



Wytch Farm Incident Impact Assessment

December 2023

HATCH

Contents Page

Executive Summary	iii
The Incident	iii
This Commission	iv
Summary of Impacts	iv

Glossary of terms	1
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List of Key Stakeholders	2
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1. Introduction	4
Overview of the Incident	4
The Response Phase and Recovery Phase	7
Impact Assessment Aims	8
Study Methodology	11
Report Structure	16

2. The Incident	26
Overview of the Incident	26
Timeline of the Response / Recovery Phases	17
Recovery Phase	19
Communications and Engagement	25

3. Baseline Conditions	26
Health and Community	27
Environment	34
Business and Economy	40

4. Impact Framework	46
----------------------------	-----------

5. Health & Community Impacts	48
Overview	48
Impact Assessment	48
Summary – Health and Community	51

6.	Environmental Impacts	52
	Overview	52
	Impact Assessment	53

7.	Business & Economy Impacts	56
	Overview	56
	Impact Assessment	56
	Summary – Business & Economy	66

8.	Key Insights & Conclusions	67
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DISCLAIMER AND LIMITATIONS OF USE

Executive Summary

The Incident

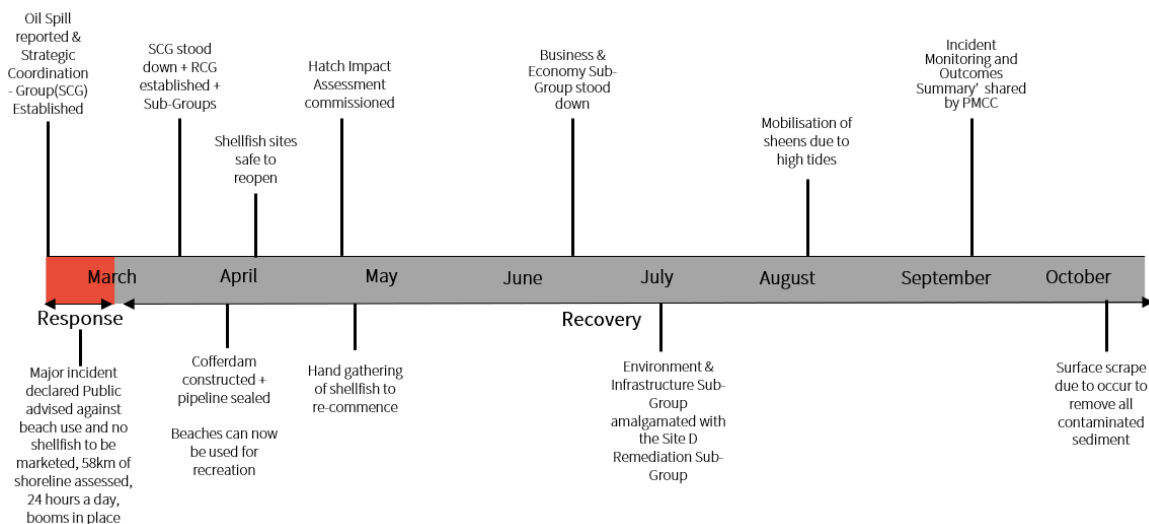
Wytch Farm is a mature oil field located to the south of Poole Harbour and north of Corfe Castle, on the Isle of Purbeck in Dorset. The current site owner and operator is Perenco, who have permission granted by Dorset Council to operate until 2037.

On 26th March 2023, a 20mm hole in an oil pipeline led to the release of oil occurring at Wytch Farm at the point of release, located approximately 2.7km south west of Brownsea Island, on the edge of Poole Harbour. It is estimated that approximately 200 barrels of reservoir fluid were discharged from a breached pipeline, approximately 31,600 litres, comprising approximately 15% oil and 85% water.

From the initial point of release, the discharge spread from Ower Bay into Poole Harbour. From the point the Incident was identified, a major incident was declared, and emergency response plans were enacted. Small amounts of oil were reported on intertidal areas including the north of the harbour and the north side of Brownsea Island.

The shoreline clean-up assessment covered an estimated 58km of shoreline, saltmarshes and mudflat habitat areas. This included Poole Harbour (the largest natural harbour in Europe), 5,000-acres of wider Site of Special Scientific Interest (SSSI), a Ramsar site where wetlands are designated as of international importance, Areas of Outstanding Natural Beauty (AONB), and Special Protection Area (SPA) for birds, and Brownsea Island and the lagoon, which are part owned by the National Trust and managed under lease by Dorset Wildlife Trust.

Summary timeline of the Incident



Source: Hatch

This Commission

Hatch has been commissioned by Dorset Council in collaboration with Bournemouth, Christchurch & Poole (BCP) Council, on behalf of the Recovery Coordination Group (RCG), to undertake an impact assessment on the release of oil from a fractured pipe on the Wytch Farm site, which seeped into the wider Poole Harbour area (hereafter referred to as ‘the Incident’) on March 26th, 2023.

In line with the requirements of the Dorset Local Resilience Forum (Dorset LRF) Recovery Framework¹, the primary aim of this commission is to identify and, where possible, quantify the impacts of the Incident for each of the thematic sub-groups of the RCG. An impact framework was developed to align with these sub-groups as follows.

Wytch Farm Incident Impact Framework		
Health & Community	Environment	Business & Economy
a) Community Cohesion	a) Loss or Damage to Habitats	a) Disruption to Visitor Economy
b) Perception of Place	b) Loss or Damage to Wildlife (including Shellfish)	b) Disruption to Local Businesses: - Aquaculture, Wild Dredge Fisheries and Hand Gathering - Small Scale and Recreational Fishing Vessels - Other Harbour-based Operations
c) Health & Wellbeing	c) Damage to Environmental Designations	
d) Recreational Facilities	d) Water Quality	
e) Disruption to Travel and Movement	e) Air Quality	c) Attractiveness to Investors and Perceptions as a Place to do Business
f) Heritage Assets		

Source: Hatch

Summary of Impacts

The assessment establishes the impacts of the Incident, against a framework of measurable baseline conditions. The assessment adopts a combination of quantitative and qualitative assessment methodologies, utilizing a range of economic, societal, commercial and financial data to provide a measurement framework. The assessment has drawn on extensive engagement across a wide range of stakeholders and has drawn on best practice assessment techniques (where appropriate) including HM Treasury Green Book, Department for Levelling Up, Housing and Communities (DLUHC), and Department for Business, Energy & Industrial Strategy (BEIS²) guidance.

¹ Dorset Local Resilience Forum (2018), Dorset LRF Recovery Framework.

² NB BEIS existed until 2023 when it was split to form Department for Business and Trade (DBT) and the Department for Energy Security and Net Zero (DESNZ). In this context the guidance remains up to date.

Health and Community

The results of the impact assessment for Health and Community were concluded to be minimal. Only two **minor adverse impacts were noted**. Whilst no direct impacts were reported for the Incident on **community cohesion and perception** of place, it has been concluded that there was a **minor adverse indirect impact**, as a result of associated negative press coverage. Regarding **recreational facilities**, a **minor adverse direct impact** has been reported. This is as a result of advice against swimming in various beaches and recreational boating and water sports for a short period.

All other impacts including health and wellbeing, travel and movement and heritage assets were negligible or no impact. This reflects the fast response during the response phase which ensured any health impacts were minimised.

Environment

Drawing from secondary evidence produced by PREMIAM, the investigation and monitoring activity undertaken to date indicated that there has been **limited environmental impact from the incident on the Poole Harbour area**. The key impacts were limited to activity in and around Poole Harbour in the initial two weeks after the incident when fishing and shellfish activities were restricted.

From an **ecological perspective there does not appear to have been a material impact on the wider Poole Harbour area from data and observations to date**.

There has been an **environmental impact in the area around the point of release, whilst it is a small area it is a highly sensitive salt marsh**. Any remaining hydrocarbons are fully contained by booms and absorbents and **it does not currently present a risk to the wider Poole Harbour area**. This impacted area is being monitored and managed and plans are being developed, in agreement with relevant stakeholders, to remediate this area.

An environmental grouping will need to continue to undertake monitoring and reporting through till 2026³ in alignment with the Pollution Response in Emergencies: Marine Impact Assessment and Monitoring (PREMIAM) Monitoring Co-ordination Cell (PMCC)⁴.

Business and Economy

The impact assessment on **Business and Economy** considered the net change in GVA⁵. **The Incident was estimated to have resulted in an overall £525,509 net loss of GVA and a total net loss of £570,584 of GVA from businesses** operating in Dorset Council and BCP Council (including the study area). Set in the context of the overall economy for Dorset and BCP Council; this is considered minimal; however it is recognised that **impacts have disproportionately fallen on independent and SME firms** within the area, during times of closure, **particularly those within the aquaculture and fishing sectors**.

³ This is in line with proposed monitoring timeline suggested by A&A to the Poole Harbour Remediation & Restoration Group and is based on the estimated recovery time for the Salt Marshes

⁴ The PBCC's main role is to co-ordinate expert practitioners in the evidence collection to inform the monitoring of impacts on the flora and fauna of Poole harbour.

⁵ GVA (Gross Value Added) measures the value of industry to the economy.

Whilst not quantifiable, the wider impacts to the economy regarding perceptions to investors and attractiveness as a place to do business has been considered. There is limited direct evidence to establish a firm conclusion and considering the short-term nature of restrictions the assessment concluded negligible. That said, it has been noted that the **Incident and risk of future incidents could exacerbate any perception issues; and the Incident could be attributed to any future decline or negative impacts on the business and visitor economy.**

A press trip to Poole Harbour planned in March for six national journalists and influencers was cancelled as a result of the Incident and has yet to be rescheduled. This resulted in reduced promotional and marketing activity for Poole Harbour, which may have a further **longer-term adverse impact on the visitor economy within the study area**, as a missed opportunity cost.

Glossary of terms

AONB	Area of Outstanding Natural Beauty
AQMAs	Air Quality Management Areas
AQS	Air Quality Standards
BCP	Bournemouth, Christchurch & Poole
BEIS	Department for Business, Energy, and Industrial Strategy
CCU	Civil Contingencies Unit
DLUHC	The Department for Levelling Up, Housing and Communities, formerly the Ministry for Housing, Communities, and Local Government.
ETP	Endangered, Threatened and Protected
FAQs	Frequently Asked Questions
FSA	Food Standards Agency
GVA	Gross Value Added
LRF	Local Resilience Forum
LSOA	Lower Super Output Area
NO ₂	Nitrogen Dioxide
PDFA	Poole and District Fisherman's Association
RCG	Recovery Coordination Group
SAC	Special Areas of Conservation
SCAT	Shoreline Cleanup and Assessment Technique
SCG	Strategic Coordination Group
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

List of Key Stakeholders

Organisation	Role / Responsibility
Adler and Allan (A&A)	An independent Environmental Risk Reduction company sub-contracted to Perenco to lead environmental and remediation works at Wytch Farm.
Bournemouth, Christchurch & Poole (BCP COUNCIL)	Local Authority where Poole Harbour is located. Deputy Chair on the Recovery Coordination Group and officers sit across all sub-groups.
Coastal Tourism Agency	A national agency that is solely focused on coastal tourism. Representatives were included in the Economic Sub-Group for advice on how to best or appropriately mitigate damage to the tourism industry.
Dorset Council	Local Authority where Wytch Farm is located. Chair of the Recovery Coordination Group and officers sit across all sub-groups.
Environment Agency	Government Department related to the protection and enhancement of the environment in England. The EA are currently leading an independent investigation into the causes of the Incident, and determining whether any legal actions will be taken.
Food Standards Authority (FSA)	Government Department responsible for protecting public health in relation to food in England. They facilitated assessment of aquaculture shellfish beds and determined when they were suitable to re-open and that harvested shellfish are fit for consumption.
Health & Safety Executive (HSE)	The HSE is Britain's national regulator for workplace health and safety and are currently supporting on the technical infrastructure investigation into the causes of the Incident.
Marine Coastguard Agency	Government Agency responsible for implementing British and international maritime law and safety policy. Sit on the Environmental sub-group and have been engaged with regarding any need for marine licenses or permits.
Natural England	Government adviser for the natural environment and permitting authority. Currently working with Perenco to manage the affected sites related to the removal of any residual polluted areas and restoration of environment.
Perenco	An Anglo-French oil and gas company and Wytch Farm site owner and operator.
Poole Harbour Commissioners (PHC)	PHC are the independent body that regulate the leisure, commercial and environmental activities of Poole Harbour. Oversaw the initial response phase including chairing the Strategic Coordination Group (SCG)
Pollution Response in Emergencies: Marine Impact Assessment and Monitoring (PREMIAM)	The PREMIAM programme brings together 22 government departments and agencies from across the UK with an interest in marine spill response and the protection of the marine environment to provide expert guidance and integrated decision making. Led the monitoring of environmental impact which will continue until 2027.

<p>Southern Inshore Fisheries and Conservation Authority (SIFCA)</p>	<p>SIFCA lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.</p> <p>They carried out the shellfish sampling from the aquaculture grounds in Poole Harbour to inform the position regarding shellfish.</p>
<p>UK Health Security Agency (UKHSA)</p>	<p>The UKHSA is responsible for protecting the UK from the impact of infectious diseases, chemical, biological, radiological and nuclear incidents and other health threats, through intellectual, scientific and operational leadership.</p> <p>They produced public advice on safety fundamentals following the incident i.e. no hand gathering of shellfish for several weeks.</p>

1. Introduction

Overview of the Incident

Wytch Farm

- 1.1 Wytch Farm is a mature oil field located to the south of Poole Harbour and north of Corfe Castle, on the Isle of Purbeck in Dorset. Since 1979, oil and associated gas from the sandstone and limestone oil reserves have been extracted at Wytch Farm. At its peak oil production in 1997, the site was producing 110,000 barrels per day, increasing from an estimated 6,000 barrels per day in 1984, making it one of the biggest onshore oil fields in Europe⁶.
- 1.2 However, oil production at the site has been through a managed decline since the Nineties, falling to 50,000 barrels per day (2002), 16,000 barrels (2011) and approximately 12,000 barrels of oil today. Estimates from 2013 suggests the total oil reserves of the combined fields were 43 Million Barrels of Oil Per Day (MMbpd)⁷.
- 1.3 Extracted crude oil are transferred to a main gathering station at Wytch Heath from the reservoirs, which stabilises the crude oil through the separation of oil, gas and water. The oil is exported along a 91km dedicated pipeline to the Hamble Terminal (near Southampton), the natural gas is piped to Sopley (near Christchurch) and LPG moved by road tankers. The processed water is then re-injected back into the reservoir⁸.
- 1.4 Perenco, an Anglo-French oil and gas company, is the site owner and operator with a 95% share⁹. As the site operator they were granted permission from, the then, Dorset County Council in September 2013 to extend the life of Wytch Farm, from the original end date of 2016, to 2037. This is conditional on the future restoration of the surrounding environmental area.

⁶ Hydrocarbons Technology (2023), Wytch Farm Oil Field. [Online]. Available at: <https://www.hydrocarbons-technology.com/projects/wytch-farm-oil-field/>

⁷ Hydrocarbons Technology (2023), Wytch Farm Oil Field. [Online]. Available at: <https://www.hydrocarbons-technology.com/projects/wytch-farm-oil-field/>

⁸ WSP (2023), Integrated oil and gas engineering at Wytch Farm. [Online]. Available at: <https://www.wsp.com/en-gb/projects/integrated-oil-and-gas-engineering-at-wytch-farm>

⁹ Hydrocarbons Technology (2023), Wytch Farm Oil Field. [Online]. Available at: <https://www.hydrocarbons-technology.com/projects/wytch-farm-oil-field/>

The Incident

- 1.5 On 26th March 2023, a 20mm hole in an oil pipeline led to the release of oil occurring on the edge of Poole Harbour. It is estimated that approximately 200 barrels of reservoir fluid were discharged from a breached pipeline. Each barrel contained 158 litres of fluid, comprising approximately 15% oil and 85% water.
- 1.6 From the initial point of release, the discharge spread from Ower Bay into Poole Harbour, with reports of oil in the intertidal areas to the north of the harbour and the northside of Brownsea Island¹⁰.
- 1.7 From the point that oil spill was identified, a major incident was declared, emergency response plans were enacted (with appropriate incident management teams in place led through a Strategic Co-ordinating Group - SCG), booms were deployed around the spill area to prevent further releases of oil into the harbour and specialist clean-up operations were established to recover the oil spill¹¹.
- 1.8 The shoreline clean-up assessment covered an estimated 58km of shoreline, saltmarshes and mudflat habitat areas. This included Poole Harbour (the largest natural harbour in Europe), 5,000-acres of wider Site of Special Scientific Interest (SSSI), a Ramsar site where wetlands are designated as of international importance, Areas of Outstanding Natural Beauty (AONB), and Special Protection Area (SPA) for birds, and Brownsea Island and the lagoon, which are part owned by the National Trust and managed under lease by Dorset Wildlife Trust.
- 1.9 A more detailed sequencing of the Incident, and subsequent response, is presented in Section 2.

The Response Phase and Recovery Phase

The Response Phase

- 1.10 In line with the harbour emergency plans the Incident was designated as being beyond business as usual and was declared a 'Major Incident' due to the potential significant impacts to the environment and public health. This declaration required '*special arrangements to be implemented by several organisations ... where there is the potential for longer term impact on the environment, business, tourism and local communities*'¹².
- 1.11 A series of groups were established to co-ordinate activities and provide a means for communicating with other stakeholders, the media and the public. Poole Harbour Commissioners (PHC) were given lead coordinating agency in media relations (supported by a Warning & Informing Cell resourced by the local authorities) and the Dorset Civil Contingencies Unit (CCU) were tasked with providing the secretariat and secure information management to the SCG.

¹⁰ PMCC Incident Monitoring and Outcomes Summary September 2023

¹¹ Ibid

¹² Dorset LRF SCG Action Decision Log – Oil Spill Poole Harbour – 26.03.2023

As the leak site was within the Environmental Permit area, the Environment Agency were confirmed as the lead for the investigation into the leak¹³ and to capture the environmental impacts, with specialist support provided by the Health & Safety Executive (HSE) to investigate technical attributes of the site infrastructure

1.12 The early strategic priorities of the SCG were identified as being:

- To ensure there is no imminent risk to life and protect the public
- To protect the safety of all responding personnel
- To prevent further pollution occurring and minimise the extent of any pollution already occurred
- To mitigate the effects of any pollution and deliver environmental recovery
- To warn and inform the public.
- To maintain public confidence and protect the reputation of responding agencies
- To consider longer term impacts and recovery, e.g., impacts on tourism, businesses etc

1.13 Building on of the progress made to allow the beaches and harbour to remain open, but maintaining the ongoing advice against recreation use, revised priorities were subsequently agreed at the start of April 2023:

- To understand when it is safe to remove the advice to the public not to bathe and use Poole harbour for recreational use
- To understand when it is safe for the fishing industry to resume activity in the harbour
- To warn and inform the public and key stakeholders as to the removal of advice against recreational use of Poole harbour
- To maintain public confidence and protect the reputation of responding agencies
- To remain coordinated and to support the Recovery Coordinating Group (RCG) who will focus on the environment, economic, social and community recovery¹⁴.

1.14 The SCG acted as a decision-making forum between the 26th of March 2023 until the removal of the major incident status on 6th April 2023, and remained in operation until the RCG was established and operational.

The Recovery Phase

1.15 In line with the statutory responsibilities set out in the *Civil Contingencies Act (2004)*, Dorset Council established the RCG who were tasked with:

- Working with agencies and partners to ensure there is a comprehensive remediation plan and clear process to deliver a long-term recovery strategy.
- Throughout the restoration and repair process, to prevent further pollution occurring and minimise the extent of any pollution already occurred.
- Reversing and restoring to an agreed state the environment, health & welfare, and financial impacts (e.g., flora & fauna, water quality, tourism, and business).
- Securing, where possible, enhancement and/or improvement to the environment.
- Maintaining public and stakeholder confidence, using effective communications and engagement throughout the recovery process.

1.16 The RCG, led by Dorset Council, has been supported by four thematic sub-groups covering:

¹³ Dorset LRF SCG Action Decision Log – Oil Spill Poole Harbour – 28.03.2023

¹⁴ Dorset LRF SCG Action Decision Log – Oil Spill Poole Harbour – 03.04.2023

- Health & Welfare
- Environment & Infrastructure
- Finance & Economic Development
- Communication & Engagement

1.17 A separate Site Remediation group chaired by Dorset Council, with members from Perenco UK, was also established (Site D Group), which had the responsibility for the day-to-day clean-up activity on the affected sites, and the communication to the wider stakeholders on progress and areas still impacted.

Impact Assessment Aims

- 1.18 To discharge the objectives of the RCG Hatch were commissioned by Dorset Council (on behalf of the RCG), to undertake an impact assessment on the release of oil from a fractured pipe on the Wytch Farm site, which seeped into the wider Poole Harbour area (hereafter referred to as 'the Incident') ..
- 1.19 In line with the requirements of the *Dorset Local Resilience Forum (Dorset LRF) Recovery Framework*¹⁵, the primary aim of this work is to identify and, where possible, quantify the impacts of the Incident for each of the thematic sub-groups of the RCG as a collated report around the RCG Strategy.
- 1.20 In the first instance, this report provides an assessment of all activity and impact up to and including the point of publication. Given that some of the impacts (particularly the environmental impacts) will start to occur over a longer period, that the recovery activities will be ongoing and by extension, additional impacts may start to emerge it is suggested that a follow up report will be required, to further assess the indicators against the Impact Framework and a more mature understanding of effects can be realised.
- 1.21 The response and recovery to the spill involved a large array of organisations and stakeholders (as well as the significant usage of technical language). Organisations involved may have both a local and national, encompassing a range of roles and responsibilities that occur in managing and responding to major incidents. To help navigate and understand those who have been involved and their responsibilities please see the glossaries provided for further insights.
- 1.22 The core focus of this report is on the impacts to the local economy and needs to be placed in the context of a wider suite of reports that will make up the full assessment of what went wrong, how the response was managed, how the impact will be monitored over the coming years and what actions may be taken by any regulatory bodies.
- 1.23 For ease of reference, the related reports and future work can be summarised as follows:
 - **Environment Agency / Health & Safety Executive** – Investigation into the causes of the spill and whether any enforcement actions¹⁶ will follow, where breaches of environmental permitting may have occurred (expected early 2024);
 - **Perenco / Natural England** – Ongoing management of the affected sites, to manage the removal of any residual polluted areas and the restoration of environment. This will see further remediation activity in November 2023 and require on-going monitoring until 2026 of the salt marshes, as well as assessing bio-accumulation, sediment analysis and ongoing fauna data management .

¹⁵ *Dorset Local Resilience Forum (2018), Dorset LRF Recovery Framework.*

¹⁶ [Environment Agency enforcement and sanctions policy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/policies/environment-enforcement-and-sanctions-policy)

- **Perenco / PREMIAM** – An adapted monitoring programme for the harbour and the surrounding SSSIs will incorporate adaptations to reflect the impacts of the spill and any further advisory actions. The monitoring and analysis will be taken forward by the PREMIAM Monitoring Coordination Cell (PMCC), as the existing Standing Environmental Group, in conjunction with Perenco, with future oversight and governance for the monitoring reports yet to be agreed;
- **Standing down of the RCG** – following the acceptance of the Impact Assessment report, the closure of all the remaining activities on the RCG Action Log and the agreement on the future governance arrangements for the oversight of the monitoring requirements through till 2026 the RCG will then be able to be stood down; and
- **Evaluation of Response & Recovery activities:** The assessment of the Dorset Local Resilience Forum and any lessons learned for future plans and responses, has undertaken with a draft report shared with stakeholders and will need to be agreed as a final report.

Study Methodology

Overview

- 1.24 To be able to provide focus and clear insights into the spill impacts, a draft framework of thematic priorities for assessment were developed and tested with the RCG thematic groups. These were then refined and agreed as the core points of impact assessment to be assessed, against which a framework of measurable baseline conditions would be developed.
- 1.25 in support of providing a fully rounded assessment, a combination of quantitative and qualitative assessment methodologies, utilising a range of economic, societal, commercial and financial data were utilised to provide the measurement framework.

Figure 1.1 Impact Framework



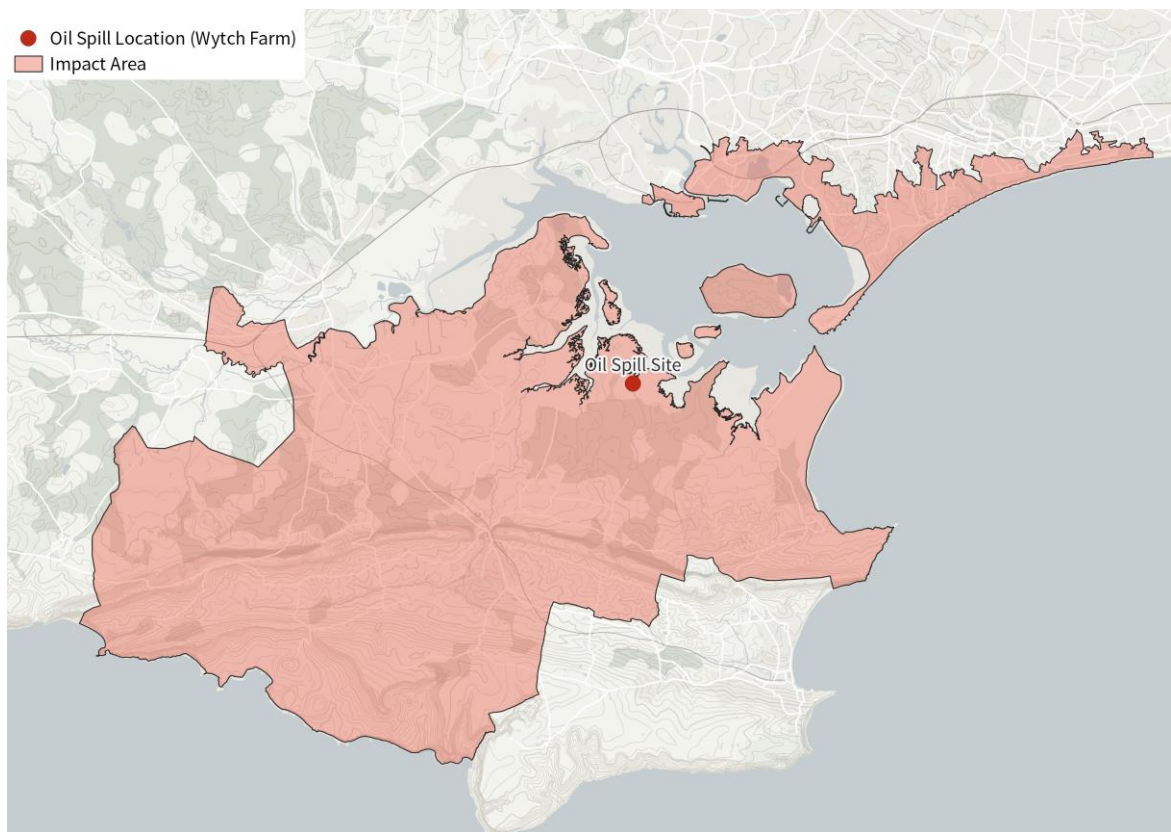
Source: Hatch

Assessment Geographies and Study Area

- 1.26 To be able to demonstrated where impacts were experienced and understand the effects locally, varying spatial levels of analysis were undertaken, according to the nature and type of impact considered. For consistency with industry standards metric measurements have been used throughout.
- 1.27 Where possible, the impacts have been considered in respect of the following study area. The study area has been identified using those Lower Super Output Areas (LSOAs) which broadly align with the same locations where the shoreline assessments were initially undertaken¹⁷. It should be recognised that this area extends beyond where oil waste material has been found.

¹⁷ Shoreline Assessments undertaken by foot, vessel and aircraft on 30th March 2023 shared via Resilience Direct

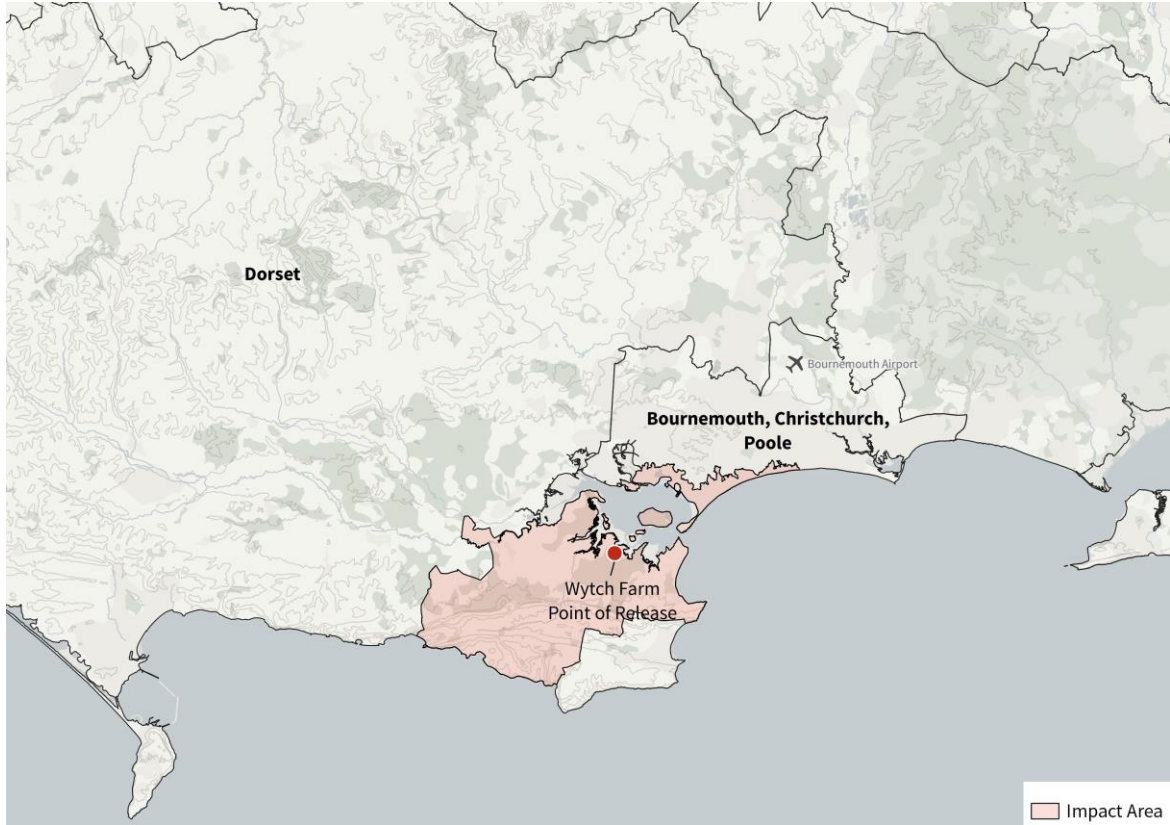
Figure 1.2 Study Area



Source: Hatch

1.28 Impacts that cannot be considered in respect of the defined study area are assessed at local authority level for Dorset Council and Bournemouth, Christchurch and Poole (BCP Council). The study area in the context of the local authorities of Dorset Council and Poole is presented in Figure 1.3.

Figure 1.3 Local Authorities and Study Area



Source: Hatch

Methodological Approach

- 1.29 The key methodological elements of our approach are based around two phases of the assessment process:
- Gaining an understanding of current social, economic and environmental conditions in the local area surrounding the Incident site, through referencing to existing studies and available data sources; and
 - Demonstrating the direct and indirect impacts of the Incident in terms of:
 - Health and community impacts
 - Environmental impacts
 - Business and economy impacts.

1.30 Where possible, these impacts have been translated into social, environmental and economic costs through applying HM Treasury Green Book, Department for Levelling Up, Housing and Communities (DLUHC), and Department for Business, Energy & Industrial Strategy (BEIS) guidance, as well as qualitative evidence, to robustly assess impacts.

1.31 This approach is considered to embody rigour throughout the assessment process, with a clear understanding of both the current and future context of the economy and local communities; a demonstration of the direct impacts of the Incident; and then the application of robust government appraisal guidance techniques to quantify the economic, social and environmental costs.

1.32 Where feasible, the analysis seeks to quantify and monetise the identified costs, but for elements where there is an absence of robust mechanisms for doing so a qualitative assessment process is undertaken.

In summarising the overall potential impacts we have applied a standardised assessment scale, in line with industry 'good practice'. For consistency and shared understanding the following definitions and categorisations have been used to articulate the levels of impact:

- 1.33 Economic, social, and environmental impacts can often be quantified against thresholds defined using numerical values. Where this has not been feasible within this study, a consistent scale of adverse impacts has been applied for assessing the significance of the potential negative effects as set out below:
- **Major Adverse** - Total loss or large-scale damage to existing character or distinctive features. Likely to result in substantial harm or loss of economic or social value.
 - **Moderate Adverse** - Partial loss or noticeable damage to existing character or distinctive features. May result in significant harm or loss of economic or social value, without appropriate remedial action.
 - **Minor Adverse** - Slight loss or damage to existing character or features and elements, with associated loss of economic or social value. The effects cannot be completely mitigated but opportunities may exist for mitigation.
 - **Negligible Adverse** - Barely noticeable loss or damage to existing character or features and elements. There is a low possibility that harm or loss of economic or social value could arise.
 - **No Impact** - No noticeable loss, damage or alteration to character or features. No harm or loss of economic or social value.

Study Limitations and Assumptions

- 1.34 Through the creation of the Impact Framework and its subsequent assessments it is important to recognised that there are a range of limitations on the extent to which the impacts of the Incident can be fully assessed at this stage.
- 1.35 The limitations are driven by a range of factors which include:
- **Timing of Report:** The Poole Harbour Incident Impact Assessment was prepared during the summer / autumn of 2023. The latest RCG attended was 6th October 2023. Whilst Poole Harbour has returned to full operation, some impacts (specifically related to environment) may not yet be fully understood or yet to be realised. As such, Hatch has reported on the latest available findings and referenced the data sources throughout this document.
 - **Information availability:** The live nature of the Incident has meant that information and data has been shared throughout the project programme. Hatch has sought to use best available data and information available at the time. However, it will not have been possible to review all detailed documentation produced by all stakeholders, many of which is not directly relevant to the impact assessment. All data sources and information used to inform the assessment is referenced within this document. Whilst a range of information in relation to the Incident has been made available, the level of detail is not always sufficient to accurately assess the likely direct and indirect cost impacts.

Report Structure

- 1.36 This report presents the main output from the study and sets out the context and findings across the following sections:
- **Section 2 – The Incident:** Provides an overview of the activities at Wytch Farm, the Oil Spill incident, and the subsequent response by Perenco and other relevant organisations.
 - **Section 3 – Baseline Conditions:** Provides an overview of the key environmental, social and economic characteristics of the study area.
 - **Section 4 – The Impact Framework:** Establishes the framework and approach for assessing the range of potential impacts of the Incident, for each of the assessment categories within the study area.
 - **Section 5 – Environmental Impacts:** Presents the analysis of the known short-term impacts upon the local environment within the study area, drawing on existing monitoring information.
 - **Section 6 – Health and Community Impacts:** Presents the analysis of potential impacts upon the health, well-being and sustainability of local communities across the study area.
 - **Section 7 – Business and Economy Impacts:** Presents the analysis of potential impacts upon business operations and current and future economic performance.
 - **Section 8 – Summary and Conclusion:** Provides a summary of the key impacts and an overall conclusion on the extent of the impacts of the Incident within study area.
- 1.37 The following section provides the detailed background and timeline to the Incident and the subsequent responses

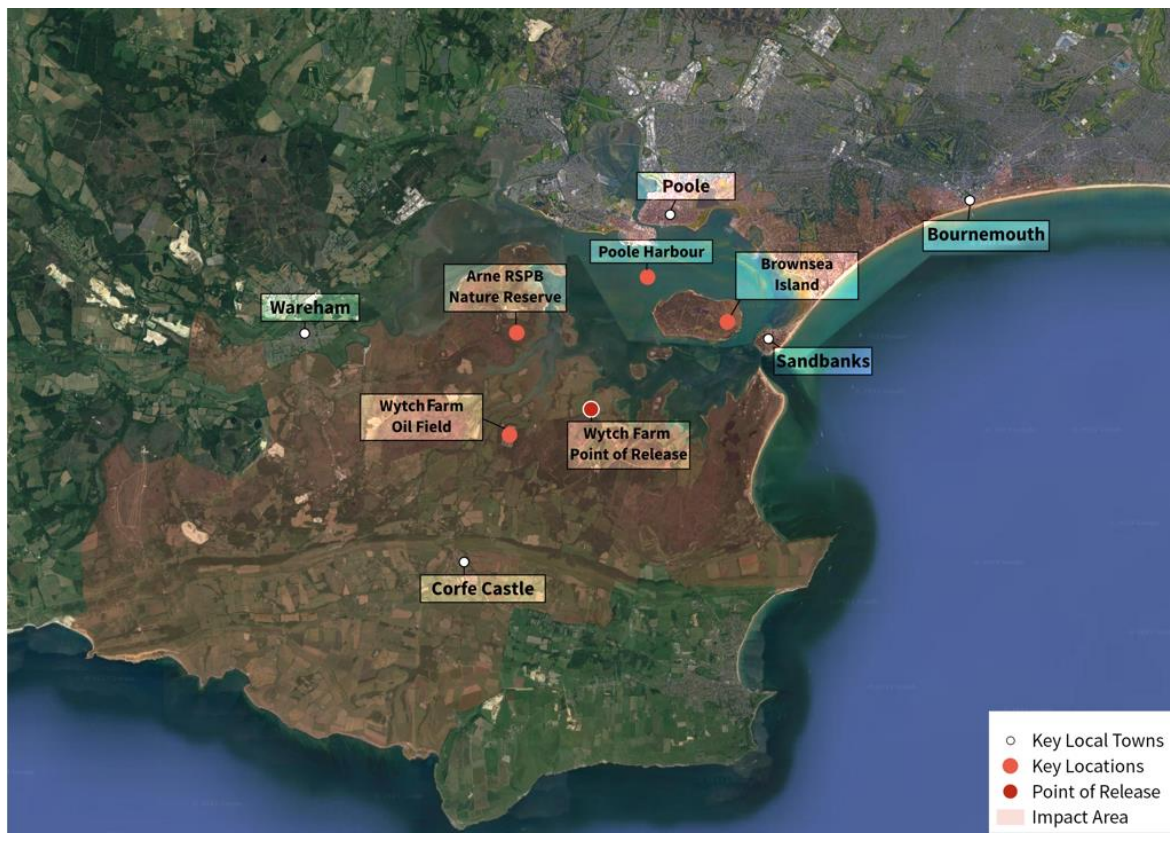
2. The Incident

- 2.1 Whilst the Incident was managed under a series of emergency plans and responses, as the Impact Assessment framework is directly related to the Emergency Response Procedure from the *Dorset LRF Recovery Framework*¹⁸, this section of the report sets out the details of the Incident aligning the key actions undertaken during the key phases established in the LRF; the ‘Response Phase’ and the ‘Recovery Phase’.

Overview of the Incident

- 2.2 On 26th March 2023, a 20mm hole in an oil pipeline was identified on the southern shoreline of Poole Harbour near to the edge of Ower Bay, approximately 1.8km east of Wytch Farm.
- 2.3 The point of release occurred in a site located between a private highway and tidal saltmarshes, approximately 2.7km south west of Brownsea Island, 5.0km south west of Sandbanks, and 3.0km south east of Arne RSPB Nature Reserve.

Figure 2.1 Location of Incident



Source: Hatch

- 2.4 It is estimated that approximately 200 barrels of reservoir fluid were discharged from the breached pipeline. Each barrel contained 158 litres of fluid, comprising approximately 15% oil and 85% water.

¹⁸ Dorset Local Resilience Forum (2018), *Dorset LRF Recovery Framework*.

Timeline of the Response / Recovery Phases

- 2.5 In the context of the *Dorset LRF Recovery Framework*, the Response Phase can be defined as ‘the actions taken to deal with the immediate effects of the emergency or incident’ noting the rapid implementation of contingency arrangements for collaboration, coordination and communication are vital in mitigating adverse impacts. The Response Phase encompasses ‘the effort to deal with both the direct effects of the emergency itself (e.g. fighting fires, rescuing individuals) and the indirect effects (e.g. disruption to the community, media interests etc.)¹⁹.

In this scenario the Response Phase consisted of daily meetings between relevant groups and an agreed set of messaging that was to be shared from a nominated source. In the case of the Wytch Farm Incident, messaging was communicated in the first instance via the website and press releases issued from PHC supplemented by updates issued through the two local authorities.

- 2.6 The Response Phase for the Incident at Wytch Farm encompassed the following actions:

26th March 2023

- The Incident was reported to the Wytch Farm Control Room at 08:00am on 26 March 2023.
- PHC and Perenco activated their emergency Oil Spill Response Plans and specialist oil spill response companies including Oil Spill Response Limited (OSRL) and Adler & Allan (A&A) assisted with operations²⁰.
- A major incident was declared, and a Strategic Coordination Group (SCG), led by PHC (and subsequently led by Dorset Police) established, including Dorset Police, Dorset Council, BCP Council, the NHS, The Environment Agency and Natural England²¹.
- Public advised to avoid using the water for recreational purposes and bathing at beaches within Poole Harbour until further updates become available²².
- Food incident report raised with the Food Standards Agency (FSA)²³.
- Shellfish industry members notified of the oil spills and advised not to harvest. Fishing activity was ordered to cease, this included fishing for fin-fish species and bai collection, as well as shellfish harvesting (aquaculture, wild fisheries and hand gathering) ordered to cease²⁴.
- Spill was notified as a Food Safety Incident to the Food Standards Agency by BCP Council²⁵
- Advice against netting in Poole Harbour issued²⁵

¹⁹ Dorset Local Resilience Forum (2018), *Dorset LRF Recovery Framework* p8/9.

²⁰ Poole Harbour Commission (2023), Press Release No. 2 – 26 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-2-26-march-2023-20-00/>

²¹ Poole Harbour Commission (2023), Press Release No. 2 – 26 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-2-26-march-2023-20-00/>

²² Poole Harbour Commission (2023), Press Release No. 2 – 26 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-2-26-march-2023-20-00/>

²³ BCP Council (2023), *Port Health Team – Key Messaging to Trade and Other Agencies*. [Internal Document].

²⁴ BCP Council (2023), *Port Health Team – Key Messaging to Trade and Other Agencies*. [Internal Document].

²⁵ BCP Council (2023) *Food Safety & Port Health Manager* [via email]

27th March 2023

- Teams comprising of over 100 personnel involved in total to assess the shoreline and harbour, including those undertaking Shoreline Cleanup and Assessment Techniques (SCAT)²⁶.
- Helicopters, drones, vessels and shore patrols gather data, with ariel footage suggesting that there was already a 60-70% reduction in oil sightings on the water²⁷.
- Collection of oil from sightings commenced and recovered to a safe waste recovery site on the port estate²⁸.
- BCP Council established signage on the beaches to advise bathers to stay out of the water²⁹.

28th March 2023

- Approximately 58km of shoreline assessed, from over 200 reports and 200 images / videos from drone footage³⁰.
- Reports of oil continuing to dissipate; oil reported to come ashore in a small number of areas with response teams targeting these areas as and when recorded³¹.
- A limited number of reports regarding oiled birds, however no bird fatalities were reported³².
- Water and shellfish sampling carried out in Poole Harbour and key stakeholders in the fishing industry contacted³³.
- Signage had been put up by Dorset Council along the Studland beaches, Knowle Beach, South Beach, Ferry Road and Shell Bay and by BCP Council around Poole Harbour and at Rockley Park, Lake Pier, Hamworthy Park, Baiter Slipway, Whitley Lake (Kite Beach) and the slipway at Lake Road to advising people not to swim in these areas until further notice³⁴.

29th March 2023

- Clean up operation, with the on-site response at Ower Bay, continuing 24-hours a day³⁵.

²⁶ Poole Harbour Commission (2023), Press Release No. 3 – 27 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-3-27-march/> SCAT documents the status of oiled shorelines and their treatment recommendations

²⁷ Poole Harbour Commission (2023), Press Release No. 3 – 27 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-3-27-march/>

²⁸ Poole Harbour Commission (2023), Press Release No. 3 – 27 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-3-27-march/>

²⁹ Poole Harbour Commission (2023), Press Release No. 3 – 27 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-3-27-march/>

³⁰ Poole Harbour Commission (2023), Press Release No. 4 – 28 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-4-28-march-2023/>

³¹ Poole Harbour Commission (2023), Press Release No. 4 – 28 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-4-28-march-2023/>

³² Poole Harbour Commission (2023), Press Release No. 4 – 28 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-4-28-march-2023/>

³³ Poole Harbour Commission (2023), Press Release No. 4 – 28 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-4-28-march-2023/>

³⁴ Poole Harbour Commission (2023), Press Release No. 4 – 28 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-4-28-march-2023/>

³⁵ Poole Harbour Commission (2023), Press Release No. 5 – 29 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-5-29-march-2023/>

- SCAT covered almost 100 km of shoreline and recovered approximately 14,000 litres of oil/water mix from the area round the point of release and approximately 1,500 kg of oil sediment³⁶.
- The SCG continued to use the expertise of numerous agencies including BCP Council, Dorset Police, Dorset Council, National Health England, Environment Agency and Natural England³⁷.
- The existing South West Environment Group revised their data plans, for the longer term to assess impact of this incident. A PREMIAM³⁸ cell established to feed into the RCG via this arrangement.

30th March 2023

- Continuation of aircraft and drone surveillance, with 327 survey reports now collected³⁹.
- 31,000 litres of liquid had been recovered and four containment / absorbent booms in place and containing oil that had leaked into Poole Harbour⁴⁰.
- Ongoing review of progress, in order to agree the most effective strategy to deal with the incident and source additional manpower from Oil Spill Pollution companies⁴¹.

Recovery Phase

2.7 In sharp contrast to the Response Phase, the Recovery Phase in the area around the point of release may endure for months or a number of years and in the context of the *Dorset LRF Recovery Framework*, the Recovery Phase ‘begins at the earliest opportunity following the onset of an emergency or incident, and should, preferably run in tandem with the response to the emergency itself. It should continue until the disruption has been rectified, demands on services have returned to normal levels and the needs of those directly and indirectly affected have been met⁴².’

2.8 To date the Recovery Phase has followed the following timelines:

31st March 2023

- The RCG was established with Dorset Council as lead. The group’s Terms of Reference were defined within the Dorset LRF framework as ‘*the strategic decision-making body for the recovery phase*’. It is the role of the group to be able to give the broad overview and represent each agency’s interests and statutory responsibilities, as well as providing

³⁶ Poole Harbour Commission (2023), Press Release No. 5 – 29 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-5-29-march-2023/>

³⁷ Poole Harbour Commission (2023), Press Release No. 5 – 29 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-5-29-march-2023/>

³⁸ PREMIAM is a cross-government/industry initiative aimed at improved post spill monitoring guidance and co-ordination. It is co-ordinated by emergency response and impact assessment experts from Cefas (Centre for Environment, Fisheries and Aquaculture Science)

³⁹ Poole Harbour Commission (2023), Press Release No. 6 – 30 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-6-30-march-2023/>

⁴⁰ Poole Harbour Commission (2023), Press Release No. 6 – 30 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-6-30-march-2023/>

⁴¹ Poole Harbour Commission (2023), Press Release No. 6 – 30 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-6-30-march-2023/>

⁴² Dorset Local Resilience Forum (2018), Dorset LRF Recovery Framework p9.

visible leadership'. The RCG was required to establish thematic sub-groups to take work forward.

- SCG also remained in operation due to the unknown extent of public health risks, subject to the outcome of testing of water, fish and shellfish⁴³ and whilst the Major Incident status remained in place⁴⁴.
- It was agreed that the RCG will work in accordance to the Dorset LRF Recovery Framework, Dorset LRF Coastal Pollution Plan, Poole Harbour Commissioners (PHC) Oil Spill Plan, and Perenco Oil Spill Contingency Plan⁴⁵.
- Revised Communication and Engagement Strategy, focussed less on day-to-day updates and more on strategic co-ordination⁴⁶. The 'Warning and Informing Group' to be re-established if new incidents identified.
- 100,000 litres of oily/water mix recovered from the area around the point of release. A cofferdam for the of the oil pipe commenced.
- 2 tonnes of contaminated sediment had been recovered. Flushing and skimming operations continued daily in Ower Bay.⁴⁷
- Oil still remains in the immediate area around the leak source and in the pipe⁴⁸.
- Public reminded of UK Health Security Agency (UKHSA) advice: beaches and water in the Poole Harbour to exclude recreational including hand gathering of shellfish, swimming, bathing, water sports, fishing and angling⁴⁹.

2nd April 2023

- 40,000 litres of oily/water mix from the area around the point of release and over 5 tons of contaminated beach/soil material and contaminated materials recovered.
- A cofferdam constructed and the pipeline sealed, with pipeline excavation work continuing.
- Flushing and skimming operations continuing in Ower Bay. The containment measures involving 11 booms proving effective⁵⁰.
- Approximately 6 "slightly oiled" birds observed, but no bird casualties or no serious injuries to wildlife. There was also no indication of any other wildlife casualties.
- Focus of clean-up operations was at Ower Bay, with substantial clean-up activities was also taking place at the Goathorn and Arne peninsulas.

3rd April 2023

- Draft Recovery Strategy discussed and agreed by RCG. Which includes plans to establish the following sub-groups⁵¹, aligned with guidance in the LRF Framework:

⁴³ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁴⁴ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁴⁵ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁴⁶ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁴⁷ Poole Harbour Commission (2023), Press Release No. 7 – 31 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-7-31-march-2023/>

⁴⁸ Poole Harbour Commission (2023), Press Release No. 7 – 31 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-7-31-march-2023/>

⁴⁹ Poole Harbour Commission (2023), Press Release No. 7 – 31 March 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-7-31-march-2023/>

⁵⁰ Poole Harbour Commission (2023), Press Release No. 8 – 02 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-8-02-april-2023/>

⁵¹ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

- Environmental
 - Health and Wellbeing *[it was determined at an early stage that there was no need to formalise a health and wellbeing group as following a review of the LRF Framework guidance it was concluded by the sub-group Chair that it did not meet required threshold of human health impact⁵²*
 - Business and Economy
 - Communications and Engagement.
- A separate Site Remediation group led by Perenco UK and Chaired by Dorset Council was also established (Site D Group), which had the responsibility for the day-to-day clean-up activity on the affected sites, and the communication to the wider stakeholders on progress and areas still impacted.
 - Sampling of shellfish from the aquaculture grounds in Poole Harbour carried out to assess food safety and inform decision on recommencing of harvesting⁵³

4th April 2023

- An estimated 160,000 litres of oily/water mix from the area around the point of release and over 6 tons of contaminated beach/soil material and contaminated PPE had now been recovered⁵⁴.
- Perenco issued contact details for impacted businesses to submit insurance claims⁵⁵.
- UKHSA advise that beaches and water in the Poole Harbour area can now be used for recreational purposes. This included swimming, bathing and water sports.
- The public were however requested to stay clear from Ower Bay⁵⁶.
- BCP Council removed the signage at harbour beach areas and slipways.
- Dorset Council area signage removed from the Studland beaches, Knowle Beach, South Beach, Ferry Road and Shell Bay.⁵⁷
- Fishing and/or netting for fish in Poole Harbour can resume. Those fishing were advised to avoid any areas of the Harbour which were evidently contaminated with oil. Any fish found to be dead, dying or visibly contaminated with oil residues should not be consumed or marketed⁵⁸.
- Shellfish harvested from Poole Harbour from Sunday 26th March onwards not be relayed or marketed.

⁵² Hatch engagement with Health and Wellbeing sub-chair (14th July 2023)

⁵³ BCP Council (2023), Food Safety & Port Health Manager (via email)

⁵⁴ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

⁵⁵ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

⁵⁶ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

⁵⁷ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

⁵⁸ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

- BCP Council and Southern Inshore Fisheries and Conservation Authority (SIFCA) carried out sampling of shellfish from the aquaculture grounds in Poole Harbour and further assessment by the FSA, to inform the position regarding shellfish⁵⁹.

6th April 2023

- Major Incident status and SCG stood down, with the RCG leading the incident recovery with supporting sub-groups⁶⁰.
- RCG initiate Recovery Impact Assessment⁶¹.

14th April 2023

- The PHC website is updated with contact details for those members of the community who may wish to make compensation claims to Perenco.

18th April 2023

- Southern IFCA and BCP Council carried out further sampling of shellfish from wild fishery beds on 18th April 2023 along with taking sediment samples to inform advice on harvesting from wild shellfish beds by hand gathering and for the upcoming dredge season opening in May⁶².
- sampling of shellfish and sediment from the wild fishery areas in Poole Harbour carried out to assess food safety and inform decision on recommencing of harvesting⁶³

19th April 2023

- Floating booms to remain in place to ensure that oil did not escape into the wider harbour.
- No reports of any oil outside of Poole Harbour and no reports of oil outside of the contaminated site in Ower Bay since 3rd April⁶⁴.
- Over 300 bags of oil and contaminated materials had been collected from the beaches as well as 417,000 litres of oil and oily water collected.

20th April 2023

- Results of sampling allows aquaculture bed to reopen, noting FSA advice to operators that these sites need to ensure that any harvested shellfish are fit for consumption⁶⁵. Harvesting from wild beds was still subject to closure.
- Wild shellfish beds, which are fished on a seasonal basis and were closed for dredging until 25th May 2023 subject to additional sampling, in advance of the season opens⁶⁶.

⁵⁹ Poole Harbour Commission (2023), Press Release No. 9 – 04 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-9-04-april-2023/>

⁶⁰ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁶¹ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁶² Southern IFCA comments (December 2023)

⁶³ BCP Council (2023), Food Safety & Port Health Manager (via email)

⁶⁴ Poole Harbour Commission (2023), Press Release No. 10 – 19 April 2023. [Online]. Available at: <https://www.phc.co.uk/poole-harbour-commissioners-press-release-no-10/>

⁶⁵ Poole Harbour Commission (2023), Update on Shellfish Harvesting in Poole Harbour [Online]. Available at: <https://www.phc.co.uk/update-on-shellfish-harvesting-in-poole-harbour/>

⁶⁶ Poole Harbour Commission (2023), Update on Shellfish Harvesting in Poole Harbour [Online]. Available at: <https://www.phc.co.uk/update-on-shellfish-harvesting-in-poole-harbour/>

- Hand gathering of shellfish, from the intertidal zone, to remain in abeyance until sampling results received⁶⁷.

The Environment Agency requested clarity within the RCG on what caused the Oil Spill and a timeline of when the RCG will be informed so they could communicate to stakeholders⁶⁸. It was agreed that a statement would be shared with the group for comment and sign off.

5th May 2023

- Results of sampling allow the hand gathering of shellfish from the intertidal zone to recommence immediately as this activity is not subject to full seasonal closure. Fishing for shellfish from the wild fishery using a dredge is subject to seasonal closure and council only commence again once the season begins on 25th May⁶⁹.

2nd June 2023

- A&A updated on Site D and the brown oxidation present on the surface of the water, highlighting that in any communications that oxidation is a natural process.

15th June 2023

- Site visit was undertaken on 15th June 2023 with attendees from Perenco, Hatch, Dorset Council, BCP Council, Dorset CCU, and sub-group chairs⁷⁰.

26th June 2023

- Business and Economy Sub-Group stood down⁷¹.

12th July 2023

- The Environment Sub-group reports no further saturation on the booms, just organic build up. There has been small pockets of iridescent release trapped within the vegetation due to spring tides. Close to the main loss site there are '*little areas of black oil trapped in the ground*'.⁷²
- Following ongoing water monitoring, no hydrocarbon sheen was detected in or around Poole Harbour and/or the beaches⁷².

19th July 2023

- The Environment & Infrastructure Sub-Group was amalgamated with the Site D Remediation Sub-Group, and the first meeting occurred. Referred to as the '*Remediation and Restoration Group*'

⁶⁷ Poole Harbour Commission (2023), Update on Shellfish Harvesting in Poole Harbour [Online]. Available at: <https://www.phc.co.uk/update-on-shellfish-harvesting-in-poole-harbour/>

⁶⁸ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁶⁹ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁷⁰ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁷¹ RCG (2023), Action and Decision Log – Poole Harbour Oil Spill [Internal Document]

⁷² Remediation and Restoration Group (2023) Action Decision Log – Poole Harbour Oil Spill [Internal Document]

23rd August 2023

- Unexpected high tides due to unusually low pressure resulted in the mobilisation of sheens, from the hydrocarbons in the contaminated sediment away from the site. Need for additional barriers for future high tides was suggested.

30th August

- Concerns have been raised by the RCG regarding commencement of the wildfowl shooting season and whether it is appropriate given proximity to Site D. Contact was made with the Crown Estate and an exclusion zone was put in place.

14th September

- The 'Incident Monitoring and Outcomes Summary' report is shared with the Remediation & Restoration Group. The document provides a summary updated by PMCC of the environmental impacts⁷³.

18th October

- A surface scrape proposed to remove all contaminated sediment. Whilst the surface scrape of the saltmarsh will take around 8-9 days a total of 6 weeks is required accounting for mobilisation and downtime during fluctuating Spring Tides. The scrape proposed a depth of 400m and will remove likelihood of ongoing and repeat contamination of Site D and Poole Harbour⁷⁴. This is subject to Natural England sign off.

⁷³ DRAFT Incident Monitoring and Outcomes Summary – Following the Perenco Oil Spill to Ower Bar, Poole Harbour March 2023. (2023) PMCC

⁷⁴ Remediation and Restoration Group (2023) Action Decision Log – Poole Harbour Oil Spill [Internal Document]

Communications and Engagement

- 2.9 As identified within the *Dorset LRF Recovery Framework*⁷⁵, rapid implementation for communication is vital during an emergency.
- 2.10 Within the Response Phase of the Incident, the Warning and Informing Group was established for the intense day-to-day requirements. This group managed the shared understanding of the Incident, mapping and briefing of/ for stakeholders and formulated the overall communications strategy. The Warning and Informing Group was chaired by the Communications Officer at Dorset Council and included members from Dorset Council, BCP Council, Dorset & Wiltshire Fire Service, Dorset Police and the Environment Agency.
- 2.11 Subsequently, within the Response Phase, the Warning and Informing Group transitioned into the Communications and Engagement sub-group. This approach aligned with guidance within the *Dorset LRF Recovery Framework*. The remit was to ensure effective communications across all sub-groups whilst also considering a longer-term communications strategy.
- 2.12 During both the Recovery and Response phase all communications to the public were channelled through the PHC, via their website⁷⁶. A set of Frequently Asked Questions (FAQs) was agreed and designed to be continuously updated through the Recovery Phase, should relevant information arise and is a mechanism that remains in place, complemented by the Local Authorities dissemination through their own communication approaches including website and social media.
- 2.13 The following sections sets out the baseline conditions against which the Impact Framework will be measured.

⁷⁵ *Dorset Local Resilience Forum (2018), Dorset LRF Recovery Framework.*

⁷⁶ www.phc.co.uk/oil-spill-frequently-asked-questions-faqs/

3. Baseline Conditions

- 3.1 In order to assess the potential impacts of the Incident, it is necessary to determine the existing social, economic and environmental conditions, resources and sensitive receptors that currently exist in study area, against which any 'change' can be measured or assessed.
- 3.2 These are known as the 'baseline conditions' and should be considered in relation to the assessment, as set out in the Impact Framework (Section 4). The baseline is intended to present an overview of existing conditions, especially where there are receptors or resources that make notable contribution to the local context, or where they can be reasonably expected to have been affected by the Incident. As such, not all assets and resources within the study area are covered.
- 3.3 This section establishes the current baseline, with regards to the following characteristics relevant to the Incident:
 - Health and Community:
 - Local Population and Community
 - Health and Wellbeing
 - Community Assets
 - Heritage Assets
 - Recreational Activities / Facilities
 - Travel and Movement
 - Environment:
 - Habitats
 - Wildlife
 - Environmental Designations
 - Water Quality
 - Air Quality
 - Business and Economy:
 - Visitor Economy
 - Aquaculture, Wild Fisheries and Hand Gathering
 - Small Scale Fishing Vessels and Recreational Fishing
 - Other Harbour-based Operations

Health and Community

- 3.4 This section of the report establishes the details on the current provision related to health and community within the study area. This includes local population and community, health and wellbeing, community assets, heritage assets and recreation facilities; and travel and movement.

Local Population and Community

- 3.5 The study area has a population of approximately 45,500, which comprises residents from both Dorset and Poole⁷⁷. The largest settlements that intersect the study area include Poole (5.1km from the Incident), Sandbanks (4.6km from the Incident), Bournemouth (10km from the Incident), Wareham (7.2km from the Incident), and Corfe Castle (4.8km from the Incident).
- 3.6 The area surrounding Wytch Farm is largely rural with some dispersed residential (some of which are short-term holiday lets) and agricultural properties. This includes Ower Quay Cottage (0.4km from the Incident), and Ower Farm (0.4km from the Incident) and Viltower Cottage (1.7km from the Incident). There is also a residential property located on Green Island, located 1.5km from the spill, just out from Ower Bay.
- 3.7 A survey conducted by Dorset Council in 2021⁷⁸ assessed perceptions of the local area and community cohesion. Overall, it was reported that 86% of respondents were satisfied with their local area as a place to live. In terms of community cohesion, 57% of respondents agree that people within their local area come together to collectively improve the area.
- 3.8 In 2022, the average property price within the study area was £389,753, which was greater than both averages for BCP (£327,800) and Dorset (£340,998)⁷⁹. That said, prices range significantly within the study area, with the average price in Poole Quay Old Town at approximately £191,200 compared to Sandbanks, where the median price was £1,275,455. More locally to Wytch Farm, the median house price in the LSOA where the Incident occurred was £590,000 in 2022⁸⁰.
- 3.9 Based on the Indices of Multiple Deprivation, the LSOA in which the point of release is located is ranked 16,150 (out of 32,844 LSOAs in England), this is amongst the 50% most deprived neighbourhoods in England. The adjacent LSOA to the west scores similarly (17,481 out of 32,844 LSOAs in England). Conversely, the study area also comprises some of the least deprived LSOAs in England, specifically on the northern shoreline of Poole Harbour in the Sandbanks and Lilliput areas⁸¹.

⁷⁷ Office for National Statistics (2021), *Small Area Population Estimates 2020*

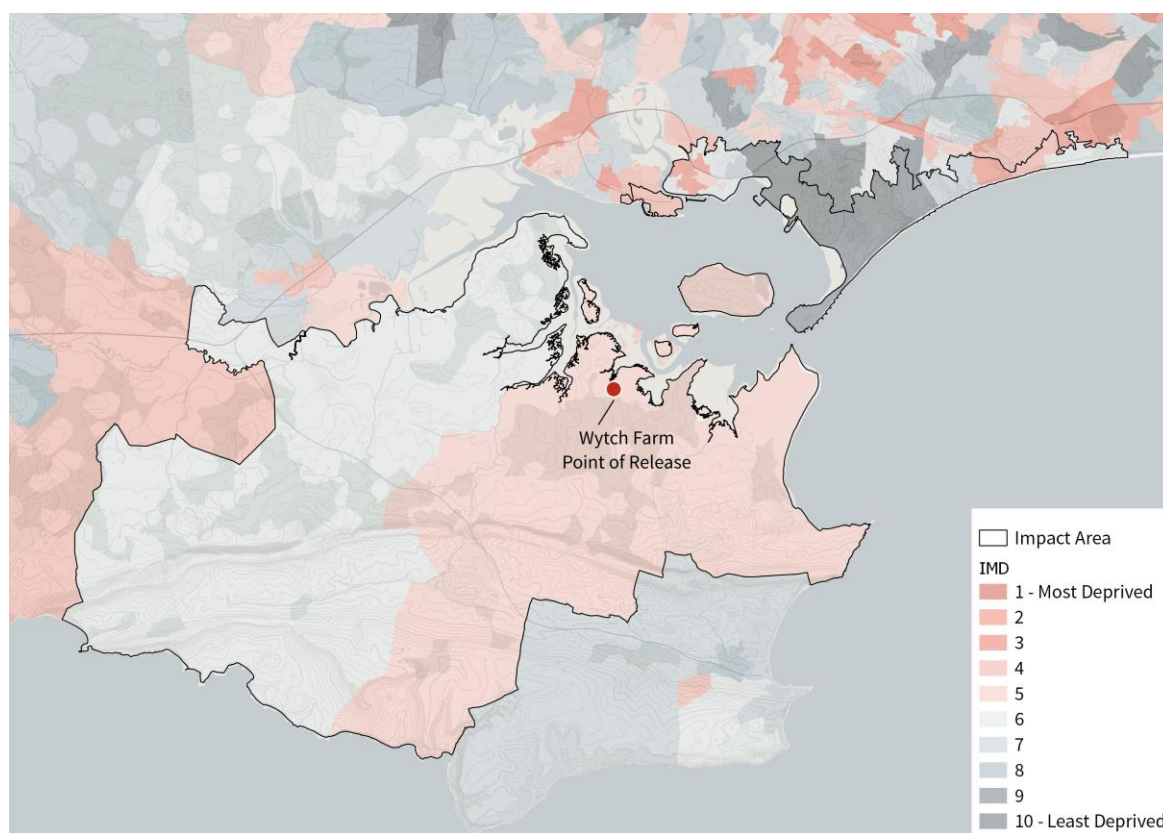
⁷⁸ Dorset Council (2021), *Resident Survey 2021*

⁷⁹ HM Land Registry (2022) *UK House Price Index England: January 2022*

⁸⁰ Office for National Statistics (2023), *House price statistics for small areas in England and Wales: year ending December 2022*

⁸¹ Department for Levelling Up, Housing and Communities (2019), *English Indices of Deprivation 2019*

Figure 3.1 Indices of Multiple Deprivation



Source: Department for Levelling Up, Housing and Communities (2019), English Indices of Deprivation 2019

Health and Wellbeing

- 3.10 This section provides a human health profile of the study area surrounding the Incident, focusing on key indicators identified by the *Office for Health Improvement and Disparities* at ward level including a comparison of these to national averages⁸².
- 3.11 In 2020, the proportion of residents aged 65-years or older across the study area was 24%, which is greater than the average across BCP (22%) but lower than the Dorset average (29%)⁸³. When compared to the national average (19%) all three areas have a greater proportion of residents aged over 65-years⁸⁴.
- 3.12 Almost all wards within the study area, excluding Penn Hill, have a higher proportion of the population with a limiting long-term illness or disability compared to the national average (17.6%). Canford Cliffs (22.7%) had the highest proportion of the population with a limiting long-term illness or disability.
- 3.13 The life expectancy of both males and females is greater than the national average in all wards in the study area, with the exception of males living in Poole Town, which is slightly below the national average.

⁸² Office for Health Improvement and Disparities (2023), *Local Health Indicators*. [Online]. Available at: <https://www.localhealth.org.uk/>

⁸³ Office for National Statistics (2021), *Population estimates – Local authority based by single year of age 2020*.

⁸⁴ Office for National Statistics (2021), *Population estimates – small area based by single year of age 2020*.

- 3.14 All wards in the study area reported a lower proportion of obese children in comparison to the national average.
- 3.15 The Standard Mortality Rate (SMR) for people aged under 75-years in Parkstone and Poole Town is higher than the national average. This means that there is a higher proportion of deaths from all causes in comparison to the national average. All other wards in the study area reported a lower SMR.

Table 3.1 Human Health Profile in Study Area

	South East Purbeck	Wareham	Canford Cliffs	Penn Hill	Parkstone	Poole Town	England
Limiting long-term illness or disability	20.7%	20.5%	22.7%	15.5%	17.8%	20.3%	17.6%
Life expectancy at birth (males)	82.3	81.7	83.1	81.7	79.8	77.1	79.5
Life expectancy at birth (females)	85.4	85.0	85.0	84.4	83.8	83.4	83.2
Obese children (Reception) (%)	21.4%	19.6%	17.6%	15.7%	15.0%	20.0%	22.6%
Deaths from all causes (under 75 years) (Standard Mortality Rate)	78.8	86.8	85.7	91.4	103.6	108.1	100.0

Notes: A SMR is the ratio of the observed number of deaths in a ward to the number expected if the ward had the same age-specific rates as England.

Source: Office for Health Improvement and Disparities (2023), Local Health Indicators. [Online]. Available at: <https://www.localhealth.org.uk/>

Community Assets

- 3.16 Due to rural nature of the site surrounding the Incident, there are very few community assets in the immediate vicinity. The nearest community assets within the study area are located in Corfe Castle and Studland.
- 3.17 Corfe Castle (4.8km south of the Incident) comprises numerous public houses (The Fox Inn, The Castle Inn, and The Greyhound Inn, and Corfe Castle Club) and two churches (St. Edward, King & Martyr Church and Corfe Castle Evangelical Congregational Church), and a GP surgery (Corfe Castle Surgery). Corfe Castle also has a primary school (Corfe Castle Primary School), a post office, a football club, a village hall, a gallery, a museum (Purbeck Mineral & Mining Museum), retail stores and a number of food and beverage outlets.
- 3.18 The village of Studland (4.9km south east of the Incident) also comprises a number of community assets, including a public house (Bankes Arms Inn), a number of cafes (The Sandy Salt Pig, Middle Beach Café, Manor Farm Tea Room, and Knoll Beach Café), public toilets, a church (St. Nicholas Church) and a village hall.

- 3.19 The nearest police and fire stations to the Incident are located in Wareham, Swanage and Poole. The nearest general hospital is Poole Hospital.

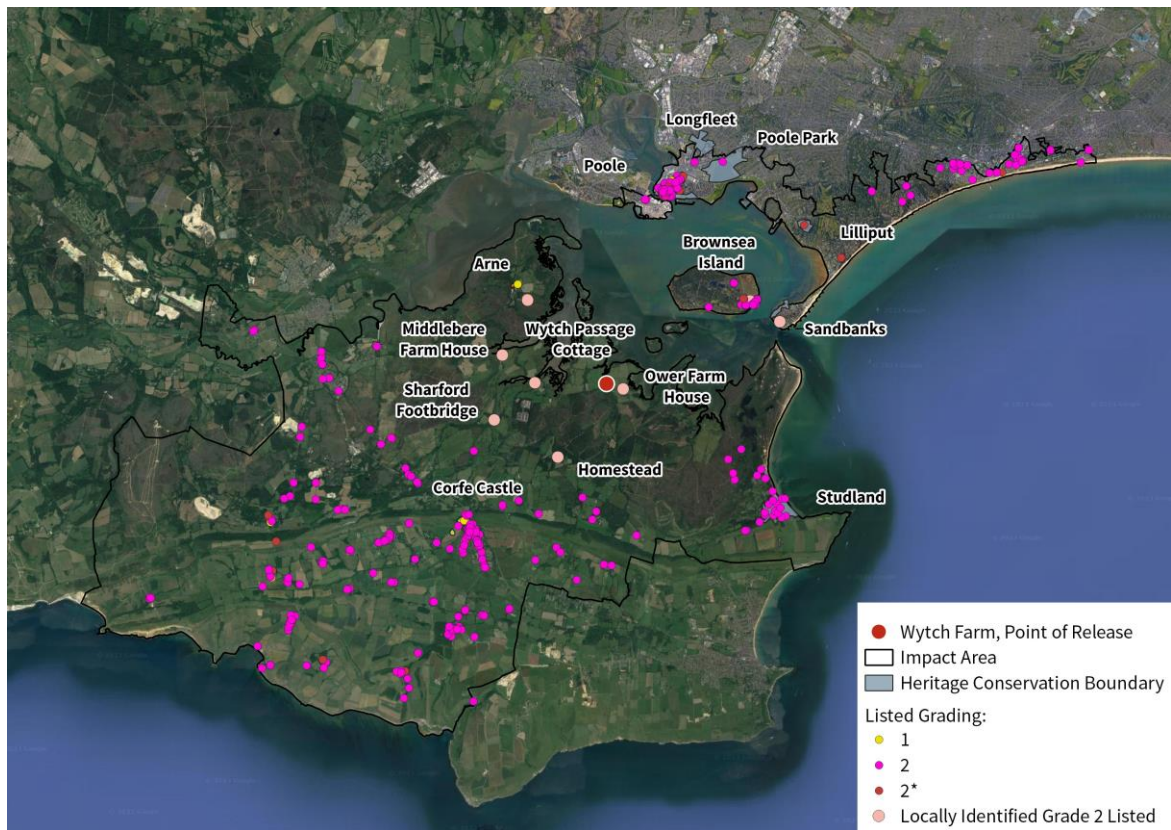
Heritage Assets

- 3.20 The study area comprises a number of heritage assets, including Scheduled Monuments, Grade I Listed Buildings, Grade II Listed Buildings, and Heritage Conservation Areas⁸⁵.
- 3.21 Most locally to the Incident, the Grade II Listed Ower Farm House is located just 0.7km from the point of release. There are a number of other Grade II Listed Buildings located in the rural area surrounding the point of release, these include Wytch Passage Cottage (1.6km from the Incident), Middlebere Farm House (2.4km from the Incident), Sharford Footbridge (2.8km from the Incident), Bridge (2.5km from the Incident), Homestead (2.1km from the Incident), and a number of buildings at Rempstone Hall (3.0km from the Incident). Brownsea Island also comprises 20 Grade II Listed Buildings, most notably Brownsea Castle.
- 3.22 In terms of Grade I Listed Buildings, the Parish Church of St Nicholas is located 3.3km from the Incident and Corfe Castle, a large, enclosed castle and 18th century vineyard bridge, is located 4.7km from the Incident.
- 3.23 Spanning the Isle of Purbeck is the Swanage Historic Railway which runs from Norden and Corfe Castle out to Swanage on the coast. The 9 km track⁸⁶ is home to both a full-size steam train and a diesel passenger train.

⁸⁵ Dorset and BCP Councils (2023), Dorset and BCP Heritage Designations Viewer. [Online]. Available at: <https://luc.maps.arcgis.com/apps/webappviewer/index.html?id=9581a6c907f64579a05b60af65381214>

⁸⁶ Swanage Railway (2023), Swanage Railway. [Online]. Available at: <https://www.swanagerailway.co.uk/>

Figure 3.2 Heritage Assets



Source: Historic England, Hatch

Recreational Activities / Facilities

- 3.24 The study area comprises a variety of recreational facilities and activities, which are utilised by both local residents and visitors. Key recreational facilities in the study area are focussed in and round Poole Harbour and include numerous beaches, outdoor activity centres, yachting, sailing or rowing clubs and other water sport activities.
- 3.25 In terms of beaches, the study area includes South Beach, Knoll Beach and Shell Beach which are located approximately 4.5km east of the Incident, north of Studland just outside of Poole Harbour. Further north, Sandbanks comprises a number of beaches including Cubs Beach, Sandbanks Beach, Shore Road Beach, and Canford Cliffs Beach, all of which are located outside of Poole Harbour. Within Poole Harbour, there are a number of beaches such as Kite Beach, Hamworth Beach, Bramble Bush Bay Beach, Shell Bay Beach and South Shore Beach at Brownsea Island. The study area is also home to a number of outdoor activity centres, including Dorset Adventure Trail (4.2km south west of the Incident), Brenscombe Outdoor Centre Ltd (3.3km south west of the Incident), Fore Adventure (4.8km south east of the Incident), Brownsea Island Outdoor Activity Centre (3.0 km north east of the Incident), Land & Wave Sandbanks (5.4km north east of the Incident), and South Coast Adventures (4.5km north of the Incident).
- 3.26 Poole Harbour has an abundance of recreational boating activities and operations, including Poole Yacht Club, Parkstone Yacht Club, New Wave Club, Poole Gig Rowing Club, Lilliput Sailing Club and East Dorset Sailing Club. Salterns Marina, Blue Lagoon Marina, Parkstone Bay Marina, Poole Quay also facilitate recreational boating activities.

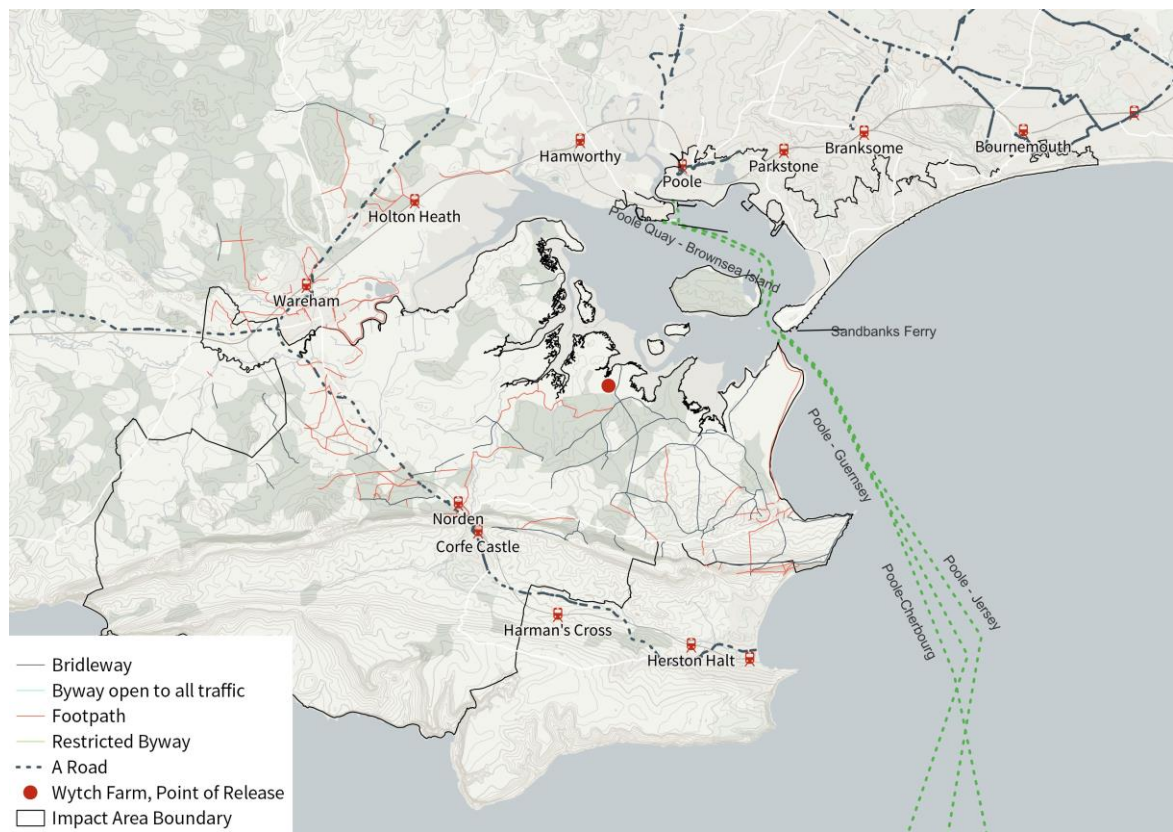
- 3.27 In terms of water sports, the study area comprises a number of operations such as Shell Bay Watersports, Sandbanks Jetski Company Ltd, The Watersports Academy, Easy Riders, Poole Harbour Watersports School, Poseidon Watersports, Poole Windsurfing, WimpSupHire, South Coast Jet Ski Hire Poole, and Jetski Safaris Ltd.
- 3.28 Also within the study area is the Isle of Purbeck Golf Club, located 4.0km south east of the Incident.

Travel and Movement

- 3.29 The study area comprises a comprehensive network of roads and Public Rights of Way (ProWs) such as byways, bridleways, and footpaths, which are identified in Figure 3.3.
- 3.30 There is no publicly accessible road or footpath access directly to Wytch Farm and the initial point of release. The closest public road access is Thrashers Lane, which provides access to main site of the Wytch Farm Oil Field from B3351, approximately 1.8km west of the Incident. The nearest publicly accessible ProW is Bridleway SE11/7, which is approximately 1.4km in length located 0.2km east of the Incident, connecting Ower Quay Cottage with a wider network of ProWs, and providing access to the coast including Studland and Shell Bay and south towards Corfe Castle.
- 3.31 Footpath SE11/5 also runs through Wytch Farm and Wytch Moor, approximately 0.5km from the Incident at its nearest point.
- 3.32 The closest accessible railway station is Corfe Castle (4.7km from the Incident) which offers services to London Waterloo (these are limited to Saturdays in the summer only). The main local railway station is Wareham (7.9km east of the Incident). The railway station offers regular services on the South Western Railway line to London Waterloo.
- 3.33 There is a network of roads to the west of the Incident that link it with Poole and Sandbanks. To the east of the Oil Spill the Sandbanks chain ferry offers a frequent ferry service as an alternative to the 40 km inland round trip. The short ferry journey between Studland and Sandbanks accommodates up to 48 cars⁸⁷. Poole Harbour also operates as a busy ferry port offering local services to Brownsea Island, while Condor Ferries offers services to the Channel Islands and St Malo, France.

⁸⁷ Bournemouth-Swanage Motor Road and Ferry Company, (2023). [Online]. Available at: <https://www.sandbanksferry.co.uk/#:~:text=The%20ferry%2C%20242%20feet%20in,nominal%20capacity%20of%2048%20cars>.

Figure 3.3 Local Transport Network



Source: Hatch

Environment

- 3.34 This section establishes the environmental conditions within the study area. This includes the identification and mapping of the habitats, wildlife, environmental designations, water quality and air quality across the study area, as well as referencing the ongoing work of the Environmental Group.

Habitats

- 3.35 The study area comprises a mix of both land and aquatic habitats. The northern shoreline consists of almost continual urban development from the town of Poole round to the Harbour entrance at Sandbanks. The southern shoreline is mostly undeveloped with extensive heathland and pine woodland.
- 3.36 The western and southern areas of Poole Harbour comprise a natural complex of open water, tidal mudflats, saltmarshes, lagoons/reedbeds, sand dunes, inlets and shellfish lease beds, rising to an area of heaths and grasslands on the Isle of Purbeck in the immediate area surrounding the Oil Spill⁸⁸.
- 3.37 The study area also comprises five larger islands that provide natural habitats to several rare and protected species.
- 3.38 Four rivers, the River Frome, the River Piddle, the River Corfe and the River Sherford all feed into Poole Harbour from the west, draining to the sea through the constricting headlands of North and South Haven (Sandbanks and Studland) in the east⁸⁹.
- 3.39 Coastal and marine geomorphological processes (including hydrodynamics, sediment movements and tidal inundation) also operate within the study area and these natural processes are essential for the maintenance of the estuarine habitats, including the saltmarshes and intertidal mudflats⁹⁰.
- 3.40 In regard to shellfish habitats, Poole Harbour comprises 199.8 hectares of leased shellfish beds as well as 838 hectares which is cultivated for the purpose of other aquaculture species⁹¹.
- 3.41 The estuarial waters support important subtidal benthic (seabed) habitats in some locations, although it is important to note that these are not found across the entirety of Poole Harbour⁹². A summary of the different aquatic habitats across the study area are presented in Figure 3.4.

⁸⁸ Poole Harbour Study Group (2023), *Geography, Habitats and Wildlife, Conservation and Survey Coverage*. [Online]. Available at: <http://www.pooleharbourstudygroup.org.uk/harbour-facts/>

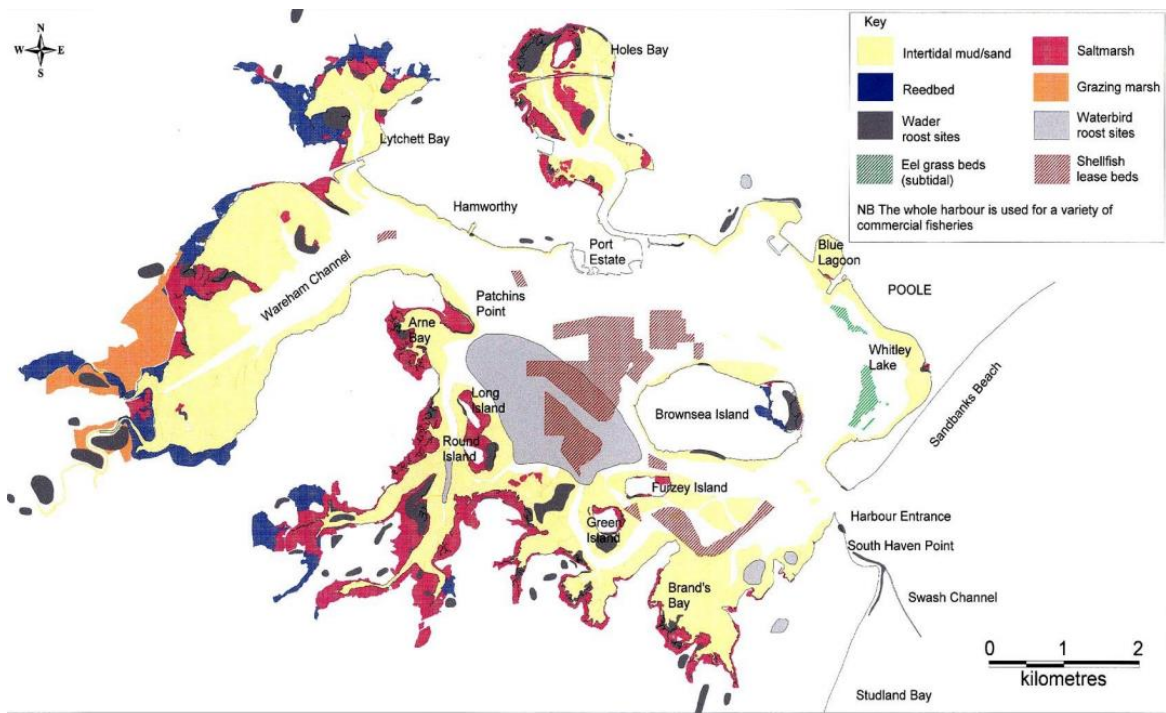
⁸⁹ Poole Harbour Study Group (2023), *Geography, Habitats and Wildlife, Conservation and Survey Coverage*. [Online]. Available at: <http://www.pooleharbourstudygroup.org.uk/harbour-facts/>

⁹⁰ DEFRA (2018), *Poole Harbour SSSI Dorset*. [Online]. Available at: https://consult.defra.gov.uk/natural-england/poole-harbour/supporting_documents/Poole%20Harbour%20SSSI%20supporting%20information%2024%20May%202018.pdf

⁹¹ SIFCA (2021), *Poole Harbour Several Order 2015 Management Plan: 2020 Revision*. [Online]. Available at: <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/Redesign/Aquaculture-Fisheries/PH-Several-Order-Man-Plan-2020-2021.pdf>

⁹² DEFRA (2018), *Poole Harbour SSSI Dorset*. [Online]. Available at: https://consult.defra.gov.uk/natural-england/poole-harbour/supporting_documents/Poole%20Harbour%20SSSI%20supporting%20information%2024%20May%202018.pdf

Figure 3.4 Aquatic Habitats in Poole Harbour



Source: PHC (2021), Oil Spill Contingency Plan. [Online]. Available at: <https://www.phc.co.uk/wp-content/uploads/2022/06/OIL-SPILL-CONTINGENCY-PLAN-Version-6-2021.pdf>

Wildlife

- 3.42 Poole Harbour is a designated SSSI under the *Wildlife and Countryside Act*. As such, it is an area with high importance in terms of the wildlife it supports, which includes breeding and wintering waders such as the black-tailed godwit (*Limosa Limosa*), dunlin (*Calidris Alpina*) and curlew (*Numenius Arquata*), lichens, rare invertebrates and the red squirrel (*Sciurus Vulgaris*)⁹³. The harbour also provides sensitive habitats including peacock worm beds, seagrass and saltmarshes⁹⁴.
- 3.43 These harbours habitats offer breeding grounds for seabirds which include spoonbills, avocets and black-tailed godwits and make up much of the harbours Special Protection Area (SPA) status⁹⁵. In addition, the areas of estuarial water are essential for fish-eating species to feed and to rest such as the wintering goldeneye (*Bucephala clangula*), the red-breasted merganser (*Mergus Serrator*) and cormorants (*Phalacrocorax Carbo*)⁹⁶.

⁹³ DEFRA (2018), Poole Harbour SSSI Dorset. [Online]. Available at: https://consult.defra.gov.uk/natural-england/poole-harbour/supporting_documents/Poole%20Harbour%20SSSI%20supporting%20information%2024%20May%202018.pdf

⁹⁴ PMCC Incident Monitoring and Outcomes Summary September 2023

⁹⁵ Birds of Poole Harbour (2021) Overwintering Birds of Poole Harbour [Online] Available at: [Overwintering Birds of Poole Harbour - An Analysis of Poole Harbour WeBS Data 1975 - 2021 - Birds of Poole Harbour](https://www.pmh.gov.uk/overwintering-birds-of-poole-harbour-an-analysis-of-poole-harbour-webs-data-1975-2021-birds-of-poole-harbour)

⁹⁶ DEFRA (2018), Poole Harbour SSSI Dorset. [Online]. Available at: https://consult.defra.gov.uk/natural-england/poole-harbour/supporting_documents/Poole%20Harbour%20SSSI%20supporting%20information%2024%20May%202018.pdf

- 3.44 Poole Harbour also supports a wealth of aquatic wildlife, including sea horses, shellfish and a variety of fish species. The harbour is home to Britain’s two species of sea horses, Spiny and Short Snouted⁹⁷, which are increasingly under threat from pollution.
- 3.45 Shellfish on the wild fishery beds is dominated by Manila clam and common cockle. For aquaculture lease beds, the dominant species are the Pacific oyster (*Magallana gigas*) and the blue mussel (*Mytilus edulis*) with relaying of the Manila clam and common cockle also taking place. The connecting River Frome (also designated a SSSI) is an important location for young migratory salmon and sea trout, with the Atlantic salmon listed as vulnerable under the European IUCN Red List of Threatened Species. Poole Harbour is also home to European eel (*Anguilla Anguilla*) which is also listed on the Red list and the sea lamprey (*Petromyzon Marinus*)⁹⁸.
- 3.46 Around Poole Harbour there are several Seal haul-out sites, which are locations that seals come ashore to rest, moult and breed. The majority of locations identified by SIFCA, are to the south of Brownsea Island with the highest concentration to the east of Arne⁹⁹.
- 3.47 In terms of land species, Brownsea Island is one of the few remaining habitats that supports red squirrels. It is estimated that there is a population of approximately 250 red squirrels on the island¹⁰⁰. Neighbouring Furzey Island also supports a smaller population of red squirrel.
- SIFCA also identify the following Endangered, Threatened and Protected (ETP) species in the study area¹⁰¹:

Table 3.2 Endangered Threatened & Protected Species

ETP Bird Species	ETP Non-Bird Species
Avocet (<i>Recurvirostra avosetta</i>)	Atlantic salmon (<i>Salmo salar</i>)
Black-tailed godwith (<i>Limosa limosa islandica</i>)	Common/European sturgeon
Common tern (<i>Sterna hirundo</i>)	European or common eel (<i>Anguilla 36nguilla</i>)
Cormorant (<i>Phalacrocorax carbo</i>)	Sea lamprey (<i>Petromyzon marinus</i>)
Curlew (<i>Numenius arquata</i>)	Sea trout (<i>Salmo trutta</i>)
Dark-bellied brent goose (<i>Branta bernicla</i>)	Twaite shad (<i>Alosa fallax</i>)
Dunlin (<i>Calidris alpina</i>)	Allis shad (<i>Alosa alosa</i>)
Eurasian spoonbill (<i>Platalea leucorodia</i>)	Common seal (<i>Phoca vitulina</i>)
Goldeneye (<i>Bucephala calngula</i>)	Grey seal (<i>Halichoerus grypus</i>)
Greenshank (<i>Tringa nebularia</i>)	Long-snouted seahorse (<i>Hippocampus guttulatus</i>)
Little egret (<i>Egretta garzetta</i>)	Short-snouted seahorse (<i>Hippocampus hippocampus</i>)
Mediterranean gull (<i>Larus melanocephalus</i>)	

⁹⁷ Sea Horses Trust, Seahorses in Poole Harbour in Dorset. Online. Accessed - [Movement of a pair of Seahorse during the summer of 2010 \(theseahorsetrust.org\)](https://www.theseahorsetrust.org/)

⁹⁸ GWCT (2023) Poole Harbour Oil Spill could have serious consequences for threatened migratory fish. [Online]. Available at: [Poole Harbour oil spill could have serious consequences for threatened migratory fish, say GWCT experts - Game and Wildlife Conservation Trust](https://www.gameandwildlifeconservationtrust.org/)

⁹⁹ IFCA, et al (2022) Endangered, Threatened & Protected (ETP) Species Risk Management Strategy. [Online] Available at: [Southern-IFCA-ETP-RMS.pdf \(toolkitfiles.co.uk\)](https://www.southernifca.org.uk/ETP-RMS.pdf)

¹⁰⁰ Dorset Wildlife Trust (2023), Brownsea Island. [Online]. Available at: <https://www.dorsetwildlifetrust.org.uk/brownsea-island#:~:text=About%20the%20reserve,trees%20gathering%20and%20devouring%20nuts>.

¹⁰¹ SIFCA, et al (2022), Endangered, Threatened & Protected (ETP) Species Risk Management Strategy. [Online]. Available at: <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/Southern-IFCA-ETP-RMS.pdf>

Pochard (<i>Aythya farina</i>)	
Red-breasted merganser (<i>Mergus serrator</i>)	
Sandwich tern (<i>Sterna sandvicensis</i>)	
Shelduck (<i>Tadorna tadorna</i>)	
Spotted redshank (<i>Tringa erythropus</i>)	

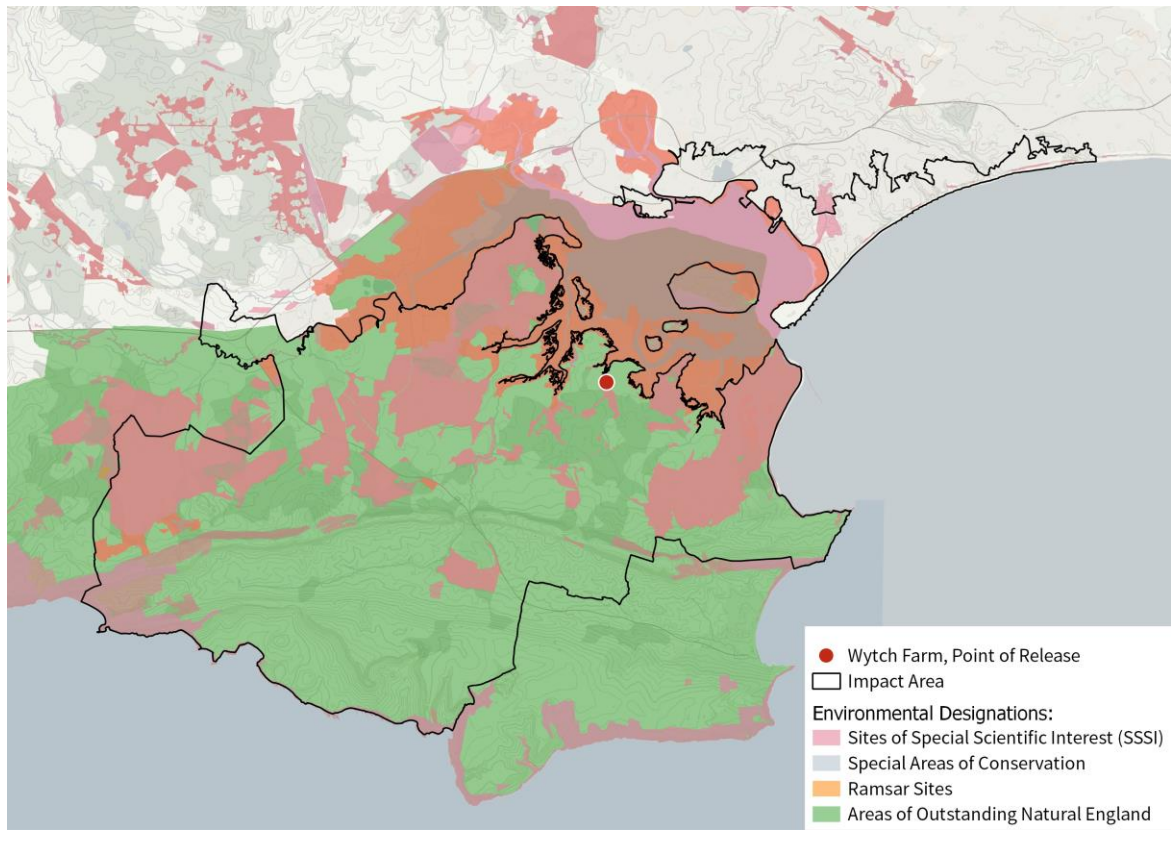
Source: SIFCA, et al (2022), *Endangered, Threatened & Protected (ETP) Species Risk Management Strategy*. [Online]. Available at: <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/Southern-IFCA-ETP-RMS.pdf>

Environmental Designations

- 3.48 The site of the Incident is in an area of both national and international importance in terms of environmental designations. As presented in Figure 3.5, the study area is intersected by a series of environmental designations including Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), areas of outstanding natural beauty (AONB) and Ramsar sites (wetland sites designated to be of international importance). In addition, the entirety of Poole Harbour is a SPA¹⁰².

¹⁰² Dorset Council (2020), *Poole Harbour Recreation 2019-2024 Supplementary Planning Document*

Figure 3.5 Environmental Designations



Source: Hatch

Water Quality

- 3.49 In 2022, Poole Harbour was classified as having a ‘Moderate Ecological Status’ by the Department for Environmental Food and Rural Affairs (DEFRA)¹⁰³; ‘Moderate Status’ is what the majority (63%) of water bodies achieve in the UK¹⁰⁴. In regard to specific pollutants, Poole Harbour scored ‘High’ for Arsenic, Chlorothalonil, Chromium (VI), Copper, Diazinon, Dimethoate, Iron, Pendimethalin, Un-ionised ammonia and Zinc.
- 3.50 The scoring of the 8 sub-categories assessed by DEFRA in 2022 are presented in Table 3.3.

¹⁰³ DEFRA (2022), Poole Harbour Water Body. [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB520804415800>

¹⁰⁴ [State of the water environment indicator B3: supporting evidence - GOV.UK \(www.gov.uk\)](https://www.gov.uk/state-of-the-water-environment-indicator-B3-supporting-evidence)

Table 3.3 Poole Harbour Water Quality

Sub-Category	Classification
Biological Quality Elements	Moderate
Physico-chemical Quality Elements	Moderate
Hydromorphological Supporting Elements	Good
Supporting Elements (Surface Water)	Moderate
Specific Pollutants	High
Overall	Moderate

Source: DEFRA (2022), Poole Harbour Water Body. [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB520804415800>

Air Quality

- 3.51 Both BCP Council¹⁰⁵ and Dorset Council¹⁰⁶ monitor air quality in line with the 7 pollutant parameters (Benzene, 1.3 Butadiene, PM10 and PM2.5, Carbon Monoxide, Sulphur Dioxide, Nitrogen Dioxide (NO₂), Lead), as per the UK Air Quality Standards (AQS) which are set by UK Government. Where elevated concentrations of the pollutants are identified, Air Quality Management Areas (AQMA) are declared.
- 3.52 However, given the rural location of the point of release, there are no monitoring locations within the immediate vicinity of the site. The nearest air quality monitoring station to the Incident is located in Corfe Castle. As such, air quality conditions are discussed at local authority level for both Dorset Council and BCP Council.
- 3.53 According to the *Dorset Council 2022 Annual Status Report*, air quality in the former Purbeck district, where the Incident occurred, remains very good, with no identified AQMA or areas for concern. Five sites in Purbeck did show increased pollution levels in comparison to 2019 (with several of these also showing an increase over 2020), however these sites remain at less than, or in close proximity to, half of the annual mean¹⁰⁷.
- 3.54 As per the BCP Council Air Quality Annual Status Report 2022, monitoring results indicated that NO₂ concentrations were higher compared to 2020 (coinciding with the lockdowns due to the COVID-19 pandemic). However, the general trend remains one of declining concentrations across the BCP Council area¹⁰⁸.
- 3.55 Although located away from Poole Harbour, Poole has two declared AQMA at Commercial Road and Ashley Road. However, BCP Council is now seeking revoke the AQMA as traffic related NO₂ concentrations have been consistently below the AQS objective levels for at least four years¹⁰⁵.

¹⁰⁵ BCP Council (2023), Air Quality Reports. [Online]. Available at: <https://www.bcpCouncil.gov.uk/Environment/Air-quality/Air-quality-reports.aspx>

¹⁰⁶ Dorset Council (2023), Air Quality. [Online]. Available at: <https://www.dorsetCouncil.gov.uk/-/air-quality>

¹⁰⁷ Dorset Council (2023), 2022 Air Quality Annual Status Report (ASR). [Online]. Available at: <https://www.dorsetCouncil.gov.uk/documents/35024/281348/Dorset+Council+Air+quality+report+2022.pdf/a235dfdb-684e-ec2d-be83-c315a27425b8>

¹⁰⁸ BCP Council (2022), 2022 Air Quality Annual Status Report. [Online]. Available at: <https://www.bcpCouncil.gov.uk/Environment/Air-quality/Docs/Air-Quality-BCP-Annual-Status-Report-2022.pdf>

Business and Economy

- 3.56 This section of the report establishes the characteristics and key components of the local economy in the study area, this includes the visitor economy, aquaculture, wild fisheries and hand gathering, as well as other small-scale fishing and harbour-based operations.

Visitor Economy

- 3.57 Tourism and the visitor economy is an important economic driver in both Dorset and BCP. The study area comprises a number of popular coastal resorts, the Jurassic Coast UNESCO World Heritage Site and designated AONB, SSSIs and nature reserves. The study area is served by the nearby Bournemouth International Airport and ferry services into Poole Harbour.
- 3.58 In 2022, BCP Council commissioned a quantitative and qualitative study to understand the key segments of the tourism and visitor economy sector¹⁰⁹. This study identified the key opportunity segments for BCP based on visitor intentions and stakeholder engagement. The key opportunity segments were identified as:
- Active & Mindful
 - Nature & Culture
 - Fun & Relaxation
- 3.59 The focus of these key opportunity segments is based around the presence of physical outdoor activities, water sports, beaches, natural beauty spots (i.e. AONB) and walking routes.
- 3.60 The study area is served by a mix of visitor accommodation. The rural area surrounding the point of release comprises several outdoor visitor accommodation destinations, including Ower Farm Yurt & Pod (0.5km east of the Incident), Cleaval Point Camp Site (0.9km north east of the Incident), Burnbake Forest Lodges and Campsite (2.1km south of the Incident) and Brownsea Island Campsite (3.0km north east of the Incident). Ower Quay Cottage (0.7km north east of the Incident) is nearby holiday home available for short-term lets. Further afield in the study area, there is a variety of hotels and holiday homes in Corfe Castle (5.0km south west of the Incident), Studland (5.0km south east of the Incident), Sandbanks (5.0km north east of the Incident), and Poole (5.0km north of the Incident).
- 3.61 In terms of visitor attractions, Brownsea Island is located just 2.5km from the Incident in the middle of Poole Harbour. Accessed by regular ferry services from Poole Quay or Sandbanks, or by private boat, the National Trust Island comprises a visitor centre, a harbourside café, souvenir shop, and an outdoor activity centre¹¹⁰.
- Corfe Castle also comprises a number of visitor attractions such as Dorset Adventure Park, Brenscombe Outdoor Centre, Corfe Castle Model Village and Corfe Castle itself. Dorset Cider Farm is located near to Corfe Castle, just 3.0km south west of the Incident.
- 3.62 Sandbanks, an affluent neighbourhood of Poole, situated on a spit extending into the mouth of Poole Harbour. It comprises a number of tourist attractions, such as Sandbanks Beach, Cubs Beach and a number of bars and restaurants.

¹⁰⁹ BVA BDRC (2022), BCP Segmentation Research April 2022. [Online]. Available at:

¹¹⁰ National Trust (2023), Brownsea Island. [Online]. Available at: <https://www.nationaltrust.org.uk/visit/dorset/brownsea-island>

- 3.63 Visitor economy statistics for the study area are published using the former district boundaries of Purbeck and Poole. As of April 2019, Purbeck is now part of the unitary local authority of Dorset Council whilst Poole is now part of the unitary local authority of BCP Council.
- 3.64 Purbeck, which comprises the point of release and the southern shoreline of Poole Harbour, had an estimated 2.7-million-day visits and 380,000 overnight visits in 2021. These visitors were estimated to spend £178 million in the local economy, which supports 3,175 jobs (2,279 FTEs). Tourism related jobs are estimated to make up 13% of total employment in Purbeck¹¹¹. Direct visitor expenditure in Purbeck in 2021 by category was estimated to be:
- Accommodation: £34.3 million (19%)
 - Shopping: £30.7 million (17%)
 - Food & Drink: £68.9 million (39%)
 - Attractions / Entertainment: £15.3 million (9%)
 - Travel: £27.4 million (16%)
- 3.65 Other visitor related spend beyond these categories includes second homes¹¹² (£466,000), boats¹¹³ (£235,000), and spend by friends and relatives¹¹⁴ (£572,000)¹¹⁵.
- 3.66 Poole, which comprises the northern shoreline of Poole Harbour, had an estimated 2.9-million-day visits and 235,000 overnight visits in 2021. These visitors were estimated to spend £164 million in the local economy, which supports 3,304 jobs (2,430 FTEs). Tourism related jobs are estimated to make up 4% of total employment in Purbeck¹¹⁶. Direct visitor expenditure in Purbeck in 2021 by category was estimated to be:
- Accommodation: £20.3 million (13%)
 - Shopping: £36.9 million (23%)
 - Food & Drink: £66.1 million (41%)
 - Attractions / Entertainment: £12.5 million (8%)
 - Travel: £23.6 million (15%)
- Other visitor related spend beyond these categories includes second homes (£394,000), boats (£2,136,000), and spend by friends and relatives (£1,842,000)¹¹⁷.
- 3.67 More broadly, there is estimated to be approximately 22 million overnight and day trips made each year to the county of Dorset. The total visitor spend each year is estimated to be £1.3 billion, which supports 30,584 jobs (22,863 FTEs). Tourism related jobs are estimated to make up 9% of total employment in Dorset¹¹⁸.

Aquaculture, Wild Fisheries and Hand Gathering

- 3.68 In regard to extractive marine industries, the study area facilitates a range of businesses operating in aquaculture (the growing of bivalve shellfish), wild dredge fisheries (targeting

¹¹¹ Dorset Tourism Partnership (2022), *The Economic Impact of Dorset's Visitor Economy 2021*.

¹¹² Spend on second homes estimates cover rates, maintenance, and replacement of furniture and fittings.

¹¹³ Spend on boats estimates cover berthing charges, servicing and maintenance and upgrading of equipment.

¹¹⁴ Additional spending is incurred by friends and relatives as a result of people coming to stay with them.

¹¹⁵ Dorset Tourism Partnership (2022), *The Economic Impact of Dorset's Visitor Economy 2021*.

¹¹⁶ Dorset Tourism Partnership (2022), *The Economic Impact of Dorset's Visitor Economy 2021*.

¹¹⁷ Dorset Tourism Partnership (2022), *The Economic Impact of Dorset's Visitor Economy 2021*.

¹¹⁸ Dorset Tourism Partnership (2022), *The Economic Impact of Dorset's Visitor Economy 2021*.

shellfish), hand gathering (cockles and clams), and recreational charter-boat fishing vessels (targeting fin-fish species)¹¹⁹.

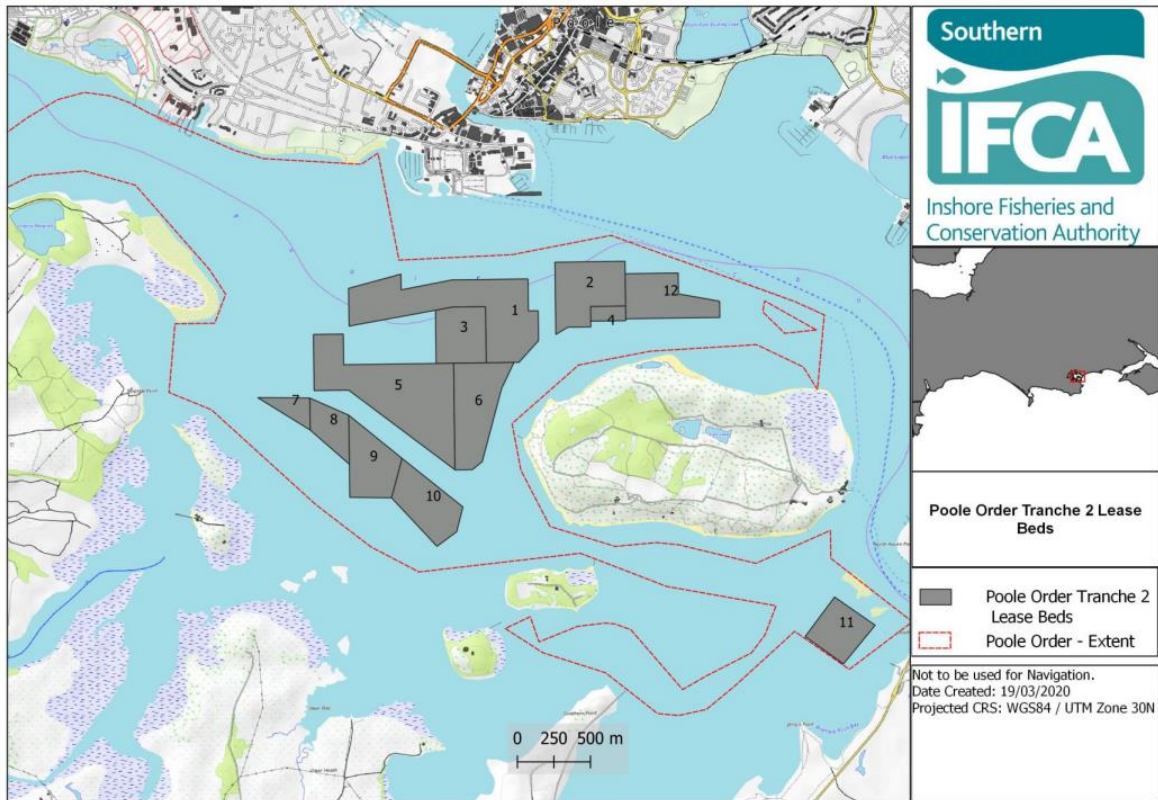
- 3.69 From 1st July 2015, *The Poole Harbour Fishery Order 2015* was developed to regulate shellfish fisheries in Poole Harbour for aquaculture. The Order confers on SIFCA the right for the cultivation of shellfish of any kind for a period of twenty years with leases issued under Order for a period of five years. The Order covers an area of 837.8 hectares within which there are 12 lease beds.
- 3.70 Aquaculture in Poole Harbour is a key economic activity and primarily involves the growing of oysters (pacific), clams (*mercenaria* and *manila*), mussels and cockles. Aquaculture is not subject to seasonal conservation closures and is usually operational all year round. Aquaculture fisheries in Poole Harbour operate in the 12 leased beds presented in Figure 3.6.
- 3.71 The wild dredge fisheries are managed by the *Poole Harbour Dredge Permit Byelaw*. The wild fisheries with extraction by hand gathering and other fisheries for fin-fish species are regulated by a series of Southern IFCA byelaws.
- 3.72 In 2018, a review of the economic value of aquaculture in Poole Harbour was undertaken by the New Economics Foundation. Mussels and Pacific oysters were found to be the two most significant species for aquaculture, with Poole Harbour being the largest Pacific oyster production area in England. The study showed that the total economic activity for aquaculture in Poole (encompassing both gross output and indirect output from industries in the supply chain) was £2,615,250 per annum¹²⁰.
- 3.73 Wild dredge fishing in Poole Harbour has taken place for over 40-years. Approximately 45 permits are issued each year for the landing of clams (*manila*), cockles and American Hard-Shell Clam. Wild dredge fishing occurs between 25th May and 23rd December each year across the across Poole Harbour, except in areas designated as prohibited areas under the *Poole Harbour Dredge Permit Byelaw Permit Conditions*.
- 3.74 The value of the wild dredge fisheries and quantities of the main commercial species landed is monitored each year by SIFCA through the submission of catch data. For the last three years (2020-2022), the average landings for clam (*manila*) were 457.0 tonnes with an estimated value of £1,370,917 to £2,513,347. Over the same period, the average landings for common cockle was 26.7 tonnes with an estimated value of £40,041 to £93,430.
- 3.75 For the 2019-2020 season, a total of 277.2 tonne of clam (*manila*), 79.8 tonne of common cockle and 21.5 tonne of other bivalve species were landed by the 45 participants in the fishery. The value of the fishery for 2019-2020 is estimated at between £1,333,160 and £1,764,326 based on the fluctuating value per kg of individual species landed throughout the season¹²¹.

¹¹⁹ NEF Consulting (2018), *The value of the small-scale commercial fishing fleet, aquaculture and the recreational charter boat fleet, to the local economy of Poole*.

¹²⁰ NEF Consulting (2018), *The value of the small-scale commercial fishing fleet, aquaculture and the recreational charter boat fleet, to the local economy of Poole*.

¹²¹ SIFCA (2023), *Poole Harbour Fisheries*. [Online]. Available at: <https://www.southern-ifca.gov.uk/poole-harbour-fisheries>

Figure 3.6 The Poole Harbour Fishery Order 2015 Area



Source: Southern Inshore Fisheries and Conservation Authority

- 3.76 Hand gathering for shellfish also occurs in Poole Harbour. Hand gathering for clam (*manila*), American Hard-Shell Clam, and Razor Clam can occur all year round. However, there are some areas of the harbour that are closed between 1st April and 31st October. Hand gathering is prohibited from seagrass areas in the harbour¹²².

¹²² SIFCA (2023), *Guidance on Hand Gathering for Shellfish in Poole Harbour*. [Online]. Available at: https://secure.toolkitfiles.co.uk/clients/25364/sitedata/Redesign/Quick_Downloads/Poole-Hrbr-HandGathering-Guidance.pdf

Small Scale Fishing Vessels and Recreational Fishing

- 3.77 There is estimated to be approximately 100 active fishermen operating in the Poole Harbour area. Based on the Poole and District Fishermen's Association (PDFA), there are 76 commercial fishing vessels operating from Poole Harbour. However, the local fishing industry has been in decline in recent years due to a number of factors including a lack of young people joining the sector, competition from larger vessels, economic viability, high start-up costs and increased regulation.
- 3.78 Poole is one of the most popular angling destinations in the UK, due to the ease of access and diversity of species. Poole Harbour has the second largest charter boat fleet in the UK, with an estimated 33 registered charter boats operating from Poole and a further 9 vessels registered in Swanage. Previous research estimated the gross turnover of the charter fleet to be £45,000 per vessel per annum, which would mean that the estimated turnover for the Poole fleet was around £2 million per year, with 55 people being directly employed in the charter boat fishing industry, and an additional 9 people directly employed in angling shops¹²³.

Other Harbour-based Operations

- 3.79 Poole Harbour, operated by the PHC, is one of the world's largest natural harbours. It supports a variety of commercial and leisure activities, including a freight port for commercial shipping, cruise vessels, passenger and freight ferries, aquaculture and fishing, and marina and superyacht activities.

Port Operations

- 3.80 The Port of Poole comprises several berths with the ability to handle a variety of cargo types, including containers, general, dry bulk, project cargos, yacht transfers and hazardous materials. The Port of Poole has 7 working berths that accommodates vessels with a draft of up to 8.7m and 210m in length¹²⁴.
- 3.81 Poole Harbour also comprises a passenger terminal which accommodates cruise vessels (up to 210m in length). In 2023, there are 5 scheduled cruise vessel calls between May and August¹²⁵.
- 3.82 Roll-on roll-off (RoRo) facilities also accommodate ferry services for both passengers and freight. Passenger and freight ferries depart daily from Poole Harbour to Cherbourg in France (operated by Brittany Ferries) to the Channel Islands (operated by Condor Ferries).

¹²³ NEF Consulting (2018), *The value of the small-scale commercial fishing fleet, aquaculture and the recreational charter boat fleet, to the local economy of Poole*.

¹²⁴ Poole Harbour Commissioners (2023), *Port Facilities*. [Online]. Available at: <https://www.phc.co.uk/commercial/port-facilities/berths/>

¹²⁵ Poole Harbour Commissioners (2023), *Port Facilities*. [Online]. Available at: <https://www.phc.co.uk/commercial/cruise/schedule/>

Tourism Vessels

3.83 Poole Harbour also hosts a number of tourism related businesses who operate daily boat trips and cruises¹²⁶, including:

- City Cruises Poole: Operates the Poole Harbour & Islands Circular Cruise, Poole Jurassic Circular Cruise, Poole to Swanage Return, and Poole and Swanage Bird Watching Cruise.
- Greenslade Pleasure Boats: Operates Poole Harbour Cruises.
- Poole Harbour Boar Tours: Private boat excursions (max 8 people).
- Superhawk Marine: Luxurious private charters using Sunseeker Performance Motor Cruiser.
- Brownsea Island Ferries: Operating ferries run to the National Trust Brownsea Island from Poole Quay and Sandbanks every 30 minutes in season.
- Poole Harbour Water Taxi: Carries up to 10 passengers.

¹²⁶ Poole Tourism (2023), *Tours and Sightseeing*. [Online]. Available at: <https://www.pooletourism.com/things-to-do/tours-and-sightseeing/boat-tours>

4. Impact Framework

Development of Impact Framework

- 4.1 There is no single set of guidance relating to assessment of local economic and social impacts of oil spills. As a result, while the framework takes into account and aligns with standard appraisal and impact assessment methodologies, it also has developed a set of bespoke and highly tailored methodologies to respond appropriately to the local conditions and priorities in Dorset and BCP.

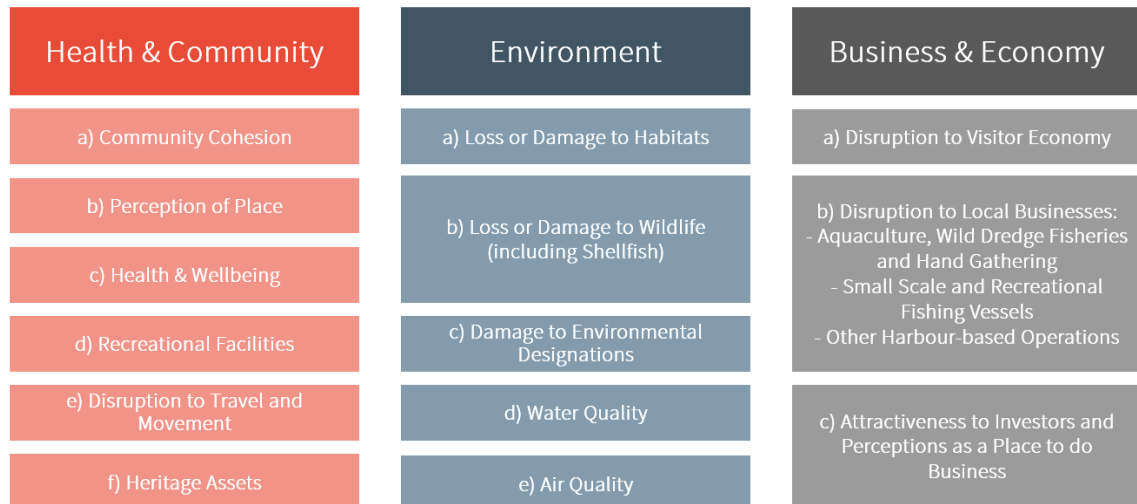
Assumptions

- 4.2 The following overall assumptions have informed the development of the impact framework:
- The framework allows for the collation of both quantitative and qualitative data. Impacts are quantified where possible, but in other places qualitative assessment of the types and magnitudes of potential impacts has been necessary.
 - In quantifying impacts, a number of different types of value have been considered, recognising that a broad range of different stakeholders will be affected and that each of these will perceive value in different ways e.g. income loss to business will vary in impacts given the size and level of GVA that business generates.
 - The broad impact types are: economic impacts (jobs and Gross Value Added (GVA)), commercial impacts (revenue generation), community impacts (closure of footpaths and public rights of way, health and wellbeing) and environmental impacts relating to physical environmental changes such as loss of habitat and pollution.
 - To ensure truly local assessment of impacts, the framework has been designed to allow for a bottom-up approach to the measurement of impacts.
- 4.3 The framework assesses the impacts for the defined impact area which consists of LSOA's from both Dorset Council and BCP Council unitary authorities.

Impact Themes and Sub-Themes

- 4.4 The overall impact framework has been categorised by four main themes and associated sub-themes. This broadly aligns with the sub-groups that had been established. These are summarised in below:

Figure 4.1 Impact Framework



Source: Hatch

- 4.5 The three themes are not independent and there is overlap in impacts amongst them. They are each meant to capture the impacts from different perspectives. For this reason, the outputs are not all additive, in a collective sense.

5. Health & Community Impacts

Overview

- 5.1 This chapter assesses the impact of the Incident on the study area's community and health of residents, including disruption or adverse impacts relating community cohesion, perceptions, health and wellbeing, recreational facilities, travel and movement, and heritage assets.
- 5.2 The impacts considered within this chapter fall into two main categories:
- **Direct Impacts:** as a result of disruption or closure of community activities or assets in and around Poole Harbour, as well as any adverse impacts on human health.
 - **Indirect Impacts:** as a result of noticeable blight that adversely impacts the quality of community activities or assets in and around Poole Harbour.
- 5.3 Due to the local nature of the Incident, the assessment study area for this chapter considers the **Study Area:** as defined as the LSOAs located directly around the Incident and the surrounding shoreline of Poole Harbour.

Impact Assessment

- 5.4 As set out in the Impact Framework, the impacts assessed in regard to Health & Community are:
- Community Cohesion & Perception of Place
 - Health & Wellbeing
 - Impact on Recreational Facilities
 - Disruption to Travel and Movement
 - Impact on Heritage Assets
- 5.5 Due to the nature of the impacts, these have been mainly assessed qualitatively.

Community Cohesion & Perception of Place

- 5.6 As set out in Section 3, the rural nature of the study area surrounding the Incident comprises very few community assets. The nearest community assets within the study area are located at Corfe Castle and Studland.
- The baseline also sets out the assessed perceptions of the local area and community cohesion. Overall, it was reported that 86% of respondents were satisfied with their local area as a place to live. In terms of community cohesion, 57% of respondents agree that people within their local area come together to collectively improve the area.
- 5.7 Given the rural location of the Incident, there were **no adverse direct impacts** on community assets. Although not quantifiable until another perception survey is conducted, the Incident and associated press coverage of event is likely to have some negative impacts on the perceptions of the study area as a place. Despite being temporary in nature, the Incident highlighted risks associated with an operational oil field and processing facility close to local communities and the outdoor space being enjoyed by local residents and

visitors. As such, it has been concluded that there was a **minor adverse indirect impact** on community cohesion and perception of place as a result of the Incident.

Health & Wellbeing

- 5.8 As set out in Section 3, the study area predominately has a higher proportion of residents with a limiting long-term illness or disability in comparison to the national average.
- 5.9 Excluding the ward of Poole Town, the life expectancy in the study area is higher than the national average. Similarly, Poole Town has a higher standard mortality rate from deaths from all causes (under 75 years) than all other wards in the study area and above the national average.
- 5.10 Following the Incident, the public were advised to avoid using the water for recreational purposes and to avoid bathing at the beaches within Poole Harbour. In the event of anyone coming into contact with the Incident, the public were advised to wash immediately with soap and water for ten minutes. In addition, the public were advised to wash eyes with water if they came into contact with the Incident. Also, anyone who had been exposed to the oil and was feeling unwell was asked to contact NHS 111 or seek medical attention from their GP.
- 5.11 The *Healthy Urban Development Unit – Healthy Urban Planning Checklist*¹²⁷ has been established to promote healthy, successful places for people to live and work in through influencing the social determinants of health. This checklist identifies various key themes, with the following four themes to be considered with regard to health and wellbeing. Of potential relevance to the Incident are the following themes and potential issues:
- Active Travel
 - Safety
 - Healthy Environment
 - Air quality
 - Noise
 - Contaminated land and water
 - Open space

¹²⁷ London Healthy Urban Development Unit, *HUDU Planning for Health, Healthy Urban Planning Checklist, Third Edition, 2017*

- 5.12 For active travel, there was a slight increase in vehicular traffic to and from the site during the response and recovery operation. This meant more vehicle movement on the 210m section of the footpath that is shared with the private road access road. However, there were no reports of any incidents that posed a risk to human health.
- 5.13 In regard to a healthy environment, the Incident did result in the contamination of land and water surrounding the point of release, a localised reduction in air quality, increase noise pollution during the response and recovery operations, and some temporary restrictions on very isolated access to open spaces. However, the communication of appropriate advice to the public meant that there were no reports of compromised human health and wellbeing as a result of the Incident.
- 5.14 Hence, it was concluded that there were **no impacts**, either direct or indirect, in terms of health and wellbeing as a result of the Incident.

Impact on Recreational Facilities

- 5.15 As set out in Section 3, the study area comprises a number of recreational facilities, outdoor activity centres and water sport facilities.
- 5.16 In regard to beaches and access to water within Dorset, the public were advised not to swim or bath at Studland Beach, Knowle Beach, South Beach, Ferry Road and Shell Bay. Nearby beaches at Swanage, Kimmeridge Bay, Lulworth Cove and Durdle Door remained open as alternative. Signage which advised swimmers to stay out of the water was removed on April 4th, 2023.
- 5.17 For the beaches and access to water within BCP, the public were advised not to swim or bath at Rockely Park, Lake Pier, Hamworthy Park, Baiter Slipway, Whiteley Lake (Kite Beach) and the slipway at Lake Road. The slips at Swanage and Mudeford remained open as an alternative for those that would normally choose to launch from a Baiter Slipway. Signage which advised swimmers to stay out of the water was removed on 4th April 2023.
- 5.18 Restrictions on recreational activities did not extend to on-land activities, so there was no impact on the operations of outdoor activity centres.
- 5.19 Recreational boating and water sports in Poole Harbour were prohibited until 4th April 2023. Some activities were able to relocate activities to Poole Bay or other locations in Dorset or BCP. However, many activities, specifically relating to yachting, sailing, standup paddleboarding (SUP), were prevented from conducting activities during this period.

As such, it has been concluded that there was a **minor adverse direct impact** on recreational facilities as a result of the Incident.

Disruption to Travel and Movement

- 5.20 As set out in the Baseline chapter, the study area comprises a comprehensive network of roads and PRoWs such as byways, bridleways, and footpaths. However, there are no publicly accessible roads or footpaths to access Wytch Farm and the initial point of release.
- 5.21 The closest public road access is Thrashers Lane, which provides access to main site of the Wytch Farm Oil Field from the B3351, approximately 1.8km west of the Incident. Whilst no public access roads were required to close as a result of the Incident, there was a slight increase in vehicular movements to and from the site due to the response and recovery operations being undertaken by Perenco and A&A.

- 5.22 The nearest publicly accessible PRoW is Bridleway SE11/7, which is approximately 1.4km in length located 0.2km east of the Incident, connecting Ower Quay Cottage with a wider network of PRoWs. This bridleway was not formally closed and access to Ower Quay Cottage was retained throughout, however access was disrupted at times to allow for vehicles supporting with the response and recovery operations to access areas of Ower Bay.
- 5.23 Footpath SE11/5 also runs through Wytch Farm and Wytch Moor, approximately 0.5km from the Incident at its nearest point. This footpath was not closed at any point during the response and recovery phases. However, 210m of the footpath is shared with a private road that was used a primary access route for vehicles in the response and recovery operations so was subject to increased traffic.
- 5.24 In summary, there were no closures or diversions to any highways or PRoWs as a result of the Incident. As such, no additional distances were required to be travelled for residents to access community facilities at any point. Therefore, it has been concluded that there were **no adverse direct impacts** in terms of travel and movement as a result of the Incident.
- 5.25 In terms of indirect impacts, during the response and recovery phases there was increased vehicular movements as well as some noise and visual impacts from the response and recovery operations leading to temporary blight on the users of SE11/7 and SE11/5. Therefore, in terms of indirect impacts it has been concluded that there was a **negligible adverse impact** on travel and movement as a result of the Incident.

Impact on Heritage Assets

- 5.26 As set out in Baseline chapter, the study area comprises a number of heritage assets, including Scheduled Monuments, Grade I Listed Buildings, Grade II Listed Buildings, and Heritage Conservation Areas. The closest of which is the Grade II Listed Ower Farm House is located just 0.7km from the point of release.
- 5.27 Despite the proximity of some heritage assets to the Incident, there were no reported effects to any of the assets and protection was maintained at all times, as such there were **no adverse impacts**, either direct or indirect, as a result of the Incident.

Summary – Health and Community

- 5.28 The overall impacts of the Incident on health and community are summarised below:

Impact	Type	Estimated Impact on Study Area
<i>Disruption to Visitor Economy</i>		
Community Cohesion & Perception of Place	Direct	no adverse impact
	Indirect	minor adverse impact
Health & Wellbeing	Direct	no adverse impact
	Indirect	no adverse impact
Impact on Recreational Facilities	Direct	minor adverse impact
	Indirect	no adverse impact
Disruption to Travel and Movement	Direct	no adverse impact
	Indirect	negligible adverse impact
Impact on Heritage Assets	Direct	no adverse impact
	Indirect	no adverse impact

6. Environmental Impacts

Overview

- 6.1 This chapter summarises the impact of the Incident on the study area, in terms of the current and future environmental impacts and the work of those responsible for motoring, reporting and advising on the on-going environmental management. Unlike the Impact Assessments for the Health & Community and Business & Economy, detailed analysis and interrogation of the data with regard to the Environment will be captured through the PREMIAM reporting or any subsequent reporting arrangements.
- 6.2 An environmental grouping will need to continue to undertake monitoring and reporting through till 2026¹²⁸ in alignment with the Pollution Response in Emergencies: Marine Impact Assessment and Monitoring (PREMIAM) Monitoring Co-ordination Cell (PMCC)¹²⁹.
- 6.3 Assessing and understanding the environmental impacts will need to be viewed from both a short term and a longer-term perspective, given that a period of time will need to have elapsed to be able to monitor whether any longer-term environmental impacts have occurred, particularly in relation to bio-accumulation and sedimentary analysis, as well as if there have been any changes to wildlife behaviour such as changes to migratory patterns.
- 6.4 As part of the response process, an enhanced monitoring and sampling programme has been enacted by Perenco, with A&A undertaking site sampling and additional monitoring activities in the immediate aftermath and likely through till 2027.
- 6.5 OSRL, working on behalf of Perenco, through their SCAT processes have documented and advised on clean up processes, and as part of their legacy have created a GIS mapping tool that will provide enhanced monitoring capability for the future, which will provide greater visualisation of any changes to the environment.
- 6.6 An adapted monitoring programme, that the Standing Environmental Group had been managing in relation to the many environmental designations for the surrounding area pre incident, is currently being developed and agreed.
- 6.7 The impacts captured by the PMCC cover the following:
 - **Study Area:** Defined as the Wytch Fame site (specifically ‘Site D’ directly around the Incident) and the wider Poole Harbour.

¹²⁸ This is line with proposed monitoring timeline suggested by A&A to the Poole Harbour Remediation & Restoration Group and is based on the estimated recovery time for the Salt Marshes

¹²⁹ The PBCC’s main role is to co-ordinate expert practitioners in the evidence collection to inform the monitoring of impacts on the flora and fauna of Poole harbour.

Impact Assessment

- 6.8 As previously set out, the work of the PMCC provides the current summative impact assessments on the Incident, is the underpinning basis of the shorter-term environmental summary presented in this chapter.
- 6.9 As set out in the Impact Framework, the Environmental impacts captured in relation to the short-term are:
- Habitats
 - Wildlife
 - Damage to Environmental Designations
 - Water quality
 - Air Quality.

Habitats / Wildlife

- 6.10 The catalyst for allowing the resumption of commercial shell fishing in the harbour related to the levels of polycyclic aromatic hydrocarbons (PAH) to be found in the harbour, which are a class of chemicals that are found in oil, and whether they were within safe levels for consumption. Following the advice from the PMCC to the Food Service Agency (FSA) and Southern IFCA¹³⁰, commercial shellfish beds were able to re-open three weeks after the incident¹³¹.
- 6.11 Additional testing of the wild shellfish beds and sediment has also been undertaken and established that these have not been impacted by the incident, determining that all PAH values were within safe levels. In terms of seabed habitats, the immediate impact assessments of macro-invertebrate communities found ‘no detectable impacts of oil pollution linked to the incident’ and that water samples showed no oil present¹³².
- 6.12 In terms of the protected habitats within the harbour, particularly those that will be particularly sensitive to damage, plants surveys on the seagrass and tasselweed (*Ruppia maritima*) have been undertaken and no immediate evidence of oil pollution has been identified. This is subject to further assessment, noting that the *Zostera* seagrass survey is still outstanding. Additional sedimentary chemistry and benthic macroinvertebrate surveying has been undertaken with the results awaited, which will provide insights into whether oil reached the seabeds¹³³.
- 6.13 Closer to the actual spill site, ecological assessments by A&A (looking at the reed bed, saltmarshes and mudflat habitats) has established that approximately 2,200 m² around the point of loss there is an average, 3-5% of the root mat layer made up of oil from the pipeline loss (Zone 1) and that approximately 1,100 m² on either side of the brook that discharges from Zone 1, there is an average of 1-2% of the root mat layer is oil from the pipeline loss (Zone 2).
- 6.14 The recommendation from A&A is to remove the oily soil from both zones, by scraping to a depth of 400 mm. This will remove the damage from oil and likelihood of ongoing and repeated recontamination, especially during high tides and with the removal of a long-term source of contamination, allow for recovery. However it will see the loss of saltmarshes, until

¹³⁰ Dorset LRF SCG Action Decision Log – Oil Spill Poole Harbour – 29.03.2023

¹³¹ PMCC Incident Monitoring and Outcomes Summary September 2023

¹³² PMCC Incident Monitoring and Outcomes Summary September 2023

¹³³ PMCC Incident Monitoring and Outcomes Summary September 2023

the habitat is allowed to naturally recover. This will necessitate ongoing monitoring to assess environmental impact until 2026¹³⁴.

- 6.15 Over the period of the Incident there were notified reports to Dorset Council from the RSPB Warden at Arne of a small number of oiled black headed gulls, Mediterranean gulls and a swan. Whilst a dead bird was found, it was not oiled and it was not demonstrated that it was directly connected to the Incident
- 6.16 A comprehensive bird survey was carried out by Birds of Poole Harbour¹³⁵ on 2nd April 2023. The results confirmed that the number of birds counted was typical for that time of year, and that a total of 6 visibly oiled birds were identified. These were comprised of 2 Canada Goose, 3 Curlew and 1 Teal. It was noted that whilst contamination was not as bad as initially feared, there was no insight yet into any long-term damage which may accrue from oil residue soaking into the substrate and entering marine and avian food chain. There was also no reports of any other wildlife casualties that were captured by the SCG or RCG, with the shellfisheries and fin-fishing not having any reported; this will be continued to be monitored through future surveys over following winters.

Environmental Designations

- 6.17 There have been no reported discussions of any existing environmental designations being under threat or at risk at the point that this report has been drafted.

Water Quality

- 6.18 Prior to the Incident, Poole Harbour was already classified as having a ‘Moderate Ecological Status’¹³⁶ in line with what the majority of water bodies achieve in the UK¹³⁷. The harbour already contain pollutants (including Arsenic, Chlorothalonil, Chromium (VI), Copper, Diazinon, Dimethoate, Iron, Pendimethalin, Un-ionised ammonia and Zinc). Following sampling and monitoring for the UKHSA advise the beaches and water in the Poole Harbour area were declared safe to be used for recreational purposes (including for swimming, bathing and water sports
- 6.19 Surface water sampling after the 7th of June 2023 has not identified any hydrocarbon presence in the harbour.

Air Quality

- 6.20 Again pre-Incident, both Local Authorities had been monitoring the air quality in line with 7 pollutant parameters (Benzene, 1,3 Butadiene, PM10 and PM2.5, Carbon Monoxide, Sulphur Dioxide, Nitrogen Dioxide (NO₂), Lead) and existing Air Quality Management Areas (AQMAS) have been declared.
- 6.21 However, given the rural location of the point of release, there are no local monitoring locations within the immediate vicinity of the site to provide a localised impact assessment.

¹³⁴ Wytch Farm Pipeline Loss – Outline Remediation Approach 09/09/2023 – Adler & Allan

¹³⁵ Birds of Poole Harbour Overview Email and WeBS count April 2023 [via Perenco]

¹³⁶ DEFRA (2022), Poole Harbour Water Body. [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB520804415800>

¹³⁷ [State of the water environment indicator B3: supporting evidence - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/state-of-the-water-environment-indicator-b3-supporting-evidence)

Summary PREMIAM Conclusions

- 6.22 The work of the PREMIAM cell is still ongoing but drawing from their last summary in September they have drawn the following conclusions:
- There has been limited impact from the incident on the wider Poole Harbour area with the key impacts on fishing and shellfish activities.
 - From an ecological perspective there does not appear to have been a material impact on the wider Poole Harbour area from data and observations to date noting that further monitoring and testing will be required.
 - There has been an environmental impact in the limited area around the point of release but it is not presently a risk to the wider Poole Harbour area and there are plans to remediate¹³⁸.

¹³⁸ PMCC Incident Monitoring and Outcomes Summary September 2023

7. Business & Economy Impacts

Overview

- 7.1 This chapter assesses the impact of the Incident on the study area's businesses and economy, including the disruption to local aquaculture and shellfish business activities, the visitor economy and the strategic perceptions of the area as a place to invest and do business.
- 7.2 The impacts considered within this chapter fall into two main categories:
- **Direct Impacts:** as a result of restrictions / curtailment of business activities operating in and around Poole Harbour.
 - **Indirect Impacts:** on the wider economy and businesses as a result of reduced footfall and supply-chain spending.
- 7.3 As a result, the assessment study area for this chapter considers:
- **Study Area:** Defined as the LSOAs located directly around the Incident and the surrounding shoreline of Poole Harbour.
 - **Local authorities:** Defined as the local authorities of Dorset Council and BCP Council.

Impact Assessment

- 7.4 As set out in the Impact Framework, the impacts assessed in regard to Business & Economy are:
- Disruption to the visitor economy
 - Disruption to Local Businesses:
 - Aquaculture, Wild Dredge Fisheries and Hand Gathering
 - Small Scale and Recreational Fishing Vessels
 - Other Harbour-based Operations
 - Attractiveness to Investors and Perceptions as a Place to do Business
- 7.5 The announcement of the Incident resulted in restrictions being enforced on businesses and recreational activities in and around Poole Harbour (see Timeline). Some activities relating to shellfish harvesting, such as wild dredge fisheries and hand gathering, were less impacted, due to the Incident occurring during the off-season period when activities are prohibited to support conservation.

Disruption to the Visitor Economy

- 7.6 The Incident at Poole Harbour resulted in people being advised against using nearby beaches and the water for recreational uses. This impacted those intending to visit the study area for swimming, bathing, water sports, fishing and angling.
- 7.7 This assessment considers the implications of reduced spending by visitors as a result of the Incident and subsequent restrictions on recreational activities.

Methodology

- 7.8 Visitor spend data for Poole and Purbeck was obtained from *The Economic Impact of Dorset's Visitor Economy 2019*¹³⁹ which was produced by The South West Research Company Ltd on behalf of the Dorset Tourism Partnership. Data from 2019 was preferred over 2021 as the figures were not skewed by the restrictions imposed by the UK Government as a result of the COVID-19 pandemic.
- 7.9 The assessment only considers the potential reduction in visitor numbers from day visitors as it was assumed that those booking overnight stays would have visited the area regardless of the Incident.
- 7.10 The table below presents the annual visitor spend by day visitors by category of spend and location.

Table 7.1 Annual Visitor Spend by Day Visitors and Category

Geography	Category	Annual Spend (£, 2019)
Poole	Shopping	£34,389,000
	Food & Drink	£58,999,000
	Attractions / Entertainment	£13,405,000
	Travel	£24,621,000
Purbeck	Shopping	£20,545,000
	Food & Drink	£5,542,300
	Attractions / Entertainment	£14,415,000
	Travel	£24,790,000

- 7.11 Acknowledging the visitor spend fluctuates throughout the year, data from *The Economic Impact of Dorset's Visitor Economy 2019*¹⁴⁰ was used to allocate annual spend on a monthly basis. The restrictions on recreational activities were imposed during the months of March and April, where 5.9% and 12.5% of annual day visitor spend was assumed to occur, respectively. Monthly visitor spend was then divided by the number of days in each month to estimate the daily spend by day visitors during each month.
- 7.12 Football counter data for Poole Harbour was used as a proxy for estimating the fall in visitor numbers as a result of the Incident. Again, comparator analysis was conducted against 2019 to ensure data was not skewed by restrictions imposed by the UK Government as a result of the COVID-19 pandemic.

¹³⁹ The South West Research Company Ltd on behalf of the Dorset Tourism Partnership (2019), *The Economic Impact of Dorset's Visitor Economy 2019*

¹⁴⁰ The South West Research Company Ltd on behalf of the Dorset Tourism Partnership (2019), *The Economic Impact of Dorset's Visitor Economy 2019*

- 7.13 Footfall in Poole Harbour was 10.8% lower in 2023 compared to 2019. However, it is acknowledged that multiple factors can impact footfall and visitor spend, including weather conditions, economic conditions and catchment population size.
- 7.14 Total precipitation between 26th March 2023 and 5th April 2023 was estimated to be 44.8mm, which was notably higher than the period of 26th March 2019 and 5th April 2019 when it was estimated that there was 32.3mm¹⁴¹.
- 7.15 Based on published literature, it is estimated that the weather can impact the GDP of economic sectors in developed countries by up to 35%¹⁴². As such, this proxy value was applied to the footfall numbers in assuming that 35% of the decrease in footfall between the two comparator periods. As such, it was estimated that the Incident resulted in a 7.0% decrease in footfall between the two comparator periods.
- 7.16 Restrictions were imposed for 6 days during March and 5 days in April, between the 26th of March 2023 and 5th April 2023. Therefore, a 7.0% reduction in visitor spend was quantified for the 11-day period across March and April 2023.
- 7.17 These values were adjusted to 2023 prices using the latest GDP Deflators.
- 7.18 In order to account for displacement (i.e. spend that now occurs elsewhere outside of the study area), a 50% adjustment was made in line with the ‘Medium’ ready reckoner from the *HCA Additionality Guide*¹⁴³ was applied. This adjustment accounts for day visitors that subsequently visited other locations outside of the study area as a result of the Incident.
- 7.19 A composite multiplier of 1.38 was then applied to the direct impact to derive the indirect impacts. The composite multiplier is in line the ‘recreation’ multiplier for “local areas” from the *HCA Additionality Guide*¹⁴⁴.

Assessment

- 7.20 Following the adjustments for additionality, the impact of the Incident on visitor spend for the 11-day period where restrictions were imposed on recreational activities are presented below:

¹⁴¹ Meteocentre (2023), *Historical Weather – Bournemouth*. [Online]. Available at: <https://www.meteocentre.co.uk/historical-weather/038620-99999?country=united-kingdom>

¹⁴² Parnaudeau, M., & Bertrand, J, (2018), *The contribution of weather variability to economic sectors*. *Applied Economics*, 50(43), 4632–4649.

¹⁴³ Homes & Community Agency, (2014), *Additionality Guide – Fourth Edition*.

¹⁴⁴ Homes & Community Agency, (2014), *Additionality Guide – Fourth Edition*.

Table 7.2 Gross Impact of Incident on Visitor Spend

Impact Category	Impact	Economic Value (2023 prices)
Direct	Shopping	-£71,192
	Food & Drink	-£83,642
	Attractions / Entertainment	-£36,053
	Travel	-£64,034
	Sub-total	-£254,921
Indirect	Shopping	-£27,053
	Food & Drink	-£31,784
	Attractions / Entertainment	-£13,700
	Travel	-£24,333
	Sub-total	-£96,870
Total		- £351,791

Direct Impacts

- 7.21 In regard to **direct** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£254,921** reduction in visitor spend. All of the direct impacts are expected to impact businesses operating within the defined study area; therefore leakage is assumed to be 0% in line with the ‘none’ ready reckoner from the *HCA Additionality Guide*.

Indirect Impacts

- 7.22 In regard to **indirect** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£96,870** reduction in visitor spend. Some of the indirect impacts through the supply chain will occur outside of the study area, therefore leakage for indirect impacts is assumed to be 50% in line with the ‘high’ ready reckoner from the *HCA Additionality Guide*. As such, the Incident at Poole Harbour was estimated to have resulted in a **£48,435** reduction in visitor spend in the study area and a **£48,435** reduction in visitor spend outside of the study area.

Wider Impacts on the Visitor Economy

- 7.23 Although not possible to quantify, the Incident is also expected to have longer-term impacts on the visitor economy through potential less favourable changes in the ‘perceptions of place’.
- 7.24 Between 26th March and 19th April 2023, there were 290 media reports of the Incident with coverage ranging from regional reporting to all the major national news. Media coverage, from both mainstream and specialist organisations (e.g. media outlets focussing specifically on fishing and oil and gas) expressed concerns with wildlife, swimmers, property, and local businesses.
- 7.25 In addition, the local tourism public relations team had engaged six national journalists and influencers to attend a press visit to Poole Harbour following the International Media Marketplace event, held at the Queen Elizabeth II Centre in London in early March. As a result of the Incident, this press trip was subsequently cancelled. This resulted in reduced promotional and marketing activity for Poole Harbour, which may have a further longer-

term adverse impact on the visitor economy within the study area, as a missed opportunity cost.

Disruption to Local Businesses

- 7.26 The Incident at Poole Harbour did result in some disruption to local businesses. The scope, methodology and impact for each category of local businesses are presented below.
- 7.27 The impacted local businesses operating in fishing and aquaculture in Poole Harbour are predominately smalls businesses or SMEs that focus on meeting relatively local demand. The size and seasonal nature of the industry in which these local businesses operate mean they are more exposed to external risks which disrupt their operations.

Aquaculture

- 7.28 The assessment of the impacts of the Incident on aquaculture businesses in Poole Harbour has been underpinned by a study from the New Economics Foundation on behalf of SIFCA¹⁴⁵. The study assesses the contribution of these activities to the economy of Poole.
- 7.29 Aquaculture in Poole Harbour is predominately focused on the growing of Pacific oyster (*Magallana gigas*), mussels (*Mytilus edulis*), Manila clams (*Ruditapes philippinarum*) and the common cockle (*Cerastoderma edule*).
- 7.30 The study by the New Economics Foundation derived a model to estimate the economic value of aquaculture activities in Poole Harbour. This, in itself, was adapted from a model that had previously been developed to quantify the value of harvesting shellfish in the Solent.
- 7.31 The model estimated gross direct economic output, defined as the direct economic turnover generated from shellfish aquaculture through sales. More specifically, this is calculated using the following formula:

$$\text{Gross Direct Economic Output} = (\text{Total Harvest Size} \times \text{Proportion of Harvest Size sold locally} \times \text{Local Landing Price}) + (\text{Total Harvest Size} \times \text{Proportion of Harvest Size exported} \times \text{Exported Landing Price})$$

- 7.32 Indirect economic output is the expenditure in other parts of the aquaculture supply-chain that occurs as a result of shellfish harvesting, including the depuration processes, maintenance of equipment, transportation, shellfish wholesalers and local shellfish retailers. The model is underpinned by a number of values and proxies which are inputs to the following formulas:

¹⁴⁵ NEF Consulting (2018), *The value of the small-scale commercial fishing fleet, aquaculture and the recreational charter boat fleet, to the local economy of Poole.*

Shellfish Depuration Processors = Cost of processing per shellfish x Number of shellfish

Equipment Maintenance = Annual maintenance costs for boats, machinery and tools per shellfish dredger x Number of shellfish dredgers

Shellfish Wholesalers = (% of shellfish to local market x total harvest size x price paid by wholesalers) - (% of shellfish to local market x total harvest x price paid to fishermen)

Local Shellfish Retailers = (% of shellfish to local market x total harvest size x price paid by end users) - (% of shellfish to local market x total harvest x price paid to fishermen)

Shellfish Transporters = % of harvest exported x Harvest size x Transportation costs by lorry freight (to France) x % of shellfish to export market

- 7.33 The total value of economic activity equals the sum of both gross economic output and indirect economic output.
- 7.34 The total value of economic activity per annum in the study by the New Economics Foundations is based on prices in July 2018. For the purpose of quantifying the impact of the Incident on the aquaculture industry in Poole Harbour, these values were adjusted to current prices (2023 prices) using the latest GDP Deflators¹⁴⁶.
- 7.35 Following the adjustment of prices, the economic impact of the Incident on aquaculture was derived through taking the value of all direct and indirect activities for the 25-day period where shellfish harvesting was ordered to cease. The results of which are presented below:

Table 7.3 Economic Impact of Incident on Aquaculture

Impact Category	Impact	Economic Value (2023 prices)
Direct	Aquaculture Earnings	- £127,401
Indirect	Depuration Processors	- £3,405
	Equipment Maintenance	- £8,413
	Shellfish Wholesalers	- £9,423
	Local Shellfish Retailers	- £54,518
	Shellfish Transporters	- £6,390
Total		- £209,551

Direct Impacts

- 7.36 In regard to **direct** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£127,401** loss of GVA from aquaculture earnings. All of the direct impacts are expected to impact businesses operating within the defined study area; therefore leakage is assumed to be 0% in line with the 'none' ready reckoner from the *HCA Additionality Guide*.

¹⁴⁶ GDP Deflators at Market Prices and Money GDP, 15 March 2023

Indirect Impacts

- 7.37 In regard to **indirect** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£82,150** loss of GVA from depuration processors, equipment maintenance, shellfish wholesalers, local shellfish retailers, and shellfish transporters. A small proportion of the impacted businesses throughout the supply chain are located outside of the study area, therefore leakage for the indirect impacts is assumed to be 10% in line with the 'low' ready reckoner from the *HCA Additionality Guide*. As such, the Incident at Poole Harbour was estimated to have resulted in a **£73,935** loss of indirect GVA in the study area and a **£8,215** loss of indirect GVA outside of the study area.

Summary

- 7.38 In conclusion, the Incident at Poole Harbour was estimated to have resulted in **£201,336** net loss of GVA from local businesses inside the study area and a total net loss of **£209,551** of GVA from all businesses operating in aquaculture and throughout its supply-chain.

Wild Dredge Fisheries

- 7.39 Wild dredge fisheries in Poole Harbour are predominately focused on the fishing of Common Cockles (*Cerastoderma edule*) and the Manila clam (*Ruditapes philippinarum*).
- 7.40 The operation of wild dredge fisheries is managed through a permit system which allows fishing to occur between 25th May and 23rd December each year.
- 7.41 As all restrictions on the harvesting and fishing of shellfish were lifted on 20th April 2023, there was no impact on the activities of the wild dredge fisheries as a result of the Incident.
- 7.42 In conclusion, the Incident at Poole Harbour was estimated to have resulted in **zero** loss of GVA from local businesses operating in wild dredge fisheries and its supply-chain.

Hand Gathering

- 7.43 Hand gathering in Poole Harbour is predominantly focused on the gathering of Manila Clams (*Ruditapes philippinarum*), American Hard-shell Clams, Razor Clams, Common Cockles (*Cerastoderma edule*) and Pacific Oysters (*Magallana gigas*).
- 7.44 The gathering of Manila Clams (*Ruditapes philippinarum*), American Hard-shell Clams, and Razor Clams occurs all year round, expected in some restricted areas where it is only permitted between 1st April and 31st October. Whilst the gathering of Common Cockles is only permitted between 1st May and 31st January.
- 7.45 Restrictions on hand gathering were lifted on 5th May 2023, resulting in a loss of 31-days of hand gathering for Manila Clams (*Ruditapes philippinarum*), American Hard-shell Clams, and Razor Clams and a loss of 4-days of hand gathering for Common Cockles (*Cerastoderma edule*) and Pacific Oysters (*Magallana gigas*).
- 7.46 As there are no published statistics or research studies on the economic value of hand gathering at Poole Harbour, it has not been possible to quantify the loss of GVA arising from restrictions imposed as a result of the Incident.

7.47 However, when assessed qualitatively, it was determined that the Incident is likely to have had a **minor adverse** impact on hand gathering at Poole Harbour which was disrupted for a short period of time with associated loss of economic or social value which could not be mitigated.

Small Scale Commercial Fishing

7.48 Small scale commercial fishing in Poole Harbour is predominantly focused on Plaice, Bass, Scallops, Mullet, Cuttlefish, Sole, Crabs, Lobsters and Whelks.

7.49 The fishing of Whelks, Lobsters, Crabs, Cuttlefish and Scallops mostly occurs in Poole Bay, outside of Poole Harbour. Therefore, was not impacted by the Incident.

7.50 Wet fish, such as Mullet, Bass, Flounder, Sole and Plaice are caught commercially within Poole Harbour using fixed, drift, seine and trawl nets¹⁴⁷.

7.51 Fishing, for wet fish, using either lines or nets was prohibited in Poole Harbour from 26th March 2023 until 5th April 2023¹⁴⁸. This resulted in the loss of 10-days of net fishing for these species.

7.52 The assessment of the impacts of the Incident on small scale commercial fishing businesses in Poole Harbour has been underpinned by a study from the New Economics Foundation on behalf of SIFCA¹⁴⁹. The study assesses the contribution of these activities to the economy of Poole.

7.53 The total value of economic activity per annum in the study by the New Economics Foundations is based on prices in July 2018 and landing data for 2016 and 2017.

7.54 The following assumptions were adopted in this assessment:

- For the purpose of quantifying the impact of the Incident on the small-scale commercial fishing industry in Poole Harbour, the landing values have been assumed to be equal to 2016 and the values were adjusted to current prices (2023 prices) using the latest GDP Deflators¹⁵⁰.
- The gross direct economic output represents the landing value.
- The gross indirect economic output has been calculated through multiplying gross direct economic output by the ‘% sold domestically’ and then applying the relevant sector specific output multiplier (3.91).
- The total value of economic activity equals the sum of both gross economic output and indirect economic output.

7.55 Following the adjustment of prices, the economic impact of the Incident on small-scale commercial fishing was derived through taking the value of all direct and indirect activities for the 10-day period where shellfish harvesting was ordered to cease. The results of which are presented below:

¹⁴⁷ Poole Harbour Steering Group (2011), Poole Harbour Aquatic Management Plan 2006, Amended 2011.

¹⁴⁸ The Bass (Specified Areas) (Prohibition of Fishing) (Variation) Order 1999 sets out the prohibition for fishing in Bass Nursery Areas in Poole Harbour between 30th April and 1st November.

¹⁴⁹ NEF Consulting (2018), The value of the small-scale commercial fishing fleet, aquaculture and the recreational charter boat fleet, to the local economy of Poole.

¹⁵⁰ GDP Deflators at Market Prices and Money GDP, 15 March 2023.

Table 7.4 Economic Impact of Incident on Small Scale Commercial Fishing

Species	Lost Landing Value / Lost Gross Direct Economic Output (2023 prices)	% Sold Domestically	Output Multiplier	Lost Indirect Economic Output (2023 prices)	Total Lost Economic Output (2023 prices)
Sole	- £4,185	40.0%	3.91	- £6,545	- £10,730
Mullet	- £1,863	42.5%	3.91	- £3,097	- £4,960
Bass	- £1,124	72.5%	3.91	- £3,188	- £4,312
Plaice	- £622	67.5%	3.91	- £1,641	- £2,263
Total	- £7,795	-	-	- £14,471	- £22,265

Direct Impacts

- 7.56 In regard to **direct** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£7,795** loss of GVA from small-scale commercial fishing earnings. All of the direct impacts are expected to impact businesses within the defined study area, therefore is leakage assumed to be 0% in line with the ‘none’ ready reckoner from the *HCA Additionality Guide*.

Indirect Impacts

- 7.57 In regard to **indirect** impacts, the Incident at Poole Harbour was estimated to have resulted in a **£14,471** loss of GVA from indirect activities associated with the small-scale commercial fishing industry. As some of the impacted businesses across the supply-chain are located outside of the study area, leakage for indirect impacts is assumed to be 10% in line with the ‘low’ ready reckoner from the *HCA Additionality Guide*. As such, the Incident at Poole Harbour was estimated to have resulted in a **£13,023** loss of indirect GVA in the study area and a **£1,447** loss of indirect GVA outside of the study area.

Summary

- 7.58 In conclusion, the Incident at Poole Harbour was estimated to have resulted in **£20,818** net loss of GVA from local businesses inside the study area and a total net loss of **£22,265** of GVA from all businesses operating in small-scale commercial fishing and its supply-chain.

Recreational Fishing Vessels

- 7.59 Poole Harbour has a well-established recreational charter boat fishing industry, which is second only to Weymouth in size. Private angling vessels focus on fishing with a hook and a line for non-commercial purposes and does not require a licence in the UK.
- 7.60 As of 2018, Poole Harbour comprises 33 registered charter boats operating from Poole, and a further 9 from Swanage that moor in Poole. All of which are represented by the Poole and District Fisherman’s Association (PDFA). The most popular species for anglers to target is bass, followed by cod, mackerel, rays and sharks, conger eels and pollack.

- 7.61 Fishing, for wet fish, using either lines or nets was prohibited in Poole Harbour from 26th March 2023 until 5th April 2023¹⁵¹. This resulted in the loss of 10-days of recreational charter fishing within Poole Harbour.
- 7.62 However, as fishing was not prohibited outside of Poole Harbour, it is assumed that there was in **zero** loss of GVA from disrupted recreational fishing vessels as they would operate outside of the boundaries of the harbour.

Other Harbour-based Operations

- 7.63 Other harbour-based operations within Poole Harbour include port operations and tourism related day-trips and cruises.
- 7.64 However, these activities were not prohibited or disrupted as a result of the Incident. As such, it is assumed that there was in **zero** loss of GVA from disruption to other harbour-based activities.

Attractiveness to Investors and Perceptions as a Place to do Business

- 7.65 There is limited direct evidence to establish the extent to which current perceptions of Poole Harbour may constrain strategic investment in the area. This is due to a lack of business and other attitudinal surveys about Poole.
- 7.66 However, large parts of the study area are deemed to be ‘very affluent’ and there is a high ratio of property prices to earnings. Conversely, there are some areas in Poole town centre that are amongst the most deprived neighbourhoods nationally.
- 7.67 Although not quantifiable, the Incident and risk of future incidents may exacerbate these issues around negative perceptions and potentially make some areas less desirable locations to do business. This could have additional impacts upon the overall competitiveness of the area and, in particular, may affect the ability to diversify the economy and generate jobs within higher value sectors.
- 7.68 The short-term nature of restrictions and disruption to local business activities means that the impact on the potential attractiveness to investors and perceptions of place as a location to do business will be **negligible**.

¹⁵¹ *The Bass (Specified Areas) (Prohibition of Fishing) (Variation) Order 1999 sets out the prohibition for fishing in Bass Nursery Areas in Poole Harbour between 30th April and 1st November.*

Summary – Business & Economy

7.69 The overall impacts of the Incident on businesses and the economy are summarised below:

Impact	Type	Estimated Economic Impact on Study Area	Estimated Economic Impact on Dorset and BCP (Inc. study area)
<i>Disruption to Visitor Economy</i>			
Shopping	Direct	-£71,192	-£71,192
	Indirect	-£13,526	-£27,053
Food & Drink	Direct	-£83,642	-£83,642
	Indirect	-£15,892	-£31,784
Attractions / Entertainment	Direct	-£36,053	-£36,053
	Indirect	-£6,850	-£13,700
Travel	Direct	-£64,034	-£64,034
	Indirect	-£12,166	-£24,333
<i>Disruption to Local Businesses</i>			
Aquaculture	Direct	- £127,401	- £127,401
	Indirect	- £73,935	- £82,150
Wild Dredge Fisheries	Direct	£0	£0
	Indirect	£0	£0
Hand Gathering	-	<i>Minor Adverse</i>	
Small Scale Commercial Fishing	Direct	- £7,795	- £7,795
	Indirect	- £13,023	- £1,447
Recreational Fishing Vessels	Direct	£0	£0
	Indirect	£0	£0
Other Harbour-based Operations	Direct	£0	£0
	Indirect	£0	£0
<i>Attractiveness to Investors and Perceptions as a Place to do Business</i>			
<i>Attractiveness to Investors and Perceptions as a Place to do Business</i>	-	<i>Negligible</i>	
Total		- £525,509	- £570,584

7.70 In conclusion, the Incident at Poole Harbour was estimated to have resulted in an overall **£525,509** net loss of GVA for local businesses inside the study area and a total net loss of **£570,584** of GVA from businesses operating in Dorset Council and BCP Council (including the study area).

8. Key Insights & Conclusions

- 8.1 This impact assessment, supported by engagement with a wide range of stakeholders and the RCG, has demonstrated that because of an effective and quick response phase; the overall and cumulative impacts of the Incident has been minimal. Poole Harbour and the wider Study Area has experienced limited health, environmental and economic impacts. The greatest impact areas are those environmental impacts in a highly localised area around the point of release.
- 8.2 From the evidence and assessment work to date; Hatch consider that Dorset Council and BCP Council have successfully managed and responded to the Incident and requirements established within the Civil Contingencies Act (2004). There is strong evidence of working effectively with a diverse range of organisations they have facilitated a return to normality as far as practically possible. Perenco have been noted as a collaborative and supportive partner in meeting these requirements.

Health and Community

- 8.3 The impact assessment on Health and Community from the Incident was estimated to be minimal, with only two minor adverse impacts concluded community cohesion and perception of place and recreational facilities. All other impacts including health and wellbeing, travel and movement and heritage assets. This reflects the fast response during the response phase which ensured any health impacts were minimised.
- 8.4 Whilst no direct impacts were reported for the Incident on community cohesion and perception of place, it is has been concluded that there was a minor adverse indirect impact, as a result of associated negative press coverage. In regard to recreational facilities, a minor adverse direct impact has been reported. This is as a result of advice against swimming in various beaches and recreation al boating and water sports for a short period.

Environment

- 8.5 There has been an environmental impact in the limited area around the point of release, whilst it is a small area it is in a highly sensitive salt marsh. The impact area is being monitored and managed and at present any remaining hydrocarbons are fully contained by booms and absorbents and it does not present a risk to the wider Poole Harbour area. This impacted area is being monitored and managed and plans are being developed, in agreement with relevant stakeholders, to remediate this area.
- 8.6 Drawing from secondary evidence produced by PREMIAM, the investigation and monitoring activity undertaken to date indicated that other than at the point of release, there has been limited environmental impact from the incident on the Poole Harbour area. The key impacts were limited to activity in and around Poole Harbour in the initial two weeks after the incident when fishing and shellfish activities were restricted.
- 8.7 From an ecological perspective there does not appear to have been a material impact on the wider Poole Harbour area from data and observations to date.
- 8.8 Whilst the impacts appear to have had been limited in geography, habitat and wildlife, longer term impacts may take time to emerge which is why there is a need for extended monitoring and review through till 2026.

Business and Economy

- 8.9 The impact assessment on Business and Economy from the Incident was estimated to have resulted in an overall £525,509 net loss of GVA and a total net loss of £570,584 of GVA from businesses operating in Dorset Council and BCP Council (including the study area). Set in the context of the overall economy for Dorset and BCP Council this is considered minimal in an absolute sense. However, it is recognised that impacts have disproportionately fallen on independent and SME firms within the area, during times of real economic challenge, particularly for those within the aquaculture and fishing sectors.
- 8.10 Whilst not quantifiable the wider impacts to the economy in regard to perceptions to investors and attractiveness as a place to do business has been considered. There is limited direct evidence to establish a firm conclusion and considering the short-term nature of restrictions the assessment concluded negligible. That said, it has been noted that the Incident and risk of future incidents could exacerbate any wider perception issues and the Incident could be linked to any future decline or negative impacts on the business and visitor economy.
- 8.11 A press trip to Poole Harbour planned in March for six national journalists and influencers was cancelled as a result of the Incident and has yet to be rescheduled. This resulted in reduced promotional and marketing activity for Poole Harbour, which may have a further longer-term adverse impact on the visitor economy within the study area, as a missed opportunity cost.

Wider Reflections

- 8.12 The Dorset LRF Framework¹⁵² recognises that following any site clearance and recovery; the third stage in recovery should be 'Community Recovery'. Aligned to this, Hatch recommend that work is done to communicate and 'close out' the Incident to the public and local stakeholders. Now more than ever there is growing awareness throughout society on the need to protect and enhance the environment. Therefore to minimise any longer-term impacts to community confidence and perception as Poole Harbour and the surrounding assets as a place to live, work and visit.
- 8.13 Whilst the responsibility for recovery has been with the public sector; this has been a good example of private sector collaboration; notably with Perenco and their partners. Dorset Council and BCP Council (any other public agencies) should look to maintain and strengthen this relationship to deliver wider public good across the areas.

¹⁵² Dorset Local Resilience Forum (2018), Dorset LRF Recovery Framework.

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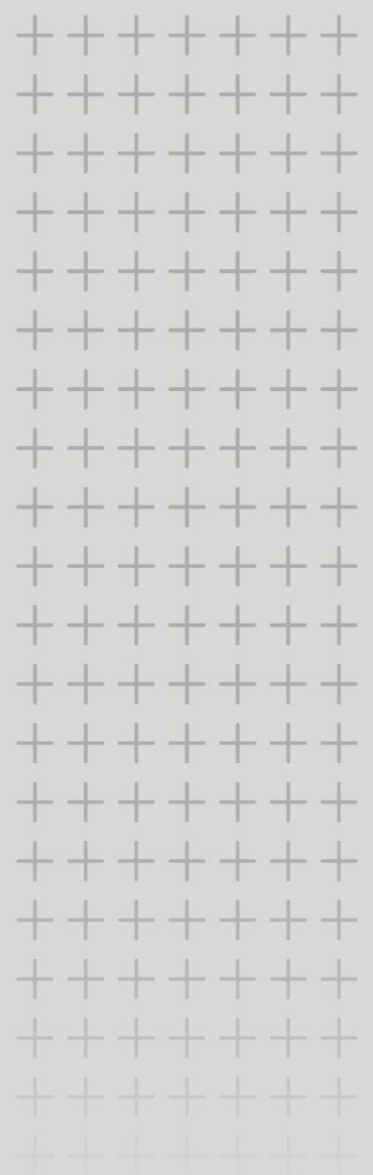
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