

# Natural Resources Wales Flood Risk Management Plan:

**South West Wales Place** 

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# **1. Introduction**

Natural Resources Wales (NRW) is the largest Welsh Government Sponsored Body, and we have as our core purpose the sustainable management of natural resources in Wales.

We have a range of roles and responsibilities, ranging from regulator to advisor, landowner and operator and emergency responder. We have a strategic oversight role for flood and coastal erosion risk management which involves the general supervision and communication of flood and coastal erosion risk management in Wales. We also have powers to manage flooding from main rivers, reservoirs and the sea.

In Wales, there are estimated to be 245,118 properties at risk of flooding from the sea, rivers and surface water. This is approximately 1 in 8 properties in Wales. We take a risk-based approach to managing the risk of flooding through the activities we do.

This Flood Risk Management Plan (FRMP) covers all of Wales and provides information on the scale of flood risk, as well as NRW's priorities for managing the risk of flooding, and measures that we propose to take, over the coming years. This FRMP covers flooding from rivers, reservoirs and the sea. It does not include flooding from surface water and smaller watercourses, for which Lead Local Flood Authorities (LLFAs) have powers and take the lead.

The FRMP is split into two sections. In the first section, you will find information, priorities and measures set at the National (Wales) level. This second section is split according to <u>NRW Operational areas</u>, also known as NRW Places, where you will find more detailed information and measures at the local scale. It is intended that you may read the FRMP in its entirety so you are able to get the full understanding of what is planned across Wales, or you may wish to access the Place section relevant to where you live.

By being set out in this way, these plans intend to align with, and support the delivery of, the <u>Area Statements</u>, which were developed in response to the <u>Natural Resources Policy</u>. The South West Wales Area Statement identifies mitigating and adapting to a changing climate as a key theme and the <u>Marine Area Statement</u> which covers all the Welsh coast, identifies Nature-based solutions and adaptation at the coast as a key theme. The information and proposed actions. The information and proposed actions within this FRMP are directly relevant to these challenges and set out our flood risk management ambitions to help address it.

This South West Wales Place section provides information about the level of risk at a local scale and describes what we have planned for the communities that we are most concerned about. In line with <u>Welsh Government's National Flood and Coastal Erosion Risk</u> <u>Management Strategy</u> Objectives, we prioritise our work and direct our efforts on a prioritised flood risk basis to communities at greatest risk of flooding. We do this using our Communities at Risk Register (CaRR) that considers a number of factors to identify the locations (communities) at greatest risk of flooding across the South West Wales area. The CaRR is used to inform, plan and prioritise our investment programme to target investment in the most at risk communities. It is not an absolute ranking of risk, it is an indicator of relative significance of risk from location to location. We use this in combination with other factors to allocate our programmes of flood risk management work.

The CaRR was used to inform the identification of Flood Risk Areas in the 2018 <u>Preliminary</u> <u>Flood Risk Assessment reports</u>. The aim of the FRMP is to describe what actions we are taking in these Flood Risk Areas, along with other communities that we feel require action, either in response to recent flooding or by targeting those at highest risk, using the CaRR. This FRMP is therefore fulfilling our requirements under section 25 of the Flood Risk Regulations (2009) but will also take into account recent fluvial and coastal flooding events and subsequent work arising from them.

The measures included within this plan are correct at the time of writing. We will undertake an annual review of progress against the delivery of measures and will amend any measures as is necessary to ensure that we continue to take a risk based approach to the management of flood risk.

# 2. South West Wales Place

The NRW South West Wales Place covers the Local Authorities of Neath Port Talbot, Swansea, Carmarthen and Pembrokeshire. It is surrounded by the South Central Wales Place to the East and the Mid Wales Place to the North.

Figure 1: The spatial area covered by the South West Wales Place, along with its positioning in relation to the rest of Wales.



South West Wales Place is predominantly rural in nature and dominated by agriculture with some areas of forestry. It has a varied and diverse landscape that includes the rugged uplands of the Preseli Hills, Cambrian Mountains and Brecon Beacons National Park and a coastline that is important for nature, tourism and industry.

It is also home to important industries. Milford Haven is a natural deep water harbour that allows trafficking of large vessels and associated infrastructure vital for the UK's energy sector and Port Talbot is home to the Tata Steel integrated iron and steel works.

Despite being home to heavy industries both past and present, the South West Wales Place is also home to many sites that are of national or international importance such as the Gower Peninsula Area of Outstanding Natural Beauty (AONB) and the Pembrokeshire Coast Special Area of Conservation.

Major settlements and commercial centres are mostly located in the coastal areas and include Swansea, Neath, Port Talbot, Llanelli and Carmarthen.

Tourism is important to the local economy, with the Gower Peninsula and Pembrokeshire coast attracting many visitors each year.

The South West Wales Place has a coastline that runs from Margam in the East to Cardigan in the North West. The rugged coastline and long sandy beaches of the Gower Peninsula and Pembrokeshire coast attract many visitors each year making tourism very important for the local economy. The South West Wales Place coastline is covered by the 'South Wales' and 'West of Wales' Shoreline Management Plans.

The larger rivers that can be found in South West Wales Place are the Tawe, Towy and Loughor.

The River Tawe is approximately 48km long from its source in the Black Mountains to where it meets the sea in Swansea. The upper and middle reaches of the catchment are predominantly agricultural with some areas of forestry before flowing through Swansea, the second largest city in Wales. Other key communities adjacent to the Tawe are Ystradgynlais, Ystalyfera and Pontardawe.

The River Towy is the longest river completely contained within Wales and is approximately 120km long from its source in the Cambrian Mountains to where its estuary begins in Carmarthen. The whole catchment is dominated by agriculture with extensive areas of forestry near the source. Approximately 80km of the river is designated as a Special Area of Conservation. Key communities adjacent to the Towy are Llandeilo, Llandovery and Carmarthen.

The river Loughor rises in the foothills of the Black Mountains and flows past the towns of Ammanford and Pontarddulais, where the river becomes tidally influenced. The Loughor estuary provides a wide and varied habitat, including sandflats and mudflats, salt marshes, and sand dunes.

Other notable rivers in South West Wales Place are the Afan, the Taf, the Eastern Cleddau and the Western Cleddau.

# **3. Historic flooding in South West Wales**

This section provides a summary of the significant flood events that have happened over the last 20 years in the South West Wales Place. In most cases, we class a flood event to be significant if 20 or more properties (residential or commercial) have been flooded. Other extreme weather events that have caused localised flooding have also occurred, which may not be captured within the events focussed on here.

A summary of each of the significant flood events experienced across South West Wales Place is provided below:

- In March 2008, sea flooding affected approximately 11 properties in Laugharne, and 30-40 caravans flooded in a Caravan Park in Carmarthen Bay.
- In January 2013, the village of Llanddowror was flooded from the river Hydfron, a tributary of the Taf and 27 properties were flooded. A similar extent of flooding was observed in this village in November 2009.
- In January 2014, the combination of high tides, strong winds and large waves, delivered conditions that caused the worst sea flooding along the coastline for over 15 years. Properties were affected all along the coast but particularly in Llangennech, Llansteffan, Carmarthen Quay, Laugharne, Haverfordwest, Lower Town Fishguard, Newgale, Amroth, Dale, Angle, Little Haven, Penclawdd and Crofty. In Carmarthen Bay approximately 70 caravans were affected.
- 11 to 13 October 2018, Storm Callum bought strong winds and heavy rain across much of South Wales. There were flooding impacts experienced across South West Wales Place, but the worst affected location was Carmarthen where 82 commercial and residential properties were flooded.
- 15 to 16 February 2020, Storm Dennis was the most significant flood incident to affect Wales since the December 1979 floods. Many locations were affected across the South West Wales Place and led to 88 properties flooding in Neath Port Talbot, 63 properties flooding in Carmarthen and 45 properties flooding in Swansea.
- Storm Christoph, 19 to 20 Jan 2021, caused significant wet weather resulting in 150 properties flooding across Wales including communities and isolated villages across South West Wales.

## 4. Present Day flood risk in South West Wales

Across the South West Wales Place, there are 19,944 properties at risk of flooding from rivers and 7,679 properties at risk of flooding from the sea. This equates to over 56,000 people at risk of flooding from rivers and nearly 20,000 people at risk of flooding from the sea.

#### **Flood risk descriptions**

River flooding happens when a river cannot cope with the amount of water draining into it from the surrounding land. Sea or tidal flooding happens when there are high tides and stormy conditions. We describe the amount of risk to each property as the 'chance' of flooding. There are three risk categories:

- If something is described as being at '**high**' risk of flooding, this means that each year, there is a chance of flooding of greater than 1 in 30 (3.3%).
- If something is described as being at '**medium**' risk of flooding, this means that each year, there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%) for rivers or between 1 in 200 (0.5%) and 1 in 30 (3.3%) for flooding from the sea.
- If something is described as being at '**low**' risk of flooding, this means that each year, there is a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%) for rivers or between 1 in 1000 (0.1%) and 1 in 200 (0.5%) for flooding from the sea.

The following section provides the numbers that are at risk of flooding across the South West Wales Place. If you would prefer to view where is at risk of flooding in map form, we have a number of flood mapping products available on our website. These show visually where is at risk of flooding across Wales for each source. For the most up to date maps, please visit our website: <u>check your flood risk by postcode</u> and <u>check your flood risk on a map</u>.

The numbers used throughout the following section have been split up into risk from rivers and from the sea. In reality, some properties can be susceptible to both flooding from rivers and the sea, but this can complicate explanations and data presentation, so river and sea flood risk are covered separately. Of course, some properties can be at risk of surface water flooding too, this is not included in this NRW FRMP, as Local Authorities lead on this type of flooding. To find out more about flooding from surface water and smaller streams, please contact the relevant Local Authority.

The properties at risk figures provided throughout this FRMP reflect our understanding of flood risk without flood defences. This is to portray a true scale of flood risk in Wales and to reflect that any flood defence can be overwhelmed in conditions that exceed what it was designed to accommodate.

#### What is at risk in South West Wales Place today?

The following tables show the split of properties by level of risk and source across the South West Wales Place if there were no defences present.

Table 1: The numbers of residential properties, non-residential properties and services at risk of flooding from the sea in South West Wales Place.

Flood risk description	Residential properties at risk of flooding	Non-Residential properties at risk of flooding	Key Services* at risk of flooding	Total at risk of flooding
Sea High	3,791	267	54	4,112
Sea Medium	2,086	227	50	2,363
Sea Low	985	157	62	1,204
Sea Total	6,862	651	166	7,679

Table 2: The numbers of residential properties, non-residential properties and services at risk from river flooding in South West Wales Place.

Flood risk description	Residential properties at risk of flooding	Non-Residential properties at risk of flooding	Key Services* at risk of flooding	Total at risk of flooding
<b>Rivers High</b>	4,706	679	106	5,491
<b>Rivers Medium</b>	2,828	752	71	3,651
Rivers Low	9,182	1,442	178	10,802
Rivers Total	16,716	2,873	355	19,944

\* Key Services include property types related to education, health services, transport, utilities and emergency services.

The network of sea flood defences across the South West Wales Place help to reduce the risk to over 3,000 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 1,500 properties in the 1 in 200 year scenario (2% annual exceedance probability). Further to this, the network of river flood defences help to reduce the risk to nearly 3,000 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability). Further to this, the network of river flood defences help to reduce the risk to nearly 3,000 properties (residential and non-residential) in the 1 in 30 year scenario (3.3% annual exceedance probability) and over 4,500 properties in the 1 in 100 year scenario (1% annual exceedance probability). These properties are not removed from risk entirely by flood defences because flood defences do not completely stop the chance of flooding as they can be overtopped or fail, but the risk is significantly reduced.

#### **Transport infrastructure**

Throughout the South West Wales Place, there is 22km of rail track and 240km of road at risk of flooding from the sea. In addition, there is 53km of rail track and 600km of road (major and minor) at risk of flooding from rivers. This accounts for over 30% of all rail track across Wales that is at risk of flooding from rivers.

### **Agricultural land**

There is just under 400km<sup>2</sup> of agricultural land that is at risk of flooding from the sea across Wales. In South West Wales Place, there is 85km<sup>2</sup> at risk of flooding from the sea which is 21% of the overall Wales total.

In addition, Wales has over 800km<sup>2</sup> of agricultural land that is at risk of river flooding. 18% of the overall total of agricultural land that is at risk of flooding from rivers is in the South West Place.

#### **Environment**

There are a number of protected sites at risk of flooding across the South West Wales Place. Table 3 below provides information on the scale of sites at risk in Wales, as well as the relevant the proportion of risk present in South West Wales.

Table 3: The numbers of National important designated sites that are at risk of flooding from rivers and the sea in South West Wales Place.

Designation	Sea flooding – total area at risk in Wales (km <sup>2</sup> )	Sea flooding – total area at risk in SW (km <sup>2</sup> )	Sea flooding - % of Wales total at risk in SW	River flooding – total area at risk in Wales (km <sup>2</sup> )	River flooding – total area at risk in SW (km <sup>2</sup> )	River flooding - % of Wales total at risk in SW
RAMSAR	204	57	28	23	2	9
Special Areas of Conservation (SACs)	385	152	40	113	32	28
Special Protection Areas (SPAs)	240	59	25	21	2	8
Sites of Special Scientific Interest (SSSI)	513	165	32	180	34	19
Scheduled Ancient Monuments (SAMs)	1	0.2	12	1	0.2	12

#### **Communities at most risk in South West Wales**

Through the Preliminary Flood Risk Assessment stage associated with this FRMP communities were identified as "Flood Risk Areas". The assessment undertaken to identify Flood Risk Areas across Wales was done using the undefended status of communities to create a platform for comparison. For South West Wales, communities have been identified as Flood Risk Areas in regard to flooding from rivers or the sea. It is important that work is undertaken to sustain the existing protection that community's benefit from, as well as continuing to try to identify options to reduce flood risk further in at risk areas.

For South West Wales Place the communities identified as Flood Risk Areas are:

- Briton Ferry flood risk from the sea
- Llanelli flood risk from the sea
- Port Talbot flood risk from rivers

Further to this NRW has considered additional areas at risk of flooding from rivers and the sea. Figure 2 and accompanying Table 4 show the communities across South West Wales that are at risk of flooding from rivers or the sea as identified by the CaRR and where we are planning to take action to manage the risk of flooding. Other communities within Mid Wales are also at risk from flooding but those listed below are the communities where actions are planned in the coming years to help manage and reduce the risk of flooding.

Table 4: The name of each of the communities highlighted in figure 2. The Flood Risk Area communities for flooding from rivers and the sea are highlighted in bold.

Community name	Community name
Aberdulais	Neath Port Talbot
Ammanford	Carmarthenshire
Black Pill	Swansea
Briton Ferry	Neath Port Talbot
Carmarthen	Carmarthenshire
Dafen	Carmarthenshire
Glyn - neath	Neath Port Talbot
Llanelli	Carmarthenshire
Neath	Neath Port Talbot
Pontardawe	Neath Port Talbot
Port Talbot	Neath Port Talbot
Resolven	Neath Port Talbot
Swansea	Swansea
Tenby	Pembrokeshire



Figure 2: The communities across the South West Wales Place that are most at risk of flooding from rivers or the sea as identified by the CaRR.

# **5. Future flood risk in South West Wales**

Across South West Wales, there are predicted to be over 24,000 properties at risk of flooding from rivers and over 15,000 properties at risk of flooding from the sea by 2120. This is an increase of over 4,500 properties at risk of flooding from rivers and an increase of over 7,000 properties at risk of flooding from the sea.

This equates to an estimate of 70,000 people at risk of flooding from rivers and 44,000 people at risk of flooding from the sea by 2120. This is an additional 13,000 people at risk from flooding from rivers and an additional 24,000 people at risk from flooding from the sea from 2020.

Climate projections indicate that we will see an increase in the frequency and intensity of extreme weather events, including storm events in the Summer and prolonged wet periods during the Winter period. This will increase peak flows in our rivers, which is expected to increase the risk of flash flooding events. Such flooding is very difficult to forecast and predict and can be very challenging to manage.

Climate change projections also indicate that sea level rise will occur for all carbon emission scenarios and at all locations around the UK. Coastal areas will be progressively more vulnerable to flooding, wave action and accelerated coastal erosion associated with climate change. These impacts will affect not only coastal communities who live and work in coastal areas, but some of Wales' most important natural habitats and heritage sites which are located along our coastline.

We have followed the Welsh Government <u>Adapting to Climate Change Guidance</u> to base our climate change modelling outputs that have enabled us to include our projections in this FRMP. We have used the central climate change estimate to produce the data outputs used in the following section.

# What will be at risk of flooding in South West Wales Place by 2120?

The following tables show the level of risk and source across the South West Wales Place if there were no defences present for 2020 and 2120.

#### Flooding from the sea

Table 5: The numbers at risk of flooding from the sea for 2020, 2120 and the projected difference in South West Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	19,944	44,058	+24,114	+121%
People	Residential properties	Count	6,862	13,500	+6,638	+97%
Economy	Non- residential properties	Count	817	2,149	+1,332	+163%
Economy	Key services	Count	166	392	+226	+136%

People,	Aspect	Units	2020	2120	Difference	Difference
economy or			risk	risk	(Units)	(%)
environment						
Economy	Railway	Km	22	74	+52	+236%
Economy	Road	Km	238	488	+250	+105%
Economy	Agriculture	Km <sup>2</sup>	85	108	+23	+27%
Environment	RAMSAR	Km <sup>2</sup>	2	2.5	+0.5	+25%
Environment	Special					
	Areas of	Km <sup>2</sup>	32	34	+2	+6%
	Conservation	NIII-				+0 /0
	(SACs)					
Environment	Special					
	Protection	Km <sup>2</sup>	2	2	0	-
	Areas (SPAs)					
Environment	Sites of					
	Special					
	Scientific	Km <sup>2</sup>	34	36	+2	+6%
	Interest					
	(SSSI)					
Environment	Scheduled					
	Ancient	Km <sup>2</sup>	0.2	0.2	0	
	Monuments	IXIII				-
	(SAMs)					

### **Flooding from rivers**

Table 6: The numbers at risk of flooding from rivers for 2020, 2120 and the projected difference in South West Wales Place.

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
People	People	Count	56,254	69,632	+13,378	+24%
People	Residential properties	Count	16,716	20,654	+3,938	+24%
Economy	Non- residential properties	Count	3,228	3,870	+642	+20%
Economy	Key services	Count	355	453	+98	+28%
Economy	Railway	Km	53	69	+16	+30%
Economy	Road	Km	605	728	+123	+20%
Economy	Agriculture	Km <sup>2</sup>	152	166	+14	+9%
Environment	RAMSAR	Km <sup>2</sup>	2	2.5	+0.5	+25%
Environment	Special Areas of Conservation (SACs)	Km <sup>2</sup>	32	34	+2	+6%
Environment	Special Protection Areas (SPAs)	Km <sup>2</sup>	2	2	0	-

People, economy or environment	Aspect	Units	2020 risk	2120 risk	Difference (Units)	Difference (%)
Environment	Sites of Special Scientific Interest (SSSI)	Km²	34	36	+2	+6%
Environment	Scheduled Ancient Monuments (SAMs)	Km <sup>2</sup>	0.2	0.2	0	-

#### Communities at most risk of future flooding in South West Wales

The lists below and the following map shows the communities across the South West Wales Place that are projected to experience the biggest change in danger (as defined within our Community at Risk Register) presented from the risk of flooding from rivers and the sea in 2120. Other communities within South West Wales Place are also predicted to see a change in danger by 2120 but those listed below are predicted to see the greatest change.

By 2120, the five communities in South West Wales Place that are projected to experience the biggest change in danger from the risk of flooding from the sea are:

- Briton Ferry
- Llanelli
- Neath
- Port Talbot
- Swansea

By 2120, the five communities in South West Wales Place that are projected to experience the biggest change in danger from the risk of flooding from rivers are:

- Llanelli
- Margam
- Morfa Glas
- Neath
- Port Talbot

Figure 3: The communities across South West Wales Place where there is predicted to be the biggest change in danger by 2120. The map shows the top five communities for risk from rivers and the top five for risk from the sea.



# What we are doing for communities at future risk of flooding

Within our activities and measures set out within this FRMP, we will take account of the need to consider flood risk over the long term, the need to consider the impact climate change will have on Wales and the need to take action now to consider how to both mitigate and adapt within the context of the Climate Emergency. We will do this by seeking to better understand the impacts of climate change through our data and evidence, and use this to inform the advice we provide to others and the work that we undertake.

When we consider, design and construct new flood alleviation schemes we build in allowances to future proof our structures in respect to projections for future climate change. However, we recognise that it will not be possible to prevent flooding in every location both now and in the future through traditional FRM activities, so we are also initiating long term adaptation planning in a number of locations, these are included as Local Measures within the Place based sections of this FRMP.

Welsh Government Planning Policy TAN15 requires new development to take account of climate change over the development lifetime. This helps ensure some resilience to our changing climate is factored into development proposals and can also help with recovery should a flood event occur.

To support both strategic planning decisions and individual planning applications, we have developed a new Flood Map for Planning (FMfP). The FMfP shows how climate change will affect flood risk extents over the next 100 years. It shows the potential extent of flooding assuming no defences are in place. A central estimate of climate change (ranging from 20-30% increase in flows) was used for peak river flows and 1.1m of sea level rise was applied along the Welsh coastline. Although not yet formal planning policy, we use the FMfP as the best available information to inform our planning advice in our role as a statutory consultee.

In terms of working to influence policy, we work closely across the Welsh Government to support development of policy and strategies. Climate change is at the forefront of these discussions including exploring how we can improve understanding and communication of flood risk. We have also recently commissioned work, looking at revised climate change allowances for peak river flows and rainfall events. We will be using the outputs of this project to recommend updates to the Welsh Government's guidance on climate change allowances.

## 6. Recent flood risk management activity

We published our first cycle Flood Risk Management Plans in early 2016. These plans contained a number of community scale measures for the following years that would help to manage and reduce the risk of flooding. We have undertaken a review of the measures for communities within the South West Wales Place. The below chart shows a summary of our delivery of these measures.

Figure 4: The progress made against the NRW measures set out in the first cycle FRMPs in South West Wales.



Key delivery highlights include:

- We have completed a flood risk management scheme in Pontarddulais that reduces the risk of flooding to 224 homes and 22 businesses.
- We have undertaken preparation work for the delivery of flood risk management schemes in Ammanford and Cardigan in the coming years.
- Improving our understanding of flood risk through updates to our flood risk models and analysis of hydrology for communities including Carmarthen, Glanaman, Haverfordwest, Llanybydder, Neath, Pontardawe and Pontarddulais.
- We have delivered maintenance schemes such as at Machynys, Bawddwr and Clarach Bay, which have maintained our defences and provided a sustained level of protection to those properties that benefit.

It should be recognised that many of the actions identified in the first cycle FRMPs take considerable time and effort to deliver and whilst the relative number of completed measures is low, a significant numbers of the identified measures are in delivery. Also, our work plans and the capacity to deliver them are highly influenced by actual flood events occurring; the floods of February 2020 in Wales for example have had a significant impact on our ability to take forward planned work.

# 7. Flood risk management work we are planning in South West Wales

#### Introduction

There are a number of communities within the South West Wales place where we consider there is still more to be done to manage and reduce the risk of flooding. These communities and associated measures are detailed within this section. The National Section of this FRMP sets out how we prioritise our work on a risk basis so that those communities that are most at risk of flooding are addressed first.

We undertake flood risk management at a range of different scales dependant on what will achieve the desired result. This Flood Risk Management Plan provides information at two scales. At a Wales-wide, National scale through our National Measures (the activities we undertake across Wales, some of which makes our actions at the local scale possible), and at the local community scale. The National Measures can be found in the National section. The local community scale measures can be found in this section.

#### Measure terminology

#### **Measure type**

There are four types of measures and local measures are categorised according to measure type.

**Prevention** of the damage caused by flooding, this includes attempts to make catchments more resilient, and efforts to prevent areas becoming more susceptible, to flood risk.

**Protection** against flooding in specific locations by provision of schemes and approaches to reduce the risk and likelihood against flooding.

**Preparedness** of communities and emergency responders to act in the event that flooding should occur, which can reduce the impacts of flooding and make communities more resilient.

**Review** to make improvements in our understanding of flood risk to better inform and consider potential future action.

All of the above types of measures seek to reduce the likelihood of flooding or the impacts it has on people and properties, it should be highlighted however that flood risk can only be managed to a certain extent. We cannot remove flood risk entirely and there will always be potential for flood events to exceed the limits of the risk management techniques being used. For example flood defences will be built within technical, economic and environmental constraints, therefore in extreme events flood water can exceed the capacity that they were designed to contain.

In each location where we intend to undertake either initial or detailed assessment of potential options, in line with <u>Welsh Government's FCERM Appraisal Guidance</u>, we will consider all potential options for managing flood risk. That will include local and catchment based options, and will consider the long term impacts that climate change will have on the

communities at risk, therefore, to consider the most sustainable approach in each location, adaptive options will also be included within our assessments.

#### **Measure implementation status**

Not started: work has not yet begun.

Ongoing: work has begun.

#### **Measure timescale**

The timescales proposed are a factor of relative priority and the likely complexity of what might be required; they are also subject to funding and capacity.

**Short Term**: Planned to be delivered in the short term (years 1 - 2)

Medium Term: Planned to be delivered in the medium term (years 3 - 4)

**Long Term**: Planned to be delivered in the long term (years 5 +)

#### **Priorities**

**Priority 1:** Respond to the climate and nature emergencies by seeking innovative practices, promoting adaptation and preparing for future change.

**Priority 2:** Develop and deliver catchment approaches to reduce flooding and contribute to ecosystem resilience, working with partners and stakeholders where possible and appropriate.

**Priority 3:** Improve community resilience to current and future flood risk. Work with partners to support communities to become more aware and take action to mitigate their own flood risk.

**Priority 4:** Seek and take opportunities for enhancement to the health and wellbeing of communities, biodiversity and the environment, and the wider benefits they provide, to support NRW's response to the Nature Emergency.

**Priority 5:** Increase resilience of flood risk management assets, to reduce the impacts of current and future flood risk.

**Priority 6:** Improve effectiveness of our key products and services, including our digital services, to provide improved services to the public.

**Priority 7:** Continuously improve our understanding and communication of current and future flood risk (including climate change) so that decisions are based upon the best available evidence and information.

**Priority 8:** Provide an effective and sustained response to flood events, working in collaboration with Risk Management Authorities and Professional Partners where required.

**Priority 9:** Continually improve our flood warning service to enable people to take effective action in response to flooding.

**Priority 10:** Provide effective planning advice on flood risks and consequences to reduce inappropriate development in areas at risk of flooding.

**Priority 11:** Prioritise our work on a risk basis in alignment with Welsh Government's National FCERM Strategy and develop our evidence base to secure future investment in flood risk management.

**Priority 12:** Promote, support and implement nature-based solutions where appropriate to reduce the risk and impacts of flooding and to deliver wider ecosystem benefits.

**Priority 13:** Undertake our strategic oversight role to understand all sources of flood risk on a national basis to inform investment and optimise how we plan work including with other partners.

**Priority 14:** Ensure we have an FCERM workforce with the appropriate capabilities and skills required to meet our priorities and respond to future challenges.

## 8. NRW Delivery Plan for South West Wales Place

The following delivery plan sets out on a community basis, the measures that we are in the process of undertaking or plan to undertake to help manage the risk of flooding to that community. This provides a list of measures we intend to undertake within the South West Wales Place over the coming years, subject to assessment and funding justification.

Table 7: The delivery plan of planned flood risk measures for South West W
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Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
SW1	Aberdulais	River	Build hydraulic model	Review	7	Short Term	Ongoing
SW2	Aberdulais	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SW3	Aberdulais	River	Improve existing flood forecasting model	Preparedness	9	Short Term	Not Started
SW4	Ammanford	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
SW5	Ammanford	River	Improve existing flood warning service	Preparedness	9	Short Term	Not Started
SW6	Briton Ferry	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SW7	Carmarthen	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Ongoing
SW8	Dafen	River	Design and construction of flood alleviation scheme	Protection	1	Short Term	Not Started
SW9	Dafen	River	Investigate feasibility for new flood warning service	Preparedness	9	Medium Term	Not Started
SW10	Glyn-Neath	River	Update existing hydraulic model	Review	7	Medium Term	Not Started
SW11	Glyn-Neath	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not Started

Ref.	Location	Source	Measure name	Measure type	Link to FRMP Priority	Timescale	Status
SW12	Laugharne Lower Marsh	Sea	Consider future management options and undertake coastal adaptation planning	Review	1	Medium Term	Ongoing
SW13	Llanelli	Sea	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SW14	Llanelli	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SW15	Mwche	Sea	Consider future management options and undertake coastal adaptation planning	Review	1	Medium Term	Ongoing
SW16	Neath	River	Consider and integrate nature-based solutions including natural flood management in NRW flood risk schemes and activities	Prevention	1, 2, 4, 12	Medium Term	Ongoing
SW17	Pontardawe	River/Sea	Update existing hydraulic model	Review	7	Medium Term	Not Started
SW18	Pontardawe	River/Sea	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not Started
SW19	Port Talbot	River	Maintain existing defences and inspection regime	Protection	5	Long Term	Ongoing
SW20	Resolven	River	Update existing hydraulic model	Review	7	Medium Term	Not Started
SW21	Resolven	River	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Medium Term	Not Started
SW22	Swansea	River/Sea	Update existing hydraulic model	Review	7	Short Term	Ongoing
SW23	Swansea	River/Sea	Undertake initial assessment and feasibility work for reducing flood risk	Protection	1	Short Term	Not Started
SW24	Tenby	River/Sea	Design and construction of flood risk asset improvements	Protection	1	Medium Term	Not Started
SW25	South West Wales Place	River/Sea	Work with RMAs where we have a joint interest, to plan and undertake activities that reduce the risk of flooding to communities	Prevention/Protection/ Preparedness/Review	1, 2, 13	Short Term	Ongoing

## 9. Monitoring and review

It has been a requirement of the Flood Risk Regulations for published Flood Risk Management Plans to be reviewed, and if necessary updated, every 6 years. The Retained EU Law (Revocation and Reform) Act 2023 will revoke this legislation by the end of 2023. We intend to continue planning our work in this way and will review the measures within the Flood Risk Management Plan on an annual basis. This is likely to occur during summertime so there is up to date information to inform our business planning processes. The progress of delivery of each measure will be assessed and if necessary updated at this point and we will produce updates on our progress as required.

### **10. Further information**

This South West Wales Place section is one of six sections that provide detailed local information as part of NRW's Flood Risk Management Plan for Wales. There is also a National overview section that provides information, priorities and measures set at the National (Wales) level.

If you would like to find out further information about how we manage flood risk across Wales, you can access any of the following:

Flood Risk Management Plan for Wales: National overview

Flood Risk Management Plan for Wales: South Central Wales Place

Flood Risk Management Plan for Wales: South East Wales Place

Flood Risk Management Plan for Wales: Mid Wales Place

Flood Risk Management Plan for Wales: North East Wales Place

Flood Risk Management Plan for Wales: North West Wales Place