CNR International

NINIAN HUB PROJECT

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REPORT - NINIAN SOUTHERN (NSP) JACKET FOOTINGS DECOMMISSIONING ENVIRONMENTAL SCOPING REPORT

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ABBREVIATIONS

Abbreviation	Description
Al	Aluminium
As	Arsenic
Ba	Barium
BAP	(UK) Biodiversity Action Plan
BAC	Background Assessment Concentration
BC	Background Concentration
Cd	Cadmium
CGBS	Concrete Gravity Based Structure
CIZ	Chemical Impact Zone
cm	Centimetre
CNRI	CNR International (U.K.) Limited
CoP	Cessation of Production
CP	Cuttings Pile
Cr	Chromium
Cu	Copper
DP(s)	Decommissioning Programme(s)
EBS	Environmental Baseline Survey
EMODnet	European Marine Observation and Data Network
ENVID	ENVironmental and socio-economic impact Identification (workshop)
EPS	European Protected Species
ERL	Effect Range Low
ERM	Effect Range Median
ESAS	European Seabirds at Sea
EU	European Union

Abbreviation	Description
Fe	Iron
GC-MS	Gas Chromatography-Mass Spectrometry
Hg	Mercury
ICES	International Council for the Exploration of the Sea
ICP MS	Inductively Coupled Plasma Mass Spectrometry
JNCC	Joint Nature Conservation Committee
km	Kilometre
km^2	Square Kilometre
LAT	Lowest Astronomical Tide
LTOBMs	Low Toxicity Oil Based Muds
m	Metre
mm	Millimetre
m^2	Square metre
MPA	Marine Protected Areas
$mg.kg^{-1}$	Milligrams per Kilogram
NCMPA	Nature Conservation Marine Protected Areas
NCP	Ninian Central Platform
Ni	Nickle
NNP	Ninian Northern Platform (decommissioned)
NNS	Northern North Sea
NOAA	National Oceanic and Atmospheric Administration
NSP	Ninian Southern Platform
OBM	Oil Based Mud
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSEA	Offshore Energy Strategic Environmental Assessment

Abbreviation	Description
OSPAR	Oslo Paris Convention
PAHs	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PMF	Priority Marine Feature
PSA	Particle Size Analysis
P&A	Plug and Abandon
SAC	Special Areas of Conservation
SACFOR	Superabundant, Abundant, Common, Frequent, Occasional, Rare (a method of recording the abundance of marine benthic flora and fauna)
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SPA	Special Protection Areas
SSS	Side-Scan Sonar
te	Tonnes
THC	Total Hydrocarbon Content
TOC	Total Organic Carbon
TOM	Total Organic Material
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UCM	Unresolved Complex Mixtures
V	Vanadium
WROV	Workclass Remotely Operated Vehicle
Zn	Zinc
%	Percent
“	inch
<	Less than
>	More than

1. INTRODUCTION

1.1. Document Purpose

This scoping report has been prepared as part of the planning and consents process for the decommissioning of the Ninian Southern Platform (NSP) lower jacket and footings and to invite stakeholders to feedback on the proposed activities where appropriate.

CNRI recognise the importance of successful engagement with stakeholders during the decommissioning of NSP, which is supported by the sharing of this scoping report. Stakeholder engagement will continue throughout the decommissioning planning activities to ensure that any concerns and opportunities have been considered during the assessment of the proposals.

1.2. Overview

CNR International (U.K.) Limited (CNRI) are currently carrying out the Ninian Hub Decommissioning project. The hub consists of three platforms – Ninian Southern, Central and the now decommissioned Northern (NSP, NCP and NNP) – and their associated subsea infrastructure. The hub is in the Ninian Field which is located in the East Shetland basin area of the UK Northern North Sea (NNS) in Blocks 3/3 and 3/8A (Figure 1-1). The field is c.457 km north-north-east of Aberdeen where the water depth is c.140 m.

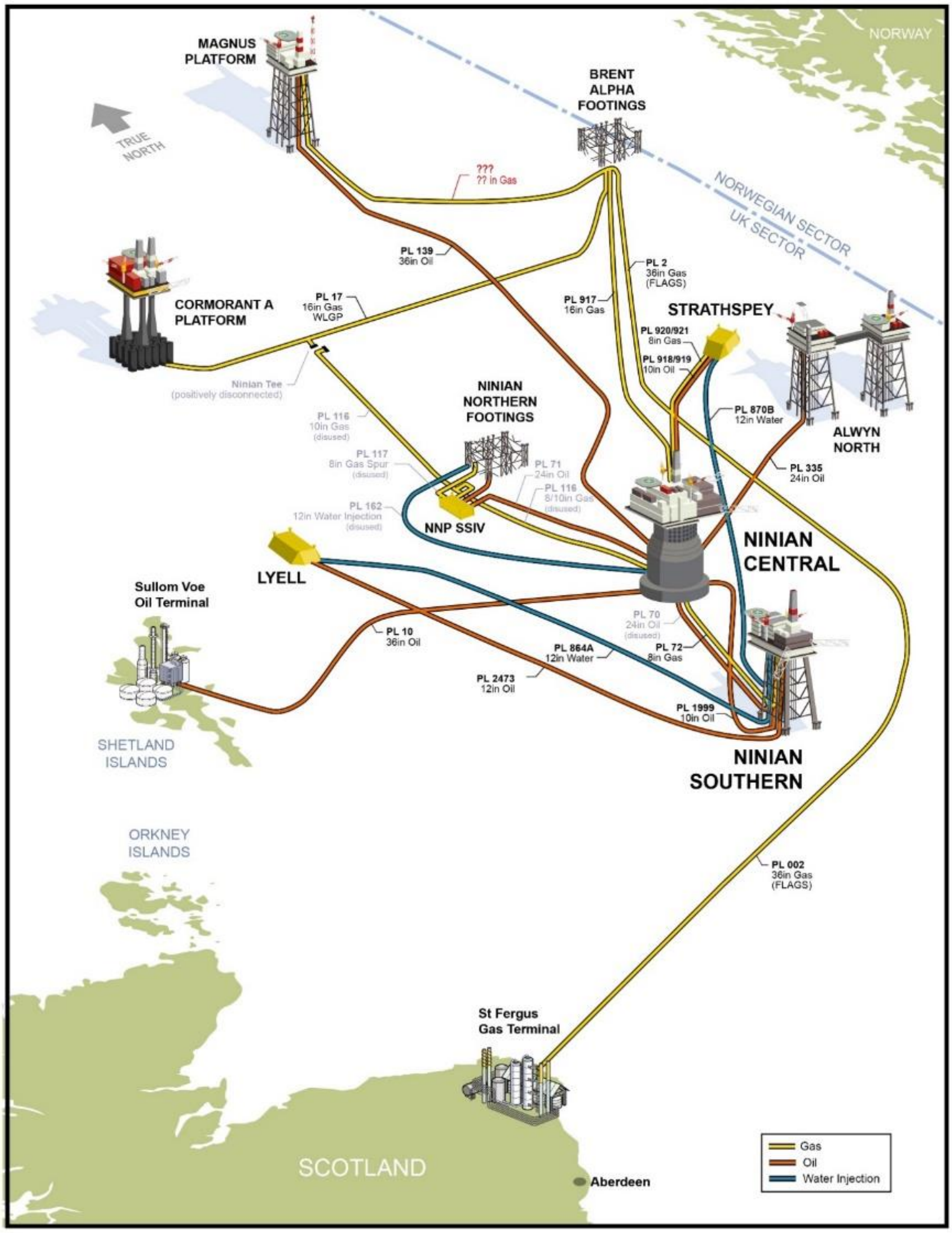

Figure 1-1 Map of the Ninian Infrastructure and Nearby Assets

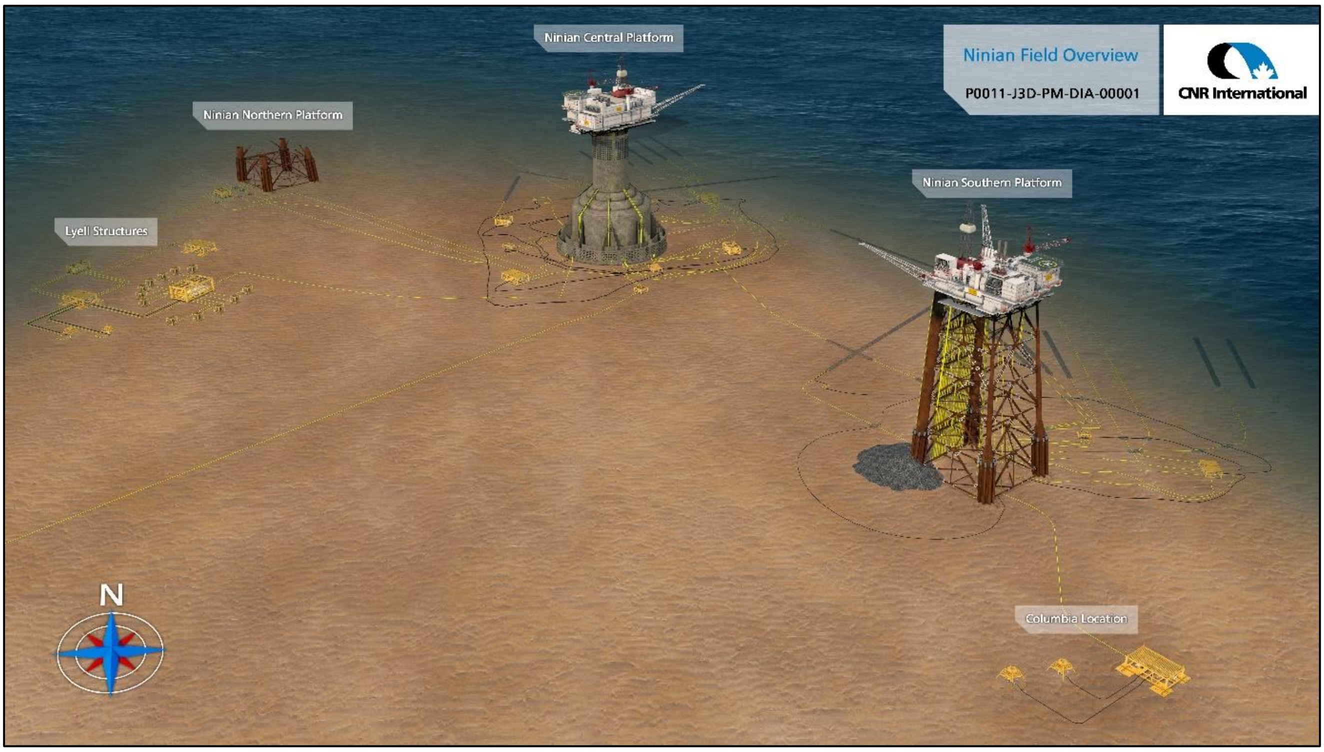

Figure 1-2 Current Status of the Ninian Field

NNP was decommissioned in 2022 (Figure 1-2) and CNRI aim to complete the decommissioning of NSP *c.* 2030. Cessation of Production (CoP) of NSP is expected to take place between December 2024 and December 2025 (CNRI, 2024a).

CNRI intend to submit the following Decommissioning Programmes (DPs) for approval:

- NSP Topsides and Upper Jacket
- NSP Jacket Footings
- NCP Topsides
- NCP Concrete Gravity Based Structure (CGBS)
- Ninian Hub Subsea Decommissioning

2. PROJECT OVERVIEW

2.1. NSP Jacket Footings

The Ninian Field is located in the UK sector of the NNS (Figure 2-1), 25 km from the UK/Norway median line. NSP was installed to develop the southern sector of the Ninian Field via a four-legged steel-piled jacket supporting the topsides. The topsides comprise accommodation, drilling, production, and processing modules which facilitate the production of oil from the platform's 42 production, water injection and drill cuttings reinjection wells and the eventual export of oil to NCP. The NSP jacket footings, including the weight of the piles to -3 m below seabed but excluding marine growth on the jacket structure, weigh 11,780.4 tonnes.

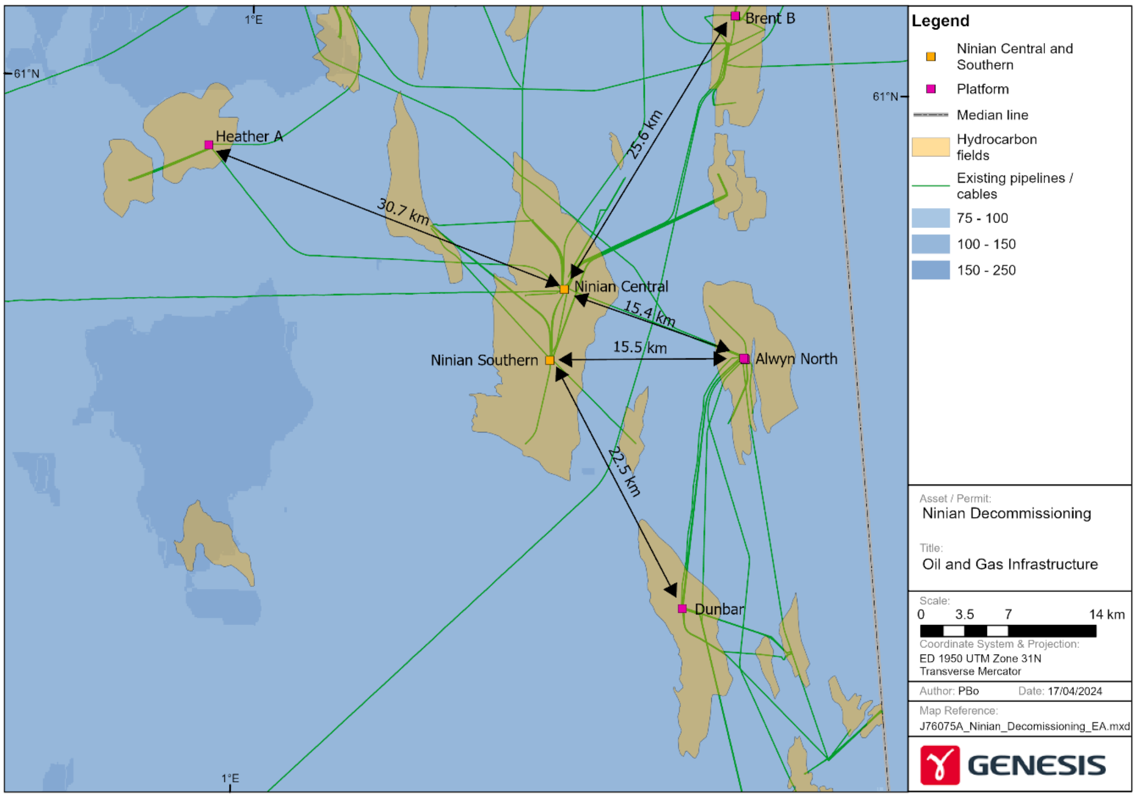

Figure 2-1 Location of the Ninian Field

The pipelines and umbilicals that tie-in to the platform connect with NCP and the Lyell and Columba E subsea fields. Cooled and metered oil is exported to NCP via a 10" pipeline (PL1999) and then sent to Sullom Voe Terminal in Shetland. Gas is imported for fuel from NCP via an 8" pipeline (PL72).

NSP stands in a water depth of 140 m (Figure 2-2). Each leg is secured with 8 piles in pile clusters, giving a total of 32 piles. The piles are grouted into place and penetrate between 37m and 43.5m below seabed. The two jacket legs at the north face are the large pontoon legs (B4 and F4) which were used to originally install the platform. The pontoon legs are completely vertical and have a diameter of 9.2 m along their entire length. The other two legs (B2 and F2) are battered (i.e. the legs are slightly angled) and their diameter increases with depth from 1.8 m at the top to 9.2 m at the bottom.

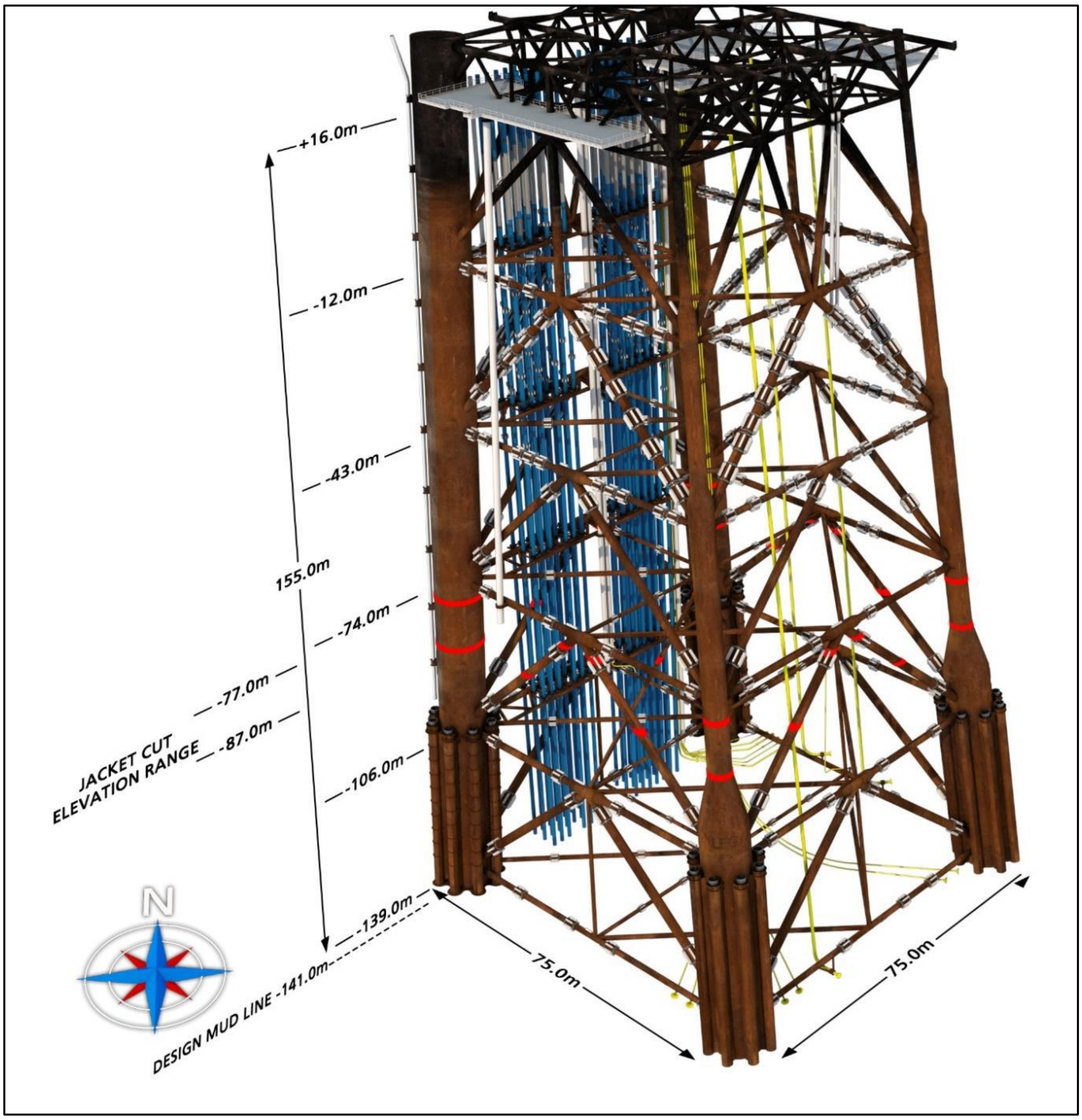

Figure 2-2. The NSP Jacket

During the life of the platform 42 wells were drilled from NSP which include:

- 24 production wells
- 15 water injection wells
- 2 cuttings re-injection wells
- 1 abandoned well

Oil based mud (OBM) was used and discharged with drill cuttings at several of these wells. A proportion of these discharged drill cuttings and drilling muds now exist as a mound on the seabed immediately below the jacket and covers the bottom bracing level of the jacket. The NSP pre-decommissioning environmental survey was used to calculate that the pile has a volume of 39,200 m^3 and an estimated footprint area of 40,190 m^2 (Figure 2-3, CNRI, 2024b). The drill cuttings pile has a maximum height of 17.5 m (Figure 2-4) with the majority of cuttings located under the north-west corner of the platform (leg F4) spreading out evenly in all directions (CNRI, 2024b).

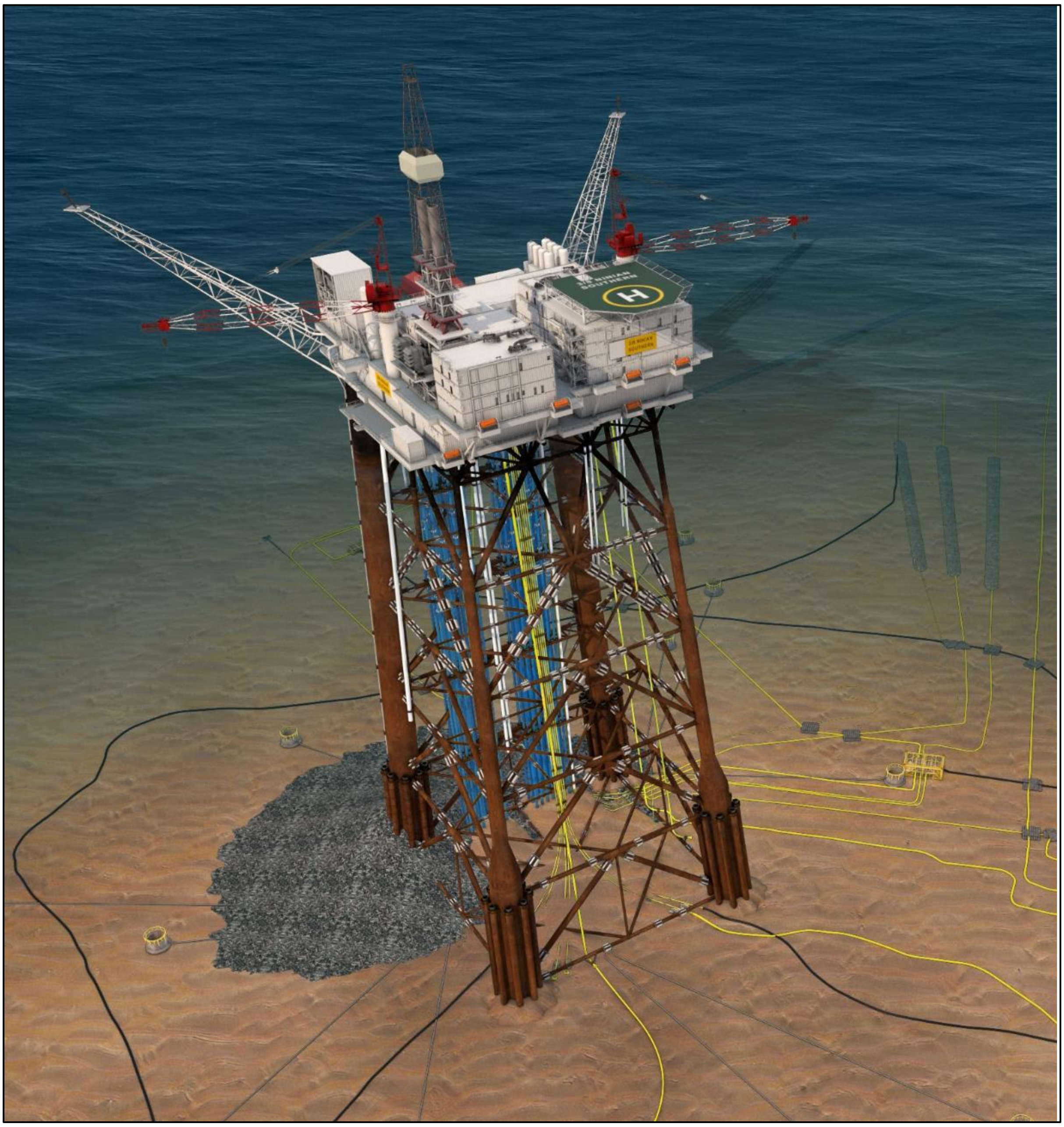

Figure 2-3. The NSP Jacket, Drill Cuttings Pile and Indicative Subsea Infrastructure.

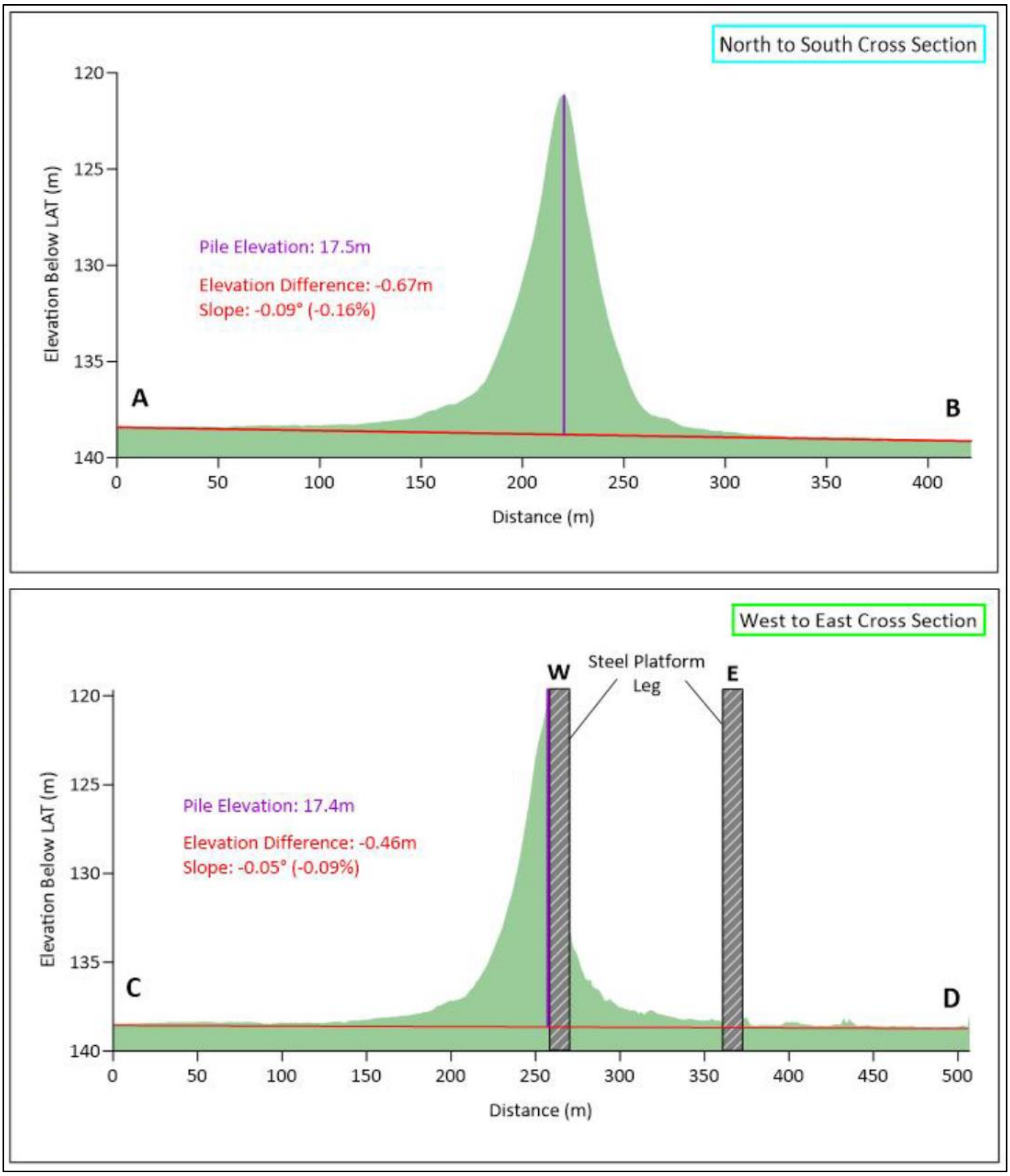

Figure 2-4 NSP Drill Cuttings Pile Cross Section (CNRI, 2024b).

2.2. Proposed Decommissioning Activities

2.2.1. NSP Jacket Footings

The NSP topsides and upper jacket will be removed and returned to shore for reuse, recycling and disposal as appropriate. A separate scoping report has been issued regarding the NSP Topsides and Upper Jacket (CNRI, 2024c) and stakeholder views sought. Where relevant, these have been used to inform the approach outlined in this document.

The cut points for the upper jacket remain to be determined following studies investigating the optimum solution considering the ability to successfully make the cuts whilst maintaining the structural integrity of the sections during removal. The cut height is currently estimated to be between -77 m and –87 m below Lowest Astronomical Tide (LAT) (CNRI, 2024a; Figure 2-2). This in turn will affect the overall height and total weight of the NSP footings.

The starting point for consideration of the decommissioning of the NSP lower jacket and footings is full removal in compliance with normal regulatory requirements. However, because the NSP jacket weighs more than 10,000 te and was installed before 1998, it is a candidate for derogation from the full removal requirement under the provisions of the internationally agreed OSPAR Decision 98/3[1]. Recent guidance from OPRED indicates that for all Derogation Candidates under OSPAR Decision 98/3 on the UKCS, a two stage Comparative Assessment approach will be required, which is intended to develop the intention of the Decision (Paragraph 3a). This approach will require that operators and owners first consider whether full removal is technically feasible and can be executed with acceptable safety risks to personnel. If it is found that full removal of the jacket footings is not possible on technical or safety grounds, then the second stage of the Comparative Assessment must consider alternatives to full removal such that as much of the footings structure is removed and as little of the footings structure as feasible will remain in the marine environment, under a Derogation permit.

The options for the NSP jacket footings will be subject to a formal Comparative Assessment; however, in light of the guidance from OPRED, the possible options for the management of the jacket footings have been through a high-level screening process, which considered variations of:

- Full removal to -3m below mudline
- Patrial removal to mudline
- Partial removal, remove footings to a minimum of –77 m below LAT except for leg F4 so as to leave drill cuttings undisturbed
- Leave in situ

[1] https://www.ospar.org/documents?v=6875

The discussions and justification for the screening out of certain options is presented in CNRI, 2024d. This report also presents the further studies that are to be completed prior to the Comparative Assessment of the options. Note that should these studies conclude that a previously screened out option is technically feasible, such options will be included in the Comparative Assessment of the NSP Jacket Footings.

The technically feasible options for decommissioning are as follows:

- Full removal to -3m below mudline 32 piles cut internally or externally, or as a combination to -3m below the mudline. The drill cuttings pile would be removed or relocated where external cutting and therefore seabed excavation to provide access is required. Footing cut into multiple sections using cold cutting techniques (shears, diamond wire or abrasive water jet) and transported on a barge for onshore dismantling.
- Partial removal to mudline: as above with the pile cut height reduced to the mudline. Rock cover added to the remaining pile stubs.
- Patrial removal, remove footings to a minimum of –77 m below LAT except for leg F4 so as to leave drill cuttings undisturbed
- Leave in situ: the footings remain in situ with the existing drill cuttings pile. The maximum footings height is estimated to be 63 m above the seabed (22 m above pile stick up), which equates to a cut height of –77 m below LAT.

The use of explosives to cut the jackets footings was considered, however this method has been ruled out and as such is not being considered further.

2.2.2. NSP Drill Cuttings Pile

In order to fully or partially remove the jacket footings, the drill cuttings pile will be disturbed. CNRI is therefore considering the different management options available for moving the drill cuttings pile away from the jacket footings before activities to fully or partially remove the jacket footings take place. The options for the management of the drill cuttings pile are:

- Full removal of the drill cuttings pile by suction dredging
    - Separation and treatment of the recovered liquids offshore, transportation and treatment of recovered solids onshore
    - Re-injection of recovered slurry (liquids and solids) downhole into a disused Ninian well (then to be plugged and abandoned).
    - Transportation of recovered slurry (liquids and solids) to shore for separation, treatment and disposal
- Dispersion/redistribution of the cuttings offshore using suction dredging or water-jetting

The drill cuttings pile and the currently known effects on the seabed sediments and fauna are presented in Section 3. The NSP Jacket Footings ENVironmental and socio-economic impact Identification (ENVID) workshop (Section 4) will consider the impacts of planned and unplanned activities on the drill cuttings pile and the seabed.

Figure 2-5 shows the physical extent of the drill cuttings pile around the jacket structure, the sample locations of the 2024 pre-decommissioning environmental survey (CNRI, 2024b) and the area defined as the Chemical Impact Zone (CIZ) on the seabed.

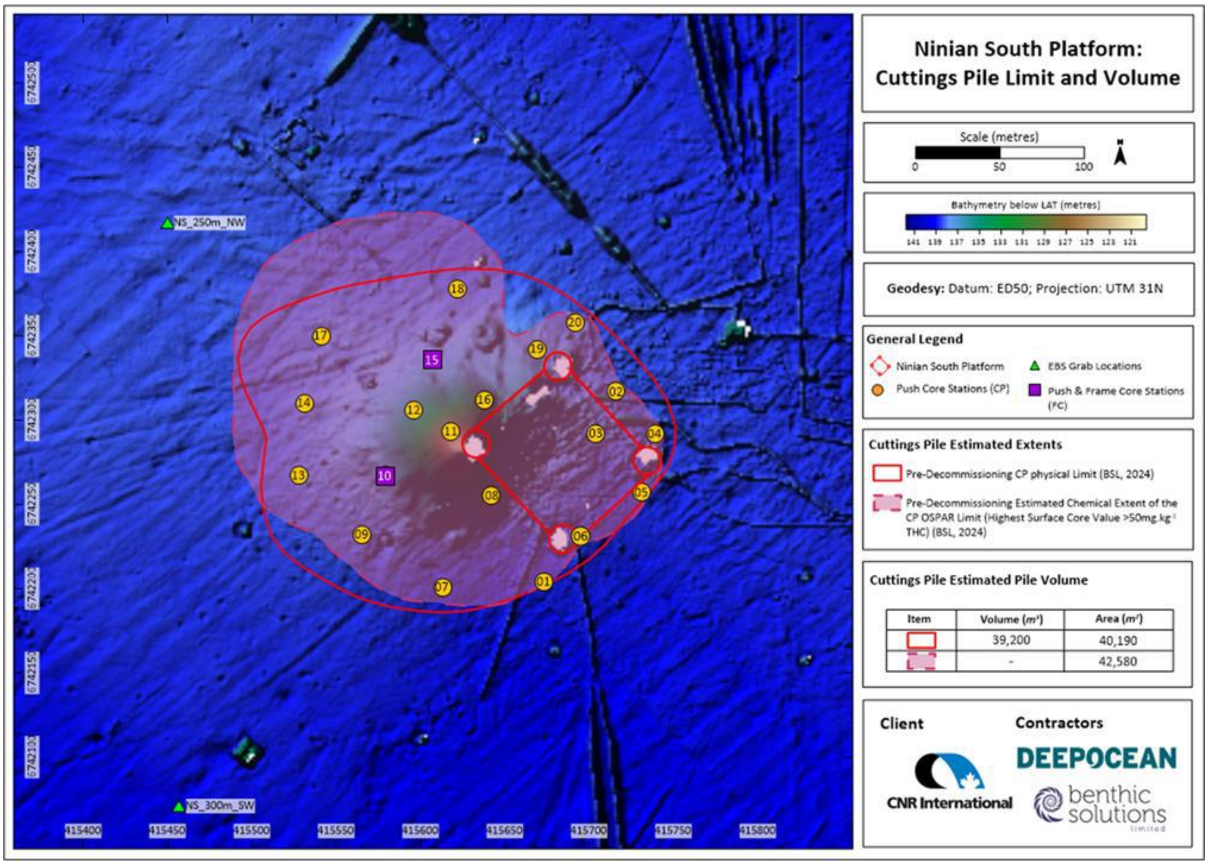

Figure 2-5. NSP Drill Cuttings Pile

2.2.3. Associated Decommissioning Activities

2.2.3.1. Wells

All wells will be plugged and abandoned (P&A) in accordance with current requirements (OEUK, 2022). The conductors are to be recovered to the topsides for disposal onshore, during the well P&A campaign (CNRI, 2024a). These activities will be subject to a separate regulatory approval process and are not discussed further here.

2.2.3.2. Subsea

Upon CoP, all pipelines associated with NSP will be flushed, cleaned and placed into the interim pipeline regime (CNRI, 2024a). Final decommissioning of the pipelines and subsea structures will take place as part of the Ninian Subsea Decommissioning Project and are therefore not addressed as part of this scoping report.

The NSP risers and J-tubes will be disconnected from the topsides prior to topsides removal. Both the risers and umbilicals are attached to the jacket and those sections associated with the upper sections of the jacket will be removed at the designated jacket cut-off elevation. Those sections of risers and J-tubes below the jacket cut depth will be removed with the jacket footings, unless derogation is granted.

3. ENVIRONMENTAL BASELINE

A pre-decommissioning environmental baseline survey was carried out by DeepOcean in December 2023 to characterise the cuttings pile and seabed habitat around the NSP (CNRI, 2024b). The survey took place on the "Deep Vision" survey vessel equipped with a workclass remotely operated vehicle (ROV). Activities included Multibeam Echosounder (MBES) surveying to obtain bathymetric data and a mounted side-scan sonar (SSS) survey of the seabed. Environmental data was collected by obtaining seabed samples using grabs and drill cuttings samples using coring devices.

The survey objectives were as follows:

- Establish the gradients of physical, chemical and biological (P/C/B) perturbation around the platform.
- Identify and quantify any species/features of conservation importance in the vicinity of the platform.
- Determine the physical, chemical and biological characteristics of cuttings piles associated with the respective drill centres in line with OSPAR Recommendation 2006/5, the OLF/NOREG Guidance 2016[2] and OSPAR Guidelines for the Sampling and Analysis of Cuttings Piles (Agreement 2017-03)[3].
- Describe the biological characteristics of cuttings accumulations and surrounding sediment, and at stations >100 m from the platform.
- Determine the location of the OSPAR 50mg.kg-1 THC threshold boundary around cuttings piles, and the rate of oil loss for each.

The results of the NSP Cuttings Pile, Environmental Baseline and Habitat survey (CNRI, 2024b) have been used to supplement the baseline section of this scoping report.

[2] https://www.offshorenorge.no/contentassets/d7c4e49a4a1443d89def8dec143c4c43/norog-guidance-for-drill-cuttings-pile-sampling-2-1-2017-final.pdf
[3] https://www.ospar.org/convention/agreements/page5

3.1. Environmental Receptors

Table 3-1. Environmental Receptors and Descriptions

<table>
<tr><th>Receptor</th><th>Summary Description</th></tr>
<tr><td>Designated Areas</td><td>
A network of Marine Protected Areas (MPAs) is in place to aid the protection of vulnerable and endangered species and habitats through structured legislation and policies. These sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPAs), which were designated in the UK under the EU Nature Directives (prior to January 2021) and are now maintained and designated under the Habitats Regulations for England and Wales, Scotland, and Northern Ireland.

Nature Conservation Marine Protected Areas (NCMPA) are designated under the Marine (Scotland) Act 2010. Figure 3-1 shows that there are no protected areas within the vicinity of NSP. The closest protected area is the Pobie Bank Reef SAC, c. 72 km west.

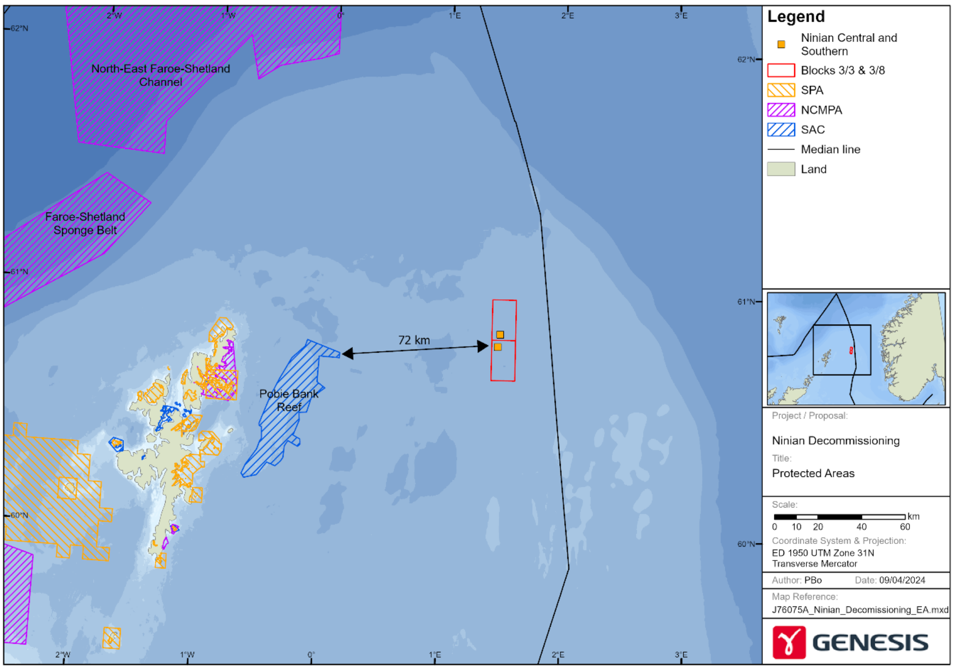

Figure 3-1. Map of Designated Areas around NCP and NSP
</td></tr>
<tr><td>Seabed</td><td>
Seabed sediments comprising mineral and organic particles occur commonly in the form of mud, sand or gravel and are dispersed by processes driven by wind, tides and density driven currents. The distribution of seabed sediments within the North Sea arises from a combination of hydrographic conditions, bathymetry and sediment supply.

The characteristics of the local sediments and the amount of sediment transport within a project area are important factors in determining the potential effects of project activities on the local seabed environment. The component types of sediment are termed “fractions”, generally three are considered: sands, fines (clay and slit), and gravel. The characteristics considered usually include sorting, particle size, total
</td></tr>
</table>

Receptor	Summary Description
	organic matter (TOM), total organic carbon (TOC), total hydrocarbon content (THC), and the sediment metals. All of these are important aspects of the sediment which can affect the biodiversity and function of ecosystems and can be used to monitor changes brought about by natural or anthropogenic processes. The seabed within the vicinity of NSP is predicted to be offshore circalittoral mud (EMODnet, 2023) (Figure 3-3). NSP lies within the OSEA4 area, regional sea 1. The sediment of regional sea 1 is dominated by circalittoral offshore sands, with large areas of finer sediments and patches of coarse sediment (DESNZ, 2022). **Bathymetry** The seabed in the vicinity of NSP has a negligible gradient (<1°) and is relatively featureless. Across the seabed survey area, the water depth was relatively consistent, ranging from 134.8 m LAT to a maximum of 143 m LAT. The primary feature of the seabed was the NSP cuttings pile which extends approximately 17.5 m above the surrounding seabed and had an estimated physical extent of 40,190 m^2. The SSS data indicated that the majority of the seabed had low reflectivity, and as previously noted was featureless. Areas of higher reflectivity were typically associated with hard contacts and infrastructure close to the platform. A total of 128 higher reflectivity contacts were recorded; these were associated with anthropogenic debris, subsea infrastructure, areas of rock dump and concrete mattresses concentrated around the platform. None of these targets were deemed as hazardous or likely to hinder decommissioning operations (CNRI, 2024b). **Seabed Sediments** The low reflectivity of the seabed from the SSS data indicates a sandy mud sediment. Closer to the platforms, the seabed consisted of muddy sediments, and commonly intermixed with drill cuttings, mussel shells (up to 18 cm deep in some areas) and bacterial mats (*Beggiatoa* sp.) which indicate areas of organically enriched and anoxic seabed. A Particle Size Analysis (PSA) was undertaken on the collected sediments from the Environmental Baseline Survey (EBS) and cuttings pile stations. The results of the PSA indicated a difference between the sediments of the EBS and cuttings pile stations. The EBS stations were characterised by a relatively consistent mixed sediment primarily comprised of sands and fines, with limited gravel content. The cuttings pile station sediments differed to the EBS stations and showed a greater degree of interstation variation, with higher contents of fines and gravels, and a low sands content. The difference in sediment compositions reflects the accumulation of drilling material and the presence of live and relic mussel (*Mytilus edulis*) shells on the cuttings pile. The mean particle size of the EBS stations was 0.07 mm, with a mean sands, fines and gravel content of 39.1%, 56.8% and 4.11% respectively. The sediment classification ranged from “Muddy sand” to “Slightly Gravelly Muddy Sand” and “Gravelly Muddy Sand”. The mean particle size of the cuttings pile stations was 0.96 mm, with a mean sands, fines and gravel content of 42.1%, 33.0% and 24.9%

Receptor	Summary Description
	respectively. The sediment classification for the cuttings pile stations was more varied than those for the EBS stations and included sediments such as "Sandy Mud", "Gravelly Mud", "Muddy Sandy Gravel". The difference in sediments can be attributed to the presence of drilling material and shells at the cuttings piles stations. The survey report noted that in some areas, the shell material was sufficient to obstruct the core samples being retrieved. As a result, the WROV had to remove some shells to successfully retrieve the core samples, likely leading to an under-representation of the gravel content in some cuttings pile samples. The differences in the sediments between the cuttings pile and EBS stations was further highlighted in the multi-variate analysis of the data which identified eight sediment "clusters", designated *a-h*. Of these eight clusters, one of the clusters (*a*) accounted for all EBS stations, with cuttings pile stations comprising the remaining seven clusters (CNRI, 2024b). **TOM/TOC** The sediments were analysed to determine the TOM and TOC concentrations of the sediment. The TOC at the EBS stations were moderate (mean 0.60%) and reflect the ambient loading of the wider survey area and was consistent with the reference station (0.63%). The TOC at the cuttings pile stations was higher relative to the EBS stations, with a mean TOC of 1.39%. The TOM was relatively consistent across the EBS stations with a mean TOM content of 2.58%. This is slightly elevated compared to the UKOOA (2001) 95th percentile value (2.04%). The cuttings pile stations were also elevated compared to the EBS stations and the UKOOA (2001) 95th percentile, with a mean TOM content of 6.54%. The increased TOM at CP stations was partly attributed to the decaying organic material from the layer of live/relic *Mytilus* shells present on the surface of the cuttings pile due to marine biofouling on the platform jacket. The TOM at the reference station was also elevated (2.30%) in comparison to the UKOOA (2001) 95th percentile. The TOM and TOC analysis results were compared with data obtained in an earlier pre-decommissioning survey (Fugro ERT, 2012). The results show that TOC increased by 5% between the two surveys and the TOM also increased from an average of 1.66% to an average of 2.58% (CNRI, 2024b). **Sediment Hydrocarbons** Hydrocarbon build up in seabed sediments has significant effects on the benthic ecosystem, affecting microorganism and macrofauna community structure and physiology (Main *et al*., 2015). The pre-decommissioning survey analysed sediment samples to determine the THC. The THC was highly variable across the survey area, however all but four EBS stations fell into a range of 21.8 $mg.kg^{-1}$ and 42.2$mg.kg^{-1}$. All stations had elevated THC levels in comparison to the UKOOA 95th percentile (20.3 $mg.kg^{-1}$). The "chemical impact zone" (CIZ) (the area in which THC exceeded 50$mg.kg^{-1}$) associated with the cuttings pile extended 500 m NW, 300 m SW and 250 m SE (Figure 3-2). This area included all cuttings pile stations and the four EBS stations where THC varied more than the other EBS stations (Figure 3-2). There was a notably strong negative correlation between THC levels and distance from NSP, with concentrations generally decreasing with increasing distance. The highest THC

Receptor	Summary Description
	levels were recorded at CP stations, which ranged between 308 mg.kg^{-1} and 64,203 mg.kg^{-1}, with a mean of 10,029 mg.kg^{-1}. Higher THC content was significantly correlated with higher fines percentage; this is because the increased surface area of the sediment particles increases the potential for absorption of hydrocarbons to occur (CNRI, 2024b).

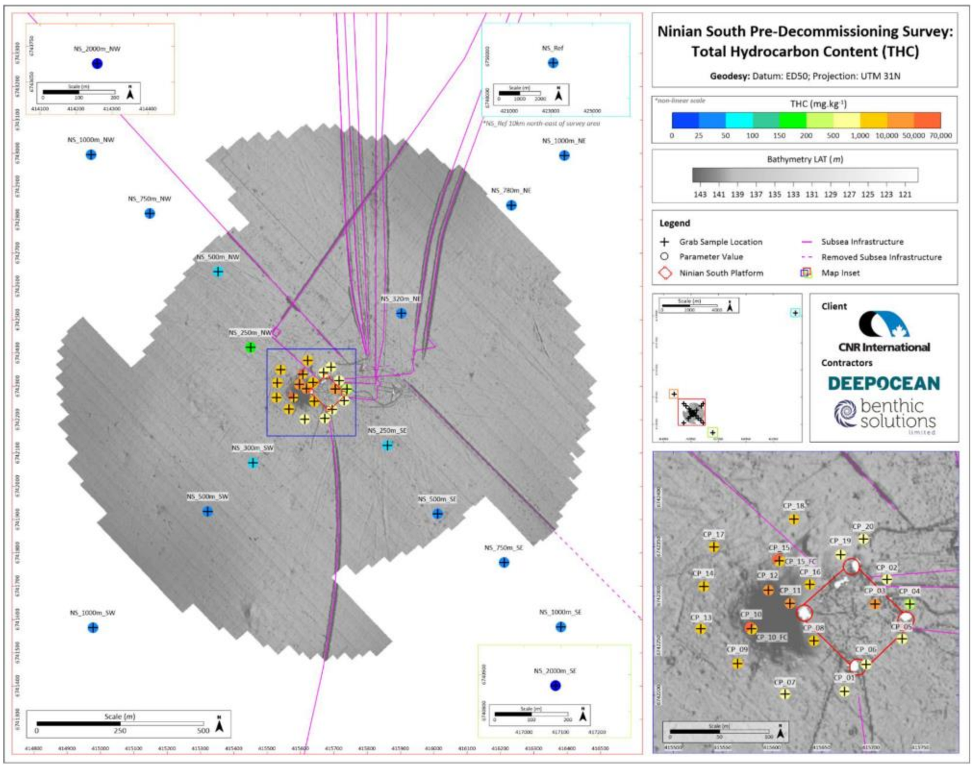

Figure 3-2. Chemical Influence Zone (CIZ) around NSP.

Analysis showed that total n-alkane concentration varied across the site but showed a similar pattern to THC concentration. The n-alkane concentration ranged from 0.55 mg.kg^{-1} to 55,708 mg.kg^{-1}. N-alkane concentrations were higher at CP stations compared with EBS stations, with a mean EBS n-alkane concentration of 0.91 mg.kg^{-1} and a mean CP n-alkane concentration of 3,633 mg.kg^{-1}. All except seven EBS stations were above the UKOOA 95th percentile for the NNS (0.83 mg.kg^{-1}).

The analysis indicated the presence of hydrocarbons consistent with unresolved complex mixtures (UCM). UCM is composed of a complex mixture of weathering- and biodegradation-resistant hydrocarbons. UCM commonly results from terrestrial plant sources but may indicate the presence of natural seeps, shipping discharges or oil and gas activities. The survey identified two "envelopes", one which encompassed the EBS stations out with the area of CIZ, and one which included EBS stations within the CIZ. All stations within the outer envelope displayed a UCM consistent with the presence of biogenic matter, with either no or only trace levels of hydrocarbons attributable to anthropogenic sources. Contrastingly, the stations within the CIZ envelope displayed an intermixed UCM with biogenic material and weathered anthropogenic contaminants of heavy weight mineral oil. Cuttings pile

Receptor	Summary Description
	stations displayed pronounced evidence of UCM, characterised by hydrocarbons associated with Low Toxicity Oil Based Muds (LTOBMs). All cuttings piles stations and station NS_250m_NW showed evidence of mineral oil-based mud (CNRI, 2024b). Polycyclic Aromatic Hydrocarbons (PAHs) were analysed at each station using gas chromatography-mass spectrometry (GC-MS). PAHs are derived from a variety of sources such as combustion of organic material such as forest fires, fossil fuels, and from use of flare stacks. PAHs are often associated with localised drilling activities. The EBS stations displayed low concentrations (mean 0.35mg.kg^{-1}), with only one exceeding the Cefas cAL1 reference value of 0.1mg.kg^{-1}, suggesting a widespread contamination of the area from oil and gas exploration. Only one EBS stations exceeded the UKOOA 95th percentile of 0.8mg.kg^{-1}, correspondingly this station also had a higher THC concentration and traces of drill cuttings contamination. The cuttings pile stations had high PAH concentrations (mean 10.1mg.kg^{-1}). All cuttings pile stations exceeded the UKOOA 95th percentile. The higher levels of PAHs could be attributed to the positioning of the flare stack, and the localised fall out from it. Most of the EBS stations did not exceed any thresholds for normalised PAHs, where data was available. However, nine out of the nineteen PAHs analysed were found to exceed either the OSPAR Background Concentration (BC) or Background Assessment Concentration (BAC) at four of the closest EBS stations to the platform (NS_320m_NE, NS_500m_SW, NS_250m_NW, NS_500m_NW). In contrast, most (eleven of the nineteen) of the normalised PAHs, exceeded their BC and BAC reference thresholds at the cuttings pile stations. Four PAHs (naphthalene, anthracene, pyrene, and, chrysene) showed higher values than their BAC at the majority of cuttings pile stations. Another seven PAHs (phenanthrene, dibenzothiophene, fluoranthene, benzo[a]anthracene, benzo[a]pyrene, indeno[123,cd]pyrene, and benzo[ghi]perylene) exceed their respective BC and BACs at numerous cutting piles stations (CNRI, 2024b). The results of the 2024 survey were directly compared to the results of the 2011 (Fugro, 2012) survey for all but one station, NS_320m_NE. The THC concentrations were found to have increased by 37.1%, with all 2024 stations exceeding the UKOOA 95th percentile, compared to only six out sixteen stations exceeding it in 2011. Generally, the elevated THC values are typically down current of the cuttings pile and platform, indicating that the dominant water current influences contaminant distribution. The UCM increased by 56.1% across both surveys. N-alkanes decreased by 48.1% between the surveys. PAHs remained fairly constant between the two surveys (CNRI, 2024b). **Heavy and trace metal concentrations** Elevated levels of contaminants can affect organisms (flora and fauna) in a variety of ways, ranging from cellular effects in individuals to ecosystem effects resulting from changes in population sizes or even the loss of an entire species (Fleeger et al., 2003). The following metals were analysed using Aqua Regia acid extraction followed by ICP-MS analysis and extraction to determine total sediment metals; aluminium (Al), barium (Ba), arsenic (As), iron (Fe), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), vanadium (V), and zinc (Zn). The

Receptor	Summary Description
	impact of heavy/trace metals on the environment is a complex one depending on a number of factors. Sediment granulometry and water/sediment interface both affect the bioavailability of heavy/trace metals. Additionally heavy/trace metals can become incorporated in the sediment matrix (Chester and Voutsinou, 1981) leading to them being of little environmental significance. Metals in sediments are not always toxic and often occur naturally within marine sediments and it is only at greatly elevated levels do they become toxic. Thus, to enable assessment of toxicity to organisms levels have been established, above which toxic effects may occur. Long *et al*. (1995) established the "effect range low" (ERL) value and the "effect range median" (ERM) value. The ERL is the lowest concentration of a metal which will produce an adverse effect. This level was based on the lowest concentration found to cause an adverse effect in 10% of data reviewed (Long *et al*. 1995). The ERM designates the value at which adverse effects were observed in 50% of data reviewed (Long *et al*. 1995). Thus, concentrations below ERL are not expected to have adverse effects and those above ERM are likely to be toxic to marine life (CNRI, 2024b). Barium is used extensively in drilling fluids as a weighting agent and thus is used commonly to determine the presence of drilling fluid contamination in an area. Barium is naturally present in marine sediments in soluble forms, whereas barium found in drilling muds tends to be in the insoluble form of barite. Natural barium was found to be highly variable across the survey area, with EBS stations recording higher concentrations (mean 1,374 $mg.kg^{-1}$) compared to the cuttings pile stations (mean 360 $mg.kg^{-1}$). All except two EBS stations exceeded the UKOOA NNS 95th percentile for natural barium (577 $mg.kg^{-1}$), however only three of the cuttings pile stations exceeded this threshold. Contrastingly, the analysis of barium contained in barite form within sediments, the concentrations found at cuttings pile stations was much higher than at EBS stations and reference stations: the cuttings pile samples had a mean of 130,982 $mg.kg^{-1}$, the EBS samples a mean of 5,031 $mg.kg^{-1}$ and the reference station a value of 700 $mg.kg^{-1}$. The highest barium (from barite) concentration was found at the station nearest the cuttings pile centre (NS_CP_16_S) at 292,000 $mg.kg^{-1}$. The barium (from barite) levels were highest within the cuttings pile and decreased with increased distance from it Elevated concentrations of As, Cd, Cr, Cu, Pb, Hg, Ni, V, Zn, and Fe were found at the cuttings pile stations. The concentrations identified exceed a variety of reference values, including the UKOOA NNS 95th percentile, NOAA ERL (Buchman, 2008), Cefas cAL1 (MMO, 2015), NOAA ERM (Buchman, 2008), and Cefas cAL2 (MMO, 2015). All of these metal concentrations correlated significantly with Ba (from barite) concentrations, indicating the same source, thought to be drilling fluids. Elevated levels of arsenic were detected at all cuttings pile stations, with a mean of 29.45 $mg.kg^{-1}$ (range 11.60 $mg.kg^{-1}$ to 57.90 $mg.kg^{-1}$). Arsenic concentrations exceeded the NOAA ERL (8.2 $mg.kg^{-1}$) and Cefas cAL1 (20 $mg.kg^{-1}$) thresholds at all cuttings pile stations, and the Cefas cAL2 (50 $mg.kg^{-1}$) threshold at two stations (NS_CP_04_S and NS_CP_05_S), indicating that there is the likelihood of adverse effects on the environment. Arsenic concentrations were below all thresholds at all EBS stations.

Receptor	Summary Description
	Elevated levels of cadmium were detected at all cuttings pile stations, with a mean of 1.72 mg.kg^{-1} (range 0.46 mg.kg^{-1} to 3.11 mg.kg^{-1}). Cadmium concentrations exceeded the UKOOA NNS 95th percentile (0.81 mg.kg^{-1}) at three stations, the NOAA ERL (1.2 mg.kg^{-1}) and Cefas cAL1 (0.40 mg.kg^{-1}) thresholds at all cuttings pile stations, and the Cefas cAL2 (2.0 mg.kg^{-1}) threshold at seven stations, indicating that there is the likelihood of adverse effects on the environment. Cadmium concentrations were below all thresholds at all EBS stations. Elevated levels of chromium were detected at both cuttings pile and EBS stations, with a mean of 112.8 mg.kg^{-1} (range 28.4 mg.kg^{-1} to 231.0 mg.kg^{-1}) and 15.2 mg.kg^{-1} (range 5.70 mg.kg^{-1} to 33.4 mg.kg^{-1}) respectively. Chromium levels in the cuttings pile survey exceeded the UKOOA NNS 95th percentile (11.5 mg.kg^{-1}) at two stations, the NOAA ERL (81 mg.kg^{-1}) at thirteen stations (including samples from below seafloor), and the Cefas cAL1 (40 mg.kg^{-1}) threshold at seven stations. Chromium concentrations across the EBS stations were lower in comparison to the cuttings pile stations, with only eight stations exceeding the UKOOA NNS 95th Percentile (11.5 mg.kg^{-1}). This indicates that there is a high likelihood of impact to the environment at cuttings pile stations, and a lower likelihood at the EBS stations. Copper concentrations were found to be higher at cuttings pile stations compared to EBS stations. At five cuttings pile stations. copper exceeded the NOAA ERM threshold (270 mg.kg^{-1}), with seven also surpassing the Cefas cAL2 threshold (400 mg.kg^{-1}), indicating potentially adverse ecological and environmental effects. Copper levels exceeded the UKOOA 95th percentile (4 mg.kg^{-1}) at thirteen of sixteen EBS stations. The highest copper concentration of EBS stations were recorded closest to the platform (NS_250m_NW and NS_250m_SE), where levels marginally exceeded the NOAA ERL of 34 mg.kg^{-1} Elevated concentrations of mercury were found at all cuttings pile stations with a mean of 0.85 mg.kg^{-1} (range 0.24 mg.kg^{-1} to 2.6 mg.kg^{-1}). Mercury concentrations exceeded the Cefas cAL1 at all cuttings pile stations, and the NOAA ERM (0.71 mg.kg^{-1}) at ten stations, including both sub-surface samples. This indicates that there is a high likelihood of adverse ecological and environmental impacts across the cuttings pile stations. Mercury concentrations were low across the EBS stations, with only one station (NS_250m_NW) marginally exceeding the UKOOA NNS 95th percentile (0.1 mg.kg^{-1}). Elevated concentrations of nickel were found across both cuttings pile and EBS stations, with a mean of 37.7 mg.kg^{-1} (range 23.4 mg.kg^{-1} to 74.3 mg.kg^{-1}) and 9.8 mg.kg^{-1} (range 4.6 mg.kg^{-1} to 22.7 mg.kg^{-1}) respectively. Nickel concentrations exceeded the NOAA ERL (20.9 mg.kg^{-1}) at all cuttings pile stations and exceeded the NOAA ERM (51.6 mg.kg^{-1}) at two stations (NS_CP_05_S and NS_CP_06_S), indicating a high likelihood of adverse environmental and ecological impacts. Across the EBS stations nickel concentrations exceeded the UKOOA 95th percentile (7 mg.kg^{-1}) at ten stations, Cefas cAL1 (20.0 mg.kg^{-1}) at one station (NS_300m_SW), and NOAA ERL (20.9 mg.kg^{-1}) at one station (NS_500m_SW). Elevated concentrations of vanadium were found at all cuttings pile stations, with a mean concentration of 40 mg.kg^{-1} (range 23.4 mg.kg^{-1} to 68.3 mg.kg^{-1}, exceeding the UKOOA NNS 95th percentile (19.7 mg.kg^{-1}). No ERMs, ERLs or Cefas cAL1 and

Receptor	Summary Description
	cAL2 thresholds are available for vanadium. Vanadium concentrations at all EBS stations were below the UKOOA 95th percentile. Elevated levels of zinc were detected at all stations with the exception of two EBS stations. Zinc levels at EBS stations ranged from 14.4 $mg.kg^{-1}$ to 298 $mg.kg^{-1}$. Cuttings pile stations had higher concentrations of zinc, ranging from 268 $mg.kg^{-1}$ to 6,262 $mg.kg^{-1}$. The NOAA ERM threshold of 410 $mg.kg^{-1}$ was exceeded at 95% of the cuttings pile stations, indicating a high likelihood of adverse effects. Zinc levels at eleven out of sixteen EBS stations exceeded the UKOOA 95th percentile. Lead levels were found to exceed either the Cefas cAL2 (60 $mg.kg^{-1}$) or the NOAA ERM (218 $mg.kg^{-1}$) thresholds at all cuttings pile stations. Lead levels at the cuttings pile stations ranged from 74.8 $mg.kg^{-1}$ to 754 $kg.mg^{-1}$, suggesting that marine life could suffer adverse effects from lead contamination. EBS stations recorded lower lead levels, with only one station (NS_250m_NW) exceeding the NOAA ERL. Notably, this station also exceeded other contaminant thresholds, e.g. THC. Iron concentrations were significantly higher at cuttings pile stations (mean 57,173 $mg.kg^{-1}$) than at EBS stations (mean 5,727 $mg.kg^{-1}$). Iron concentrations on the east side of the cuttings pile were found to exceed 100,000 $mg.kg^{-1}$, which was attributed to paint chips observed in the PSA. Overall heavy and trace metal concentrations across the EBS station were low to moderate and reflective of the wider NNS region. The cuttings pile stations demonstrated moderate to high metal concentrations indicating potential adverse environmental effects. The higher cuttings pile station concentrations are attributed to NSP's historic drilling activities. To allow ease of comparison and to further assess bioavailability, the metal concentrations were normalised using 52 $mg.kg^{-1}$ lithium. Cadmium and mercury could not be normalised at every station as their concentrations were below detection thresholds at a number of stations. Normalised concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc exceed their respective OSPAR BACs at most cuttings pile stations. Arsenic and cadmium values only surpassed the OSPAR BCs and certain stations did not exceed any thresholds; as such no pattern could be identified for these stations. At all cuttings pile and EBS stations cadmium, copper, lead, mercury and zinc exceeded the BACs. Comparison with historical metal concentrations show a trend of decreasing concentrations across the survey area. However, it is still consistent that the highest concentrations were located within the NSP 500 m zone (CNRI, 2024b).

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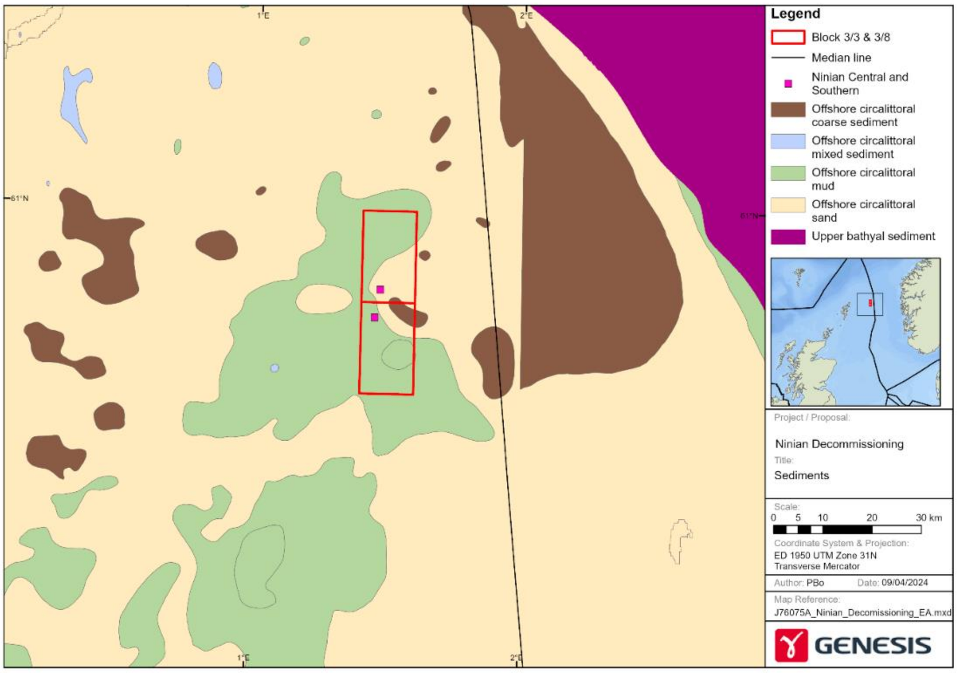

Figure 3-3. Map of Seabed Sediments around NSP and NCP
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<tr><td>Benthic Communities</td><td>
Bacteria, plants and animals living on or within the seabed sediments are collectively referred to as benthos. Animals living within the sediment are termed infaunal (e.g. tubeworms and burrowing clams) while animals living on the surface are termed epifaunal (e.g. crabs, starfish). Semi- infaunal animals, including sea pens and some bivalves, lie partially buried in the seabed.

Macrofauna analysis was undertaken out on a total of 44 grab sample replicates across 16 EBS stations, five CP stations and one reference station. Sampling retrieved 22,734 individuals. These individuals comprised 356 taxa,12 epifauna and 344 infauna species. The samples were dominated by annelids, accounting for 161 species and 51.9% of total individuals. Crustacea accounted for 84 species and 9% of individuals. Molluscs accounted for 64 species and 11.9% of total individuals. The echinoderms accounted for 28 species and 5.2% of total individuals. All other groups (Cnidaria, Nemertea, Nematoda, Platyhelminthes, Phoronida, and Hemichordata) represent seven species and 19.1% of total individuals. The macrofaunal community was determined to be sampled adequately as the number of species exceeded the representative population, such that no further samples were required.

The number of individuals recorded per replicate (0.1m^2) was found to be highly variable across the survey area, ranging between 63 (NS_CP_12_F1) and 1,699 (NS_CP_01_F1). Similarly, the number of species per replicate (0.1m^2) also varied greatly from 3 (NS_CP_12_F2) to 107 (NS_500m_SE_F2). The number of individuals recorded per station (0.2 m^2) across the EBS stations was relatively similar ranging from 464 (NS_250m_SE) to 1,521 (NS_100m_NE), with a mean of 1,074. The mean was comparable to the reference station, 1,389. The species
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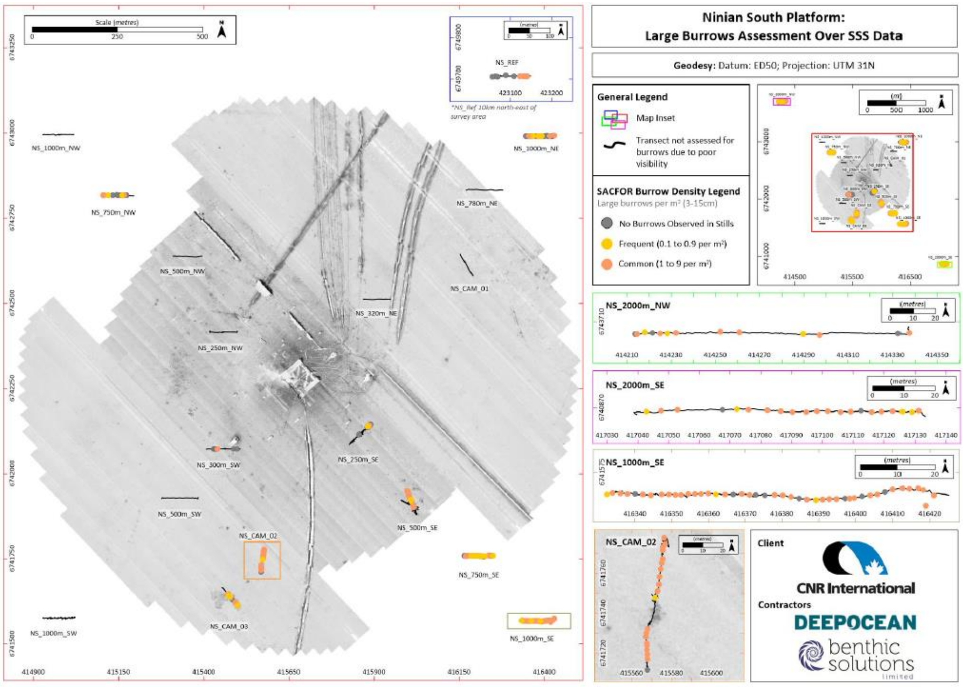
Receptor	Summary Description
	richness per station ranged from 97 (NS_250m_SE) to 130 (NS_500m_SE), with a mean of 113. Contrastingly the CP stations showed variability in abundance and species richness. Individuals collected a station level ranged from 238 (NS_CP_12_S) to 2,308 (NS_CP_01_S), with a mean of 834. Species richness ranged from 7 (NS_CP_12_S) to 98 (NS_CP_01_S), with a mean of 42. Several methods for assessing the biodiversity of the survey stations were performed. The results show that generally the EBS stations had a higher diversity in comparison to the CP stations, with anoxic conditions near the platform impacting species richness, abundance and diversity. The NSP pre-decommissioning environmental survey (CNRI, 2024b) examined the survey area for the presence of protected habitats and species. The survey recorded several protected habitats and species: • Seapen and Burrowing Megafauna Communities • Subtidal Sands and Gravels • Ocean Quahog (*Arctica islandica*) • Fireworks anemone (*Pachycerianthus multiplicatus*) • Thornback ray (*Raja clavate*) • Ling (*Molva molva*) • Atlantic cod (*Gadus morhua*) • *Desmophyllum pertsusum* • *Devonia perrieri* Data from the survey reported that: • The presence of "Frequent" or higher burrow densities under the SACFOR scale across the survey area indicates a partial conformity with the OSPAR "Seapen and Burrowing Megafauna Communities" and/or the Scottish Priority Marine Feature (PMF) habitat. An assessment to determine the densities of burrows at each sample location found that at all stations expect NS_300m_SW, the burrow density met the JNCC precautionary threshold of 0.2/m^2 for mean burrow densities. As such the seabed can be classified as the impoverished variant of the 'Seapen and Burrowing Megafauna Communities' habitat (Figure 3-4). • The NSP survey area would not be classified as the UK Biodiversity Action Plan (UK BAP) habitat "Subtidal Sands and Gravels" or the Scottish PMF habitat Offshore Subtidal sands and gravels. • Juvenile specimens of *A. islandica* (<5cm shell size) were recovered within the grab samples and identified during taxonomic review of the samples. No living adult specimens (>5cm shell size) were recorded in any of the macrofaunal grabs and no evidence of distinct *A. islandica* siphons were observed on any of the video footage or still photographs across the survey area. A total of 44 juveniles (<1 cm shell size) were retained within 24 grab samples, with juveniles recorded 250 m from the NSP platform.

Receptor	Summary Description
	 **Figure 3-4. SCAFOR Assessment for Large Burrows.**
Fish & Shellfish	At present, more than 330 fish species are known to inhabit the shelf seas of the UK Continental Shelf (UKCS) (Pinnegar *et al*., 2010). Fish and shellfish species are particularly sensitive to chemical discharges and noise generated from the offshore oil and gas industry during their early life stages. The most vulnerable stages of the life cycle of fish are the egg and larval stages (Ellis *et al*., 2012), hence recognition of spawning and nursery grounds within the area is important. Table 3-2 and Figure 3-5 present those species known to use the Ninian area as a spawning or nursery ground (Coull *et al*., 1998; Ellis *et al*., 2012). Aires *et al*., 2014 have identified the presence of a number of juvenile fish species in the vicinity of the Ninian Field; the probability of juvenile presence is shown in Figure 3-6. Although there is fish spawning and nursery activity in the vicinity at certain times of the year, the spawning and nursery areas tend to be transient, and are part of larger offshore areas (Coull *et al*., 1998, Ellis *et al*., 2012). The following species, known to use the Ninian area for spawning and nursery grounds are listed as Scottish PMFs: anglerfish (*Lophius piscatorius*), blue whiting (*Micromesistius poutassou*), Atlantic cod (*Gadus morhua*), herring (*Clupea harengus*), ling (*Molva molva*), mackerel (*Scomber scombrus*), Norway pout (*Trisopterus esmarkii*), saithe (*Pollachius virens*), sandeels (several members of the family Ammodytes), spurdog (*Squalus acanthias*) and whiting (*Merlangius merlangus*) (Tyler-Walters *et al*., 2016).

Receptor	Summary Description

Table 3-2. Species with Spawning and Nursery grounds within the vicinity of NSP and NCP.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Anglerfish	N	N	N	N	N	N	N	N	N	N	N	N
Blue whiting	N	N	N	N	N	N	N	N	N	N	N	N
Cod	S	S*	S*	S								
European hake	N	N	N	N	N	N	N	N	N	N	N	N
Haddock	N	S*N	S*N	S*N	SN	N	N	N	N	N	N	N
Herring	N	N	N	N	N	N	N	N	N	N	N	N
Ling	N	N	N	N	N	N	N	N	N	N	N	N
Mackerel	N	N	N	N	N	N	N	N	N	N	N	N
Norway pout	SN	S*N	S*N	SN	N	N	N	N	N	N	N	N
Saithe	S*	S*	S	S								
Sandeel	SN	SN	N	N	N	N	N	N	N	N	SN	SN
Spurdog	N	N	N	N	N	N	N	N	N	N	N	N
Whiting	N	SN	SN	SN	SN	SN	N	N	N	N	N	N

Key:
N Nursery
S Spawning
S* Peak spawning

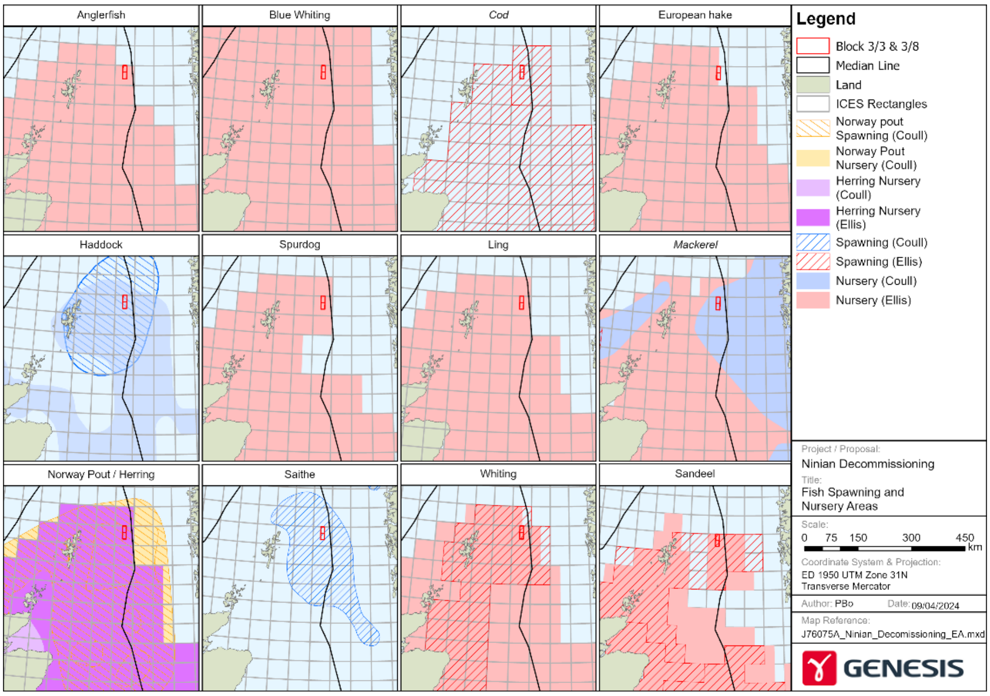


Figure 3-5. Spawning and Nursery Grounds of Fish Species within the Vicinity of NSP and NCP.

Receptor	Summary Description

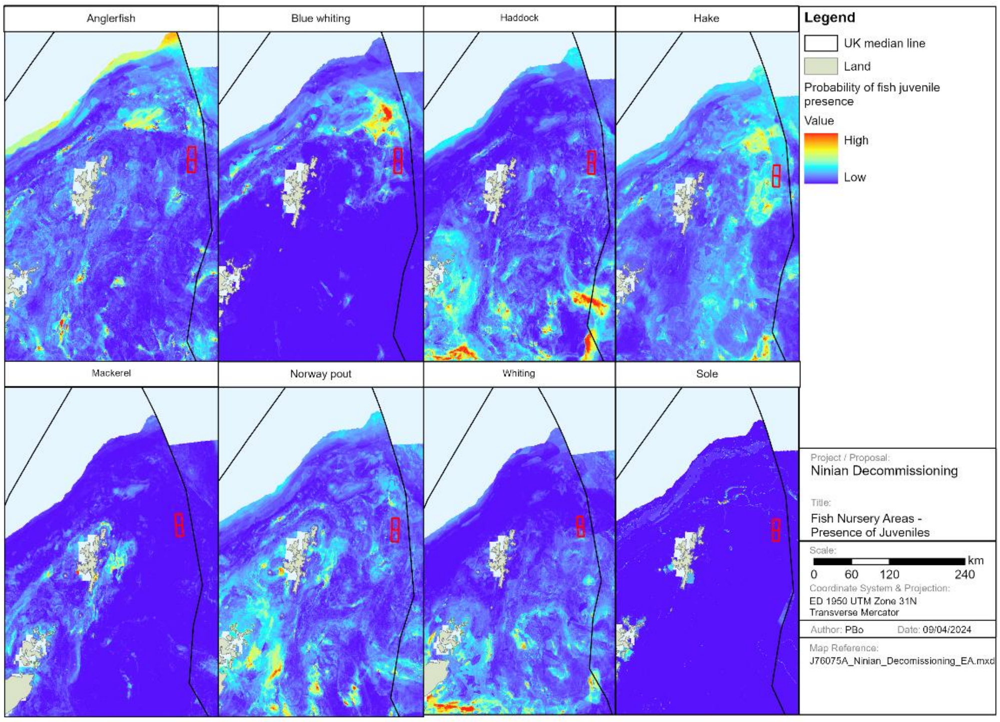


Figure 3-6. Probability of Juvenile Fish Presence within the Vicinity of NSP and NCP.

As can be seen in Figure 3-7, there are no aquaculture sites or shellfish protected areas within the immediate vicinity of the project area. The closest shellfish protected area and aquaculture sites are 120 km west of NSP.

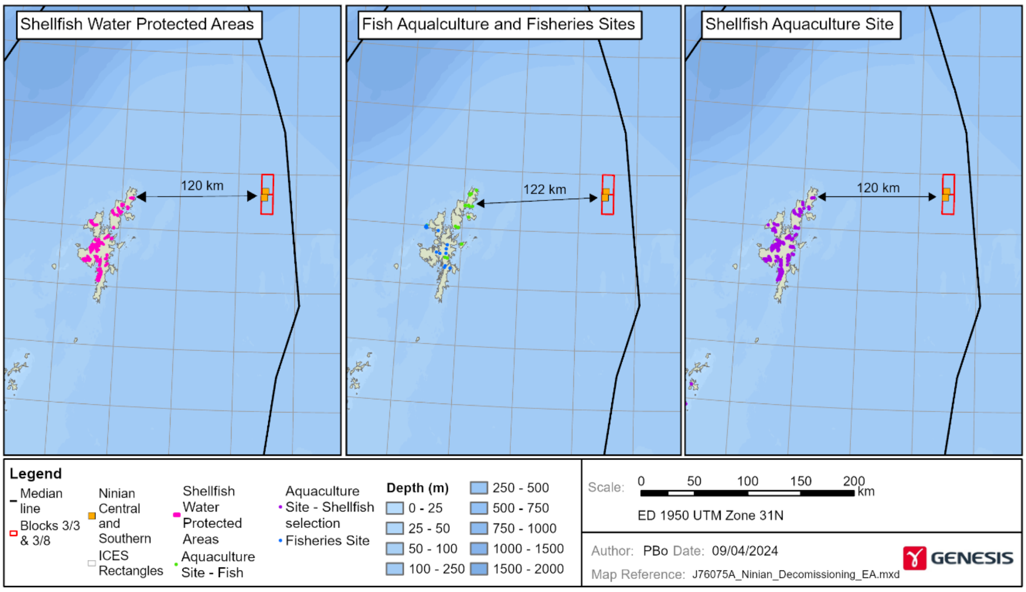


Figure 3-7. Fish and Shellfish Aquaculture and Protected Sites in Relation to NSP and NCP

Receptor	Summary Description
Marine Mammals	Marine mammals (cetaceans and pinnipeds) use sound for navigation, communication and prey detection (see reviews in Southall, *et al*., 2007). Therefore, the introduction of anthropogenic underwater sound has the potential to impact marine animals if it interferes with the animal's ability to use and receive sound. Operations related to decommissioning have the potential generate noise which may interfere with marine mammals. Cetacean species that could potentially occur within the area include white-beaked dolphin (*Lagenorhynchus albirostris),* minke whale (*Balaenoptera acutorostrata*) and harbour porpoise (*Phocoena phocoena*) (Reid *et al*., 2003). Harbour porpoises are listed under Annex II of the EU Habitats Directive and all three species are listed as Scottish PMFs. All cetacean species occurring in UK waters are afforded European Protected Species (EPS) status[4]. Companies must therefore consider the requirement to apply for the necessary licences if there is a risk of causing any potential disturbance/injury offence to an EPS. Details of the sightings and abundance of these species of cetacean within Blocks 3/3 and 3/8 are presented in Table 3-3. Marine mammal densities are low, with sightings occurring between May and August (Reid, *et al*., 2003).

Table 3-3. Density of Cetaceans in the Vicinity of NSP and NCP.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minke whale							3					
White beaked dolphin							3					
Harbour porpoise					3		3	3				
Key: 1: High Density, 2; Moderate Density, 3: Low Density												

Blocks 3/3 and 3/8 are located within SCANS-IV survey areas "NS-F", which has a surface area of 60,051 km^2. Aerial survey estimates of animal abundance and densities (animals per km^2) within this area are provided in Table 3-4 (Gilles *et al*., 2023). The data suggest that harbour porpoise, white-beaked dolphin and minke whale may occur in the area.

Table 3-4.Cetaceans recorded in SCANS-IV survey area NS-F.

Species	Animal abundance	Animal density (per km^2)
Harbour porpoise	26,383	0.4393
White-beaked dolphin	18,350	0.3056
Minke whale	1,630	0.0271

[4] THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 (AS AMENDED IN SCOTLAND)

Receptor	Summary Description
	In UK waters, seals are protected in the UK under the Conservation of Seals Act 1970. Two species of seal are resident in British waters: the grey seal (*Halichoerus grypus*) and the harbour seal (*Phoca vitulina*). Both harbour and grey seals are Annex II species, and both are considered Scottish PMFs (Tyler-Walters et al., 2016). Seals tend to frequent inshore waters but have been seen offshore from a number of platforms in the North Sea (Cosgrove, 1996). During a study by Carter *et al*., published in 2022 grey (n = 114: 45 male, 69 female) and harbour seals (n = 239: 107 male, 132 female) were tagged at 26 sites in the UK and Ireland between 2005 – 2019. Haul-out counts were scaled to total population size for UK and Ireland using the mean estimated proportion of the population hauled-out during the survey window (and thus available to count). Total population size was then scaled to at-sea population size using the mean estimated proportion of time seals spend at-sea based off the telemetry data gathered during the study period. Telemetry data were analysed at a 5 km^2 cell resolution, enabling the percentage of the at-sea population for the UK and Ireland (i.e. excluding hauled-out animals) present in each cell at any one time to be estimated. The resulting distribution maps indicate that harbour seals are unlikely to occur in the Ninian area, but it is likely that grey seals may be present in low densities (Figure 3-8, Carter *et al*., 2022).

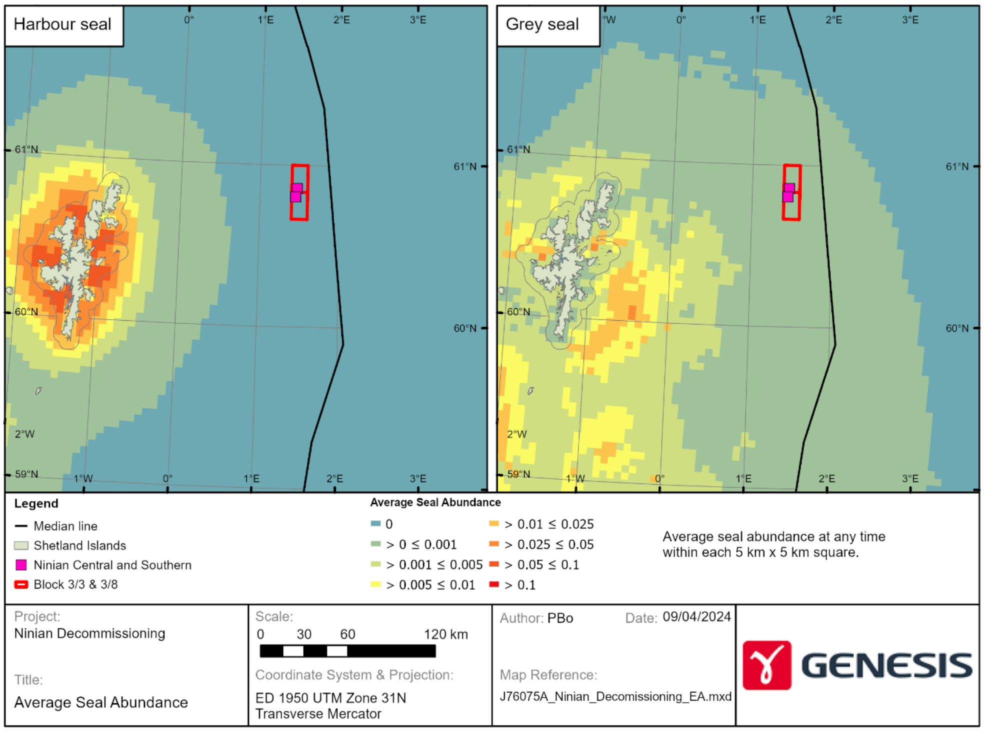


Figure 3-8. Estimated Harbour and Grey seal Density in the Ninian Area.

Receptor	Summary Description
Birds	Predicted maximum monthly abundance of seabirds in the area is based on an analysis of the European Seabirds at Sea (ESAS) data collected over 30 years (Kober *et al*., 2010). Continuous seabird density surface maps were generated using the spatial interpolation technique 'Poisson kriging' and 57 seabird density surface maps were created to show particular species distribution in specific areas. Distribution and abundance of these bird species vary seasonally and annually. Seabird densities in the Ninian area range from 15-52 individuals per km^2 over the winter months (November – March) and from 5-52 individuals per km^2 over the breeding/summer months (April – October). The majority of species present are at very low (<1) to low (5 – 10) densities, however the Northern Fulmar exists at very high (5 - 39) densities between the months of August to February. Over recent years there has been growing interest and reports of birds nesting on offshore installations, albeit in small numbers in the NNS. The species confirmed to have nested on offshore installation in the UKCS are black legged kittiwakes, herring gulls, razorbills, guillemots, and lesser black backed gulls. CNRI undertook vessel and topsides-based survey to identify which bird species use the NSP (CNRI, 2023). The 2023 survey found no evidence of current or previous nesting locations or birds displaying nesting behaviour (CNRI, 2023). A further vessel and topsides-based survey was undertaken in 2024 and will be repeated annually until removal operations are complete.

Receptor	Summary Description
	Table 3-5 Predicted Seabird Densities Within the Ninian Hub Area.

Table 3-5 Predicted Seabird Densities Within the Ninian Hub Area.

Species	Season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern Fulmar	Breeding												
	Winter												
Northern Gannet	Breeding												
	Winter												
Arctic Skua	Additional												
Great Skua	Breeding												
Black legged Kittiwake	Breeding												
	Winter												
Black-headed Gull	Winter												
Great Black-backed Gull	Breeding												
	Winter												
Common Gull	Breeding												
Lesser Black-backed Gull	Breeding												
	Winter												
Herring Gull	Breeding												
	Winter												
Iceland Gull	Winter												
Glaucous Gull	Winter												
Arctic Tern	Breeding												
Common Guillemot	Breeding												
	Winter												
	Additional												
Razorbill	Additional												
Little Auk	Winter												
Atlantic Puffin	Breeding												
	Winter												
All Species	Breeding												
	Winter												
	Additional												
	Total												
Key:	0	<1	1-5	5-15	15-30	30-52							

Receptor	Summary Description
	Table 3-6 SOSI and Indirect Assessment for Blocks 3/3 & 3/8, and Adjacent Blocks (JNCC, 2017).

Block	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
211/27	5	5	5	5*	5*	5	5	5	4	4*	5*	5
211/28	5	5	5	5*	N	5*	5	5	4	4*	5*	5
211/29	5	5	5	5*	N	5*	5	5	5	5*	5*	5
3/02	5	5	5	5*	5*	5	5	5	4	4*	5*	5
3/03	5	5	5	5*	5*	5	5	5	4	4*	5*	5
3/04	5	5	5	5*	N	5*	5	5	5	5*	5*	5
3/07	5	5	3	3*	5*	5	5	5	5	5*	5*	5
3/08	5	5	5	5*	5*	5	5	5	5	5*	5*	5
3/09	5	5	5	5*	N	5*	5	5	5	5*	5*	5
3/12	5	5	5	5*	5*	5	5	5	5	5*	5*	5
3/13	5	5	5	5*	5*	5	5	5	5	5*	5*	5
3/14	5	5	5	5*	N	5*	5	5	5	5*	5*	5
Key	1 Extremely High		2 Very High		3 High		4 Medium		5 Low		N – No data	

Indirect Assessment – data gaps have been populated following guidance provided by the JNCC (JNCC, 2017a) (cells populated by indirect assessment marked in yellow).
* Data gap filled using data from the same Block in adjacent months.

Receptor	Summary Description
Fisheries	NSP is located within ICES rectangle 50F1. UK fishing effort within this rectangle varies both monthly and annually with fishing occurring year-round. Annually the fishing effort (or importance of the area) is considered low, with a mean fishing effort of 323 days between 2019 and 2023. Fishing effort was highest in 2021 with 445 days fished. Fishing effort for 50F1 contributed, on average, 0.3% of the UK total effort each year from 2019 to 2023 (Marine Directorate & Scottish Government, 2024). Landing data from 50F1 indicates that demersal fisheries dominate both tonnage of landings and value. Over the last five years fishing in 50F1 contributed on average 0.6% of UK total landings by value and 0.6% by weight.

4. POTENTIAL ENVIRONMENTAL IMPACTS & RISKS

To determine the impact of the proposed decommissioning activities, an ENVID will be undertaken that will follow a structured methodology. The results of the ENVID will be used to screen out those impacts not considered significant, such that the assessment will focus on those activities that could have a more significant impact. The output of the ENVID will inform the Comparative Assessment for the NSP Jacket Footings and ultimately the Environmental Appraisal in support of the DP. Aspects to be considered in the ENVID for the different activities will include:

- Physical presence.
- Resource use.
- Atmospheric emissions.
- Sound and vibration.
- Air quality.
- Seabed disturbance.
- Discharges to sea.
- Large releases to sea.
- Waste production.

Where relevant the following environmental receptors will be considered in the ENVID for each activity:

- Air quality.
- Water quality.
- Plankton.
- Fish.
- Seabirds.
- Resource availability (landfill and fuel).
- Shipping.
- Climate.
- Sediment quality.
- Benthic communities.
- Marine mammals.
- Designated areas.
- Fisheries.

Those activities considered to have a significant impact or those with a low environmental or socio-economic impact, but to be of particular interest to the public or other stakeholders (e.g., legacy impacts), will be assessed in detail. For those activities not considered to warrant extensive assessment, justification will be provided for screening them out.

An estimate of the energy use requirements and resulting emissions will be prepared for the proposed decommissioning activities and presented in the NSP Jacket Footings Energy and Emissions Report (Genesis Energies, 2024).

5. PROVISION OF COMMENTS

This Scoping Report consultation aims to ensure CNRI is aware of all environmental / societal information and stakeholder views on matters to be considered of potential relevance to the proposed decommissioning activities and to inform the ENVID and project planning.

CNRI therefore welcomes comments on the proposed NSP jacket footings decommissioning activities and the scope of the ENVID. Comments may be directed to CNRI by letter or, preferably, by email addressed to:

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