, B. D., Mancini, F., Mordue, S., Pakeman, R. J., Pescott, O. L., Simkin, J., Stanbury, A. J., & Towers, M. (2023). *State of Nature Scotland 2023, the State of Nature Partnership*. State of Nature. https://stateofnature.org.uk/

Weilgart, L. S. (2007). The impacts of anthropogenic ocean noise on cetaceans and implications for management. *Canadian Journal of Zoology*, *85*(11), 1091–1116. https://doi.org/10.1139/Z07-101

Wiese, F. K., Montevecchi, W. A., & Linke, J. (2001). Seabirds at Risk around Offshore Oil Platforms in the North-west Atlantic. *Marine Pollution Bulletin*, *42*(12).

Yates, K. L., & Bradshaw, C. J. A. (Eds.). (2018). *Offshore Energy and Marine Spatial Planning* (1st ed.). Routledge. https://doi.org/10.4324/9781315666877

Appendix

Appendix 1. Interviewee questions

Perez Guzman, Fraser, Carter, Ellis 2024

Offshore oil exploratory drilling: leasing decisions and marine protected areas (MPAs)

Questions for interviewees for *primary regulator* involved in offshore oil and gas (petroleum) licensing, marine protected areas, marine spatial planning

1. **Interviewee's role or context**

2. **Please describe the offshore petroleum licensing rounds process or steps, in terms of…**
   - What are the criteria used to decide to place (marine) blocks for offshore petroleum licensing rounds?
   - Is there community (all stakeholder, including federal agencies) consultation for offshore petroleum licensing rounds? At what point does this occur in the cycle? With respect to government agencies (federal or state), please describe the consultation process.
   - How are the stakeholders informed about the consultation?
   - When does the consultation occur (before, during or after the bidding)?
   - Were there instances in the offshore petroleum licensing rounds process that were particularly contentious or problematic?
   - Were there instances where the blocks identified involved MPAs or areas near MPAs?
     - Can you tell me about it? When did this occur? (names, locations of MPAs)
     - Were there special mitigation measures identified (e.g., buffer zones)? If yes, please describe the process of how mitigation was determined.
     - Was there anything different about those instances compared to offshore petroleum licensing rounds processes that did not consider MPAs?
     - In instances with MPAs, if communities were consulted: Do you recall the outcome of the consultation(s)?

Are there changes you would like to see made for the offshore petroleum licensing rounds process in your region?

What am I not asking, what have we not talked about that might be of importance?

Who else should I talk with to better understand this issue?

- Who might offer another important perspective?

Questions for interviewees for *community members* involved in offshore oil and gas, marine protected areas, marine spatial planning

Offshore oil and gas licensing rounds and Offshore petroleum licensing rounds are interchangeable

Interviewee's role or context

- Please tell me your name, your organization and your role in the organization.

How would you describe MPAs (or any areas with conservation designations) and marine spatial planning efforts in the UK in terms of…

- Experience with the establishment of, or management of, MPAs in general.
- Experience with MSP (or SEA) efforts. If yes, describe the process and how you/your organization has been involved.
- What branch of government is undertaking these efforts (MSP/SEAs)? When was MSP/SEAs initiated? Is MSP/SEAs still active?
- Whether MSP/SEAs have been linked to ecosystem-based management.
- What are the impacts of oil and gas?

Describe the types of offshore oil and gas activities in the UK

- The types of involvement that you or your organization has participated in for offshore oil and gas in general.
- How long is the involvement with offshore oil and gas of the organization?
- What types of involvement?
- Do different members (if organization) participate in different stages of oil development (e.g., leasing vs EAs)?

Describe the licensing processes in the UK, then follow-up with

- Experience with participation in offshore oil and gas licensing rounds process specifically.
- Were public consultations undertaken for leasing decisions?

- What was the timeline of your involvement (i.e., during bidding process; or earlier through MSP or SEA)?
- How much time was provided to respond to the proposed leases?
- Is there link between MSP or SEA to the offshore petroleum licensing rounds process?
- Were there instances where the leasing involved MPAs or areas near MPAs?
    - Can you tell me about it? When did this occur? (names, locations of MPAs)
    - Was there anything different about those instances compared to licensing rounds that did not consider MPAs?
    - Do you recall the outcome of the consultation?

Are there changes you would like to see made for the offshore oil and gas licensing rounds process in the UK?

What am I not asking, what have we not talked about that might be of importance?

Who else should I talk with to better understand this issue?

- Who might offer another important perspective?

Questions for interviewees for *government officials* (not primary regulator) involved in offshore oil, marine protected areas, marine spatial planning

Offshore oil and gas licensing rounds and Offshore petroleum licensing rounds are interchangeable

Interviewee's role or context

- Please tell me your name, your organization and your role in the organization.

How would you describe MPAs, conservation areas (or other conservation designations), strategic environmental assessments (SEAs) and marine spatial planning efforts in the UK in terms of…

- Experience with the establishment of, or management of, MPAs in general.
- Experience with MSP (or SEA) efforts. If yes, describe the process and how you/your organization has been involved.
- What branch of government is undertaking these efforts (MSP/SEAs)? When were SEAs initiated? How often are SEAs undertaken? What criteria are used to define geographic scope?
- Whether SEAs have been linked to ecosystem-based management
- What are the impacts of oil and gas?

Describe the types of offshore oil and gas activities in the UK for the past twenty years. How have strategic environmental assessments SEAs/MSPs linked to the offshore oil and gas licensing rounds process in the UK?

- Experience with O&G sector strategic environmental assessments (SEAs)
- Do these broader planning processes identify areas that would exclude oil and gas development?

Please describe the offshore petroleum licensing rounds process or steps in the UK, in terms of…

- How has the offshore petroleum licensing rounds process changed over time?
- How might the offshore petroleum licensing rounds process change in the future?
- What are the criteria used to decide to place (marine) blocks for offshore petroleum licensing rounds?
- What is the role of your department/agency in the offshore petroleum licensing rounds?
- Is there community (all stakeholder, including federal agencies) consultation for offshore petroleum licensing rounds? At what point does this occur in the cycle? With respect to government agencies (federal or state), please describe the consultation process.
- How are the stakeholders informed about the consultation?
- When does the consultation occur (before, during or after the bidding?
- Were there instances in the offshore petroleum licensing rounds process that were particularly contentious or problematic?
- Were there instances where the blocks identified involved MPAs or areas near MPAs?
    - Can you tell me about it? When did this occur? (names, locations of MPAs)
    - Were there special mitigation measures identified? If yes, please describe the process of how mitigation was determined.
    - Was there anything different about those instances compared to offshore petroleum licensing rounds processes that did not consider MPAs?
    - In instances with MPAs, if communities were consulted: Do you recall the outcome of the consultation(s)?

Are there changes you would like to see made for the offshore petroleum licensing rounds process in the UK?

What am I not asking, what have we not talked about that might be of importance?

Who else should I talk with to better understand this issue?

- Who might offer another important perspective?

Questions for interviewees for *primary regulator* involved in offshore oil and gas, marine protected areas, marine spatial planning

Offshore oil and gas licensing rounds and Offshore petroleum licensing rounds are interchangeable

Interviewee's role or context

- Please tell me your name, your organization and your role in the organization.

How would you describe MPAs, conservation areas (or similar conservation designations), strategic environmental assessments (SEAs) and marine spatial planning efforts in the UK in terms of…

- Experience with the establishment of, or management of, MPAs in general.
- Experience with MSP (or SEA) efforts. If yes, describe the process and how you/your organization has been involved.
- What branch of government is undertaking these efforts (MSP/SEAs)? When were SEAs initiated? How often are SEAs undertaken? What criteria are used to define geographic scope?
- Whether SEAs have been linked to ecosystem-based management
- What are the impacts of oil and gas?

Describe the types of offshore oil and gas activities in the UK for the past twenty years. How have strategic environmental assessments SEAs/MSPs linked to the offshore oil and gas licensing rounds process in the UK?

- Experience with O&G sector strategic environmental assessments (SEAs)
- Do these broader planning processes identify areas that would exclude oil and gas development?

Please describe the offshore petroleum licensing rounds process or steps in the UK, in terms of…

- How has the offshore petroleum licensing rounds process changed over time?
- How might the offshore petroleum licensing rounds process change in the future?
- What are the criteria used to decide to place (marine) blocks for offshore petroleum licensing rounds?
- What is the role of your department/agency in the offshore petroleum licensing rounds?
- Is there community (all stakeholder, including federal agencies) consultation for offshore petroleum licensing rounds? At what point does this occur in the cycle? With respect to government agencies (federal or state), please describe the consultation process.

- How are the stakeholders informed about the consultation?
- When does the consultation occur (before, during or after the bidding?
- Were there instances in the offshore petroleum licensing rounds process that were particularly contentious or problematic?
- Were there instances where the blocks identified involved MPAs or areas near MPAs?
    - Can you tell me about it? When did this occur? (names, locations of MPAs)
    - Were there special mitigation measures identified? If yes, please describe the process of how mitigation was determined.
    - Was there anything different about those instances compared to offshore petroleum licensing rounds processes that did not consider MPAs?
    - In instances with MPAs, if communities were consulted: Do you recall the outcome of the consultation(s)?

Are there changes you would like to see made for the offshore petroleum licensing rounds process in the UK?

What am I not asking, what have we not talked about that might be of importance?

Who else should I talk with to better understand this issue?

- Who might offer another important perspective?