Cyfoeth Naturiol Cymru
Natural Resources Wales

Planning Marine and Coastal Restoration Projects

Guidance note

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What is this document about?

This guidance sets out what information to consider when scoping, planning or developing marine and coastal restoration projects in Wales. This guidance has two parts.

The first part sets out the information you need to prepare before you have an initial conversation with us.

The second part covers other aspects you should consider to help you plan a successful project and engage with regulators and advisors.

Who is this document for?

Anyone scoping, planning or developing marine or coastal restoration projects in Welsh waters.

Contact for queries and feedback

Marine and Coastal Policy and Planning Team: MCPPT@cyfoethnaturiolcymru.gov.uk

Version History

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To report issues or problems with this guidance contact:
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Contents

1. Purpose of the Guidance

This guidance is to help anyone developing a restoration project in the marine environment to understand the different criteria and requirements that need to be considered when planning a project.

It gives advice on the types of information that may be required by:

- advisors to help provide information to you
- regulators for permissions or consents you might need.

Advisors and regulators include NRW Advisory Service, NRW Marine Licensing Team, The Crown Estate.

Marine and coastal restoration can strengthen ecosystem resilience. Projects should be sustainable and in suitable locations. The guidance emphasises the **importance of early engagement** with NRW advisors. We may be able to help you find a suitable location for your project, advise on implications for protected areas, and improve the chances of success.

You must get advice and provide evidence to secure the right licences and permissions before starting your project.

1. Diben y canllaw

Diben canllaw hwn yw helpu unrhyw un sy'n datblygu prosiect adfer yn yr amgylchedd morol i ddeall y gwahanol feini prawf a gofynion y mae angen eu hystyried wrth gynllunio prosiect.

Mae'n rhoi cyngor ar y mathau o wybodaeth a allai fod yn ofynnol gan:

- gynghorwyr i helpu i roi gwybodaeth i chi
- rheoleiddwyr ar gyfer unrhyw ganiatadau neu gydsyniadau y gallai fod eu hangen arnoch.

Mae cynghorwyr a rheoleiddwyr yn cynnwys Gwasanaeth Cynghori CNC, Tîm Trwyddedu Morol CNC, ac Ystâd y Goron.

Gall adfer morol ac arfordirol gryfhau gwydnwch ecosystemau. Dylai prosiectau fod yn gynaliadwy ac mewn lleoliadau addas. Mae'r canllaw yn pwysleisio **pwysigrwydd ymgysylltu'n gynnar** â chynghorwyr CNC. Efallai y bydd modd i ni eich helpu i ddod o hyd i leoliad addas ar gyfer eich prosiect, rhoi cyngor ar y goblygiadau i ardaloedd gwarchodedig, a gwella'r tebygolrwydd y byddwch yn llwyddo.

Rhaid i chi gael cyngor a rhoi tystiolaeth i sicrhau'r trwyddedau a'r caniatadau cywir cyn dechrau eich prosiect

1.1. Restoration project checklist

We encourage you to use this guidance with the restoration project checklist.

Using the checklist will:

- help you get initial advice from us.
- guide you through criteria you should consider for your project.
- help you prepare for the type of information you are likely to be asked about by regulators and other interested parties.

You should be able to source the information you need. If you do need help please discuss this with your point of contact from making initial enquiries with us.

Sections 3 to 6 in this guidance are a guide for completing the corresponding sections in the restoration project checklist.

1.2. What is restoration?

Restoration is an enhancement activity. Enhancement is an umbrella term we use to describe various activities that aim to **improve the quality or extent of a habitat** or **increase the population size or range of a species**.

You can find information about the terminology we use around enhancement on our website: Natural Resources Wales / Terms used in Wales for marine and coastal enhancement.

We use the term “restoration” to describe projects entailing a level of intervention. This involves rebuilding a habitat or reintroducing a species where it has **historically been found**, but is either now functionally extinct or where re-establishment could not occur **without assistance**.

Where the habitat or species has not been historically found, we would consider this to be **habitat creation or species introduction**.

1.3. Technical information

This guidance covers the three habitat types most commonly of interest: native oysters, seagrass and saltmarsh. It also provides a useful guide for other habitats or species as the principles will be similar.

A useful starting point for identifying opportunities for restoration and the wider benefits it can provide can be found in this report: Restoring marine and coastal habitats in Wales: identifying spatial opportunities and benefits. The maps in this report identify where environmental and physical conditions exist that could support the restoration of important marine species and habitats. These maps can be used as an aide to initiate a search for a potential site but are not appropriate as the sole tool for identifying a suitable site.

If you are looking for technical information about restoration techniques, the habitat and species handbooks that have been produced at a UK level are really useful: Restoration handbooks.

2. Making initial enquiries with NRW about potential restoration projects

We strongly encourage you to contact us early in the development of your proposals by emailing the Marine Area Advice and Management Team: marine.advice@cyfoethnaturiolcymru.gov.uk

We encourage you to contact us **before** you have applied for funding for your project.

Please ensure you have done some initial scoping and background research for your project before making your initial enquiry. As a minimum you should have read this guidance and be able to provide a brief overview of the planned project:

- Lead applicant details
- What is the aim of your project and its benefits?
- What habitat or species will you be restoring?
- Where is the site?
- How will you restore your habitat or species?
- When will the project happen?
- Who will do the project?
- Is your site in or near any protected sites?
- Do you know what other activities and pressures are there on the site?
- What baseline data do you have?
- Have you checked what permissions or assessments you may need? For example, a marine licence?

2.1. How we can help

Our advisors may be able to help those planning new restoration projects as we have skills and experience in specific species and habitats, local knowledge, enhancement projects and conservation and management.

We act as an advisor, regulator and consultee for restoration and enhancement projects. Our teams have different roles for engaging with your project. You can find more information on what we do on our website: Natural Resources Wales / What we do.

3. Developing your project

The most important information required in developing a proposal are the '**what', 'where', 'how', 'when' and 'why'** detailing the basics of the project design. These will provide the basis from which you (and others) can assess subsequent aspects of the project's development.

3.1. What habitat or species will be restored?

Your proposal should set out which habitat or species the project will focus on. For example: native oysters, seagrass, saltmarsh. You should also state if your project will focus on an individual habitat or species, or if it will be in a combination following a multi-habitat 'Seascape' style approach.

It is also useful to make note of specific sub-species' common and scientific names (where known) to be clear on the species you are focussing upon.

3.2. Where will you do this?

You should identify the site name, area and region of Wales, and coordinates where the project would be located.

For example, this could be 'Porthdinllaen, Morfa Nefyn, Llŷn Peninsula, North Wales. Coordinates are preferred as Latitude and Longitude in decimal degrees (e.g. Lat, 52.9432, Long -4.5676).

If you are able, provide an accompanying map or a shapefile as this makes the location even clearer.

3.2.1. Projects in or near protected areas

Identifying the location can help you determine if you need more detailed advice about working within or near a protected area and any permissions you may need. Protected areas include Special Protection Areas (SPA), Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI), Marine Conservation Zone (MCZ) or a Ramsar site.

You can check whether a location you are planning to work in is within or adjacent to any protected sites on our website: Find protected areas of land and sea.

Use the online map to search for and view the different types of protected sites. Clicking on the map will identify the site(s). If you put the site name into the "Designated Sites Search" this will help you find the relevant conservation objectives and advice on operations for the protected site(s).

You can find maps of the protected sites and other useful datasets on Data Map Wales.

You can find more information on permissions for working on protected sites in: Section 5 Permissions and Regulation.

3.3. How will you restore your habitat or species?

You must plan how you will do your project **before** any work starts at the site.

This includes thinking about:

- Any materials or structures that you need to set-up the project.

- What methods you will use on site to deliver the restoration.
- Whether there are any secondary impacts from the proposal either within or outside of the project boundaries.
- Good practices relating to biosecurity.

Information about your methodology is important as your proposed activities will determine what permissions and permits you may require, and any potential impacts you may have on the marine and coastal environment. It will also help if we need to advise on the appropriateness of the proposed methods.

You should consider the policies of the Welsh National Marine Plan when thinking about your project. If a permission or consent will be required, the policies of the Plan must be complied with.

3.3.1. Off-site preparation for project

Your proposal needs to describe the physical steps involved prior to on-site work.

One important consideration is whether there will be physical movement of supporting materials or structures for your project. For example, will you be using any cultch, soil or biological material?

You may be asked for details on the nature of any donor material, for example seeds or other plant propagules, soil, eggs, larvae, juveniles or adults. Similarly, you may be asked about the donor site location, or about a hatchery or seed storage tanks. It is also useful to specify any sub-species, variety, ecotype or race.

You can use the biosecurity risk assessment to help identify and manage any biosecurity risks related to where supporting and donor materials come from. You can find more information on translocation and biosecurity in section 6.3 on Risk management.

3.3.2. Site methodology

The site methodology should provide details of any physical steps planned on site to deliver your restoration project and how you will access the site to implement the project. For example:

- An oyster restoration project may require deposition of cultch material on the seabed or access to a marina for deployment of cages.
- A seagrass restoration project could use one of several different approaches for transplanting material and volunteers may need to access the intertidal area for seagrass planting.

There are many different techniques that can be used to deliver restoration and some may involve more impact or risk than others.

Being clear about how you intend to deliver your restoration can help you to effectively plan how to mitigate any potential impacts and risks. Your methodology should set out the steps you need to take to deliver the project and should include information on how you will use equipment, technology, people etc. For example:

- Details of how you will access the site. Will you need any vehicle or vessels, or will you access by foot?
- Will you need to deposit or remove any material from the site? What method will you use to do this? For example, by hand, vehicle, excavator.
- Will you be planting any biological material? If so, how will you do this and how much?
- You should include information about what time of year you intend to do the work as there is potential for impacts upon other marine species that use an area.

It can also be useful to think of any measures you will need to take to minimise risk to the marine environment and prevent undue interference to other marine and coastal users.

3.4. When will you be doing the project?

If possible, you should specify the project timescales, including the proposed start date for site preparations at a minimum. It is important that these are realistic from the outset.

It is also worthwhile taking into consideration timescales for any permissions you need, such as consents and marine licensing.

Any further key milestones are also useful, for example the various stages of the project and when you expect to achieve the final outcomes.

3.5. Why are you doing this project?

It is important to identify the project focus and outline your objectives from the start. This will enable clear communication with funders, licensing and permitting authorities, resource users and community groups.

3.5.1. Why should the habitat or species be restored?

You can define the **why** of your project by answering questions like:

- Why is it important?
- What benefits will it deliver?
- Will it help meet the conservation objectives of a Marine Protected Area or wider national or international restoration targets?

Identifying the benefits of your project can help to communicate why it is needed to others. The types of benefits restoration projects deliver include:

- Environmental benefits like improving population structure and/or increasing the number or size of locations at which a species occurs.
- Ecosystem services that take the form of ‘supporting’, ‘regulating’, ‘provisioning’ or ‘cultural’ services.
- Socio-economic benefits like employment and business opportunities and/or increases in tourism and recreational activities.

You can find examples of ecosystem services in our report Restoring marine and coastal habitats in Wales: identifying spatial opportunities and benefits.

3.5.2. What is the aim of the project?

Defining objectives for your restoration project will help you to describe the desired overall outcome of the work.

The objectives need to be measurable and will normally be governed by the extent of the habitat or species you aim to establish in a given area. For example, this could be the target area (m^2) or proportional increase in area, as well as the optimum location within a site.

You can define the objectives further through:

- A target number or density of individuals.
- Level of biodiversity of the feature.
- A target vegetation or marine community.

These all require measurement against, and therefore knowledge of, the **baseline conditions** from which to determine success in the project. See Section 4.3 for more information around existing data and evidence. For more detail around data collection and monitoring refer to section 6.2

It can be useful to consider confidence in achieving these measured outcomes and the type of factors that may impact delivery. You can find more details on these factors in Section 6.3 Risk management.

4. Site assessment

Restoration opportunity maps give a broad indication of habitat suitability for the relevant habitat or species and should only be used as an aide for scoping potential restoration areas. You will need to conduct a more detailed assessment to ensure the site is suitable for your restoration project.

Collecting information on biological and environmental site characteristics and assessing their suitability for the project is essential to the success of any restoration project.

You can find specialist guidance for native oysters, seagrass and saltmarsh, in Section 7 Restoration handbooks. These handbooks are a valuable resource and offer guidance and principles that can be applied across other habitats and species.

Your assessment of the site may be informed by:

- Data in Data Map Wales, which also includes information for marine protected areas.
- Wales Marine Planning Portal, an interactive mapping tool for data relating to marine planning in Wales.

- Information on our website on marine ecology datasets; although this information is aimed at developers it is relevant and helpful for restoration projects.

You can find more information about aspects that must be considered when your project is located within or in the vicinity of a protected area, for example Special Area of Conservation, Site of Special Scientific Interest, in Section 5 Permissions and assessments.

4.1. Is the site suitable?

Assessing the suitability of a site for the planned restoration includes assessing the wider environment and ecosystem dynamics in more detail.

These can be explored through a few key questions:

- If the restoration focuses on a location where the habitat or species is now absent or has considerably declined:
    - Why did this occur?
    - Is this location still a suitable site?
    - Is it sustainable in the long term? For example, if the initial decline was due to environmental change, could this occur again?
    - What are the key environmental and other conditions that will ensure success, and how well does this site meet those conditions? These may consider substrate, depth, light quality, turbidity, wave exposure, tidal currents and tidal range, sediment budgets and transport, intertidal exposure, water quality, seasonal change etc., as well as any model outputs on habitat suitability and connectivity.

- What is the current and historical temporal / spatial change of the habitat or species at the site, in terms of extent and distribution, condition, as well as resident population sub-species, variety etc.?
- What other species occupy the area, considering food chains, predators, pathogens and parasites?
- Will climate driven changes impact upon the suitability of the site? For example, rising sea levels and increases in water temperature may make the site unsuitable for the restoration habitat or species.
- Is the site large enough and sufficiently connected to other populations and/or sites to be self-sustaining?

It is useful to outline how these characteristics have been informed or estimated. You can find more information in Section 4.3. Evidence Base.

Answering these questions will set the scene for site suitability, alongside a background understanding of the basic biology of the habitat or species, life stage requirements, reproduction, population dynamics, seasonal biological change and species interactions.

4.1.1. Shoreline Management Plans

When considering the restoration potential for your site we recommend that you refer to relevant Shoreline Management Plans (SMPs).

These plans split the coastline into small sections called policy units. They describe how these sections will be managed for flood and erosion risk in the short, medium and long-term. For example, in some areas there is a need to continue to defend the coastline from flooding and erosion; in other areas, sections of the coast will be allowed to evolve naturally to adapt to changing environmental conditions.

It's important to consider the SMPs when planning your project. The approach applied to the area of coast where you intend to work may impact upon the feasibility of your restoration project.

4.2. Activities and pressures

Your site assessment should be informed by the current activities and pressures in the area. It is helpful to note patterns of use, known impacts and any management of activities.

Pressures might include, for example, water quality, known fishing pressures, dredging, recreational boating and shipping activities.

Management activities might include the presence or absence of grazers on saltmarsh, drainage or other influences on water levels and water quality in coastal wetlands.

If the need for restoration is due to external or internal pressures on a site it is important to consider:

- What are the pressures?
- Are they still present?
- If they are increasing or decreasing, how they will influence the success of the planned project.

4.3. Evidence base

You should consider what information (the current evidence base) has been used to inform your site assessment.

4.3.1. Existing data

The evidence base is a critical component to any restoration project to gain support and help ensure project success.

In the first instance, this is likely to include collating information on historic in-situ surveys and outputs such as habitat models. It may also include other forms of data such as historic maps, aerial photographs or satellite imagery.

It is useful to find out if there are any ongoing survey programmes outside of the project that may be used to assess outcomes over the project lifecycle.

Your site assessment may be informed by data in Data Map Wales, which also includes information for marine protected areas.

There is also useful information on Wales Marine Planning Portal, an interactive mapping tool for data relating to marine planning in Wales.

There is information on our website on marine ecology datasets; although this information is aimed at developers it is relevant and helpful for restoration projects

4.3.2. Key gaps

You should aim to identify the key gaps in information on the habitat, species and environment. This should include other activities in the area as well as gaps in understanding of the overall project risks and benefits.

Where there are knowledge gaps, these could be explored and addressed through:

- Baseline surveys (section 4.4.3)
- Project implementation plan (section 6.1)
- Data collection and monitoring (section 6.2).

Where a knowledge gap cannot be addressed (for example, due to limited funds), this should be identified as a potential uncertainty or risk within your project plan.

4.3.3. Baseline surveys

Most projects will require baseline surveys before undertaking a pilot study or trial, and before scaling these up.

Baseline surveys are important to:

- Provide critical information on the condition of the area before restoration takes place and inform the degree of success of the project.
- Ensure the site is suitable for the target species or habitat.
- Help with assessing potential impacts on protected features and whether it is appropriate to carry out the project in that location.

Baseline surveys should assess current feature characteristics, status and the environmental conditions at a site to find out if it is suitable for restoration.

Different habitats will require specific environmental conditions and surveys need to take account of both the biological and the wider ecological status of the site. For example, monitoring light levels for seagrass, water quality for shellfish and seagrass.

There is technical guidance on our website which sets out our methods and approaches for survey and monitoring of benthic marine habitats. This guidance is intended for use

around supporting environmental and ecological impact assessments for developments and activities in or near Welsh waters.

You should check if you need any permissions around conducting your survey. For example, you will need landowner permission for carrying out intertidal and terrestrial surveys.

There is more detailed information available on restoration monitoring for some habitats, (for example, native oysters), see Section 7 Restoration Handbooks.

5. Permissions and assessments

Depending on where the project is located you may require various permissions for your project to be approved, for example, if you plan to work in or near a protected area.

Licence, lease, consent, and permit are all terms than can be used to describe the permission you require to perform a specific action in a specific location. For example:

- Marine licence
- Site of Special Scientific Interest (SSSI) consent or assent
- Landowner consent
- Crown Estate permission
- Species licence
- Port / Harbour Authority permission
- Planning permission.

Permissions may be required in four categories: protected areas, species, activities, and access (including permission for baseline surveys).

We have included an overview of the possible permissions you might need. **You must check** with the appropriate regulators to confirm what permissions you will need for your project.

Mapping out the permissions your project requires is important. Processing applications will take time and can have various stages - this should be factored into your project timeline.

Sometimes you may need to carry out an assessment to support your application for a permission. You can find an overview of protected area legislation and associated assessments that may be required in Protected areas assessments.

When we give advice to you regarding your project, we will consider the policies of the Welsh National Marine Plan. If a permission or consent is required for your project, the policies of the Welsh National Marine Plan must be complied with.

If you need more information than provided in this guidance, please contact the relevant regulator or organisation.

5.1. Activities that may require permissions

Many activities carried out in the course of delivering marine and coastal restoration projects can require some form of permission. These are summarised in Table 1.

Permission to carry out your restoration activities will be required from the land / seabed owner which may include The Crown Estate, local council and private landowners. You would need landowner permission to access a site if you can't gain access by public footpaths or if you are going to deviate from a public footpath onto private land.

Even where restoration is planned for a privately owned area of seabed, projects must engage with the key regulators as permissions for deployment of cultch and/or structures onto the seabed are still required.

Table 1 Overview of permissions and activities

Permission	**Type of activity**
Marine licence (Marine and Coastal Access Act 2009)	Required when any **licensable** activity as defined in section 66 of the Marine and Coastal Access Act 2009 is undertaken within the marine licensable area.
SSSI assent or consent	Activities likely to damage features of special interest
Species licence	• Disturbing, trapping or handling the protected species. • Damaging their breeding sites or resting place.
Crown Estate Marine Works / Lease / Seabed survey licence	Activities that physically interact with the seabed and filming on the foreshore **in areas owned by The Crown Estate**
Port or Harbour Authority marine works licence	Applicable where the Port or Harbour Authority is the issuer of the marine works (rather than The Crown Estate or other)
Planning permission (Town and Country Planning Act 1990)	Required for activities above MLWM (Mean Low Water Mark), but depends on nature and scale of project
Flood Risk Activity Permit (FRAP)	May be needed if you intend to work: • on or near a main river. • on or near a flood defence structure. • on or near a sea defence. • in a flood plain.

Permission	Type of activity
Aquaculture Production Business Licence (Fish Health Inspectorate)	Movement of shellfish including to a temporary abode as trial phase or part of biosecurity operations
Landowner permission	Access to areas. This applies if area not owned by The Crown Estate or local authority
Local authority permission (Town and Country Planning Act 1990)	Diverting a footpath, bridleway or restricted byway
Local authority bylaws	Some protected areas have local bylaws. You **must check** if these exist and what activities they cover.

5.1.1. Marine licensing

Restoration projects will require a marine licence if they involve **licensable** marine activities. You can find information about licensable activities on our website: Natural Resources Wales / Marine licensing.

Some activities that would normally require a marine licence might be **exempt**, provided they meet certain requirements. If an activity is exempt, a marine licence wouldn't be needed. You can find more information about exemptions on our website Natural Resources Wales / Activities that may be exempt from requiring a marine licence.

Importantly, some activities for the **restoration of seagrass beds may qualify for exemption**, subject to meeting the relevant qualifying criteria and conditions. You can find more detailed information about this on our exemptions webpage.

When a marine licence exemption applies, it does not remove the requirement for you to secure all other consents or permissions needed for your proposed activity.

If you are unclear about the marine licensing requirements for your project we encourage you to contact the Marine Licensing Team: marinelicensing@naturalresourceswales.gov.uk.

The Marine Licensing Team offer 2 hours of free advice and guidance on the marine licensing process. General queries may include confirming if an activity requires a marine licence and guidance on the marine licensing process.

5.1.2. Species licensing

A species licence is required if your proposed activity affects a protected species in Wales by:

- Disturbing, trapping or handling the protected species.
- Damaging their breeding sites or resting place.

You can find more information on our website:

- Protected Species Licensing: Natural Resources Wales / Species licensing
- Birds Licensing: Natural Resources Wales / Species licensing
- Marine European Protected Species Licensing: Natural Resources Wales / Marine European Protected Species licensing

If you think you project may need a species licence contact the NRW Species Licensing Team: specieslicence@naturalresourceswales.gov.uk

5.1.3. Consent or assent

A SSSI consent or assent may be required for work within or adjacent to a SSSI.

Each SSSI has a list of activities that could damage the site's special interest. These are called "OLDSI" lists (Operations Likely to Damage Features of Special Interest), and some older sites may have a PDO list (Potentially Damaging Operations).

You can find the OLDSI and PDO lists using the "Designated Sites Search" on our Find protected areas of land and sea webpage (along with the citation for the site which describes the features of interest).

Before you carry out activities included on the OLDSI or PDO list, the **relevant landowner** for the site **must** notify us and obtain our consent or assent.

5.2. Protected areas assessments

If your project is within or in the vicinity of a protected area it is likely you will need some form of permission for the project to be approved.

Often the permission will require a formal assessment, which will consider what impacts the restoration project may have on the protected area(s).

This would apply to sites of European and international importance such as:

- Special Areas of Conservation (SACs).
- Special Areas of Protection (SPAs).
- Ramsar sites (Ramsar Convention on Wetlands).

5.2.1. Habitats Regulation Assessment (HRA)

A Habitats Regulations Assessment (HRA) will be required to determine whether the project could potentially affect the protected features of the SAC, SPA or Ramsar site.

The HRA will be conducted by the relevant "Competent Authority", which is the authority with the power or duty to determine whether or not a proposal can proceed. For example, NRW would be the Competent Authority in the case of a marine licence.

If an HRA is required, **you will be expected to provide information to support the assessment of your proposal** to decide whether it can go ahead. You will need to:

- Prepare and submit a document to inform the HRA with your application.
- Liaise with the Competent Authority for details about the level and type of information they will require for your specific project.

The HRA will consider the **conservation objectives** for the protected areas in scope for assessment. You can find these in our conservation advice reports for the relevant sites, or through the Find protected areas of land and sea webpage.

We will refer to the same conservation objectives when completing any assessment of your proposed work.

You can find more information about HRA on our website: Natural Resources Wales / Environmental assessment.

5.2.2. Water Framework Directive Regulations (WFDR) compliance assessment

In all cases, you should consider the potential effects of your restoration project proposal on the water environment. The water environment includes all rivers, lakes, estuaries, coastal waters and groundwater.

Giving consideration to this at an early stage will allow potential risks and impacts to be identified and can allow such risks to be 'designed out' or avoided.

You may be required to provide further information to help us assess the impact of your proposal or address concerns that may arise.

Depending on the activities involved, your restoration project may require a Water Framework Directive Regulations (WFDR) compliance assessment.

If your project requires a marine licence, or other permission from NRW, we will carry out a WFDR compliance assessment based on your proposal. You will be required to provide WFDR compliance information to support any application to allow activities that could cause deterioration to a water body, or prevent it (or any protected area, see section 5.2) from achieving the objectives set out in the River Basin Management Plan.

You can find more information about WFDR on our website: Water management and quality.

You can find more information about River Basin Management Plans on our website: Natural Resources Wales / River basin management plans.

6. Delivering your project

Any successful restoration project will require a management and monitoring plan that takes into account the risks, pressures and public engagement the project requires.

6.1. Project implementation plan

Some of the key aspects for successful implementation include:

- Management plan with specific achievable tasks assigned to individuals or organisations within given timescales.
- Arrangements for remedial action in relation to indirect impacts or for reversing the restoration itself if required.
- Monitoring plan for all stages of project including methods, logistics, contractors, costs etc.
- Clear metrics for measuring change in the target feature to enable the success of the project to be assessed.

Metrics for measuring a change in the target species or habitat may require specific equipment and/or a comparison to prior conditions. Metrics need to be specific, relate to the success criteria, and should give a time scale. For example:

- Area of recognisable saltmarsh vegetation in a realignment site (measure / report annually).
- Average density of oysters in restored area (measure annually).

The appropriate metrics and monitoring approaches to use for your project will depend on the habitat and species you intend to restore and the aims of your project. You should refer to relevant peer reviewed papers on restoration and the habitat specific restoration handbooks in Section 7 for more information.

6.2. Data collection and monitoring

Marine and coastal restoration is still in relative infancy and evidence and monitoring data collected from individual projects will be critical in informing the wider deployment and development of these actions in Welsh waters.

We would encourage you to submit information and data about your project (with relevant restrictions in place) to:

- Marine Enhancement Directory which aims to catalogue and map all marine enhancement activities being undertaken in the UK.
- Data archive centres so that it is discoverable by others, for example Home - DASSH.
- Databases such as Marine Recorder Online.

6.2.1. Developing a monitoring plan

Details of site monitoring are usually required to evidence that you have considered how the site will be monitored to determine success. This should also relate to the metrics you have selected for determining success of your project. This information can include a proposed monitoring plan, identification of elements of the site and/or target feature that will be monitored. For example:

- Feature measurements of density, extent and percentage cover, considering key stages of feature development.
- Measurement of wider ecosystem effects such as sediment accretion and stability, water quality and fish / shellfish biomass, especially where these are a primary objective of the project.
- Identifying receptors at risk from project, especially around biosecurity and other biological / ecological aspects.

Consideration of location and timing of monitoring will be another important aspect, including:

- Concurrent baseline or reference area monitoring, i.e. natural unaffected areas, as close to site as possible but not less than 100m away; else historic baseline data (essential if no pre-restoration monitoring).
- Pre-restoration monitoring at the proposed site in the year prior to restoration to aid in site-selection and to document pre-restoration conditions, particularly if the site is an MPA (though this may be addressed through licensing requirements anyway).
- Post-restoration monitoring to assess whether changes are due to actions implemented as part of the restoration project itself or are due to natural change. For example, inter-annual variations or changes in water quality.
- Determine if the monitoring of the site will be maintained long-term to assess continued success.

For more detailed information about monitoring approaches, it is worth referring to the habitat specific restoration handbooks in Section 10.

There is more detailed information available on restoration monitoring for some habitats, (for example, native oysters), see Section 7 Restoration Handbooks

6.3. Risk management

Risks associated with the project include those to the habitat or species being restored, impacts to the wider ecosystem and environment, to local communities and businesses, as well as risks to the project itself such as dependency on funding.

All of these risks may affect the short-term or long-term success of your project.

You will need a risk mitigation strategy as part of your project management. This should outline actions that you will take to reduce the risk of negative impacts occurring, and any remedial action that may be required if they do occur.

Planning to mitigate risks at an early stage is useful as it can help address requirements in the licensing and consenting processes.

6.3.1. Biosecurity risks

Biosecurity is a key risk for restoration projects as activities can introduce or spread harmful organisms, including invasive non-native species (INNS), pests, and diseases.

You will need to demonstrate you have appropriate and rigorous biosecurity protocols in place before carrying out any work. We expect projects to develop a Marine Biosecurity Risk Assessment and Management Plan using our guidance.

Useful links and information to help you with consideration of biosecurity risks and best practices can be found at Marine biosecurity » NNSS including their Check Clean Dry procedure.

Overall, a precautionary approach is needed and we recommend biosecurity measures are used even where no invasive non-native species or disease are thought to be present.

You can find more information about managing biosecurity risk in the Restoration handbooks.

There is detailed guidance on oyster biosecurity in the European Guidelines on Biosecurity in Native Oyster Restoration.

6.3.2. Translocation of species

Conservation translocation is the deliberate movement of animals or plants from one site for release in another for conservation purposes i.e. to support ecological resilience.

We advise that any project involving a conservation translocation apply the International Union for Conservation of Nature (IUCN) Guidelines for Reintroductions and other Conservation Translocations. The guidelines will help you to evaluate whether a translocation is appropriate and to understand the associated risks.

6.3.3. Maintaining genetic diversity

It is important that restoration practices maintain local or regional genetic diversity and adaptations of plants and animals. This can help ensure that the restored habitat or species is more resilient to changing environmental conditions, disease and climate change.

The IUCN Guidelines for Reintroductions and other Conservation Translocations has some useful advice on genetics in Section 5 (Feasibility and Design) and in the supplementary advice in Annex 5 of the document. The Restoration handbooks have useful sections on genetic considerations.

6.3.4. Pressures from other activities

You will need to assess other activities taking place on site as they may have an impact on your project's success. For example:

- Mechanical damage from anchoring or chain moorings in a restoration area.
- Eutrophication or wastewater affecting water quality.
- Physical disturbance or damage to restored area through dredging or trawling.

You will need to think about whether you can manage risk from any identified pressures by reducing, displacing, or removing them.

6.3.5. Wider ecosystem

You will need to think about risks to the wider ecosystem. This includes potential reduction or removal of established habitats or a shift in the ecosystem.

Risks can be:

- Direct, for example where a newly created habitat replaces what was there previously.
- Indirect, for example due to competition for resources between native oysters and blue mussels.

6.3.6. Future impacts from climate change

You will need to consider climate change resilience and potential adaption of the site in relation to current and future climate states. Considerations include:

- Sea-level rise and increased risk of flooding from the sea.
- Changes in air temperature.
- Changes in rainfall patterns, which in turn affect groundwater levels in wetlands.
- Sea temperature range changes.
- Increased storminess and extreme weather events.

These will depend on the local area's vulnerabilities and will also be informed through recent climate change impacts at the site. For example:

- A site that historically contained seagrass may no longer provide the ideal environment given increased storminess and sea level rise.
- Changing environmental conditions may make a native oyster restoration area become more favourable to an invasive species, for example Pacific oysters.

6.3.7. Achieving community support

Establishing and maintaining engagement with other interested parties and wider community can be crucial to the success of any restoration project. This could include

- Involving local interested parties to help you gain site knowledge, mitigate risks and ensure involvement from those that have been involved previously at the site.
- Opportunities for public involvement to give a sense of local ownership for the community and a greater commitment to safeguarding the site.
- Establishing a network of volunteer participants (if required).

6.3.8. Socio-economic

You should think about potential or perceived risks to the local community, for example in terms of livelihoods, leisure, or health and wellbeing. These may result from a variety of

impacts, including restricted access, change of land or sea use, loss of other species and habitats or changes to the wider ecosystem, for example water quality or erosion control.

You should give consideration to the Welsh language within your project as this is integral to the culture and heritage of Wales. You can find some useful information about the Welsh language on the Welsh Government website at Welsh language strategy and plans.

6.3.9. Funding issues

It is important to fully cost out all areas of your project and ensure you have adequate funds. Insufficient funding can cause significant issues with project delivery and achieving your desired outcomes. Projects should also ensure funding is in place to allow the correct and efficient progression through aspects such as licensing.

It is important to consider securing funding for monitoring for a reasonable period after delivering your project as long-term monitoring is helpful for understanding restoration success.

7. Restoration handbooks

If you are looking for more technical information about how to restore saltmarsh, seagrass or native oysters then you can refer to these habitat specific Restoration Handbooks.

- Saltmarsh Restoration Handbook - CaBA
- Seagrass Restoration Handbook - CaBA
- European Native Oyster Restoration Handbook - CaBA
- Restoring Estuarine and Coastal Habitats with Dredged Sediment - CaBA

You can find them on the Catchment Based Approach website.