Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Cyfoeth Naturiol Cymru
Natural Resources Wales

Improving Marine Conservation Advice (IMCA) project: final report

Report No: 928

Author Name: M. Hatton-Ellis, S. Cuthbertson, M. Jackson-Bué and E. Wynter

Author Affiliation: Natural Resources Wales

River lamprey. © Mike Hammett (NRW)

Resting grey seal. © Tracey Dunford

Pickleridge Lagoon. © Kate Lock (NRW)

Northern gannet. © Jenny Elliott

About Natural Resources Wales

Natural Resources Wales' purpose is to pursue sustainable management of natural resources. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

Evidence at Natural Resources Wales

Natural Resources Wales is an evidence-based organisation. We seek to ensure that our strategy, decisions, operations and advice to Welsh Government and others are underpinned by sound and quality-assured evidence. We recognise that it is critically important to have a good understanding of our changing environment.

We will realise this vision by:

- Maintaining and developing the technical specialist skills of our staff;
- Securing our data and information;
- Having a well resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

This Evidence Report series serves as a record of work carried out or commissioned by Natural Resources Wales. It also helps us to share and promote use of our evidence by others and develop future collaborations.

Report series:	NRW Evidence Report
Report number:	928
Publication date:	June 2025
Title:	Improving Marine Conservation Advice (IMCA) project: final report
Author(s):	Hatton-Ellis, M., Cuthbertson, S, Jackson-Bué, M. and Wynter, E.
Technical Editor:	Hatton-Ellis, M.
Quality assurance:	Tier 3
Peer Reviewer(s):	Alvarez, M., Butterill, G., Camplin, Davies, S., M., Ellis, T., Gjerlov, C., Haines, L., Moon, J., Pauls., L., Ramsey, K., Sharp, J. & Winterton, A.
Approved By:	Winterton, A.
Restrictions:	None

Distribution List (core)

NRW Library	2
National Library of Wales	1
British Library	1
Welsh Government Library	1
Scottish Natural Heritage Library	1
Natural England Library (Electronic Only)	1

Recommended citation for this volume:

Hatton-Ellis, M., Cuthbertson, S, Jackson-Bué, M. and Wynter, E. 2025. Improving Marine Conservation Advice (IMCA) project: final report. NRW Evidence Report, Report No: 928, 53pp, Natural Resources Wales, Cardiff.

Contents

List of Figures

List of Tables

Crynodeb Gweithredol

Roedd y prosiect Cyngor ar Wella Cadwraeth Forol (IMCA) yn brosiect tair blynedd a ariannwyd gan Rwydweithiau Natur a fu'n rhedeg o fis Ebrill 2022 i fis Mawrth 2025. Roedd y gwaith yn canolbwyntio ar wella rheolaeth ein rhwydwaith o ardaloedd morol gwarchodedig yng Nghymru. Er mwyn gwneud hyn, cynhaliodd y prosiect asesiadau o gyflwr ardaloedd cadwraeth arbennig (ACAau) ac ardaloedd gwarchodaeth arbennig (AGAau) a chynhyrchodd becynnau cyngor cadwraeth newydd.

O'r Ardaloedd Morol Gwarchodedig sydd yn gyfan gwbl o fewn dyfroedd Cymru, cafodd cyflwr cyfanswm o 85 o nodweddion a ddynodwyd mewn 17 o Ardaloedd Morol Gwarchodedig eu hasesu. Datblygwyd amcanion cadwraeth newydd ar gyfer 77 o nodweddion o fewn 12 ardal forol warchodedig.

Mae'r adroddiad hwn yn cynnwys gwybodaeth am y broses a gymerwyd i gwblhau'r asesiadau cyflwr a'r pecynnau cyngor cadwraeth. Mae hefyd yn cynnwys crynodeb o'r gwahaniaethau rhwng yr amcanion cadwraeth hen a newydd a rhywfaint o wybodaeth gryno am ganlyniad yr asesiadau cyflwr. Mae'r adroddiad hefyd yn egluro rhai agweddau ar y prosesau hyn megis cyflwr, pwysoli dangosyddion ac ansawdd dŵr.

Executive summary

The improving marine conservation advice (IMCA) project was a Nature Networks funded three year project running from April 2022 to March 2025. The work was focused on improving the management of our marine protected area (MPA) network in Wales. To do this the project carried out condition assessments on special areas of conservation (SACs) and special protection areas (SPAs) and produced new conservation advice packages.

Of the MPAs wholly in Welsh waters, a total of 85 features designated in 17 MPAs were assessed for condition. There were new conservation objectives developed for 77 features within 12 marine protected areas (MPAs).

This report contains information on the process undertaken to complete both the condition assessments and the conservation advice packages. It also contains a summary of the differences between the old and new conservation objectives and some summary information on the outcome of the condition assessments. The report also explains some aspects of these processes such as condition, indicator weightings and water quality.

1. Introduction

The diverse coasts and seas around Wales support a multitude of habitats and species, many of which are protected within the marine protected area (MPA) network. Coasts and seas are important to the people of Wales. They generate income, are a key part of our culture and provide recreation and wellbeing. The impacts of the varying uses and activities on the coast and sea need to be effectively managed if protected marine wildlife and seascapes are to be conserved.

To manage Welsh sites it is important to have detailed conservation objectives that will allow us to assess activities. It is also important that these conservation objectives are underpinned by condition assessments that tell us about the state of the features in our MPAs.

European marine sites (EMS) (SACs and SPAs with marine components) in Wales cover extensive areas of sea and coast and make up the largest part of the MPA network by area. The habitats and species within these sites are challenging and resource intensive to monitor. This is due to the size, complexity and volume of information. This makes reporting on condition challenging. There are compromises to be made between assessing condition in depth and the resource available to do so. While there is currently no statutory obligation to monitor condition at the site level, it is recognised as a vital part of the management process, without which effective management is not possible. For this reason, it was important any process is flexible enough to be achievable with the resources available to NRW at the time of assessment.

NRW published indicative condition assessments in 2018, which were undertaken using readily available evidence and expert judgement to give an informed indication on feature condition. These assessments have been publicly available while a longer-term solution was progressed. The subsequent improving marine site-level condition reporting (IMSCR) project, funded by the European Maritime and Fisheries Fund (EMFF), developed a suite of condition reporting indicators (comprised of indicators and targets) and a process that allows assessment of feature condition based on evidence.

The outputs of the EMFF funded IMSCR project were used in the improving marine conservation advice (IMCA) project. The IMCA project has focussed on developing new conservation objectives for 6 special areas of conservation (SACs) and 6 special protection areas (SPAs) in Wales. These conservation objectives are held in conservation advice packages under Regulation 37 of the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) and are commonly called ‘Reg 37’ packages. The conservation objectives and supporting information in these advice packages were underpinned by condition assessments carried out on all the features of our Welsh only (non-cross border sites) SACs and SPAs, a total of 85 features.

These assessments are the first of a new condition assessment process and set a baseline of condition. Collaboration of NRW specialists during the IMCA project has resulted in the production of a suite of condition assessments and new conservation objectives for our Welsh only SACs and SPAs to help NRW to better manage these sites.

The steps that have led to this assessment process, the process development, the assessment process itself and the combined results are contained within this report.

1.1 Aims of the project

The main aims of this project were to:

- Produce a series of condition assessments for the features of our Welsh only marine SACs and SPAs.
- To use the outputs of the condition assessments to set maintain or restore conservation objectives for 12 of these sites.
- To produce 12 new conservation advice packages for our marine SACs and SPAs.

In meeting the main aims of the project, NRW has produced condition assessments for 85 features across 17 designated marine sites and produced 12 detailed updated conservation advice packages. Some sites which also contained terrestrial features and are covered by core management plans were assessed for condition but did not get updated advice packages.

This has improved understanding of MPA condition, and the pressures and threats acting on the features, which will allow management authorities (MAs) to target their management of these sites to the areas that need it most to maintain or restore features to favourable condition. Over time, after multiple assessment cycles, the effectiveness of management approaches at sites can also be evaluated.

All regulated activities and developments associated with MPAs in Wales undergo assessments against the conservation objectives of the features within or adjacent to the site where the activity is taking place. Conservation objectives need to be informed by the condition of the features. Conservation objectives can be updated as better information on feature condition becomes available. Due to previous knowledge gaps, NRW did not have targeted conservation objectives informed by feature condition for any of the Welsh MPAs. Through the new condition assessments and understanding the condition of features it is now possible to determine whether a “restore” or “maintain” conservation objective needs to be implemented for each feature at each site. This will provide better protection for MPA features in the long run, as well as helping the development of sustainable Welsh seas.

1.2 Benefits of the project

The primary output of this project, the ability to produce detailed conservation advice based on up to date condition assessments on MPA features in Wales, will bring multiple benefits. This project delivers one of our statutory duties from The Conservation of Habitats and Species Regulations 2017. Marine conservation advice is statutory advice that influences the way we manage our MPAs in Wales. The conservation objectives within this advice allow site managers and developers to know what we are trying to achieve for the features of the site.

One of the other main benefits is the contribution condition assessments will make to multiple key assessment processes and legislative drivers. A selection of these are listed below.

- The Oslo and Paris Convention (OSPAR) management effectiveness reporting.
- UK Network Reporting (Reg 9a reporting)

- The UK Marine Strategy (MSFD)
- The State of Natural Resources Report (SoNaRR)
- River Basin Management Plans
- Marine and Coastal Access Act reporting

1.3 Benefits realisation

This project directly improves management of MPAs. Management authorities principally manage MPAs through the regulatory consenting process. Regulated activities are assessed against the conservation objectives for features of the MPAs. If the conservation objectives for an MPA are fit for purpose, up to date and targeted, then the activity can be assessed. More consistent advice packages also reduces the risk of challenge to both our advice and regulatory decisions.

This project will improve management of MPAs by providing crucial information on the condition of the features and improved conservation objectives to inform and enable targeted, prioritised management measures.

The project encourages a collaborative approach to the management of MPAs. No single organisation has responsibility in the marine environment; therefore, many organisations need to make decisions on the development and management of Welsh waters. Better information on condition and improved conservation objectives will allow authorities to work together to initiate focussed prioritised management measures and to better assess theirs and others' activities allowing informed sustainable decisions to be made.

Benefits of the project will be delivered through reduced NRW staff time spent on casework as the conservation objectives for the marine sites will be clearer and will allow staff to assess projects more efficiently.

Any improvements in management will be captured through the OSPAR management effectiveness reports carried out biannually which cover all the MPAs being targeted by this project.

2. Sites and features covered

The Improving Marine Conservation Advice (IMCA) project aimed to run condition assessments for all the designated features of MPAs in Welsh Seas. Some MPAs have boundaries that enter offshore or English waters. In these cross border cases it was not possible to run condition assessments or update conservation advice in this project, as they would need to be produced with the statutory nature conservation bodies that oversee those waters (i.e. the Joint Nature Conservation Council and Natural England). This was beyond the time and resources of the current IMCA project, but it will be considered in the next stage of the project (see section 11). The sites assessed in this project can be seen in Figure 1.

Of the MPAs wholly in Welsh waters, a total of 85 features designated in 17 MPAs were assessed for condition (Table 1). There were also new conservation objectives developed for 77 features within 12 MPAs (

Table ***2***).

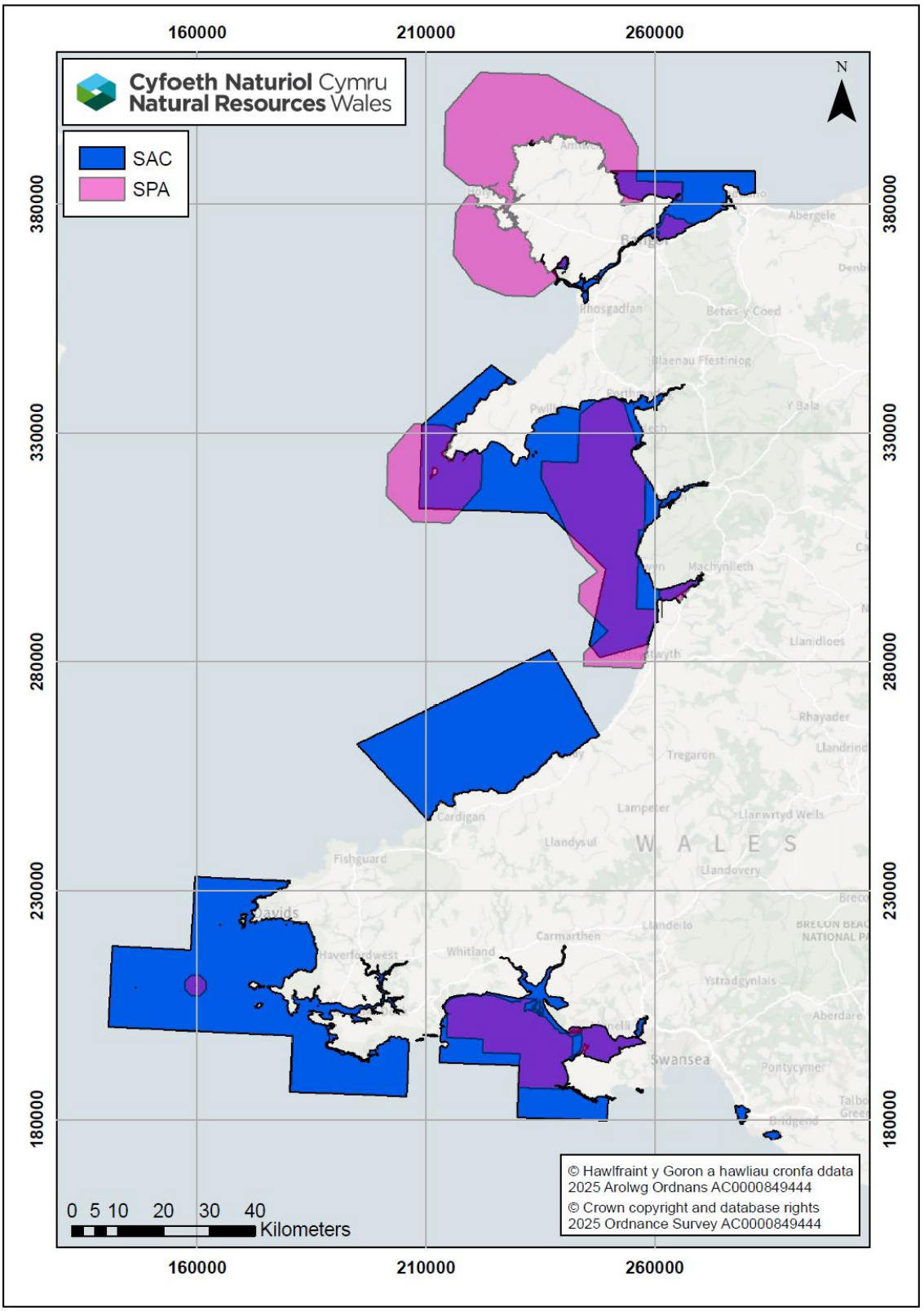
Table 1. The MPAs and number of features that had their condition assessed as part of the IMCA project.

MPA	Type	Number of Marine Features Assessed
Menai Strait and Conwy Bay	SAC	5
Pen Llŷn a'r Sarnau	SAC	12
Cardigan Bay	SAC	7
Pembrokeshire Marine	SAC	15
Carmarthen Bay and Estuaries	SAC	11
Cemlyn Bay	SAC	2
Anglesey Coast: Saltmarsh	SAC	4
Kenfig	SAC	1
Limestone Coast of south-west Wales	SAC	1
Carmarthen Bay	SPA	1
Burry Inlet	SPA	13
Anglesey Terns	SPA	4
Northern Cardigan Bay	SPA	1
Grassholm	SPA	1
Traeth Lafan	SPA	5
Dyfi	SPA	1
Aberdaron Coast and Bardsey Island	SPA	1

Table 2. The MPAs and number of features that had new conservation objectives and advice packages developed as part of the IMCA project.

MPA	Type	Number of Marine Features Assessed
Menai Strait and Conwy Bay	SAC	5
Pen Llŷn a'r Sarnau	SAC	12
Cardigan Bay	SAC	7
Pembrokeshire Marine	SAC	15
Carmarthen Bay and Estuaries	SAC	11
Cemlyn Bay	SAC	2
Carmarthen Bay	SPA	1
Burry Inlet	SPA	13
Anglesey Terns	SPA	4
Northern Cardigan Bay	SPA	1
Grassholm	SPA	1
Traeth Lafan	SPA	5

Figure 1. Map of all sites assessed as part of the IMCA project



Each condition assessment report and new conservation advice package was published on the NRW website in June 2025. The following sections and subsequent appendices summarise the process used to produce new conservation advice packages and condition assessments.

3. Project outputs

Forty reports have been produced by the IMCA project including:

- Six new conservation advice packages for marine SACs.
- Six new conservation advice packages for marine SPAs.
- Twelve feature level condition assessment reports.
- Eight site level marine SPA condition assessment reports.
- Seven site level marine SAC condition assessment reports.
- One final project report.

Feature level reports contain all condition assessments for each individual feature wherever it occurs in Welsh only MPAs. The site level reports contain all designated features assessed within that site. The information in each of the report types is the same, it is just presented in different ways to assist different users. Some users will be interested in a single feature across Wales and some interested in all features within a single MPA.

All reports are published on two webpages on the NRW website. One for condition assessments and one for the conservation advice packages.

4. Conservation advice development process

Wales' diverse coasts and seas support a wealth of habitats and species, generates income for the Welsh economy, and are a key part of our culture, history, landscape and recreation. Effective management of the many uses and activities in the marine and coastal environment is crucial to safeguard our amazing marine wildlife and seascapes, and is equally important in preserving a future for those industries which rely on the coast and sea.

Our conservation advice packages are needed for:

- Developing, proposing or assessing an activity, plan or project that may affect the protected features of an EMS;
- Preparing Habitats Regulations Assessments or Environmental Impact Assessments, for proposed plans or projects that may affect the protected features of an EMS;
- Planning measures to maintain or restore an EMS and its protected features;
- Carrying out any activity that may affect the protected features of an EMS and need to find out how to operate within the law; or
- Monitoring and / or assessing the condition of the protected features.

The conservation objective development process was broken down into a number of steps as follows:

- Preparation of conservation advice package template
- Development of draft conservation objectives
- Conservation objective workshops

- Finalisation of conservation objectives
- Development of draft conservation advice packages
- Finalisation and endorsement of draft conservation advice packages
- Conservation advice packages sign off
- Publication of conservation advice packages

Before any work was started on the conservation advice packages or the condition assessments a task and finish group was set up to oversee and guide the whole project. The task and finish group was formed of marine group team leaders and some key specialists whose expertise was important for the success of the project. The group were an integral part of the project governance.

Conservation advice package template

A template was developed for the new conservation advice packages and one prepared for each of the 12 sites. The template was considerably different to the original conservation advice packages, so took some time to develop and agree. A large part of the template creation was deciding what to include in the packages and how to structure the objectives themselves.

After discussion with specialists, and final agreement from the project task and finish group, it was decided that each feature would have overarching objectives around key aspects of condition. Under these would sit objective indicators and targets that would be used to assess whether the overarching objective is being met. Part of the template development was to update and simplify the legal section and discuss how best to incorporate climate change information. The template was signed off by the project task and finish group.

Development of draft conservation objectives

Overarching conservation objectives were drafted using the current packages and were informed by conservation objectives developed by other Statutory Nature Conservation Bodies (SNCBs) to ensure consistency in approach. The objective indicators that sit under the main objectives were then developed using the performance indicators produced as part of the EMFF project. While the objective indicators were based on the performance indicators they were significantly changed and adapted to make them more useful as conservation objectives.

As the IMCA project progressed the performance indicators were adapted and improved for the condition assessments. In turn, the conservation objectives and objective indicators were reviewed and revised. This two way feedback continued throughout the project. As such the conservation objective indicators and performance indicators, while subtly different, are intrinsically linked.

Conservation objective workshops

Once the draft conservation objectives and objective indicators were developed, a series of workshops were held with specialist staff from across relevant areas of NRW's remit. The object of the workshops was to further refine and adjust these conservation objectives to make them fit for purpose. It was also a chance to identify key supporting information that should be included alongside the objective indicators. The workshops were feature

specific as the same objectives are used for a feature regardless of which site a feature can be found. A series of workshops (between 2 and 6) were held for each feature.

Finalisation of conservation objectives

The draft conservation objectives were then taken through a sign off process. Sign off of the conservation objectives was by the project task and finish group. At this stage the conservation objectives were still subject to change and had not been given their maintain or restore wording, and did not include the site specific supporting information.

Development of draft conservation advice packages

The next stage in the process involved reviewing the old conservation advice packages to see what site level information was still relevant, updating that information and inputting it into the new conservation advice templates. At this time the legal information for the package was also rewritten and then reviewed by the NRW legal department. A climate change section was developed, incorporating work commissioned by NRW to look at the climate change vulnerability of Appendix I habitats and blue carbon stores. The draft packages were then circulated to the relevant staff across the NRW marine teams for review and comment.

Finalisation and endorsement of draft conservation advice packages

After review the conservation advice packages were finalised, proof read and sent to the project task and finish group for review and endorsement. Once endorsed by the task and finish group, the draft packages were sent to the marine programme board for final sign off.

5. Format of the new conservation advice packages

The new conservation objective packages have been fully reviewed and updated. They have three over-arching objectives, each with 1-3 attributes and site specific targets.

For habitats, the three overarching objectives cover extent, structure and function and communities (Table 3). For species, there are differences for each species but they mainly cover population, access and disturbance, and supporting habitats and prey availability (Table 4). For SPAs the focus is on breeding or over wintering population figures, disturbance and prey availability (Table 4).

Table 3. Focus of high level objectives for SAC habitats.

Objective	Covering
1	Extent and distribution
2	Structure and function
3	Habitats and communities

Table 4. Focus of high level objectives for SAC and SPA species.

Objective	Covering
1	Population
2	Habitat access and disturbance
3	Habitat quality and prey availability

Each of the three objectives then has 1-3 attributes and site specific targets, with supporting information.

5.1 Main differences between the new and old conservation advice packages

There have been some fundamental changes to the way conservation advice is presented in the new conservation advice packages. These are listed below.

- Simplified and updated legal section.
- Targeted objectives (maintain or restore) linked to condition assessments.
- Key supporting information now forms part of the objectives.
- Removal of any reference to typical species as they are not applicable at the site level.
- Simplified Advice on Operations.
- Climate change vulnerability and coastal squeeze sections added.
- Additional information on features now in an Appendix.

The largest difference is that each feature now has its own overarching objectives and objective attributes and targets that are linked to current condition, where possible. This means that each feature that may be impacted by a plan or project will have to be considered individually, whereas previously all habitats and species had the same objectives.

6. Condition assessment rules and process

Marine feature condition assessments in NRW consist of selecting performance indicators for the feature, gathering the best available evidence to assess those indicators and conducting the assessment. This process was collaborative in nature, involving not only the project team directly involved in the production of the condition assessment, but also staff from across NRW at different stages of the process.

The condition assessment process is broken down into six or seven steps depending on the feature as follows:

- Preparation and evidence gathering
- Indicator assessments (including water quality)
- Feature assessments
- Complex feature assessments
- Condition pressures and threats
- Finalise assessments
- Publish assessments

Details of each of the steps and how they were completed are detailed below with more information in a series of appendices.

Preparation and evidence gathering

The preparation and evidence gathering stage of a condition assessment is important, and depending on the feature may take a considerable amount of time. The order in which assessments should be carried out was also decided at this stage. The order depended on a range of variables from staff and data availability, to a need for an early assessment. However, it was important to complete all individual features (e.g. reefs) before addressing complex features (i.e. estuaries and large shallow inlets and bays), as the individual features are nested within the complex ones.

Before an assessment began, a review of the indicators and targets was carried out to ensure the correct targets had been selected for the site in which the feature is to be assessed. Indicators and targets were selected to judge the condition of a feature most efficiently and confidently. Most of the targets were assessed with direct monitoring information. Other targets were assessed indirectly using proxy data or understanding the pressures that can affect them. The set of assessment indicators for each feature should work together to make best use of all available evidence and form a rounded view of feature condition. Targets had weightings (primary, secondary or tertiary) which were also reviewed. For more information on target weightings see Appendix 1.

Assessors collated all evidence relevant to the indicators for the feature being assessed. The data gathered were the best available evidence at the site level for each feature indicator. The focus was on data from the last six years but as these were the first full condition assessments, all available data was considered. In future the focus will be on new evidence since the 2025 assessment. The types and sources of data considered can be seen in Appendix 2.

Some evidence gathered during the project was available from monitoring reports in which relevant information could be extracted and used to assess a specific indicator. Other data, such as that recently collected by monitoring teams, required additional analysis (Appendix 3).

Confidence in the sources of evidence used in the assessment process was essential. Confidence in what the evidence indicates about the passing or failing of an indicator was also needed. Assigning confidence to the evidence helped support the judgements made on feature condition. There were two aspects to evidence that needed to have a confidence associated with it. These were quality of the data, and agreement between evidence sources (where there is more than one source of evidence used to assess an indicator). Guidelines on assigning confidence in the assessments can be found in Appendix 4. Justification as to why a confidence level was assigned to an evidence source and confidence around agreement between multiple sources of evidence was recorded.

Evidence needed to be sufficiently relevant and detailed to enable staff to assess whether feature indicators met the targets set out for each site. If this level of information was not available, or there were no data, the indicator was assessed as ‘unknown’ or ‘not assessed’.

Indicator assessments

The next stage was to use the gathered evaluated evidence to assess against the targets. Indicators and targets were pre-populated within the assessment spreadsheet by the IMCA team. The form also captured the weighting for the indicator (primary, secondary or tertiary).

Project staff running the assessments took all the evidence gathered and ran dummy assessments against the indicators. Once complete, the pre-populated assessment spreadsheet was sent for consideration by the NRW specialists. Workshops (between two and four for each feature) were held with all relevant specialists. At the workshops all evidence was presented by the project staff. The dummy assessment was then reviewed, indicator by indicator to discuss the outcomes and confirm or revise as necessary.

Once the specialists had concluded whether an indicator had met its target, they entered the pass / fail result into the relevant section in the assessment form. The information recorded for each indicator target needed to be logical and concise. Clear justification as to why a target had been met or failed to be met was an essential part of the assessment process. Each pass or fail conclusion had an associated confidence of high, medium or low. For details on how to assign confidence when assessing indicator targets see Appendix 4.

If there was insufficient evidence to assess an indicator as having met, or failed to meet its target, assessors provided a result of ‘unknown’. If there was a total lack of evidence an indicator could be recorded as ‘not assessed’. Indicators assigned these outcomes may have resulted in lowering the confidence in the overall assessment or result in an overall ‘unknown’ assessment of the feature. The impact of an ‘unknown’ or ‘not assessed’ indicator depended on the weighting and confidence given to the other indicator assessments. A ‘not assessed’ or ‘unknown’ indicator with a tertiary target had less impact than those with a primary target. ‘Not assessed’ was only to be used when there was no data available to assess an indicator.

Where indicators are ‘not assessed’ or ‘unknown’ they were recorded as evidence gaps within the assessment report. Full rationale as to why the indicator was ‘not assessed’ or ‘unknown’ was also included.

Water quality indicator assessments

Water quality assessments were carried out at the site level to save time and to avoid the same information being potentially interpreted differently for different features. Water quality workshops were held by project staff with all relevant staff across NRW for all SACs assessed.

There were a number of different water quality indicators that were considered, dependant on the features involved. These included:

- Water quality: nutrients (dissolved inorganic nitrogen (DIN) only)
- Water quality: phytoplankton
- Water quality: opportunistic macroalgae
- Water quality: dissolved oxygen
- Water quality: contaminants
- Water quality: turbidity
- Water quality: physicochemical properties
- Sediment quality: contaminants
- Sediment quality: organic carbon content.

The water quality assessments were carried out using data that was compiled from a range of sources. This included Water Framework Directive (WFD) data, NRW monitoring data, and NRW or external reports.

More information on the water quality assessment process, sources of information and guidelines used can be found in Appendix 5.

Feature assessments

Once all the indicators had been assessed, the results were used to assign an overall condition to the whole feature. The weighting of targets were necessary to help determine each indicator’s relative contribution to the overall condition of the feature, but were open to expert judgement. This was particularly important when evaluating features subject to natural dynamic processes. Full definitions for the indicator weightings are in the preparation step and Appendix 1.

All feature condition conclusions had to have an associated confidence (for more information see Appendix 4). No feature condition can be reported without the associated confidence, as it indicates the degree to which it is possible to rely on the results as a true representation.

The overall confidence of the assessment conclusion was a product of the confidence in the following:

- Indicator targets;
- The evidence used;
- The assessment of each indicator target and their weighting.

These were brought together to apply confidence to the overall assessment conclusions. Expert judgement was needed to do this due to the complex nature of applying confidence when so many variables are involved. It was important to record the rationale behind the confidence levels chosen for each element and for the confidence in the overall conclusion.

Complex feature assessments

Complex features are designated features that have other designated features within their boundaries. Complex features can be estuaries or large shallow inlets and bays (LSIB). Designated features that sit partially or fully within the bounds of a complex feature are termed nested features. Intertidal reefs within an estuary would be an example of a nested feature.

When assessing complex features, it was important to follow the assessment steps as with any other feature. Estuaries and LSIB are functioning ecosystems and were assessed as such. This meant gathering data and evidence specific to the complex feature itself and using it to assess the assigned feature specific indicators and targets.

Once the assessment of the complex feature was complete the nested feature assessments of all the designated features that occur within the complex feature boundary were considered. An important consideration when looking at nested features was to consider their spatial extent within the complex feature.

For example, if only a small percentage of a nested feature is inside the boundary of a complex feature, it may not be suitable to use the full nested feature condition assessment. It may be more appropriate to independently assess the condition of the percentage of the feature that sits within the complex feature. The action taken will depend on how much space the nested feature occupies and on the reason for the nested feature condition conclusion. If the nested feature was only in unfavourable condition due to the loss of extent, but this loss was not within the percentage of the feature that resides within the complex feature, assessors may not wish to take this into account when they apply their expert judgement. Conversely, if the nested feature was favourable but a single secondary target had failed and that failure affected the percentage of the nested feature residing within the complex feature, (local nutrient issues for example), assessors may feel this has an impact on the complex feature condition.

Lack of data meant that it was not always possible to reassess only the parts of the nested features that reside within the complex feature. In these cases, the whole feature assessment was used. Expert judgement was needed to determine the influence that nested feature assessments have on the assessment of the complex features. Therefore, it was important to be as clear as possible about the reasons and justification for feature condition assignment in each feature assessment. Each complex feature was dealt with on a case-by-case basis.

When a SAC included more than one occurrence of a complex feature, each was assessed individually, and the assessments aggregated to form one overall conclusion on feature condition. In Pen Llŷn a'r Sarnau SAC, for example, the four estuaries in the site were assessed individually before those assessments were brought together to give an overall condition for the estuaries feature in the SAC.

Condition pressures and threats

An important step in marine condition assessments was the identification and reporting on the pressures acting on a feature and any future threats to condition, where known. Pressures are linked to reasons for failure and help to target management actions. There may be a combination of pressures that are affecting condition. Below is a definition of a pressure and a threat.

- *Pressures* are defined as something that has had a negative impact on the long-term viability of the feature and its associated habitats or species within the current reporting period.
- *Threats* are defined as future / foreseeable impacts (within the next two reporting periods), that are likely to affect the long-term viability of the feature and its associated habitats or species.

Threats may need monitoring and / or site management to prevent detrimental impacts on the feature occurring in the future. Threats should not cover theoretical threats, but rather impacts that are judged to be reasonably likely. This may include continuation or escalation of pressures. The anticipated impacts will be likely to result in a decline in observed condition and / or may prevent a recovery to favourable condition. Threats were recorded to aid management. Pressures and threats were agreed in the feature level condition assessment workshops.

Finalise assessments

Assessment conclusions were completed when all required fields were filled in, condition assigned and confidence in the decisions recorded. The assessments were checked by specialists and then the project task and finish group reviewed all assessments to quality assure each one. This process ensured that decisions made were peer reviewed and agreed. Any comments from the task and finish group were then reviewed and resolved by the IMCA team and specialists, and a final review and check on all content in the reports were made.

The content of the feature level assessment reports was then used to produce site level reports. These were then edited and reviewed by the IMCA team. As the site level reports contained the same information as the feature level reports they did not have to go through official sign off, but they were checked in detail by the project staff and signed off by the project manager.

Publish assessments

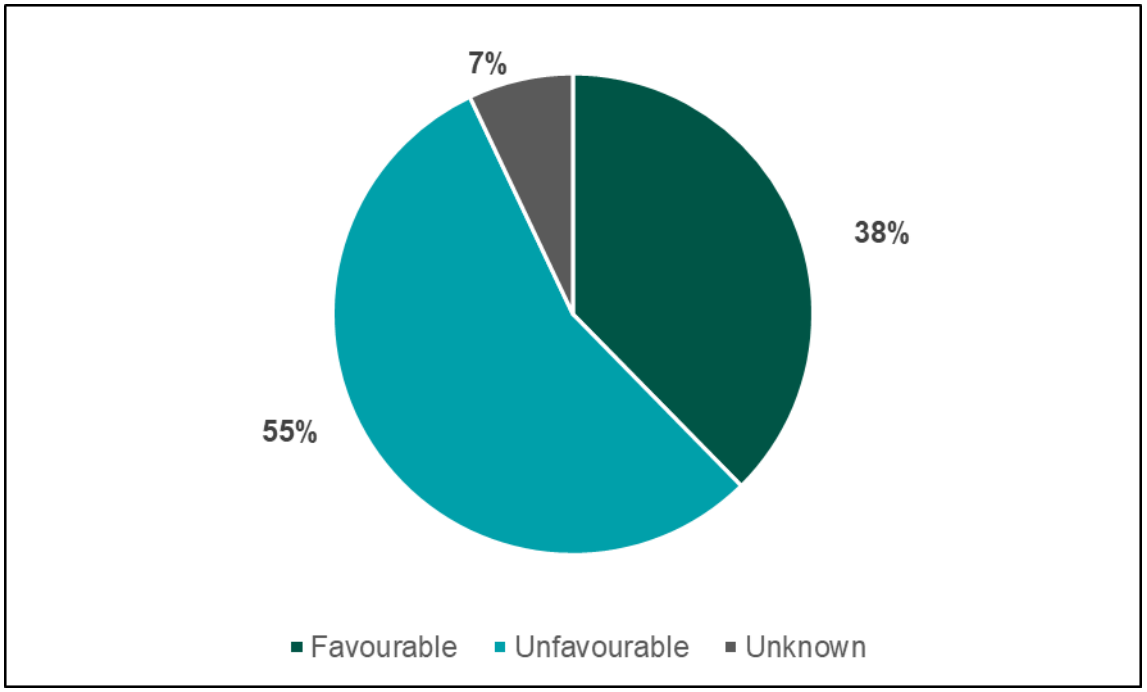
Once the assessments had been finalised and signed off, they were published on the NRW external website. The reports on feature condition can be used to inform decisions on regulated activities and future monitoring requirements. They also allowed NRW to update their conservation advice with informed ‘restore’ or ‘maintain’ conservation objectives. The pressures identified through the condition assessments will also allow site management to be targeted to maximise resources to help maintain or restore feature condition.

7. Condition assessment results summary

The detail of the condition assessments can be found in the feature level and site level condition assessments which are available from the NRW website. The following is a summary of the results. For a full list of condition assessment results see the tables in Appendix 6.

Of the 85 feature level condition assessments across both SACs and SPAs that were carried out in this round of assessments, 32 were favourable (38%), 47 were unfavourable (55%) and 6 were unknown (7%) (Figure 2).

Figure 2. Summary of the condition of all the features assessed.



There were differences between SACs and SPAs and between habitats and species features within SACs. There were also differences in the confidence of these assessments. For details of the confidence levels used see Appendix 4. It is worth noting that it is difficult to have high confidence in an assessment for marine features given the many different indicators that need to be considered, the size of many of the features and the difficulty of monitoring in the marine environment.

Of the 27 birds species that were assessed 9 were favourable (33%), 17 were unfavourable (63%) and only 1 was unknown (4%) (Figure 3). In this assessment cycle the results were affected by highly pathogenic avian influenza (HPAI) commonly called bird flu, as well as other issues linked to the wider populations. The good news from the condition assessments for birds is that not many site level management issues were identified.

Of the 58 SAC features that were assessed 23 were favourable (40%), 30 were unfavourable (52%) and 5 were unknown (9%) (Figure 4). This can be broken down further into species and habitats.

SAC species include features such as seals and bottlenose dolphins, as well as the migratory fish species such as shad and lamprey. Nineteen SAC species features were assessed, and of these, 9 were favourable (47%) and 10 were unfavourable (53%). None were assessed as unknown (Figure 5).

SAC habitats include features such as estuaries, reefs and coastal lagoons. Of the 39 SAC habitat features assessed, 14 were favourable (36%), 20 were unfavourable (51%) and 5 were unknown (13%) (Figure 6).

Figure 3. Summary of the SPA feature condition assessments.

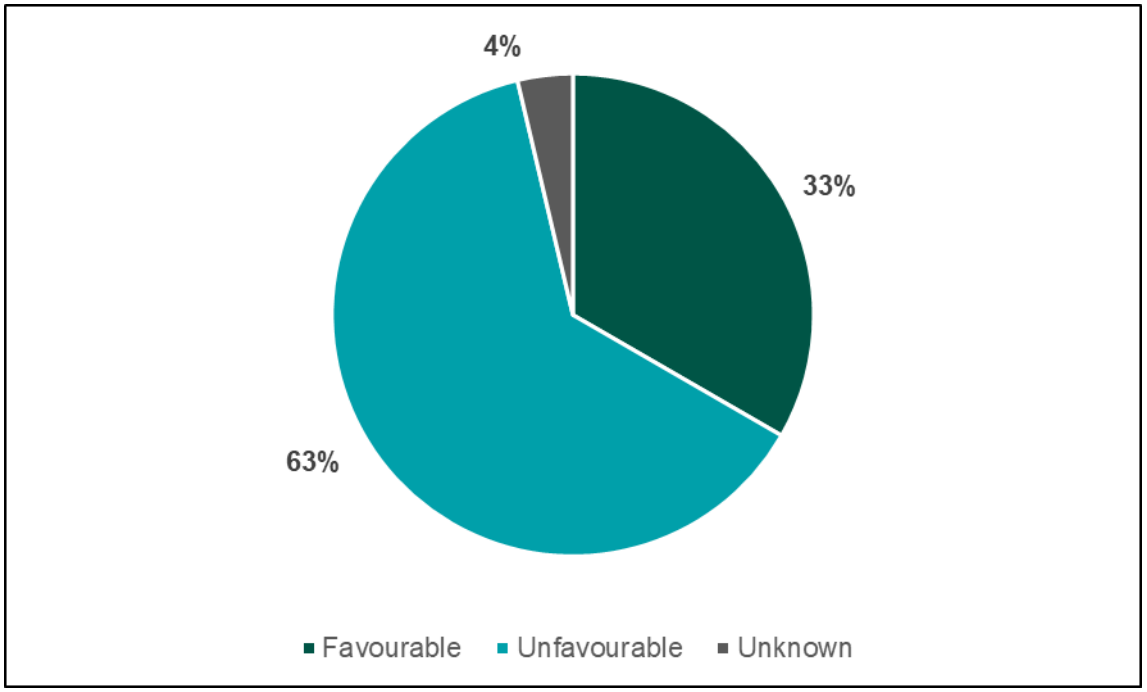


Figure 4. Summary of the SAC feature condition assessments.

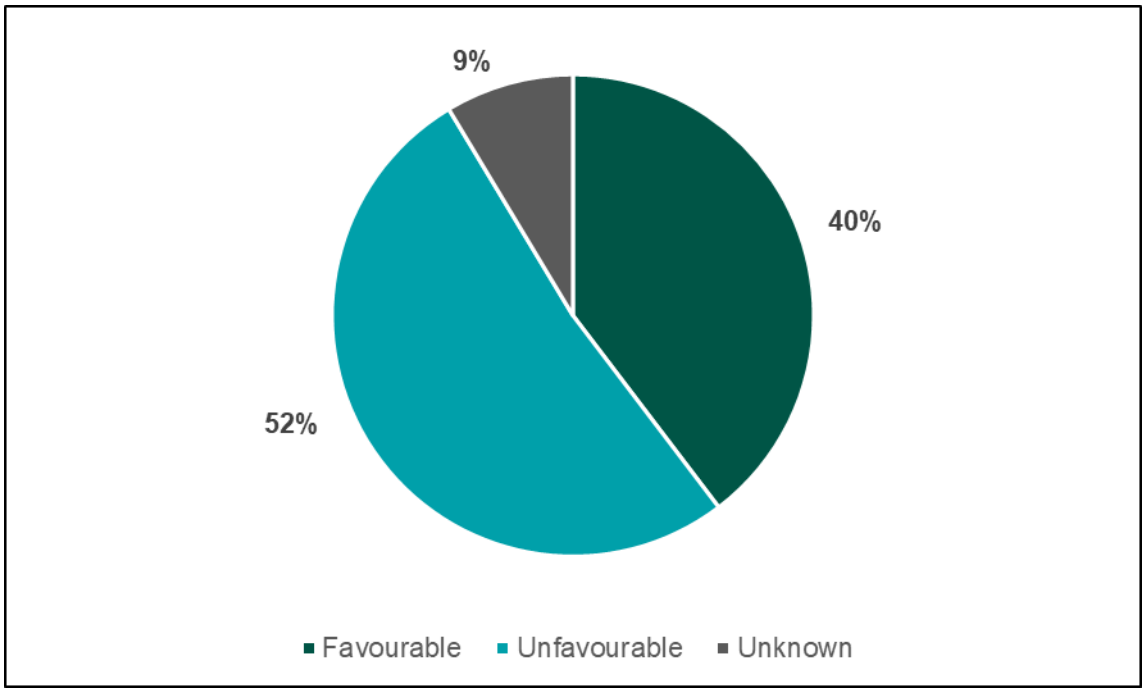


Figure 5. Summary of the SAC species feature condition assessments.

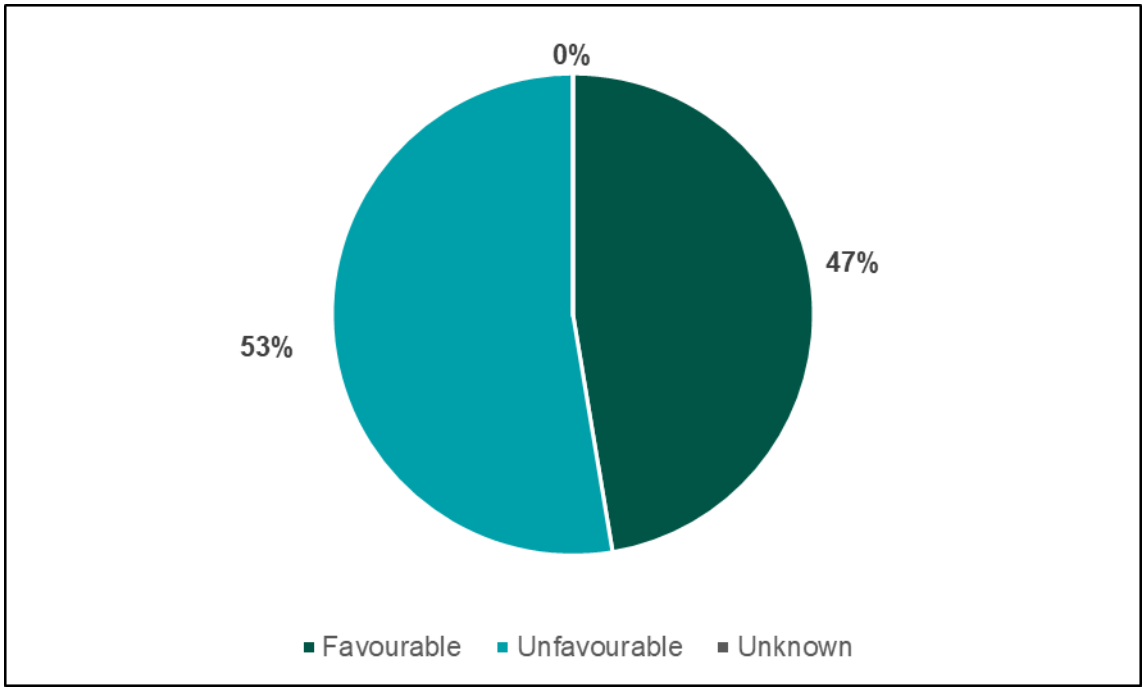
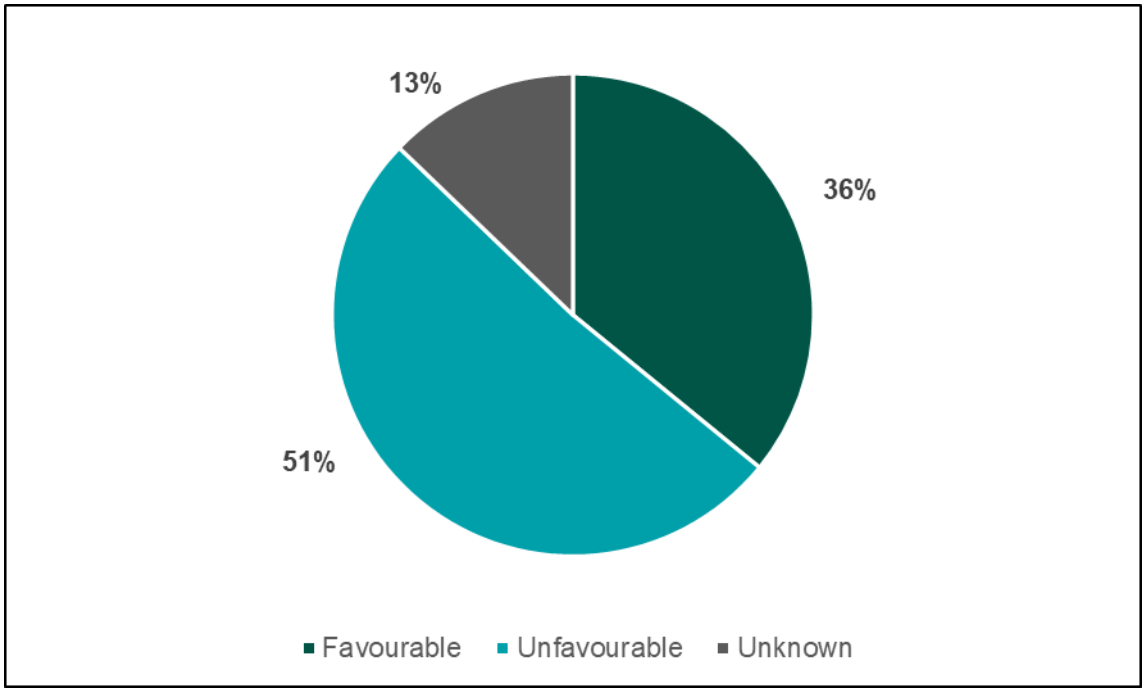


Figure 6. Summary of the SAC habitat feature condition assessments.



One SPA feature and one SAC feature were assessed as being in unknown condition. The unknown SAC feature was sea caves, which is a feature in five different SACs. They were deemed to be unknown because the last time they were surveyed was more than 20 years ago, in 2000-2002. Sea caves have not been prioritised for monitoring surveys, as they are difficult and dangerous to survey and also at low risk from impacts, due to the limited number of anthropogenic activities taking place within them. Therefore, a simple assessment was done to consider what likelihood the feature was of being in unfavourable condition. This was based on expert judgement and considered activities in the SACs that

might have damaged the feature, and in the case of sea caves, what was happening with the condition of reefs in the same SAC or in adjacent SACs. When the sea caves in the five SACs were assessed, four were considered to be at a low likelihood of being in unfavourable condition, while one was considered to be at a medium likelihood of being in unfavourable condition. For more information see the sea caves condition assessment. A similar approach was taken for the SPA condition assessment for red throated diver in Northern Cardigan Bay SPA, more information can be found in the condition assessment for Northern Cardigan Bay SPA.

It is also important to consider the confidence levels in the condition assessments. Table 5 details the confidence levels in the assessments.

Table 5. Confidence levels in the condition assessments

Assessment outcome	Confidence level	No. of assessments	Percentage (%)
Favourable	Low	8	10%
Unfavourable	Low	11	14%
Favourable	Medium	23	29%
Unfavourable	Medium	29	37%
Favourable	High	1	1%
Unfavourable	High	7	9%

It should be noted that, due to the difficulty in monitoring across large areas of feature and the many indicators assessed, it is difficult to achieve a high confidence in these condition assessments.

8. Reasons for unfavourable condition

Each condition assessment report contains a section highlighting the reasons for failure, where known. It is not easy to produce a simple summary of what causes unfavourable condition for the features of our marine SACs and SPAs. For many features there may be multiple reasons for failure as a number of indicators may have failed for a feature and some of these will be primary, some secondary and some tertiary. However, some things can be highlighted either across features or for specific features.

For the 20 habitat features across the SACs in unfavourable condition 9 had a primary failure for water quality (nutrients (DIN only)) (45%). Some of these may also have failed for other water quality indicators such as contaminants, phytoplankton or nuisance algae.

Water quality was assessed across all SAC features, whereas some indicators were only measured for one feature. For example for the three SACs with unfavourable Atlantic Salt Meadow condition assessments, 2 failed the target for vegetation structure (sward height) (66%), which is related, in these cases, to overgrazing. Therefore, it is not appropriate to

compare the number of unfavourable assessments per indicator, as those indicators that are common across multiple features are the ones most likely to stand out.

For SPAs a common indicator leading to unfavourable condition across all features was population – either breeding population or overwintering population. This indicator was assessed against a specific target chosen for each feature on each site. For the 17 unfavourable SPA features 15 bird features were unfavourable (88%) due to failing their population target. However the reason that these features missed these targets was variable, ranging from bird flu to disturbance at the site level. There were also a large number of population targets missed with no known reason although many are likely due to wider than site level issues e.g. Wales or UK wide declines. For some species this may be related to “short stopping”, this is when over wintering birds stop short of their traditional overwintering grounds (SPAs) and over winter closer to their breeding grounds.

9. Lessons learnt

It is important after undertaking a project of this scale to consider how the project progressed and understand what lessons, if any, can be taken forward into new projects. To enable the project team to fully explore this aspect of the project a survey was sent to all of the staff who had taken part in the project across NRW. A total of 11 replies were received. Most were very positive about the project, with 91% of respondents saying they were happy with the project and that the process worked well. One hundred percent of people who responded said they were happy or extremely happy with the outputs of the project. Some issues or potential improvements for future work were highlighted and these are detailed in Table 6. The project team will endeavour to integrate learning into the next stage of the project.

Table 6. Summary of lessons learnt from the IMCA project.

Issue	Detail	Project response / way forward
Project outputs	A digital format would be easier to interrogate and use than the PDFs currently produced.	A digital output was the hope for this project but it was not possible. For the condition assessments a PowerBI product has been developed for internal NRW staff to allow them to interrogate the data more easily but we would like to explore better ways to display this sort of output better.
Involvement of non-marine staff	Good to have non-marine staff input – a different viewpoint.	We will look to that in the future, it is not always easy to get the time commitment from staff outside the marine programme.
External review	It would have been useful to have had some external review or scrutiny.	This was discussed for the current project but time was an element. The next stage of the project will have the JNCC and Natural England involvement and discussions with them will feedback into future iterations of this work.

Issue	Detail	Project response / way forward
Staff resources	The project used a lot of existing staff resource.	This was unavoidable but going forward we will try to make sure that specialist advice is more targeted and that it is better planned so that it can feed into work programmes.
Project sign off	There were a lot of reports to sign off and not much time to do so.	This was definitely an issue and something to avoid; in the future report sign off needs to be staggered and sign off meetings adjusted as necessary.

10. Next steps

After the successful completion of this project the aim is to continue the work to update information on the condition of the rest of the MPA network and thus improve our conservation advice. NRW aims to look at the outputs of the IMCA project to see how we could improve management of our Welsh only marine SACs and SPAs.

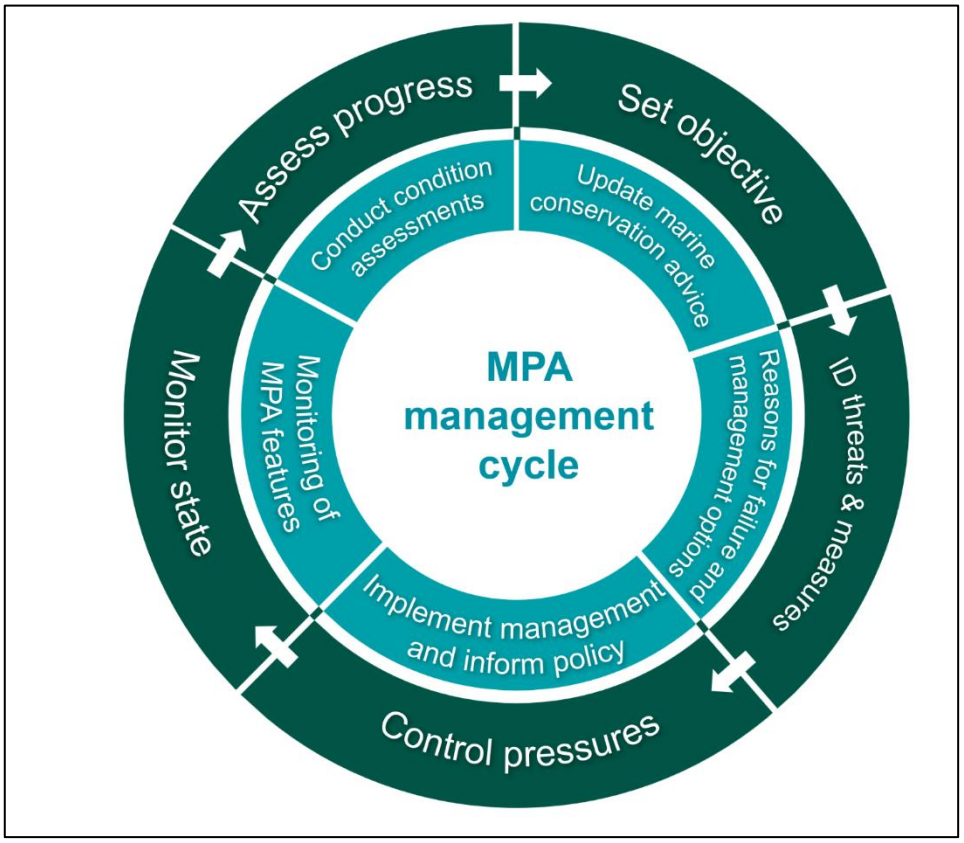
It is important that the outputs of the IMCA are used to inform future management of the sites. The outputs of the project are already being fed into other work including:

- Nature Networks Investigations II
- NRW's evidence work
- Reg 9a reporting
- State of Natural Resources (SoNaRR) reporting
- Decision making for new developments
- Strategic mapping

It is also important to remember that this project should not be seen in isolation but as part of the MPA management cycle (Figure 7).

The condition assessments have been completed and the conservation objectives updated. The reasons for failure and threats have been highlighted in the condition assessments. The results of this project will feed into the controlling of pressures and hopefully influence future monitoring. The important thing is that this is cyclic and that one set of condition assessments are not the answer, the process needs to continue through the cycle updating condition assessments as new information becomes available and allowing this to influence the rest of the management cycle.

Figure 7. The MPA management cycle and how the work of the IMCA project fits within the cycle.



11. IMCA II

It is also important to look at how to potentially improve the conservation advice for the rest of the MPA network in Wales. NRW will be undertaking a second project, IMCA II, from April 2025 to March 2030.

The next stage of the project will:

1. Carry out cross border condition assessments: 48 habitats and species features on 9 SACs and SPAs. These sites include:
    a. Dee Estuary SAC
    b. Dee SPA
    c. Severn Estuary SAC
    d. Severn SPA
    e. North Anglesey Marine SAC
    f. West Wales Marine SAC
    g. Bristol Channel Approaches SAC
    h. Liverpool Bay SPA
    i. Skomer, Skokholm and the seas off Pembrokeshire SPA

2. Complete full conservation advice packages for 5 cross border sites (other cross border sites have newer packages).

3. Carry out a scoping study of site of special scientific interest (SSSI) condition assessments for all 107 SSSIs in the Welsh MPA network.

    a. Carry out some SSSI indicative condition assessments using information from the SAC and SPA condition assessments overlapping with suitable SSSIs or where data is readily available.

    b. Carry out a gap analysis on the rest of the SSSI network.

    c. Develop proposals for way forward for assessing condition of all SSSIs: All 107 MPAs in the Welsh MPA network.

4. Develop performance indicators, condition assessments and a conservation advice package for Skomer marine conservation zone (MCZ) and any other MCZs that may be designated before the end of the project.

5. Feed the outputs of the IMCA project into other workstreams to see how we could improve management of our Welsh only marine SACs and SPAs.

This next stage of the work entitled IMCA II began officially in April 2025 and meetings have already begun with Natural England on the first cross border site.

12. References

ccme.ca. Canadian Council of Ministers of the Environment | Le Conseil canadien des ministres de l'environnement.

ccme.ca. *Resources | CCME*.

Clarke, K.R. and Warwick, R.M. 1998. A taxonomic distinctness index and its statistical properties. *Journal of Applied Ecology*, *35(4),* 523-531.

Clarke, K.R. and Gorley R.N. 2015. PRIMER v7: User Manual/Tutorial. PRIMER-E Ltd. Plymouth, UK.

GOV.UK. 2023. Marine Licensing: sediment analysis and sample plans.

JNCC. 2004. Common Standards Monitoring Guidance for Marine.

Larsen, M. and Hjermann, D. 2022. Status and Trend for Heavy Metals (Mercury, Cadmium and Lead) in Fish, Shellfish and Sediment. In: OSPAR, 2023: The 2023 Quality Status Report for the Northeast Atlantic. OSPAR Commission, London.

MMO. 2015. High Level Review of Current UK Action Level Guidance. A report produced for the Marine Management Organisation, pp 73. MMO Project No: 1053. ISBN: 978-1-909452-35-0.

Viñas, L., Soerensen, A.L., and Fryer, R. 2022. Status and Trends of Polybrominated Diphenyl Ethers (PBDEs) in Biota and Sediment. In: OSPAR, 2023: The 2023 Quality Status Report for the North-East Atlantic. OSPAR Commission, London.

Webster, L. and Fryer, R. 2022. Status and Trends of Polychlorinated Biphenyls (PCB) in Fish, Shellfish and Sediment. In: OSPAR, 2023: The 2023 Quality Status Report for the North-East Atlantic. OSPAR Commission, London.

Appendices

Appendix 1: Indicator Weightings

NRW has decided that condition reporting indicators (made up of indicators and targets) chosen to be part of feature condition assessments should have targets that carry a weighting. This weighting was based on the importance the target has in relation to the condition of the feature being assessed.

NRW has developed a bespoke approach to target weighting which is outlined below. It is important to note that indicators with targets that are common across different features may have varying weighting depending on what feature it is being applied to i.e. a target could be primary for one feature, but the same target be secondary for another. The weighting to be applied to each target was discussed and decided when feature indicators were selected by NRW specialists.

NRW has decided on a three-tier weighting system of primary, secondary and tertiary targets. Each tier will have its own rules around how target failure leads to an outcome of unfavourable condition for the feature being assessed.

Primary targets

The highest weighting for targets will be primary. This follows the default approach outlined in the Common Standards Monitoring (CSM) Generic Guidance for Marine Features. The CSM default approach states that all targets of the feature in question should meet their defined targets for the overall feature to be classed in favourable condition (JNCC, 2004). Under this approach failure to meet a single target would result in a feature being classified as unfavourable. This is known as *one out all out*.

Primary weighting for targets in NRW condition assessments follow the *one out all out* rule of the default approach. All targets assigned a primary weighting need to be met for the feature to be favourable. Failure of a single primary target will result in an unfavourable condition assessment conclusion for that feature.

An example of an indicator with a primary weighted target for the reefs feature in NRW condition assessments is given in the table below (Table 7).

Table 7. An example of an indicator with a primary weighted target for the reefs feature condition assessment.

Feature	Indicator	Target (primary)	Assessment Method
Reefs	Extent	No significant decrease in the extent of natural reef within the site, allowing for natural change and variation.	Assessed periodically through baseline maps / aerial images or through the review of any known activities that may have caused an alteration in extent.

This target is primary as a loss of a significant area of extent means a loss of the feature within the site.

Any target can be assigned a primary weighting if it directly informs on the condition of the feature or a target is deemed very important in determining condition.

Secondary targets

For targets that indirectly inform on condition or are considered less important in determining the condition of a feature, a secondary weighting is applied. The secondary weighting tier has a *two out all out* rule. This means that two targets in this category would need to fail (and all others pass) before the feature is classified as unfavourable.

An example of a secondary target for the mudflats and sandflats feature in NRW condition assessments is provided in Table 8. If a single secondary target fails and all other targets are met the feature would be classified as favourable (subject to expert judgement).

Table 8. An example of an indicator with a secondary weighted target for the mudflats and sandflats feature condition assessment.

Feature	Indicator	Target (secondary)	Assessment Method
Mudflats and sandflats not covered by seawater at low tide	Water quality: dissolved oxygen	The WFD classification achieved for dissolved oxygen should be Good or High status in WFD waterbodies that overlap with the feature, and there should be no deterioration between status classes.	WFD dissolved oxygen quality element

This target is secondary as dissolved oxygen is measured in the water column and not within the sediment, making it an indirect measure of the state of the feature.

Tertiary targets

The third tier of weighting is tertiary. This weighting is reserved for targets that only provide an indirect or partial indication of condition, or where the confidence in the data underpinning the indicator is low. Tertiary targets will have a *three out all out rule*, meaning three tertiary targets would need to fail (and all others pass) for the feature to be classified as unfavourable. In these cases, the indicator and target would be more for informative purposes and to add to the evidence base for the assessment. They could play an important role if primary or secondary targets are giving conflicting conclusions on a feature's condition.

An example of a tertiary target for the mudflats and sandflats feature is given in Table 9. If two tertiary targets fail to be met and all other targets pass the feature would be classified as favourable (subject to expert judgement).

Table 9. An example of an indicator with a tertiary weighted target for the mudflats and sandflats feature condition assessment.

Feature	Indicator	Target (tertiary)	Assessment Method
Mudflats and sandflats not covered by seawater at low tide	Non-native species (NNS)	No increase in the number of introduced NNS by human activities.	Records of NNS (from WFD and other data)

This target is tertiary as it is hard to accurately measure the rate of introduction of NNS due to lack of monitoring, difficulty in identifying some NNS and as some NNS may never become invasive and therefore might not have an impact on the feature.

Summary

Weighting of targets was flexible and determined on a feature-by-feature basis by relevant NRW staff. It is possible that a single indicator will be used across multiple features, but with a varying weighting. For example, the water quality (nutrients (DIN only)) indicator had a primary target for estuaries but a secondary target for reefs. It may also be the case that the target weighting of dynamic features varies between sites. For example, mobile sandbanks in the Menai Strait and Conwy Bay SAC could have slightly different indicators and / or target weightings to the more stable sandbanks in the Carmarthen Bay and Estuaries SAC. Weighting of targets is not fixed and may change between reporting periods in response to the evidence available.

Weighting of all targets was subject to expert judgement in the assessments. It may be the case that a secondary target would fail in a way that would result in an expert classifying the whole feature as unfavourable. A situation may arise where all primary targets are met but indicators with secondary and tertiary targets fail, but not in a way that would automatically fail the assessment. For example, it may be that all primary targets pass, a single secondary target fails, and two tertiary targets fail. None of the targets would have

met their threshold for unfavourable condition, so the feature can be classed as favourable. However, in these cases, it will be down to the expert judgement of the assessor(s) to determine if these small failures combine to result in an assessment of unfavourable condition for that feature.

Appendix 2: Types and sources of data used in the condition assessments

A significant portion of the evidence compiled for these assessments came from NRW's marine monitoring programme, although many other sources of data were also reviewed. While direct monitoring information is preferable when assessing indicators, some indicator assessments will require the use of proxy data. This is usually the case where monitoring evidence is incomplete, though some indicators may be easier to assess through indirect evidence. An example of proxy data is information on developments. If recent extent information is not available for a feature but there have been no recent developments that could affect extent, it can be concluded that there has been no change to extent.

Additional evidence surrounding the presence or absence of non-licensed activities in, or adjacent to, the site will also need to be considered. Investigation of this activity data will be used to identify pressures and threats.

When making assessments, it is important to check any previous assessments made of the feature. This will include Regulation 9a reporting and previous condition assessments. In future assessment rounds the assessments produced by this process will need to be checked to ensure consistency. Comparing the same sources of evidence over time will allow identification of trends in changes to condition.

Sources of data may include:

- NRW's feature condition monitoring or surveys
- WFD data
- Compliance monitoring
- Baseline surveys
- Peer reviewed literature from library and academic databases
- Grey literature
- Civil hydrography programmes
- Citizen science programmes (e.g. Seasearch)
- External monitoring databases (e.g. the Joint Cetacean Protocol)
- Open access data (e.g. Cefas hub)
- Environmental impact assessments
- Long term monitoring projects (e.g. MarClim)
- Academic research
- Evidence of activities and pressures
- Modelled information

Information may be in the form of:

- Spreadsheets and databases (e.g. Marine Recorder data (biological and environmental point data))

- Geospatial data (site, feature or sub feature boundaries; biotope maps; point data; acoustic maps; exposure or tidal regimes)
- Monitoring or survey reports
- Journal articles
- Seabed or seashore images (drop down video or stills)
- Research reports.

Appendix 3: Data analysis

Some evidence gathered during the project was available from monitoring reports in which relevant information could be extracted and used to assess a specific indicator. Other data**,** such as that recently collected by the monitoring team, required additional analysis.

The project team adopted several approaches to conduct data analysis depending on the type of data. Analysis of the water temperature and salinity loggers, or sediment composition, for example, were conducted using Microsoft Excel as well as using R software to visualise any trend across time. GIS tools were employed, e.g. to map otter distribution and identify invasive non-native species (INNS) records associated with particular features.

The following level of analysis was particularly relevant for the species indicators:

- Abundance, distribution and species composition of communities
- Species richness and diversity
- Taxonomic spread of species.

The software PRIMER v.7 (Clark and Gorley, 2015) was used to analyse and visualise monitoring data such as infauna from grab or core samples. This software was used to perform multivariate statistical analyses on complex datasets. It facilitated the exploration of patterns, relationships, and trends in infaunal communities through various methods, such as cluster analysis, non-metric multidimensional scaling (nMDS), and SIMPER (similarity percentage). Shade plots, coherence plots, and dominance plots were also used to examine community behaviour over the monitoring period. These plots helped identify any dominance by opportunistic species, which could indicate a disturbance. This analysis provided evidence for the abundance, distribution and species composition of communities.

PRIMER v.7 was also used for the calculation of diversity indices for the assessment of the species richness and diversity indicator.

Taxonomic distinctness is a metric used to quantify the diversity of species within a community based on their taxonomic relationships. It provides a measure of how taxonomically "distinct" or "distant" the species in a community are from each other, considering their positions in the taxonomic hierarchy (e.g., kingdom, phylum, class, order, family, genus, and species) (Clarke and Warwick, 1998). Taxonomic distinctness was calculated and visualized in PRIMER v.7 to help comparing the taxonomic structure of different communities and assess the degree of relatedness within those communities. This provided evidence for the taxonomic spread of species indicator.

PRIMER v.7 was also used to see if any relationship existed with the sediment and its associated biota. This analysis provided direct evidence for the sediment composition and distribution indicator.

Appendix 4: Advice on the use of confidence in condition assessments

When assessing and reporting on the condition of features, it is important it is important to clearly state the level of confidence in the conclusions reached. Confidence in this respect does not equate to statistical confidence.

To establish a robust and defensible confidence associated with an assessment, it was essential to clearly establish what is meant by confidence levels in relation to the marine condition assessments, identify what requires confidence, and determine at what stage in the process confidence was needed.

Applying a confidence rating, particularly to conclusions derived from a range of evidence sources, allows others to make an informed decision about how representative of the true picture we consider the assessment to be.

Confidence was required in:

- The indicators used to carry out the assessment
- The evidence base - the information used to assess feature condition against those indicators
- The overall assessment conclusion.

Indicators and targets used to carry out the assessment

The first aspect that requires confidence is that the appropriate indicators for the condition assessment were used, and that the individual indicators provide relevant and meaningful information about the condition of the features being assessed. These indicators have targets that enable a determination of whether they pass or fail.

Ideally these indicators were:

- Sensitive to changes in feature condition
- Measurable and preferably measured (i.e. have some data associated with them)
- Defensible (i.e. we could justify why we chose the indicator)
- Have a known direct or indirect link to feature condition.

If an indicator included these elements, then there was a high confidence in the appropriateness of that indicator. If assigning medium or low confidence to the appropriateness of the reporting indicator is necessary, for example when a proxy indicator must be used, it was important to consider whether certain indicators were given the right weighting (primary, secondary or tertiary). Separate guidelines were produced on the target weighting of indicators (see Appendix 1).

The following are some guidelines on what a high, medium or low confidence in the appropriateness of an indicator to inform on condition might look like and what needs to be considered when setting the confidence levels. It is important to stress that this is not exhaustive and is a guideline rather than a set of rules to follow. There will be a certain amount of expert judgement needed when setting the confidence level for the chosen indicator.

You may have **high confidence** in your selected indicator to inform on condition if (your indicator would not have to meet all the following):

- The indicator is a direct measure of feature condition (e.g. population size).
- There is good evidence of a direct link to feature condition (preferably peer reviewed evidence).
- The indicator is sensitive to changes in feature condition.
- The indicator is measurable and ideally already has data to allow you to assess it.
- Any confounding effects (other reasons for change) are well understood.

You may have **medium confidence** in your selected indicator if:

- There is evidence of a direct or indirect link to feature condition .
- The indicator is sensitive to changes in feature condition.
- The indicator is measurable.
- Any confounding effects (other reasons for change) are understood.

You may have **low confidence** in your selected indicator if:

- There is evidence of an indirect link to feature condition.
- The indicator was not directly measured and used proxy data for the assessment.
- Any confounding effects (other reasons for change) are difficult to disentangle.
- The indicator is not very sensitive to changes in feature condition.

It is important to associate a confidence level to each assessed indicator. This confidence rating will help to decide what weighting the assessed indicator should be given in the condition assessment process, i.e. if there is a low confidence in an assessed indicator should it be allowed to fail a whole feature?

The same assessed indicator can have different confidence levels when applied to different features i.e. what the same assessed indicator can reveal about the condition of different features.

For example, when assessing the structure and function of a mudflats and sandflats, there is likely high confidence that Infaunal Quality Index (IQI) will provide something useful about the structure and function of the feature, be that negative or positive.

However, for a reefs feature, the IQI samples collected for an overlapping waterbody will be collected off the reef (in sediment habitats), leading to a lower confidence that it provides useful information about the reef's structure and function. While the IQI may offer insights into the general quality of the environment surrounding the reef, confidence in how this reflects the condition of the reefs feature itself is likely to be lower.

The evidence base

The evidence base covers all sources of evidence that are used to assess the condition of the feature against the condition assessment indicators. Confidence in the sources of evidence used in the assessment process, and in how the evidence determines a pass or fail. It is very likely that a range of data sources with a range of confidence levels will be used, therefore conclusions need to be drawn on what these different types of data show.

The evidence base includes:

- Quality of data (i.e. the ability of the data to inform the passing or failing of the indicator).
- Agreement between the different data sources.

1. Quality of data

It is difficult to set hard and fast rules for quality of data, and what exactly is high, medium or low confidence in the quality of data, as this will depend on the data type. However, some aspects to consider when setting the confidence levels are:

- How representative the data are of the feature condition indicator (spatially, temporally, direct or indirect)?
- How relevant are the data are to the feature condition indicator?
- What is the age of the data (relative to the sensitivity of the feature)?
- What quality assurance has the data been through?
- What is the source of data (expert contractor monitoring compared to a citizen science project)?

A scale of confidence based on these questions will be needed, and all assessors need to agree the confidence score for quality of data. The following are some guidelines to help with setting the confidence levels for quality of data, but these are not exhaustive and expert judgement will be needed.

You may have **high confidence** in your quality of data if (your indicator would not have to meet all the following):

- The data directly measure the chosen condition indicator being assessed.
- The data are representative of the feature condition indicator both spatially and temporally.
- The data are recent (relative to the sensitivity of the feature).
- The data are sufficiently replicated (could be either spatial or temporal).
- The data are quality assured.
- The data are statistically significant.

You may have **medium confidence** in your quality of data if:

- The data are relevant to the chosen condition indicator being assessed.
- The data are representative of the feature condition indicator both spatially and temporally though may be indirect.

- The data are not as recent as would be ideal (relative to the sensitivity of the feature).
- The data are quality assured.
- The data might show a trend that is not statistically significant.

You may have **low confidence** in your quality of data if:

- The data are indirectly representative of the feature condition indicator (proxy data).
- The data are not recent (relative to the sensitivity of the feature).
- Whether the data have been quality assured is unknown.
- The data are not sufficiently replicated.
- There are known problems with the quality of the data (e.g. species identification by inexperienced surveyors).

It is important to emphasise that the goal is not to re-evaluate the confidence in the methodology of accepted monitoring programmes, such as WFD classification. However, it is necessary to ensure that the data are suitable for the individual MPA features condition indicator. It is possible to have high quality survey data, but if it does not represent the indicator chosen to assess the aspect of feature condition, confidence in the favourable / unfavourable outcome cannot be high.

For example, a subtidal reef has no up to date mapping data. Assessing against the "extent" indicator we might use a lack of known anthropogenic impacts to assume no changes in extent. The information would not give a direct measure of extent but would indicate that it is unlikely that extent had reduced and therefore a medium confidence is appropriate.

It is also important to consider what the data indicate as it relates to the indicator. If the data show a result that is a long way from the indicator target, (positively or negatively), there may be a high level of confidence in the result. However, if the data are close to the indicator target, confidence in the results may be lower as this might be within monitoring error levels. The following is a hypothetical example to further explain this concept.

Bird population numbers may have an indicator target such as:

Maintain the breeding gannet population at or above 33,000 pairs.

If the result of monitoring showed that the numbers of breeding gannets were 33,100 pairs a positive result (pass) could be recorded. However, as the number is within 5% of the indicator target, it could possibly be within monitoring error, meaning the confidence in the positive result might be lower. However, if the result for the population was 35,000 pairs, confidence that the indicator had met its target would be higher.

The same would be true if the values were below 33,000 pairs. If the monitoring result for breeding population was 32,900, this would fail the indicator, but as it is potentially within monitoring error there would be a low confidence in the failed result. However, an extent of 16,000 pairs would have a much higher confidence that the population indicator had failed.

2. Agreement between the different data sources

If there are a range of different data sources and they are all indicating that an indicator is passing (or failing), then we can have confidence in the data. The following are some guidelines to help with setting the confidence levels for agreement between different data sources. If there is only one data source this will not apply.

There may be **high confidence** in the agreement between different data sources if all data sources for the indicator being assessed are giving similar information about whether an indicator is passing or failing.

There may be **medium confidence** in agreement between different data sources if most data sources for the indicator being assessed are all giving similar information about whether an indicator is passing or failing, with one of two exceptions.

There may be **low confidence** in agreement between different data sources if there is no agreement between the different data sources for the indicator being assessed about whether an indicator is passing or failing, and expert judgement is needed to weigh the different data sources.

If the various data sources are not in agreement, then we must look at these different data sources and potentially weigh the most important ones and preferentially use them. This will affect the confidence level of the indicator outcome. The following is a hypothetical example.

Hypothetical example of disagreement between different indicator data sources

The saltmarsh feature in SAC a has the following indicator,

Indicator: Feature extent

Target: No decrease in feature extent, allowing for natural change and variation.

Multiple extent surveys have been performed in recent years. One as part of WFD monitoring, one as part of a contracted National Vegetation Classification (NVC) survey and one by a developer wanting to extend the marina upstream of the saltmarsh.

If all three surveys give similar extents for the feature with no declines the target could pass with high confidence. However, if one of the surveys showed a decline in extent while the other two did not, expert judgement would need to be used. Each source of evidence would have to be weighed up and compared before assigning a pass or fail to the target. Confidence in this conclusion would be lower due to the discrepancy between the sources of evidence.

However, if there are other monitoring data (e.g. Common Standards Monitoring) that show issues then you need to weigh the evidence based on how it has been collected, the monitoring locations and how well the data have been quality assured before you make your judgement and pass or fail the indicator. However, since the different sources of data do not agree then your confidence level should be lower.

Taking these two elements together (data quality and agreement between data sources) one confidence level for the evidence base for each indicator should be used.

Overall assessment conclusion

The overall assessment conclusion must also have an associated confidence level. This will indicate the degree to which we can rely on the results as a true representation of the condition of the feature. The overall assessment conclusion will also indicate with what degree of certainty we should apply the results to other work, such as management decisions or focussing future evidence and investigative work.

It is important that the assessment conclusion considers the confidence that all reporting indicators are providing the right result for feature condition. The overall confidence on the assessment conclusion will therefore need to be a product of the confidence in both the assessed indicators and the evidence used. These are brought together to define confidence categories for assessment conclusions. It is important to record the rationale behind the confidence levels chosen for each indicator and for the confidence in the overall conclusion.

Summary

Confidence levels associated with the following parts of the condition assessment are required:

- Condition reporting indicators.
- Evidence base. Comprised of,
    - Quality of data
    - Agreement between different data sources.
- Overall assessment conclusion.

Confidence can be high, medium or low. While no specific targets for high, medium and low have been set, there are guidelines. The reason for this is that confidence can be subjective and there are many possibilities where a certain amount of expert judgement will need to be used. However, it is important that the rationale underpinning the confidence level given is clearly explained within each assessment in case it is questioned, as well as allowing future assessors to understand the rationale behind the result.

Appendix 5: Water quality assessment process

Water column quality assessment process

The water column quality assessments were carried out using data that was compiled from a range of sources. This included Water Framework Directive (WFD) data, NRW monitoring data, and other NRW or external reports. The full list of data sources includes:

- WFD classification data (Water Watch Wales)
- Data, reports and conclusions from the WFD planned investigations for Transitional and Coastal (TraC) waterbodies.
- Temperature and salinity loggers in coastal lagoons
- Intertidal and diver temperature loggers
- Monitoring reports (internal and external)
- Site specific observations and comments from monitoring and environment teams
- Skomer MCZ project status reports
- External reports (including from Oslo and Paris Conventions (OSPAR), Cetacean Strandings Investigation Programme (CSIP), Marine Conservation Society, Centre for Environment, Fisheries and Aquaculture Science (Cefas), published scientific literature).

The following performance indicators were considered in the water column quality assessment:

- Water quality: nutrients (dissolved inorganic nitrogen (DIN) only)
- Water quality: phytoplankton
- Water quality: opportunistic macroalgae
- Water quality: dissolved oxygen
- Water quality: contaminants
- Water quality: turbidity
- Water quality: physicochemical properties

Water Framework Directive data

The assessments used the WFD 2024 cycle 3 interim classification for the relevant element at the waterbody level for the nutrients, phytoplankton, opportunistic macroalgae, dissolved oxygen and contaminants indicators. The following WFD elements were used: Dissolved Inorganic Nitrogen (DIN) for the nutrients indicator; phytoplankton; opportunistic macroalgae; dissolved oxygen; and chemical status and specific pollutants for the contaminants indicator. Earlier WFD classification cycles were also referenced, as follows:

- 2009 cycle 1 classification
- 2015 cycle 2 classification
- 2018 cycle 2 interim classification
- 2021 cycle 3 classification

The target for the nutrients, dissolved oxygen, phytoplankton and opportunistic macroalgae indicators is divided into two parts. Firstly, the relevant WFD element should be Good or

High status in WFD waterbodies that overlap with the feature, and secondly, there should be no deterioration between status classes.

WFD methods are described in detail in the technical guidance documents from UKTAG and the England and Wales Standards and Classification Directions available online. WFD assesses waterbodies in 6-year cycles. WFD monitoring considers some waterbodies as operational and others as surveillance. Operational waterbodies are monitored if they are considered to be at risk of not meeting their objectives. Risk assessments are produced and or updated in each river basin management plan (RBMP) cycle to highlight if there is a risk of waterbodies failing to achieve Good status. Where there is a waterbody with changing pressures, it should be identified in the WFD risk assessment process. This will then trigger monitoring of that waterbody for WFD. As a result of this process, some waterbodies have not been classified in any cycles, or have been classified in previous cycles but not in the latest WFD cycle (2024 cycle 3 interim classification). Where there is no new monitoring data to provide a classification in the latest WFD cycle, results are rolled forward from previous cycles. It is used to gap fill and provide a more complete classification. A decision was made to limit roll forward to six years which has been applied to the 2024 cycle 3 interim classification. This was considered in the confidence of the water quality MPA feature assessments.

Over the course of the WFD Regulations classifications, there have been various methodology changes. This includes changes to monitoring and laboratory methods (e.g. limits of detection), and the Environmental Quality Standards (EQS).

The WFD waterbodies were mapped alongside the SAC feature boundaries and figures of percentage overlap were produced, which outline how each WFD waterbody represents the feature as a proportion of the whole SAC (degree of overlap). The relevant WFD element classifications were summarised for all WFD waterbodies which were within the SAC feature boundaries. These were presented alongside percentage overlap figures, and any additional data available. Each indicator was assessed following the condition assessment rules and process. The process could be overridden based on expert judgement on a case-by-case basis.

Contaminants assessment and ecological standards

For the water quality contaminants indicator, the chemical status is reported as pass or fail in the WFD classifications. Therefore, the pass level was adopted for the condition assessment of both the chemical status and specific pollutant component.

The Environmental Quality Standards (EQS) used for the assessment of priority hazardous substances that are considered ubiquitous, persistent, bioaccumulative and toxic substances (uPBTs) have two protection goals:

- Secondary Poisoning standard: Protection from chemical accumulation in the food chain from risks of secondary poisoning through consumption of contaminated prey, specifically of top predators such as birds and mammals.
- Human Health standard: Protection of human health from deleterious effects results from the consumption of food (fish, molluscs, oils, etc.) contaminated by chemicals.

WFD chemical assessments use the most stringent value to derive the EQS for each chemical. For some chemicals, the human health standard is the most stringent of the two standards. This is the case for polybrominated diphenyl ethers (PBDEs), polyaromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). Therefore, where there are failures for these contaminants, it is possible that these chemicals would not fail if the secondary poisoning standard was used. The water quality assessment took the precautionary approach of using the most stringent standard used in the WFD classification. If possible, the secondary poisoning standard may be more appropriate to use for chemicals in future rounds of MPA condition assessments.

Sediment quality assessment process

Monitoring data from WFD sampling or SAC monitoring (where available) were used for the sediment quality performance indicators:

- Sediment quality: contaminants
- Sediment quality: organic carbon content.

There are no defined ecological standards for chemical contaminants within marine sediments agreed within the UK. The concentrations of chemical contaminants were compared against various ecological quality guidelines available. A hierarchy-based approach was used to assess against the available guidelines.

OSPAR guidelines were used in the first instance. The OSPAR ecological guidelines were used nationally to assess concentrations of chemical contaminants in the marine environment (Larsen and Hiermann, 2022; Viñas et al.,2022; Webster and Fryer, 2022).

In the absence of OSPAR guidelines for a chemical contaminant the Canadian Environment Quality Guidelines (CEQG) for the protection of aquatic life were used for sediment quality assessments.

For any chemical contaminants which did not have either OSPAR or CEQGs, Cefas action levels were used. Cefas action levels are used in the UK to assess chemical contamination of sediments at disposal sites (MMO, 2015; GOV.UK., 2023). The only chemicals that required assessment against these guidelines were Tributyltin (TBT) and Nickel.

For any cases where the concentrations are above the highest ecological guidelines, adverse effects to marine species are likely but not definite. None of the guidelines used represent target values or legal standards.

OSPAR guidelines

OSPAR uses various guidelines in assessments of different chemical contaminants.

- BAC (Background Assessment Criteria): Developed for testing if concentrations are near background levels for naturally occurring substances and close to 0 for synthetic substances. Mean concentrations significantly below the BAC are said to be near background.

- EAC (Environmental Assessment Criteria): Used to assess the ecological significance of sediment concentrations. Chemical concentrations below the EAC should not cause chronic effects in sensitive marine species or present an unacceptable risk to the environment and its resources. Risk of secondary positioning and long-term biological effects are not always considered.
- ERL (Effects Range Low): Alternative means of assessment for compounds that do not have EACs. Effects range values were developed by the United States Environmental Protection Agency (EPA) for PAHs and the United States National Oceanic and Atmospheric Administration (NOAA) for trace metals, as sediment quality guidelines for assessing the ecological significance of chemical contaminants in sediment. Concentrations below the ERL level rarely cause adverse effects in marine organisms.
- FEQG (Federal Environmental Quality Guidelines): Used to assess the status of sediment. Concentrations below the FEQGs should not cause any chronic effects on marine organisms. They were developed under the Canadian Environmental Protection Act from 1999 for PBDEs.

Canadian Environmental Quality Guidelines for the protection of aquatic life

The CEQGs for the protection of aquatic life are numerical concentrations or narrative statements intended to protect all forms of freshwater and marine (including estuarine) aquatic life during all aspects of their aquatic life cycles for an indefinite period of exposure to substances associated with bed sediments. Literature on how the guidelines are derived is available online. The CEQGs consist of TELs (threshold effect levels) and PELs (probable effect levels), where:

- Below the TEL is the minimal effect range within which adverse effects rarely occur.
- Between the TEL and PEL is the possible effect range within which adverse effects occasionally occur.
- Above the PEL is the probable effect range within which adverse effects frequently occur.

Cefas action levels

The UK assesses chemical contamination in sediments by comparison with Cefas action levels. These action levels provide a proxy risk assessment for potential impacts to biota such as fish and benthos. The primary role of these levels is to determine if dredged material is suitable for disposal at sea. Action level 1 (AL1) is the lower threshold and action level 2 (AL2) is the upper threshold.

- Sediments with contaminant concentrations lower than AL1 are generally considered acceptable for disposal at sea (limited risk to fish and benthos).
- Sediments with contaminant concentrations above AL2 are considered unacceptable for uncontrolled disposal at sea.
- Sediments with contaminant concentrations between AL1 and AL2 are evaluated using a weight of evidence approach.

The current ALs were proposed by Cefas and implemented in 1995 for England and Wales. In 2003, Cefas proposed a ‘Revised Action Levels’. In 2005, Cefas derived background levels of naturally occurring elements in sediments from areas around the coast of England and Wales. The current ALs are in review.

Appendix 6: Summary condition assessment tables.

Below are three tables summarising the condition assessments of features from SACs (Table 10 and Table 11) and SPAs (Table 12). Table 13 has a list of the features that were assessed as unknown.

Table 10. Summary of condition assessments of Welsh only SAC habitat features.

SAC	Feature	Condition	Confidence
Anglesey Coast: Saltmarsh	Atlantic salt meadows	Favourable	Medium
Pen Llŷn a'r Sarnau	Atlantic salt meadows	Unfavourable	Low
Pembrokeshire Marine	Atlantic salt meadows	Unfavourable	Low
Carmarthen Bay and Estuaries	Atlantic salt meadows	Unfavourable	Low
Kenfig	Atlantic salt meadows	Favourable	Low
Anglesey Coast: Saltmarsh	*Salicornia*	Favourable	Low
Pen Llŷn a'r Sarnau	*Salicornia*	Favourable	Low
Carmarthen Bay and Estuaries	*Salicornia*	Favourable	Low
Cemlyn	Coastal lagoons	Unfavourable	High
Pen Llŷn a'r Sarnau	Coastal lagoons	Unfavourable	Low
Pembrokeshire Marine	Coastal lagoons	Unfavourable	High
Cemlyn	Perennial vegetation of stony banks	Favourable	Medium
Anglesey Coast: Saltmarsh	Estuaries	Unfavourable	Low
Pen Llŷn a'r Sarnau	Estuaries	Favourable	Medium
Pembrokeshire Marine	Estuaries	Unfavourable	Medium
Carmarthen Bay and Estuaries	Estuaries	Unfavourable	Medium
Menai Strait and Conwy Bay	Large shallow inlets and bays	Unfavourable	Medium
Pen Llŷn a'r Sarnau	Large shallow inlets and bays	Favourable	Medium
Pembrokeshire Marine	Large shallow inlets and bays	Unfavourable	Medium

SAC	Feature	Condition	Confidence
Carmarthen Bay and Estuaries	Large shallow inlets and bays	Unfavourable	Low
Menai Strait and Conwy Bay	Mudflats and sandflats	Favourable	Low
Anglesey Coast: Saltmarsh	Mudflats and sandflats	Unfavourable	Low
Pen Llŷn a'r Sarnau	Mudflats and sandflats	Favourable	Low
Pembrokeshire Marine	Mudflats and sandflats	Unfavourable	Medium
Carmarthen Bay and Estuaries	Mudflats and sandflats	Unfavourable	Medium
Menai Strait and Conwy Bay	Reefs	Unfavourable	Medium
Pen Llŷn a'r Sarnau	Reefs	Unfavourable	High
Cardigan Bay	Reefs	Unfavourable	Low
Pembrokeshire Marine	Reefs	Unfavourable	Medium
Menai Strait and Conwy Bay	Sandbanks	Unfavourable	Medium
Pen Llŷn a'r Sarnau	Sandbanks	Favourable	Medium
Carmarthen Bay and Estuaries	Sandbanks	Favourable	Medium
Pembrokeshire Marine	Sandbanks	Favourable	Medium
Cardigan Bay	Sandbanks	Favourable	Medium

Table 11. Summary of condition assessments of Welsh only SAC species features.

SAC	Feature	Condition	Confidence
Cardigan Bay	Bottlenose dolphin	Favourable	Medium
Pen Llŷn a'r Sarnau	Bottlenose dolphin	Favourable	Low
Pembrokeshire Marine	Grey seal	Favourable	Medium
Lleyn Peninsula and the Sarnau	Grey seal	Favourable	Medium
Cardigan Bay	Grey seal	Favourable	Low
Pembrokeshire Marine	Allis shad	Unfavourable	Low
Carmarthen Bay and Estuaries	Allis shad	Unfavourable	Medium
Pembrokeshire Marine	Twaite shad	Unfavourable	Low

SAC	Feature	Condition	Confidence
Carmarthen Bay and Estuaries	Twaite shad	Unfavourable	Low
Cardigan Bay	River lamprey	Favourable	Medium
Pembrokeshire Marine	River lamprey	Unfavourable	High
Carmarthen Bay and Estuaries	River lamprey	Favourable	Medium
Cardigan Bay	Sea lamprey	Favourable	Medium
Pembrokeshire Marine	Sea lamprey	Unfavourable	High
Carmarthen Bay and Estuaries	Sea lamprey	Favourable	Medium
Pen Llŷn a'r Sarnau	Otter	Unfavourable	Medium
Carmarthen Bay and Estuaries	Otter	Unfavourable	Medium
Pembrokeshire Marine	Otter	Unfavourable	Medium
Pembrokeshire Marine	Shore dock	Unfavourable	Medium

Table 12. Summary of condition assessments from the features of Welsh only SPAs.

SPA	Feature	Condition	Confidence
Aberdaron Coast and Bardsey Island	Manx shearwater	Favourable	High
Anglesey Terns	Arctic tern	Unfavourable	Medium
Anglesey Terns	Common tern	Unfavourable	Medium
Anglesey Terns	Roseate tern	Unfavourable	Medium
Anglesey Terns	Sandwich tern	Favourable	Medium
Burry Inlet	Oystercatcher	Favourable	Medium
Burry Inlet	Knot	Favourable	Medium
Burry Inlet	Pintail	Favourable	Medium
Burry Inlet	Redshank	Unfavourable	Medium
Burry Inlet	Curlew	Unfavourable	Medium
Burry Inlet	Dunlin	Unfavourable	Medium
Burry Inlet	Grey plover	Unfavourable	Medium

SPA	Feature	Condition	Confidence
Burry Inlet	Shelduck	Favourable	Medium
Burry Inlet	Shoveler	Unfavourable	Medium
Burry Inlet	Teal	Favourable	Medium
Burry Inlet	Turnstone	Unfavourable	Medium
Burry Inlet	Wigeon	Unfavourable	Medium
Burry Inlet	Waterbird Assemblage	Unfavourable	Medium
Carmarthen Bay	Common scoter	Favourable	Medium
Grassholm	Northern gannet	Unfavourable	High
Traeth Lafan	Oystercatcher	Unfavourable	Medium
Traeth Lafan	Curlew	Unfavourable	Medium
Traeth Lafan	Great-crested grebe	Unfavourable	Medium
Traeth Lafan	Red-breasted mergansers	Unfavourable	Medium
Traeth Lafan	Redshank	Favourable	Medium

Table 13. Features with an unknown condition assessments in Welsh only SACs and SPAs.

SAC	Feature	Condition assessment	Confidence in assessment	Likelihood of unfavourable condition	Confidence
Menai Strait and Conwy Bay	Sea caves	Unknown	Not applicable	Low	Medium
Lleyn Peninsula and the Sarnau	Sea caves	Unknown	Not applicable	Medium	Low
Cardigan Bay	Sea caves	Uknown	Not applicable	Low	Low
Pembrokeshire Marine	Sea caves	Unknown	Not applicable	Low	Low
Limestone coast of South west Wales	Sea caves	Unknown	Not applicable	Low	Low

SAC	Feature	Condition assessment	Confidence in assessment	Likelihood of unfavourable condition	Confidence
Northern Cardigan Bay	Red throated diver	Unknown	Not applicable	Low	Low