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Marine Non-Licensable Activities Impacts Evidence: Summary (DRAFT)



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1 Summary

This summary report provides a concise overview of the Marine Management Organisation (MMO) analysis of the impacts of marine Non-Licensable Activities (mNLA) in England. The evidence base comprises five habitat and species-specific Impacts Evidence reports, supported by a Methodology report and this Summary report. The relationship between these documents is illustrated in **Figure 1**.

The sources of evidence, procedures and rationale used in each of these analyses are outlined in the respective full reports¹:

- Marine Non-Licensable Activities Impacts Evidence: Benthic sediments and associated species;
- Marine Non-Licensable Activities Impacts Evidence: Birds;
- Marine Non-Licensable Activities Impacts Evidence: Grey seals, harbour seals and Eurasian otters;
- Marine Non-Licensable Activities Impacts Evidence: Reef; and
- Marine Non-Licensable Activities Impacts Evidence Seagrass beds, maerl beds, seahorses and stalked jellyfish.

These reports are supported by:

- Marine Non-Licensable Activities Impacts Evidence: Methodology; and
- Marine Non-Licensable Activities Impacts Evidence: Summary.

MMO is responsible for the management of mNLA which occur within 0 to 12 nautical miles (nm). However, there are many foreshore mNLA which already fall within the remit of existing regulators (Marine Management Organisation, 2020). Please note, anchoring is a licensable marine activity that is exempt from licensing. As such, MMO has assessed anchoring (both recreational and commercial anchoring of vessels) along with other mNLA with regards to impacts on marine protected areas (MPA). **Figure 2** outlines the process to assess and manage mNLA.

¹ Marine Non-Licensable Activity Impacts Evidence documents are available: <https://www.gov.uk/government/calls-for-evidence/marine-non-licensable-activities> (last accessed 30 September 2026)

2 Key definitions

Designated Feature (“feature”) - a species, habitat, geological or geomorphological entity for which an MPA is identified and managed.

Sensitivity – is a measure that is dependent on the ability of the feature (species or habitat) to resist change and its ability (time taken) to recover from change. A very sensitive habitat or species is one that is very easily impacted by a pressure and/or is expected to recover over a very long period or not at all.

Pressure - the mechanism through which an activity impacts any part of the ecosystem. The nature of the pressure is determined by activity type, intensity and distribution.

Impact - is the consequence of pressures (for example habitat degradation) where change occurs that is different to that expected under natural conditions.

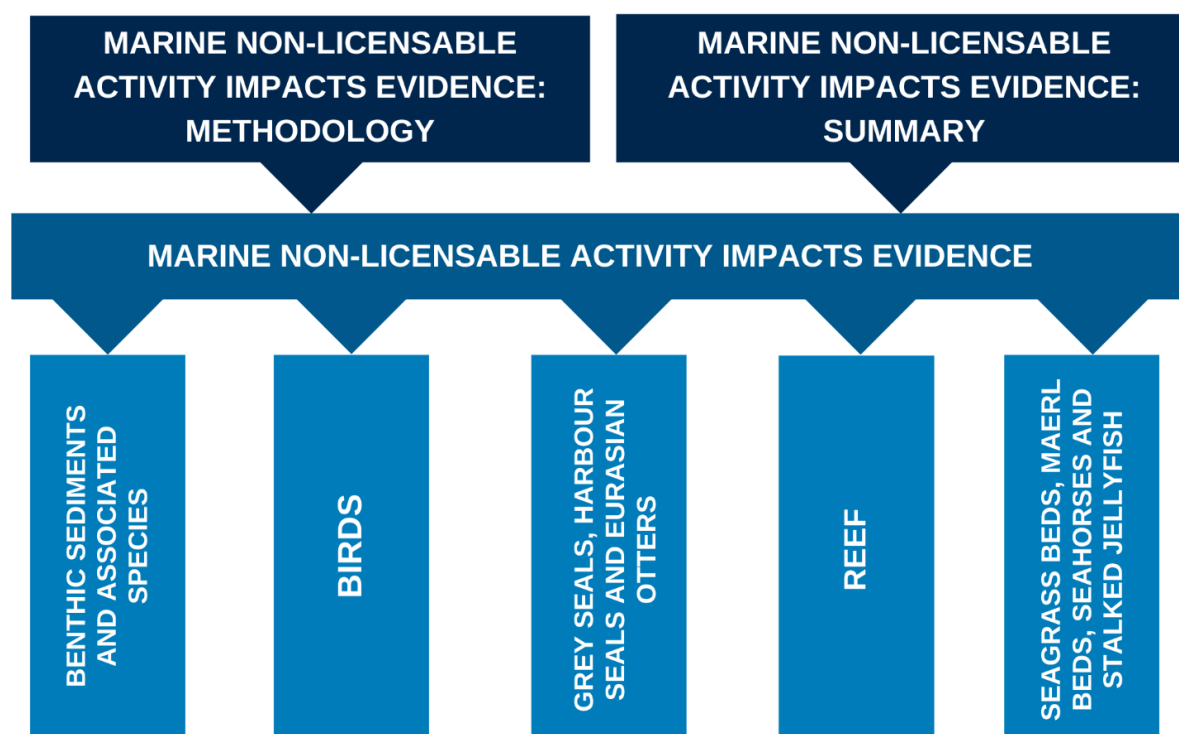


Figure 1: The documents drafted and available to review as part of the mNLA call for evidence.

MMO management of Marine Non-Licensable Activities in MPAs

Step 1: Site prioritisation	Identify and prioritise MPAs potentially at risk from mNLA to focus assessment effort on sites most likely to require management.
Step 2: Screening assessment	Gather and analyse best available evidence on the impacts of mNLA on MPA features.
Step 3: Call for Evidence	Seek views from interested parties and update impacts and evidence documents using the evidence collected.
Step 4: Engagement and site level assessments	Regional engagement where required and impacts of mNLA at site level assessed
Step 5: Develop management measures	Where necessary, develop proposed management measures to address negative impacts of mNLA on MPA features
Step 6: Communicating management	Engage on proposed management measures, consider stakeholder feedback, finalise decisions with relevant authorities and communicate agreed measures to affected stakeholders.
Step 7: Implementing management measures	Implement management measures in collaboration with stakeholders and regulatory authorities, support behaviour change, compliance and adaptive management where required.
Step 8: Monitoring	Monitor and review management measures begin.
Step 9: Review	Review the need for and effectiveness of MMO mNLA management every five years.

Figure 2: Steps to be taken in the MMO assessment and management of mNLA.

3 Key findings

Table 1 to **Table 5** summarise the outcomes following MMO analysis for impacts of mNLA on:

- benthic sediments and associated species;
- birds;
- grey seals (*Halichoerus grypus*), harbour seals (*Phoca vitulina*) and Eurasian otters (*Lutra lutra*);
- reef; and
- seagrass beds, maerl beds, seahorses and stalked jellyfish.

There will be variability in the impact of the mNLA on protected features, and this will be dependent on site specific sensitivities and the level of activity within a site, this is to be considered when conducting site screenings and site assessments.

Site level assessments will be undertaken for the impacts of mNLA in any of the inshore MPAs. Site level assessments will consider the evidence analysed in the Marine Non-Licensable Activities Impacts Evidence documents alongside site specific details, including:

- the conservation objectives of the MPA;
- the intensity and nature of mNLA activity;
- any existing mNLA management;
- the environmental conditions of the site;
- the ecological characteristics of the designated feature and/or biological community; and
- for habitats, the presence of particularly sensitive species.

Management measures for each MPA will be developed based on the outcome of the site level assessments.

3.1 Sensitivity and risk

Sensitivity and risk were considered to understand the potential for mNLA activities to adversely affect MPA features. Sensitivity reflects the capacity of a feature to withstand and recover from a pressure (its resistance), while risk considers both the sensitivity of the feature and the likelihood of exposure to that pressure. Together, these factors provide an indication of the potential for significant impacts and help identify where further assessment and management may be required.

Natural England's Advice on Operations (AoO) was used to identify potential pressures from different mNLA and to inform the understanding of feature sensitivity to the pressure. Where a sensitivity assessment has not been undertaken or the

evidence base is insufficient to assess sensitivity, the activity-pressure-feature combination has been included to capture all possible evidence that may impact the features. [Marine Non-Licensable Activity Impacts Evidence: Methodology](#)² details the process of how MMO judgement refined pressures for assessment.

Table 1 to **Table 5** summarise the MPA features that are considered sufficiently sensitive and at risk from a given mNLA activity to warrant further site-specific assessment. They identify designated features with evidence of sensitivity to relevant activity-related pressures, describe the rationale for concern, and distinguish between higher and lower-risk pressures. The tables are intended as a screening tool, highlighting circumstances where the spatial overlap of an activity and a designated feature, together with evidence of activity intensity, may indicate a credible risk of significant impacts and therefore the need for further assessment.

They also identify exceptions, such as irreplaceable habitats (for example, peat and clay exposures), which may be taken forward to assessment regardless of evidence of activity overlap due to their particularly high conservation value and limited recoverability.

² Marine Non-Licensable Activity Impacts Evidence: Methodology [Marine Non-Licensable Activity Impacts Evidence: Methodology](#) (Last accessed 16 September 2026)

Table 1: Summary of MMO analysis of the impacts of mNLA on features included in Marine Non-Licensable Activities Impacts Evidence: Benthic sediments and associated species.

mNLA	Designated feature	MMO analysis summary
Anchoring Motorised watercraft Non-motorised watercraft	Peat and clay exposures Intertidal coarse sediment Intertidal mixed sediments Intertidal mud Intertidal sand and muddy sand Sheltered muddy gravels	These mNLA are likely to have a significant impact on benthic habitats.
Diving and snorkelling	Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal mixed sediments Subtidal mud Subtidal sand	Diving and snorkelling is unlikely to have a significant impact on benthic habitats.
MPW Non-motorised sailing	Intertidal coarse sediment Intertidal mixed sediments Intertidal mud Intertidal sand and muddy sand Sheltered muddy gravels Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal mixed sediments Subtidal mud Subtidal sand	Motorised personal watercraft (MPW) is likely to have a significant impact on intertidal and subtidal benthic sediments.
	Peat and clay exposures	Motorised personal watercraft is unlikely to have a significant impact on peat and clay exposures.

mNLA	Designated feature	MMO analysis summary
Hovercraft	Intertidal coarse sediment Intertidal mixed sediments Intertidal mud Intertidal sand and muddy sand Sheltered muddy gravels Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal mixed sediments Subtidal mud Subtidal sand	Hovercraft is unlikely to have a significant impact on intertidal and subtidal benthic sediments.
	Peat and clay exposures	Hovercraft is likely to have a significant impact on peat and clay exposures.
Wildlife watching at sea (commercial)	Peat and clay exposures Intertidal coarse sediment Intertidal mixed sediments Intertidal mud Intertidal sand and muddy sand Sheltered muddy gravels Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal mixed sediments Subtidal mud Subtidal sand	Wildlife watching at sea is unlikely to have a significant impact on benthic habitats

Table 2: Summary of MMO analysis of the impacts of mNLA on features included in Marine Non-Licensable Activities Impacts Evidence: Birds.

mNLA	Protected feature	MMO analysis summary
Anchoring Diving and snorkelling	All birds	These mNLA are unlikely to have a significant impact on birds
Hovercraft Motorised watercraft MPW Non-motorised sailing Non-motorised watercraft Wildlife watching at sea (commercial)	All birds	These mNLA are all likely to have a significant impact on birds.

Table 3: Summary of MMO analysis of the impacts of mNLA on features included in Marine Non-Licensable Activities Impacts Evidence: Harbour seals, grey seals and Eurasian otters.

mNLA	Designated feature	MMO analysis summary
Anchoring	Grey seals Harbour seals Eurasian otters	Anchoring is unlikely to have a significant impact on seals and otters.
Diving and Snorkelling	Grey seals Harbour seals	Diving and snorkelling is likely to have a significant impact on seals.
	Eurasian otters	Diving and snorkelling is unlikely to have a significant impact on otters.
Hovercraft Motorised watercraft MPW Non-motorised sailing Non-motorised watercraft Wildlife watching at sea (commercial)	Grey seals Harbour seals Eurasian otters	These mNLA are likely to have a significant impact on seals and otters.

Table 4: Summary of MMO analysis of the impacts of mNLA on features included in Marine Non-Licensable Activities
Impacts Evidence: Reef.

mNLA	Designated feature	MMO analysis summary
Anchoring	Subtidal chalk Littoral chalk communities Low energy circalittoral rock Moderate energy circalittoral rock Low energy infralittoral rock Moderate energy infralittoral rock Intertidal under-boulder communities Intertidal stony reef Subtidal stony reef Pink sea-fan (<i>Eunicella verrucosa</i>) Sea fan anemone (<i>Amphianthus dohrnii</i>) Blue mussel (<i>Mytilus edulis</i>) beds Native oyster (<i>Ostrea edulis</i>) beds Peacock's tail seaweed (<i>Padina pavonica</i>) Honeycomb worm (<i>Sabellaria alveolata</i>) reef Ross worm (<i>Sabellaria spinulosa</i>) reef	Anchoring is likely to have a significant impact on these features.
	High energy circalittoral rock High energy infralittoral rock High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock	Anchoring is unlikely to have a significant impact on these features.

mNLA	Designated feature	MMO analysis summary
Diving and snorkelling	Peacock's tail seaweed High energy intertidal rock Intertidal under-boulder communities Moderate energy intertidal rock Low energy intertidal rock Intertidal stony reef Littoral chalk communities	Diving and snorkelling is unlikely to have a significant impact on these features.
	High energy circalittoral rock High energy infralittoral rock Moderate energy circalittoral rock Moderate energy infralittoral rock Low energy infralittoral rock Low energy infralittoral rock Subtidal stony reef Subtidal chalk Honeycomb worm reef Ross worm reef Blue mussel beds Native oyster beds	Removal of marine litter by divers and snorkelers will have a likely significant impact on these features.

mNLA	Designated feature	MMO analysis summary
Motorised watercraft MPW Non-motorised sailing	High energy circalittoral rock High energy infralittoral rock Moderate energy circalittoral rock Moderate energy circalittoral rock Low energy circalittoral rock Low energy infralittoral rock Subtidal chalk Subtidal stony reef Pink sea-fan Sea fan anemone	These mNLA are unlikely to have a significant impact on these features.
	Littoral chalk communities High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal under-boulder communities Intertidal stony reef Blue mussel beds Honeycomb worm reef Ross worm reef Native oyster beds Peacock's tail seaweed	These mNLA are likely to have a significant impact on these features.

mNLA	Designated feature	MMO analysis summary
Hovercraft Non-motorised watercraft Wildlife watching at sea (commercial)	High energy circalittoral rock High energy infralittoral rock High energy intertidal rock Moderate energy circalittoral rock Moderate energy infralittoral rock Moderate energy intertidal rock Low energy circalittoral rock Low energy infralittoral rock Low energy intertidal rock Intertidal under-boulder communities Littoral chalk communities Subtidal chalk Subtidal stony reef Intertidal stony reef Blue mussel beds Honeycomb worm reefs Native oyster beds Ross worm reefs Peacock's tail Pink sea-fan Sea fan anemone	These mNLA are unlikely to have a significant impact on these features.

Table 5: Summary of MMO analysis of the impacts of mNLA on features included in Marine Non-Licensable Activities
Impacts Evidence: Seagrass beds, maerl beds, seahorses and stalked jellyfish.

mNLA	Designated feature or supporting habitat	MMO analysis summary
Anchoring	Maerl beds Seagrass beds Stalked jellyfish	Anchoring is likely to have a significant impact on these supporting habitats.
	Seahorses	Anchoring is unlikely to have a significant impact on these features.
Diving and Snorkelling	Maerl beds Seagrass beds Stalked Jellyfish	Diving and snorkelling is unlikely to have a significant impact on these features and supporting habitats.
	Seahorses	Diving and snorkelling is likely to have a significant impact on seahorses.
Hovercraft MPW Motorised watercraft Non-motorised sailing Non-motorised watercraft	Seahorses Seagrass beds Stalked Jellyfish	These mNLA are likely to have a significant impact on these supporting habitats.
	Maerl beds	These mNLA are unlikely to have a significant impact on Maerl beds.
Wildlife watching at sea (commercial)	Maerl beds Seagrass beds Stalked Jellyfish Seahorses	Wildlife watching at sea is unlikely to have a significant impact on these features and supporting habitats.

4 Evidence sources

The evidence sources used to determine the impact of mNLA on MPA features are detailed in **Table 6**.

4.1 Overall confidence interpretation

The overall confidence in the mNLA evidence base is moderate to high for physical disturbance pressures (for example, abrasion, penetration, habitat loss), where there is consistent agreement across multiple evidence sources. However, confidence is lower for indirect effects (for example, noise, visual disturbance), species-specific responses, and quantification of recovery and thresholds, due to limited direct UK evidence.

Where evidence gaps exist, particularly for maerl beds and species level impacts, proxy evidence and expert judgement have been applied, introducing additional uncertainty. As a result, the conclusions of this report adopt a precautionary approach, and site level assessments remain necessary to determine the significance of impacts under local conditions.

4.2 Evidence gaps and uncertainties

The following evidence gaps and uncertainties represent common themes across the assessed features and reflect limitations in the current understanding of the extent, severity, recovery, and cumulative effects of mNLA-related pressures on protected habitats and species.

4.2.1 Marine Non-Licensable Activities Impacts Evidence: Benthic sediments and associated species

- Limited direct evidence on the impacts of mNLA activities, particularly recreational anchoring, moorings and vessel movements, across many sediment habitats.
- Uncertainty around sensitivity of different sediment habitats and associated benthic communities to repeated physical disturbance, including abrasion, penetration and sediment resuspension.
- Insufficient evidence on ecological consequences, including changes to benthic community structure, species abundance, habitat function and ecosystem processes.
- Poor understanding of recovery rates and resilience, particularly following chronic or repeated disturbance events.
- Difficulty distinguishing anthropogenic impacts from natural variability, especially in dynamic sediment environments.

- Lack of evidence linking observed physical damage to changes in feature condition at site scales relevant to MPA management.

4.2.2 Marine Non-Licensable Activities Impacts Evidence: Birds

- Limited evidence on the behavioural responses of bird species in scope of MMO assessment to marine recreational activities.
- Uncertainty regarding disturbance thresholds, including the distances at which vessels and recreational users cause flushing, displacement, or changes in foraging behaviour.
- Limited understanding of the cumulative effects of repeated disturbance from multiple mNLA activities across breeding, wintering, and migratory periods.
- Insufficient evidence on the extent to which displacement from key feeding, roosting, and nesting areas affects individual fitness, survival, or breeding success.
- Limited information on species-specific sensitivities, particularly for diving birds, seaducks, divers, grebes, terns, and other waterbirds associated with coastal and estuarine environments.
- Uncertainty regarding the interaction of mNLA-related disturbance with other pressures, such as habitat loss, climate change, prey availability, and coastal development.
- Lack of long-term studies linking observed behavioural disturbance to population-level impacts, site condition assessments, or achievement of MPA conservation objectives.
- Evidence for habituation is limited for many bird groups and may be difficult to distinguish from tolerance or displacement.

4.2.3 Marine Non-Licensable Activities Impacts Evidence: Grey seals, harbour seals and Eurasian otters

Seals

- Insufficient evidence on cumulative impacts arising from multiple recreational activities occurring near haul-out sites, particularly for repeated low level disturbance.
- Uncertainty regarding the distance at which different vessel types elicit disturbance responses.
- Limited information on the long-term consequences of disturbance for energy expenditure, foraging success, and reproductive success.
- There are no papers that specifically address the impacts of hovercraft on grey or harbour seals, and the impacts from motorised vessels are used as analogous evidence.

- Other marine mammals are used as proxies for the impacts of diving and snorkelling, due to the limited literature on this activity.
- Lack of data linking observed behavioural disturbance to population-level effects.

Otters

- There is a general lack of evidence for human-otter interactions, especially for Eurasian otters; the Impacts Evidence document relies heavily on proxy species.
- Changes in behaviours caused by mNLA is only discussed for proxy species, with very little information available for Eurasian otters.
- The evidence for the impacts of motorised watercraft and motorised personal watercraft rely entirely on proxy species.
- There are no papers that specifically address the impacts of hovercraft on any otter species, and the impacts from motorised vessels are used as analogous evidence.
- Only one paper was found for the impacts of diving and snorkelling on otters, for a proxy species.
- There is only limited research on habituation of otters to mNLA.
- Limited evidence on the effects of recreational boating and associated vessel noise on otter behaviour and habitat use in coastal environments.
- Uncertainty regarding disturbance thresholds around holts, couches, and key foraging areas.
- Insufficient evidence on the cumulative impacts of multiple recreational pressures acting alongside coastal development and habitat degradation.
- Lack of direct studies examining links between mNLA disturbance and otter fitness, survival, or breeding success.

4.2.4 Marine Non-Licensable Activities Impacts Evidence: Reef

- There is limited direct evidence on the impacts of recreational or commercial anchoring on chalk, best available evidence has been reviewed from studies undertaken for pot fishing activities.
- Limited evidence on the impact of divers removing litter on the seafloor which are colonised by biogenic reefs or epifauna.
- Limited literature on the impact of abrasion on native oyster beds from diving and snorkelling (for example, trampling).
- Limited evidence on the impact of propellor wash, vessel wake and water jets on intertidal rocky reefs, intertidal biogenic reefs and peacock's tail seaweed. Studies have been focused on sediment features.

- Limited literature on the impact of launching motorised watercraft from the shore on intertidal rocky reef and peacock's tail seaweed.
- Limited literature on the impact of trampling and launching watercraft on intertidal biogenic reef.
- Limited information on recovery trajectories of reef-associated communities following cessation of disturbance.

4.2.5 Marine Non-Licensable Activities Impacts Evidence: Seagrass beds, maerl beds, seahorses and stalked jellyfish

Seagrass

- Limited understanding of the cumulative effects of repeated anchoring, mooring, and recreational vessel activity on seagrass recovery and resilience.
- Insufficient evidence on recovery rates following chronic disturbance from mNLA activities across different environmental conditions.
- Limited information on the interaction between mNLA pressures and other stressors, such as water quality deterioration and climate change.
- Uncertainty regarding the extent and impacts of unlicensed seagrass restoration and enhancement activities, including planting methods, donor material collection, and associated vessel use.

Maerl

- Very limited direct evidence quantifying the impacts of anchoring and anchor chain abrasion on both live and dead maerl beds.
- Poor understanding of recovery times following physical disturbance, particularly given the extremely slow growth rates of maerl.
- Limited evidence on the spatial extent of damage caused by recreational anchoring relative to natural sediment movement.
- Uncertainty regarding thresholds of disturbance beyond which maerl habitat condition may be irreversibly altered.

Table 6: Summary of mNLA evidence including the description, strengths and limitations of each evidence source.

Evidence source	Description	Confidence	Strengths and limitations
Natural England Conservation Advice Packages (CAPs)	Primary evidence source used to identify pressures and feature sensitivity. Based on structured assessments drawing on best available scientific evidence and expert review.	High	Strengths: Standardised, authoritative and directly linked to conservation objectives. Limitations: Can be precautionary; may rely on expert judgement where empirical evidence is limited.
MarLIN (Marine Life Information Network)	Provides detailed ecological and sensitivity information for habitats and species. Synthesises peer-reviewed literature into accessible sensitivity assessments.	High	Strengths: UK-focused, consistent methodology, predominant approach in seeking reliable marine information. Limitations: Some assessments based on limited or proxy evidence; not always activity specific.
European University Information Systems Association (EUNIS) habitat classifications and supporting literature	Used to support habitat classification and ecological context.	High	Strengths: Standardised European framework. Limitations: Does not directly assess mNLA pressures or impacts.
Joint Nature Conservation Committee (JNCC) species information	Used to identify species of conservation importance and ecological sensitivities.	High	Strengths: Authoritative source of species distribution, ecology and conservation information. Limitations: Does not directly assess mNLA pressures, species exposure, or site-specific impacts

Evidence source	Description	Confidence	Strengths and limitations
JNCC UK Biodiversity Framework	Used to provide biodiversity policy context and conservation priorities.	High	Strengths: Overseen by all four governments on the UK. Limitations: Does not directly assess mNLA
JNCC commissioned reports	JNCC commission reports from contractors to provide evidence and advice.	High	Strengths: Outputs are grounded in multi-source evidence, monitoring data, and expert interpretation. Formal Quality Assurance and governance frameworks. Limitations: Potential commissioning bias. Sometimes produced under contract constraints (time, budget).
Peer-reviewed academic literature (UK and international)	Provides empirical evidence on impacts (for example, anchoring, trampling, propeller damage) and recovery processes. Includes UK and international analogue studies.	High	Strengths: Scientifically robust, quality assured. Limitations: Limited UK-specific studies for some pressures; variability in methods and relevance; potential publication bias.
Natural England Commissioned Reports (NECR)	Natural England commission reports from contractors to provide evidence and advice.	High	Strengths: Externally commissioned studies (universities, consultancies, research institutes) used to provide evidence and advice for Natural England's work. Used to inform national strategies and environmental policy, so must meet reasonable evidence standard. Limitations: The views in the reports are those of the authors, not necessarily those of Natural England. Sometimes produced under contract constraints (time, budget).

Evidence source	Description	Confidence	Strengths and limitations
Grey literature (for example, monitoring reports, MMO outputs)	Includes commissioned reports and site monitoring (for example, Studland Bay, Salcombe). Used to supplement evidence gaps.	High/ Moderate	Strengths: Often UK-specific and policy relevant. Limitations: Not always peer-reviewed; may focus on case-study sites; methodological detail can vary.
Natural England evidence briefings and species information notes	Provide targeted summaries of activity impacts and species sensitivity.	High	Strengths: Synthesised by subject experts; directly relevant to mNLA activities. Limitations: May simplify complex evidence; limited scope for some activities.
Expert opinion and judgement (Natural England and MMO)	Applied where direct evidence is lacking, particularly for pressure-feature interactions. Expert opinion has been used to inform understanding of mNLA impacts on MPA features, particularly where direct empirical evidence is limited.	Moderate	Strengths: Draws on specialist knowledge, experience of site conditions and feature responses; helps interpret evidence gaps. Incorporates professional and site-based knowledge. Limitations: Subjective; dependent on experience and available information; introduces uncertainty. may vary between experts; not always supported by published evidence; introduces uncertainty.
Proxy evidence (for example, mooring, dredging, bottom-towed fishing)	Used where direct evidence for mNLA impacts is limited (notably for maerl and anchoring).	Moderate/ Low	Strengths: Enables inference of impacts from comparable pressures (for example, abrasion, penetration). Limitations: Differences in scale, duration and intensity reduce applicability; increases uncertainty.
Site-specific monitoring and case studies	Includes UK-based monitoring and case studies of impact and recovery following management measures.	Moderate	Strengths: Directly relevant to English MPAs; provides real-world evidence. Limitations: Limited spatial and temporal coverage; not always transferable between sites.

Evidence source	Description	Confidence	Strengths and limitations
Standing Conference on Organizational Symbolism (SCOS) annual reports	Includes multiple sources of information on grey and harbour seals.	High	Strengths: SCOS was created to provide specific management advice for UK government bodies. Limitations: Limited in scope and only includes evidence for what has been asked for that year.
Conference proceedings	Used when new frameworks have been introduced.	Moderate	Strengths: The primary source for some frameworks. Limitations: limited peer review, abbreviated methodology, and the preliminary nature of the findings.
British Trust for Ornithology (BTO) Bird Facts	Provides up-to-date information on the status and ecology of birds in the UK. Data is collated by BTO and partner organisations.	High	Strengths: Provides accurate information on the seasonality, trends, important bird areas, and conservation evidence for birds in the UK.
BTO Birds of Conservation Concern	Compiled coalition of the UK's leading bird conservation and monitoring organisations that reviews the status of all regularly occurring birds in the UK, Channel Islands and Isles of Man.	High	Strengths: Periodically reviewed meaning classifications are often more up to date than many global lists, reflecting recent population changes. Limitations: Confidence varies between species due to data gaps, survey bias, some reliance on thresholds and estimates.
The International Union for Conservation of Nature (IUCN) Red List	World's most comprehensive inventory of the global conservation status and extinction risk of biological species.	High	Strengths: Use a clearly defined quantitative criteria. Limitations: Some species assessments are based on limited, outdated or unevenly distributed data.

Evidence source	Description	Confidence	Strengths and limitations
Natural England evidence information notes (EIN)	Provide targeted summaries of activity impacts and potential management options for marine and coastal recreational activities in marine protected areas.	High	Strengths: Built on scientific research and data, they are designed as short summaries to make complex research information easier to understand quickly. Limitations: They may be limited by their short length, lack of detail, and use of generalised, sometimes outdated evidence.
Natural England Research Reports	A subset of research outputs formally published by Natural England. They are subject to internal quality assurance and editorial standards and are intended to support policy, management, and wider stakeholder use.	High	Strengths: They represent authoritative, curated pieces of evidence. They are often synthesised, reviewed, or developed to be widely useful beyond a single project. Limitations: They can be limited by scale, time, data quality, and how easily their findings apply to other places.
The Centre for Land Use Interpretation	Provides detailed information about land use, backed by observation, data, and fieldwork.	Moderate	Strengths: Focuses specifically on human impacts on landscapes. Limitations: The site is mainly US focused. In addition, the content may be more interpretive or descriptive rather than strictly scientific.

Evidence source	Description	Confidence	Strengths and limitations
Oslo and Paris Conventions (OSPAR) Commission	Provide comprehensive, scientific, and international assessments of marine health.	High	Strengths: They provide large-scale, scientifically robust assessments using international data, making them reliable for understanding the overall health of the North-East Atlantic marine environment. Limitations: They are limited by their regional focus, reliance on data from different countries. They can be complex and may also be slightly outdated by the time they are published.
Strava	Used to identify recreational activity hotspots and user movement patterns.	High	Strengths: Large user-generated dataset showing spatial distribution of recreational activity. Limitations: User bias; does not directly assess mNLA impacts, environmental pressures, or all marine activity user groups.
.gov pages	Used to obtain official policy, regulatory and conservation guidance.	High	Strengths: Authoritative government source with reliable and regularly updated information. Limitations: May not directly assess mNLA pressures, activity levels or ecological impacts.
Personal communications	Used to obtain site-specific knowledge, practitioner experience and stakeholder perspectives.	Moderate	Strengths: Provides current, localised insights and information that may not be available in published sources. Limitations: May be subjective, difficult to verify.
Published books	Used to provide background information, ecological theory and established knowledge.	Moderate	Strengths: Often peer-reviewed and provides detailed, well-researched information. Limitations: May be outdated and lack site-specific information.

Evidence source	Description	Confidence	Strengths and limitations
Thesis pages	Used to access detailed academic research, methodologies and case studies.	Moderate	Strengths: Often contains in-depth analysis and original research not available elsewhere. Limitations: Findings may not be peer-reviewed and can have limited geographic or thematic scope.
Online blogs or webpages	Used to gather contextual information, stakeholder views and examples of local activities or issues.	Moderate	Strengths: Can provide current information and insights into emerging topics. Limitations: Variable reliability and accuracy; information may be biased or unverified.
National Research Council (NRC) Reports	Used to provide scientific evidence, technical guidance and research findings relevant to environmental assessment.	Moderate	Strengths: Authoritative and evidence-based source of scientific information. Limitations: May not be specific to the study area or directly assess mNLA impacts.
Natural Resource Wales evidence reports	Used to obtain evidence on environmental conditions, species, habitats and management issues.	High/ Moderate	Strengths: Robust evidence base produced by a statutory environmental body. Limitations: Primarily focused on Wales and may have limited applicability to other locations.
JNCC Technical Reports	Used to obtain detailed information on marine habitats, species, monitoring and conservation assessment methods.	Moderate	Strengths: Authoritative UK-wide scientific resource supporting evidence-based assessments. Limitations: Often technical and may not directly assess mNLA occurrence or impacts.

Evidence source	Description	Confidence	Strengths and limitations
Wildlife Trust published reports	Used to provide information on species, habitats, conservation priorities and local environmental issues.	Moderate	Strengths: Often contains locally relevant conservation evidence and practical management recommendations. Limitations: May focus primarily on conservation objectives rather than direct assessment of mNLA impacts.
Inshore Fisheries and Conservation Authority (IFCA) monitoring reports	Used to obtain information on fisheries activity, habitat condition and marine management measures.	High/ Moderate	Strengths: Site-specific monitoring data from statutory marine management authorities. Limitations: Primarily focused on fisheries and may not capture all types of mNLAs.
Scotland Marine Assessments	Used to obtain information on marine environmental status, pressures and ecosystem condition.	Moderate	Strengths: Comprehensive assessment of marine ecosystems using a wide evidence base. Limitations: Focused on Scottish waters and may not be directly applicable to the study area.

References

References for each Impacts Evidence document are provided at the end of each separate document. These references are relevant for Marine Non-Licensable Activities Impact Evidence: Summary only.

Marine Management Organisation. (2020). *Management of Marine Non-Licensable Activities in England*. <https://www.gov.uk/government/publications/managing-marine-non-licensable-activities-in-marine-protected-areas>