Appendix I: South East Local Measures

1.0 Introduction

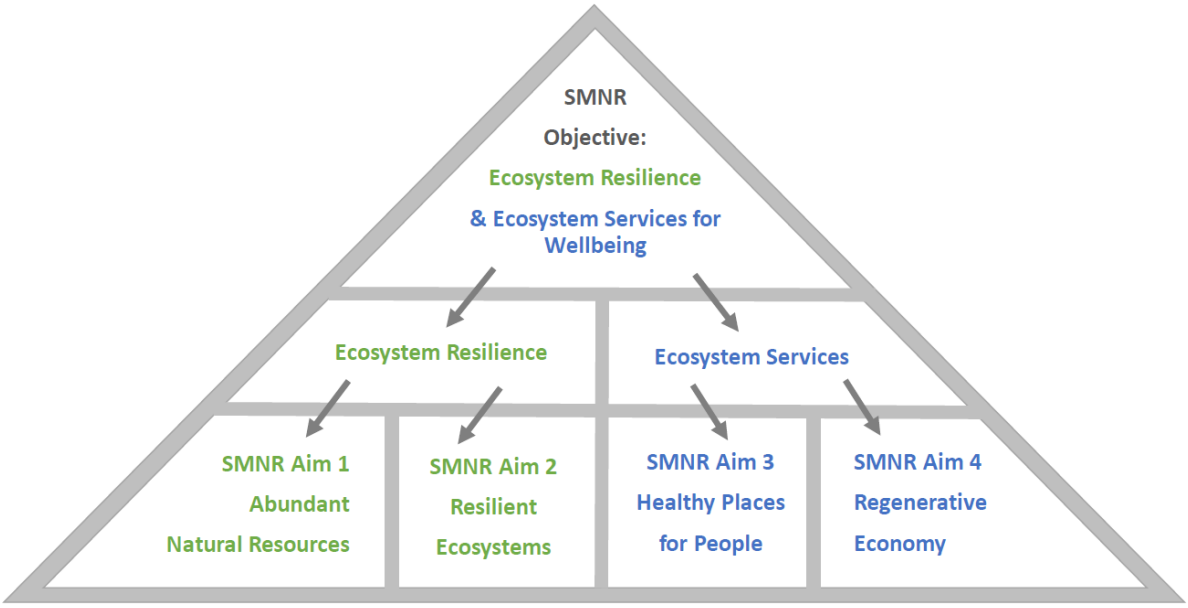
This document will consider the opportunities and constraints associated with the local measures for South East Wales. The aim of this is to:

- Consider beneficial and adverse impacts of the local measures to feed in to the main Environmental Report.
- Provide a stand alone reference for local delivery that will identify constraints and opportunities for delivering multiple benefits aligned with the Area Statement and Local Wellbeing Plan.

The Environment Act guidance set out 4 Aims for SMNR which contribute to meeting the SMNR objective set out in the Act. When Wales achieves the aims we will have achieved SMNR and met the objective set out in the Environment Act, and made the maximum contribution nature can make to the Wellbeing goals. The four aims are:

1. Stocks of natural resources are safeguarded and enhanced (Extent and condition of ecosystems)
2. Resilient ecosystems (Diversity, Connectivity, Adaptability of ecosystems)
3. Healthy places for people, protected from environmental risks
4. Contributing to a regenerative economy achieving sustainable levels of production and consumption.

Figure 1: Objective and Aims of SMNR



Local measures are proposed for the communities in South East Wales that are most at risk of flooding from rivers and sea and need action to be taken to reduce risk. Lead Local Flood Authorities manage other sources of flood risk which should be considered when measures are implemented. Figure 2 and Table 1 shows the communities across South East Wales Place where action is needed to manage and reduce the risk of flooding. For further details refer to the FRMP for Wales: South East Place.

Community name
Abergavenny
Bedwas
Caerleon
Caerphilly
Chepstow
Crindau
Crumlin
Duffryn
Goldcliff
Liswerry
Llanbradach
Machen
Maindee
Monmouth
Ponthir
Skenfrith
Usk
Ystrad Mynach

Table 1: Communities across South East Wales Place where action is needed to manage and reduce the risk of flooding

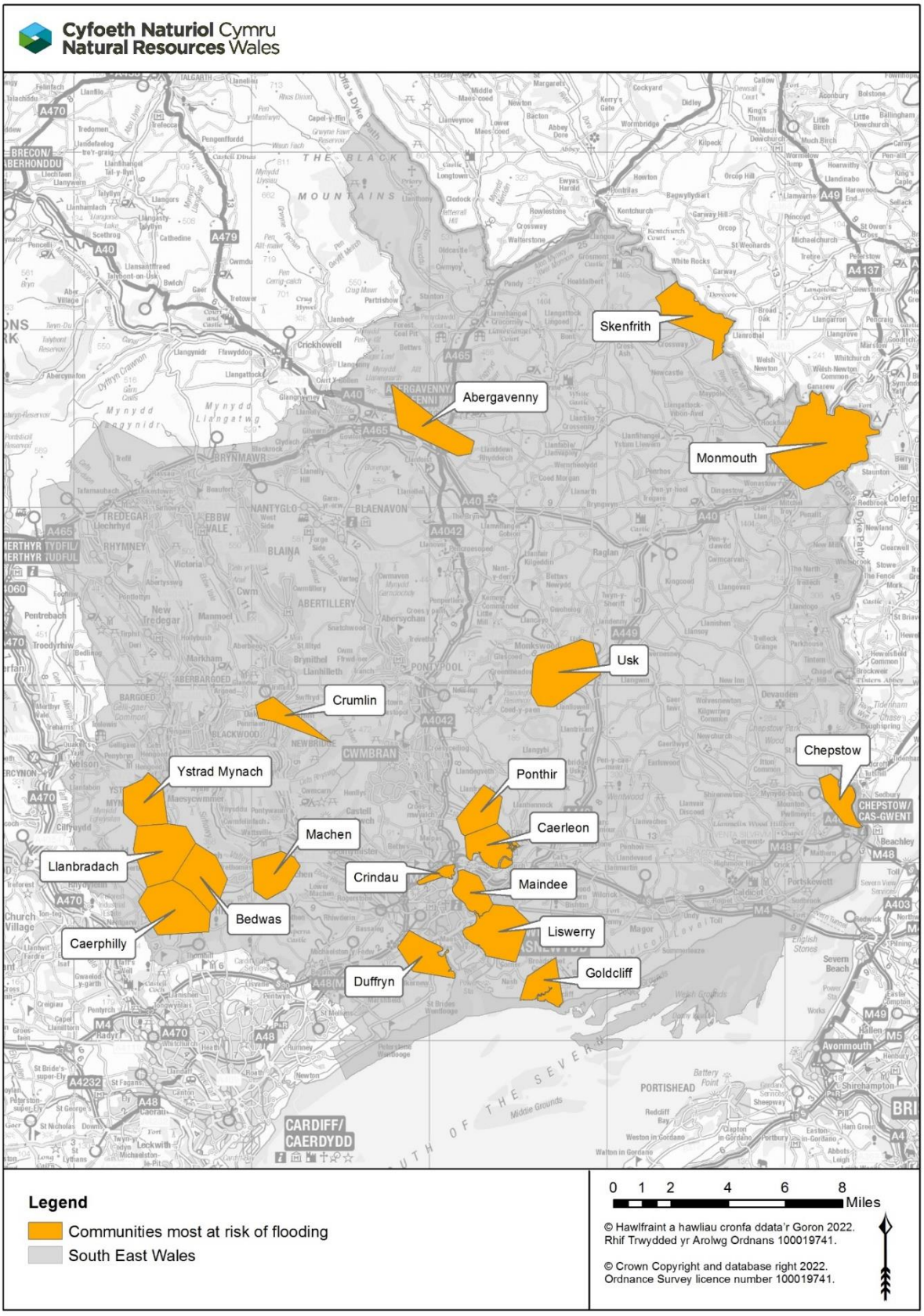


Figure 2 shows the communities across South East Wales Place where action is needed to manage and reduce the risk of flooding.

1.1 Approach

The FRMP is presented as National Measures which are grouped under FRM activities that are undertaken across Wales. These activities are:

WA1 - Management of flood risk assets

WA2 - Reservoir management and regulation

WA3 - Flood forecasting and issuing warnings

WA4 - Hydrometry and telemetry, hydrology and geomorphology

WA5 - Community engagement and resilience

WA6 - Understanding and analysing flood risk

WA7 - Flood risk advice, permitting, compliance and enforcement

WA8 - Responding to flood incidents

WA9 - Strategic planning and oversight of investment

The national measures that sit under each of these activities have all been scoped into the assessment. The assessment has been undertaken at an activity level and is presented in Appendix D.

The six Place Sections of the FRMP each set out a number of measures for specific communities across Wales. These amount to 265 local measures across Wales. The local measures have been considered in the national scale assessment under the relevant activity (identified in Table 2). For example, the local measure to “Improve existing flood warning service” was assessed under WA3 which demonstrated significant beneficial effects or neutral effects across all receptors. Consideration at a local level would not alter these assessments.

This appendix considers all the local measures in South East Wales Place and maps the local measures to the national assessment. Further consideration has been given to local measures where they propose to:

- Undertake initial assessment and feasibility work for reducing flood risk, or
- Design and construction of flood risk asset improvement

Whilst these measures have been assessed under WA1 in the national assessment, the spatial alignment has allowed us to further consider constraints and opportunities in these places. These measures could result in physical interventions in these locations to manage flood risk and so they present an opportunity to integrate planning and delivery across different parts of NRW and to inform project level environmental assessment that will be undertaken as each of these measures progress.

Certain local measures are already undergoing project level environmental assessment and where this is the case, it has been identified.

2.0 Scoping the Local Measures Assessment

Table 2 lists all the local measures that are proposed for the management of flood risk in South East Wales Place. We have identified how each measure links to and is considered in the national impact assessment and highlighted which measures we are considering further in this document to identify local constraints and opportunities that align with the Area Statement and Well Being Plan.

Table 2: Local FRMP measures for South East Wales

Ref	Location	Source	Measure name	Measure type	Timescale	Scope in to the local assessment
SE1	Bedwas	River	Undertake initial assessment and feasibility work for reducing flood risk	Prevention	Short Term	Yes (WA1)
SE2	Bedwas	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE3	Bedwas	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE4	Caerleon	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE5	Caerleon	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE6	Caerleon	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE7	Caerphilly	River	Undertake initial assessment and feasibility work for reducing flood risk of tributaries	Protection	Short Term	Yes (WA1)
SE8	Chepstow	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Medium Term	Yes (WA1)
SE9	Crindau	Sea	Maintain existing defences and inspection regime	Protection	Long Term	National (WA1)
SE10	Crumlin	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE11	Duffryn	Sea	Maintain existing defences and inspection regime	Protection	Long Term	National (WA1)

Ref	Location	Source	Measure name	Measure type	Timescale	Scope in to the local assessment
SE12	Goldcliff	Sea	Design and construction of flood risk asset improvements.	Protection	Medium Term	Yes (WA1)
SE13	Liswerry	Sea	Maintain existing defences and inspection regime	Protection	Long Term	National (WA1)
SE14	Liswerry – Liswerry Pill	Sea	Develop scheme appraisal for flood alleviation scheme	Protection	Short Term	No (project level Env Assessment underway)
SE15	Liswerry – Stephenson St	Sea	Design and construction of flood alleviation scheme	Protection	Short Term	No (project level Env Assessment underway)
SE16	Llanbradach	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE17	Llanbradach	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE18	Llanbradach	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE19	Machen	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE20	Machen	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE21	Machen	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE22	Maindee	Sea	Maintain existing defences and inspection regime	Protection	Long Term	National (WA1)
SE23	Monmouth	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE24	Monmouth	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE25	Monmouth	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE26	Ponthir	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE27	Ponthir	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE28	Ponthir	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE29	Skenfrith	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE30	Skenfrith	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE31	Skenfrith	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)

Ref	Location	Source	Measure name	Measure type	Timescale	Scope in to the local assessment
SE32	South East Wales Place	River/Sea	Work with RMAs both within Wales and cross border where we have a joint interest, to plan and undertake activities that reduce the risk of flooding to communities	Prevention/Protection/ Preparedness/ Review	Short Term	National (WA1)
SE33	Usk	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE34	Usk	River	Update existing hydraulic model	Review	Short Term	National (WA4)
SE35	Usk	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE36	Ystrad Mynach	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	Short Term	Yes (WA1)
SE37	Ystrad Mynach	River	Improve existing flood warning service	Preparedness	Short Term	National (WA3)
SE38	Ystrad Mynach	River	Update existing hydraulic model	Review	Short Term	National (WA4)

3.0 Key environmental constraints and opportunities

The FRMP Scoping Report provides a full overview of the environmental baseline at a national level, and the Environmental Report summarises the baseline and key issues relevant to the FRMP. This section will not repeat this information. A greater level of detail and background into South East Wales Place can be found in the Area Statement:

Natural Resources Wales / South East Wales Area Statement

Natural Resources Wales / Introduction to Wales' Marine Area Statement

We have worked with South East Wales People and Places team to identify particular opportunities and constraints in each of the communities scoped in to this assessment. The aim is to inform and encourage cross functional planning of projects to maximise delivery against the Aims of SMNR and to inform project level environmental assessment. Where spatially specific information is available we have included it in Table 3 below, this supplements the fuller description of the environmental baseline as documented in the Scoping Report and Environmental Report. In undertaking this exercise other place based information that applies throughout

South East Wales, that is of relevance for FRM activities was gathered and is set out under the four aims of SMNR. This information is not exhaustive and is meant as a prompt to encourage early and integrated planning.

Table 3: Opportunities and Constraints

Ref	Location	Resilient Ecosystems (Aim 2)	Healthy Places WFD Status / Heavily Modified Waterbody (Aim 2)	Health & wellbeing, recreation, access (Aim 3)	Fisheries projects / River restoration /Opportunity catchment (Aim 4)
SE1	Bedwas		No HMWB GB109057027280 Rhymney River – conf nant Cylla to Chapel Wood Overall Moderate	Public Footpath/access/dismantled railway	
SE4	Caerleon	River Usk SAC	GB109056032911 Afon Lwyd – below Mon and Brecon Canal Overall Moderate (Not HMWB) GB530905415404 Usk – Transitional WB Overall moderate. HMWB	Public footpaths/access/golf club National Cycle Network Route 88 Caerleon to Newport Numerous Scheduled Monuments associated with Roman legionary fortress	4 Rivers for LIFE
SE7	Caerphilly		No HMWB GB109057027280 Rhymney River – conf nant Cylla to Chapel Wood Overall Moderate No HMWB GB109057027170 Nant y Aber – source to conf Rhymney Overall moderate	Public footpaths/access/golf club Registered parks and gardens/Caerphilly Castle Scheduled Monument	

SE8	Chepstow	River Wye SAC	No HMWB GB530905415406 Wye Transitional WB Overall Moderate	Offa's Dyke Path, Wye Valley Walk, Public footpaths Numerous Scheduled Monuments inc Chepstow Castle	
SE10	Crumlin		HMWB GB109056026910 Ebbw River – conf Ebbw Fach R to Maes-Glas Overall Moderate	Footpath/access	
SE12	Goldcliff	Severn Estuary SAC, SPA & Ramsar	GB109056026850 Monks Ditch – source to Wainbridge Artificial WaterBody Overall Moderate GB530905415401 Severn Lower Transitional WB HMWB Overall Moderate	Living Levels Partnership Wales Coast Path, Public footpath/access	
SE16	Llanbradach		No HMWB GB109057027280 Rhymney River – conf nant Cylla to Chapel Wood Overall Moderate	Footpath/access	
SE19	Machen		No HMWB GB109057027280 Rhymney River – conf nant Cylla to Chapel Wood Overall Moderate	Footpath/access	
SE23	Monmouth	River Wye SAC, Wye Valley Woodlands SAC, Wye Valley & Forest of Dean Bat Sites SAC	No HMWB GB109055029720 Monnow – conf Afon Honddu to conf R Wye Overall Good NoHMWB GB109055029680 Trothy – conf Llynon Brk to conf R Wye	Offa's Dyke Path Wye Valley Walk, Public Footpath Number of Scheduled Monuments including Monnow Bridge	Central Monmouth Opportunity Catchment

			Overall Moderate		
SE28	Ponthir		GB109056032911 Afon Lwyd – below Mon and Brecon Canal Overall Moderate (Not HMWB) Central Monmouth	Footpath/access	
SE29	Skenfrith		No HMWB GB109055029720 Monnow – conf Afon Honddu to conf R Wye Overall Good	Footpath/access Skenfrith Castle Scheduled Monument	Central Monmouth Opportunity Catchment
SE35	Usk	River Usk SAC	No HMWB GB109056040083 Usk – conf R Gavenny to conf Olway Brook Overall moderate GB109056026940 Olway Brook – conf Nant y Wilcae to R Usk Overall moderate	Footpath/access Numerous Scheduled Monuments inc Usk Roman Site	4 Rivers for LIFE Central Monmouth Opportunity Catchment
SE36	Ystrad Mynach		NoHMWB GB109057027190 R Rhymney – Nant Bargoed Rhymni to conf Nant CyllaOverall Good GB109057027180 nant Cylla – source to conf R Rhymney Overall Poor GB109057027280 Rhymney River – conf nant Cylla to Chapel Wood Overall Moderate	Footpath/access	

Aim 1: Stocks of natural resources are safeguarded and enhanced

Tackling overexploitation to ensure that natural resources are safeguarded, and where possible enhanced, to meet the needs of current and future generations and to contribute to ecosystem resilience. Non-renewable natural resources (such as, aggregates, fossil fuels) are used in a sustainable manner and, where depletion is unavoidable, substitutes are put in place to meet future needs.

The **National Peatland Action Programme** is a 5 year plan (2020-2025) of peatland restoration in Wales. Welsh peatlands need urgent action to reverse habitat loss and their poor condition. They support a variety of habitats and species, and have an important role in:

- capturing and storing carbon
- regulating greenhouse gases
- maintaining biodiversity
- regulating water

The programme will have direct and indirect benefit for FRM in terms of mitigating and adapting to climate change. Where local FRMP measures are delivered downstream of NPAP projects opportunities could be identified to work together to align delivery and maximise benefits.

The Wales Environmental Information Portal contains the new peat map showing the locations of all Peatlands in Wales. This is being developed further to detail what restoration has happened and where. The portal also includes a layer for opportunities for bog restoration for FRM.

To determine any opportunities project managers should contact the NPAP team: **npap@naturalresourceswales.gov.uk**.

Aim 2: Ecosystems are resilient to expected and unforeseen change

Building ecosystem resilience to safeguard and enhance supporting ecosystem services and tackling the impacts of habitat change, climate change, pollution, invasive alien species and other identified pressures resulting in Wales having resilient ecosystems

There are numerous **nationally protected sites** across South East Wales. NSN Sites include the River Usk SAC and the River Wye SAC and the Severn Estuary SAC, SPA, Ramsar and SSSI to the south. When local measures are implemented, project level environmental assessment and Habitats Regulations Assessment will consider implications for sites such as those listed in Table 3, as well as considering whether projects can restore or improve any features.

The third cycle **River Basin Management Plan** (RBMP) established ten **Opportunity Catchments** across Wales. Opportunity Catchments (OpC) have been agreed as the delivery mechanism for the third cycle River Basin Management Plans (RBMP) (2021-27). The focus of OpC is to maximise multiple benefits for waterbodies, health and well-being, delivered through partnership working. OpC are a delivery mechanism to integrate RBMP with other work streams and to deliver the Natural Resources Policy priorities, such as delivery through nature-based solutions. Area Statements provide an important local steer having identified the local challenges and opportunities for each area. Central Monmouth is the OpC in South East Place. Skenfrith, Usk and Monmouth are within the Central Monmouth Opportunity Catchment (CMOC). The 3-year CMOC project includes objectives that might help with flood risk, the most relevant being: "Tree planting to reduce soil erosion, run-off, nutrient input, or flood risk and to improve habitat connectivity and resilience". Exact locations of interventions are still being determined through discussions with landowners. Early engagement with FRM could help influence locations to maximise benefit for FRM.

Table 3 identifies the Water Framework Directive (WFD) status of relevant waterbodies in South East Wales. Some of these are classified as **Heavily Modified Waterbodies** (HMWB). Some waterbodies might be classified as a HMWB as a result of their function as a flood risk asset. These might provide valuable social and economic benefits which it is vitally important to protect, so they have been designated as such under Article 4.3 of the WFD. There can still be opportunities to deliver mitigation measures in HMWB to help achieve Good Ecological Potential. Where FRMP measures are delivered in a HMWB, must seek opportunities to **deliver mitigation measures** identified for the HMWB.

Mitigation measures can include:

- Remove obsolete structure
- Removal of hard bank reinforcement / revetment, or replacement with soft engineering solution
- Preserve/restore habitats
- In-channel morphological diversity

- Re-opening existing culverts
- Alter culvert channel bed
- Flood bunds (earth banks, in place of floodwalls)
- Set bank embankments
- Floodplain connectivity
- Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works.
- Management of the risk of fish entrainment in intakes for hydropower turbines or water resource purposes (or pumping stations) where there is downstream fish migration.
- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone
- Operational and structural changes to locks, sluices, weirs, beach control, etc
- Selective vegetation control regime
- Appropriate vegetation control technique
- Appropriate timing (vegetation control)
- Appropriate techniques (invasive species)
- Retain marginal aquatic and riparian habitats (channel alteration)
- Sediment management strategies
- Appropriate channel maintenance strategies and techniques - minimise disturbance to channel bed and margins
- Appropriate channel maintenance strategies and techniques - e.g. remove woody debris only upstream of, or within, areas of urban flood risk. Can also include the use of gravel traps and maintaining sediment within the river system
- Appropriate water level management strategies, including timing and volume of water moved
- Appropriate techniques to align and attenuate flow to limit detrimental effects of these features (drainage)
- Educate landowners on sensitive management practices (urbanisation)

When projects are progressed there should be early discussion with the People and Places team to identify possible mitigation measures specific to each site. Through early consideration in the options appraisal there may be opportunities to include within the project design and business case.

All projects being undertaken in the fluvial, estuarine or coastal environment must undergo WFD compliance assessment under OGN 72.

The **River Restoration Programme** (RRP) identifies options that look to address physical modifications by naturalising watercourses and improving the resilience of habitats and biodiversity, as well as potentially reducing the local risk of flooding and improving water quality. NRW will work with partners and these gains will contribute towards the watercourses achieving their objectives under the WFD Regulations 2017.

The priority catchments for river restoration are shown in Figure 3. The blue polygons show the communities where FRMP local measures propose to undertake initial assessment and feasibility work for reducing flood risk, or design and construction of flood risk asset improvement. In some communities there is correlation with the RRP priority catchments, showing opportunities for FRM projects to deliver multiple benefits by working with the RRP. Conversely, some RRP activities include measures to slow and store water, including riparian habitat management and creation of offline storage areas which can help reduce flooding, improve water quality and increase biodiversity, delivering multiple benefits.

The River Usk is also part of the 4 Rivers for LIFE programme. This is a £9m programme of work to bring four Welsh rivers into good condition. This includes the Usk (in South East & Mid), the Teifi (in Mid) and the Cleddau and Tywi (in South West). The programme is aiming to improve 500km of river. The work includes:

- Improve river habitats and conditions for migratory fish – most notably Atlantic salmon, sea and river lamprey, bullhead and shad. Otters and freshwater pearl mussels are set to benefit too;
- Re-profile sections of canalised rivers so that they meander once again – great news for wildlife. But also for people, as slowing the flow can reduce flood risk downstream;
- Work with farmers to protect river corridors and reduce sediments and nutrients from entering rivers. This will have the added benefit of safeguarding important drinking water supplies.

Where FRM projects, for example in Usk, overlap with planned river restoration work, opportunities to deliver the project in an integrated manner to deliver multiple benefits should be explored.

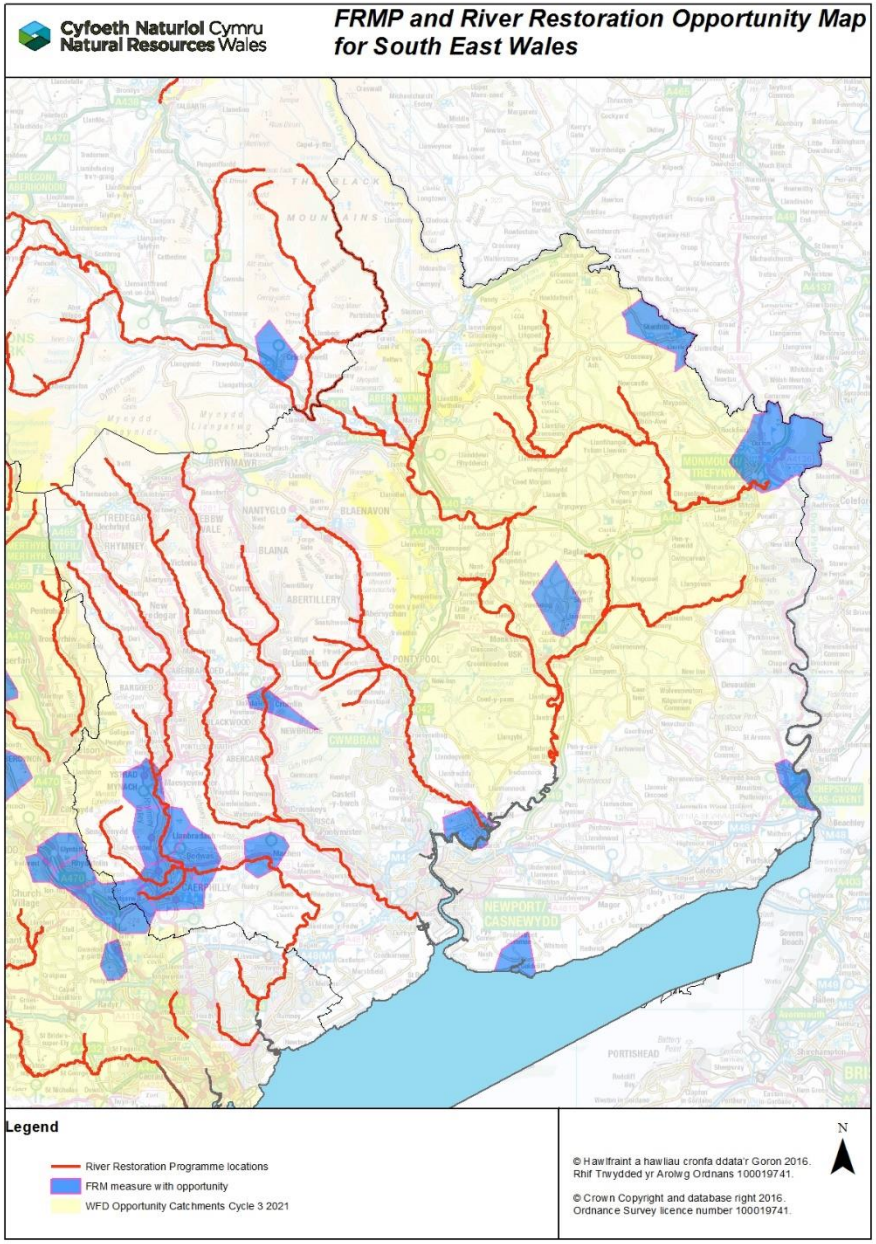


Figure 3: Opportunity catchments and priority catchments for river restoration in South East Wales

There are estuarine communities at risk in South East Place. The Marine Area Statement acknowledges that there are many locations around Wales which we must continue to defend in the future. This gives us many opportunities to consider using nature-based solutions for our coastal defences. In the options appraisal and design of local measures there must be consideration of **coastal adaptation** in line with SMP policy and where we are investing in a coastal defence, nature-based solutions must be considered and implemented where appropriate. The Area Statement supports the implementation of SMP policies.

Where coastal defences must be maintained because of existing infrastructure and communities, nature based solutions must be considered. For instance, beach replenishment or saltmarsh development are natural coastal defences. Saltmarshes also offer the multiple benefit of being efficient carbon stores. Green-grey infrastructure solutions such as the use of ecological enhancement features can help to support improvements in biodiversity of coastal structures. **OGN 185 "Guidance to support the use of ecological enhancement features on coastal defence structures and assets"** should be considered for all coastal and estuarine projects.

Aim 3: Wales has healthy places for people, protected from environmental risks

Environmental regulation protects people from risks, such as air, water and noise pollution, flooding etc. Regulating and cultural ecosystem services are managed to increase wellbeing resulting in the provision of a healthy environment for all.

Fundamentally, the FRMP local measures aim to manage flood risk in the communities considered at greatest risk. Many factors have an influence on our health and well-being, such as genetics, the environment, the society in which we live and work, income, behaviour patterns, and access to services. These significant and sustainable factors relate to what are known as the "Wider determinants of health", and should be considered as part of the commitment to the well-being of future generation and tackling inequalities. **The FRMP will contribute to Aim 3 by seeking to reduce the risk of flooding in these communities and consequently increasing well-being**.

Key to our understanding of populations and human health is the levels of deprivation experienced by local communities which can be explored through the Welsh Index of Multiple Deprivation: WIMD - Home Page (gov.wales)

Public Service Boards are responsible for producing **Well-being Assessments** and **Well-being Plans** that allow local organisations, including NRW, to work together to improve the well-being of people who live in their area. The plans prioritise what the PSB will focus on. In 2022 PSB's undertook / are undertaking an assessment of local well-being. The new draft Local Wellbeing Plans are due for public consultation in summer 2022, with an aim of publishing in 2023. PSBs relevant for South East Wales are:

Newport Well-being Plan

Monmouthshire Well-being Plan

Torfaen Wellbeing Plan

Caerphilly Well-being Plan

There are opportunities for local FRMP measures to contribute to local well-being plan objectives. For example: Objective 4 of Newport Well-being Plan is that Newport has healthy, safe and resilient environments. Measures to deliver and improve access to green spaces and green infrastructure is promoted by the well-being plan. FRM assets can provide opportunities for access and recreation. Projects can seek to deliver access improvements and working with partners to link to existing footpaths and trails.

Within South-East there are several groups established that projects could collaborate with in the delivery of green space and infrastructure: Caerphilly Green Spaces PSB Group, Blaenau Gwent & Caerphilly River Partnership, South East / South Central SFCA Group, Save Ystrad Mynach Green Space.

Each project level environmental assessment will consider the relevant Well-being Plan and identify opportunities to contribute.

The **Active Travel Act Guidance** has been produced by Welsh Government and is aimed at encouraging and facilitating walking and cycling. By encouraging such activities there can be direct benefits to health and well-being aswell as providing alternatives to car travel. Achieving modal shift by displacing private car journeys with walking and cycling and public transport is at the heart of Llwybr Newydd, the Wales Transport Strategy. FRM projects should also seek to deliver opportunities such as designing in multi-user paths onto flood embankments.

Each Local Authority has an Active Travel Plan and the relevant ones for South East Wales can be found here:

Newport

Monmouthshire

Torfaen

Caerphilly

At the early stages of a project we must check if there are plans for an active travel route in the area that could be accommodated or enabled by any flood risk engineering works.

There are numerous **designated landscapes** across South East Wales including part of the Brecon Beacons National Park, Wye Valley **Area of Outstanding Natural Beauty** (AONB) and the Valleys Regional Park. The Valleys Regional Park champions the iconic landscape and people of the South Wales Valleys, working with partners to maximise the environment and social benefits for local communities and future generations.

The South East also contains numerous **Special Landscape Areas** (SLA). This is a non-statutory designation applied by the local planning authority to define areas of high landscape importance within their administrative boundary. Areas of high landscape importance may be designated for their intrinsic physical, environmental, visual, cultural and historical value in the contemporary landscape. Landscapes designated as a SLA may be unique, exceptional or distinctive to the local authority area.

Any projects located within these areas must be designed sensitively with their surroundings and in discussion with the relevant authorities to ensure the landscape is safeguarded and enhanced where possible.

There are also **Registered Historic Landscapes** and one **World Heritage Sites** in South East Wales: Blaenavon Industrial Landscape. There are multiple **Scheduled Ancient Monuments, Historic Parks and Gardens and listed buildings** in the communities at flood risk. There is also potential for **buried archaeology** which needs consideration in the delivery of projects. At initial assessment stage of projects it is standard practice to seek screening advice from Glamorgan Gwent Archaeological Trust (GGAT), under the Memorandum of Understanding between NRW, Cadw and the Welsh Archaeological Trusts. GGAT will scrutinise the Historic Environment Register and provide advice on the sensitivity of the study area for cultural heritage. This is done very early to ensure the project can be appraised and designed to avoid impact on the historic environment and seek opportunities to enhance cultural heritage.

Aim 4: Contributing to a regenerative economy, achieving sustainable levels of production and consumption

Reducing the environmental impact of production and consumption and our environmental footprint in Wales and beyond, meeting the Wellbeing Goals of delivering a prosperous and globally responsible country. Our aim is for Wales to use no more than its fair share of global resources in order for our economy to operate within the regenerative capacity of the Earth's ecosystems and make a positive contribution to global wellbeing.

Welsh Government has an aspiration to create 43,000 hectares of new woodland by 2030 (and 180,000ha by 2050) to help Wales meet its carbon emission reduction targets. Woodlands provide many benefits to society, including slowing the flow of water and consequently moderating flood events. On the other hand, forest management practices such as cultivation, drainage, road construction and harvesting can have the opposite effect if not appropriately managed. The UK Forestry Standard (UKFS) recognises the potential of forestry to affect downstream flooding and includes a set of requirements and guidelines to ensure that forests, forestry management and woodland creation make a positive contribution. A new UKFS Practice Guide on designing and managing woodlands and forests to reduce flood risk is due for publication in 2022/23. FRM capital projects, by their nature, often result in the removal of trees to make space for access and/or construction. The project environmental assessment will seek to minimise such loss and to mitigate, where necessary, by planting trees. There might also be opportunities to further enhance the environment and contribute to Welsh Government's ambition for **woodland creation** through capital project delivery, particularly if they are in locations that might reduce run-off. FRM projects, by their nature are often in urban environments and securing land for tree planting is often high risk and high cost. Delivering tree planting and woodland creation more strategically through NRW's **Woodland Creation Programme**, as well as **Welsh Government's National Forest programme** and the Sustainable Farming Scheme in due course, could provide benefits for both FRM and Wales as a whole. For further opportunities at a project level, contact NRW's woodland creation hub: **WoodlandCreation.Hub@cyfoethnaturiolcymru.gov.uk**

Forest Resource Plans (FRPs) are 30year plans that set out the framework for management of the WGWE. They detail what work will be carried out and when. These programmes of work are developed to meet the forest objectives, which are created based on policy guidance and Area Statements. They are refined through coupe plans and detailed site plans for operational delivery. Following the 2020 floods NRW's Land Estate Management Review found that forests influence water in a mostly positive way, evidence suggests that they do not have a significant modifying effect during major flood events, regardless of management practice. However, in some smaller catchments where forestry is the dominant land use, woodland can have a positive effect during less extreme conditions. Work we can carry out on our land to hold and delay the release of water could contribute positively to flood management downstream, especially when combined with other catchment wide actions and when considering the future

implications of climate change. The FRMP identifies those communities at greatest flood risk across Wales and linking with the relevant Forest Resource Plan at a strategic or local scale could encourage integrated planning and delivery of wider benefits, in line with the recommendations of the review.

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